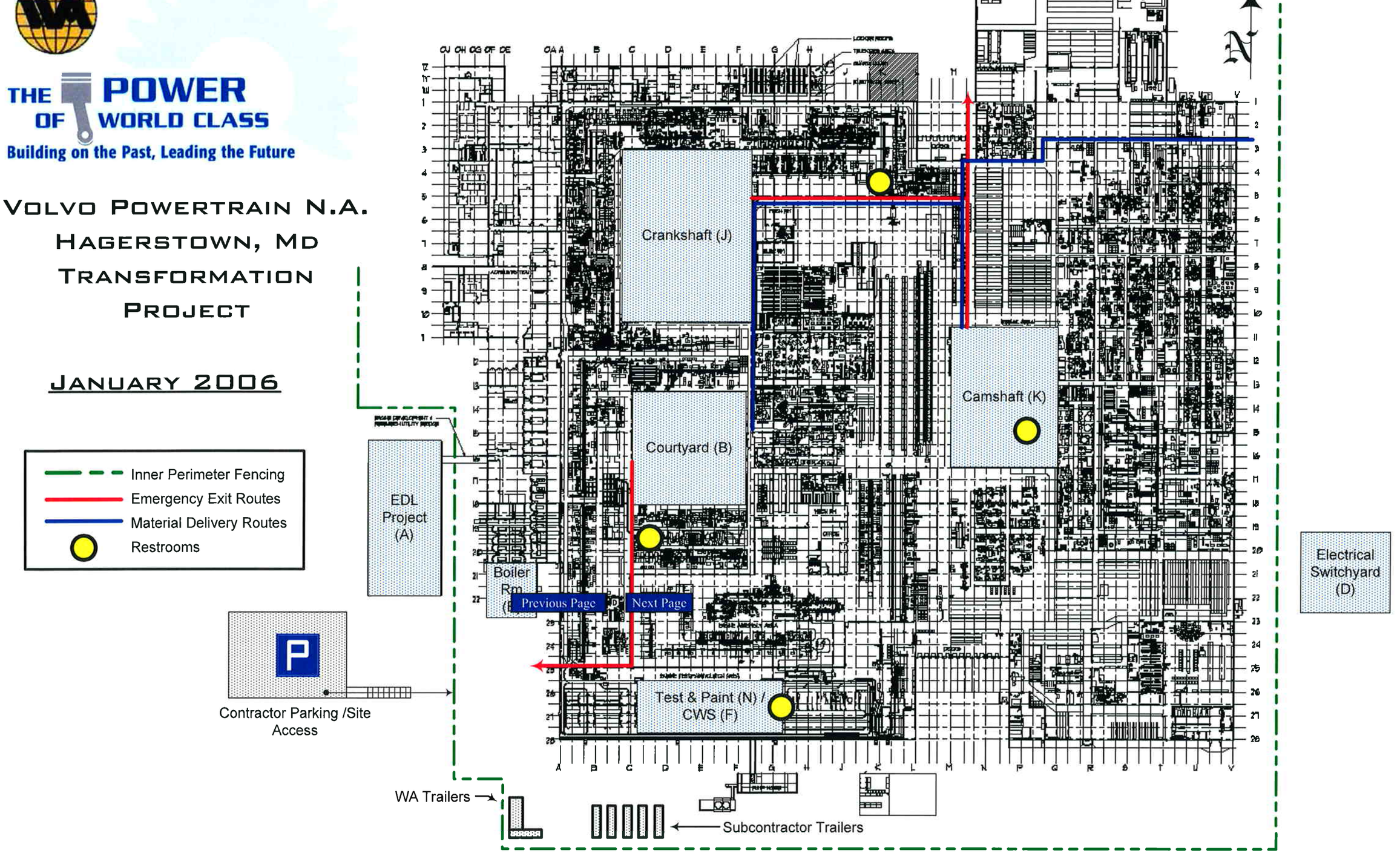
THE POWER OF WORLD CLASS

Building on the Past, Leading the Future

Volvo Powertrain N.A.
Hagerstown, MD
Transformation Project

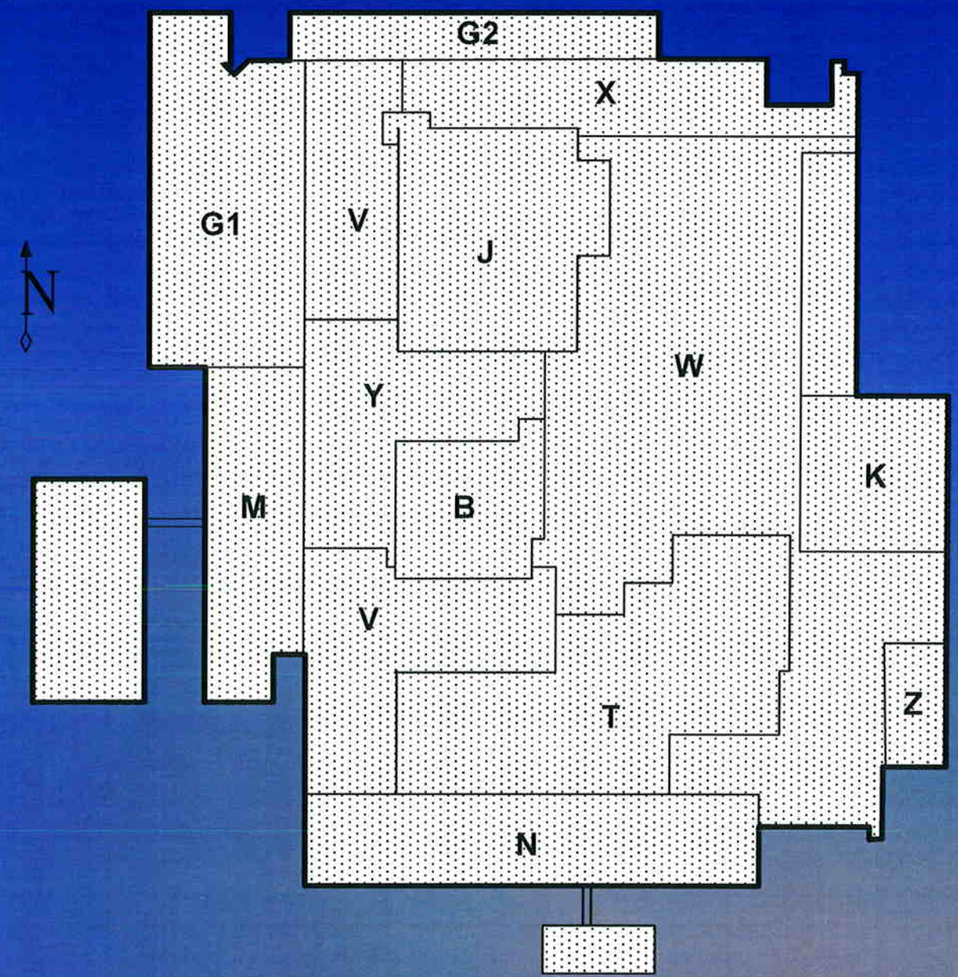
January 2006



Volvo Powertrain N.A., Inc
Transformation Project

Master Schedule Update
January 16th , 2006

- Executive Report
- Master Schedule – Phase 1 Projects
  - B – Courtyard
  - C – Stacker Demo
  - D – Power Distribution
  - E – Heating Water System
  - F – Cooling Water System
  - J – Crankshaft Department
  - K – Camshaft Department
  - N – Engine Test & Paint
  - Q – Re-Roofing Project
  - W – Material Handling / Storage
- Before/After Photo Comparison
- Progress Photos
- Plant Logistics Map



Click on a bullet item above to jump to the described document. Press "Ctrl+F" for a full text search.

Exit

Test & Paint – October 2005

Test & Paint – January 2006

Courtyard Office – April 2005

Courtyard Office – November 2005

Project Report January 2006	No. 11	Contract Award: October 2004 Substantial Completion: Dec 2007

Hagerstown Transformation

Reporting Period Through: January 16th, 2006	Construction Manager: WALBRIDGE ALDINGER

Project	Description of Progress
Courtyard	Courtyard successfully turned over to Volvo for occupancy. Final solution for Rickett's flooring repair ongoing.
Power Distribution	Switchyard major equipment, duct bank, and pole drilling and setting completed. Pole line cable pulls ongoing. Interior distribution package bids received with an award scheduled for 01.24.06.
Heating Water System	All Boilers fired and operational. Commissioning and owner training to complete the week of January 23rd, 2006.
Cooling Water System	CWS commissioning and testing ongoing. System construction completed as of January 3rd, 2006.
Crankshaft Dept.	Mezzanine mechanical work 95% complete. Aercology unit installation ongoing as units become available. Bathroom tile installation 70% complete. Area scheduled for completion by 1/31/06.
Camshaft Dept.	Architectural designs released to contractor. Demising wall and mezzanine construction ongoing.
Test & Paint	Bay 5 renovations and Cell 29 & 30 completed and turned over to production as of 1/3/06. Cells 31 & 32 to complete by 1/27/06, with cells 25-28 ready for production fit-up on 02.24.06.
Re-Roofing	Continuing with smoke vent and mechanical penetration installation as weather and deliveries permits.

Camshaft Demising Wall

Crankshaft AHU w/ Piping

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VOLVO

2006 Work – Preconstruction Schedule:

Development of Concept Level Work Scopes.....24Jan06

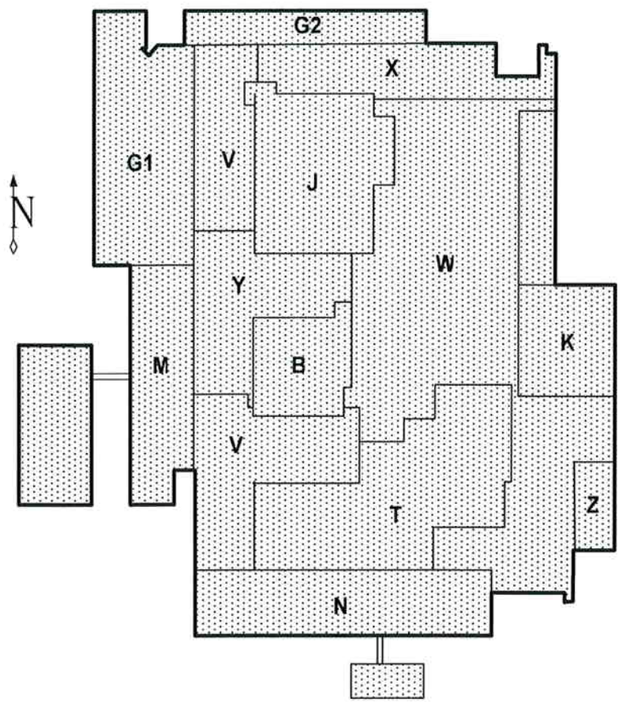
Alliance Estimates of Design Timing.....06Feb06

WA Develop Preliminary Estimates of Schedule/Cost.....13Feb06

Alliance Design.....28Feb06 - 24Apr06

Critical Path Items:

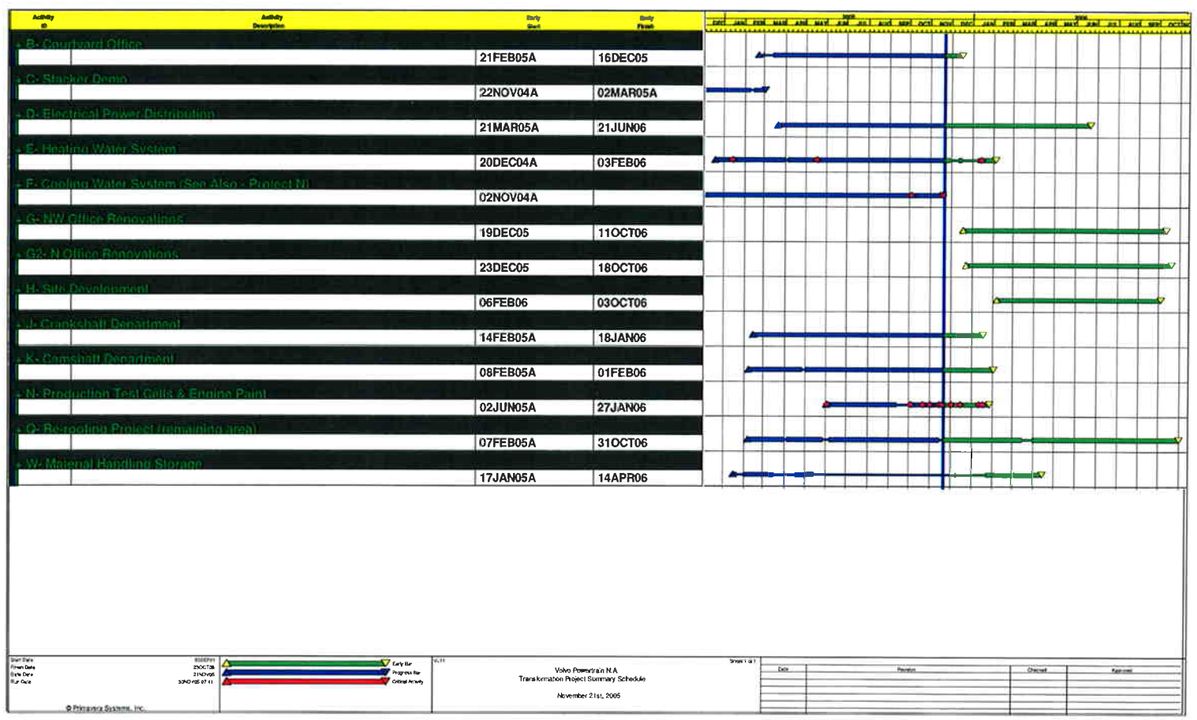
- Boiler commissioning and turn-over.
- Test & Paint Mech/Elec complete to Cells 3 & 4.
- Crank/Camshaft – Toilet room tile installation.
- Finalized Courtyard kitchen layout and design.

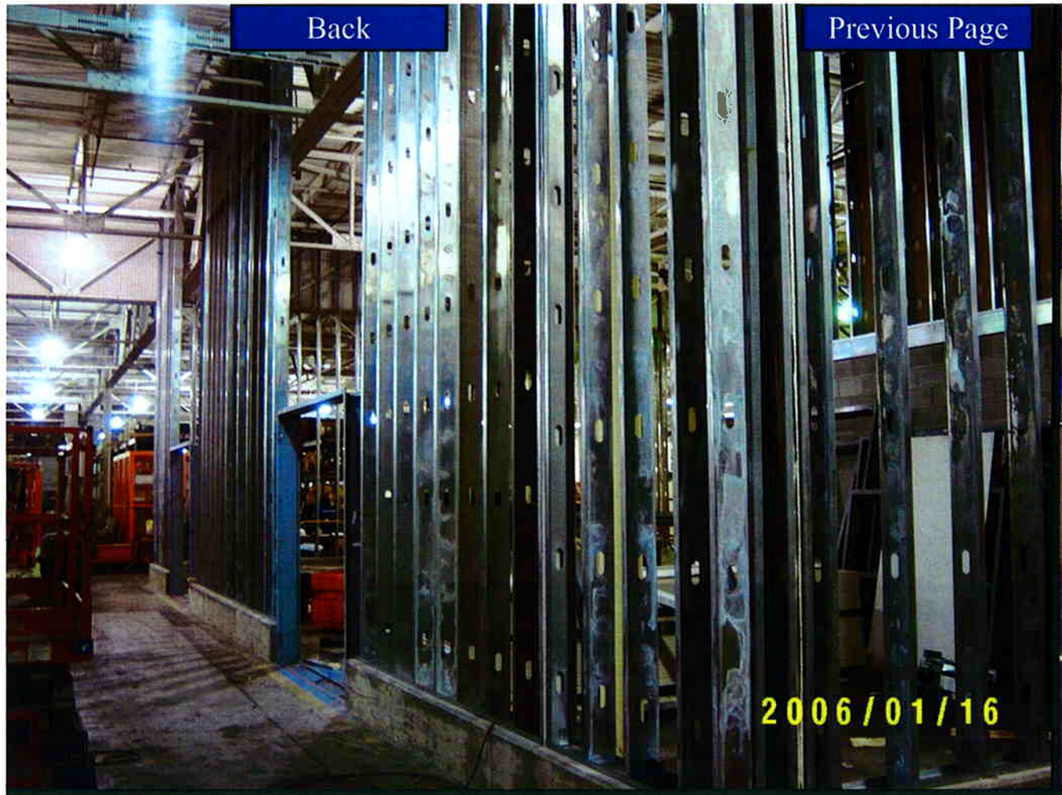


Project Directory

B – Courtyard Office
C – Stacker Demo
D – Electrical Power Distribution
E – Heating Water System
F – Cooling Water System
G1 – NW Office Renovations
G2 – N Office Renovations
H – Site Restorations
J – Crankshaft Department
K – Camshaft Department
N – Engine Test & Paint
Q – Re-Roofing Project
W – Material Handling & Storage

PROJECT SUMMARY SCHEDULE (January 16th, 2005)

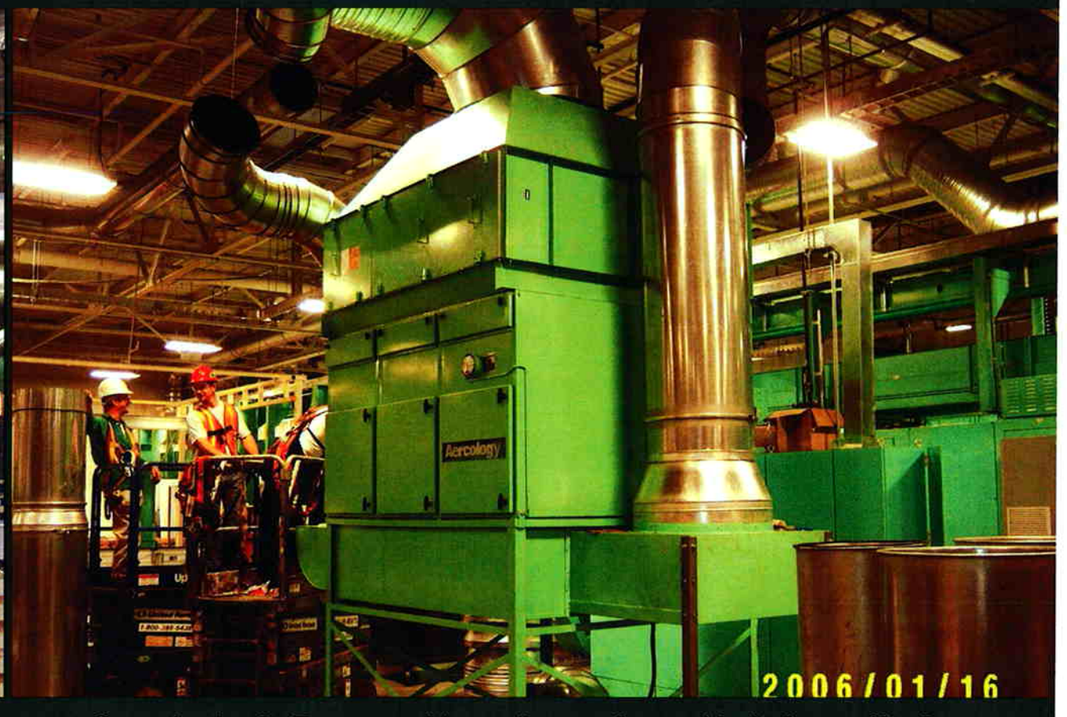




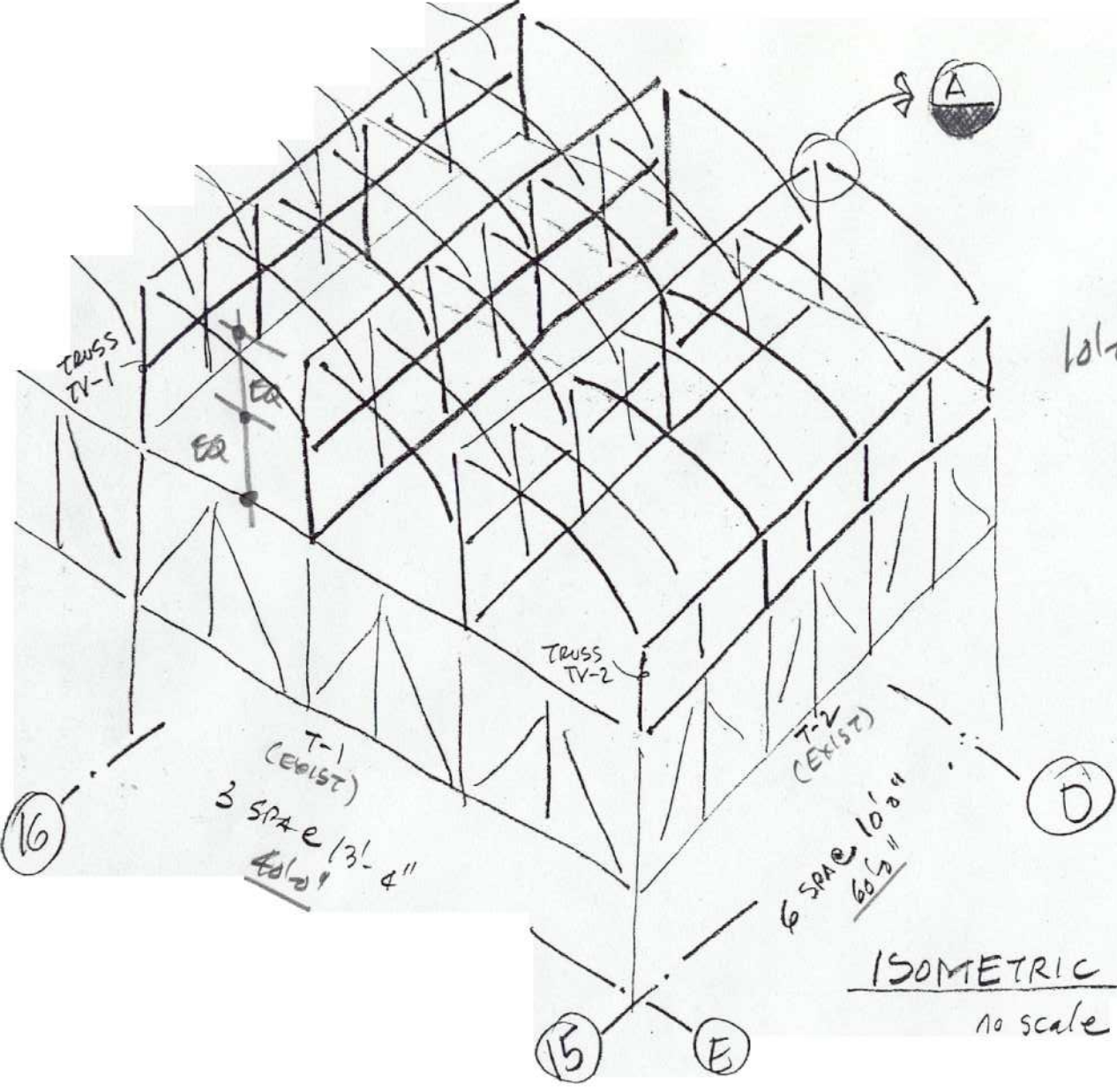
Camshaft Dept. – Demising Wall Construction

Crankshaft Dept. – AHU w/ Piping Connections

Crankshaft Line – New Gantry Line

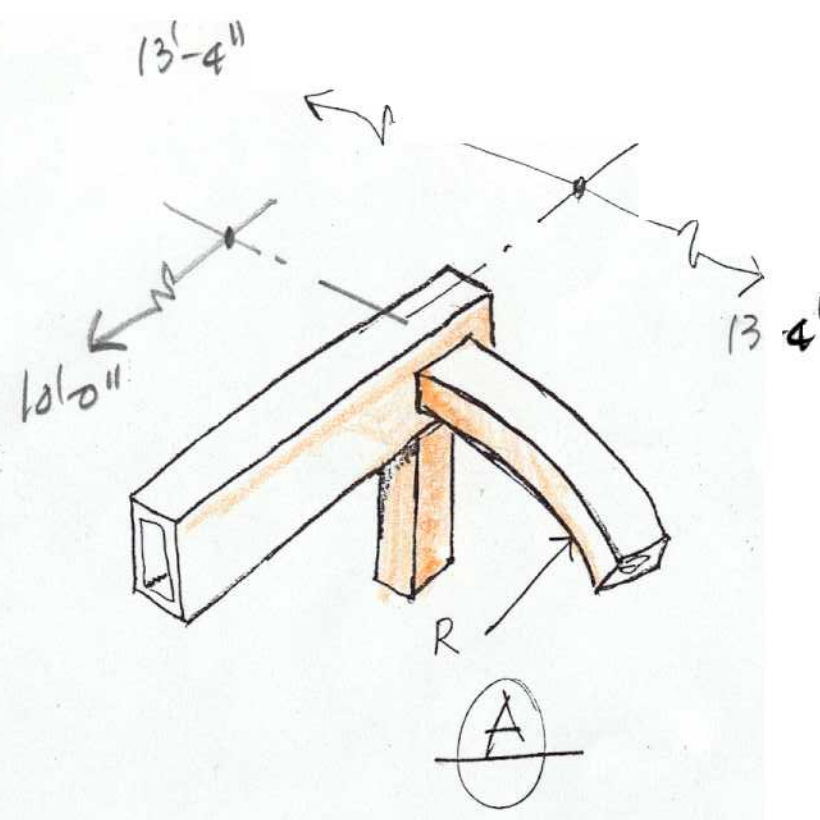


Crankshaft Dept. – New Aercology Unit Installation



ISOMETRIC

no scale



NOTE!!!

1, ALL VIERENDEEL TRUSSES COMPOSED OF SQUARE & RECTANGULAR TUBING

MACK TRUCKS, INC
PROPOSED ATRIUM FRAMING

NOTES:

1. SEE SHEET S-001 FOR WALL FRAMING TYPE LEGEND.
2. SEE SHEET A1.11 FOR WALL DIMENSIONS.
3. SEE SHEET S-201 AND S-202 FOR WALL TYPES 1 & 2 TYPICAL FRAMING ELEVATIONS.
4. SEE SHEET S-203,S-204, AND S-205 FOR TYPICAL FRAMED OPENING FRAMING ELEVATIONS.
5. SEE SHEET A5.01 FOR METAL STUD WALL TYPICAL CONTROL JOINT DETAILS. PLACE CONTROL JOINTS A MAXIMUM OF 30'-0" O.C. UNLESS OTHERWISE NOTED ON THE WALL DESIGNATION PLAN.
6. WALLS NOT HATCHED ARE NON-STRUCTURAL PARTITION WALLS. SEE ARCH DWGS FOR WALL LOCATIONS AND TYPICAL DETAILS.

HOLD

METAL STUD WALLS ON MEZZANINE ABOVE
SEE SHEET S-401 FOR ENLARGED DESIGNATION PLAN

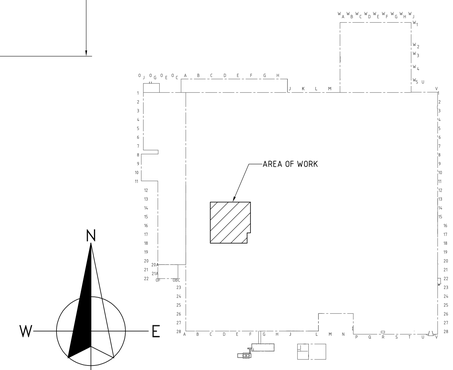
SIMILAR

SEE ENLARGED PLAN
ON SHEET S-403

METAL STUDS @ 12" O.C.
AT HOOD LOCATION

KNOCK-OUT

STRUCTURAL
WALL TYPE DESIGNATION PLAN
1/8" = 1'-0"



KEY PLAN
1" = 300'-0"

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OPERATIONS

COURTYARD
OFFICE
AREA

MARK	DATE	DESCRIPTION
6	11/18/05	PLUMBING REVISIONS
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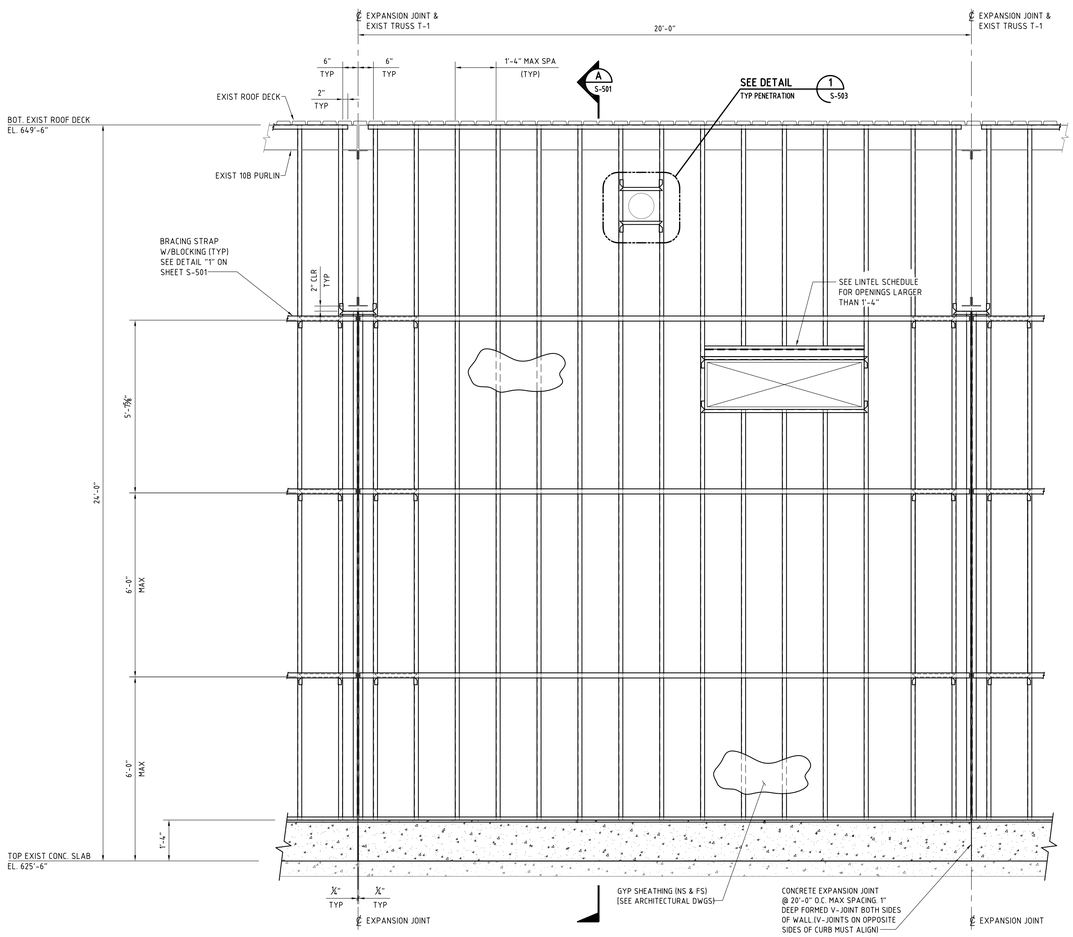
3	06/13/05	ADDENDUM NO. 3
2	05/06/05	ADDENDUM NO. 2
1	04/01/05	ADDENDUM NO. 1
0	02/28/05	ISSUED FOR CONSTRUCTION

PROJECT NO:	050410026
CAD DWG FILE:	410026-S-102.DWG
DRAWN BY:	JAC
CHECKED BY:	EF
PROJ. ENG:	EF
PROJ. MGR:	BPM
APPROVED BY:	

STRUCTURAL
WALL TYPE
DESIGNATION PLAN

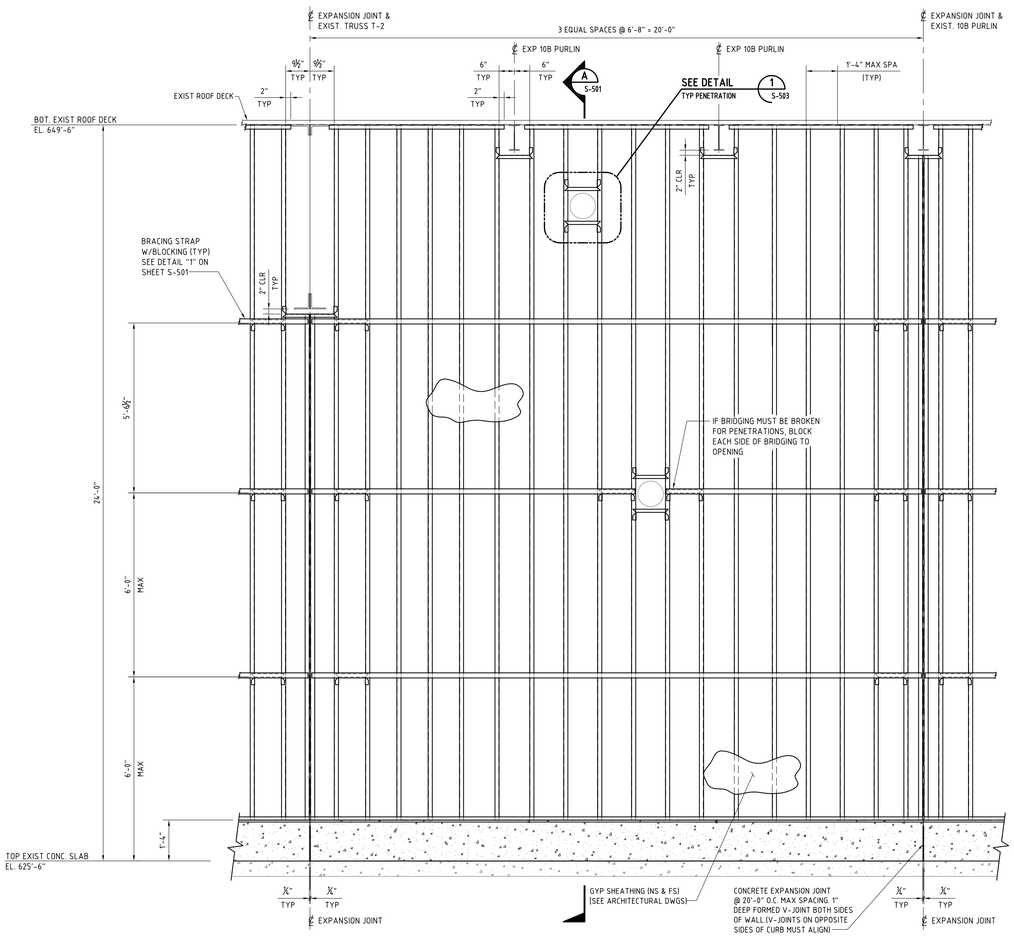
S-102



WALL TYPE 1 - NORTH/SOUTH TYPICAL FRAMING ELEVATION

1/2" = 1'-0"

NOTE:
1. SEE ARCH DWG AS.01 FOR TYPICAL CONTROL JOINT DETAILS.
2. SEE SHEET S-501 FOR TYPICAL WALL CONNECTION DETAILS.
3. METAL STUDS SPACED @ 1'-4" UNLESS OTHERWISE NOTED. CONTRACTOR SHALL BUILD WALL AROUND EXISTING AND NEW PIPES LEAVING OPENINGS AS REQUIRED. IF OPENING REQUIRED IS GREATER THAN 1'-4", SEE TYPICAL LINTEL DETAILS AND SCHEDULE.



WALL TYPE 1 - EAST/WEST TYPICAL ELEVATION

1/2" = 1'-0"

NOTE:
1. SEE ARCH DWG AS.01 FOR TYPICAL CONTROL JOINT DETAILS.
2. SEE SHEET S-501 FOR TYPICAL WALL CONNECTION DETAILS.
3. METAL STUDS SPACED @ 1'-4" UNLESS OTHERWISE NOTED. CONTRACTOR SHALL BUILD WALL AROUND EXISTING AND NEW PIPES LEAVING OPENINGS AS REQUIRED. IF OPENING REQUIRED IS GREATER THAN 1'-4", SEE TYPICAL LINTEL DETAILS AND SCHEDULE.

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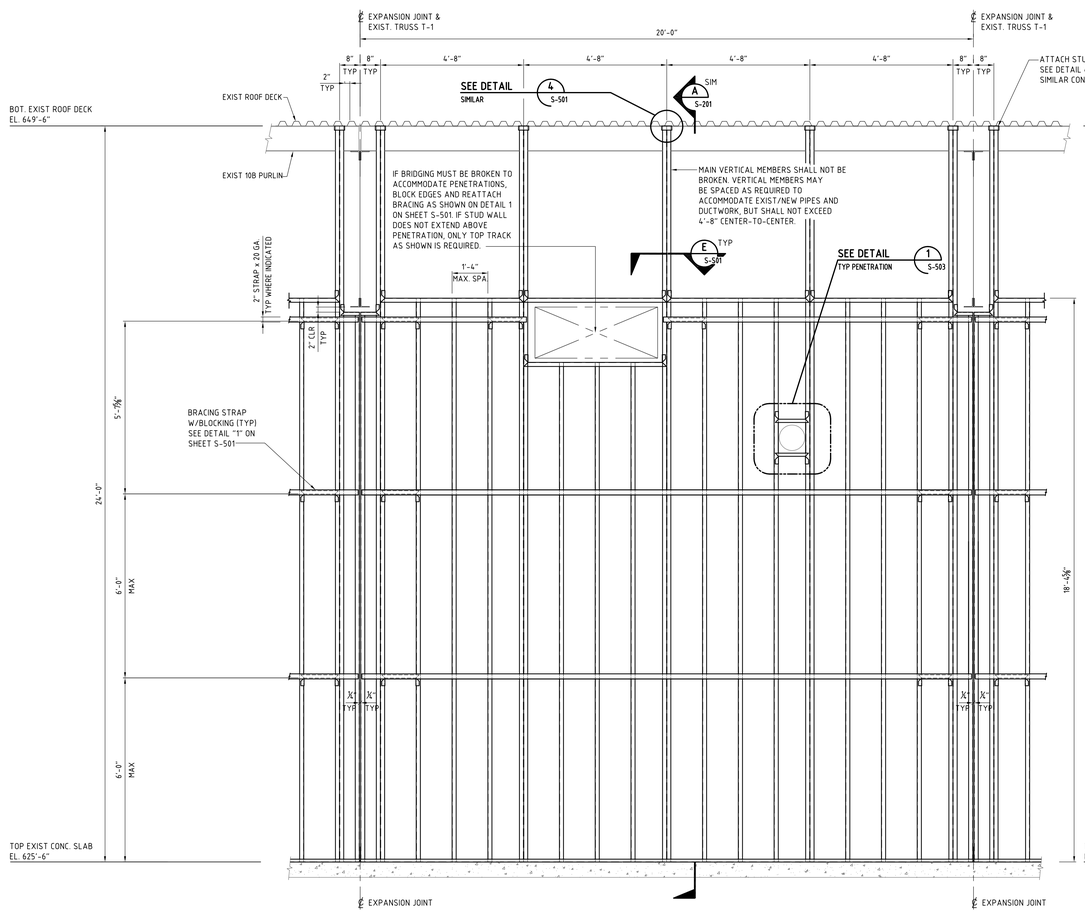
PROJECT NO:	050410026
CAD DWG FILE:	410026-S-201.DWG
DRAWN BY:	JAC
CHECKED BY:	EF
PROJ. ENG:	EF
PROJ. MGR:	BPM
APPROVED BY:	

WALL TYPE 1
TYPICAL ELEVATIONS

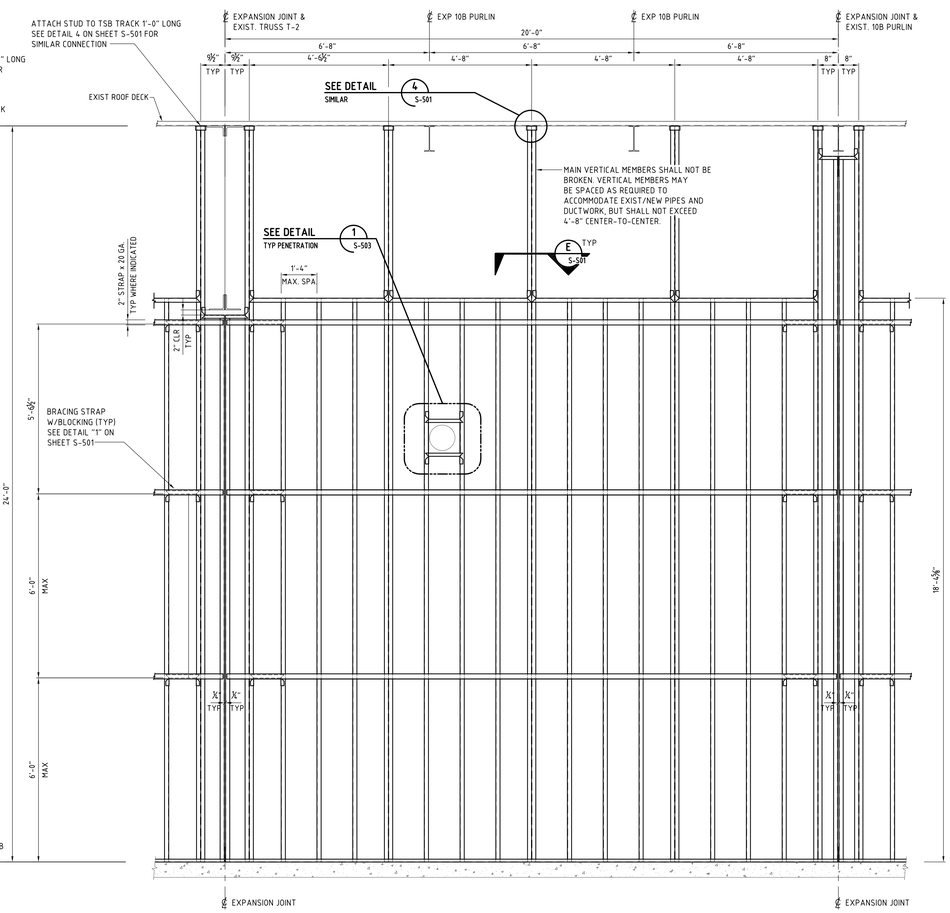
S-201



WALL TYPE 2 - NORTH/SOUTH TYPICAL ELEVATION

1/2" = 1'-0"

NOTE:
1. SEE ARCH DWG A5.01 FOR TYPICAL CONTROL JOINT DETAILS.
2. SEE SHEET S-501 FOR TYPICAL WALL CONNECTION DETAILS.
3. METAL STUDS SPACED @ 1'-4" UNLESS OTHERWISE NOTED. CONTRACTOR SHALL BUILD WALL AROUND EXISTING AND NEW PIPES LEAVING OPENINGS AS REQUIRED. IF OPENING REQUIRED IS GREATER THAN 1'-4", SEE TYPICAL LINTEL DETAILS AND SCHEDULE.



WALL TYPE 2 - EAST/WEST TYPICAL ELEVATION

1/2" = 1'-0"

NOTE:
1. SEE ARCH DWG A5.01 FOR TYPICAL CONTROL JOINT DETAILS.
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DRAWN BY:	DBC
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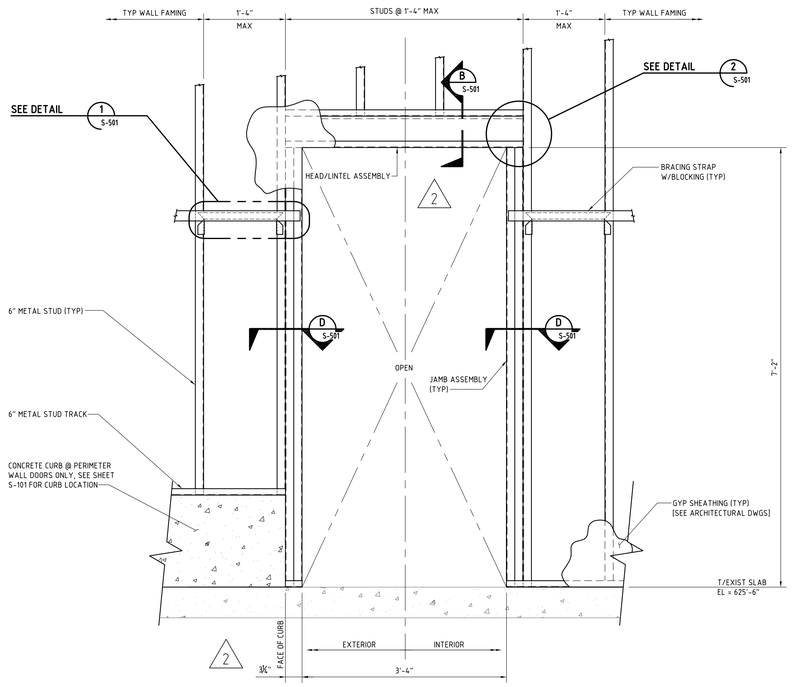
PROJ. MGR:	BPM
APPROVED BY:	

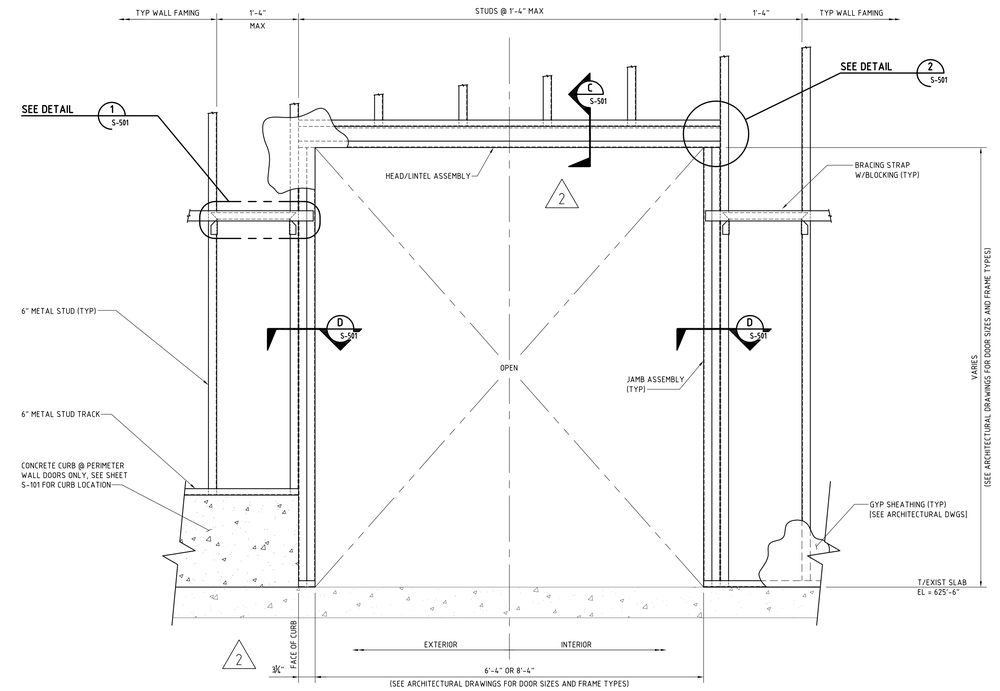
WALL TYPE 2
TYPICAL ELEVATIONS

S-202



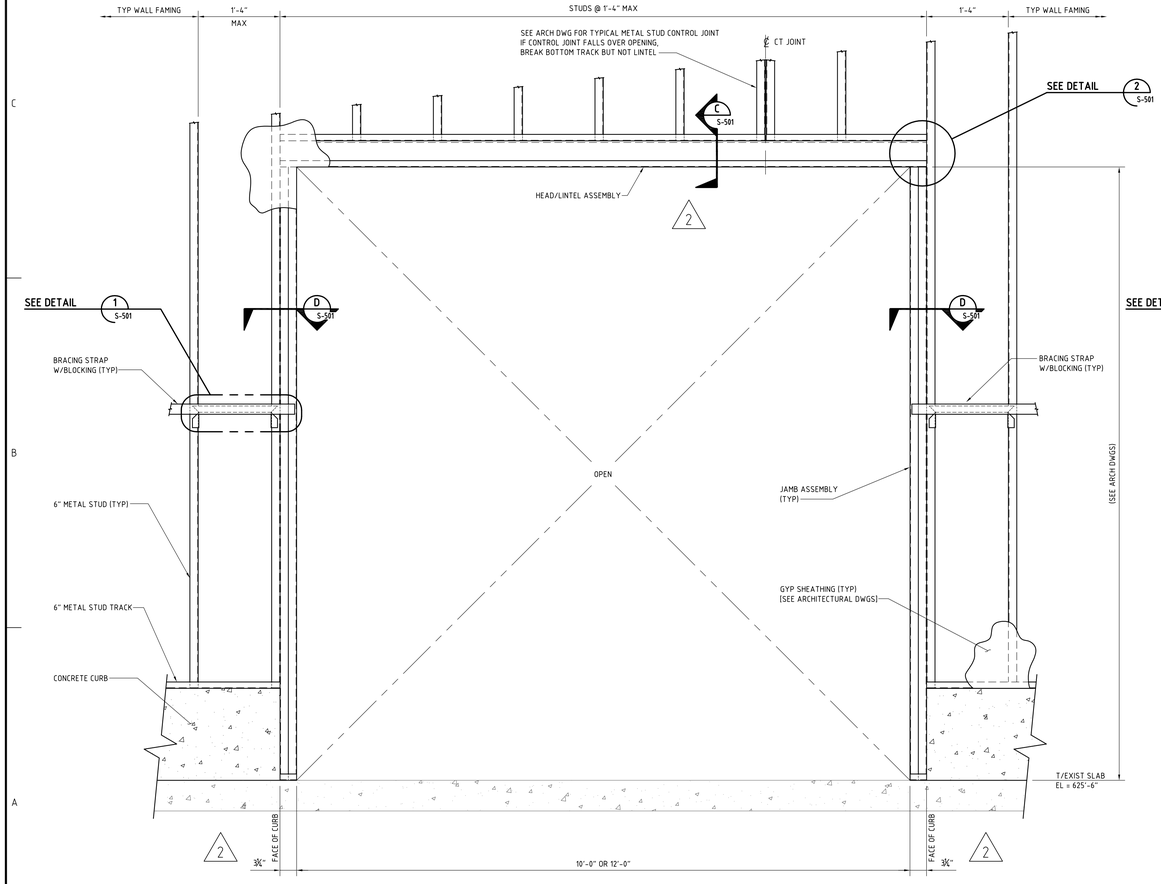
OPENING TYPE 101 FRAMING ELEVATION

1" = 1'-0"



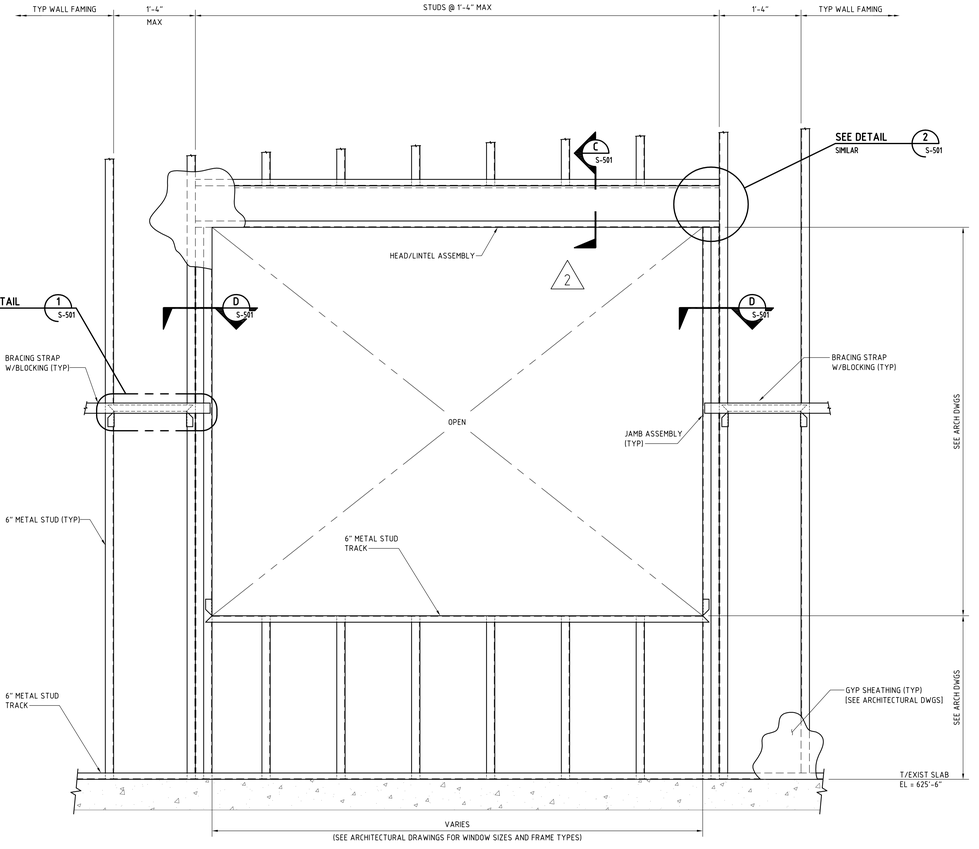
OPENING TYPE 102 FRAMING ELEVATION

1" = 1'-0"



OPENING TYPE 103 FRAMING ELEVATION

1" = 1'-0"



TYPICAL WINDOW FRAMED OPENING

1" = 1'-0"

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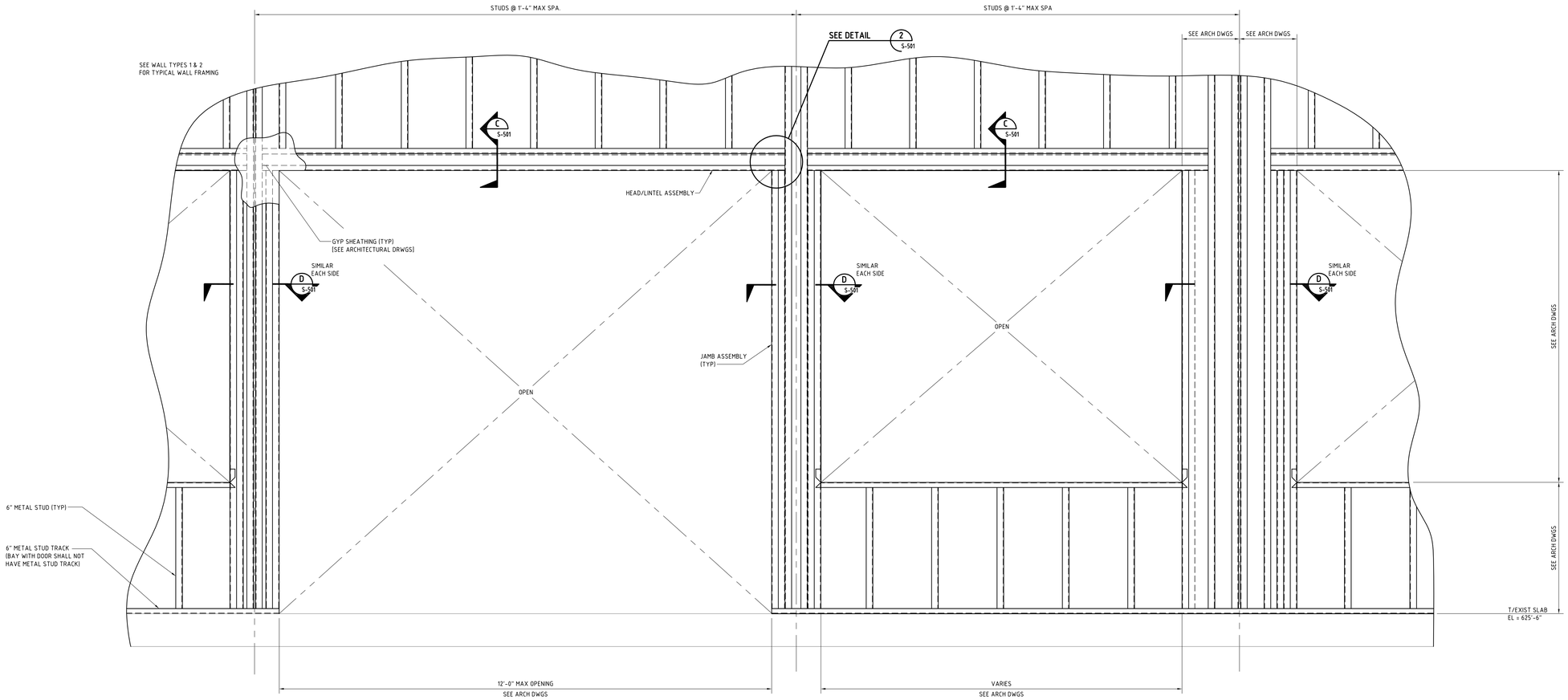
0	02/28/05	ISSUED FOR CONSTRUCTION

PROJECT NO:	050410026
CAD DWG FILE:	410026-S-203.DWG
DRAWN BY:	JAC
CHECKED BY:	EF
PROJ. ENG:	EF
PROJ. MGR:	BPM
APPROVED BY:	

OPENING TYPE
FRAMING ELEVATIONS

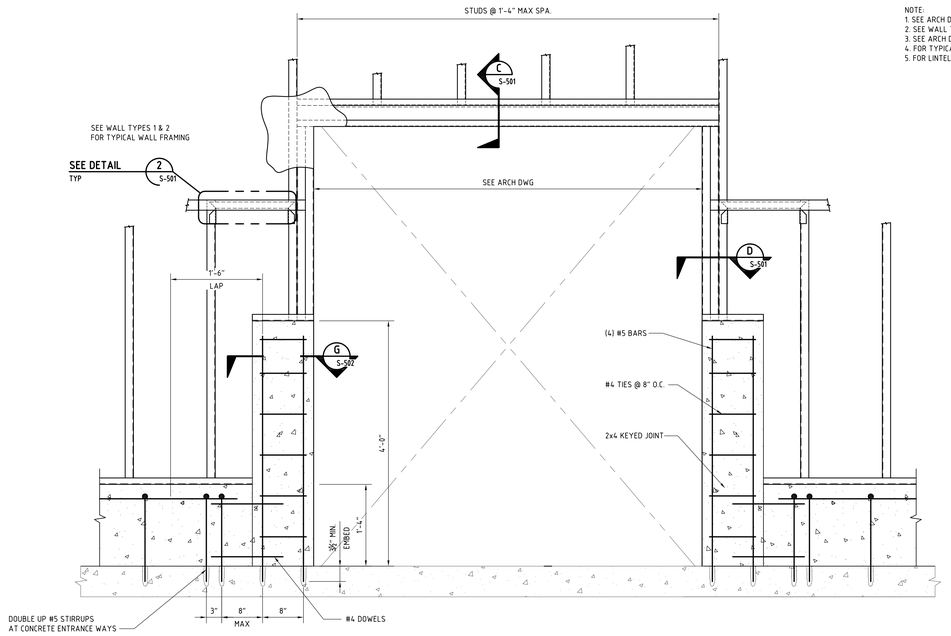
S-203



OPENING TYPE 102 AT SOUTH COURTYARD ELEVATION

1" = 1'-0"

NOTE:
1. SEE ARCH DWGS FOR TYPICAL WINDOW LOCATIONS.
2. SEE WALL TYPE ELEVATIONS FOR CONNECTIONS AT THE EXISTING ROOF DECK.
3. SEE ARCH DWGS FOR OPENING SCHEDULE AND HARDWARE
4. FOR TYPICAL LINTEL DETAILS, SEE SHEET S-501.
5. FOR LINTEL SCHEDULE SEE SHEET S-601.



OPENING TYPE 102 AT SOUTH COURTYARD ELEVATION

1" = 1'-0"

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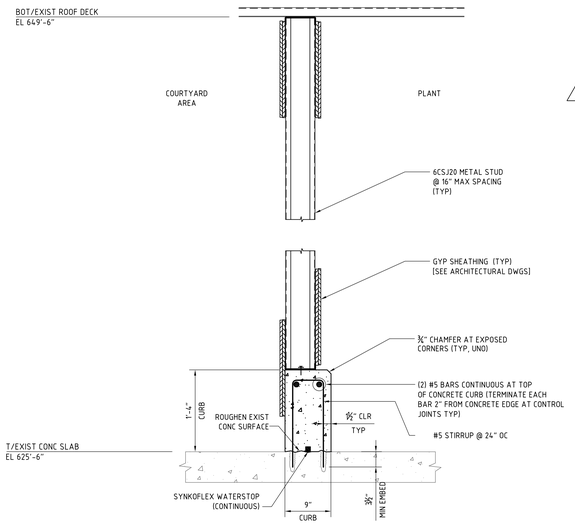
DRAWN BY:	DBC
CHECKED BY:	EF
PROJ. ENG:	EF
PROJ. MGR:	BPM
APPROVED BY:	

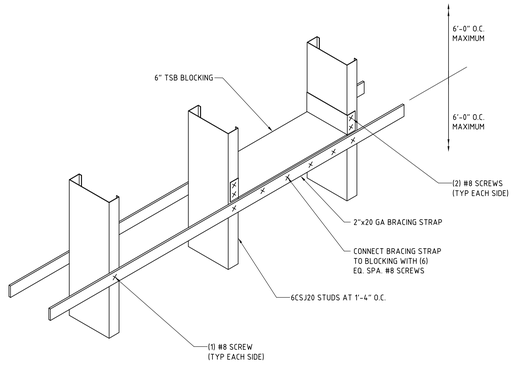
OPENING TYPE
FRAMING ELEVATIONS

S-204



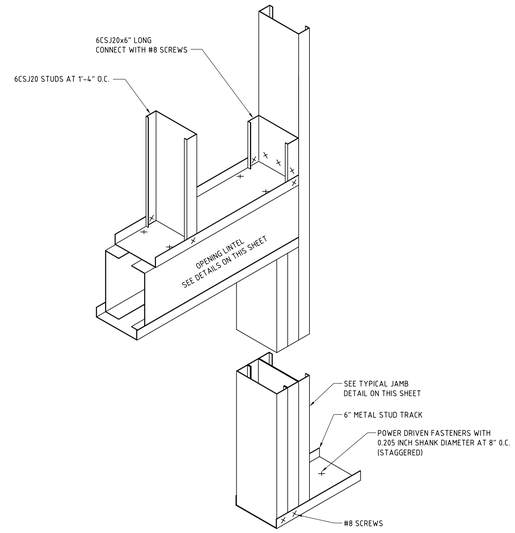
TYP CURB & WALL SECTION

SECTION A
1" = 1'-0" S-201 & S-202



TYP STRAP AND BLOCKING DETAIL

DETAIL 1
NTS S-201 & S-202

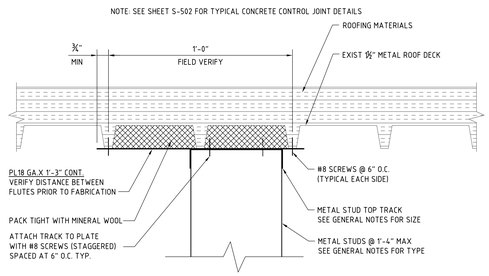


TYP HEAD/LINTEL AND JAMB ASSEMBLY

DETAIL 2
NTS S-203

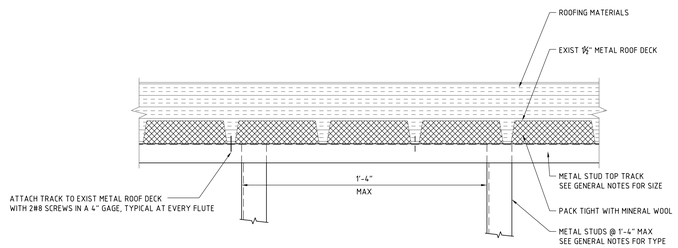
NOTE:
1. SEE SHEET S-601 FOR LINTEL AND FASTENER SCHEDULE.

NOTE: SEE SHEET S-502 FOR TYPICAL CONCRETE CONTROL JOINT DETAILS



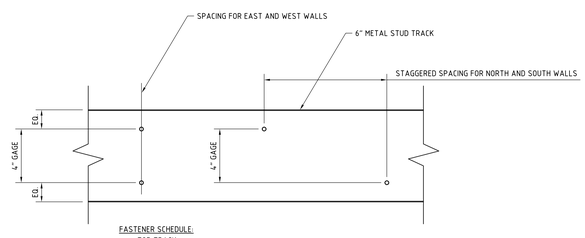
TYP TOP TRACK CONNECTION
TRACK RUNNING PARALLEL TO FLUTES (NORTH-SOUTH WALLS)

DETAIL 3
3" = 1'-0" S-201 & S-202



TYP TOP TRACK CONNECTION
TRACK RUNNING ACROSS FLUTES (EAST-WEST WALLS)

DETAIL 4
3" = 1'-0" S-201 & S-202

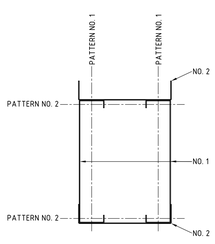


FASTENER SCHEDULE:
TOP TRACK
- EAST/WEST WALLS -- #8 SCREWS AT 12" O.C. (EVERY FLUTE)
- NORTH/SOUTH WALLS -- #8 SCREWS AT 6" O.C.
BOTTOM TRACK
- POWER DRIVEN FASTENER WITH 0.205 IN. SHANK DIAMETER @ 8" O.C.

TYP TRACK CONNECTION
ANCHOR SPACING

DETAIL 5
3" = 1'-0" S-201 & S-202

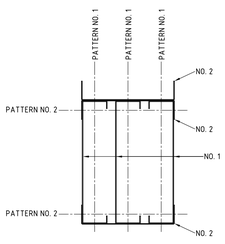
NOTE: SEE SHEET S-601 FOR TYPICAL FASTENER INFORMATION



LINTEL L-1

SECTION B
3" = 1'-0" S-203, S-204, & S-205

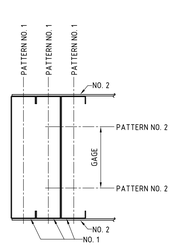
NOTE: SEE SHEET S-601 FOR METAL STUD FRAMING SCHEDULE



LINTEL L-2

SECTION C
3" = 1'-0" S-203, S-204, & S-205

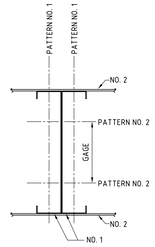
NOTE: SEE SHEET S-601 FOR METAL STUD FRAMING SCHEDULE



JAMB J-1

SECTION D
3" = 1'-0" S-203, S-204, & S-205

NOTE: SEE SHEET S-601 FOR METAL STUD FRAMING SCHEDULE



JAMB J-2

SECTION E
3" = 1'-0" S-203, S-204, & S-205

NOTE: SEE SHEET S-601 FOR METAL STUD FRAMING SCHEDULE

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OFFICE
AREA

MARK	DATE	DESCRIPTION
0	02/28/05	ISSUED FOR CONSTRUCTION
1	04/01/05	ADDENDUM NO. 1
2	05/06/05	ADDENDUM NO. 2
3	06/13/05	ADDENDUM NO. 3
4	07/29/05	ADDENDUM NO. 4
5	09/20/05	OWNER INITIATED CHANGES
6	11/18/05	PLUMBING REVISIONS

PROJECT NO:	050410026
CAD DWG FILE:	410026-S-501.DWG
DRAWN BY:	JAC
CHECKED BY:	EF
PROJ. ENG:	EF
PROJ. MGR:	BPM
APPROVED BY:	

METAL STUD WALL
DETAILS

S-501

STRUCTURAL LIGHT GAUGE PROPERTIES ①

Physical Structural Properties--10" C Studs

DIETRICH

MEMBER						GROSS SECTION PROPERTIES							EFFECTIVE SECTION PROPERTIES						TORSIONAL PROPERTIES				
													33 KSI			50 KSI							
CODE	GAGE	Flange (in.)	Lip (in.)	Design Thickness (in.)	Minimum Delivered Thickness (in.)	Weight (lb./ft.)	Area (in.²)	I_x (in.⁴)	S_x (in.³)	R_x (in.)	I_y (in.⁴)	S_y (in.³)	R_y (in.)	I_x (in.⁴)	S_x (in.³)	M_a (in.-lb.)	I_x (in.⁴)	S_x (in.³)	M_a (in.-lb.)	X_o (in.)	J 1000 (in.⁴)	C_w (in.⁶)	R_o (in.)	β BETA
CSJ	18	1-5/8	1/2	0.0451	0.0428	2.051	0.627	8.027	1.605	3.578	0.168	0.197	0.518	8.027	1.412	27905				-0.835	0.424	3.402	3.711	0.949
	16	1-5/8	1/2	0.0566	0.0538	2.562	0.783	9.953	1.992	3.566	0.204	0.152	0.511	9.956	1.991	44196	9.956	1.716	51370	-0.827	0.837	4.161	3.696	0.950
	14	1-5/8	1/2	0.0713	0.0677	3.199	0.978	12.323	2.465	3.550	0.245	0.186	0.502	12.323	2.464	56164	12.323	2.464	83535	-0.816	1.635	5.058	3.677	0.951
	12	1-5/8	1/2	0.1017	0.0966	4.505	1.357	17.090	3.418	3.523	0.325	0.245	0.486	17.090	3.417	81812	17.090	3.417	120760	-0.792	4.746	6.724	3.644	0.953
	10	1-5/8	1/2	0.1242	0.1180	5.456	1.668	20.505	4.101	3.506	0.376	0.286	0.475	20.505	4.099	100916	20.505	4.099	148874	-0.774	8.580	7.797	3.621	0.954
CSW	18	2	5/8	0.0451	0.0428	2.198	0.672	9.086	1.817	3.677	0.309	0.196	0.678	9.086	1.581	31248				-1.162	0.455	6.185	3.915	0.912
	16	2	5/8	0.0566	0.0538	2.748	0.840	11.287	2.257	3.666	0.378	0.240	0.671	11.287	2.257	49106	11.287	1.809	54178	-1.153	0.898	7.593	3.901	0.913
	14	2	5/8	0.0713	0.0677	3.452	1.049	13.991	2.797	3.652	0.460	0.292	0.662	13.991	2.797	62045	13.991	2.745	91163	-1.142	1.726	9.286	3.883	0.914
	12	2	5/8	0.1017	0.0966	4.938	1.479	19.459	3.892	3.628	0.616	0.392	0.646	19.459	3.889	90058	19.459	3.890	133745	-1.117	5.096	12.490	3.850	0.916
	10	2	5/8	0.1242	0.1180	5.865	1.793	23.388	4.678	3.612	0.722	0.490	0.634	23.388	4.676	111503	23.388	4.676	164480	-1.097	9.219	14.613	3.826	0.918
CSE	18	2-1/2	5/8	0.0451	0.0428	2.346	0.717	10.202	2.040	3.772	0.531	0.275	0.861	10.150	1.616	31942				-1.534	0.485	10.397	4.162	0.884
	16	2-1/2	5/8	0.0566	0.0538	2.933	0.896	12.687	2.537	3.762	0.653	0.339	0.854	12.687	2.279	45033	12.150	1.881	56312	-1.525	0.958	12.812	4.148	0.885
	14	2-1/2	5/8	0.0713	0.0677	3.685	1.120	15.747	3.149	3.749	0.799	0.415	0.844	15.747	3.053	68479	15.554	2.870	79941	-1.514	1.896	15.719	4.131	0.886
	12	2-1/2	5/8	0.1017	0.0966	5.170	1.560	21.950	4.390	3.727	1.082	0.582	0.828	21.950	4.388	98739	21.950	4.228	141724	-1.488	5.446	21.317	4.097	0.888
	10	2-1/2	5/8	0.1242	0.1180	6.271	1.917	26.417	5.283	3.712	1.277	0.664	0.816	26.417	5.282	121352	26.417	5.242	179082	-1.467	9.857	25.095	4.074	0.891
CSS	18	3	1	0.0451	0.0428	2.604	0.796	11.911	2.382	3.868	0.993	0.458	1.117	11.222	1.730	34292				-2.161	0.538	20.626	4.570	0.776
	16	3	1	0.0566	0.0538	3.257	0.996	14.822	2.965	3.860	1.228	0.565	1.110	14.726	2.665	52636	14.212	2.237	66875	-2.153	1.064	25.497	4.557	0.777
	14	3	1	0.0713	0.0677	4.073	1.245	18.442	3.688	3.849	1.512	0.697	1.102	18.442	3.643	71984	18.415	3.374	101025	-2.142	2.107	31.410	4.540	0.777
	12	3	1	0.1017	0.0966	5.752	1.758	25.779	5.156	3.829	2.074	0.958	1.086	25.779	5.154	113666	25.779	5.089	167660	-2.115	6.060	42.951	4.507	0.780
	10	3	1	0.1242	0.1180	6.982	2.134	31.080	6.216	3.816	2.467	1.137	1.075	31.080	6.214	139589	31.080	6.214	208018	-2.094	10.976	59.677	4.484	0.782
CSX	18	3-1/2	1	0.0451	0.0428	2.757	0.841	13.927	2.785	3.995	1.429	0.574	1.303	11.861	1.733	35496				-2.581	0.569	29.141	4.984	0.721
	16	3-1/2	1	0.0566	0.0538	3.442	1.052	16.232	3.246	3.928	1.769	0.710	1.297	15.781	2.757	54472	15.062	2.314	69267	-2.573	1.125	36.293	4.871	0.721
	14	3-1/2	1	0.0713	0.0677	4.306	1.316	20.198	4.040	3.917	2.184	0.876	1.288	20.198	3.822	75519	19.736	3.398	101751	-2.562	2.228	44.831	4.855	0.722
	12	3-1/2	1	0.1017	0.0966	6.085	1.860	28.269	5.654	3.899	3.009	1.207	1.272	28.269	5.647	102744	28.269	5.028	150540	-2.535	6.410	61.539	4.821	0.724
	10	3-1/2	1	0.1242	0.1180	7.389	2.258	34.109	6.822	3.886	3.691	1.441	1.261	34.109	6.819	150571	34.109	6.547	215953	-2.513	11.614	73.100	4.797	0.726

10" Track

TSB	18	1-1/4" LEG	0.0451	0.0428	1.831	0.560	5.610	1.290	3.410	0.047	0.043	0.291	5.088	0.882	17432				-0.384	0.379	0.956	3.444	0.988
	16	1-1/4" LEG	0.0566	0.0538	2.298	0.702	8.162	1.514	3.409	0.059	0.053	0.289	7.994	1.436	28379				-0.382	0.751	1.190	3.442	0.988
	14	1-1/4" LEG	0.0713	0.0677	2.886	0.882	10.236	2.018	3.407	0.073	0.066	0.287	10.236	1.963	38785				-0.380	1.493	1.477	3.440	0.988
	12	1-1/4" LEG	0.1017	0.0966	4.106	1.256	14.566	2.855	3.406	0.100	0.092	0.282	14.566	2.854	54202				-0.373	4.326	2.009	3.438	0.988
	10	1-1/4" LEG	0.1242	0.1180	5.015	1.533	17.793	3.472	3.407	0.119	0.111	0.278	17.793	3.471	79743				-0.367	7.582	2.453	3.438	0.989

Physical Structural Properties--6" C Studs

DIETRICH

MEMBER						GROSS SECTION PROPERTIES							EFFECTIVE SECTION PROPERTIES						TORSIONAL PROPERTIES				
													33 KSI			50 KSI							
CODE	GAGE	Flange (in.)	Lip (in.)	Design Thickness (in.)	Minimum Delivered Thickness (in.)	Weight (lb./ft.)	Area (in.²)	I_x (in.⁴)	S_x (in.³)	R_x (in.)	I_y (in.⁴)	S_y (in.³)	R_y (in.)	I_x (in.⁴)	S_x (in.³)	M_a (in.-lb.)	I_x (in.⁴)	S_x (in.³)	M_a (in.-lb.)	X_o (in.)	J 1000 (in.⁴)	C_w (in.⁶)	R_o (in.)	β BETA
CWN	20	1-3/8	3/8	0.0346	0.0329	1.047	0.329	1.597	0.532	2.204	0.070	0.065	0.466	1.597	0.513	10145				-0.820	0.128	0.496	2.425	0.886
	18	1-3/8	3/8	0.0451	0.0428	1.351	0.413	2.043	0.681	2.224	0.087	0.082	0.460	2.043	0.681	13016				-0.812	0.219	0.665	2.412	0.887
	16	1-3/8	3/8	0.0566	0.0538	1.682	0.514	2.519	0.840	2.214	0.106	0.099	0.452	2.519	0.840	16061	2.519	0.819	27587	-0.804	0.358	0.758	2.398	0.888
	14	1-3/8	3/8	0.0713	0.0677	2.061	0.639	3.094	1.031	2.202	0.125	0.117	0.443	3.094	1.031	24934	3.094	1.031	35649	-0.793	1.082	0.911	2.380	0.889
CSJ	20	1-5/8	1/2	0.0346	0.0329	1.132	0.345	1.808	0.603	2.286	0.118	0.097	0.583	1.808	0.538	11516				-1.088	0.138	0.855	2.599	0.825
	18	1-5/8	1/2	0.0451	0.0428	1.461	0.447	2.316	0.772	2.277	0.148	0.123	0.577	2.316	0.772	16764				-1.080	0.302	1.082	2.585	0.826
	16	1-5/8	1/2	0.0566	0.0538	1.821	0.557	2.862	0.954	2.268	0.181	0.149	0.570	2.862	0.954	21175	2.862	0.928	30753	-1.071	0.595	1.318	2.572	0.826
	14	1-5/8	1/2	0.0713	0.0677	2.266	0.693	3.524	1.175	2.255	0.215	0.180	0.561	3.524	1.174	26761	3.524	1.174	39811	-1.061	1.173	1.595	2.555	0.826
	12	1-5/8	1/2	0.1017	0.0966	3.174	0.970	4.841	1.614	2.234	0.287	0.237	0.544	4.841	1.613	38535	4.841	1.613	57017	-1.034	3.344	2.102	2.521	0.832
	10	1-5/8	1/2	0.1242	0.1180	3.833	1.171	5.773	1.924	2.220	0.333	0.275	0.533	5.773	1.924	47354	5.773	1.924	69858	-1.013	6.025	2.423	2.498	0.835
CSW	20	2	5/8	0.0346	0.0329	1.246	0.381	2.890	0.697	2.343	0.211	0.148	0.745	2.051	0.616	12049				-1.474	0.152	1.583	2.867	0.736
	18	2	5/8	0.0451	0.0428	1.609	0.492	2.683	0.894	2.336	0.268	0.188	0.739	2.683	0.874	17261				-1.467	0.333	2.011	2.855	0.736
	16	2	5/8	0.0566	0.0538	2.006	0.613	3.322	1.107	2.327	0.329	0.230	0.732	3.322	1.107	24082	3.322	1.004	30057	-1.459	0.656	2.462	2.842	0.737
	14	2	5/8	0.0713	0.0677	2.490	0.764	4.099	1.366	2.316	0.400	0.280	0.723	4.099	1.366	30395	4.099	1.337	44351	-1.448	1.293	2.995	2.826	0.737
	12	2	5/8	0.1017	0.0966	3.567	1.072	5.656	1.885	2.297	0.536	0.375	0.707	5.656	1.885	43825	5.656	1.885	64788	-1.421	3.694	3.995	2.792	0.741
	10	2	5/8	0.1242	0.1180	4.309	1.296	6.762	2.254	2.284	0.628	0.440	0.696	6.762	2.253	53499	6.762	2.253	79242	-1.399	6.663	4.646	2.768	0.744
CSE	20	2-1/2	5/8	0.0346	0.0329	1.359	0.415	2.399	0.800	2.403	0.359	0.206	0.930	2.267	0.636	12577				-1.905	0.166	2.550	3.204	0.647
	18	2-1/2	5/8	0.0451	0.0428	1.756	0.537	3.082	1.027	2.396	0.458	0.263	0.923	3.064	0.918	16149				-1.897	0.363	3.377	3.193	0.647
	16	2-1/2	5/8	0.0566	0.0538	2.192	0.670	3.822	1.274	2.389	0.563	0.323	0.917	3.822	1.159	22909	3.636	1.069	32018	-1.889	0.716	4.148	3.180	0.647
	14	2-1/2	5/8	0.0713	0.0677	2.723	0.835	4.726	1.575	2.379	0.688	0.395	0.908	4.726	1.522	33141	4.667	1.343	40195	-1.878	1.414	5.068	3.164	0.648
	12	2-1/2	5/8	0.1017	0.0966	3.849	1.174	6.540	2.180	2.361	0.932	0.535	0.891	6.540	2.179	49029	6.540	2.090	70069	-1.851	4.045	6.818	3.130	0.650
	10	2-1/2	5/8	0.1242	0.1180	4.646	1.420	7.834	2.611	2.349	1.100	0.631	0.880	7.834	2.610	59976	7.834	2.589	86453	-1.828	7.302	7.981	3.104	0.653
CSS	20	3	1	0.0346	0.0329	1.557	0.476	2.631	0.944	2.439	0.656	0.340	1.174	2.489	0.634	12533				-2.619	0.190	5.724	3.767	0.516
	18	3	1	0.0451	0.0428	2.014	0.616	3.644	1.215	2.433	0.841	0.435	1.169	3.436	0.997	19704				-2.613	0.417	7.317	3.756	0.516
	16	3	1	0.0566	0.0538	2.516	0.769	4.526	1.509	2.426	1.039	0.537	1.162	4.486	1.398	26999	4.308	1.262	37108	-2.606	0.822	9.020	3.745	0.516
	14	3	1	0.0713	0.0677	3.141	0.969	5.608	1.869	2.417	1.279	0.661	1.154	5.608	1.847	36376	5.587	1.701	50920	-2.596	1.625	11.072	3.730	0.516
	12	3	1	0.1017	0.0966	4.422	1.351	7.790	2.597	2.401	1.753	0.906	1.139	7.790	2.595	52733	7.790	2.564	84479	-2.570	4.658	15.030	3.697	0.517
	10	3	1	0.1242	0.1180	5.357	1.637	9.353	3.118	2.389	2.085	1.077	1.128	9.353	3.116	69959	9.353	3.115	104259	-2.547	8.420	17.708	3.671	0.519
CSX	20	3-1/2	1	0.0346	0.0329	1.670	0.511	3.139	1.046	2.480	0.939	0.423	1.356	2.881	0.632	12876				-3.085	0.204	8.130	4.164	0.456
	18	3-1/2	1	0.0451	0.0428	2.162	0.661	4.043	1.348	2.474	1.205	0.543	1.351	3.697	1.044	20634				-3.079	0.447	10.408	4.124	0.456
	16	3-1/2	1	0.0566	0.0538	2.701	0.826	5.026	1.675	2.467	1.492	0.671	1.344	4.863	1.442	28491	4.643	1.324	39034	-3.071	0.883	12.851	4.103	0.456
	14	3-1/2	1	0.0713	0.0677	3.374	1.031	6.234	2.078	2.459	1.840	0.827	1.336	6.234	1.947	38465	6.070	1.760	52689	-3.062	1.746	15.808	4.148	0.455
	12	3-1/2	1	0.1017	0.0966	4.754	1.493	8.675	2.892	2.443	2.533	1.138	1.320	8.675	2.888	52765	8.675	2.537	75972	-3.036	5.008	21.543	4.115	0.456
	10	3-1/2	1	0.1242	0.1180	5.763	1.761	10.425	3.475	2.433	3.022	1.358	1.310	10.425	3.473	76680	10.425	3.336	110064	-3.013	9.059	25.455	4.088	0.457

6" Track

TSB	20	1-1/4" LEG	0.0346	0.0329	0.956	0.292	1.893	0.459	2.183	0.034	0.032	0.340	1.239	0.326	6435				-0.524	0.117	0.231	2.271	0.947
	18	1-1/4" LEG	0.0451	0.0428	1.242	0.379	1.808	0.594	2.183	0.043	0.041	0.338	1.688	0.595	9970				-0.522	0.257	0.299	2.270	0.947
	16	1-1/4" LEG	0.0566	0.0538	1.557	0.476	2.787	0.742	2.183	0.054	0.052	0.336	2.206	0.671	13257				-0.520	0.509	0.371	2.269	0.948
	14	1-1/4" LEG	0.0713	0.0677	1.953	0.597	2.843	0.926	2.182	0.067	0.064	0.334	2.843	0.891	17611				-0.517	1.011	0.461	2.267	0.948
	12	1-1/4" LEG	0.1017	0.0966	2.778	0.849	4.050	1.356	2.184	0.092	0.089	0.328	4.050	1.305	29367				-0.509	2.926	0.643	2.267	0.950
	10	1-1/4" LEG	0.1242	0.1180	3.389	1.036	4.955	1.586	2.187	0.109	0.107	0.324	4.955	1.585	36426				-0.501	5.327	0.773	2.267	0.951

① THESE PROPERTIES AND MANUFACTURERS CAN NOT BE CHANGED OR SUBSTITUTED

LINTEL AND JAMB SCHEDULE

DETAIL MARK	Element No. 1	Element No. 2	Fastener Pattern No. 1	Fastener Pattern No. 2	GENERAL REMARKS
B/S501	CSJ6x20	TSB6x20	#8@4" oc	#8@12" oc	Typical Lintel L-1
C/S501	CSJ10x18	TSB6x18	#8@6" oc	#8@12" oc	Typical Lintel L-2
D/S501	CSJ6x20	2"x20ga STRAP Vertically spaced @ 6'-0" Max.	1#8 @ Strap	#8@6" oc w/ a 4" gage	Typical Jamb J-1 Note: gage shown is to be centered on assembly – work w/ S501
E/S501	CSJ6x20	2"x20ga STRAP Vertically spaced @ 6'-0" Max.	1#8 @ Strap	#8@6" oc w/ a 4" gage	Typical Jamb J-2 Note: gage shown is to be centered on assembly - work w/ S501

FASTENER TYPE AND MINIMUM PERFORMANCE VALUES ①

DIETRICH

Fastener Information

Suggested Design Loads for Screw Connections (lbs.)

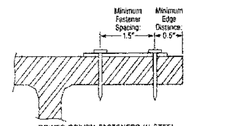
Steel Gage	No. 12-14 Diameters = 0.210 in.		No. 10-16 Diameters = 0.190 in.		No. 8-18 Diameters = 0.164 in.	
	Shear	Pullout	Shear	Pullout	Shear	Pullout
12	662	408	466	369	—	—
14	625	266	466	242	—	—
16	500	189	423	177	359	166
18	409	138	362	175	305	118
20	266	85	243	75	229	71

NOTES:
1. Shear and pullout strengths are based on average test results divided by a safety factor of 3.0 for shear and 4.0 for pullout. Reduced capacities based on a higher factor of safety can be used at your engineers discretion.
2. Screw spacing and edge distance shall not be less than 1.5"Dia. nor less than P/.0"Fy/t where P is the shear load per screw and t is the thickness of the steel sheet.
3. When connecting materials of different gage, use the loads shown for the lighter gage.
4. Screw capacities are based on Fy = 33 ksi for the steel sheet.
5. Ultimate screw capacities are per ITW Buildex Test No. 845.

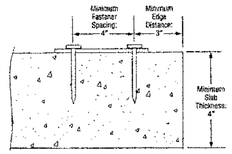
Suggested Pullout or Shear Capacity for Power Driven Fasteners in Structural Steel (lbs.)

Steel Gage	Shank Diameter (in.)								
	.145			.177			.295		
	Steel Thickness (in.)								
	1/4	3/8	1/2	1/4	3/8	1/2	1/4	3/8	1/2
12	210	210	210	335	395	395	485	525	660
14	210	210	210	335	395	395	485	525	581
16	210	210	210	335	395	395	465	465	465
18	210	210	210	321	321	321	372	372	372
20	197	197	197	241	241	241	279	279	279

NOTES:
1. Capacities shown are uninspected shear values per Hilti ICBO Research Report No. 2388.
2. Tests were conducted with the fastener point driven completely through the back side of the hot rolled steel member. This was required to obtain proper gripping force.
3. Values may not be increased 1/3 for wind or seismic loads.
4. Bearing strength is based on the bearing area multiplied by 1.15 times 33 ksi.



POWER DRIVEN FASTENERS IN STEEL



POWER DRIVEN FASTENERS IN CONCRETE

Table A–Suggested Design Loads for Power Driven Fasteners in Concrete (lbs.)

Shank Diameter (in.)	Minimum Penetration (in.)	Loading	Concrete Comp. Strength (psi)		
			2000	3000	4000
0.145	1-1/8	Pullout	90	115	145
		Shear	160	225	265
0.177	1-7/16	Pullout	150	150	150
		Shear	250	285	330
0.205	1-1/4	Pullout	150	150	150
		Shear	390	445	500

Table B–Suggested Design Bearing Strength (lbs.)

Shank Diameter (in.)	Steel Gage		
	20	18	16
0.145	207	—	—
0.177	253	—	—
0.205	293	390	488

NOTES:
1. Capacities are for stone aggregate concrete and are based on a low velocity shot.
2. Values may not be increased 1/3 for wind or seismic loads.
3. Capacities shown are based on uninspected values of Hilti ICBO Research Report No. 2388.
4. For Shear/Bearing, check Table A values versus Table B values and use the minimum value. If a value is left blank or is not listed in Table B, use the value in Table A.

Suggested Design Loads for Fillet and Flare-Bevel Groove Welds

Steel Gage	Design Thickness (in.)	Weld Size (in.)	Weld Strength (lb./in.)	
			Fillet	Flare-bevel Groove
10	0.1242	3/16	1228	982
12	0.1017	5/32	1007	806
14	0.0713	1/8	706	565
16	0.0566	1/8	560	448
18	0.0451	1/8	447	358

WELD NOTES:
1. Welds can be positioned in shear or tension.
2. Weld strength for fillet = .3*Fy*t.
3. Weld strength for flare-bevel groove = .3*Fy*t*1.25.
4. Values shown are for Fy = 33 ksi. For Fy = 40 ksi multiply tabulated values by 1.33. For Fy = 50 ksi multiply tabulated values by 1.52
5. Flare-bevel groove welds occur between the outside radius of one piece and a flat surface of another piece.

① THESE VALUES ARE ACTUAL ALLOWABLE LOADS

NOTE: USE TABLE ONLY IF APPLICABLE WITH THESE DESIGN DOCUMENTS.

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COURTYARD OFFICE AREA

MARK	DATE	DESCRIPTION
6	11/18/05	PLUMBING REVISIONS
5	09/20/05	OWNER INITIATED CHANGES
4	07/29/05	ADDENDUM NO. 4
3	06/13/05	ADDENDUM NO. 3
2	05/06/05	ADDENDUM NO. 2
1	04/01/05	ADDENDUM NO. 1
0	02/28/05	ISSUED FOR CONSTRUCTION

PROJECT NO:	050410026
CAD DWG FILE:	410026-S-601.DWG
DRAWN BY:	EF
CHECKED BY:	EF
PROJ. ENG:	EF
PROJ. MGR:	BPM
APPROVED BY:	

GENERAL DETAILS
STRUCTURAL SCHEDULES

S-601