Sherwood Middle School

30 Sherwood Avenue, Shrewsbury, Massachusetts

MSBA

90% CD Submission

10 DECEMBER 2010

OWNER
Town of Shrewsbury
Shrewsbury, Massachusetts

OPM
PMA Consultants LLC
Braintree, Massachusetts

CONSTRUCTION MANAGER
Gilbane Building Company
Boston, Massachusetts

Prepared by:

LAMOUREUX · PAGANO
ASSOCIATES, ARCHITECTS

TABLE OF CONTENTS

- OPM Transmittal and Attachments

A. Project Update

1. Narrative
2. Gilbane Schedule

B. Cost Estimates and Value Engineering Log

1. AM Fogarty
2. Gilbane
3. Gilbane Comparison of Estimates
4. Gilbane Value Engineering Log

C. Independent Structural Peer Review

D. Commissioning Agent Comments

E. Shrewsbury Public Officials Review

F. Construction Manager Review Options

PMA Consultants
Est. 1971
25 Braintree Hill Office Park, Suite 303 ▪ Braintree, MA 02184
Tel: 781.794.1404 ▪ Fax: 781.794.1405

To: Massachusetts School Building Authority (MSBA)
Jennifer Connarton, MSBA Field Coordinator
From: PMA Consultants LLC, Owner's Project Manager
Project: Town of Shrewsbury, Sherwood Middle School
Subject: OPM Review and Transmittal of Architect's 90% CD Submittal
Date: December 10, 2010

Architect's 90% CD Submittal, Shrewsbury, Sherwood Middle School Project

In accordance with MSBA Project Advisory 1 - May 2010; PMA Consultants (PMA), Owner's Project Manager (OPM) for the Town of Shrewsbury Sherwood Middle School Project, hereby transmits the architect's 90% Construction Documents (CD) Submittal for the Sherwood Middle School Project. These 90% CD materials were prepared by the project architect, Lamoureux Pagano Associates (LPA). PMA has reviewed the enclosed materials and hereby certifies that it has found the materials to be complete and in conformity with MSBA requirements.

Contents of 90% CD Submittal

In addition to the two hard copies of half-sized drawings and specifications and one electronic file in PDF format; the architect, Lamoureux Pagano Associates (LPA) has included the following items with its Design Development submittal:

- Updated Project Narrative
- Project Schedule (by Gilbane)
- Designer's Cost Estimate (by A. M. Fogarty)
- Independent Cost Estimate (by Gilbane)
- Value Engineering Log
- Independent Structural Peer Review
- Commissioning Agent Comments
- Shrewsbury Public Officials Review
- Review by CM (Gilbane)

OPM Review and Comments on 90% CD Submittal

Designer's Construction Cost Estimate

This 90% CD Submittal includes the Designer's construction cost estimate, the "estimate of record." The Designer's construction cost estimate was finalized on 12/6/10 (prepared by A. M. Fogarty for LPA). The value of the A. M. Fogarty's construction cost estimate compares favorably with the current project budget (MSBA Form-3011 established at Schematic Design and documented in the Project Funding Agreement). The current total construction cost estimate (with mark-ups and escalation) of $33.74 million is $3.28 million (8.9%) below the current construction cost budget of $37.03 million (refer to the attached cost estimate comparison spreadsheet for further details).

[Note: $33,844,816 is the full value of the Designer's construction cost estimate that is included with the 90% CD submittal; however, the OPM has entered an amount of $33,743,816 on the cost comparison spreadsheet. This reduction of $101,000 has been made by the OPM to correct a double counting of the cost of a temporary parking lot. The $33,844,816 estimate includes a $100,000 amount for temporary paving that is listed separately from the base estimate; however, the cost of the temporary paving is already included within the general requirements amount of $1,123,225 that is listed later in the estimate summary. The $101,000 adjustment, rather than $100,000, accounts for the 1% escalation that is being carried in the estimate.]

Independent Construction Cost Estimate

For the 90% CD submittal, the independent construction cost estimate was finalized on 12/06/10 by the Construction Manager (CM), Gilbane Building Company. The independent construction cost estimate of $34.87 million is also below the current project budget of $37.03 million; however, it is $1.13 million higher than A. M. Fogarty's construction cost estimate. The majority of this difference is due to a difference in estimating methodologies: Gilbane's estimate carries a 4% CM contingency while the A. M. Fogarty's estimate does not carry this item. When Gilbane's estimate is adjusted to account for this difference in estimating methodologies, the difference in two estimates reduces to $175,146 (0.8%).

$34,872,872	Independent Estimate Total
($90,000)	Less Precon Fee (this is a true cost but is a soft cost on Form-3011)
$34,782,872	Subtotal
($1,214,198)	Less CM Contingency (4%)
$33,568,674	Adjusted Independent Estimate (For Comparison to Designer's Estimate)
($33,743,816)	Less Designer's Estimate
($175,146)	0.8% Difference (without CM Contingency & Precon. Fee)

Construction Cost Estimates Summary & Comparison to $37,025,358 PFA Budget

	DD Estimate	Delta v. PFA	60% CD Est.	Delta v. PFA	90% CD Est.	Delta v. PFA
Architect's Estimate:	$33,489,952	($3,535,406)	$34,004,761	($3,020,597)	$33,743,816	($3,281,542)
Independent Estimate:	$35,451,663	($1,573,695)	$35,108,874	($1,916,484)	$34,782,872	($2,242,486)
Delta, Dollars:	$ 1,961,711		$ 1,064,113		$ 1,039,056	
Delta, Percent:	5.5%		3.1%		3.0%	

Status of Commissioning Agent Review

The commissioning agent for this project, RDK Engineers, has reviewed the 90% CD documents and developed the following reports which it has transmitted via E-Mail to LPA on 11/24/10 (these reports are included within the 90% CD submittal):

- Electrical Design Review (based on 90% CDs)
- Mechanical Design Review (based on 90% CDs

As part of an ongoing collaboration during the CD phases of the design, LPA and its subconsultants provided responses to RDK's mechanical and electrical DD and 60% CD design review comments and these responses were incorporated into the 60% CD and 90% CD documents. On Monday 11/3/10, RDK, LPA, LPA's subconsultants, and PMA conducted a working-level meeting and reviewed the progress to-date, discussed RDK's comments, and reviewed the next steps in the commissioning process.

Value Engineering Review

Throughout the entire planning and design phases of the project, and through E-Mails and discussions at working-level and Building Committee meetings, continuous efforts have been made to save money and add value to the project – Value Engineering (VE) is built into the design of the project. Additionally, the CM, architect, and OPM have conducted value engineering brainstorming sessions on 9/13/10 and 10/7/10 and have met with Committee and Town representatives on 12/3/10. A log of value engineering initiatives was maintained by Gilbane and is provided with this 90% CD submittal.

OPM and CM Review of 90% CD Drawings and Specifications

OPM Review: PMA has reviewed the 90% CD drawings and has made particular efforts to consider constructability, clarity, coordination, and site access. PMA has confirmed that the 90% CD drawings have incorporated the OPM's 60% CD drawing review comments.

Review of Div. 0 by PMA and LPA: PMA and LPA have reviewed the Div. 0, Project Manual that was prepared by Gilbane for incorporation into the bid documents. PMA and LPA have paid particular attention to reviewing Div. 0 for consistency with Div. 1, the Owner-CM contract, and the CM General Conditions. Through E-Mails, telephone conversations, and discussions at working-level meetings, Gilbane was advised of LPA's and PMA's comments and Gilbane has committed to getting the necessary revisions incorporated into the bid documents.

CM Review of 90% Documents: The CM, Gilbane Building Company, has done a comprehensive review of the 90% CD plans and specifications. Gilbane refers to this review as their Interdisciplinary Document Coordination (IDC). This 3-week effort by several Gilbane personnel began on 11/15/10 and resulted in Gilbane issuing two reports with a total of 239 comments that will be considered, and where applicable, incorporated into the bid documents. It is expected that this review, and the adjustments to the documents that flow from the review, will enhance the clarity of the design intent and reduce the number of pre-bid questions and questions that will be addressed during construction through the ASI and RFI processes. Gilbane's IDC reports are included in this 90% CD submittal.

Attachments

For reference, PMA has attached the following items to this memorandum:

- Cost Estimate Comparison Spreadsheet (comparing 90% CD, 60% CD, and DD estimates to current construction cost budget).

If you have any questions about the materials provided in this transmittal, please contact Paul Queeney, PMA Consultants, at 781-794-1404, extension 3119.

COST ESTIMATE COMPARISON

Shrewsbury Sherwood Middle School (New Construction)

Assumed Start of Construction:			March-11			March-11			March-11			March-11		
Division #		Description	Project Scope & Budget (07Dec09)			Design Development (02Aug10)			60% CD (10Oct10)			90% CD (06Dec10)		
			GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost
A		Substructure	130,000	$1,565,463	$12.04	130,000	$1,635,774	$12.58	129,939	$1,717,641	$13.22	129,939	1,731,382	$13.32
B		Shell	130,000	$7,057,858	$54.29	130,000	$6,640,126	$51.08	129,939	$6,873,833	$52.90	129,939	6,856,202	$52.76
	B10	Superstructure	130,000	$2,801,264	$21.55	130,000	$2,221,710	$17.09	129,939	$2,161,771	$16.64	129,939	2,127,923	$16.38
	B20	Exterior Enclosure	130,000	$3,486,265	$26.82	130,000	$3,538,478	$27.22	129,939	$3,797,377	$29.22	129,939	3,833,411	$29.50
		B2010 Exterior Walls	130,000		$0.00	130,000	$2,809,883	$21.61	129,939	$3,016,291	$23.21	129,939	3,052,325	$23.49
		B2020 Exterior Windows	130,000		$0.00	130,000	$674,415	$5.19	129,939	$723,479	$5.57	129,939	723,479	$5.57
		B2030 Exterior Doors	130,000		$0.00	130,000	$54,180	$0.42	129,939	$57,607	$0.44	129,939	57,607	$0.44
	B30	Roofing	130,000	$770,329	$5.93	130,000	$879,938	$6.77	129,939	$914,685	$7.04	129,939	894,868	$6.89
C		Interiors	130,000	$4,916,102	$37.82	130,000	$5,193,396	$39.95	129,939	$5,363,001	$41.27	129,939	5,486,007	$42.22
D		Services	130,000	$8,049,434	$61.92	130,000	$7,471,388	$57.47	129,939	$7,889,544	$60.72	129,939	8,544,071	$65.75
	D10	Conveying	130,000	$127,500	$0.98	130,000	$117,500	$0.90	129,939	$117,500	$0.90	129,939	117,500	$0.90
	D20	Plumbing	130,000	$1,244,228	$9.57	130,000	$1,095,805	$8.43	129,939	$1,062,761	$8.18	129,939	1,157,271	$8.91
	D30	HVAC	130,000	$3,414,597	$26.27	130,000	$2,880,720	$22.16	129,939	$3,296,998	$25.37	129,939	3,622,329	$27.88
	D40	Fire Protection	130,000	$558,007	$4.29	130,000	$493,166	$3.79	129,939	$528,450	$4.07	129,939	549,542	$4.23
	D50	Electrical	130,000	$2,705,102	$20.81	130,000	$2,884,197	$22.19	129,939	$2,883,835	$22.19	129,939	3,097,429	$23.84
E		Furnishings & Fixed Equipment	130,000	$1,495,668	$11.51	130,000	$1,506,471	$11.59	129,939	$1,675,066	$12.89	129,939	1,675,066	$12.89
		Building Subtotal	**130,000**	**$23,084,525**	**$178**	**130,000**	**$22,447,155**	**$172.67**	**129,939**	**$23,519,085**	**$181.00**	**129,939**	**24,292,728**	**$187**
F		Special Construction & Demo	130,000	$1,106,000	$8.51	130,000	$969,000	$7.45	129,939	$969,000	$7.46	129,939	$969,000	$7.46
G		Other Site Construction	130,000	$3,196,971	$24.59	130,000	$3,611,201	$27.78	129,939	$4,185,300	$32.21	129,939	3,811,055	$29.33
	G10	Site Preparation	130,000	$912,549	$7.02	130,000	$624,947	$4.81	129,939	$764,767	$5.89	129,939	$606,428	$4.67
	G20	Site Improvements	130,000	$1,696,029	$13.05	130,000	$1,809,280	$13.92	129,939	$1,856,313	$14.29	129,939	1,942,688	$14.95
	G30	Mechanical Utilities	130,000	$551,793	$4.24	130,000	$1,091,699	$8.40	129,939	$1,460,018	$11.24	129,939	$1,155,922	$8.90
	G40	Electrical Utilities	130,000	$36,600	$0.28	130,000	$85,275	$0.66	129,939	$104,202	$0.80	129,939	106,017	$0.82
		Subtotal	**130,000**	**$27,387,496**	**$211**	**130,000**	**$27,027,356**	**$207.90**	**129,939**	**$28,673,385**	**$220.67**	**129,939**	**29,072,783**	**$224**
Z		Mark-Ups	130,000	$7,542,087	27.5%	130,000	$5,805,930	21.5%	129,939	$5,162,198	18.0%	129,939	4,336,940	14.9%
Z		Insurance	130,000	$314,682	1.1%	130,000	$366,140	1.4%	129,939	$366,140	1.3%	129,939	366,140	1.3%
Z		Subcontractor Bonds	130,000	$410,812	1.5%	130,000	$200,000	0.7%	129,939	$222,000	0.8%	129,939	$222,000	0.8%
Z		GC Bonds	130,000		0.0%	130,000	$297,073	5.1%	129,939	$297,073	5.8%	129,939	297,073	6.8%
Z		Design & Pricing Contingency	130,000	$3,146,669	11.5%	130,000	$1,563,490	5.8%	129,939	$825,258	2.9%	129,939	0	0.0%
Z		General Conditions	130,000	$2,191,000	8.0%	130,000	$2,972,227	11.0%	129,939	$3,044,727	10.6%	129,939	$3,044,727	10.5%
Z		Overhead & Profit	130,000	$1,478,924	5.4%	130,000	$407,000	1.5%	129,939	$407,000	1.4%	129,939	$407,000	1.4%
		Construction Subtotal	**130,000**	**$34,929,583**	**$269**	**130,000**	**$32,833,286**	**$252.56**	**129,939**	**$33,835,583**	**$260.40**	**129,939**	**33,409,723**	**$257**
Z		Escalation to Construction Mid-Point	130,000	$2,095,775	7.7%	130,000	$656,666	2.4%	129,939	$169,178	0.6%	129,939	334,097	1.1%
		Total Addition Cost	**130,000**	**$37,025,358**		**130,000**	**$33,489,952**		**129,939**	**$34,004,761**		**129,939**	**33,743,820**	
		$/GSF		**$285**			**$258**			**$262**			**260**	

SHERWOOD 90% CD SUBMISSION

A. Project Update

1. Narrative
2. Gilbane Schedule

SHERWOOD 90% CD SUBMISSION

A. Project Update

1. Narrative

Per MSBA requirements, 90% contract document drawings and specifications were completed and distributed for cost estimating and independent reviews on November 12, 2010. The following report documents the results of this process including:

- Cost Estimates by AM Fogarty and Gilbane Co.
- Value Engineering Log prepared by Gilbane Co. and reviewed by building Committee representatives, PMA (OPM), and LPA
- Independent Structural Review prepared by LeMessurier Associates
- Commissioning Agent Review comments prepared by RDK Engineering
- Shrewsbury Public Officials Review comments
- Interdisciplinary Document Coordination Review and comments prepared by Gilbane
- OPM project review comments prepared by PMA

The following is an update on the status of the project:

- The Work Plan remains unchanged and on schedule. See attached schedule developed by Gilbane Co. for the bidding and contract negotiation phase.
- The Permitting Track remains unchanged and on schedule.

Following the extensive review process outlined above, the following design changes were made in the project:

RESILIENT FLOORING

- In lieu of vinyl composition tile with low VOC adhesive originally scheduled for most classrooms and corridors, heat welded linoleum with convention VOC adhesive will be scheduled. Cost analysis showed that the savings from deleted special concrete slab preparation to receive the low VOC adhesive would offset most of the additional cost for the flooring change with a net additional cost of approximately $100,000. Since the linoleum will be buffed and not waxed, it is anticipated that the operational maintenance savings will offset the initial costs within a few years. In addition, health and environmental concerns with stripping and waxing the vct flooring would be eliminated. The Building Committee representatives, OPM, and construction manager all agreed that the flooring specification change would be a long term value added component of the project.

ROOFING

- The originally specified 60mil. EPDM white membrane roofing was changed to a 90mil. Roof of the same composition. Although roofing protection will be provided during construction and roof pads will be positioned in the final roof, the amount of maintenance required for roof top units, roof drains, and potential future photovoltaics systems supported the value of a thicker membrane less susceptible to rips and wear. The estimated additional cost for the thicker membrane is $55,000.

GRANITE CURB ALTERNATE

- In lieu of the scheduled cape cod berm bituminous curb scheduled at the majority of the drives and parking areas at the project, an add alternate will be included to substitute vertical granite curb in a full concrete saddle. The long term benefits of the granite curb (estimated at $103,000 additional cost) would lower maintenance costs and provide a longer lasting and stronger definition of driving surfaces.

STORMWATER DRAINAGE

- At the request of the Conservation Commission, previously designed sub surface roof drainage systems have been redesigned as surface drainage systems. As a result, one existing lightly utilized practice field will be converted to a surface drainage system.

The above referenced changes are all incorporated into the reconciled 90%CD estimates included in this package. The associated drawing and specification changes will be incorporated into the 100% contract documents.

Other comments that surfaced during the structural, commissioning agent, Gilbane IDC, OPM, and local official reviews will be incorporated into the 100% CD documents.

A. Project Update

2. Gilbane Schedule

Gilbane Building Company
Sherwood Middle School Project #5074
Purchasing Time Schedule

Bid Package	Description *updated: 11/17/10*	Filed Sub Pkg?	Bid Priority	Bid Pack Complete	Date Issued	Pre Bid Mtg.	Quest. Dead.	Bid Due	Scope Mtg.	RTA Issued	#	Owner Apprv.	Cont. Award
02A	Site		1	12/22/2010	12/24/2010	12/31/2010	1/7/2011	1/14/2011	1/18/2011	1/21/2011		1/28/2011	1/29/2011
02B	Demolition/Abatement		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
03A	Concrete		1	12/22/2010	12/24/2010	12/31/2010	1/7/2011	1/14/2011	1/18/2011	1/21/2011		1/28/2011	1/29/2011
04A	Masonry	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
05A	Structural Steel		1	12/22/2010	12/24/2010	12/31/2010	1/7/2011	1/14/2011	1/18/2011	1/21/2011		1/28/2011	1/29/2011
05B	Misc Metals	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
06A	General Trades		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
06B	Millwork		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
07A	Waterproofing	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
07B	Metal Panel		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
07C	Roofing	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
08A	OVHD		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
08B	Windows	YES	A*	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	2/3/2011		2/10/2011	2/11/2011
08C	Doors and Hardware		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
08D	Interior Glazing	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
09A	Tile	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
09B	Acoustical Ceilings	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
09C	Wood Floor		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
09D	Resilient Flooring	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
09E	Athletic Flooring		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
09F	Sheet Carpeting		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
09G	Painting	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
10A	Specialties		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
11A	Food Service Equipment		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
11B	Gym Equipment		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
12A	Bleachers		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
14A	Elevator	YES	A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
21A	Fire Protection		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
22A	Plumbing	YES	A*	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	2/3/2011		2/10/2011	2/11/2011
23A	HVAC	YES	A*	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	2/3/2011		2/10/2011	2/11/2011
26A	Electrical	YES	A*	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	2/3/2011		2/10/2011	2/11/2011
Summary													
	Filed Trades		A	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	N/A		N/A	3/8/2011
			A*	12/29/2010	12/31/2010	1/7/2011	1/14/2011	1/27/2011	1/31/2011	2/3/2011		2/10/2011	2/11/2011
	Early Subs		1	12/22/2010	12/24/2010	12/31/2010	1/7/2011	1/14/2011	1/18/2011	1/21/2011		1/28/2011	1/29/2011
	Balance Subs		2	1/12/2010	1/14/2010	1/21/2010	1/28/2010	2/4/2010	2/8/2010	N/A		N/A	3/8/2011
					2	7	7	14	4	7		7	1

Notes:
100% CD on 12/15

Assemble GMP	2/8/2011
GBC Review	2/15/2011
Submit GMP to Owner	2/22/2011
Final GMP	3/8/2011

B. Cost Estimates and Value Engineering Log

1. AM Fogarty
2. Gilbane
3. Gilbane Comparison of Estimates
4. Gilbane Value Engineering Log

B. Cost Estimates and Value Engineering Log

1. AM Fogarty

A.M. Fogarty
& Assoc., Inc.
175 Derby St., Suite 5, Hingham, MA 02043
TEL: (781) 749-7272 • FAX: (781) 740-2652
ptim@amfogarty.com
"Construction Cost Consultants"

Sherwood Middle School
Shrewsbury, MA

6-Dec-10

90% Construction Documents
GRAND SUMMARY

BASE ESTIMATE		**$29,072,779**
TEMPORARY PARKING LOT		**$100,000**

TOTAL DIRECT COST		$29,172,779
PRECONSTRUCTION SERVICE		N/A
GENERAL CONDITIONS	GILBANE	$2,806,715
GENERAL REQUIREMENTS	GILBANE	$1,123,225
FEE	GILBANE	$407,000
P&P BOND	0.0%	$0
PERMIT	0.0%	$0
DESIGN CONTINGENCY	0.0%	$0
ESCALATION (Feb 2011)	1.0%	$335,097

TOTAL CONSTRUCTION COST		$33,844,816
COST PER S.F.		$261.60

PROJECT:	Sherwood Middle School	NO. OF SQ. FT.:	129,939
LOCATION:	Shrewsbury, MA	COST PER SQ. FT.:	$223.74
CLIENT:	Lamoureux Pagano Associates Architects		
DATE:	06-Dec-10		
No.: 09082		**CSI FORMAT**	

SUMMARY

	DIVISION TOTAL	PERCENT OF PROJECT	COST PER SF
DIVISION 02 - EXISTING CONDITIONS			
024110 DEMOLITION	394,000	1%	3.03
022820 ASBESTOS REMEDIATION	575,000	2%	4.43
DIVISION 03 - CONCRETE			
033000 CAST IN PLACE CONCRETE	1,567,024	5%	12.06
DIVISION 04 - MASONRY			
042200 CONCRETE UNIT MASONRY*	214,897	1%	1.65
DIVISION 05 - METALS			
055001 METAL FABRICATIONS*	291,085	1%	2.24
051200 STRUCTURAL STEEL	1,544,602	5%	11.89
053100 STEEL DECKING	322,673	1%	2.48
054000 COLD FORMED METAL FRAMING	444,253	2%	3.42
057300 GLAZED DECORATIVE RAILINGS	0	0%	0.00
DIVISION 06 - WOOD, PLASTICS & COMPOSITES			
061000 ROUGH CARPENTRY	187,903	1%	1.45
062000 FINISH CARPENTRY	373,907		
064020 INTERIOR ARCHITECTURAL WOODWORK	0	0%	0.00
DIVISION 07 - THERMAL & MOISTURE PROTECTION			
070001 DAMPPROOF., WATERPROOF. & CAULKING*	382,866	1%	2.95
070002 ROOFING & FLASHING*	832,608	3%	6.41
072100 THERMAL INSULATION	160,398	1%	1.23
074000 METAL WALL PANELS	2,333,545	8%	17.96
077200 ROOF ACCESSORIES	0	0%	0.00
078100 APPLIED FIREPROOFING	0	0%	0.00
078400 FIRESTOPPING	45,479	0%	0.35
079500 EXPANSION CONTROL	10,000	0%	0.08
DIVISION 08 - OPENINGS			
0800001 ALUMINUM WINDOWS*	213,720	1%	1.64
080002 GLASS & GLAZING*	19,726	0%	0.15

	DIVISION TOTAL	PERCENT OF PROJECT	COST PER SF
081110 HOLLOW METAL DOORS & FRAMES	134,092	0%	1.03
081400 WOOD DOORS	49,680	0%	0.38
082500 DOOR OPENING ASSEMBLIS	3,250	0%	0.03
083323 OVERHEAD COILING DOORS	30,550	0%	0.24
083513 FOLDING DOORS	0	0%	0.00
084413 ALUMINUM ENTRANCES & STOREFRONTS	298,094	1%	2.29
084413 GLAZED ALUMINUM CURTAIN WALLS	225,152	1%	1.73
086200 UNIT SKYLIGHTS	0	0%	0.00
087100 DOOR HARDWARE	166,650	1%	1.28
089000 LOUVERS	7,500	0%	0.06
DIVISION 09 - FINISHES			
090002 TILE*	529,645	2%	4.08
090003 ACOUSTICAL CEILINGS*	413,840	1%	3.18
090005 RESILIENT FLOORS*	778,351	3%	5.99
090006 TERRAZZO*	0	0%	0.00
090007 PAINTING*	318,188	1%	2.45
092900 GYPSUM BOARD ASSEMBLIES	1,436,007	5%	11.05
096400 WOOD FLOORING	9,158	0%	0.07
096600 ATHLETIC FLOORING	132,808	0%	1.02
096566 RESILIENT ATHLETIC FLOORING	0	0%	0.00
096816 SHEET CARPETING	54,275	0%	0.42
098313 ACOUSTIC WALL PANELS	36,492	0%	0.28
DIVISION 10 - SPECIALTIES			
101100 VISUAL DISPLAY SURFACES	131,050	0%	1.01
101400 SIGNAGE	31,491	0%	0.24
102113 TOILET COMPARTMENTS	53,150	0%	0.41
102124 CUBICLE CURTAINS AND TRACK	5,700	0%	0.04
102226 OPERABLE PARTITIONS	62,370	0%	0.48
102600 WALL AND DOOR PROTECTION	5,000	0%	0.04
102800 TOILET ACCESSORIES	27,778	0%	0.21
104413 FIRE PROTECTION SPECIALTIES	2,700	0%	0.02
105100 METAL LOCKERS	158,735	1%	1.22
107113 SUN CONTROL DEVICES	48,285	0%	0.37
109000 MISCELLANEOUS SPECIALTIES	300	0%	0.00
DIVISION 11 - EQUIPMENT			
113100 RESIDENTIAL APPLIANCES	7,500	0%	0.06
110610 THEATRICAL RIGGING	20,000	0%	0.15
115213 PROJECTION SCREENS	12,750	0%	0.10
114000 FOOD SERVICE EQUIPMENT	467,000	2%	3.59
115300 LABORATORY EQUIPMENT	0	0%	0.00

	DIVISION TOTAL	PERCENT OF PROJECT	COST PER SF
116143 CURTAINS	0	0%	0.00
116620 ATHLETIC EQUIPMENT	140,447	0%	1.08
117900 MISCELLANEOUS EQUIPMENT	3,500	0%	0.03
DIVISION 12 - FURNISHINGS			
122000 WINDOW TREATMENTS	72,000	0%	0.55
123200 MANUFACTURED WOOD CASEWORK	775,294	3%	5.97
124810 ENTRANCE FLOOR MATS & FRAMES	6,908	0%	0.05
124816 ENTRANCE FLOOR GRILLES	0	0%	0.00
126100 FIXED AUDIENCE SEATING	0	0%	0.00
126613 BLEACHERS	62,500	0%	0.48
129300 SITE FURNISHINGS	0	0%	0.00
DIVISION 13 - SPECIAL CONSTRUCTION			
130000 SPECIAL CONSTRUCTION	0	0%	0.00
DIVISION 14 - CONVEYING EQUIPMENT			
140001 ELEVATORS*	112,500	0%	0.87
DIVISION 21 - FIRE SUPPRESSION			
210000 FIRE SUPPRESSION	549,542	2%	4.23
DIVISION 22 - PLUMBING			
220000 PLUMBING*	1,157,271	4%	8.91
DIVISION 23 - HVAC			
230000 HVAC*	3,622,329	12%	27.88
DIVISION 26 - ELECTRICAL			
260000 ELECTRICAL*	3,164,796	11%	24.36
DIVISION 31 - EARTHWORK			
312000 EARTH MOVING	852,145	3%	6.56
311000 SITE PREPARATION & CLEARING	280,439	1%	2.16
312500 EROSION CONTROL	0	0%	0.00
DIVISION 32 - EXTERIOR IMPROVEMENTS			
320000 PAVEMENT, CURBING & EDGING	749,584	3%	5.77
323100 SITE IMPROVEMENTS	223,975	1%	1.72
328000 IRRIGATION	175,000	1%	1.35
329000 LANDSCAPING	397,403	1%	3.06
DIVISION 33 - UTILITIES			
330000 UTILITIES	1,155,922	4%	8.90

DIRECT COST	29,072,779	100%	223.74

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
DIVISION 02 - EXISTING CONDITIONS				
024110 DEMOLITION				
Remove Existing:				
Brick elementary school	88,000	GSF	4.00	352,000
Portable classroom	12,000	GSF	3.50	42,000

				394,000
022820 ASBESTOS REMEDIATION				
Hazardous Waste Removal - allow	1	LS	575,000.00	575,000

				575,000
DIVISION 03 - CONCRETE				
033000 CAST IN PLACE CONCRETE				
Int. Wall Footing 1' :				
4000 psi, NW, (incl. placement)	12	CY	132.00	1,584
Formwork	296	SFCA	6.00	1,776
Rebar (2.25 lbs/cf)	729	LBS	0.98	714
**unit cost $339.54*				
Ext. Wall Footing 3' x 1' :				
4000 psi, NW, (incl. placement)	159	CY	132.00	20,988
Formwork	2,864	SFCA	6.00	17,184
Rebar (2.25 lbs/cf)	9,660	LBS	0.98	9,467
**unit cost $299.62*				
Stepped Wall Footing 3' x 1' :				
4000 psi, NW, (incl. placement)	4	CY	132.00	528
Formwork	80	SFCA	12.00	960
Rebar (2.5 lbs/cf)	270	LBS	0.98	265
**unit cost $438.15*				
Retaining Wall Footing (1'-6" thick)				
4000 psi, NW, (incl. placement)	258	CY	132.00	34,056
Formwork	2,000	SFCA	16.00	32,000
Rebar (3 lbs/cf)	20,898	LBS	0.98	20,480
**unit cost $335.41*				
Column Footing (90 EA):				
4000 psi, NW, (incl. placement)	183	CY	132.00	24,156
Formwork	3,192	SFCA	8.00	25,536
Rebar (3 lbs/cf)	14,823	LBS	0.98	14,527
**unit cost $350.92*				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Ext. Column Pier (4'high):				
4000 psi, NW, (incl. placement)	5.5	CY	140.00	770
Formwork	288	SFCA	8.00	2,304
Rebar (3 lbs/cf)	446	LBS	0.98	437
**unit cost $638.38*				
Int. Column Pier (10'-14' high):				
4000 psi, NW, (incl. placement)	18	CY	136.00	2,448
Formwork	960	SFCA	8.00	7,680
Rebar (3 lbs/cf)	1,458	LBS	0.98	1,429
**unit cost $642.05*				
Tie beam 2' thick x 1' high:				
4000 psi, NW, (incl. placement)	18.5	CY	136.00	2,516
Formwork	531	SFCA	16.00	8,496
Reinforcing steel (3.5 lbs/cf)	1,748	LBS	0.98	1,713
**unit cost $687.84*				
Tie beam 1' 8"thick x 7' high:				
4000 psi, NW, (incl. placement)	13	CY	136.00	1,768
Formwork	406	SFCA	16.00	6,496
Reinforcing steel (3.5 lbs/cf)	1,229	LBS	0.98	1,204
**unit cost $728.34*				
Building Retaining Wall 1'-8" thick x 15-18' high:				
4000 psi, NW, (incl. placement)	475	CY	136.00	64,600
Formwork	14,417	SFCA	16.00	230,672
Waterstop	478	LF	9.00	4,302
Reinforcing steel (3.75 lbs/cf)	48,094	LBS	0.98	47,132
**unit cost $729.91*				
Foundation Wall 1-4" x 4'- 8' deep:				
4000 psi, NW, (incl. placement)	283	CY	136.00	38,488
Formwork	11,469	SFCA	9.00	103,221
Brick Shelf	1,372	LF	12.00	16,464
Reinforcing steel (3.5 lbs/cf)	26,743	LBS	0.98	26,208
**unit cost $651.52*				
Foundation Wall 1-8" x 4'- 8' deep:				
4000 psi, NW, (incl. placement)	56	CY	136.00	7,616
Formwork	1,800	SFCA	9.00	16,200
Brick Shelf	185	LF	12.00	2,220
Reinforcing steel (3.5 lbs/cf)	5,292	LBS	0.98	5,186
Foundation Stepped Frost Wall 1-4" x 10' deep Avg.:				
4000 psi, NW, (incl. placement)	19	CY	136.00	2,584
Formwork	620	SFCA	9.00	5,580
Brick Shelf	31	LF	12.00	372
Reinforcing steel (2.7.5 lbs/cf)	1,411	LBS	0.98	1,383
**unit cost $522.04*				
Foundation Stepped Frost Wall 1-4" x 14' deep Avg.:				
4000 psi, NW, (incl. placement)	42	CY	136.00	5,712

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Formwork	1,353	SFCA	9.00	12,177
Brick Shelf	48	LF	12.00	576
Reinforcing steel (4 lbs/cf)	4,536	LBS	0.98	4,445
**unit cost $545.48*				
Foundation Interior 12" x 2' deep:				
4000 psi, NW, (incl. placement)	10	CY	142.00	1,420
Formwork	526	SFCA	9.00	4,734
Reinforcing steel (3 lbs/cf)	810	LBS	0.98	794
**unit cost $694.78*				
Loading Dock/Ramp Wall Footing 2' x 1' :				
4000 psi, NW, (incl. placement)	5	CY	132.00	660
Formwork	130	SFCA	6.00	780
Rebar (2.25 lbs/cf)	304	LBS	0.98	298
**unit cost $347.58*				
Loading Dock/Ramp Wall 1'x 4' - 8' High:				
4000 psi, NW, (incl. placement)	17	CY	136.00	2,312
Formwork	880	SFCA	9.00	7,920
Reinforcing steel (3.5 lbs/cf)	1,606	LBS	0.98	1,574
**unit cost $694.46*				
Loading Dock Retaining Wall 12" thick x 14' high (118 LF):				
4000 psi, NW, (incl. placement)	62	CY	136.00	8,432
Formwork	3,304	SFCA	12.50	41,300
Waterstop	118	LF	9.00	1,062
Reinforcing steel (5 lbs/cf)	8,370	LBS	0.98	8,203
**unit cost $951.56*				
Found. wall beam seat	40	EA	35.00	1,400
Elevator Mat	4	CY	575.00	2,300
Elevator Pit Wall	5	CY	650.00	3,250
Pilaster	14	CY	850.00	11,900
Equipment pads	1	LS	4,000.00	4,000
5" Slab on grade	56,475	SF	3.30	186,368
18 Mil poly	56,475	SF	0.65	36,709
Thicken slab @ col. ftg	18	CY	135.00	2,430
Loading dock slab	208	SF	6.00	1,248
Loading dock ramp slab	160	SF	6.00	960
Pedestrian Bridge:				
Structural slab	312	SF	25.00	7,800
Cast curb	26	LF	42.00	1,092
5 1/2" NW deck fill	62,733	SF	3.40	213,292
7 1/2" Deck fill - gym	8,800	SF	4.20	36,960
Depress gym slab	376	LF	4.00	1,504
8" Structural slab - elev PH	70	SF	12.00	840

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Stage Platform:				
Deck fill	300	SF	3.30	990
Conc stair pan fill full flt	7	FLTS	900.00	6,300
Conc stair pan fill 4 risers	4	FLTS	400.00	1,600
Floor Finishes:				
Conc. Sealer	4,185	SF	0.95	3,976
Site:				
Concrete pad @ baseball field (4 EA)	2,150	SF	5.25	11,288
Concrete stair tread	316	LFR	55.00	17,380
Concrete stair foundation	26	CY	650.00	16,900
Concrete light pole bases	32	EA	475.00	15,200
Site Walls:				
Wall footing (1x4)	24	CY	320.00	7,680
12"x8' Walkway (93 LF)	28	CY	675.00	18,900
Light pole base	27	EA	600.00	16,200
Transformer pad	1	EA	1,500.00	1,500
Emergency generator pad	1	EA	1,500.00	1,500
Electrical hand hole	1	EA	1,200.00	1,200
Trench/sand bed	730	LF	25.00	18,250
Removal utility poles		By others		
Utility Back charge		By others		

				1,567,024

DIVISION 04 - MASONRY

042200 CONCRETE UNIT MASONRY*

Masonry Veneer:				
4" Precast - water table	3,898	SF	45.00	175,410
Masonry Wall flashing	1,186	LF	9.50	11,267
Elevator Shaft - 8" CMU	1,411	SF	20.00	28,220

*Includes Section 034500

214,897

DIVISION 05 - METALS

055001 METAL FABRICATIONS*

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
OH door frame	3	EA	350.00	1,050
Galv. roof ladder (3 EA)	24	VLF	120.00	2,880
Guardrail @ ped bridge	26	LF	175.00	4,550
OP partition support		w/051200		
Lobby glazed railing	46	LF	275.00	12,650
Corridor ramp wall rail		N/A		
Misc. metals	129,939	GSF	0.50	64,970
Metal Pan Stair W/ Glazed Rails :				
Stair w/4' tread	1	FLTS	16,500.00	16,500
Stair w/6' tread	5	FLTS	18,000.00	90,000
Metal Stair w/Pipe Rails:				
Mech rm stair w/4' tread	1	FLTS	15,000.00	15,000
Stage stair (4 risers w/4' tread)	2	FLTS	950.00	1,900
Corridor stair (4 risers w/4' tread)	2	FLTS	950.00	1,900
Stage stair guardrail	10	LF	188.00	1,880
Corridor stair wall rail	24	LF	95.00	2,280
Elev. framing	1	LS	3,000.00	3,000
Elev. pit ladder	1	EA	1,500.00	1,500
Elev. sump grate	1	EA	500.00	500
Steel bollard	7	EA	600.00	4,200
Stair hand railing	60	LF	180.00	10,800
Retaining wall railing	183	LF	150.00	27,450
Loading dock stair handrail	65	LF	95.00	6,175
Loading dock ramp rail	30	LF	210.00	6,300
Loading dock picket rail	65	LF	240.00	15,600

				291,085

051200 STRUCTURAL STEEL

Floor:				
Wide flange floor frame	241.5	TONS	2,200.00	531,300
TS columns	86.36	TONS	2,450.00	211,582
TS brace frame	13.5	TONS	2,600.00	35,100
Shear studs	6,270	EA	5.10	31,977
Moment connections	100	EA	625.00	62,500
Floor angle beam	0.9	TONS	2,600.00	2,340
TS beam	4.29	TONS	2,550.00	10,940
*Excludes spray-on fireproofing				
Roof:				
LH bar joist	33.58	TONS	1,900.00	63,802
Type K bar joist	15.6	TONS	1,850.00	28,860
Wide flange beam	161	TONS	2,200.00	354,200

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
TS column	49.43	TONS	2,200.00	108,746
TS beam	6.15	TONS	2,550.00	15,683
TS brace frame	6.5	TONS	2,600.00	16,900
Bridging	1,156	LF	8.00	9,248
Angle beam	0.26	TONS	2,600.00	676
Galv. RTU dunnage	6.5	TONS	3,100.00	20,150
Shear studs	240	EA	5.10	1,224
Moment connections	63	EA	625.00	39,375
*Includes section 052100, and 054100				

				1,544,602
053100 STEEL DECKING				
3" x 18 Ga comp floor deck	71,533	SF	2.37	169,533
3"x18 Ga. acoustical roof deck - gym	8,900	SF	5.50	48,950
1 1/2"x20 Ga. roof deck	49,214	SF	2.10	103,349
Stage Platform:				
Comp deck	300	SF	2.80	840

				322,673
054000 COLD FORMED METAL FRAMING				
Back-up:				
8" x 16 Ga. stud @ 16" oc typ	34,331	SF	7.50	257,483
8" x 16 Ga stud @ class parapet 1'6"	1,600	SF	7.25	11,600
6" x 18 Ga. stud @ solar panel	3,103	SF	5.75	17,842
12"x16 Ga stud @ 16" oc	11,247	SF	9.50	106,847
12"x16 Ga stud - gym parapet	1,830	SF	9.50	17,385
6" Ext. ceiling frame	3,142	SF	3.70	11,625
6" Ext. soffit frame @ canopy	919	SF	9.00	8,271
3" Stud at soffit and Collector end and cap	1,600	SF	6.00	9,600
Stage Platform:				
Light gauge stl frame	300	SF	12.00	3,600

				444,253
057300 GLAZED DECORATIVE RAILINGS				
*Included with 055001				

				0

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
DIVISION 06 - WOOD, PLASTICS & COMPOSITES				
061000 ROUGH CARPENTRY				
Ext . Windows:				
10" P.T. - perm blocking	5,500	LF	6.85	37,675
Ext. Doors:				
10" P.T. - perm blocking	70	LF	6.85	480
Roof blocking	2,136	LF	12.50	26,700
3/4 CDX - soffit/roof	6,000	SF	2.10	12,600
Interior Blocking	129,939	GSF	0.35	45,479
Misc. Rough Carpentry	129,939	GSF	0.50	64,970

				187,903
062000 FINISH CARPENTRY				
GFRP ext. covers (10 EA)	105	VLF	145.00	15,225
10' FRP col cover lobby (2 EA)	20	VLF	95.00	1,900
10' FRP col cover café (9 EA)	90	VLF	95.00	8,550
10' FRP col cover library entry (2 EA)	20	VLF	95.00	1,900
Solid surface window sill	1,073	LF	28.00	30,044
Solid surface curtain wall sill	120	LF	28.00	3,360
Solid surface storefront sill	483	LF	28.00	13,524
Solid surface segmented sill	71	LF	50.00	3,550
Platform trim	1	LS	15,000.00	15,000
Custom Fabricated P. Lam Wall Panel:				
Café - allow	1,000	SF	42.00	42,000
Lobby - allow 7'	2,451	SF	42.00	102,942
Gymnasium/stage front	3,236	SF	42.00	135,912
Kitchen FRP panel 7'		N/A		
*Includes section 068200				

				373,907
064020 INTERIOR ARCHITECTURAL WOODWORK				
				0
*Includes section 068200				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				0

DIVISION 07 - THERMAL & MOISTURE PROTECTION

070001 DAMPPROOF., WATERPROOF. & CAULKING*

Dampproof frost wall	7,621	SF	1.75	13,337
Waterproof ground floor wall	15,000	SF	6.75	101,250
Elev. pit waterproofing	1	LS	3,850.00	3,850
Wpg w/pavers @ ped bridge	320	SF	30.00	9,600
Adhered perimeter flashing @ open.	5,500	LF	7.25	39,875
Misc Sealants	1	LS	25,000.00	25,000
Exterior Windows:				
Exterior sealants	5,500	LF	5.75	31,625
Exterior Doors:				
Exterior sealants	70	LF	5.75	403
Joint sealants - int.	129,939	GSF	1.20	155,927
Dampproof concrete retaining wall	1,000	SF	2.00	2,000

*Includes section 079200

				382,866

070002 ROOFING & FLASHING*

1/4" Fiberglass mat	58,322	SF	1.25	72,903
Vapor retarder 3 ply	58,322	SF	1.65	96,231
.90 EPDM roof w/5" rigid insul & prot bd	58,322	SF	8.00	466,576
Tapered insulation - premium	18,000	SF	3.50	63,000
Membrane flashing/walkway pads	1	LS	15,000.00	15,000
Parapet membrane & rigid insul	2,345	SF	5.00	11,725
Parapet sheathing	2,345	SF	2.30	5,394
Elev. PH membrane & rigid insul	124	SF	5.00	620
Single ply @ solar collector	1,400	SF	4.00	5,600
Alum. Clad Trim & Flashing:				
Radius roof edge	88	LF	35.00	3,080
Parapet cap - class	1,137	LF	26.00	29,562
Parapet cap - gym	307	LF	28.00	8,596
Gravel stop	638	LF	18.00	11,484
Base flashing	509	LF	32.00	16,288
Roof drain		w/Plumbing		

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Scupper	19	EA	450.00	8,550
Exp. jt	40	LF	75.00	3,000
Misc. metal flashing	1	LS	15,000.00	15,000
*Includes sections 075423, and 076000				

				832,608
072100 THERMAL INSULATION				
2" Rigid found. insul	14,509	SF	2.45	35,547
2" Rigid Slab Insul.	56,475	SF	2.15	121,421
2" Rigid insul @ solar collector	1,400	SF	2.45	3,430

				160,398
074000 METAL WALL PANELS				
Metal Wall Panels - Exterior Wall:				
3" Metal wall backup panel	50,508	SF	20.00	1,010,160
PP-A profile finish	5,358	SF	16.50	88,407
PP-B profile finish	13,344	SF	16.50	220,176
PP-C profile finish	13,673	SF	16.50	225,605
Flat finished metal panel	11,132	SF	38.50	428,582
Flat panel @ CW sill	277	SF	38.5	10,665
Solar Wall:				
Relieving angle	63	LF	75.00	4,725
Perforated solar collector	3,103	SF	27.00	83,781
Solar Panel collector end panel and cap	839	SF	27.00	22,653
Roof Screen Panel - allow	NOT SHOWN			
Roof screen cap - allow	NOT SHOWN			
Metal Wall Panel - Exterior Clg:				
3" Metal clg back up panel	3,142	SF	38.00	119,396
PP profile finish (loading dock)	286	SF	38.00	10,868
Flat finish entry	2,856	SF	38.00	108,528

				2,333,545
077200 ROOF ACCESSORIES		N/A		
				0

				0

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
078100 APPLIED FIREPROOFING		N/A		
				0

				0
078400 FIRESTOPPING				
Firestopping	129,939	GSF	0.35	45,479

				45,479
079500 EXPANSION CONTROL				
Exp. jt assemblies	1	LS	10,000.00	10,000

				10,000
DIVISION 08 - OPENINGS				
0800001 ALUMINUM WINDOWS*				
4 1/2" Alum. window	4,110	SF	52.00	213,720

				213,720
080002 GLASS & GLAZING*				
Interior Glass and Glazing:				
HM window/sidelite 1/4" temp	912	SF	14.00	12,768
Door glazing 1/4" temp	121	SF	14.00	1,694
Door glazing -wire	16.5	SF	16.00	264
Misc. glazing	1	LS	5,000.00	5,000

				19,726
081110 HOLLOW METAL DOORS & FRAMES				
Access Panels	1	LS	15,000.00	15,000
H.M. Frames:				
Door Frame - SGL	204	EA	235.00	47,940
Door Frame - Dbl	32	EA	245.00	7,840
Sidelight frame - Type B	60	EA	420.00	25,200

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Sidelite frame type C - F	158.5	SF	32.00	5,072
Borrowed light BL 1-4	211	SF	40.00	8,440
Hollow Metal Door:				
M1-sgl	20	EA	245.00	4,900
M1-dbl	10	EA	490.00	4,900
2 Hr. M1-sgl	2	EA	265.00	530
M2 dbl	2	EA	530.00	1,060
1 Hr M2-sgl	3	EA	310.00	930
1Hr M2-dbl	11	EA	620.00	6,820
M3-sgl	1	EA	420.00	420
M3-dbl	6	EA	840.00	5,040
*Includes section 083100				

				134,092

081400 WOOD DOORS

Wood Door (Prefinished):				
W1-sgl	178	EA	270.00	48,060
W1-dbl	3	EA	540.00	1,620

				49,680

082500 DOOR OPENING ASSEMBLIS

Insulated Metal Doors (Incl. Hardware):				
Loading Dock - dbl	1	EA	1,600.00	1,600
Mech Rm - sgl w/transom	1	EA	1,500.00	1,500
Roof access - sgl	1	EA	150.00	150

				3,250

083323 OVERHEAD COILING DOORS

Overhead Door - 8x8	1	EA	2,500.00	2,500
Overhead Door - 10x11	2	EA	3,000.00	6,000
9' Overhead coiling door at Café (4 ea)	294	SF	75.00	22,050

				30,550

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
083513 FOLDING DOORS		N/A		
				0

				0
084413 ALUMINUM ENTRANCES & STOREFRONTS				
4 1/2" Alum. storefront J-L	3,684	SF	61.00	224,724
4 1/2" Alum. storefront - segmented	470	SF	61.00	28,670
Alum. Doors (Incl. Hardware):				
Alum. entry door - dbl	6	PR	5,900.00	35,400
Alum. entry door - sgl	3	EA	3,100.00	9,300
*Storefront system included w/B2020				

				298,094
084413 GLAZED ALUMINUM CURTAIN WALLS				
10 1/2" Alum. curtain wall	1,542	SF	90.00	138,780
Aluminum Storefront and Entries:				
Vestibule Door - dbl	2	PR	5,300.00	10,600
Main office - sgl	1	EA	3,000.00	3,000
Main office - dbl	1	PR	4,900.00	4,900
Music corridor	1	PR	4,900.00	4,900
Music rm	1	PR	4,900.00	4,900
Storefront	952	SF	61.00	58,072

				225,152
086200 UNIT SKYLIGHTS		N/A		
				0

				0
087100 DOOR HARDWARE				
Interior Finish Hardware:				
Stair Hall - sgl	3	EA	1,800.00	5,400
Stair Hall - dbl	11	EA	2,700.00	29,700
Corridor - sgl	4	EA	1,800.00	7,200
Corridor -dbl	6	EA	2,700.00	16,200
Administration/Office - sgl	40	EA	550.00	22,000
Kitchen - sgl	1	EA	600.00	600

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Kitchen -dbl	1	EA	900.00	900
Mech/Elect - sgl	12	EA	400.00	4,800
Mech/Elect - dbl	3	EA	650.00	1,950
Toilet rm - sgl fixture	15	EA	500.00	7,500
Storage - sgl	13	EA	350.00	4,550
Storage - dbl	4	EA	600.00	2,400
Classroom - sgl	57	EA	550.00	31,350
Interconnecting Classroom - sgl	45	EA	260.00	11,700
Music - dbl	2	EA	1,000.00	2,000
Music - sgl	2	EA	700.00	1,400
Toilet rm/locker room - sgl	10	EA	550.00	5,500
Gym - dbl	3	EA	2,500.00	7,500
Media ctr - sgl	1	EA	700.00	700
Media ctr - dbl	1	EA	1,300.00	1,300
Café - sgl	1	EA	700.00	700
Café - dbl	1	EA	1,300.00	1,300

				166,650

089000 LOUVERS

Alum louvers	1	LS	5,000.00	5,000
Elevator vent	1	LS	2,500.00	2,500

				7,500

DIVISION 09 - FINISHES

090002 TILE*

Ceramic Wall Tile:				
Janitor closet - 5' wainscot	655	SF	13.00	8,515
Shw - 8' tile	344	SF	13.00	4,472
Toilet rm - 8' wainscot	8,960	SF	13.00	116,480
Corridors - 7'	12,261	SF	13.00	159,393
Stair Halls - 7'	3,046	SF	13.00	39,598
Tile backer bd premium	6,599	SF	1.60	10,558
Kitchen - 7'	2,235	SF	13.50	30,173
Locker rm - 5' wainscot	1,000	SF	13.00	13,000
Cafeteria	582	SF	13.00	7,566
*Excludes wall tile at north corridor 136				
Floor Finishes:				
Janitor Closet (4 EA):				
Ceramic floor tile - thin set	280	SF	12.50	3,500
Waterproofing - upper flr	170	SF	7.00	1,190
Marble threshold	4	EA	49.00	196

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Toilet/Shower & Locker Rm:				
Shower receptor	3	EA	475.00	1,425
Ceramic floor tile - thin set	4,853	SF	12.50	60,663
Ceramic floor tile waterproofing	1,740	SF	7.00	12,180
Marble Threshold	29	EA	49.00	1,421
Built-up Ceramic base	1,328	LF	10.00	13,280
Kitchen:				
Quarry tile - thin set	2,891	SF	14.50	41,920
Quarry tile base	474	LF	7.50	3,555
Marble threshold	51	LF	11.00	561
*Includes cooler & freezer				

				529,645
090003 ACOUSTICAL CEILINGS*				
Flat mtl clg - main office	120	SF	35.00	4,200
ACT 1 - 2x2 typ	93,826	SF	3.90	365,921
ACT 2 - MR 2x2 kitchen	2,300	SF	5.00	11,500
ACT 3 - MR toilet rm/locker rm	1,994	SF	5.00	9,970
ACT 4 - 2x2 band & music	2,830	SF	5.50	15,565
Unistrut grid - art rm (2 EA)	240	SF	10.00	2,400
Open Cell Sys:				
Library	238	LF	18.00	4,284

				413,840
090005 RESILIENT FLOORS*				
Rubber treads and risers	848	LFR	12.50	10,600
Wood stage stair tread	24	LFT	12.50	300
*Excludes mechanical rm stair finish				
Sheet linoleum - corridor and classroom	74,253	SF	8.50	631,151
Sheet linoleum - lobby	5,518	SF	8.50	46,903
Sheet linoleum - café	5,841	SF	8.50	49,649
Rubber tile at stair hall/landing	2,025	SF	7.50	15,188
Rubber base	11,981	LF	2.05	24,561

				778,351
090006 TERRAZZO*		N/A		
				0

				0

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
090007 PAINTING*				
Exterior painting	1	LS	5,000.00	5,000
Paint HM door - sgl	2	EA	70.00	140
Paint HM door - dbl	1	EA	135.00	135
Paint HM frame - sgl	204	EA	25.00	5,100
Paint HM frame - dbl	32	EA	30.00	960
Paint HM door - sgl	26	EA	75.00	1,950
Paint HM door - dbl	29	EA	125.00	3,625
Paint HM window/sidelite frame	1198.5	SF	5.00	5,993
Paint stair - full flt	7	FLT	750.00	5,250
Seal/exp. conc. found wall	5,253	SF	1.20	6,304
Wall painting	129,939	GSF	1.80	233,890
Paint gyp ceilings & soffits	19,797	SF	1.00	19,797
Paint exposed structure	14,307	SF	2.10	30,045

				318,188
092900 GYPSUM BOARD ASSEMBLIES				
1 lyr 5/8" at exterior	49,109	SF	1.80	88,396
Drywall Partitions:				
S4A Corridor partition	35,122	SF	8.00	280,976
F6A stair hall partition	2,206	SF	7.50	16,545
F8A Stair hall	1,908	SF	12.00	22,896
S4A typical partition	15,352	SF	7.25	111,302
S4d Chase - 1 side	14,349	SF	5.50	78,920
F4C 2 hr part.	1,247	SF	13.00	16,211
Furr and gyp foundation		N/A		
S4H @ music rm	758	SF	15.00	11,370
S4H @ expansion	748	SF	15.00	11,220
S4J @ mech rm	805	SF	16.00	12,880
S4J @ music rm	1,465	SF	16.00	23,440
S4G class separation	20,201	SF	8.50	171,709
S6d Chase	2,591	SF	6.10	15,805
S8A class separation	7,111	SF	12.00	85,332
Sim. S4G class sep/box column	1,480	SF	8.50	12,580
Furr elev CMU shaft	747	SF	4.50	3,362
F6A stair hall chase 1 side	3,490	SF	6.75	23,558
Music/locker rm partition 20'	7,847	SF	8.00	62,776
Music/locker rm chase partitions 20'	1,979	SF	6.00	11,874
S4A bulkhead @ storefront	463	SF	7.25	3,357
S10A gym	3,997	SF	14.00	55,958
Box corridor col/locker end wall	4,368	SF	5.00	21,840
Corridor locker base	614	LF	26.00	15,964
Gym locker base	130	LF	26.00	3,380

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Misc. drywall assemblies	129,939	GSF	0.50	64,970
Abuse res. gyp prem. PE/platform	14,000	SF	0.90	12,600
Sloped gyp ceiling - art rm	720	SF	8.00	5,760
Gyp ceiling	7,385	SF	6.75	49,849
2 Hr. gyp ceiling	292	SF	15.00	4,380
Gyp soffit	11,400	SF	12.00	136,800

				1,436,007
096400 WOOD FLOORING				
Stage front wd floor	400	SF	12.00	4,800
Stage rear/choral class - masonite	1,245	SF	3.50	4,358

				9,158
096600 ATHLETIC FLOORING				
Vented base - gym	335	LF	5.75	1,926
Gym resilient athletic wd flr	8,444	SF	15.50	130,882

				132,808
096566 RESILIENT ATHLETIC FLOORING		N/A		
				0

				0
096816 SHEET CARPETING				
Carpet	12,061	SF	4.50	54,275
*Admin, media center and music classrooms				

				54,275
098313 ACOUSTIC WALL PANELS				
Cafeteria	232	SF	22.00	5,104
Gym Acoustical panels - tectum	404	SF	22.00	8,888
Band & orchestra acoustical wall panel - allo	500	SF	25.00	12,500
Misc. Music Room panels	1	LS	10,000.00	10,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				36,492

DIVISION 10 - SPECIALTIES

101100 VISUAL DISPLAY SURFACES

Tackboards		N/A		
Display case D1	3	EA	4,000.00	12,000
Display case D2	5	EA	7,500.00	37,500
4' Marker board	110	EA	200.00	22,000
8' Marker board	81	EA	550.00	44,550
Flag holder, map rail & accessories	60	RM	250.00	15,000

				131,050

101400 SIGNAGE

Building directory - allow	1	EA	5,000.00	5,000
Int. ADA signage	129,939	GSF	0.15	19,491
16" Alum. Letters	20	EA	350.00	7,000

				31,491

102113 TOILET COMPARTMENTS

Solid Plastic Toilet Partitions:				
Std. partition	18	EA	1,050.00	18,900
HC Partition	10	EA	1,225.00	12,250
Urinal screen	4	EA	275.00	1,100
Locker rm changing stall w/bench	11	EA	1,300.00	14,300
HC locker rm changing stall w/bench	2	EA	1,500.00	3,000
HC shw rm partition	2	EA	1,800.00	3,600

				53,150

102124 CUBICLE CURTAINS AND TRACK

Cubicle track w/curtain (4 EA)	60	LF	95.00	5,700

				5,700

102226 OPERABLE PARTITIONS

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Platform 14' elec. op	693	SF	90.00	62,370

				62,370
102600 WALL AND DOOR PROTECTION				
Wall & corner guards - allow	1	LS	5,000.00	5,000

				5,000
102800 TOILET ACCESSORIES				
Baby changing sta - allow	2	EA	475.00	950
Paper towel dispenser/disposal	25	EA	250.00	6,250
Toilet tissue dispenser	43	EA	48.00	2,064
Grab bars	50	EA	95.00	4,750
Soap dispenser	42	EA	42.00	1,764
Framed mirror - 3'	42	EA	195.00	8,190
Coat hooks	43	EA	20.00	860
Shower rod w/curtain	3	EA	35.00	105
Towel hook	3	EA	15.00	45
Janitor shelf	4	EA	200.00	800
Misc. accessories	1	LS	2,000.00	2,000
*Excludes classroom accessories				

				27,778
104413 FIRE PROTECTION SPECIALTIES				
Fire extinguisher and cab - allow	6	EA	450.00	2,700

				2,700
105100 METAL LOCKERS				
Student lockers (12"x15"x30") dbl tier	463	EA	245.00	113,435
Locker rm bench	123	LF	70.00	8,610
Gym lockers - basket (12"x12"x12")	450	EA	75.00	33,750
Life skill locker (12"x15"x30")	12	EA	245.00	2,940
Kitchen staff locker		w/E1010		

				158,735

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
107113 SUN CONTROL DEVICES				
Aluminum Sun Shade:				
Alum. window		n/a		
Alum. storefront	198	LF	145.00	28,710
Alum. curtain wall	135	LF	145.00	19,575

				48,285
109000 MISCELLANEOUS SPECIALTIES				
Loading dock bumper	12	LF	25.00	300

				300
DIVISION 11 - EQUIPMENT				
113100 RESIDENTIAL APPLIANCES				
Faculty kitchen	1	LS	2,500.00	2,500
Nurses office refrigerator	1	LS	2,500.00	2,500
Life skills kitchen	1	LS	2,500.00	2,500
Kitchen laundry		W/E5010		

				7,500
110610 THEATRICAL RIGGING				
Staging curtain and rigging	1	LS	20,000.00	20,000

				20,000
115213 PROJECTION SCREENS				
Corridor Common Rooms (5EA):				
Ceiling mtd manual 8' projection screen	5	EA	750.00	3,750
Choral/Drama - platform:				
Motorized projection screen 16'	1	EA	5,000.00	5,000
Cafeteria - allow:				
Motorized projection screen 12'	1	EA	4,000.00	4,000

*Excludes classroom projection screens & smart boards

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				12,750
114000 FOOD SERVICE EQUIPMENT				
Kitchen Equipment & Casework	1	LS	467,000.00	467,000

				467,000
115300 LABORATORY EQUIPMENT				
				0

				0
116143 CURTAINS				
				0

				0
116620 ATHLETIC EQUIPMENT				
Basketball backstops - electric	6	EA	7,500.00	45,000
Motorized gym divider curtain (2 EA)	3,432	SF	21.00	72,072
Volley ball court equip.	2	EA	700.00	1,400
Scoreboard w / shot clock		W/D5010		
Misc. athletic equip	1	LS	5,000.00	5,000
Gym padding 7'	1,358	SF	12.50	16,975
*Includes section 116653				

				140,447
117900 MISCELLANEOUS EQUIPMENT				
Kiln	1	EA	3,500.00	3,500

				3,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
DIVISION 12 - FURNISHINGS				
122000 WINDOW TREATMENTS				
Electric shades at café premium	1	LS	15,000.00	15,000
Interior window shades - allow	1	LS	5,000.00	5,000
Window treatment - allow	8,000	SF	4.00	32,000
Alum. box enclosures & fascia covers	1	LS	20,000.00	20,000

				72,000
123200 MANUFACTURED WOOD CASEWORK				
MW1 General Classroom (42 EA):				
4' Teacher wardrobe - DBL	42	EA	1,650.00	69,300
4' Storage Unit - DBL	42	EA	1,700.00	71,400
Sink base cab w/ ctr	126	LF	190.00	23,940
Base cab. w/ctr	231	LF	210.00	48,510
30" Wall cab	336	LF	135.00	45,360
24" P. Lam wall panel	672	SF	15.00	10,080
MW 18 Prep Room (3EA):				
7' Full ht open shelving unit	212	LF	245.00	51,940
MW 3 & 18 Work Room(3EA):				
7' Full ht open shelving unit	44	LF	245.00	10,780
Base cab. w/ctr	28.5	LF	210.00	5,985
30" Wall cab	28.5	LF	135.00	3,848
MW 2 SPED / Resourse Classroom (9EA):				
3' Teacher wardrobe - DBL	9	EA	1,500.00	13,500
3' Storage Unit - DBL	9	EA	1,625.00	14,625
Sink base cab w/ ctr	24	LF	190.00	4,560
Base cab. w/ctr	24	LF	210.00	5,040
30" Wall cab	48	LF	135.00	6,480
24" P. Lam wall panel	96	SF	15.00	1,440
MW 10 & 11 Life Skills Classroom (1EA):				
4' Teacher wardrobe - DBL	1	EA	1,650.00	1,650
4' Storage Unit - DBL	2	EA	1,700.00	3,400
Wall oven cab - full ht	1	EA	1,500.00	1,500
Counter only	2.5	LF	75.00	188
Sink & cook top base cab w/ ctr	8.5	LF	190.00	1,615
Base cab. w/ctr	8	LF	210.00	1,575
15" Wall cab	3	LF	105.00	315
30" Wall cab	19	LF	135.00	2,565
Media Center:				
Custom Desk w/ SS ctr	18	LF	550.00	9,900
Rear Desk Base and Wall Cabinet	18	LF	375.00	6,750

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Media ctr display cabinet	20	LF	800.00	16,000
Computer desk ctr	36	LF	95.00	3,420
*Excludes book storage				
MW12 Media Center Work Room:				
4' Storage Unit - DBL	1	EA	1,700.00	1,700
Sink base cab w/ ctr	3	LF	190.00	570
Base cab. w/ctr	5.5	LF	210.00	1,155
30" Open wall cab	8.5	LF	110.00	935
24" P. Lam wall panel	17	SF	15.00	255
MW 2 Technology Labs (2EA):				
3' Teacher wardrobe - DBL	2	EA	1,650.00	3,300
3' Storage Unit - DBL	2	EA	1,700.00	3,400
Sink base cab w/ ctr	5.5	LF	190.00	1,045
Base cab. w/ctr	5.5	LF	210.00	1,155
30" Wall cab	11	LF	135.00	1,485
24" P. Lam wall panel	22	SF	15.00	330
MW 13, 14 & 16 Art Room (epoxy counters-2EA):				
4' Teacher wardrobe - DBL	2	EA	1,650.00	3,300
3' 4" Storage Unit - DBL	8	EA	1,550.00	12,400
Sink base cab w/ ctr - 4EA	13	LF	225.00	2,925
Base cab. w/ctr	10.5	LF	265.00	2,783
30" Wall cab	24	LF	135.00	3,240
24" Epoxy wall panel	48	SF	25.00	1,200
MW 15 & 17 Art Prep Room (epoxy counters-2EA):				
3' Open Storage Unit	2	EA	1,200.00	2,400
Sink base cab w/ ctr - 1EA	3	LF	225.00	675
Base cab. w/ctr	23	LF	265.00	6,095
30" Open wall cab	25.5	LF	120.00	3,060
24" Epoxy wall panel	51	SF	25.00	1,275
MW1 Music Room 3EA):				
4' Teacher wardrobe - DBL	3	EA	1,650.00	4,950
4' Storage Unit - DBL	3	EA	1,700.00	5,100
Sink base cab w/ ctr	9	LF	190.00	1,710
Base cab. w/ctr	17	LF	210.00	3,465
30" Wall cab	24	LF	135.00	3,240
24" P. Lam wall panel	48	SF	15.00	720
*Excludes instrument storage				
Administration Suite:				
Main desk w/ SS top	32	LF	350.00	11,200
Rear Desk Base and Wall Cabinet	30	LF	375.00	11,250
Closet shelf & rod	8	LF	22.00	176
Mail box unit w/ base cabinet	21	LF	800.00	16,800
Counter only	2.5	LF	75.00	188
Sink base cab w/ ctr	3	LF	190.00	570
Base cab. w/ctr	15	LF	210.00	3,045
30" Wall cab	20	LF	135.00	2,700
MW5 & 6 Nurse Suite:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Closet shelving 5 tier	65	LF	22.00	1,430
Counter only	2.5	LF	75.00	188
Sink base cab w/ ctr	6	LF	190.00	1,140
Base cab. w/ctr	6	LF	210.00	1,260
30" Wall cab	14	LF	135.00	1,890
24" P. Lam wall panel	12	SF	15.00	180
Locker Room:				
Solid Surface lav countertop	26	LF	270.00	7,020
MW4 Faculty Dining:				
Sink base cab w/ ctr	3	LF	190.00	570
Base cab. w/ctr	85	LF	210.00	17,850
15" Wall cab	3	LF	105.00	315
30" Wall cab	8	LF	135.00	1,080
Janitor Closet (4EA):				
Adjustable shelving - 5tier	80	LF	20.00	1,600
MW 20 Perimeter class shelving	1,278	LF	145.00	185,310

				775,294
124810 ENTRANCE FLOOR MATS & FRAMES				
Vestibule walk-off mat - (1 EA)	314	SF	22.00	6,908

				6,908
124816 ENTRANCE FLOOR GRILLES		N/A		
				0

				0
126100 FIXED AUDIENCE SEATING		N/A		
				0

				0
126613 BLEACHERS				
Folding Bleachers	500	SEAT	125.00	62,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
				62,500
129300 SITE FURNISHINGS				

				0
DIVISION 13 - SPECIAL CONSTRUCTION				
130000 SPECIAL CONSTRUCTION		NOT USED		
				0

				0
DIVISION 14 - CONVEYING EQUIPMENT				
140001 ELEVATORS*				
Stage lift	1	LS	18,000.00	18,000
3500 lbs Hydraulic Elevator	3	STOP	31,500.00	94,500
*Includes section 144200				

				112,500
DIVISION 21 - FIRE SUPPRESSION				
210000 FIRE SUPPRESSION				
Valve assembly	1	EA	5,200.00	5,200
6" UG fire service	10	LF	75.00	750
6" Gate vlv	2	EA	1,650.00	3,300
6" Check vlv	2	EA	3,500.00	7,000
4" Check vlv	1	EA	2,250.00	2,250
2 1/2" BF vlv	2	EA	790.00	1,580
4" BF vlv	3	EA	1,400.00	4,200
6" BF vlv	1	EA	1,850.00	1,850
Tamper switch	7	EA	225.00	1,575
2 1/2" FDV	12	EA	825.00	9,900
Siamese conn	1	EA	1,000.00	1,000
6" FCVA	1	EA	1,350.00	1,350
4" FCVA	2	EA	1,100.00	2,200
1 1/2" Hose cab w/100' hose	1	LS	3,500.00	3,500
Heads:				
Concealed	939	EA	72.00	67,608
Upright	123	EA	64.00	7,872
Pipe:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
1"	3,770	LF	17.60	66,352
1 1/4"	2,200	LF	20.50	45,100
1 1/2"	2,695	LF	23.00	61,985
2"	1,545	LF	23.00	35,535
2 1/2"	150	LF	31.00	4,650
3"	15	LF	33.00	495
4"	1,750	LF	40.50	70,875
6"	1,245	LF	67.00	83,415
Misc. Valve and trim	1	LS	35,000.00	35,000
As built test and Misc.	1	LS	25,000.00	25,000

				549,542

DIVISION 22 - PLUMBING

220000 PLUMBING*

Fixtures:				
P1 Water closet	18	EA	1,450.00	26,100
P1A Water closet ADA	23	EA	1,450.00	33,350
P2 Urinal	8	EA	1,300.00	10,400
P3 Lavatory	13	EA	950.00	12,350
P3A Lavatory ADA	21	EA	1,120.00	23,520
P4 Classroom sink	60	EA	975.00	58,500
P5 Lavatory	6	EA	850.00	5,100
P6 Drinking cooler	6	EA	270.00	1,620
P7 Sink ADA	2	EA	1,350.00	2,700
P8 Sink ADA	2	EA	1,350.00	2,700
P9 Art room sink	4	EA	1,600.00	6,400
P10 Shower	3	EA	1,800.00	5,400
P11 Service sink	3	EA	1,100.00	3,300
P12 Wall hung service sink	1	EA	975.00	975
P13 Washing machine connect	1	EA	450.00	450
WH/HB	16	EA	400.00	6,400
Fixture connection	171	EA	500.00	85,500
Kitchen equip. connection	36	EA	700.00	25,200
Misc.:				
Oil/sediment interceptor	1	EA	3,300.00	3,300
Grease trap	1	EA	7,500.00	7,500
Grease holding tank	1	EA	2,500.00	2,500
RP 1, 2 10 gpm circ pump	2	EA	8,500.00	17,000
1" BFP	1	EA	925.00	925
Pressure reducer	1	EA	2,200.00	2,200
Water Heaters:				
100 Gal gas WH-1,2	2	EA	7,100.00	14,200
WH-3 tankless	1	EA	1,800.00	1,800
Water heater 6" flue	180	LF	75.00	13,500

Roof/Storm Drain System

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Underground D/W/V Pipe:				
4"	45	LF	37.00	1,665
6"	405	LF	50.50	20,453
8"	210	LF	82.50	17,325
10"	110	LF	111.00	12,210
12"	25	LF	144.00	3,600
FCO	16	EA	450.00	7,200
Above Ground D/W/V Pipe:				
4"	750	LF	37.00	27,750
6"	590	LF	50.50	29,795
8"	55	LF	82.50	4,538
CO	29	EA	375.00	10,875
Roof drain Zurn 163 dbl	46	EA	1,250.00	57,500
Foundation drain 6"	440	LF	26.00	11,440
Sanitary System:				
Underground D/W/V Pipe:				
2"	50	LF	26.50	1,325
3"	570	LF	32.00	18,240
4"	1,075	LF	37.00	39,775
6"	75	LF	50.50	3,788
FCO	30	EA	450.00	13,500
FD	44	EA	620.00	27,280
Above Ground D/W/V Pipe:				
1 1/2"	770	LF	25.00	19,250
2"	1,840	LF	27.50	50,600
3"	870	LF	32.00	27,840
4"	420	LF	37.00	15,540
CO	10	EA	375.00	3,750
Copper Pipe:				
1/2"	2,085	LF	14.25	29,711
3/4"	2,945	LF	16.10	47,415
1"	605	LF	19.40	11,737
1 1/4"	120	LF	23.50	2,820
1 1/2"	525	LF	28.50	14,963
2"	475	LF	39.50	18,763
2 1/2"	355	LF	54.50	19,348
3"	95	LF	70.50	6,698
4"	80	LF	113.00	9,040
Misc. Valve and trim	1	LS	10,000.00	10,000
1" Pipe Insulation:				
1/2"	2,085	LF	5.90	12,302
3/4"	2,945	LF	6.15	18,112
1"	605	LF	6.50	3,933
1 1/4"	120	LF	6.70	804
1 1/2"	525	LF	6.95	3,649
2"	475	LF	7.30	3,468
2 1/2"	355	LF	7.80	2,769
3"	95	LF	8.25	784
4"	80	LF	10.15	812
Gas Pipe:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
3/4"	25	LF	16.20	405
1 1/2"	50	LF	26.00	1,300
2"	100	LF	33.50	3,350
2 1/2"	300	LF	47.00	14,100
4"	35	LF	75.00	2,625
6"	95	LF	92.00	8,740
Boiler connection	1	LS	3,000.00	3,000
Underground Water Service:				
4"	10	LF	120.00	1,200
Water service (inc. bfp)	1	LS	8,800.00	8,800
Sewer service	1	LS	3,500.00	3,500
Permit test and clean	1	LS	25,000.00	25,000
Direct Job Expense	1	LS	50,000.00	50,000
Commissioning coordination	1	LS	20,000.00	20,000

				1,157,271

DIVISION 23 - HVAC

230000 HVAC*

Boiler:				
B1, B2, B3 (1800 mbh)	3	EA	32,000.00	96,000
Boiler feed	1	LS	2,200.00	2,200
Air separator	1	EA	15,000.00	15,000
Expansion tank	2	EA	3,300.00	6,600
Chemical feed	1	EA	7,500.00	7,500
Acid waste tank	1	EA	1,200.00	1,200
Boiler rough-in	1	LS	15,000.00	15,000
Flue:				
6" Vent	210	LF	45.00	9,450
12"	260	LF	115.00	29,900
Pumps:				
P1, P2 (440 gpm)	2	EA	8,500.00	17,000
VFD Drive	2	EA	3,200.00	6,400
CP-1 (condensate)	5	EA	400.00	2,000
Air Handling Unit (AHU):				
AHU - 1	6,000	CFM	5.50	33,000
AHU - 2	6,000	CFM	5.50	33,000
AHU - 3	12,000	CFM	5.50	66,000
AHU - 4	8,000	CFM	5.50	44,000
AHU - 5	2,400	CFM	6.50	15,600
Tstats	145	EA	875.00	126,875
Split AC Units:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
2 Ton ceiling vents	6	EA	4,200.00	25,200
Roof Top Unit (RTU):				
RTU 8 (2 ton)	810	CFM	9.00	7,290
RTU 9 (3 ton)	945	CFM	9.00	8,505
RTU 1 (5 ton)	1,900	CFM	8.50	16,150
RTU 10, 11 (9 ton)	5,100	CFM	8.00	40,800
RTU 5 (11 ton)	3,000	CFM	8.00	24,000
RTU 4 (16 ton)	4,100	CFM	8.00	32,800
RTU 2, 3, 7 (18 ton)	20,400	CFM	7.00	142,800
RTU 6 (25 ton)	6,300	CFM	9.00	56,700
Sound attenuation	157,060	CFM	0.38	59,683
Unit Heater:				
UH-1	4	EA	975.00	3,900
Cabinet Unit Heater:				
CUH-1	4	EA	3,100.00	12,400
CUH-2	12	EA	3,100.00	37,200
Hot water coil	1	EA	2,200.00	2,200
Electric Cabinet Unit Heater:				
ECH-1	9	EA	950.00	8,550
Fin tube radiator	1,504	LF	55.00	82,720
Exhaust Fans:				
CEX 1, 5, 6, 7	4	EA	350.00	1,400
CEX 2, 3	2	EA	450.00	900
CEX 4	1	EA	450.00	450
DF-1	1	EA	400.00	400
Inline Fan:				
IF-1	1	EA	2,800.00	2,800
IF-2	1	EA	700.00	700
IF-3	1	EA	2,900.00	2,900
IF-4	1	EA	2,900.00	2,900
IF-5	1	EA	2,900.00	2,900
IF-6	1	EA	2,900.00	2,900
Cooling Generating Systems:				
*DX Cooling inc. w/ RTU's				
Split AC system at elev. Mach rm	1	LS	8,000.00	8,000
Split AC system at elev. Data rm	1	LS	12,000.00	12,000
Hot water heating coil	1	EA	2,200.00	2,200
HVAC Pipe:				
Hot Water:				
3/4"	6,230	LF	16.10	100,303
1"	1,080	LF	19.40	20,952
1 1/4"	500	LF	23.50	11,750
1 1/2"	600	LF	28.50	17,100
2"	600	LF	39.50	23,700

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
3"	2,630	LF	70.50	185,415
4"	1,070	LF	110.00	117,700
1" Pipe Insulation:				
3/4"	6,230	LF	5.70	35,511
1"	1,080	LF	6.10	6,588
1 1/4"	500	LF	6.60	3,300
1 1/2"	600	LF	6.90	4,140
2"	600	LF	7.45	4,470
3"	2,630	LF	8.90	23,407
4"	1,070	LF	10.00	10,700
Condensation 3/4"	435	LF	13.00	5,655
Refrig. pipe	950	LF	26.00	24,700
Supply:				
Registers:				
Grilles/registers	231	EA	230.00	53,130
4' Linear diffuser	134	EA	240.00	32,160
Flexible connection	389	EA	65.00	25,285
Galvanized ductwork	42,058	LBS	8.50	357,493
Lined duct	4,538	LBS	12.00	54,456
Duct Insul	37,000	SF	3.50	129,500
Combustion air intake	3	EA	1,800.00	5,400
Dampers:				
VD	293	EA	210.00	61,530
FD	14	EA	230.00	3,220
MD	6	EA	1,400.00	8,400
Return:				
Registers:				
Grilles/registers	233	EA	185.00	43,105
Flexible connection	170	EA	65.00	11,050
Exhaust discharge	1	EA	1,400.00	1,400
Dampers:				
Volume	159	EA	210.00	33,390
FD	19	EA	230.00	4,370
MD	10	EA	1,400.00	14,000
Galvanized ductwork	27,077	LBS	8.50	230,155
Lined	7,079	LBS	12.00	84,948
Stainless steel	360	LBS	16.00	5,760
Welded kitchen exhaust	314	LBS	15.50	4,867
2 hr Fire wrap	1	LS	3,500.00	3,500
Gooseneck	2	EA	1,250.00	2,500
Variable Air Volume Unit:				
VAV	90	EA	1,250.00	112,500
FVAV	15	EA	1,500.00	22,500
DDC Controls	129,939	GSF	3.50	454,787

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Test and Balance	129,939	GSF	0.65	84,460
Direct Job Expense	1	LS	35,000.00	35,000
Commissioning coordination	1	LS	20,000.00	20,000

				3,622,329

DIVISION 26 - ELECTRICAL

260000 ELECTRICAL*

POWER DISTRIBUTION				
MAIN SWITCHBOARD				
1600 AMP	1	EA	21,690.00	21,690
PANELBOARDS				
120-208 Volt 100% Neutral:				
100 AMP main lug	3	EA	1,105.00	3,315
225 AMP main lug	2	EA	2,529.00	5,058
225 AMP main brkr	5	EA	2,478.00	12,390
120-208 Volt 200% Neutral:				
100 AMP main brkr	1	EA	1,097.00	1,097
225 AMP main brkr	10	EA	2,567.00	25,670
277-480 Volt 100% Neutral:				
100 AMP main lug	3	EA	2,283.00	6,849
225 AMP main lug	2	EA	2,393.00	4,786
400 AMP main lug	5	EA	3,260.00	16,300
100 AMP main brkr	1	EA	1,984.00	1,984
225 AMP main brkr	1	EA	2,987.00	2,987
100 AMP main brkr	5	EA	3,860.00	19,300
METERING				
Single meter can	1	EA	330.00	330
100% NEUTRAL FEEDERS				
FEEDERS - IN EMT - THREE PHASE				
50 AMP	210	LF	19.45	4,085
70 AMP	230	LF	24.45	5,624
100 AMP	500	LF	30.75	15,375
200 AMP	50	LF	41.05	2,053
225 AMP	40	LF	49.95	1,998
EMT FEEDERS - 200% NEUTRAL				
150 AMP	240	LF	42.65	10,236
PVC - UNDERGROUND - THREE PHASE				
100 AMP	720	LF	18.15	13,068
200 AMP	580	LF	30.05	17,429
1600 AMP	40	LF	350.30	14,012
PVC FEEDERS - 200% NEUTRAL				
125 AMP	270	LF	31.35	8,465
SPARE OR EMPTY RACEWAYS				
PVC - UNDERGROUND				
3"	150	LF	11.45	1,718
4"	850	LF	15.95	13,558

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
EMT EXPOSED				
4"	80	LF	35.70	2,856
GENERATOR SIGNAL - UNDERGROUND				
Annunciator circuits	50	LF	10.15	508
CABLE TRAY - LADDER TYPE				
12" Ladder	1,310	LF	33.45	43,820
18" Ladder	300	LF	38.50	11,550
ENCLOSED CIRCUIT BREAKER - 3 PHASE - TO 600 VOLTS				
125 AMP	1	EA	1,380.00	1,380
225 AMP	1	EA	1,665.00	1,665
LIGHTING CONTACTORS				
20 AMP 12 pole	1	EA	879.00	879
Relay	27	EA	75.00	2,025
Time clock	1	EA	385.00	385
Photocell	60	EA	55.00	3,300
DISCONNECT SWITCHES - HEAVY DUTY				
3 POLE - TO 600 VOLTS				
30 AMP F	11	EA	224.00	2,464
60 AMP F	1	EA	299.00	299
30 AMP F WP	16	EA	307.00	4,912
60 AMP F WP	3	EA	390.00	1,170
100 AMP F WP	10	EA	571.00	5,710
200 AMP F WP	2	EA	865.00	1,730
DRY TYPE TRANSFORMER - NON K RATED				
30 KVA	2	EA	3,102.00	6,204
112.5 KVA	2	EA	7,589.00	15,178
DRY TYPE - K13 RATED				
30 KVA	1	EA	5,051.00	5,051
45 KVA	10	EA	6,319.00	63,190
MOTOR CONTROLS				
LOCAL MOTOR CONTROL:				
MANUAL STARTERS				
120 Volt 1 pole	137	EA	91.00	12,467
AUTOMATIC TRANSFER SWITCH				
100 AMP	1	EA	3,347.00	3,347
225 AMP	1	EA	4,539.00	4,539
WIRING DEVICES				
METAL CLAD WIRING - PLASTIC PLATES				
SWITCHES				
Classroom electronic switching	62	EA	500.00	31,000
S	103	EA	140.00	14,420
S3	8	EA	161.00	1,288
SK	13	EA	145.00	1,885
SK3	2	EA	168.00	336
SS	4	EA	218.00	872

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
SK5K	1	EA	225.00	225
S3S3	4	EA	253.00	1,012
SSS	1	EA	279.00	279
SKSKSKSK	1	EA	295.00	295
Occupancy sensor	87	EA	216.00	18,792
RECEPTACLE				
Duplex	482	EA	167.00	80,494
Duplex GFI	157	EA	186.00	29,202
Double duplex	322	EA	174.00	56,028
50 AMP recept	2	EA	194.00	388
EMT RACEWAYS				
SWITCHES				
S WP	1	EA	269.00	269
RECEPTACLE				
Duplex	30	EA	269.00	8,070
Duplex GFI WP	39	EA	279.00	10,881
Rough In:				
Tel/data/video	730	EA	108.00	78,840
PVC RACEWAY - UNDERSLAB				
Duplex GFI	32	EA	369.00	11,808
2 GANG floor box w/recept + data	26	EA	682.00	17,732
PUBLIC ADDRESS SYSTEM				
Rough In:				
Amplifier	3	EA	305.00	915
Ceiling/wall speaker	168	EA	116.00	19,488
Scoreboard	1	EA	12,000.00	12,000
Volume control	128	EA	108.00	13,824
Mike outlet	4	EA	108.00	432
Install:				
Amplifier	3	EA	2,000.00	6,000
Ceiling/wall speaker	234	EA	155.00	36,270
Volume control	124	EA	121.00	15,004
Mike outlet	4	EA	137.00	548
CLOCK SYSTEM				
Rough In:				
Clock backbox	14	EA	49.00	686
Clock-speaker backbox	99	EA	141.00	13,959
Install:				
Clock	113	EA	193.00	21,809
Integrated program mgmt. system	1	EA	25,000.00	25,000
BRANCH CIRCUITS				
IN EMT				
20 AMP CIRCUIT:				
One circuit	546	EA	499.00	272,454
IN PVC - UNDERSLAB				
20 AMP CIRCUIT:				
One circuit	73	EA	418.00	30,514
MOTOR CIRCUITS				
IN EMT				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
SINGLE PHASE:				
20 AMP	50	EA	569.00	28,450
THREE PHASE				
20 AMP	25	EA	603.00	15,075
40 AMP	4	EA	700.00	2,800
100 AMP	10	EA	1,219.00	12,190
200 AMP	2	EA	2,079.00	4,158
IN PVC - UNDERSLAB				
THREE PHASE				
20 AMP	5	EA	548.00	2,740
30 AMP	3	EA	598.00	1,794
50-60 AMP	2	EA	731.00	1,462
Lightning protection	1	LS	30,000.00	30,000
Permit/temporary electric	1	LS	12,000.00	12,000
DIESEL GENERATORS				
175 KW	1	EA	46,345.00	46,345
SPECIAL ENCLOSURES				
100-200 KW	1	EA	15,000.00	15,000
LIGHTING FIXTURES				
Type A8	9	EA	473.00	4,257
Type A12	37	EA	698.00	25,826
Type A16	195	EA	757.00	147,615
Type A20	9	EA	1,076.00	9,684
Type B	46	EA	287.00	13,202
Type C	44	EA	233.00	10,252
Type D	267	EA	349.00	93,183
Type D 1	8	EA	233.00	1,864
Type D 2	5	EA	233.00	1,165
Type D 3	6	EA	233.00	1,398
Type E	25	EA	433.00	10,825
Type F	60	EA	233.00	13,980
Type J	4	EA	233.00	932
Type H	5	EA	550.00	2,750
Type K	21	EA	400.00	8,400
Type L1	4	EA	350.00	1,400
Type L4	10	EA	380.00	3,800
Type L8	3	EA	396.00	1,188
Type L12	4	EA	450.00	1,800
Type L16	4	EA	844.00	3,376
Type N	28	EA	782.00	21,896
Type N 1	6	EA	782.00	4,692
Type O	13	EA	272.00	3,536
Type P1	71	EA	449.00	31,879
Type Q	24	EA	600.00	14,400
Type R	14	EA	349.00	4,886
Type T	52	EA	165.00	8,580
Type U	59	EA	223.00	13,157
Type BB	53	EA	400.00	21,200
Type CC	18	EA	350.00	6,300
Type DD	8	EA	250.00	2,000
Type DP6	3	EA	130.00	390

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Type DP12	3	EA	145.00	435
Type DP24	2	EA	160.00	320
Type DP48	13	EA	190.00	2,470
Type EE8	22	EA	400.00	8,800
Type EE12	10	EA	400.00	4,000
Exit	84	LS	298.00	25,032
Light lifter	1	LS	5,000.00	5,000
Stage dimming system	1	LS	35,000.00	35,000
SITE LIGHTING;				
Type Z1	4	EA	3,456.00	13,824
Type Z2	20	EA	3,456.00	69,120
Type Z3	4	EA	3,456.00	13,824
Type Z4	4	EA	750.00	3,000
TELECOMMUNICATIONS				
Install:				
Tel/data	655	EA	264.00	172,920
Video	75	EA	155.00	11,625
Each addl cable	969	EA	170.00	164,730
Racks	1	EA	20,000.00	20,000
Tel comm equipment	1	LS	400,000.00	400,000
SECURITY SYSTEM				
Security panel	1	EA	6,500.00	6,500
Door switch	25	EA	236.00	5,900
Motion detector	16	EA	453.00	7,248
Break glass station	52	EA	279.00	14,508
Card reader	6	EA	915.00	5,490
CCTV camera	24	EA	2,172.00	52,128
Monitor	1	EA	1,079.00	1,079
FIRE ALARM - ADDRESSABLE				
MC CABLE				
Fire alarm control panel to 20 zones	1	EA	6,285.00	6,285
Annunciator	1	EA	2,180.00	2,180
Smoke detector	121	EA	236.00	28,556
Heat detector	16	EA	226.00	3,616
Duct smoke detector	13	EA	487.00	6,331
Pull station	34	EA	230.00	7,820
Remote test switch	13	EA	208.00	2,704
Speaker-strobe unit	138	EA	317.00	43,746
Strobe unit only	113	EA	214.00	24,182
Horn only	6	EA	214.00	1,284
Weatherproof beacon	2	EA	573.00	1,146
Monitor module	36	EA	198.00	7,128
Knox box	2	EA	325.00	650
Site:				
FEEDERS - 100% NEUTRAL:				
PVC - UNDERGROUND - THREE PHASE				
100 AMP	200	LF	18.15	3,630
225 AMP	100	LF	36.35	3,635
1600 AMP	80	LF	350.30	28,024

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
SPARE OR EMPTY RACEWAYS				
PVC - UNDERGROUND				
3"	750	LF	11.45	8,588
4"	500	LF	15.95	7,975
5"	560	LF	24.80	13,888
GENERATOR SIGNAL - UNDERGROUND				
Annunciator circuits	100	LF	10.15	1,015
GROUNDING				
Ground rod 3/4"x10'	4	EA	118.00	472
Bare copper wire - #1/0	50	LF	2.80	140

				3,164,796

DIVISION 31 - EARTHWORK

312000 EARTH MOVING

Building Cut	3,277	CY	5.25	17,204
Structural fill	4,492	CY	22.00	98,824
Excavate Foundation	2,000	CY	6.00	12,000
Backfill Foundation (on site mat'l)	2,800	CY	6.00	16,800
Dispose of spoil (non haz.unlined landfill)	3,277	CY	10.00	32,770
Foundation drains		W/Plumbing		
Ledge Removal (premium)	1,500	CY	45.00	67,500
12" Gravel base @ SOG	2,105	CY	21.00	44,205
Strip and stack topsoil - 6"	10,705	CY	2.90	31,045
Site Cut	17,115	CY	4.75	81,296
Site fill - on site mat'l	14,767	CY	4.00	59,068
Site grading	81,000	SY	0.60	48,600
Dewatering - allow	1	LS	25,000.00	25,000
Haul away surplus	2,348	CY	10.00	23,480
Street cleaning & soil management	1	LS	25,000.00	25,000
Ledge removal allowance:				
Site (premium)	500	CY	65.00	32,500
18" Gravel base @ drive	11,803	CY	19.00	224,257
Gravel Base:				
8" Gravel @ ped. paving	536	CY	23.50	12,596

				852,145

311000 SITE PREPARATION & CLEARING

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Erosion control	2,719	LF	3.45	9,381
Clear & grub	91,476	SF	0.30	27,443
Inlet protection	11	EA	40.00	440
Tree removal	31	EA	325.00	10,075
Infield clay	11,078	SF	1.25	13,848
Remove Existing				
Remove gas line	417	LF	8.00	3,336
Remove drain line	1,534	LF	12.00	18,408
Catch basin	9	EA	115.00	1,035
Drain manhole	1	EA	115.00	115
Sawcut pavement	240	LF	5.00	1,200
Cut and cap utilities	1	LS	5,000.00	5,000
Stone wall	238	LF	10.00	2,380
Oil tank	1	LS	10,000.00	10,000
Conc. entry pavement	1,400	SF	1.15	1,610
Bit. pavement	187,916	SF	0.80	150,333
Chain link fence	1,871	LF	3.00	5,613
Light pole	10	EA	75.00	750
Utility pole	3	EA	75.00	225
Sewer manhole	4	EA	400.00	1,600
Sewer line	635	LF	12.00	7,620
Hydrant	1	EA	75.00	75
Jersey barriers	52	LF	7.00	364
Septic tank & pump chamber	1	LS	5,000.00	5,000
Flag pole	1	EA	125.00	125
Stair structure	203	SF	8.00	1,624
Traffic sign	5	EA	30.00	150
Basketball hoop	1	EA	90.00	90
Salvage bike rack	1	EA	100.00	100
Baseball backstop	2	EA	500.00	1,000
Salvage bleachers	1	LS	500.00	500
Memorial plaque and peace pole	1	LS	1,000.00	1,000

				280,439

312500 EROSION CONTROL

				0

				0

DIVISION 32 - EXTERIOR IMPROVEMENTS

320000 PAVEMENT, CURBING & EDGING

Roadways:				
Resurface existing 2"	200	SY	7.25	1,450
Bituminous drive/parking (2" wearing)	23,476	SY	11.25	264,105
Bituminous drive/parking (2" base)	23,476	SY	11.00	258,236

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Vehicular concrete drive	130	SY	34.00	4,420
Granite curb straight	1,205	LF	27.50	33,138
Granite curb radius	423	LF	30.50	12,902
Berm	5,744	LF	2.25	12,924
Parking striping	5,709	LF	1.00	5,709
HC Pavement markings	8	EA	65.00	520
Crosswalk striping	1,545	SF	1.00	1,545
Basketball court lines	1	LS	2,500.00	2,500
Travel teacher marking	12	EA	55.00	660
Pedestrian Paving:				
Bit. concrete walkway	1,056	SF	2.30	2,429
4" Conc. Ped. pavement	13,047	SF	3.55	46,317
Concrete unit paver	7,043	SF	13.50	95,081
HC ramp/curb cut	17	EA	450.00	7,650

				749,584

323100 SITE IMPROVEMENTS

35' Flag pole w/conc base	1	EA	5,500.00	5,500
Site sign - allow	1	LS	5,000.00	5,000
Site bench	10	EA	1,500.00	15,000
Bicycle rack (10 bikes)	2	EA	1,250.00	2,500
Basketball goal post	2	EA	1,250.00	2,500
6' CL fence	210	LF	24.00	5,040
6' CL gate - dbl	2	EA	2,000.00	4,000
Baseball dugout bench	4	EA	2,000.00	8,000
Baseball home plate & pitching rubber	1	EA	2,500.00	2,500
Baseball back stop	1	EA	12,000.00	12,000
8' CLF	80	LF	32.00	2,560
4' CLF	320	LF	24.00	7,680
12' Vehicular gate - sgl	1	EA	1,800.00	1,800
4' Ornamental steel fence	107	LF	75.00	8,025
Granite planter edge (5 ea)	499	LF	40.00	19,960
Stone wall - reconstruct	195	LF	30.00	5,850
Timber guardrail	815	LF	36.00	29,340
Tree grate and guard		NIC		
Parking/traffic signage	8	EA	130.00	1,040
Seat wall w/built in bench	64	LF	450.00	28,800
Veneer retaining wall	40	LF	500.00	20,000
Relocate baseball bleachers	1	LS	10,000.00	10,000
Wood bollard	4	EA	400.00	1,600
Chain lock @ field	1	LS	700.00	700
Relocate Bergstom Field sign	1	LS	3,000.00	3,000
Foul pole - relocate	2	EA	1,200.00	2,400
Foul pole - new	2	EA	3,200.00	6,400
4' CL fence @ detention pond	470	LF	24.00	11,280
12' Wide gate @ detention pond	1	EA	1,500.00	1,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
*Softball field back stop - existing to remain				

				223,975
328000 IRRIGATION				
Irrigation system	350,000	SF	0.50	175,000

				175,000
329000 LANDSCAPING				
Fields:				
Infield mix	21,548	SF	2.75	59,257
Respread/ammend loam	9,228	CY	12.00	110,736
Rake, seed and fertilize	55,369	SY	1.80	99,664
Loam & seed conservation mix	1,684	SY	5.00	8,420
Deciduous Trees:				
Rotundiloba Sweetgum (3-3.5" cal.)	7	EA	700.00	4,900
American Yellowood (2-2.5" cal.)	7	EA	700.00	4,900
Magyar Ginko (3-3.5" cal.)	4	EA	700.00	2,800
Green Vase Japanese Zelkova (3-3.5" cal)	9	EA	290.00	2,610
Skyline Honey Locust (3-3.5" cal.)	25	EA	700.00	17,500
Aristocrat Flowering Pear (3-3.5" cal.)	5	EA	700.00	3,500
Kwanzan Cherry (3-3.5" cal.)	10	EA	700.00	7,000
Red Oak (3-3.5" cal.)	2	EA	700.00	1,400
Evergreen Trees:				
Austrian Pine (7-8' ht)	15	EA	320.00	4,800
Eastern White Pine (9-10' ht)	9	EA	290.00	2,610
Emerald Green Arborvitae (7-8' ht)	13	EA	135.00	1,755
Green Giant Arborvitae (8-9' ht)	6	EA	150.00	900
Mulch - allowance	1	LS	5,000.00	5,000
Transplant trees	6	EA	2,000.00	12,000
Wetland replication	13,500	SF	3.00	40,500
Shrubs:				
Ivory Queen Inkberry (3')	9	EA	95.00	855
Dwarf Dogwood (3')	16	EA	95.00	1,520
Perennial:				
Big Blue Lirope (#1 pot)	1,194	EA	4.00	4,776

				397,403

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
DIVISION 33 - UTILITIES				
330000 UTILITIES				
Water:				
6" Gate valve	5	EA	675.00	3,375
Connect to exist. line	5	EA	1,500.00	7,500
8" Gate valve	1	EA	1,050.00	1,050
8" CLDI	176	LF	74.00	13,024
4" Domestic	22	LF	46.00	1,012
6" CLDI	762	LF	64.00	48,768
6" Fire service line	12	LF	64.00	768
Hydrant	3	EA	1,850.00	5,550
PI valve	1	EA	1,200.00	1,200
Sanitary Sewer:				
Grease trap (5,000 gal)		see plumbing		
10" PVC Sanitary main	1,085	LF	45.00	48,825
Sanitary manhole	5	EA	2,250.00	11,250
Maintain exist. sys during construction	1	LS	5,000.00	5,000
6" PVC	382	LF	29.00	11,078
4" Vent	78	LF	24.00	1,872
Connect to existing	1	EA	2,500.00	2,500
Storm Sewer:				
Convert CB to DMH	1	EA	500.00	500
Adjust CB/DMH rim	10	EA	375.00	3,750
Catch basin	13	EA	2,250.00	29,250
Double catch basin	4	EA	4,200.00	16,800
Outlet control structure	2	EA	3,500.00	7,000
Drainage manhole	24	EA	2,250.00	54,000
Drain line	2,272	LF	38.00	86,336
Roof drain line	304	LF	38.00	11,552
Connect to existing street	1	LS	5,000.00	5,000
Flared end w/ rip rap	3	EA	1,800.00	5,400
15" HDPE	513	LF	42.00	21,546
18" HDPE	508	LF	48.00	24,384
Clean out	1	EA	750.00	750
12" RCP Culvert	195	LF	52.00	10,140
Head wall	3	EA	1,850.00	5,550
Water quality unit	2	EA	18,000.00	36,000
Area drain	1	EA	1,200.00	1,200
Trench drain	26	LF	130.00	3,380
Field Drainage:				
Additional 4" loam	2,675	CY	32.00	85,600
Additional 4" loam (amend and re-use)	2,263	CY	12.00	27,156
2" Sand drain	18,359	LF	16.00	293,744
Strip drain	9,303	LF	20.00	186,060
Collector piping	1,736	LF	32.00	55,552
Fuel Distribution:				
Gas meter pad	1	EA	1,500.00	1,500
Trench excavation/backfill	500	LF	42.00	21,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Gas service		By Gas Co.		
*Central Street gas line extension by Gas Co.				

				1,155,922

PROJECT:	Sherwood Middle School	NO. OF SQ. FT.:	129,939
LOCATION:	Shrewsbury, MA	COST PER SQ. FT.:	$223.74
CLIENT:	Lamoureux Pagano Associates Architects		
DATE:	06-Dec-10		

No.: 09082

SUMMARY

	TOTAL	PERCENT OF PROJECT	COST PER SF
A. SUBSTRUCTURE			
A10 - FOUNDATIONS			
A1010 STANDARD FOUNDATIONS	1,338,041	5%	10.30
A1020 SPECIAL FOUNDATIONS	0	0%	0.00
A1030 SLAB ON GRADE	393,341	1%	3.03
A20 - BASEMENT CONSTRUCTION			
A2010 BASEMENT EXCAVATION	0	0%	0.00
A2020 BASEMENT WALLS	0	0%	0.00
B. SHELL			
B10 - SUPERSTRUCTURE			
B1010 FLOOR CONSTRUCTION	1,315,920	5%	10.13
B1020 ROOF CONSTRUCTION	812,003	3%	6.25
B20 - EXTERIOR ENCLOSURE			
B2010 EXTERIOR WALLS	3,052,325	10%	23.49
B2020 EXTERIOR WINDOWS	723,479	2%	5.57
B2030 EXTERIOR DOORS	57,607	0%	0.44
B30 - ROOFING			
B3010 ROOF COVERINGS	892,368	3%	6.87
B3020 ROOF OPENINGS	2,500	0%	0.02
C. INTERIORS			
C10 - INTERIOR CONSTRUCTION			
C1010 PARTITIONS	1,579,292	5%	12.15
C1020 INTERIOR DOORS	496,198	2%	3.82
C1030 FITTINGS	502,801	2%	3.87
C20 - STAIRS			
C2010 STAIR CONSTRUCTION	137,360	0%	1.06
C2020 STAIR FINISHES	16,150	0%	0.12
C30 - INTERIOR FINISHES			
C3010 WALL FINISHES	979,270	3%	7.54
C3020 FLOOR FINISHES	1,114,465	4%	8.58
C3030 CEILING FINISHES	660,471	2%	5.08
D. SERVICES			
D10 - CONVEYING			
D1010 ELEVATORS & LIFTS	117,500	0%	0.90
D1010 ESCALATORS & MOVING WALKS	0	0%	0.00
D1090 OTHER CONVEYING SYSTEMS	0	0%	0.00
D20 - PLUMBING			
D2010 PLUMBING	1,157,271	4%	8.91

	TOTAL	PERCENT OF PROJECT	COST PER SF
D30 - HVAC			
D3010 HVAC	3,622,329	12%	27.88
D40 - FIRE PROTECTION			
D4010 FIRE PROTECTION	549,542	2%	4.23
D50 - ELECTRICAL			
D5010 ELECTRICAL	3,097,429	11%	23.84
E. EQUIPMENT & FURNISHINGS			
E10 - EQUIPMENT			
E1010 COMMERCIAL EQUIPMENT	467,000	2%	3.59
E1020 INSTITUTIONAL EQUIPMENT	0	0%	0.00
E1030 VEHICULAR EQUIPMENT	0	0%	0.00
E1090 OTHER EQUIPMENT	196,972	1%	1.52
E20 - FURNISHINGS			
E 2010 FIXED FURNISHINGS	1,011,094	3%	7.78
E2020 MOVABLE FURNISHINGS	0	0%	0.00
F. SPECIAL CONSTRUCTION & DEMOLITION			
F10 - SPECIAL CONSTRUCTION			
F1010 SPECIAL STRUCTURES	0	0%	0.00
F1020 INTEGRATED CONSTRUCTION	0	0%	0.00
F1030 SPECIAL CONSTRUCTION SYSTEMS	0	0%	0.00
F1040 SPECIAL FACILITIES	0	0%	0.00
F1050 SPECIAL CONTROLS & INSTRUMENTATION	0	0%	0.00
F20 - SELECTIVE BUILDING DEMOLITION			
F2010 BUILDING ELEMENTS DEMOLITION	394,000	1%	3.03
F2020 HAZARDOUS COMPONENTS ABATEMENT	575,000	2%	4.43
G. BUILDING SITEWORK			
G10 - SITE PREPARATION			
G1010 SITE CLEARING	61,186	0%	0.47
G1020 SITE DEMOLITION & RELOCATIONS	219,253	1%	1.69
G1030 SITE EARTHWORK	325,989	1%	2.51
G1040 HAZARDOUS WASTE REMEDIATION	0	0%	0.00
G20 - SITE IMPROVEMENTS			
G2010 ROADWAYS	822,365	3%	6.33
G2020 PARKING LOTS	0	0%	0.00
G2030 PEDESTRIAN PAVING	164,072	1%	1.26
G2040 SITE DEVELOPMENT	383,848	1%	2.95

	TOTAL	PERCENT OF PROJECT	COST PER SF
G2050 LANDSCAPING	572,403	2%	4.41
G30 - SITE MECHANICAL UTILITIES			
G3010 WATER SUPPLY	82,247	0%	0.63
G3020 SANITARY SEWER	80,525	0%	0.62
G3030 STORM SEWER	970,650	3%	7.47
G3040 HEATING DISTRIBUTION	0	0%	0.00
G3050 COOLING DISTRIBUTION	0	0%	0.00
G3060 FUEL DISTRIBUTION	22,500	0%	0.17
G3090 OTHER SITE MECHANICAL UTILITIES	0	0%	0.00
G40 - SITE ELECTRICAL UTILITIES			
G4010 ELECTRICAL DISTRIBUTION	106,017	0%	0.82
G4030 SITE COMMUNICATIONS & SECURITY	0	0%	0.00
G4090 OTHER SITE ELECTRICAL UTILITIES	0	0%	0.00
G90 - OTHER SITE CONSTRUCTION			
G9010 SERVICE AND PEDESTRIAN TUNNELS	0	0%	0.00
G9090 OTHER SITE SYSTEMS	0	0%	0.00
	---	---	---
TOTAL DIRECT COST	29,072,779	100%	223.74

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

A. SUBSTRUCTURE

A10 - FOUNDATIONS

A1010 STANDARD FOUNDATIONS

033000 CAST IN PLACE CONCRETE

Int. Wall Footing 1' :				
4000 psi, NW, (incl. placement)	12	CY	132.00	1,584
Formwork	296	SFCA	6.00	1,776
Rebar (2.25 lbs/cf)	729	LBS	0.98	714
**unit cost $339.54*				
Ext. Wall Footing 3' x 1' :				
4000 psi, NW, (incl. placement)	159	CY	132.00	20,988
Formwork	2,864	SFCA	6.00	17,184
Rebar (2.25 lbs/cf)	9,660	LBS	0.98	9,467
**unit cost $299.62*				
Stepped Wall Footing 3' x 1' :				
4000 psi, NW, (incl. placement)	4	CY	132.00	528
Formwork	80	SFCA	12.00	960
Rebar (2.5 lbs/cf)	270	LBS	0.98	265
**unit cost $438.15*				
Retaining Wall Footing (1'-6" thick)				
4000 psi, NW, (incl. placement)	258	CY	132.00	34,056
Formwork	2,000	SFCA	16.00	32,000
Rebar (3 lbs/cf)	20,898	LBS	0.98	20,480
**unit cost $335.41*				
Column Footing (90 EA):				
4000 psi, NW, (incl. placement)	183	CY	132.00	24,156
Formwork	3,192	SFCA	8.00	25,536
Rebar (3 lbs/cf)	14,823	LBS	0.98	14,527
**unit cost $350.92*				
Ext. Column Pier (4'high):				
4000 psi, NW, (incl. placement)	5.5	CY	140.00	770
Formwork	288	SFCA	8.00	2,304
Rebar (3 lbs/cf)	446	LBS	0.98	437
**unit cost $638.38*				
Int. Column Pier (10'-14' high):				
4000 psi, NW, (incl. placement)	18	CY	136.00	2,448
Formwork	960	SFCA	8.00	7,680
Rebar (3 lbs/cf)	1,458	LBS	0.98	1,429
**unit cost $642.05*				
Tie beam 2' thick x 1' high:				
4000 psi, NW, (incl. placement)	18.5	CY	136.00	2,516

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Formwork	531	SFCA	16.00	8,496
Reinforcing steel (3.5 lbs/cf)	1,748	LBS	0.98	1,713
**unit cost $687.84*				
Tie beam 1' 8"thick x 7' high:				
4000 psi, NW, (incl. placement)	13	CY	136.00	1,768
Formwork	406	SFCA	16.00	6,496
Reinforcing steel (3.5 lbs/cf)	1,229	LBS	0.98	1,204
**unit cost $728.34*				
Building Retaining Wall 1'-8" thick x 15-18' high:				
4000 psi, NW, (incl. placement)	475	CY	136.00	64,600
Formwork	14,417	SFCA	16.00	230,672
Waterstop	478	LF	9.00	4,302
Reinforcing steel (3.75 lbs/cf)	48,094	LBS	0.98	47,132
**unit cost $729.91*				
Foundation Wall 1-4" x 4'- 8' deep:				
4000 psi, NW, (incl. placement)	283	CY	136.00	38,488
Formwork	11,469	SFCA	9.00	103,221
Brick Shelf	1,372	LF	12.00	16,464
Reinforcing steel (3.5 lbs/cf)	26,743	LBS	0.98	26,208
**unit cost $651.52*				
Foundation Wall 1-8" x 4'- 8' deep:				
4000 psi, NW, (incl. placement)	56	CY	136.00	7,616
Formwork	1,800	SFCA	9.00	16,200
Brick Shelf	185	LF	12.00	2,220
Reinforcing steel (3.5 lbs/cf)	5,292	LBS	0.98	5,186
Foundation Stepped Frost Wall 1-4" x 10' deep Avg.:				
4000 psi, NW, (incl. placement)	19	CY	136.00	2,584
Formwork	620	SFCA	9.00	5,580
Brick Shelf	31	LF	12.00	372
Reinforcing steel (2.7.5 lbs/cf)	1,411	LBS	0.98	1,383
**unit cost $522.04*				
Foundation Stepped Frost Wall 1-4" x 14' deep Avg.:				
4000 psi, NW, (incl. placement)	42	CY	136.00	5,712
Formwork	1,353	SFCA	9.00	12,177
Brick Shelf	48	LF	12.00	576
Reinforcing steel (4 lbs/cf)	4,536	LBS	0.98	4,445
**unit cost $545.48*				
Foundation Interior 12" x 2' deep:				
4000 psi, NW, (incl. placement)	10	CY	142.00	1,420
Formwork	526	SFCA	9.00	4,734
Reinforcing steel (3 lbs/cf)	810	LBS	0.98	794
**unit cost $694.78*				
Loading Dock/Ramp Wall Footing 2' x 1' :				
4000 psi, NW, (incl. placement)	5	CY	132.00	660
Formwork	130	SFCA	6.00	780

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Rebar (2.25 lbs/cf)	304	LBS	0.98	298
**unit cost $347.58*				
Loading Dock/Ramp Wall 1'x 4' - 8' High:				
4000 psi, NW, (incl. placement)	17	CY	136.00	2,312
Formwork	880	SFCA	9.00	7,920
Reinforcing steel (3.5 lbs/cf)	1,606	LBS	0.98	1,574
**unit cost $694.46*				
Loading Dock Retaining Wall 12" thick x 14' high (118 LF):				
4000 psi, NW, (incl. placement)	62	CY	136.00	8,432
Formwork	3,304	SFCA	12.50	41,300
Waterstop	118	LF	9.00	1,062
Reinforcing steel (5 lbs/cf)	8,370	LBS	0.98	8,203
**unit cost $951.56*				
Found. wall beam seat	40	EA	35.00	1,400
Elevator Mat	4	CY	575.00	2,300
Elevator Pit Wall	5	CY	650.00	3,250
Pilaster	14	CY	850.00	11,900
Equipment pads	1	LS	4,000.00	4,000
072100 THERMAL INSULATION				
2" Rigid found. insul	14,509	SF	2.45	35,547
070001 DAMPPROOF., WATERPROOF. & CAULKING*				
Dampproof frost wall	7,621	SF	1.75	13,337
Waterproof ground floor wall	15,000	SF	6.75	101,250
Elev. pit waterproofing	1	LS	3,850.00	3,850
312000 EARTH MOVING				
Building Cut	3,277	CY	5.25	17,204
Structural fill	4,492	CY	22.00	98,824
Excavate Foundation	2,000	CY	6.00	12,000
Backfill Foundation (on site mat'l)	2,800	CY	6.00	16,800
Dispose of spoil (non haz.unlined landfill)	3,277	CY	10.00	32,770
Foundation drains		W/Plumbing		
Ledge Removal (premium)	1,500	CY	45.00	67,500

				1,338,041

A1020 SPECIAL FOUNDATIONS

NOT USED

0

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
A1030 SLAB ON GRADE				
033000 CAST IN PLACE CONCRETE				
5" Slab on grade	56,475	SF	3.30	186,368
18 Mil poly	56,475	SF	0.65	36,709
Thicken slab @ col. ftg	18	CY	135.00	2,430
Loading dock slab	208	SF	6.00	1,248
Loading dock ramp slab	160	SF	6.00	960
312000 EARTH MOVING				
12" Gravel base @ SOG	2,105	CY	21.00	44,205
072100 THERMAL INSULATION				
2" Rigid Slab Insul.	56,475	SF	2.15	121,421

				393,341
TOTAL A10 FOUNDATIONS				**1,731,381**

B. SHELL

B10 - SUPERSTRUCTURE

B1010 FLOOR CONSTRUCTION

033000 CAST IN PLACE CONCRETE				
Pedestrian Bridge:				
Structural slab	312	SF	25.00	7,800
Cast curb	26	LF	42.00	1,092
5 1/2" NW deck fill	62,733	SF	3.40	213,292
7 1/2" Deck fill - gym	8,800	SF	4.20	36,960
Depress gym slab	376	LF	4.00	1,504
051200 STRUCTURAL STEEL				
Wide flange floor frame	241.5	TONS	2,200.00	531,300
TS columns	86.36	TONS	2,450.00	211,582
TS brace frame	13.5	TONS	2,600.00	35,100
Shear studs	6,270	EA	5.10	31,977
Moment connections	100	EA	625.00	62,500
Floor angle beam	0.9	TONS	2,600.00	2,340
TS beam	4.29	TONS	2,550.00	10,940

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
*Excludes spray-on fireproofing				
053100 STEEL DECKING				
3" x 18 Ga comp floor deck	71,533	SF	2.37	169,533

				1,315,920
B1020 ROOF CONSTRUCTION				
033000 CAST IN PLACE CONCRETE				
8" Structural slab - elev PH	70	SF	12.00	840
051200 STRUCTURAL STEEL				
LH bar joist	33.58	TONS	1,900.00	63,802
Type K bar joist	15.6	TONS	1,850.00	28,860
Wide flange beam	161	TONS	2,200.00	354,200
TS column	49.43	TONS	2,200.00	108,746
TS beam	6.15	TONS	2,550.00	15,683
TS brace frame	6.5	TONS	2,600.00	16,900
Bridging	1,156	LF	8.00	9,248
Angle beam	0.26	TONS	2,600.00	676
Galv. RTU dunnage	6.5	TONS	3,100.00	20,150
Shear studs	240	EA	5.10	1,224
Moment connections	63	EA	625.00	39,375
053100 STEEL DECKING				
3"x18 Ga. acoustical roof deck - gym	8,900	SF	5.50	48,950
1 1/2"x20 Ga. roof deck	49,214	SF	2.10	103,349

				812,003
TOTAL B10 SUPERSTRUCTURE				**2,127,923**

B20 - EXTERIOR ENCLOSURE

B2010 EXTERIOR WALLS

042201 CONCRETE UNIT MASONRY*

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Masonry Veneer:				
4" Precast - water table	3,898	SF	45.00	175,410
Masonry Wall flashing	1,186	LF	9.50	11,267
054000 COLD FORMED METAL FRAMING				
Back-up:				
8" x 16 Ga. stud @ 16" oc typ	34,331	SF	7.50	257,483
8" x 16 Ga stud @ class parapet 1'6"	1,600	SF	7.25	11,600
6" x 18 Ga. stud @ solar panel	3,103	SF	5.75	17,842
12"x16 Ga stud @ 16" oc	11,247	SF	9.50	106,847
12"x16 Ga stud - gym parapet	1,830	SF	9.50	17,385
6" Ext. ceiling frame	3,142	SF	3.70	11,625
6" Ext. soffit frame @ canopy	919	SF	9.00	8,271
3" Stud at soffit and Collector end and cap	1,600	SF	6.00	9,600
055001 METAL FABRICATIONS*				
OH door frame	3	EA	350.00	1,050
062000 FINISH CARPENTRY				
GFRP ext. covers (10 EA)	105	VLF	145.00	15,225
070001 DAMPPROOF., WATERPROOF. & CAULKING*				
Adhered perimeter flashing @ open.	5,500	LF	7.25	39,875
Misc Sealants	1	LS	25,000.00	25,000
074000 METAL WALL PANELS				
Metal Wall Panels - Exterior Wall:				
3" Metal wall backup panel	50,508	SF	20.00	1,010,160
PP-A profile finish	5,358	SF	16.50	88,407
PP-B profile finish	13,344	SF	16.50	220,176
PP-C profile finish	13,673	SF	16.50	225,605
Flat finished metal panel	11,132	SF	38.50	428,582
Flat panel @ CW sill	277	SF	38.5	10,665
Solar Wall:				
Relieving angle	63	LF	75.00	4,725
Perforated solar collector	3,103	SF	27.00	83,781
Solar Panel collector end panel and cap	839	SF	27.00	22,653
Roof Screen Panel - allow	NOT SHOWN			
Roof screen cap - allow	NOT SHOWN			
Metal Wall Panel - Exterior Clg:				
3" Metal clg back up panel	3,142	SF	38.00	119,396
PP profile finish (loading dock)	286	SF	38.00	10,868
Flat finish entry	2,856	SF	38.00	108,528

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
089000 LOUVERS				
Alum louvers	1	LS	5,000.00	5,000
090007 PAINTING*				
Exterior painting	1	LS	5,000.00	5,000
109000 MISCELLANEOUS SPECIALTIES				
Loading dock bumper	12	LF	25.00	300

				3,052,325
B2020 EXTERIOR WINDOWS				
061000 ROUGH CARPENTRY				
10" P.T. - perm blocking	5,500	LF	6.85	37,675
070001 DAMPPROOF., WATERPROOF. & CAULKING*				
Exterior sealants	5,500	LF	5.75	31,625
0800001 ALUMINUM WINDOWS*				
4 1/2" Alum. window	4,110	SF	52.00	213,720
084413 ALUMINUM ENTRANCES & STOREFRONTS				
4 1/2" Alum. storefront J-L	3,684	SF	61.00	224,724
4 1/2" Alum. storefront - segmented	470	SF	61.00	28,670
084413 GLAZED ALUMINUM CURTAIN WALL				
10 1/2" Alum. curtain wall	1,542	SF	90.00	138,780
107113 SUN CONTROL DEVICES				
Aluminum Sun Shade:				
Alum. window		n/a		
Alum. storefront	198	LF	145.00	28,710
Alum. curtain wall	135	LF	145.00	19,575

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
				723,479
B2030 EXTERIOR DOORS				
061000 ROUGH CARPENTRY				
10" P.T. - perm blocking	70	LF	6.85	480
070001 DAMPPROOF., WATERPROOF. & CAULKING*				
Exterior sealants	70	LF	5.75	403
082500 DOOR OPENING ASSEMBLIES				
Insulated Metal Doors (Incl. Hardware):				
Loading Dock - dbl	1	EA	1,600.00	1,600
Mech Rm - sgl w/transom	1	EA	1,500.00	1,500
Roof access - sgl	1	EA	150.00	150
083323 OVERHEAD COILING DOORS				
Overhead Door - 8x8	1	EA	2,500.00	2,500
Overhead Door - 10x11	2	EA	3,000.00	6,000
084413 ALUMINUM ENTRANCES & STOREFRONTS				
Alum. Doors (Incl. Hardware):				
Alum. entry door - dbl	6	PR	5,900.00	35,400
Alum. entry door - sgl	3	EA	3,100.00	9,300
*Storefront system included w/B2020				
090007 PAINTING*				
Paint HM door - sgl	2	EA	70.00	140
Paint HM door - dbl	1	EA	135.00	135

				57,607
TOTAL B20 - EXTERIOR ENCLOSURE				**3,833,411**
B30 - ROOFING				
B3010 ROOF COVERINGS				
055001 METAL FABRICATIONS*				
Galv. roof ladder (3 EA)	24	VLF	120.00	2,880

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Guardrail @ ped bridge	26	LF	175.00	4,550
061000 ROUGH CARPENTRY				
Roof blocking	2,136	LF	12.50	26,700
3/4 CDX - soffit/roof	6,000	SF	2.10	12,600
070002 ROOFING & FLASHING*				
1/4" Fiberglass mat	58,322	SF	1.25	72,903
Vapor retarder 3 ply	58,322	SF	1.65	96,231
.90 EPDM roof w/5" rigid insul & prot bd	58,322	SF	8.00	466,576
Tapered insulation - premium	18,000	SF	3.50	63,000
Membrane flashing/walkway pads	1	LS	15,000.00	15,000
Wpg w/pavers @ ped bridge	320	SF	30.00	9,600
Parapet membrane & rigid insul	2,345	SF	5.00	11,725
Parapet sheathing	2,345	SF	2.30	5,394
Elev. PH membrane & rigid insul	124	SF	5.00	620
Single ply @ solar collector	1,400	SF	4.00	5,600
Alum. Clad Trim & Flashing:				
Radius roof edge	88	LF	35.00	3,080
Parapet cap - class	1,137	LF	26.00	29,562
Parapet cap - gym	307	LF	28.00	8,596
Gravel stop	638	LF	18.00	11,484
Base flashing	509	LF	32.00	16,288
Roof drain		w/Plumbing		
Scupper	19	EA	450.00	8,550
Exp. jt	40	LF	75.00	3,000
Misc. metal flashing	1	LS	15,000.00	15,000
072100 THERMAL INSULATION				
2" Rigid insul @ solar collector	1,400	SF	2.45	3,430

				892,368
B3020 ROOF OPENINGS				
089000 LOUVERS				
Elevator vent	1	LS	2,500.00	2,500

				2,500
TOTAL B30 ROOFING				**894,868**

C. INTERIORS

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
C10 - INTERIOR CONSTRUCTION				
C1010 PARTITIONS				
042201 CONCRETE UNIT MASONRY*				
Elevator Shaft - 8" CMU	1,411	SF	20.00	28,220
061000 ROUGH CARPENTRY				
Interior Blocking	129,939	GSF	0.35	45,479
Misc. Rough Carpentry	129,939	GSF	0.50	64,970
070001 DAMPPROOF., WATERPROOF. & CAULKING*				
Joint sealants - int.	129,939	GSF	1.20	155,927
078400 FIRESTOPPING				
Firestopping	129,939	GSF	0.35	45,479
092900 GYPSUM BOARD ASSEMBLIES				
1 lyr 5/8" at exterior	49,109	SF	1.80	88,396
Drywall Partitions:				
S4A Corridor partition	35,122	SF	8.00	280,976
F6A stair hall partition	2,206	SF	7.50	16,545
F8A Stair hall	1,908	SF	12.00	22,896
S4A typical partition	15,352	SF	7.25	111,302
S4d Chase - 1 side	14,349	SF	5.50	78,920
F4C 2 hr part.	1,247	SF	13.00	16,211
Furr and gyp foundation		N/A		
S4H @ music rm	758	SF	15.00	11,370
S4H @ expansion	748	SF	15.00	11,220
S4J @ mech rm	805	SF	16.00	12,880
S4J @ music rm	1,465	SF	16.00	23,440
S4G class separation	20,201	SF	8.50	171,709
S6d Chase	2,591	SF	6.10	15,805
S8A class separation	7,111	SF	12.00	85,332
Sim. S4G class sep/box column	1,480	SF	8.50	12,580
Furr elev CMU shaft	747	SF	4.50	3,362
F6A stair hall chase 1 side	3,490	SF	6.75	23,558
Music/locker rm partition 20'	7,847	SF	8.00	62,776
Music/locker rm chase partitions 20'	1,979	SF	6.00	11,874
S4A bulkhead @ storefront	463	SF	7.25	3,357
S10A gym	3,997	SF	14.00	55,958
Box corridor col/locker end wall	4,368	SF	5.00	21,840
Corridor locker base	614	LF	26.00	15,964
Gym locker base	130	LF	26.00	3,380
Misc. drywall assemblies	129,939	GSF	0.50	64,970
Abuse res. gyp prem. PE/platform	14,000	SF	0.90	12,600

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				1,579,292

C1020 INTERIOR DOORS

081110 HOLLOW METAL DOORS & FRAMES

Access Panels	1	LS	15,000.00	15,000
H.M. Frames:				
Door Frame - SGL	204	EA	235.00	47,940
Door Frame - Dbl	32	EA	245.00	7,840
Sidelight frame - Type B	60	EA	420.00	25,200
Sidelite frame type C - F	158.5	SF	32.00	5,072
Borrowed light BL 1-4	211	SF	40.00	8,440
Hollow Metal Door:				
M1-sgl	20	EA	245.00	4,900
M1-dbl	10	EA	490.00	4,900
2 Hr. M1-sgl	2	EA	265.00	530
M2 dbl	2	EA	530.00	1,060
1 Hr M2-sgl	3	EA	310.00	930
1Hr M2-dbl	11	EA	620.00	6,820
M3-sgl	1	EA	420.00	420
M3-dbl	6	EA	840.00	5,040

081400 WOOD DOORS

Wood Door (Prefinished):				
W1-sgl	178	EA	270.00	48,060
W1-dbl	3	EA	540.00	1,620

083323 OVERHEAD COILING DOORS

9' Overhead coiling door at Café (4 ea)	294	SF	75.00	22,050

087100 DOOR HARDWARE

Interior Finish Hardware:				
Stair Hall - sgl	3	EA	1,800.00	5,400
Stair Hall - dbl	11	EA	2,700.00	29,700
Corridor - sgl	4	EA	1,800.00	7,200
Corridor -dbl	6	EA	2,700.00	16,200
Administration/Office - sgl	40	EA	550.00	22,000
Kitchen - sgl	1	EA	600.00	600
Kitchen -dbl	1	EA	900.00	900
Mech/Elect - sgl	12	EA	400.00	4,800
Mech/Elect - dbl	3	EA	650.00	1,950
Toilet rm - sgl fixture	15	EA	500.00	7,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Storage - sgl	13	EA	350.00	4,550
Storage - dbl	4	EA	600.00	2,400
Classroom - sgl	57	EA	550.00	31,350
Interconnecting Classroom - sgl	45	EA	260.00	11,700
Music - dbl	2	EA	1,000.00	2,000
Music - sgl	2	EA	700.00	1,400
Toilet rm/locker room - sgl	10	EA	550.00	5,500
Gym - dbl	3	EA	2,500.00	7,500
Media ctr - sgl	1	EA	700.00	700
Media ctr - dbl	1	EA	1,300.00	1,300
Café - sgl	1	EA	700.00	700
Café - dbl	1	EA	1,300.00	1,300
080002 GLASS & GLAZING*				
Interior Glass and Glazing:				
HM window/sidelite 1/4" temp	912	SF	14.00	12,768
Door glazing 1/4" temp	121	SF	14.00	1,694
Door glazing -wire	16.5	SF	16.00	264
Misc. glazing	1	LS	5,000.00	5,000
084413 ALUMINUM ENTRANCES & STOREFRONTS				
Aluminum Storefront and Entries:				
Vestibule Door - dbl	2	PR	5,300.00	10,600
Main office - sgl	1	EA	3,000.00	3,000
Main office - dbl	1	PR	4,900.00	4,900
Music corridor	1	PR	4,900.00	4,900
Music rm	1	PR	4,900.00	4,900
Storefront	952	SF	61.00	58,072
090007 PAINTING*				
Paint HM frame - sgl	204	EA	25.00	5,100
Paint HM frame - dbl	32	EA	30.00	960
Paint HM door - sgl	26	EA	75.00	1,950
Paint HM door - dbl	29	EA	125.00	3,625
Paint HM window/sidelite frame	1198.5	SF	5.00	5,993

				496,198

C1030 FITTINGS

033000 CAST IN PLACE CONCRETE				
Stage Platform:				
Deck fill	300	SF	3.30	990
053100 STEEL DECKING				
Stage Platform:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Comp deck	300	SF	2.80	840
054000 COLD FORMED METAL FRAMING				
Stage Platform:				
Light gauge stl frame	300	SF	12.00	3,600
055001 METAL FABRICATIONS*				
OP partition support		w/051200		
Lobby glazed railing	46	LF	275.00	12,650
Corridor ramp wall rail		N/A		
Misc. metals	129,939	GSF	0.50	64,970
062000 FINISH CARPENTRY				
10' FRP col cover lobby (2 EA)	20	VLF	95.00	1,900
10' FRP col cover café (9 EA)	90	VLF	95.00	8,550
10' FRP col cover library entry (2 EA)	20	VLF	95.00	1,900
Solid surface window sill	1,073	LF	28.00	30,044
Solid surface curtain wall sill	120	LF	28.00	3,360
Solid surface storefront sill	483	LF	28.00	13,524
Solid surface segmented sill	71	LF	50.00	3,550
079500 EXPANSION CONTROL				
Exp. jt assemblies	1	LS	10,000.00	10,000
102113 TOILET COMPARTMENTS				
Solid Plastic Toilet Partitions:				
Std. partition	18	EA	1,050.00	18,900
HC Partition	10	EA	1,225.00	12,250
Urinal screen	4	EA	275.00	1,100
Locker rm changing stall w/bench	11	EA	1,300.00	14,300
HC locker rm changing stall w/bench	2	EA	1,500.00	3,000
HC shw rm partition	2	EA	1,800.00	3,600
102124 CUBICLE CURTAINS AND TRACK				
Cubicle track w/curtain (4 EA)	60	LF	95.00	5,700
102226 OPERABLE PARTITIONS				
Platform 14' elec. op	693	SF	90.00	62,370
101400 SIGNAGE				
Building directory - allow	1	EA	5,000.00	5,000
Int. ADA signage	129,939	GSF	0.15	19,491
16" Alum. Letters	20	EA	350.00	7,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
102800 TOILET ACCESSORIES				
Baby changing sta - allow	2	EA	475.00	950
Paper towel dispenser/disposal	25	EA	250.00	6,250
Toilet tissue dispenser	43	EA	48.00	2,064
Grab bars	50	EA	95.00	4,750
Soap dispenser	42	EA	42.00	1,764
Framed mirror - 3'	42	EA	195.00	8,190
Coat hooks	43	EA	20.00	860
Shower rod w/curtain	3	EA	35.00	105
Towel hook	3	EA	15.00	45
Janitor shelf	4	EA	200.00	800
Misc. accessories	1	LS	2,000.00	2,000
*Excludes classroom accessories				
102600 WALL AND DOOR PROTECTION				
Wall & corner guards - allow	1	LS	5,000.00	5,000
104413 FIRE PROTECTION SPECIALTIES				
Fire extinguisher and cab - allow	6	EA	450.00	2,700
105100 METAL LOCKERS				
Student lockers (12"x15"x30") dbl tier	463	EA	245.00	113,435
Locker rm bench	123	LF	70.00	8,610
Gym lockers - basket (12"x12"x12")	450	EA	75.00	33,750
Life skill locker (12"x15"x30")	12	EA	245.00	2,940
Kitchen staff locker		w/E1010		

				502,801
TOTAL C10 - INTERIOR CONSTRUCTION				**2,578,291**

C20 - STAIRS

C2010 STAIR CONSTRUCTION

033000 CAST IN PLACE CONCRETE				
Conc stair pan fill full flt	7	FLTS	900.00	6,300
Conc stair pan fill 4 risers	4	FLTS	400.00	1,600
055001 METAL FABRICATIONS*				
Metal Pan Stair W/ Glazed Rails :				
Stair w/4' tread	1	FLTS	16,500.00	16,500
Stair w/6' tread	5	FLTS	18,000.00	90,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Metal Stair w/Pipe Rails:				
Mech rm stair w/4' tread	1	FLTS	15,000.00	15,000
Stage stair (4 risers w/4' tread)	2	FLTS	950.00	1,900
Corridor stair (4 risers w/4' tread)	2	FLTS	950.00	1,900
Stage stair guardrail	10	LF	188.00	1,880
Corridor stair wall rail	24	LF	95.00	2,280
057300 GLAZED DECORATIVE RAILINGS				
*Included with 055001				

				137,360
C2020 STAIR FINISHES				
090005 RESILIENT FLOORS*				
Rubber treads and risers	848	LFR	12.50	10,600
Wood stage stair tread	24	LFT	12.50	300
*Excludes mechanical rm stair finish				
090007 PAINTING*				
Paint stair - full flt	7	FLT	750.00	5,250

				16,150
TOTAL C20 - STAIRS				**153,510**
C30 - INTERIOR FINISHES				
C3010 WALL FINISHES				
062000 FINISH CARPENTRY				
Platform trim	1	LS	15,000.00	15,000
Custom Fabricated P. Lam Wall Panel:				
Café - allow	1,000	SF	42.00	42,000
Lobby - allow 7'	2,451	SF	42.00	102,942
Gymnasium/stage front	3,236	SF	42.00	135,912
Kitchen FRP panel 7'		N/A		
098313 ACOUSTIC WALL PANELS				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Cafeteria	232	SF	22.00	5,104
Gym Acoustical panels - tectum	404	SF	22.00	8,888
Band & orchestra acoustical wall panel - allow	500	SF	25.00	12,500
Misc. Music Room panels	1	LS	10,000.00	10,000
090002 TILE*				
Ceramic Wall Tile:				
Janitor closet - 5' wainscot	655	SF	13.00	8,515
Shw - 8' tile	344	SF	13.00	4,472
Toilet rm - 8' wainscot	8,960	SF	13.00	116,480
Corridors - 7'	12,261	SF	13.00	159,393
Stair Halls - 7'	3,046	SF	13.00	39,598
Tile backer bd premium	6,599	SF	1.60	10,558
Kitchen - 7'	2,235	SF	13.50	30,173
Locker rm - 5' wainscot	1,000	SF	13.00	13,000
Cafeteria	582	SF	13.00	7,566
*Excludes wall tile at north corridor 136				
090007 PAINTING*				
Seal/exp. conc. found wall	5,253	SF	1.20	6,304
Wall painting	129,939	GSF	1.80	233,890
116620 ATHLETIC EQUIPMENT				
Gym padding 7'	1,358	SF	12.50	16,975

				979,270
C3020 FLOOR FINISHES				
033000 CAST IN PLACE CONCRETE				
Conc. Sealer	4,185	SF	0.95	3,976
090002 TILE*				
Janitor Closet (4 EA):				
Ceramic floor tile - thin set	280	SF	12.50	3,500
Waterproofing - upper flr	170	SF	7.00	1,190
Marble threshold	4	EA	49.00	196
Toilet/Shower & Locker Rm:				
Shower receptor	3	EA	475.00	1,425
Ceramic floor tile - thin set	4,853	SF	12.50	60,663
Ceramic floor tile waterproofing	1,740	SF	7.00	12,180
Marble Threshold	29	EA	49.00	1,421
Built-up Ceramic base	1,328	LF	10.00	13,280

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Kitchen:				
Quarry tile - thin set	2,891	SF	14.50	41,920
Quarry tile base	474	LF	7.50	3,555
Marble threshold	51	LF	11.00	561
*Includes cooler & freezer				
090005 RESILIENT FLOORS*				
Sheet linoleum - corridor and classroom	74,253	SF	8.50	631,151
Sheet linoleum - lobby	5,518	SF	8.50	46,903
Sheet linoleum - café	5,841	SF	8.50	49,649
Rubber tile at stair hall/landing	2,025	SF	7.50	15,188
Rubber base	11,981	LF	2.05	24,561
096400 WOOD FLOORING				
Stage front wd floor	400	SF	12.00	4,800
Stage rear/choral class - masonite	1,245	SF	3.50	4,358
096600 ATHLETIC FLOORING				
Vented base - gym	335	LF	5.75	1,926
Gym resilient athletic wd flr	8,444	SF	15.50	130,882
096816 SHEET CARPETING				
Carpet	12,061	SF	4.50	54,275
*Admin, media center and music classrooms				
124810 ENTRANCE FLOOR MATS & FRAMES				
Vestibule walk-off mat - (1 EA)	314	SF	22.00	6,908

				1,114,465
C3030 CEILING FINISHES				
092900 GYPSUM BOARD ASSEMBLIES				
Sloped gyp ceiling - art rm	720	SF	8.00	5,760
Gyp ceiling	7,385	SF	6.75	49,849
2 Hr. gyp ceiling	292	SF	15.00	4,380
Gyp soffit	11,400	SF	12.00	136,800
090003 ACOUSTICAL CEILINGS*				
Flat mtl clg - main office	120	SF	35.00	4,200

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
ACT 1 - 2x2 typ	93,826	SF	3.90	365,921
ACT 2 - MR 2x2 kitchen	2,300	SF	5.00	11,500
ACT 3 - MR toilet rm/locker rm	1,994	SF	5.00	9,970
ACT 4 - 2x2 band & music	2,830	SF	5.50	15,565
Unistrut grid - art rm (2 EA)	240	SF	10.00	2,400
Open Cell Sys:				
Library	238	LF	18.00	4,284
090007 PAINTING*				
Paint gyp ceilings & soffits	19,797	SF	1.00	19,797
Paint exposed structure	14,307	SF	2.10	30,045

				660,471
TOTAL C30 - INTERIOR FINISHES				**2,754,205**

D. SERVICES

D10 - CONVEYING

D1010 ELEVATORS & LIFTS

055001 METAL FABRICATIONS*

Elev. framing	1	LS	3,000.00	3,000
Elev. pit ladder	1	EA	1,500.00	1,500
Elev. sump grate	1	EA	500.00	500
140001 ELEVATORS*				
Stage lift	1	LS	18,000.00	18,000
3500 lbs Hydraulic Elevator	3	STOP	31,500.00	94,500

				117,500
TOTAL D10 - CONVEYING				**117,500**

D20 - PLUMBING

D2010 PLUMBING FIXTURES

220000 PLUMBING*

Fixtures:				
P1 Water closet	18	EA	1,450.00	26,100

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
P1A Water closet ADA	23	EA	1,450.00	33,350
P2 Urinal	8	EA	1,300.00	10,400
P3 Lavatory	13	EA	950.00	12,350
P3A Lavatory ADA	21	EA	1,120.00	23,520
P4 Classroom sink	60	EA	975.00	58,500
P5 Lavatory	6	EA	850.00	5,100
P6 Drinking cooler	6	EA	270.00	1,620
P7 Sink ADA	2	EA	1,350.00	2,700
P8 Sink ADA	2	EA	1,350.00	2,700
P9 Art room sink	4	EA	1,600.00	6,400
P10 Shower	3	EA	1,800.00	5,400
P11 Service sink	3	EA	1,100.00	3,300
P12 Wall hung service sink	1	EA	975.00	975
P13 Washing machine connect	1	EA	450.00	450
WH/HB	16	EA	400.00	6,400
Fixture connection	171	EA	500.00	85,500
Kitchen equip. connection	36	EA	700.00	25,200
Misc.:				
Oil/sediment interceptor	1	EA	3,300.00	3,300
Grease trap	1	EA	7,500.00	7,500
Grease holding tank	1	EA	2,500.00	2,500
RP 1, 2 10 gpm circ pump	2	EA	8,500.00	17,000
1" BFP	1	EA	925.00	925
Pressure reducer	1	EA	2,200.00	2,200
Water Heaters:				
100 Gal gas WH-1,2	2	EA	7,100.00	14,200
WH-3 tankless	1	EA	1,800.00	1,800
Water heater 6" flue	180	LF	75.00	13,500
Roof/Storm Drain System				
Underground D/W/V Pipe:				
4"	45	LF	37.00	1,665
6"	405	LF	50.50	20,453
8"	210	LF	82.50	17,325
10"	110	LF	111.00	12,210
12"	25	LF	144.00	3,600
FCO	16	EA	450.00	7,200
Above Ground D/W/V Pipe:				
4"	750	LF	37.00	27,750
6"	590	LF	50.50	29,795
8"	55	LF	82.50	4,538
CO	29	EA	375.00	10,875
Roof drain Zurn 163 dbl	46	EA	1,250.00	57,500
Foundation drain 6"	440	LF	26.00	11,440
Sanitary System:				
Underground D/W/V Pipe:				
2"	50	LF	26.50	1,325
3"	570	LF	32.00	18,240
4"	1,075	LF	37.00	39,775
6"	75	LF	50.50	3,788
FCO	30	EA	450.00	13,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
FD	44	EA	620.00	27,280
Above Ground D/W/V Pipe:				
1 1/2"	770	LF	25.00	19,250
2"	1,840	LF	27.50	50,600
3"	870	LF	32.00	27,840
4"	420	LF	37.00	15,540
CO	10	EA	375.00	3,750
Copper Pipe:				
1/2"	2,085	LF	14.25	29,711
3/4"	2,945	LF	16.10	47,415
1"	605	LF	19.40	11,737
1 1/4"	120	LF	23.50	2,820
1 1/2"	525	LF	28.50	14,963
2"	475	LF	39.50	18,763
2 1/2"	355	LF	54.50	19,348
3"	95	LF	70.50	6,698
4"	80	LF	113.00	9,040
Misc. Valve and trim	1	LS	10,000.00	10,000
1" Pipe Insulation:				
1/2"	2,085	LF	5.90	12,302
3/4"	2,945	LF	6.15	18,112
1"	605	LF	6.50	3,933
1 1/4"	120	LF	6.70	804
1 1/2"	525	LF	6.95	3,649
2"	475	LF	7.30	3,468
2 1/2"	355	LF	7.80	2,769
3"	95	LF	8.25	784
4"	80	LF	10.15	812
Gas Pipe:				
3/4"	25	LF	16.20	405
1 1/2"	50	LF	26.00	1,300
2"	100	LF	33.50	3,350
2 1/2"	300	LF	47.00	14,100
4"	35	LF	75.00	2,625
6"	95	LF	92.00	8,740
Boiler connection	1	LS	3,000.00	3,000
Underground Water Service:				
4"	10	LF	120.00	1,200
Water service (inc. bfp)	1	LS	8,800.00	8,800
Sewer service	1	LS	3,500.00	3,500
Permit test and clean	1	LS	25,000.00	25,000
Direct Job Expense	1	LS	50,000.00	50,000
Commissioning coordination	1	LS	20,000.00	20,000

				1,157,271

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
TOTAL D20 - PLUMBING	**$8.91**	**/sf**		**1,157,271**

D30 - HVAC

D3010 HVAC

230000 HVAC*

Boiler:				
B1, B2, B3 (1800 mbh)	3	EA	32,000.00	96,000
Boiler feed	1	LS	2,200.00	2,200
Air separator	1	EA	15,000.00	15,000
Expansion tank	2	EA	3,300.00	6,600
Chemical feed	1	EA	7,500.00	7,500
Acid waste tank	1	EA	1,200.00	1,200
Boiler rough-in	1	LS	15,000.00	15,000
Flue:				
6" Vent	210	LF	45.00	9,450
12"	260	LF	115.00	29,900
Pumps:				
P1, P2 (440 gpm)	2	EA	8,500.00	17,000
VFD Drive	2	EA	3,200.00	6,400
CP-1 (condensate)	5	EA	400.00	2,000
Air Handling Unit (AHU):				
AHU - 1	6,000	CFM	5.50	33,000
AHU - 2	6,000	CFM	5.50	33,000
AHU - 3	12,000	CFM	5.50	66,000
AHU - 4	8,000	CFM	5.50	44,000
AHU - 5	2,400	CFM	6.50	15,600
Tstats	145	EA	875.00	126,875
Split AC Units:				
2 Ton ceiling vents	6	EA	4,200.00	25,200
Roof Top Unit (RTU):				
RTU 8 (2 ton)	810	CFM	9.00	7,290
RTU 9 (3 ton)	945	CFM	9.00	8,505
RTU 1 (5 ton)	1,900	CFM	8.50	16,150
RTU 10, 11 (9 ton)	5,100	CFM	8.00	40,800
RTU 5 (11 ton)	3,000	CFM	8.00	24,000
RTU 4 (16 ton)	4,100	CFM	8.00	32,800
RTU 2, 3, 7 (18 ton)	20,400	CFM	7.00	142,800
RTU 6 (25 ton)	6,300	CFM	9.00	56,700
Sound attenuation	157,060	CFM	0.38	59,683
Unit Heater:				
UH-1	4	EA	975.00	3,900
Cabinet Unit Heater:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
CUH-1	4	EA	3,100.00	12,400
CUH-2	12	EA	3,100.00	37,200
Hot water coil	1	EA	2,200.00	2,200
Electric Cabinet Unit Heater:				
ECH-1	9	EA	950.00	8,550
Fin tube radiator	1,504	LF	55.00	82,720
Exhaust Fans:				
CEX 1, 5, 6, 7	4	EA	350.00	1,400
CEX 2, 3	2	EA	450.00	900
CEX 4	1	EA	450.00	450
DF-1	1	EA	400.00	400
Inline Fan:				
IF-1	1	EA	2,800.00	2,800
IF-2	1	EA	700.00	700
IF-3	1	EA	2,900.00	2,900
IF-4	1	EA	2,900.00	2,900
IF-5	1	EA	2,900.00	2,900
IF-6	1	EA	2,900.00	2,900
Cooling Generating Systems:				
*DX Cooling inc. w/ RTU's				
Split AC system at elev. Mach rm	1	LS	8,000.00	8,000
Split AC system at elev. Data rm	1	LS	12,000.00	12,000
Hot water heating coil	1	EA	2,200.00	2,200
HVAC Pipe:				
Hot Water:				
3/4"	6,230	LF	16.10	100,303
1"	1,080	LF	19.40	20,952
1 1/4"	500	LF	23.50	11,750
1 1/2"	600	LF	28.50	17,100
2"	600	LF	39.50	23,700
3"	2,630	LF	70.50	185,415
4"	1,070	LF	110.00	117,700
1" Pipe Insulation:				
3/4"	6,230	LF	5.70	35,511
1"	1,080	LF	6.10	6,588
1 1/4"	500	LF	6.60	3,300
1 1/2"	600	LF	6.90	4,140
2"	600	LF	7.45	4,470
3"	2,630	LF	8.90	23,407
4"	1,070	LF	10.00	10,700
Condensation 3/4"	435	LF	13.00	5,655
Refrig. pipe	950	LF	26.00	24,700
Supply:				
Registers:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Grilles/registers	231	EA	230.00	53,130
4' Linear diffuser	134	EA	240.00	32,160
Flexible connection	389	EA	65.00	25,285
Galvanized ductwork	42,058	LBS	8.50	357,493
Lined duct	4,538	LBS	12.00	54,456
Duct Insul	37,000	SF	3.50	129,500
Combustion air intake	3	EA	1,800.00	5,400
Dampers:				
VD	293	EA	210.00	61,530
FD	14	EA	230.00	3,220
MD	6	EA	1,400.00	8,400
Return:				
Registers:				
Grilles/registers	233	EA	185.00	43,105
Flexible connection	170	EA	65.00	11,050
Exhaust discharge	1	EA	1,400.00	1,400
Dampers:				
Volume	159	EA	210.00	33,390
FD	19	EA	230.00	4,370
MD	10	EA	1,400.00	14,000
Galvanized ductwork	27,077	LBS	8.50	230,155
Lined	7,079	LBS	12.00	84,948
Stainless steel	360	LBS	16.00	5,760
Welded kitchen exhaust	314	LBS	15.50	4,867
2 hr Fire wrap	1	LS	3,500.00	3,500
Gooseneck	2	EA	1,250.00	2,500
Variable Air Volume Unit:				
VAV	90	EA	1,250.00	112,500
FVAV	15	EA	1,500.00	22,500
DDC Controls	129,939	GSF	3.50	454,787
Test and Balance	129,939	GSF	0.65	84,460
Direct Job Expense	1	LS	35,000.00	35,000
Commissioning coordination	1	LS	20,000.00	20,000

				3,622,329

TOTAL D30 - HVAC	**$27.88**	**/SF**	**3,622,329**

D40 - FIRE PROTECTION

D4010 FIRE PROTECTION

210000 FIRE SUPPRESSION

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Valve assembly	1	EA	5,200.00	5,200
6" UG fire service	10	LF	75.00	750
6" Gate vlv	2	EA	1,650.00	3,300
6" Check vlv	2	EA	3,500.00	7,000
4" Check vlv	1	EA	2,250.00	2,250
2 1/2" BF vlv	2	EA	790.00	1,580
4" BF vlv	3	EA	1,400.00	4,200
6" BF vlv	1	EA	1,850.00	1,850
Tamper switch	7	EA	225.00	1,575
2 1/2" FDV	12	EA	825.00	9,900
Siamese conn	1	EA	1,000.00	1,000
6" FCVA	1	EA	1,350.00	1,350
4" FCVA	2	EA	1,100.00	2,200
1 1/2" Hose cab w/100' hose	1	LS	3,500.00	3,500
Heads:				
Concealed	939	EA	72.00	67,608
Upright	123	EA	64.00	7,872
Pipe:				
1"	3,770	LF	17.60	66,352
1 1/4"	2,200	LF	20.50	45,100
1 1/2"	2,695	LF	23.00	61,985
2"	1,545	LF	23.00	35,535
2 1/2"	150	LF	31.00	4,650
3"	15	LF	33.00	495
4"	1,750	LF	40.50	70,875
6"	1,245	LF	67.00	83,415
Misc. Valve and trim	1	LS	35,000.00	35,000
As built test and Misc.	1	LS	25,000.00	25,000

				549,542
TOTAL D40 - FIRE PROTECTION	**$4.23**	**/sf**		**549,542**

D50 - ELECTRICAL

D5010 ELECTRICAL

260000 ELECTRICAL*

POWER DISTRIBUTION				
MAIN SWITCHBOARD				
1600 AMP	1	EA	21,690.00	21,690
PANELBOARDS				
120-208 Volt 100% Neutral:				
100 AMP main lug	3	EA	1,105.00	3,315

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
225 AMP main lug	2	EA	2,529.00	5,058
225 AMP main brkr	5	EA	2,478.00	12,390
120-208 Volt 200% Neutral:				
100 AMP main brkr	1	EA	1,097.00	1,097
225 AMP main brkr	10	EA	2,567.00	25,670
277-480 Volt 100% Neutral:				
100 AMP main lug	3	EA	2,283.00	6,849
225 AMP main lug	2	EA	2,393.00	4,786
400 AMP main lug	5	EA	3,260.00	16,300
100 AMP main brkr	1	EA	1,984.00	1,984
225 AMP main brkr	1	EA	2,987.00	2,987
100 AMP main brkr	5	EA	3,860.00	19,300
METERING				
Single meter can	1	EA	330.00	330
100% NEUTRAL FEEDERS				
FEEDERS - IN EMT - THREE PHASE				
50 AMP	210	LF	19.45	4,085
70 AMP	230	LF	24.45	5,624
100 AMP	500	LF	30.75	15,375
200 AMP	50	LF	41.05	2,053
225 AMP	40	LF	49.95	1,998
EMT FEEDERS - 200% NEUTRAL				
150 AMP	240	LF	42.65	10,236
PVC - UNDERGROUND - THREE PHASE				
100 AMP	720	LF	18.15	13,068
200 AMP	580	LF	30.05	17,429
1600 AMP	40	LF	350.30	14,012
PVC FEEDERS - 200% NEUTRAL				
125 AMP	270	LF	31.35	8,465
SPARE OR EMPTY RACEWAYS				
PVC - UNDERGROUND				
3"	150	LF	11.45	1,718
4"	850	LF	15.95	13,558
EMT EXPOSED				
4"	80	LF	35.70	2,856
GENERATOR SIGNAL - UNDERGROUND				
Annunciator circuits	50	LF	10.15	508
CABLE TRAY - LADDER TYPE				
12" Ladder	1,310	LF	33.45	43,820
18" Ladder	300	LF	38.50	11,550
ENCLOSED CIRCUIT BREAKER - 3 PHASE - TO 600 VOLTS				
125 AMP	1	EA	1,380.00	1,380
225 AMP	1	EA	1,665.00	1,665
LIGHTING CONTACTORS				
20 AMP 12 pole	1	EA	879.00	879
Relay	27	EA	75.00	2,025
Time clock	1	EA	385.00	385

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Photocell	60	EA	55.00	3,300
DISCONNECT SWITCHES - HEAVY DUTY				
3 POLE - TO 600 VOLTS				
30 AMP F	11	EA	224.00	2,464
60 AMP F	1	EA	299.00	299
30 AMP F WP	16	EA	307.00	4,912
60 AMP F WP	3	EA	390.00	1,170
100 AMP F WP	10	EA	571.00	5,710
200 AMP F WP	2	EA	865.00	1,730
DRY TYPE TRANSFORMER - NON K RATED				
30 KVA	2	EA	3,102.00	6,204
112.5 KVA	2	EA	7,589.00	15,178
DRY TYPE - K13 RATED				
30 KVA	1	EA	5,051.00	5,051
45 KVA	10	EA	6,319.00	63,190
MOTOR CONTROLS				
LOCAL MOTOR CONTROL:				
MANUAL STARTERS				
120 Volt 1 pole	137	EA	91.00	12,467
AUTOMATIC TRANSFER SWITCH				
100 AMP	1	EA	3,347.00	3,347
225 AMP	1	EA	4,539.00	4,539
WIRING DEVICES				
METAL CLAD WIRING - PLASTIC PLATES				
SWITCHES				
Classroom electronic switching	62	EA	500.00	31,000
S	103	EA	140.00	14,420
S3	8	EA	161.00	1,288
SK	13	EA	145.00	1,885
SK3	2	EA	168.00	336
SS	4	EA	218.00	872
SK5K	1	EA	225.00	225
S3S3	4	EA	253.00	1,012
SSS	1	EA	279.00	279
SKSKSKSK	1	EA	295.00	295
Occupancy sensor	87	EA	216.00	18,792
RECEPTACLE				
Duplex	482	EA	167.00	80,494
Duplex GFI	157	EA	186.00	29,202
Double duplex	322	EA	174.00	56,028
50 AMP recept	2	EA	194.00	388
EMT RACEWAYS				
SWITCHES				
S WP	1	EA	269.00	269
RECEPTACLE				
Duplex	30	EA	269.00	8,070
Duplex GFI WP	39	EA	279.00	10,881
Rough In:				
Tel/data/video	730	EA	108.00	78,840

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
PVC RACEWAY - UNDERSLAB				
Duplex GFI	32	EA	369.00	11,808
2 GANG floor box w/recept + data	26	EA	682.00	17,732
PUBLIC ADDRESS SYSTEM				
Rough In:				
Amplifier	3	EA	305.00	915
Ceiling/wall speaker	168	EA	116.00	19,488
Scoreboard	1	EA	12,000.00	12,000
Volume control	128	EA	108.00	13,824
Mike outlet	4	EA	108.00	432
Install:				
Amplifier	3	EA	2,000.00	6,000
Ceiling/wall speaker	234	EA	155.00	36,270
Volume control	124	EA	121.00	15,004
Mike outlet	4	EA	137.00	548
CLOCK SYSTEM				
Rough In:				
Clock backbox	14	EA	49.00	686
Clock-speaker backbox	99	EA	141.00	13,959
Install:				
Clock	113	EA	193.00	21,809
Integrated program mgmt. system	1	EA	25,000.00	25,000
BRANCH CIRCUITS				
IN EMT				
20 AMP CIRCUIT:				
One circuit	546	EA	499.00	272,454
IN PVC - UNDERSLAB				
20 AMP CIRCUIT:				
One circuit	73	EA	418.00	30,514
MOTOR CIRCUITS				
IN EMT				
SINGLE PHASE:				
20 AMP	50	EA	569.00	28,450
THREE PHASE				
20 AMP	25	EA	603.00	15,075
40 AMP	4	EA	700.00	2,800
100 AMP	10	EA	1,219.00	12,190
200 AMP	2	EA	2,079.00	4,158
IN PVC - UNDERSLAB				
THREE PHASE				
20 AMP	5	EA	548.00	2,740
30 AMP	3	EA	598.00	1,794
50-60 AMP	2	EA	731.00	1,462
Lightning protection	1	LS	30,000.00	30,000
Permit/temporary electric	1	LS	12,000.00	12,000
DIESEL GENERATORS				
175 KW	1	EA	46,345.00	46,345

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
SPECIAL ENCLOSURES				
100-200 KW	1	EA	15,000.00	15,000
LIGHTING FIXTURES				
Type A8	9	EA	473.00	4,257
Type A12	37	EA	698.00	25,826
Type A16	195	EA	757.00	147,615
Type A20	9	EA	1,076.00	9,684
Type B	46	EA	287.00	13,202
Type C	44	EA	233.00	10,252
Type D	267	EA	349.00	93,183
Type D 1	8	EA	233.00	1,864
Type D 2	5	EA	233.00	1,165
Type D 3	6	EA	233.00	1,398
Type E	25	EA	433.00	10,825
Type F	60	EA	233.00	13,980
Type J	4	EA	233.00	932
Type H	5	EA	550.00	2,750
Type K	21	EA	400.00	8,400
Type L1	4	EA	350.00	1,400
Type L4	10	EA	380.00	3,800
Type L8	3	EA	396.00	1,188
Type L12	4	EA	450.00	1,800
Type L16	4	EA	844.00	3,376
Type N	28	EA	782.00	21,896
Type N 1	6	EA	782.00	4,692
Type O	13	EA	272.00	3,536
Type P1	71	EA	449.00	31,879
Type Q	24	EA	600.00	14,400
Type R	14	EA	349.00	4,886
Type T	52	EA	165.00	8,580
Type U	59	EA	223.00	13,157
Type BB	53	EA	400.00	21,200
Type CC	18	EA	350.00	6,300
Type DD	8	EA	250.00	2,000
Type DP6	3	EA	130.00	390
Type DP12	3	EA	145.00	435
Type DP24	2	EA	160.00	320
Type DP48	13	EA	190.00	2,470
Type EE8	22	EA	400.00	8,800
Type EE12	10	EA	400.00	4,000
Exit	84	LS	298.00	25,032
Light lifter	1	LS	5,000.00	5,000
Stage dimming system	1	LS	35,000.00	35,000
SITE LIGHTING;				
Type Z1	4	EA	3,456.00	13,824
Type Z2	20	EA	3,456.00	69,120
Type Z3	4	EA	3,456.00	13,824
Type Z4	4	EA	750.00	3,000
TELECOMMUNICATIONS				
Install:				
Tel/data	655	EA	264.00	172,920

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Video	75	EA	155.00	11,625
Each addl cable	969	EA	170.00	164,730
Racks	1	EA	20,000.00	20,000
Tel comm equipment	1	LS	400,000.00	400,000
SECURITY SYSTEM				
Security panel	1	EA	6,500.00	6,500
Door switch	25	EA	236.00	5,900
Motion detector	16	EA	453.00	7,248
Break glass station	52	EA	279.00	14,508
Card reader	6	EA	915.00	5,490
CCTV camera	24	EA	2,172.00	52,128
Monitor	1	EA	1,079.00	1,079
FIRE ALARM - ADDRESSABLE				
MC CABLE				
Fire alarm control panel to 20 zones	1	EA	6,285.00	6,285
Annunciator	1	EA	2,180.00	2,180
Smoke detector	121	EA	236.00	28,556
Heat detector	16	EA	226.00	3,616
Duct smoke detector	13	EA	487.00	6,331
Pull station	34	EA	230.00	7,820
Remote test switch	13	EA	208.00	2,704
Speaker-strobe unit	138	EA	317.00	43,746
Strobe unit only	113	EA	214.00	24,182
Horn only	6	EA	214.00	1,284
Weatherproof beacon	2	EA	573.00	1,146
Monitor module	36	EA	198.00	7,128
Knox box	2	EA	325.00	650

				3,097,429
TOTAL D50 - ELECTRICAL	**$23.84**	**/SF**		**3,097,429**

E. EQUIPMENT & FURNISHINGS

E10 - EQUIPMENT

E1010 COMMERCIAL EQUIPMENT

114000 FOOD SERVICE EQUIPMENT

Kitchen Equipment & Casework	1	LS	467,000.00	467,000

				467,000

E1090 OTHER EQUIPMENT

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
116620 ATHLETIC EQUIPMENT				
Basketball backstops - electric	6	EA	7,500.00	45,000
Motorized gym divider curtain (2 EA)	3,432	SF	21.00	72,072
Volley ball court equip.	2	EA	700.00	1,400
Scoreboard w / shot clock		W/D5010		
Misc. athletic equip	1	LS	5,000.00	5,000
126613 BLEACHERS				
Folding Bleachers	500	SEAT	125.00	62,500
113100 RESIDENTIAL APPLIANCES				
Faculty kitchen	1	LS	2,500.00	2,500
Nurses office refrigerator	1	LS	2,500.00	2,500
Life skills kitchen	1	LS	2,500.00	2,500
Kitchen laundry		W/E5010		
117900 MISCELLANEOUS EQUIPMENT				
Kiln	1	EA	3,500.00	3,500

				196,972
TOTAL E10 - EQUIPMENT				**663,972**
E20 - FURNISHINGS				
E 2010 FIXED FURNISHINGS				
110610 THEATRICAL RIGGING				
Staging curtain and rigging	1	LS	20,000.00	20,000
122000 WINDOW TREATMENTS				
Electric shades at café premium	1	LS	15,000.00	15,000
Interior window shades - allow	1	LS	5,000.00	5,000
Window treatment - allow	8,000	SF	4.00	32,000
Alum. box enclosures & fascia covers	1	LS	20,000.00	20,000
101100 VISUAL DISPLAY SURFACES				
Tackboards		N/A		
Display case D1	3	EA	4,000.00	12,000
Display case D2	5	EA	7,500.00	37,500

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
4' Marker board	110	EA	200.00	22,000
8' Marker board	81	EA	550.00	44,550
Flag holder, map rail & accessories	60	RM	250.00	15,000
115213 PROJECTION SCREENS				
Corridor Common Rooms (5EA):				
Ceiling mtd manual 8' projection screen	5	EA	750.00	3,750
Choral/Drama - platform:				
Motorized projection screen 16'	1	EA	5,000.00	5,000
Cafeteria - allow:				
Motorized projection screen 12'	1	EA	4,000.00	4,000
*Excludes classroom projection screens & smart boards				
123200 MANUFACTURED WOOD CASEWORK				
MW1 General Classroom (42 EA):				
4' Teacher wardrobe - DBL	42	EA	1,650.00	69,300
4' Storage Unit - DBL	42	EA	1,700.00	71,400
Sink base cab w/ ctr	126	LF	190.00	23,940
Base cab. w/ctr	231	LF	210.00	48,510
30" Wall cab	336	LF	135.00	45,360
24" P. Lam wall panel	672	SF	15.00	10,080
MW 18 Prep Room (3EA):				
7' Full ht open shelving unit	212	LF	245.00	51,940
MW 3 & 18 Work Room(3EA):				
7' Full ht open shelving unit	44	LF	245.00	10,780
Base cab. w/ctr	28.5	LF	210.00	5,985
30" Wall cab	28.5	LF	135.00	3,848
MW 2 SPED / Resourse Classroom (9EA):				
3' Teacher wardrobe - DBL	9	EA	1,500.00	13,500
3' Storage Unit - DBL	9	EA	1,625.00	14,625
Sink base cab w/ ctr	24	LF	190.00	4,560
Base cab. w/ctr	24	LF	210.00	5,040
30" Wall cab	48	LF	135.00	6,480
24" P. Lam wall panel	96	SF	15.00	1,440
MW 10 & 11 Life Skills Classroom (1EA):				
4' Teacher wardrobe - DBL	1	EA	1,650.00	1,650
4' Storage Unit - DBL	2	EA	1,700.00	3,400
Wall oven cab - full ht	1	EA	1,500.00	1,500
Counter only	2.5	LF	75.00	188
Sink & cook top base cab w/ ctr	8.5	LF	190.00	1,615
Base cab. w/ctr	8	LF	210.00	1,575
15" Wall cab	3	LF	105.00	315
30" Wall cab	19	LF	135.00	2,565
Media Center:				

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Custom Desk w/ SS ctr	18	LF	550.00	9,900
Rear Desk Base and Wall Cabinet	18	LF	375.00	6,750
Media ctr display cabinet	20	LF	800.00	16,000
Computer desk ctr	36	LF	95.00	3,420
*Excludes book storage				
MW12 Media Center Work Room:				
4' Storage Unit - DBL	1	EA	1,700.00	1,700
Sink base cab w/ ctr	3	LF	190.00	570
Base cab. w/ctr	5.5	LF	210.00	1,155
30" Open wall cab	8.5	LF	110.00	935
24" P. Lam wall panel	17	SF	15.00	255
MW 2 Technology Labs (2EA):				
3' Teacher wardrobe - DBL	2	EA	1,650.00	3,300
3' Storage Unit - DBL	2	EA	1,700.00	3,400
Sink base cab w/ ctr	5.5	LF	190.00	1,045
Base cab. w/ctr	5.5	LF	210.00	1,155
30" Wall cab	11	LF	135.00	1,485
24" P. Lam wall panel	22	SF	15.00	330
MW 13, 14 & 16 Art Room (epoxy counters-2EA):				
4' Teacher wardrobe - DBL	2	EA	1,650.00	3,300
3' 4" Storage Unit - DBL	8	EA	1,550.00	12,400
Sink base cab w/ ctr - 4EA	13	LF	225.00	2,925
Base cab. w/ctr	10.5	LF	265.00	2,783
30" Wall cab	24	LF	135.00	3,240
24" Epoxy wall panel	48	SF	25.00	1,200
MW 15 & 17 Art Prep Room (epoxy counters-2EA):				
3' Open Storage Unit	2	EA	1,200.00	2,400
Sink base cab w/ ctr - 1EA	3	LF	225.00	675
Base cab. w/ctr	23	LF	265.00	6,095
30" Open wall cab	25.5	LF	120.00	3,060
24" Epoxy wall panel	51	SF	25.00	1,275
MW1 Music Room 3EA):				
4' Teacher wardrobe - DBL	3	EA	1,650.00	4,950
4' Storage Unit - DBL	3	EA	1,700.00	5,100
Sink base cab w/ ctr	9	LF	190.00	1,710
Base cab. w/ctr	17	LF	210.00	3,465
30" Wall cab	24	LF	135.00	3,240
24" P. Lam wall panel	48	SF	15.00	720
*Excludes instrument storage				
Administration Suite:				
Main desk w/ SS top	32	LF	350.00	11,200
Rear Desk Base and Wall Cabinet	30	LF	375.00	11,250
Closet shelf & rod	8	LF	22.00	176
Mail box unit w/ base cabinet	21	LF	800.00	16,800
Counter only	2.5	LF	75.00	188
Sink base cab w/ ctr	3	LF	190.00	570
Base cab. w/ctr	15	LF	210.00	3,045
30" Wall cab	20	LF	135.00	2,700

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
MW5 & 6 Nurse Suite:				
Closet shelving 5 tier	65	LF	22.00	1,430
Counter only	2.5	LF	75.00	188
Sink base cab w/ ctr	6	LF	190.00	1,140
Base cab. w/ctr	6	LF	210.00	1,260
30" Wall cab	14	LF	135.00	1,890
24" P. Lam wall panel	12	SF	15.00	180
Locker Room:				
Solid Surface lav countertop	26	LF	270.00	7,020
MW4 Faculty Dining:				
Sink base cab w/ ctr	3	LF	190.00	570
Base cab. w/ctr	85	LF	210.00	17,850
15" Wall cab	3	LF	105.00	315
30" Wall cab	8	LF	135.00	1,080
Janitor Closet (4EA):				
Adjustable shelving - 5tier	80	LF	20.00	1,600
MW 20 Perimeter class shelving	1,278	LF	145.00	185,310

				1,011,094

E2020 MOVABLE FURNISHINGS

not included

0

TOTAL E20 - FURNISHINGS 1,011,094

F. SPECIAL CONSTRUCTION & DEMOLITION

TOTAL F10 - SPECIAL CONSTRUCTION 0

F20 - SELECTIVE BUILDING DEMOLITION

F2010 BUILDING ELEMENTS DEMOLITION

024110 DEMOLITION

Remove Existing:				
Brick elementary school	88,000	GSF	4.00	352,000
Portable classroom	12,000	GSF	3.50	42,000

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL

				394,000

F2020 HAZARDOUS COMPONENTS ABATEMENT

022820 ASBESTOS REMEDIATION

Hazardous Waste Removal - allow	1	LS	575,000.00	575,000

				575,000

TOTAL F20 - SELECTIVE BUILDING DEMOLITION	**969,000**

G. BUILDING SITEWORK

G10 - SITE PREPARATION

G1010 SITE CLEARING

311000 SITE PREPARATION & CLEARING

Erosion control	2,719	LF	3.45	9,381
Clear & grub	91,476	SF	0.30	27,443
Inlet protection	11	EA	40.00	440
Tree removal	31	EA	325.00	10,075
Infield clay	11,078	SF	1.25	13,848

				61,186

G1020 SITE DEMOLITION & RELOCATIONS

311000 SITE PREPARATION & CLEARING

Remove Existing				
Remove gas line	417	LF	8.00	3,336
Remove drain line	1,534	LF	12.00	18,408
Catch basin	9	EA	115.00	1,035
Drain manhole	1	EA	115.00	115
Sawcut pavement	240	LF	5.00	1,200
Cut and cap utilities	1	LS	5,000.00	5,000
Stone wall	238	LF	10.00	2,380
Oil tank	1	LS	10,000.00	10,000
Conc. entry pavement	1,400	SF	1.15	1,610
Bit. pavement	187,916	SF	0.80	150,333
Chain link fence	1,871	LF	3.00	5,613
Light pole	10	EA	75.00	750
Utility pole	3	EA	75.00	225

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Sewer manhole	4	EA	400.00	1,600
Sewer line	635	LF	12.00	7,620
Hydrant	1	EA	75.00	75
Jersey barriers	52	LF	7.00	364
Septic tank & pump chamber	1	LS	5,000.00	5,000
Flag pole	1	EA	125.00	125
Stair structure	203	SF	8.00	1,624
Traffic sign	5	EA	30.00	150
Basketball hoop	1	EA	90.00	90
Salvage bike rack	1	EA	100.00	100
Baseball backstop	2	EA	500.00	1,000
Salvage bleachers	1	LS	500.00	500
Memorial plaque and peace pole	1	LS	1,000.00	1,000

				219,253

G1030 SITE EARTHWORK

312000 EARTH MOVING

Strip and stack topsoil - 6"	10,705	CY	2.90	31,045
Site Cut	17,115	CY	4.75	81,296
Site fill - on site mat'l	14,767	CY	4.00	59,068
Site grading	81,000	SY	0.60	48,600
Dewatering - allow	1	LS	25,000.00	25,000
Haul away surplus	2,348	CY	10.00	23,480
Street cleaning & soil management	1	LS	25,000.00	25,000
Ledge removal allowance:				
Site (premium)	500	CY	65.00	32,500

				325,989

TOTAL G10 - SITE PREPARATION	**606,427**

G20 - SITE IMPROVEMENTS

G2010 ROADWAYS

320000 PAVEMENT, CURBING & EDGING

Resurface existing 2"	200	SY	7.25	1,450
Bituminous drive/parking (2" wearing)	23,476	SY	11.25	264,105
Bituminous drive/parking (2" base)	23,476	SY	11.00	258,236
Vehicular concrete drive	130	SY	34.00	4,420
Granite curb straight	1,205	LF	27.50	33,138
Granite curb radius	423	LF	30.50	12,902
Berm	5,744	LF	2.25	12,924
Parking striping	5,709	LF	1.00	5,709
HC Pavement markings	8	EA	65.00	520

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Crosswalk striping	1,545	SF	1.00	1,545
Basketball court lines	1	LS	2,500.00	2,500
Travel teacher marking	12	EA	55.00	660
312000 EARTH MOVING				
18" Gravel base @ drive	11,803	CY	19.00	224,257

				822,365
G2020 PARKING LOTS				
*Included with G2010				

				0
G2030 PEDESTRIAN PAVING				
320000 PAVEMENT, CURBING & EDGING				
Bit. concrete walkway	1,056	SF	2.30	2,429
4" Conc. Ped. pavement	13,047	SF	3.55	46,317
Concrete unit paver	7,043	SF	13.50	95,081
HC ramp/curb cut	17	EA	450.00	7,650
312000 EARTH MOVING				
Gravel Base:				
8" Gravel @ ped. paving	536	CY	23.50	12,596

				164,072
G2040 SITE DEVELOPMENT				
323100 SITE IMPROVEMENTS				
35' Flag pole w/conc base	1	EA	5,500.00	5,500
Site sign - allow	1	LS	5,000.00	5,000
Site bench	10	EA	1,500.00	15,000
Bicycle rack (10 bikes)	2	EA	1,250.00	2,500
Basketball goal post	2	EA	1,250.00	2,500
6' CL fence	210	LF	24.00	5,040
6' CL gate - dbl	2	EA	2,000.00	4,000
Baseball dugout bench	4	EA	2,000.00	8,000
Baseball home plate & pitching rubber	1	EA	2,500.00	2,500
Baseball back stop	1	EA	12,000.00	12,000
8' CLF	80	LF	32.00	2,560

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
4' CLF	320	LF	24.00	7,680
12' Vehicular gate - sgl	1	EA	1,800.00	1,800
4' Ornamental steel fence	107	LF	75.00	8,025
Granite planter edge (5 ea)	499	LF	40.00	19,960
Stone wall - reconstruct	195	LF	30.00	5,850
Timber guardrail	815	LF	36.00	29,340
Tree grate and guard		NIC		
Parking/traffic signage	8	EA	130.00	1,040
Seat wall w/built in bench	64	LF	450.00	28,800
Veneer retaining wall	40	LF	500.00	20,000
Relocate baseball bleachers	1	LS	10,000.00	10,000
Wood bollard	4	EA	400.00	1,600
Chain lock @ field	1	LS	700.00	700
Relocate Bergstom Field sign	1	LS	3,000.00	3,000
Foul pole - relocate	2	EA	1,200.00	2,400
Foul pole - new	2	EA	3,200.00	6,400
4' CL fence @ detention pond	470	LF	24.00	11,280
12' Wide gate @ detention pond	1	EA	1,500.00	1,500
*Softball field back stop - existing to remain				
055001 METAL FABRICATIONS*				
Steel bollard	7	EA	600.00	4,200
Stair hand railing	60	LF	180.00	10,800
Retaining wall railing	183	LF	150.00	27,450
Loading dock stair handrail	65	LF	95.00	6,175
Loading dock ramp rail	30	LF	210.00	6,300
Loading dock picket rail	65	LF	240.00	15,600
033000 CAST IN PLACE CONCRETE				
Concrete pad @ baseball field (4 EA)	2,150	SF	5.25	11,288
Concrete stair tread	316	LFR	55.00	17,380
Concrete stair foundation	26	CY	650.00	16,900
Concrete light pole bases	32	EA	475.00	15,200
Site Walls:				
Wall footing (1x4)	24	CY	320.00	7,680
12"x8' Walkway (93 LF)	28	CY	675.00	18,900
070001 DAMPPROOF., WATERPROOF. & CAULKING*				
Dampproof concrete retaining wall	1,000	SF	2.00	2,000

				383,848

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
G2050 LANDSCAPING				
329000 LANDSCAPING				
Fields:				
Infield mix	21,548	SF	2.75	59,257
Respread/ammend loam	9,228	CY	12.00	110,736
Rake, seed and fertilize	55,369	SY	1.80	99,664
Loam & seed conservation mix	1,684	SY	5.00	8,420
Deciduous Trees:				
Rotundiloba Sweetgum (3-3.5" cal.)	7	EA	700.00	4,900
American Yellowood (2-2.5" cal.)	7	EA	700.00	4,900
Magyar Ginko (3-3.5" cal.)	4	EA	700.00	2,800
Green Vase Japanese Zelkova (3-3.5" cal)	9	EA	290.00	2,610
Skyline Honey Locust (3-3.5" cal.)	25	EA	700.00	17,500
Aristocrat Flowering Pear (3-3.5" cal.)	5	EA	700.00	3,500
Kwanzan Cherry (3-3.5" cal.)	10	EA	700.00	7,000
Red Oak (3-3.5" cal.)	2	EA	700.00	1,400
Evergreen Trees:				
Austrian Pine (7-8' ht)	15	EA	320.00	4,800
Eastern White Pine (9-10' ht)	9	EA	290.00	2,610
Emerald Green Arborvitae (7-8' ht)	13	EA	135.00	1,755
Green Giant Arborvitae (8-9' ht)	6	EA	150.00	900
Mulch - allowance	1	LS	5,000.00	5,000
Transplant trees	6	EA	2,000.00	12,000
Wetland replication	13,500	SF	3.00	40,500
Shrubs:				
Ivory Queen Inkberry (3')	9	EA	95.00	855
Dwarf Dogwood (3')	16	EA	95.00	1,520
Perennial:				
Big Blue Lirope (#1 pot)	1,194	EA	4.00	4,776
328000 IRRIGATION				
Irrigation system	350,000	SF	0.50	175,000

				572,403
TOTAL G20 - SITE IMPROVEMENTS				**1,942,688**

G30 - SITE MECHANICAL UTILITIES

G3010 WATER SUPPLY

330000 UTILITIES

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
6" Gate valve	5	EA	675.00	3,375
Connect to exist. line	5	EA	1,500.00	7,500
8" Gate valve	1	EA	1,050.00	1,050
8" CLDI	176	LF	74.00	13,024
4" Domestic	22	LF	46.00	1,012
6" CLDI	762	LF	64.00	48,768
6" Fire service line	12	LF	64.00	768
Hydrant	3	EA	1,850.00	5,550
PI valve	1	EA	1,200.00	1,200

				82,247

G3020 SANITARY SEWER

330000 UTILITIES

Grease trap (5,000 gal)	see plumbing			
10" PVC Sanitary main	1,085	LF	45.00	48,825
Sanitary manhole	5	EA	2,250.00	11,250
Maintain exist. sys during construction	1	LS	5,000.00	5,000
6" PVC	382	LF	29.00	11,078
4" Vent	78	LF	24.00	1,872
Connect to existing	1	EA	2,500.00	2,500

				80,525

G3030 STORM SEWER

330000 UTILITIES

Convert CB to DMH	1	EA	500.00	500
Adjust CB/DMH rim	10	EA	375.00	3,750
Catch basin	13	EA	2,250.00	29,250
Double catch basin	4	EA	4,200.00	16,800
Outlet control structure	2	EA	3,500.00	7,000
Drainage manhole	24	EA	2,250.00	54,000
Drain line	2,272	LF	38.00	86,336
Roof drain line	304	LF	38.00	11,552
Connect to existing street	1	LS	5,000.00	5,000
Flared end w/ rip rap	3	EA	1,800.00	5,400
15" HDPE	513	LF	42.00	21,546
18" HDPE	508	LF	48.00	24,384
Clean out	1	EA	750.00	750
12" RCP Culvert	195	LF	52.00	10,140
Head wall	3	EA	1,850.00	5,550
Water quality unit	2	EA	18,000.00	36,000
Area drain	1	EA	1,200.00	1,200
Trench drain	26	LF	130.00	3,380

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Field Drainage:				
Additional 4" loam	2,675	CY	32.00	85,600
Additional 4" loam (amend and re-use)	2,263	CY	12.00	27,156
2" Sand drain	18,359	LF	16.00	293,744
Strip drain	9,303	LF	20.00	186,060
Collector piping	1,736	LF	32.00	55,552

				970,650

G3060 FUEL DISTRIBUTION

330000 UTILITIES

Gas meter pad	1	EA	1,500.00	1,500
Trench excavation/backfill	500	LF	42.00	21,000
Gas service		By Gas Co.		
*Central Street gas line extension by Gas Co.				

				22,500

G3090 OTHER SITE MECHANICAL UTILITIES N/A

0

TOTAL G30 - SITE MECHANICAL UTILITIES 1,155,922

G40 - SITE ELECTRICAL UTILITIES

G4010 ELECTRICAL DISTRIBUTION

260000 ELECTRICAL*

Site:				
FEEDERS - 100% NEUTRAL:				
PVC - UNDERGROUND - THREE PHASE				
100 AMP	200	LF	18.15	3,630
225 AMP	100	LF	36.35	3,635
1600 AMP	80	LF	350.30	28,024
SPARE OR EMPTY RACEWAYS				
PVC - UNDERGROUND				
3"	750	LF	11.45	8,588
4"	500	LF	15.95	7,975
5"	560	LF	24.80	13,888

GENERATOR SIGNAL - UNDERGROUND

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Annunciator circuits	100	LF	10.15	1,015
GROUNDING				
Ground rod 3/4"x10'	4	EA	118.00	472
Bare copper wire - #1/0	50	LF	2.80	140
033000 CAST IN PLACE CONCRETE				
Light pole base	27	EA	600.00	16,200
Transformer pad	1	EA	1,500.00	1,500
Emergency generator pad	1	EA	1,500.00	1,500
Electrical hand hole	1	EA	1,200.00	1,200
Trench/sand bed	730	LF	25.00	18,250
Removal utility poles		By others		
Utility Back charge		By others		

				106,017
G4030 SITE COMMUNICATIONS & SECURITY				

				0
G4090 OTHER SITE ELECTRICAL UTILITIES		N/A		

				0
TOTAL G40 - SITE ELECTRICAL UTILITIES				**106,017**
G90 - OTHER SITE CONSTRUCTION				
G9010 SERVICE AND PEDESTRIAN TUNNELS		N/A		

				0
G9090 OTHER SITE SYSTEMS		N/A		

				0
TOTAL G90 - OTHER SITE CONSTRUCTION				**0**

B. Cost Estimates and Value Engineering Log

2. Gilbane

Sherwood Middle School

90% CD Estimate Submission

Estimate Summary

Reconciled *December 2010* **12-06-10**

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
SUBSTRUCTURE			
FOUNDATIONS	129,939.00 sf	14.42 /sf	1,873,687
SUBSTRUCTURE	**129,939.00 SF**	**14.42 /SF**	**1,873,687**
SHELL			
SUPERSTRUCTURE	129,939.00 sf	17.62 /sf	2,289,099
EXTERIOR CLOSURE	129,939.00 sf	29.43 /sf	3,824,498
ROOFING	129,939.00 sf	7.18 /sf	933,072
SHELL	**129,939.00 SF**	**54.23 /SF**	**7,046,669**
INTERIORS			
INTERIOR CONSTRUCTION	129,939.00 sf	20.03 /sf	2,602,013
STAIRWAYS	129,939.00 sf	2.02 /sf	261,851
INTERIOR FINISHES	129,939.00 sf	22.17 /sf	2,880,629
INTERIORS	**129,939.00 SF**	**44.21 /SF**	**5,744,493**
SERVICES			
CONVEYING SYSTEMS	129,939.00 sf	0.91 /sf	118,000
PLUMBING SYSTEMS	129,939.00 sf	9.26 /sf	1,203,376
HVAC SYSTEMS	129,939.00 sf	25.40 /sf	3,299,883
FIRE PROTECTION SYSTEMS	129,939.00 sf	4.00 /sf	519,345
ELECTRICAL SYSTEMS	129,939.00 sf	23.75 /sf	3,085,612
SERVICES	**129,939.00 SF**	**63.31 /SF**	**8,226,216**
EQUIPMENT AND FURNISHINGS			
EQUIPMENT	129,939.00 sf	5.31 /sf	689,600
FURNISHINGS	129,939.00 sf	7.23 /sf	939,696
EQUIPMENT AND FURNISHINGS	**129,939.00 SF**	**12.54 /SF**	**1,629,296**
OTHER BUILDING CONSTRUCTION			
BUILDING DEMOLITION	129,939.00 SF	7.50 /SF	974,850
OTHER BUILDING CONSTRUCTION	**129,939.00 SF**	**7.50 /SF**	**974,850**
SITEWORK			
SITE PREPARATION	129,939.00 sf	4.06 /sf	526,948
SITE IMPROVEMENTS	129,939.00 sf	15.70 /sf	2,039,481
SITE UTILITIES	129,939.00 sf	9.01 /sf	1,170,095
SITEWORK	**129,939.00 SF**	**28.76 /SF**	**3,736,524**
SITE SERVICES			
SITE SERVICES	129,939.00 sf	8.64 /sf	1,123,225
SITE SERVICES	**129,939.00 SF**	**8.64 /SF**	**1,123,225**

Estimate Totals

Description	Amount	Totals	Rate	Cost per Unit
Trade Cost Total	30,354,959	30,354,959		233.61 /Sqft
Estimate Contingency				
Escalation				
CM Contingency	1,214,198		4.000 %	9.34 /Sqft
- Subtotal	1,214,198	31,569,157		242.95 /Sqft
		31,569,157		242.95 /Sqft
CM Preconstruction Services	90,000			0.69 /Sqft
CM General Conditions	2,806,715			21.60 /Sqft
Builders Risk Insurance (Incl)				
CM Liab Insurance (Incl)				
CM Bond (Incl)				
CM Fee	407,000			3.13 /Sqft
- Subtotal	3,303,715	34,872,872		268.38 /Sqft
Total		***34,872,872***		268.38 /Sqft

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
SUBSTRUCTURE					
FOUNDATIONS					
Standard Foundations					
Perimeter Wall Footings					
Continuous Footing Forms	4,714.00	sf	7.00	/sf	32,998
- EVO, Radial Forms	1,097.00	sf	3.00	/sf	3,291
- EVO, Footing Steps	14.00	ea	675.00	/ea	9,450
Keyway @Continuous Footing	2,141.00	lf	3.50	/lf	7,494
Rebar - Supply & Install - Continuous Footing	23.00	ton	1,850.00	/ton	42,550
3000 psi Concrete - Continuous Footings	460.00	cy	95.00	/cy	43,700
Place Concrete - Continuous Footings	446.00	cy	30.00	/cy	13,378
Perimeter Wall Footings	**446.00**	**Cuyd**	**342.74**	**/Cuyd**	**152,862**
Column Footings					
Column Footings Forms	3,700.00	sf	8.50	/sf	31,450
Column Diamonds, Grout	104.00	ea	75.00	/ea	7,800
Rebar - Supply & Install - Column Footing	11.00	ton	1,850.00	/ton	20,350
3000 psi Concrete - Column Footings	215.00	cy	95.00	/cy	20,425
Place Concrete - Column Footings	208.00	cy	30.00	/cy	6,240
Column Footings	**200.00**	**Cuyd**	**431.32**	**/Cuyd**	**86,264**
Foundation Walls < 8'					
Form Walls = 4' and 6' Frost Walls	13,931.00	sf	8.00	/sf	111,447
EVO - Form Radial Walls	1,041.00	sf	4.00	/sf	4,164
Brick Shelf	1,578.00	lf	5.00	/lf	7,890
Rub Exposed Foundation Wall	2,000.00	sf	7.50	/sf	15,002
Rebar - Supply & Install - Standard Foundation Wall	17.00	ton	1,850.00	/ton	31,450
4000 psi Concrete - Frost Walls	265.00	cy	105.00	/cy	27,825
Place Concrete - Frost Walls	257.00	cy	35.00	/cy	8,994
Foundation Walls < 8'	**257.00**	**Cuyd**	**804.56**	**/Cuyd**	**206,772**
Foundation Walls > 8'					
Form Walls = greater than 8'	17,890.00	sf	11.00	/sf	196,726
EVO - Bracing for backfill - prior to steel erection		***N.A.***		***/N.A.***	
Rebar - Supply & Install - Standard Foundation Wall	34.00	ton	1,850.00	/ton	62,900
4000 psi Concrete - Foundation Walls	532.00	cy	105.00	/cy	55,860
Place Concrete - Foundation Walls	516.00	cy	35.00	/cy	18,059
Foundation Walls > 8'	**516.00**	**Cuyd**	**646.41**	**/Cuyd**	**333,545**
Foundation Walls - Damproof, Insulation, Vapor Barrier					
Foundation Insulation	15,910.50	sf	2.90	/sf	46,140
Drainage Mat	15,910.50	sf	3.00	/sf	47,732
Damproof@Frost Walls - Vertical Face Only	6,965.50	sf	1.50	/sf	10,448
Waterproofing @Foundation Walls	8,945.00	sf	5.00	/sf	44,725
Waterproofing @side / top of footings	***0.00***	***Excl***	***0.00***	***/Excl***	***0***
Foundation Walls - Damproof, Insulation, Vapor Barrier	**15,910.50**	**sf**	**9.37**	**/sf**	**149,045**
Piers - Stand alone					
Form Piers @ Isolated Column Footing	480.00	sf	11.99	/sf	5,757
Rebar - Supply & Install - Piers	0.63	ton	1,850.00	/ton	1,156
4000 psi Concrete - Column Footing Pier	10.00	cy	105.00	/cy	1,050
Place Concrete - Column Footing Pier	9.00	cy	35.00	/cy	315
Piers - Stand alone	**9.00**	**Cuyd**	**919.78**	**/Cuyd**	**8,278**
Pilasters @Walls					
Form Pilasters @Foundation Wall	600.00	sf	12.00	/sf	7,200
Rebar - Supply & Install - Pilasters	2.00	ton	1,850.00	/ton	3,700
4000 psi Concrete -Pilasters	18.00	cy	105.00	/cy	1,890
Place Concrete - Pilasters	17.00	cy	32.00	/cy	544

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Pilasters @Walls	**17.00**	**Cuyd**	**784.37**	**/Cuyd**	**13,334**
Tie Beams					
Tie Beam Forms	1,954.00	sf	9.00	/sf	17,586
Rebar - Supply & Install - Tie Beams	3.00	ton	1,850.00	/ton	5,550
4000 psi Concrete - Tie Beams	51.00	cy	105.00	/cy	5,355
Place Concrete - Tie Beams	49.00	cy	30.00	/cy	1,470
Tie Beams	**49.00**	**Cuyd**	**611.45**	**/Cuyd**	**29,961**
Misc Special Conditions					
Set Misc Embeds / Anchor Bolts / Provide Utility Box-outs	1.00	Ls	2,500.00	/Ls	2,500
Winter Conditions - Excluded		***Excl***		***/Excl***	
Misc. Accessories / Tools / Equip	1.00	Ls	5,000.00	/Ls	5,000
Lay-out & Engineering	1.00	Ls	3,500.00	/Ls	3,500
Railings / Toe Boards @Openings	1.00	Ls	15,000.00	/Ls	15,000
Misc Safety / Osha	1.00	Allw	10,000.00	/Allw	10,000
Misc Special Conditions	**129,939.00**	**sf**	**0.28**	**/sf**	**36,000**
Excavate for Footings					
Excav. Continuous Footings & Foundation Walls Below Subgrade	6,212.00	cyds	6.00	/cyds	37,275
Excav. Column Footings Below subgrade	1,130.00	cyds	6.00	/cyds	6,780
Excav. Elevator Pits	35.00	cyds	6.04	/cyds	212
Rough Grade Continuous Footings	2,156.00	sy	1.50	/sy	3,233
Rough Grade Column Footings	505.00	sy	1.50	/sy	757
Fine Grade Continuous Footings / Grade Beams	18,250.00	sf	0.70	/sf	12,775
Fine Grade Column Footings / Pit Mat Slab	3,000.00	sf	0.70	/sf	2,100
Site Fills from Borrow - Structural Fill within footprint - compacted in lifts	4,350.00	cy	18.00	/cy	78,300
Site Fills from Borrow - Drainage Fill @Foundation Walls	3,950.00	cy	18.00	/cy	71,100
Ledge Blasting & Removal - Bulk Excavation	1,500.00	cy	50.00	/cy	75,000
Gravel Backfill Continuous Footings Below Subgrade	750.00	cyds	20.00	/cyds	15,001
Gravel Backfill Column Footings below subgrade	150.00	cyds	20.00	/cyds	3,001
Perimeter / Underslab Foundation Drainage	625.00	lf	40.00	/lf	25,000
Excavate for Footings	**129,939.00**	**sf**	**2.54**	**/sf**	**330,533**
Standard Foundations	**129,939.00**	**sf**	**10.36**	**/sf**	**1,346,596**
Slab on Grade					
Slab on Grade					
Slab Edge Form	2,500.00	lf	5.50	/lf	13,752
S-O-G Const Joints - Slab on Grade	1,060.00	lf	4.50	/lf	4,770
Rebar - Supply & Install - Slab on Grade (@Perimeter)	7.00	ton	1,825.00	/ton	12,775
Wire Mesh 6x6 - W2.9xW2.9 - Slab on Grade, +10%	58,300.00	sf	0.70	/sf	40,810
3000 psi Concrete - Slab on Grade	842.00	cy	93.00	/cy	78,306
Place Concrete - Slab on Grade	818.00	cy	25.00	/cy	20,451
Column Diamonds - Complete with Concrete - Slab on Grade	135.00	ea	50.00	/ea	6,750
Finish- Slab on Grade	53,000.00	sf	0.95	/sf	50,349
Saw Cut Control Jnts - Slab on Grade	3,180.00	lf	2.60	/lf	8,254
Cure & Protect	53,000.00	sf	0.10	/sf	5,300
Slab on Grade	**53,000.00**	**sf**	**4.56**	**/sf**	**241,516**
Underslab Insulation & Vapor Retarder					
Rigid Insulation @ SOG	53,000.00	sf	2.80	/sf	148,400
Vapor Barrier @SOG - 15 mil poly	53,000.00	sf	0.50	/sf	26,500
Underslab Insulation & Vapor Retarder	**53,000.00**	**sf**	**3.30**	**/sf**	**174,900**
Misc Special Conditions					
Slab Depressions	1.00	Ls	5,000.00	/Ls	5,000
Thickened Slab / Haunched Slab @Interior Masonry		***NA***		***/NA***	
Misc Curbs	1.00	Allw	2,500.00	/Allw	2,500
Mech Pads	1.00	Allw	5,000.00	/Allw	5,000

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Misc Special Conditions					
Loading Dock Slab	232.00	Sqft	25.00	/Sqft	5,800
Structural Slab - One Way Slab Pedestrian Bridge above Dock	280.00	Sqft	40.00	/Sqft	11,200
Misc Special Conditions	**53,000.00**	**sf**	**0.56**	**/sf**	**29,500**
Excavation & Backfill					
Rough Grade & Roll Bldg Slab	5,900.00	sy	0.85	/sy	4,998
Fine Grade @ Slab	53,000.00	sf	0.45	/sf	23,811
Gravel @Slab on Grade	2,000.00	cyds	20.00	/cyds	40,000
Excavation & Backfill	**53,000.00**	**sf**	**1.30**	**/sf**	**68,809**
Slab on Grade	**53,000.00**	**sf**	**9.71**	**/sf**	**514,725**
Pit Walls & Slabs					
Pit Slab					
Pit Slab Edge Forms	42.00	sf	8.50	/sf	357
Rebar - Supply & Install - Pit Slab	0.25	ton	1,850.00	/ton	463
4000 psi Concrete - Elev Pit Mat Slab	4.00	cy	105.00	/cy	420
Place Concrete - Elev Pit Mat Slab	4.00	cy	30.00	/cy	120
Pit Slab	**4.00**	**Cuyd**	**339.88**	**/Cuyd**	**1,360**
Pit Walls					
Form Wall to 4' - Elev Pit Wall	251.00	sf	9.00	/sf	2,260
Foundation Insulation - Elev. Pit	125.00	sf	3.00	/sf	375
Rebar - Supply & Install - Elev. Pit Wall	0.35	ton	1,850.00	/ton	648
4000 psi Concrete - Elevator Pit Walls	5.00	cy	105.00	/cy	525
Place Concrete - Elevator Pit Walls	5.00	cy	30.00	/cy	150
Pit Walls	**5.00**	**Cuyd**	**791.41**	**/Cuyd**	**3,957**
Waterproof Pit					
Waterproofing - Pit Slab	110.00	sf	30.00	/sf	3,300
Waterproofing - Pit Wall	125.00	sf	30.00	/sf	3,750
Waterproof Pit	**235.00**	**sf**	**30.00**	**/sf**	**7,050**
Pit Walls & Slabs	**9.00**	**Cuyd**	**1,374.07**	**/Cuyd**	**12,367**
FOUNDATIONS	**129,939.00**	**sf**	**14.42**	**/sf**	**1,873,687**
SUBSTRUCTURE	**129,939.00**	**SF**	**14.42**	**/SF**	**1,873,687**
SHELL					
SUPERSTRUCTURE					
Floor Construction - Steel Framed					
Structural Steel & Metal Deck					
Perimeter Protection		***Incl***		***/Incl***	
Columns-WF	86.00	ton	1,825.00	/ton	156,950
Columns - TS	51.00	ton	1,900.00	/ton	96,900
Beams & Girders-WF / HSS	236.00	ton	1,825.00	/ton	430,700
AESS		***Excl***		***/Excl***	
Bracing Bays - HSS	20.00	ton	1,925.00	/ton	38,500
Base Plates / Anchor Bolts	144.00	sets	75.00	/sets	10,800
Misc shapes & connections - 10%	40.00	ton	1,950.00	/ton	78,000
Labor premium @Column Splices	150.00	ea	200.00	/ea	29,999
Labor premium @moment connections	99.00	ea	250.00	/ea	24,750
Beam Penetrations - Shop - allow	250.00	Loc	300.00	/Loc	75,000
Shear Studs	5,385.00	ea	2.00	/ea	10,770
Opening Support Framing	20.00	ton	1,800.00	/ton	36,000
Metal Floor Deck 1 1/2" x 20 Ga. x Composite x Galv	70,738.00	sf	3.00	/sf	212,214
Bent Plate Slab Stop	2,896.00	lf	5.50	/lf	15,928
Structural Steel & Metal Deck	**450.00**	**Tons**	**2,703.36**	**/Tons**	**1,216,511**
Spray-on Fireproofing					

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Spray-on Fireproofing					
Spray Fireproofing		***Excl***		***/Excl***	
Intumescent Fireproofing					
Intrumescent Fireproofing		***Excl***		***/Excl***	
Fire Safing / Firestopping					
Fire Safing / Fire Stopping - Perimeter Slab Edge @CW	1.00	Ls	50,000.00	/Ls	50,000
Fire Safing / Firestopping	**129,939.00**	**sf**	**0.39**	**/sf**	**50,000**
Slab on Metal Deck					
Rebar - Supply & Install - Slab on Metal Deck - Typical @Perimeter Edge	7.50	tons	1,850.00	/tons	13,875
Wire Mesh 6x6 - W2.9xW2.9 - Slab on Metal Deck	77,812.00	sf	0.75	/sf	57,959
4000 psi Concrete - Slab on Metal Deck - Normalwt	1,355.00	cy	105.00	/cy	142,275
Place Concrete - Slab on Metal Deck	1,315.00	cy	25.00	/cy	32,875
Finish - Slab on Metal Deck	70,738.00	sf	1.20	/sf	84,886
Cure & Protect Slab-on-Deck	70,738.00	sf	0.15	/sf	10,611
Slab on Metal Deck	**70,238.00**	**sf**	**4.88**	**/sf**	**342,480**
Floor Construction - Steel Framed	**129,939.00**	**sf**	**12.38**	**/sf**	**1,608,991**
Roof Construction					
Structural Steel & Metal Deck					
Perimeter Protection		***Incl***		***/Incl***	
Beams & Girders-WF / HSS	154.00	ton	1,825.00	/ton	281,049
Misc shapes & connections - 10%	23.00	ton	2,000.00	/ton	46,000
Labor premium @moment connections	59.00	ea	250.00	/ea	14,750
Galv. Steel Dunnage @Roof Top Equipment	10.00	tons	2,500.00	/tons	25,000
Long Span Open Web Joists	51.00	ton	1,675.00	/ton	85,425
Opening Support Framing - allow	10.00	ton	1,800.00	/ton	18,000
Parapet Support Steel Framing	1.00	Ls	25,000.00	/Ls	25,000
Misc Channels & Bridging Angles	10.00	ton	2,200.00	/ton	22,000
Metal Deck 1-1/2" x 22 Ga. x Composite x Galv - Roof Deck	36,728.00	sf	2.85	/sf	104,676
Metal Deck 3" x 18 Ga. x Composite x Galv - Roof Deck - Conc Walkway Only	2,500.00	sf	3.10	/sf	7,750
Acoustical Deck - Gymnasium	8,775.00	sf	5.75	/sf	50,457
Structural Steel & Metal Deck	**250.00**	**Tons**	**2,720.43**	**/Tons**	**680,108**
Spray-on Fireproofing					
Spray Fireproofing roof framing / roof deck		***Excl***		***/Excl***	
Slab on Metal Deck					
Slab on Deck at Roof Walkway		***Excl***		***/Excl***	
Roof Construction	**129,939.00**	**sf**	**5.23**	**/sf**	**680,108**
SUPERSTRUCTURE	**129,939.00**	**sf**	**17.62**	**/sf**	**2,289,099**
EXTERIOR CLOSURE					
Exterior Wall Construction					
Steel - Facade Support					
Facade Support @Precast veneer		***NA***		***/NA***	
Facade Support @Mechanical Screen Walls		***Excl***		***/Excl***	
Loose Lintels		***Excl***		***/Excl***	
Masonry Veneer					
Masonry Veneer - Excluded - Carry All Precast		***Excl***		***/Excl***	
Precast Concrete					
Architectural Precast Panel Veneer	3,097.00	sf	40.00	/sf	123,871

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Precast Concrete					
Precast Sills / Lintels		***Excl***		***/Excl***	
Precast Concrete	**129,939.00**	**sf**	**0.95**	**/sf**	**123,871**
Metal Cladding Systems					
Metal Panel Veneer - PP-A	4,825.00	sf	20.00	/sf	96,499
Metal Panel Veneer - PP-B	12,389.00	sf	20.00	/sf	247,780
Metal Panel Veneer - PP-C	13,628.00	sf	20.00	/sf	272,560
Metal Panel Veneer - FP - Flat Panel System	10,817.00	sf	40.00	/sf	432,681
Metal Panel Veneer - SP - Solar Wall Panel System	3,087.00	sf	45.00	/sf	138,903
Back-up Panel - Insulated Sandwich Panel System 3"	47,843.00	sf	19.00	/sf	909,017
Metal Cladding Systems	**129,939.00**	**sfwl**	**16.14**	**/sfwl**	**2,097,440**
Mechanical Louvers & Screening					
Mechanical Equipment Roof Screening		***Excl***		***/Excl***	
Louvers - @Elevator Overide	1.00	Ls	2,500.00	/Ls	2,500
Mechanical Louvers & Screening	**129,939.00**	**sf**	**0.02**	**/sf**	**2,500**
Exterior Wall Carpentry					
Blocking 2x6 @exterior wall openings	4,550.00	lf	8.50	/lf	38,686
Solid Surface Window Sills	1,500.00	lf	60.00	/lf	90,001
Exterior Wall Carpentry	**129,939.00**	**sf**	**0.99**	**/sf**	**128,687**
Veneer Back-up Partitions - Light Gauge Framing					
Insulation - NA - part of back-up panel system		***NA***		***/NA***	
Air Barriers - NA - part of back-up panel system		***NA***		***/NA***	
Wall Flashing - bituthene, peel & stick membrane	47,843.00	sf	1.00	/sf	47,843
Exterior Caulking / Vertical Control Joints	47,843.00	sf	0.50	/sf	23,922
Exterior Wall Studs - 8" as back-up to veneer (Precast, Metal Panel)	39,968.00	sf	8.00	/sf	319,744
Exterior Wall Studs - 12"@Gym	7,875.00	sf	12.00	/sf	94,500
GWB returns at Windows / CW	3,050.00	lf	2.25	/lf	6,863
GWB @Inside Face of Exterior Wall	47,843.00	sf	1.75	/sf	83,725
Exterior Sheathing		***Excl***		***/Excl***	
Veneer Back-up Partitions - Light Gauge Framing	**129,939.00**	**sf**	**4.44**	**/sf**	**576,596**
Parapet Walls					
Exterior Wall Plywood Sheathing & Insulation @Parapet Wall backside	2,400.00	sf	12.50	/sf	30,000
Exterior Wall Stud Framing of Duct Chase @Solar Wall - Horiz + Vertical	1,600.00	sf	25.00	/sf	40,000
Added Insulation within chase @duct	1,600.00	sf	10.00	/sf	16,000
Parapet Walls					**86,000**
Exterior Wall Construction	**129,939.00**	**sf**	**23.20**	**/sf**	**3,015,094**
Exterior Glazing Systems					
Aluminum Windows & Curtainwall					
Aluminum Frame Storefront - A1	451.00	sf	50.00	/sf	22,550
Aluminum Frame Storefront - A2	176.00	sf	50.00	/sf	8,801
Aluminum Frame Storefront - D1	***0.00***	***NA***	***0.00***	***/NA***	***0***
Aluminum Frame Storefront - D2	121.00	sf	50.00	/sf	6,050
Aluminum Frame Storefront - D3	518.00	sf	50.00	/sf	25,900
Aluminum Frame Storefront - E1	***0.00***	***NA***	***0.00***	***/NA***	***0***
Aluminum Frame Storefront - E2	13.00	sf	50.00	/sf	650
Aluminum Frame Storefront - F1	425.00	sf	50.00	/sf	21,250
Aluminum Frame Storefront - G1	316.00	sf	50.00	/sf	15,801
Aluminum Frame Storefront - J1	255.00	sf	50.00	/sf	12,750
Aluminum Frame Storefront - K1	152.00	sf	50.00	/sf	7,600
Aluminum Frame Storefront - K2	49.00	sf	49.98	/sf	2,449
Aluminum Frame Storefront - L1	97.00	sf	49.99	/sf	4,849
Aluminum Frame Storefront - M1	42.00	sf	50.02	/sf	2,101

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Aluminum Windows & Curtainwall					
Aluminum Frame Storefront - N1	35.00	sf	50.00	/sf	1,750
Aluminum Frame Storefront - N2	80.00	sf	50.00	/sf	4,000
Aluminum Frame Storefront - N3	42.00	sf	50.02	/sf	2,101
Aluminum Frame Storefront - N4	66.00	sf	50.00	/sf	3,300
Aluminum Frame Storefront - N5	52.00	sf	50.00	/sf	2,600
Aluminum Frame Storefront - N6	27.00	sf	50.00	/sf	1,350
Aluminum Frame Storefront - N7	21.00	sf	50.00	/sf	1,050
Aluminum Frame Storefront - N8	44.00	sf	50.00	/sf	2,200
Aluminum Frame Storefront - P1	88.00	sf	50.00	/sf	4,400
Aluminum Frame Storefront - Q1	206.00	sf	50.00	/sf	10,300
Aluminum Frame Storefront - R1	515.00	sf	50.00	/sf	25,750
Aluminum Frame Windows, A1-A2	680.00	sf	50.00	/sf	34,000
Aluminum Frame Windows, B1-B2	752.00	sf	50.00	/sf	37,600
Aluminum Frame Windows, C1-C2	1,523.00	sf	50.00	/sf	76,150
Aluminum Frame Windows, D1-D2	160.00	sf	50.00	/sf	8,000
Aluminum Frame Windows, E1-E2	411.00	sf	50.00	/sf	20,550
Aluminum Frame Windows, F1-F2	155.00	sf	50.00	/sf	7,750
Aluminum Frame Windows, A3-A4	126.00	sf	50.00	/sf	6,300
- Operable Sash / Hardware	134.00	ea	400.00	/ea	53,600
- Insect screens	134.00	ea	50.00	/ea	6,700
Curtainwall A1	211.00	sf	85.00	/sf	17,935
Curtainwall B1	515.00	sf	85.00	/sf	43,775
Curtainwall C1	719.00	sf	85.00	/sf	61,115
Curtainwall D1	37.00	sf	85.00	/sf	3,145
Aluminum Sunshades	601.00	lnft	230.00	/lnft	138,232
Aluminum Windows & Curtainwall	**129,939.00**	**sf**	**5.42**	**/sf**	**704,404**
Exterior Glazing Systems	**129,939.00**	**sf**	**5.42**	**/sf**	**704,404**
Exterior Door Systems					
Hollow Metal Doors / Fr / Hdwe					
Exterior HM Doors - Non Scheduled (all Aluminum)	***NA***		***/NA***		
Overhead Doors					
Overhead Door - Dock = 8' x 10'	1.00	Ea	8,500.00	/Ea	8,500
Overhead Door - Mech = 10' x 11'	1.00	Ea	10,500.00	/Ea	10,500
Overhead Door - Outdoor Storage = 10' x 11'	1.00	Ea	10,500.00	/Ea	10,500
Overhead Doors	**129,939.00**	**Excl**	**0.23**	**/Excl**	**29,500**
Aluminum Doors & Storefronts					
Aluminum Doors / Frames / Hardware - Single	3.00	Leaf	4,750.00	/Leaf	14,250
Aluminum Doors / Frames / Hardware - Double	7.00	Pair	8,750.00	/Pair	61,250
Aluminum Doors & Storefronts	**129,939.00**	**sf**	**0.58**	**/sf**	**75,500**
Exterior Door Systems	**129,939.00**	**sf**	**0.81**	**/sf**	**105,000**
EXTERIOR CLOSURE	**129,939.00**	**sf**	**29.43**	**/sf**	**3,824,498**
ROOFING					
Roofing Systems					
Membrane Roof Systems					
PT / FT Roof Blocking @ Perimeter	6,871.00	bdft	8.50	/bdft	58,404
Protection board	55,333.00	Sf	1.25	/Sf	69,166
Vapor Retarder	55,333.00	Sf	1.75	/Sf	96,833
Roof Insulation	55,333.00	sf	3.50	/sf	193,666
- Add for Tapered Insulation	10,095.00	sf	4.00	/sf	40,380
EDPM Roofing Membrane	55,333.00	sf	4.25	/sf	235,165
- VM Item for 90 Mil Membrane	1.00	Ls	55,000.00	/Ls	55,000
Walkway Pads	1,310.00	sf	5.00	/sf	6,548
Counter Flashing - @roof to parapet walls	4,500.00	sf	8.00	/sf	36,000
Metal Roof Coping - Tall Parapet	379.00	lf	40.00	/lf	15,160
Metal Roof Coping - Short Parapet	1,355.00	lf	30.00	/lf	40,650

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Membrane Roof Systems					
Metal Roof Edge	229.00	lf	35.00	/lf	8,015
Flash Membrane Up Parapet / Built up roof edge	2,000.00	sf	5.75	/sf	11,500
Flash Membrane Up Gym Parapet / Solar Wall Duct Chase	4,000.00	sf	5.75	/sf	23,000
Misc Penetration Flashing - drains, vents, fans, curbs, equip posts	1.00	Ls	10,000.00	/Ls	10,000
Membrane Roof Systems	**57,333.00**	**sf**	**15.69**	**/sf**	**899,487**
Roofing Systems	**129,939.00**	**sf**	**6.92**	**/sf**	**899,487**
Roof Accessories					
Roof Accessories					
Roof Expansion Assemblies	113.00	Lnft	45.00	/Lnft	5,085
Scuppers		***Excl***		***/Excl***	
Roof Access Hatch	4.00	Ea	3,500.00	/Ea	14,000
Roof Accessories	**129,939.00**	**sf**	**0.15**	**/sf**	**19,085**
Roof Accessories	**129,939.00**	**sf**	**0.15**	**/sf**	**19,085**
Skylight Systems					
Skylight Systems					
Skylights		***Excl***		***/Excl***	
Misc Roof Items					
Misc Metals					
Roof Guardrail		***Excl***		***/Excl***	
Roof Access Ladders - Allow	30.00	vlf	150.00	/vlf	4,500
Misc Metals	**129,939.00**	**sf**	**0.04**	**/sf**	**4,500**
Special Roof Items					
Roof Protection / Patching Allowance During Construction	1.00	Allw	10,000.00	/Allw	10,000
Special Roof Items	**129,939.00**	**sf**	**0.08**	**/sf**	**10,000**
Misc Roof Items	**129,939.00**	**sf**	**0.11**	**/sf**	**14,500**
ROOFING	**129,939.00**	**sf**	**7.18**	**/sf**	**933,072**
SHELL	**129,939.00**	**SF**	**54.23**	**/SF**	**7,046,669**
INTERIORS					
INTERIOR CONSTRUCTION					
Partitions					
Drywall Partitions					
Partition S2A	2,964.50	sf	5.20	/sf	15,415
Partition S4A	43,699.70	sf	8.09	/sf	353,532
Partition S4AP	2,451.90	sf	10.40	/sf	25,500
Partition S4B	7,936.50	sf	8.38	/sf	66,509
Partition S4BP	441.10	sf	10.69	/sf	4,716
Partition S4C	2,499.20	sf	8.96	/sf	22,393
Partition S4CP	429.00	sf	10.98	/sf	4,711
Partition S4D Single Sided	20,452.30	sf	6.07	/sf	124,146
Partition S4DP Single Sided	300.30	sf	8.38	/sf	2,516
Partition S4E Single Sided	6,004.90	sf	6.65	/sf	39,932
Partition S4F Single Sided	125.00	sf	7.10	/sf	887
Partition S4G	16,859.70	sf	8.66	/sf	146,005
Partition S4H	1,425.60	sf	10.97	/sf	15,640
Partition S4J	1,369.50	sf	13.28	/sf	18,187
Partition S6A	10,071.60	sf	9.24	/sf	93,061
Partition S6B	2,715.90	sf	9.82	/sf	26,669
Partition S6C	1,086.80	sf	10.69	/sf	11,619
Partition S6D Single Sided	1,773.20	sf	6.07	/sf	10,763
Partition S6E Single Sided	496.10	sf	6.93	/sf	3,438
Partition S8A	7,573.50	sf	10.40	/sf	78,764
Partition S8B	375.10	sf	10.97	/sf	4,115

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Drywall Partitions					
Partition F4A	801.90	sf	8.96	/sf	7,186
Partition F4B	125.00	sf	8.66	/sf	1,082
Partition F4C	1,048.30	sf	12.70	/sf	13,314
Partition F4D	200.20	sf	13.28	/sf	2,658
Partition F6A	2,407.90	sf	10.11	/sf	24,343
Partition F6B	125.00	sf	9.71	/sf	1,213
Partition F6C	250.00	sf	10.24	/sf	2,560
Partition F6D	375.00	sf	11.03	/sf	4,136
Partition F6E	500.00	sf	9.71	/sf	4,855
Partition F8A	2,130.70	sf	10.69	/sf	22,778
Partition F8B	125.00	sf	10.76	/sf	1,345
Partition F8E	250.00	sf	11.29	/sf	2,821
Partition EC1 (No GWB - bare sealed conc wall)	***4,636.50***	***sf***		***/sf***	
Partition EC2	4,670.60	sf	6.35	/sf	29,658
Partition EC3	154.00	sf	6.35	/sf	977
Partition EC4	3,628.90	sf	6.35	/sf	23,044
metal stud framing & sheathing @locker room locker bases	1.00	Ls	30,000.00	/Ls	30,000
FRP Column Covers	9.00	ea	1,500.00	/ea	13,500
Misc Partitions / Drywall Assemblies	129,939.00	sf	0.25	/sf	32,485
Add for Cement Board Tile Backer	25,430.00	sf	2.25	/sf	57,218
Add for Abuse Resistant GWB	14,250.00	sf	1.75	/sf	24,938
Drywall Partitions	**129,939.00**	**sf**	**10.53**	**/sf**	**1,368,631**
Masonry Partitions					
M8A - 8" CMU Interior Walls	1,400.00	sf	20.00	/sf	28,004
Masonry Partitions	**129,939.00**	**sf**	**0.22**	**/sf**	**28,004**
Partitions	**129,939.00**	**sf**	**10.75**	**/sf**	**1,396,635**
Doors / Frames / Hardware					
Aluminum Doors & Storefronts					
Aluminum Doors (incl hrdwr) - Single	3.00	leaf	4,250.00	/leaf	12,750
Aluminum Doors (incl hrdwr) - Double	4.00	Pair	8,000.00	/Pair	32,000
Interior Storefront	1,020.00	sqft	48.00	/sqft	48,960
Aluminum Doors & Storefronts	**129,939.00**	**sf**	**0.72**	**/sf**	**93,710**
Hollow Metal					
Type A HM Door Frame - 3 x 7	145.00	ea	225.00	/ea	32,625
Type A HM Door Frame - 5 x 7	***0.00***	***ea***	***0.00***	***/ea***	***0***
Type A HM Door Frame - 6 x 7	60.00	ea	325.00	/ea	19,500
Type B HM Door Frame - 3 x 7 incl sidelite	61.00	ea	380.00	/ea	23,180
Type C HM Door Frame - 6 x 7 incl 1 sidelite ea side	1.00	ea	450.00	/ea	450
Type D HM Door Frame - 3 x 7 incl 2 sidelites 1 side	1.00	ea	475.00	/ea	475
Type E HM Door Frame - 6 x 7 incl 1 sidelite ea side	1.00	ea	575.00	/ea	575
Type F HM Door Frame - 3 x 7 incl 2 sidelites 1 side	1.00	ea	475.00	/ea	475
HM Borrowed Lites - BL1 through BL5	201.00	sf	27.00	/sf	5,427
- Premium @ rated frames - 1 hr	11.00	ea	50.00	/ea	550
- Premium @ rated frames - 2 hr	3.00	ea	75.00	/ea	225
HM Door Leafs - M1 - Flush	52.00	ea	210.00	/ea	10,920
HM Door Leafs - M2 - Narrow Vision Lite	28.00	ea	260.00	/ea	7,280
HM Door Leafs - M3 - Full Glazed	14.00	ea	310.00	/ea	4,340
- Premium @ rated door - 1 hr	22.00	ea	50.00	/ea	1,100
- Premium @ rated door - 2 hr	4.00	ea	75.00	/ea	300
Install HM Doors & Frms	350.00	mnhr	78.00	/mnhr	27,300
Hollow Metal	**129,939.00**	**sf**	**1.04**	**/sf**	**134,722**
Interior Coiling Doors					
SS Coiling Doors @Caf - 12' x 7'	2.00	ea	6,750.00	/ea	13,500
SS Coiling Doors @Caf - 9' x 7'	2.00	ea	5,500.00	/ea	11,000

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Interior Coiling Doors	**129,939.00**	**sf**	**0.19**	**/sf**	**24,500**
Wood					
Install Wood Doors	180.00	mnhr	78.00	/mnhr	14,040
Wood Door - Hardwood Veneer - W1, Flush - 3' x 7'	172.00	ea	350.00	/ea	60,200
Wood Door - Hardwood Veneer - W3, 3' x 7'	2.00	ea	500.00	/ea	1,000
Wood Door - Hardwood Veneer - W4, 3' x 7'	1.00	ea	450.00	/ea	450
Wood Frame	1.00	Loc	750.00	/Loc	750
Wood	**129,939.00**	**sf**	**0.59**	**/sf**	**76,440**
Hardware					
Purchase Finish Hardware	270.00	set	425.00	/set	114,750
Recieve / Unload / Install Finish Hardware	800.00	mnhr	78.00	/mnhr	62,400
Hardware	**129,939.00**	**sf**	**1.36**	**/sf**	**177,150**
Doors / Frames / Hardware	**129,939.00**	**sf**	**3.90**	**/sf**	**506,522**
Interior Caulking					
Interior Caulking					
Interior Caulking - Door Frames / Sidelites	8,440.00	Lnft	3.25	/Lnft	27,430
Interior Caulking - Borrowed lights / Interior Storefront	1,220.00	Lnft	3.25	/Lnft	3,965
Interior Caulking - Millwork, window sills	1,500.00	Lnft	3.25	/Lnft	4,875
Interior Caulking - Millwork / Casework / Counters	3,650.00	Lnft	3.25	/Lnft	11,863
Interior Caulking - Plumbing Fixtures	1,740.00	Ls	3.25	/Ls	5,655
Interior Caulking - Kitchen Fixtures / Equipment	1.00	Ls	5,000.00	/Ls	5,000
Interior Caulking - Winows / Curtainwall	1.00	Ls	15,000.00	/Ls	15,000
Interior Caulking - Misc Disimilar Materials	129,939.00	Gsf	0.20	/Gsf	25,988
Interior Caulking	**129,939.00**	**sf**	**0.77**	**/sf**	**99,775**
Interior Caulking	**129,939.00**	**sf**	**0.77**	**/sf**	**99,775**
Interior Glazing Systems					
Glazed Openings					
Glazing in classroom / Admin sidelights	790.00	sf	20.00	/sf	15,800
HM Borrowed Lites	201.00	sf	20.00	/sf	4,020
Mirror	42.00	ea	135.00	/ea	5,670
Glazing in door vision panels	32.00	ea	115.00	/ea	3,680
Glazed Openings	**129,939.00**	**sf**	**0.22**	**/sf**	**29,170**
Interior Glazing Systems	**129,939.00**	**sf**	**0.22**	**/sf**	**29,170**
Misc. & Ornamental Metals					
Misc Metals					
Elev. Sump Pit Covers-Galv.	1.00	ea	250.00	/ea	250
Elev. Pit Ladders	1.00	ea	900.00	/ea	900
Elev. Hoist Beams	1.00	ton	3,000.00	/ton	3,000
Elev. Sill Angles	3.00	ea	500.00	/ea	1,500
C.M.U. Stabilizer Clips-Galv. @ Interior Partitions	50.00	ea	90.00	/ea	4,500
Athletic Equipment Support - basketball goals	6.00	Loc	2,500.00	/Loc	15,000
Divider Screen Support	141.00	Lnft	75.00	/Lnft	10,575
Operable Partition Support	63.00	Lnft	125.00	/Lnft	7,875
Cubicle Curtain track Support	60.00	Lnft	75.00	/Lnft	4,500
Misc Equipment Support - Allowance	1.00	Allw	5,000.00	/Allw	5,000
Projection Screen Supports	5.00	Loc	750.00	/Loc	3,750
Misc and Ornamental Metals	129,939.00	sf	0.50	/sf	64,970
Floor Expansion Assemblies	330.00	lf	50.00	/lf	16,500
Wall Expansion Assemblies	140.00	vlf	40.00	/vlf	5,600
Misc Metals	**129,939.00**	**sf**	**1.11**	**/sf**	**143,920**
Misc. & Ornamental Metals	**129,939.00**	**sf**	**1.11**	**/sf**	**143,920**
Specialties					
Misc Specialties					

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Misc Specialties					
Cubicle Curtain / Track@ Nurse	60.00	Lnft	50.00	/Lnft	3,000
Operable Partitions @stage proscenium - 48 lnft x 17' ht	816.00	sf	75.00	/sf	61,200
Misc Specialties	**129,939.00**	**sf**	**0.49**	**/sf**	**64,200**
Toilet Partitions					
Toilet Partition	19.00	ea	1,200.00	/ea	22,800
HC Toilet Partition	12.00	ea	1,400.00	/ea	16,800
Changiong Compartment	10.00	ea	1,200.00	/ea	12,000
Urinal Screen	4.00	ea	400.00	/ea	1,600
Toilet Partitions	**129,939.00**	**sf**	**0.41**	**/sf**	**53,200**
Lockers					
Lockers @Corridor - Double Tier (Count as per Specs)	926.00	opng	150.00	/opng	138,900
Lockers @Gym - Steel Wire Basket Type (Count as per Specs)	450.00	opng	115.00	/opng	51,750
Locker Benches	121.00	Lnft	75.00	/Lnft	9,075
Lockers	**129,939.00**	**sf**	**1.54**	**/sf**	**199,725**
Fire Extinguisher Cabinets					
Fire Extin. / Cabinet - Recessed	1.00	Ls	20,000.00	/Ls	20,000
Fire Extinguisher Cabinets	**129,939.00**	**sf**	**0.15**	**/sf**	**20,000**
Toilet Accessories					
Soap Dispensers	42.00	ea	60.00	/ea	2,520
Towel Dispensers	25.00	ea	95.00	/ea	2,375
Waste Receptacles	25.00	ea	280.00	/ea	7,000
Bath Tissue Dispenser Double	43.00	ea	50.00	/ea	2,150
Coat Hooks	56.00	ea	15.00	/ea	840
Grab Bars	50.00	ea	160.00	/ea	8,000
Toilet Accessories	**129,939.00**	**sf**	**0.18**	**/sf**	**22,885**
Signage					
Signs - Room ID / Interior Signage - Allow	129,939.00	sf	0.30	/sf	38,982
Signs - Dedication Plaque	1.00	Allo	3,000.00	/Allo	3,000
Signs - pin letters, building mntd	1.00	ls	5,000.00	/ls	5,000
Signs - pin letters, Site Entry	1.00	ls	5,000.00	/ls	5,000
- Site Entry Sign Plinth - Sitework, Concrete, Masonry	1.00	ls	10,000.00	/ls	10,000
Signage				**/sf**	**61,982**
Wall & Corner Guards					
Corner Guards	1.00	Allw	4,000.00	/Allw	4,000
Wall & Corner Guards	**129,939.00**	**sf**	**0.03**	**/sf**	**4,000**
Specialties	**129,939.00**	**sf**	**3.28**	**/sf**	**425,992**
INTERIOR CONSTRUCTION	**129,939.00**	**sf**	**20.03**	**/sf**	**2,602,013**
STAIRWAYS					
Stair Construction					
Concrete Fill @Metal Pan					
Concrete @Metal Pan Stairs - - Stair 1	2.00	flt	1,700.00	/flt	3,400
Concrete @Metal Pan Stairs - - Stair 2	3.00	flt	2,200.00	/flt	6,600
Concrete @Metal Pan Stairs - - Stair 3	2.00	flt	1,950.00	/flt	3,900
Concrete @Metal Pan Stairs - - Stair 4	2.00	flt	1,950.00	/flt	3,900
Concrete Fill @Metal Pan	**129,939.00**	**sf**	**0.14**	**/sf**	**17,800**
Metal Pan Stairs w/glass rails					
Metal Pan Stairs / Rail - Stair 1, 6' wide, open - 2 flights - w/o rails	50.00	risr	525.00	/risr	26,250
Metal Pan Stairs / Rail - Stair 2, 4' wide, - 3 flights - w/o rails	73.00	risr	400.00	/risr	29,200
Metal Pan Stairs / Rail - Stair 3, 6'-2" wide, - 2 flights - w/o rails	50.00	risr	540.00	/risr	27,000

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Metal Pan Stairs w/glass rails					
Metal Pan Stairs / Rail - Stair 4, 6'-2" wide, - 2 flights - w/o rails	50.00	risr	540.00	/risr	27,000
Glass Panel Infill / Stainless Steel Rails at Stairs	220.00	Lnft	350.00	/Lnft	77,000
Stainless Steel Rails at Stairs - Wall Mntd Rail	175.00	Lnft	150.00	/Lnft	26,250
Metal Pan Stairs w/glass rails	**9.00**		**23,633.36**		**212,700**
Metal Pan Stairs w/mesh rails					
Metal Pan Stairs / Rail - Stair C Corridor, 4'-9" wide, - 1 flights	4.00	risr	650.00	/risr	2,600
Metal Pan Stairs / Rail - 2 stairs @stage, 3'-4" wide	8.00	risr	550.00	/risr	4,400
Metal Pan Stairs / Rail - 1 stair @vestibule, 3'-8" wide	4.00	risr	575.00	/risr	2,300
Metal Pan Stairs w/mesh rails	**16.00**	**rsr**	**581.25**	**/rsr**	**9,300**
Railings					
Railings - at Mezzanine	45.00	Lnft	250.00	/Lnft	11,250
Railings - Metal Handrails at Ramp	80.00	Lnft	135.00	/Lnft	10,800
Railings					**22,050**
Stair Construction	**129,939.00**	**sf**	**2.02**	**/sf**	**261,851**
STAIRWAYS	**129,939.00**	**sf**	**2.02**	**/sf**	**261,851**
INTERIOR FINISHES					
Wall Finishes					
Wall Finishes					
Laminate Wall Paneling - Gymnasium	2,100.00	sf	45.00	/sf	94,500
Wood Wall Paneling - Stage Surround	1,000.00	sf	45.00	/sf	45,000
Laminate Wall Paneling - Lobbies / Caf - allow	1,000.00	sf	45.00	/sf	45,000
Wall Finishes	**129,939.00**	**sf**	**1.42**	**/sf**	**184,500**
Tile Work					
Ceramic Tile Walls - Corridors & Stairs - to 7' (pnt above) Pattern 1	18,500.00	sf	13.50	/sf	249,750
Ceramic Tile Walls - Pattern 1 - Full Ht	8,000.00	sf	13.50	/sf	108,000
Ceramic Tile Walls - Pattern 2 - Full Ht	12,000.00	sf	13.50	/sf	162,000
Ceramic Tile Walls - Pattern 3 - Full Ht	1,050.00	sf	13.50	/sf	14,175
Tile Work	**129,939.00**	**sf**	**4.11**	**/sf**	**533,926**
Painting					
Vinyl Wall Covering		***N.A.***		***/N.A.***	
Interior Paint - Wall - GWB	134,900.00	sf	0.65	/sf	87,685
Interior Paint - Wall - GWB - Epoxy Pnt Above Ceramic Tile	13,089.00	sf	1.25	/sf	16,361
Stain Wood Wall Paneling - Stage Surround	1,000.00	sf	2.50	/sf	2,500
Interior Paint - Wall - CMU		***NA***		***/NA***	
Painting	**129,939.00**	**sf**	**0.82**	**/sf**	**106,546**
Special Wall Treatments					
Accoustical Wall treatment - Allow at Caf	1.00	Allw	6,000.00	/Allw	6,000
Accoustical Wall treatment - As Shown @ Gymnasium	725.00	sf	25.00	/sf	18,125
Accoustical Wall treatment - Allow at Music / Practice	1.00	Allw	26,000.00	/Allw	26,000
Special Wall Treatments	**129,939.00**	**sf**	**0.39**	**/sf**	**50,125**
Wall Finishes	**129,939.00**	**sf**	**6.74**	**/sf**	**875,097**
Floor Finishes					
Tile Work					
Ceramic Tile Flooring	4,728.00	sf	13.25	/sf	62,646
Waterproof floor and flash cove base at Toilet Rooms	4,728.00	sf	6.50	/sf	30,732
Quarry Tile	2,755.00	sf	14.00	/sf	38,580
Tile Work	**129,939.00**	**sf**	**1.02**	**/sf**	**131,958**
Painting					
Seal concrete floors	4,067.00	sf	0.50	/sf	2,034

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Painting	**129,939.00**	**sf**	**0.02**	**/sf**	**2,034**
Resilient Flooring Systems					
VCT Tile Type 1	51,295.00	sf	2.75	/sf	141,061
VCT Tile Type 2	16,722.00	sf	2.75	/sf	45,986
VCT Tile Type 3	4,728.00	sf	2.75	/sf	13,002
Linoleum	11,252.00	sf	7.25	/sf	81,576
VM Item - Heat Welded Linoleum in corridors	1.00	ls	94,000.00	/ls	94,000
VM Item - Heat Welded Linoleum in all other areas	1.00	ls	308,000.00	/ls	308,000
Radial rubber tile - Stairs / landings	3,511.00	sf	14.50	/sf	50,909
Rubber Treads / Risers		***Inc***		***/Inc***	
Resilient Flooring Systems	**129,939.00**	**sf**	**5.65**	**/sf**	**734,534**
Carpeting					
Carpeting	10,967.00	sf	4.50	/sf	49,353
Carpeting	**129,939.00**	**sf**	**0.38**	**/sf**	**49,353**
Wood Floor					
Stage Flooring	1,706.00	sf	13.00	/sf	22,177
Gym Wood Flooring, incl striping	8,378.00	sf	18.00	/sf	150,804
Wood Floor	**129,939.00**	**sf**	**1.33**	**/sf**	**172,981**
Misc. Floor System / Finish					
Finished Floor Protection	1.00	Ls	25,000.00	/Ls	25,000
Floor Prep / Leveling	1.00	Ls	100,000.00	/Ls	100,000
Moisture Barrier Allowance (NA - low VOC adhesives not used)		***Excl***		***/Excl***	
Recessed Floor Mat / Frames	1.00	Ls	15,000.00	/Ls	15,000
Misc. Floor System / Finish	**129,939.00**	**sf**	**1.08**	**/sf**	**140,000**
Floor Finishes	**129,939.00**	**sf**	**9.47**	**/sf**	**1,230,859**
Base Finishes					
Tile Work					
Ceramic Mosaic Cove Base	1,528.00	lf	12.50	/lf	19,100
Quarry Tile Base	644.00	lf	14.00	/lf	9,016
Ceramic Mosaic Tile @Locker Rm Locker Bases - 155 lnft x 16" ht	155.00	lf	50.00	/lf	7,750
Tile Work	**129,939.00**	**sf**	**0.28**	**/sf**	**35,866**
Resilient Flooring Systems					
Vinyl Cove Base 4"	16,281.00	lf	2.00	/lf	32,494
Vented resilient base - Gym	384.00	lf	10.00	/lf	3,840
Resilient Flooring Systems	**129,939.00**	**sf**	**0.28**	**/sf**	**36,333**
Base Finishes	**129,939.00**	**sf**	**0.56**	**/sf**	**72,199**
Ceiling Finishes					
Painting					
Interior Paint - Ceiling - GWB - Latex	8,998.00	sf	0.75	/sf	6,749
Interior Paint - Soffit / Fascia's - Latex	4,096.00	sf	0.85	/sf	3,482
Interior Paint - exposed structure - Gym Upper	8,700.00	sf	1.50	/sf	13,048
Interior Paint - exposed structure - Mech / Unfinished	6,500.00	sf	1.50	/sf	9,748
Sandblast Clg @Exposed Dock	300.00	sf	5.50	/sf	1,650
Painting	**129,939.00**	**sf**	**0.27**	**/sf**	**34,677**
Drywall Ceilings					
GWB Ceilings	8,998.00	sf	7.75	/sf	69,735
GWB Soffits / Fascia @clg ht transitions	4,096.00	sf	9.75	/sf	39,937
Drywall Ceilings	**129,939.00**	**sf**	**0.84**	**/sf**	**109,671**
Acoustical Ceilings					

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
Acoustical Ceilings			
ACT 2 x 2 Ceiling, Type 1 - Standard	90,568.00 sf	4.00 /sf	361,794
ACT 2 x 2 Ceiling, Type 2 - Washable Vinyl Faced at Kitchen	2,362.00 sf	5.25 /sf	12,394
ACT 2 x 2 Ceiling, Type 3, Gypsum Core = 50% @Band & Music	2,220.00 sf	3.90 /sf	8,658
Acoustical Ceilings	**129,939.00 sf**	**2.95 /sf**	**382,846**
Specialty Ceilings			
8" x8" Magna Grid - Open Cell Ceiling	***NA***	***/NA***	
Unistrut Grid	239.00 sf	30.00 /sf	7,170
Metal Flat Ceiling	124.00 sf	35.00 /sf	4,340
Hardwood plywood soffit	249.00 sf	50.00 /sf	12,450
Composite Metal Panel Soffit	2,709.00 sf	40.00 /sf	108,360
Specialty Ceilings	**129,939.00 sf**	**1.02 /sf**	**132,320**
Ceiling Finishes	**129,939.00 sf**	**5.08 /sf**	**659,514**
Misc. Finishes			
Painting			
Paint HM Frames - Single	145.00 ea	75.00 /ea	10,875
Paint HM Frames - Double	30.00 ea	75.00 /ea	2,250
Paint HM Borrowed lite / side lite frames	69.00 ea	90.00 /ea	6,210
Paint Int Window Frames	10.00 ea	100.00 /ea	1,000
Paint HM Doors	89.00 ea	100.00 /ea	8,900
Paint Stairs - +railings	13.00 Flt	450.00 /Flt	5,850
Paint Railings at Ramp	125.00 Lnft	15.00 /Lnft	1,875
Misc Interior/exterior Painting	80.00 mnhr	75.00 /mnhr	6,000
Painting	**129,939.00 sf**	**0.33 /sf**	**42,960**
Misc. Finishes	**129,939.00 sf**	**0.33 /sf**	**42,960**
INTERIOR FINISHES	**129,939.00 sf**	**22.17 /sf**	**2,880,629**
INTERIORS	**129,939.00 SF**	**44.21 /SF**	**5,744,493**
SERVICES			
CONVEYING SYSTEMS			
Elevators & Lifts			
Elevators			
Hydraulic Passenger Elevator - 2500# Capacity, 28 VLF Travel, 150 FPM	3.00 Stop	28,500.00 /Stop	85,500
Elevator Cab Allowance	1.00 Allw	15,000.00 /Allw	15,000
Elevators	**129,939.00 sf**	**0.77 /sf**	**100,500**
ADA Lifts			
Wheelchair Lift	1.00 ea	17,500.00 /ea	17,500
ADA Lifts	**129,939.00 sf**	**0.14 /sf**	**17,500**
Elevators & Lifts	**129,939.00 sf**	**0.91 /sf**	**118,000**
CONVEYING SYSTEMS	**129,939.00 sf**	**0.91 /sf**	**118,000**
PLUMBING SYSTEMS			
Plumbing Fixtures			
*			
P-1 - Water Closet - Wall Hung	18.00 ea	1,108.08 /ea	19,945
P-1A - Water Closet - Wall Hung (HC)	23.00 ea	1,108.08 /ea	25,486
P-2 - Urinal (Waterless)	6.00 ea	1,097.28 /ea	6,584
P-3 - Lavatory, Wall Hung	13.00 ea	964.44 /ea	12,538
P-3A - Lavatory, Wall Hung (HC)	21.00 ea	872.64 /ea	18,325
P-5 - Lavatory, Countertop	6.00 ea	598.32 /ea	3,590
P-10 - Shower HC	3.00 ea	1,632.96 /ea	4,899
P-4 - Sink, Classroom	52.00 ea	799.20 /ea	41,558
P-7 - Sink, Countertop	2.00 ea	799.20 /ea	1,598
P-8 - Sink, Double Bowl	2.00 ea	1,045.44 /ea	2,091
P-12 - Service Sink, Wall	1.00 ea	1,036.80 /ea	1,037

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
P-11 - Mop Sink	3.00 ea	1,110.24 /ea	3,331
P-9 - Sink, Art Room	4.00 ea	1,663.20 /ea	6,653
P-6 - Bi-Level Electric Water Cooler	11.00 ea	3,391.20 /ea	37,303
P-13 - Washer Outlet Box	1.00 ea	154.44 /ea	154
*			**185,093**
Plumbing Fixtures	**129,939.00 sf**	**1.42 /sf**	**185,093**
Plumbing Equipment			
*			
RP-1&2 - Circulating Pump 1/8 HP, 10 GPM	2.00 ea	751.68 /ea	1,503
Grease Interceptor, 35 GPM / 70#	1.00 ea	10,891.80 /ea	10,892
Oil Interceptor, 20 GPM	1.00 ea	6,087.96 /ea	6,088
Wall Hydrant	12.00 ea	249.48 /ea	2,994
Hose Bibb	8.00 ea	160.11 /ea	1,281
Backflow Preventer (RP) 1"	1.00 ea	1,446.55 /ea	1,447
Backflow Preventer (RP) 4"	1.00 ea	6,077.59 /ea	6,078
Pressure Reducing Station w/Water Meter 4"	1.00 ea	5,228.28 /ea	5,228
WH-1&2 - 130 Gallon, 299 MBH	2.00 ea	34,162.56 /ea	68,325
WH-3 - Tankless Booster Heater	1.00 ea	3,287.52 /ea	3,288
TMV-A - Tempering Valve, 2"	1.00 ea	2,080.08 /ea	2,080
ET-1 - Expansion Tank, 14 Gallon	1.00 ea	1,815.48 /ea	1,815
Trap Primers	5.00 ea	686.88 /ea	3,434
*			**114,453**
Plumbing Equipment	**129,939.00 sf**	**0.88 /sf**	**114,453**
Domestic Water Piping			
*			
1/2" & 3/4" Type L Copper	3,660.00 lf	21.60 /lf	79,056
1" Type L Copper	1,455.00 lf	30.24 /lf	43,999
11/4" & 11/2" Type L Copper	1,490.00 lf	34.56 /lf	51,494
2" Type L Copper	525.00 lf	50.76 /lf	26,649
21/2" Type L Copper	395.00 lf	64.80 /lf	25,596
3" Type L Copper	85.00 lf	75.60 /lf	6,426
4" Type L Copper	75.00 lf	86.40 /lf	6,480
Fiberglass Insulation	7,685.00 lf	8.64 /lf	66,398
*			**306,099**
Domestic Water Piping	**129,939.00 sf**	**2.36 /sf**	**306,099**
Sanitary Drain Piping			
*			
CI Pipe Swgt 2"	155.00 lf	34.56 /lf	5,357
CI Pipe Swgt 3"	585.00 lf	45.36 /lf	26,536
CI Pipe Swgt 4"	1,045.00 lf	68.04 /lf	71,102
CI Pipe Swgt 6"	100.00 lf	71.28 /lf	7,128
CI Pipe No Hub 11/2"	1,195.00 lf	30.24 /lf	36,137
CI Pipe No Hub 2"	1,130.00 lf	38.88 /lf	43,934
CI Pipe No Hub 3"	600.00 lf	48.60 /lf	29,160
CI Pipe No Hub 4"	745.00 lf	70.20 /lf	52,299
Floor Drains	28.00 ea	464.40 /ea	13,003
Floor Sink	12.00 ea	1,047.60 /ea	12,571
*			**297,227**
Sanitary Drain Piping	**129,939.00 sf**	**2.29 /sf**	**297,227**
Storm Drain Piping			
*			
CI Pipe Swgt 4"	140.00 lf	64.80 /lf	9,072
CI Pipe Swgt 6"	330.00 lf	70.20 /lf	23,166
CI Pipe Swgt 8"	185.00 lf	84.24 /lf	15,584

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
CI Pipe Swgt 10"	150.00 lf	95.04 /lf	14,256
CI Pipe Swgt 12"	20.00 lf	105.84 /lf	2,117
4" No Hub Soil Pipe	820.00 lf	64.80 /lf	53,136
6" No Hub Soil Pipe	845.00 lf	70.20 /lf	59,319
8" No Hub Soil Pipe	155.00 lf	84.24 /lf	13,057
Fiberglass Insulation	1,700.00 lf	12.96 /lf	22,032
Roof Drain 4"	24.00 ea	588.60 /ea	14,126
Overflow Roof Drain 4"	24.00 ea	718.20 /ea	17,237
*			**243,103**
Storm Drain Piping	**129,939.00 sf**	**1.87 /sf**	**243,103**
Natural Gas Piping			
*			
3/4" Sch 40 Screwed CS	185.00 lf	21.60 /lf	3,996
1" & 11/2" Sch 40 Screwed CS	130.00 lf	32.40 /lf	4,212
2" & 21/2" Sch 40 Welded CS	345.00 lf	36.72 /lf	12,668
4" Sch 40 Welded CS	15.00 lf	64.80 /lf	972
6" Sch 40 Welded CS	90.00 lf	95.04 /lf	8,554
*			**30,402**
Natural Gas Piping	**129,939.00 sf**	**0.23 /sf**	**30,402**
Plumbing Miscellaneous			
*			
Plumbing Permits & Fees	1.00 ls	5,000.00 /ls	5,000
Coordination Drawings	1.00 ls	6,000.00 /ls	6,000
Pipe/Valve Identification	1.00 ls	3,000.00 /ls	3,000
Sleeving/Firestopping	1.00 ls	1,000.00 /ls	1,000
Test & Sterilize	1.00 ls	5,000.00 /ls	5,000
Vibration Isolation & Siesmic Restraints	1.00 ls	2,000.00 /ls	2,000
Allowance for Kitchen Equipment Connections	1.00 ls	5,000.00 /ls	5,000
*			**27,000**
Plumbing Miscellaneous	**129,939.00 sf**	**0.21 /sf**	**27,000**
PLUMBING SYSTEMS	**129,939.00 sf**	**9.26 /sf**	**1,203,376**
HVAC SYSTEMS			
HVAC Major Equipment			
*			
Multipurpose Valve 6"	2.00 ea	1,219.92 /ea	2,440
Flex Conn 150# SS Flange 6"	4.00 ea	669.00 /ea	2,676
Thermometer & Well	37.00 ea	220.24 /ea	8,149
Suction Diffuser 5" x 4"	2.00 ea	938.14 /ea	1,876
Strainer Flange Wye 125# 6"	2.00 ea	1,451.33 /ea	2,903
Press Gages	45.00 ea	161.13 /ea	7,251
Pump H.W. 640 gpm, 15 hp, es	2.00 ea	6,266.86 /ea	12,534
Micro Air Separator 8"	1.00 ea	11,671.76 /ea	11,672
Circuit Balance Valve 3/4"	92.00 ea	110.06 /ea	10,126
Circuit Balance Valve 1"	46.00 ea	137.27 /ea	6,314
Circuit Balance Valve 1-1/4"	4.00 ea	197.16 /ea	789
Circuit Balance Valve 1-½"	4.00 ea	231.51 /ea	926
Circuit Balance Valve 2"	3.00 ea	316.03 /ea	948
Circuit Balance Valve 2-½"	1.00 ea	822.48 /ea	822
Condensing Gas Fired Boiler - HW 1800 mbh Input	3.00 ea	40,848.33 /ea	122,545
Boiler & D.W. - Breeching & Stack	1.00 ls	41,838.55 /ls	41,839
AH Unit # 1 to # 5 - HW, VFD	1.00 ls	134,900.32 /ls	134,900
Rooftop AC W/ ERW, HW Coil, VFD	1.00 ls	432,524.99 /ls	432,525
Split AC Unit	6.00 ea	4,357.82 /ea	26,147
Fin Tube Rad. - Single Tier	1,275.00 LF	88.99 /LF	113,459
Fin Tube Rad. - Dual Tier	83.00 lf	112.62 /lf	9,348
Electric Cabinet Heater	6.00 EA	911.04 /EA	5,466

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
Unit Heater	6.00 ea	1,008.05 /ea	6,048
Cabinet Unit Heater (ceiling)	14.00 ea	1,625.82 /ea	22,761
Cabinet Unit Heater (floor)	4.00 ea	1,585.68 /ea	6,343
Expansion Tank	2.00 ea	3,049.81 /ea	6,100
VFD for HW Pump 15 HP, 6Pulse	2.00 ea	5,184.11 /ea	10,368
Exh. Fan	1.00 ls	24,264.58 /ls	24,265
Air Intake & Relief Hood	3.00 ea	2,720.84 /ea	8,163
*			**1,039,701**
HVAC Major Equipment	**129,939.00 sf**	**8.00 /sf**	**1,039,701**
Heating Water Piping			
*			
Hot Water Piping 3/4" to 2"	9,300.00 lf	26.38 /lf	245,334
Hot Water Piping 2-1/2" to 4"	1,200.00 sf	86.02 /sf	103,224
Hot Water Piping 6" & 8"	200.00 sf	120.43 /sf	24,086
Valves & Accessories	1.00 ls	51,613.20 /ls	51,613
Insulation	10,700.00 ls	10.09 /ls	107,963
*			**532,220**
Heating Water Piping	**129,939.00 sf**	**4.10 /sf**	**532,220**
Refrigerant Piping			
*			
Copper Tube Hard "K" 3/8	220.00 lf	9.40 /lf	2,068
Copper Tube Hard "K" 3/4	220.00 lf	14.56 /lf	3,203
Valves & Accessories	1.00 ls	2,803.68 /ls	2,804
Insulation	440.00 lf	7.27 /lf	3,199
*			**11,274**
Refrigerant Piping	**129,939.00 sf**	**0.09 /sf**	**11,274**
Condensate Drain Piping			
*			
Condenste Drain Pipe 3/4"	400.00 lf	13.28 /lf	5,312
Insulation	400.00 lf	6.37 /lf	2,548
*			**7,860**
Condensate Drain Piping	**129,939.00 sf**	**0.06 /sf**	**7,860**
Air Distribution			
*			
Equipment Insulation	1.00 ls	2,655.00 /ls	2,655
Duct Liner, 1"	935.54 sf	2.17 /sf	2,030
Duct Liner, 1"	2,163.18 sf	2.17 /sf	4,694
Duct Liner, 1"	4,143.40 sf	2.17 /sf	8,991
Rigid Board Insulation, 3# 1-½"	1,504.20 sf	5.95 /sf	8,950
Rigid Board Insulation, 3# 1-½"	726.42 sf	5.95 /sf	4,322
FRK Blanket Insulation, 1-½"	11,652.65 sf	2.00 /sf	23,307
FRK Blanket Insulation, 2"	6,316.57 sf	1.98 /sf	12,507
FRK Blanket Insulation, 2"	10,467.10 sf	1.98 /sf	20,725
FRK Blanket Insulation, 2"	13,745.22 sf	1.98 /sf	27,216
FyreWrap for K.Hood, 1-1/2"	444.00 SF	5.31 /SF	2,358
Galv. Steel Straight Duct, 18 Ga.	3,180.07 lbs	5.00 /lbs	15,900
Galv. Steel Straight Duct, 20 Ga.	5,979.62 lbs	5.97 /lbs	35,700
Galv. Steel Straight Duct, 20 Ga.	1,305.72 lbs	5.97 /lbs	7,796
Galv. Steel Straight Duct, 22 Ga.	4,635.37 lbs	7.23 /lbs	33,515
Galv. Steel Straight Duct, 22 Ga.	5,793.17 lbs	7.23 /lbs	41,886
Galv. Steel Straight Duct, 22 Ga.	11,797.50 lbs	7.23 /lbs	85,300
Galv. Steel Straight Duct, 24 Ga.	1,320.37 lbs	8.35 /lbs	11,025
Galv. Steel Straight Duct, 24 Ga.	7,241.55 lbs	8.35 /lbs	60,465
Galv. Steel Straight Duct, 24 Ga.	6,823.79 lbs	8.35 /lbs	56,976

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
Galv. Steel Straight Duct, 24 Ga.	14,419.98 lbs	8.35 /lbs	120,402
Galv. Steel Straight Duct, 26 Ga.	407.82 lbs	9.02 /lbs	3,678
Galv. Steel Straight Duct, 26 Ga.	714.36 lbs	9.02 /lbs	6,444
Galv. Steel Straight Duct, 26 Ga.	502.53 lbs	9.02 /lbs	4,533
Black Iron Straight Duct, 16 Ga	638.25 lbs	12.71 /lbs	8,112
SS 304 Straight Duct, 18 Ga	795.34 lbs	14.19 /lbs	11,286
Galv. Steel Spiral, 6" dia	194.00 lf	10.83 /lf	2,101
Galv. Steel Spiral, 6" dia	918.00 lf	10.83 /lf	9,942
Galv. Steel Spiral, 8" dia	315.00 lf	12.37 /lf	3,897
Galv. Steel Spiral, 8" dia	995.00 lf	12.37 /lf	12,308
Galv. Steel Spiral, 10" dia	62.00 lf	15.93 /lf	988
Galv. Steel Spiral, 10" dia	2,476.00 lf	15.93 /lf	39,443
Galv. Steel Spiral, 12" dia	7.00 lf	18.59 /lf	130
Galv. Steel Spiral, 12" dia	275.00 lf	18.59 /lf	5,112
Galv. Steel Spiral, 14" dia	5.00 lf	21.24 /lf	106
Galv. Steel Spiral, D.W. 06" dia	27.00 lf	40.78 /lf	1,101
Galv. Steel Spiral, D.W. 14" dia	172.00 lf	69.45 /lf	11,945
Galv. Steel Spiral, D.W. 28" dia	262.00 lf	141.03 /lf	36,950
Galv. Steel Spiral, D.W. 38" dia	12.00 lf	208.15 /lf	2,498
Duct Accessories	1.00 ls	37,170.00 /ls	37,170
Plenum	200.00 sf	30.16 /sf	6,032
Smoke Damper	1.00 ls	11,257.20 /ls	11,257
Sound Attenuators	1.00 ls	31,860.00 /ls	31,860
VAV Box w/RHC	91.00 ea	987.66 /ea	89,877
Fan Powered VAV Box w/RHC	10.00 ea	1,752.30 /ea	17,523
Diffuser & Register	335.00 ea	134.87 /ea	45,181
Linear Diffuser	1.00 ls	23,364.00 /ls	23,364
Testing	1.00 ls	7,965.00 /ls	7,965
Shop Drawing & Coordination	1.00 ls	26,550.00 /ls	26,550
Duct Seals	1.00 ls	10,620.00 /ls	10,620
Trucking & Handling	1.00 ls	15,930.00 /ls	15,930
Support for Commissioning	1.00 ls	7,965.00 /ls	7,965
*			**1,078,588**
Air Distribution	**129,939.00 sf**	**8.30 /sf**	**1,078,588**
Air & Water Balance			
*			
Testing	1.00 ls	9,027.00 /ls	9,027
Air Balancing	1.00 ls	39,294.00 /ls	39,294
Water Balancing	1.00 ls	19,116.00 /ls	19,116
Report & Misc.	1.00 ls	7,965.00 /ls	7,965
Support for Commissioning	1.00 ls	4,248.00 /ls	4,248
*			**79,650**
Air & Water Balance	**129,939.00 sf**	**0.61 /sf**	**79,650**
Automatic Temperature Controls			
*			
Automatic Temperature Controls	1.00 ls	472,590.00 /ls	472,590
Hot water Generastion	***1.00 ls***	***/ls***	
Rooftop Unit	***10.00 ea***	***/ea***	
Air Handling Unit	***5.00 ea***	***/ea***	
Split A/C	***6.00 ea***	***/ea***	
Exhaust Fan	***1.00 ea***	***/ea***	
ECH & CEX	***3.00 ea***	***/ea***	
VAV Terminal Unit w/RHC	***30.00 ea***	***/ea***	
VAV Terminal Unit & FTR	***62.00 ea***	***/ea***	
Fan Terminal Unit w/RHC	***10.00 ea***	***/ea***	
CUH/UH/ECH	***29.00 ea***	***/ea***	

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
Fin Tube Radiation	***0.00 ea***	***/ea***	
Operator Work Station	***1.00 ls***	***/ls***	
*			**472,590**
Automatic Temperature Controls	**129,939.00 sf**	**3.64 /sf**	**472,590**
HVAC Misc Items			
*			
Anchor/Guide/Exp. Joint	1.00 ls	6,500.00 /ls	6,500
Sleeve/Caulking/Fire Stopping	1.00 ls	15,000.00 /ls	15,000
Pipe/Valve Identification	1.00 ls	2,500.00 /ls	2,500
Prefilter Replacement	1.00 ls	3,500.00 /ls	3,500
Vibration & Seismic Rest.	1.00 ls	5,000.00 /ls	5,000
Start Up & Instruction	1.00 ls	5,000.00 /ls	5,000
Hydronic System Testing	1.00 ls	3,000.00 /ls	3,000
Rigging & Hoisting	1.00 ls	15,000.00 /ls	15,000
Glycol	1.00 ls	10,000.00 /ls	10,000
Water Treatment & Chem. Cleaning	1.00 ls	7,500.00 /ls	7,500
Support for Commissioning	1.00 ls	5,000.00 /ls	5,000
*			**78,000**
HVAC Misc Items	**129,939.00 sf**	**0.60 /sf**	**78,000**
HVAC SYSTEMS	**129,939.00 sf**	**25.40 /sf**	**3,299,883**
FIRE PROTECTION SYSTEMS			
Wet Sprinkler System			
*			
Pendant Head, recessed	785.00 ea	73.00 /ea	57,305
Pendant Head, concealed	130.00 ea	99.00 /ea	12,870
Upright Head	130.00 ea	42.00 /ea	5,460
Distribution Piping	129,939.00 sf	2.67 /sf	347,457
*			**423,092**
Wet Sprinkler System	**129,939.00 sf**	**3.26 /sf**	**423,092**
Standpipe & Fire Mains			
*			
Double Check Valve 6"	1.00 ea	7,219.64 /ea	7,220
F.D. Valve Gate 2.5"	9.00 ea	197.44 /ea	1,777
Valve UL-FM OS&Y Gate 6"	5.00 ea	1,918.08 /ea	9,590
Stand Pipe & Main 6"	675.00 LF	77.80 /LF	52,515
Fire Department Connection	1.00 ea	1,008.00 /ea	1,008
Roof Manifold	1.00 ea	1,304.00 /ea	1,304
Wet Alarm Va. w/ Water Gong	2.00 ea	1,363.00 /ea	2,726
Zone Control Valve Assembly	3.00 ea	2,033.00 /ea	6,099
Fire Hose Rack w/100' Hose	2.00 ea	495.00 /ea	990
Fire Hose Cabinet	9.00 ea	336.00 /ea	3,024
*			**86,253**
Standpipe & Fire Mains	**129,939.00 sf**	**0.66 /sf**	**86,253**
Fire Protection Misc Items			
*			
Seismic Restriants	1.00 ls	2,000.00 /ls	2,000
Coredrill/Sleeve/Firestop	1.00 ls	1,000.00 /ls	1,000
Fees & Permit	1.00 ls	3,000.00 /ls	3,000
Shop Draw. & Calculation	1.00 ls	4,000.00 /ls	4,000
*			**10,000**
Fire Protection Misc Items	**129,939.00 sf**	**0.08 /sf**	**10,000**
FIRE PROTECTION SYSTEMS	**129,939.00 sf**	**4.00 /sf**	**519,345**

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
ELECTRICAL SYSTEMS			
Large Power & Distribution			
*			
Medium Generator Pad Layout	1.00 ea	996.40 /ea	996
Ground Medium Generator Pad	1.00 ea	1,245.50 /ea	1,246
Switchgear budget Quotation and power System Study	1.00 ea	120,984.89 /ea	120,985
150 AMP 120/208 panel board surface mounted composite	12.00 ea	1,428.80 /ea	17,146
100 AMP 120/208 panel board surface mounted composite	8.00 ea	1,428.80 /ea	11,430
225 amp Enclosed Circuit Breaker	1.00 ea	1,242.52 /ea	1,243
225 AMP 120/208 Panel board surface mounted composite unit	3.00 ea	1,610.85 /ea	4,833
100AMP 277/480 Panel board surface mounted composite unt	4.00 ea	1,489.16 /ea	5,957
225 AMP 277/480 Panel board surface mounted composite unit	6.00 ea	1,671.50 /ea	10,029
MDP! Main switchbpard	1.00 ea	6,754.78 /ea	6,755
15KVA NEMA 1 Transfromer composite unit	1.00 ea	967.81 /ea	968
30 KVA NEMA 1 Transformer composite unit	4.00 ea	1,285.31 /ea	5,141
45 KVA NEMA 1 Transformer composite unit	1.00 ea	1,867.93 /ea	1,868
112.5 KVA NEMA 1 Transformer composite unit	1.00 ea	6,649.58 /ea	6,650
15 KVA K RATED NEMA 1 Transformer composite unit	1.00 ea	1,007.10 /ea	1,007
45 KVA K RATED NEMA 1 Transformer composite unit	5.00 ea	1,632.79 /ea	8,164
45 KVA K RATED NEMA 1 Transformer composite unit	1.00 ea	1,632.83 /ea	1,633
*			**206,049**
Large Power & Distribution	**129,939.00 sf**	**1.59 /sf**	**206,049**
Large Power Feeder Conduit			
*			
20 AMP EMT Compoiste feeders	14.00 lf	8.21 /lf	115
60 AMP EMT Composite feeders kiln feeder	100.00 lf	23.77 /lf	2,377
60 AMP EMT Composite feeders	99.00 lf	23.77 /lf	2,353
100 AMP EMT Composite feeders	48.00 lf	27.13 /lf	1,302
100 AMP EMT Composite feeders	60.00 lf	27.13 /lf	1,628
150 AMP EMT Composite feeders	57.00 lf	39.51 /lf	2,252
150 AMP EMT Composite feeders	100.00 lf	39.51 /lf	3,951
225 AMP EMT Composite feeders	104.00 lf	68.49 /lf	7,123
60 AMP PVC Composite feeder	258.00 lf	16.53 /lf	4,265
100 AMP PVC Composite feeder	699.00 lf	22.34 /lf	15,616
125 AMP PVC Composite Feeder	290.00 lf	32.96 /lf	9,558
225 AMP PVC Composite Feeder	799.00 lf	46.47 /lf	37,130
1600 AMP PVC Composite feeder	152.00 lf	376.40 /lf	57,213
*			**144,883**
Large Power Feeder Conduit	**129,939.00 sf**	**1.12 /sf**	**144,883**
Emergency Gen Set W/ATS			
*			
Emergency Gen Set W/ATS Budgetary Quote	1.00 ea	49,827.52 /ea	49,828
Ground Medium Generator Pad	1.00 ea	1,302.84 /ea	1,303
Generator - annuciator	1.00 ea	909.13 /ea	909
Emergency Generator - 175 kw	1.00 ea	2,552.79 /ea	2,553
Auto Transfer Switch 3P - 100a	1.00 ea	242.48 /ea	242
Auto Transfer Switch 3P - 260a	1.00 ea	446.76 /ea	447
*			**55,282**
Emergency Gen Set W/ATS	**129,939.00 sf**	**0.43 /sf**	**55,282**
Mechanical Equipment Connections			
*			
12/2 MC CABLE COMPOSITE UNIT	7,605.00 lf	2.55 /lf	19,393
10/2 MC CABLE COMPOSITE UNIT	7,605.00 lf	3.88 /lf	29,507
30 AMP EMT Composite feeders	845.00 lf	9.86 /lf	8,332
30 AMP EMT Composite feeders	1,300.00 lf	9.86 /lf	12,818
60 AMP EMT Composite feeders	400.00 lf	23.77 /lf	9,508

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
100 AMP EMT Composite feeders	300.00 lf	27.13 /lf	8,139
200 AMP EMT Composite feeders	150.00 lf	143.54 /lf	21,531
30 AMP 3 POLE N1 Non fused disconnect 600 volt composite unit	3.00 ea	293.93 /ea	882
CEX with Manual motor rated switch	7.00 ea	293.93 /ea	2,057
CUH with Manual motor rated switch	21.00 ea	293.93 /ea	6,173
VAVwith Manual motor rated switch	93.00 ea	293.93 /ea	27,336
UH with Manual motor rated switch	6.00 ea	293.93 /ea	1,764
FC1 with Manual motor rated switch	6.00 ea	293.92 /ea	1,764
FVAV with Manual motor rated switch	10.00 ea	293.92 /ea	2,939
ECH-1 POWER CONNECTION TO JBOX	7.00 ea	293.93 /ea	2,057
elevator Car and light Disconnect	1.00 ea	293.94 /ea	294
RP with Manual motor rated switch	1.00 ea	293.95 /ea	294
M with Manual motor rated switch	8.00 ea	293.92 /ea	2,351
WH1 with Manual motor rated switch	2.00 ea	293.92 /ea	588
ILF with Manual motor rated switch	4.00 ea	293.92 /ea	1,176
60 AMP 3 POLE N1 Non fused disconnec 600 volt composite unit	1.00 ea	424.95 /ea	425
P1-2 30 AMP 3 POLE NEMA1 Fused disconnect 600 volt composite unit	2.00 ea	313.97 /ea	628
ELV DISC 100 AMP 3 POLE N1 fused disconnect 600 volt composite unit	1.00 ea	702.61 /ea	703
AHU2 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
AHU1 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RTU1 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RTU8 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RTU9 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RTU10 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RTU11 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
CU-1 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
CU-2 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
HWB 1-3 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	3.00 ea	389.93 /ea	1,170
EF-1 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	2.00 ea	389.95 /ea	780
RH1 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	2.00 ea	389.95 /ea	780
RH2 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
CU-3 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
CU-5 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
CU-6 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RH3 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
Dumpster 30 AMP 3 POLE N3R Fused disconnect 600 volt composite unit	1.00 ea	389.93 /ea	390
RTU3 60 AMP 3 POLE N3R fused disconnect 600 volt composite unit	1.00 ea	615.55 /ea	616
RTU 4 60 AMP 3 POLE N3R fused disconnect 600 volt composite unit	1.00 ea	615.55 /ea	616
RTU5 60 AMP 3 POLE N3R fused disconnect 600 volt composite unit	1.00 ea	615.55 /ea	616
RTU7 60 AMP 3 POLE N3R fused disconnect 600 volt composite unit	1.00 ea	615.55 /ea	616
100 AMP 3 POLE N3R fused disconnect 600 volts composite unit	1.00 ea	956.60 /ea	957
AHU4 100 AMP 3 POLE N3R fused disconnect 600 volts composite unit	1.00 ea	956.60 /ea	957
RTU-2 100 AMP 3 POLE N3R fused disconnect 600 volts composite unit	1.00 ea	956.60 /ea	957
RTU-6 100 AMP 3 POLE N3R fused disconnect 600 volts composite unit	1.00 ea	956.60 /ea	957
AHU5 100 AMP 3 POLE N3R fused disconnect 600 volts composite unit	1.00 ea	956.60 /ea	957
AHU3 200 AMP 3 POLE N3R fused disconnect 600 volt composite unit	1.00 ea	1,934.08 /ea	1,934
15 HP VFD wioth unistrut support composite unit for pumps connection only	2.00 ea	2,273.96 /ea	4,548
*			**182,963**
Mechanical Equipment Connections	**129,939.00 sf**	**1.41 /sf**	**182,963**
UPS Equipment			
*			
UPS System & Battery Bank - 30 kva	***0.00 excl***	***/excl***	
Small Power Devices & Wiring			
*			
12/2 MC Cable composite unit	20,229.00 lf	2.43 /lf	49,160
20 AMP EMT Compoiste feeders	2,477.00 lf	7.67 /lf	18,999
Duplex receptacle composite unit	559.00 ea	46.94 /ea	26,239
Quad receptacle composite unit	312.00 ea	67.06 /ea	20,923

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
GFI receptacle composite unit	200.00 ea	69.42 /ea	13,884
Special Receptacle 5-20r	4.00 ea	72.98 /ea	292
Floor Box with Quad	26.00 ea	220.12 /ea	5,723
Junction box and power connection for Faucets Sensors	7.00 ea	70.30 /ea	492
ScoreBoard Power Connection	2.00 ea	94.49 /ea	189
Partition Power Connection	1.00 ea	82.51 /ea	83
Lift Power Connection	1.00 ea	82.51 /ea	83
Killn Receptacle	1.00 ea	202.13 /ea	202
Junction box and power connection	22.00 ea	70.30 /ea	1,547
Projection Screen Power connection(Projection Screens Excluded)	5.00 ea	103.45 /ea	517
Single pole Projection Screen Raise and Lower Switch(switch for Projection screen excluded)	5.00 ea	43.32 /ea	217
*			138,548
Small Power Devices & Wiring	**129,939.00 sf**	**1.07 /sf**	**138,548**
Light Fixtures - Interior			
*			
12/2 MC CABLE COMPOSITE UNIT	27,770.00 lf	2.43 /lf	67,485
20 AMP EMT Compoiste feeders	2,694.00 lf	7.67 /lf	20,663
Single pole switch composite unit	53.00 ea	43.33 /ea	2,296
Single pole dimmer switch composite unit	2.00 ea	43.33 /ea	87
Single pole LV switch composite unit	74.00 ea	43.33 /ea	3,206
S3 3 way switch composite unit	10.00 ea	47.10 /ea	471
S3 3 way switch composite unit	4.00 ea	47.09 /ea	188
Wall mounted occupancy sensor composite unit	56.00 ea	184.61 /ea	10,338
Light Fixture Type A8 direct indirect pendant	9.00 ea	425.46 /ea	3,829
Light Fixture Type A12 direct indirect pendant	35.00 ea	589.27 /ea	20,624
Light Fixture Type A16 direct indirect pendant	197.00 ea	777.39 /ea	153,146
Light Fixture Type A20 direct indirect pendant	5.00 ea	965.51 /ea	4,828
Light Fixture Type A20 direct indirect pendant	4.00 ea	1,153.64 /ea	4,615
Light Fixture Type B 2x4 basket	48.00 ea	245.36 /ea	11,777
Light Fixture Type B1 2x4 basket	1.00 ea	245.40 /ea	245
Light Fixture Type C surface bafflet 4 ft	62.00 ea	235.40 /ea	14,595
Light Fixture Type D recessed can led	333.00 ea	185.33 /ea	61,715
Light Fixture Type D1 recesse can led	4.00 ea	185.34 /ea	741
Light Fixture Type E 2x4 vapor tiight	25.00 ea	220.20 /ea	5,505
Light Fixture Type F 9" dimable compact flourscent	36.00 ea	215.72 /ea	7,766
Light Fixture Type H wall mounted exterior led fixture	7.00 ea	309.28 /ea	2,165
Light Fixture Type J 10" x4 ft stairwell fixture	5.00 ea	248.41 /ea	1,242
Light Fixture Type L4 pendant direct indirect	13.00 ea	225.19 /ea	2,927
Light Fixture Type L8 pendant direct indirect	3.00 ea	401.15 /ea	1,203
Light Fixture Type L12 pendant direct indirect	4.00 ea	589.27 /ea	2,357
Light Fixture Type L16 pendant direct indirect	4.00 ea	777.39 /ea	3,110
Light Fixture Type M elevator pit light	1.00 ea	215.75 /ea	216
Light Fxiture Type N exterior wall pack	30.00 ea	410.52 /ea	12,316
Light Fixture Type O 6" round waterproof led shower light	14.00 ea	210.24 /ea	2,943
Light Fixture Type P1 4" round led emergency fixture	104.00 ea	185.33 /ea	19,274
Light Fixture Type Q High Bay	24.00 ea	318.65 /ea	7,648
Light Fixture Type X1 single sided Exit sign	76.00 ea	212.43 /ea	16,145
Light Fixture Type X1G single sided exit sign with wire guard	4.00 ea	222.41 /ea	890
Light Fxiture Type X2 double sided exit sighn	10.00 ea	212.43 /ea	2,124
Light Fxiture Type Y track head	19.00 ea	170.14 /ea	3,233
Light Fxiture Type Y track in linear feet	32.00 lf	60.03 /lf	1,921
Light Fixture Type Q light lifters for Gym fixtures	24.00 ea	246.11 /ea	5,907
Remote Control For Light Lifter System for gym fixtures	1.00 ea	404.03 /ea	404
SWM-2 Two way Wall Switch	1.00 ea	64.14 /ea	64
wp4 4 say wall plate for 4 single pole switches	2.00 ea	125.56 /ea	251
Light Fxiture Type N1 exterior wall pack	4.00 ea	410.52 /ea	1,642
Ceiling mounted daylight sensor composite unit	62.00 ea	117.58 /ea	7,290
Ceiling mounted occupancy sensor composite unit	105.00 ea	192.31 /ea	20,193

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
Lighting Control Panel on each floor	5.00 ea	5,475.22 /ea	27,376
Ck4 control Kepper 4 line to low for low voltage switching	64.00 ea	298.42 /ea	19,099
Theater Dimming Panel	1.00 ea	7,212.96 /ea	7,213
Audiovisual interface for Theater dimming	1.00 ea	117.56 /ea	118
fire alrm interface for theatrical Dimming	1.00 ea	117.56 /ea	118
4 Scene Stage Station	1.00 ea	192.29 /ea	192
BB lighting in linear feet	420.00 lf	125.74 /lf	52,811
Light Fixture Type T	42.00 ea	111.08 /ea	4,665
Light Fixture Type P2	2.00 ea	167.41 /ea	335
Light Fixture Type W	5.00 ea	204.06 /ea	1,020
Light Fixture Type U	65.00 ea	166.46 /ea	10,820
Light Fixture Type R	14.00 ea	266.65 /ea	3,733
EE8 lighting in linear feet	188.00 lf	125.74 /lf	23,639
Light Fixture Type L1	4.00 ea	180.57 /ea	722
Light Fixture Type DP48	13.00 ea	192.31 /ea	2,500
EE12 lighting in linear feet	124.00 lf	125.74 /lf	15,592
Light Fixture Type DP12	2.00 ea	171.17 /ea	342
Light Fixture Type DP6	4.00 ea	161.77 /ea	647
Light Fixture Type DP24	2.00 ea	175.87 /ea	352
Light Fixture Type DD	24.00 ea	199.36 /ea	4,785
Light Fixture Type CC	18.00 ea	180.56 /ea	3,250
*			**688,914**
Light Fixtures - Interior	**129,939.00 sf**	**5.30 /sf**	**688,914**
Fire Alarm System			
*			
Fire alarm manual pull station composite unit	21.00 ea	178.78 /ea	3,754
Fire alarm manual pull station composite unit with wire guard	2.00 ea	178.77 /ea	358
Fire Alarm damper Interlock	1.00 ea	178.80 /ea	179
Smoke detector composite unit	117.00 ea	198.47 /ea	23,221
Smoke detector with relay base composite unit	4.00 ea	222.47 /ea	890
Heat detector composite unit	11.00 ea	187.61 /ea	2,064
Duct smoke detecotr with relay base composite unit	30.00 ea	493.70 /ea	14,811
Fire alarm flow switch composite unit	8.00 ea	151.45 /ea	1,212
Fire alarm tamper switch composite unit	17.00 ea	151.44 /ea	2,575
Fire alarm high power speaker composite unit	***0.00 ea***	***/ea***	
Fire alarm strobe composite unit 75cd	28.00 ea	119.17 /ea	3,337
Fire alarm strobe composite unit 115 cd ceiling	2.00 ea	119.19 /ea	238
Fire alarm strobe composite unit 15cd	48.00 ea	119.18 /ea	5,721
knox box	2.00 ea	119.18 /ea	238
Fire alarm wp beacon composite unit	2.00 ea	302.05 /ea	604
Fire alarm 15000 candela Power beacon composite unit	1.00 ea	302.02 /ea	302
Fire alarm speaker strobe composite unit 110 cd	19.00 ea	194.57 /ea	3,697
Fire alarm speaker strobe composite unit 75 cd	26.00 ea	194.56 /ea	5,059
Fire alarm speaker strobe composite unit 15 cd	29.00 ea	194.57 /ea	5,643
Fire alarm speaker strobe ceiling composite unit 75 cd	54.00 ea	194.57 /ea	10,507
Fire alarm speaker strobe ceiling composite unit 110 cd	11.00 ea	194.56 /ea	2,140
Fire Alarm Permit or Utility fees are excluded	***0.00 ea***	***/ea***	
Fire alarm door holder wall composite unit	14.00 ea	240.52 /ea	3,367
Fire Alarm Digital Dialer	1.00 ea	8,008.15 /ea	8,008
Fire alarm control panel composite unit	1.00 ea	9,876.26 /ea	9,876
Fire alarm Suplmentary notification panel	3.00 ea	2,417.58 /ea	7,253
Fire alarm batteries	1.00 ea	859.48 /ea	859
Fire alarm Monitor module composite unit	11.00 ea	289.41 /ea	3,184
Flire alarm annucitator composite unit	1.00 ea	586.01 /ea	586
EMT 3/4" 2#14 for initiation loop composite unit	7,720.00 lf	4.62 /lf	35,667
3/4" EMT 2#14 and 18/2 Twisted sheidled composite unit	7,720.00 lf	4.62 /lf	35,667
*			**191,015**

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
Fire Alarm System	**129,939.00 sf**	**1.47 /sf**	**191,015**
Tel/Data System			
*			
3/4" EMT Stub up 10 Foot composite unit with blank plate	4.00 ea	45.57 /ea	182
1" EMT Stub up 10 foot composite unit for one of AV locations in Class Rooms	42.00 ea	60.12 /ea	2,525
4X8 SHHETS OF FIRE RATED PLYWOOD	10.00 ea	63.56 /ea	636
300 Pair 100 termination Blocks	15.00 ea	61.14 /ea	917
96" TELCOM RACK	6.00 ea	279.65 /ea	1,678
96" CABINET RACK IN MDF	8.00 ea	279.65 /ea	2,237
48 PORT PATCH PANEL	4.00 ea	517.46 /ea	2,070
12 PORT FIBER OPTIC PATCH PANEL	5.00 ea	462.47 /ea	2,312
VERTICAL CABLE MANAGERS	12.00 ea	262.49 /ea	3,150
HORIZONTAL CABLE MANAGERS 2RU	18.00 ea	105.86 /ea	1,906
12 STRAND SM FIBER	445.00 ea	3.47 /ea	1,544
4" SLLEVES	27.00 ea	63.56 /ea	1,716
V1 Data jack with 3/4" Stub to accessible ceiling composite unit	5.00 ea	294.27 /ea	1,471
D1 Data jack with 3/4" Stub to accessible ceiling composite unit	79.00 ea	294.27 /ea	23,247
AP Data jack with 3/4" Stub to accessible ceiling composite unit	34.00 ea	294.27 /ea	10,005
w Data jack with 3/4" Stub to accessible ceiling composite unit	41.00 ea	294.27 /ea	12,065
D2 Data jack with 3/4" Stub up to accessible ceiling composite unit	86.00 ea	471.61 /ea	40,558
V/D Data jack with 3/4" Stub up to accessible ceiling composite unit	53.00 ea	471.61 /ea	24,995
D2 Data jack Floor box with 3/4" pvc and emt Stub up to accessible ceiling composite unit	6.00 ea	471.62 /ea	2,830
D4 Data jack Floor box with 3/4" pvc and emt Stub up to accessible ceiling composite unit	14.00 ea	471.61 /ea	6,603
V/2D Data jack with 3/4" Stub up to accessible ceiling composite unit	232.00 ea	648.38 /ea	150,424
V/2D Data jack Floor box with 3/4" Stub up to accessible ceiling composite unit	8.00 ea	648.39 /ea	5,187
D4 Data jack with 1" stub up to accessible ceiiling composite unit	104.00 ea	842.57 /ea	87,627
AV Jack	93.00 ea	761.72 /ea	70,840
Cross connect	1.00 ea	519.17 /ea	519
AV Jack removal of 42 AV jacks replace with conduit stub-up above	-42.00 ea	761.72 /ea	(31,992)
*			**425,253**
Tel/Data System	**129,939.00 sf**	**3.27 /sf**	**425,253**
Cable Tray			
*			
12"cable tray composite unit	1,485.00 lf	29.20 /lf	43,362
*			**43,362**
Cable Tray	**129,939.00 sf**	**0.33 /sf**	**43,362**
Tel/Data Equipment			
*			
phone/handsets	1.00 Ls	10,000.00 /Ls	10,000
HP Proliant Servers 519566-005	3.00 ea	4,764.78 /ea	14,294
HP Server options 500658s21	6.00 ea	287.46 /ea	1,725
HP Server Options 516423-s21	18.00 ea	287.46 /ea	5,174
HP Server Options 418371-b21	6.00 ea	372.65 /ea	2,236
HP Server Options af556c	6.00 ea	74.23 /ea	445
HP Server options 458492-b21	3.00 ea	294.65 /ea	884
HP services ue892e	3.00 ea	393.68 /ea	1,181
config 6	3.00 ea	269.03 /ea	807
vmware licensing vcs-std-a	1.00 ea	2,418.56 /ea	2,419
vmware licensing vcs-std-3p-sss-a	1.00 ea	2,717.18 /ea	2,717
vmware licensing vs4-ent-pl-a	6.00 ea	2,241.90 /ea	13,451
vmware licensing vs4-ent-pl-3p-sss-a	6.00 ea	2,062.55 /ea	12,375
at011a	2.00 ea	60,705.67 /ea	121,411
ha110a3	2.00 ea	1,551.58 /ea	3,103
guardiian 24x7x4 3cs7906e	1.00 ea	4,962.09 /ea	4,962
guardian 24x7x4 0231a934	2.00 ea	6,778.02 /ea	13,556
guardian 24x7x40231a93a	2.00 ea	2,061.96 /ea	4,124
guardian 24x7x4 0231a931	1.00 ea	6,161.25 /ea	6,161

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
guardian 24x7x 0231a930	2.00 ea	8,058.00 /ea	16,116
guardian 24x7x4 3csfp92	44.00 ea	852.02 /ea	37,489
Phone support 3crs48g-24p-91	21.00 ea	3,388.16 /ea	71,151
Phone support 3c17767	16.00 ea	435.43 /ea	6,967
Phone support 3c17775	44.00 ea	367.27 /ea	16,160
Phone support 3c17776	2.00 ea	428.27 /ea	857
software application 3cr15800	1.00 ea	8,076.41 /ea	8,076
guardian 3crwx220095a	1.00 ea	6,354.73 /ea	6,355
guardian 3crwe876075	40.00 ea	462.13 /ea	18,485
software application support 3cwxm10a	1.00 ea	2,742.29 /ea	2,742
MGW 1100	1.00 ea	22,737.85 /ea	22,738
MGW 400	1.00 ea	8,389.69 /ea	8,390
MGW 230	1.00 ea	5,699.41 /ea	5,699
MGW FLASH STREAMER	1.00 ea	7,055.51 /ea	7,056
EZ TV PORTAL	1.00 ea	28,118.41 /ea	28,118
EZ TV VOD	1.00 ea	20,944.33 /ea	20,944
*			**498,370**
Tel/Data Equipment	**129,939.00 sf**	**3.84 /sf**	**498,370**
Security Access System			
*			
CCTV Video Camera exterior	14.00 ea	924.76 /ea	12,947
CCTV Video Camera interior	10.00 ea	625.84 /ea	6,258
CCTV Monitor 17"	1.00 ea	708.42 /ea	708
intellex 8 channel dvr	1.00 ea	5,601.77 /ea	5,602
MCS-10 Camera Power Supply	1.00 ea	271.03 /ea	271
Intrusion Head end SCS PC 4020nk	1.00 ea	878.84 /ea	879
adac net usb control module	1.00 ea	346.99 /ea	347
Security Door Contacts	25.00 ea	139.15 /ea	3,479
CA Card Access	7.00 ea	165.40 /ea	1,158
Security Door Release	1.00 ea	110.58 /ea	111
AM external contact input module	6.00 ea	130.03 /ea	780
key Pad	3.00 ea	165.39 /ea	496
Security Glass Break	5.00 ea	135.51 /ea	678
Motion Detector	55.00 ea	85.69 /ea	4,713
security cable	5,600.00 lf	1.26 /lf	7,056
cctv RG59 Cable	2,200.00 lf	1.26 /lf	2,772
security cable	2,200.00 lf	1.03 /lf	2,266
Door hardware by others excluded	***0.00 ea***	***/ea***	
Badgeing Equipment Allowance	1.00 ea	3,487.40 /ea	3,487
*			**54,007**
Security Access System	**129,939.00 sf**	**0.42 /sf**	**54,007**
Audio Visual System			
*			
Clock Single Face	22.00 ea	145.97 /ea	3,211
Clock Single Face with wire guard	2.00 ea	159.43 /ea	319
Media System Distribution Excluded need more definition and detail	***0.00 ea***	***/ea***	
Clock Speaker Combination(back box, panel clock speaker)	90.00 ea	928.25 /ea	83,542
gym sound Amp	1.00 ea	510.66 /ea	511
Intercom Paging and Clock Head End	1.00 allw	6,847.27 /allw	6,847
Intercom Paging and Clock Power supply	1.00 ea	419.46 /ea	419
Gym ZC Zone control	2.00 ea	300.93 /ea	602
Equipment Rack gym	1.00 ea	390.60 /ea	391
Gym Sound Zone Pro 1260	1.00 ea	1,437.80 /ea	1,438
Gym Sound assistive listening	1.00 ea	317.97 /ea	318
Paging Rack	1.00 ea	390.60 /ea	391
Paging pzs140-ra paging amplifier	2.00 ea	832.63 /ea	1,665

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
*			
Smart boards shorrt throw project and Speakers, Tablet excluded(42 on architectrual)	***0.00 ea***	***/ea***	
Caeteria Sound System	1.00 ea	1,437.80 /ea	1,438
Speaker Ceiling	109.00 ea	150.46 /ea	16,400
paging 5120-9180	1.00 ea	132.50 /ea	133
DK Intercom	1.00 ea	211.25 /ea	211
Sound System sphere	2.00 ea	1,900.63 /ea	3,801
Paging Horn	19.00 ea	168.39 /ea	3,199
WP pagiing horn	14.00 ea	177.36 /ea	2,483
Volume Control	92.00 ea	75.23 /ea	6,921
Microphone	7.00 ea	75.23 /ea	527
Wireless Microphone & rec gym	1.00 ea	75.22 /ea	75
Network Punch Block provided by others	***4.00 ea***	***/ea***	
speaker cable	9,400.00 lf	0.98 /lf	9,213
*			**144,055**
Audio Visual System	**129,939.00 sf**	**1.11 /sf**	**144,055**
Grounding & Lightning Protection System			
*			
Ground Wire - CU Bare Stranded # 6	157.00 lf	0.96 /lf	151
Lightning Protection System (need Quote)	56,000.00 sq/f	1.00 /sq/f	56,000
Ground Wire - CU Bare Stranded #1/0 telcom	1,001.00 lf	2.92 /lf	2,923
Compression Lug - # 6 telcom	17.00 ea	19.54 /ea	332
Compression Lug - 1/0 telcom	7.00 ea	31.10 /ea	218
Copper Ground Bus Bar .25"x 3.0" telcom	12.00 ft	34.64 /ft	416
*			**60,039**
Grounding & Lightning Protection System	**129,939.00 sf**	**0.46 /sf**	**60,039**
Misc Electrical			
*			
Electrical Permit	2,812.00 ea	5.98 /ea	16,816
Coring & Safing of Work	1.00 Lot	10,462.20 /Lot	10,462
Seismic Supports Design Drawings	1.00 Lot	9,173.51 /Lot	9,174
Temporary Power(No Consumption) per Square Foot	129,939.00 sqft	0.45 /sqft	58,473
Testing and Start-up	1.00 Lot	13,949.60 /Lot	13,950
Electric Commissioning (Assitance only)	1.00 Lot	9,465.80 /Lot	9,466
Lifts	1.00 ea	12,455.00 /ea	12,455
Rigging	1.00 ea	10,792.37 /ea	10,792
Labeling Painting , Engraving devices and plates	1.00 Lot	4,483.80 /Lot	4,484
Acess Panels	1.00 Lot	2,491.00 /Lot	2,491
Exlcudes Solar Systme in Curtain Wall	***0.00 excl***	***/excl***	
*			**148,562**
Misc Electrical	**129,939.00 sf**	**1.14 /sf**	**148,562**
Site Electrical			
*			
30 AMP PVC Composite feeder	3,700.00 lf	8.26 /lf	30,562
(2) 4" Empty PVC Conduit with pull string composite unit primary	170.00 lf	22.44 /lf	3,815
(4) 4" Empty PVC Conduit with pull String composite unit 4data	170.00 lf	47.58 /lf	8,089
Light Fxiture Type Z1	7.00 ea	1,671.46 /ea	11,700
Light Fxiture Type Z2	22.00 ea	1,671.46 /ea	36,772
Light Fxiture Type Z3	4.00 ea	1,671.46 /ea	6,686
Light Fxiture Type Z4	4.00 ea	1,671.46 /ea	6,686
*			**104,310**
Site Electrical	**129,939.00 sf**	**0.80 /sf**	**104,310**
ELECTRICAL SYSTEMS	**129,939.00 sf**	**23.75 /sf**	**3,085,612**

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
SERVICES	**129,939.00 SF**	**63.31 /SF**	**8,226,216**
EQUIPMENT AND FURNISHINGS			
EQUIPMENT			
Vehicular Equipment			
Dock Equipment			
Rubber Dock Bumpers	1.00 sets	1,500.00 /sets	1,500
Dock Equipment	**129,939.00 sf**	**0.01 /sf**	**1,500**
Vehicular Equipment	**129,939.00 sf**	**0.01 /sf**	**1,500**
Food Service Equipment			
Commercial Kitchen Equipment			
01 - Ice Maker w/Bin	1.00 ea	5,000.00 /ea	5,000
02 - Walk in Cooler / Freezer	1.00 ea	30,000.00 /ea	30,000
03 through 06 - Cooler / Freezer Refrig Equip	***Incl***	***/Incl***	
07 - Walk-in Shelving	18.00 ea	600.00 /ea	10,800
08 - Mobile Dry Storage Shelving	13.00 ea	600.00 /ea	7,800
09 - Washer	1.00 ea	750.00 /ea	750
09a - Dryer	1.00 ea	750.00 /ea	750
10 - Mop Sink	1.00 ea	500.00 /ea	500
11 - Janitor Shelving	3.00 ea	500.00 /ea	1,500
12 - Wall Shelf	1.00 ea	250.00 /ea	250
13 - Spare	***NA***	***/NA***	
14 - Spare	***NA***	***/NA***	
15 - Lockers	7.00 ea	225.00 /ea	1,575
16 - Trash Bin w/Dolly	8.00 ea	125.00 /ea	1,000
17 - Reach in Refrigerator	1.00 ea	3,800.00 /ea	3,800
18 - Prep Table w/Sinks	1.00 ea	7,500.00 /ea	7,500
19 - Garbage Disposer	1.00 ea	4,000.00 /ea	4,000
20 - Overshelf / Utensil / Pot Rack	1.00 ea	1,500.00 /ea	1,500
21 - Reach-in Heated Cabinets	1.00 ea	2,500.00 /ea	2,500
22 - Reach in Refrigerator	1.00 ea	3,800.00 /ea	3,800
23 - Work Table	1.00 ea	2,500.00 /ea	2,500
24 - Buffalo Chopper	1.00 ea	3,100.00 /ea	3,100
25 - Spare	***NA***	***/NA***	
26 - Spare	***NA***	***/NA***	
27 - Wall Flashing	1.00 Lot	5,000.00 /Lot	5,000
28 - Steamer	1.00 ea	16,500.00 /ea	16,500
29 - Forty Gallon Kettle	1.00 ea	11,500.00 /ea	11,500
30 - Floor Trough	1.00 Ls	2,500.00 /Ls	2,500
31 - Convection Oven	2.00 ea	12,000.00 /ea	24,000
32 - Exaust Hood	1.00 ea	15,000.00 /ea	15,000
33 - Exaust Hood	1.00 ea	15,000.00 /ea	15,000
34 - 4 Burner Range w/Convection Oven	1.00 ea	3,500.00 /ea	3,500
35 - Fire Suppression System	1.00 ea	3,000.00 /ea	3,000
36 - Work Table	1.00 ea	2,500.00 /ea	2,500
37 - Wall Shelf	1.00 ea	500.00 /ea	500
38 - Spare	***NA***	***/NA***	
39 - Spare	***NA***	***/NA***	
40 - Automatic Slicer	1.00 ea	6,000.00 /ea	6,000
41 - Garbage Disposer	1.00 ea	4,000.00 /ea	4,000
42 - Reach in Refrigerator	1.00 ea	3,800.00 /ea	3,800
43 - Work Table	1.00 ea	2,500.00 /ea	2,500
44 - Overshelf	1.00 ea	250.00 /ea	250
45 - Reach-in Heated Cabinets	1.00 ea	2,500.00 /ea	2,500
46 - Reach in Refrigerator	1.00 ea	3,800.00 /ea	3,800
47 - Prep Table w/Sinks	1.00 ea	8,500.00 /ea	8,500
48 - Spare	***NA***	***/NA***	
49 - Food Processer	1.00 ea	3,100.00 /ea	3,100
50 - Prep Table w/Sink	1.00 ea	6,000.00 /ea	6,000

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
Commercial Kitchen Equipment			
51 - Wall Shelf	1.00 ea	500.00 /ea	500
52 - Reach-in Heated Cabinets	1.00 ea	2,500.00 /ea	2,500
53 - Reach in Refrigerator	1.00 ea	3,800.00 /ea	3,800
54 - Pot Sink	1.00 ea	1,375.00 /ea	1,375
55 - Wall Shelf w/Pot Hooks	***0.00 NA***	***0.00 /NA***	***0***
56 - Twenty Quart Mixer	1.00 ea	5,500.00 /ea	5,500
57 - Mobile Equipment Stand	1.00 ea	1,500.00 /ea	1,500
58 - not used	***NA***	***/NA***	
59 - Mobile Pot Rack	1.00 ea	1,500.00 /ea	1,500
60 - Soiled Roller Table	1.00 ea	2,500.00 /ea	2,500
61 - Wall Shelf w/Pot Hooks	1.00 ea	500.00 /ea	500
62 - Dishmachine	1.00 ea	15,000.00 /ea	15,000
63 - Clean Roller Table	1.00 ea	2,500.00 /ea	2,500
64 - Wall Shelf w/Pot Hooks	1.00 ea	500.00 /ea	500
65 - Hand Sink	1.00 ea	350.00 /ea	350
66 - Spare	***NA***	***/NA***	
67 - Booster Heater	1.00 ea	1,800.00 /ea	1,800
68 - Hot Food Service Counter	1.00 ea	4,000.00 /ea	4,000
69 - Cold Food Service Counter	1.00 ea	5,100.00 /ea	5,100
70 - Utility Service Counter with Frost Top	1.00 ea	3,000.00 /ea	3,000
71 - Hand Sink	1.00 ea	350.00 /ea	350
72 - Utility Service Counter with Frost Top	1.00 ea	3,000.00 /ea	3,000
73 - Cold Food Service Counter	1.00 ea	5,100.00 /ea	5,100
74 - Hot Food Service Counter	1.00 ea	4,000.00 /ea	4,000
75 - Hot Food Service Counter	1.00 ea	4,000.00 /ea	4,000
76 - Cold Food Service Counter	1.00 ea	5,100.00 /ea	5,100
77 - Soup Self Service Counter	1.00 ea	3,000.00 /ea	3,000
78 - Soup Wells	2.00 ea	300.00 /ea	600
79 - Utility Service Counter with Frost Top	1.00 ea	3,000.00 /ea	3,000
80 - Cold Food Service Counter	1.00 ea	5,100.00 /ea	5,100
81 - Hot Food Service Counter	1.00 ea	4,000.00 /ea	4,000
82 - Spare	***NA***	***/NA***	
83 - Hand Sink	1.00 ea	350.00 /ea	350
84 - Spare	***NA***	***/NA***	
85 - Mobile Cashier Unit	1.00 ea	2,500.00 /ea	2,500
86 - Mobile Cashier Unit	1.00 ea	2,500.00 /ea	2,500
87 - Refrigerated Merchandiser	1.00 ea	2,600.00 /ea	2,600
88 - Utility Self Service Counter	1.00 ea	2,400.00 /ea	2,400
89 - Refrigerated Merchandiser	1.00 ea	2,600.00 /ea	2,600
90 - Mobile Condiment Table - Custom, Allow	1.00 ea	2,500.00 /ea	2,500
91 - Mobile Tray Pick-up Counter (spec says salad ctr)	1.00 ea	2,500.00 /ea	2,500
92 - Mobile Cashier Unit	1.00 ea	2,500.00 /ea	2,500
93 - Refrigerated Merchandiser	1.00 ea	2,600.00 /ea	2,600
94 - Utility Self Service Counter	1.00 ea	2,400.00 /ea	2,400
95 - Refrigerated Merchandiser	1.00 ea	2,600.00 /ea	2,600
96 - Mobile Condiment Table - Custom, Allow	1.00 ea	2,500.00 /ea	2,500
97 - Mobile Cashier Unit	1.00 ea	2,500.00 /ea	2,500
98 - Spare	***NA***	***/NA***	
99 - Corner Guards	1.00 Lot	1,300.00 /Lot	1,300
100 - Point of Sales System - Vendor	***Vend***	***/Vend***	
101 - Scales - Vendor	***Vend***	***/Vend***	
102 - Eye Wash Station	1.00 ea	750.00 /ea	750
103 - Fire Extinguisher	1.00 ea	450.00 /ea	450
Adjust to Consult Budget	1.00 Ls	114,200.00 /Ls	114,200
Commercial Kitchen Equipment	**129,939.00 sf**	**3.59 /sf**	**467,000**
Food Service Equipment	**129,939.00 sf**	**3.59 /sf**	**467,000**

Residential Equipment

Appliances

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Appliances					
Allow for Refrigerator, Microwave @Teachers Dining	1.00	Ls	2,500.00	/Ls	2,500
Appliances	**129,939.00**	**sf**	**0.02**	**/sf**	**2,500**
Residential Equipment	**129,939.00**	**sf**	**0.02**	**/sf**	**2,500**
Athletic Equipment					
Athletic Equipment					
Basketball Backstop Ceil. Set, Electric - allow	6.00	ea	7,500.00	/ea	45,000
Wall Padding	1,250.00	sf	10.00	/sf	12,500
Divider Curtain - elec operated	3,500.00	sf	17.00	/sf	59,500
Athletic Equipment	**129,939.00**	**ls**	**0.90**	**/ls**	**117,000**
Athletic Equipment	**129,939.00**	**sf**	**0.90**	**/sf**	**117,000**
Other Equipment					
Stage Equipment					
Stage curtains	1.00	Allw	20,000.00	/Allw	20,000
Stage Equipment	**129,939.00**	**sf**	**0.15**	**/sf**	**20,000**
Projection Screens					
Projection Screens - Manual @Common	5.00	Loc	800.00	/Loc	4,000
Projection Screens - Electric	1.00	Allw	4,000.00	/Allw	4,000
Projection Screens	**129,939.00**	**sf**	**0.06**	**/sf**	**8,000**
Other Equipment	**129,939.00**	**sf**	**0.22**	**/sf**	**28,000**
Fixed Seating					
Fixed Seating					
Choral Risers		***EXCL***		***/EXCL***	
Bleachers at Gym = 92' x 10 rows	920.00	Lnft	80.00	/Lnft	73,600
Fixed Seating	**129,939.00**	**sf**	**0.57**	**/sf**	**73,600**
Fixed Seating	**129,939.00**	**sf**	**0.57**	**/sf**	**73,600**
EQUIPMENT	**129,939.00**	**sf**	**5.31**	**/sf**	**689,600**
FURNISHINGS					
Specialties					
Markerboards & Tackboards					
Markerboards - 8' & 4' L x 4' Ht	3,264.00	sf	20.00	/sf	65,280
Smartboards - FFE, Wiring and Pathways w/Div16	***0.00***	***Excl***	***0.00***	***/Excl***	***0***
Markerboards & Tackboards	**129,939.00**	**sf**	**0.50**	**/sf**	**65,280**
Specialties	**129,939.00**	**sf**	**0.50**	**/sf**	**65,280**
Millwork					
Cabinetry & Millwork					
Blocking, Misc Rough Carpentry for casework / millwork	3,500.00	bdft	7.50	/bdft	26,265
MW-01	45.00	Ea	4,800.01	/Ea	216,000
MW-02	11.00	Ea	4,000.00	/Ea	44,000
MW-03	3.00	Ea	3,500.00	/Ea	10,500
MW-04	1.00	Ea	3,300.00	/Ea	3,300
MW-05	1.00	Ea	3,200.00	/Ea	3,200
MW-06	1.00	Ea	2,300.00	/Ea	2,300
MW-07	1.00	Ea	5,600.00	/Ea	5,600
MW-08	1.00	Ea	2,500.00	/Ea	2,500
MW-09	1.00	Ea	8,000.00	/Ea	8,000
MW-10	1.00	Ea	12,000.00	/Ea	12,000
MW-11	1.00	Ea	1,800.00	/Ea	1,800
MW-12	2.00	Ea	4,300.00	/Ea	8,600
MW-13	2.00	Ea	6,900.00	/Ea	13,800
MW-14	1.00	Ea	6,000.00	/Ea	6,000
MW-15	1.00	Ea	7,800.00	/Ea	7,800

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
Cabinetry & Millwork			
MW-16	1.00 Ea	5,650.00 /Ea	5,650
MW-17	1.00 Ea	4,750.00 /Ea	4,750
MW-18	1.00 Ea	4,000.00 /Ea	4,000
MW-19	2.00 Ea	8,000.00 /Ea	16,000
MW-20	54.00 Ea	4,400.00 /Ea	237,600
MW-?? - Open Shelving Units / Adj Shelves - Rm 115	37.00 lf	225.00 /lf	8,325
MW-?? - Open Shelving Units / Adj Shelves - Rm 127	8.00 lf	225.00 /lf	1,800
MW-?? - Open Shelving Units / Adj Shelves - Rm 213	39.00 lf	225.00 /lf	8,775
MW-?? - Open Shelving Units / Adj Shelves - Rm 215	5.00 lf	225.00 /lf	1,125
MW-?? - Open Shelving Units / Adj Shelves - Rm 231	47.00 lf	225.00 /lf	10,575
MW-?? - Open Shelving Units / Adj Shelves - Rm 241	7.00 lf	225.00 /lf	1,575
MW-?? - Open Shelving Units / Adj Shelves - Rm 313	42.00 lf	225.00 /lf	9,450
MW-?? - Open Shelving Units / Adj Shelves - Rm 315	8.00 lf	225.00 /lf	1,800
MW-?? - Open Shelving Units / Adj Shelves - Rm 331	47.00 lf	225.00 /lf	10,575
Shelving @Back of Circulation Desk Rm 341	***0.00 lf***	***0.00 /lf***	***0***
Reception Desk Rm 255 (MW-21)	1.00 Ea	20,000.00 /Ea	20,000
Circulation Desk Rm 341 (MW-23 / 24)	1.00 Ls	20,000.00 /Ls	20,000
Display - Rm 341	20.00 Lnft	625.00 /Lnft	12,500
Built in Display Cases D-1	3.00 ea	2,500.00 /ea	7,500
Built in Display Cases D-2	5.00 ea	2,500.00 /ea	12,500
General Office Millwork, MW-22	1.00 Ea	13,500.00 /Ea	13,500
Counter 8/A9.4 - Rm 341	36.00 Lf	200.00 /Lf	7,200
Coat Pole & Single Shelf - Rm 244	8.00 lf	100.00 /lf	800
Toilet Counters Rms 277 & 280	27.00 lf	250.00 /lf	6,750
Cabinetry & Millwork	**129,939.00 sf**	**6.11 /sf**	**794,416**
Millwork	**129,939.00 sf**	**6.11 /sf**	**794,416**
Blinds & Other Window Treatments			
Blinds & Drapes			
Interior Horizontal Blinds Aluminum - admin	1.00 ls	5,000.00 /ls	5,000
Geared Roller Shades, Typical Classroom, manual	1.00 ls	50,000.00 /ls	50,000
Roller Shades, Caf (electric) - Allow	1.00 ls	25,000.00 /ls	25,000
Blinds & Drapes	**129,939.00 sf**	**0.62 /sf**	**80,000**
Blinds & Other Window Treatments	**129,939.00 sf**	**0.62 /sf**	**80,000**
FURNISHINGS	**129,939.00 sf**	**7.23 /sf**	**939,696**
EQUIPMENT AND FURNISHINGS	**129,939.00 SF**	**12.54 /SF**	**1,629,296**
OTHER BUILDING CONSTRUCTION			
BUILDING DEMOLITION			
Existing Building Demolition			
Demolition / Abatement			
Demo Existing School, Including Foundation Removal	119,000.00 sf	3.15 /sf	374,850
Demolition / Abatement	**129,939.00 sf**	**2.89 /sf**	**374,850**
Existing Building Demolition	**129,939.00 sf**	**2.89 /sf**	**374,850**
HAZMAT Abatement			
HAZ/MAT Abatement			
Flooring and Mastic	60,000.00 sf	3.00 /sf	180,000
Pipe and Joint Insulation	3,500.00 lf	20.00 /lf	70,000
Ceiling and Wall selective demo for access	1.00 Allw	25,000.00 /Allw	25,000
Transite Panels over doors	20.00 loc	100.00 /loc	2,000
Interior Windows	275.00 ea	100.00 /ea	27,500
Blackboards	320.00 ea	100.63 /ea	32,200
Light Fixtures	950.00 ea	30.00 /ea	28,500
Misc Abatement Not Identified	1.00 Allw	25,000.00 /Allw	25,000
Transite Lab Tops	5.00 ea	500.00 /ea	2,500
Duct Insulation @Gym	120.00 sf	50.00 /sf	6,000
Wood Fire Doors @Kitchen	5.00 ea	100.00 /ea	500

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
HAZ/MAT Abatement					
Boiler Rm - Duct Insulation	300.00	sf	20.00	/sf	6,000
Boiler Rm - Tank Insulation	250.00	sf	20.00	/sf	5,000
Boiler Rm - Pipe and Hard Joint Insulation	500.00	lf	20.00	/lf	10,000
Boiler Rm - Boilers	2.00	ea	7,500.00	/ea	15,000
Boiler Rm - Ceiling Paint	1,900.00	sf	10.00	/sf	19,000
Various Locations - Thru Wall Flashing	1.00	Allw	25,000.00	/Allw	25,000
Exterior Windows, Doors, Unit Vents	470.00	loc	100.00	/loc	47,000
Underground Oil Tank	1.00	Ls	15,000.00	/Ls	15,000
Construction Monitoring & Air Sampling	1.00	Ls	58,800.00	/Ls	58,800
HAZ/MAT Abatement	**129,939.00**	**ls**	**4.62**	**/ls**	**600,000**
HAZMAT Abatement	**129,939.00**	**sf**	**4.62**	**/sf**	**600,000**
BUILDING DEMOLITION	**129,939.00**	**SF**	**7.50**	**/SF**	**974,850**
OTHER BUILDING CONSTRUCTION	**129,939.00**	**SF**	**7.50**	**/SF**	**974,850**
SITEWORK					
SITE PREPARATION					
Erosion Control					
Erosion Control					
Install / Maintain Wheel Wash Stations	1.00	Locs	5,000.00	/Locs	5,000
Erosion Control - Haybales / Silt Fence	2,726.00	Lnft	6.00	/Lnft	16,356
Erosion Control - Inlet Barriers	11.00	Locs	500.00	/Locs	5,500
Erosion Control - Maintain	1.00	Ls	5,000.00	/Ls	5,000
Erosion Control	**129,939.00**	**sf**	**0.25**	**/sf**	**31,856**
Erosion Control	**129,939.00**	**sf**	**0.25**	**/sf**	**31,856**
Site Demolition					
Demo Site Components					
R&D Fence	1,554.00	Lnft	3.50	/Lnft	5,439
R&D Utilities - Storm Lines	1,556.00	Lnft	8.00	/Lnft	12,448
R&D Utilities - Storm Structures	8.00	Ea	375.00	/Ea	3,000
R&D Utilities - Light Poles / Bases	4.00	Ea	600.00	/Ea	2,400
R&D Utilities - San Lines	630.00	Lnft	10.00	/Lnft	6,300
R&D Utilities - San Structures	4.00	Ea	450.00	/Ea	1,800
R&D Utilities - Gas Lines	416.00	Lnft	5.00	/Lnft	2,080
Misc Site Removals	1.00	Ls	5,000.00	/Ls	5,000
Demo Site Components	**129,939.00**	**sf**	**0.30**	**/sf**	**38,467**
Demo Site Paving					
Remove Existing Asphalt - pulverize for reuse as base	170,000.00	sf	0.45	/sf	76,500
Demo Site Paving	**129,939.00**	**sf**	**0.59**	**/sf**	**76,500**
Site Demolition	**129,939.00**	**sf**	**0.89**	**/sf**	**114,967**
Site Earthwork					
Site Excavation					
Strip Topsoil to Stockpile	7,500.00	cy	4.25	/cy	31,875
Site Cut - Bulk Cut	21,500.00	cy	3.00	/cy	64,500
Site Fills from Onsite Stockpile - common fill outside footprint	10,500.00	cy	2.50	/cy	26,250
Remove and Dispose Offsite Excess Material	10,000.00	cy	10.00	/cy	100,000
Proof Roll / Compact Entire Site	800,000.00	sf	0.08	/sf	60,000
Ledge Blasting & Removal - Trench Excavation - Allow	500.00	cy	65.00	/cy	32,500
Dewatering open excavations	1.00	Ls	5,000.00	/Ls	5,000
Provide level compacted surface for crane operations	1.00	Ls	10,000.00	/Ls	10,000
Strip & Stockpile Topsoil, Grade, & Seed South Retention (Added Area)	40,000.00	sf	1.25	/sf	50,000
Site Excavation	**129,939.00**	**sf**	**2.93**	**/sf**	**380,125**
Site Earthwork	**129,939.00**	**sf**	**2.93**	**/sf**	**380,125**
SITE PREPARATION	**129,939.00**	**sf**	**4.06**	**/sf**	**526,948**

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
SITE IMPROVEMENTS					
Site Earthwork					
Paving Bases - Gravel					
Compacted Gravel @Bit Paving, Conc. Sidewalks, Pavers	8,375.00	cuyd	16.00	/cuyd	134,000
Rough Grade @Bit Paving, Sidewalks, Pavers	26,530.00	sy	0.85	/sy	22,472
Fine Grade @ Bituminous Paving	200,000.00	sf	0.35	/sf	69,054
Fine Grade @ Bit Sidewalks	16,360.00	sf	0.35	/sf	5,649
Fine Grade @ Concrete Sidewalks	12,100.00	sf	0.35	/sf	4,179
Fine Grade @ Unit Pavers	9,756.00	sf	0.35	/sf	3,370
Fine Grade @Conc Pads & Stairs	800.00	sf	0.35	/sf	276
Paving Bases - Gravel	**129,939.00**	**sf**	**1.84**	**/sf**	**239,000**
Site Earthwork	**129,939.00**	**sf**	**1.84**	**/sf**	**239,000**
Parking Lots & Drives					
Bituminous Paving					
Bitum Paving - Roads & Drives - Base Course	22,230.00	sy	10.00	/sy	222,300
Bitum Paving - Roads & Drives - Wearing Course	22,230.00	sy	11.00	/sy	244,530
Patch Existing Bit Pavement - Utility Tie-ins	1.00	Ls	5,000.00	/Ls	5,000
Bituminous Paving	**129,939.00**	**sf**	**3.63**	**/sf**	**471,830**
Striping					
Striping - Sub	1.00	Ls	25,000.00	/Ls	25,000
Striping - Parking Spaces		***lf***		***/lf***	
Striping - Misc Lane Markings		***Ls***		***/Ls***	
Painted Crosswalks		***sf***		***/sf***	
Painted Handicap Symbol		***ea***		***/ea***	
Striping	**129,939.00**	**sf**	**0.19**	**/sf**	**25,000**
Parking Lots & Drives	**129,939.00**	**sf**	**3.82**	**/sf**	**496,830**
Curbs / Rails / Barriers					
Curbing					
Granite Planter Edging	1,161.00	lnft	29.00	/lnft	33,669
Undefined Edging	672.00	lnft	26.00	/lnft	17,472
Vertical Granite Curb	2,303.00	lf	26.00	/lf	59,878
Flush and Transition Curb	100.00	lf	30.00	/lf	3,000
Bituminous Sloped Curb	4,312.00	lf	4.00	/lf	17,248
Curbing	**129,939.00**	**sf**	**1.01**	**/sf**	**131,267**
Curbs / Rails / Barriers	**129,939.00**	**sf**	**1.01**	**/sf**	**131,267**
Pedestrian Paving					
Bituminous Paving					
Bituminuous Paving - Walkways	16,360.00	sf	2.30	/sf	37,628
Bituminous Paving	**129,939.00**	**sf**	**0.29**	**/sf**	**37,628**
Concrete Paving					
Concrete Paving - Pedestrian Sidewalks	15,300.00	sf	5.50	/sf	84,150
- EVO - ADA Curb Cuts, Detectable Strips	8.00	Locs	500.00	/Locs	4,000
Unit Pavers	6,556.00	sf	15.00	/sf	98,340
Concrete Paving	**129,939.00**	**sf**	**1.44**	**/sf**	**186,490**
Pedestrian Paving	**129,939.00**	**sf**	**1.73**	**/sf**	**224,118**
Site Formed Concrete					
Concrete Pads					
Concrete Pad - Mech Equip	250.00	sf	30.00	/sf	7,500
Concrete Pads Outside Building Egress	150.00	sf	30.00	/sf	4,500

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Concrete Pads	**129,939.00**	**sf**	**0.09**	**/sf**	**12,000**
Concrete Stairs & Ramps					
Concrete Stairs	2.00	Loc	35,000.00	/Loc	70,000
Concrete Stairs & Ramps	**129,939.00**	**sf**	**0.54**	**/sf**	**70,000**
Site Formed Concrete	**129,939.00**	**sf**	**0.63**	**/sf**	**82,000**
Site Walls					
Fences					
2 Rail Wood Fence	815.00	lf	45.00	/lf	36,675
5' Chain Link Fence	38.00	lf	26.00	/lf	988
5' Chain Link Fence Gate	1.00	ea	500.00	/ea	500
6' Chain Link Fence	233.00	lf	30.00	/lf	6,990
6' Chain Link Fence Gate - 16' Wide	1.00	ea	2,000.00	/ea	2,000
Additional CLF @Sout Detention Area (Incl Gate)	1.00	Ls	15,000.00	/Ls	15,000
Fences	**129,939.00**	**sf**	**0.48**	**/sf**	**62,153**
Stone Walls					
Field Stone Wall - Reconstruct Existing	161.00	lnft	300.00	/lnft	48,300
Stone Walls	**129,939.00**	**sf**	**0.37**	**/sf**	**48,300**
Misc Site Concrete					
Concrete Base for Signage, Poles	1.00	Ls	7,500.00	/Ls	7,500
Concrete Footing / Wall - Included at Structure		***Conc***		***/Conc***	
Concrete Base for Relocated Bergstrom Field Sign	1.00	Ls	7,500.00	/Ls	7,500
Misc Site Concrete	**129,939.00**	**sf**	**0.12**	**/sf**	**15,000**
Site Walls	**129,939.00**	**sf**	**0.97**	**/sf**	**125,453**
Site Furnishings					
Misc Site Items					
Bike Racks	1.00	Ls	3,000.00	/Ls	3,000
Benches	1.00	Ls	5,000.00	/Ls	5,000
Trash Receptacles	1.00	Ls	2,500.00	/Ls	2,500
Flagpole / Base	1.00	Ls	4,000.00	/Ls	4,000
Site Light Pole Bases (Pole by EC)		***ea***		***/ea***	
Basketball Goal	2.00	ea	2,000.00	/ea	4,000
Relocate Benches	1.00	Ls	7,500.00	/Ls	7,500
Backstop / foulpoles	1.00	Allw	10,000.00	/Allw	10,000
Relocate Bergstrom Field Sign	1.00	Allw	5,000.00	/Allw	5,000
Misc Site Items	**129,939.00**	**sf**	**0.32**	**/sf**	**41,000**
Site Furnishings	**129,939.00**	**sf**	**0.32**	**/sf**	**41,000**
Misc Site Improvement Items					
Misc Site Items					
Bollards - painted steel	12.00	ea	500.00	/ea	6,000
Tree Grates		***Excl***		***/Excl***	
Street Signs - Permanent	1.00	ea	5,000.00	/ea	5,000
Street Signs - Temporary	1.00	Allw	5,000.00	/Allw	5,000
Handrail / Guardrail at Stairs - Painted Metal	375.00	Lnft	150.00	/Lnft	56,250
Misc Site Items	**129,939.00**	**sf**	**0.56**	**/sf**	**72,250**
Misc Site Improvement Items	**129,939.00**	**sf**	**0.56**	**/sf**	**72,250**
Topsoil / Seed / Sod					
Topsoil & Seeding					
Spread Loam, stockpiled mat'l	7,500.00	cy	7.00	/cy	52,500
Spread Loam, borrowed mat'l	2,500.00	cy	25.00	/cy	62,500
Hydroseeding, General Areas	132,000.00	sf	0.15	/sf	19,800
Seed Athletic Fields	347,000.00	sf	0.20	/sf	69,400

Description	Takeoff Quantity	Total Cost/Unit	Total Amount
Topsoil & Seeding			
Skinned Infield	11,150.00 sf	1.75 /sf	19,513
Topsoil & Seeding	**129,939.00 sf**	**1.72 /sf**	**223,713**
Topsoil / Seed / Sod	**129,939.00 sf**	**1.72 /sf**	**223,713**
Plantings			
Trees & Plantings			
Mulch - Bark	1.00 Ls	10,000.00 /Ls	10,000
Guying & Maintenance	1.00 Ls	10,000.00 /Ls	10,000
Trees & Plantings	**129,939.00 sf**	**0.15 /sf**	**20,000**
Deciduous Trees			
Trees - Rotundiloba Sweetgum, 3"-3-1/2" cal	7.00 ea	850.00 /ea	5,950
Trees - American Yellowwood, 2"-2-1/2" cal	7.00 ea	850.00 /ea	5,950
Trees - Maygyar Ginko, 3"-3-1/2" cal	4.00 ea	750.00 /ea	3,000
Trees - Greenvase Japanese Zelkova, 3 - 3-1/2" cal	9.00 ea	850.00 /ea	7,650
Trees - Skyline Honeylocust, 3"-3-1/2" cal	25.00 ea	850.00 /ea	21,250
Trees - Aristocrat Flowering Pear, 3-1/2 - 4" cal	5.00 ea	1,000.00 /ea	5,000
Trees - Kwanzan Cherry, 3"-3-1/2" cal	10.00 ea	850.00 /ea	8,500
Trees - Red Oak, 3 - 3-1/2" cal	1.00 ea	850.00 /ea	850
Deciduous Trees	**129,939.00 sf**	**0.45 /sf**	**58,150**
Evergreen Trees			
Trees - Austrian Pine - 7-8' ht	15.00 ea	700.00 /ea	10,500
Trees - Eastern White Pine - 9-10' ht	9.00 ea	750.00 /ea	6,750
Trees - Emerald Green Arborvitae - 7'-8' ht	13.00 ea	700.00 /ea	9,100
Trees - Green Giant Arborvitae - 8'-9' ht	6.00 ea	725.00 /ea	4,350
Evergreen Trees	**129,939.00 sf**	**0.24 /sf**	**30,700**
Deciduous Shrubs			
Shrubs - Allow	1.00 Allw	5,000.00 /Allw	5,000
Deciduous Shrubs	**129,939.00 sf**	**0.04 /sf**	**5,000**
Perennials			
Ground Cover - Allow	1.00 Allw	5,000.00 /Allw	5,000
Perennials	**129,939.00 sf**	**0.04 /sf**	**5,000**
Plantings	**129,939.00 sf**	**0.92 /sf**	**118,850**
Irrigation System			
Irrigation Systems			
Irrigation Systems	300,000.00 sf	0.95 /sf	285,000
Irrigation Systems	**129,939.00 sf**	**2.19 /sf**	**285,000**
Irrigation System	**129,939.00 sf**	**2.19 /sf**	**285,000**
SITE IMPROVEMENTS	**129,939.00 sf**	**15.70 /sf**	**2,039,481**
SITE UTILITIES			
Site Earthwork			
Site Excavation			
Excavate at Grease Trap	***cy***	***/cy***	
Excavate at Underground Detention	***cy***	***/cy***	
Building Earthwork			
Trench @Underslab Utilities within Bldg Footprint	1,250.00 Lf	25.00 /Lf	31,250
Building Earthwork	**129,939.00 sf**	**0.24 /sf**	**31,250**
Site Earthwork	**129,939.00 sf**	**0.24 /sf**	**31,250**
Water Distribution Systems			

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Water					
New Water Domestic Service Line - 6" CLDI	225.00	lf	75.00	/lf	16,875
New Water Fire Service 8" CLDI	175.00	lf	85.00	/lf	14,875
Fire Loop - 6" CLDI	650.00	lf	75.00	/lf	48,750
Fire Hydrant +6" Run-out	3.00	ea	5,000.00	/ea	15,000
Connect to Existing / gate valves	5.00	loc	3,500.00	/loc	17,500
Flush out, Test	1.00	Ls	10,000.00	/Ls	10,000
Water	**129,939.00**	**sf**	**0.95**	**/sf**	**123,000**
Water Distribution Systems	**129,939.00**	**sf**	**0.95**	**/sf**	**123,000**
Sanitary Sewer System					
Sanitary Drainage					
Trench Excavation / Backfill @ Sanitary	1,540.00	lf	40.00	/lf	61,600
Manhole @ Sanitary Sewer	5.00	Ea	4,000.00	/Ea	20,000
Grease Trap	1.00	each	7,500.00	/each	7,500
Sanitary Sewer Line - 6" SDR	1,540.00	lnft	25.00	/lnft	38,500
Sanitary Sewer Line - 8" SDR		***NA***		***/NA***	
Sanitary Sewer Line - 8" CPI	35.00	lnft	40.00	/lnft	1,400
Connect to Existing	1.00	loc	1,500.00	/loc	1,500
Sanitary Drainage	**129,939.00**	**sf**	**1.00**	**/sf**	**130,500**
Sanitary Sewer System	**129,939.00**	**sf**	**1.00**	**/sf**	**130,500**
Storm Sewer System					
Storm Drainage					
Manhole @ Site Drainage	22.00	ea	3,850.00	/ea	84,700
CB @ Site Drainage	19.00	ea	3,850.00	/ea	73,150
Stormceptor / OIl Water Seperator	2.00	ea	12,500.00	/ea	25,000
Underground Detention - Stormtech (deleted)		***NA***		***/NA***	
Adjust Rim Exist MH / CB	15.00	Loc	850.00	/Loc	12,750
Perforated Underdrain - 4" (@Retaining wall)	167.00	lf	30.00	/lf	5,010
Storm Drainage Line - 12" HDPE	2,470.00	lf	40.00	/lf	98,800
Storm Drainage Line - 15" HDPE	130.00	lf	43.00	/lf	5,590
Storm Drainage Line - 18" HDPE	220.00	lf	46.00	/lf	10,120
Storm Drainage Line - 36" HDPE	160.00	lf	75.00	/lf	12,000
Storm Drainage Line - 12" RCP	85.00	lf	60.00	/lf	5,100
Flared End	1.00	ea	500.00	/ea	500
Trench Drain	25.00	lf	75.00	/lf	1,875
Connect to Existing	1.00	Ls	2,500.00	/Ls	2,500
Headwall	3.00	Loc	3,500.00	/Loc	10,500
Add'l Storm Drainage @ South Infiltration Basin	1.00	Ls	35,000.00	/Ls	35,000
Storm Drainage	**129,939.00**	**sf**	**2.94**	**/sf**	**382,595**
Field Underdrain					
Strip Topsoil - Fields	6,500.00	cuyd	7.15	/cuyd	46,475
Backfill Sand / Subgrade drainage fill layer	1,500.00	cuyd	21.75	/cuyd	32,625
Sand Drain - no pipe	18,500.00	lf	5.00	/lf	92,500
Strip Drain - 2" perf HDPE Pipe	11,500.00	lf	18.00	/lf	207,000
Spread Topsoil from Stockpile	6,500.00	cuyd	9.75	/cuyd	63,375
Field Underdrain	**129,939.00**	**sf**	**3.40**	**/sf**	**441,975**
Storm Sewer System	**129,939.00**	**sf**	**6.35**	**/sf**	**824,570**
Other Site Mechanical Utilities					
Gas					
Trench Excavation / Backfill @ Gas	108.00	lf	25.00	/lf	2,700
Gas Service Piping		***Excl***		***/Excl***	
Gas	**129,939.00**	**sf**	**0.02**	**/sf**	**2,700**
Other Site Mechanical Utilities	**129,939.00**	**sf**	**0.02**	**/sf**	**2,700**
Electrical Distribution					

Description	Takeoff Quantity		Total Cost/Unit		Total Amount
Electrical					
Trench Excavation @Ductbank @ U/Ground Elec - CATV / Phone (Type A)	220.00	lf	25.00	/lf	5,500
Trench Excavation @Ductbank @ U/Ground Elec - Secondary (Type B)	40.00	lf	25.00	/lf	1,000
Trench Excavation @Ductbank @ U/Ground Elec - Emergency (Type C)	68.00	lf	25.00	/lf	1,700
Trench Excavation @Ductbank @ U/Ground Elec - Primary (Type D)	195.00	lf	25.00	/lf	4,875
Elec / Telecom Manholes		***Excl***		***/Excl***	
Trench Excavation @ U/Ground Elec - Site Lighting	2,500.00	lf	18.00	/lf	45,000
Concrete Encase Ductbanks - Excluded - Direct Bury		***Excl***		***/Excl***	
Electrical	**129,939.00**	**SF**	**0.45**	**/SF**	**58,075**
Electrical Distribution	**129,939.00**	**sf**	**0.45**	**/sf**	**58,075**
SITE UTILITIES	**129,939.00**	**sf**	**9.01**	**/sf**	**1,170,095**
SITEWORK	**129,939.00**	**SF**	**28.76**	**/SF**	**3,736,524**
SITE SERVICES					
SITE SERVICES					
Site Services					
Site Services					
Site Services / General Requirements - See Detailed List	1.00	Ls	1,123,225.00	/Ls	1,123,225
Site Services	**129,939.00**	**sf**	**8.64**	**/sf**	**1,123,225**
Site Services	**129,939.00**	**sf**	**8.64**	**/sf**	**1,123,225**
SITE SERVICES	**129,939.00**	**sf**	**8.64**	**/sf**	**1,123,225**
SITE SERVICES	**129,939.00**	**SF**	**8.64**	**/SF**	**1,123,225**

Estimate Totals

Description	Amount	Totals	Rate	Cost per Unit
Trade Cost Total	30,354,959	30,354,959		233.61 /Sqft
Estimate Contingency				
Escalation				
CM Contingency	1,214,198		4.000 %	9.34 /Sqft
- Subtotal	1,214,198	31,569,157		242.95 /Sqft
		31,569,157		242.95 /Sqft
CM Preconstruction Services	90,000			0.69 /Sqft
CM General Conditions	2,806,715			21.60 /Sqft
Builders Risk Insurance (Incl)				
CM Liab Insurance (Incl)				
CM Bond (Incl)				
CM Fee	407,000			3.13 /Sqft
- Subtotal	3,303,715	34,872,872		268.38 /Sqft
Total		***34,872,872***		268.38 /Sqft

B. Cost Estimates and Value Engineering Log

3. Gilbane Comparison of Estimates

Gilbane

Estimate Tracking

Sherwood Middle School

Shrewsbury, Ma.

12/6/2010

		GBCo Draft 90% CD Estimate 12-06-10		GBCo Draft 60% CD Estimate 10-11-10		Variance			
		A		*B*			*A - B*		Comments
						Variance			
			$ / SF		$ / SF	$	%	$ / SF	
	Trade Costs - Uniformat		129,939		129,939				
A10	Foundations	$ 1,873,687	$ 14.42	$ 1,928,911	$ 14.84	$ (55,224)	-3%	$ (0.42)	
B10	Superstructure	$ 2,289,099	$ 17.62	$ 2,319,216	$ 17.85	$ (30,117)	-1%	$ (0.23)	
B20	Exterior Closure	$ 3,824,498	$ 29.43	$ 3,714,261	$ 28.58	$ 110,237	3%	$ 0.85	Solar Wall Chase, Parapet, Rough Carpentry Details
B30	Roofing	$ 933,072	$ 7.18	$ 908,526	$ 6.99	$ 24,546	3%	$ 0.19	Correct estimate for EDPM (Deduct), change to 90 mil, Solar Wall flashing
C10	Interior Construction	$ 2,602,013	$ 20.02	$ 2,528,324	$ 19.46	$ 73,689	3%	$ 0.57	Complete Requantification of Partitions
C20	Stairways	$ 261,851	$ 2.02	$ 260,771	$ 2.01	$ 1,080	0%	$ 0.01	
C30	Interior Finishes	$ 2,880,629	$ 22.17	$ 2,375,793	$ 18.28	$ 504,836	21%	$ 3.89	Linoleum
D10	Conveying Systems	$ 118,000	$ 0.91	$ 118,000	$ 0.91	$ -	0%	$ -	
D20	Plumbing	$ 1,203,376	$ 9.26	$ 1,176,611	$ 9.06	$ 26,765	2%	$ 0.21	
D30	HVAC	$ 3,299,883	$ 25.40	$ 3,206,807	$ 24.68	$ 93,076	3%	$ 0.72	
D40	Fire Protection	$ 519,345	$ 4.00	$ 531,872	$ 4.09	$ (12,527)	-2%	$ (0.10)	
D50	Electrical	$ 3,085,612	$ 23.75	$ 2,992,903	$ 23.03	$ 92,709	3%	$ 0.71	
E10	Equipment	$ 689,600	$ 5.31	$ 689,600	$ 5.31	$ -	0%	$ -	
E20	Furnishings	$ 939,696	$ 7.23	$ 942,276	$ 7.25	$ (2,580)	0%	$ (0.02)	
F10	Demolition	$ 974,850	$ 7.50	$ 974,850	$ 7.50	$ -	0%	$ -	
G10	Sitework	$ 3,736,524	$ 28.76	$ 4,016,614	$ 30.91	$ (280,090)	-7%	$ (2.16)	Adjustment for change to surface stormwater retention from underground
H10	Site Services	$ 1,123,225	$ 8.64	$ 1,123,225	$ 8.64	$ (1)	0%	$ (0.00)	
	Total Trade Costs	**$ 30,354,960**	**$ 233.61**	**$ 29,808,560**	**$ 229.40**	**$ 546,399**	**1.83%**	**$ 4.21**	
	Preconstruction	$ 90,000	$ 0.69	$ 90,000	$ 0.69	$ -	0%	$ -	
	Insurances / Bond	Incl	$ -	Incl	$ -	$ -	0%	$ -	
	General Conditions	$ 2,806,715	$ 21.60	$ 2,806,715	$ 21.60	$ -	0%	$ -	
	Fee	$ 407,000	$ 3.13	$ 407,000	$ 3.13	$ -	0%	$ -	
	Subtotal	**$ 3,303,715**	**$ 25.43**	**$ 3,303,715**	**$ 25.43**	**$ -**	**0.00%**	**$ -**	
	Escalation	$ -	$ -	$ 149,043	$ 1.15	$ (149,043)	-100%	$ (1.15)	
	Subtotal	**$ -**	**$ -**	**$ 149,043**	**$ 1.15**	**$ (149,043)**	**-100.00%**	**$ (1.15)**	
	Total	**$ 33,658,675**	**$ 259.03**	**$ 33,261,318**	**$ 255.98**	**$ 397,356**	**1.19%**	**$ 3.06**	
	CM Contingency	$ 1,214,198	$ 9.34	$ 1,192,342	$ 9.18	$ 21,856	2%	$ 0.17	
	Estimate Contingency	$ -	$ -	$ 745,214	$ 5.74	$ (745,214)	-100%	$ (5.74)	
	Subtotal	**$ 1,214,198**	**$ 9.34**	**$ 1,937,556**	**$ 14.91**	**$ (723,359)**	**-37.33%**	**$ (5.57)**	
	Total Construction Costs	**$ 34,872,872**	**$ 268.38**	**$ 35,198,874**	**$ 270.89**	**$ (326,002)**	**-0.93%**	**$ (2.51)**	

B. Cost Estimates and Value Engineering Log

4. Gilbane Value Engineering Log

Sherwood Middle School

90% Construction Document Estimate - Value Management Log

12/6/2010

			Current Sqft =		129,939			
		A	Construction Budget	=	$ 37,000,000	Target Construction Cost Budget		
		B	Current Estimate	=	$ 34,872,872	12-06-10 Reconciled 90% CD Estimate		
		C	Recommended (#1, below)	=	$0	0.00%		
		D	Subtotal +Accepted (B + C)	=	$ 34,872,872	$ 268.38		
		E	Variance (Row A - D)	=	$ (2,127,128)	-5.75%		
		F	Possible (No.2 below)	=	$392,000			

Item #	Description	Date Identified	Current Estimated Cost	Status	A Alternates	No. 1 Recommended	No.2 Possible	No. 3 Reject	Comments
	Value Added Scope Options								
1	Substitute Heat Welded Linoleum ILO VCT in the Corridors	1-Dec-10	$94,000	1	0	Included	0	0	Value included in revised estimate
2	Substitute Heat Welded Linoleum ILO VCT all other locations	1-Dec-10	$308,000	1	0	Included	0	0	" "
3	Substitute 90 mil roof membrane ILO 60 mil	1-Dec-10	$55,000	1	0	Included	0	0	" "
	Additional Value Engineering Suggestions								
	Site / Civil								
C01	Reduce bit paving by 1/2" at parking areas (leaves 3-1/2" depth at parking)	8-Sep-10	($18,000)	3	0	0	0	(18,000)	Reduce pavement thickness at parking, but keep 4" at drives
C02	Reduce gravel at parking from 18" to 12" depth at parking areas	8-Sep-10	($21,000)	3	0	0	0	(21,000)	Reduce gravel base thickness at parking, but keep 18" at drives **- reject - utilize Ma DOT Standards**
C03	Substitute vertical granite curb for cape cod bituminuous, through-out	8-Sep-10	$103,000	A	103,000	0	0	0	Durability and maintainance concerns with Cape Cod
C04	Not Used	8-Sep-10	NA	3	0	0	0	NA	Previously discussed item from Design Development not relevant to current estimate
L01	Not Used	8-Sep-10	NA	3	0	0	0	NA	" "
L02.a	Substute Sod for Seed - west Playing Field, SW	11-Oct-10	$128,000	2	0	0	128,000	0	
L02.b	Substute Sod for Seed - East Playing Field, SE	11-Oct-10	$149,000	2	0	0	149,000	0	
L02.c	Substute Sod for Seed - all other Loam & Seed Areas	11-Oct-10	$115,000	2	0	0	115,000	0	
	Structural								
S01	Include Barrier 1 concrete additive at all slabs on grade (this inhibits any moisture related issues that impact flooring)	8-Sep-10	($2,000)	3	0	0	0	(2,000)	Rejected due to lack of long term proven track record. Non-low VOC adhesives utiized to achieve same performance result with no impact to sustainability and lower cost.
S02	Include Barrier 1 concrete additive at all upper slabs	8-Sep-10	($3,000)	3	0	0	0	(3,000)	" "
S03	Design basement wall as a retaining wall which can be backfilled prior to steel erection and without shoring	8-Sep-10	Included	1	0	Included	0	0	Verified with structural engineer - included in base design
S04	Reduce the amount of beam penetrations allowed for in the estimate - target 50% reduction	8-Sep-10	Included	1	0	Included	0	0	Modification Made during Design Development

Sherwood Middle School

90% Construction Document Estimate - Value Management Log

12/6/2010

		Current Sqft =		129,939		
A	Construction Budget	=	$ 37,000,000	Target Construction Cost Budget		
B	Current Estimate	=	$ 34,872,872	12-06-10 Reconciled 90% CD Estimate		
C	Recommended (#1, below)	=	$0	0.00%		
D	Subtotal +Accepted (B + C)	=	$ 34,872,872	$ 268.38		
E	Variance (Row A - D)	=	$ (2,127,128)	-5.75%		
F	Possible (No.2 below)	=	$392,000			

Item #	Description	Date Identified	Current Estimated Cost	Status	A Alternates	No. 1 Recommended	No.2 Possible	No. 3 Reject	Comments
	Architectural								
A01	Estimate Correction - Adjust Cubicle Curtain Track Unit Price	8-Sep-10	Included	1	0	Included	0	0	Modification Made during Design Development
A02	Consider White EDPM as substitution to TPO	8-Sep-10	Included	1	0	Included	0	0	Modification Made during Design Development
A03	Consider increasing height of Precast to add durability at grade (2X Ht.)	8-Sep-10	$49,000	3	0	0	0	49,000	Rejected - no durability concerns to warrant added cost
A04	Delete estimate line item for window screens for the type of window specified (in swing casement)	8-Sep-10	($8,000)	3	0	0	0	(8,000)	Rejected as screens are required and possible with the model window specified
A05	Consider spray applied simulated level 5 finish (USG Tuff-Hide) - Approximate $1.25 - $1.50 sqft premium.	8-Sep-10	TBD	2	0	0	TBD	0	Can achieve very close to Level 5 finish at a fraction of the cost. Determine areas where this may apply, buy unit price.
A06	Not Used	8-Sep-10	NA	2	0	0	NA	0	
A07a	Consider reducing tile to wainscot at all walls - epoxy paint above 4.5'	8-Sep-10	($98,000)	3	0	0	0	(98,000)	This item is mutually exclusive to items 7b and 7c. Rejected due to durability concerns
A07b	Consider reducing tile to full ht at wet walls only for tiled walls, epozy paint instead of tile	8-Sep-10	($118,000)	3	0	0	0	(118,000)	This item is mutually exclusive to items 7a and 7c
A07c	Consider reducing tile to wainscot at wet walls only - epoxy paint instead of tile	8-Sep-10	($137,000)	3	0	0	0	(137,000)	This item is mutually exclusive to items 7a and 7b
A08a	Consider epoxy flooring versus quarry tile at kitcher	8-Sep-10	($7,000)	3	0	0	0	(7,000)	Rejected
A08b	- Carry Mudset Quarry Tile versus thinset quarry tile	11-Oct-10	$28,000	3	0	0	0	28,000	This item is mutually exclusive to items 8a
A09	Not Used	8-Sep-10	NA	3	0	0	0	NA	Previously discussed item from Design Development not relevant to current estimate
A10	Not Used	8-Sep-10	NA	3	0	0	0	NA	" "
A11	Elevator - substitute Holeless Hydraulic for Drilled Bore-hole Hydraulic	8-Sep-10	Included	1	0	Included	0	0	Cost Avoidance of Drilling through 20 - 25' of rock
A12	Substitute manual divider curtains in the gym. Cost of shades plus wiring.	11-Oct-10	($30,000)	3	0	0	0	(30,000)	
A13	Substitute manual bleachers in gym	11-Oct-10	($19,000)	3	0	0	0	(19,000)	
A14	Poured synthetic gym floor in lieu of wood	11-Oct-10	($34,000)	3	0	0	0	(34,000)	
A15a	For glass rails – Substitute Balusters / painted steel grates	11-Oct-10	($56,000)	3	0	0	0	(56,000)	

Sherwood Middle School

90% Construction Document Estimate - Value Management Log

12/6/2010

			Current Sqft =		**129,939**			
		A	**Construction Budget**	=	$ 37,000,000	Target Construction Cost Budget		
		B	**Current Estimate**	=	$ 34,872,872	12-06-10 Reconciled 90% CD Estimate		
		C	**Recommended (#1, below)**	=	$0	0.00%		
		D	**Subtotal +Accepted (B + C)**	=	$ 34,872,872	$ 268.38		
		E	**Variance (Row A - D)**	=	$ (2,127,128)	-5.75%		
		F	**Possible (No.2 below)**	=	$392,000			

Item #	Description	Date Identified	Current Estimated Cost	Status	A Alternates	No. 1 Recommended	No.2 Possible	No. 3 Reject	Comments
A15b	- Alternate for glass rails – Substitute stainless grates	11-Oct-10	$4,000	3	0	0	0	4,000	Cannot accept with 15a
A16a	Add terrazzo in the ground floor high traffic areas.	11-Oct-10	$235,000	3	0	0	0	235,000	Based on 5,000 sqft - confirm areas
A16b	Add terrazzo at the main lobby includes lowering the steel in half of the lobby to make it work).	11-Oct-10	$156,000	3	0	0	0	156,000	Based on 3,000 sqft - confirm area
	Totals		$457,000		$ 103,000	0	392,000	(79,000)	

C. Independent Structural Peer Review

LeMessurier Consultants
675 Massachusetts Avenue, Cambridge, MA 02139
Tel: (617)868-1200 Fax: (617)661-7520

MEMORANDUM

TO: Deborah Shaer/PMA Consultants

FROM: Peter J. Cheever, P.E.

DATE: December 3, 2010

REFERENCE: Sherwood Middle School
LeM File No. 30220

SUBJECT: Peer Review

DISTRIBUTION: Mysore V. Ravindra, David Ferdman/LeM

Geotechnical Report

We did not find recommendations within the report with an evaluation of the impacts of groundwater on the structures and the potential impacts of the structures on the local groundwater levels as required by Section 1802.5.1 of the Code.

We did not find recommendations within the report for the allowable values of sliding friction, cohesion and passive pressure as required by Section 1804.9 of the Code.

The information supplied in the geotechnical report for foundation wall design appears incomplete when reviewing the requirements of Section 1806.2 of the Code.

We did not find recommendations within the Geotechnical report to address dampproofing, waterproofing and groundwater control considerations as required by Section 1807 of the Code.

Drawings

A2.1 References Library space. Not found on Plans. Is "Media Center" the Library?

A2.2 Section 12/A22 cut at the grid lines 11 and 13. Are there two expansion joints?
Sections 12 & 13 – Expansion joint is missing.

A3.1 No expansion joint at this level?

A3.3 Section 3 – How large is expansion joint at the roof?
Gymnasium over cafeteria – Any acoustical issues?

A5.4 Is it practical for light gage engineer to engineer support for coiling door?

A6.1 Section 2 – What is the dimension of the slot above the roof level?
Section 2 – Can deck support light gage wall?

A7.1 Section 10 – Do beam deflections work for tile facing?

S3.1

- Dimension for the typical retaining wall west of loading dock is missing.
- It appears that the anchor bolts do not satisfy requirements of ACI 318appendix D for allowable shear or tension and/or combination of both where applicable.

S4.1 Structural drawings indicate footing drainage. Footing drainage is not shown on plans and we haven't found a recommendation for one in the geotechnical report. Please clarify.

S3.5 Bracing of working point at braces BR-G12 and BR-G-4 is missing

S3.7 Columns on grid line 2 are braces to the roof joist. Roof joist is designed to deflect L/360. Please verify that the wall is designed to accommodate horizontal deflection caused by the deflected joist.

S5.1

- We note the updated 5.1 brace sizes now meet the KL/r and b/t ratios of section 2205.3.4
- Please confirm if forces indicated on the revised bracing elevations are based on amplified loads to satisfy section 2205.3.4-14.4.
- It appears that the beams that are part of the inverted V braces BR-G-4, 6, 9, 10 and 12 are not designed to satisfy requirements of section 2205.3.4-14.3(1)(a) for unbalanced load as previously identified.

General:

Most light gage framing anchored to bottom flanges of beams. Do bottom flanges work for applied lateral loads?

We couldn't find a deflection track detail which allows for the spandrel beam deflections.

DF:pw
S:\2010\30220\Mem(Peer Rev)(12-03-10)DF.doc

100 Grove St.
Worcester, MA 01605
Phone: (508) 756-8972
Fax: (508) 757-9750

Bolton & DiMartino, Inc.

MEMORANDUM

To: LeMessurier Consultants
Attn: Mr. Peter J. Cheever, P.E.
From: Christopher Tutlis
Date: December 6, 2010
Subject: Peer Review
Memo #: Response to Memo #1

Geotechnical Items:
Geotechnical Items will be sent to Geotechnical Engineer to review.

Architectural Items:

Item	Drawing	Description
A1	A2.1	Structural Drawings will be revised to reference "Media Center." Loads will remain unchanged.
A2	A2.2	No expansion joint along 13 Line where marker is shown. Architect to review section markers.
A3	A3.1	Architecturally, there are no joints at this level. Review Structural Drawings for foundation construction joints.
A4	A3.3	Joint: 3" at Low Roof, 4" at High Roof.
A5	A5.4	Architect to advise otherwise.
A6	A6.1	Architect to provide slot dimensions.
A7	A6.1	Support angle and loading diagram will be provided for light gage wall framing on roof.
A8	A7.1	Architect to verify deflection requirements of wall.

Structural Items:

Item	Drawing	Description
S1	S3.1	Wall geometry will be shown on Site/Arch. Dwg's and detailed on Structural Drawings.
S2	S3.1	Anchor bolts are being reviewed.
S3	S4.1	Footing drains are shown on Plumbing Drawings and were provided to

		reduce lateral pressure on retaining wall from fluid pressures (60 pcf) to standard soil pressures (45 pcf) to make the retaining wall economical.
S4	S3.5	Beam brace added to BR-G-12, post added to BR-G-4 to remove Inverted V configuration.
S5	S3.7	Bridging and horizontal bracing details at these columns are being coordinated. Details will be provided.
S6	S5.1	Forces shown on Bracing Elevations are amplified.
S7	S5.1	Posts have been added to BR-G-4 & BR-G-10 to satisfy unbalanced requirement. Configuration of BR-G-6 changed to X to remove unbalanced requirement. Roof beam at BR-G-9 & BR-G-12 redesigned for unbalanced load within system.
S8	General	Deflection track to be detailed by Architect. Beam flanges designed for applied loads. A couple of brace points have been added at the second floor level to reduce horizontal spans.

Structural Engineering Calculations

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    NOV 26, 2010                *
*           Time=    11: 1:18                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
 1. STAAD PLANE FRAME  SHERWOOD MIDDLE SCHOOL MFL1  24-24-24-24
 2. UNIT FT KIP
 3. JOINT COORD
 4. 1 0.0 0.0 0.0; 2 24.0 0.0 0.0; 3 48.0 0.0 0.0; 4 72.0 0.0 0.0
 5. 5 96.0 0.0 0.0
 6. REPEAT ALL 2 0.0 14.0 0.0
 7. MEMBER INCIDENCES
 8. 1 1 6; 2 6 11
 9. REPEAT ALL 4 2 1
10. 11 6 7; 12 7 8; 13 8 9; 14 9 10
11. REPEAT ALL 1 4 5
12. SUPPORTS
13. 1 PINNED
14. 2 3 4 5 FIXED
15. CONSTANTS
16. E STEEL
17. MEMBER PROPERTIES
18. 1 2 TA ST TUB60605
19. 3 TO 8 9 10 TA ST W10X100
20. 11 TO 14 TA ST W21X68
21. 15 TO 18 TA ST W18X50
22. DRAW MEMBER JOINT SUPPORT
```

```
23.   LOAD 1 DEAD LOAD
24. MEMBER LOAD
25. 11 12 13 14 CONC GY -20.6
26. 11 12 13 14 CONC GY -3.5 8.0
27. 11 12 13 14 CONC GY -3.5 16.0
28. JOINT LOAD
29. 6 7 8 9 10 FY -20.6
30. 6 7 8 9 10 FY  -3.5
31. *ROOF LOADS
32. MEMBER LOAD
33. 15 16 17 18 UNIF GY -0.6
34.   LOAD 2 LIVE LOAD PATTERN 1
35. MEMBER LOAD
36. 11 13 CONC GY -11.7
37. 11 13 CONC GY -2.0 8.0
38. 11 13 CONC GY -2.0 16.0
39. JOINT LOADS
40. 6 7 8 9 FY -5.85
41. 6 7 8 9 FY -1.0
42. *ROOF LOADS
43. MEMBER LOADS
44. 16 18 UNIF GY -1.64
45.   LOAD 3 LIVE LOAD PATTERN 2
46. MEMBER LOAD
47. 12 14 CONC GY -11.7
48. 12 14 CONC GY -2.0 8.0
49. 12 14 CONC GY -2.0 16.0
50. JOINT LOADS
51. 6 7 8 9 FY -5.85
52. 6 7 8 9 FY -1.0
53. *ROOF LOADS
54. MEMBER LOADS
55. 15 17 UNIF GY -1.64
56.   LOAD 4 SEISMIC
57. MEMBER LOAD
58. 15 16 17 18 UNIF GX 0.613
59. 11 12 13 14 UNIF GX 0.561
60.   LOAD 12 UNIT LOAD
61. JOINT LOAD
62. 11 FX 1.0
63.  LOAD COMB 5 DEAD LOAD + LIVE LOAD
64. 1 1.0 2 1.0 3 1.0
65.  LOAD COMB 6 DEAD LOAD + LL PATTERN 1
66. 1 1.0 2 1.0
67.  LOAD COMB 7 DEAD LOAD + LL PATTERN 2
68. 1 1.0 3 1.0
69.  LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
70. 4 1.0 1 0.6
71. LOAD COMB 9  SEISMIC + 0.8 DEAD + 0.67 LIVE
72. 4 0.95 1 0.8 2 0.67 3 0.67
73. LOAD COMB 10 SEISMIC + 0.8 DEAD + 0.67 LL PAT 1
74. 4 0.95 1 0.8 2 0.67
75. PERFORM ANALYSIS
```

P R O B L E M S T A T I S T I C S

```
NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    15/   18/    5
ORIGINAL/FINAL BAND-WIDTH =    5/    3
TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    31
SIZE OF STIFFNESS MATRIX =     279 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE =  12.03/ 2047.7 MB,  EXMEM = 1942.9 MB

++ Processing Element Stiffness Matrix.             11: 1:18
++ Processing Global Stiffness Matrix.              11: 1:18
++ Processing Triangular Factorization.             11: 1:18
++ Calculating Joint Displacements.                 11: 1:18
++ Calculating Member  Forces.                      11: 1:18
```

76. LOAD LIST 12
77. PRINT DISP

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	12	.00000	.00000	.00000	.00000	.00000	-.00008
2	12	.00000	.00000	.00000	.00000	.00000	.00000
3	12	.00000	.00000	.00000	.00000	.00000	.00000
4	12	.00000	.00000	.00000	.00000	.00000	.00000
5	12	.00000	.00000	.00000	.00000	.00000	.00000
6	12	.00826	.00009	.00000	.00000	.00000	.00001
7	12	.00824	.00003	.00000	.00000	.00000	-.00003
8	12	.00823	-.00001	.00000	.00000	.00000	-.00002
9	12	.00821	.00001	.00000	.00000	.00000	-.00002
10	12	.00818	-.00005	.00000	.00000	.00000	-.00004
11	12	.01980	.00012	.00000	.00000	.00000	.00001
12	12	.01915	.00004	.00000	.00000	.00000	-.00003
13	12	.01867	-.00001	.00000	.00000	.00000	-.00002
14	12	.01837	.00001	.00000	.00000	.00000	-.00002
15	12	.01825	-.00007	.00000	.00000	.00000	-.00004

********** END OF LATEST ANALYSIS RESULT **********

78. LOAD LIST 1 TO 10
79. PRINT REACTION

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.19	39.63	.00	.00	.00	.00
	2	.14	12.14	.00	.00	.00	.00
	3	-.04	22.98	.00	.00	.00	.00
	4	-.65	-7.49	.00	.00	.00	.00
	5	.30	74.74	.00	.00	.00	.00
	6	.33	51.77	.00	.00	.00	.00
	7	.15	62.61	.00	.00	.00	.00
	8	-.54	16.29	.00	.00	.00	.00
	9	-.40	48.12	.00	.00	.00	.00
	10	-.37	32.72	.00	.00	.00	.00
2	1	-.17	73.19	.00	.00	.00	-1.84
	2	-2.05	37.68	.00	.00	.00	8.00
	3	2.02	39.05	.00	.00	.00	-9.51
	4	-28.12	-11.03	.00	.00	.00	218.93
	5	-.20	149.92	.00	.00	.00	-3.35
	6	-2.22	110.87	.00	.00	.00	6.16
	7	1.85	112.24	.00	.00	.00	-11.35
	8	-28.22	32.88	.00	.00	.00	217.82
	9	-26.87	99.48	.00	.00	.00	205.50
	10	-28.22	73.32	.00	.00	.00	211.87
3	1	.82	64.90	.00	.00	.00	-6.26
	2	2.38	33.87	.00	.00	.00	-11.72
	3	-2.01	33.62	.00	.00	.00	8.36
	4	-29.47	1.93	.00	.00	.00	224.58
	5	1.20	132.39	.00	.00	.00	-9.62
	6	3.20	98.77	.00	.00	.00	-17.98
	7	-1.19	98.51	.00	.00	.00	2.10
	8	-28.98	40.87	.00	.00	.00	220.83
	9	-27.08	98.97	.00	.00	.00	206.09
	10	-25.74	76.45	.00	.00	.00	200.49
4	1	1.05	68.73	.00	.00	.00	-7.28
	2	-1.75	35.61	.00	.00	.00	6.91
	3	2.09	35.99	.00	.00	.00	-9.98
	4	-29.77	-4.60	.00	.00	.00	225.53
	5	1.38	140.34	.00	.00	.00	-10.35
	6	-.70	104.35	.00	.00	.00	-.37
	7	3.13	104.72	.00	.00	.00	-17.26
	8	-29.14	36.65	.00	.00	.00	221.16
	9	-27.22	98.59	.00	.00	.00	206.38
	10	-28.61	74.48	.00	.00	.00	213.06
5	1	-1.89	42.05	.00	.00	.00	6.02
	2	1.28	18.22	.00	.00	.00	-6.43
	3	-2.06	5.89	.00	.00	.00	8.56
	4	-24.70	21.18	.00	.00	.00	202.24
	5	-2.67	66.15	.00	.00	.00	8.14
	6	-.61	60.27	.00	.00	.00	-.42
	7	-3.95	47.94	.00	.00	.00	14.58
	8	-25.83	46.41	.00	.00	.00	205.85

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	9	-25.50	69.91	.00	.00	.00	198.37
	10	-24.12	65.97	.00	.00	.00	192.63

********** END OF LATEST ANALYSIS RESULT **********

80. PRINT FORCES

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	39.63	-.19	.00	.00	.00	.00
		6	-39.63	.19	.00	.00	.00	-2.70
	2	1	12.14	-.14	.00	.00	.00	.00
		6	-12.14	.14	.00	.00	.00	-1.98
	3	1	22.98	.04	.00	.00	.00	.00
		6	-22.98	-.04	.00	.00	.00	.54
	4	1	-7.49	.65	.00	.00	.00	.00
		6	7.49	-.65	.00	.00	.00	9.15
	5	1	74.74	-.30	.00	.00	.00	.00
		6	-74.74	.30	.00	.00	.00	-4.14
	6	1	51.77	-.33	.00	.00	.00	.00
		6	-51.77	.33	.00	.00	.00	-4.68
	7	1	62.61	-.15	.00	.00	.00	.00
		6	-62.61	.15	.00	.00	.00	-2.16
	8	1	16.29	.54	.00	.00	.00	.00
		6	-16.29	-.54	.00	.00	.00	7.53
	9	1	48.12	.40	.00	.00	.00	.00
		6	-48.12	-.40	.00	.00	.00	5.57
	10	1	32.72	.37	.00	.00	.00	.00
		6	-32.72	-.37	.00	.00	.00	5.21
2	1	6	5.81	-.66	.00	.00	.00	-4.94
		11	-5.81	.66	.00	.00	.00	-4.27
	2	6	-1.06	-.17	.00	.00	.00	-2.13
		11	1.06	.17	.00	.00	.00	-.22
	3	6	16.79	-.80	.00	.00	.00	-3.54
		11	-16.79	.80	.00	.00	.00	-7.62
	4	6	-2.28	2.01	.00	.00	.00	14.28
		11	2.28	-2.01	.00	.00	.00	13.87
	5	6	21.54	-1.62	.00	.00	.00	-10.61
		11	-21.54	1.62	.00	.00	.00	-12.11
	6	6	4.75	-.83	.00	.00	.00	-7.07
		11	-4.75	.83	.00	.00	.00	-4.49
	7	6	22.61	-1.45	.00	.00	.00	-8.48
		11	-22.61	1.45	.00	.00	.00	-11.89
	8	6	1.21	1.62	.00	.00	.00	11.32
		11	-1.21	-1.62	.00	.00	.00	11.31
	9	6	13.02	.74	.00	.00	.00	5.82
		11	-13.02	-.74	.00	.00	.00	4.51
	10	6	1.77	1.27	.00	.00	.00	8.19
		11	-1.77	-1.27	.00	.00	.00	9.61
3	1	2	73.19	.17	.00	.00	.00	-1.84
		7	-73.19	-.17	.00	.00	.00	4.18

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	2	37.68	2.05	.00	.00	.00	8.00
		7	-37.68	-2.05	.00	.00	.00	20.73
	3	2	39.05	-2.02	.00	.00	.00	-9.51
		7	-39.05	2.02	.00	.00	.00	-18.71
	4	2	-11.03	28.12	.00	.00	.00	218.93
		7	11.03	-28.12	.00	.00	.00	174.78
	5	2	149.92	.20	.00	.00	.00	-3.35
		7	-149.92	-.20	.00	.00	.00	6.19
	6	2	110.87	2.22	.00	.00	.00	6.16
		7	-110.87	-2.22	.00	.00	.00	24.90
	7	2	112.24	-1.85	.00	.00	.00	-11.35
		7	-112.24	1.85	.00	.00	.00	-14.53
	8	2	32.88	28.22	.00	.00	.00	217.82
		7	-32.88	-28.22	.00	.00	.00	177.28
	9	2	99.48	26.87	.00	.00	.00	205.50
		7	-99.48	-26.87	.00	.00	.00	170.73
	10	2	73.32	28.22	.00	.00	.00	211.87
		7	-73.32	-28.22	.00	.00	.00	183.27
4	1	7	16.26	.43	.00	.00	.00	3.93
		12	-16.26	-.43	.00	.00	.00	2.04
	2	7	21.04	-2.82	.00	.00	.00	-1.68
		12	-21.04	2.82	.00	.00	.00	-37.75
	3	7	23.35	3.39	.00	.00	.00	2.12
		12	-23.35	-3.39	.00	.00	.00	45.34
	4	7	-2.92	14.03	.00	.00	.00	91.67
		12	2.92	-14.03	.00	.00	.00	104.82
	5	7	60.65	1.00	.00	.00	.00	4.37
		12	-60.65	-1.00	.00	.00	.00	9.63
	6	7	37.30	-2.39	.00	.00	.00	2.25
		12	-37.30	2.39	.00	.00	.00	-35.71
	7	7	39.62	3.82	.00	.00	.00	6.05
		12	-39.62	-3.82	.00	.00	.00	47.38
	8	7	6.84	14.29	.00	.00	.00	94.02
		12	-6.84	-14.29	.00	.00	.00	106.04
	9	7	39.98	14.06	.00	.00	.00	90.52
		12	-39.98	-14.06	.00	.00	.00	106.30
	10	7	24.33	11.79	.00	.00	.00	89.10
		12	-24.33	-11.79	.00	.00	.00	75.92
5	1	3	64.90	-.82	.00	.00	.00	-6.26
		8	-64.90	.82	.00	.00	.00	-5.18
	2	3	33.87	-2.38	.00	.00	.00	-11.72
		8	-33.87	2.38	.00	.00	.00	-21.67
	3	3	33.62	2.01	.00	.00	.00	8.36
		8	-33.62	-2.01	.00	.00	.00	19.72
	4	3	1.93	29.47	.00	.00	.00	224.58
		8	-1.93	-29.47	.00	.00	.00	187.93

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	3	132.39	-1.20	.00	.00	.00	-9.62
		8	-132.39	1.20	.00	.00	.00	-7.13
	6	3	98.77	-3.20	.00	.00	.00	-17.98
		8	-98.77	3.20	.00	.00	.00	-26.85
	7	3	98.51	1.19	.00	.00	.00	2.10
		8	-98.51	-1.19	.00	.00	.00	14.54
	8	3	40.87	28.98	.00	.00	.00	220.83
		8	-40.87	-28.98	.00	.00	.00	184.83
	9	3	98.97	27.08	.00	.00	.00	206.09
		8	-98.97	-27.08	.00	.00	.00	173.09
	10	3	76.45	25.74	.00	.00	.00	200.49
		8	-76.45	-25.74	.00	.00	.00	159.88
6	1	8	14.17	-1.12	.00	.00	.00	-8.00
		13	-14.17	1.12	.00	.00	.00	-7.69
	2	8	19.48	2.48	.00	.00	.00	-.99
		13	-19.48	-2.48	.00	.00	.00	35.67
	3	8	18.89	-4.15	.00	.00	.00	-10.84
		13	-18.89	4.15	.00	.00	.00	-47.27
	4	8	.38	16.32	.00	.00	.00	109.43
		13	-.38	-16.32	.00	.00	.00	119.09
	5	8	52.54	-2.79	.00	.00	.00	-19.83
		13	-52.54	2.79	.00	.00	.00	-19.29
	6	8	33.65	1.36	.00	.00	.00	-8.99
		13	-33.65	-1.36	.00	.00	.00	27.99
	7	8	33.06	-5.27	.00	.00	.00	-18.84
		13	-33.06	5.27	.00	.00	.00	-54.96
	8	8	8.88	15.65	.00	.00	.00	104.63
		13	-8.88	-15.65	.00	.00	.00	114.48
	9	8	37.41	13.49	.00	.00	.00	89.63
		13	-37.41	-13.49	.00	.00	.00	99.22
	10	8	24.75	16.27	.00	.00	.00	96.90
		13	-24.75	-16.27	.00	.00	.00	130.89
7	1	4	68.73	-1.05	.00	.00	.00	-7.28
		9	-68.73	1.05	.00	.00	.00	-7.41
	2	4	35.61	1.75	.00	.00	.00	6.91
		9	-35.61	-1.75	.00	.00	.00	17.62
	3	4	35.99	-2.09	.00	.00	.00	-9.98
		9	-35.99	2.09	.00	.00	.00	-19.22
	4	4	-4.60	29.77	.00	.00	.00	225.53
		9	4.60	-29.77	.00	.00	.00	191.22
	5	4	140.34	-1.38	.00	.00	.00	-10.35
		9	-140.34	1.38	.00	.00	.00	-9.01
	6	4	104.35	.70	.00	.00	.00	-.37
		9	-104.35	-.70	.00	.00	.00	10.21
	7	4	104.72	-3.13	.00	.00	.00	-17.26
		9	-104.72	3.13	.00	.00	.00	-26.63

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	4	36.65	29.14	.00	.00	.00	221.16
		9	-36.65	-29.14	.00	.00	.00	186.77
	9	4	98.59	27.22	.00	.00	.00	206.38
		9	-98.59	-27.22	.00	.00	.00	174.66
	10	4	74.48	28.61	.00	.00	.00	213.06
		9	-74.48	-28.61	.00	.00	.00	187.53
8	1	9	14.94	-1.46	.00	.00	.00	-10.86
		14	-14.94	1.46	.00	.00	.00	-9.56
	2	9	20.18	-3.90	.00	.00	.00	-9.08
		14	-20.18	3.90	.00	.00	.00	-45.49
	3	9	21.37	1.65	.00	.00	.00	-5.50
		14	-21.37	-1.65	.00	.00	.00	28.65
	4	9	-1.07	17.00	.00	.00	.00	114.90
		14	1.07	-17.00	.00	.00	.00	123.07
	5	9	56.49	-3.70	.00	.00	.00	-25.44
		14	-56.49	3.70	.00	.00	.00	-26.40
	6	9	35.12	-5.36	.00	.00	.00	-19.94
		14	-35.12	5.36	.00	.00	.00	-55.05
	7	9	36.31	.19	.00	.00	.00	-16.36
		14	-36.31	-.19	.00	.00	.00	19.09
	8	9	7.90	16.12	.00	.00	.00	108.38
		14	-7.90	-16.12	.00	.00	.00	117.33
	9	9	38.77	13.48	.00	.00	.00	90.70
		14	-38.77	-13.48	.00	.00	.00	97.99
	10	9	24.46	12.37	.00	.00	.00	94.38
		14	-24.46	-12.37	.00	.00	.00	78.79
9	1	5	42.05	1.89	.00	.00	.00	6.02
		10	-42.05	-1.89	.00	.00	.00	20.48
	2	5	18.22	-1.28	.00	.00	.00	-6.43
		10	-18.22	1.28	.00	.00	.00	-11.46
	3	5	5.89	2.06	.00	.00	.00	8.56
		10	-5.89	-2.06	.00	.00	.00	20.24
	4	5	21.18	24.70	.00	.00	.00	202.24
		10	-21.18	-24.70	.00	.00	.00	143.49
	5	5	66.15	2.67	.00	.00	.00	8.14
		10	-66.15	-2.67	.00	.00	.00	29.26
	6	5	60.27	.61	.00	.00	.00	-.42
		10	-60.27	-.61	.00	.00	.00	9.02
	7	5	47.94	3.95	.00	.00	.00	14.58
		10	-47.94	-3.95	.00	.00	.00	40.72
	8	5	46.41	25.83	.00	.00	.00	205.85
		10	-46.41	-25.83	.00	.00	.00	155.78
	9	5	69.91	25.50	.00	.00	.00	198.37
		10	-69.91	-25.50	.00	.00	.00	158.58
	10	5	65.97	24.12	.00	.00	.00	192.63
		10	-65.97	-24.12	.00	.00	.00	145.03

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
10	1	10	6.41	2.81	.00	.00	.00	22.71
		15	-6.41	-2.81	.00	.00	.00	16.65
	2	10	19.09	4.40	.00	.00	.00	11.95
		15	-19.09	-4.40	.00	.00	.00	49.71
	3	10	-1.68	-.10	.00	.00	.00	7.66
		15	1.68	.10	.00	.00	.00	-9.00
	4	10	5.89	9.48	.00	.00	.00	56.92
		15	-5.89	-9.48	.00	.00	.00	75.82
	5	10	23.82	7.12	.00	.00	.00	42.32
		15	-23.82	-7.12	.00	.00	.00	57.35
	6	10	25.50	7.22	.00	.00	.00	34.66
		15	-25.50	-7.22	.00	.00	.00	66.36
	7	10	4.73	2.72	.00	.00	.00	30.37
		15	-4.73	-2.72	.00	.00	.00	7.65
	8	10	9.74	11.17	.00	.00	.00	70.54
		15	-9.74	-11.17	.00	.00	.00	85.81
	9	10	22.39	14.14	.00	.00	.00	85.38
		15	-22.39	-14.14	.00	.00	.00	112.62
	10	10	23.51	14.21	.00	.00	.00	80.24
		15	-23.51	-14.21	.00	.00	.00	118.65
11	1	6	-.46	9.71	.00	.00	.00	7.64
		7	.46	17.89	.00	.00	.00	-105.68
	2	6	-.03	6.35	.00	.00	.00	4.11
		7	.03	9.35	.00	.00	.00	-40.09
	3	6	-.84	-.66	.00	.00	.00	3.00
		7	.84	.66	.00	.00	.00	-18.95
	4	6	1.36	-5.20	.00	.00	.00	-23.43
		7	-14.82	5.20	.00	.00	.00	-101.48
	5	6	-1.33	15.40	.00	.00	.00	14.75
		7	1.33	27.90	.00	.00	.00	-164.72
	6	6	-.49	16.07	.00	.00	.00	11.74
		7	.49	27.23	.00	.00	.00	-145.77
	7	6	-1.30	9.05	.00	.00	.00	10.64
		7	1.30	18.55	.00	.00	.00	-124.63
	8	6	1.08	.62	.00	.00	.00	-18.85
		7	-14.54	15.94	.00	.00	.00	-164.89
	9	6	.34	6.64	.00	.00	.00	-11.39
		7	-13.13	25.96	.00	.00	.00	-220.51
	10	6	.90	7.08	.00	.00	.00	-13.40
		7	-13.69	25.52	.00	.00	.00	-207.81
12	1	7	-.21	14.94	.00	.00	.00	97.58
		8	.21	12.66	.00	.00	.00	-70.20
	2	7	-4.89	.44	.00	.00	.00	21.04
		8	4.89	-.44	.00	.00	.00	-10.39

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	7	4.57	8.19	.00	.00	.00	35.54
		8	-4.57	7.51	.00	.00	.00	-27.49
	4	7	.73	-13.31	.00	.00	.00	-164.96
		8	-14.20	13.31	.00	.00	.00	-154.57
	5	7	-.53	23.57	.00	.00	.00	154.16
		8	.53	19.73	.00	.00	.00	-108.07
	6	7	-5.10	15.38	.00	.00	.00	118.61
		8	5.10	12.22	.00	.00	.00	-80.58
	7	7	4.36	23.13	.00	.00	.00	133.12
		8	-4.36	20.17	.00	.00	.00	-97.69
	8	7	.61	-4.35	.00	.00	.00	-106.41
		8	-14.08	20.91	.00	.00	.00	-196.68
	9	7	.32	5.09	.00	.00	.00	-40.74
		8	-13.11	27.51	.00	.00	.00	-228.37
	10	7	-2.75	-.40	.00	.00	.00	-64.56
		8	-10.04	22.48	.00	.00	.00	-209.95
13	1	8	-.51	13.97	.00	.00	.00	83.38
		9	.51	13.63	.00	.00	.00	-79.23
	2	8	-.03	7.98	.00	.00	.00	33.04
		9	.03	7.72	.00	.00	.00	-29.87
	3	8	-1.59	.36	.00	.00	.00	18.61
		9	1.59	-.36	.00	.00	.00	-9.94
	4	8	1.06	-11.77	.00	.00	.00	-142.80
		9	-14.52	11.77	.00	.00	.00	-139.57
	5	8	-2.13	22.32	.00	.00	.00	135.03
		9	2.13	20.98	.00	.00	.00	-119.04
	6	8	-.54	21.96	.00	.00	.00	116.42
		9	.54	21.34	.00	.00	.00	-109.10
	7	8	-2.10	14.33	.00	.00	.00	101.99
		9	2.10	13.27	.00	.00	.00	-89.17
	8	8	.75	-3.38	.00	.00	.00	-92.78
		9	-14.21	19.94	.00	.00	.00	-187.11
	9	8	-.49	5.59	.00	.00	.00	-34.35
		9	-12.30	27.01	.00	.00	.00	-222.65
	10	8	.57	5.35	.00	.00	.00	-46.82
		9	-13.37	27.25	.00	.00	.00	-215.99
14	1	9	-.92	16.06	.00	.00	.00	97.51
		10	.92	11.54	.00	.00	.00	-43.20
	2	9	-5.68	.87	.00	.00	.00	21.32
		10	5.68	-.87	.00	.00	.00	-.48
	3	9	2.15	8.13	.00	.00	.00	34.66
		10	-2.15	7.57	.00	.00	.00	-27.89
	4	9	1.75	-15.29	.00	.00	.00	-166.55
		10	-15.21	15.29	.00	.00	.00	-200.41
	5	9	-4.45	25.06	.00	.00	.00	153.49
		10	4.45	18.24	.00	.00	.00	-71.57

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	6	9	-6.60	16.93	.00	.00	.00	118.83
		10	6.60	10.67	.00	.00	.00	-43.68
	7	9	1.23	24.19	.00	.00	.00	132.16
		10	-1.23	19.11	.00	.00	.00	-71.09
	8	9	1.20	-5.65	.00	.00	.00	-108.05
		10	-14.66	22.21	.00	.00	.00	-226.33
	9	9	-1.44	4.35	.00	.00	.00	-42.71
		10	-11.35	28.24	.00	.00	.00	-243.96
	10	9	-2.88	-1.09	.00	.00	.00	-65.93
		10	-9.91	23.17	.00	.00	.00	-225.27
15	1	11	.66	5.81	.00	.00	.00	4.27
		12	-.66	8.59	.00	.00	.00	-37.57
	2	11	.17	-1.06	.00	.00	.00	.22
		12	-.17	1.06	.00	.00	.00	-25.73
	3	11	.80	16.79	.00	.00	.00	7.62
		12	-.80	22.57	.00	.00	.00	-76.91
	4	11	-2.01	-2.28	.00	.00	.00	-13.87
		12	-12.70	2.28	.00	.00	.00	-40.88
	5	11	1.62	21.54	.00	.00	.00	12.11
		12	-1.62	32.22	.00	.00	.00	-140.22
	6	11	.83	4.75	.00	.00	.00	4.49
		12	-.83	9.65	.00	.00	.00	-63.31
	7	11	1.45	22.61	.00	.00	.00	11.89
		12	-1.45	31.15	.00	.00	.00	-114.48
	8	11	-1.62	1.21	.00	.00	.00	-11.31
		12	-13.10	7.43	.00	.00	.00	-63.42
	9	11	-.74	13.02	.00	.00	.00	-4.51
		12	-13.24	24.87	.00	.00	.00	-137.67
	10	11	-1.27	1.77	.00	.00	.00	-9.61
		12	-12.70	9.75	.00	.00	.00	-86.14
16	1	12	.23	7.68	.00	.00	.00	35.54
		13	-.23	6.72	.00	.00	.00	-24.11
	2	12	2.98	19.97	.00	.00	.00	63.48
		13	-2.98	19.39	.00	.00	.00	-56.46
	3	12	-2.59	.79	.00	.00	.00	31.57
		13	2.59	-.79	.00	.00	.00	-12.69
	4	12	-1.33	-5.20	.00	.00	.00	-63.94
		13	-13.38	5.20	.00	.00	.00	-60.94
	5	12	.62	28.44	.00	.00	.00	130.59
		13	-.62	25.32	.00	.00	.00	-93.26
	6	12	3.22	27.65	.00	.00	.00	99.02
		13	-3.22	26.11	.00	.00	.00	-80.57
	7	12	-2.36	8.46	.00	.00	.00	67.11
		13	2.36	5.94	.00	.00	.00	-36.80
	8	12	-1.19	-.60	.00	.00	.00	-42.62
		13	-13.52	9.24	.00	.00	.00	-75.41

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	9	12	-.82	15.11	.00	.00	.00	31.37
		13	-13.16	22.78	.00	.00	.00	-123.51
	10	12	.92	14.58	.00	.00	.00	10.22
		13	-14.89	23.31	.00	.00	.00	-115.01
17	1	13	1.35	7.44	.00	.00	.00	31.79
		14	-1.35	6.96	.00	.00	.00	-25.98
	2	13	.51	.10	.00	.00	.00	20.79
		14	-.51	-.10	.00	.00	.00	-18.47
	3	13	1.56	19.68	.00	.00	.00	59.96
		14	-1.56	19.68	.00	.00	.00	-60.04
	4	13	-2.95	-4.82	.00	.00	.00	-58.15
		14	-11.77	4.82	.00	.00	.00	-57.51
	5	13	3.42	27.22	.00	.00	.00	112.54
		14	-3.42	26.54	.00	.00	.00	-104.49
	6	13	1.86	7.54	.00	.00	.00	52.58
		14	-1.86	6.86	.00	.00	.00	-44.45
	7	13	2.91	27.12	.00	.00	.00	91.75
		14	-2.91	26.64	.00	.00	.00	-86.02
	8	13	-2.13	-.35	.00	.00	.00	-39.07
		14	-12.58	8.99	.00	.00	.00	-73.10
	9	13	-.33	14.62	.00	.00	.00	24.30
		14	-13.64	23.27	.00	.00	.00	-128.02
	10	13	-1.38	1.44	.00	.00	.00	-15.88
		14	-12.60	10.08	.00	.00	.00	-87.80
18	1	14	2.81	7.99	.00	.00	.00	35.54
		15	-2.81	6.41	.00	.00	.00	-16.65
	2	14	4.40	20.27	.00	.00	.00	63.96
		15	-4.40	19.09	.00	.00	.00	-49.71
	3	14	-.10	1.68	.00	.00	.00	31.39
		15	.10	-1.68	.00	.00	.00	9.00
	4	14	-5.23	-5.89	.00	.00	.00	-65.55
		15	-9.48	5.89	.00	.00	.00	-75.82
	5	14	7.12	29.94	.00	.00	.00	130.89
		15	-7.12	23.82	.00	.00	.00	-57.35
	6	14	7.22	28.26	.00	.00	.00	99.50
		15	-7.22	25.50	.00	.00	.00	-66.36
	7	14	2.72	9.67	.00	.00	.00	66.93
		15	-2.72	4.73	.00	.00	.00	-7.65
	8	14	-3.54	-1.10	.00	.00	.00	-44.23
		15	-11.17	9.74	.00	.00	.00	-85.81
	9	14	.17	15.50	.00	.00	.00	30.04
		15	-14.14	22.39	.00	.00	.00	-112.62
	10	14	.23	14.38	.00	.00	.00	9.01
		15	-14.21	23.51	.00	.00	.00	-118.65

********** END OF LATEST ANALYSIS RESULT **********

81. PRINT DISP

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	1	.00000	.00000	.00000	.00000	.00000	.00100
	2	.00000	.00000	.00000	.00000	.00000	.00070
	3	.00000	.00000	.00000	.00000	.00000	-.00014
	4	.00000	.00000	.00000	.00000	.00000	-.00808
	5	.00000	.00000	.00000	.00000	.00000	.00156
	6	.00000	.00000	.00000	.00000	.00000	.00170
	7	.00000	.00000	.00000	.00000	.00000	.00086
	8	.00000	.00000	.00000	.00000	.00000	-.00748
	9	.00000	.00000	.00000	.00000	.00000	-.00650
	10	.00000	.00000	.00000	.00000	.00000	-.00641
2	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
3	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
4	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
5	1	.00000	.00000	.00000	.00000	.00000	.00000

	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
6	1	-.02453	-.03346	.00000	.00000	.00000	-.00158
	2	-.01163	-.01025	.00000	.00000	.00000	-.00120
	3	-.00446	-.01940	.00000	.00000	.00000	.00037
	4	.86914	.00632	.00000	.00000	.00000	.00068
	5	-.04061	-.06312	.00000	.00000	.00000	-.00241
	6	-.03616	-.04371	.00000	.00000	.00000	-.00278
	7	-.02899	-.05287	.00000	.00000	.00000	-.00121
	8	.85442	-.01376	.00000	.00000	.00000	-.00027
	9	.79528	-.04063	.00000	.00000	.00000	-.00117
	10	.79827	-.02763	.00000	.00000	.00000	-.00142
7	1	-.02430	-.01442	.00000	.00000	.00000	.00034
	2	-.01161	-.00742	.00000	.00000	.00000	.00071
	3	-.00404	-.00770	.00000	.00000	.00000	-.00051
	4	.86512	.00217	.00000	.00000	.00000	-.00246
	5	-.03996	-.02954	.00000	.00000	.00000	.00053
	6	-.03591	-.02185	.00000	.00000	.00000	.00105
	7	-.02834	-.02212	.00000	.00000	.00000	-.00018
	8	.85054	-.00648	.00000	.00000	.00000	-.00226
	9	.79194	-.01960	.00000	.00000	.00000	-.00194
	10	.79464	-.01445	.00000	.00000	.00000	-.00160
8	1	-.02420	-.01279	.00000	.00000	.00000	.00006
	2	-.00918	-.00667	.00000	.00000	.00000	-.00056
	3	-.00631	-.00662	.00000	.00000	.00000	.00063
	4	.86141	-.00038	.00000	.00000	.00000	-.00204
	5	-.03969	-.02609	.00000	.00000	.00000	.00014
	6	-.03338	-.01946	.00000	.00000	.00000	-.00049
	7	-.03051	-.01941	.00000	.00000	.00000	.00069
	8	.84689	-.00805	.00000	.00000	.00000	-.00201
	9	.78860	-.01950	.00000	.00000	.00000	-.00184
	10	.79283	-.01506	.00000	.00000	.00000	-.00227
9	1	-.02395	-.01354	.00000	.00000	.00000	-.00001
	2	-.00917	-.00702	.00000	.00000	.00000	.00060
	3	-.00552	-.00709	.00000	.00000	.00000	-.00052
	4	.85755	.00091	.00000	.00000	.00000	-.00191
	5	-.03864	-.02765	.00000	.00000	.00000	.00007
	6	-.03311	-.02056	.00000	.00000	.00000	.00059
	7	-.02947	-.02063	.00000	.00000	.00000	-.00052
	8	.84318	-.00722	.00000	.00000	.00000	-.00192

	9	.78567	-.01943	.00000	.00000	.00000	-.00177
	10	.78937	-.01468	.00000	.00000	.00000	-.00142
10	1	-.02349	-.00829	.00000	.00000	.00000	.00081
	2	-.00634	-.00359	.00000	.00000	.00000	-.00028
	3	-.00659	-.00116	.00000	.00000	.00000	.00065
	4	.85334	-.00417	.00000	.00000	.00000	-.00328
	5	-.03643	-.01304	.00000	.00000	.00000	.00118
	6	-.02984	-.01188	.00000	.00000	.00000	.00053

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	7	-.03008	-.00945	.00000	.00000	.00000	.00146
	8	.83924	-.00914	.00000	.00000	.00000	-.00279
	9	.78321	-.01378	.00000	.00000	.00000	-.00222
	10	.78763	-.01300	.00000	.00000	.00000	-.00266
11	1	-.06145	-.03837	.00000	.00000	.00000	-.00094
	2	-.02763	-.00935	.00000	.00000	.00000	.00063
	3	-.04045	-.03359	.00000	.00000	.00000	-.00353
	4	1.54941	.00825	.00000	.00000	.00000	.00028
	5	-.12953	-.08131	.00000	.00000	.00000	-.00385
	6	-.08908	-.04773	.00000	.00000	.00000	-.00031
	7	-.10189	-.07196	.00000	.00000	.00000	-.00448
	8	1.51254	-.01478	.00000	.00000	.00000	-.00028
	9	1.37716	-.05163	.00000	.00000	.00000	-.00243
	10	1.40426	-.02913	.00000	.00000	.00000	-.00006
12	1	-.06189	-.01763	.00000	.00000	.00000	.00023
	2	-.02775	-.01157	.00000	.00000	.00000	-.00130
	3	-.04098	-.01230	.00000	.00000	.00000	.00190
	4	1.54579	.00275	.00000	.00000	.00000	-.00173
	5	-.13062	-.04149	.00000	.00000	.00000	.00083
	6	-.08964	-.02920	.00000	.00000	.00000	-.00107
	7	-.10288	-.02992	.00000	.00000	.00000	.00213
	8	1.50866	-.00783	.00000	.00000	.00000	-.00159
	9	1.37294	-.02748	.00000	.00000	.00000	-.00106
	10	1.40040	-.01924	.00000	.00000	.00000	-.00233
13	1	-.06205	-.01558	.00000	.00000	.00000	.00008
	2	-.02976	-.01051	.00000	.00000	.00000	.00149
	3	-.03923	-.01035	.00000	.00000	.00000	-.00140
	4	1.54173	-.00046	.00000	.00000	.00000	-.00151
	5	-.13105	-.03644	.00000	.00000	.00000	.00017
	6	-.09181	-.02609	.00000	.00000	.00000	.00157
	7	-.10128	-.02593	.00000	.00000	.00000	-.00132
	8	1.50450	-.00980	.00000	.00000	.00000	-.00146
	9	1.36877	-.02687	.00000	.00000	.00000	-.00131
	10	1.39506	-.01994	.00000	.00000	.00000	-.00037
14	1	-.06296	-.01649	.00000	.00000	.00000	.00007
	2	-.03011	-.01099	.00000	.00000	.00000	-.00143
	3	-.04029	-.01130	.00000	.00000	.00000	.00139
	4	1.53875	.00112	.00000	.00000	.00000	-.00146
	5	-.13335	-.03878	.00000	.00000	.00000	.00002

6	-.09307	-.02748	.00000	.00000	.00000	-.00137
7	-.10325	-.02779	.00000	.00000	.00000	.00146
8	1.50097	-.00878	.00000	.00000	.00000	-.00142
9	1.36428	-.02707	.00000	.00000	.00000	-.00136
10	1.39127	-.01950	.00000	.00000	.00000	-.00229
15 1	-.06486	-.00955	.00000	.00000	.00000	.00047
2	-.03308	-.00735	.00000	.00000	.00000	.00183
3	-.04022	-.00083	.00000	.00000	.00000	-.00028
4	1.53731	-.00533	.00000	.00000	.00000	-.00222

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	5	-.13816	-.01773	.00000	.00000	.00000	.00202
	6	-.09794	-.01690	.00000	.00000	.00000	.00229
	7	-.10508	-.01038	.00000	.00000	.00000	.00019
	8	1.49839	-.01106	.00000	.00000	.00000	-.00194
	9	1.35944	-.01819	.00000	.00000	.00000	-.00070
	10	1.38639	-.01763	.00000	.00000	.00000	-.00051

********** END OF LATEST ANALYSIS RESULT **********

```
82. PLOT SECT DISP
83. PARAMETER
84. CODE AISC
85. UNIT INCH
86. FYLD 46.0 1 2 9 10
87. FYLD 50.0 3 TO 8 11 TO 18
88. UNIT FEET
89. TRACK 0.0
90. BEAM 1.0 MEMBER 11 TO 18
91. UNL 1.0 MEMBER 11 TO 18
92. LY  1.0 MEMBER 11 TO 18
93. KY 1.0 MEMBER 1 TO 10
94. KZ 1.4 MEMBER 3 TO 8
95. CHECK CODES
```


STAAD-III CODE CHECKING - (AISC)
****

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION

```
=====================================================================

     1  ST  TUB 60605     PASS     AISC- H1-1          .773         5
                     74.74 C           .00          -4.14       14.00
     2  ST  TUB 60605     PASS     AISC- H1-1          .583         7
                     22.61 C           .00         -11.89       14.00
     3  ST  W10 X100      PASS     AISC- H1-3          .868        10
                     73.32 C           .00         211.87         .00
     4  ST  W10 X100      PASS     AISC- H1-3          .440         9
                     39.98 C           .00         106.30       14.00
     5  ST  W10 X100      PASS     AISC- H1-3          .850         8
                     40.87 C           .00         220.83         .00
     6  ST  W10 X100      PASS     AISC- H1-3          .504        10
                     24.75 C           .00         130.89       14.00
     7  ST  W10 X100      PASS     AISC- H1-3          .874        10
                     74.48 C           .00         213.06         .00
     8  ST  W10 X100      PASS     AISC- H2-1          .440         4
                      1.07 T           .00         123.07       14.00
     9  ST  W10 X100      PASS     AISC- H1-3          .883         9
                     69.91 C           .00         198.37         .00
    10  ST  W10 X100      PASS     AISC- H1-3          .498        10
                     23.51 C           .00         118.65       14.00
    11  ST  W21 X68       PASS     AISC- H1-3          .597         9
                     13.13 C           .00        -220.51       24.00
    12  ST  W21 X68       PASS     AISC- H1-3          .617         9
                     13.11 C           .00        -228.37       24.00
    13  ST  W21 X68       PASS     AISC- H2-1          .598         9
                     12.30 T           .00        -222.65       24.00
    14  ST  W21 X68       PASS     AISC- H2-1          .652         9
                     11.35 T           .00        -243.96       24.00
    15  ST  W18 X50       PASS     AISC- H2-1          .593         9
                     13.24 T           .00        -137.67       24.00
    16  ST  W18 X50       PASS     AISC- H1-3          .536         5
                       .62 C           .00         130.59         .00
    17  ST  W18 X50       PASS     AISC- H2-1          .554         9
                     13.64 T           .00        -128.02       24.00
    18  ST  W18 X50       PASS     AISC- H1-3          .554         5
                      7.12 C           .00         130.89         .00
  96. FINISH


         *************** END OF STAAD-III ***************

           **** DATE= NOV 26,2010   TIME= 11: 1:18 ****

      **********************************************************
      *        For questions on  STAAD-III,   contact:         *
      *             Research Engineers, Inc at                 *
      *  West Coast: Ph- (714) 974-2500  Fax- (714) 921-2543   *
      *  East Coast: Ph- (508) 688-3626  Fax- (508) 685-7230   *
      **********************************************************
```

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    SEP 10, 2010                *
*           Time=    10:36:49                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
 1. STAAD PLANE FRAME  SHERWOOD MIDDLE SCHOOL MFL2  18-26.75-27-24
 2. UNIT FT KIP
 3. JOINT COORD
 4. 1 0.0 0.0 0.0; 2 18.0 0.0 0.0; 3 44.75 0.0 0.0; 4 71.75 0.0 0.0
 5. 5 95.75 0.0 0.0
 6. REPEAT ALL 2 0.0 14.0 0.0
 7. MEMBER INCIDENCES
 8. 1 1 6; 2 6 11
 9. REPEAT ALL 4 2 1
10. 11 6 7; 12 7 8; 13 8 9; 14 9 10
11. REPEAT ALL 1 4 5
12. SUPPORTS
13. 1 5 PINNED
14. 2 3 4 FIXED
15. CONSTANTS
16. E STEEL
17. BETA 90 MEMBER 1 2
18. MEMBER RELEASE
19. 1 2     START MZ
20. 14 18   END MZ
21. MEMBER PROPERTIES
22. 1 2      TA ST W10X100
23. 3 TO 8   TA ST W10X100
24. 9 10     TA ST TUB60605
25. 11 TO 14 TA ST W21X68
26. 15 TO 18 TA ST W18X50
27. DRAW MEMBER JOINT SUPPORT
```

```
28. LOAD 1 DEAD LOAD
29. MEMBER LOAD
30. 11 12 13 14 CONC GY -20.6
31. 11 12 13 14 CONC GY -2.8 8.0
32. 11 12 13 14 CONC GY -2.8
33. 11 12 13 14 CONC GY -2.8 16.0
34. *ROOF LOADS
35. JOINT LOAD
36. 6 7 8 9 10 FY -20.6
37. 6 7 8 9 10 FY  -2.8
38. LOAD 2 LIVE LOAD PATTERN 1
39. MEMBER LOAD
40. 11 13 CONC GY -11.7
41. LOAD 3 LIVE LOAD PATTERN 2
42. MEMBER LOAD
43. 12 14 CONC GY -11.7
44. LOAD 4 SEISMIC
45. MEMBER LOAD
46. 15 16 17 18 UNIF GX 0.490
47. 11 12 13 14 UNIF GX 0.499
48. LOAD 12 UNIT LOAD
49. JOINT LOAD
50. 11 FX 1.0
51. LOAD COMB 5 DEAD LOAD + LIVE LOAD
52. 1 1.0 2 1.0 3 1.0
53. LOAD COMB 6 DEAD LOAD + LL PATTERN 1
54. 1 1.0 2 1.0
55. LOAD COMB 7 DEAD LOAD + LL PATTERN 2
56. 1 1.0 3 1.0
57. LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
58. 4 1.0 1 0.6
59. LOAD COMB 9  0.8 SEISMIC + 0.5 LL PAT 1
60. 4 0.8 2 0.5
61. LOAD COMB 10 0.8 SEISMIC + 0.5 LL PAT 2
62. 4 0.8 3 0.5
63. LOAD COMB 11 0.8 SEISMIC + 0.5 LL
64. 4 0.8 2 0.5 3 0.5
65. PERFORM ANALYSIS

       P R O B L E M   S T A T I S T I C S
       -----------------------------------

  NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    15/   18/    5
  ORIGINAL/FINAL BAND-WIDTH =    5/    3
  TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    32
  SIZE OF STIFFNESS MATRIX =     288 DOUBLE PREC. WORDS
  REQRD/AVAIL. DISK SPACE =  12.03/ 2047.7 MB,  EXMEM = 1942.9 MB

++ Processing Element Stiffness Matrix.              10:36:49
++ Processing Global Stiffness Matrix.               10:36:49
++ Processing Triangular Factorization.              10:36:49
++ Calculating Joint Displacements.                  10:36:49
++ Calculating Member  Forces.                       10:36:49

 66. LOAD LIST 12
```

67. PRINT DISP

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	12	.00000	.00000	.00000	.00000	.00000	-.00009
2	12	.00000	.00000	.00000	.00000	.00000	.00000
3	12	.00000	.00000	.00000	.00000	.00000	.00000
4	12	.00000	.00000	.00000	.00000	.00000	.00000
5	12	.00000	.00000	.00000	.00000	.00000	-.00006
6	12	.01038	.00007	.00000	.00000	.00000	-.00001
7	12	.01034	-.00002	.00000	.00000	.00000	-.00003
8	12	.01028	.00000	.00000	.00000	.00000	-.00003
9	12	.01025	-.00003	.00000	.00000	.00000	-.00004
10	12	.01025	-.00007	.00000	.00000	.00000	-.00007
11	12	.02291	.00009	.00000	.00000	.00000	-.00002
12	12	.02248	-.00003	.00000	.00000	.00000	-.00003
13	12	.02208	.00000	.00000	.00000	.00000	-.00003
14	12	.02189	-.00004	.00000	.00000	.00000	-.00003
15	12	.02189	-.00009	.00000	.00000	.00000	-.00007

********** END OF LATEST ANALYSIS RESULT **********

68. LOAD LIST 1 TO 11
69. PRINT REACTION

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.41	32.66	.00	.00	.00	.00
	2	.29	5.24	.00	.00	.00	.00
	3	-.10	-1.15	.00	.00	.00	.00
	4	-3.10	-19.75	.00	.00	.00	.00
	5	.60	36.75	.00	.00	.00	.00
	6	.70	37.90	.00	.00	.00	.00
	7	.31	31.52	.00	.00	.00	.00
	8	-2.86	-.15	.00	.00	.00	.00
	9	-2.34	-13.18	.00	.00	.00	.00
	10	-2.53	-16.37	.00	.00	.00	.00
	11	-2.39	-13.75	.00	.00	.00	.00
5	1	.00	32.99	.00	.00	.00	.00
	2	.00	-.45	.00	.00	.00	.00
	3	.00	4.31	.00	.00	.00	.00
	4	-.09	5.43	.00	.00	.00	.00
	5	.00	36.84	.00	.00	.00	.00
	6	.00	32.53	.00	.00	.00	.00
	7	.00	37.30	.00	.00	.00	.00
	8	-.09	25.22	.00	.00	.00	.00
	9	-.07	4.11	.00	.00	.00	.00
	10	-.07	6.50	.00	.00	.00	.00
	11	-.07	6.27	.00	.00	.00	.00
2	1	-.20	57.44	.00	.00	.00	2.65
	2	-.76	6.38	.00	.00	.00	2.77
	3	.66	6.88	.00	.00	.00	-1.70
	4	-31.11	5.60	.00	.00	.00	237.19
	5	-.30	70.71	.00	.00	.00	3.73
	6	-.96	63.83	.00	.00	.00	5.43
	7	.46	64.33	.00	.00	.00	.95
	8	-31.23	40.07	.00	.00	.00	238.78
	9	-25.27	7.67	.00	.00	.00	191.14
	10	-24.56	7.92	.00	.00	.00	188.90
	11	-24.94	11.12	.00	.00	.00	190.29
3	1	-.58	52.14	.00	.00	.00	4.36
	2	1.45	5.99	.00	.00	.00	-7.14
	3	-1.68	5.59	.00	.00	.00	8.84
	4	-31.01	-1.24	.00	.00	.00	236.58
	5	-.82	63.73	.00	.00	.00	6.07
	6	.86	58.13	.00	.00	.00	-2.78
	7	-2.26	57.74	.00	.00	.00	13.20
	8	-31.36	30.04	.00	.00	.00	239.19
	9	-24.09	2.00	.00	.00	.00	185.69
	10	-25.65	1.80	.00	.00	.00	193.68
	11	-24.93	4.80	.00	.00	.00	190.11
4	1	.37	57.76	.00	.00	.00	.06
	2	-.98	6.24	.00	.00	.00	3.75
	3	1.12	7.76	.00	.00	.00	-3.77
	4	-29.38	9.96	.00	.00	.00	229.28

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	5	.52	71.76	.00	.00	.00	.05
	6	-.60	64.00	.00	.00	.00	3.82
	7	1.50	65.52	.00	.00	.00	-3.71
	8	-29.16	44.62	.00	.00	.00	229.32
	9	-23.99	11.09	.00	.00	.00	185.30
	10	-22.94	11.85	.00	.00	.00	181.54
	11	-23.43	14.97	.00	.00	.00	183.42

********** END OF LATEST ANALYSIS RESULT **********

70. PRINT FORCES

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	32.66	.00	.41	.00	.00	.00
		6	-32.66	.00	-.41	.00	-5.74	.00
	2	1	5.24	.00	.29	.00	.00	.00
		6	-5.24	.00	-.29	.00	-4.03	.00
	3	1	-1.15	.00	-.10	.00	.00	.00
		6	1.15	.00	.10	.00	1.44	.00
	4	1	-19.75	.00	-3.10	.00	.00	.00
		6	19.75	.00	3.10	.00	43.42	.00
	5	1	36.75	.00	.60	.00	.00	.00
		6	-36.75	.00	-.60	.00	-8.33	.00
	6	1	37.90	.00	.70	.00	.00	.00
		6	-37.90	.00	-.70	.00	-9.77	.00
	7	1	31.52	.00	.31	.00	.00	.00
		6	-31.52	.00	-.31	.00	-4.31	.00
	8	1	-.15	.00	-2.86	.00	.00	.00
		6	.15	.00	2.86	.00	39.97	.00
	9	1	-13.18	.00	-2.34	.00	.00	.00
		6	13.18	.00	2.34	.00	32.72	.00
	10	1	-16.37	.00	-2.53	.00	.00	.00
		6	16.37	.00	2.53	.00	35.45	.00
	11	1	-13.75	.00	-2.39	.00	.00	.00
		6	13.75	.00	2.39	.00	33.44	.00

2	1	6	.08	.00	.55	.00	-6.21	.00
		11	-.08	.00	-.55	.00	-1.56	.00
	2	6	.05	.00	.47	.00	-4.75	.00
		11	-.05	.00	-.47	.00	-1.78	.00
	3	6	-.01	.00	-.21	.00	1.90	.00
		11	.01	.00	.21	.00	1.00	.00
	4	6	-6.07	.00	-7.44	.00	53.08	.00
		11	6.07	.00	7.44	.00	51.01	.00
	5	6	.12	.00	.81	.00	-9.06	.00
		11	-.12	.00	-.81	.00	-2.33	.00
	6	6	.13	.00	1.02	.00	-10.95	.00
		11	-.13	.00	-1.02	.00	-3.34	.00
	7	6	.07	.00	.35	.00	-4.31	.00
		11	-.07	.00	-.35	.00	-.55	.00
	8	6	-6.03	.00	-7.10	.00	49.36	.00
		11	6.03	.00	7.10	.00	50.08	.00
	9	6	-4.83	.00	-5.72	.00	40.09	.00
		11	4.83	.00	5.72	.00	39.92	.00
	10	6	-4.86	.00	-6.05	.00	43.41	.00
		11	4.86	.00	6.05	.00	41.31	.00
	11	6	-4.84	.00	-5.82	.00	41.04	.00
		11	4.84	.00	5.82	.00	40.42	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
3	1	2	57.44	.20	.00	.00	.00	2.65
		7	-57.44	-.20	.00	.00	.00	.20
	2	2	6.38	.76	.00	.00	.00	2.77
		7	-6.38	-.76	.00	.00	.00	7.86
	3	2	6.88	-.66	.00	.00	.00	-1.70
		7	-6.88	.66	.00	.00	.00	-7.57
	4	2	5.60	31.11	.00	.00	.00	237.19
		7	-5.60	-31.11	.00	.00	.00	198.34
	5	2	70.71	.30	.00	.00	.00	3.73
		7	-70.71	-.30	.00	.00	.00	.48
	6	2	63.83	.96	.00	.00	.00	5.43
		7	-63.83	-.96	.00	.00	.00	8.06
	7	2	64.33	-.46	.00	.00	.00	.95
		7	-64.33	.46	.00	.00	.00	-7.37
	8	2	40.07	31.23	.00	.00	.00	238.78
		7	-40.07	-31.23	.00	.00	.00	198.46
	9	2	7.67	25.27	.00	.00	.00	191.14
		7	-7.67	-25.27	.00	.00	.00	162.60
	10	2	7.92	24.56	.00	.00	.00	188.90
		7	-7.92	-24.56	.00	.00	.00	154.88
	11	2	11.12	24.94	.00	.00	.00	190.29
		7	-11.12	-24.94	.00	.00	.00	158.81

4	1	7	-.24	.23	.00	.00	.00	.89
		12	.24	-.23	.00	.00	.00	2.32
	2	7	-.01	.64	.00	.00	.00	7.60
		12	.01	-.64	.00	.00	.00	1.33
	3	7	-.10	-.53	.00	.00	.00	-7.04
		12	.10	.53	.00	.00	.00	-.41
	4	7	2.40	14.13	.00	.00	.00	91.32
		12	-2.40	-14.13	.00	.00	.00	106.53
	5	7	-.35	.33	.00	.00	.00	1.45
		12	.35	-.33	.00	.00	.00	3.24
	6	7	-.25	.87	.00	.00	.00	8.49
		12	.25	-.87	.00	.00	.00	3.65
	7	7	-.34	-.30	.00	.00	.00	-6.15
		12	.34	.30	.00	.00	.00	1.92
	8	7	2.26	14.27	.00	.00	.00	91.85
		12	-2.26	-14.27	.00	.00	.00	107.93
	9	7	1.92	11.62	.00	.00	.00	76.85
		12	-1.92	-11.62	.00	.00	.00	85.89
	10	7	1.87	11.04	.00	.00	.00	69.53
		12	-1.87	-11.04	.00	.00	.00	85.02
	11	7	1.87	11.36	.00	.00	.00	73.33
		12	-1.87	-11.36	.00	.00	.00	85.68
5	1	3	52.14	.58	.00	.00	.00	4.36
		8	-52.14	-.58	.00	.00	.00	3.79

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	3	5.99	-1.45	.00	.00	.00	-7.14
		8	-5.99	1.45	.00	.00	.00	-13.11
	3	3	5.59	1.68	.00	.00	.00	8.84
		8	-5.59	-1.68	.00	.00	.00	14.71
	4	3	-1.24	31.01	.00	.00	.00	236.58
		8	1.24	-31.01	.00	.00	.00	197.60
	5	3	63.73	.82	.00	.00	.00	6.07
		8	-63.73	-.82	.00	.00	.00	5.39
	6	3	58.13	-.86	.00	.00	.00	-2.78
		8	-58.13	.86	.00	.00	.00	-9.32
	7	3	57.74	2.26	.00	.00	.00	13.20
		8	-57.74	-2.26	.00	.00	.00	18.49
	8	3	30.04	31.36	.00	.00	.00	239.19
		8	-30.04	-31.36	.00	.00	.00	199.87
	9	3	2.00	24.09	.00	.00	.00	185.69
		8	-2.00	-24.09	.00	.00	.00	151.53
	10	3	1.80	25.65	.00	.00	.00	193.68
		8	-1.80	-25.65	.00	.00	.00	165.43
	11	3	4.80	24.93	.00	.00	.00	190.11
		8	-4.80	-24.93	.00	.00	.00	158.88

6	1	8	.06	.58	.00	.00	.00	4.31
		13	-.06	-.58	.00	.00	.00	3.80
	2	8	.00	-.99	.00	.00	.00	-10.77
		13	.00	.99	.00	.00	.00	-3.04
	3	8	.04	1.22	.00	.00	.00	12.57
		13	-.04	-1.22	.00	.00	.00	4.50
	4	8	-.38	13.85	.00	.00	.00	90.59
		13	.38	-13.85	.00	.00	.00	103.29
	5	8	.09	.81	.00	.00	.00	6.11
		13	-.09	-.81	.00	.00	.00	5.27
	6	8	.05	-.41	.00	.00	.00	-6.45
		13	-.05	.41	.00	.00	.00	.76
	7	8	.09	1.80	.00	.00	.00	16.88
		13	-.09	-1.80	.00	.00	.00	8.31
	8	8	-.34	14.20	.00	.00	.00	93.18
		13	.34	-14.20	.00	.00	.00	105.58
	9	8	-.31	10.59	.00	.00	.00	67.09
		13	.31	-10.59	.00	.00	.00	81.12
	10	8	-.29	11.69	.00	.00	.00	78.76
		13	.29	-11.69	.00	.00	.00	84.89
	11	8	-.29	11.20	.00	.00	.00	73.38
		13	.29	-11.20	.00	.00	.00	83.37
7	1	4	57.76	-.37	.00	.00	.00	.06
		9	-57.76	.37	.00	.00	.00	-5.30
	2	4	6.24	.98	.00	.00	.00	3.75
		9	-6.24	-.98	.00	.00	.00	9.90

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	4	7.76	-1.12	.00	.00	.00	-3.77
		9	-7.76	1.12	.00	.00	.00	-11.94
	4	4	9.96	29.38	.00	.00	.00	229.28
		9	-9.96	-29.38	.00	.00	.00	182.08
	5	4	71.76	-.52	.00	.00	.00	.05
		9	-71.76	.52	.00	.00	.00	-7.34
	6	4	64.00	.60	.00	.00	.00	3.82
		9	-64.00	-.60	.00	.00	.00	4.60
	7	4	65.52	-1.50	.00	.00	.00	-3.71
		9	-65.52	1.50	.00	.00	.00	-17.24
	8	4	44.62	29.16	.00	.00	.00	229.32
		9	-44.62	-29.16	.00	.00	.00	178.90
	9	4	11.09	23.99	.00	.00	.00	185.30
		9	-11.09	-23.99	.00	.00	.00	150.61
	10	4	11.85	22.94	.00	.00	.00	181.54
		9	-11.85	-22.94	.00	.00	.00	139.69
	11	4	14.97	23.43	.00	.00	.00	183.42
		9	-14.97	-23.43	.00	.00	.00	144.64

8	1	9	.13	-.26	.00	.00	.00	-4.23
		14	-.13	.26	.00	.00	.00	.64
	2	9	-.10	.81	.00	.00	.00	9.39
		14	.10	-.81	.00	.00	.00	2.00
	3	9	.13	-.89	.00	.00	.00	-10.92
		14	-.13	.89	.00	.00	.00	-1.59
	4	9	2.65	11.59	.00	.00	.00	72.72
		14	-2.65	-11.59	.00	.00	.00	89.58
	5	9	.16	-.34	.00	.00	.00	-5.76
		14	-.16	.34	.00	.00	.00	1.05
	6	9	.03	.56	.00	.00	.00	5.17
		14	-.03	-.56	.00	.00	.00	2.64
	7	9	.26	-1.15	.00	.00	.00	-15.15
		14	-.26	1.15	.00	.00	.00	-.96
	8	9	2.73	11.44	.00	.00	.00	70.18
		14	-2.73	-11.44	.00	.00	.00	89.96
	9	9	2.07	9.68	.00	.00	.00	62.87
		14	-2.07	-9.68	.00	.00	.00	72.67
	10	9	2.19	8.83	.00	.00	.00	52.71
		14	-2.19	-8.83	.00	.00	.00	70.87
	11	9	2.14	9.23	.00	.00	.00	57.41
		14	-2.14	-9.23	.00	.00	.00	71.87
9	1	5	32.99	.00	.00	.00	.00	.00
		10	-32.99	.00	.00	.00	.00	-.02
	2	5	-.45	.00	.00	.00	.00	.00
		10	.45	.00	.00	.00	.00	-.01
	3	5	4.31	.00	.00	.00	.00	.00
		10	-4.31	.00	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	4	5	5.43	.09	.00	.00	.00	.00
		10	-5.43	-.09	.00	.00	.00	1.28
	5	5	36.84	.00	.00	.00	.00	.00
		10	-36.84	.00	.00	.00	.00	-.03
	6	5	32.53	.00	.00	.00	.00	.00
		10	-32.53	.00	.00	.00	.00	-.03
	7	5	37.30	.00	.00	.00	.00	.00
		10	-37.30	.00	.00	.00	.00	-.02
	8	5	25.22	.09	.00	.00	.00	.00
		10	-25.22	-.09	.00	.00	.00	1.27
	9	5	4.11	.07	.00	.00	.00	.00
		10	-4.11	-.07	.00	.00	.00	1.02
	10	5	6.50	.07	.00	.00	.00	.00
		10	-6.50	-.07	.00	.00	.00	1.03
	11	5	6.27	.07	.00	.00	.00	.00
		10	-6.27	-.07	.00	.00	.00	1.02

10	1	10	-.02	.00	.00	.00	.00	.02
		15	.02	.00	.00	.00	.00	.00
	2	10	.06	.00	.00	.00	.00	.01
		15	-.06	.00	.00	.00	.00	.00
	3	10	-.06	.00	.00	.00	.00	.00
		15	.06	.00	.00	.00	.00	.00
	4	10	1.40	-.09	.00	.00	.00	-1.28
		15	-1.40	.09	.00	.00	.00	.00
	5	10	-.02	.00	.00	.00	.00	.03
		15	.02	.00	.00	.00	.00	.00
	6	10	.04	.00	.00	.00	.00	.03
		15	-.04	.00	.00	.00	.00	.00
	7	10	-.08	.00	.00	.00	.00	.02
		15	.08	.00	.00	.00	.00	.00
	8	10	1.38	-.09	.00	.00	.00	-1.27
		15	-1.38	.09	.00	.00	.00	.00
	9	10	1.15	-.07	.00	.00	.00	-1.02
		15	-1.15	.07	.00	.00	.00	.00
	10	10	1.09	-.07	.00	.00	.00	-1.03
		15	-1.09	.07	.00	.00	.00	.00
	11	10	1.12	-.07	.00	.00	.00	-1.02
		15	-1.12	.07	.00	.00	.00	.00
11	1	6	-.14	9.19	.00	.00	.00	11.95
		7	.14	19.81	.00	.00	.00	-90.76
	2	6	-.18	5.19	.00	.00	.00	8.77
		7	.18	6.51	.00	.00	.00	-20.71
	3	6	.10	-1.14	.00	.00	.00	-3.33
		7	-.10	1.14	.00	.00	.00	-17.15
	4	6	4.33	-13.67	.00	.00	.00	-96.50
		7	-13.32	13.67	.00	.00	.00	-149.62

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	6	-.22	13.24	.00	.00	.00	17.39
		7	.22	27.46	.00	.00	.00	-128.62
	6	6	-.32	14.37	.00	.00	.00	20.72
		7	.32	26.33	.00	.00	.00	-111.48
	7	6	-.04	8.05	.00	.00	.00	8.62
		7	.04	20.95	.00	.00	.00	-107.91
	8	6	4.25	-8.16	.00	.00	.00	-89.33
		7	-13.23	25.56	.00	.00	.00	-204.08
	9	6	3.38	-8.35	.00	.00	.00	-72.81
		7	-10.56	14.20	.00	.00	.00	-130.05
	10	6	3.52	-11.51	.00	.00	.00	-78.86
		7	-10.71	11.51	.00	.00	.00	-128.27
	11	6	3.43	-8.91	.00	.00	.00	-74.48
		7	-10.62	14.76	.00	.00	.00	-138.63

12	1	7	-.12	14.47	.00	.00	.00	89.67
		8	.12	14.53	.00	.00	.00	-98.19
	2	7	-.30	-.12	.00	.00	.00	5.26
		8	.30	.12	.00	.00	.00	-8.48
	3	7	.23	5.85	.00	.00	.00	31.76
		8	-.23	5.85	.00	.00	.00	-31.89
	4	7	-3.66	-10.48	.00	.00	.00	-140.03
		8	-9.69	10.48	.00	.00	.00	-140.18
	5	7	-.18	20.19	.00	.00	.00	126.69
		8	.18	20.51	.00	.00	.00	-138.56
	6	7	-.42	14.35	.00	.00	.00	94.93
		8	.42	14.65	.00	.00	.00	-106.67
	7	7	.12	20.31	.00	.00	.00	121.43
		8	-.12	20.39	.00	.00	.00	-130.08
	8	7	-3.73	-1.79	.00	.00	.00	-86.23
		8	-9.62	19.19	.00	.00	.00	-199.10
	9	7	-3.08	-8.44	.00	.00	.00	-109.39
		8	-7.60	8.44	.00	.00	.00	-116.39
	10	7	-2.81	-5.46	.00	.00	.00	-96.14
		8	-7.87	11.31	.00	.00	.00	-128.09
	11	7	-2.96	-5.52	.00	.00	.00	-93.51
		8	-7.72	11.37	.00	.00	.00	-132.33
13	1	8	-.12	14.16	.00	.00	.00	90.09
		9	.12	14.84	.00	.00	.00	-107.77
	2	8	.16	5.87	.00	.00	.00	32.35
		9	-.16	5.83	.00	.00	.00	-31.71
	3	8	-.23	-.30	.00	.00	.00	4.62
		9	.23	.30	.00	.00	.00	-12.66
	4	8	-7.48	-11.34	.00	.00	.00	-148.01
		9	-6.00	11.34	.00	.00	.00	-158.15
	5	8	-.19	19.73	.00	.00	.00	127.06
		9	.19	20.97	.00	.00	.00	-152.14

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	6	8	.04	20.03	.00	.00	.00	122.44
		9	-.04	20.67	.00	.00	.00	-139.48
	7	8	-.35	13.86	.00	.00	.00	94.71
		9	.35	15.14	.00	.00	.00	-120.44
	8	8	-7.55	-2.85	.00	.00	.00	-93.96
		9	-5.92	20.25	.00	.00	.00	-222.81
	9	8	-5.90	-6.13	.00	.00	.00	-102.23
		9	-4.88	11.98	.00	.00	.00	-142.37
	10	8	-6.09	-9.22	.00	.00	.00	-116.10
		9	-4.68	9.22	.00	.00	.00	-132.85
	11	8	-6.01	-6.28	.00	.00	.00	-99.92
		9	-4.76	12.13	.00	.00	.00	-148.70

14	1	9	.00	19.39	.00	.00	.00	117.30
		10	.00	9.61	.00	.00	.00	.00
	2	9	.00	.52	.00	.00	.00	12.41
		10	.00	-.52	.00	.00	.00	.00
	3	9	.00	7.33	.00	.00	.00	35.53
		10	.00	4.37	.00	.00	.00	.00
	4	9	-11.79	-4.03	.00	.00	.00	-96.64
		10	-.18	4.03	.00	.00	.00	.00
	5	9	.00	27.23	.00	.00	.00	165.24
		10	.00	13.47	.00	.00	.00	.00
	6	9	.00	19.90	.00	.00	.00	129.71
		10	.00	9.10	.00	.00	.00	.00
	7	9	.00	26.72	.00	.00	.00	152.83
		10	.00	13.98	.00	.00	.00	.00
	8	9	-11.79	7.61	.00	.00	.00	-26.26
		10	-.18	9.79	.00	.00	.00	.00
	9	9	-9.43	-2.96	.00	.00	.00	-71.11
		10	-.15	2.96	.00	.00	.00	.00
	10	9	-9.43	.44	.00	.00	.00	-59.55
		10	-.15	5.41	.00	.00	.00	.00
	11	9	-9.43	.70	.00	.00	.00	-53.35
		10	-.15	5.15	.00	.00	.00	.00
15	1	11	.55	.08	.00	.00	.00	1.56
		12	-.55	-.08	.00	.00	.00	-.17
	2	11	.47	.05	.00	.00	.00	1.78
		12	-.47	-.05	.00	.00	.00	-.88
	3	11	-.21	-.01	.00	.00	.00	-1.00
		12	.21	.01	.00	.00	.00	.84
	4	11	-7.44	-6.07	.00	.00	.00	-51.01
		12	-1.38	6.07	.00	.00	.00	-58.33
	5	11	.81	.12	.00	.00	.00	2.33
		12	-.81	-.12	.00	.00	.00	-.22
	6	11	1.02	.13	.00	.00	.00	3.34
		12	-1.02	-.13	.00	.00	.00	-1.06

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	7	11	.35	.07	.00	.00	.00	.55
		12	-.35	-.07	.00	.00	.00	.67
	8	11	-7.10	-6.03	.00	.00	.00	-50.08
		12	-1.72	6.03	.00	.00	.00	-58.43
	9	11	-5.72	-4.83	.00	.00	.00	-39.92
		12	-1.34	4.83	.00	.00	.00	-47.10
	10	11	-6.05	-4.86	.00	.00	.00	-41.31
		12	-1.00	4.86	.00	.00	.00	-46.24
	11	11	-5.82	-4.84	.00	.00	.00	-40.42
		12	-1.24	4.84	.00	.00	.00	-46.68

16	1	12	.32	-.16	.00	.00	.00	-2.15
		13	-.32	.16	.00	.00	.00	-2.19
	2	12	-.17	.04	.00	.00	.00	-.44
		13	.17	-.04	.00	.00	.00	1.54
	3	12	.33	-.11	.00	.00	.00	-.43
		13	-.33	.11	.00	.00	.00	-2.43
	4	12	-12.75	-3.67	.00	.00	.00	-48.21
		13	-.36	3.67	.00	.00	.00	-49.98
	5	12	.48	-.23	.00	.00	.00	-3.03
		13	-.48	.23	.00	.00	.00	-3.08
	6	12	.15	-.12	.00	.00	.00	-2.59
		13	-.15	.12	.00	.00	.00	-.65
	7	12	.65	-.27	.00	.00	.00	-2.58
		13	-.65	.27	.00	.00	.00	-4.62
	8	12	-12.55	-3.77	.00	.00	.00	-49.50
		13	-.55	3.77	.00	.00	.00	-51.30
	9	12	-10.28	-2.92	.00	.00	.00	-38.79
		13	-.20	2.92	.00	.00	.00	-39.21
	10	12	-10.04	-2.99	.00	.00	.00	-38.78
		13	-.45	2.99	.00	.00	.00	-41.20
	11	12	-10.12	-2.97	.00	.00	.00	-39.00
		13	-.36	2.97	.00	.00	.00	-40.43
17	1	13	-.25	-.10	.00	.00	.00	-1.61
		14	.25	.10	.00	.00	.00	-1.22
	2	13	.81	.04	.00	.00	.00	1.50
		14	-.81	-.04	.00	.00	.00	-.50
	3	13	-.89	-.07	.00	.00	.00	-2.08
		14	.89	.07	.00	.00	.00	.16
	4	13	-13.49	-4.05	.00	.00	.00	-53.31
		14	.26	4.05	.00	.00	.00	-56.02
	5	13	-.33	-.14	.00	.00	.00	-2.19
		14	.33	.14	.00	.00	.00	-1.57
	6	13	.56	-.07	.00	.00	.00	-.11
		14	-.56	.07	.00	.00	.00	-1.72
	7	13	-1.15	-.18	.00	.00	.00	-3.69
		14	1.15	.18	.00	.00	.00	-1.06

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	13	-13.64	-4.11	.00	.00	.00	-54.28
		14	.41	4.11	.00	.00	.00	-56.76
	9	13	-10.38	-3.22	.00	.00	.00	-41.90
		14	-.20	3.22	.00	.00	.00	-45.07
	10	13	-11.24	-3.28	.00	.00	.00	-43.69
		14	.65	3.28	.00	.00	.00	-44.74
	11	13	-10.83	-3.26	.00	.00	.00	-42.94
		14	.25	3.26	.00	.00	.00	-44.99

18	1	14	.00	.02	.00	.00	.00	.58
		15	.00	-.02	.00	.00	.00	.00
	2	14	.00	-.06	.00	.00	.00	-1.50
		15	.00	.06	.00	.00	.00	.00
	3	14	.00	.06	.00	.00	.00	1.43
		15	.00	-.06	.00	.00	.00	.00
	4	14	-11.85	-1.40	.00	.00	.00	-33.56
		15	.09	1.40	.00	.00	.00	.00
	5	14	.00	.02	.00	.00	.00	.52
		15	.00	-.02	.00	.00	.00	.00
	6	14	.00	-.04	.00	.00	.00	-.91
		15	.00	.04	.00	.00	.00	.00
	7	14	.00	.08	.00	.00	.00	2.02
		15	.00	-.08	.00	.00	.00	.00
	8	14	-11.85	-1.38	.00	.00	.00	-33.21
		15	.09	1.38	.00	.00	.00	.00
	9	14	-9.48	-1.15	.00	.00	.00	-27.60
		15	.07	1.15	.00	.00	.00	.00
	10	14	-9.48	-1.09	.00	.00	.00	-26.13
		15	.07	1.09	.00	.00	.00	.00
	11	14	-9.48	-1.12	.00	.00	.00	-26.88
		15	.07	1.12	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

71. PRINT DISP

FRAME SHERWOOD MIDDLE SCHOOL MFL2 18-26.75-27-24 -- PAGE NO. 17

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	1	.00000	.00000	.00000	.00000	.00000	.00022
	2	.00000	.00000	.00000	.00000	.00000	.00026
	3	.00000	.00000	.00000	.00000	.00000	-.00015
	4	.00000	.00000	.00000	.00000	.00000	-.00785
	5	.00000	.00000	.00000	.00000	.00000	.00033
	6	.00000	.00000	.00000	.00000	.00000	.00048
	7	.00000	.00000	.00000	.00000	.00000	.00007
	8	.00000	.00000	.00000	.00000	.00000	-.00772
	9	.00000	.00000	.00000	.00000	.00000	-.00615
	10	.00000	.00000	.00000	.00000	.00000	-.00636
	11	.00000	.00000	.00000	.00000	.00000	-.00623
2	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000

	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
3	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
4	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
5	1	.00000	.00000	.00000	.00000	.00000	-.00009
	2	.00000	.00000	.00000	.00000	.00000	.00004
	3	.00000	.00000	.00000	.00000	.00000	-.00007
	4	.00000	.00000	.00000	.00000	.00000	-.00584

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	5	.00000	.00000	.00000	.00000	.00000	-.00012
	6	.00000	.00000	.00000	.00000	.00000	-.00005
	7	.00000	.00000	.00000	.00000	.00000	-.00016
	8	.00000	.00000	.00000	.00000	.00000	-.00589
	9	.00000	.00000	.00000	.00000	.00000	-.00465
	10	.00000	.00000	.00000	.00000	.00000	-.00470
	11	.00000	.00000	.00000	.00000	.00000	-.00469
6	1	.01620	-.00644	.00000	.00000	.00000	-.00074
	2	-.00611	-.00103	.00000	.00000	.00000	-.00042
	3	.01205	.00023	.00000	.00000	.00000	.00009
	4	.91348	.00389	.00000	.00000	.00000	-.00056
	5	.02215	-.00724	.00000	.00000	.00000	-.00107
	6	.01009	-.00747	.00000	.00000	.00000	-.00116
	7	.02826	-.00621	.00000	.00000	.00000	-.00065
	8	.92320	.00003	.00000	.00000	.00000	-.00101
	9	.72773	.00260	.00000	.00000	.00000	-.00066
	10	.73681	.00323	.00000	.00000	.00000	-.00041
	11	.73376	.00271	.00000	.00000	.00000	-.00061

7	1	.01625	-.01132	.00000	.00000	.00000	-.00014
	2	-.00604	-.00126	.00000	.00000	.00000	.00028
	3	.01202	-.00136	.00000	.00000	.00000	-.00033
	4	.91020	-.00110	.00000	.00000	.00000	-.00217
	5	.02223	-.01393	.00000	.00000	.00000	-.00018
	6	.01021	-.01258	.00000	.00000	.00000	.00015
	7	.02827	-.01268	.00000	.00000	.00000	-.00046
	8	.91995	-.00789	.00000	.00000	.00000	-.00225
	9	.72514	-.00151	.00000	.00000	.00000	-.00159
	10	.73416	-.00156	.00000	.00000	.00000	-.00190
	11	.73114	-.00219	.00000	.00000	.00000	-.00176
8	1	.01632	-.01027	.00000	.00000	.00000	-.00003
	2	-.00588	-.00118	.00000	.00000	.00000	-.00033
	3	.01189	-.00110	.00000	.00000	.00000	.00033
	4	.90853	.00024	.00000	.00000	.00000	-.00217
	5	.02233	-.01256	.00000	.00000	.00000	-.00004
	6	.01044	-.01146	.00000	.00000	.00000	-.00037
	7	.02821	-.01138	.00000	.00000	.00000	.00030
	8	.91832	-.00592	.00000	.00000	.00000	-.00219
	9	.72388	-.00039	.00000	.00000	.00000	-.00191
	10	.73277	-.00036	.00000	.00000	.00000	-.00158
	11	.72983	-.00095	.00000	.00000	.00000	-.00174
9	1	.01639	-.01138	.00000	.00000	.00000	-.00030
	2	-.00597	-.00123	.00000	.00000	.00000	.00034
	3	.01201	-.00153	.00000	.00000	.00000	-.00046
	4	.90894	-.00196	.00000	.00000	.00000	-.00263
	5	.02244	-.01414	.00000	.00000	.00000	-.00041
	6	.01042	-.01261	.00000	.00000	.00000	.00004
	7	.02840	-.01291	.00000	.00000	.00000	-.00075
	8	.91877	-.00879	.00000	.00000	.00000	-.00281

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	9	.72417	-.00219	.00000	.00000	.00000	-.00194
	10	.73316	-.00234	.00000	.00000	.00000	-.00233
	11	.73018	-.00295	.00000	.00000	.00000	-.00216
10	1	.01639	-.02786	.00000	.00000	.00000	-.00011
	2	-.00596	.00038	.00000	.00000	.00000	.00003
	3	.01201	-.00364	.00000	.00000	.00000	-.00007
	4	.91182	-.00458	.00000	.00000	.00000	-.00461
	5	.02244	-.03111	.00000	.00000	.00000	-.00015
	6	.01042	-.02747	.00000	.00000	.00000	-.00008
	7	.02840	-.03150	.00000	.00000	.00000	-.00018
	8	.92166	-.02130	.00000	.00000	.00000	-.00467
	9	.72648	-.00347	.00000	.00000	.00000	-.00367
	10	.73547	-.00548	.00000	.00000	.00000	-.00372
	11	.73248	-.00529	.00000	.00000	.00000	-.00371
11	1	.03819	-.00645	.00000	.00000	.00000	.00004
	2	-.00912	-.00104	.00000	.00000	.00000	.00008
	3	.02339	.00023	.00000	.00000	.00000	-.00006

	4	1.53227	.00509	.00000	.00000	.00000	-.00091
	5	.05246	-.00727	.00000	.00000	.00000	.00006
	6	.02907	-.00749	.00000	.00000	.00000	.00012
	7	.06158	-.00622	.00000	.00000	.00000	-.00002
	8	1.55519	.00122	.00000	.00000	.00000	-.00089
	9	1.22126	.00355	.00000	.00000	.00000	-.00069
	10	1.23751	.00418	.00000	.00000	.00000	-.00076
	11	1.23295	.00366	.00000	.00000	.00000	-.00072
12	1	.03791	-.01127	.00000	.00000	.00000	-.00006
	2	-.00936	-.00126	.00000	.00000	.00000	-.00007
	3	.02349	-.00134	.00000	.00000	.00000	.00004
	4	1.53381	-.00158	.00000	.00000	.00000	-.00132
	5	.05204	-.01387	.00000	.00000	.00000	-.00008
	6	.02855	-.01253	.00000	.00000	.00000	-.00012
	7	.06140	-.01261	.00000	.00000	.00000	-.00001
	8	1.55655	-.00834	.00000	.00000	.00000	-.00135
	9	1.22237	-.00189	.00000	.00000	.00000	-.00109
	10	1.23879	-.00193	.00000	.00000	.00000	-.00103
	11	1.23411	-.00256	.00000	.00000	.00000	-.00107
13	1	.03766	-.01029	.00000	.00000	.00000	-.00006
	2	-.00923	-.00118	.00000	.00000	.00000	.00010
	3	.02325	-.00111	.00000	.00000	.00000	-.00012
	4	1.53847	.00032	.00000	.00000	.00000	-.00147
	5	.05168	-.01257	.00000	.00000	.00000	-.00009
	6	.02844	-.01147	.00000	.00000	.00000	.00004
	7	.06091	-.01140	.00000	.00000	.00000	-.00018
	8	1.56107	-.00585	.00000	.00000	.00000	-.00150
	9	1.22616	-.00033	.00000	.00000	.00000	-.00112
	10	1.24240	-.00030	.00000	.00000	.00000	-.00123
	11	1.23779	-.00089	.00000	.00000	.00000	-.00118
14	1	.03786	-.01141	.00000	.00000	.00000	-.00003

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	2	-.00985	-.00121	.00000	.00000	.00000	-.00007
	3	.02393	-.00155	.00000	.00000	.00000	.00006
	4	1.54369	-.00249	.00000	.00000	.00000	-.00169
	5	.05194	-.01417	.00000	.00000	.00000	-.00003
	6	.02801	-.01262	.00000	.00000	.00000	-.00010
	7	.06178	-.01296	.00000	.00000	.00000	.00004
	8	1.56641	-.00933	.00000	.00000	.00000	-.00171
	9	1.23003	-.00259	.00000	.00000	.00000	-.00139
	10	1.24692	-.00277	.00000	.00000	.00000	-.00132
	11	1.24200	-.00337	.00000	.00000	.00000	-.00136
15	1	.03786	-.02784	.00000	.00000	.00000	-.00014
	2	-.00985	.00033	.00000	.00000	.00000	.00002
	3	.02393	-.00359	.00000	.00000	.00000	-.00007
	4	1.54773	-.00576	.00000	.00000	.00000	-.00338
	5	.05194	-.03110	.00000	.00000	.00000	-.00019
	6	.02801	-.02751	.00000	.00000	.00000	-.00012

7	.06178	-.03143	.00000	.00000	.00000	-.00021
8	1.57044	-.02246	.00000	.00000	.00000	-.00346
9	1.23326	-.00444	.00000	.00000	.00000	-.00269
10	1.25015	-.00640	.00000	.00000	.00000	-.00274
11	1.24522	-.00624	.00000	.00000	.00000	-.00273

********** END OF LATEST ANALYSIS RESULT **********

```
 72. PLOT SECT DISP
 73. PARAMETER
 74. CODE AISC
 75. UNIT INCH
 76. FYLD 46.0 1 2 9 10
 77. FYLD 50.0 3 TO 8 11 TO 18
 78. UNIT FEET
 79. TRACK 0.0
 80. BEAM 1.0 MEMBER 11 TO 18
 81. UNL 1.0 MEMBER 11 TO 18
 82. LY  1.0 MEMBER 11 TO 18
 83. KY 1.0 MEMBER 1 TO 10
 84. KZ 1.4 MEMBER 3 TO 8
 85. CHECK CODES
```

STAAD-III CODE CHECKING - (AISC)
****

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST W10 X100	PASS	AISC- H2-1	.401	4
		19.75 T	43.42	.00	14.00
2	ST W10 X100	PASS	AISC- H2-1	.469	4
		6.07 T	53.08	.00	.00
3	ST W10 X100	PASS	AISC- H1-3	.912	8
		40.07 C	.00	238.78	.00
4	ST W10 X100	PASS	AISC- H1-3	.388	8
		2.26 C	.00	107.93	14.00
5	ST W10 X100	PASS	AISC- H1-3	.898	8
		30.04 C	.00	239.19	.00
6	ST W10 X100	PASS	AISC- H2-1	.377	8
		.34 T	.00	105.58	14.00
7	ST W10 X100	PASS	AISC- H1-3	.886	8
		44.62 C	.00	229.32	.00
8	ST W10 X100	PASS	AISC- H1-3	.325	8
		2.73 C	.00	89.96	14.00
9	ST TUB 60605	PASS	AISC- H1-1	.283	7
		37.30 C	.00	-.02	14.00
10	ST TUB 60605	PASS	AISC- H1-3	.057	4
		1.40 C	.00	-1.28	.00
11	ST W21 X68	PASS	AISC- H1-3	.554	8
		13.23 C	.00	-204.08	18.00
12	ST W21 X68	PASS	AISC- H2-1	.533	8
		9.62 T	.00	-199.10	26.75
13	ST W21 X68	PASS	AISC- H2-1	.591	8
		7.55 T	.00	-222.81	27.00
14	ST W21 X68	PASS	AISC- H2-1	.429	5
		.00 T	.00	165.24	.00
15	ST W18 X50	PASS	AISC- H2-1	.255	4
		7.44 T	.00	-58.33	18.00
16	ST W18 X50	PASS	AISC- H2-1	.238	8
		12.55 T	.00	-51.30	26.75
17	ST W18 X50	PASS	AISC- H2-1	.263	8
		13.64 T	.00	-56.76	27.00
18	ST W18 X50	PASS	AISC- H2-1	.164	4
		11.85 T	.00	-33.56	.00

86. FINISH

********** END OF STAAD-III **********

**** DATE= SEP 10,2010 TIME= 10:36:49 ****

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    NOV 26, 2010                *
*           Time=    11:10:46                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
 1. STAAD PLANE FRAME SHERWOOD MIDDLE SCHOOL MFT1 30.5-25.5-30.5 TWO STORY
 2. UNIT FT KIP
 3. JOINT COORD
 4. 1 0.0 0.0 0.0; 2 30.5 0.0 0.0; 3 56.0 0.0 0.0; 4 86.5 0.0 0.0
 5. REPEAT ALL 2 0.0 14.0 0.0
 6. MEMB INCID
 7. 1 1 5; 2 5 9
 8. REPEAT ALL 3 2 1
 9. 9 5 6; 10 6 7; 11 7 8
10. REPEAT ALL 1 3 4
11. SUPPORTS
12. 1 4 PINNED
13. 2 3 FIXED
14. MEMBER RELEASE
15. 9 12 START MZ
16. 11 14 END MZ
17. CONSTANTS
18. E STEEL ALL
19. MEMBER PROPERTIES
20. 1 2 7 8    TA ST TUB60606
21. 3 4 5 6    TA ST W10X100
22. 9 10 11    TA ST W21X68
23. 12 14      TA ST W21X62
24. 13         TA ST W18X60
25. DRAW MEMBER JOINT SUPPORT
```

```
26. LOAD 1 DEAD LOAD
27. MEMBER LOAD
28. 9 11     UNIF GY -1.06
29. 10       UNIF GY -0.70
30. 12 13 14 UNIF GY -0.60
31. JOINT LOAD
32. 5 8    FY -20.6
33. 6 7    FY -37.5
34. LOAD 2 LIVE LOAD PATTERN 1
35. MEMBER LOAD
36. 9 11 UNIF GY -0.60
37. 13 UNIF GY -1.01
38. JOINT LOAD
39. 5 8    FY -23.4
40. 6 7    FY -19.2
41. LOAD 3 LIVE LOAD PATTERN 2
42. MEMBER LOAD
43. 10      UNIF GY -0.60
44. 12 14   UNIF GY -1.01
45. JOINT LOAD
46. MEMBER LOAD
47. 10      UNIF GY -0.60
48. 12 14   UNIF GY -1.01
49. JOINT LOAD
50. 6 7    FY -19.0
51. LOAD 4 SEISMIC
52. MEMBER LOAD
53. 12 13 14 UNIF GX 0.260
54. 9 10 11  UNIF GY 0.238
55. LOAD 11 UNIT LOAD
56. JOINT LOAD
57. 9 FX 1.0
58. LOAD COMB 5 DEAD LOAD + LIVE LOAD
59. 1 1.0 2 1.0 3 1.0
60.  LOAD COMB 6 DEAD LOAD + LL PATTERN 1
61. 1 1.0 2 1.0
62.  LOAD COMB 7 DEAD LOAD + LL PATTERN 2
63. 1 1.0 3 1.0
64.  LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
65. 4 1.0 1 0.6
66. LOAD COMB 9  SEISMIC + 0.8 DEAD + 0.67 LIVE
67. 4 0.95 1 0.8 2 0.67 3 0.67
68. LOAD COMB 10 SEISMIC + 0.8 DEAD + 0.67 LIVE
69. 4 0.95 1 0.8 2 0.67 3 0.67
70. PERFORM ANALYSIS
```

P R O B L E M S T A T I S T I C S

```
NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    12/   14/    4
ORIGINAL/FINAL BAND-WIDTH =    4/    3
TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    26
SIZE OF STIFFNESS MATRIX =     234 DOUBLE PREC. WORDS
```

```
++ Processing Element Stiffness Matrix.          11:10:46
++ Processing Global Stiffness Matrix.           11:10:46
++ Processing Triangular Factorization.          11:10:46
++ Calculating Joint Displacements.              11:10:46
++ Calculating Member  Forces.                   11:10:46
```

71. PRINT REACTION

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.00	40.51	.00	.00	.00	.00
	2	.00	30.15	.00	.00	.00	.00
	3	.00	25.03	.00	.00	.00	.00
	4	.04	-5.22	.00	.00	.00	.00
	11	.00	-.11	.00	.00	.00	.00
	5	.00	95.69	.00	.00	.00	.00
	6	.00	70.66	.00	.00	.00	.00
	7	.00	65.54	.00	.00	.00	.00
	8	.04	19.09	.00	.00	.00	.00
	9	.03	64.42	.00	.00	.00	.00
	10	.03	64.42	.00	.00	.00	.00
4	1	.00	40.51	.00	.00	.00	.00
	2	.00	30.15	.00	.00	.00	.00
	3	.00	25.03	.00	.00	.00	.00
	4	.04	-.43	.00	.00	.00	.00
	11	.00	.11	.00	.00	.00	.00
	5	.00	95.69	.00	.00	.00	.00
	6	.00	70.66	.00	.00	.00	.00
	7	.00	65.54	.00	.00	.00	.00
	8	.04	23.88	.00	.00	.00	.00
	9	.04	68.97	.00	.00	.00	.00
	10	.04	68.97	.00	.00	.00	.00
2	1	-2.39	84.80	.00	.00	.00	10.80
	2	-2.47	43.63	.00	.00	.00	11.04
	3	3.37	70.88	.00	.00	.00	-14.85
	4	-10.83	-16.81	.00	.00	.00	90.17
	11	-.50	-.41	.00	.00	.00	4.10
	5	-1.49	199.31	.00	.00	.00	6.99
	6	-4.86	128.43	.00	.00	.00	21.84
	7	.98	155.68	.00	.00	.00	-4.05
	8	-12.27	34.06	.00	.00	.00	96.65
	9	-11.60	128.59	.00	.00	.00	91.75
	10	-11.60	128.59	.00	.00	.00	91.75
3	1	2.39	84.80	.00	.00	.00	-10.80
	2	2.47	43.63	.00	.00	.00	-11.04
	3	-3.37	70.88	.00	.00	.00	14.85
	4	-11.73	1.87	.00	.00	.00	94.20

11	-.50	.42	.00	.00	.00	4.10
5	1.49	199.31	.00	.00	.00	-6.99
6	4.86	128.43	.00	.00	.00	-21.84
7	-.98	155.68	.00	.00	.00	4.05
8	-10.30	52.75	.00	.00	.00	87.72
9	-9.83	146.34	.00	.00	.00	83.40
10	-9.83	146.34	.00	.00	.00	83.40

********** END OF LATEST ANALYSIS RESULT **********

72. PRINT MEMBER FORCES

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	40.51	.00	.00	.00	.00	.00
		5	-40.51	.00	.00	.00	.00	.01
	2	1	30.15	.00	.00	.00	.00	.00
		5	-30.15	.00	.00	.00	.00	-.01
	3	1	25.03	.00	.00	.00	.00	.00
		5	-25.03	.00	.00	.00	.00	.05
	4	1	-5.22	-.04	.00	.00	.00	.00
		5	5.22	.04	.00	.00	.00	-.52
	11	1	-.11	.00	.00	.00	.00	.00
		5	.11	.00	.00	.00	.00	-.03
	5	1	95.69	.00	.00	.00	.00	.00
		5	-95.69	.00	.00	.00	.00	.05
	6	1	70.66	.00	.00	.00	.00	.00
		5	-70.66	.00	.00	.00	.00	.00
	7	1	65.54	.00	.00	.00	.00	.00
		5	-65.54	.00	.00	.00	.00	.05
	8	1	19.09	-.04	.00	.00	.00	.00
		5	-19.09	.04	.00	.00	.00	-.52
	9	1	64.42	-.03	.00	.00	.00	.00
		5	-64.42	.03	.00	.00	.00	-.46
	10	1	64.42	-.03	.00	.00	.00	.00
		5	-64.42	.03	.00	.00	.00	-.46
2	1	5	7.16	.00	.00	.00	.00	-.01
		9	-7.16	.00	.00	.00	.00	.00
	2	5	-.77	.00	.00	.00	.00	.01
		9	.77	.00	.00	.00	.00	.00
	3	5	25.97	.00	.00	.00	.00	-.05
		9	-25.97	.00	.00	.00	.00	.00

4	5	-.96	.04	.00	.00	.00	.52
	9	.96	-.04	.00	.00	.00	.00
11	5	-.04	.00	.00	.00	.00	.03
	9	.04	.00	.00	.00	.00	.00
5	5	32.36	.00	.00	.00	.00	-.05
	9	-32.36	.00	.00	.00	.00	.00
6	5	6.39	.00	.00	.00	.00	.00
	9	-6.39	.00	.00	.00	.00	.00
7	5	33.13	.00	.00	.00	.00	-.05
	9	-33.13	.00	.00	.00	.00	.00
8	5	3.33	.04	.00	.00	.00	.52
	9	-3.33	-.04	.00	.00	.00	.00
9	5	21.70	.03	.00	.00	.00	.46
	9	-21.70	-.03	.00	.00	.00	.00
10	5	21.70	.03	.00	.00	.00	.46
	9	-21.70	-.03	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
3	1	2	84.80	2.39	.00	.00	.00	10.80
		6	-84.80	-2.39	.00	.00	.00	22.66
	2	2	43.63	2.47	.00	.00	.00	11.04
		6	-43.63	-2.47	.00	.00	.00	23.56
	3	2	70.88	-3.37	.00	.00	.00	-14.85
		6	-70.88	3.37	.00	.00	.00	-32.33
	4	2	-16.81	10.83	.00	.00	.00	90.17
		6	16.81	-10.83	.00	.00	.00	61.52
	11	2	-.41	.50	.00	.00	.00	4.10
		6	.41	-.50	.00	.00	.00	2.91
	5	2	199.31	1.49	.00	.00	.00	6.99
		6	-199.31	-1.49	.00	.00	.00	13.89
	6	2	128.43	4.86	.00	.00	.00	21.84
		6	-128.43	-4.86	.00	.00	.00	46.22
	7	2	155.68	-.98	.00	.00	.00	-4.05
		6	-155.68	.98	.00	.00	.00	-9.66
	8	2	34.06	12.27	.00	.00	.00	96.65
		6	-34.06	-12.27	.00	.00	.00	75.11
	9	2	128.59	11.60	.00	.00	.00	91.75
		6	-128.59	-11.60	.00	.00	.00	70.70
	10	2	128.59	11.60	.00	.00	.00	91.75
		6	-128.59	-11.60	.00	.00	.00	70.70
4	1	6	18.79	3.62	.00	.00	.00	28.00
		10	-18.79	-3.62	.00	.00	.00	22.63
	2	6	13.64	-.56	.00	.00	.00	10.10
		10	-13.64	.56	.00	.00	.00	-17.93
	3	6	35.64	8.19	.00	.00	.00	18.80
		10	-35.64	-8.19	.00	.00	.00	95.82

	4	6	-3.05	10.86	.00	.00	.00	71.75
		10	3.05	-10.86	.00	.00	.00	80.23
	11	6	-.13	.50	.00	.00	.00	3.38
		10	.13	-.50	.00	.00	.00	3.64
	5	6	68.07	11.24	.00	.00	.00	56.90
		10	-68.07	-11.24	.00	.00	.00	100.52
	6	6	32.44	3.06	.00	.00	.00	38.10
		10	-32.44	-3.06	.00	.00	.00	4.70
	7	6	54.43	11.80	.00	.00	.00	46.80
		10	-54.43	-11.80	.00	.00	.00	118.45
	8	6	8.22	13.03	.00	.00	.00	88.55
		10	-8.22	-13.03	.00	.00	.00	93.81
	9	6	45.15	18.32	.00	.00	.00	109.92
		10	-45.15	-18.32	.00	.00	.00	146.51
	10	6	45.15	18.32	.00	.00	.00	109.92
		10	-45.15	-18.32	.00	.00	.00	146.51
5	1	3	84.80	-2.39	.00	.00	.00	-10.80
		7	-84.80	2.39	.00	.00	.00	-22.66

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	3	43.63	-2.47	.00	.00	.00	-11.04
		7	-43.63	2.47	.00	.00	.00	-23.56
	3	3	70.88	3.37	.00	.00	.00	14.85
		7	-70.88	-3.37	.00	.00	.00	32.33
	4	3	1.87	11.73	.00	.00	.00	94.20
		7	-1.87	-11.73	.00	.00	.00	70.02
	11	3	.42	.50	.00	.00	.00	4.10
		7	-.42	-.50	.00	.00	.00	2.93
	5	3	199.31	-1.49	.00	.00	.00	-6.99
		7	-199.31	1.49	.00	.00	.00	-13.89
	6	3	128.43	-4.86	.00	.00	.00	-21.84
		7	-128.43	4.86	.00	.00	.00	-46.22
	7	3	155.68	.98	.00	.00	.00	4.05
		7	-155.68	-.98	.00	.00	.00	9.66
	8	3	52.75	10.30	.00	.00	.00	87.72
		7	-52.75	-10.30	.00	.00	.00	56.42
	9	3	146.34	9.83	.00	.00	.00	83.40
		7	-146.34	-9.83	.00	.00	.00	54.26
	10	3	146.34	9.83	.00	.00	.00	83.40
		7	-146.34	-9.83	.00	.00	.00	54.26
6	1	7	18.79	-3.62	.00	.00	.00	-28.00
		11	-18.79	3.62	.00	.00	.00	-22.63
	2	7	13.64	.56	.00	.00	.00	-10.10
		11	-13.64	-.56	.00	.00	.00	17.93
	3	7	35.64	-8.19	.00	.00	.00	-18.80
		11	-35.64	8.19	.00	.00	.00	-95.82

	4	7	3.01	11.56	.00	.00	.00	79.38
		11	-3.01	-11.56	.00	.00	.00	82.46
	11	7	.14	.49	.00	.00	.00	3.33
		11	-.14	-.49	.00	.00	.00	3.59
	5	7	68.07	-11.24	.00	.00	.00	-56.90
		11	-68.07	11.24	.00	.00	.00	-100.52
	6	7	32.44	-3.06	.00	.00	.00	-38.10
		11	-32.44	3.06	.00	.00	.00	-4.70
	7	7	54.43	-11.80	.00	.00	.00	-46.80
		11	-54.43	11.80	.00	.00	.00	-118.45
	8	7	14.28	9.39	.00	.00	.00	62.58
		11	-14.28	-9.39	.00	.00	.00	68.88
	9	7	50.91	2.98	.00	.00	.00	33.65
		11	-50.91	-2.98	.00	.00	.00	8.05
	10	7	50.91	2.98	.00	.00	.00	33.65
		11	-50.91	-2.98	.00	.00	.00	8.05
7	1	4	40.51	.00	.00	.00	.00	.00
		8	-40.51	.00	.00	.00	.00	-.01
	2	4	30.15	.00	.00	.00	.00	.00
		8	-30.15	.00	.00	.00	.00	.01

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	4	25.03	.00	.00	.00	.00	.00
		8	-25.03	.00	.00	.00	.00	-.05
	4	4	-.43	-.04	.00	.00	.00	.00
		8	.43	.04	.00	.00	.00	-.52
	11	4	.11	.00	.00	.00	.00	.00
		8	-.11	.00	.00	.00	.00	-.02
	5	4	95.69	.00	.00	.00	.00	.00
		8	-95.69	.00	.00	.00	.00	-.05
	6	4	70.66	.00	.00	.00	.00	.00
		8	-70.66	.00	.00	.00	.00	.00
	7	4	65.54	.00	.00	.00	.00	.00
		8	-65.54	.00	.00	.00	.00	-.05
	8	4	23.88	-.04	.00	.00	.00	.00
		8	-23.88	.04	.00	.00	.00	-.53
	9	4	68.97	-.04	.00	.00	.00	.00
		8	-68.97	.04	.00	.00	.00	-.53
	10	4	68.97	-.04	.00	.00	.00	.00
		8	-68.97	.04	.00	.00	.00	-.53
8	1	8	7.16	.00	.00	.00	.00	.01
		12	-7.16	.00	.00	.00	.00	.00
	2	8	-.77	.00	.00	.00	.00	-.01
		12	.77	.00	.00	.00	.00	.00
	3	8	25.97	.00	.00	.00	.00	.05
		12	-25.97	.00	.00	.00	.00	.00

	4	8	1.01	.04	.00	.00	.00	.52
		12	-1.01	-.04	.00	.00	.00	.00
	11	8	.04	.00	.00	.00	.00	.02
		12	-.04	.00	.00	.00	.00	.00
	5	8	32.36	.00	.00	.00	.00	.05
		12	-32.36	.00	.00	.00	.00	.00
	6	8	6.39	.00	.00	.00	.00	.00
		12	-6.39	.00	.00	.00	.00	.00
	7	8	33.13	.00	.00	.00	.00	.05
		12	-33.13	.00	.00	.00	.00	.00
	8	8	5.31	.04	.00	.00	.00	.53
		12	-5.31	-.04	.00	.00	.00	.00
	9	8	23.57	.04	.00	.00	.00	.53
		12	-23.57	-.04	.00	.00	.00	.00
	10	8	23.57	.04	.00	.00	.00	.53
		12	-23.57	-.04	.00	.00	.00	.00
9	1	5	.00	12.75	.00	.00	.00	.00
		6	.00	19.58	.00	.00	.00	-104.08
	2	5	.00	7.51	.00	.00	.00	.00
		6	.00	10.79	.00	.00	.00	-49.98
	3	5	-.01	-.94	.00	.00	.00	.00
		6	.01	.94	.00	.00	.00	-28.70

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	4	5	.07	-4.25	.00	.00	.00	.00
		6	-.07	-3.01	.00	.00	.00	-19.03
	11	5	.00	-.06	.00	.00	.00	.00
		6	.00	.06	.00	.00	.00	-1.92
	5	5	-.01	19.32	.00	.00	.00	.00
		6	.01	31.31	.00	.00	.00	-182.75
	6	5	.00	20.26	.00	.00	.00	.00
		6	.00	30.37	.00	.00	.00	-154.05
	7	5	-.01	11.81	.00	.00	.00	.00
		6	.01	20.52	.00	.00	.00	-132.78
	8	5	.07	3.40	.00	.00	.00	.00
		6	-.07	8.74	.00	.00	.00	-81.47
	9	5	.07	10.56	.00	.00	.00	.00
		6	-.07	20.67	.00	.00	.00	-154.05
	10	5	.07	10.56	.00	.00	.00	.00
		6	-.07	20.67	.00	.00	.00	-154.05
10	1	6	1.23	8.93	.00	.00	.00	53.41
		7	-1.23	8.93	.00	.00	.00	-53.41
	2	6	-3.03	.00	.00	.00	.00	16.32
		7	3.03	.00	.00	.00	.00	-16.32
	3	6	11.55	15.30	.00	.00	.00	42.23
		7	-11.55	15.30	.00	.00	.00	-42.23

	4	6	.10	-10.75	.00	.00	.00	-114.24
		7	-.10	4.68	.00	.00	.00	-82.60
	11	6	.00	-.34	.00	.00	.00	-4.38
		7	.00	.34	.00	.00	.00	-4.37
	5	6	9.75	24.23	.00	.00	.00	111.96
		7	-9.75	24.23	.00	.00	.00	-111.96
	6	6	-1.80	8.93	.00	.00	.00	69.73
		7	1.80	8.93	.00	.00	.00	-69.73
	7	6	12.78	24.23	.00	.00	.00	95.64
		7	-12.78	24.23	.00	.00	.00	-95.64
	8	6	.83	-5.40	.00	.00	.00	-82.19
		7	-.83	10.04	.00	.00	.00	-114.65
	9	6	6.78	7.18	.00	.00	.00	-26.57
		7	-6.78	21.84	.00	.00	.00	-160.43
	10	6	6.78	7.18	.00	.00	.00	-26.57
		7	-6.78	21.84	.00	.00	.00	-160.43
11	1	7	.00	19.58	.00	.00	.00	104.08
		8	.00	12.75	.00	.00	.00	.00
	2	7	.00	10.79	.00	.00	.00	49.98
		8	.00	7.51	.00	.00	.00	.00
	3	7	-.01	.94	.00	.00	.00	28.70
		8	.01	-.94	.00	.00	.00	.00
	4	7	-.07	-5.82	.00	.00	.00	-66.79
		8	.07	-1.44	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	11	7	.00	-.06	.00	.00	.00	-1.90
		8	.00	.06	.00	.00	.00	.00
	5	7	-.01	31.31	.00	.00	.00	182.75
		8	.01	19.32	.00	.00	.00	.00
	6	7	.00	30.37	.00	.00	.00	154.05
		8	.00	20.26	.00	.00	.00	.00
	7	7	-.01	20.52	.00	.00	.00	132.78
		8	.01	11.81	.00	.00	.00	.00
	8	7	-.08	5.93	.00	.00	.00	-4.35
		8	.08	6.21	.00	.00	.00	.00
	9	7	-.08	17.99	.00	.00	.00	72.52
		8	.08	13.24	.00	.00	.00	.00
	10	7	-.08	17.99	.00	.00	.00	72.52
		8	.08	13.24	.00	.00	.00	.00
12	1	9	.00	7.16	.00	.00	.00	.00
		10	.00	11.14	.00	.00	.00	-60.78
	2	9	.00	-.77	.00	.00	.00	.00
		10	.00	.77	.00	.00	.00	-23.34
	3	9	.00	25.97	.00	.00	.00	.00
		10	.00	35.64	.00	.00	.00	-147.45

	4	9	-.04	-.96	.00	.00	.00	.00
		10	-7.89	.96	.00	.00	.00	-29.40
	11	9	1.00	-.04	.00	.00	.00	.00
		10	-1.00	.04	.00	.00	.00	-1.35
	5	9	.00	32.36	.00	.00	.00	.00
		10	.00	47.55	.00	.00	.00	-231.57
	6	9	.00	6.39	.00	.00	.00	.00
		10	.00	11.91	.00	.00	.00	-84.12
	7	9	.00	33.13	.00	.00	.00	.00
		10	.00	46.78	.00	.00	.00	-208.23
	8	9	-.04	3.33	.00	.00	.00	.00
		10	-7.89	7.65	.00	.00	.00	-65.87
	9	9	-.03	21.70	.00	.00	.00	.00
		10	-7.50	34.22	.00	.00	.00	-190.99
	10	9	-.03	21.70	.00	.00	.00	.00
		10	-7.50	34.22	.00	.00	.00	-190.99
13	1	10	-3.62	7.65	.00	.00	.00	38.15
		11	3.62	7.65	.00	.00	.00	-38.15
	2	10	.56	12.88	.00	.00	.00	41.28
		11	-.56	12.88	.00	.00	.00	-41.28
	3	10	-8.18	.00	.00	.00	.00	51.63
		11	8.18	.00	.00	.00	.00	-51.63
	4	10	-2.96	-4.02	.00	.00	.00	-50.83
		11	-3.67	4.02	.00	.00	.00	-51.63
	11	10	.50	-.18	.00	.00	.00	-2.29
		11	-.50	.18	.00	.00	.00	-2.27

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	10	-11.24	20.53	.00	.00	.00	131.05
		11	11.24	20.53	.00	.00	.00	-131.05
	6	10	-3.06	20.53	.00	.00	.00	79.42
		11	3.06	20.53	.00	.00	.00	-79.42
	7	10	-11.80	7.65	.00	.00	.00	89.78
		11	11.80	7.65	.00	.00	.00	-89.78
	8	10	-5.13	.57	.00	.00	.00	-27.94
		11	-1.50	8.61	.00	.00	.00	-74.52
	9	10	-10.82	10.93	.00	.00	.00	44.48
		11	4.52	18.57	.00	.00	.00	-141.81
	10	10	-10.82	10.93	.00	.00	.00	44.48
		11	4.52	18.57	.00	.00	.00	-141.81
14	1	11	.00	11.14	.00	.00	.00	60.78
		12	.00	7.16	.00	.00	.00	.00
	2	11	.00	.77	.00	.00	.00	23.34
		12	.00	-.77	.00	.00	.00	.00
	3	11	.00	35.64	.00	.00	.00	147.45
		12	.00	25.97	.00	.00	.00	.00

4	11	-7.89	-1.01	.00	.00	.00	-30.83
	12	-.04	1.01	.00	.00	.00	.00
11	11	.00	-.04	.00	.00	.00	-1.33
	12	.00	.04	.00	.00	.00	.00
5	11	.00	47.55	.00	.00	.00	231.57
	12	.00	32.36	.00	.00	.00	.00
6	11	.00	11.91	.00	.00	.00	84.12
	12	.00	6.39	.00	.00	.00	.00
7	11	.00	46.78	.00	.00	.00	208.23
	12	.00	33.13	.00	.00	.00	.00
8	11	-7.89	5.67	.00	.00	.00	5.64
	12	-.04	5.31	.00	.00	.00	.00
9	11	-7.50	32.35	.00	.00	.00	133.76
	12	-.04	23.57	.00	.00	.00	.00
10	11	-7.50	32.35	.00	.00	.00	133.76
	12	-.04	23.57	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

73. PRINT DISP

FRAME SHERWOOD MIDDLE SCHOOL MFT1 30.5-25.5-30.5 TWO STO -- PAGE NO. 14

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00001
	3	.00000	.00000	.00000	.00000	.00000	-.00003
	4	.00000	.00000	.00000	.00000	.00000	-.00216
	11	.00000	.00000	.00000	.00000	.00000	-.00010
	5	.00000	.00000	.00000	.00000	.00000	-.00003
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	-.00004
	8	.00000	.00000	.00000	.00000	.00000	-.00217
	9	.00000	.00000	.00000	.00000	.00000	-.00208
	10	.00000	.00000	.00000	.00000	.00000	-.00208
2	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
3	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000

	4	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
4	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	-.00001
	3	.00000	.00000	.00000	.00000	.00000	.00003
	4	.00000	.00000	.00000	.00000	.00000	-.00216
	11	.00000	.00000	.00000	.00000	.00000	-.00010
	5	.00000	.00000	.00000	.00000	.00000	.00003
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00004
	8	.00000	.00000	.00000	.00000	.00000	-.00216
	9	.00000	.00000	.00000	.00000	.00000	-.00204
	10	.00000	.00000	.00000	.00000	.00000	-.00204
5	1	.00032	-.02904	.00000	.00000	.00000	.00000
	2	-.00080	-.02161	.00000	.00000	.00000	.00000
	3	.00304	-.01795	.00000	.00000	.00000	.00001
	4	.38795	.00374	.00000	.00000	.00000	-.00260

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	11	.01725	.00008	.00000	.00000	.00000	-.00012
	5	.00257	-.06860	.00000	.00000	.00000	.00001
	6	-.00048	-.05066	.00000	.00000	.00000	.00000
	7	.00337	-.04699	.00000	.00000	.00000	.00001
	8	.38815	-.01369	.00000	.00000	.00000	-.00260
	9	.37032	-.04619	.00000	.00000	.00000	-.00246
	10	.37032	-.04619	.00000	.00000	.00000	-.00246
6	1	.00032	-.01671	.00000	.00000	.00000	.00066
	2	-.00080	-.00860	.00000	.00000	.00000	.00070
	3	.00305	-.01397	.00000	.00000	.00000	-.00098
	4	.38791	.00331	.00000	.00000	.00000	-.00160
	11	.01725	.00008	.00000	.00000	.00000	-.00007
	5	.00257	-.03927	.00000	.00000	.00000	.00039
	6	-.00048	-.02531	.00000	.00000	.00000	.00136
	7	.00337	-.03067	.00000	.00000	.00000	-.00031
	8	.38810	-.00671	.00000	.00000	.00000	-.00120
	9	.37027	-.02534	.00000	.00000	.00000	-.00117
	10	.37027	-.02534	.00000	.00000	.00000	-.00117
7	1	-.00032	-.01671	.00000	.00000	.00000	-.00066
	2	.00080	-.00860	.00000	.00000	.00000	-.00070
	3	-.00305	-.01397	.00000	.00000	.00000	.00098
	4	.38786	-.00037	.00000	.00000	.00000	-.00135
	11	.01725	-.00008	.00000	.00000	.00000	-.00007
	5	-.00257	-.03927	.00000	.00000	.00000	-.00039

	6	.00048	-.02531	.00000	.00000	.00000	-.00136
	7	-.00337	-.03067	.00000	.00000	.00000	.00031
	8	.38766	-.01039	.00000	.00000	.00000	-.00175
	9	.36670	-.02884	.00000	.00000	.00000	-.00163
	10	.36670	-.02884	.00000	.00000	.00000	-.00163
8	1	-.00032	-.02904	.00000	.00000	.00000	.00000
	2	.00080	-.02161	.00000	.00000	.00000	.00000
	3	-.00304	-.01795	.00000	.00000	.00000	-.00001
	4	.38790	.00031	.00000	.00000	.00000	-.00260
	11	.01725	-.00008	.00000	.00000	.00000	-.00011
	5	-.00257	-.06860	.00000	.00000	.00000	-.00001
	6	.00048	-.05066	.00000	.00000	.00000	.00000
	7	-.00337	-.04699	.00000	.00000	.00000	-.00001
	8	.38771	-.01712	.00000	.00000	.00000	-.00260
	9	.36675	-.04945	.00000	.00000	.00000	-.00248
	10	.36675	-.04945	.00000	.00000	.00000	-.00248
9	1	-.00108	-.03418	.00000	.00000	.00000	.00001
	2	.00017	-.02106	.00000	.00000	.00000	-.00001
	3	-.00245	-.03657	.00000	.00000	.00000	.00005
	4	.87354	.00443	.00000	.00000	.00000	-.00303
	11	.03955	.00011	.00000	.00000	.00000	-.00014
	5	-.00337	-.09181	.00000	.00000	.00000	.00005
	6	-.00092	-.05524	.00000	.00000	.00000	.00000
	7	-.00353	-.07074	.00000	.00000	.00000	.00006

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	8	.87289	-.01607	.00000	.00000	.00000	-.00303
	9	.82747	-.06174	.00000	.00000	.00000	-.00285
	10	.82747	-.06174	.00000	.00000	.00000	-.00285
10	1	-.00108	-.02041	.00000	.00000	.00000	.00036
	2	.00017	-.01129	.00000	.00000	.00000	-.00087
	3	-.00245	-.02099	.00000	.00000	.00000	.00332
	4	.87083	.00391	.00000	.00000	.00000	-.00113
	11	.03886	.00011	.00000	.00000	.00000	-.00005
	5	-.00337	-.05269	.00000	.00000	.00000	.00282
	6	-.00092	-.03170	.00000	.00000	.00000	-.00050
	7	-.00354	-.04140	.00000	.00000	.00000	.00368
	8	.87018	-.00833	.00000	.00000	.00000	-.00091
	9	.82489	-.03423	.00000	.00000	.00000	.00087
	10	.82489	-.03423	.00000	.00000	.00000	.00087
11	1	.00108	-.02041	.00000	.00000	.00000	-.00036
	2	-.00017	-.01129	.00000	.00000	.00000	.00087
	3	.00245	-.02099	.00000	.00000	.00000	-.00332
	4	.87062	-.00096	.00000	.00000	.00000	-.00118
	11	.03857	-.00011	.00000	.00000	.00000	-.00005
	5	.00337	-.05269	.00000	.00000	.00000	-.00282
	6	.00092	-.03170	.00000	.00000	.00000	.00050
	7	.00354	-.04140	.00000	.00000	.00000	-.00368
	8	.87127	-.01321	.00000	.00000	.00000	-.00139

	9	.82949	-.03887	.00000	.00000	.00000	-.00305
	10	.82949	-.03887	.00000	.00000	.00000	-.00305
12	1	.00108	-.03418	.00000	.00000	.00000	-.00001
	2	-.00017	-.02106	.00000	.00000	.00000	.00001
	3	.00245	-.03657	.00000	.00000	.00000	-.00005
	4	.87333	-.00042	.00000	.00000	.00000	-.00303
	11	.03857	-.00011	.00000	.00000	.00000	-.00013
	5	.00337	-.09181	.00000	.00000	.00000	-.00005
	6	.00092	-.05524	.00000	.00000	.00000	.00000
	7	.00353	-.07074	.00000	.00000	.00000	-.00006
	8	.87398	-.02092	.00000	.00000	.00000	-.00304
	9	.83206	-.06635	.00000	.00000	.00000	-.00292
	10	.83206	-.06635	.00000	.00000	.00000	-.00292

********** END OF LATEST ANALYSIS RESULT **********

```
74. PLOT SEC DISP
75. PARAMETER
76. CODE AISC
77. UNIT INCH
```

FRAME SHERWOOD MIDDLE SCHOOL MFT1 30.5-25.5-30.5 TWO STO -- PAGE NO. 17

```
78. FYLD 46.0 1 2 7 8
79. FYLD 50.0 3 4 5 6 9 TO 14
80. UNIT FEET
81. TRACK 0.0
82. BEAM 1.0 MEMBER 9 TO 14
83. UNL  1.0 MEMBER 9 TO 14
84. LY   1.0 MEMBER 9 TO 14
85. KY   1.0 MEMBER 1 TO 6
86. KZ   1.5 MEMBER 3 4 5 6
87. CHECK CODE
```

FRAME SHERWOOD MIDDLE SCHOOL MFT1 30.5-25.5-30.5 TWO STO -- PAGE NO. 18

STAAD-III CODE CHECKING - (AISC)
****

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST TUB 60606	PASS	AISC- H1-1	.623	5
		95.69 C	.00	.05	14.00
2	ST TUB 60606	PASS	AISC- H1-1	.217	7
		33.13 C	.00	-.05	.00
3	ST W10 X100	PASS	AISC- H1-1	.502	9
		128.59 C	.00	91.75	.00
4	ST W10 X100	PASS	AISC- H1-3	.591	9

```
                  45.15 C           .00         146.51       14.00
  5  ST  W10 X100      PASS     AISC- H1-1          .505          9
                 146.34 C           .00          83.40         .00
  6  ST  W10 X100      PASS     AISC- H1-3          .506          7
                  54.43 C           .00        -118.45       14.00
  7  ST  TUB 60606     PASS     AISC- H1-1          .623          5
                  95.69 C           .00           -.05       14.00
  8  ST  TUB 60606     PASS     AISC- H1-1          .217          7
                  33.13 C           .00           .05         .00
  9  ST  W21 X68       PASS     AISC- H2-1          .474          5
                    .01 T           .00        -182.75       30.50
 10  ST  W21 X68       PASS     AISC- H1-3          .429          9
                   6.78 C           .00        -160.43       25.50
 11  ST  W21 X68       PASS     AISC- H2-1          .474          5
                    .01 T           .00         182.75         .00
 12  ST  W21 X62       PASS     AISC- H1-3          .664          5
                    .00 C           .00        -231.57       30.50
 13  ST  W18 X60       PASS     AISC- H2-1          .498          9
                  10.82 T           .00        -141.81       25.50
 14  ST  W21 X62       PASS     AISC- H1-3          .664          5
                    .00 C           .00         231.57         .00
88. FINISH


        *************** END OF STAAD-III ***************

          **** DATE= NOV 26,2010   TIME= 11:10:46 ****

     ********************************************************
     *        For questions on  STAAD-III,   contact:        *
     *             Research Engineers, Inc at                *
     *  West Coast: Ph- (714) 974-2500  Fax- (714) 921-2543  *
     *  East Coast: Ph- (508) 688-3626  Fax- (508) 685-7230  *
     ********************************************************
```

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    NOV 26, 2010                *
*           Time=    11:17:48                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
 1. STAAD PLANE FRAME SHERWOOD MIDDLE SCHOOL MFT2 38.5-25.5-38.5 TWO STORY
 2. UNIT FT KIP
 3. JOINT COORD
 4. 1 0.0 0.0 0.0; 2 38.5 0.0 0.0; 3 64.0 0.0 0.0; 4 102.0 0.0 0.0
 5. REPEAT ALL 2 0.0 14.0 0.0
 6. MEMB INCID
 7. 1 1 5; 2 5 9
 8. REPEAT ALL 3 2 1
 9. 9 5 6; 10 6 7; 11 7 8
10. REPEAT ALL 1 3 4
11. SUPPORTS
12. 1 4 PINNED
13. 2 3 FIXED
14. MEMBER RELEASE
15. 9 12 START MZ
16. 11 14 END MZ
17. CONSTANTS
18. E STEEL ALL
19. MEMBER PROPERTIES
20. 1 2 7 8    TA ST TUB60606
21. 3 4 5 6    TA ST W10X100
22. 9 10 11    TA ST W21X68
23. 12 14      TA ST W21X68
24. 13         TA ST W18X60
25. DRAW MEMBER JOINT SUPPORT
```



```
26. LOAD 1 DEAD LOAD
27. MEMBER LOAD
28. 9 11     UNIF GY -1.06
29. 10       UNIF GY -0.70
30. 12 13 14 UNIF GY -0.60
31. JOINT LOAD
32. 5 8    FY -20.6
33. 6 7    FY -37.5
34. LOAD 2 LIVE LOAD PATTERN 1
35. MEMBER LOAD
36. 9 11 UNIF GY -0.60
37. 13 UNIF GY -1.01
38. JOINT LOAD
```

```
  39. 5 8    FY -23.4
  40. 6 7    FY -19.2
  41. LOAD 3 LIVE LOAD PATTERN 2
  42. MEMBER LOAD
  43. 10      UNIF GY -0.60
  44. 12 14   UNIF GY -1.01
  45. JOINT LOAD
  46. MEMBER LOAD
  47. 10      UNIF GY -0.60
  48. 12 14   UNIF GY -1.01
  49. JOINT LOAD
  50. 6 7    FY -19.0
  51. LOAD 4 SEISMIC
  52. MEMBER LOAD
  53. 12 13 14 UNIF GX 0.196
  54. 9 10 11  UNIF GY 0.179
  55. LOAD 11 UNIT LOAD
  56. JOINT LOAD
  57. 9 FX 1.0
  58. LOAD COMB 5 DEAD LOAD + LIVE LOAD
  59. 1 1.0 2 1.0 3 1.0
  60.  LOAD COMB 6 DEAD LOAD + LL PATTERN 1
  61. 1 1.0 2 1.0
  62.  LOAD COMB 7 DEAD LOAD + LL PATTERN 2
  63. 1 1.0 3 1.0
  64.  LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
  65. 4 1.0 1 0.6
  66. LOAD COMB 9  SEISMIC + 0.8 DEAD + 0.67 LIVE
  67. 4 0.95 1 0.8 2 0.67 3 0.67
  68. LOAD COMB 10 SEISMIC + 0.8 DEAD + 0.67 LL PAT 1
  69. 4 0.95 1 0.8 2 0.67
  70. PERFORM ANALYSIS


        P R O B L E M   S T A T I S T I C S
        -----------------------------------

   NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    12/   14/    4
   ORIGINAL/FINAL BAND-WIDTH =    4/    3
   TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    26
   SIZE OF STIFFNESS MATRIX =     234 DOUBLE PREC. WORDS
   REQRD/AVAIL. DISK SPACE =  12.03/ 2047.7 MB,  EXMEM = 1942.9 MB

   FRAME SHERWOOD MIDDLE SCHOOL MFT2 38.5-25.5-38.5 TWO STO -- PAGE NO.    4

++ Processing Element Stiffness Matrix.              11:17:48
++ Processing Global Stiffness Matrix.               11:17:48
++ Processing Triangular Factorization.              11:17:48
++ Calculating Joint Displacements.                  11:17:48
++ Calculating Member  Forces.                       11:17:48


  71. PRINT REACTION
```

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.00	45.82	.00	.00	.00	.00
	2	.00	32.12	.00	.00	.00	.00
	3	-.01	31.67	.00	.00	.00	.00
	4	.03	-4.17	.00	.00	.00	.00
	11	.00	-.07	.00	.00	.00	.00
	5	-.01	109.61	.00	.00	.00	.00
	6	.00	77.94	.00	.00	.00	.00
	7	-.01	77.49	.00	.00	.00	.00
	8	.03	23.33	.00	.00	.00	.00
	9	.03	75.44	.00	.00	.00	.00
	10	.03	54.22	.00	.00	.00	.00
4	1	.00	45.48	.00	.00	.00	.00
	2	.00	31.99	.00	.00	.00	.00
	3	.00	31.26	.00	.00	.00	.00
	4	.03	-1.14	.00	.00	.00	.00
	11	.00	.08	.00	.00	.00	.00
	5	.00	108.73	.00	.00	.00	.00
	6	.00	77.47	.00	.00	.00	.00
	7	.00	76.74	.00	.00	.00	.00
	8	.04	26.15	.00	.00	.00	.00
	9	.04	77.68	.00	.00	.00	.00
	10	.03	56.74	.00	.00	.00	.00
2	1	-4.52	92.98	.00	.00	.00	20.16
	2	-3.90	46.54	.00	.00	.00	17.32
	3	4.49	80.68	.00	.00	.00	-19.76
	4	-9.29	-16.01	.00	.00	.00	79.32
	11	-.50	-.47	.00	.00	.00	4.13
	5	-3.92	220.20	.00	.00	.00	17.73
	6	-8.41	139.52	.00	.00	.00	37.49
	7	-.02	173.66	.00	.00	.00	.40
	8	-12.00	39.78	.00	.00	.00	91.42
	9	-12.03	144.41	.00	.00	.00	89.85
	10	-15.05	90.35	.00	.00	.00	103.09
3	1	4.52	92.05	.00	.00	.00	-20.66
	2	3.90	46.21	.00	.00	.00	-17.59
	3	-4.49	79.53	.00	.00	.00	19.64
	4	-10.78	3.06	.00	.00	.00	86.02
	11	-.50	.47	.00	.00	.00	4.14
	5	3.93	217.79	.00	.00	.00	-18.61
	6	8.42	138.27	.00	.00	.00	-38.25
	7	.03	171.58	.00	.00	.00	-1.02
	8	-8.06	58.29	.00	.00	.00	73.62
	9	-7.02	160.79	.00	.00	.00	66.56
	10	-4.01	107.51	.00	.00	.00	53.40

********** END OF LATEST ANALYSIS RESULT **********

72. PRINT MEMBER FORCES

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	45.82	.00	.00	.00	.00	.00
		5	-45.82	.00	.00	.00	.00	.03
	2	1	32.12	.00	.00	.00	.00	.00
		5	-32.12	.00	.00	.00	.00	-.01
	3	1	31.67	.01	.00	.00	.00	.00
		5	-31.67	-.01	.00	.00	.00	.11
	4	1	-4.17	-.03	.00	.00	.00	.00
		5	4.17	.03	.00	.00	.00	-.49
	11	1	-.07	.00	.00	.00	.00	.00
		5	.07	.00	.00	.00	.00	-.03
	5	1	109.61	.01	.00	.00	.00	.00
		5	-109.61	-.01	.00	.00	.00	.13
	6	1	77.94	.00	.00	.00	.00	.00
		5	-77.94	.00	.00	.00	.00	.02
	7	1	77.49	.01	.00	.00	.00	.00
		5	-77.49	-.01	.00	.00	.00	.14
	8	1	23.33	-.03	.00	.00	.00	.00
		5	-23.33	.03	.00	.00	.00	-.47
	9	1	75.44	-.03	.00	.00	.00	.00
		5	-75.44	.03	.00	.00	.00	-.37
	10	1	54.22	-.03	.00	.00	.00	.00
		5	-54.22	.03	.00	.00	.00	-.45
2	1	5	9.15	.00	.00	.00	.00	-.03
		9	-9.15	.00	.00	.00	.00	.00
	2	5	-.61	.00	.00	.00	.00	.01
		9	.61	.00	.00	.00	.00	.00
	3	5	32.46	-.01	.00	.00	.00	-.11
		9	-32.46	.01	.00	.00	.00	.00
	4	5	-.62	.03	.00	.00	.00	.49
		9	.62	-.03	.00	.00	.00	.00
	11	5	-.03	.00	.00	.00	.00	.03
		9	.03	.00	.00	.00	.00	.00
	5	5	41.00	-.01	.00	.00	.00	-.13
		9	-41.00	.01	.00	.00	.00	.00
	6	5	8.54	.00	.00	.00	.00	-.02
		9	-8.54	.00	.00	.00	.00	.00

7	5	41.61	-.01	.00	.00	.00	-.14
	9	-41.61	.01	.00	.00	.00	.00
8	5	4.87	.03	.00	.00	.00	.47
	9	-4.87	-.03	.00	.00	.00	.00
9	5	28.07	.03	.00	.00	.00	.37
	9	-28.07	-.03	.00	.00	.00	.00
10	5	6.32	.03	.00	.00	.00	.45
	9	-6.32	-.03	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
3	1	2	92.98	4.52	.00	.00	.00	20.16
		6	-92.98	-4.52	.00	.00	.00	43.06
	2	2	46.54	3.90	.00	.00	.00	17.32
		6	-46.54	-3.90	.00	.00	.00	37.25
	3	2	80.68	-4.49	.00	.00	.00	-19.76
		6	-80.68	4.49	.00	.00	.00	-43.17
	4	2	-16.01	9.29	.00	.00	.00	79.32
		6	16.01	-9.29	.00	.00	.00	50.69
	11	2	-.47	.50	.00	.00	.00	4.13
		6	.47	-.50	.00	.00	.00	2.88
	5	2	220.20	3.92	.00	.00	.00	17.73
		6	-220.20	-3.92	.00	.00	.00	37.14
	6	2	139.52	8.41	.00	.00	.00	37.49
		6	-139.52	-8.41	.00	.00	.00	80.31
	7	2	173.66	.02	.00	.00	.00	.40
		6	-173.66	-.02	.00	.00	.00	-.11
	8	2	39.78	12.00	.00	.00	.00	91.42
		6	-39.78	-12.00	.00	.00	.00	76.52
	9	2	144.41	12.03	.00	.00	.00	89.85
		6	-144.41	-12.03	.00	.00	.00	78.64
	10	2	90.35	15.05	.00	.00	.00	103.09
		6	-90.35	-15.05	.00	.00	.00	107.56
4	1	6	21.68	7.23	.00	.00	.00	54.69
		10	-21.68	-7.23	.00	.00	.00	46.54
	2	6	13.48	.42	.00	.00	.00	21.77
		10	-13.48	-.42	.00	.00	.00	-15.90
	3	6	45.57	14.24	.00	.00	.00	39.04
		10	-45.57	-14.24	.00	.00	.00	160.34
	4	6	-3.12	9.38	.00	.00	.00	60.52
		10	3.12	-9.38	.00	.00	.00	70.73
	11	6	-.15	.50	.00	.00	.00	3.37
		10	.15	-.50	.00	.00	.00	3.64
	5	6	80.73	21.89	.00	.00	.00	115.50
		10	-80.73	-21.89	.00	.00	.00	190.97
	6	6	35.17	7.65	.00	.00	.00	76.46
		10	-35.17	-7.65	.00	.00	.00	30.63

	7	6	67.25	21.47	.00	.00	.00	93.73
		10	-67.25	-21.47	.00	.00	.00	206.88
	8	6	9.89	13.71	.00	.00	.00	93.34
		10	-9.89	-13.71	.00	.00	.00	98.65
	9	6	53.95	24.51	.00	.00	.00	141.99
		10	-53.95	-24.51	.00	.00	.00	201.19
	10	6	23.42	14.97	.00	.00	.00	115.84
		10	-23.42	-14.97	.00	.00	.00	93.76
5	1	3	92.05	-4.52	.00	.00	.00	-20.66
		7	-92.05	4.52	.00	.00	.00	-42.58

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	3	46.21	-3.90	.00	.00	.00	-17.59
		7	-46.21	3.90	.00	.00	.00	-36.99
	3	3	79.53	4.49	.00	.00	.00	19.64
		7	-79.53	-4.49	.00	.00	.00	43.22
	4	3	3.06	10.78	.00	.00	.00	86.02
		7	-3.06	-10.78	.00	.00	.00	64.84
	11	3	.47	.50	.00	.00	.00	4.14
		7	-.47	-.50	.00	.00	.00	2.90
	5	3	217.79	-3.93	.00	.00	.00	-18.61
		7	-217.79	3.93	.00	.00	.00	-36.35
	6	3	138.27	-8.42	.00	.00	.00	-38.25
		7	-138.27	8.42	.00	.00	.00	-79.57
	7	3	171.58	-.03	.00	.00	.00	-1.02
		7	-171.58	.03	.00	.00	.00	.64
	8	3	58.29	8.06	.00	.00	.00	73.62
		7	-58.29	-8.06	.00	.00	.00	39.29
	9	3	160.79	7.02	.00	.00	.00	66.56
		7	-160.79	-7.02	.00	.00	.00	31.71
	10	3	107.51	4.01	.00	.00	.00	53.40
		7	-107.51	-4.01	.00	.00	.00	2.75
6	1	7	21.35	-7.23	.00	.00	.00	-54.61
		11	-21.35	7.23	.00	.00	.00	-46.59
	2	7	13.50	-.42	.00	.00	.00	-21.50
		11	-13.50	.42	.00	.00	.00	15.64
	3	7	44.43	-14.24	.00	.00	.00	-40.25
		11	-44.43	14.24	.00	.00	.00	-159.07
	4	7	3.04	10.55	.00	.00	.00	73.23
		11	-3.04	-10.55	.00	.00	.00	74.44
	11	7	.15	.50	.00	.00	.00	3.33
		11	-.15	-.50	.00	.00	.00	3.61
	5	7	79.28	-21.88	.00	.00	.00	-116.36
		11	-79.28	21.88	.00	.00	.00	-190.02
	6	7	34.85	-7.65	.00	.00	.00	-76.11
		11	-34.85	7.65	.00	.00	.00	-30.96

	7	7	65.78	-21.47	.00	.00	.00	-94.86
		11	-65.78	21.47	.00	.00	.00	-205.66
	8	7	15.86	6.21	.00	.00	.00	40.46
		11	-15.86	-6.21	.00	.00	.00	46.48
	9	7	58.79	-5.58	.00	.00	.00	-15.50
		11	-58.79	5.58	.00	.00	.00	-62.66
	10	7	29.02	3.96	.00	.00	.00	11.47
		11	-29.02	-3.96	.00	.00	.00	43.92
7	1	4	45.48	.00	.00	.00	.00	.00
		8	-45.48	.00	.00	.00	.00	-.01
	2	4	31.99	.00	.00	.00	.00	.00
		8	-31.99	.00	.00	.00	.00	.01

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	4	31.26	.00	.00	.00	.00	.00
		8	-31.26	.00	.00	.00	.00	-.04
	4	4	-1.14	-.03	.00	.00	.00	.00
		8	1.14	.03	.00	.00	.00	-.49
	11	4	.08	.00	.00	.00	.00	.00
		8	-.08	.00	.00	.00	.00	-.02
	5	4	108.73	.00	.00	.00	.00	.00
		8	-108.73	.00	.00	.00	.00	-.04
	6	4	77.47	.00	.00	.00	.00	.00
		8	-77.47	.00	.00	.00	.00	.00
	7	4	76.74	.00	.00	.00	.00	.00
		8	-76.74	.00	.00	.00	.00	-.05
	8	4	26.15	-.04	.00	.00	.00	.00
		8	-26.15	.04	.00	.00	.00	-.49
	9	4	77.68	-.04	.00	.00	.00	.00
		8	-77.68	.04	.00	.00	.00	-.49
	10	4	56.74	-.03	.00	.00	.00	.00
		8	-56.74	.03	.00	.00	.00	-.46
8	1	8	9.02	.00	.00	.00	.00	.01
		12	-9.02	.00	.00	.00	.00	.00
	2	8	-.62	.00	.00	.00	.00	-.01
		12	.62	.00	.00	.00	.00	.00
	3	8	32.08	.00	.00	.00	.00	.04
		12	-32.08	.00	.00	.00	.00	.00
	4	8	.69	.03	.00	.00	.00	.49
		12	-.69	-.03	.00	.00	.00	.00
	11	8	.03	.00	.00	.00	.00	.02
		12	-.03	.00	.00	.00	.00	.00
	5	8	40.47	.00	.00	.00	.00	.04
		12	-40.47	.00	.00	.00	.00	.00
	6	8	8.39	.00	.00	.00	.00	.00
		12	-8.39	.00	.00	.00	.00	.00

	7	8	41.10	.00	.00	.00	.00	.05
		12	-41.10	.00	.00	.00	.00	.00
	8	8	6.10	.04	.00	.00	.00	.49
		12	-6.10	-.04	.00	.00	.00	.00
	9	8	28.94	.04	.00	.00	.00	.49
		12	-28.94	-.04	.00	.00	.00	.00
	10	8	7.45	.03	.00	.00	.00	.46
		12	-7.45	-.03	.00	.00	.00	.00
9	1	5	.00	16.08	.00	.00	.00	.00
		6	.00	24.73	.00	.00	.00	-166.70
	2	5	.00	9.33	.00	.00	.00	.00
		6	.00	13.77	.00	.00	.00	-85.65
	3	5	-.02	-.79	.00	.00	.00	.00
		6	.02	.79	.00	.00	.00	-30.53

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	4	5	.07	-3.55	.00	.00	.00	.00
		6	-.07	-3.34	.00	.00	.00	-3.93
	11	5	.00	-.04	.00	.00	.00	.00
		6	.00	.04	.00	.00	.00	-1.61
	5	5	-.02	24.61	.00	.00	.00	.00
		6	.02	39.30	.00	.00	.00	-282.88
	6	5	.00	25.40	.00	.00	.00	.00
		6	.00	38.51	.00	.00	.00	-252.35
	7	5	-.02	15.28	.00	.00	.00	.00
		6	.02	25.53	.00	.00	.00	-197.23
	8	5	.07	6.10	.00	.00	.00	.00
		6	-.07	11.50	.00	.00	.00	-103.95
	9	5	.05	15.21	.00	.00	.00	.00
		6	-.05	26.37	.00	.00	.00	-214.93
	10	5	.06	15.74	.00	.00	.00	.00
		6	-.06	25.84	.00	.00	.00	-194.48
10	1	6	2.71	9.07	.00	.00	.00	68.95
		7	-2.71	8.78	.00	.00	.00	-65.35
	2	6	-3.48	.08	.00	.00	.00	26.63
		7	3.48	-.08	.00	.00	.00	-24.67
	3	6	18.72	15.32	.00	.00	.00	34.66
		7	-18.72	15.28	.00	.00	.00	-34.12
	4	6	.16	-9.55	.00	.00	.00	-107.28
		7	-.16	4.99	.00	.00	.00	-78.16
	11	6	.00	-.36	.00	.00	.00	-4.63
		7	.00	.36	.00	.00	.00	-4.61
	5	6	17.95	24.46	.00	.00	.00	130.24
		7	-17.95	23.99	.00	.00	.00	-124.14
	6	6	-.77	9.14	.00	.00	.00	95.58
		7	.77	8.71	.00	.00	.00	-90.02

	7	6	21.43	24.39	.00	.00	.00	103.61
		7	-21.43	24.06	.00	.00	.00	-99.47
	8	6	1.78	-4.11	.00	.00	.00	-65.91
		7	-1.78	10.26	.00	.00	.00	-117.37
	9	6	12.53	8.49	.00	.00	.00	-5.70
		7	-12.53	21.95	.00	.00	.00	-165.92
	10	6	-.01	-1.77	.00	.00	.00	-28.92
		7	.01	11.72	.00	.00	.00	-143.06
11	1	7	.00	24.42	.00	.00	.00	162.54
		8	.00	15.86	.00	.00	.00	.00
	2	7	.00	13.59	.00	.00	.00	83.15
		8	.00	9.21	.00	.00	.00	.00
	3	7	-.01	.82	.00	.00	.00	31.15
		8	.01	-.82	.00	.00	.00	.00
	4	7	-.07	-4.98	.00	.00	.00	-59.91
		8	.07	-1.82	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	11	7	.00	-.04	.00	.00	.00	-1.62
		8	.00	.04	.00	.00	.00	.00
	5	7	-.01	38.83	.00	.00	.00	276.85
		8	.01	24.25	.00	.00	.00	.00
	6	7	.00	38.01	.00	.00	.00	245.70
		8	.00	25.07	.00	.00	.00	.00
	7	7	-.01	25.24	.00	.00	.00	193.69
		8	.01	15.04	.00	.00	.00	.00
	8	7	-.07	9.67	.00	.00	.00	37.62
		8	.07	7.69	.00	.00	.00	.00
	9	7	-.07	24.46	.00	.00	.00	149.71
		8	.07	16.58	.00	.00	.00	.00
	10	7	-.07	23.91	.00	.00	.00	128.84
		8	.07	17.13	.00	.00	.00	.00
12	1	9	.00	9.15	.00	.00	.00	.00
		10	.00	13.95	.00	.00	.00	-92.49
	2	9	.00	-.61	.00	.00	.00	.00
		10	.00	.61	.00	.00	.00	-23.43
	3	9	.01	32.46	.00	.00	.00	.00
		10	-.01	45.31	.00	.00	.00	-247.35
	4	9	-.03	-.62	.00	.00	.00	.00
		10	-7.51	.62	.00	.00	.00	-23.79
	11	9	1.00	-.03	.00	.00	.00	.00
		10	-1.00	.03	.00	.00	.00	-1.25
	5	9	.01	41.00	.00	.00	.00	.00
		10	-.01	59.87	.00	.00	.00	-363.27
	6	9	.00	8.54	.00	.00	.00	.00
		10	.00	14.56	.00	.00	.00	-115.92

	7	9	.01	41.61	.00	.00	.00	.00
		10	-.01	59.26	.00	.00	.00	-339.84
	8	9	-.03	4.87	.00	.00	.00	.00
		10	-7.51	8.99	.00	.00	.00	-79.29
	9	9	-.03	28.07	.00	.00	.00	.00
		10	-7.14	42.51	.00	.00	.00	-278.01
	10	9	-.03	6.32	.00	.00	.00	.00
		10	-7.14	12.16	.00	.00	.00	-112.29
13	1	10	-7.23	7.73	.00	.00	.00	45.95
		11	7.23	7.57	.00	.00	.00	-43.90
	2	10	-.42	12.88	.00	.00	.00	39.33
		11	.42	12.88	.00	.00	.00	-39.36
	3	10	-14.23	.26	.00	.00	.00	87.01
		11	14.23	-.26	.00	.00	.00	-80.47
	4	10	-1.86	-3.73	.00	.00	.00	-46.94
		11	-3.13	3.73	.00	.00	.00	-48.27
	11	10	.50	-.19	.00	.00	.00	-2.39
		11	-.50	.19	.00	.00	.00	-2.37

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	10	-21.88	20.86	.00	.00	.00	172.29
		11	21.88	20.19	.00	.00	.00	-163.73
	6	10	-7.65	20.61	.00	.00	.00	85.28
		11	7.65	20.45	.00	.00	.00	-83.26
	7	10	-21.46	7.99	.00	.00	.00	132.96
		11	21.46	7.31	.00	.00	.00	-124.37
	8	10	-6.20	.90	.00	.00	.00	-19.36
		11	1.20	8.28	.00	.00	.00	-74.61
	9	10	-17.37	11.44	.00	.00	.00	76.82
		11	12.62	18.06	.00	.00	.00	-161.26
	10	10	-7.83	11.26	.00	.00	.00	18.52
		11	3.09	18.23	.00	.00	.00	-107.35
14	1	11	.00	13.78	.00	.00	.00	90.50
		12	.00	9.02	.00	.00	.00	.00
	2	11	.00	.62	.00	.00	.00	23.73
		12	.00	-.62	.00	.00	.00	.00
	3	11	.00	44.68	.00	.00	.00	239.53
		12	.00	32.08	.00	.00	.00	.00
	4	11	-7.41	-.69	.00	.00	.00	-26.17
		12	-.03	.69	.00	.00	.00	.00
	11	11	.00	-.03	.00	.00	.00	-1.24
		12	.00	.03	.00	.00	.00	.00
	5	11	.00	59.09	.00	.00	.00	353.75
		12	.00	40.47	.00	.00	.00	.00
	6	11	.00	14.41	.00	.00	.00	114.22
		12	.00	8.39	.00	.00	.00	.00

7	11	.00	58.46	.00	.00	.00	330.03
	12	.00	41.10	.00	.00	.00	.00
8	11	-7.41	7.58	.00	.00	.00	28.13
	12	-.04	6.10	.00	.00	.00	.00
9	11	-7.04	40.73	.00	.00	.00	223.92
	12	-.04	28.94	.00	.00	.00	.00
10	11	-7.04	10.79	.00	.00	.00	63.43
	12	-.03	7.45	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

73. PRINT DISP

FRAME SHERWOOD MIDDLE SCHOOL MFT2 38.5-25.5-38.5 TWO STO -- PAGE NO. 14

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00002
	3	.00000	.00000	.00000	.00000	.00000	-.00006
	4	.00000	.00000	.00000	.00000	.00000	-.00196
	11	.00000	.00000	.00000	.00000	.00000	-.00010
	5	.00000	.00000	.00000	.00000	.00000	-.00004
	6	.00000	.00000	.00000	.00000	.00000	.00002
	7	.00000	.00000	.00000	.00000	.00000	-.00006
	8	.00000	.00000	.00000	.00000	.00000	-.00196
	9	.00000	.00000	.00000	.00000	.00000	-.00189
	10	.00000	.00000	.00000	.00000	.00000	-.00185
2	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
3	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	11	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000

4	1	.00000	.00000	.00000	.00000	.00000	.00002
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00004
	4	.00000	.00000	.00000	.00000	.00000	-.00196
	11	.00000	.00000	.00000	.00000	.00000	-.00010
	5	.00000	.00000	.00000	.00000	.00000	.00006
	6	.00000	.00000	.00000	.00000	.00000	.00002
	7	.00000	.00000	.00000	.00000	.00000	.00006
	8	.00000	.00000	.00000	.00000	.00000	-.00195
	9	.00000	.00000	.00000	.00000	.00000	-.00181
	10	.00000	.00000	.00000	.00000	.00000	-.00184
5	1	-.00160	-.03285	.00000	.00000	.00000	.00003
	2	-.00216	-.02303	.00000	.00000	.00000	.00001
	3	.00447	-.02270	.00000	.00000	.00000	.00003
	4	.35160	.00299	.00000	.00000	.00000	-.00236

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	11	.01757	.00005	.00000	.00000	.00000	-.00012
	5	.00072	-.07858	.00000	.00000	.00000	.00007
	6	-.00376	-.05588	.00000	.00000	.00000	.00003
	7	.00287	-.05556	.00000	.00000	.00000	.00006
	8	.35064	-.01673	.00000	.00000	.00000	-.00235
	9	.33429	-.05409	.00000	.00000	.00000	-.00220
	10	.33129	-.03887	.00000	.00000	.00000	-.00222
6	1	-.00160	-.01832	.00000	.00000	.00000	.00128
	2	-.00216	-.00917	.00000	.00000	.00000	.00111
	3	.00449	-.01590	.00000	.00000	.00000	-.00131
	4	.35154	.00316	.00000	.00000	.00000	-.00160
	11	.01757	.00009	.00000	.00000	.00000	-.00007
	5	.00073	-.04339	.00000	.00000	.00000	.00108
	6	-.00376	-.02749	.00000	.00000	.00000	.00239
	7	.00289	-.03422	.00000	.00000	.00000	-.00003
	8	.35058	-.00784	.00000	.00000	.00000	-.00083
	9	.33425	-.02845	.00000	.00000	.00000	-.00063
	10	.33124	-.01780	.00000	.00000	.00000	.00025
7	1	-.00303	-.01814	.00000	.00000	.00000	-.00122
	2	-.00032	-.00911	.00000	.00000	.00000	-.00108
	3	-.00539	-.01567	.00000	.00000	.00000	.00132
	4	.35146	-.00060	.00000	.00000	.00000	-.00118
	11	.01756	-.00009	.00000	.00000	.00000	-.00007
	5	-.00874	-.04291	.00000	.00000	.00000	-.00099
	6	-.00335	-.02724	.00000	.00000	.00000	-.00230
	7	-.00842	-.03381	.00000	.00000	.00000	.00009
	8	.34964	-.01149	.00000	.00000	.00000	-.00192
	9	.32764	-.03168	.00000	.00000	.00000	-.00194
	10	.33125	-.02118	.00000	.00000	.00000	-.00283
8	1	-.00303	-.03261	.00000	.00000	.00000	.00001
	2	-.00032	-.02293	.00000	.00000	.00000	.00001
	3	-.00538	-.02241	.00000	.00000	.00000	.00001

	4	.35151	.00081	.00000	.00000	.00000	-.00236
	11	.01757	-.00005	.00000	.00000	.00000	-.00012
	5	-.00874	-.07795	.00000	.00000	.00000	.00003
	6	-.00335	-.05554	.00000	.00000	.00000	.00002
	7	-.00841	-.05502	.00000	.00000	.00000	.00002
	8	.34970	-.01875	.00000	.00000	.00000	-.00236
	9	.32769	-.05569	.00000	.00000	.00000	-.00222
	10	.33130	-.04068	.00000	.00000	.00000	-.00223
9	1	-.00874	-.03941	.00000	.00000	.00000	.00005
	2	-.00259	-.02259	.00000	.00000	.00000	.00000
	3	-.01127	-.04598	.00000	.00000	.00000	.00012
	4	.79452	.00343	.00000	.00000	.00000	-.00277
	11	.04049	.00008	.00000	.00000	.00000	-.00014
	5	-.02260	-.10798	.00000	.00000	.00000	.00017
	6	-.01133	-.06200	.00000	.00000	.00000	.00005
	7	-.02000	-.08539	.00000	.00000	.00000	.00017

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	8	.78928	-.02022	.00000	.00000	.00000	-.00274
	9	.73852	-.07421	.00000	.00000	.00000	-.00251
	10	.74607	-.04341	.00000	.00000	.00000	-.00259
10	1	-.00874	-.02259	.00000	.00000	.00000	.00082
	2	-.00259	-.01183	.00000	.00000	.00000	-.00099
	3	-.01127	-.02488	.00000	.00000	.00000	.00546
	4	.79154	.00377	.00000	.00000	.00000	-.00103
	11	.03969	.00012	.00000	.00000	.00000	-.00005
	5	-.02261	-.05930	.00000	.00000	.00000	.00529
	6	-.01133	-.03442	.00000	.00000	.00000	-.00017
	7	-.02001	-.04747	.00000	.00000	.00000	.00628
	8	.78630	-.00979	.00000	.00000	.00000	-.00053
	9	.73568	-.03909	.00000	.00000	.00000	.00268
	10	.74324	-.02242	.00000	.00000	.00000	-.00098
11	1	-.00440	-.02235	.00000	.00000	.00000	-.00078
	2	-.00234	-.01177	.00000	.00000	.00000	.00099
	3	-.00274	-.02442	.00000	.00000	.00000	-.00531
	4	.79116	-.00120	.00000	.00000	.00000	-.00111
	11	.03940	-.00012	.00000	.00000	.00000	-.00005
	5	-.00949	-.05854	.00000	.00000	.00000	-.00510
	6	-.00675	-.03411	.00000	.00000	.00000	.00021
	7	-.00715	-.04677	.00000	.00000	.00000	-.00609
	8	.78852	-.01461	.00000	.00000	.00000	-.00158
	9	.74468	-.04327	.00000	.00000	.00000	-.00458
	10	.74651	-.02690	.00000	.00000	.00000	-.00102
12	1	-.00440	-.03907	.00000	.00000	.00000	.00001
	2	-.00234	-.02249	.00000	.00000	.00000	.00001
	3	-.00274	-.04541	.00000	.00000	.00000	-.00003
	4	.79406	.00032	.00000	.00000	.00000	-.00277
	11	.03939	-.00008	.00000	.00000	.00000	-.00014
	5	-.00949	-.10697	.00000	.00000	.00000	-.00001

6	-.00675	-.06156	.00000	.00000	.00000	.00002
7	-.00715	-.08448	.00000	.00000	.00000	-.00002
8	.79142	-.02312	.00000	.00000	.00000	-.00277
9	.74743	-.07644	.00000	.00000	.00000	-.00263
10	.74927	-.04602	.00000	.00000	.00000	-.00262

********** END OF LATEST ANALYSIS RESULT **********

```
74. PLOT SEC DISP
75. PARAMETER
76. CODE AISC
77. UNIT INCH
```



```
78. FYLD 46.0 1 2 7 8
79. FYLD 50.0 3 4 5 6 9 TO 14
80. UNIT FEET
81. TRACK 0.0
82. BEAM 1.0 MEMBER 9 TO 14
83. UNL  1.0 MEMBER 9 TO 14
84. LY   1.0 MEMBER 9 TO 14
85. KY   1.0 MEMBER 1 TO 6
86. KZ   1.5 MEMBER 3 4 5 6
87. CHECK CODE
```


STAAD-III CODE CHECKING - (AISC)
****

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST TUB 60606	PASS	AISC- H1-1	.718	5
		109.61 C	.00	.13	14.00
2	ST TUB 60606	PASS	AISC- H1-1	.274	7
		41.61 C	.00	-.14	.00
3	ST W10 X100	PASS	AISC- H1-1	.524	9
		144.41 C	.00	89.85	.00
4	ST W10 X100	PASS	AISC- H1-3	.840	7
		67.25 C	.00	206.88	14.00
5	ST W10 X100	PASS	AISC- H1-1	.479	6
		138.27 C	.00	-79.57	14.00
6	ST W10 X100	PASS	AISC- H1-3	.834	7
		65.78 C	.00	-205.66	14.00
7	ST TUB 60606	PASS	AISC- H1-1	.707	5
		108.73 C	.00	-.04	14.00
8	ST TUB 60606	PASS	AISC- H1-1	.268	7

```
                  41.10 C           .00            .05         .00
  9  ST  W21 X68       PASS     AISC- H2-1          .734         5
                    .02 T           .00        -282.88       38.50
 10  ST  W21 X68       PASS     AISC- H1-3          .454         9
                  12.53 C           .00        -165.92       25.50
 11  ST  W21 X68       PASS     AISC- H2-1          .719         5
                    .01 T           .00         276.85         .00
 12  ST  W21 X68       PASS     AISC- H1-3          .943         5
                    .01 C           .00        -363.27       38.50
 13  ST  W18 X60       PASS     AISC- H2-1          .622         5
                  21.88 T           .00         172.29         .00
 14  ST  W21 X68       PASS     AISC- H1-3          .918         5
                    .00 C           .00         353.75         .00
88. FINISH


         *************** END OF STAAD-III ***************

           **** DATE= NOV 26,2010   TIME= 11:17:48 ****

     ***********************************************************
     *        For questions on  STAAD-III,   contact:          *
     *              Research Engineers, Inc at                 *
     *  West Coast: Ph- (714) 974-2500  Fax- (714) 921-2543    *
     *  East Coast: Ph- (508) 688-3626  Fax- (508) 685-7230    *
     ***********************************************************
```

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    NOV 26, 2010                *
*           Time=    11:19:34                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
     1. STAAD PLANE FRAME SHERWOOD MIDDLE SCHOOL MFT3  30.5-25.5-30.5 THREE-
STORY
     2. UNIT FT KIP
     3. JOINT COORD
     4. 1 0.0 0.0 0.0; 2 30.5 0.0 0.0; 3 56.0 0.0 0.0; 4 86.5 0.0 0.0
     5. REPEAT ALL 3 0.0 14.0 0.0
     6. MEMB INCID
     7. 1 1 5; 2 5 9; 3 9 13
     8. REPEAT ALL 3 3 1
     9. 13 5 6; 14 6 7; 15 7 8
    10. REPEAT ALL 2 3 4
    11. 22 5 2; 23 3 8
    12. SUPPORTS
    13. 1 4 PINNED
    14. 2 3 FIXED
    15. MEMBER RELEASE
    16. 13 16 19 22 23 START MZ
    17. 15 18 21 22 23 END MZ
    18. CONSTANTS
    19. E STEEL
    20. MEMBER PROPERTIES
    21. 1 2 3 10 11 12  TA ST TUB60608
    22. 4 5 6 7 8 9   TA ST W10X100
    23. 13 TO 18    TA ST W21X68
    24. 19 21      TA ST W21X62
    25. 20         TA ST W18X60
    26. 22  23     TA ST TUB80808
    27. DRAW MEMBER JOINT SUPPORT
```

```
28. LOAD 1 DEAD LOAD
29. MEMBER LOAD
30. 13 15 16 18   UNIF GY -1.06
31. 14 17         UNIF GY -0.70
32. 19 20 21      UNIF GY -0.60
33. 20 CONC GY -5.6 8.0
34. 20 CONC GY -5.6 17.5
35. JOINT LOAD
36. 5 8 9 12     FY -20.6
37. 6 7 10 11    FY -37.5
38.     LOAD 2 LIVE LOAD PATTERN 1
39. MEMBER LOAD
40. 13 15 17  UNIF GY -.60
41. 19 21     UNIF GY -1.01
42. JOINT LOAD
43. 5 8 9 12    FY -23.4
44. 6 7 10 11   FY -19.2
45.     LOAD 3 LIVE LOAD PATTERN 2
46. MEMMBER LOAD
47. 14 16 18   UNIF GY -0.60
48. 20         UNIF GY -1.01
49. JOINT LOAD
50. 6 7 10 11  FY -23.4
51. 5 9 8 12   FY -19.2
52.     LOAD 4 SEISMIC
53. MEMBER LOAD
54. 19 TO 21  UNIF GX 0.270
55. 16 TO 18  UNIF GX 0.247
56. LOAD 12 UNIT LOAD
57. JOINT LOAD
58. 13 FX 1.0
59. LOAD COMB 5 DEAD LOAD + LIVE LOAD
60. 1 1.0 2 1.0 3 1.0
61.  LOAD COMB 6 DEAD LOAD + LL PATTERN 1
62. 1 1.0 2 1.0
63.  LOAD COMB 7 DEAD LOAD + LL PATTERN 2
64. 1 1.0 3 1.0
65.  LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
66. 4 1.0 1 0.6
67. LOAD COMB 9  SEISMIC + 0.8 DEAD + 0.67 LIVE
68. 4 0.95 1 0.8 2 0.67 3 0.67
69. LOAD COMB 10 SEISMIC + 0.8 DEAD + 0.67 LL PAT 1
70. 4 0.95 1 0.8 2 0.67
71. PERFORM ANALYSIS
```

P R O B L E M S T A T I S T I C S

```
NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    16/   23/    4
ORIGINAL/FINAL BAND-WIDTH =    5/    4
TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    38
SIZE OF STIFFNESS MATRIX =     456 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE =  12.04/ 2047.7 MB,  EXMEM = 1942.9 MB
```

```
++ Processing Element Stiffness Matrix.          11:19:34
++ Processing Global Stiffness Matrix.           11:19:34
++ Processing Triangular Factorization.          11:19:34
++ Calculating Joint Displacements.              11:19:34
++ Calculating Member  Forces.                   11:19:34
```

```
  72. LOAD LIST 12
  73. PRINT DISP
```

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	12	.00000	.00000	.00000	.00000	.00000	.00003
2	12	.00000	.00000	.00000	.00000	.00000	.00000
3	12	.00000	.00000	.00000	.00000	.00000	.00000
4	12	.00000	.00000	.00000	.00000	.00000	.00003
5	12	.00077	.00022	.00000	.00000	.00000	-.00006
6	12	.00112	.00011	.00000	.00000	.00000	-.00003
7	12	.00113	-.00011	.00000	.00000	.00000	-.00003
8	12	.00077	-.00022	.00000	.00000	.00000	-.00006
9	12	.02095	.00029	.00000	.00000	.00000	-.00014
10	12	.02096	.00019	.00000	.00000	.00000	-.00007
11	12	.02096	-.00019	.00000	.00000	.00000	-.00007
12	12	.02095	-.00028	.00000	.00000	.00000	-.00014
13	12	.04364	.00031	.00000	.00000	.00000	-.00013
14	12	.04295	.00022	.00000	.00000	.00000	-.00005
15	12	.04265	-.00022	.00000	.00000	.00000	-.00005
16	12	.04265	-.00031	.00000	.00000	.00000	-.00012

********** END OF LATEST ANALYSIS RESULT **********

74. LOAD LIST 1 TO 10
75. PRINT REACTION

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.01	69.37	.00	.00	.00	.00
	2	.01	63.10	.00	.00	.00	.00
	3	.00	42.25	.00	.00	.00	.00
	4	.42	-16.31	.00	.00	.00	.00
	5	.02	174.72	.00	.00	.00	.00
	6	.02	132.47	.00	.00	.00	.00
	7	.01	111.62	.00	.00	.00	.00
	8	.43	25.31	.00	.00	.00	.00
	9	.42	110.58	.00	.00	.00	.00
	10	.41	82.28	.00	.00	.00	.00
4	1	-.01	69.37	.00	.00	.00	.00
	2	-.01	63.10	.00	.00	.00	.00
	3	.00	42.25	.00	.00	.00	.00
	4	.42	16.31	.00	.00	.00	.00
	5	-.02	174.72	.00	.00	.00	.00
	6	-.02	132.47	.00	.00	.00	.00
	7	-.01	111.62	.00	.00	.00	.00
	8	.42	57.93	.00	.00	.00	.00
	9	.39	141.58	.00	.00	.00	.00
	10	.39	113.27	.00	.00	.00	.00
2	1	-11.07	160.89	.00	.00	.00	9.54
	2	-9.87	78.86	.00	.00	.00	9.95
	3	-4.26	81.78	.00	.00	.00	-6.09
	4	-22.78	-7.16	.00	.00	.00	-7.16
	5	-25.20	321.52	.00	.00	.00	13.40
	6	-20.95	239.75	.00	.00	.00	19.49
	7	-15.33	242.67	.00	.00	.00	3.45
	8	-29.43	89.38	.00	.00	.00	-1.44
	9	-39.97	229.54	.00	.00	.00	3.42
	10	-37.12	174.75	.00	.00	.00	7.50
3	1	11.07	160.89	.00	.00	.00	-9.54
	2	9.87	78.86	.00	.00	.00	-9.95
	3	4.26	81.78	.00	.00	.00	6.09
	4	-22.78	7.16	.00	.00	.00	-7.16
	5	25.20	321.52	.00	.00	.00	-13.40
	6	20.95	239.75	.00	.00	.00	-19.49
	7	15.33	242.67	.00	.00	.00	-3.45
	8	-16.14	103.69	.00	.00	.00	-12.89
	9	-3.32	243.14	.00	.00	.00	-17.02
	10	-6.17	188.35	.00	.00	.00	-21.11

********** END OF LATEST ANALYSIS RESULT **********

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	69.37	-.01	.00	.00	.00	.00
		5	-69.37	.01	.00	.00	.00	-.11
	2	1	63.10	-.01	.00	.00	.00	.00
		5	-63.10	.01	.00	.00	.00	-.12
	3	1	42.25	.00	.00	.00	.00	.00
		5	-42.25	.00	.00	.00	.00	-.06
	4	1	-16.31	-.42	.00	.00	.00	.00
		5	16.31	.42	.00	.00	.00	-5.94
	5	1	174.72	-.02	.00	.00	.00	.00
		5	-174.72	.02	.00	.00	.00	-.29
	6	1	132.47	-.02	.00	.00	.00	.00
		5	-132.47	.02	.00	.00	.00	-.23
	7	1	111.62	-.01	.00	.00	.00	.00
		5	-111.62	.01	.00	.00	.00	-.17
	8	1	25.31	-.43	.00	.00	.00	.00
		5	-25.31	.43	.00	.00	.00	-6.00
	9	1	110.58	-.42	.00	.00	.00	.00
		5	-110.58	.42	.00	.00	.00	-5.85
	10	1	82.28	-.41	.00	.00	.00	.00
		5	-82.28	.41	.00	.00	.00	-5.81
2	1	5	40.13	.01	.00	.00	.00	.11
		9	-40.13	-.01	.00	.00	.00	.07
	2	5	35.73	.02	.00	.00	.00	.12
		9	-35.73	-.02	.00	.00	.00	.10
	3	5	25.98	.01	.00	.00	.00	.06
		9	-25.98	-.01	.00	.00	.00	.04
	4	5	-3.30	.64	.00	.00	.00	5.94
		9	3.30	-.64	.00	.00	.00	3.09
	5	5	101.85	.04	.00	.00	.00	.29
		9	-101.85	-.04	.00	.00	.00	.20
	6	5	75.87	.03	.00	.00	.00	.23
		9	-75.87	-.03	.00	.00	.00	.17
	7	5	66.12	.02	.00	.00	.00	.17
		9	-66.12	-.02	.00	.00	.00	.11
	8	5	20.78	.65	.00	.00	.00	6.00
		9	-20.78	-.65	.00	.00	.00	3.13
	9	5	70.32	.64	.00	.00	.00	5.85
		9	-70.32	-.64	.00	.00	.00	3.08
	10	5	52.91	.63	.00	.00	.00	5.81
		9	-52.91	-.63	.00	.00	.00	3.05
3	1	9	6.81	.00	.00	.00	.00	-.07
		13	-6.81	.00	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	9	12.96	-.01	.00	.00	.00	-.10
		13	-12.96	.01	.00	.00	.00	.00
	3	9	-.77	.00	.00	.00	.00	-.04
		13	.77	.00	.00	.00	.00	.00
	4	9	-1.12	-.22	.00	.00	.00	-3.09
		13	1.12	.22	.00	.00	.00	.00
	5	9	19.00	-.01	.00	.00	.00	-.20
		13	-19.00	.01	.00	.00	.00	.00
	6	9	19.77	-.01	.00	.00	.00	-.17
		13	-19.77	.01	.00	.00	.00	.00
	7	9	6.04	-.01	.00	.00	.00	-.11
		13	-6.04	.01	.00	.00	.00	.00
	8	9	2.96	-.22	.00	.00	.00	-3.13
		13	-2.96	.22	.00	.00	.00	.00
	9	9	12.55	-.22	.00	.00	.00	-3.08
		13	-12.55	.22	.00	.00	.00	.00
	10	9	13.06	-.22	.00	.00	.00	-3.05
		13	-13.06	.22	.00	.00	.00	.00
4	1	2	156.80	2.16	.00	.00	.00	9.54
		6	-156.80	-2.16	.00	.00	.00	20.70
	2	2	75.37	2.27	.00	.00	.00	9.95
		6	-75.37	-2.27	.00	.00	.00	21.80
	3	2	79.21	-1.34	.00	.00	.00	-6.09
		6	-79.21	1.34	.00	.00	.00	-12.60
	4	2	-18.88	-2.76	.00	.00	.00	-7.16
		6	18.88	2.76	.00	.00	.00	-31.51
	5	2	311.37	3.09	.00	.00	.00	13.40
		6	-311.37	-3.09	.00	.00	.00	29.91
	6	2	232.16	4.43	.00	.00	.00	19.49
		6	-232.16	-4.43	.00	.00	.00	42.50
	7	2	236.01	.83	.00	.00	.00	3.45
		6	-236.01	-.83	.00	.00	.00	8.10
	8	2	75.19	-1.47	.00	.00	.00	-1.44
		6	-75.19	1.47	.00	.00	.00	-19.09
	9	2	211.06	-.27	.00	.00	.00	3.42
		6	-211.06	.27	.00	.00	.00	-7.20
	10	2	157.99	.62	.00	.00	.00	7.50
		6	-157.99	-.62	.00	.00	.00	1.24
5	1	6	90.77	4.53	.00	.00	.00	31.68
		10	-90.77	-4.53	.00	.00	.00	31.77
	2	6	45.32	.48	.00	.00	.00	14.37
		10	-45.32	-.48	.00	.00	.00	-7.68
	3	6	47.79	1.39	.00	.00	.00	-.23
		10	-47.79	-1.39	.00	.00	.00	19.65
	4	6	-13.12	21.72	.00	.00	.00	160.41
		10	13.12	-21.72	.00	.00	.00	143.61

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	6	183.89	6.40	.00	.00	.00	45.81
		10	-183.89	-6.40	.00	.00	.00	43.75
	6	6	136.09	5.01	.00	.00	.00	46.05
		10	-136.09	-5.01	.00	.00	.00	24.10
	7	6	138.56	5.92	.00	.00	.00	31.45
		10	-138.56	-5.92	.00	.00	.00	51.42
	8	6	41.34	24.44	.00	.00	.00	179.42
		10	-41.34	-24.44	.00	.00	.00	162.68
	9	6	122.54	25.51	.00	.00	.00	187.20
		10	-122.54	-25.51	.00	.00	.00	169.87
	10	6	90.52	24.58	.00	.00	.00	187.36
		10	-90.52	-24.58	.00	.00	.00	156.71
6	1	10	24.74	2.10	.00	.00	.00	20.69
		14	-24.74	-2.10	.00	.00	.00	8.65
	2	10	17.85	3.98	.00	.00	.00	7.49
		14	-17.85	-3.98	.00	.00	.00	48.17
	3	10	13.65	-.43	.00	.00	.00	11.49
		14	-13.65	.43	.00	.00	.00	-17.56
	4	10	-3.40	11.90	.00	.00	.00	74.58
		14	3.40	-11.90	.00	.00	.00	91.99
	5	10	56.23	5.64	.00	.00	.00	39.66
		14	-56.23	-5.64	.00	.00	.00	39.26
	6	10	42.58	6.07	.00	.00	.00	28.18
		14	-42.58	-6.07	.00	.00	.00	56.82
	7	10	38.39	1.66	.00	.00	.00	32.18
		14	-38.39	-1.66	.00	.00	.00	-8.91
	8	10	11.44	13.16	.00	.00	.00	86.99
		14	-11.44	-13.16	.00	.00	.00	97.18
	9	10	37.66	15.35	.00	.00	.00	100.11
		14	-37.66	-15.35	.00	.00	.00	114.82
	10	10	28.52	15.64	.00	.00	.00	92.42
		14	-28.52	-15.64	.00	.00	.00	126.59
7	1	3	156.80	-2.16	.00	.00	.00	-9.54
		7	-156.80	2.16	.00	.00	.00	-20.70
	2	3	75.37	-2.27	.00	.00	.00	-9.95
		7	-75.37	2.27	.00	.00	.00	-21.80
	3	3	79.21	1.34	.00	.00	.00	6.09
		7	-79.21	-1.34	.00	.00	.00	12.60
	4	3	18.88	-2.76	.00	.00	.00	-7.16
		7	-18.88	2.76	.00	.00	.00	-31.51
	5	3	311.37	-3.09	.00	.00	.00	-13.40
		7	-311.37	3.09	.00	.00	.00	-29.91
	6	3	232.16	-4.43	.00	.00	.00	-19.49
		7	-232.16	4.43	.00	.00	.00	-42.50
	7	3	236.01	-.83	.00	.00	.00	-3.45
		7	-236.01	.83	.00	.00	.00	-8.10

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	3	112.96	-4.06	.00	.00	.00	-12.89
		7	-112.96	4.06	.00	.00	.00	-43.93
	9	3	246.94	-4.98	.00	.00	.00	-17.02
		7	-246.94	4.98	.00	.00	.00	-52.66
	10	3	193.87	-5.87	.00	.00	.00	-21.11
		7	-193.87	5.87	.00	.00	.00	-61.10
8	1	7	90.77	-4.53	.00	.00	.00	-31.68
		11	-90.77	4.53	.00	.00	.00	-31.77
	2	7	45.32	-.48	.00	.00	.00	-14.37
		11	-45.32	.48	.00	.00	.00	7.68
	3	7	47.79	-1.39	.00	.00	.00	.23
		11	-47.79	1.39	.00	.00	.00	-19.65
	4	7	13.12	21.72	.00	.00	.00	160.41
		11	-13.12	-21.72	.00	.00	.00	143.61
	5	7	183.89	-6.40	.00	.00	.00	-45.81
		11	-183.89	6.40	.00	.00	.00	-43.75
	6	7	136.09	-5.01	.00	.00	.00	-46.05
		11	-136.09	5.01	.00	.00	.00	-24.10
	7	7	138.56	-5.92	.00	.00	.00	-31.45
		11	-138.56	5.92	.00	.00	.00	-51.42
	8	7	67.59	19.00	.00	.00	.00	141.40
		11	-67.59	-19.00	.00	.00	.00	124.55
	9	7	147.47	15.75	.00	.00	.00	117.57
		11	-147.47	-15.75	.00	.00	.00	102.99
	10	7	115.45	16.68	.00	.00	.00	117.42
		11	-115.45	-16.68	.00	.00	.00	116.15
9	1	11	24.74	-2.10	.00	.00	.00	-20.69
		15	-24.74	2.10	.00	.00	.00	-8.65
	2	11	17.85	-3.98	.00	.00	.00	-7.49
		15	-17.85	3.98	.00	.00	.00	-48.17
	3	11	13.65	.43	.00	.00	.00	-11.49
		15	-13.65	-.43	.00	.00	.00	17.56
	4	11	3.40	11.90	.00	.00	.00	74.58
		15	-3.40	-11.90	.00	.00	.00	91.99
	5	11	56.23	-5.64	.00	.00	.00	-39.66
		15	-56.23	5.64	.00	.00	.00	-39.26
	6	11	42.58	-6.07	.00	.00	.00	-28.18
		15	-42.58	6.07	.00	.00	.00	-56.82
	7	11	38.39	-1.66	.00	.00	.00	-32.18
		15	-38.39	1.66	.00	.00	.00	8.91
	8	11	18.24	10.64	.00	.00	.00	62.17
		15	-18.24	-10.64	.00	.00	.00	86.80
	9	11	44.12	7.25	.00	.00	.00	41.59
		15	-44.12	-7.25	.00	.00	.00	59.96
	10	11	34.98	6.96	.00	.00	.00	49.28
		15	-34.98	-6.96	.00	.00	.00	48.20

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
10	1	4	69.37	.01	.00	.00	.00	.00
		8	-69.37	-.01	.00	.00	.00	.11
	2	4	63.10	.01	.00	.00	.00	.00
		8	-63.10	-.01	.00	.00	.00	.12
	3	4	42.25	.00	.00	.00	.00	.00
		8	-42.25	.00	.00	.00	.00	.06
	4	4	16.31	-.42	.00	.00	.00	.00
		8	-16.31	.42	.00	.00	.00	-5.94
	5	4	174.72	.02	.00	.00	.00	.00
		8	-174.72	-.02	.00	.00	.00	.29
	6	4	132.47	.02	.00	.00	.00	.00
		8	-132.47	-.02	.00	.00	.00	.23
	7	4	111.62	.01	.00	.00	.00	.00
		8	-111.62	-.01	.00	.00	.00	.17
	8	4	57.93	-.42	.00	.00	.00	.00
		8	-57.93	.42	.00	.00	.00	-5.87
	9	4	141.58	-.39	.00	.00	.00	.00
		8	-141.58	.39	.00	.00	.00	-5.43
	10	4	113.27	-.39	.00	.00	.00	.00
		8	-113.27	.39	.00	.00	.00	-5.47
11	1	8	40.13	-.01	.00	.00	.00	-.11
		12	-40.13	.01	.00	.00	.00	-.07
	2	8	35.73	-.02	.00	.00	.00	-.12
		12	-35.73	.02	.00	.00	.00	-.10
	3	8	25.98	-.01	.00	.00	.00	-.06
		12	-25.98	.01	.00	.00	.00	-.04
	4	8	3.30	.64	.00	.00	.00	5.94
		12	-3.30	-.64	.00	.00	.00	3.09
	5	8	101.85	-.04	.00	.00	.00	-.29
		12	-101.85	.04	.00	.00	.00	-.20
	6	8	75.87	-.03	.00	.00	.00	-.23
		12	-75.87	.03	.00	.00	.00	-.17
	7	8	66.12	-.02	.00	.00	.00	-.17
		12	-66.12	.02	.00	.00	.00	-.11
	8	8	27.38	.64	.00	.00	.00	5.87
		12	-27.38	-.64	.00	.00	.00	3.05
	9	8	76.60	.59	.00	.00	.00	5.43
		12	-76.60	-.59	.00	.00	.00	2.79
	10	8	59.19	.59	.00	.00	.00	5.47
		12	-59.19	-.59	.00	.00	.00	2.81
12	1	12	6.81	.00	.00	.00	.00	.07
		16	-6.81	.00	.00	.00	.00	.00
	2	12	12.96	.01	.00	.00	.00	.10
		16	-12.96	-.01	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	12	-.77	.00	.00	.00	.00	.04
		16	.77	.00	.00	.00	.00	.00
	4	12	1.12	-.22	.00	.00	.00	-3.09
		16	-1.12	.22	.00	.00	.00	.00
	5	12	19.00	.01	.00	.00	.00	.20
		16	-19.00	-.01	.00	.00	.00	.00
	6	12	19.77	.01	.00	.00	.00	.17
		16	-19.77	-.01	.00	.00	.00	.00
	7	12	6.04	.01	.00	.00	.00	.11
		16	-6.04	-.01	.00	.00	.00	.00
	8	12	5.21	-.22	.00	.00	.00	-3.05
		16	-5.21	.22	.00	.00	.00	.00
	9	12	14.68	-.20	.00	.00	.00	-2.79
		16	-14.68	.20	.00	.00	.00	.00
	10	12	15.20	-.20	.00	.00	.00	-2.81
		16	-15.20	.20	.00	.00	.00	.00
13	1	5	-8.89	12.73	.00	.00	.00	.00
		6	8.89	19.60	.00	.00	.00	-104.86
	2	5	-7.58	7.46	.00	.00	.00	.00
		6	7.58	10.84	.00	.00	.00	-51.63
	3	5	-5.58	-.37	.00	.00	.00	.00
		6	5.58	.37	.00	.00	.00	-11.20
	4	5	-24.48	-1.28	.00	.00	.00	.00
		6	24.48	1.28	.00	.00	.00	-39.10
	5	5	-22.05	19.82	.00	.00	.00	.00
		6	22.05	30.81	.00	.00	.00	-167.69
	6	5	-16.47	20.18	.00	.00	.00	.00
		6	16.47	30.45	.00	.00	.00	-156.49
	7	5	-14.47	12.36	.00	.00	.00	.00
		6	14.47	19.97	.00	.00	.00	-116.06
	8	5	-29.81	6.35	.00	.00	.00	.00
		6	29.81	13.04	.00	.00	.00	-102.02
	9	5	-39.18	13.71	.00	.00	.00	.00
		6	39.18	24.41	.00	.00	.00	-163.13
	10	5	-35.45	13.96	.00	.00	.00	.00
		6	35.45	24.17	.00	.00	.00	-155.63
14	1	6	-6.52	8.93	.00	.00	.00	52.48
		7	6.52	8.93	.00	.00	.00	-52.48
	2	6	-9.37	.00	.00	.00	.00	15.46
		7	9.37	.00	.00	.00	.00	-15.46
	3	6	-2.86	7.65	.00	.00	.00	24.03
		7	2.86	7.65	.00	.00	.00	-24.03
	4	6	.00	-7.04	.00	.00	.00	-89.80
		7	.00	7.04	.00	.00	.00	-89.80
	5	6	-18.75	16.58	.00	.00	.00	91.97
		7	18.75	16.58	.00	.00	.00	-91.97

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	6	6	-15.89	8.93	.00	.00	.00	67.94
		7	15.89	8.93	.00	.00	.00	-67.94
	7	6	-9.38	16.58	.00	.00	.00	76.51
		7	9.38	16.58	.00	.00	.00	-76.51
	8	6	-3.91	-1.69	.00	.00	.00	-58.31
		7	3.91	12.40	.00	.00	.00	-121.29
	9	6	-13.41	5.57	.00	.00	.00	-16.87
		7	13.41	18.96	.00	.00	.00	-153.75
	10	6	-11.49	.45	.00	.00	.00	-32.96
		7	11.49	13.83	.00	.00	.00	-137.65
15	1	7	-8.89	19.60	.00	.00	.00	104.86
		8	8.89	12.73	.00	.00	.00	.00
	2	7	-7.58	10.84	.00	.00	.00	51.63
		8	7.58	7.46	.00	.00	.00	.00
	3	7	-5.58	.37	.00	.00	.00	11.20
		8	5.58	-.37	.00	.00	.00	.00
	4	7	24.48	-1.28	.00	.00	.00	-39.10
		8	-24.48	1.28	.00	.00	.00	.00
	5	7	-22.05	30.81	.00	.00	.00	167.69
		8	22.05	19.82	.00	.00	.00	.00
	6	7	-16.47	30.45	.00	.00	.00	156.49
		8	16.47	20.18	.00	.00	.00	.00
	7	7	-14.47	19.97	.00	.00	.00	116.06
		8	14.47	12.36	.00	.00	.00	.00
	8	7	19.14	10.48	.00	.00	.00	23.82
		8	-19.14	8.92	.00	.00	.00	.00
	9	7	7.32	21.98	.00	.00	.00	88.84
		8	-7.32	16.15	.00	.00	.00	.00
	10	7	11.06	21.73	.00	.00	.00	81.33
		8	-11.06	16.40	.00	.00	.00	.00
16	1	9	-.02	12.72	.00	.00	.00	.00
		10	.02	19.61	.00	.00	.00	-105.07
	2	9	-.02	-.62	.00	.00	.00	.00
		10	.02	.62	.00	.00	.00	-19.03
	3	9	-.01	7.56	.00	.00	.00	.00
		10	.01	10.74	.00	.00	.00	-48.58
	4	9	-.87	-2.18	.00	.00	.00	.00
		10	-6.67	2.18	.00	.00	.00	-66.44
	5	9	-.05	19.65	.00	.00	.00	.00
		10	.05	30.98	.00	.00	.00	-172.68
	6	9	-.04	12.10	.00	.00	.00	.00
		10	.04	20.23	.00	.00	.00	-124.10
	7	9	-.03	20.28	.00	.00	.00	.00
		10	.03	30.35	.00	.00	.00	-153.65
	8	9	-.88	5.45	.00	.00	.00	.00
		10	-6.66	13.94	.00	.00	.00	-129.48

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	9	9	-.86	12.75	.00	.00	.00	.00
		10	-6.30	25.37	.00	.00	.00	-192.47
	10	9	-.85	7.69	.00	.00	.00	.00
		10	-6.31	18.18	.00	.00	.00	-159.92
17	1	10	-2.45	8.93	.00	.00	.00	52.60
		11	2.45	8.93	.00	.00	.00	-52.60
	2	10	3.47	7.65	.00	.00	.00	19.22
		11	-3.47	7.65	.00	.00	.00	-19.22
	3	10	-1.83	.00	.00	.00	.00	17.44
		11	1.83	.00	.00	.00	.00	-17.44
	4	10	-3.15	-11.90	.00	.00	.00	-151.75
		11	-3.15	11.90	.00	.00	.00	-151.75
	5	10	-.81	16.58	.00	.00	.00	89.27
		11	.81	16.58	.00	.00	.00	-89.27
	6	10	1.02	16.58	.00	.00	.00	71.83
		11	-1.02	16.58	.00	.00	.00	-71.83
	7	10	-4.28	8.93	.00	.00	.00	70.05
		11	4.28	8.93	.00	.00	.00	-70.05
	8	10	-4.62	-6.55	.00	.00	.00	-120.19
		11	-1.68	17.26	.00	.00	.00	-183.31
	9	10	-3.85	.96	.00	.00	.00	-77.51
		11	-2.13	23.57	.00	.00	.00	-210.81
	10	10	-2.63	.96	.00	.00	.00	-89.20
		11	-3.36	23.57	.00	.00	.00	-199.13
18	1	11	-.02	19.61	.00	.00	.00	105.07
		12	.02	12.72	.00	.00	.00	.00
	2	11	-.02	.62	.00	.00	.00	19.03
		12	.02	-.62	.00	.00	.00	.00
	3	11	-.01	10.74	.00	.00	.00	48.58
		12	.01	7.56	.00	.00	.00	.00
	4	11	-6.67	-2.18	.00	.00	.00	-66.44
		12	-.87	2.18	.00	.00	.00	.00
	5	11	-.05	30.98	.00	.00	.00	172.68
		12	.05	19.65	.00	.00	.00	.00
	6	11	-.04	20.23	.00	.00	.00	124.10
		12	.04	12.10	.00	.00	.00	.00
	7	11	-.03	30.35	.00	.00	.00	153.65
		12	.03	20.28	.00	.00	.00	.00
	8	11	-6.68	9.59	.00	.00	.00	-3.40
		12	-.85	9.81	.00	.00	.00	.00
	9	11	-6.37	21.23	.00	.00	.00	66.24
		12	-.79	16.89	.00	.00	.00	.00
	10	11	-6.36	14.04	.00	.00	.00	33.69
		12	-.79	11.83	.00	.00	.00	.00
19	1	13	.00	6.81	.00	.00	.00	.00
		14	.00	11.49	.00	.00	.00	-71.22

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	13	.01	12.96	.00	.00	.00	.00
		14	-.01	17.85	.00	.00	.00	-74.61
	3	13	.00	-.77	.00	.00	.00	.00
		14	.00	.77	.00	.00	.00	-23.58
	4	13	.22	-1.12	.00	.00	.00	.00
		14	-8.46	1.12	.00	.00	.00	-34.31
	5	13	.01	19.00	.00	.00	.00	.00
		14	-.01	30.11	.00	.00	.00	-169.41
	6	13	.01	19.77	.00	.00	.00	.00
		14	-.01	29.33	.00	.00	.00	-145.84
	7	13	.01	6.04	.00	.00	.00	.00
		14	-.01	12.26	.00	.00	.00	-94.80
	8	13	.22	2.96	.00	.00	.00	.00
		14	-8.46	8.02	.00	.00	.00	-77.04
	9	13	.22	12.55	.00	.00	.00	.00
		14	-8.04	22.73	.00	.00	.00	-155.36
	10	13	.22	13.06	.00	.00	.00	.00
		14	-8.04	22.22	.00	.00	.00	-139.56
20	1	14	-2.09	13.25	.00	.00	.00	62.57
		15	2.09	13.25	.00	.00	.00	-62.57
	2	14	-3.97	.00	.00	.00	.00	26.44
		15	3.97	.00	.00	.00	.00	-26.44
	3	14	.44	12.88	.00	.00	.00	41.14
		15	-.44	12.88	.00	.00	.00	-41.14
	4	14	-3.44	-4.52	.00	.00	.00	-57.68
		15	-3.44	4.52	.00	.00	.00	-57.68
	5	14	-5.62	26.13	.00	.00	.00	130.16
		15	5.62	26.13	.00	.00	.00	-130.16
	6	14	-6.06	13.25	.00	.00	.00	89.02
		15	6.06	13.25	.00	.00	.00	-89.02
	7	14	-1.65	26.13	.00	.00	.00	103.71
		15	1.65	26.13	.00	.00	.00	-103.71
	8	14	-4.70	3.43	.00	.00	.00	-20.14
		15	-2.19	12.47	.00	.00	.00	-95.23
	9	14	-7.31	14.93	.00	.00	.00	40.54
		15	.77	23.53	.00	.00	.00	-150.14
	10	14	-7.60	6.30	.00	.00	.00	12.97
		15	1.06	14.90	.00	.00	.00	-122.58
21	1	15	.00	11.49	.00	.00	.00	71.22
		16	.00	6.81	.00	.00	.00	.00
	2	15	.01	17.85	.00	.00	.00	74.61
		16	-.01	12.96	.00	.00	.00	.00
	3	15	.00	.77	.00	.00	.00	23.58
		16	.00	-.77	.00	.00	.00	.00
	4	15	-8.46	-1.12	.00	.00	.00	-34.31
		16	.22	1.12	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	15	.01	30.11	.00	.00	.00	169.41
		16	-.01	19.00	.00	.00	.00	.00
	6	15	.01	29.33	.00	.00	.00	145.84
		16	-.01	19.77	.00	.00	.00	.00
	7	15	.01	12.26	.00	.00	.00	94.80
		16	-.01	6.04	.00	.00	.00	.00
	8	15	-8.45	5.77	.00	.00	.00	8.43
		16	.22	5.21	.00	.00	.00	.00
	9	15	-8.02	20.60	.00	.00	.00	90.17
		16	.20	14.68	.00	.00	.00	.00
	10	15	-8.02	20.08	.00	.00	.00	74.38
		16	.20	15.20	.00	.00	.00	.00
22	1	5	9.81	.00	.00	.00	.00	.00
		2	-9.81	.00	.00	.00	.00	.00
	2	5	8.37	.00	.00	.00	.00	.00
		2	-8.37	.00	.00	.00	.00	.00
	3	5	6.15	.00	.00	.00	.00	.00
		2	-6.15	.00	.00	.00	.00	.00
	4	5	28.11	.00	.00	.00	.00	.00
		2	-28.11	.00	.00	.00	.00	.00
	5	5	24.33	.00	.00	.00	.00	.00
		2	-24.33	.00	.00	.00	.00	.00
	6	5	18.17	.00	.00	.00	.00	.00
		2	-18.17	.00	.00	.00	.00	.00
	7	5	15.96	.00	.00	.00	.00	.00
		2	-15.96	.00	.00	.00	.00	.00
	8	5	33.99	.00	.00	.00	.00	.00
		2	-33.99	.00	.00	.00	.00	.00
	9	5	44.28	.00	.00	.00	.00	.00
		2	-44.28	.00	.00	.00	.00	.00
	10	5	40.16	.00	.00	.00	.00	.00
		2	-40.16	.00	.00	.00	.00	.00
23	1	3	9.81	.00	.00	.00	.00	.00
		8	-9.81	.00	.00	.00	.00	.00
	2	3	8.37	.00	.00	.00	.00	.00
		8	-8.37	.00	.00	.00	.00	.00
	3	3	6.15	.00	.00	.00	.00	.00
		8	-6.15	.00	.00	.00	.00	.00
	4	3	-28.11	.00	.00	.00	.00	.00
		8	28.11	.00	.00	.00	.00	.00
	5	3	24.33	.00	.00	.00	.00	.00
		8	-24.33	.00	.00	.00	.00	.00
	6	3	18.17	.00	.00	.00	.00	.00
		8	-18.17	.00	.00	.00	.00	.00
	7	3	15.96	.00	.00	.00	.00	.00
		8	-15.96	.00	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	3	-22.23	.00	.00	.00	.00	.00
		8	22.23	.00	.00	.00	.00	.00
	9	3	-9.13	.00	.00	.00	.00	.00
		8	9.13	.00	.00	.00	.00	.00
	10	3	-13.25	.00	.00	.00	.00	.00
		8	13.25	.00	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

77. PRINT DISP

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	1	.00000	.00000	.00000	.00000	.00000	.00007
	2	.00000	.00000	.00000	.00000	.00000	.00007
	3	.00000	.00000	.00000	.00000	.00000	.00004
	4	.00000	.00000	.00000	.00000	.00000	.00115
	5	.00000	.00000	.00000	.00000	.00000	.00018
	6	.00000	.00000	.00000	.00000	.00000	.00014
	7	.00000	.00000	.00000	.00000	.00000	.00011
	8	.00000	.00000	.00000	.00000	.00000	.00120
	9	.00000	.00000	.00000	.00000	.00000	.00123
	10	.00000	.00000	.00000	.00000	.00000	.00120
2	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
3	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
4	1	.00000	.00000	.00000	.00000	.00000	-.00007
	2	.00000	.00000	.00000	.00000	.00000	-.00007
	3	.00000	.00000	.00000	.00000	.00000	-.00004
	4	.00000	.00000	.00000	.00000	.00000	.00115
	5	.00000	.00000	.00000	.00000	.00000	-.00018
	6	.00000	.00000	.00000	.00000	.00000	-.00014
	7	.00000	.00000	.00000	.00000	.00000	-.00011
	8	.00000	.00000	.00000	.00000	.00000	.00111
	9	.00000	.00000	.00000	.00000	.00000	.00097
	10	.00000	.00000	.00000	.00000	.00000	.00099
5	1	-.00733	-.03864	.00000	.00000	.00000	-.00001
	2	-.00725	-.03515	.00000	.00000	.00000	-.00001
	3	-.00428	-.02353	.00000	.00000	.00000	.00000
	4	.03400	.00909	.00000	.00000	.00000	-.00293
	5	-.01886	-.09732	.00000	.00000	.00000	-.00002
	6	-.01459	-.07379	.00000	.00000	.00000	-.00002
	7	-.01161	-.06218	.00000	.00000	.00000	-.00001
	8	.02960	-.01410	.00000	.00000	.00000	-.00294

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	9	.01871	-.06160	.00000	.00000	.00000	-.00280
	10	.02157	-.04583	.00000	.00000	.00000	-.00280
6	1	-.00172	-.03090	.00000	.00000	.00000	.00062
	2	-.00247	-.01485	.00000	.00000	.00000	.00066
	3	-.00075	-.01561	.00000	.00000	.00000	-.00036
	4	.04944	.00372	.00000	.00000	.00000	-.00136
	5	-.00495	-.06135	.00000	.00000	.00000	.00092
	6	-.00419	-.04575	.00000	.00000	.00000	.00128
	7	-.00247	-.04650	.00000	.00000	.00000	.00026
	8	.04841	-.01482	.00000	.00000	.00000	-.00098
	9	.04343	-.04159	.00000	.00000	.00000	-.00059
	10	.04394	-.03113	.00000	.00000	.00000	-.00035
7	1	.00172	-.03090	.00000	.00000	.00000	-.00062
	2	.00247	-.01485	.00000	.00000	.00000	-.00066
	3	.00075	-.01561	.00000	.00000	.00000	.00036
	4	.04944	-.00372	.00000	.00000	.00000	-.00136
	5	.00495	-.06135	.00000	.00000	.00000	-.00092
	6	.00419	-.04575	.00000	.00000	.00000	-.00128
	7	.00247	-.04650	.00000	.00000	.00000	-.00026
	8	.05048	-.02226	.00000	.00000	.00000	-.00173
	9	.05051	-.04866	.00000	.00000	.00000	-.00199
	10	.05000	-.03820	.00000	.00000	.00000	-.00223
8	1	.00733	-.03864	.00000	.00000	.00000	.00001
	2	.00725	-.03515	.00000	.00000	.00000	.00001
	3	.00428	-.02353	.00000	.00000	.00000	.00000
	4	.03400	-.00909	.00000	.00000	.00000	-.00293
	5	.01886	-.09732	.00000	.00000	.00000	.00002
	6	.01459	-.07379	.00000	.00000	.00000	.00002
	7	.01161	-.06218	.00000	.00000	.00000	.00001
	8	.03840	-.03227	.00000	.00000	.00000	-.00293
	9	.04589	-.07886	.00000	.00000	.00000	-.00277
	10	.04302	-.06309	.00000	.00000	.00000	-.00277
9	1	-.00066	-.06100	.00000	.00000	.00000	-.00003
	2	.00090	-.05505	.00000	.00000	.00000	-.00003
	3	-.00049	-.03801	.00000	.00000	.00000	-.00002
	4	.86645	.01093	.00000	.00000	.00000	-.00489
	5	-.00025	-.15406	.00000	.00000	.00000	-.00008
	6	.00024	-.11605	.00000	.00000	.00000	-.00006
	7	-.00115	-.09901	.00000	.00000	.00000	-.00005
	8	.86605	-.02567	.00000	.00000	.00000	-.00491
	9	.82287	-.10077	.00000	.00000	.00000	-.00471
	10	.82320	-.07530	.00000	.00000	.00000	-.00470
10	1	-.00065	-.04878	.00000	.00000	.00000	.00063
	2	.00092	-.02378	.00000	.00000	.00000	-.00057
	3	-.00048	-.02503	.00000	.00000	.00000	.00075
	4	.86462	.00631	.00000	.00000	.00000	-.00230
	5	-.00021	-.09759	.00000	.00000	.00000	.00081
	6	.00027	-.07256	.00000	.00000	.00000	.00006

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	7	-.00113	-.07381	.00000	.00000	.00000	.00137
	8	.86423	-.02296	.00000	.00000	.00000	-.00192
	9	.82116	-.06573	.00000	.00000	.00000	-.00156
	10	.82148	-.04897	.00000	.00000	.00000	-.00206
11	1	.00065	-.04878	.00000	.00000	.00000	-.00063
	2	-.00092	-.02378	.00000	.00000	.00000	.00057
	3	.00048	-.02503	.00000	.00000	.00000	-.00075
	4	.86462	-.00631	.00000	.00000	.00000	-.00230
	5	.00021	-.09759	.00000	.00000	.00000	-.00081
	6	-.00027	-.07256	.00000	.00000	.00000	-.00006
	7	.00113	-.07381	.00000	.00000	.00000	-.00137
	8	.86500	-.03558	.00000	.00000	.00000	-.00267
	9	.82161	-.07772	.00000	.00000	.00000	-.00280
	10	.82129	-.06095	.00000	.00000	.00000	-.00230
12	1	.00066	-.06100	.00000	.00000	.00000	.00003
	2	-.00090	-.05505	.00000	.00000	.00000	.00003
	3	.00049	-.03801	.00000	.00000	.00000	.00002
	4	.86645	-.01093	.00000	.00000	.00000	-.00489
	5	.00025	-.15406	.00000	.00000	.00000	.00008
	6	-.00024	-.11605	.00000	.00000	.00000	.00006
	7	.00115	-.09901	.00000	.00000	.00000	.00005
	8	.86684	-.04752	.00000	.00000	.00000	-.00487
	9	.82337	-.12153	.00000	.00000	.00000	-.00459
	10	.82305	-.09606	.00000	.00000	.00000	-.00460
13	1	-.00062	-.06479	.00000	.00000	.00000	.00002
	2	-.00118	-.06227	.00000	.00000	.00000	.00003
	3	.00013	-.03758	.00000	.00000	.00000	.00000
	4	1.45011	.01155	.00000	.00000	.00000	-.00277
	5	-.00168	-.16464	.00000	.00000	.00000	.00005
	6	-.00181	-.12706	.00000	.00000	.00000	.00005
	7	-.00049	-.10237	.00000	.00000	.00000	.00002
	8	1.44974	-.02732	.00000	.00000	.00000	-.00276
	9	1.37640	-.10776	.00000	.00000	.00000	-.00259
	10	1.37631	-.08258	.00000	.00000	.00000	-.00259
14	1	-.00063	-.05366	.00000	.00000	.00000	-.00004
	2	-.00119	-.02730	.00000	.00000	.00000	.00170
	3	.00013	-.02772	.00000	.00000	.00000	-.00087
	4	1.44712	.00698	.00000	.00000	.00000	-.00132
	5	-.00169	-.10867	.00000	.00000	.00000	.00078
	6	-.00182	-.08095	.00000	.00000	.00000	.00166
	7	-.00050	-.08137	.00000	.00000	.00000	-.00092
	8	1.44675	-.02522	.00000	.00000	.00000	-.00135
	9	1.37355	-.07316	.00000	.00000	.00000	-.00074
	10	1.37347	-.05459	.00000	.00000	.00000	-.00015
15	1	.00063	-.05366	.00000	.00000	.00000	.00004
	2	.00119	-.02730	.00000	.00000	.00000	-.00170
	3	-.00013	-.02772	.00000	.00000	.00000	.00087
	4	1.44712	-.00698	.00000	.00000	.00000	-.00132

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	5	.00169	-.10867	.00000	.00000	.00000	-.00078
	6	.00182	-.08095	.00000	.00000	.00000	-.00166
	7	.00050	-.08137	.00000	.00000	.00000	.00092
	8	1.44750	-.03917	.00000	.00000	.00000	-.00130
	9	1.37598	-.08641	.00000	.00000	.00000	-.00178
	10	1.37606	-.06784	.00000	.00000	.00000	-.00236
16	1	.00062	-.06479	.00000	.00000	.00000	-.00002
	2	.00118	-.06227	.00000	.00000	.00000	-.00003
	3	-.00013	-.03758	.00000	.00000	.00000	.00000
	4	1.45011	-.01155	.00000	.00000	.00000	-.00277
	5	.00168	-.16464	.00000	.00000	.00000	-.00005
	6	.00181	-.12706	.00000	.00000	.00000	-.00005
	7	.00049	-.10237	.00000	.00000	.00000	-.00002
	8	1.45049	-.05043	.00000	.00000	.00000	-.00278
	9	1.37881	-.12971	.00000	.00000	.00000	-.00267
	10	1.37890	-.10453	.00000	.00000	.00000	-.00267

********** END OF LATEST ANALYSIS RESULT **********

```
78. PARAMETER
79. CODE AISC
80. UNIT INCH
81. FYLD 46.0 1 2 3 10 11 12 22 23
82. FYLD 50.0 4 TO 9 13 TO 21
83. UNIT FEET
84. TRACK 0.0
85. BEAM 1.0 MEMBER 13 TO 21
86. UNL 1.0 MEMBER 13 TO 21
87. LY  1.0 MEMBER 13 TO 21
88. KY 1.0 MEMBER 1 TO 12 22 23
89. KZ 1.4 MEMBER 4 TO 9
90. CHECK CODES
```

STAAD-III CODE CHECKING - (AISC)
****

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST TUB 60608	PASS	AISC- H1-1	.916	5
		174.72 C	.00	-.29	14.00
2	ST TUB 60608	PASS	AISC- H1-1	.536	9
		70.32 C	.00	5.85	.00
3	ST TUB 60608	PASS	AISC- H1-3	.146	10
		13.06 C	.00	-3.05	.00
4	ST W10 X100	PASS	AISC- H1-1	.590	5
		311.37 C	.00	29.91	14.00
5	ST W10 X100	PASS	AISC- H1-3	.807	10
		90.52 C	.00	187.36	.00
6	ST W10 X100	PASS	AISC- H1-3	.495	10
		28.52 C	.00	126.59	14.00
7	ST W10 X100	PASS	AISC- H1-1	.590	5
		311.37 C	.00	-29.91	14.00
8	ST W10 X100	PASS	AISC- H1-1	.617	9
		147.47 C	.00	117.57	.00
9	ST W10 X100	PASS	AISC- H1-3	.337	8
		18.24 C	.00	86.80	14.00
10	ST TUB 60608	PASS	AISC- H1-1	.981	9
		141.58 C	.00	-5.43	14.00
11	ST TUB 60608	PASS	AISC- H1-1	.561	9
		76.60 C	.00	5.43	.00
12	ST TUB 60608	PASS	AISC- H1-3	.151	10
		15.20 C	.00	-2.81	.00
13	ST W21 X68	PASS	AISC- H2-1	.489	9
		39.18 T	.00	-163.13	30.50
14	ST W21 X68	PASS	AISC- H2-1	.421	9
		13.41 T	.00	-153.75	25.50
15	ST W21 X68	PASS	AISC- H2-1	.472	5
		22.05 T	.00	167.69	.00
16	ST W21 X68	PASS	AISC- H2-1	.510	9
		6.30 T	.00	-192.47	30.50
17	ST W21 X68	PASS	AISC- H2-1	.554	9
		3.85 T	.00	-210.81	25.50
18	ST W21 X68	PASS	AISC- H2-1	.448	5
		.05 T	.00	172.68	.00
19	ST W21 X62	PASS	AISC- H1-3	.486	5
		.01 C	.00	-169.41	30.50
20	ST W18 X60	PASS	AISC- H2-1	.520	9
		7.31 T	.00	-150.14	25.50
21	ST W21 X62	PASS	AISC- H1-3	.486	5
		.01 C	.00	169.41	.00

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
22	ST TUB 80808	PASS	AISC- H1-1	.367	9
		44.28 C	.00	.00	.00
23	ST TUB 80808	PASS	AISC- H1-1	.202	5
		24.33 C	.00	.00	.00

```
91. PLOT SECT DISP
92. FINISH
```

********** END OF STAAD-III **********

**** DATE= NOV 26,2010 TIME= 11:19:34 ****

```
*********************************************************
*        For questions on  STAAD-III,   contact:        *
*              Research Engineers, Inc at               *
*  West Coast: Ph- (714) 974-2500  Fax- (714) 921-2543  *
*  East Coast: Ph- (508) 688-3626  Fax- (508) 685-7230  *
*********************************************************
```

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    NOV 26, 2010                *
*           Time=    11:20:41                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
 1. STAAD PLANE FRAME SHERWOOD MIDDLE SCHOOL MFT4 38.5-25.5-38.5 THREE-STORY
 2. UNIT FT KIP
 3. JOINT COORD
 4. 1 0.0 0.0 0.0; 2 38.5 0.0 0.0; 3 64.0 0.0 0.0; 4 102.5 0.0 0.0
 5. REPEAT ALL 3 0.0 14.0 0.0
 6. MEMB INCID
 7. 1 1 5; 2 5 9; 3 9 13
 8. REPEAT ALL 3 3 1
 9. 13 5 6; 14 6 7; 15 7 8
10. REPEAT ALL 2 3 4
11. SUPPORTS
12. 1 4 PINNED
13. 2 3 FIXED
14. 5 6 7 8 FIXED BUT MZ FY
15. MEMBER RELEASE
16. 13 16 19 START MZ
17. 15 18 21 END MZ
18. CONSTANTS
19. E STEEL
20. MEMBER PROPERTIES
21. 1 2 3 10 11 12  TA ST TUB60608
22. 4 5 6 7 8 9   TA ST W10X100
23. 13 TO 18    TA ST W21X73
24. 19 21      TA ST W21X68
25. 20         TA ST W18X60
26. DRAW MEMBER JOINT SUPPORT
```

```
27. LOAD 1 DEAD LOAD
28. MEMBER LOAD
29. 13 15 16 18   UNIF GY -1.06
30. 14 17         UNIF GY -0.70
31. 19 20 21      UNIF GY -0.60
32. 20 CONC GY -5.6 8.0
33. 20 CONC GY -5.6 17.5
34. JOINT LOAD
35. 5 8 9 12     FY -20.6
36. 6 7 10 11    FY -37.5
37.     LOAD 2 LIVE LOAD PATTERN 1
38. MEMBER LOAD
39. 13 15 17  UNIF GY -.60
40. 19 21     UNIF GY -1.01
41. JOINT LOAD
42. 5 8 9 12    FY -23.4
43. 6 7 10 11   FY -19.2
44.     LOAD 3 LIVE LOAD PATTERN 2
45. MEMBER LOAD
46. 14 16 18   UNIF GY -0.60
47. 20         UNIF GY -1.01
48. JOINT LOAD
49. 6 7 10 11  FY -23.4
50. 5 9 8 12   FY -19.2
51.     LOAD 4 SEISMIC
52. MEMBER LOAD
53. 19 TO 21  UNIF GX 0.270
54. 16 TO 18  UNIF GX 0.247
55. LOAD 12 UNIT LOAD
56. JOINT LOAD
57. 13 FX 1.0
58. LOAD COMB 5 DEAD LOAD + LIVE LOAD
59. 1 1.0 2 1.0 3 1.0
60.  LOAD COMB 6 DEAD LOAD + LL PATTERN 1
61. 1 1.0 2 1.0
62.  LOAD COMB 7 DEAD LOAD + LL PATTERN 2
63. 1 1.0 3 1.0
64.  LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
65. 4 1.0 1 0.6
66. LOAD COMB 9  SEISMIC + 0.8 DEAD + 0.67 LIVE
67. 4 0.95 1 0.8 2 0.67 3 0.67
68. LOAD COMB 10 SEISMIC + 0.8 DEAD +0.67 LIVE
69. 4 0.95 1 0.8 2 0.67
70. PERFORM ANALYSIS
```

P R O B L E M S T A T I S T I C S

```
NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    16/   21/    8
ORIGINAL/FINAL BAND-WIDTH =    4/    4
TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    34
SIZE OF STIFFNESS MATRIX =     510 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE =  12.04/ 2047.7 MB,  EXMEM = 1942.9 MB
```

```
++ Processing Element Stiffness Matrix.          11:20:41
++ Processing Global Stiffness Matrix.           11:20:41
++ Processing Triangular Factorization.          11:20:41
++ Calculating Joint Displacements.              11:20:41
++ Calculating Member  Forces.                   11:20:41


  71. LOAD LIST 12
  72. PRINT DISP
```

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	12	.00000	.00000	.00000	.00000	.00000	.00003
2	12	.00000	.00000	.00000	.00000	.00000	.00000
3	12	.00000	.00000	.00000	.00000	.00000	.00000
4	12	.00000	.00000	.00000	.00000	.00000	.00003
5	12	.00000	.00005	.00000	.00000	.00000	-.00006
6	12	.00000	.00012	.00000	.00000	.00000	-.00003
7	12	.00000	-.00012	.00000	.00000	.00000	-.00003
8	12	.00000	-.00005	.00000	.00000	.00000	-.00006
9	12	.01954	.00010	.00000	.00000	.00000	-.00014
10	12	.01955	.00022	.00000	.00000	.00000	-.00007
11	12	.01955	-.00022	.00000	.00000	.00000	-.00007
12	12	.01954	-.00010	.00000	.00000	.00000	-.00014
13	12	.04241	.00011	.00000	.00000	.00000	-.00013
14	12	.04162	.00025	.00000	.00000	.00000	-.00005
15	12	.04132	-.00025	.00000	.00000	.00000	-.00005
16	12	.04132	-.00011	.00000	.00000	.00000	-.00013

********** END OF LATEST ANALYSIS RESULT **********

73. LOAD LIST 1 TO 10
74. PRINT REACTION

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.00	82.21	.00	.00	.00	.00
	2	.00	71.79	.00	.00	.00	.00
	3	.00	46.89	.00	.00	.00	.00
	4	.50	-3.68	.00	.00	.00	.00
	5	.00	200.89	.00	.00	.00	.00
	6	.00	154.00	.00	.00	.00	.00
	7	.00	129.10	.00	.00	.00	.00
	8	.50	45.64	.00	.00	.00	.00
	9	.48	141.78	.00	.00	.00	.00
	10	.48	110.37	.00	.00	.00	.00
4	1	.00	82.21	.00	.00	.00	.00
	2	.00	71.79	.00	.00	.00	.00
	3	.00	46.89	.00	.00	.00	.00
	4	.50	3.68	.00	.00	.00	.00
	5	.00	200.89	.00	.00	.00	.00
	6	.00	154.00	.00	.00	.00	.00
	7	.00	129.10	.00	.00	.00	.00
	8	.50	53.01	.00	.00	.00	.00
	9	.48	148.78	.00	.00	.00	.00
	10	.48	117.37	.00	.00	.00	.00
2	1	-4.25	169.81	.00	.00	.00	19.14
	2	-3.76	83.05	.00	.00	.00	16.92
	3	1.52	81.94	.00	.00	.00	-6.85
	4	5.26	-25.01	.00	.00	.00	-23.70
	5	-6.49	334.79	.00	.00	.00	29.21
	6	-8.01	252.85	.00	.00	.00	36.06
	7	-2.73	251.75	.00	.00	.00	12.29
	8	2.71	76.88	.00	.00	.00	-12.22
	9	.10	222.63	.00	.00	.00	-.46
	10	-.92	167.73	.00	.00	.00	4.13
3	1	4.25	169.81	.00	.00	.00	-19.14
	2	3.76	83.05	.00	.00	.00	-16.92
	3	-1.52	81.94	.00	.00	.00	6.85
	4	5.26	25.01	.00	.00	.00	-23.70
	5	6.49	334.79	.00	.00	.00	-29.21
	6	8.01	252.85	.00	.00	.00	-36.06
	7	2.73	251.75	.00	.00	.00	-12.29
	8	7.81	126.89	.00	.00	.00	-35.19
	9	9.90	270.14	.00	.00	.00	-44.58
	10	10.92	215.24	.00	.00	.00	-49.17
5	1	.00	.00	.00	.00	.00	.00
	2	-.01	.00	.00	.00	.00	.00
	3	.00	.00	.00	.00	.00	.00
	4	-1.25	.00	.00	.00	.00	.00
	5	.00	.00	.00	.00	.00	.00
	6	.00	.00	.00	.00	.00	.00
	7	.00	.00	.00	.00	.00	.00
	8	-1.25	.00	.00	.00	.00	.00

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	9	-1.19	.00	.00	.00	.00	.00
	10	-1.19	.00	.00	.00	.00	.00
6	1	-4.01	.00	.00	.00	.00	.00
	2	2.72	.00	.00	.00	.00	.00
	3	-4.05	.00	.00	.00	.00	.00
	4	-31.01	.00	.00	.00	.00	.00
	5	-5.34	.00	.00	.00	.00	.00
	6	-1.29	.00	.00	.00	.00	.00
	7	-8.06	.00	.00	.00	.00	.00
	8	-33.42	.00	.00	.00	.00	.00
	9	-33.56	.00	.00	.00	.00	.00
	10	-30.85	.00	.00	.00	.00	.00
7	1	4.01	.00	.00	.00	.00	.00
	2	-2.72	.00	.00	.00	.00	.00
	3	4.05	.00	.00	.00	.00	.00
	4	-31.01	.00	.00	.00	.00	.00
	5	5.34	.00	.00	.00	.00	.00
	6	1.29	.00	.00	.00	.00	.00
	7	8.06	.00	.00	.00	.00	.00
	8	-28.61	.00	.00	.00	.00	.00
	9	-25.36	.00	.00	.00	.00	.00
	10	-28.08	.00	.00	.00	.00	.00
8	1	.00	.00	.00	.00	.00	.00
	2	.01	.00	.00	.00	.00	.00
	3	.00	.00	.00	.00	.00	.00
	4	-1.25	.00	.00	.00	.00	.00
	5	.00	.00	.00	.00	.00	.00
	6	.00	.00	.00	.00	.00	.00
	7	.00	.00	.00	.00	.00	.00
	8	-1.25	.00	.00	.00	.00	.00
	9	-1.19	.00	.00	.00	.00	.00
	10	-1.18	.00	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

75. PRINT FORCES

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	82.21	.00	.00	.00	.00	.00
		5	-82.21	.00	.00	.00	.00	.00
	2	1	71.79	.00	.00	.00	.00	.00
		5	-71.79	.00	.00	.00	.00	-.02
	3	1	46.89	.00	.00	.00	.00	.00
		5	-46.89	.00	.00	.00	.00	.00
	4	1	-3.68	-.50	.00	.00	.00	.00
		5	3.68	.50	.00	.00	.00	-7.03
	5	1	200.89	.00	.00	.00	.00	.00
		5	-200.89	.00	.00	.00	.00	-.01
	6	1	154.00	.00	.00	.00	.00	.00
		5	-154.00	.00	.00	.00	.00	-.01
	7	1	129.10	.00	.00	.00	.00	.00
		5	-129.10	.00	.00	.00	.00	.01
	8	1	45.64	-.50	.00	.00	.00	.00
		5	-45.64	.50	.00	.00	.00	-7.03
	9	1	141.78	-.48	.00	.00	.00	.00
		5	-141.78	.48	.00	.00	.00	-6.69
	10	1	110.37	-.48	.00	.00	.00	.00
		5	-110.37	.48	.00	.00	.00	-6.69
2	1	5	45.54	.00	.00	.00	.00	.00
		9	-45.54	.00	.00	.00	.00	.00
	2	5	39.07	.00	.00	.00	.00	.02
		9	-39.07	.00	.00	.00	.00	.04
	3	5	27.98	.00	.00	.00	.00	.00
		9	-27.98	.00	.00	.00	.00	-.01
	4	5	-2.73	.75	.00	.00	.00	7.03
		9	2.73	-.75	.00	.00	.00	3.44
	5	5	112.58	.00	.00	.00	.00	.01
		9	-112.58	.00	.00	.00	.00	.03
	6	5	84.60	.00	.00	.00	.00	.01
		9	-84.60	.00	.00	.00	.00	.04
	7	5	73.51	.00	.00	.00	.00	-.01
		9	-73.51	.00	.00	.00	.00	-.01
	8	5	24.59	.75	.00	.00	.00	7.03
		9	-24.59	-.75	.00	.00	.00	3.44
	9	5	78.75	.71	.00	.00	.00	6.69
		9	-78.75	-.71	.00	.00	.00	3.29
	10	5	60.01	.71	.00	.00	.00	6.69
		9	-60.01	-.71	.00	.00	.00	3.29
3	1	9	8.90	.00	.00	.00	.00	.00
		13	-8.90	.00	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	9	16.22	.00	.00	.00	.00	-.04
		13	-16.22	.00	.00	.00	.00	.00
	3	9	-.62	.00	.00	.00	.00	.01
		13	.62	.00	.00	.00	.00	.00
	4	9	-.98	-.25	.00	.00	.00	-3.44
		13	.98	.25	.00	.00	.00	.00
	5	9	24.51	.00	.00	.00	.00	-.03
		13	-24.51	.00	.00	.00	.00	.00
	6	9	25.12	.00	.00	.00	.00	-.04
		13	-25.12	.00	.00	.00	.00	.00
	7	9	8.29	.00	.00	.00	.00	.01
		13	-8.29	.00	.00	.00	.00	.00
	8	9	4.36	-.25	.00	.00	.00	-3.44
		13	-4.36	.25	.00	.00	.00	.00
	9	9	16.65	-.23	.00	.00	.00	-3.29
		13	-16.65	.23	.00	.00	.00	.00
	10	9	17.06	-.24	.00	.00	.00	-3.29
		13	-17.06	.24	.00	.00	.00	.00
4	1	2	169.81	4.25	.00	.00	.00	19.14
		6	-169.81	-4.25	.00	.00	.00	40.37
	2	2	83.05	3.76	.00	.00	.00	16.92
		6	-83.05	-3.76	.00	.00	.00	35.69
	3	2	81.94	-1.52	.00	.00	.00	-6.85
		6	-81.94	1.52	.00	.00	.00	-14.44
	4	2	-25.01	-5.26	.00	.00	.00	-23.70
		6	25.01	5.26	.00	.00	.00	-49.99
	5	2	334.79	6.49	.00	.00	.00	29.21
		6	-334.79	-6.49	.00	.00	.00	61.61
	6	2	252.85	8.01	.00	.00	.00	36.06
		6	-252.85	-8.01	.00	.00	.00	76.05
	7	2	251.75	2.73	.00	.00	.00	12.29
		6	-251.75	-2.73	.00	.00	.00	25.92
	8	2	76.88	-2.71	.00	.00	.00	-12.22
		6	-76.88	2.71	.00	.00	.00	-25.77
	9	2	222.63	-.10	.00	.00	.00	-.46
		6	-222.63	.10	.00	.00	.00	-.96
	10	2	167.73	.92	.00	.00	.00	4.13
		6	-167.73	-.92	.00	.00	.00	8.71
5	1	6	98.65	8.26	.00	.00	.00	58.33
		10	-98.65	-8.26	.00	.00	.00	57.25
	2	6	50.07	1.04	.00	.00	.00	23.61
		10	-50.07	-1.04	.00	.00	.00	-9.04
	3	6	50.60	2.53	.00	.00	.00	3.76
		10	-50.60	-2.53	.00	.00	.00	31.72
	4	6	-17.78	25.75	.00	.00	.00	191.13
		10	17.78	-25.75	.00	.00	.00	169.34

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	6	199.32	11.83	.00	.00	.00	85.71
		10	-199.32	-11.83	.00	.00	.00	79.93
	6	6	148.72	9.30	.00	.00	.00	81.94
		10	-148.72	-9.30	.00	.00	.00	48.21
	7	6	149.25	10.79	.00	.00	.00	62.10
		10	-149.25	-10.79	.00	.00	.00	88.97
	8	6	41.41	30.70	.00	.00	.00	226.13
		10	-41.41	-30.70	.00	.00	.00	203.69
	9	6	129.48	33.46	.00	.00	.00	246.58
		10	-129.48	-33.46	.00	.00	.00	221.87
	10	6	95.58	31.76	.00	.00	.00	244.06
		10	-95.58	-31.76	.00	.00	.00	200.62
6	1	10	27.45	5.49	.00	.00	.00	44.78
		14	-27.45	-5.49	.00	.00	.00	32.13
	2	10	22.67	7.03	.00	.00	.00	17.38
		14	-22.67	-7.03	.00	.00	.00	81.00
	3	10	13.49	.51	.00	.00	.00	22.69
		14	-13.49	-.51	.00	.00	.00	-15.54
	4	10	-4.54	14.08	.00	.00	.00	89.06
		14	4.54	-14.08	.00	.00	.00	108.10
	5	10	63.61	13.03	.00	.00	.00	84.86
		14	-63.61	-13.03	.00	.00	.00	97.59
	6	10	50.11	12.52	.00	.00	.00	62.16
		14	-50.11	-12.52	.00	.00	.00	113.13
	7	10	40.94	6.01	.00	.00	.00	67.48
		14	-40.94	-6.01	.00	.00	.00	16.59
	8	10	11.93	17.38	.00	.00	.00	115.94
		14	-11.93	-17.38	.00	.00	.00	127.38
	9	10	41.87	22.82	.00	.00	.00	147.29
		14	-41.87	-22.82	.00	.00	.00	172.26
	10	10	32.83	22.48	.00	.00	.00	132.08
		14	-32.83	-22.48	.00	.00	.00	182.67
7	1	3	169.81	-4.25	.00	.00	.00	-19.14
		7	-169.81	4.25	.00	.00	.00	-40.37
	2	3	83.05	-3.76	.00	.00	.00	-16.92
		7	-83.05	3.76	.00	.00	.00	-35.69
	3	3	81.94	1.52	.00	.00	.00	6.85
		7	-81.94	-1.52	.00	.00	.00	14.44
	4	3	25.01	-5.26	.00	.00	.00	-23.70
		7	-25.01	5.26	.00	.00	.00	-49.99
	5	3	334.79	-6.49	.00	.00	.00	-29.21
		7	-334.79	6.49	.00	.00	.00	-61.61
	6	3	252.85	-8.01	.00	.00	.00	-36.06
		7	-252.85	8.01	.00	.00	.00	-76.05
	7	3	251.75	-2.73	.00	.00	.00	-12.29
		7	-251.75	2.73	.00	.00	.00	-25.92

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	3	126.89	-7.81	.00	.00	.00	-35.19
		7	-126.89	7.81	.00	.00	.00	-74.21
	9	3	270.14	-9.90	.00	.00	.00	-44.58
		7	-270.14	9.90	.00	.00	.00	-94.02
	10	3	215.24	-10.92	.00	.00	.00	-49.17
		7	-215.24	10.92	.00	.00	.00	-103.70
8	1	7	98.65	-8.26	.00	.00	.00	-58.33
		11	-98.65	8.26	.00	.00	.00	-57.25
	2	7	50.07	-1.04	.00	.00	.00	-23.61
		11	-50.07	1.04	.00	.00	.00	9.04
	3	7	50.60	-2.53	.00	.00	.00	-3.76
		11	-50.60	2.53	.00	.00	.00	-31.72
	4	7	17.78	25.75	.00	.00	.00	191.13
		11	-17.78	-25.75	.00	.00	.00	169.34
	5	7	199.32	-11.83	.00	.00	.00	-85.71
		11	-199.32	11.83	.00	.00	.00	-79.93
	6	7	148.72	-9.30	.00	.00	.00	-81.94
		11	-148.72	9.30	.00	.00	.00	-48.21
	7	7	149.25	-10.79	.00	.00	.00	-62.10
		11	-149.25	10.79	.00	.00	.00	-88.97
	8	7	76.97	20.79	.00	.00	.00	156.14
		11	-76.97	-20.79	.00	.00	.00	134.99
	9	7	163.26	15.46	.00	.00	.00	116.57
		11	-163.26	-15.46	.00	.00	.00	99.88
	10	7	129.36	17.16	.00	.00	.00	119.09
		11	-129.36	-17.16	.00	.00	.00	121.13
9	1	11	27.45	-5.49	.00	.00	.00	-44.78
		15	-27.45	5.49	.00	.00	.00	-32.13
	2	11	22.67	-7.03	.00	.00	.00	-17.38
		15	-22.67	7.03	.00	.00	.00	-81.00
	3	11	13.49	-.51	.00	.00	.00	-22.69
		15	-13.49	.51	.00	.00	.00	15.54
	4	11	4.54	14.08	.00	.00	.00	89.06
		15	-4.54	-14.08	.00	.00	.00	108.10
	5	11	63.61	-13.03	.00	.00	.00	-84.86
		15	-63.61	13.03	.00	.00	.00	-97.59
	6	11	50.11	-12.52	.00	.00	.00	-62.16
		15	-50.11	12.52	.00	.00	.00	-113.13
	7	11	40.94	-6.01	.00	.00	.00	-67.48
		15	-40.94	6.01	.00	.00	.00	-16.59
	8	11	21.01	10.79	.00	.00	.00	62.19
		15	-21.01	-10.79	.00	.00	.00	88.82
	9	11	50.50	3.93	.00	.00	.00	21.93
		15	-50.50	-3.93	.00	.00	.00	33.13
	10	11	41.46	4.28	.00	.00	.00	37.14
		15	-41.46	-4.28	.00	.00	.00	22.72

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
10	1	4	82.21	.00	.00	.00	.00	.00
		8	-82.21	.00	.00	.00	.00	.00
	2	4	71.79	.00	.00	.00	.00	.00
		8	-71.79	.00	.00	.00	.00	.02
	3	4	46.89	.00	.00	.00	.00	.00
		8	-46.89	.00	.00	.00	.00	.00
	4	4	3.68	-.50	.00	.00	.00	.00
		8	-3.68	.50	.00	.00	.00	-7.03
	5	4	200.89	.00	.00	.00	.00	.00
		8	-200.89	.00	.00	.00	.00	.01
	6	4	154.00	.00	.00	.00	.00	.00
		8	-154.00	.00	.00	.00	.00	.01
	7	4	129.10	.00	.00	.00	.00	.00
		8	-129.10	.00	.00	.00	.00	-.01
	8	4	53.01	-.50	.00	.00	.00	.00
		8	-53.01	.50	.00	.00	.00	-7.03
	9	4	148.78	-.48	.00	.00	.00	.00
		8	-148.78	.48	.00	.00	.00	-6.67
	10	4	117.37	-.48	.00	.00	.00	.00
		8	-117.37	.48	.00	.00	.00	-6.67
11	1	8	45.54	.00	.00	.00	.00	.00
		12	-45.54	.00	.00	.00	.00	.00
	2	8	39.07	.00	.00	.00	.00	-.02
		12	-39.07	.00	.00	.00	.00	-.04
	3	8	27.98	.00	.00	.00	.00	.00
		12	-27.98	.00	.00	.00	.00	.01
	4	8	2.73	.75	.00	.00	.00	7.03
		12	-2.73	-.75	.00	.00	.00	3.44
	5	8	112.58	.00	.00	.00	.00	-.01
		12	-112.58	.00	.00	.00	.00	-.03
	6	8	84.60	.00	.00	.00	.00	-.01
		12	-84.60	.00	.00	.00	.00	-.04
	7	8	73.51	.00	.00	.00	.00	.01
		12	-73.51	.00	.00	.00	.00	.01
	8	8	30.05	.75	.00	.00	.00	7.03
		12	-30.05	-.75	.00	.00	.00	3.44
	9	8	83.94	.71	.00	.00	.00	6.67
		12	-83.94	-.71	.00	.00	.00	3.25
	10	8	65.19	.71	.00	.00	.00	6.67
		12	-65.19	-.71	.00	.00	.00	3.24
12	1	12	8.90	.00	.00	.00	.00	.00
		16	-8.90	.00	.00	.00	.00	.00
	2	12	16.22	.00	.00	.00	.00	.04
		16	-16.22	.00	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	12	-.62	.00	.00	.00	.00	-.01
		16	.62	.00	.00	.00	.00	.00
	4	12	.98	-.25	.00	.00	.00	-3.44
		16	-.98	.25	.00	.00	.00	.00
	5	12	24.51	.00	.00	.00	.00	.03
		16	-24.51	.00	.00	.00	.00	.00
	6	12	25.12	.00	.00	.00	.00	.04
		16	-25.12	.00	.00	.00	.00	.00
	7	12	8.29	.00	.00	.00	.00	-.01
		16	-8.29	.00	.00	.00	.00	.00
	8	12	6.32	-.25	.00	.00	.00	-3.44
		16	-6.32	.25	.00	.00	.00	.00
	9	12	18.51	-.23	.00	.00	.00	-3.25
		16	-18.51	.23	.00	.00	.00	.00
	10	12	18.92	-.23	.00	.00	.00	-3.24
		16	-18.92	.23	.00	.00	.00	.00
13	1	5	.00	16.08	.00	.00	.00	.00
		6	.00	24.73	.00	.00	.00	-166.56
	2	5	.00	9.32	.00	.00	.00	.00
		6	.00	13.78	.00	.00	.00	-85.76
	3	5	.00	-.29	.00	.00	.00	.00
		6	.00	.29	.00	.00	.00	-11.13
	4	5	.00	-.96	.00	.00	.00	.00
		6	.00	.96	.00	.00	.00	-36.81
	5	5	.00	25.11	.00	.00	.00	.00
		6	.00	38.80	.00	.00	.00	-263.45
	6	5	.00	25.40	.00	.00	.00	.00
		6	.00	38.51	.00	.00	.00	-252.32
	7	5	.00	15.79	.00	.00	.00	.00
		6	.00	25.02	.00	.00	.00	-177.69
	8	5	.00	8.69	.00	.00	.00	.00
		6	.00	15.79	.00	.00	.00	-136.75
	9	5	.00	18.01	.00	.00	.00	.00
		6	.00	30.12	.00	.00	.00	-233.13
	10	5	.00	18.20	.00	.00	.00	.00
		6	.00	29.92	.00	.00	.00	-225.68
14	1	6	.00	8.93	.00	.00	.00	67.86
		7	.00	8.93	.00	.00	.00	-67.86
	2	6	.00	.00	.00	.00	.00	26.46
		7	.00	.00	.00	.00	.00	-26.46
	3	6	.00	7.65	.00	.00	.00	21.80
		7	.00	7.65	.00	.00	.00	-21.80
	4	6	.00	-8.18	.00	.00	.00	-104.33
		7	.00	8.18	.00	.00	.00	-104.33
	5	6	.00	16.58	.00	.00	.00	116.13
		7	.00	16.58	.00	.00	.00	-116.13

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	6	6	.00	8.93	.00	.00	.00	94.32
		7	.00	8.93	.00	.00	.00	-94.32
	7	6	.00	16.58	.00	.00	.00	89.67
		7	.00	16.58	.00	.00	.00	-89.67
	8	6	.00	-2.83	.00	.00	.00	-63.62
		7	.00	13.54	.00	.00	.00	-145.05
	9	6	.00	4.49	.00	.00	.00	-12.49
		7	.00	20.04	.00	.00	.00	-185.74
	10	6	.00	-.63	.00	.00	.00	-27.10
		7	.00	14.91	.00	.00	.00	-171.13
15	1	7	.00	24.73	.00	.00	.00	166.56
		8	.00	16.08	.00	.00	.00	.00
	2	7	.00	13.78	.00	.00	.00	85.76
		8	.00	9.32	.00	.00	.00	.00
	3	7	.00	.29	.00	.00	.00	11.13
		8	.00	-.29	.00	.00	.00	.00
	4	7	.00	-.96	.00	.00	.00	-36.81
		8	.00	.96	.00	.00	.00	.00
	5	7	.00	38.80	.00	.00	.00	263.45
		8	.00	25.11	.00	.00	.00	.00
	6	7	.00	38.51	.00	.00	.00	252.32
		8	.00	25.40	.00	.00	.00	.00
	7	7	.00	25.02	.00	.00	.00	177.69
		8	.00	15.79	.00	.00	.00	.00
	8	7	.00	13.88	.00	.00	.00	63.12
		8	.00	10.60	.00	.00	.00	.00
	9	7	.00	28.30	.00	.00	.00	163.19
		8	.00	19.82	.00	.00	.00	.00
	10	7	.00	28.11	.00	.00	.00	155.74
		8	.00	20.02	.00	.00	.00	.00
16	1	9	.00	16.03	.00	.00	.00	.00
		10	.00	24.78	.00	.00	.00	-168.38
	2	9	-.01	-.55	.00	.00	.00	.00
		10	.01	.55	.00	.00	.00	-21.28
	3	9	.00	9.39	.00	.00	.00	.00
		10	.00	13.71	.00	.00	.00	-83.11
	4	9	-.99	-1.75	.00	.00	.00	.00
		10	-8.52	1.75	.00	.00	.00	-67.31
	5	9	-.01	24.87	.00	.00	.00	.00
		10	.01	39.04	.00	.00	.00	-272.77
	6	9	-.01	15.48	.00	.00	.00	.00
		10	.01	25.33	.00	.00	.00	-189.66
	7	9	.00	25.42	.00	.00	.00	.00
		10	.00	38.49	.00	.00	.00	-251.49
	8	9	-.99	7.87	.00	.00	.00	.00
		10	-8.52	16.62	.00	.00	.00	-168.33

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	9	9	-.95	17.09	.00	.00	.00	.00
		10	-8.09	31.04	.00	.00	.00	-268.59
	10	9	-.95	10.79	.00	.00	.00	.00
		10	-8.09	21.85	.00	.00	.00	-212.90
17	1	10	-2.76	8.93	.00	.00	.00	66.34
		11	2.76	8.93	.00	.00	.00	-66.34
	2	10	5.98	7.65	.00	.00	.00	12.94
		11	-5.98	7.65	.00	.00	.00	-12.94
	3	10	-2.02	.00	.00	.00	.00	28.70
		11	2.02	.00	.00	.00	.00	-28.70
	4	10	-3.15	-14.99	.00	.00	.00	-191.10
		11	-3.15	14.99	.00	.00	.00	-191.10
	5	10	1.20	16.58	.00	.00	.00	107.98
		11	-1.20	16.58	.00	.00	.00	-107.98
	6	10	3.22	16.58	.00	.00	.00	79.28
		11	-3.22	16.58	.00	.00	.00	-79.28
	7	10	-4.78	8.93	.00	.00	.00	95.05
		11	4.78	8.93	.00	.00	.00	-95.05
	8	10	-4.81	-9.63	.00	.00	.00	-151.29
		11	-1.49	20.34	.00	.00	.00	-230.90
	9	10	-2.55	-1.97	.00	.00	.00	-100.57
		11	-3.43	26.50	.00	.00	.00	-262.52
	10	10	-1.20	-1.97	.00	.00	.00	-119.80
		11	-4.79	26.50	.00	.00	.00	-243.29
18	1	11	.00	24.78	.00	.00	.00	168.38
		12	.00	16.03	.00	.00	.00	.00
	2	11	-.01	.55	.00	.00	.00	21.28
		12	.01	-.55	.00	.00	.00	.00
	3	11	.00	13.71	.00	.00	.00	83.11
		12	.00	9.39	.00	.00	.00	.00
	4	11	-8.52	-1.75	.00	.00	.00	-67.31
		12	-.99	1.75	.00	.00	.00	.00
	5	11	-.01	39.04	.00	.00	.00	272.77
		12	.01	24.87	.00	.00	.00	.00
	6	11	-.01	25.33	.00	.00	.00	189.66
		12	.01	15.48	.00	.00	.00	.00
	7	11	.00	38.49	.00	.00	.00	251.49
		12	.00	25.42	.00	.00	.00	.00
	8	11	-8.52	13.12	.00	.00	.00	33.72
		12	-.99	11.37	.00	.00	.00	.00
	9	11	-8.09	27.72	.00	.00	.00	140.71
		12	-.94	20.41	.00	.00	.00	.00
	10	11	-8.09	18.53	.00	.00	.00	85.02
		12	-.94	14.12	.00	.00	.00	.00
19	1	13	.00	8.90	.00	.00	.00	.00
		14	.00	14.20	.00	.00	.00	-101.89

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	13	.00	16.22	.00	.00	.00	.00
		14	.00	22.67	.00	.00	.00	-124.13
	3	13	.00	-.62	.00	.00	.00	.00
		14	.00	.62	.00	.00	.00	-23.69
	4	13	.25	-.98	.00	.00	.00	.00
		14	-10.64	.98	.00	.00	.00	-37.73
	5	13	.00	24.51	.00	.00	.00	.00
		14	.00	37.48	.00	.00	.00	-249.71
	6	13	.00	25.12	.00	.00	.00	.00
		14	.00	36.86	.00	.00	.00	-226.02
	7	13	.00	8.29	.00	.00	.00	.00
		14	.00	14.81	.00	.00	.00	-125.57
	8	13	.25	4.36	.00	.00	.00	.00
		14	-10.64	9.50	.00	.00	.00	-98.86
	9	13	.24	16.65	.00	.00	.00	.00
		14	-10.11	27.89	.00	.00	.00	-216.39
	10	13	.24	17.06	.00	.00	.00	.00
		14	-10.11	27.47	.00	.00	.00	-200.52
20	1	14	-5.49	13.25	.00	.00	.00	69.76
		15	5.49	13.25	.00	.00	.00	-69.76
	2	14	-7.02	.00	.00	.00	.00	43.13
		15	7.02	.00	.00	.00	.00	-43.13
	3	14	-.51	12.88	.00	.00	.00	39.23
		15	.51	12.88	.00	.00	.00	-39.23
	4	14	-3.44	-5.52	.00	.00	.00	-70.37
		15	-3.44	5.52	.00	.00	.00	-70.37
	5	14	-13.03	26.13	.00	.00	.00	152.12
		15	13.03	26.13	.00	.00	.00	-152.11
	6	14	-12.52	13.25	.00	.00	.00	112.89
		15	12.52	13.25	.00	.00	.00	-112.89
	7	14	-6.01	26.13	.00	.00	.00	108.98
		15	6.01	26.13	.00	.00	.00	-108.98
	8	14	-6.74	2.43	.00	.00	.00	-28.52
		15	-.15	13.47	.00	.00	.00	-112.23
	9	14	-12.71	13.98	.00	.00	.00	44.13
		15	6.17	24.47	.00	.00	.00	-177.84
	10	14	-12.37	5.36	.00	.00	.00	17.85
		15	5.83	15.84	.00	.00	.00	-151.56
21	1	15	.00	14.20	.00	.00	.00	101.89
		16	.00	8.90	.00	.00	.00	.00
	2	15	.00	22.67	.00	.00	.00	124.13
		16	.00	16.22	.00	.00	.00	.00
	3	15	.00	.62	.00	.00	.00	23.69
		16	.00	-.62	.00	.00	.00	.00
	4	15	-10.64	-.98	.00	.00	.00	-37.73
		16	.25	.98	.00	.00	.00	.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	15	.00	37.48	.00	.00	.00	249.71
		16	.00	24.51	.00	.00	.00	.00
	6	15	.00	36.86	.00	.00	.00	226.02
		16	.00	25.12	.00	.00	.00	.00
	7	15	.00	14.81	.00	.00	.00	125.57
		16	.00	8.29	.00	.00	.00	.00
	8	15	-10.64	7.54	.00	.00	.00	23.41
		16	.25	6.32	.00	.00	.00	.00
	9	15	-10.11	26.03	.00	.00	.00	144.71
		16	.23	18.51	.00	.00	.00	.00
	10	15	-10.11	25.61	.00	.00	.00	128.84
		16	.23	18.92	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

76. PRINT DISP

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00161
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00161
	9	.00000	.00000	.00000	.00000	.00000	.00153
	10	.00000	.00000	.00000	.00000	.00000	.00153
2	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
3	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
4	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00161
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00161
	9	.00000	.00000	.00000	.00000	.00000	.00153
	10	.00000	.00000	.00000	.00000	.00000	.00153
5	1	.00000	-.04580	.00000	.00000	.00000	.00000
	2	.00000	-.03999	.00000	.00000	.00000	-.00001
	3	.00000	-.02612	.00000	.00000	.00000	.00000
	4	.00000	.00205	.00000	.00000	.00000	-.00323
	5	.00000	-.11190	.00000	.00000	.00000	.00000
	6	.00000	-.08578	.00000	.00000	.00000	-.00001
	7	.00000	-.07191	.00000	.00000	.00000	.00000
	8	.00000	-.02543	.00000	.00000	.00000	-.00323

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	9	.00000	-.07898	.00000	.00000	.00000	-.00307
	10	.00000	-.06148	.00000	.00000	.00000	-.00308
6	1	.00000	-.03346	.00000	.00000	.00000	.00118
	2	.00000	-.01636	.00000	.00000	.00000	.00105
	3	.00000	-.01615	.00000	.00000	.00000	-.00042
	4	.00000	.00493	.00000	.00000	.00000	-.00147
	5	.00000	-.06597	.00000	.00000	.00000	.00181
	6	.00000	-.04982	.00000	.00000	.00000	.00223
	7	.00000	-.04961	.00000	.00000	.00000	.00076
	8	.00000	-.01515	.00000	.00000	.00000	-.00076
	9	.00000	-.04387	.00000	.00000	.00000	-.00003
	10	.00000	-.03305	.00000	.00000	.00000	.00026
7	1	.00000	-.03346	.00000	.00000	.00000	-.00118
	2	.00000	-.01636	.00000	.00000	.00000	-.00105
	3	.00000	-.01615	.00000	.00000	.00000	.00042
	4	.00000	-.00493	.00000	.00000	.00000	-.00147
	5	.00000	-.06597	.00000	.00000	.00000	-.00181
	6	.00000	-.04982	.00000	.00000	.00000	-.00223
	7	.00000	-.04961	.00000	.00000	.00000	-.00076
	8	.00000	-.02500	.00000	.00000	.00000	-.00218
	9	.00000	-.05323	.00000	.00000	.00000	-.00276
	10	.00000	-.04241	.00000	.00000	.00000	-.00304
8	1	.00000	-.04580	.00000	.00000	.00000	.00000
	2	.00000	-.03999	.00000	.00000	.00000	.00001
	3	.00000	-.02612	.00000	.00000	.00000	.00000
	4	.00000	-.00205	.00000	.00000	.00000	-.00323
	5	.00000	-.11190	.00000	.00000	.00000	.00000
	6	.00000	-.08578	.00000	.00000	.00000	.00001
	7	.00000	-.07191	.00000	.00000	.00000	.00000
	8	.00000	-.02953	.00000	.00000	.00000	-.00323
	9	.00000	-.08288	.00000	.00000	.00000	-.00307
	10	.00000	-.06538	.00000	.00000	.00000	-.00307
9	1	-.00068	-.07116	.00000	.00000	.00000	.00001
	2	.00146	-.06175	.00000	.00000	.00000	.00000
	3	-.00050	-.04170	.00000	.00000	.00000	.00000
	4	.95398	.00357	.00000	.00000	.00000	-.00570
	5	.00029	-.17461	.00000	.00000	.00000	.00001
	6	.00078	-.13291	.00000	.00000	.00000	.00001
	7	-.00117	-.11286	.00000	.00000	.00000	.00001
	8	.95357	-.03912	.00000	.00000	.00000	-.00570
	9	.90639	-.12285	.00000	.00000	.00000	-.00541
	10	.90672	-.09491	.00000	.00000	.00000	-.00541
10	1	-.00068	-.05290	.00000	.00000	.00000	.00112
	2	.00147	-.02623	.00000	.00000	.00000	-.00077
	3	-.00050	-.02612	.00000	.00000	.00000	.00114
	4	.95119	.00843	.00000	.00000	.00000	-.00268
	5	.00029	-.10524	.00000	.00000	.00000	.00149
	6	.00079	-.07913	.00000	.00000	.00000	.00035

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	7	-.00117	-.07901	.00000	.00000	.00000	.00226
	8	.95079	-.02331	.00000	.00000	.00000	-.00201
	9	.90374	-.06938	.00000	.00000	.00000	-.00141
	10	.90407	-.05188	.00000	.00000	.00000	-.00217
11	1	.00068	-.05290	.00000	.00000	.00000	-.00112
	2	-.00147	-.02623	.00000	.00000	.00000	.00077
	3	.00050	-.02612	.00000	.00000	.00000	-.00114
	4	.95119	-.00843	.00000	.00000	.00000	-.00268
	5	-.00029	-.10524	.00000	.00000	.00000	-.00149
	6	-.00079	-.07913	.00000	.00000	.00000	-.00035
	7	.00117	-.07901	.00000	.00000	.00000	-.00226
	8	.95160	-.04017	.00000	.00000	.00000	-.00336
	9	.90352	-.08540	.00000	.00000	.00000	-.00369
	10	.90319	-.06790	.00000	.00000	.00000	-.00293
12	1	.00068	-.07116	.00000	.00000	.00000	-.00001
	2	-.00146	-.06175	.00000	.00000	.00000	.00000
	3	.00050	-.04170	.00000	.00000	.00000	.00000
	4	.95398	-.00357	.00000	.00000	.00000	-.00570
	5	-.00029	-.17461	.00000	.00000	.00000	-.00001
	6	-.00078	-.13291	.00000	.00000	.00000	-.00001
	7	.00117	-.11286	.00000	.00000	.00000	-.00001
	8	.95439	-.04627	.00000	.00000	.00000	-.00571
	9	.90617	-.12963	.00000	.00000	.00000	-.00543
	10	.90584	-.10169	.00000	.00000	.00000	-.00543
13	1	-.00165	-.07612	.00000	.00000	.00000	.00001
	2	-.00210	-.07078	.00000	.00000	.00000	.00003
	3	-.00015	-.04136	.00000	.00000	.00000	.00000
	4	1.64662	.00412	.00000	.00000	.00000	-.00334
	5	-.00390	-.18826	.00000	.00000	.00000	.00003
	6	-.00375	-.14690	.00000	.00000	.00000	.00004
	7	-.00180	-.11748	.00000	.00000	.00000	.00000
	8	1.64563	-.04155	.00000	.00000	.00000	-.00333
	9	1.56146	-.13212	.00000	.00000	.00000	-.00315
	10	1.56156	-.10441	.00000	.00000	.00000	-.00314
14	1	-.00165	-.05831	.00000	.00000	.00000	.00042
	2	-.00211	-.03070	.00000	.00000	.00000	.00278
	3	-.00015	-.02878	.00000	.00000	.00000	-.00100
	4	1.64228	.00933	.00000	.00000	.00000	-.00162
	5	-.00391	-.11778	.00000	.00000	.00000	.00220
	6	-.00375	-.08900	.00000	.00000	.00000	.00319
	7	-.00180	-.08708	.00000	.00000	.00000	-.00058
	8	1.64130	-.02566	.00000	.00000	.00000	-.00137
	9	1.55734	-.07763	.00000	.00000	.00000	-.00001
	10	1.55744	-.05835	.00000	.00000	.00000	.00065
15	1	.00165	-.05831	.00000	.00000	.00000	-.00042
	2	.00211	-.03070	.00000	.00000	.00000	-.00278
	3	.00015	-.02878	.00000	.00000	.00000	.00100
	4	1.64228	-.00933	.00000	.00000	.00000	-.00162

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	5	.00391	-.11778	.00000	.00000	.00000	-.00220
	6	.00375	-.08900	.00000	.00000	.00000	-.00319
	7	.00180	-.08708	.00000	.00000	.00000	.00058
	8	1.64327	-.04431	.00000	.00000	.00000	-.00187
	9	1.56300	-.09535	.00000	.00000	.00000	-.00307
	10	1.56290	-.07607	.00000	.00000	.00000	-.00373
16	1	.00165	-.07612	.00000	.00000	.00000	-.00001
	2	.00210	-.07078	.00000	.00000	.00000	-.00003
	3	.00015	-.04136	.00000	.00000	.00000	.00000
	4	1.64662	-.00412	.00000	.00000	.00000	-.00334
	5	.00390	-.18826	.00000	.00000	.00000	-.00003
	6	.00375	-.14690	.00000	.00000	.00000	-.00004
	7	.00180	-.11748	.00000	.00000	.00000	.00000
	8	1.64761	-.04979	.00000	.00000	.00000	-.00334
	9	1.56712	-.13994	.00000	.00000	.00000	-.00319
	10	1.56702	-.11223	.00000	.00000	.00000	-.00319

********** END OF LATEST ANALYSIS RESULT **********

```
77. PARAMETER
78. CODE AISC
79. UNIT INCH
80. FYLD 46.0 1 2 3 10 11 12
81. FYLD 50.0 4 TO 9 13 TO 21
82. UNIT FEET
83. TRACK 0.0
84. BEAM 1.0 MEMBER 13 TO 21
85. UNL 1.0 MEMBER 13 TO 21
86. LY  1.0 MEMBER 13 TO 21
87. KY 1.0 MEMBER 1 TO 12
88. KZ 1.4 MEMBER 4 TO 9
89. CHECK CODES
```

```
**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 21.1W                       *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    OCT 15, 2010                *
*           Time=    11:49:55                    *
*                                                *
*      USER ID:                                  *
**************************************************
```

```
 1. STAAD PLANE FRAME SHERWOOD MIDDLE SCHOOL  NEAR ELEVATOR
 2. UNIT FT KIP
 3. JOINT COORD
 4. 3 0.0 14.0 00; 4 18.5 14.0 0.0; 5 28.0 14.0 0.0; 6 56.5 14.0 0.0
 5. REPEAT ALL 2 0.0 14.0 0.0
 6. 1 0.0 0.0 0.0; 2 18.5 0.0
 7. MEMBER INCID
 8. 1 1 3; 2 3 7; 3 7 11; 4 2 4; 5 4 8; 6 8 12; 7 5 9; 8 9 13
 9. 9 6 10; 10 10 14; 11 3 4; 12 4 5; 13 7 8; 14 8 9; 15 9 10
10. 16 11 12; 17 12 13; 18 13 14
11. SUPPORTS
12. 1 2 5 PINNED
13. 6 FIXED
14. *MEMBER RELEASE
15. *12 END MZ
16. CONSTANTS
17. E STEEL
18. MEMBER PROPERTIES
19. 1 2 3 9 10  TA ST W8X58
20. 4 TO 8      TA ST W10X100
21. 11 13 TO 15 TA ST W21X62
22. 12          TA ST W14X61
23. 16 TO 18    TA ST W18X60
24. DRAW MEMBER JOINT SUPPORT
```

```
    25. LOAD 1 DEAD LOAD
    26. MEMBER LOAD
    27. 11 TO 18 UNIF GY -2.5
    28.     LOAD 2 LIVE LOAD PATTERN 1
    29. MEMBER LOAD
    30. 11 14 16 18 UNIF GY -1.5
    31.     LOAD 3 LIVE LOAD PATTERN 2
    32. MEMMBER LOAD
    33. 12 13 15  UNIF GY -1.5
    34.     LOAD 4 SEISMIC
    35. MEMBER LOAD
    36. 13 14 15  UNIF GX 0.429
    37. 16 17 18  UNIF GX 0.471
    38. LOAD 12 UNIT LOAD
    39. JOINT LOAD
    40. 13 FX 1.0
    41. LOAD COMB 5 DEAD LOAD + LIVE LOAD
    42. 1 1.0 2 1.0 3 1.0
    43.  LOAD COMB 6 DEAD LOAD + LL PATTERN 1
    44. 1 1.0 2 1.0
    45.  LOAD COMB 7 DEAD LOAD + LL PATTERN 2
    46. 1 1.0 3 1.0
    47.  LOAD COMB 8 SEISMIC + 0.6 DEAD LOAD
    48. 4 1.0 1 0.6
    49. LOAD COMB 9  SEISMIC + 0.8 DEAD + 0.67 LIVE
    50. 4 0.95 1 0.8 2 0.67 3 0.67
    51. LOAD COMB 10 SEISMIC = 0.8 DEAD - 0.67 LIVE
    52. 4 -0.95 1 0.8 2 0.67 3 0.67
    53. PERFORM ANALYSIS


           P R O B L E M   S T A T I S T I C S
           -----------------------------------

     NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    14/   18/    4
     ORIGINAL/FINAL BAND-WIDTH =   12/    3
     TOTAL PRIMARY LOAD CASES  =    5, TOTAL DEGREES OF FREEDOM =    33
     SIZE OF STIFFNESS MATRIX =     396 DOUBLE PREC. WORDS
     REQRD/AVAIL. DISK SPACE =  12.03/ 2047.7 MB,  EXMEM = 1942.9 MB

  ++ Processing Element Stiffness Matrix.              11:49:55
  ++ Processing Global Stiffness Matrix.               11:49:55
  ++ Processing Triangular Factorization.              11:49:55
  ++ Calculating Joint Displacements.                  11:49:55
  ++ Calculating Member  Forces.                       11:49:55


    54. LOAD LIST 12
    55. PRINT DISP
```

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
3	12	.00019	.00015	.00000	.00000	.00000	-.00001
4	12	.00013	.00017	.00000	.00000	.00000	-.00001
5	12	.00000	.00000	.00000	.00000	.00000	-.00004
6	12	.00000	.00000	.00000	.00000	.00000	.00000
7	12	.01269	.00027	.00000	.00000	.00000	-.00002
8	12	.01270	.00030	.00000	.00000	.00000	-.00003
9	12	.01270	-.00016	.00000	.00000	.00000	-.00003
10	12	.01268	-.00006	.00000	.00000	.00000	-.00004
11	12	.02515	.00031	.00000	.00000	.00000	-.00002
12	12	.02521	.00034	.00000	.00000	.00000	-.00002
13	12	.02532	-.00021	.00000	.00000	.00000	-.00002
14	12	.02524	-.00008	.00000	.00000	.00000	-.00002
1	12	.00000	.00000	.00000	.00000	.00000	.00000
2	12	.00000	.00000	.00000	.00000	.00000	.00001

********** END OF LATEST ANALYSIS RESULT **********

```
56. LOAD LIST 1 TO 10
57. PRINT REACTION
```

SUPPORT REACTIONS -UNIT KIP FEET STRUCTURE TYPE = PLANE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	1	.68	63.74	.00	.00	.00	.00
	2	.49	25.41	.00	.00	.00	.00
	3	-.08	12.85	.00	.00	.00	.00
	4	.35	-17.62	.00	.00	.00	.00
	5	1.09	102.00	.00	.00	.00	.00
	6	1.17	89.15	.00	.00	.00	.00
	7	.60	76.59	.00	.00	.00	.00
	8	.76	20.62	.00	.00	.00	.00
	9	1.15	59.88	.00	.00	.00	.00
	10	.48	93.37	.00	.00	.00	.00
2	1	-.93	100.40	.00	.00	.00	.00
	2	-.83	33.87	.00	.00	.00	.00
	3	.27	19.49	.00	.00	.00	.00
	4	1.29	-33.94	.00	.00	.00	.00
	5	-1.49	153.77	.00	.00	.00	.00
	6	-1.76	134.28	.00	.00	.00	.00
	7	-.66	119.89	.00	.00	.00	.00
	8	.73	26.30	.00	.00	.00	.00
	9	.10	83.83	.00	.00	.00	.00
	10	-2.35	148.32	.00	.00	.00	.00
5	1	3.37	124.52	.00	.00	.00	.00
	2	-.16	34.23	.00	.00	.00	.00
	3	2.18	32.99	.00	.00	.00	.00
	4	-44.52	45.06	.00	.00	.00	.00
	5	5.39	191.73	.00	.00	.00	.00
	6	3.21	158.75	.00	.00	.00	.00
	7	5.54	157.51	.00	.00	.00	.00
	8	-42.50	119.78	.00	.00	.00	.00
	9	-38.25	187.46	.00	.00	.00	.00
	10	46.34	101.84	.00	.00	.00	.00
6	1	-3.12	63.84	.00	.00	.00	13.14
	2	.50	18.99	.00	.00	.00	-2.34
	3	-2.37	19.42	.00	.00	.00	10.23
	4	-7.97	6.50	.00	.00	.00	60.43
	5	-4.98	102.25	.00	.00	.00	21.03
	6	-2.62	82.83	.00	.00	.00	10.80
	7	-5.48	83.26	.00	.00	.00	23.37
	8	-9.84	44.80	.00	.00	.00	68.32
	9	-11.32	82.98	.00	.00	.00	73.21
	10	3.83	70.63	.00	.00	.00	-41.61

********** END OF LATEST ANALYSIS RESULT **********

58. PRINT FORCES

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
1	1	1	63.74	-.68	.00	.00	.00	.00
		3	-63.74	.68	.00	.00	.00	-9.54
	2	1	25.41	-.49	.00	.00	.00	.00
		3	-25.41	.49	.00	.00	.00	-6.86
	3	1	12.85	.08	.00	.00	.00	.00
		3	-12.85	-.08	.00	.00	.00	1.18
	4	1	-17.62	-.35	.00	.00	.00	.00
		3	17.62	.35	.00	.00	.00	-4.95
	5	1	102.00	-1.09	.00	.00	.00	.00
		3	-102.00	1.09	.00	.00	.00	-15.22
	6	1	89.15	-1.17	.00	.00	.00	.00
		3	-89.15	1.17	.00	.00	.00	-16.40
	7	1	76.59	-.60	.00	.00	.00	.00
		3	-76.59	.60	.00	.00	.00	-8.37
	8	1	20.62	-.76	.00	.00	.00	.00
		3	-20.62	.76	.00	.00	.00	-10.68
	9	1	59.88	-1.15	.00	.00	.00	.00
		3	-59.88	1.15	.00	.00	.00	-16.14
	10	1	93.37	-.48	.00	.00	.00	.00
		3	-93.37	.48	.00	.00	.00	-6.74
2	1	3	42.77	-2.84	.00	.00	.00	-20.54
		7	-42.77	2.84	.00	.00	.00	-19.21
	2	3	12.75	-.72	.00	.00	.00	-8.06
		7	-12.75	.72	.00	.00	.00	-2.01
	3	3	12.96	-.95	.00	.00	.00	-4.04
		7	-12.96	.95	.00	.00	.00	-9.21
	4	3	-11.98	7.67	.00	.00	.00	54.88
		7	11.98	-7.67	.00	.00	.00	52.44
	5	3	68.49	-4.50	.00	.00	.00	-32.64
		7	-68.49	4.50	.00	.00	.00	-30.42
	6	3	55.52	-3.56	.00	.00	.00	-28.60
		7	-55.52	3.56	.00	.00	.00	-21.22
	7	3	55.73	-3.79	.00	.00	.00	-24.58
		7	-55.73	3.79	.00	.00	.00	-28.41
	8	3	13.68	5.96	.00	.00	.00	42.55
		7	-13.68	-5.96	.00	.00	.00	40.91
	9	3	40.06	3.89	.00	.00	.00	27.59
		7	-40.06	-3.89	.00	.00	.00	26.93
	10	3	62.83	-10.67	.00	.00	.00	-76.67
		7	-62.83	10.67	.00	.00	.00	-72.69
3	1	7	20.99	-3.37	.00	.00	.00	-21.19
		11	-20.99	3.37	.00	.00	.00	-25.94

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	2	7	12.67	-1.22	.00	.00	.00	-4.42
		11	-12.67	1.22	.00	.00	.00	-12.71
	3	7	.08	-.79	.00	.00	.00	-8.14
		11	-.08	.79	.00	.00	.00	-2.94
	4	7	-3.31	3.98	.00	.00	.00	26.28
		11	3.31	-3.98	.00	.00	.00	29.49
	5	7	33.74	-5.38	.00	.00	.00	-33.74
		11	-33.74	5.38	.00	.00	.00	-41.59
	6	7	33.66	-4.59	.00	.00	.00	-25.61
		11	-33.66	4.59	.00	.00	.00	-38.64
	7	7	21.06	-4.16	.00	.00	.00	-29.33
		11	-21.06	4.16	.00	.00	.00	-28.88
	8	7	9.28	1.96	.00	.00	.00	13.57
		11	-9.28	-1.96	.00	.00	.00	13.92
	9	7	22.19	-.26	.00	.00	.00	-.40
		11	-22.19	.26	.00	.00	.00	-3.22
	10	7	28.48	-7.83	.00	.00	.00	-50.33
		11	-28.48	7.83	.00	.00	.00	-59.25
4	1	2	100.40	.93	.00	.00	.00	.00
		4	-100.40	-.93	.00	.00	.00	13.07
	2	2	33.87	.83	.00	.00	.00	.00
		4	-33.87	-.83	.00	.00	.00	11.64
	3	2	19.49	-.27	.00	.00	.00	.00
		4	-19.49	.27	.00	.00	.00	-3.82
	4	2	-33.94	-1.29	.00	.00	.00	.00
		4	33.94	1.29	.00	.00	.00	-18.04
	5	2	153.77	1.49	.00	.00	.00	.00
		4	-153.77	-1.49	.00	.00	.00	20.89
	6	2	134.28	1.76	.00	.00	.00	.00
		4	-134.28	-1.76	.00	.00	.00	24.71
	7	2	119.89	.66	.00	.00	.00	.00
		4	-119.89	-.66	.00	.00	.00	9.24
	8	2	26.30	-.73	.00	.00	.00	.00
		4	-26.30	.73	.00	.00	.00	-10.21
	9	2	83.83	-.10	.00	.00	.00	.00
		4	-83.83	.10	.00	.00	.00	-1.45
	10	2	148.32	2.35	.00	.00	.00	.00
		4	-148.32	-2.35	.00	.00	.00	32.83
5	1	4	58.38	2.26	.00	.00	.00	15.72
		8	-58.38	-2.26	.00	.00	.00	15.89
	2	4	17.19	.79	.00	.00	.00	11.02
		8	-17.19	-.79	.00	.00	.00	-.01
	3	4	10.85	.54	.00	.00	.00	-1.66
		8	-10.85	-.54	.00	.00	.00	9.23
	4	4	-21.81	19.63	.00	.00	.00	140.30
		8	21.81	-19.63	.00	.00	.00	134.53

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	5	4	86.43	3.59	.00	.00	.00	25.08
		8	-86.43	-3.59	.00	.00	.00	25.11
	6	4	75.58	3.04	.00	.00	.00	26.74
		8	-75.58	-3.04	.00	.00	.00	15.88
	7	4	69.24	2.80	.00	.00	.00	14.06
		8	-69.24	-2.80	.00	.00	.00	25.11
	8	4	13.22	20.98	.00	.00	.00	149.73
		8	-13.22	-20.98	.00	.00	.00	144.06
	9	4	44.78	21.34	.00	.00	.00	152.13
		8	-44.78	-21.34	.00	.00	.00	146.69
	10	4	86.22	-15.95	.00	.00	.00	-114.43
		8	-86.22	15.95	.00	.00	.00	-108.91
6	1	8	29.13	4.12	.00	.00	.00	25.31
		12	-29.13	-4.12	.00	.00	.00	32.33
	2	8	9.60	1.65	.00	.00	.00	3.51
		12	-9.60	-1.65	.00	.00	.00	19.63
	3	8	.62	1.17	.00	.00	.00	13.08
		12	-.62	-1.17	.00	.00	.00	3.33
	4	8	-5.81	9.86	.00	.00	.00	64.62
		12	5.81	-9.86	.00	.00	.00	73.37
	5	8	39.36	6.94	.00	.00	.00	41.90
		12	-39.36	-6.94	.00	.00	.00	55.28
	6	8	38.73	5.77	.00	.00	.00	28.82
		12	-38.73	-5.77	.00	.00	.00	51.96
	7	8	29.75	5.29	.00	.00	.00	38.39
		12	-29.75	-5.29	.00	.00	.00	35.66
	8	8	11.67	12.33	.00	.00	.00	79.81
		12	-11.67	-12.33	.00	.00	.00	92.77
	9	8	24.64	14.55	.00	.00	.00	92.76
		12	-24.64	-14.55	.00	.00	.00	110.94
	10	8	35.68	-4.18	.00	.00	.00	-30.02
		12	-35.68	4.18	.00	.00	.00	-28.46
7	1	5	117.50	-2.54	.00	.00	.00	-4.99
		9	-117.50	2.54	.00	.00	.00	-30.52
	2	5	35.81	.43	.00	.00	.00	-.23
		9	-35.81	-.43	.00	.00	.00	6.29
	3	5	27.27	-1.96	.00	.00	.00	-2.95
		9	-27.27	1.96	.00	.00	.00	-24.48
	4	5	27.29	15.58	.00	.00	.00	100.96
		9	-27.29	-15.58	.00	.00	.00	117.19
	5	5	180.58	-4.06	.00	.00	.00	-8.17
		9	-180.58	4.06	.00	.00	.00	-48.71
	6	5	153.32	-2.10	.00	.00	.00	-5.22
		9	-153.32	2.10	.00	.00	.00	-24.23
	7	5	144.77	-4.50	.00	.00	.00	-7.94
		9	-144.77	4.50	.00	.00	.00	-55.00

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	5	97.80	14.06	.00	.00	.00	97.97
		9	-97.80	-14.06	.00	.00	.00	98.88
	9	5	162.20	11.75	.00	.00	.00	89.79
		9	-162.20	-11.75	.00	.00	.00	74.73
	10	5	110.34	-17.85	.00	.00	.00	-102.03
		9	-110.34	17.85	.00	.00	.00	-147.94
8	1	9	59.54	-9.83	.00	.00	.00	-62.20
		13	-59.54	9.83	.00	.00	.00	-75.38
	2	9	29.40	-3.87	.00	.00	.00	-13.41
		13	-29.40	3.87	.00	.00	.00	-40.70
	3	9	-.94	-2.43	.00	.00	.00	-25.55
		13	.94	2.43	.00	.00	.00	-8.49
	4	9	7.34	9.59	.00	.00	.00	63.54
		13	-7.34	-9.59	.00	.00	.00	70.69
	5	9	88.01	-16.12	.00	.00	.00	-101.16
		13	-88.01	16.12	.00	.00	.00	-124.57
	6	9	88.95	-13.69	.00	.00	.00	-75.61
		13	-88.95	13.69	.00	.00	.00	-116.08
	7	9	58.60	-12.26	.00	.00	.00	-87.74
		13	-58.60	12.26	.00	.00	.00	-83.87
	8	9	43.07	3.69	.00	.00	.00	26.22
		13	-43.07	-3.69	.00	.00	.00	25.46
	9	9	73.68	-2.97	.00	.00	.00	-15.50
		13	-73.68	2.97	.00	.00	.00	-26.11
	10	9	59.73	-21.19	.00	.00	.00	-136.22
		13	-59.73	21.19	.00	.00	.00	-160.41
9	1	6	63.84	3.12	.00	.00	.00	13.14
		10	-63.84	-3.12	.00	.00	.00	30.49
	2	6	18.99	-.50	.00	.00	.00	-2.34
		10	-18.99	.50	.00	.00	.00	-4.65
	3	6	19.42	2.37	.00	.00	.00	10.23
		10	-19.42	-2.37	.00	.00	.00	22.88
	4	6	6.50	7.97	.00	.00	.00	60.43
		10	-6.50	-7.97	.00	.00	.00	51.19
	5	6	102.25	4.98	.00	.00	.00	21.03
		10	-102.25	-4.98	.00	.00	.00	48.72
	6	6	82.83	2.62	.00	.00	.00	10.80
		10	-82.83	-2.62	.00	.00	.00	25.84
	7	6	83.26	5.48	.00	.00	.00	23.37
		10	-83.26	-5.48	.00	.00	.00	53.37
	8	6	44.80	9.84	.00	.00	.00	68.32
		10	-44.80	-9.84	.00	.00	.00	69.48
	9	6	82.98	11.32	.00	.00	.00	73.21
		10	-82.98	-11.32	.00	.00	.00	85.23
	10	6	70.63	-3.83	.00	.00	.00	-41.61
		10	-70.63	3.83	.00	.00	.00	-12.02

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
10	1	10	31.59	9.08	.00	.00	.00	57.58
		14	-31.59	-9.08	.00	.00	.00	69.48
	2	10	18.82	3.44	.00	.00	.00	12.90
		14	-18.82	-3.44	.00	.00	.00	35.20
	3	10	.24	2.05	.00	.00	.00	21.80
		14	-.24	-2.05	.00	.00	.00	6.92
	4	10	1.78	3.18	.00	.00	.00	19.60
		14	-1.78	-3.18	.00	.00	.00	24.99
	5	10	50.65	14.56	.00	.00	.00	92.27
		14	-50.65	-14.56	.00	.00	.00	111.59
	6	10	50.41	12.51	.00	.00	.00	70.48
		14	-50.41	-12.51	.00	.00	.00	104.68
	7	10	31.83	11.13	.00	.00	.00	79.38
		14	-31.83	-11.13	.00	.00	.00	76.39
	8	10	20.73	8.63	.00	.00	.00	54.14
		14	-20.73	-8.63	.00	.00	.00	66.68
	9	10	39.73	13.96	.00	.00	.00	87.92
		14	-39.73	-13.96	.00	.00	.00	107.54
	10	10	36.35	7.91	.00	.00	.00	50.69
		14	-36.35	-7.91	.00	.00	.00	60.06
11	1	3	-2.16	20.97	.00	.00	.00	30.08
		4	2.16	25.28	.00	.00	.00	-69.97
	2	3	-.23	12.65	.00	.00	.00	14.92
		4	.23	15.10	.00	.00	.00	-37.50
	3	3	-1.03	-.11	.00	.00	.00	2.86
		4	1.03	.11	.00	.00	.00	-4.91
	4	3	8.02	-5.64	.00	.00	.00	-49.93
		4	-8.02	5.64	.00	.00	.00	-54.40
	5	3	-3.42	33.51	.00	.00	.00	47.86
		4	3.42	40.49	.00	.00	.00	-112.37
	6	3	-2.39	33.62	.00	.00	.00	45.00
		4	2.39	40.38	.00	.00	.00	-107.47
	7	3	-3.19	20.86	.00	.00	.00	32.94
		4	3.19	25.39	.00	.00	.00	-74.88
	8	3	6.72	6.94	.00	.00	.00	-31.88
		4	-6.72	20.81	.00	.00	.00	-96.38
	9	3	5.05	19.82	.00	.00	.00	-11.45
		4	-5.05	35.77	.00	.00	.00	-136.07
	10	3	-10.19	30.54	.00	.00	.00	83.41
		4	10.19	25.06	.00	.00	.00	-32.71
12	1	4	-.83	16.74	.00	.00	.00	41.18
		5	.83	7.01	.00	.00	.00	4.99
	2	4	-.27	1.59	.00	.00	.00	14.83
		5	.27	-1.59	.00	.00	.00	.23

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	3	4	-.22	8.53	.00	.00	.00	10.39
		5	.22	5.72	.00	.00	.00	2.95
	4	4	28.94	-17.77	.00	.00	.00	-67.85
		5	-28.94	17.77	.00	.00	.00	-100.96
	5	4	-1.32	26.85	.00	.00	.00	66.40
		5	1.32	11.15	.00	.00	.00	8.17
	6	4	-1.11	18.32	.00	.00	.00	56.02
		5	1.11	5.43	.00	.00	.00	5.22
	7	4	-1.05	25.26	.00	.00	.00	51.57
		5	1.05	12.74	.00	.00	.00	7.94
	8	4	28.44	-7.73	.00	.00	.00	-43.14
		5	-28.44	21.98	.00	.00	.00	-97.97
	9	4	26.50	3.28	.00	.00	.00	-14.61
		5	-26.50	25.26	.00	.00	.00	-89.79
	10	4	-28.49	37.05	.00	.00	.00	114.31
		5	28.49	-8.50	.00	.00	.00	102.03
13	1	7	-.53	21.78	.00	.00	.00	40.39
		8	.53	24.47	.00	.00	.00	-65.28
	2	7	-.50	.08	.00	.00	.00	6.43
		8	.50	-.08	.00	.00	.00	-4.95
	3	7	.15	12.89	.00	.00	.00	17.34
		8	-.15	14.86	.00	.00	.00	-35.58
	4	7	-3.68	-8.67	.00	.00	.00	-78.71
		8	-4.25	8.67	.00	.00	.00	-81.74
	5	7	-.88	34.75	.00	.00	.00	64.17
		8	.88	39.25	.00	.00	.00	-105.81
	6	7	-1.03	21.86	.00	.00	.00	46.82
		8	1.03	24.39	.00	.00	.00	-70.23
	7	7	-.37	34.67	.00	.00	.00	57.74
		8	.37	39.33	.00	.00	.00	-100.87
	8	7	-4.00	4.39	.00	.00	.00	-54.48
		8	-3.94	23.36	.00	.00	.00	-120.91
	9	7	-4.15	17.87	.00	.00	.00	-26.54
		8	-3.39	37.72	.00	.00	.00	-157.03
	10	7	2.84	34.35	.00	.00	.00	123.02
		8	4.70	21.24	.00	.00	.00	-1.73
14	1	8	1.33	4.78	.00	.00	.00	24.08
		9	-1.33	18.97	.00	.00	.00	-91.45
	2	8	.36	7.67	.00	.00	.00	1.44
		9	-.36	6.58	.00	.00	.00	3.74
	3	8	.79	-4.63	.00	.00	.00	13.28
		9	-.79	4.63	.00	.00	.00	-57.29
	4	8	-5.52	-24.67	.00	.00	.00	-117.41
		9	1.44	24.67	.00	.00	.00	-116.98
	5	8	2.48	7.82	.00	.00	.00	38.80
		9	-2.48	30.18	.00	.00	.00	-144.99

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	6	8	1.69	12.45	.00	.00	.00	25.52
		9	-1.69	25.55	.00	.00	.00	-87.70
	7	8	2.12	.15	.00	.00	.00	37.36
		9	-2.12	23.60	.00	.00	.00	-148.73
	8	8	-4.72	-21.80	.00	.00	.00	-102.96
		9	.64	36.05	.00	.00	.00	-171.85
	9	8	-3.41	-17.58	.00	.00	.00	-82.41
		9	-.46	46.12	.00	.00	.00	-220.16
	10	8	7.08	29.30	.00	.00	.00	140.66
		9	-3.21	-.75	.00	.00	.00	2.10
15	1	9	-5.96	39.00	.00	.00	.00	184.16
		10	5.96	32.25	.00	.00	.00	-88.08
	2	9	-3.94	-.17	.00	.00	.00	3.38
		10	3.94	.17	.00	.00	.00	-8.24
	3	9	.31	23.57	.00	.00	.00	107.32
		10	-.31	19.18	.00	.00	.00	-44.68
	4	9	-7.44	-4.72	.00	.00	.00	-63.75
		10	-4.79	4.72	.00	.00	.00	-70.78
	5	9	-9.58	62.40	.00	.00	.00	294.86
		10	9.58	51.60	.00	.00	.00	-141.00
	6	9	-9.89	38.83	.00	.00	.00	187.54
		10	9.89	32.42	.00	.00	.00	-96.32
	7	9	-5.64	62.57	.00	.00	.00	291.48
		10	5.64	51.43	.00	.00	.00	-132.75
	8	9	-11.01	18.68	.00	.00	.00	46.75
		10	-1.21	24.07	.00	.00	.00	-123.63
	9	9	-14.26	42.39	.00	.00	.00	160.94
		10	2.64	43.25	.00	.00	.00	-173.16
	10	9	-.13	51.36	.00	.00	.00	282.06
		10	11.74	34.28	.00	.00	.00	-38.68
16	1	11	3.37	20.99	.00	.00	.00	25.94
		12	-3.37	25.26	.00	.00	.00	-65.44
	2	11	1.22	12.67	.00	.00	.00	12.71
		12	-1.22	15.08	.00	.00	.00	-34.94
	3	11	.79	.08	.00	.00	.00	2.94
		12	-.79	-.08	.00	.00	.00	-1.55
	4	11	-3.98	-3.31	.00	.00	.00	-29.49
		12	-4.73	3.31	.00	.00	.00	-31.74
	5	11	5.38	33.74	.00	.00	.00	41.59
		12	-5.38	40.26	.00	.00	.00	-101.93
	6	11	4.59	33.66	.00	.00	.00	38.64
		12	-4.59	40.34	.00	.00	.00	-100.38
	7	11	4.16	21.06	.00	.00	.00	28.88
		12	-4.16	25.19	.00	.00	.00	-66.99
	8	11	-1.96	9.28	.00	.00	.00	-13.92
		12	-6.75	18.47	.00	.00	.00	-71.01

MEMBER END FORCES STRUCTURE TYPE = PLANE

ALL UNITS ARE -- KIP FEET

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	9	11	.26	22.19	.00	.00	.00	3.22
		12	-8.54	33.40	.00	.00	.00	-106.96
	10	11	7.83	28.48	.00	.00	.00	59.25
		12	.45	27.12	.00	.00	.00	-46.64
17	1	12	-.75	3.87	.00	.00	.00	33.11
		13	.75	19.88	.00	.00	.00	-109.16
	2	12	-.43	-5.47	.00	.00	.00	15.31
		13	.43	5.47	.00	.00	.00	-67.31
	3	12	-.38	.70	.00	.00	.00	-1.78
		13	.38	-.70	.00	.00	.00	8.41
	4	12	-5.13	-9.12	.00	.00	.00	-41.62
		13	.65	9.12	.00	.00	.00	-45.02
	5	12	-1.56	-.91	.00	.00	.00	46.65
		13	1.56	24.66	.00	.00	.00	-168.06
	6	12	-1.18	-1.60	.00	.00	.00	48.42
		13	1.18	25.35	.00	.00	.00	-176.47
	7	12	-1.13	4.57	.00	.00	.00	31.33
		13	1.13	19.18	.00	.00	.00	-100.74
	8	12	-5.58	-6.80	.00	.00	.00	-21.76
		13	1.10	21.05	.00	.00	.00	-110.51
	9	12	-6.01	-8.77	.00	.00	.00	-3.98
		13	1.76	27.77	.00	.00	.00	-169.55
	10	12	3.73	8.56	.00	.00	.00	75.10
		13	.53	10.44	.00	.00	.00	-84.02
18	1	13	9.08	39.66	.00	.00	.00	184.53
		14	-9.08	31.59	.00	.00	.00	-69.48
	2	13	3.44	23.93	.00	.00	.00	108.01
		14	-3.44	18.82	.00	.00	.00	-35.20
	3	13	2.05	-.24	.00	.00	.00	.08
		14	-2.05	.24	.00	.00	.00	-6.92
	4	13	-10.24	-1.78	.00	.00	.00	-25.67
		14	-3.18	1.78	.00	.00	.00	-24.99
	5	13	14.56	63.35	.00	.00	.00	292.63
		14	-14.56	50.65	.00	.00	.00	-111.59
	6	13	12.51	63.59	.00	.00	.00	292.55
		14	-12.51	50.41	.00	.00	.00	-104.68
	7	13	11.13	39.42	.00	.00	.00	184.61
		14	-11.13	31.83	.00	.00	.00	-76.39
	8	13	-4.79	22.02	.00	.00	.00	85.05
		14	-8.63	20.73	.00	.00	.00	-66.68
	9	13	1.21	45.91	.00	.00	.00	195.66
		14	-13.96	39.73	.00	.00	.00	-107.54
	10	13	20.66	49.29	.00	.00	.00	244.44
		14	-7.91	36.35	.00	.00	.00	-60.06

********** END OF LATEST ANALYSIS RESULT **********

59. PRINT DISP

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
3	1	-.00109	-.02159	.00000	.00000	.00000	-.00097
	2	-.00016	-.00861	.00000	.00000	.00000	-.00070
	3	-.00048	-.00435	.00000	.00000	.00000	.00012
	4	.00971	.00597	.00000	.00000	.00000	-.00057
	5	-.00172	-.03456	.00000	.00000	.00000	-.00155
	6	-.00124	-.03020	.00000	.00000	.00000	-.00168
	7	-.00156	-.02595	.00000	.00000	.00000	-.00085
	8	.00906	-.00699	.00000	.00000	.00000	-.00115
	9	.00793	-.02029	.00000	.00000	.00000	-.00171
	10	-.01052	-.03163	.00000	.00000	.00000	-.00063
4	1	-.00018	-.01978	.00000	.00000	.00000	.00050
	2	-.00006	-.00667	.00000	.00000	.00000	.00044
	3	-.00005	-.00384	.00000	.00000	.00000	-.00014
	4	.00636	.00669	.00000	.00000	.00000	-.00072
	5	-.00029	-.03030	.00000	.00000	.00000	.00079
	6	-.00024	-.02646	.00000	.00000	.00000	.00094
	7	-.00023	-.02362	.00000	.00000	.00000	.00035
	8	.00625	-.00518	.00000	.00000	.00000	-.00042
	9	.00582	-.01652	.00000	.00000	.00000	-.00009
	10	-.00626	-.02923	.00000	.00000	.00000	.00128
5	1	.00000	.00000	.00000	.00000	.00000	.00055
	2	.00000	.00000	.00000	.00000	.00000	-.00010
	3	.00000	.00000	.00000	.00000	.00000	.00041
	4	.00000	.00000	.00000	.00000	.00000	-.00194
	5	.00000	.00000	.00000	.00000	.00000	.00086
	6	.00000	.00000	.00000	.00000	.00000	.00045
	7	.00000	.00000	.00000	.00000	.00000	.00096
	8	.00000	.00000	.00000	.00000	.00000	-.00161
	9	.00000	.00000	.00000	.00000	.00000	-.00119
	10	.00000	.00000	.00000	.00000	.00000	.00249
6	1	.00000	.00000	.00000	.00000	.00000	.00000
	2	.00000	.00000	.00000	.00000	.00000	.00000
	3	.00000	.00000	.00000	.00000	.00000	.00000
	4	.00000	.00000	.00000	.00000	.00000	.00000
	5	.00000	.00000	.00000	.00000	.00000	.00000
	6	.00000	.00000	.00000	.00000	.00000	.00000
	7	.00000	.00000	.00000	.00000	.00000	.00000
	8	.00000	.00000	.00000	.00000	.00000	.00000
	9	.00000	.00000	.00000	.00000	.00000	.00000
	10	.00000	.00000	.00000	.00000	.00000	.00000
7	1	-.03160	-.03608	.00000	.00000	.00000	-.00077
	2	-.00427	-.01293	.00000	.00000	.00000	.00022
	3	-.01408	-.00875	.00000	.00000	.00000	-.00066
	4	.61407	.01003	.00000	.00000	.00000	-.00094
	5	-.04995	-.05776	.00000	.00000	.00000	-.00122
	6	-.03587	-.04901	.00000	.00000	.00000	-.00055
	7	-.04568	-.04483	.00000	.00000	.00000	-.00143
	8	.59510	-.01162	.00000	.00000	.00000	-.00140

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	9	.54579	-.03386	.00000	.00000	.00000	-.00181
	10	-.62093	-.05292	.00000	.00000	.00000	-.00002
8	1	-.03138	-.03129	.00000	.00000	.00000	.00050
	2	-.00405	-.01006	.00000	.00000	.00000	-.00017
	3	-.01414	-.00598	.00000	.00000	.00000	.00046
	4	.61395	.01098	.00000	.00000	.00000	-.00104
	5	-.04958	-.04733	.00000	.00000	.00000	.00079
	6	-.03544	-.04135	.00000	.00000	.00000	.00033
	7	-.04553	-.03727	.00000	.00000	.00000	.00097
	8	.59512	-.00779	.00000	.00000	.00000	-.00074
	9	.54595	-.02534	.00000	.00000	.00000	-.00039
	10	-.62055	-.04621	.00000	.00000	.00000	.00159
9	1	-.03167	-.02315	.00000	.00000	.00000	-.00088
	2	-.00413	-.00706	.00000	.00000	.00000	.00027
	3	-.01431	-.00537	.00000	.00000	.00000	-.00079
	4	.61469	-.00538	.00000	.00000	.00000	-.00104
	5	-.05011	-.03558	.00000	.00000	.00000	-.00140
	6	-.03580	-.03021	.00000	.00000	.00000	-.00061
	7	-.04598	-.02853	.00000	.00000	.00000	-.00167
	8	.59569	-.01927	.00000	.00000	.00000	-.00156
	9	.54627	-.03196	.00000	.00000	.00000	-.00203
	10	-.62165	-.02174	.00000	.00000	.00000	-.00007
10	1	-.02783	-.02163	.00000	.00000	.00000	.00265
	2	-.00160	-.00643	.00000	.00000	.00000	-.00035
	3	-.01451	-.00658	.00000	.00000	.00000	.00193
	4	.61555	-.00220	.00000	.00000	.00000	-.00141
	5	-.04394	-.03464	.00000	.00000	.00000	.00422
	6	-.02942	-.02806	.00000	.00000	.00000	.00229
	7	-.04234	-.02821	.00000	.00000	.00000	.00457
	8	.59885	-.01518	.00000	.00000	.00000	.00018
	9	.55171	-.02811	.00000	.00000	.00000	.00183
	10	-.61783	-.02393	.00000	.00000	.00000	.00451
11	1	-.05127	-.04319	.00000	.00000	.00000	-.00149
	2	-.01108	-.01722	.00000	.00000	.00000	-.00105
	3	-.01843	-.00877	.00000	.00000	.00000	.00013
	4	.97900	.01115	.00000	.00000	.00000	-.00045
	5	-.08077	-.06919	.00000	.00000	.00000	-.00241
	6	-.06235	-.06041	.00000	.00000	.00000	-.00254
	7	-.06969	-.05197	.00000	.00000	.00000	-.00137
	8	.94824	-.01477	.00000	.00000	.00000	-.00135
	9	.86926	-.04138	.00000	.00000	.00000	-.00224
	10	-.99083	-.06256	.00000	.00000	.00000	-.00138
12	1	-.05273	-.03703	.00000	.00000	.00000	.00090
	2	-.01161	-.01195	.00000	.00000	.00000	.00072
	3	-.01877	-.00610	.00000	.00000	.00000	-.00008
	4	.97884	.01213	.00000	.00000	.00000	-.00055
	5	-.08311	-.05508	.00000	.00000	.00000	.00154
	6	-.06435	-.04898	.00000	.00000	.00000	.00162

JOINT DISPLACEMENT (INCH RADIANS) STRUCTURE TYPE = PLANE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	7	-.07150	-.04313	.00000	.00000	.00000	.00082
	8	.94720	-.01009	.00000	.00000	.00000	-.00002
	9	.86735	-.03020	.00000	.00000	.00000	.00062
	10	-.99244	-.05324	.00000	.00000	.00000	.00168
13	1	-.05256	-.03489	.00000	.00000	.00000	-.00161
	2	-.01152	-.01285	.00000	.00000	.00000	-.00126
	3	-.01868	-.00519	.00000	.00000	.00000	.00016
	4	.97948	-.00682	.00000	.00000	.00000	-.00064
	5	-.08277	-.05292	.00000	.00000	.00000	-.00271
	6	-.06408	-.04774	.00000	.00000	.00000	-.00287
	7	-.07125	-.04007	.00000	.00000	.00000	-.00145
	8	.94794	-.02776	.00000	.00000	.00000	-.00160
	9	.86822	-.04648	.00000	.00000	.00000	-.00263
	10	-.99279	-.03351	.00000	.00000	.00000	-.00142
14	1	-.05864	-.03233	.00000	.00000	.00000	.00446
	2	-.01382	-.01281	.00000	.00000	.00000	.00305
	3	-.02006	-.00666	.00000	.00000	.00000	-.00034
	4	.98184	-.00280	.00000	.00000	.00000	-.00059
	5	-.09252	-.05180	.00000	.00000	.00000	.00717
	6	-.07246	-.04514	.00000	.00000	.00000	.00751
	7	-.07870	-.03899	.00000	.00000	.00000	.00412
	8	.94666	-.02220	.00000	.00000	.00000	.00209
	9	.86314	-.04157	.00000	.00000	.00000	.00482
	10	-1.00237	-.03624	.00000	.00000	.00000	.00594
1	1	.00000	.00000	.00000	.00000	.00000	.00048
	2	.00000	.00000	.00000	.00000	.00000	.00034
	3	.00000	.00000	.00000	.00000	.00000	-.00006
	4	.00000	.00000	.00000	.00000	.00000	.00019
	5	.00000	.00000	.00000	.00000	.00000	.00077
	6	.00000	.00000	.00000	.00000	.00000	.00082
	7	.00000	.00000	.00000	.00000	.00000	.00043
	8	.00000	.00000	.00000	.00000	.00000	.00048
	9	.00000	.00000	.00000	.00000	.00000	.00076
	10	.00000	.00000	.00000	.00000	.00000	.00040
2	1	.00000	.00000	.00000	.00000	.00000	-.00023
	2	.00000	.00000	.00000	.00000	.00000	-.00021
	3	.00000	.00000	.00000	.00000	.00000	.00007
	4	.00000	.00000	.00000	.00000	.00000	.00029
	5	.00000	.00000	.00000	.00000	.00000	-.00037
	6	.00000	.00000	.00000	.00000	.00000	-.00044
	7	.00000	.00000	.00000	.00000	.00000	-.00016
	8	.00000	.00000	.00000	.00000	.00000	.00015
	9	.00000	.00000	.00000	.00000	.00000	-.00001
	10	.00000	.00000	.00000	.00000	.00000	-.00055

********** END OF LATEST ANALYSIS RESULT **********

```
60. PARAMETER
61. CODE AISC
62. UNIT INCH
63. FYLD 50.0 ALL
64. UNIT FEET
65. TRACK 0.0
66. BEAM 1.0 MEMBER 11 TO 18
67. UNL 1.0 MEMBER 11 TO 18
68. LY  1.0 MEMBER 11 TO 18
69. KY 1.0 MEMBER 1 TO 10
70. KZ 1.4 MEMBER 1 TO 10
71. CHECK CODES
```

STAAD-III CODE CHECKING - (AISC)
****

ALL UNITS ARE - KIP FEET (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST W8X 58	PASS	AISC- H1-1	.433	5
		102.00 C	.00	-15.22	14.00
2	ST W8X 58	PASS	AISC- H1-1	.751	10
		62.83 C	.00	-76.67	.00
3	ST W8X 58	PASS	AISC- H1-3	.542	10
		28.48 C	.00	-59.25	14.00
4	ST W10 X100	PASS	AISC- H1-1	.337	10
		148.32 C	.00	32.83	14.00
5	ST W10 X100	PASS	AISC- H1-3	.611	9
		44.78 C	.00	152.13	.00
6	ST W10 X100	PASS	AISC- H1-3	.433	9
		24.64 C	.00	110.94	14.00
7	ST W10 X100	PASS	AISC- H1-2	.652	10
		110.34 C	.00	-147.94	14.00
8	ST W10 X100	PASS	AISC- H1-3	.663	10
		59.73 C	.00	-160.41	14.00
9	ST W8X 58	PASS	AISC- H1-1	.898	9
		82.98 C	.00	85.23	14.00
10	ST W8X 58	PASS	AISC- H1-2	.955	5
		50.65 C	.00	111.59	14.00
11	ST W21 X62	PASS	AISC- H1-3	.400	9
		5.05 C	.00	-136.07	18.50
12	ST W14 X61	PASS	AISC- H2-1	.504	10
		28.49 T	.00	114.31	.00
13	ST W21 X62	PASS	AISC- H2-1	.458	9
		4.15 T	.00	-157.03	18.50
14	ST W21 X62	PASS	AISC- H2-1	.638	9
		3.41 T	.00	-220.16	9.50
15	ST W21 X62	PASS	AISC- H2-1	.864	5
		9.58 T	.00	294.86	.00
16	ST W18 X60	PASS	AISC- H1-3	.378	9
		8.54 C	.00	-106.96	18.50
17	ST W18 X60	PASS	AISC- H2-1	.597	6
		1.18 T	.00	-176.47	9.50

72. PLOT SECT DISP
73. FINISH

Sherwood Middle			Seismic Loads - Frame Second to Roof				12/9/2010
Tributary Areas							
Floors	**Area**	**DL (psf)**	**Weight (k)**			**Roof Load**	
Roof	38000	43	1634			Snow	21
3rd Floor	38000	78	2964			Framing	7
2nd Floor	20500	78	1599			Roofing	3
						Misc	12
						Total (psf)	43
						Floor Load	
Walls	**Length**	**Trib Height**	**PSF**	**Weight (k)**		Conc/MtlDke	53
Roof	1100	7	20	154		Framing	7
3rd Floor	1100	14	20	308		Mech	3
2nd Floor	600	14	20	168		Ceiling	5
						Partitions	10
						Total	78
						Seismic Coefficients	
Total Weight @ Each Level						Location	Worcester
	Floor	**Roof**	**Wall**	**Total**		S_s =	0.24
Roof		1634	154	1,788.00		S_1 =	0.068
3rd Floor	2964		308	3,272.00			
2nd Floor	1599		168	1,767.00		Site Class =	D
						S_{MS} =	0.38
			Total	6,827.00		S_{M1} =	0.16
$S_{MS} = F_a S_s$	F_a =	1.6		$S_{Ds} = 2/3\ S_{MS}$		S_{DS} =	0.26
$S_{M1} = F_v S_1$	F_v =	2.4		$S_{D1} = 2/3\ S_{M1}$		S_{D1} =	0.11
				Ordinary Concentrically Braced Frames			
						R =	3.25
						Ω_o =	2
$V = C_s W$	$C_s = S_{DS}/(R/I)$		C_s =	0.098		Cd =	3.25
Approximate Fundamental Period						I_E =	1.25
$T_a = C_t h_n^x$	C_t =	0.02	T_a =	0.33			
	x =	0.75					
	h_n =	42					
					Cs not to exceed =		0.13
Allowable Stress							

$V = 0.7\ C_s\ W$							
Shear Distribution							
Base Shear (k)	470.5						
Floor Level	**Floor Elev.**	**Weight**	**W_i x H_i**	**Shear (k)**	**Cumulative**		
Roof	42	1,788	75,096	184.6	184.6		
3	28	3,272	91,616	225.2	409.7		
2	14	1,767	24,738	60.8	470.5		
		Total	191,450				

Gym	
Conc/MtlDl	76
Framing	7
Mech	5
Ceiling	3
Partitions	0
Total	91

	Site Coefficient, F_a				
Site Class	$S_s \leq 0.25$	$S_s = 0.5$	$S_s = 0.75$	$S_s = 1.0$	$S_s \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7				

	Site Coefficient, F_v				
Site Class	$S_1 \leq 0.1$	$S_1 = 0.2$	$S_1 = 0.3$	$S_1 = 0.4$	$S_1 \geq 0.5$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7				

Importance Factors		
Occupancy Category		I_E
I or II		1.0
III		1.25
IV		1.5

Occupancy	
I	Agricultural
II	Typical
III	School, Public Assembly
IV	Emergency

	Values of Approximate Fundamental Period							
	Structure Type			C_t	x			
	Steel Moment Frame			0.028	0.8			
	Concrete Moment Frame			0.016	0.9			
	Eccentrically Braced Frame			0.03	0.75			
	All other structural systems			0.02	0.75			

Sherwood Middle			Seismic Loads - Frame Second to Roof				12/9/2010
Tributary Areas							
Floors	**Area**	**DL (psf)**	**Weight (k)**			**Roof Dead Load**	
Roof	38500	43	1656			Snow	21
3rd Floor	38500	78	3003			Framing	7
						Roofing	3
						Misc	12
						Total (psf)	43
Walls	**Length**	**Trib Height**	**PSF**	**Weight (k)**			
Roof	1100	7	20	154		**Floor Dead Load**	
3rd Floor	1100	14	20	308		Conc/MtlDke	53
						Framing	7
						Mech	5
						Ceiling	3
Total Weight @ Each Level						Partitions	10
	Floor	**Roof**	**Wall**	**Total**		Total	78
Roof		1656	154	1810			
3rd Floor	3003		308	3311		**Seismic Coefficients**	
						Location	Shrewsbury
						S_s =	0.25
			W =	5121		S_1 =	0.067
						Site Class =	D
$S_{MS} = F_a S_s$	F_a =	1.6		$S_{Ds} = 2/3\ S_{MS}$		S_{MS} =	0.40
$S_{M1} = F_v S_1$	F_v =	2.4		$S_{D1} = 2/3\ S_{M1}$		S_{M1} =	0.16
						S_{DS} =	0.27
$V = C_s W$	$C_s = S_{DS}/(R/I)$		C_s =	0.095		S_{D1} =	0.11
Approximate Fundamental Period						Steel Moment Frames	
$T_a = C_t h_n^x$	C_t =	0.028	T_a =	0.40		R =	3.5
	x =	0.8				Ω_o =	3
	h_n =	28	T_s =	0.40		Cd =	3
Allowable Stress						I_E =	1.25
$V = 0.7\ C_s\ W$ =	0.067	W					
					Cs not to exceed =		0.10
Shear Distribution							
Base Shear (k)	340.8						
Floor Level	**Floor Elev.**	**Weight**	**W_i x H_i**	**Shear (k)**	**Cumulative**		
Roof	28	1,810	50,666	35.6	35.6		
3	14	3,311	46,354	32.6	68.2		
		Total	582,120				

	Site Coefficient, F_a				
Site Class	$S_s \leq 0.25$	$S_s = 0.5$	$S_s = 0.75$	$S_s = 1.0$	$S_s \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7				

	Site Coefficient, F_v				
Site Class	$S_1 \leq 0.1$	$S_1 = 0.2$	$S_1 = 0.3$	$S_1 = 0.4$	$S_1 \geq 0.5$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7				

Importance Factors		Occupancy	
Occupancy Category	I_E	I	Agricultural
I or II	1.0	II	Typical
III	1.25	III	School, Public Assembly
IV	1.5	IV	Emergency

Values of Approximate Fundamental Period		
Structure Type	C_t	x
Steel Moment Frame	0.028	0.8
Concrete Moment Frame	0.016	0.9
Eccentrically Braced Frame	0.03	0.75
All other structural systems	0.02	0.75

			Sherwood Middle School Columns			Classroom Building								
Column	**CL1-1**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	240	42	10.1	1	10.1	25	6.0	0	0	16.1	16.08	16.08	4.00	4.00
3 Corr	0	100	0.0	0.89	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	240	50	12.0	0.89	10.7	90	21.6	0	5	37.3	53.34	32.26	14.40	18.40
2 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	240	50	12.0	0.70	8.4	90	21.6	0	5	35.0	88.29	29.95	14.40	32.80
			34.1		29.1		49.2		10	88.3		78.29	32.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.89	0.89	0.70	0.70										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-2**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	240	42	10.1	1	10.1	25	6.0	0	0	16.1	16.08	16.08	4.00	4.00
3 Corr	0	100	0.0	0.89	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	240	50	12.0	0.89	10.7	90	21.6	0	5	37.3	53.34	32.26	14.40	18.40
2 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	240	50	12.0	0.70	8.4	90	21.6	0	5	35.0	88.29	29.95	14.40	32.80
			34.1		29.1		49.2		10	88.3		78.29	32.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.89	0.89	0.70	0.70										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-3**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	70	42	2.9	1	2.9	25	1.8	0	0	4.7	4.69	4.69	1.17	1.17
3 Corr	70	100	7.0	1.02	7.2	70	4.9	0	0	12.1		12.07	3.27	
3	0	50	0.0	1.02	0.0	90	0.0	0	5	5.0	21.76	0.00	0.00	4.43
2 Corr	70	100	7.0	0.97	6.8	70	4.9	0	0	11.7		11.68	3.27	
2	0	50	0.0	0.97	0.0	90	0.0	0	5	5.0	38.43	0.00	0.00	7.70
			16.9		16.9		11.6		10	38.4		28.43	7.70	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.02	1.02	0.97	0.97										
2	0.61	0.61	0.61	0.61										
3	0.50	0.50	0.50	0.50										
Column	**CL1-4**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	115	42	4.8	1	4.8	25	2.9	0	0	7.7	7.71	7.71	1.92	1.92
3 Corr	115	100	11.5	0.99	11.4	70	8.1	0	0	19.4		19.41	5.37	
3	0	50	0.0	0.99	0.0	90	0.0	0	5	5.0	32.12	0.00	0.00	7.28

2 Corr	115	100	11.5	0.90	10.3	70	8.1	0	0	18.4		18.35	5.37	
2	0	50	0.0	0.90	0.0	90	0.0	0	5	5.0	55.47	0.00	0.00	12.65
			27.8		26.5		19.0		10	55.5		45.47	12.65	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.99	0.99	0.90	0.90										
2	0.61	0.61	0.61	0.61										
3	0.50	0.50	0.50	0.50										
Column	**CL1-5**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	275	42	11.6	1	11.6	25	6.9	0	0	18.4	18.43	18.43	4.58	4.58
3 Corr	45	100	4.5	0.86	3.9	70	3.2	0	0	7.0		7.02	2.10	
3	230	50	11.5	0.86	9.9	90	20.7	0	5	35.6	61.04	30.59	13.80	20.48
2 Corr	45	100	4.5	0.64	2.9	70	3.2	0	0	6.0		6.03	2.10	
2	230	50	11.5	0.64	7.4	90	20.7	0	5	33.1	100.13	28.06	13.80	36.38
			43.6		35.6		54.6		10	100.1		90.13	36.38	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.86	0.86	0.64	0.64										
2	0.45	0.45	0.45	0.45										
3	0.50	0.50	0.50	0.50										
Column	**CL1-6**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	200	42	8.4	1	8.4	25	5.0	0	0	13.4	13.40	13.40	3.33	3.33
3 Corr	0	100	0.0	0.92	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	200	50	10.0	0.92	9.2	90	18.0	0	5	32.2	45.60	27.20	12.00	15.33
2 Corr	0	100	0.0	0.76	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	200	50	10.0	0.76	7.6	90	18.0	0	5	30.6	76.20	25.60	12.00	27.33
			28.4		25.2		41.0		10	76.2		66.20	27.33	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.92	0.92	0.76	0.76										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-7**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	185	42	7.8	1	7.8	25	4.6	0	0	12.4	12.40	12.40	3.08	3.08
3 Corr	70	100	7.0	0.93	6.5	70	4.9	0	0	11.4		11.42	3.27	
3	115	50	5.8	0.93	5.4	90	10.4	0	5	20.7	44.53	15.71	6.90	13.25
2 Corr	70	100	7.0	0.78	5.5	70	4.9	0	0	10.4		10.39	3.27	
2	115	50	5.8	0.78	4.5	90	10.4	0	5	19.9	74.77	14.86	6.90	23.42
			33.3		29.6		35.1		10	74.8		64.77	23.42	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.93	0.93	0.78	0.78										
2	0.51	0.51	0.51	0.51										
3	0.50	0.50	0.50	0.50										

Column	CL1-8													
									Walls	Load Combinations				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	510	42	21.4	1	21.4	25	12.8	0	5	39.2	39.17	34.17	8.50	8.50
3 Corr	280	100	28.0	0.67	18.8	70	19.6	0	0	38.4		38.42	13.07	
3	230	50	11.5	0.67	7.7	90	20.7	0	0	28.4	106.01	28.43	13.80	35.37
2 Corr	280	100	28.0	0.55	15.3	70	19.6	0	0	34.9		34.89	13.07	
2	230	50	11.5	0.55	6.3	90	20.7	0	0	27.0	167.88	26.98	13.80	62.23
			100.4		69.5		93.4		5	167.9		162.88	62.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.67	0.67	0.26	0.26										
2	0.55	0.55	0.55	0.55										
3	0.50	0.50	0.50	0.50										

Column	CL1-9													
									Walls	Load Combinations				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	540	42	22.7	1	22.7	25	13.5	0	5	41.2	41.18	36.18	9.00	9.00
3 Corr	190	100	19.0	0.65	12.3	70	13.3	0	0	25.6		25.61	8.87	
3	350	50	17.5	0.65	11.3	90	31.5	0	0	42.8	109.63	42.84	21.00	38.87
2 Corr	190	100	19.0	0.50	9.6	70	13.3	0	0	22.9		22.89	8.87	
2	350	50	17.5	0.50	8.8	90	31.5	0	0	40.3	172.85	40.33	21.00	68.73
			95.7		64.7		103.1		5	172.8		167.85	68.73	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.65	0.65	0.22	0.22										
2	0.50	0.50	0.50	0.50										
3	0.50	0.50	0.50	0.50										

Column	CL1-10													
									Walls	Load Combinations				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	350	42	14.7	1	14.7	25	8.8	0	0	23.5	23.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.80	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	350	50	17.5	0.80	14.0	90	31.5	0	5	50.5	73.95	45.50	21.00	26.83
2 Corr	0	100	0.0	0.52	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	350	50	17.5	0.52	9.1	90	31.5	0	5	45.6	119.55	40.60	21.00	47.83
			49.7		37.8		71.8		10	119.6		109.55	47.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.80	0.80	0.52	0.52										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										

Column	CL1-11													
									Walls	Load Combinations				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	200	42	8.4	1	8.4	25	5.0	0	0	13.4	13.40	13.40	3.33	3.33
3 Corr	0	100	0.0	0.92	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	200	50	10.0	0.92	9.2	90	18.0	0	5	32.2	45.60	27.20	12.00	15.33
2 Corr	0	100	0.0	0.76	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	200	50	10.0	0.76	7.6	90	18.0	0	5	30.6	76.20	25.60	12.00	27.33

			28.4		25.2		41.0		10	76.2		66.20	27.33	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.92	0.92	0.76	0.76										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-12**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	470	42	19.7	1	19.7	25	11.8	0	0	31.5	31.49	31.49	7.83	7.83
3 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	470	50	23.5	0.70	16.5	90	42.3	0	5	63.8	95.33	58.84	28.20	36.03
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	470	50	23.5	0.50	11.8	90	42.3	0	5	59.1	154.38	54.05	28.20	64.23
			66.7		48.0		96.4		10	154.4		144.38	64.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.70	0.70	0.33	0.33										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-13**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	775	42	32.6	1	32.6	25	19.4	0	5	56.9	56.93	51.93	12.92	12.92
3 Corr	305	100	30.5	0.51	15.7	70	21.4	0	0	37.0		37.03	14.23	
3	470	50	23.5	0.51	12.1	90	42.3	0	0	54.4	148.35	54.39	28.20	55.35
2 Corr	305	100	30.5	0.51	15.7	70	21.4	0	0	37.0		37.03	14.23	
2	470	50	23.5	0.51	12.1	90	42.3	0	0	54.4	239.77	54.39	28.20	97.78
			140.6		88.1		146.7		5	239.8		234.77	97.78	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.46	0.46	-0.16	-0.16										
2	0.51	0.51	0.51	0.51										
3	0.50	0.50	0.50	0.50										
Column	**CL1-14**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	775	42	32.6	1	32.6	25	19.4	0	5	56.9	56.93	51.93	12.92	12.92
3 Corr	305	100	30.5	0.51	15.7	70	21.4	0	0	37.0		37.03	14.23	
3	470	50	23.5	0.51	12.1	90	42.3	0	0	54.4	148.35	54.39	28.20	55.35
2 Corr	305	100	30.5	0.51	15.7	70	21.4	0	0	37.0		37.03	14.23	
2	470	50	23.5	0.51	12.1	90	42.3	0	0	54.4	239.77	54.39	28.20	97.78
			140.6		88.1		146.7		5	239.8		234.77	97.78	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.46	0.46	-0.16	-0.16										
2	0.51	0.51	0.51	0.51										
3	0.50	0.50	0.50	0.50										
Column	**CL1-15**													
									Walls	**Load Combinations**				

Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	470	42	19.7	1	19.7	25	11.8	0	0	31.5	31.49	31.49	7.83	7.83
3 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	470	50	23.5	0.70	16.5	90	42.3	0	5	63.8	95.33	58.84	28.20	36.03
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	470	50	23.5	0.50	11.8	90	42.3	0	5	59.1	154.38	54.05	28.20	64.23
			66.7		48.0		96.4		10	154.4		144.38	64.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.70	0.70	0.33	0.33										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-16**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	200	42	8.4	1	8.4	25	5.0	0	0	13.4	13.40	13.40	3.33	3.33
3 Corr	0	100	0.0	0.92	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	200	50	10.0	0.92	9.2	90	18.0	0	5	32.2	45.60	27.20	12.00	15.33
2 Corr	0	100	0.0	0.76	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	200	50	10.0	0.76	7.6	90	18.0	0	5	30.6	76.20	25.60	12.00	27.33
			28.4		25.2		41.0		10	76.2		66.20	27.33	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.92	0.92	0.76	0.76										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-17**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	350	42	14.7	1	14.7	25	8.8	0	0	23.5	23.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.80	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	350	50	17.5	0.80	14.0	90	31.5	0	5	50.5	73.95	45.50	21.00	26.83
2 Corr	0	100	0.0	0.52	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	350	50	17.5	0.52	9.1	90	31.5	0	5	45.6	119.55	40.60	21.00	47.83
			49.7		37.8		71.8		10	119.6		109.55	47.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.80	0.80	0.52	0.52										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-18**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	670	42	28.1	1	28.1	25	16.8	0	5	49.9	49.89	44.89	11.17	11.17
3 Corr	210	100	21.0	0.54	11.4	70	14.7	0	0	26.1		26.12	9.80	
3	460	50	23.0	0.54	12.5	90	41.4	0	0	53.9	129.93	53.91	27.60	48.57
2 Corr	210	100	21.0	0.50	10.5	70	14.7	0	0	25.2		25.20	9.80	
2	460	50	23.0	0.50	11.5	90	41.4	0	0	52.9	208.03	52.90	27.60	85.97
			116.1		74.1		129.0		5	208.0		203.03	85.97	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										

1	0.54	0.54	0.01	0.01										
2	0.50	0.50	0.50	0.50										
3	0.50	0.50	0.50	0.50										
Column	**CL1-19**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	670	42	28.1	1	28.1	25	16.8	0	5	49.9	49.89	44.89	11.17	11.17
3 Corr	210	100	21.0	0.54	11.4	70	14.7	0	0	26.1		26.12	9.80	
3	460	50	23.0	0.54	12.5	90	41.4	0	0	53.9	129.93	53.91	27.60	48.57
2 Corr	210	100	21.0	0.50	10.5	70	14.7	0	0	25.2		25.20	9.80	
2	460	50	23.0	0.50	11.5	90	41.4	0	0	52.9	208.03	52.90	27.60	85.97
			116.1		74.1		129.0		5	208.0		203.03	85.97	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.54	0.54	0.01	0.01										
2	0.50	0.50	0.50	0.50										
3	0.50	0.50	0.50	0.50										
Column	**CL1-20**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	350	42	14.7	1	14.7	25	8.8	0	0	23.5	23.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.80	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	350	50	17.5	0.80	14.0	90	31.5	0	5	50.5	73.95	45.50	21.00	26.83
2 Corr	0	100	0.0	0.52	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	350	50	17.5	0.52	9.1	90	31.5	0	5	45.6	119.55	40.60	21.00	47.83
			49.7		37.8		71.8		10	119.6		109.55	47.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.80	0.80	0.52	0.52										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-21**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	200	42	8.4	1	8.4	25	5.0	0	0	13.4	13.40	13.40	3.33	3.33
3 Corr	0	100	0.0	0.92	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	200	50	10.0	0.92	9.2	90	18.0	0	5	32.2	45.60	27.20	12.00	15.33
2 Corr	0	100	0.0	0.76	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	200	50	10.0	0.76	7.6	90	18.0	0	5	30.6	76.20	25.60	12.00	27.33
			28.4		25.2		41.0		10	76.2		66.20	27.33	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.92	0.92	0.76	0.76										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-22**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	470	42	19.7	1	19.7	25	11.8	0	0	31.5	31.49	31.49	7.83	7.83
3 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	

3	470	50	23.5	0.70	16.5	90	42.3	0	5	63.8	95.33	58.84	28.20	36.03
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	470	50	23.5	0.50	11.8	90	42.3	0	5	59.1	154.38	54.05	28.20	64.23
			66.7		48.0		96.4		10	154.4		144.38	64.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.70	0.70	0.33	0.33										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-23**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	575	42	24.2	1	24.2	25	14.4	0	5	43.5	43.53	38.53	9.58	9.58
3 Corr	115	100	11.5	0.62	7.1	70	8.1	0	0	15.2		15.18	5.37	
3	460	50	23.0	0.62	14.3	90	41.4	0	0	55.7	114.37	55.66	27.60	42.55
2 Corr	115	100	11.5	0.50	5.8	70	8.1	0	0	13.8		13.80	5.37	
2	460	50	23.0	0.50	11.5	90	41.4	0	0	52.9	181.07	52.90	27.60	75.52
			93.2		62.8		113.3		5	181.1		176.07	75.52	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.62	0.62	0.16	0.16										
2	0.46	0.46	0.46	0.46										
3	0.50	0.50	0.50	0.50										
Column	**CL1-24**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	575	42	24.2	1	24.2	25	14.4	0	5	43.5	43.53	38.53	9.58	9.58
3 Corr	115	100	11.5	0.62	7.1	70	8.1	0	0	15.2		15.18	5.37	
3	460	50	23.0	0.62	14.3	90	41.4	0	0	55.7	114.37	55.66	27.60	42.55
2 Corr	115	100	11.5	0.50	5.8	70	8.1	0	0	13.8		13.80	5.37	
2	460	50	23.0	0.50	11.5	90	41.4	0	0	52.9	181.07	52.90	27.60	75.52
			93.2		62.8		113.3		5	181.1		176.07	75.52	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.62	0.62	0.16	0.16										
2	0.46	0.46	0.46	0.46										
3	0.50	0.50	0.50	0.50										
Column	**CL1-25**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	470	42	19.7	1	19.7	25	11.8	0	0	31.5	31.49	31.49	7.83	7.83
3 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	470	50	23.5	0.70	16.5	90	42.3	0	5	63.8	95.33	58.84	28.20	36.03
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	470	50	23.5	0.50	11.8	90	42.3	0	5	59.1	154.38	54.05	28.20	64.23
			66.7		48.0		96.4		10	154.4		144.38	64.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.70	0.70	0.33	0.33										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										

Column	**CL1-26**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	40	42	1.7	1	1.7	25	1.0	0	0	2.7	2.68	2.68	0.67	0.67
3 Corr	0	100	0.0	1.05	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	40	50	2.0	1.05	2.1	90	3.6	0	3	8.7	11.38	5.70	2.40	3.07
2 Corr	0	100	0.0	1.02	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	40	50	2.0	1.02	2.0	90	3.6	0	3	8.6	20.01	5.63	2.40	5.47
			5.7		5.8		8.2		6	20.0		14.01	5.47	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.05	1.05	1.02	1.02										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-27**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	370	42	15.5	1	15.5	25	9.3	0	0	24.8	24.79	24.79	6.17	6.17
3 Corr	0	100	0.0	0.78	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	370	50	18.5	0.78	14.5	90	33.3	0	5	52.8	77.59	47.80	22.20	28.37
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	370	50	18.5	0.50	9.3	90	33.3	0	5	47.6	125.14	42.55	22.20	50.57
			52.5		39.3		75.9		10	125.1		115.14	50.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.78	0.78	0.49	0.49										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-28**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	370	42	15.5	1	15.5	25	9.3	0	5	29.8	29.79	24.79	6.17	6.17
3 Corr	0	100	0.0	0.78	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	370	50	18.5	0.78	14.5	90	33.3	0	0	47.8	77.59	47.80	22.20	28.37
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	370	50	18.5	0.50	9.3	90	33.3	0	0	42.6	120.14	42.55	22.20	50.57
			52.5		39.3		75.9		5	120.1		115.14	50.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.78	0.78	0.49	0.49										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-29**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	370	42	15.5	1	15.5	25	9.3	0	5	29.8	29.79	24.79	6.17	6.17
3 Corr	120	100	12.0	0.78	9.4	70	8.4	0	0	17.8		17.81	5.60	
3	250	50	12.5	0.78	9.8	90	22.5	0	0	32.3	79.90	32.30	15.00	26.77
2 Corr	120	100	12.0	0.50	6.0	70	8.4	0	0	14.4		14.40	5.60	
2	250	50	12.5	0.50	6.3	90	22.5	0	0	28.8	123.05	28.75	15.00	47.37

			64.5		47.0		71.1		5	123.0		118.05	47.37	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.78	0.78	0.49	0.49										
2	0.50	0.50	0.50	0.50										
3	0.50	0.50	0.50	0.50										
Column	**CL1-30**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	440	42	18.5	1	18.5	25	11.0	0	5	34.5	34.48	29.48	7.33	7.33
3 Corr	120	100	12.0	0.73	8.7	70	8.4	0	0	17.1		17.14	5.60	
3	320	50	16.0	0.73	11.6	90	28.8	0	0	40.4	92.06	40.45	19.20	32.13
2 Corr	120	100	12.0	0.50	6.0	70	8.4	0	0	14.4		14.40	5.60	
2	320	50	16.0	0.50	8.0	90	28.8	0	0	36.8	143.26	36.80	19.20	56.93
			74.5		52.9		85.4		5	143.3		138.26	56.93	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.73	0.73	0.38	0.38										
2	0.48	0.48	0.48	0.48										
3	0.50	0.50	0.50	0.50										
Column	**CL1-31**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	370	42	15.5	1	15.5	25	9.3	0	5	29.8	29.79	24.79	6.17	6.17
3 Corr	0	100	0.0	0.78	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	370	50	18.5	0.78	14.5	90	33.3	0	0	47.8	77.59	47.80	22.20	28.37
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	370	50	18.5	0.50	9.3	90	33.3	0	0	42.6	120.14	42.55	22.20	50.57
			52.5		39.3		75.9		5	120.1		115.14	50.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.78	0.78	0.49	0.49										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-32**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	360	42	15.1	1	15.1	25	9.0	0	0	24.1	24.12	24.12	6.00	6.00
3 Corr	0	100	0.0	0.79	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	360	50	18.0	0.79	14.3	90	32.4	0	5	51.7	75.78	46.66	21.60	27.60
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	360	50	18.0	0.50	9.1	90	32.4	0	5	46.5	122.25	41.47	21.60	49.20
			51.1		38.4		73.8		10	122.2		112.25	49.20	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.79	0.79	0.50	0.50										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-33**													
									Walls	**Load Combinations**				

Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	30	42	1.3	1	1.3	25	0.8	0	0	2.0	2.01	2.01	0.50	0.50
3 Corr	0	100	0.0	1.06	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	30	50	1.5	1.06	1.6	90	2.7	0	2	6.3	8.29	4.28	1.80	2.30
2 Corr	0	100	0.0	1.03	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	30	50	1.5	1.03	1.5	90	2.7	0	2	6.2	14.54	4.25	1.80	4.10
			4.3		4.4		6.2		4	14.5		10.54	4.10	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.06	1.06	1.03	1.03										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-34**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	260	42	10.9	1	10.9	25	6.5	0	0	17.4	17.42	17.42	4.33	4.33
3 Corr	0	100	0.0	0.87	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	260	50	13.0	0.87	11.3	90	23.4	0	5	39.7	57.16	34.74	15.60	19.93
2 Corr	0	100	0.0	0.73	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	180	50	9.0	0.73	6.6	90	16.2	0	5	27.8	84.91	22.75	10.80	30.73
			32.9		28.8		46.1		10	84.9		74.91	30.73	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.87	0.87	0.73	0.73										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-35**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	490	42	20.6	1	20.6	25	12.3	0	0	32.8	32.83	32.83	8.17	8.17
3 Corr	0	100	0.0	0.69	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	490	50	24.5	0.69	16.9	90	44.1	0	5	66.0	98.79	60.96	29.40	37.57
2 Corr	0	100	0.0	0.53	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	200	50	10.0	0.53	5.3	90	18.0	0	5	28.3	127.07	23.28	12.00	49.57
			55.1		42.7		74.4		10	127.1		117.07	49.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.69	0.69	0.53	0.53										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-36**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	0	42	0.0	1	0.0	25	0.0	0	0	0.0	0.00	0.00	0.00	0.00
3 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
3	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
2 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
2	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
			0.0		#DIV/0!		0.0		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										

1	1.08	1.08	1.08	1.08										
2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!										
3	0.50	0.50	0.50	0.50										
Column	**CL1-37**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	0	42	0.0	1	0.0	25	0.0	0	0	0.0	0.00	0.00	0.00	0.00
3 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
3	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
2 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
2	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
			0.0		#DIV/0!		0.0		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.08	1.08	1.08	1.08										
2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!										
3	0.50	0.50	0.50	0.50										
Column	**CL1-38**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	280	42	11.8	1	11.8	25	7.0	0	5	23.8	23.76	18.76	4.67	4.67
3 Corr	280	100	28.0	0.86	24.0	70	19.6	0	0	43.6		43.57	13.07	
3	0	50	0.0	0.86	0.0	90	0.0	0	0	0.0	67.33	0.00	0.00	17.73
2 Corr	250	100	25.0	0.66	16.4	70	17.5	0	0	33.9		33.90	11.67	
2	0	50	0.0	0.66	0.0	90	0.0	0	0	0.0	101.23	0.00	0.00	29.40
			64.8		52.1		44.1		5	101.2		96.23	29.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.86	0.86	0.66	0.66										
2	0.61	0.61	0.61	0.61										
3	0.50	0.50	0.50	0.50										
Column	**CL1-39**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	0	42	0.0	1	0.0	25	0.0	0	0	0.0	0.00	0.00	0.00	0.00
3 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
3	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
2 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
2	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
			0.0		#DIV/0!		0.0		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.08	1.08	1.08	1.08										
2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!										
3	0.50	0.50	0.50	0.50										
Column	**CL1-40**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	540	42	22.7	1	22.7	25	13.5	0	5	41.2	41.18	36.18	9.00	9.00
3 Corr	0	100	0.0	0.65	0.0	70	0.0	0	0	0.0		0.00	0.00	

3	540	50	27.0	0.65	17.5	90	48.6	0	0	66.1	107.28	66.10	32.40	41.40
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	540	50	27.0	0.50	13.5	90	48.6	0	0	62.1	169.38	62.10	32.40	73.80
			76.7		53.7		110.7		5	169.4		164.38	73.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.65	0.65	0.22	0.22										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-41**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	315	42	13.2	1	13.2	25	7.9	0	5	26.1	26.11	21.11	5.25	5.25
3 Corr	115	100	11.5	0.83	9.5	70	8.1	0	0	17.6		17.57	5.37	
3	200	50	10.0	0.83	8.3	90	18.0	0	0	26.3	69.96	26.28	12.00	22.62
2 Corr	115	100	11.5	0.58	6.6	70	8.1	0	0	14.7		14.67	5.37	
2	200	50	10.0	0.58	5.8	90	18.0	0	0	23.8	108.39	23.76	12.00	39.98
			56.2		43.4		60.0		5	108.4		103.39	39.98	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.83	0.83	0.58	0.58										
2	0.51	0.51	0.51	0.51										
3	0.50	0.50	0.50	0.50										
Column	**CL1-42**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	385	42	16.2	1	16.2	25	9.6	0	5	30.8	30.80	25.80	6.42	6.42
3 Corr	115	100	11.5	0.77	8.9	70	8.1	0	0	16.9		16.93	5.37	
3	270	50	13.5	0.77	10.4	90	24.3	0	0	34.7	82.45	34.72	16.20	27.98
2 Corr	115	100	11.5	0.50	5.8	70	8.1	0	0	13.8		13.80	5.37	
2	270	50	13.5	0.50	6.8	90	24.3	0	0	31.1	127.30	31.05	16.20	49.55
			66.2		48.0		74.3		5	127.3		122.30	49.55	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.77	0.77	0.46	0.46										
2	0.49	0.49	0.49	0.49										
3	0.50	0.50	0.50	0.50										
Column	**CL1-43**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	540	42	22.7	1	22.7	25	13.5	0	5	41.2	41.18	36.18	9.00	9.00
3 Corr	0	100	0.0	0.65	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	540	50	27.0	0.65	17.5	90	48.6	0	0	66.1	107.28	66.10	32.40	41.40
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	540	50	27.0	0.50	13.5	90	48.6	0	0	62.1	169.38	62.10	32.40	73.80
			76.7		53.7		110.7		5	169.4		164.38	73.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.65	0.65	0.22	0.22										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										

Column	**CL1-44**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	520	42	21.8	1	21.8	25	13.0	0	5	39.8	39.84	34.84	8.67	8.67
3 Corr	0	100	0.0	0.66	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	520	50	26.0	0.66	17.3	90	46.8	0	0	64.1	103.90	64.06	31.20	39.87
2 Corr	0	100	0.0	0.50	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	520	50	26.0	0.50	13.0	90	46.8	0	0	59.8	163.70	59.80	31.20	71.07
			73.8		52.1		106.6		5	163.7		158.70	71.07	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.66	0.66	0.25	0.25										
2	0.39	0.39	0.39	0.39										
3	0.50	0.50	0.50	0.50										
Column	**CL1-45**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
2 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
2	480	50	24.0	0.70	16.7	90	43.2	0	0	59.9	59.90	59.90	28.80	28.80
			24.0		16.7		43.2		0	59.9		59.90	28.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2 Cor	**2**										
1			0.70	0.70										
2			0.39	0.39										
3			0.50	0.50										
Column	**CL1-46**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	210	42	8.8	1	8.8	25	5.3	0	5	19.1	19.07	14.07	3.50	3.50
3 Corr	120	100	12.0	0.98	11.8	70	8.4	0	0	20.2		20.21	5.60	
3	0	50	0.0	0.98	0.0	90	0.0	0	0	0.0	39.28	0.00	0.00	9.10
2 Corr	120	100	12.0	0.89	10.7	70	8.4	0	0	19.1		19.06	5.60	
2	0	50	0.0	0.89	0.0	90	0.0	0	0	0.0	58.33	0.00	0.00	14.70
			32.8		31.3		22.1		5	58.3		53.33	14.70	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.98	0.98	0.89	0.89										
2	0.61	0.61	0.61	0.61										
3	0.50	0.50	0.50	0.50										
Column	**CL1-47**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	420	42	17.6	1	17.6	25	10.5	0	5	33.1	33.14	28.14	7.00	7.00
3 Corr	300	100	30.0	0.84	25.2	70	21.0	0	0	46.2		46.20	14.00	
3	0	50	0.0	0.84	0.0	90	0.0	0	0	0.0	79.34	0.00	0.00	21.00
2 Corr	300	100	30.0	0.61	18.3	70	21.0	0	0	39.3		39.30	14.00	
2	0	50	0.0	0.61	0.0	90	0.0	0	0	0.0	118.64	0.00	0.00	35.00
			77.6		61.1		52.5		5	118.6		113.64	35.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										

1	0.84	0.84	0.60	0.60										
2	0.61	0.61	0.61	0.61										
3	0.50	0.50	0.50	0.50										
Column	**CL1-48**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	0	42	0.0	1	0.0	25	0.0	0	0	0.0	0.00	0.00	0.00	0.00
3 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
3	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
2 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
2	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
			0.0		#DIV/0!		0.0		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.08	1.08	1.08	1.08										
2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!										
3	0.50	0.50	0.50	0.50										
Column	**CL1-49**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	0	42	0.0	1	0.0	25	0.0	0	0	0.0	0.00	0.00	0.00	0.00
3 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
3	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
2 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
2	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
			0.0		#DIV/0!		0.0		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.08	1.08	1.08	1.08										
2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!										
3	0.50	0.50	0.50	0.50										
Column	**CL1-50**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	250	42	10.5	1	10.5	25	6.3	0	5	21.8	21.75	16.75	4.17	4.17
3 Corr	100	100	10.0	0.88	8.8	70	7.0	0	0	15.8		15.80	4.67	
3	150	50	7.5	0.88	6.6	90	13.5	0	0	20.1	57.65	20.10	9.00	17.83
2 Corr	100	100	10.0	0.68	6.8	70	7.0	0	0	13.8		13.80	4.67	
2	150	50	7.5	0.68	5.1	90	13.5	0	0	18.6	90.05	18.60	9.00	31.50
			45.5		37.8		47.3		5	90.1		85.05	31.50	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.88	0.88	0.68	0.68										
2	0.52	0.52	0.52	0.52										
3	0.50	0.50	0.50	0.50										
Column	**CL1-51**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	370	42	15.5	1	15.5	25	9.3	0	5	29.8	29.79	24.79	6.17	6.17
3 Corr	110	100	11.0	0.78	8.6	70	7.7	0	0	16.3		16.32	5.13	

3	260	50	13.0	0.78	10.2	90	23.4	0	0	33.6	79.71	33.59	15.60	26.90
2 Corr	110	100	11.0	0.50	5.5	70	7.7	0	0	13.2		13.20	5.13	
2	260	50	13.0	0.50	6.5	90	23.4	0	0	29.9	122.81	29.90	15.60	47.63
			63.5		46.4		71.5		5	122.8		117.81	47.63	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.78	0.78	0.49	0.49										
2	0.49	0.49	0.49	0.49										
3	0.50	0.50	0.50	0.50										
Column	**CL1-52**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	210	42	8.8	1	8.8	25	5.3	0	5	19.1	19.07	14.07	3.50	3.50
3 Corr	115	100	11.5	0.91	10.5	70	8.1	0	0	18.5		18.54	5.37	
3	95	50	4.8	0.91	4.3	90	8.6	0	0	12.9	50.49	12.88	5.70	14.57
2 Corr	115	100	11.5	0.74	8.6	70	8.1	0	0	16.6		16.61	5.37	
2	95	50	4.8	0.74	3.5	90	8.6	0	0	12.1	79.18	12.08	5.70	25.63
			41.3		35.7		38.5		5	79.2		74.18	25.63	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.91	0.91	0.74	0.74										
2	0.55	0.55	0.55	0.55										
3	0.50	0.50	0.50	0.50										
Column	**CL1-53**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	210	42	8.8	1	8.8	25	5.3	0	5	19.1	19.07	14.07	3.50	3.50
3 Corr	115	100	11.5	0.91	10.5	70	8.1	0	0	18.5		18.54	5.37	
3	95	50	4.8	0.91	4.3	90	8.6	0	0	12.9	50.49	12.88	5.70	14.57
2 Corr	115	100	11.5	0.74	8.6	70	8.1	0	0	16.6		16.61	5.37	
2	95	50	4.8	0.74	3.5	90	8.6	0	0	12.1	79.18	12.08	5.70	25.63
			41.3		35.7		38.5		5	79.2		74.18	25.63	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.91	0.91	0.74	0.74										
2	0.55	0.55	0.55	0.55										
3	0.50	0.50	0.50	0.50										
Column	**CL1-54**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	200	42	8.4	1	8.4	25	5.0	0	5	18.4	18.40	13.40	3.33	3.33
3 Corr	70	100	7.0	0.92	6.4	70	4.9	0	0	11.3		11.34	3.27	
3	130	50	6.5	0.92	6.0	90	11.7	0	0	17.7	47.42	17.68	7.80	14.40
2 Corr	70	100	7.0	0.76	5.3	70	4.9	0	0	10.2		10.22	3.27	
2	130	50	6.5	0.76	4.9	90	11.7	0	0	16.6	74.28	16.64	7.80	25.47
			35.4		31.1		38.2		5	74.3		69.28	25.47	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.92	0.92	0.76	0.76										
2	0.50	0.50	0.50	0.50										
3	0.50	0.50	0.50	0.50										

Column	**CL1-55**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	240	42	10.1	1	10.1	25	6.0	0	5	21.1	21.08	16.08	4.00	4.00
3 Corr	70	100	7.0	0.92	6.4	70	4.9	0	0	11.3		11.34	3.27	
3	130	50	6.5	0.92	6.0	90	11.7	0	0	17.7	50.10	17.68	7.80	15.07
2 Corr	70	100	7.0	0.76	5.3	70	4.9	0	0	10.2		10.22	3.27	
2	130	50	6.5	0.76	4.9	90	11.7	0	0	16.6	76.96	16.64	7.80	26.13
			37.1		32.8		39.2		5	77.0		71.96	26.13	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.92	0.92	0.76	0.76										
2	0.50	0.50	0.50	0.50										
3	0.50	0.50	0.50	0.50										
Column	**CL1-56**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	450	42	18.9	1	18.9	25	11.3	0	5	35.2	35.15	30.15	7.50	7.50
3 Corr	100	100	10.0	0.69	6.9	70	7.0	0	0	13.9		13.88	4.67	
3	390	50	19.5	0.69	13.4	90	35.1	0	0	48.5	97.55	48.52	23.40	35.57
2 Corr	100	100	10.0	0.50	5.0	70	7.0	0	0	12.0		12.00	4.67	
2	290	50	14.5	0.50	7.3	90	26.1	0	0	33.4	142.90	33.35	17.40	57.63
			72.9		51.4		86.5		5	142.9		137.90	57.63	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.69	0.69	0.38	0.38										
2	0.46	0.46	0.48	0.48										
3	0.50	0.50	0.50	0.50										
Column	**CL1-57**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	610	42	25.6	1	25.6	25	15.3	0	5	45.9	45.87	40.87	10.17	10.17
3 Corr	120	100	12.0	0.60	7.2	70	8.4	0	0	15.6		15.55	5.60	
3	485	50	24.3	0.60	14.5	90	43.7	0	0	58.1	119.53	58.10	29.10	44.87
2 Corr	120	100	12.0	0.50	6.0	70	8.4	0	0	14.4		14.40	5.60	
2	300	50	15.0	0.50	7.5	90	27.0	0	0	34.5	168.43	34.50	18.00	68.47
			88.9		60.7		102.7		5	168.4		163.43	68.47	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.60	0.60	0.26	0.26										
2	0.46	0.46	0.49	0.49										
3	0.50	0.50	0.50	0.50										
Column	**CL1-58**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	150	42	6.3	1	6.3	25	3.8	0	0	10.1	10.05	10.05	2.50	2.50
3 Corr	0	100	0.0	0.96	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	150	50	7.5	0.96	7.2	90	13.5	0	5	25.7	35.75	20.70	9.00	11.50
			13.8		13.5		17.3		5	35.8		30.75	11.50	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				

	3 Cor	**3**												
1	0.96	0.96												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-59**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	465	42	19.5	1	19.5	25	11.6	0	0	31.2	31.16	31.16	7.75	7.75
3 Corr	0	100	0.0	0.71	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	465	50	23.3	0.71	16.5	90	41.9	0	5	63.3	94.47	58.31	27.90	35.65
			42.8		36.0		53.5		5	94.5		89.47	35.65	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.71	0.71												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-60**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	150	42	6.3	1	6.3	25	3.8	0	0	10.1	10.05	10.05	2.50	2.50
3 Corr	0	100	0.0	0.96	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	150	50	7.5	0.96	7.2	90	13.5	0	5	25.7	35.75	20.70	9.00	11.50
			13.8		13.5		17.3		5	35.8		30.75	11.50	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.96	0.96												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-61**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	350	42	14.7	1	14.7	25	8.8	0	0	23.5	23.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.80	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	350	50	17.5	0.80	14.0	90	31.5	0	5	50.5	73.95	45.50	21.00	26.83
			32.2		28.7		40.3		5	74.0		68.95	26.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.80	0.80												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-62**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	200	42	8.4	1	8.4	25	5.0	0	5	18.4	18.40	13.40	3.33	3.33
3 Corr	75	100	7.5	0.92	6.9	70	5.3	0	0	12.2		12.18	3.50	
3	120	50	6.0	0.92	5.5	90	10.8	0	0	16.3	46.92	16.34	7.20	14.03
			21.9		20.9		21.1		5	46.9		41.92	14.03	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.92	0.92												

2	0.51	0.51												
3	0.50	0.50												
Column	**CL1-63**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	75	42	3.2	1	3.2	25	1.9	0	5	10.0	10.03	5.03	1.25	1.25
3 Corr	75	100	7.5	1.02	7.7	70	5.3	0	0	12.9		12.90	3.50	
3	0	50	0.0	1.02	0.0	90	0.0	0	0	0.0	22.93	0.00	0.00	4.75
			10.7		10.8		7.1		5	22.9		17.93	4.75	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	1.02	1.02												
2	0.61	0.61												
3	0.50	0.50												
Column	**CL1-64**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	670	42	28.1	1	28.1	25	16.8	0	5	49.9	49.89	44.89	11.17	11.17
3 Corr	210	100	21.0	0.54	11.4	70	14.7	0	0	26.1		26.12	9.80	
3	460	50	23.0	0.54	12.5	90	41.4	0	0	53.9	129.93	53.91	27.60	48.57
			72.1		52.1		72.9		5	129.9		124.93	48.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.54	0.54												
2	0.50	0.50												
3	0.50	0.50												
Column	**CL1-65**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	770	42	32.3	1	32.3	25	19.3	0	5	56.6	56.59	51.59	12.83	12.83
3 Corr	305	100	30.5	0.51	15.7	70	21.4	0	0	37.1		37.05	14.23	
3	465	50	23.3	0.51	12.0	90	41.9	0	0	53.8	147.46	53.82	27.90	54.97
			86.1		60.0		82.5		5	147.5		142.46	54.97	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.46	0.46												
2	0.51	0.51												
3	0.50	0.50												
Column	**CL1-66**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	510	42	21.4	1	21.4	25	12.8	0	5	39.2	39.17	34.17	8.50	8.50
3 Corr	280	100	28.0	0.67	18.8	70	19.6	0	0	38.4		38.42	13.07	
3	230	50	11.5	0.67	7.7	90	20.7	0	0	28.4	106.01	28.43	13.80	35.37
			60.9		48.0		53.1		5	106.0		101.01	35.37	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.67	0.67												
2	0.55	0.55												
3	0.50	0.50												

Column	**CL1-67**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	115	42	4.8	1	4.8	25	2.9	0	5	12.7	12.71	7.71	1.92	1.92
3 Corr	115	100	11.5	0.99	11.4	70	8.1	0	0	19.4		19.41	5.37	
3	0	50	0.0	0.99	0.0	90	0.0	0	0	0.0	32.12	0.00	0.00	7.28
			16.3		16.2		10.9		5	32.1		27.12	7.28	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.99	0.99												
2	0.61	0.61												
3	0.50	0.50												
Column	**CL1-68**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	900	42	37.8	1	37.8	25	22.5	0	5	65.3	65.30	60.30	15.00	15.00
3 Corr	310	100	31.0	0.61	18.8	70	21.7	0	0	40.5		40.55	14.47	
3	280	50	14.0	0.61	8.5	90	25.2	0	0	33.7	139.56	33.71	16.80	46.27
			82.8		65.2		69.4		5	139.6		134.56	46.27	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.61	0.61												
2	0.54	0.54												
3	0.50	0.50												
Column	**CL1-69**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	660	42	27.7	1	27.7	25	16.5	0	5	49.2	49.22	44.22	11.00	11.00
3 Corr	280	100	28.0	0.70	19.5	70	19.6	0	0	39.1		39.09	13.07	
3	200	50	10.0	0.70	7.0	90	18.0	0	0	25.0	113.27	24.96	12.00	36.07
			65.7		54.2		54.1		5	113.3		108.27	36.07	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.70	0.70												
2	0.55	0.55												
3	0.50	0.50												
Column	**CL1-70**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	270	42	11.3	1	11.3	25	6.8	0	5	23.1	23.09	18.09	4.50	4.50
3 Corr	70	100	7.0	0.86	6.0	70	4.9	0	0	10.9		10.95	3.27	
3	200	50	10.0	0.86	8.6	90	18.0	0	0	26.6	60.68	26.64	12.00	19.77
			28.3		26.0		29.7		5	60.7		55.68	19.77	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.86	0.86												
2	0.48	0.48												
3	0.50	0.50												
Column	**CL1-71**													

									Walls	Load Combinations				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	430	42	18.1	1	18.1	25	10.8	0	5	33.8	33.81	28.81	7.17	7.17
3 Corr	110	100	11.0	0.74	8.1	70	7.7	0	0	15.8		15.80	5.13	
3	320	100	32.0	0.74	23.6	70	22.4	0	0	46.0	95.56	45.95	14.93	27.23
			61.1		49.7		40.9		5	95.6		90.56	27.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.74	0.74												
2	0.61	0.61												
3	0.50	0.50												
Column	**CL1-72**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	530	42	22.3	1	22.3	25	13.3	0	10	45.5	45.51	35.51	8.83	8.83
3 Corr	130	100	13.0	0.66	8.5	70	9.1	0	0	17.6		17.63	6.07	
3	400	100	40.0	0.66	26.2	70	28.0	0	0	54.2	117.38	54.24	18.67	33.57
			75.3		57.0		50.4		10	117.4		107.38	33.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.66	0.66												
2	0.61	0.61												
3	0.50	0.50												
Column	**CL1-73**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	515	42	21.6	1	21.6	25	12.9	0	10	44.5	44.51	34.51	8.58	8.58
3 Corr	130	100	13.0	0.67	8.7	70	9.1	0	0	17.8		17.78	6.07	
3	385	50	19.3	0.67	12.9	90	34.7	0	0	47.5	109.80	47.51	23.10	37.75
			53.9		43.2		56.6		10	109.8		99.80	37.75	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.67	0.67												
2	0.48	0.48												
3	0.50	0.50												
Column	**CL1-74**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	580	42	24.4	1	24.4	25	14.5	0	10	48.9	48.86	38.86	9.67	9.67
3 Corr	130	100	13.0	0.62	8.0	70	9.1	0	0	17.1		17.11	6.07	
3	450	50	22.5	0.62	13.9	90	40.5	0	0	54.4	120.33	54.36	27.00	42.73
			59.9		46.2		64.1		10	120.3		110.33	42.73	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.62	0.62												
2	0.47	0.47												
3	0.50	0.50												
Column	**CL1-75**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**

Roof	610	42	25.6	1	25.6	25	15.3	0	10	50.9	50.87	40.87	10.17	10.17
3 Corr	120	100	12.0	0.59	7.1	70	8.4	0	0	15.5		15.50	5.60	
3	490	50	24.5	0.59	14.5	90	44.1	0	0	58.6	124.98	58.60	29.40	45.17
			62.1		47.2		67.8		10	125.0		114.98	45.17	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.59	0.59												
2	0.46	0.46												
3	0.50	0.50												
Column	**CL1-76**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	270	42	11.3	1	11.3	25	6.8	0	0	18.1	18.09	18.09	4.50	4.50
3 Corr	45	100	4.5	0.86	3.9	70	3.2	0	5	12.0		7.04	2.10	
3	225	50	11.3	0.86	9.7	90	20.3	0	0	30.0	60.10	29.97	13.50	20.10
			27.1		24.9		30.2		5	60.1		55.10	20.10	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.86	0.86												
2	0.45	0.45												
3	0.50	0.50												
Column	**CL1-77**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	220	42	9.2	1	9.2	25	5.5	0	5	19.7	19.74	14.74	3.67	3.67
3 Corr	0	100	0.0	0.97	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	135	50	6.8	0.97	6.6	90	12.2	0	0	18.7	38.45	18.71	8.10	11.77
			16.0		15.8		17.7		5	38.5		33.45	11.77	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.97	0.97												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-78**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	670	42	28.1	1	28.1	25	16.8	0	10	54.9	54.89	44.89	11.17	11.17
3 Corr	460	100	46.0	0.57	26.2	70	32.2	0	0	58.4		58.38	21.47	
3	210	50	10.5	0.57	6.0	90	18.9	0	0	24.9	138.15	24.88	12.60	45.23
			84.6		60.3		67.9		10	138.1		128.15	45.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.54	0.54												
2	0.57	0.57												
3	0.50	0.50												
Column	**CL1-79**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	770	42	32.3	1	32.3	25	19.3	0	10	61.6	61.59	51.59	12.83	12.83
3 Corr	305	100	30.5	0.51	15.7	70	21.4	0	0	37.1		37.05	14.23	

3	465	50	23.3	0.51	12.0	90	41.9	0	0	53.8	152.46	53.82	27.90	54.97
			86.1		60.0		82.5		10	152.5		142.46	54.97	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.46	0.46												
2	0.51	0.51												
3	0.50	0.50												
Column	**CL1-80**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	630	42	26.5	1	26.5	25	15.8	0	5	47.2	47.21	42.21	10.50	10.50
3 Corr	180	100	18.0	0.58	10.4	70	12.6	0	0	23.0		22.97	8.40	
3	450	50	22.5	0.58	13.0	90	40.5	0	0	53.5	123.64	53.46	27.00	45.90
			67.0		49.8		68.9		5	123.6		118.64	45.90	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.58	0.58												
2	0.49	0.49												
3	0.50	0.50												
Column	**CL1-81**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	0	42	0.0	1	0.0	25	0.0	0	5	5.0	5.00	0.00	0.00	0.00
3 Corr	0	100	0.0	#DIV/0!	#DIV/0!	70	0.0	0	0	#DIV/0!		#DIV/0!	0.00	
3	0	50	0.0	#DIV/0!	#DIV/0!	90	0.0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00
			0.0		#DIV/0!		0.0		5	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	1.08	1.08												
2	#DIV/0!	#DIV/0!												
3	0.50	0.50												
Column	**CL1-82**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	320	42	13.4	1	13.4	25	8.0	0	5	26.4	26.44	21.44	5.33	5.33
3 Roof	130	100	13.0	1.00	13.0	25	3.3	0	0	16.3		16.25	2.17	
3	285	50	14.3	0.85	12.1	90	25.7	0	0	37.8	80.48	37.79	17.10	24.60
			40.7		38.6		36.9		5	80.5		75.48	24.60	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3													
1	0.85													
2	0.39													
3	0.50													
Column	**CL1-83**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	575	42	24.2	1	24.2	25	14.4	0	5	43.5	43.53	38.53	9.58	9.58
3 Roof	0	100	0.0	1.00	0.0	25	0.0	0	0	0.0		0.00	0.00	
3	575	50	28.8	0.62	17.8	90	51.8	0	0	69.6	113.10	69.58	34.50	44.08
			52.9		42.0		66.1		5	113.1		108.10	44.08	

Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3													
1	0.62													
2	0.39													
3	0.50													
Column	**CL1-84**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	400	42	16.8	1	16.8	25	10.0	0	5	31.8	31.80	26.80	6.67	6.67
3 Corr	0	100	0.0	0.76	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	400	50	20.0	0.76	15.2	90	36.0	0	0	51.2	83.00	51.20	24.00	30.67
			36.8		32.0		46.0		5	83.0		78.00	30.67	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.76	0.76												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-85**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	160	42	6.7	1	6.7	25	4.0	0	5	15.7	15.72	10.72	2.67	2.67
3 Corr	0	100	0.0	0.76	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	400	50	20.0	0.76	15.2	90	36.0	0	0	51.2	66.92	51.20	24.00	26.67
			26.7		21.9		40.0		5	66.9		61.92	26.67	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.76	0.76												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-86**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	700	42	29.4	1	29.4	25	17.5	0	5	51.9	51.90	46.90	11.67	11.67
3 Corr	0	100	0.0	0.61	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	700	100	70.0	0.61	42.7	70	49.0	0	0	91.7	143.60	91.70	32.67	44.33
			99.4		72.1		66.5		5	143.6		138.60	44.33	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.52	0.52												
2	0.61	0.61												
3	0.50	0.50												
Column	**CL1-87**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	790	42	33.2	1	33.2	25	19.8	0	5	57.9	57.93	52.93	13.17	13.17
3 Open	450	100	45.0	0.55	24.7	70	31.5	0	0	56.2		56.24	21.00	
3	340	50	17.0	0.55	9.3	90	30.6	0	0	39.9	154.11	39.94	20.40	54.57
			95.2		67.3		81.9		5	154.1		149.11	54.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												

1	0.45	0.45												
2	0.55	0.55												
3	0.50	0.50												
Column	**CL1-88**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	680	42	28.6	1	28.6	25	17.0	0	5	50.6	50.56	45.56	11.33	11.33
3 Corr	0	100	0.0	0.54	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	680	50	34.0	0.54	18.2	90	61.2	0	0	79.4	129.98	79.42	40.80	52.13
			62.6		46.8		78.2		5	130.0		124.98	52.13	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.54	0.54												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-89**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	420	42	17.6	1	17.6	25	10.5	0	5	33.1	33.14	28.14	7.00	7.00
3 Corr	0	100	0.0	0.74	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	420	50	21.0	0.74	15.6	90	37.8	0	0	53.4	86.56	53.42	25.20	32.20
			38.6		33.3		48.3		5	86.6		81.56	32.20	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.74	0.74												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-90**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	300	42	12.6	1	12.6	25	7.5	0	5	25.1	25.10	20.10	5.00	5.00
3 Corr	0	100	0.0	0.84	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	300	50	15.0	0.84	12.6	90	27.0	0	0	39.6	64.70	39.60	18.00	23.00
			27.6		25.2		34.5		5	64.7		59.70	23.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.84	0.84												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-91**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	490	42	20.6	1	20.6	25	12.3	0	5	37.8	37.83	32.83	8.17	8.17
3 Corr	0	100	0.0	0.69	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	490	50	24.5	0.69	16.9	90	44.1	0	0	61.0	98.79	60.96	29.40	37.57
			45.1		37.4		56.4		5	98.8		93.79	37.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.69	0.69												
2	0.39	0.39												

3	0.50	0.50												
Column	**CL1-92**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	350	42	14.7	1	14.7	25	8.8	0	5	28.5	28.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.80	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	350	50	17.5	0.80	14.0	90	31.5	0	0	45.5	73.95	45.50	21.00	26.83
			32.2		28.7		40.3		5	74.0		68.95	26.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.80	0.80												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-93**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	350	42	14.7	1	14.7	25	8.8	0	5	28.5	28.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.80	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	350	50	17.5	0.80	14.0	90	31.5	0	0	45.5	73.95	45.50	21.00	26.83
			32.2		28.7		40.3		5	74.0		68.95	26.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.80	0.80												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-94**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	235	42	9.9	1	9.9	25	5.9	0	5	20.7	20.75	15.75	3.92	3.92
3 Corr	0	100	0.0	0.89	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	235	50	11.8	0.89	10.5	90	21.2	0	0	31.6	52.38	31.63	14.10	18.02
			21.6		20.4		27.0		5	52.4		47.38	18.02	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.89	0.89												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-95**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	300	42	12.6	1	12.6	25	7.5	0	5	25.1	25.10	20.10	5.00	5.00
3 Corr	0	100	0.0	0.96	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	150	50	7.5	0.96	7.2	90	13.5	0	10	30.7	55.80	20.70	9.00	14.00
			20.1		19.8		21.0		15	55.8		40.80	14.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.96	0.96												
2	0.39	0.39												
3	0.50	0.50												

Column	**CL1-96**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	580	42	24.4	1	24.4	25	14.5	0	5	43.9	43.86	38.86	9.67	9.67
3 Corr	0	100	0.0	0.86	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	280	50	14.0	0.86	12.0	90	25.2	0	10	47.2	91.04	37.18	16.80	26.47
			38.4		36.3		39.7		15	91.0		76.04	26.47	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.86	0.86												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-97**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	350	42	14.7	1	14.7	25	8.8	0	5	28.5	28.45	23.45	5.83	5.83
3 Corr	0	100	0.0	0.87	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	260	50	13.0	0.87	11.3	90	23.4	0	10	44.7	73.19	34.74	15.60	21.43
			27.7		26.0		32.2		15	73.2		58.19	21.43	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.87	0.87												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-98**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	150	42	6.3	1	6.3	25	3.8	0	5	15.1	15.05	10.05	2.50	2.50
3 Corr	0	100	0.0	0.96	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	150	50	7.5	0.96	7.2	90	13.5	0	0	20.7	35.75	20.70	9.00	11.50
			13.8		13.5		17.3		5	35.8		30.75	11.50	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.96	0.96												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-99**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	460	42	19.3	1	19.3	25	11.5	0	5	35.8	35.82	30.82	7.67	7.67
3 Corr	0	100	0.0	0.71	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	460	50	23.0	0.71	16.4	90	41.4	0	0	57.8	93.60	57.78	27.60	35.27
			42.3		35.7		52.9		5	93.6		88.60	35.27	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.71	0.71												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-100**													
									Walls	**Load Combinations**				

Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	150	42	6.3	1	6.3	25	3.8	0	5	15.1	15.05	10.05	2.50	2.50
3 Corr	0	100	0.0	0.96	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	150	50	7.5	0.96	7.2	90	13.5	0	0	20.7	35.75	20.70	9.00	11.50
			13.8		13.5		17.3		5	35.8		30.75	11.50	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.96	0.96												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-101**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	240	42	10.1	1	10.1	25	6.0	0	5	21.1	21.08	16.08	4.00	4.00
3 Corr	0	100	0.0	0.89	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	240	50	12.0	0.89	10.7	90	21.6	0	0	32.3	53.34	32.26	14.40	18.40
			22.1		20.7		27.6		5	53.3		48.34	18.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.89	0.89												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-102**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	300	42	12.6	1	12.6	25	7.5	0	5	25.1	25.10	20.10	5.00	5.00
3 Corr	0	100	0.0	0.84	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	300	50	15.0	0.84	12.6	90	27.0	0	0	39.6	64.70	39.60	18.00	23.00
			27.6		25.2		34.5		5	64.7		59.70	23.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.84	0.84												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-103**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	150	42	6.3	1	6.3	25	3.8	0	5	15.1	15.05	10.05	2.50	2.50
3 Corr	0	100	0.0	0.96	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	150	50	7.5	0.96	7.2	90	13.5	0	0	20.7	35.75	20.70	9.00	11.50
			13.8		13.5		17.3		5	35.8		30.75	11.50	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.96	0.96												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-104**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	240	42	10.1	1	10.1	25	6.0	0	5	21.1	21.08	16.08	4.00	4.00

3 Corr	0	100	0.0	0.89	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	240	50	12.0	0.89	10.7	90	21.6	0	0	32.3	53.34	32.26	14.40	18.40
			22.1		20.7		27.6		5	53.3		48.34	18.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.89	0.89												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-105**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	480	42	20.2	1	20.2	25	12.0	0	5	37.2	37.16	32.16	8.00	8.00
3 Corr	0	100	0.0	0.70	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	480	50	24.0	0.70	16.7	90	43.2	0	0	59.9	97.06	59.90	28.80	36.80
			44.2		36.9		55.2		5	97.1		92.06	36.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.70	0.70												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-106**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	240	42	10.1	1	10.1	25	6.0	0	5	21.1	21.08	16.08	4.00	4.00
3 Corr	0	100	0.0	0.89	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	240	50	12.0	0.89	10.7	90	21.6	0	0	32.3	53.34	32.26	14.40	18.40
			22.1		20.7		27.6		5	53.3		48.34	18.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.89	0.89												
2	0.39	0.39												
3	0.50	0.50												
Column	**CL1-107**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	110	100	11.0	1	11.0	25	2.8	0	5	18.8	18.75	13.75	1.83	1.83
2	25	100	2.5	1.06	2.7	70	1.8	0	0	4.4	23.15	4.40	1.17	3.00
			13.5		13.7		4.5		5	23.2		18.15	3.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2													
1	1.06													
2	0.61													
3	0.50													
Column	**CL1-108**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	300	42	12.6	1	12.6	25	7.5	0	5	25.1	25.10	20.10	5.00	5.00
3 Roof	85	100	8.5	1	8.5	25	2.1	0	0	10.6	10.63	10.63	1.42	1.42
3	190	100	19.0	0.93	17.6	70	13.3	0	5	35.9		30.93	8.87	
2	50	100	5.0	1.04	5.2	70	3.5	0	0	8.7	80.36	8.70	2.33	17.62

			45.1		43.9		26.4		10	80.4		70.36	17.62	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3	**2**												
1	0.93	1.04												
2	0.61	0.61												
3	0.50	0.50												
Column	**CL1-109**													
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	80	42	3.4	1	3.4	25	2.0	0	5	10.4	10.36	5.36	1.33	1.33
3	80	100	8.0	0.95	7.6	70	5.6	0	0	13.2		13.22	3.73	
2	80	100	8.0	0.95	7.6	70	5.6	0	0	13.2	36.79	13.22	3.73	8.80
			19.4		18.6		13.2		5	36.8		31.79	8.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**												
1	0.95	0.95												
2	0.61	0.61												
3	0.50	0.50												

			Sherwood Middle School Columns			Gymnasium								
Column	**Gym-Interior**								**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
3 Roof	0	35	0.00	1	0.00	25	0.00	0	0	0.00	0.00	0.00	0.00	0.00
2	400	100	40.00	0.76	30.40	93	37.20	0	0	67.60	67.60	67.60	24.80	
					30.40		37.20		0	67.60		67.60	24.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.76											
2			0.56											
3			0.50											
Column	**Gym-2**								**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
3 Roof	900	42	37.80	1	37.80	45	40.50	0	5	83.30	83.30	78.30	27.00	27.00
2	315	100	31.50	0.83	26.08	65	20.48	0	20	66.56	149.86	46.56	13.65	
					63.88		60.98		25	149.86		124.86	40.65	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.83											
2			0.62											
3			0.50											
Column	**Gym-**	**3**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
3 Roof	0	42	0.00	1	0.00	25	0.00	0	0	0.00	0.00	0.00	0.00	0.00
2	0	100	0.00	#DIV/0!	#DIV/0!	95	0.00	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	
					#DIV/0!		0.00		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			1.08											
2			#DIV/0!											
3			0.50											
Column	**Gym-**	**4**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
3 Roof	770	42	32.34	1	32.34	45	34.65	0	10	76.99	76.99	66.99	23.10	23.10
2	270	100	27.00	0.86	23.33	95	25.65	0	15	63.98	140.97	48.98	17.10	
					55.67		60.30		25	140.97		115.97	40.20	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.86											
2			0.56											
3			0.50											
Column	**Gym-**	**5**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
3 Roof	860	50	43.00	1	43.00	45	38.70	0	10	91.70	91.70	81.70	25.80	25.80
2	300	100	30.00	0.84	25.20	95	28.50	0	15	68.70	160.40	53.70	19.00	
					68.20		67.20		25	160.40		135.40	44.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											

1			0.84											
2			0.56											
3			0.50											
Column	**Gym-**	**6**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	860	50	43.00	1	43.00	45	38.70	0	0	81.70	81.70	81.70	25.80	25.80
2	300	100	30.00	0.84	25.20	95	28.50	0	0	53.70	135.40	53.70	19.00	
					68.20		67.20		0	135.40		135.40	44.80	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.84											
2			0.56											
3			0.50											
Column	**Gym-**	**7**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	490	42	20.6	1	20.6	45	22.1	0	5	47.6	47.63	42.63	14.70	14.70
3 Corr	0	100	0.0	1.04	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	55	125	6.9	1.04	7.1	70	3.9	0	5	16.0	63.60	10.97	2.57	17.27
2 Corr	0	100	0.0	0.95	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	110	100	11.0	0.95	10.4	95	10.5	0	5	25.9	89.48	20.88	6.97	24.23
			38.5		38.1		36.4		15	89.5		74.48	24.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.04	1.04	0.95	0.95										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**8**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	55	42	2.3	1	2.3	25	1.4	0	5	8.7	8.69	3.69	0.92	0.92
3 Corr	0	100	0.0	1.04	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	55	125	6.9	1.04	7.1	70	3.9	0	5	16.0	24.66	10.97	2.57	3.48
2 Corr	0	100	0.0	0.99	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	55	100	5.5	0.99	5.5	95	5.2	0	5	15.7	40.34	10.68	3.48	6.97
			14.7		14.9		10.5		15	40.3		25.34	6.97	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	1.04	1.04	0.99	0.99										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**9**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	65	42	2.73	1	2.73	45	2.93	0	5	10.66	10.66	5.66	1.95	1.95
2	140	100	14.00	0.97	13.55	95	13.30	0	5	31.85	42.51	26.85	8.87	
					16.28		16.23		10	42.51		32.51	10.82	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.97											
2			0.56											

3			0.50											
Column	**Gym-**	**10**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
2	0	100	0.00	#DIV/0!	#DIV/0!	95	0.00	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	
					#DIV/0!		0.00		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			1.08											
2			#DIV/0!											
3			0.50											
Column	**Gym-**	**11**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	180	42	7.6	1	7.6	45	8.1	0	5	20.7	20.66	15.66	5.40	5.40
3 Corr	0	100	0.0	0.97	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	140	125	17.5	0.97	16.9	70	9.8	0	5	31.7	52.40	26.74	6.53	11.93
2 Corr	0	100	0.0	0.74	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	290	100	29.0	0.74	21.3	95	27.6	0	0	48.9	101.29	48.89	18.37	30.30
			54.1		45.8		45.5		10	101.3		91.29	30.30	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.97	0.97	0.74	0.74										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**12**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	140	42	5.9	1	5.9	25	3.5	0	5	14.4	14.38	9.38	2.33	2.33
3 Corr	0	100	0.0	0.97	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	140	125	17.5	0.97	16.9	70	9.8	0	5	31.7	46.12	26.74	6.53	8.87
2 Corr	0	100	0.0	0.86	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	140	100	14.0	0.86	12.0	95	13.3	0	5	30.3	76.40	25.28	8.87	17.73
			37.4		34.8		26.6		15	76.4		61.40	17.73	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.97	0.97	0.86	0.86										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**13**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	65	42	2.73	1	2.73	45	2.93	0	5	10.66	10.66	5.66	1.95	1.95
2	240	100	24.00	0.89	21.31	95	22.80	0	10	54.11	64.77	44.11	15.20	
					24.04		25.73		15	64.77		49.77	17.15	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.89											
2			0.56											
3			0.50											
Column	**Gym-**	**14**							**Walls**	**Load Combinations**				

Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	500	100	50.00	0.68	34.00	95	47.50	0	0	81.50	81.50	81.50	31.67	
					34.00		47.50		0	81.50		81.50	31.67	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.68											
2			0.56											
3			0.50											
Column	**Gym-**	**15**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	430	100	43.00	0.74	31.65	95	40.85	0	0	72.50	72.50	72.50	27.23	
					31.65		40.85		0	72.50		72.50	27.23	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.74											
2			0.56											
3			0.50											
Column	**Gym-**	**16**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	480	100	48.00	0.70	33.41	95	45.60	0	0	79.01	79.01	79.01	30.40	
					33.41		45.60		0	79.01		79.01	30.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.70											
2			0.56											
3			0.50											
Column	**Gym-**	**17**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	480	100	48.00	0.70	33.41	95	45.60	0	0	79.01	79.01	79.01	30.40	
					33.41		45.60		0	79.01		79.01	30.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.70											
2			0.56											
3			0.50											
Column	**Gym-**	**18**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	210	42	8.8	1	8.8	25	5.3	0	5	19.1	19.07	14.07	3.50	3.50
3 Corr	0	100	0.0	0.94	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	175	125	21.9	0.94	20.6	70	12.3	0	5	37.8	56.88	32.81	8.17	11.67
2 Corr	0	100	0.0	0.65	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	360	100	36.0	0.65	23.5	95	34.2	0	0	57.7	114.55	57.67	22.80	34.47
			66.7		52.9		51.7		10	114.6		104.55	34.47	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.94	0.94	0.65	0.65										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										

Column	**Gym-**	**19**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	175	42	7.4	1	7.4	25	4.4	0	5	16.7	16.73	11.73	2.92	2.92
3 Corr	0	100	0.0	0.94	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	175	125	21.9	0.94	20.6	70	12.3	0	5	37.8	54.54	32.81	8.17	11.08
2 Corr	0	100	0.0	0.80	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	175	100	17.5	0.80	14.0	95	16.6	0	5	35.6	90.16	30.63	11.08	22.17
			46.7		41.9		33.3		15	90.2		75.16	22.17	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.94	0.94	0.80	0.80										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**20**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	0	42	0.00	1	0.00	25	0.00	0	0	0.00	0.00	0.00	0.00	0.00
2	0	100	0.00	#DIV/0!	#DIV/0!	95	0.00	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	
					#DIV/0!		0.00		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			1.08											
2			#DIV/0!											
3			0.50											
Column	**Gym-**	**21**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
2	380	100	38.00	0.78	29.49	95	36.10	0	0	65.59	65.59	65.59	24.07	
					29.49		36.10		0	65.59		65.59	24.07	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.78											
2			0.56											
3			0.50											
Column	**Gym-**	**22**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
2	330	100	33.00	0.82	26.93	95	31.35	0	0	58.28	58.28	58.28	20.90	
					26.93		31.35		0	58.28		58.28	20.90	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.82											
2			0.56											
3			0.50											
Column	**Gym-**	**23**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
2	365	100	36.50	0.79	28.76	95	34.68	0	0	63.44	63.44	63.44	23.12	
					28.76		34.68		0	63.44		63.44	23.12	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.79											
2			0.56											

3			0.50											
Column	**Gym-**	**24**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
2	365	100	36.50	0.79	28.76	95	34.68	0	0	63.44	63.44	63.44	23.12	
					28.76		34.68		0	63.44		63.44	23.12	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.79											
2			0.56											
3			0.50											
Column	**Gym-**	**25**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	210	42	8.8	1	8.8	25	5.3	0	5	19.1	19.07	14.07	3.50	3.50
3 Corr	0	100	0.0	0.94	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	175	125	21.9	0.94	20.6	70	12.3	0	5	37.8	56.88	32.81	8.17	11.67
2 Corr	0	100	0.0	0.66	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	355	100	35.5	0.66	23.3	95	33.7	0	0	57.0	113.90	57.01	22.48	34.15
			66.2		52.7		51.2		10	113.9		103.90	34.15	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.94	0.94	0.66	0.66										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**26**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
Roof	175	42	7.4	1	7.4	25	4.4	0	5	16.7	16.73	11.73	2.92	2.92
3 Corr	0	100	0.0	0.94	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	175	125	21.9	0.94	20.6	70	12.3	0	5	37.8	54.54	32.81	8.17	11.08
2 Corr	0	100	0.0	0.80	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	175	100	17.5	0.80	14.0	95	16.6	0	5	35.6	90.16	30.63	11.08	22.17
			46.7		41.9		33.3		15	90.2		75.16	22.17	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.94	0.94	0.80	0.80										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**27**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 ΣP_{DL}-ΣPU_{plift} (k)**	**Floor Total**
3 Roof	0	42	0.00	1	0.00	25	0.00	0	0	0.00	0.00	0.00	0.00	0.00
2	0	100	0.00	#DIV/0!	#DIV/0!	95	0.00	0	0	#DIV/0!	#DIV/0!	#DIV/0!	0.00	
					#DIV/0!		0.00		0	#DIV/0!		#DIV/0!	0.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			1.08											
2			#DIV/0!											
3			0.50											
Column	**Gym-**	**28**							**Walls**	**Load Combinations**				

Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	390	100	39.00	0.77	29.95	95	37.05	0	0	67.00	67.00	67.00	24.70	
					29.95		37.05		0	67.00		67.00	24.70	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.77											
2			0.56											
3			0.50											
Column	**Gym-**	**29**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	335	100	33.50	0.81	27.20	95	31.83	0	0	59.03	59.03	59.03	21.22	
					27.20		31.83		0	59.03		59.03	21.22	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.81											
2			0.56											
3			0.50											
Column	**Gym-**	**30**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	375	100	37.50	0.78	29.25	95	35.63	0	0	64.88	64.88	64.88	23.75	
					29.25		35.63		0	64.88		64.88	23.75	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.78											
2			0.56											
3			0.50											
Column	**Gym-**	**31**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	375	100	37.50	0.78	29.25	95	35.63	0	0	64.88	64.88	64.88	23.75	
					29.25		35.63		0	64.88		64.88	23.75	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.78											
2			0.56											
3			0.50											
Column	**Gym-**	**32**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	ΣP_{LL} (k)	**N**	$\Sigma P_{LL\ (reduced)}$ (k)	**DL (psf)**	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
Roof	215	42	9.0	1	9.0	25	5.4	0	5	19.4	19.41	14.41	3.58	3.58
3 Corr	0	100	0.0	0.94	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	175	125	21.9	0.94	20.6	70	12.3	0	5	37.8	57.22	32.81	8.17	11.75
2 Corr	0	100	0.0	0.65	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	360	100	36.0	0.65	23.5	95	34.2	0	0	57.7	114.89	57.67	22.80	34.55
			66.9		53.1		51.8		10	114.9		104.89	34.55	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.94	0.94	0.65	0.65										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										

Column	**Gym-**	**33**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
Roof	175	42	7.4	1	7.4	25	4.4	0	5	16.7	16.73	11.73	2.92	2.92
3 Corr	0	100	0.0	0.94	0.0	70	0.0	0	0	0.0		0.00	0.00	
3	175	125	21.9	0.94	20.6	70	12.3	0	5	37.8	54.54	32.81	8.17	11.08
2 Corr	0	100	0.0	0.80	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	175	100	17.5	0.80	14.0	95	16.6	0	0	30.6	85.16	30.63	11.08	22.17
			46.7		41.9		33.3		10	85.2		75.16	22.17	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3 Cor	**3**	**2 Cor**	**2**										
1	0.94	0.94	0.80	0.80										
2	0.64	0.64	0.56	0.56										
3	0.50	0.50	0.50	0.50										
Column	**Gym-**	**34**							**Walls**	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	100	60	6.00	1	6.00	25	2.50	0	5	13.50	13.50	8.50	1.67	1.67
2	40	100	4.00	1.05	4.19	95	3.80	0	0	7.99	21.49	7.99	2.53	
					10.19		6.30		5	21.49		16.49	4.20	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			1.05											
2			0.56											
3			0.50											
Column	**Gym-**	**35**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
4 Roof	220	42	9.2	1	9.2	45	9.9	0	5	24.1	24.14	19.14	6.60	6.60
3 Roof	120	80	9.6	1.00	9.6	25	3.0	0	5	17.6	41.74	12.60	2.00	8.60
2 Corr	0	100	0.0	0.84	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	180	100	18.0	0.84	15.1	95	17.1	0	5	37.2	78.96	32.22	11.40	20.00
			36.8		34.0		30.0		15	79.0		63.96	20.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2 Cor	**2**												
1	0.84	0.84												
2	0.56	0.56												
3	0.50	0.50												
Column	**Gym-**	**36**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
4 Roof	640	42	26.9	1	26.9	45	28.8	0	5	60.7	60.68	55.68	19.20	19.20
3 Roof	170	80	13.6	1.00	13.6	25	4.3	0	5	22.9	83.53	17.85	2.83	22.03
2 Corr	0	100	0.0	0.84	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	300	100	30.0	0.84	25.2	95	28.5	0	0	53.7	137.23	53.70	19.00	41.03
			70.5		65.7		61.6		10	137.2		127.23	41.03	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2 Cor	**2**												
1	0.84	0.84												
2	0.56	0.56												
3	0.50	0.50												

Column	Gym-	37												
									Walls	Load Combinations				
Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
4 Roof	640	50	32.0	1	32.0	45	28.8	0	5	65.8	65.80	60.80	19.20	19.20
3 Roof	170	100	17.0	1.00	17.0	25	4.3	0	5	26.3	92.05	21.25	2.83	22.03
2 Corr	170	50	8.5	0.79	6.7	90	15.3	0	0	22.0		22.00	10.20	
2	195	100	19.5	0.79	15.4	95	18.5	0	0	33.9	147.94	33.89	12.35	44.58
			77.0		71.1		66.9		10	147.9		137.94	44.58	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2 Cor	2												
1	0.79	0.79												
2	0.51	0.51												
3	0.50	0.50												
Column	Gym-	38												
									Walls	Load Combinations				
Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
4 Roof	1100	50	55.0	1	55.0	45	49.5	0	5	109.5	109.50	104.50	33.00	33.00
3 Roof	510	80	40.8	1.00	40.8	25	12.8	0	5	58.6	168.05	53.55	8.50	41.50
2 Corr	0	100	0.0	1.02	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	80	100	8.0	1.02	8.1	95	7.6	0	0	15.7	183.78	15.73	5.07	46.57
			103.8		103.9		69.9		10	183.8		173.78	46.57	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2 Cor	2												
1	1.02	1.02												
2	0.56	0.56												
3	0.50	0.50												
Column	Gym-	39							Walls	Load Combinations				
Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	250	100	25.00	0.88	22.00	95	23.75	0	0	45.75	45.75	45.75	15.83	
					22.00		23.75		0	45.75		45.75	15.83	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.88											
2			0.56											
3			0.50											
Column	Gym-	40							Walls	Load Combinations				
Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
2	300	100	30.00	0.84	25.20	95	28.50	0	0	53.70	53.70	53.70	19.00	
					25.20		28.50		0	53.70		53.70	19.00	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
			2											
1			0.84											
2			0.56											
3			0.50											
Column	Gym-	41												
									Walls	Load Combinations				
Floor	TA (sf)	LL (psf)	ΣP_{LL} (k)	N	$\Sigma P_{LL\ (reduced)}$ (k)	DL (psf)	ΣP_{DL} (k)	ΣP_{Lat} (k)	ΣP_{Point} (k)	$\Sigma P_{LL}+\Sigma P_{DL}$ (k)	Floor Total	$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)	2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)	Floor Total
4 Roof	1150	42	48.3	1	48.3	45	51.8	0	5	105.1	105.05	100.05	34.50	34.50
3 Roof	570	80	45.6	1.00	45.6	25	14.3	0	5	64.9	169.90	59.85	9.50	44.00

2 Corr	0	100	0.0	1.00	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	100	100	10.0	1.00	10.0	95	9.5	0	0	19.5	189.40	19.50	6.33	50.33
			103.9		103.9		75.5		10	189.4		179.40	50.33	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2 Cor	**2**												
1	1.00	1.00												
2	0.56	0.56												
3	0.50	0.50												
Column	**Gym-**	**42**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
4 Roof	600	42	25.2	1	25.2	45	27.0	0	5	57.2	57.20	52.20	18.00	18.00
3 Roof	300	80	24.0	1.00	24.0	25	7.5	0	5	36.5	93.70	31.50	5.00	23.00
2 Corr	0	100	0.0	0.86	0.0	95	0.0	0	0	0.0		0.00	0.00	
2	275	100	27.5	0.86	23.7	95	26.1	0	0	49.8	143.48	49.78	17.42	40.42
			76.7		72.9		60.6		10	143.5		133.48	40.42	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	2 Cor	**2**												
1	0.86	0.86												
2	0.56	0.56												
3	0.50	0.50												
Column	**Gym-**	**43**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
4 Roof	520	42	21.8	1	21.8	45	23.4	0	5	50.2	50.24	45.24	15.60	15.60
3 Roof	190	80	15.2	1.00	15.2	25	4.8	0	5	25.0	75.19	19.95	3.17	18.77
3	90	125	11.3	1.01	11.3	75	6.8	0	0	18.1		18.09	4.50	
2	225	100	22.5	0.90	20.3	95	21.4	0	0	41.6	134.91	41.63	14.25	37.52
			70.8		68.6		56.3		10	134.9		124.91	37.52	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3	**2**												
1	1.01	0.90												
2	0.63	0.56												
3	0.50	0.50												
Column	**Gym-**	**44**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
4 Roof	90	42	3.8	1	3.8	25	2.3	0	5	11.0	11.03	6.03	1.50	1.50
3 Roof	0	80	0.0	1.00	0.0	25	0.0	0	0	0.0	11.03	0.00	0.00	1.50
3	90	125	11.3	1.01	11.3	70	6.3	0	5	22.6		17.64	4.20	
2	90	100	9.0	1.01	9.1	95	8.6	0	0	17.6	51.29	17.62	5.70	11.40
			24.0		24.2		17.1		10	51.3		41.29	11.40	
Live Load Reduction-N					Total LL		Total DL		Total PL	Total Load				
	3	**2**												
1	1.01	1.01												
2	0.64	0.56												
3	0.50	0.50												
Column	**Gym-**	**45**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**

3 Roof	230	60	13.8	1.00	13.8	25	5.8	0	5	24.6	24.55	19.55	3.83	3.83
			13.8		13.8		5.8		5	24.6		19.55	3.83	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**46**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	460	60	27.6	1.00	27.6	25	11.5	0	5	44.1	44.10	39.10	7.67	7.67
			27.6		27.6		11.5		5	44.1		39.10	7.67	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**47**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	280	60	16.8	1.00	16.8	25	7.0	0	5	28.8	28.80	23.80	4.67	4.67
			16.8		16.8		7.0		5	28.8		23.80	4.67	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**48**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	190	42	8.0	1.00	8.0	25	4.8	0	5	17.7	17.73	12.73	3.17	3.17
			8.0		8.0		4.8		5	17.7		12.73	3.17	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**49**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	380	42	16.0	1.00	16.0	25	9.5	0	5	30.5	30.46	25.46	6.33	6.33
			16.0		16.0		9.5		5	30.5		25.46	6.33	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**50**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	520	42	21.8	1.00	21.8	25	13.0	0	5	39.8	39.84	34.84	8.67	8.67
			21.8		21.8		13.0		5	39.8		34.84	8.67	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**51**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	700	42	29.4	1.00	29.4	25	17.5	0	5	51.9	51.90	46.90	11.67	11.67
			29.4		29.4		17.5		5	51.9		46.90	11.67	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**52**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	800	42	33.6	1.00	33.6	25	20.0	0	5	58.6	58.60	53.60	13.33	13.33
			33.6		33.6		20.0		5	58.6		53.60	13.33	
					Total LL		Total DL		Total PL	Total Load				

Column	**Gym-**	**53**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	640	42	26.9	1.00	26.9	25	16.0	0	5	47.9	47.88	42.88	10.67	10.67
			26.9		26.9		16.0		5	47.9		42.88	10.67	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**54**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	260	42	10.9	1.00	10.9	25	6.5	0	5	22.4	22.42	17.42	4.33	4.33
			10.9		10.9		6.5		5	22.4		17.42	4.33	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**55**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	90	42	3.8	1.00	3.8	25	2.3	0	5	11.0	11.03	6.03	1.50	1.50
			3.8		3.8		2.3		5	11.0		6.03	1.50	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**56**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	170	42	7.1	1.00	7.1	25	4.3	0	5	16.4	16.39	11.39	2.83	2.83
			7.1		7.1		4.3		5	16.4		11.39	2.83	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**57**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	100	42	4.2	1.00	4.2	25	2.5	0	5	11.7	11.70	6.70	1.67	1.67
			4.2		4.2		2.5		5	11.7		6.70	1.67	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**58**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	125	42	5.3	1.00	5.3	25	3.1	0	5	13.4	13.38	8.38	2.08	2.08
			5.3		5.3		3.1		5	13.4		8.38	2.08	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**59**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	125	42	5.3	1.00	5.3	25	3.1	0	5	13.4	13.38	8.38	2.08	2.08
			5.3		5.3		3.1		5	13.4		8.38	2.08	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**60**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	330	42	13.9	1.00	13.9	25	8.3	0	5	27.1	27.11	22.11	5.50	5.50

			13.9		13.9		8.3		5	27.1		22.11	5.50	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**61**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	330	42	13.9	1.00	13.9	25	8.3	0	5	27.1	27.11	22.11	5.50	5.50
			13.9		13.9		8.3		5	27.1		22.11	5.50	
					Total LL		Total DL		Total PL	Total Load				
Column	**Gym-**	**62**												
									Walls	**Load Combinations**				
Floor	**TA (sf)**	**LL (psf)**	**ΣP_{LL} (k)**	**N**	**$\Sigma P_{LL\ (reduced)}$ (k)**	**DL (psf)**	**ΣP_{DL} (k)**	**ΣP_{Lat} (k)**	**ΣP_{Point} (k)**	**$\Sigma P_{LL}+\Sigma P_{DL}$ (k)**	**Floor Total**	**$\Sigma P_{LL}+\Sigma P_{DL}+\Sigma P_{Lat}$ (k)**	**2/3 $\Sigma P_{DL}-\Sigma PU_{plift}$ (k)**	**Floor Total**
3 Roof	380	42	16.0	1.00	16.0	25	9.5	0	5	30.5	30.46	25.46	6.33	6.33
			16.0		16.0		9.5		5	30.5		25.46	6.33	
					Total LL		Total DL		Total PL	Total Load				

Sherwood Middle			Gym Seismic Loads				12/9/2010
Tributary Areas							
Floors	**Area**	**DL (psf)**	**Weight (k)**			**Roof Load**	
High Roof	10300	43	443			Snow (Seismic)	21
Low Roof	8000	43	344			Framing	7
3rd Floor	1600	78	125			Roofing	3
2nd Floor	12000	91	1092			Misc	12
						Total (psf)	43
						Floor Load	
Walls	**Length**	**Trib Height**	**PSF**	**Weight (k)**		Conc/MtlDke	53
Roof	1100	7	20	154		Framing	7
3rd Floor	1100	14	20	308		Mech	3
2nd Floor	500	14	20	140		Ceiling	5
2nd Floor	200	22	25	110		Partitions	10
						Total	78
						Seismic Coefficients	
Total Weight @ Each Level						Location	Shrewsbury
	Floor	**Roof**	**Wall**	**Total**		S_s =	0.25
Roof		787	154	940.9		S_1 =	0.067
3rd Floor	125		308	432.8			
2nd Floor	1092		250	1342.0		Site Class =	D
						S_{MS} =	0.40
			Total	2715.7		S_{M1} =	0.16
$S_{MS} = F_a S_s$	F_a =	1.6		$S_{Ds} = 2/3\ S_{MS}$		S_{DS} =	0.27
$S_{M1} = F_v S_1$	F_v =	2.4		$S_{D1} = 2/3\ S_{M1}$		S_{D1} =	0.11
				Ordinary Concentrically Braced Frames			
						R =	3.25
						Ω_o =	2
$V = C_s W$	$C_s = S_{DS}/(R/I)$		C_s =	0.103		Cd =	3.25
Approximate Fundamental Period						I_E =	1.25
$T_a = C_t h_n^x$	C_t =	0.02	T_a =	0.34			
	x =	0.75					
	h_n =	44					
					Cs not to exceed =		0.12
Allowable Stress Design:							
$V = 0.7\ C_s W$							
Shear Distribution							
Base Shear (k)	195.0						
Floor Level	**Floor Elev.**	**Weight**	**W_i x H_i**	**Shear (k)**	**Cumulative**		
Roof	42	941	39,518	109.4	109.4		
3	28	433	12,118	33.6	143.0		
2	14	1,342	18,788	52.0	195.0		
		Total	70,424				

Sherwood Loads

Worcester, MA

Basic Design Loads

Roof	
Live Load (Snow)	42
Roofing	3
Insulation	4
Ceiling	3
Mechanical	5
Framing	7
Total (psf)	64
Dead Load =	22
Snow Load =	42
For Seismic:	
DL + 1/2 Snow =	43

Gym Floor	
Live Load	100
7 1/2" Concrete Slab	73
3"- 18 GA Comp Dk	3
Mechanical	5
Ceiling	5
Framing	7
Flooring	2
Total (psf)	195
Live Load =	100
Dead Load =	95
Pre-Composite DL =	83
Total Load =	195

Classrooms/ Offices	
Live Load	50
5 1/2" Concrete Slab	50
3"- 18 GA Comp Dk	3
Mechanical	5
Ceiling	5
Framing	7
Partitions	20
Total (psf)	140
Live Load =	50
Dead Load =	90
Pre-Composite DL =	60
Total Load =	140

Open Floor	
Live Load	100
5 1/2" Concrete Slab	50
3"- 18 GA Comp Dk	3
Mechanical	5
Ceiling	5
Framing	7
Total (psf)	170
Live Load =	100
Dead Load =	70
Pre-Composite DL =	60
Total Load =	170

Media Center	
Live Load	125
5 1/2" Concrete Slab	50
3"- 18 GA Comp Dk	3
Mechanical	5
Ceiling	5
Framing	7
Total (psf)	195

Live Load =	125
Dead Load =	70
Pre-Composite DL =	60
Total Load =	195

LOADS FROM DRIFTING SNOW

JOB: Sherwood Middle School

REF: Massachusetts Building Code (7th)

DATE: 12/9/2010

ASCE-7

Flat Roof Snow Load (Pf) (Slope < 5°) 1"/ft = 4.76°

Pf = 0.7 * Ce * Ct * I * Pg = **42**

Pg (Ground Snow Load) = 55

Ce (Exposure Factor) = 1.00

Ct (Thermal Factor) = 1.00

I (Importance Factor) = 1.10

Sloped Roof Snow Load (Ps)

Ps = Cs * Pf =

Cs from Figure 7-2 (ASCE-7) =

Roof Slope =

Drift Snow

Lu =

Hc =

γ = 0.13 * Pg + 14 (Not more than 30 pcf)

γ = 21 pcf

Exposure Factor (Ce)

Terrain Category	Fully Exposed	Partially Exposed	Sheltered
B	0.9	**1.0**	1.2
C	0.9	1.0	1.1
D	0.8	0.9	1.0
Above Treeline	0.7	0.8	NA

Thermal Factor (Ct)

Thermal Condition	Ct
All structures except as listed below:	**1.0**
Structures kept just above freezing and others with cold, ventilated roofs in which thermal resistance (R-value) between the ventilated space and heated space exceeds 25° F x h x ft2/Btu	1.1
Unheated structures and structures intentionally kept Below Freezing	1.2
Continuously Heated greenhouses with a roof having a thermal resistance less than 2.0° F x h x ft2/Btu	0.85

Importance Factor (I) Snow Load

Category	I	
I	0.8	Agricultural, Strorage
II	1.0	Typical Bldg
III	**1.1**	Schools, large public areas
IV	1.2	Essential Buildings

D. Commissioning Agent Comments

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

MEETING NOTES

DATE:	November 5, 2010	**MEETING DATE:**	November 3, 2010
TO:	Paul Queeney - PMA	**MEETING TIME:**	10:00 to 11:30 am
FROM:	Mike Feyler – RDK Engineers		
SUBJECT:	Sherwood Middle School Cx Design Review – 60% CD's – Meeting #1	**PROJECT NO.:**	20100383.00

ATTENDEES	COPIES TO
M. Feyler, M. Papagni – RDK P. Queeney - PMA K. Crockett - LPA A. Rawji - AEC K. Seaman - SEC	D. DeMaso – RDK Joseph Buckley – MSBA

The following account is a summary of the proceedings. If there have been any omissions or inaccuracies, please notify this office in writing within ten (10) days. If there are no responses, the document will become part of the project record.

ITEM NO.	ITEM	RESPONSIBILITY	DATE DUE
1.01	Design Review – Design Development – Mechanical/Electrical • Feedback on RDK's 60% CD Design Review Documents o ART and Seaman to forwarded 60% design review comments to RDK o RDK, ART and SEC discussed each item on the design reviews to ensure an understanding of the design intent.	RDK/LPA ART/ SEC/LPA INFO	
1.02	Target Dates for 90% CD's - This is RDK's final design review before 100% CD's. o 90% CD's are scheduled to be out 11/12/10, LPA has set aside a 2 week review period. o 100% CD's scheduled for mid December release	LPA INFO INFO	
1.03	Commissioning Specification and associated commissioning templates – 60% CD is complete and final Cx Specification will be inserted into 90% CD. o Within the Cx specifications remove references to LEED, project MACHPs only. o RDK to ensure Commissioning Specifications have	LPA/RDK RDK RDK	

	verbiage to include manufactures representative in the commissioning process • Need confirmation on if there is a spec writer that RDK should be working with on the final Cx specification or LPA? o Commissioning Specification is to go through LPA • Need confirmation on final system selection for insert within Cx Spec o Systems will be per 60% CD's • Need to confirm recommended Training spec and Project Deliverables i.e., Systems Manual is within specification. o RDK to forward to LPA recommended verbiage on training, O&M's, and Cx language that should be inclusive with divisions 1, 23 & 26	RDK RDK/LPA ART/ SEC/LPA RDK	
1.04	Current Project Schedule	PMA	
1.05	Final Summary of deliverables required prior to distribution of Contract Documents • Finalization of Commissioning Requirements • Data Retrieval Sheet for Division 1 o LPA would like to include within the specifications and any accompanying verbiage, and reference to the compiling the data within an Excel spreadsheet to be turned over to the owner • Final Design Review Comments / Questions prior to 90% CD's	RDK	
1.06	Commissioning Test Plan & Schedule with Cx Specification o LPA would like to have the estimated hours for commissioning inclusive on the TP&S project is GMP	RDK	

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: 90% CD's - 11/12/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 11/23/10

DISCIPLINE

☐	Electrical	☐	Plumbing
☑	Mechanical	☐	Fire Protection
☐	General Design	☐	Other:

Item	Drawing No. and / or Reference	Comment	Mandatory	Recommended	Information	Action
1	Sec. 230000 2.09-G	Is the specification for Steam Condensate valves required?			x	
2	Drawing H1.1	Are Motorized Dampers required at the louvers serving ILF-2 and ILF-3/CEX-3?			x	
3	Drawing H1.1	Ductwork riser sizes at column J-11 are indicated as 36x12 in lieu of 30x12.			x	
4	Drawing H1.3	Ductwork indicated penetrating Stair #2. Confirm if Fire Dampers and rated enclosure are required.			x	
5	Drawing H1.4	Confirm where 34x12 ductwork goes to at column G-27.			x	
6	Drawing H1.6	Will ILF-6 require interlock with the kiln controls?			x	
7	Drawings H2.1 through H2.6	Ductwork systems indicated on piping plans. Not all VAV tags are indicated. VAV's not requiring piping be omitted from the piping plans.			x	
8	Drawing H2.2	Hydronic equipment (Expansion Tanks, Air Separator, etc.) layers were frozen in the drawing set. Equipment not indicated.			x	
9	Drawing H1.2	Ductwork layouts in Mechanical 121 and Outdoor Storage 122 not complete.			x	
10	H Drawings	Door layer was frozen in drawing set. No doors indicated.			x	
11	Drawing H1.2 through H1.7	Confirm that the Boilers are capable of handling long risers and runs of intakes and flues.			x	
12	Drawing H3.3 and K1.1	ILF-1 scheduled for 3400 cfm. Kitchen exhaust requirements indicate 3481 cfm.			x	
13	Drawing H3.1	Inline Pump Detail indicates a check valve and also a multi-purpose valve that includes a check valve.			x	
14	Drawing H3.1	AHU-5 Water Coil Piping Detail indicates "RTU-3, 4, 5, 6 System Control Diagram".			x	
15	Sec. 230000 1.03-G	Coordinate Specification Section numbers for Division 1 requirements.			x	
16	Sec. 230000 1.03-E	List HVAC Drawings for reference.			x	
17	Sec. 230000 2.23-Q-1-b	Specification references medical gas piping.			x	
18	Sec. 230000 2.25-R-1-f	Specification references modulating gas heat. Should this reference "modulating hot gas reheat" as indicated in 2.25-R-1-h?			x	
19	H Drawings	Recommend indicating the EMS Workstation location for coordination of emergency power requirements.		x	x	

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: 90% CD's - 11/12/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 11/23/10

DISCIPLINE

☐	Electrical	☐	Plumbing
☑	Mechanical	☐	Fire Protection
☐	General Design	☐	Other:

Item	Drawing No. and / or Reference	Comment	Mandatory	Recommended	Information	Action
20	H Drawings	Recommend indicating the Boiler Management System (BMS) location for coordination of emergency power requirements.		x	x	
21	Sec. 230000 2.32-I	Specification references RTU-1 thru 11, not 10.			x	
22	Sec. 230000 2.32-I-5-c	Space temperatures not defined for supply air reset schedule. (Comment typical for other systems).			x	
23	Sec. 230000 2.32-I-7-a	Recommend initiating freeze protection at initial warning during Unoccupied mode to protect coils, when casing is cold but DAT reading is not applicable.		x	x	
24	Sec. 230000 2.32-I-7	For 100% OA units, if either fan fails, recommend shutting unit down to avoid pressurization issues and loss of energy transfer across the wheel.		x	x	
25	Sec. 230000 2.32-I-8	Specification references RTU-1 thru 11, not 10.			x	
26	Sec. 230000 2.32-N-4	Typo. "shell" in lieu of "shall".			x	
27	Sec. 230000 2.32-O-3	Typo. "bases" in lieu of "basis".			x	
28	Sec. 230000 2.32-O-4 and Drawing H3.2	Will a DP Bypass Valve required if the system DP continues to increase when the pump is operating at minimum speed?			x	
29	Sec. 230000 2.32-O and Drawing H3.2	Will Boilers require individual primary re-circulation pumps?			x	
30	Drawing H3.2	HW system Relief Valve is rated in BTU in lieu of PSI.			x	
31	Drawing H3.2	HW system indicates connection of HWS and HWR piping with a butterfly valve. Please clarify the intent.			x	
32	Sec. 230000 2.32-R	Numerous typos. Confirm if Electric Baseboard is within the scope of work.			x	
33	Sec. 230000 2.32-U-5 and Drawings H1.1, H1.3 and H3.2	Sequence references a supply air bypass damper and VAV dampers in the AHU-1 system. These items are not found on the plans or controls flow diagram. Confirm sequence..			x	
34	Sec. 230000 2.32-U-6-1	The low limit temperature for AHU-1 shutdown and freeze alarm is not specified.			x	
35	Sec. 230000 2.32-T and U	Sections' formatting needs correction.			x	
36	Sec. 230000 2.32-U-6-2	If the kitchen hood exhaust fan fails, will the cooking equipment fuel gas valve close?			x	
37	Sec. 230000 2.32-U-6-3	Will the kitchen hood exhaust fan continue to operate during a smoke detection mode?			x	

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: 90% CD's - 11/12/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 11/23/10

DISCIPLINE

☐	Electrical	☐	Plumbing
☑	Mechanical	☐	Fire Protection
☐	General Design	☐	Other:

Item	Drawing No. and / or Reference	Comment	Mandatory	Recommended	Information	Action
38	Sec. 230000 2.32-U and Drawing H3.2	Kitchen controls flow diagram references a CO detector. Sequences do not reference CO control mode or DDC point.			x	
39	Drawing H3.2, H1.3 and H1.5	AHU-3 & 4 controls flow diagram indicates intake from the solar wall system but this is not indicated on the plans.			x	
40	Sec. 230000 2.32-V-3-d and Drawing H3.2	Ensure that the space pressure sensor resolution is properly specified to control to 0.01 differential pressure. Confirm that this value is in inches W.C. (Comment typical for other systems).			x	
41	Sec. 230000 2.32-V-3-e	Sequence references: "...50% of the specified minimum outdoor air quantity…". Does this indicate providing less than the specified value?			x	
42	Sec. 230000 2.32-V-4-a	Sequence references chiller operation.			x	
43	Sec. 230000 2.32-V-5-b	Space temperatures and supply air reset schedule not defined.			x	
44	Sec. 230000 2.32-W and Drawing H3.2	Controls diagram is indicated as typical for AHU-2 and AHU-5. Sequence only references AHU-2.			x	
45	Sec. 230000 2.32-W-2-c	Sequence references VAV terminals. AHU-2 and AHU-5 are not served by VAV terminals.			x	
46	Sec. 230000 2.32-W-2-e	Sequence references: "…10% of the specified minimum outdoor air quantity…". Does this indicate providing less than the specified value?			x	
47	Sec. 230000 2.32-W-2-f	Parameters for wheel operation should be more defined.			x	
48	Sec. 230000 2.32-W-4	Sequence refers to averaging of zones but plans indicate a single temperature sensor for each unit.			x	
49	Sec. 230000 2.32-W-6-3	Sequence refers to "both" water coil valves when only one valve is indicated.			x	

RDK has reviewed the following documents for this Mechanical review

	Date of Document	Name of Document				Comments
A	11/12/10	H Drawing Set 90 Percent CD Submission			x	PDF Drawings
B	11/12/10	Sherwood Middle School Specification Section 23.00.00 - HVAC 90% CD Specification			x	PDF Document
C	11/12/10	K Drawing Set 90% CD Submission			x	PDF Drawings
D	11/12/10	P Drawing Set 90 Percent Submission			x	PDF Drawings

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: 60% CD's - 09/17/10
Reviewed By: Michael Papagni, P.E. / Scott Davidson

RDK Project No.: 20100383.00
Review Date: 10/06/10
Revision Date: 11/23/10

DISCIPLINE

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Design Engineer's 60% CD comments were noted in the Cx Meeting on 11/03/10.
Shaded items have been reviewed based on the 90% CD Documents
and have been found to correspond to the Design Engineer's comments.

Item	Drawing No. and / or Reference	Comment	Mandatory	Recommended	Information	Action
1	Drawings H set	Titleblock still indicates "Design Development Submission" and still dated "06/11/10". RDK compared the new drawings to the DD drawings to ensure we received the correct drawings.			x	RDK comment, 11-22-10: Titleblock now indicates 90 Percent CD Submission as required.
2	Sec. 230000 2.23-E-1-b	Code and Standards Requirements reference BOCA National Mechanical Code. Should this reference IMC 2009?			x	Reference has been changed. - SEC 11-03-10
3	Sec. 230000 2.24	Ductless Split AC Systems: Refrigerant type is not specified. Recommend R410A.		x	x	Refrigerant type has been added. - SEC 11-03-10
4	Sec. 230000 2.26-H and I	Recommend specifying the AHU-2 energy recovery section to have a second filter bank for return air.		x	x	Item has been added to spec. - SEC 11-03-10
5	Sec. 230000 2.26-I	Specification section has two (2) "I" paragraphs. Formatting to be coordinated.			x	Formatting corrected. - SEC 11-03-10
6	Sec. 230000 2.28-A	Section indicates providing access panels for Plumbing systems. Should be made consistent with HVAC requirements.			x	Spec. has been revised - SEC 11-03-10
7	Sec. 230000 2.29	Wells should be specified for thermometers and pressure gauges and ATC sensors. Which trade is furnishing wells and which trade is installing wells for ATC temperature sensors and pressure sensors? ATC and Mech. Contractors to coordinate locations for well installations.		x	x	Spec. has been clarified - SEC 11-03-10
8	Sec. 230000 2.32-G	Paragraph and sub-paragraph formatting are both alphabetical. Formatting to be corrected.			x	Formatting corrected. - SEC 11-03-10
9	Sec. 230000 2.32-G-d-b	Specification section indicates "absence" of F&B dampers but other equipment sections indicate to provide them. Specification to be coordinated.			x	Spec. has been coordinated - SEC 11-03-10
10	Sec. 230000 2.32-R Drawing H3.2	Sequences reference Electric Baseboard Heaters. Are these included in the scope of the project? Controls and schedule indicate hydronic baseboard.			x	Equipment selection to be confirmed - SEC 11-03-10
11	Sec. 230000 2.32-E	Will a uninterruptible power source (UPS) be required to provide continuous power to the EMS workstation during a loss of power and the time delay before generator starts.			x	Item to be coordinated. Workstation power to be from a receptacle on emergency power. - SEC 11-03-10
12	Sec. 230000 2.32-G-b-a	Specification references valves for gas-fired units. Is this applicable?			x	Spec. has been revised - SEC 11-03-10

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: 60% CD's - 09/17/10
Reviewed By: Michael Papagni, P.E. / Scott Davidson

RDK Project No.: 20100383.00
Review Date: 10/06/10
Revision Date: 11/23/10

DISCIPLINE

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Design Engineer's 60% CD comments were noted in the Cx Meeting on 11/03/10.
Shaded items have been reviewed based on the 90% CD Documents
and have been found to correspond to the Design Engineer's comments.

Item	Drawing No. and / or Reference	Comment	Mandatory	Recommended	Information	Action
13	Sec. 230000 2.32-I-2-c	References to supply air and return air smoke dampers in the RTU sequences should be deleted. Refer to DD Cx Design Review Item No. 39.			x	Spec. has been revised - SEC 11-03-10
14	Sec. 230000 2.32-W-6	AHU-2 specification section has various references to steam. These should be deleted.			x	Spec. has been revised - SEC 11-03-10
15	Sec. 230000 2.24, 2.04D.	Confirm that the refrigerant piping specification incorporates new restrictions reflected in IMC 2009.			x	Item to be confirmed. - SEC 11-03-10
16	General	All control wiring for life safety systems needs to be 2 hour rated per IMC 2009.			x	
17	Drawing H1.1	Confirm that the ILF-1 kitchen hood exhaust system complies with all NFPA 92 requirements. Can an exterior sidewall mounted upblast fan be used in lieu of the inline fan? Coordinate grease trap drain requirements with any plumbing requirements. Indicate / specify all required ductwork cleanouts.			x	Item to be reviewed and confirmed with LPA. - SEC 11-03-10
18	Drawing H1.1	Confirm ILF-1 will fit where shown on the plan. The scheduled fan is approximately 40+ inches in diameter.			x	Fan is 22" in diameter plus motor which can be rotated as required. - SEC 11-03-10
19	Drawings H1.1 / H3.3 / K1.1	Confirm ILF-2 is sized correctly. HVAC schedule indicates 1,000 cfm. Kitchen schedule indicates 600 cfm.			x	Item to be coordinated. - SEC 11-03-10 **RDK comment, 11-22-10: H1.1 indicates ILF-2 as serving an exhaust grille, not directly connected to the Dishmachine. K1.1 kitchen schedule indicates duct sizes.**
20	Drawing H1.1	Confirm that Kitchen exhaust duct clearances comply with IMC 506.3.6 requirements.			x	All ductwork to be wrapped with Firemaster wrap. - SEC 11-03-10
21	Drawing H1.1	Cleanouts for both inlet and outlet side of ILF-1 should be indicated (IMC 506.3.8.2). Confirm that proper access is available.			x	Item to be coordinated. - SEC 11-03-10
22	Drawing H1.3	Stair #1 and Stair #2 do not have unit heaters. Will these be required?			x	Unit heaters will be indicated at the bottom and top of the stairwells. - SEC 11-03-10
23	Drawing H1.7	Condensing units on the roof appear to be too close together. Confirm that the units have required clearances for proper operation and maintenance.			x	Item to be coordinated. - SEC 11-03-10
24	Drawing H1.7	Confirm proper clearances for boiler combustion air intakes and flues.			x	Item to be coordinated. - SEC 11-03-10

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers
200 Brickstone Square
Andover, MA 01810-1488

P 978-475-0298
F 978-475-5768
W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: 60% CD's - 09/17/10
Reviewed By: Michael Papagni, P.E. / Scott Davidson

RDK Project No.: 20100383.00
Review Date: 10/06/10
Revision Date: 11/23/10

DISCIPLINE

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Design Engineer's 60% CD comments were noted in the Cx Meeting on 11/03/10.
Shaded items have been reviewed based on the 90% CD Documents
and have been found to correspond to the Design Engineer's comments.

Item	Drawing No. and / or Reference	Comment	Mandatory	Recommended	Information	Action
25	Drawing H1.7	Coordinate equipment sleepers connection to roof with Division 7 requirements.			x	Item to be coordinated with LPA. - SEC 11-03-10
26	Drawing H3.3	Provide schedule(s) for AHU-1, 2, 3 and 4.			x	Schedules have been added. - SEC 11-03-10
27	Drawings P1.1 and P1.2	Pressure Reducing Station detail is indicated on both drawings.			x	Item to be reviewed and addressed. - SEC 11-03-10

RDK has reviewed the following documents for this Mechanical review

	Date of Document	Name of Document				Comments
A	06/11/10 **mislabeled** (09/17/10)	H Drawing Set Design Development Submission - **mislabeled** (should be 60% CD Submission)			x	PDF Drawings
B	09/17/10	Sherwood Middle School Specification Section 23.00.00 - HVAC 60% CD Specification			x	PDF Document
C	09/15/10	K Drawing Set 60% CD Submission			x	PDF Drawings
D	09/17/10	P Drawing Set 60 Percent Submission			x	PDF Drawings

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers P 978-475-0298
200 Brickstone Square F 978-475-5768
Andover, MA 01810-1488 W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: DD - 6/11/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 7/26/10
Revision Date: 11/23/10

DRAWINGS

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Shaded items have been reviewed based on the 60% CD Documents and 90% CD documents and have been found to correspond to the Design Engineer's comments.

Item	Drawing and/or Specification Reference	Comment	Mandatory	Recommended	Information	Action
1	H 2.2 and 230000-2.15-B	Boiler design indicates 140°F HWS temperature on drawing schedules and 130°F HWS temperature in specifications.			X	System designed for maximum 140F water. Specifications have been reconciled. - SEC 9-17-10
2	Drawings H 2.2, A2.1	Total available boiler load is 5,130 MBH. Based on 124,665 net square feet, available heating capacity is 41 Btuh / sq. ft. which appears reasonable.			X	
3	Drawing H2.2	Based on pump capacity of 440 gpm HW flow and 20°F ΔT, available hydronic capacity is 4,400 MBH. This is 85% of the total available capacity. Is this based on diversity?			X	Actual pump capacity is 640 GPM which is somewhat higher than boiler load at 20F due to the summation of total connected load. SEC 9-17-10
4	H Drawings	Boiler capacity appears to be reasonable to handle the heating requirement if hydronic finned-tube radiation is utilized in lieu of electric baseboard heat. Recommend utilizing hydronic finned-tube radiation to reduce energy consumption. HW distribution piping is already being provided for RTU's and VAV terminals. Finned-tube radiation control can be integrated with VAV reheat control and night setback control through a common space temperature sensor in lieu of separate integral thermostats.		X	X	The design does use hydronic fin-tube radiation with night setback and integration with VAV reheat where applicable. SEC 9-17-10
5	A2.1, H Drawings	Drawings indicate a typical Classroom is 800 square feet with airflow of 400 cfm. This is equivalent to 0.5 cfm/sq. ft. This is low for cooling requirements particularly for spaces with west and south exposures (typically up to 2.0 cfm/sq. ft. or possibly higher).			X	The airflow is not for full cooling but for tempering and dehumidifying of outdoor air for classrooms. SEC 9-17-10.
6	A2.1, H Drawings	Drawings indicate a typical Classroom airflow of 400 cfm. Typical Classroom Occupant load is 40. Airflows need to be increased to meet outside air requirements of 15 cfm per person (based on IMC 2006) or 600 cfm per Classroom.			X	Per the schools programming the outdoor air has been designed to support a total of 26 occupants per classroom. SEC 9-17-10
7	H Drawings, Sec. 230000, K drawings	Need to provide more detailed equipment layouts and specifications for kitchen hood connection(s) and associated exhaust fan(s) in conjunction with K drawings. Kitchen ductwork requirements need to be specified.			X	Plans reflect the kitchen hood connections. In addition HVAC spec. 2.01 B reflects material requirements. SEC 9-17-10
8	H Drawings, Sec. 230000, K drawings	Need to indicate exhaust ductwork requirements for dishwasher exhaust.			X	Plans reflect the dishwasher hood connections. In addition HVAC spec. 2.01 B reflects material requirements. SEC 9-17-10
9	H Drawings, Sec. 230000, K drawings	Need to provide exhaust ductwork layout and specifications for dryer exhaust in conjunction with K drawings.			X	Dryer exhaust shall be coordinated in future submission. Material is specified in HVAC spec. 2.01 B. SEC 9-17-10

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers P 978-475-0298
200 Brickstone Square F 978-475-5768
Andover, MA 01810-1488 W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: DD - 6/11/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 7/26/10
Revision Date: 11/23/10

DRAWINGS

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Shaded items have been reviewed based on the 60% CD Documents and 90% CD documents and have been found to correspond to the Design Engineer's comments.

Item	Drawing and/or Specification Reference	Comment	Mandatory	Recommended	Information	Action
10	H Drawings, Sec. 230000	Does any HVAC equipment require connection to emergency power (boilers, pumps, RTU's, EMS, etc.)?			X	The boilers, pumps and associated controls of heating components shall be placed on emergency power. SEC 9-17-10
11	H Drawings	Need to provide piping layouts or drawings.			X	Done. SEC 9-17-10 RDK comment, 10-07-10, 60% CD's: Piping drawings incomplete.
12	H Drawings	Will an enlarged Mechanical Room part plan be provided in addition to the H2.2 schematic?			X	No as plan view and schematic provide adequate information. SEC 9-17-10
13	H Drawings	Will controls schematics be provided for all equipment to define all required ATC devices (dampers, valves, temperature sensors, end switches, current sensors, freezestats, etc.)?			X	Yes. Drawings and specification will reflect all devices. Work on-going. SEC 9-17-10
14	Drawing H1.1	Need to expand on ceiling exhaust fan layouts to include ductwork, dampers, louvers, etc. Confirm which trade is providing the louvers. Coordinate louver dimensions with architectural requirements.			X	Done. SEC 9-17-10 RDK comment, 10-07-10, 60% CD's: Louvers specified in 08.91.00. Minimum free area or maximum velocity requirements should be specified. Dampers should be indicated on HVAC drawings.
15	Drawing H1.3	Need to expand on exhaust requirements for Men 264 and Women 265.			X	Done. SEC 9-17-10
16	Drawings H1.1, H1.3 and H1.5	Confirm if Stair #1 and adjacent floor opening may be considered an atrium.			X	Architect has confirmed this is not an atrium. SEC 9-17-10
17	Drawing H2.1	Provide flow arrows on piping details for clarity.			X	May add in future submission. SEC 9-17-10
18	Drawing H2.1	On Typical End Suction Pump Detail, recommend indicating a single manifolded pressure gauge in lieu of multiple gauges to help eliminate inaccurate pressure readings due to multiple gauge inaccuracies.		X	X	Have manifolded the two supply side gauges and the two return side gauges which will allow simultaneous reading of pressure across the pump. SEC 9-17-10.
19	Drawing H2.1	On Typical End Suction Pump Detail, if Triple Duty Valve is utilized, the Butterfly Valve on the supply side can be eliminated.			X	As triple duty valves have been known to fail we maintain butterfly valve for service. SEC 9-17-10
20	Drawing H2.1	On Typical End Suction Pump Detail, recommend indicating a non-reducing suction diffuser followed by a reducer before the pump inlet to reduce pressure drop.		X	X	There is no reducer shown at pump inlet and none is required as line size matches pump inlet size. SEC 9-17-10
21	Drawing H2.1	On ERU-2 Water Coil Piping Detail, confirm Detail is referring to "AHU-2". Confirm if three-way control valve is being utilized.			X	This has been clarified. Most all valves are 2-way except for AHU-5 for min. system flow. SEC 9-17-10
22	Drawing H2.1	On Schematic Boiler Plant Piping and Control Diagram, confirm pipe sizes. 8" mains indicated for HWS and HWR are oversized for the 440 gpm flow rate indicated.			X	Main pipe size is 6". Maximum system flow is 640 GPM. SEC 9-17-10.
23	Drawing H2.2	Need to provide schedules for all equipment.			X	Done. SEC 9-17-10 RDK comment, 10-07-10, 60% CD's: Not all equipment is scheduled.

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers P 978-475-0298
200 Brickstone Square F 978-475-5768
Andover, MA 01810-1488 W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: DD - 6/11/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 7/26/10
Revision Date: 11/23/10

DRAWINGS

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Shaded items have been reviewed based on the 60% CD Documents and 90% CD documents and have been found to correspond to the Design Engineer's comments.

Item	Drawing and/or Specification Reference	Comment	Mandatory	Recommended	Information	Action
24	Drawing H2.2	Confirm that cooling is not required for RTU-10 (Locker Rooms) or RTU-11 (Bathrooms)			X	Confirmed. SEC 9-17-10
25	H Drawings, Sec. 230000	Need to expand on the Solar Wall system requirements and operation.			X	Being coordinated with manuf. SEC 9-17-10
26	Sec. 230000 3.02-C	Will ductwork pressure testing be required?			X	Yes per specification. SEC 9-17-10
27	Sec. 230000 3.02-D	Will piping pressure testing be required?			X	Yes per specification. SEC 9-17-10
28	Sec. 230000 3.02-D	Piping flush-out requirements should be specified.			X	The requirements of 2.21 have also been copied to 3.02 D. SEC 9-17-10
29	Sec. 230000 2.25-D-2-b	Confirm that RTU supply fans are to be direct drive as specified.			X	Confirmed. Direct drive plenum fans. SEC 9-17-10
30	Sec. 230000 2.25	Confirm that energy recovery wheel (ERW) bypass dampers are specified.			X	Bypass dampers are specified. SEC 9-17-10
31	Sec. 230000 2.25-A	Delete Gas-Fired Furnace requirement if RTU's are utilizing hot water heating.			X	Done. SEC 9-17-10.
32	Sec. 230000 2.30-I	Will ERW status and alarm be required? Will current sensor be provided by RTU manufacturer or ATC contractor? If ATC, need to reference ERW in 2.30-G-7-a for current sensor requirements.			X	RTU manufacturer provides status. AHU status must be field provided. Coordinating with manuf. SEC 9-17-10.
33	Sec. 230000 2.30-I	Confirm if the ERW bypass dampers are required to be open anytime the ERW if off. Is a differential pressure (DP) sensor across the wheel specified to indicate dirty ERW or frost buildup?			X	Manuf. uses temperature indication of wheel frosting. Coordinating with manuf. SEC 9-17-10
34	Sec. 230000 2.30-I-3-d	Sequence refers to utilizing space pressure sensors to control exhaust air damper position. Confirm that space pressure sensors are specified and indicated on the plans.			X	Control drawings and sequences reflect space pressure control requirements. SEC 9-17-10
35	Sec. 230000 2.30-I-4-a	Delete reference to chiller if RTU's are utilizing DX cooling.			X	Done. 9-17-10.
36	Sec. 230000 2.30-I-6-b, 2.30-I-7-a	Delete references to gas heat section if RTU's are utilizing hot water heating.			X	Done. 9-17-10
37	Sec. 230000 2.30-I-7-a	For freeze protection, recommend that the HW control valve opens 100%. Is a freeze protection recirculation pump to be specified for each RTU and AHU HW coil?		X	X	Freeze shutdown sequence in specification. SEC 9-17-10
38	Sec. 230000 2.30-I-7-b, 2.30-I-7-c	Confirm that Damper Position and Smoke Alarm paragraphs should be their own article and not sub-paragraphs of the Freeze Protection mode.			X	Relabeled section. SEC 9-17-10

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers P 978-475-0298
200 Brickstone Square F 978-475-5768
Andover, MA 01810-1488 W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: DD - 6/11/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 7/26/10
Revision Date: 11/23/10

DRAWINGS

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Shaded items have been reviewed based on the 60% CD Documents and 90% CD documents and have been found to correspond to the Design Engineer's comments.

Item	Drawing and/or Specification Reference	Comment	Mandatory	Recommended	Information	Action
39	Sec. 230000 2.30-I-2-c and Sec. 230000 2.01-S	Sequence refers to supply and return air smoke dampers. Are the smoke dampers provided with the rooftop units or by others? Confirm if the end switch kit is provided by the damper manufacturer or ATC contractor. Confirm that smoke damper locations are indicated on the plans.			X	No units have supply or return smoke dampers. SEC 9-17-10 RDK comment, 10-07-10, 60% CD's: Sequence in section 2.32-I-2-c still references supply air and return air smoke dampers. RDK comment, 11-19-10, 90% CD's: References to supply air and return air smoke dampers have been deleted from RTU-1 thru RTU-11 sequences of operation. (230000-2.32-I-2)
40	Sec. 230000 2.06-D-1	Confirm that membrane wrap for insulated exterior ductwork is specified under the Division 7 scope of work.			X	Being coordinated with Architect. SEC 9-17-10
41	Sec. 230000 1.03-A-22, 3.02-C-2, 3.02-D-4	Is firestopping to be provided by each individual trade or by a separate firestopping contractor? If separate, Related Work should reference Spec. Section 078400.			X	Being provided by each trade. Will coordinate. SEC 9-17-10
42	Sec. 230000 Part 3	For equipment with factory provided controls (RTU's, AHU's, etc.), recommend specifying equipment startup's to be provided by factory certified technicians.		X	X	Done. SEC 9-17-10
43	Sec. 230000 Part 3	For equipment with factory provided controls (RTU's, AHU's, etc.), recommend specifying Owner training to be provided by factory certified technicians.		X	X	Done. SEC 9-17-10
44	Sec. 230000 Part 3	For equipment with factory provided controls (RTU's, AHU's, etc.), recommend specifying participation be provided by factory certified technicians for Commissioning services in conjunction with the ATC contractor.		X	X	Done. SEC 9-17-10
45	Sec. 230000 3.03	Recommend specifying the requirement to submit written reports for Field Quality Control from TAB and ATC contractors.		X	X	Done. SEC 9-17-10
46	Sec. 230000 3.05	Recommend specifying balancing requirements for each system's final balance tolerance in relation to design data. (i.e.: +/- 5%)		X	X	This is reflected in 3.05 E. SEC 9-17-10.
47	Sec. 230000 2.30-U	In addition to the EMS, will local indicator lights be provided for Kitchen staff to acknowledge that kitchen hood or dishwasher hood exhaust fans are operating when energized?			X	Will coordinate with Owner and Design Team. SEC 9-17-10
48	Sec. 230000 2.30-U	Confirm which trade is furnishing and which trade is installing the electric fuel gas valves to be interlocked with the kitchen hood exhaust fan and chemical suppression system.			X	Will coordinate with Design Team. Typically furnished by HVAC/EMS installed by plumber. Interface with fire alarm as well. SEC 9-17-10.
49	Sec. 230000 2.30-V	Provide paragraph numbering for Section V consistent to other specification sections.			X	Done. SEC 9-17-10

RDK ENGINEERS

Andover, MA
Boston, MA
Amherst, MA

Durham, NC
Charlotte, NC

RDK Engineers P 978-475-0298
200 Brickstone Square F 978-475-5768
Andover, MA 01810-1488 W www.rdkengineers.com

COMMISSIONING DESIGN REVIEW

Project Name: Shrewsbury - Sherwood Middle School
Project Progress: DD - 6/11/10
Reviewed By: Michael Papagni, P.E.

RDK Project No.: 20100383.00
Review Date: 7/26/10
Revision Date: 11/23/10

DRAWINGS

- ☐ Electrical
- ☑ Mechanical
- ☐ General Design
- ☐ Plumbing
- ☐ Fire Protection
- ☐ Other:

Shaded items have been reviewed based on the 60% CD Documents and 90% CD documents and have been found to correspond to the Design Engineer's comments.

Item	Drawing and/or Specification Reference	Comment	Mandatory	Recommended	Information	Action
50	Sec. 230000 2.30-V-Unoccupied Mode-a	Delete reference to chiller if chiller is not being provided. Are AHU's are utilizing DX cooling?			X	Done. SEC 9-17-10
51	Sec. 230000 2.30-V-Cooling Control-b	Delete reference to chilled water coil valve if chiller is not being provided. Are AHU's are utilizing DX cooling?			X	Done. SEC 9-17-10
52	Sec. 230000 2.30-V-Freeze Protection-b and c	Confirm that Damper Position and Smoke Alarm paragraphs should be their own article and not sub-paragraphs of the Freeze Protection mode.			X	Relabeled paragraph. SEC 9-17-10.
53	Sec. 230000 2.30-W	Provide paragraph numbering for Section W consistent to other specification sections.			X	Done. SEC 9-17-10 RDK comment, 10-07-10, 60% CD's: Subparagraphs not alphabetized to match other specification sections. RDK comment, 11-19-10, 90% CD's: "General" section and subparagraphs not numbered/alphabetized to match other specification sections.
54	Sec. 230000 2.30-W-Unoccupied Mode	Delete reference to chiller if chiller is not being provided. Are AHU's are utilizing DX cooling?			X	Done. SEC 9-17-10
55	Sec. 230000 2.30-W-Cooling Control	Delete reference to chilled water coil valve if chiller is not being provided. Are AHU's are utilizing DX cooling?			X	Done. SEC 9-17-10
56	Sec. 230000 2.30-W-Freeze Protection	Confirm that Damper Position and Smoke Alarm paragraphs should be their own article and not sub-paragraphs of the Freeze Protection mode.			X	Relabeled paragraph. SEC 9-17-10
57	Sec. 230000 2.30-W	AHU-2 sequences refer to steam coils and steam control valves which should be deleted/revised.			X	Done. SEC 9-17-10 RDK comment, 10-07-10, 60% CD's: 2.32-W-5 still has various references to steam. RDK comment, 11-19-10, 90% CD's: References to steam have been deleted in this section.

E. Shrewsbury Public Officials Review

Sherwood Middle School

Shrewsbury, MA

LOCAL BUILDING OFFICIALS 90% CD DOCUMENT REVIEW

December 7, 2010

Per MSBA requirements, the following local building officials have reviewed the 90% Construction Documents dated November 12, 2010 for the Sherwood Middle School.

REVIEWER	COMMENTS	SIGNATURE/DATE
Building Inspector Patricia Sheehan Printed Name		Patricia Sheehan
Plumbing Inspector & Mechanical D. Riley Printed Name		
Fire Chief James M. Vuona Printed Name		
Electrical Inspector JOHN LAVERTY Printed Name		
HEALTH DEPT DEREK BARNOSKI FOOD Health Inspector Patricia S Phelps CPHS Health Printed Name		

SHREWSBURY BUILDING OFFICIALS MEETING 7 December 2010

ATTENDANCE: Bob Cox, Superintendent of Public Buildings
Patricia Sheehan, Building Inspector
James Vuona, Fire Chief
David Lyons, Plumbing and Mechanical Inspector
John Laverty, Electrical Inspector
Derek Brindisi, Health Department
Randall Phelps, Food Health Inspector
Bill Maher, Nitsch Engineering, Civil Engineer
Jerimy Moran, Seaman Engineering, HVAC Engineer
Anup Khatra, AKAL Engineering, Plumbing and Fire Protection Engineer
Azim Rawji, ART Engineering, Electrical Engineer
Katie Crockett, LPA, Project Architect

DISCUSSION AGENDA: Review code, local standards, and site development issues related to the Sherwood Middle School project at the 90% CD phase of the project.

ITEM:	DISCUSSION:	RESPONSIBILITY:
12.7.10.01	**PLUMBING/CIVIL ISSUES**	
	▪ It was confirmed that the exterior grease trap is sized to accommodate 300 students (one lunch seating) at 15 gals./student.	Info.
	▪ The interior sand/gas trap at the Mechanical Room will be changed to an exterior unit to meet state standards and the Outdoor Storage room will also be connected to it.	Nitsch/AKAL
12.7.10.02	**KITCHEN ISSUES**	
	▪ The standing pilots at gas equipment were approved with the CO_2 detector included in the project.	Info.
	▪ Dishwash system with electric booster to heat water to 180 deg. was approved.	Info.
	▪ Three pot sink must have water temperature between 130 – 140 deg. as currently indicated on the drawings.	Info.
	▪ No issues noted with HVAC system in kitchen	Info.
12.7.10.03	**FIRE DEPT. ISSUES**	
	▪ Building Knox boxes to be provided at 60"aff at Door 261 and Door 149 A. Site knox boxes to be added by owner at gates, etc.	LPA/ART

SHREWSBURY BUILDING OFFICIALS MEETING 7 December 2010

12.7.10.04 **ELECTRICAL ISSUES**

- Pedestrian site lighting scheduled to be removed will be salvaged for owner use. — ART
- Confirm that Common Room exit signs will be visible when projection screen is down. — ART

12.7.10.05 **BUILDING CODE ISSUES**

- It was confirmed that the building is designed to meet the 7th edition building code with the intent that a building permit will be issued prior to February 2011. — Info.
- LPA to provide plumbing fixture code analysis for record. — LPA
- Gym divider curtains to be positioned to allow for adequate egress adjacent to platform wall when in the down position. — Info.
- No magnetic markerboards within 5′ of exit doors — LPA
- Structural loading requirements shown on S 6.1 — Info.

Cc: All attendees
Ed Arons, Colburn and Guyette

Memo by: Katie Crockett

0914/Minutes/Interdepartmental/#2

F. Construction Manager Review Comments

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
1	Bill Henning	11/18/10	Architectural	A3.2-Rev0	Point L-25.4	Architectural plan depicts EM Elec room 118. Partitions for this room are F4C which is a 2-hr rated partition and the Door Schedule lists door 118 as a 2-hr rated door.	A2.1-Rev0	Detail 1/A2.1	On the code review first floor plan, EM Elec room is not noted as having a 2-hr rating.	Architectural plan depicts EM Elec room 118. Partitions for this room are F4C which is a 2-hr rated partition and the Door Schedule lists door 118 as a 2-hr rated door. On the code review first floor plan, EM Elec room is not noted as having a 2-hr rating. Please clarify.		No		
2	Bill Henning	11/18/10	Architectural, Structural	A3.3-Rev0	Point M-1	Architectural plan depicts a Linear Drain between GLs K & M and perpendicular to GL 1.	S3.3-Rev0	Point M-1	Cannot locate Linear Drain on structural plan at same location.	Architectural plan depicts a Linear Drain between GLs K & M and perpendicular to GL 1. Cannot locate Linear Drain on structural plan at same location. Should structural plan depict Linear Drain and provide details?		No		
3	Bill Henning	11/18/10	Architectural	A3.3-Rev0	Point G-11	Architectural plan depicts Millwork tag MW- in Orchestra 271.				Architectural plan depicts Millwork tag MW- in Orchestra 271. Please provide missing information.		No		
4	Bill Henning	11/18/10	Architectural	A3.1-Rev0	Title Block	Plan denotes several abbreviations; L.B., R.W.I., R.D.V.C. that cannot be located on the Abbreviation List.				Plan denotes several abbreviations; L.B., R.W.L., R.D.V.C., f.r.t. that cannot be located on the Abbreviation List. Please provide missing information.		No		
5	Bill Henning	11/18/10	Architectural	A3.2-Rev0	Point I-20	Architectural plan denotes partition type S2E on north walls of Girls 124 and Boys 123.	A1.1-Rev0	Metal Stud Partition Wall Types	Cannot locate partition type S2E under Metal Stud Partition Wall Types.	Architectural plan denotes partition type S2E on north walls of Girls 124 and Boys 123. Cannot locate partition type S2E under Metal Stud Partition Wall Types. Please provide missing information.		No		
6	Bill Henning	11/18/10	Architectural	A3.1-Rev0	Point O-7.2	Architectural plan depicts (3) Coiling O.H. Doors labeled 137E, 137F, & 137G.	A10.1-Rev0	Door Schedule	Cannot locate 137E, 137F, & 137G on Door Schedule. Door Schedule lists 137D (4) times.	Architectural plan depicts (3) Coiling O.H. Doors labeled 137E, 137F, & 137G. Cannot locate 137E, 137F, & 137G on Door Schedule. Door Schedule lists 137D (4) times. Please clarify.		No		
7	David Lameiro	11/19/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (555) CFM for (VAV-18) box.	H1.3-Rev0	Column (K-10)	Near column shows (VAV-18) box with supply diffuser total of (630) CFM.	Total CFM for (VAV-18) on plan listed higher than CFM max listed on schedule. Should CFM on schedule be listed as (630) to match plan?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
8	David Lameiro	11/19/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (420) CFM for (VAV-28) box.	H1.4-Rev0	Column J-22	Near column (J-22) shows (VAV-28) box with supply diffuser total of (470) CFM.	Total CFM for (VAV-28) box on plan listed higher than CFM max listed on schedule. Should CFM on schedule be listed as (470) to match plan?		No		
9	David Lameiro	11/19/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (370) CFM for (VAV-64) box.	H1.6-Rev0	Column (N-22)	Near column (N-22) shows (VAV-64) box with supply diffuser total of (530) CFM.	Total CFM for (VAV-64) box on plan listed higher than CFM max listed on schedule. Should CFM on schedule be listed as (530) to match plan?		No		
10	David Lameiro	11/19/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (700) CFM for (VAV-55) box.	H1.4-Rev0	Column N-23	Near column (N-23) shows (VAV-55) box with supply diffuser total of (550) CFM.	It appears CFM on plan totals to (550) and schedule lists max as (700) CFM. Please clarify if no additional diffusers are required on (VAV-55) supply branch to meet (700) CFM listed on schedule.		No		
11	David Lameiro	11/19/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (990) CFM for (VAV-59) box.	H1.6-Rev0	Column J-18	Near column (J-18) shows (VAV-88) box with supply diffuser total of (400) CFM.	It appears CFM on plan totals to (400) and schedule lists max as (500) CFM. Please clarify if no additional diffusers are required on (VAV-88) supply branch to meet (500) CFM listed on schedule.		No		
12	David Lameiro	11/19/10	Mechanical	H1.4-Rev0	Column (I-32)	Near column (I-32) shows (VAV-32) box in Classroom (223).	H3.3-Rev0	VAV Box Schedule	Requirements for (VAV-32) box not provided on schedule.	Unable to determine requirements for (VAV-32) box. Should VAV Box be listed on schedule for coordination?		No		
13	Bill Henning	11/19/10	Architectural	A3.3-Rev0	Point G.4-10.2	Architectural plan depicts double door to room Storage 269 labeled door 269.	A10.2-Rev0	Second Floor Door Schedule	Door schedule lists door 269 as 3'-0" x 7'-0" x 1 3/4".	Architectural plan depicts double door to room Storage 269 labeled door 269. Door schedule lists door 269 as 3'-0" x 7'-0" x 1 3/4". Please clarify.		No		
14	Bill Henning	11/19/10	Architectural	A3.4-Rev0	Point V-24	Architectural plan depicts enlarged plan tag "--/A-".				Architectural plan depicts enlarged plan tag "--/A-". Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
15	Bill Henning	11/19/10	Architectural	A3.4-Rev0	Point T-23	Architectural plan depicts enlarged plan tag "--/A-".				Architectural plan depicts enlarged plan tag "--/A-". Please provide missing information.		No		
16	Bill Henning	11/19/10	Architectural	A3.3-Rev0	Point K-5	Architectural plan depicts partition type "S8D" between Gymnasium 266 and Boys Locker 276.	A1.1-Rev0	Metal Stud Partition Wall Types	Cannot locate partition type S8D under Metal Stud Partition Wall Types.	Architectural plan depicts partition type "S8D" between Gymnasium 266 and Boys Locker 276. Cannot locate partition type S8D under Metal Stud Partition Wall Types. Please provide missing information.		No		
17	Bill Henning	11/19/10	Architectural	A3.4-Rev0	Point X-24	Architectural plan depicts enlarged plan tag "--/A-".				Architectural plan depicts enlarged plan tag "--/A-". Please provide missing information.		No		
18	Bill Henning	11/19/10	Architectural	A3.4-Rev0	Point W-24	Architectural plan depicts enlarged plan tag "--/A-".				Architectural plan depicts enlarged plan tag "--/A-". Please provide missing information.		No		
19	Bill Henning	11/19/10	Architectural	A3.4-Rev0				Point N-29	Architectural plan depicts millwork tag "MW-".	Architectural plan depicts millwork tag "MW-". Please provide missing information.		No		
20	Bill Henning	11/19/10	Architectural	A3.4-Rev0	Point G-27	Architectural plan depicts millwork tag 10 on north wall at (2) cabinets. The plan depicts millwork tag 11 in southeast corner at "kitchen" area.	A9.2-Rev0	Millwork Elevations 10 & 11	Millwork elevation 11 depicts (2) cabinets and millwork elevation 10 depicts base and wall cabinets with "kitchen" equipment.	Architectural plan depicts millwork tag 10 on north wall at (2) cabinets. The plan depicts millwork tag 11 in southeast corner at "kitchen" area. Millwork elevation 11 depicts (2) cabinets and millwork elevation 10 depicts base and wall cabinets with "kitchen" equipment. Please clarify.		No		
21	Bill Henning	11/19/10	Architectural	A3.4-Rev0	Point N-22	Architectural plan depicts enlarged plan tag "--/A-".				Architectural plan depicts enlarged plan tag "--/A-". Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
22	Bill Henning	11/19/10	Architectural	A3.5-Rev0	Point K-13	Architectural plan depicts partition type "S12A" between Prep 347 & Mechanical 348.	A1.1-Rev0	Metal Stud Partition Wall Types	Cannot locate partition type S8D under Metal Stud Partition Wall Types.	Architectural plan depicts partition type "S12A" between Prep 347 & Mechanical 348. Cannot locate partition type S8D under Metal Stud Partition Wall Types. Please provide missing information.		No		
23	David Lameiro	11/22/10	Mechanical	H1.6-Rev0	Column I-30	Near column (I-30) shows (VAV-92) supplying air for common room (320).	H3.3-Rev0	VAV Box Schedule	VAV-92 not provided on schedule on sheet (H3.3).	Unable to determine requirements for (VAV-12). Should (VAV-12) be listed on schedule to clarify specifics?		No		
24	David Lameiro	11/22/10	Electrical	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule list multiple (VAV)'s, specific ID number not provided.				Should electrical equipment schedule provide specific (VAV) numbers for coordination purposes?		No		
25	David Lameiro	11/22/10	Mechanical, Electrical	H3.3-Rev0	Air Handler Schedule	Mechanical air handler schedule lists (MCA) for (AHU-1) as (9A).	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule lists (MCA) for (AHU-1) as (7A).	Electrical (MCA) for (AHU-1) listed differently between electrical & mechanical schedules. (7A) vs (9A).		No		
26	David Lameiro	11/22/10	Electrical, Mechanical	E9.2-Rev0	Equipment Schedule	Schedule lists (5) cabinet unit heaters type (CUH-2) on third floor.	H1.5-Rev0	Stairs ! thru 3	Mechanical third floor sheet (H1.5) at stair #1 shows (1) (CUH-1), sheet (H1.6)at stair #2 & #3 both show (2) (CUH-2) each.	Per mechanical plans at third floor (1) (CUH-1) & (4) (CUH-2) cabinet unit heaters required. Electrical equipment schedule lists (5) (CUH-2) cabinet unit heaters at third floor. Please clarify quantities and types of heaters required at third floor.		No		
27	David Lameiro	11/22/10	Electrical	E9.2-Rev0	Equipment Schedule	Location of equipment not listed for all items on schedules.				Should schedule list location for all equipments listed for clarity?		No		
28	David Lameiro	11/22/10	Mechanical, Electrical	H3.3-Rev0	Air Handler Schedule	Mechanical air handler schedule lists (MCA) for (AHU-2) as (15A).	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule lists (MCA) for (AHU-2) as (13A).	Electrical (MCA) for (AHU-2) listed differently between electrical & mechanical schedules. (13A) vs (15A).		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
29	David Lameiro	11/22/10	Electrical, Mechanical	E9.2-Rev0	Equipment Schedule	Electrical schedule list power requirements for exhaust fan (CEX).	H3.3-Rev0	Fan Schedule	Mechanical fan schedule lists exhaust fans (CEX-1) thru (CEX-7). Exhaust fan 9CEX) not provided.	Please clarify if exhaust fan (CEX) required. Unable to locate (CEX) on mechanical plans & schedules.		No		
30	David Lameiro	11/22/10	Mechanical, Electrical	H3.3-Rev0	Air Handler Schedule	Mechanical air handler schedule lists (MCA) for (AHU-5) as (8A).	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule lists (MCA) for (AHU-5) as (7A).	Electrical (MCA) for (AHU-5) listed differently between electrical & mechanical schedules. (8A) vs (7A).		No		
31	David Lameiro	11/22/10	Mechanical, Electrical	H3.3-Rev0	Air Handler Schedule	Mechanical schedule list electrical power for (AHU-4) as (460v/3P/60HZ) & (24 MCA/35 MOCP).	E9.2-Rev0	Equipment Schedule	Electrical schedule lists power requirements for (AHU-4) as (208V/3P/60HZ) & (49 MCS/20 MOCP).	Power requirements for (AHU-4) listed differently between mechanical & electrical schedules.		No		
32	David Lameiro	11/22/10	Mechanical	H1.5-Rev0	Enlarged Plan	Bottom of sheet shows enlarged plan of mechanical space. Enlarged plan shows motorized damper on R.E.A duct for (AHU-4).	H3.2-Rev0	AHU-4 System Control Diagram	Per (AHU-4) system control diagram motorized damper on R.E.A duct not required.	Unable to determine if motorized damper required on return air duct on (AHU-4) as shown on plan.		No		
33	David Lameiro	11/23/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (800) CFM for (VAV-80) box.	H1.6-Rev0	Column J-22	Near column (J-22) shows (VAV-80) box with supply diffuser total of (1200) CFM.	Total CFM for (VAV-80) box on plan listed higher than CFM max listed on schedule. Should CFM on schedule be listed as (1200) to match plan?		No		
34	David Lameiro	11/22/10	Mechanical, Electrical	H3.3-Rev0	Air Handler Schedule	Mechanical schedule list electrical power for (AHU-3) as (460v/3P/60HZ) & (47 MCA/60 MOCP).	E9.2-Rev0	Equipment Schedule	Electrical schedule lists power requirements for (AHU-3) as (208V/3P/60HZ) & (94 MCS/20MOCP).	Power requirements for (AHU-3) listed differently between mechanical & electrical schedules.		No		
35	David Lameiro	11/23/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (500) CFM for (VAV-69) box.	H1.6-Rev0	Column X-17	Near column (X-17) shows (VAV-69) box with supply diffuser total of (400) CFM.	It appears CFM on plan totals to (400) and schedule lists max as (500) CFM. Please clarify if no additional diffusers are required on (VAV-69) supply branch to meet (500) CFM listed on schedule.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
36	David Lameiro	11/22/10	Mechanical, Electrical	H1.1-Rev0	Electrical Room 152 & 153	Mechanical plan shows exhaust fans (CEX-1) in room (153) & (CEX-2) in room (152). Both exhaust fans shown with thermostat.	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule lists (CEX-1) & (CEX-2) with out voltage thermostat.	Please clarify if exhaust fans require thermostat as shown on plans. In addition should this also be listed on electrical equipment schedule under description?		No		
37	David Lameiro	11/23/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (1200) CFM for (VAV-81) box.	H1.6-Rev0	Column B-27	Near column (B-27) shows (VAV-81) box with supply diffuser total of (800) CFM.	It appears CFM on plan totals to (800) and schedule lists max as (1200) CFM. Please clarify if no additional diffusers are required on (VAV-81) supply branch to meet (800) CFM listed on schedule.		No		
38	David Lameiro	11/22/10	Electrical	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule list (2) (CEX-5)exhaust fans, (CEX-6) not provided on schedule.				Please clarify which of the (2) (CEX-5) fans should be listed as (CEX-6).		No		
39	David Lameiro	11/22/10	Mechanical, Electrical	H1.6-Rev0	Electrical Room (332)	Electrical room (332) near column (K-27) shows exhaust fans (CEX-7) with thermostat.	E9.2-Rev0	Equipment Schedule	Electrical equipment schedule lists (CEX-7 with out voltage thermostat.	Please clarify if exhaust fan requires thermostat as shown on plans. In addition should this also be listed on electrical equipment schedule under description?		No		
40	David Lameiro	11/23/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists max (500) CFM for (VAV-88) box.	H1.6-Rev0	Column Q-32	Near column (Q-32) shows (VAV-88) box with supply diffuser total of (400) CFM.	It appears CFM on plan totals to (940) and schedule lists max as (990) CFM. Please clarify if no additional diffusers are required on (VAV-59) supply branch to meet (990) CFM listed on schedule.		No		
41	David Lameiro	11/23/10	Mechanical	H1.3-Rev0	Vestibule (261)	Vestibule (261) near column (G.4-16) shows (2) cabinet unit heaters (CUH-2). In addition thermostat shown on column wrapped wall.				Unable to determine which cabinet unit heater will operate thermostat shown on wall. Should plan indicate this with dotted line?		No		
42	David Lameiro	11/23/10	Mechanical	H1.3-Rev0	Column M-11	Near column (M-11) shows unsized return air duct with register grille (RG-2/1500) right of (30"x12') duct.				Should return air duct be listed with size for clarity?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
43	David Lameiro	11/23/10	Mechanical, Electrical	H3.3-Rev0	Fan Schedule	Mechanical fan schedule list fan type (IF-3) with (1/12th) horsepower with (115v) power requirement.	E9.2-Rev0	Equipment Schedule	Fan (IF-3) not provided on electrical equipment schedule.	Should fan (IF-3) also be listed on electrical equipment schedule to clarify power circuits?		No		
44	David Lameiro	11/23/10	Mechanical, Electrical	H1.3-Rev0	Cabinet Unit Heaters	Second floor mechanical sheet (H1.3) shows multiple cabinet unit heaters type (CUH-2) in the following rooms (280), (277), (279) & (261) which equal to a total of (5). Mechanical sheet (H1.4) show (CUH-2) in rooms (200) & (220), total of (2).	E9.2-Rev0			Per second floor mechanical plans a total of (7) (CUH-2)'s are required. Electrical equipment schedule lists a total of (5) (CUH-2)'s for second floor. Quantities listed differently between mechanical plans & electrical schedule. Please clarify quantities.		No		
45	David Lameiro	11/23/10	Mechanical, Architectural, Structural	H1.7-Rev0	Column U-12	Near gridline (U-12) along gridline (U) shows 38" to 30" rounds ducts with tube steel supports. General note 3 also indicates steel tube supports for duct.	A6.1-Rev0	2/A6.1 Wall Section at Gym/Cafeteria	Top of section shows heat recovery duct with out steel support. In addition, structural steel plan (S3.7) along gridline (U) steel supports not shown.	Unable to determine requirements for steel tube support system for heat recovery ducts shown on mechanical plans. Should steel support system be shown on structural plan with detailed elevations be provided for coordination purposes?		No		
46	David Lameiro	11/23/10	Mechanical	H1.7-Rev0	Columns (U-7) & (U-10)	Between columns (U-7) & (U-10) shows (60"x24") intake ducts for solar wall system. Details and elevation not provided or listed.				Should details for intake duct for solar wall system be detailed for clarity?		No		
47	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Title Block	Several details appear incomplete. Cannot locate dimensions or notes. See details 9, 12, 20, 21, 23, 24, & 26.				Several details appear incomplete. Cannot locate dimensions or notes. See details 9, 12, 20, 21, 23, 24, & 26. Please provide missing information.		No		
48	Bill Henning	11/23/10	Architectural	A5.5-Rev0	Section 1	Section depicts (2) section tags that denotes "--/A5.5".				Section depicts (2) section tags that denotes "--/A5.5". Please provide missing information.		No		
49	Bill Henning	11/23/10	Architectural	A5.5-Rev0	Detail 14	Cannot locate notes for details 12, 13 & 14.				Cannot locate notes for details 12, 13 & 14. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
50	Bill Henning	11/23/10	Architectural	A5.5-Rev0	Section/ Elevation at Proscenium Wall	Sheet depicts Section 1/A5.5 Section/ Elevation at Proscenium Wall. Cannot locate reference to this section on architectural plans.				Sheet depicts Section 1/A5.5 Section/ Elevation at Proscenium Wall. Cannot locate reference to this section on architectural plans. Please provide missing information.		No		
51	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Section 1	Section depicts enlarged section tag that denotes "-/A6.-".				Section depicts enlarged section tag that denotes "-/A6.-". Please provide missing information.		No		
52	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Section 2	Section depicts enlarged section tag that denotes "-/A6.-".				Section depicts enlarged section tag that denotes "-/A6.-". Please provide missing information.		No		
53	Bill Henning	11/23/10	Architectural	A6.1-Rev0	Section 2	Section depicts section tag that denotes "--/--".				Section depicts section tag that denotes "--/--". Please provide missing information.		No		
54	Bill Henning	11/22/10	Architectural	A4.4-Rev0	Point J-22	Architectural RCP depicts "Display" area in Corridor 230 with gyp board ceiling. Cannot determine height of gyp board ceiling in "Display" area.				Architectural RCP depicts "Display" area in Corridor 230 with gyp board ceiling. Cannot determine height of gyp board ceiling in "Display" area. Please provide missing information.		No		
55	Bill Henning	11/22/10	Architectural	A4.4-Rev0	Point K-27	Architectural RCP depicts ceiling grid in Telcom 233. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Telcom 233. Cannot locate note for grid height. Please provide missing information.		No		
56	Bill Henning	11/22/10	Architectural	A4.4-Rev0	Point B-22	Architectural RCP depicts ceiling grid in Office 248. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Office 248. Cannot locate note for grid height. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
57	Bill Henning	11/22/10	Architectural	A4.4-Rev0	Point G-27	Architectural RCP depicts ceiling grid in Closet 241. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Closet 241. Cannot locate note for grid height. Please provide missing information.		No		
58	Bill Henning	11/23/10	Architectural	A6.1-Rev0	Section 4	Section depicts section tag that denotes "/A6.8".				Section depicts section tag that denotes "/A6.8". Please provide missing information.		No		
59	Bill Henning	11/23/10	Architectural	A6.1-Rev0	Section 1	Section depicts section tag that denotes "--/--".				Section depicts section tag that denotes "--/--". Please provide missing information.		No		
60	Bill Henning	11/22/10	Architectural	A4.6-Rev0	Point I-22	Architectural RCP depicts "Display" area in Corridor 330 and entry to Media Center 341 with gyp board ceiling. Cannot determine height of gyp board ceiling in these areas.				Architectural RCP depicts "Display" area in Corridor 330 and entry to Media Center 341 with gyp board ceiling. Cannot determine height of gyp board ceiling in these areas. Please provide missing information.		No		
61	Bill Henning	11/22/10	Architectural	A4.6-Rev0	Point K-27	Architectural RCP depicts ceiling grid in Telcom 333. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Telcom 333. Cannot locate note for grid height. Please provide missing information.		No		
62	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Section 3	Section depicts enlarged section tag that denotes "-/A6.-".				Section depicts enlarged section tag that denotes "-/A6.-". Please provide missing information.		No		
63	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Detail 7	Notes are difficult to read.				Notes are difficult to read. Please modify for clarity.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
64	Bill Henning	11/24/10	Architectural	A4.6-Rev0	Point N-16	Architectural RCP depicts what appears to be a change in height in the gyb bd ceiling at the elevator entrance. Cannot locate heights of ceilings at this point.				Architectural RCP depicts what appears to be a change in height in the gyb bd ceiling at the elevator entrance. Cannot locate heights of ceilings at this point. Please provide missing information.		No		
65	Bill Henning	11/24/10	Architectural	A4.4-Rev0	Point N-16	Architectural RCP depicts what appears to be a change in height in the gyb bd ceiling at the elevator entrance. Cannot locate heights of ceilings at this point.				Architectural RCP depicts what appears to be a change in height in the gyb bd ceiling at the elevator entrance. Cannot locate heights of ceilings at this point. Please provide missing information.		No		
66	Bill Henning	11/23/10	Architectural	A6.4-Rev0	Section 1	Section denotes enlarged section tag that denotes 10/A6.7. The area referenced is an edge detail. See also the same condition in sections 2 & 3.	A6.7-Rev0	Detail 10	Detail 10/A6.7 is an window sill detail.	Section denotes enlarged section tag that denotes 10/A6.7. The area referenced is an edge detail. See also the same condition in sections 2 & 3. Detail 10/A6.7 is an window sill detail. Should these tags reference 10/A6.8? Please clarify.		No		
67	Bill Henning	11/24/10	Architectural	A7.1-Rev0	Plan 1	Enlarged First Floor Plan @ Stair #2 depicts section tag thru stairwell that denotes 9/A7.2.	A7.2-Rev0	Section 9	Section 9 does not depicts what is shown in plan.	Enlarged First Floor Plan @ Stair #2 depicts section tag thru stairwell that denotes 9/A7.2. Section 9 does not depicts what is shown in plan. Should section tags reference 9/A7.1? Please clarify.		No		
68	Bill Henning	11/23/10	Architectural	A6.5-Rev0	Section 7	Cannot locate reference to section 7 in architectural plans.				Cannot locate reference to section 7 in architectural plans. Please provide missing information.		No		
69	Bill Henning	11/23/10	Architectural	A6.5-Rev0	Section 3	Cannot locate reference to section 3 in architectural plans.				Cannot locate reference to section 3 in architectural plans. Please provide missing information.		No		
70	Bill Henning	11/23/10	Architectural	A6.5-Rev0	Section 5	Cannot locate any detail tags on section 5.				Cannot locate any detail tags on section 5. Should section 5 have detail tags? Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
71	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Title Block	Sheet appears incomplete.				Sheet appears incomplete. Please provide additional information.		No		
72	Bill Henning	11/23/10	Architectural	A6.3-Rev0	Section 1	Section depicts (3) section tags that denotes "--/--".				Section depicts (3) section tags that denotes "--/--". Please provide missing information.		No		
73	Bill Henning	11/23/10	Architectural	A6.4-Rev0	Section 4	Cannot locate reference to this section on architectural plans.				Cannot locate reference to this section on architectural plans. Please provide missing information.		No		
74	Bill Henning	11/23/10	Architectural	A6.4-Rev0	Section 4.	Section depicts a section tag without a detail number or sheet number.				Section depicts a section tag without a detail number or sheet number. Please provide missing information.		No		
75	Bill Henning	11/24/10	Architectural	A7.2-Rev0	Detail 14	Cannot locate reference to detail 14 in architectural dwgs.				Cannot locate reference to detail 14 in architectural dwgs. Please provide missing information.		No		
76	Bill Henning	11/24/10	Architectural	A7.2-Rev0	Detail 15	Label is printed on top of detail.				Label is printed on top of detail. Please modify for clarity.		No		
77	Bill Henning	11/23/10	Architectural	A6.7-Rev0	Detail 17	Cannot locate reference to detail 17 in architectural dwgs.				Cannot locate reference to detail 17 in architectural dwgs. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
78	Bill Henning	11/23/10	Architectural	A6.5-Rev0	Section 1	Section 1 depicts (3) detail tags that denote "--/--".				Section 1 depicts (3) detail tags that denote "--/--". Please provide missing information.		No		
79	Bill Henning	11/23/10	Architectural	A6.6-Rev0	Storefront Types	Cannot locate reference to storefront type SF/N1 in architectural dwgs.				Cannot locate reference to storefront type SF/N1 in architectural dwgs. Please provide missing information.		No		
80	Bill Henning	11/23/10	Architectural	A5.5-Rev0	Title Block	Cannot locate reference to details 4, 5, 6 & 16 in architectural dwgs.				Cannot locate reference to details 4, 5, 6 & 16 in architectural dwgs. Please provide missing information.		No		
81	Bill Henning	11/24/10	Architectural	A7.2-Rev0	Plan 3	Plan 1 -5 depicts detail tags for the railings - (6) total. Tags do not denote detail number or sheet number.				Plan 1 -5 depicts detail tags for the railings - (6) total. Tags do not denote detail number or sheet number. Please provide missing information.		No		
82	Bill Henning	11/24/10	Architectural	A7.2-Rev0	Detail 8	Detail 8 depicts section tag that denotes 7/A7.2 Detail does not match what is shown in section.				Detail 8 depicts section tag that denotes 7/A7.2 Detail does not match what is shown in section. Please clarify.		No		
83	Bill Henning	11/23/10	Architectural	A6.6-Rev0	Window Types	Cannot locate reference to window type WN/A4A in architectural dwgs.				Cannot locate reference to window type WN/A4A in architectural dwgs. Please provide missing information.		No		
84	Bill Henning	11/24/10	Architectural	A7.1-Rev0	Detail 16	Cannot locate reference to detail 16 in architectural dwgs.				Cannot locate reference to detail 16 in architectural dwgs. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
85	Bill Henning	11/23/10	Architectural	A6.7-Rev0	Detail 24	Unable to read note. Text printed over text.				Unable to read note. Text printed over text. Please modify for clarity.		No		
86	Bill Henning	11/24/10	Architectural	A8.1-Rev0	Title Block	Cannot locate references to enlarged plans 1 & 6 in architectural dwgs.				Cannot locate references to enlarged plans 1 & 6 in architectural dwgs. Please provide missing information.		No		
87	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Plan Section @ 1'-3" dia Steel Concrete Retaining Ring	Sheet depicts detail with label "Plan Section @ 1'-3" dia Steel Concrete Retaining Ring". Label does not have a detail number. Cannot locate reference to this detail in architectural sheets.				Sheet depicts detail with label "Plan Section @ 1'-3" dia Steel Concrete Retaining Ring". Label does not have a detail number. Cannot locate reference to this detail in architectural sheets.		No		
88	Bill Henning	11/24/10	Architectural	A7.2-Rev0	Detail 11	Detail depicts note "Stainless steel guardrail system; see det. -/-- for notes.".				Detail depicts note "Stainless steel guardrail system; see det. -/-- for notes.". Please provide missing information.		No		
89	Bill Henning	11/24/10	Architectural	A8.1-Rev0	Title Block	Elevations appear to be incomplete. Cannot locate notes and some dimensions.				Elevations appear to be incomplete. Cannot locate notes and some dimensions. Please provide missing information.		No		
90	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Profiled Metal Panel Termination Aluminum Extrusions	Cannot locate references to Profiled Metal Panel Termination Aluminum Extrusions in architectural dwgs.				Cannot locate references to Profiled Metal Panel Termination Aluminum Extrusions in architectural dwgs. Please provide missing information.		No		
91	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Title Block	Cannot locate reference to details 9, 13, 17, 20 - 22 in architectural dwgs.				Cannot locate reference to details 9, 13, 17, 20 - 22 in architectural dwgs. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
92	Bill Henning	11/22/10	Architectural	A3.6-Rev0	Point Q-34	Architectural plan depicts enlarged plan tag 2/A7.2.	A7.2-Rev0	Title Block	Cannot locate enlarged plan 2/A7.2 on sheet. Sheet A7.2 depicts (2) plans labeled 1/A7.2.	Architectural plan depicts enlarged plan tag 2/A7.2. Cannot locate enlarged plan 2/A7.2 on sheet. Sheet A7.2 depicts (2) plans labeled 1/A7.2. Please clarify.		No		
93	Bill Henning	11/22/10	Architectural	A3.6-Rev0	Point I-18	Architectural plan depicts tag "Display MW-".				Architectural plan depicts tag "Display MW-". Please provide missing information.		No		
94	Bill Henning	11/22/10	Architectural	A9.1-Rev0	Millwork Schedule - Second Floor	Millwork schedule lists millwork for Corridor 244. Schedule lists Coat pole and Single Shelf.	A3.4-Rev0	Point F-20	Cannot locate millwork reference tag in Corridor 244.	Millwork schedule lists millwork for Corridor 244. Schedule lists Coat pole and Single Shelf. Cannot locate millwork reference tag in Corridor 244. Please provide missing information.		No		
95	Bill Henning	11/22/10	Architectural	A3.6-Rev0	Point I-25	Architectural plan depicts Millwork reference tags in Technology 3338 & 339 that denote MW 2.	A9.1-Rev0	Millwork Schedule - Third Floor	Millwork schedule lists "MW" for rooms 338 & 339.	Architectural plan depicts Millwork reference tags in Technology 3338 & 339 that denote MW 2. Millwork schedule lists "MW" for rooms 338 & 339. Please modify for clarity.		No		
96	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Section 1	Section depicts enlarged section detail denoting "-/A6.-".				Section depicts enlarged section detail denoting "-/A6.-". Please provide missing information.		No		
97	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Section 2	Section depicts enlarged section detail denoting "-/A6.-".				Section depicts enlarged section detail denoting "-/A6.-". Please provide missing information.		No		
98	Bill Henning	11/22/10	Architectural	A3.6-Rev0	Point P-22	Architectural plan depicts millwork on west wall of Work Room 314 labeled MW/3.	A9.1-Rev0	Elevation MW6	Cannot locate elevation MW/3 on sheet A9.1 but sheet has (2) millwork elevations labeled MW/6.	Architectural plan depicts millwork on west wall of Work Room 314 labeled MW/3. Cannot locate elevation MW/3 on sheet A9.1 but sheet has (2) millwork elevations labeled MW/6. Please modify for clarity.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
99	Bill Henning	11/22/10	Architectural	A4.1-Rev0	Point M-16	Architectural RCP depicts grid height. Cannot read note, note is printed over dimension line.				Architectural RCP depicts grid height. Cannot read note, note is printed over dimension line. Please modify for clarity.		No		
100	Bill Henning	11/22/10	Architectural	A4.1-Rev0	Title Block	Architectural RCP depicts several changes in ceiling heights and types in rooms. Cannot locate details on these changes.				Architectural RCP depicts several changes in ceiling heights and types in rooms. Cannot locate details on these changes. Please clarify.		No		
101	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Section 3	Section depicts enlarged section detail denoting "-/A6.-".				Section depicts enlarged section detail denoting "-/A6.-". Please provide missing information.		No		
102	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point G-3	Architectural RCP depicts ceiling typ change in Boy's 277 and Girl's 280 at the shower stalls.				Architectural RCP depicts ceiling typ change in Boy's 277 and Girl's 280 at the shower stalls. Is there a ceiling height change between the gyp bd and the ACT? Please clarify.		No		
103	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point K-1	Architectural RCP depicts ceiling grid in Stor 282. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Stor 282. Cannot locate note for grid height. Please provide missing information.		No		
104	Bill Henning	11/22/10	Architectural	A4.1-Rev0	Point U-5	Architectural RCP depicts ceiling grid in Jan 142. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Jan 142. Cannot locate note for grid height. Please provide missing information.		No		
105	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point H-8	Architectural RCP depicts ceiling in Drama/Choral 274. Cannot locate note for grid height.				Architectural RCP depicts ceiling in Drama/Choral 274. Cannot locate note for grid height. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
106	Bill Henning	11/22/10	Architectural	A4.1-Rev0	Point K-3	Architectural RCP depicts ceiling grid in Dishwasher 148. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Dishwasher 148. Cannot locate note for grid height. Please provide missing information.		No		
107	Bill Henning	11/22/10	Architectural	A4.2-Rev0	Point N-22	Architectural RCP depicts ceiling grid in Jan 127. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Jan 127. Cannot locate note for grid height. Please provide missing information.		No		
108	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point K-10	Architectural RCP depicts ceiling grid in Rec 268A. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Rec 268A. Cannot locate note for grid height. Please provide missing information.		No		
109	Bill Henning	11/23/10	Architectural	A5.3-Rev0	Title Block	Sheet appears incomplete.				Sheet appears incomplete. Please provide missing information.		No		
110	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point B-11	Architectural depicts a gyp bd soffit along the north walls and south walls of Band 272 and Orchestra 271. Cannot determine height of these soffits.				Architectural depicts a gyp bd soffit along the north walls and south walls of Band 272 and Orchestra 271. Cannot determine height of these soffits. Please provide missing information.		No		
111	Bill Henning	11/23/10	Architectural	A5.4-Rev0	Building Section 6	Cannot locate reference on architectural plans to Building Section 6/A5.4.				Cannot locate reference on architectural plans to Building Section 6/A5.4. Please provide missing information.		No		
112	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point K-10	Architectural RCP depicts ceiling grid in Sound 275. Cannot locate note for grid height.				Architectural RCP depicts ceiling grid in Sound 275. Cannot locate note for grid height. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
113	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point B-11	Architectural depicts a gyp bd soffit along the north/south/east/west walls of Corridor 262. Cannot determine height of these soffits.				Architectural depicts a gyp bd soffit along the north/south/east/west walls of Corridor 262. Cannot determine height of these soffits. Please provide missing information.		No		
114	Bill Henning	11/23/10	Architectural	A5.4-Rev0	Title Block	Sheet appears incomplete.				Sheet appears incomplete. Please provide missing information.		No		
115	Bill Henning	11/23/10	Architectural	A5.4-Rev0	Building Section 1	Section depicts note that states "FRP column See Det -/--".				Section depicts note that states "FRP column See Det -/--". Please provide missing information.		No		
116	Bill Henning	11/22/10	Architectural	A4.3-Rev0	Point B-11	Architectural depicts a gyp bd soffit along the north/south/east/west walls of Lobby 260. Cannot determine height of the soffits along the west and south walls.				Architectural depicts a gyp bd soffit along the north/south/east/west walls of Lobby 260. Cannot determine height of the soffits along the west and south walls. Please provide missing information.		No		
117	Bill Henning	11/23/10	Architectural	A5.5-Rev0	Section/ Elevation at Proscenium Wall	Sheet depicts Section 2/A5.5 Section/ Elevation at Proscenium Wall. Cannot locate reference to this section on architectural plans.				Sheet depicts Section 2/A5.5 Section/ Elevation at Proscenium Wall. Cannot locate reference to this section on architectural plans. Please provide missing information.		No		
118	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Detail 17	Detail depicts (2) section tags without detail numbers or sheet numbers.				Detail depicts (2) section tags without detail numbers or sheet numbers. Please provide missing information.		No		
119	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Detail 17	Detail depicts note "Elev. -".				Detail depicts note "Elev. -". Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review [Interim 1 Report, 11/24/2010
Sherwood Middle School (1-125)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
120	Bill Henning	11/24/10	Architectural	A6.8-Rev0	Detail 17	Detail note denotes "...with welded studs by section 05500". Cannot locate section 05500 in specs.				Detail note denotes "...with welded studs by section 05500". Cannot locate section 05500 in specs. Please clarify.		No		
121	Bill Henning	11/23/10	Architectural	A5.5-Rev0	Section 2	Section depicts section tag that denotes "--/A5.5".				Section depicts section tag that denotes "--/A5.5". Please provide missing information.		No		
122	David Lameiro	11/24/10	Mechanical	H1.6-Rev0	Column (K-23)	Near column (K-23) shows (VAV-78). Supply duct feeding (VAV-78) not sized. This is typical most supply ducts feeding (VAV)'s.				Should mechanical plan show size of ducts feeding (VAV)'s? Typical all (VAV)'s on mechanical plans.		No		
123	David Lameiro	11/24/10	Mechanical	H1.6-Rev0	Column I-30	Near column (I-30) shows supply duct feeding (VAV-92) passing thru (20"x12")return air duct, however plan also shows supply duct passing around return air duct.				Unable to determine if supply air duct feeding (VAV-92) will pass thru or go around return air duct. Please clarify. typical other levels.		No		
124	David Lameiro	11/24/10	Mechanical	H1.6-Rev0	Column K-22	Left of column (K-22) shows register grille (RG-2/270) feed from main return air duct (46"x18"). Secondary duct between main duct (46'x18") and register (RG-2) not sized.				Unable to determine size of secondary duct feeding register grille (RG-2) near column (K-22).		No		
125	David Lameiro	11/24/10	Mechanical	H1.2-Rev0	Column (Q-25)	Near column (Q-25) shows (2) (26"x12") return air ducts up.				Plan indicates (2) (26"x12") return air ducts up, should the right duct be listed as supply air instead?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
126	David Lameiro	11/29/10	Mechanical, Electrical	H2.1-Rev0	Telecom Room 151	Telecom room (151) shows condensate pump (CP-1). Per equipments notes on sheet (H3.3) pump required to be (115) volt circuit.	E2.1-Rev0	Telecom 151 Enlarged Plan	Electrical power source for condensate pump (CP-1) not provided on electrical plan.	Should electrical plan clarify location of condensate pump 9CP-1) with circuit designation?		No		
127	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Per schedule (VAV-41) requires (2) hot water heat coils.	H2.4-Rev0	ELL Room 236	HVAC piping plan shows (VAV-41) with out hot water supply & return lines.	Unable to determine if (VAV-41) required to be heated with hot water coil or just forced air.		No		
128	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule shows (VAV-9) without hot water heat coil requirement.	H2.2-Rev0	Classroom 101	HVAC piping plan shows hot water supply & return lines to (VAV-9) in classroom (101).	Unable to determine if (VAV-9) required to be heated with hot water coil or just forced air.		No		
129	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule shows (VAV-33) without hot water heat coil requirement.	H2.4-Rev0	Classroom (221)	HVAC piping plan shows hot water supply & return lines to (VAV-33) in classroom (221).	Unable to determine if (VAV-33) required to be heated with hot water coils or just forced air.		No		
130	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule shows (VAV-29) without hot water heat coil requirement.	H2.4-Rev0	Life Skills Room (229)	HVAC piping plan shows hot water supply & return lines to (VAV-29) in life skills room (229).	Unable to determine if (VAV-29) required to be heated with hot water coil or just forced air.		No		
131	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule shows (VAV-87) without hot water heat coil requirement.	H2.6-Rev0	Classroom 321	HVAC piping plan shows hot water supply & return lines to (VAV-87) in classroom (321).	Unable to determine if (VAV-87) required to be heated with hot water coil or just forced air.		No		
132	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule shows (VAV-70) without hot water heat coil requirement.	H2.6-Rev0	Classroom 301	HVAC piping plan shows hot water supply & return lines to (VAV-70) in classroom (301).	Unable to determine if (VAV-70) required to be heated with hot water coils or just forced air.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
133	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists multiple (VAV) boxes without water coil. In addition (EAT) & (LAT) temperatures not provided for these units.				Should schedule lists (EAT) & (LAT) temps for (VAV) units without coils?		No		
134	David Lameiro	11/29/10	Mechanical, Electrical	H3.3-Rev0	Unit/Cabinet Heater Schedule	Schedule lists (1) type of unit heater, (UH-1) rittling model (RH-86).	E9.2-Rev0	UH-1	Electrical schedule shows (5) unit heaters, (4) with (MCA-0.8A) and (1) with (MCA-2.1A).	Per mechanical schedule (1) unit heater type is required, however per the electrical schedule it appears (2) unit heater types are required. Please clarify.		No		
135	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule shows (VAV-49) without hot water heat coil requirement.	H2.4-Rev0	Classroom 201	HVAC piping plan shows hot water supply & return lines to (VAV-49) in classroom (201).	Unable to determine if (VAV-49) required to be heated with hot water coil or just forced air.		No		
136	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	Fan Schedule	Schedule lists note (12) for fan (DF-1), however note (12) not provided.				Unable to determine note (12) for fan (DF-1), please clarify note required.		No		
137	David Lameiro	11/29/10	Mechanical	H3.2-Rev0	Kitchen Diagram	Diagram shows (Smoke damper on oven exhaust kitchen hood.	H1.1-Rev0	Column (R-2)	Near column (R-2) shows kitchen exhaust hood with out smoke damper.	Please clarify if smoke damper should also be shown on hvac plan.		No		
138	David Lameiro	11/29/10	Electrical, Mechanical	E9.2-Rev0	HWB-1, HWB-2, HWB-3	Electrical equipment schedule shows hot water boilers (HWB-1), (HWB-2), (HWB-3) on (208v/2p/2w) power. Spec 23.00.00-23 Part C last paragraph indicates boilers shall operate on power supply 460/34/60 and controls on 120/1/60.	H1.2-Rev0			It appears power requirements for hot water boilers is listed differently between spec (23.00.00-23) & electrical equipment schedule.		No		
139	David Lameiro	11/29/10	Mechanical	H3.3-Rev0	Equipment Notes	Notes lists (BB-2/8) as rittling 2 tier element at (8') long.	H2.2-Rev0	Column (R-27)	Near column (R-27) shows radiant tube heaters as (BB-1/10). Typical all other HVAC piping plans.	It appears HVAC piping plans radiant heating elements are single tier (BB-1) and equipment notes on sheet (H3.3) only lists (2 tier system (BB-2). Please clarify if building requires (BB-1) or (BB-2).		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
140	David Lameiro	11/30/10	Mechanical	H3.3-Rev0	Equipment Notes	Equipment notes lists fan coil units to be from (EMI). Spec (23.00.00-28) Section 2.13 part A lists manufacturers as Carrier, York & Trane.				Mechanical equipment schedule lists fan coil unit manufacture as EMI, however spec lists Carrier, York or Trane. Please clarify which manufacture required for fan coil units.		No		
141	David Lameiro	11/30/10	Structural, Mechanical	S6.1-Rev0	Typical Housing keeping Pad	Structural housekeeping pad detail shown with note "refer to mechanical drawings for additional info" Locations & sizes of pads not listed on structural plans.	H2.2-Rev0	Mechanical Room 121	Location of pads in relation to column grid not provided. In addition sizes not provided.	Should location and sizes of housekeeping pads for mechanical equipments be shown on structural & mechanical plans for coordination?		No		
142	David Lameiro	11/30/10	Electrical, Plumbing	E9.2-Rev0	Electrical Equipment Schedule	Schedule only lists power requirements for circulation pump (RP-1).	P1.1-Rev0	Circulation Pump Schedule	Schedule lists (2) pumps (RP-1) & (RP-2) which require power.	Should electrical equipment schedule also list circulation pump 9RP-2) with circuit designation for coordination purposes?		No		
143	David Lameiro	12/01/10	Mechanical	H3.3-Rev0	VAV Box Schedule	Schedule lists all (VAV) boxes with model number (SDV5). Spec (23.00.00-18) section 2.11 lists manufactures as (Krueger, Titus & Nailor).				Per schedule model number for (VAV) boxes listed as (SDV5), however we were unable to find cut sheets on model (SDV5) on manufactures web site. Please clarify model number and manufacture for (VAV) boxes.		No		
144	David Lameiro	12/01/10	Mechanical	H3.3-Rev0	FCU Schedule	Spec (23.00.00-28) section (2.16) lists specifications for "system fan coil units", however mechanical schedule for SFCU's note provided.				Per spec "system fan coil units" are required and per mechanical plans & schedule (SFCU)'s not provided. Please clarify location of units on mechanical plans and schedule if required as noted in spec.		No		
145	David Lameiro	12/01/10	Mechanical	H2.6-Rev0	Column (A-22)	Third floor HVAC plan shows (1") HWS & HWR DN at column (A-22).	H2.4-Rev0	Column (A-22)	(1") HWS & HWR UP at column (A-22) on second floor level not provided.	Unable to determine continuation of (1") HWS & HWR lines from 3rd level to 2nd level near column (A-22).		No		
146	David Lameiro	12/01/10	Mechanical	H2.4-Rev0	Column P-27	Near column (P-27) lists (3/4") (HWS) & (HWR) UP & DN. Typical near columns (P-30), (F-32), (C-32), (F-30), (C-30) & (F-29).	H2.2-Rev0	Column P-27	Near column (P-27) (3/4") (HWS) & (HWR) UP not provided. Typical near columns (P-30), (F-32), (C-32), (F-30), (C-30) & (F-29).	Should level 2 near column (P-27) lists (3/4") (HWS) & (HWR) UP to 3rd level? Typical near columns (P-30), (F-32), (C-32), (F-30), (C-30) & (F-29).		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
147	David Lameiro	12/01/10	Mechanical	H2.4-Rev0	Gridline Intersection (G-20)	Near gridline intersection (G-20) shows (HWS) & (HWR) lines which appear to run up or down. Text note with size of pipe and direction not provided on plan. Typical at gridline intersections (G-24) & (G-25).				Per mechanical plan it appears piping at these locations are required to go up or down. Should text note be shown to clarify intention?		No		
148	David Lameiro	12/02/10	Mechanical	H2.2-Rev0	Outdoor Storage 122	Near outdoor storage room 122 shows (3) unit heaters (UH-1) without (HWS) & (HWR) lines.				Should HVAC piping plan show (HWS) & (HWR) lines going to and from (UH-1)s ?		No		
149	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (CEX) exhaust fan feed via circuit (P2A-72).	E8.3-Rev0	P2A Panel	Power panel (P2A) circuit (72) shown feeding exhaust fan (CEX-6).	Please clarify if circuit (P2A-72) required to feed (CEX) or (CEX-6).		No		
150	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FC-1) fan coil unit feed via circuit (P1B-16, 18).	E8.3-Rev0	P1B Panel	Power panel (P1B) lists circuit (16, 18) as spare.	Should power panel (P1B) schedule list circuits (16,18) with (FC-1) fan coil unit instead?		No		
151	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (ECH-1) electric heater feed via circuit (HP1-30).	E8.2-Rev0	HP1 Panel	Power panel (HP1) circuits (30) shown as spare.	Should power panel (HP1) schedule lists circuit (30) with (ECH-1) electric cabinet heater?		No		
152	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule shows (AHU-1), (AHU-2) & (AHU-5) feed from circuits on panel (HP2).	E8.2-Rev0	Panel (HP2)	Panel (HP2) schedule not provided on sheet.	Unable to determine if power panel (HP2) required. Schedule for panel not provided on sheets (E8.1, E8.2 or E8.3) however AUH's powered from (HP2) panel. Should schedule for (HP2) be provided?		No		
153	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (ECH-1) electric cabinet heater feed via circuit (HP2-8).	E8.2-Rev0	HP2 Panel	Panel (HP2) schedule not provided on sheet.	Unable to determine if power panel (HP2) required. Schedule for panel not provided on sheets (E8.1, E8.2 or E8.3) however ECH-1 powered from (HP2) panel. Should schedule for (HP2) be provided?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
154	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (CUH) cabinet unit heater feed via circuit (P2A-72).	E8.3-Rev0	P2A Panel	Power panel (P2A) circuit (72) shown feeding cabinet unit heater (CUH-2).	Please clarify if circuit (P2A-72) required to feed (CUH) or (CUH-2).		No		
155	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule shows (AHU-3) & (AHU-4) with out feeder & circuit designations.				Feeder requirements and circuits for (AHU-3) & (AHU-4) not provided on schedule. Should these be listed on electrical equipment schedule for coordination?		No		
156	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (CEX-5) exhaust fan feed via circuit (P1B-20).	E8.3-Rev0	P1B Panel	Power panel (P1B) circuit (20) shown feeding exhaust fan (CEX-3).	Please clarify if circuit (P1B-20) required to feed (CEX-3) or (CEX-5).		No		
157	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (Dumpster) feed via circuit (HP1-1,3,5).	E8.2-Rev0	HP1 Panel	Power panel (HP1) circuits (1,3,5) shown feeding cabinet unit heater (AHU-5).	Please clarify if circuit (P2A-72) required to feed (CEX) or (CEX-6).		No		
158	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Left schedule lists (6) (VAV)'s on circuit (P1A 47).	E8.3-Rev0	P1A Panel	Power panel schedule (P1A) circuit (47) shown feeding (VAV-15), (VAV-14), (VAV-11), (VAV-10), (VAV-9). Total of (5) (VAV)'s.	Please clarify if circuit (P1A-47) will feed (5) or (6) (VAV)'s. Equipment schedule lists (6) & panel schedule lists (5).		No		
159	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (P-1) pump being feed via circuit (HP1-18, 20, 22).	E8.2-Rev0	HP1 Panel	Power panel (HP1) lists circuits (18, 20, 22) feeding (FVAV-6), (FVAV-8), (FVAV-4).	Please clarify if circuits (HP1-18, 20, 22) required to feed (P-1) or (FVAV)'s.		No		
160	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FC-3) fan coil unit feed via circuit (P2A-75, 77).	E8.3-Rev0	P2A Panel	Power panel (P2A) lists circuit (75, 77) as spare.	Should power panel (P2A) schedule list circuits (75,77) with (FC-3) fan coil unit instead?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
161	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (HWB-1) boiler being feed via circuits (HP1-24 26). Similar for (HWB-2) & (HWB-3) boilers same panel different circuits.	E8.3-Rev0	P1B panel	Power panel (P1B) lists circuits (24, 26) as spare. Typical circuits (27, 29, 28, 30).	Please clarify if circuits on (P1B) schedule should lists (HWB-1), (HWB-2), (HWB-3) boilers instead of spare.		No		
162	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FVAV-4) box feed via circuit (HP1-28).	E8.2-Rev0	HP1 Panel	Power panel (HP1) lists circuit (28) as spare.	Should power panel (HP1-28) schedule list circuit (28) with (FVAV-1) box instead?		No		
163	David Lameiro	12/02/10	Mechanical	H2.1-Rev0	HVAC Piping Plans	Piping plan shows multiple runs of what appears to be (HWS) & (HWR) lines from (VAV)'s. Piping types and sizes not clearly labeled on plan. typical other piping plans.				Unable to determine location of piping size changes on plans. Should HVAV piping plans labels piping sizes and types for clarity? Please provide additional labeling of lines.		No		
164	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FVAV-6) box being feed via circuit (HP1-24).	E8.2-Rev0	HP1-Panel	Power panel (HP1) lists circuit (24) feeding (ECH-1).	Please clarify if circuits (HP1-24) required to feed (FVAV-6) or (ECH-1).		No		
165	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FC-3) fan coil unit feed via circuit (P2A-75, 77).	E8.3-Rev0	P1A Panel	Power panel (P1A) lists circuit (39, 41) as spare.	Should power panel (P1A) schedule list circuits (39,41) with (FC-3) fan coil unit instead?		No		
166	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule shows roof top units (RTU-1) thru (RTU-10) being feed from circuits on panel (HP2).	E8.2-Rev0	HP2 Panel	Panel (HP2) schedule not provided on sheet.	Unable to determine if power panel (HP2) required. Schedule for panel not provided on sheets (E8.1, E8.2 or E8.3) however RTU's powered from (HP2) panel. Should schedule for (HP2) be provided?		No		
168	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (P-2) pump being feed via circuits (HP1-19, 21, 23).	E8.2-Rev0	HP1 Panel	Power panel (HP1) lists circuits (19, 21, 23) feeding (AHU-1).	Please clarify if circuits (HP1-19, 21, 23) required to feed (P-1) or (AHU-1).		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
169	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FC-6) fan coil unit feed via circuit (P3A-71, 73).	E8.3-Rev0	P3A Panel	Power panel (P3A) lists circuit (71, 73) as spare.	Should power panel (P3A) schedule list circuits (71,73) with (FC-6) fan coil unit instead?		No		
170	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FC-2) fan coil unit feed via circuit (P1A-38, 40).	E8.3-Rev0	P1A Panel	Power panel (P1A) lists circuit (38, 40) as spare.	Should power panel (P1A) schedule list circuits (38,40) with (FC-1) fan coil unit instead?		No		
171	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule lists (FVAV-8) box feed via circuit (HP1-26).	E8.2-Rev0	HP1 Panel	Power panel (HP1) circuit (26) shown as spare.	Should power panel (HP1-26) schedule list circuit (28) with (FVAV-8) box instead?		No		
172	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Schedule shows (FVAV-9) & (FVAV-10) feed from circuits on panel (HP2).	E8.2-Rev0	HP@ Panel	Panel (HP2) schedule not provided on sheet.	Unable to determine if power panel (HP2) required. Schedule for panel not provided on sheets (E8.1, E8.2 or E8.3) however FVAV's powered from (HP2) panel. Should schedule for (HP2) be provided?		No		
173	David Lameiro	12/02/10	Electrical	E9.2-Rev0	Equipment Schedule	Bottom of left schedule lists (1) (VAV) on circuit (P3A-61) and bottom of right schedule lists (5) (VAV)'s on circuit (P3A-61). Total of (6) (VAV)'s on same circuit.	E8.3-Rev0	P3A Panel	Power panel schedule (P3A) circuit (61) shown feeding (VAV-59), (VAV-61), (VAV-60), (VAV-57), (VAV-56). Total of (5) (VAV)'s.	Please clarify if circuit (P3A-61) will feed (5) or (6) (VAV)'s. Equipment schedule lists (6) & panel schedule lists (5).		No		
174	David Lameiro	12/02/10	Mechanical	H2.2-Rev0	Mechanical Room 121	Mechanical room lists air separators, expansion tanks & acid neutralization tank for pumps and hot water tanks. Item not illustrated on piping plans.				Should mechanical piping plan in room (121) illustrate equipment items for coordination?		No		
175	Bill Henning	12/02/10	Structural	S3.4-Rev0	Point P-30	Structural plan depicts tag for column P30. Tag does not denote bottom of base plate elevation.				Structural plan depicts tag for column P30. Tag does not denote bottom of base plate elevation. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
176	Bill Henning	11/29/10	Architectural	A9.2-Rev0	MW 10	Millwork elevation depicts section tag that denotes "-/A9.-".				Millwork elevation depicts section tag that denotes "-/A9.-". Please provide missing information.		No		
177	Bill Henning	11/29/10	Architectural	A8.3-Rev0	Section 9	Section 9 depicts section tag that denotes "-/A-.-".				Section 9 depicts section tag that denotes "-/A-.-". Please provide missing information.		No		
178	Bill Henning	12/02/10	Structural	S3.1-Rev0	Column Schedule	Column schedule lists the base plate size for C15 as "1 1/4"x ".				Column schedule lists the base plate size for C15 as "1 1/4"x ". Please provide missing information.		No		
179	Bill Henning	11/29/10	Architectural	A9.4-Rev0	Title Block	Sheet A9.4 depicts several millwork elevations and sections that are labeled as sheet A10.4.				Sheet A9.4 depicts several millwork elevations and sections that are labeled as sheet A10.4. Please modify for clarity.		No		
180	Bill Henning	12/02/10	Structural	S3.3-Rev0	Point K-1	Structural plan depicts section tag that denotes "-/S4.2".				Structural plan depicts section tag that denotes "-/S4.2". Please provide missing information.		No		
181	Bill Henning	12/03/10	Structural	S4.3-Rev0	Section 12	Cannot locate any dimensions or elevations on section 12.				Cannot locate any dimensions or elevations on section 12. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
182	Bill Henning	12/03/10	Architectural	A3.6-Rev0	Point N-34	Architectural plan depicts "Roof Below" note and what appears to be a canopy. Architectural plan depicts only (1) section, 4/A5.3, thru this "canopy". Section 4/A5.3 does not depict the canopy.	A5.2-Rev0	Elevation 8	Canopy is depicted in Elevation 8/A5.2 with wall section 10/A6.3 thru it. Wall section 10/A6.3 depicts some height dimensions for parapet.	Architectural plan depicts "Roof Below" note and what appears to be a canopy. Architectural plan depicts only (1) section, 4/A5.3, thru this "canopy". Section 4/A5.3 does not depict the canopy. Canopy is depicted in Elevation 8/A5.2 with wall section 10/A6.3 thru it. Wall section 10/A6.3 depicts some height dimensions for parapet. Cannot locate dimensions or details of the construction of this canopy. Please provide missing information.		No		
183	Bill Henning	12/02/10	Structural	S3.3-Rev0	Point B-15	Structural plan depicts (3) tags for columns E13, E15 & E16. Tags do not denote bottom of base plate elevation.				Structural plan depicts (3) tags for columns E13, E15 & E16. Tags do not denote bottom of base plate elevation. Please provide missing information.		No		
184	Bill Henning	11/29/10	Architectural	A9.4-Rev0	Elevation 4	Library/ Media Millwork Elevation depicts an opening at the right end of the millwork. The opening depicts a vertical dimension of 3'-6 1/2". The dimension string is depicted from the flooring up. The toe board is not depicted as being shown as being cut at the dimension string ends of the 3'-1" horizontal opening.				Library/ Media Millwork Elevation depicts an opening at the right end of the millwork. The opening depicts a vertical dimension of 3'-6 1/2". The dimension string is depicted from the flooring up. The toe board is not depicted as being shown as being cut at the dimension string ends of the 3'-1" horizontal opening. Please clarify.		No		
185	Bill Henning	12/02/10	Structural	S3.4-Rev0	Point A-22	Structural plan depicts (3) tags for columns A16, A20 & A22. Tags do not denote bottom of base plate elevation.				Structural plan depicts (3) tags for columns A16, A20 & A22. Tags do not denote bottom of base plate elevation. Please provide missing information.		No		
186	Bill Henning	12/03/10	Structural	S4.3-Rev0	Title Block	Cannot locate references to sections 9 & 10 in structural dwgs.				Cannot locate references to sections 9 & 10 in structural dwgs. Please clarify.		No		
187	Bill Henning	11/29/10	Architectural	A10.2-Rev0	Specification Section 08 44 13 - 1	Specification Section 08 44 13 - 1 under Section 1.3 part B.1, loads are all left blank.				Specification Section 08 44 13 - 1 under Section 1.3 part B.1, loads are all left blank. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
188	Bill Henning	12/02/10	Structural	S4.2-Rev0	Section 6	Section depicts (2) TSL notes without a value.				Section depicts (2) TSL notes without a value. Please provide missing information.		No		
189	Bill Henning	12/03/10	Structural	S3.8-Rev0	Point R-22	Structural plan depicts section tag that denotes "--/--".				Structural plan depicts section tag that denotes "--/--". Please provide missing information.		No		
190	Bill Henning	11/29/10	Architectural	A9.4-Rev0	MW23 MW24	Library/ Media Millwork Plan depicts elevation tags that reference sheet A10.4. Sheet A10.4 is not included in dwg set.				Library/ Media Millwork Plan depicts elevation tags that reference sheet A10.4. Sheet A10.4 is not included in dwg set. Please clarify.		No		
191	Bill Henning	12/03/10	Structural	S3.6-Rev0	Point N-34	Structural plan depicts structural steel for canopy with (2) labeled "W12" and (2) labeled "W14".				Structural plan depicts structural steel for canopy with (2) labeled "W12" and (2) labeled "W14". Please provide missing information.		No		
192	Bill Henning	12/03/10	Structural	S4.3-Rev0	Section 9	Section 9 depicts (2) notes that call out Plates. Cannot locate dimensions for these plates or a detail tag.				Section 9 depicts (2) notes that call out Plates. Cannot locate dimensions for these plates or a detail tag. Please clarify.		No		
193	Bill Henning	11/29/10	Architectural	A9.3-Rev0	Title Block	Cannot locate references to millwork sections 8 & 10 in architectural dwgs.				Cannot locate references to millwork sections 8 & 10 in architectural dwgs. Please provide missing information.		No		
194	Bill Henning	11/29/10	Architectural	A2.2-Rev0	Title Block	Cannot locate references to details 2, 11, 16, 17 & 18 in architectural dwgs.				Cannot locate references to details 2, 11, 16, 17 & 18 in architectural dwgs. Please clarify.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
195	Bill Henning	12/03/10	Structural	S4.4-Rev0	Title Block	Appears several of the sections depicted on this sheet are incomplete.				Appears several of the sections depicted on this sheet are incomplete. Please provide missing information.		No		
196	Bill Henning	12/03/10	Structural	S5.1-Rev0	BR-CL-6	Structural sheet depicts BR-CL-6. Label does not denote on which GL BR-CL-6 can be found.	S3.2-Rev0	Point P-25	BR-CL-6 is depicted on GL 25.2 on sheet S3.2.	Structural sheet depicts BR-CL-6. Label does not denote on which GL BR CL-6 can be found. BR-CL-6 is depicted on GL 25.2 on sheet S3.2. Should GL 25.2 be added to the label for BR-CL-6? Please clarify.		No		
197	Bill Henning	11/29/10	Architectural	A9.4-Rev0	MW22	General Office Millwork Elevation depicts some dimensions but cannot locate section tags or notes.				General Office Millwork Elevation depicts some dimensions but cannot locate section tags or notes. Please provide missing information.		No		
198	Bill Henning	12/02/10	Structural	S4.2-Rev0	Title Block	Appears several of the sections depicted on this sheet are incomplete.				Appears several of the sections depicted on this sheet are incomplete. Please provide missing information.		No		
199	Bill Henning	11/29/10	Architectural	A8.2-Rev0	Title Block	Cannot locate references to details 15 & 16 in architectural dwgs.				Cannot locate references to details 15 & 16 in architectural dwgs. Please provide missing information.		No		
200	Bill Henning	11/29/10	Architectural	A8.3-Rev0	Section 2	Cannot locate any notes, dimensions or tags in section 2. Detail appears incomplete.				Cannot locate any notes, dimensions or tags in section 2. Detail appears incomplete. Please provide missing information.		No		
201	Bill Henning	12/02/10	Structural	S4.2-Rev0	Section 17	Section depicts (2) dimension strings without values.				Section depicts (2) dimension strings without values. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
202	Bill Henning	12/03/10	Structural	S3.5-Rev0	Point U-12	Structural plan depicts note "BR-G-8" on GL U between GLs 12 & 14.	S5.1-Rev0	BR-G-8	Label for "BR-G-8" denotes "Line S".	Structural plan depicts note "BR-G-8" on GL U between GLs 12 & 14. Label for "BR-G-8" denotes "Line S". Please clarify.		No		
203	Bill Henning	12/03/10	Structural	S4.3-Rev0	Section 9	Section 9 depicts note for TST. Cannot locate value.				Section 9 depicts note for TST. Cannot locate value. Please provide missing information.		No		
204	Bill Henning	11/29/10	Architectural	A8.3-Rev0	Title Block	Cannot locate reference to detail 3 in architectural dwgs.				Cannot locate reference to detail 3 in architectural dwgs. Please provide missing information.		No		
205	Bill Henning	11/29/10	Architectural	A8.3-Rev0	Section 1	Cannot locate any notes, dimensions or tags in section 1. Detail appears incomplete.				Cannot locate any notes, dimensions or tags in section 1. Detail appears incomplete. Please provide missing information.		No		
206	Bill Henning	12/03/10	Structural	S5.1-Rev0	Detail A	Cannot locate references to details A - D in structural dwgs.				Cannot locate references to details A - D in structural dwgs. Please clarify.		No		
207	Bill Henning	11/29/10	Architectural	A10.2-Rev0	Specification Section 08 51 13 - 1	Specification Section 08 51 13 - 1 under Section 1.2 part C & D are incomplete.				Specification Section 08 51 13 - 1 under Section 1.2 part C & D are incomplete. Please provide missing information.		No		
208	Bill Henning	12/03/10	Structural	S3.8-Rev0	Point C-32	Structural plan depicts (2) structural members between GLs 30 & 32 along GL C. Cannot locate label with type and size for these structural members.				Structural plan depicts (2) structural members between GLs 30 & 32 along GL C. Cannot locate label with type and size for these structural members. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
209	Bill Henning	12/03/10	Structural	S4.3-Rev0	Section 11	Section 11 depicts note for TST. Cannot locate value.				Section 11 depicts note for TST. Cannot locate value. Please provide missing information.		No		
210	Bill Henning	12/03/10	Structural	S3.7-Rev0	Point J-16	Structural plan depicts section tag that denotes "--/--".				Structural plan depicts section tag that denotes "--/--". Please provide missing information.		No		
211	Bill Henning	12/02/10	Structural	S3.1-Rev0	Point U-8	Structural plan depicts (3) tag for columns U7, U8 and U10. Tags do not depicts "bottom of base plate elevation".				Structural plan depicts (3) tag for columns U7, U8 and U10. Tags do not depicts "bottom of base plate elevation". Please provide missing information.		No		
212	Bill Henning	12/03/10	Structural, Archit	S3.6-Rev0	Point B-27	Structural plan depicts note "Refer to arch. drawings for edge of slab dimensions, typical".	A3.6-Rev0	Point B-27	Cannot locate edge of slab dimensions on architectural plans.	Structural plan depicts note "Refer to arch. drawings for edge of slab dimensions, typical". Cannot locate edge of slab dimensions on architectural plans. Please clarify.		No		
213	Bill Henning	12/03/10	Structural	S4.4-Rev0	Section 2	Section 2 appears incomplete.				Section 2 appears incomplete. Please provide missing information.		No		
214	Bill Henning	12/03/10	Structural	S4.3-Rev0	Section 5	Sections 5 - 7 depict note for TST but no value depicted.				Sections 5 - 7 depict note for TST but no value depicted. Please provide missing information.		No		
215	Bill Henning	11/29/10	Architectural	A9.4-Rev0	Elevation 5	Library/ Media Millwork Elevation depicts some dimensions but cannot locate section tags or notes.				Library/ Media Millwork Elevation depicts some dimensions but cannot locate section tags or notes. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
216	Bill Henning	12/03/10	Structural	S3.6-Rev0	Point N-34	Structural plan depicts metal roof deck and structural members for canopy. Elevation of structural steel is not provided.				Structural plan depicts metal roof deck and structural members for canopy. Elevation of structural steel is not provided. Please provide missing information.		No		
217	Bill Henning	11/29/10	Architectural	A8.3-Rev0	Elevation 16	Cannot locate any notes or dimensions in Elevation 16. Elevation depicts (1) section tag. Detail appears incomplete.				Cannot locate any notes or dimensions in Elevation 16. Elevation depicts (1) section tag. Detail appears incomplete. Please provide missing information.		No		
218	Bill Henning	12/03/10	Structural	S4.3-Rev0	Title Block	Appears several of the sections depicted on this sheet are incomplete.				Appears several of the sections depicted on this sheet are incomplete. Please provide missing information.		No		
219	Bill Henning	12/03/10	Structural	S4.1-Rev0				Section 2	Section A-A of section 2 depicts a note that states "TOW ".	Section A-A of section 2 depicts a note that states "TOW ". Please provide missing information.		No		
220	Bill Henning	11/29/10	Architectural	A8.3-Rev0	Enlarged plan 3	Enlarged plan 3 depicts some dimensions but cannot locate notes or tags. Detail appears incomplete.				Enlarged plan 3 depicts some dimensions but cannot locate notes or tags. Detail appears incomplete. Please provide missing information.		No		
221	Bill Henning	12/03/10	Structural	S3.5-Rev0	Point A-9	Structural plan depicts (5) notes along curved wall between GL 6 & 11 that denote (R=).				Structural plan depicts (5) notes along curved wall between GL 6 & 11 that denote (R=). Please provide missing information.		No		
222	Bill Henning	12/03/10	Structural	S4.3-Rev0	Section 14	Section 14 depicts note for TSL. Cannot locate value.				Section 14 depicts note for TSL. Cannot locate value. Please provide missing information.		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
223	Bill Henning	12/03/10	Structural	S4.4-Rev0	Section 5	Section 5 appears incomplete.				Section 5 appears incomplete. Please provide missing information.		No		
224	Bill Henning	12/03/10	Structural	S4.4-Rev0	Section 1	Section 1 depicts note for TST. Cannot locate value.				Section 1 depicts note for TST. Cannot locate value. Please provide missing information.		No		
225	Bill Henning	11/29/10	Architectural	A10.2-Rev0	Specification Section 08 44 13 - 2	Specification Section 08 44 13 - 2 under Section 1.3 part B.7, U-factors are all left blank.				Specification Section 08 44 13 - 2 under Section 1.3 part B.7, U-factors are all left blank. Please provide missing information.		No		
226	Bill Henning	12/02/10	Structural	S3.2-Rev0	Column Schedule	Column schedule lists the base plate size for C15 as "1 1/4"x ". See other structural sheets also.				Column schedule lists the base plate size for C15 as "1 1/4"x ". See other structural sheets also. Please provide missing information.		No		
227	Bill Henning	12/03/10	Structural	S3.5-Rev0	Point G-9	Structural plan depicts (2) section tags that denote "--/--".				Structural plan depicts (2) section tags that denote "--/--". Please provide missing information.		No		
228	David Lameiro	12/03/10	Electrical	E7.1-Rev0	Panel (LCP1A)	Riser diagram at first floor in main electrical room shows panel (LP1A) feeding panel (LCP1A), feeder type not provided.				Unable to determine feeder type between panels (LP1A) & (LCP1A).		No		
229	David Lameiro	12/03/10	Electrical	E7.1-Rev0	First Floor Riser Diagram	Riser diagram at first floor in main electrical room shows K-type transformer (T-CP1A) feeding panel (CP1A) with feeder type (150N). In addition power panel (CP1A) listed with (200%) neutral.	E7.1-Rev0	Feeder Schedule	Per feeder schedule type (150N) listed with single neutral wire (1/0) AWG and (150NN) with (2) (1/0) AWG.	Please clarify if feeder between k-type transformer (T-CP1A) and power panel (CP1A) should be shown as type (150NN) instead?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o
suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
230	David Lameiro	12/03/10	Structural, Archit	E7.1-Rev0	Main Distribution Panel (MDP)	Riser diagram shows Main Distribution Panel (MDP) feeding panel (HP3B).		Main Distribution Panel (MDP) Schedule	Circuit feeding panel (HP3B) not provided on Main Distribution Panel (MDP) schedule.	Should main distribution panel (MDP) schedule list circuit feeding panel (HP3B) with amps for coordination?		No		
231	Bill Henning	12/03/10	Structural, Archit	S3.3-Rev0	Point E-1	Structural plan depicts section tag 1/S4.1 thru south exterior wall between GL E & G. Section 1/S4.1 depicts interior side of foundation wall with a 3" x 8" ledge.	A5.1-Rev0	Elevation 6	Architectural elevation depicts section tag 1/A6.3 thru west exterior wall between GL D & G. Wall section 1/A6.3 references detail 23/A6.7 for foundation detail. Detail 23/A6.7 depicts interior side of foundation with a 3" x 7" ledge.	Structural plan depicts section tag 1/S4.1 thru south exterior wall between GL E & G. Section 1/S4.1 depicts interior side of foundation wall with a 3" x 8" ledge. Architectural elevation depicts section tag 1/A6.3 thru west exterior wall between GL D & G. Wall section 1/A6.3 references detail 23/A6.7 for foundation detail. Detail 23/A6.7 depicts interior side of foundation with a 3" x 7" ledge. Please clarify.		No		
232	David Lameiro	12/03/10	Electrical	E7.1-Rev0	Panel (LCP1A)	Riser diagram at first floor in main electrical room shows panel (LP1A) feeding panel (LCP1A),	E8.3-Rev0	Panel LP1A	Circuit feeding panel (LCP1A) not identified on panel (LP1A) schedule.	Unable to determine which circuit will feed (LCP1A). Should schedule listed circuit for coordination?		No		
233	Bill Henning	12/03/10	Structural, Archit	S3.1-Rev0	Point S-10	Structural plan depicts section tag 6/S4.1 thru south exterior wall between GL 8 & 10. Section 6/S4.1 depicts interior side of foundation wall as being solid vertical and slab flush.	A5.1-Rev0	Elevation 9	Architectural elevation depicts section tag 2/A6.1 thru south exterior wall between GL 8 & 10. Wall section 2/A6.1 references detail 20/A6.7 for foundation detail. Detail 20/A6.7 depicts interior side of foundation as stepped with a 3" wide by 7" tall ledge with interior slab resting on foundation wall.	Structural plan depicts section tag 6/S4.1 thru south exterior wall between GL 8 & 10. Section 6/S4.1 depicts interior side of foundation wall as being solid vertical and slab flush. Architectural elevation depicts section tag 2/A6.1 thru south exterior wall between GL 8 & 10. Wall section 2/A6.1 references detail 20/A6.7 for foundation detail. Detail 20/A6.7 depicts interior side of foundation as stepped with a 3" wide by 7" tall ledge with interior slab resting on foundation wall. Please clarify.		No		
234	David Lameiro	12/03/10	Electrical	E7.1-Rev0	First Floor Riser Diagram	Riser diagram at first floor in electrical room shows K-type transformer (T-CP1B) feeding panel (CP1B) with feeder type (150N). In addition power panel (CP1B) listed with (200%) neutral.	E7.1-Rev0	Feeder Schedule	Per feeder schedule type (150N) listed with single neutral wire (1/0) AWG and (150NN) with (2) (1/0) AWG.	Please clarify if feeder between k-type transformer (T-CP1B) and power panel (CP1B) should be shown as type (150NN) instead?		No		

This Interdisciplinary Document Coordination Review is not intended as a substitute for engineering or architectural review by licensed design professionals. The comments contained herein merely represent observations and/o suggestions intended for consideration and possible incorporation into the design documents at the discretion of the designer of record. No design liability shall be assumed by Gilbane Building Company as a result of the information contained herein.

Gilbane Building Company
Interdisciplinary Document Coordination (IDC) Review Interim #2 Report, 12/3/2010
Sherwood Middle School (126-239)

Issue Number	Init.	Date	Disciplines Affected	Sheet/Spec. Number	Location	Description	Conflicting Sheet/Spec. Number	Conflicting Location	Conflicting Description	Comment/Question	Response	Confirmed	Revision Date	Compliance Check #1
235	David Lameiro	12/03/10	Electrical	E7.1-Rev0	Panel LP1	Riser diagram shows distribution panel (MDP) feeding panel (LP1) with feeder type (300N).	E7.1-Rev0	Feeder Schedule	Feeder type (300N) not provided on feeder schedule.	Unable to determine wire requirements for feeder type (300N).		No		
236	Bill Henning	12/03/10	Architectural, Str	A5.1-Rev0	Point U-12	Structural plan depicts section tag 4/S4.1 thru south exterior wall between GL 12 & 14. Section 4/S4.1 depicts interior side of foundation wall with a 3" x 8" ledge.	S3.1-Rev0	Elevation 9	Architectural elevation depicts section tag 1/A6.1 thru south exterior wall between GL 12 & 14. Wall section 1/A6.1 references detail 22/A6.7 for foundation detail. Detail 22/A6.7 depicts interior side of foundation with a 3" x 7" ledge.	Structural plan depicts section tag 4/S4.1 thru south exterior wall between GL 12 & 14. Section 4/S4.1 depicts interior side of foundation wall with a 3" x 8" ledge. Architectural elevation depicts section tag 1/A6.1 thru south exterior wall between GL 12 & 14. Wall section 1/A6.1 references detail 22/A6.7 for foundation detail. Detail 22/A6.7 depicts interior side of foundation with a 3" x 7" ledge. Please clarify.		No		
237	David Lameiro	12/03/10	Electrical	E7.1-Rev0	Panel (LCP1)	Riser diagram at first floor in electrical room shows panel (LP1) feeding panel (LCP1), feeder type not provided.				Unable to determine feeder type between panels (LP1) & (LCP1).		No		
238	David Lameiro	12/03/10	Electrical	E7.1-Rev0	Panel (EPPB)	Riser diagram at first floor in emergency electrical room shows panel (EPPB). Typical panel (EPQA) in electrical room.	E8.1-Rev0	Panel EPPB	Electrical panel schedule for (EPPB) not provided on electrical schedule sheets (E8.1), (E8.2) & (E8.3). Typical panel (EPQA).	Unable to locate schedule for panel (EPPB). Should schedule be listed on electrical schedule sheets (E8.1), (E8.2) & (E8.3)? Typical panel (EPQA).		No		
239	David Lameiro	12/03/10	Electrical	E7.1-Rev0	Elevator Panel	Riser at first floor elevator machine room shows elevator panel feed via panel (MDP) with feeder type (40). In addition panel (MDP) lists (40A) elevator.	E8.1-Rev0	MDP Panel Schedule	Main distribution panel (MDP) circuit (26) shown feeding elevator with (90A) trip breaker.	Unable to determine if feeder for elevator panel on riser is sized to small or circuit (26) on (MDP) schedule is listed to high. Please clarify if elevator required to be (40A) or (90A).		No		