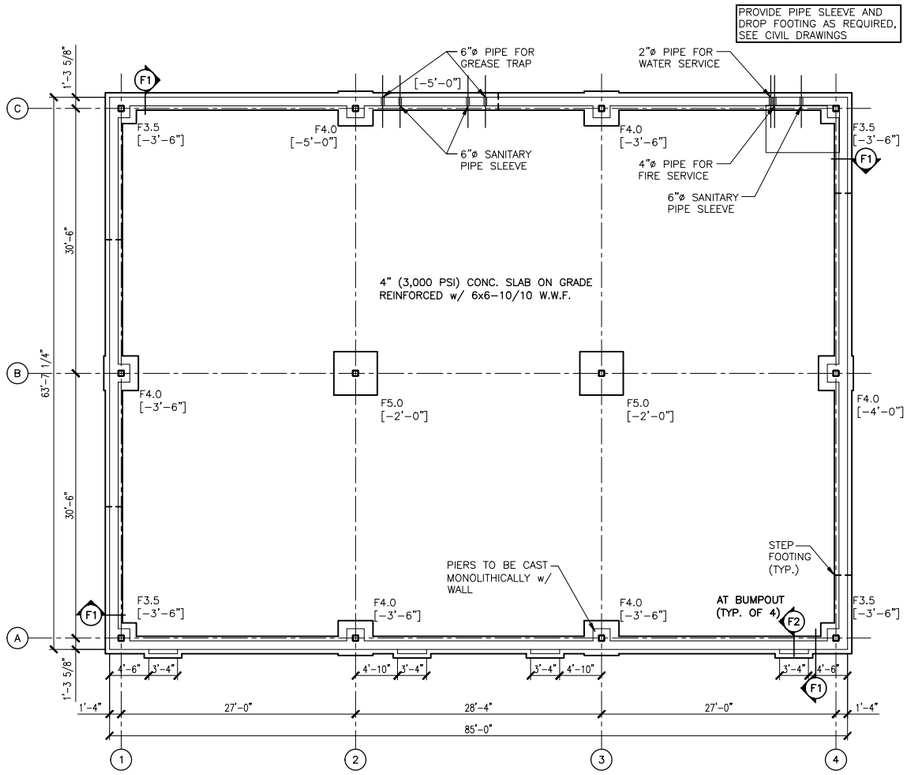


FOUNDATION PLAN

1/8"=1'-0"

1. BOTTOM OF FOOTING ELEVATIONS NOTED THUS [-.....] DENOTES DISTANCE BELOW FINISHED GROUND FLOOR DATUM 0'-0" = ACTUAL ELEV. 118.00'.
2. ALL PIERS TO BE 26"x24" CONCRETE REINFORCED W/ 12-#6 VERTICAL BARS + #3 TIES @ 12"o/c. PROVIDE 12-#6 DOWELS FROM FOOTING TO PIER.
3. SOIL INFORMATION HAS BEEN TAKEN FROM A REPORT BY COLLIERS ENGINEER & DESIGN; DATED APRIL 27, 2023; REFER TO SOILS REPORT FOR ADDITIONAL RECOMMENDATION.

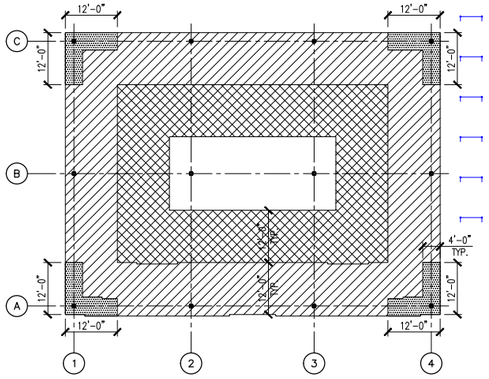
FOOTING SCHEDULE

MARK	SIZE	REINFORCEMENT
F3.5	3'-6"x3'-6"x1'-0"	3-#6 BOTT. E.W.
F4.0	4'-0"x4'-0"x1'-0"	6-#5 BOTT. E.W.
F5.0	5'-0"x5'-0"x1'-0"	7-#6 BOTT. E.W.

WALL FOOTING SCHEDULE

ALL FTGS. FOR WALL	2'-0" WIDE x 1'-0" THICK CONT.	2-#5 BOTT. CONT.

NOTE:
MINIMUM SAFE ALLOWABLE BEARING CAPACITY ON VIRGIN SOIL OR ENGINEER CONTROLLED COMPACTED FILL TO BE 3,000 PSF.

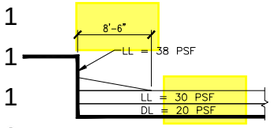


ROOF UPLIFT KEY PLAN

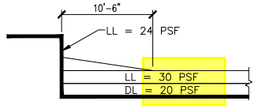
1/16"=1'-0"

1. VALUES IN PSF SHOWS NET UPLIFT VAULES.
2. ▨ – INDICATE 43 PSF WITH 36/7 (36" WIDE DECK WITH 7 WELDS PER SHEET WIDTH).
3. ▤ – INDICATE 35 PSF WITH 36/7 (36" WIDE DECK WITH 7 WELDS PER SHEET WIDTH).
4. ▩ – INDICATE 23 PSF WITH 36/5 (36" WIDE DECK WITH 5 WELDS PER SHEET WIDTH).
5. ▥ – INDICATE 14 PSF WITH 36/4 (36" WIDE DECK WITH 4 WELDS PER SHEET WIDTH).
6. SIDE LAP FASTENERS TO BE SPACED @ 1'-0" ON-CENTER MAXIMUM.

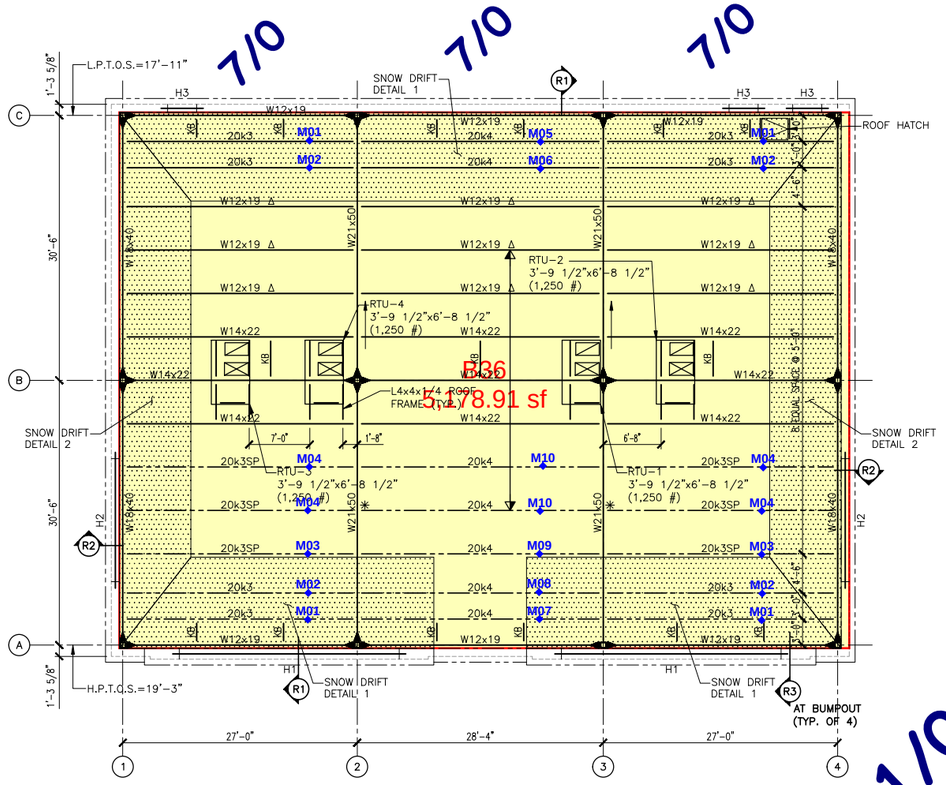
Joist Description	Quantity
M01	4
M02	4
M03	2
M04	4
M05	1
M06	1
M07	1
M08	1
M09	1
M10	2



SNOW DRIFT DETAIL 1



SNOW DRIFT DETAIL 2



ROOF FRAMING PLAN

1/8"=1'-0"

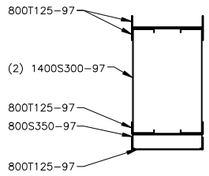
1. ◄► –DENOTES THE DIRECTION OF SPAN OF 1 1/2" TYPE 'B' 20 GA. PAINTED ROOF DECK AS MANUFACTURED BY VULCRAFT, INC. OR APPROVED EQUAL.
2. TOP OF STEEL ELEVATION (UNDERSIDE OF DECK) NOTED THUS (+.....) DENOTES DISTANCE ABOVE FINISHED GROUND FLOOR DATUM 0'-0".
3. 'KB' –DENOTES AN L3x3x1/4 KNEE BRACE. SEE PLAN FOR LOCATIONS.
4. ✳ – DENOTES THE LOCATION WHERE THE BOTTOM CHORD OF JOISTS ARE TO BE EXTENDED AND FASTENED TO GIRDER BOTTOM FLANGE.
5. ► – DENOTES MOMENT CONNECTION, SEE DETAIL ON S201.
6. Δ –DENOTES BEAMS DESIGNED FOR AN ADDITIONAL LOAD OF 1,000# FOR FUTURE ROOF TOP EQUIPMENT.

TOTAL DECK:

1.5B, 20Ga, PTD = 53 SQ

ACCESSORIES

#10TEK SCREW = 1 BOX



DETAIL H1

1 1/2"=1'-0"

ROOF LOADS

ROOFING	4 psf
INSULATION	3 psf
METAL DECK	2 psf
JOIST / BEAMS	4 psf
SPRINKLERS	3 psf
MECHANICAL & MISC.	4 psf
DEAD LOAD	20 psf
LIVE LOAD	30 psf
TOTAL LOAD	50 psf

BUILT-UP MEMBER LINTEL SCHEDULE

MK'D	SIZE	DETAILS	JAMB	JAMB DETAILS
H1	(2) 1400S300-97 w/ CONT. 800T150-97 TRACK TOP & BOTT. + ADDITIONAL 800T125-97 TRACK ABOVE w/ 800S350-97 + 800T150-97 BELOW BOX HEADER FASTENED TOGETHER @ 12" o/c	SEE DETAIL H1	(2) 800S200-97 + (2) 800T150-97 TRACK	▯▯
H2	(2) 1000S162-54 w/ CONT. 800T150-54 TRACK TOP & BOTT. + ADDITIONAL 800T150-54 TRACK ABOVE FASTENED TOGETHER @ 12" o/c	▯	(2) 800S162-54 + (2) 800T125-54 TRACK	▯▯
H3	(2) 800S162-54 w/ CONT. 800T150-54 TRACK TOP & BOTT. + ADDITIONAL 800T150-54 TRACK ABOVE FASTENED TOGETHER @ 12" o/c	▯	(1) 800S162-54 + (1) 800T125-54 TRACK	▯

NOTES:
1. BOX LINTEL SIZE ARE FOR ESTIMATING PURPOSES ONLY. SEE GENERAL NOTES FOR LIGHT GAGE FRAMING.

SNOW LOADS

(IBC 2021)

Pg (Ground Snow Load)	25 psf
Ce (Snow Exposure Factor)	1.0
I (Importance Factor)	1.0
Ct (Thermal Factor)	1.0

WIND LOADS

(IBC 2021)

Exposure	B
V_{3S} (Basic Wind Speed-3 Second Gust)	115 mph
I (Importance Factor)	1.0
GC_{Pi} (Internal Pressure Co-efficients)	+ 0.18 – 0.18
Components & Cladding	+ 19.1 psf – 23.4 psf

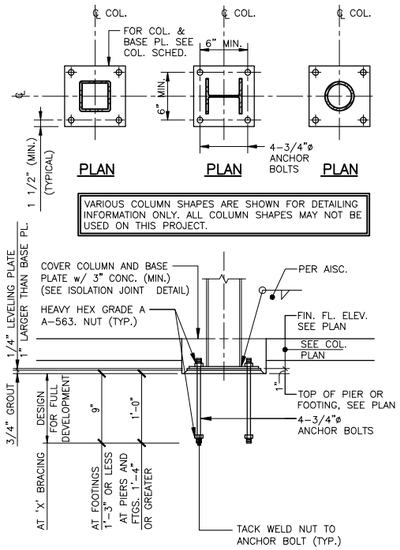
SEISMIC LOADS

(IBC 2021)

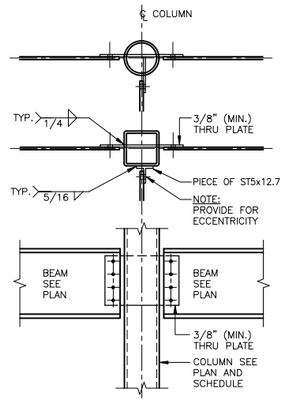
Risk Category	II
I (Importance Factor)	1.0
S_S (Mapped Spectral Response Acceleration 0.2 Sec.)	0.25
S_1 (Mapped Spectral Response Acceleration 1 Sec.)	0.055
Site Class	D
S_{DS} (Spectral Response Acceleration 0.2 Sec.)	0.267
S_{D1} (Spectral Response Acceleration 1 Sec.)	0.088
Seismic Design Category	B
Basic Seismic Force Resisting System	Ordinary Moment Frames
V (Design Base Shear)	3,720 lbs.
C_S (Seismic Response Coefficient)	0.020
R (Response Modification Factor)	3.0
Analysis Procedure	Equivalent Lateral Procedure

J= 21/0

M:\CAD\DWG\2022\23-108 Commerce Ctr, NJ\Structural Drawings\23-108.dwg, S101, 10/2/2023 5:04:54 PM, marinr, 12:12

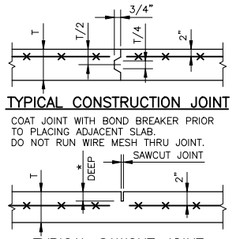


TYPICAL COLUMN BASE DETAIL



TYPICAL TUBE AND PIPE COLUMN CONNECTION

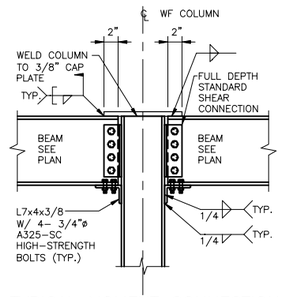
(NOTE: ALL CONNECTIONS FULL DEPTH OF BEAM)
(PROVIDE CLOSURE PLATE ON ALL COLUMNS)



TYPICAL SLAB ON GROUND DETAIL

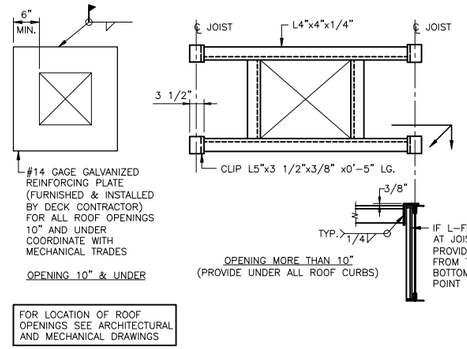
FOR JOINT LOCATION SEE ARCHITECTURAL DRAWINGS

NOTES:
1. COORDINATE PLACEMENT OF CONSTRUCTION JOINTS AS REQUIRED BY FIELD CONDITIONS, DETAILS AND CONCRETE PRODUCTION PLACEMENT CAPABILITIES. PROVIDE E.O.R. PROPOSED CONCRETE POUR SEQUENCE AND PROPOSED JOINT LAYOUT FOR REVIEW AND APPROVAL, TYP.
2. COORDINATE TYP. SLAB–ON–GRADE JOINT LAYOUT w/ FOUNDATION SECTIONS AND DETAILS, TYP.
3. CONTRACTION JOINTS FOR:
   - 4" SLAB ON GRADE – 12'–0" MAX. SPACING
   - 5" SLAB ON GRADE – 15'–0" MAX. SPACING
   - 6" SLAB ON GRADE – 18'–0" MAX. SPACING
   - 7" SLAB ON GRADE – 20'–0" MAX. SPACING
   - 8" SLAB ON GRADE – 22'–0" MAX. SPACING



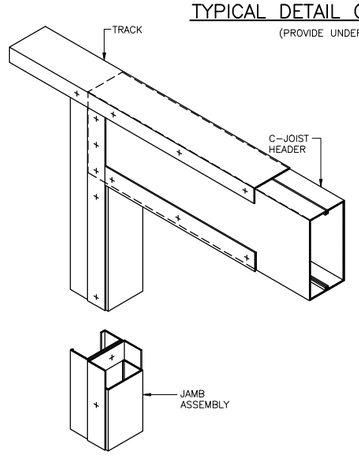
TYPICAL MOMENT CONNECTION DETAIL AT ROOF

NO PAINT OR PRIMER AT MOMENT CONNECTION SURFACES



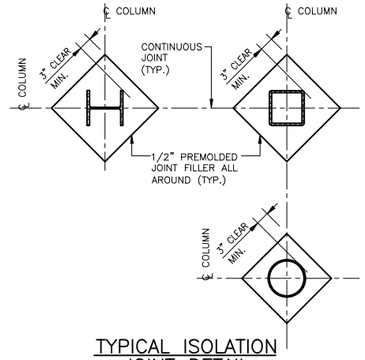
TYPICAL DETAIL OF ROOF OPENINGS

(PROVIDE UNDER ALL ROOF CURBS)

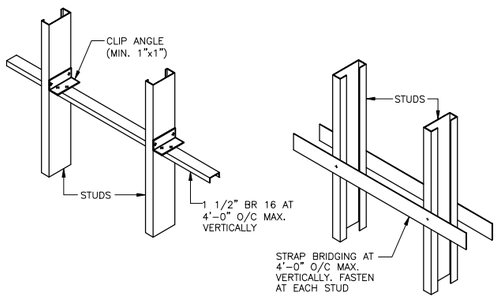


NOTE: FASTEN BUILT–UP MEMBERS TOGETHER AT 12" O/C, MAX.

TYPICAL BEARING HEADER DETAIL



TYPICAL ISOLATION JOINT DETAIL

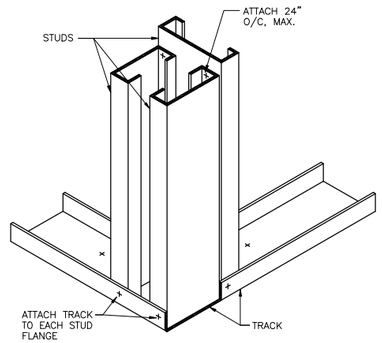


NOTE: BRIDGING TO BE INSTALLED PRIOR TO LOADING OF WALL

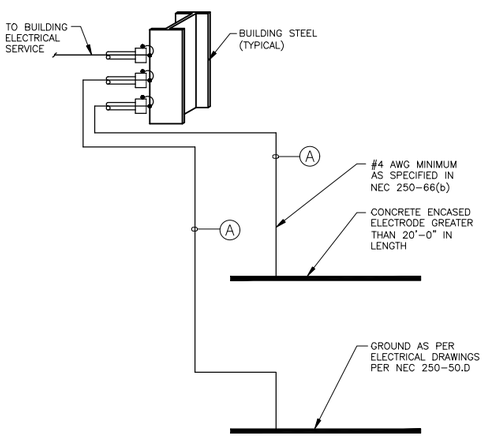
TYPICAL HORIZONTAL BRACING

RECOMMENED MINIMUM STUD LATERAL BRIDGING

Properly attached rigid facing materials on both stud flanges will provide adequate lateral support. however, design loads (winds, or axial, or both) are often imposed on the framing before the facing material is attached to both flanges, and bridging is necessary at that time. Bridging provides resistance to rotation caused by wind loading, and resistance to both rotation and minor axis bending caused by axial loading. The number of bridging rows should not be less than specified.



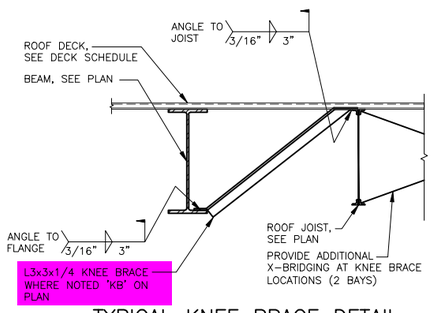
TYPICAL THREE STUD CORNER DETAIL



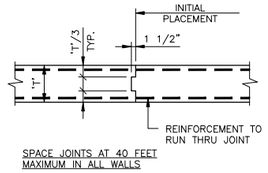
TYPICAL SCHEMATIC GROUNDING SYSTEM FOR BUILDING STEEL

NOT TO SCALE

Ⓐ INSTALL AS PER LATEST ADOPTED EDITION OF THE NEC SECTION 250.

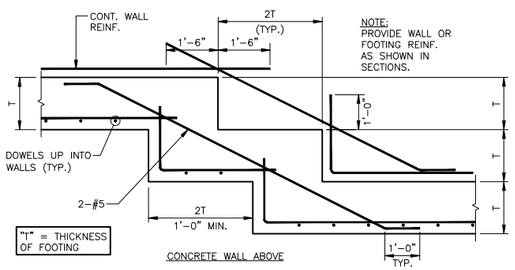


TYPICAL KNEE BRACE DETAIL

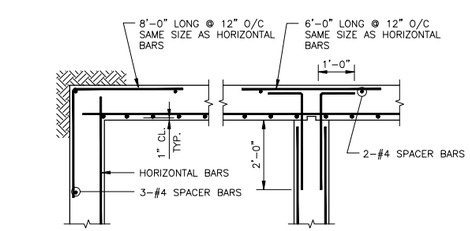


SPACE JOINTS AT 40 FEET MAXIMUM IN ALL WALLS

TYPICAL VERTICAL JOINT IN FOUNDATION WALL



TYPICAL STEPPED FOOTING



TYPICAL REINFORCING AT WALL CORNERS AND INTERSECTIONS

M:\CAD\DWGS\2023\23-108 Commerce Ctr, NJ\Structural Drawings\23-108.dwg, S201, 10/2/2023 5:04:56 PM, martin, 12-12

STRUCTURAL STEEL – SPECIAL INSPECTIONS AND TESTS
1705.2.1 STRUCTURAL STEEL – Special inspections and non–destructive testing of structural steel elements in buildings, structures and portions thereof shall be in accordance with the quality assurance inspection requirements of AISC 360.
1705.12.1.1 SEISMIC FORCE–RESISTING SYSTEMS – Special inspections of structural steel in the seismic force–resisting systems of buildings and structures assigned to Seismic Design Category B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISC 341.
1705.2.2 COLD–FORMED STEEL DECK – Special inspections and qualification of welding special inspectors for cold–formed steel floor and roof deck shall be in accordance with the quality assurance inspection requirements of SDI QA/QC.

TABLE 1705.2.3
REQUIRED SPECIAL INSPECTIONS OF OPEN–WEB STEEL JOISTS AND JOIST GIRDERS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]
1. Installation of open–web steel joists and joist girders.			
a. End connections – welding or bolted.		X	SJI specifications listed in Section 2207.1.
b. Bridging – horizontal or diagonal			
1. Standard bridging.		X	SJI specifications listed in Section 2207.1.
2. Bridging that differs from the SJI specifications listed in Section 2207.1.		X	

a – Where applicable, see also Section 1705.12, Special inspections for seismic resistance.

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE
1. Reinforcing bar welding:				
a. Verify weldability of reinforcing bars other than ASTM A 706;		X	AWS D1.4	
b. Inspect single–pass fillet welds, maximum 5/16"; and		X	ACI 318: 26.5.4	
c. Inspect all other welds.	X			
2. Inspect anchors cast in concrete.		X	ACI 318: 17.8.2	
3. Inspect anchors post–installed in hardened concrete members[b]				
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	X		ACI 318: 17.8.2.4	
b. Mechanical anchors and adhesive anchors not defined in 4.a.		X	ACI 318: 17.8.2	
4. Verify use of required design mix.		X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
5. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X		ASTM C 172, ASTM C 31, ACI 318: 26.4.5, 26.12	1908.10
6. Inspect concrete and shotcrete placement for proper application techniques.	X		ACI 318:26.4.5	1908.6, 1908.7, 1908.8
7. Verify maintenance of specified curing temperature and techniques.		X	ACI 318:26.4.7–26.4.9	1908.9
8. Verify in–site concrete strength, prior to stressing of tendons in post–tensioned concrete and prior to removal of shores and forms from beams and structural slabs.		X	ACI 318:26.10.2	
9. Inspect formwork for shape, location and dimensions of the concrete member being formed.		X	ACI 318:26.10.1(b)	

a. Where applicable, see also Section 1705.12, Special inspections for seismic resistance.
b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 17.8.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

TABLE 1705.6
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.		X
2. Verify excavations are extended to proper depth and have reached proper material.		X
3. Perform classification and testing of compacted fill materials.		X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.		X

SPECIAL NOTES

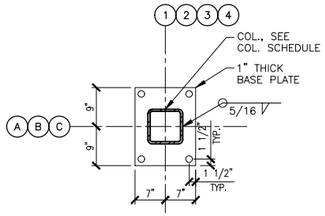
Metal deck shall be FM Listed.

Qualifications:

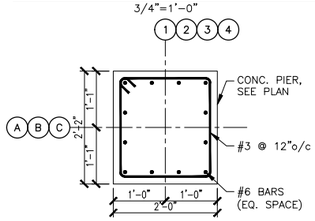
Roof deck quoted with Painted Gray Primer finish.

Exclusions:

Hanger Tabs, Flexible Rubber Closure
Architectural drawing.
Sump pans.
Load from L3 x 3 per section "Typical Knee Brace Detail" & similar.
Design consideration for SP Joist, no diagrams provided.



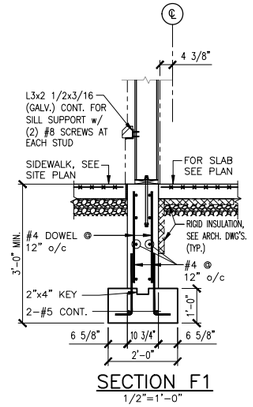
18"x14" BASE PLATE DETAIL
3/4"=1'-0"



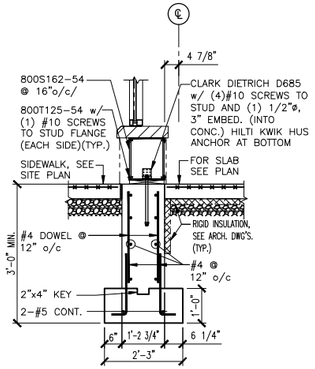
PIER DETAIL
3/4"=1'-0"

COLUMN SCHEDULE

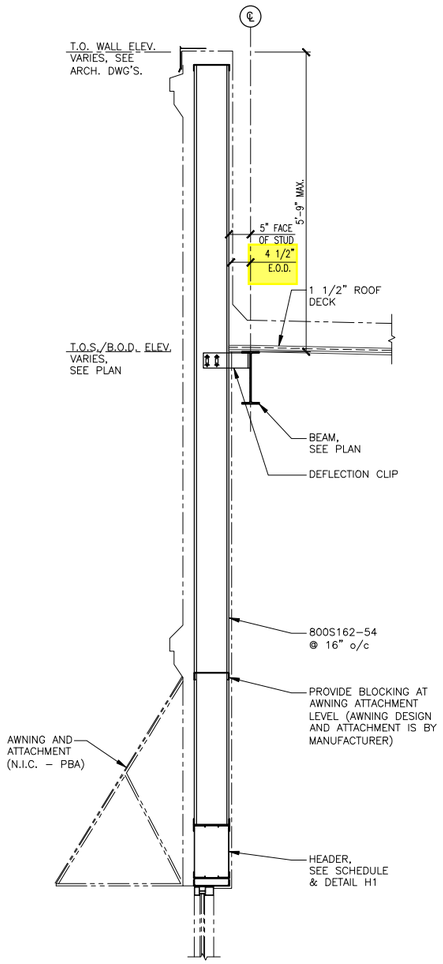
MARK / LEVEL	A–1 A–2 A–3 A–4 B–1 B–4	C–1 C–2 C–3 C–4	B–2 B–3
T.O. ROOF STEEL EL. (VARIES), SEE PLAN			
FIN. GROUND FLOOR EL. (+0'–0")	HSS 8 x 8 x 1/2		HSS 8 x 8 x 1/2
BOTTOM OF BASE PL	7"		11"
BASE PLATE SIZE	18"x1"x14"		14"x3/4"x14"
ANCHOR BOLT SIZE	4–3/4"ø F1554 GR.36		4–3/4"ø F1554 GR.36



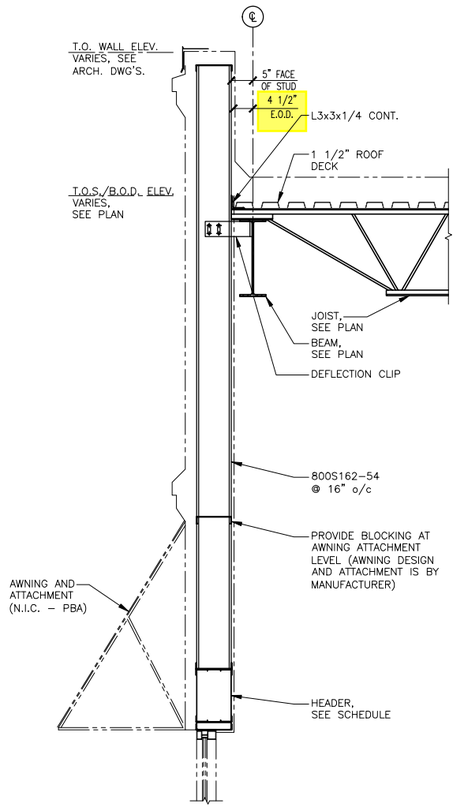
SECTION F1
1/2"=1'-0"



SECTION F2
1/2"=1'-0"



SECTION R1
3/4"=1'-0"



SECTION R2
3/4"=1'-0"

SECTION R3
3/4"=1'-0"

M:\CAD\DWG\2023\23-108 Commerce Ctr. NJ\Structural Drawings\23-108.dwg, S202, 10/2/2023 5:04:57 PM, martin, 12:12

CONTRACTORS BEWARE

1. PBA Engineering, P.C. has a long history of designing structures in a manner that we believe to be the most efficient, practical and economical method of construction. We approach each project as if we personally owned the project. Our firm has a policy of evaluating any recommendations from any party that might allow for assistance in reaching those goals, as long as this office determines that those modifications do not compromise the structural design. This office WILL NOT accept modifications during construction unless the contractor contacts this office (through appropriate channels) PRIOR to making changes to what is shown on these documents. Ignoring this requirement will result in the contractor having to remove and replace the work in the manner described on the drawings at their own expense.

GENERAL NOTES

1. These drawings are intended to be used only by an experienced Contractor after consultation with this office. This office will not be responsible for job site problems due to failure to interpret the documents correctly. Representatives of PBA Engineering, P.C. are available to answer questions and to assist the Contractor by explaining the design intent. Failure by the Contractor to understand the complexities of the project and the sequence of construction can result in injury or death to workers. Proceeding with construction without a full understanding of the project and without a complete set of design documents will put both the project and individuals in peril. The Contractor assumes total responsibility for any consequences of that action.
2. All Contractors and Subcontractors are responsible for adhering to the requirements as spelled out in these notes. All parties must carefully study all notes for items that may pertain to their trades. Failure to read these notes does not permit the Contractor to deviate from their requirements. Questions will be cheerfully answered by the Engineer.
3. General Contractor shall verify all conditions and check all measurements on job and shall be responsible for same.
4. All work shall be done in accordance with the current building code of all governing authorities.
5. All work shall be done in accordance with the specifications, architectural, and mechanical drawings.
6. All openings in walls, floors, roof, etc., to be located and sized as per mechanical and architectural requirements, even if not shown as such on structural and architectural drawings.
7. All walls shall be adequately braced until the entire structural frame has been installed and is structurally sound.
8. All specialty anchors and fasteners are to be manufactured by the Hilti Corporation or approved equal, and are to be installed per the manufacturer's specifications, including torque, embedment, length, etc.
9. All Contractors and Subcontractors on this project shall be responsible for the proper performance of their work, coordination with other trades, methods, safety and security on the job site. PBA Engineering, P.C. and its agents and employees are not responsible or liable for the above and shall be held harmless and indemnified by all Contractors and Subcontractors from any and all claims, losses, suits and legal action whatsoever arising from the performance of work on this project.
10. Acceptance of deviations from any of the requirements of these notes shall be at the sole discretion of the Architect. Acceptance of a deviation from any requirement shall not be construed as permitting any other deviation.

FOUNDATIONS

1. Footings shall bear on undisturbed soil and/or supervised compacted fill, free of frost, having a minimum allowable bearing capacity of 1 1/2 tons per square foot. Elevations are for estimating and are subject to revision when the true conditions are revealed by excavation. Contractor shall notify Architect of any doubtful conditions. Geotechnical information has been taken from a report by Colliers Engineering & Design dated April 27, 2023. Contractor shall study and understand this report before commencing work.
2. All fill shall be compacted layer by layer to not less than 95 percent of the maximum density when tested in accordance with ASTM D1557.
3. Soil under footings shall be protected from freezing.
4. Bottoms of all exterior footings shall be at least 3 feet below finished grade.
5. Changes of level of footings must be kept within the safe angle of repose of the soil (one vertical to two horizontal).
6. Provide 6 inches porous fill under all concrete slabs on earth.
7. Contractor shall adequately protect walls, piers, etc., from damage due to backfilling.
8. Contractor must prevent the foundations from being put in jeopardy by the excavations for utilities, etc.
9. Where pipes pass through new walls, drop footings so that pipes pass over the top of the footing.
10. Dewatering procedures, if required, shall not disturb the soil structure.
11. The Contractor shall employ all means necessary to insure that the structural integrity of any and all adjacent structures will not be compromised.
12. All fill shall be compacted as per the above referenced report.
13. Backfill must be clean, well draining granular soils. Backfill should be placed in lifts of 8 inches maximum thickness and be uniformly compacted to at least 90 percent of maximum dry density as determined by the ASTM D-1557 test procedure, or to a greater degree if specified elsewhere. The total unit weight of the backfill in place, as determined by ASTM D-1557, shall not be greater than 125 pcf.

CONCRETE

1. All concrete shall be controlled stone concrete complying with all ACI Building Code requirements, of a minimum compressive strength at 28 days of 3,000 psi.
2. All concrete shall be controlled concrete complying with all ACI Building Code requirements, of a minimum compressive strength at 28 days as follows:
   a. Exterior foundation concrete (walls, piers poured integrally with walls, etc.) – 3,000 psi concrete (6% air-entrained).
   b. Concrete flatwork (sidewalks, ramps, etc.) exposed to weather – 4,000 psi concrete (6% air-entrained).
   c. Footings and interior slabs on grade – 3,000 psi concrete (2% air-entrained).
3. All pours shall be terminated by forms. Provide keys, as directed by Engineer, between adjacent pours.
4. All concrete work shall conform to ACI practices for cold weather concreting. All concrete placed at temperatures below 50 degrees F. shall contain the water reducing accelerator "Accelguard 80" by The Euclid Chemical Co., or approved equal.
5. All concrete shall contain the water reducing admixture "Eucon WR-89" or approved equal.
6. All reinforcing bars shall be new billet steel, deformed type, ASTM A615 Grade 60 and shall comply with all ACI code requirements.
7. Prior to placement of concrete, Contractor must check with Electrical Contractor and Building Department for requirements relating to grounding of reinforcing. See UCC Bulletin 02-2.
8. Wire mesh shall conform to ASTM A185, latest edition.
9. All detailing, fabrication and erection of reinforcing bars, unless otherwise noted, must follow the "ACI Detailing Manual (ACI 315)".
10. All slabs-on-grade to be reinforced with 6 x 6 – 8/8 (6 x 6 – W2.1 x W2.1) welded wire fabric placed 2" down from top of slabs, and over any pipes or conduits in slab, or as noted on the plans.
11. Wire mesh reinforcement must lap one full mesh at side and end laps, and must be wired together.
12. Provide minimum reinforcing in all concrete as per ACI Building Code requirements.
13. Provide clearances from faces of concrete to reinforcement as follows:

    Cast against and permanently exposed to earth 3"

    Exposed to earth or weather
    #5 or smaller 1 1/2"
    #6 or larger 2"

    Not exposed to weather or in contact with earth
    Slabs, walls, joists 3/4"
    Beams, girders, columns (principal reinf., ties, stirrups or spirals) 1 1/2"

14. Provide 2 – #4 bars, 4' – 0" longer than opening, in top and bottom of solid slabs on four sides of unframed opening larger than 12" square; spread slab bars at small openings.
15. Length of reinforcing splices shall conform to ACI Building Code requirements, but in no case shall be less than 30 bar diameters or as otherwise approved by Engineer.
16. Bend outside horizontal bars around corners or provide corner bars.
17. All concrete shall be formed, unless otherwise approved by Engineer.
18. Set tops of slabs to accommodate architectural finishes.
19. When construction joints are used in slabs, walls, or beams, they shall be located at points of minimum shear and shall be keyed.
20. Contractor shall submit plan showing pouring sequence and type and location of proposed joints in all slabs to Engineer for approval.
21. No horizontal pour stops are permitted in concrete walls. Provide vertical pour stops in walls at 40' – 0" maximum spacing. At least 24 hours shall elapse before placing adjacent pour.
22. All column footings shall be centered under column centerline unless otherwise noted.
23. All footing dowels to be same size, number and grade as vertical reinforcement in columns, piers, or walls that the footings support.
24. General Contractor shall grout under all leveling and bearing plates with an approved non-shrink grout.
25. Contractor shall provide all high chairs, spacers, supports, etc., necessary for proper placement of wire mesh and reinforcing steel.
26. All reinforcing steel shall be securely wired together in the forms. Two-way mats of steel shall be tied at alternate intersections both ways.
27. Bottom steel, for concrete pours on grade, shall be supported on precast concrete block supports (min. size 3" x 3" x 3") spaced at 4'-0" on center each way. Top bars shall be supported from doweled concrete blocks or chairs. One-way top steel shall be tied with #3 bars at 4'-0" on center. Use of split bricks not permitted.
28. The Contractor shall ascertain the location of all sleeves, inserts, anchor rods, etc., required by other trades. Installation of all such embedments shall be checked for completeness and location before concrete is poured.
29. Curing of concrete is to start as soon as finishes will not be marred thereby. It will not be permissible to delay the curing until the morning after the concrete is cast.
30. All joints in slabs shall be filled with MM-80 Joint Filler, as manufactured by Metzger/McGuire or approved equal, and installed in accordance with the manufacturer's recommendations. Installation to be delayed until the building is under final temperature control. Coordinate with Owner.

CONCRETE PLACEMENT

1. All concrete, including foundation work, is to be vibrated. Proper use of vibrators is a must. Vibrators shall not be used to transport concrete.
2. All embedments, including anchor rods, shall be in place prior to pouring concrete.
3. Concrete shall be placed in accordance with ACI 304 & 301, latest editions. Concrete shall not be subject to drops in excess of 5 feet.

CONCRETE TESTING

1. Concrete Contractor shall employ a testing laboratory to cast and test 1 set of (5) 4"x8" or (4) 6"x12" cylinders for every 20 cubic yards or less of concrete poured, each day. Slump tests shall be made on every truck (3" minimum, 5" maximum). For 6"x12" cylinders, one cylinder to be tested at 7 days and 2 cylinders to be tested at 28 days with 1 spare. For 4"x8" cylinders, one cylinder to be tested at 7 days and 3 cylinders to be tested at 28 days with 1 spare. Submit 3 copies of test results to Architect.
2. Cylinders and slump tests shall be made by the testing laboratory or one familiar with the correct procedure.

STRUCTURAL STEEL

1. Material, fabrication, and erection shall conform to the latest requirements of the AISC Specification.
2. The Steel Contractor shall furnish an affidavit from the producer of the steel certifying that the steel meets the minimum requirements as defined by ASTM specification.
3. The Structural Steel Contractor shall verify the foundation construction for anchor rod location, elevation of top of concrete and/or leveling plates and bearing plates, alignment, etc., prior to start of erection.
4. The Steel Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, adequacy of connections, coordinating his work with that of all other trades, and performing his work in a safe and satisfactory manner.
5. All wide flange structural steel shall conform with ASTM A992 specifications. All other structural steel shall conform to ASTM A36 specifications.
6. Tube steel shall conform to ASTM A500, Grade B and shall have ends capped unless noted.
7. All shop connections shall be high-strength bolted or welded unless otherwise noted on drawings.
8. All field connections shall be made with high-strength bolts unless otherwise noted on the drawings.
9. All high-strength bolts shall be A325-N type unless otherwise noted on drawings.
10. Cast-in-place anchor rods shall be ASTM F1554 (GR36) unless otherwise noted on drawings.
11. All bolts shall be a minimum of 3/4" diameter unless otherwise noted on drawings.
12. All contact surfaces within slip-critical type, high-strength bolt connections, and welding areas, shall be free of oil, paint, lacquer, or galvanizing.
13. Where field connections are to be made with high-strength bolts, they shall be installed to the required values in accordance with the latest specification for structural joints using ASTM A325 bolts approved by the Research Council on Structural Connections. Snug-tight bolting is not permitted.
14. Provide holes, as required, for attaching other materials to structural steel; refer to architectural drawings.
15. Provide temporary bracing, as required, to resist wind, construction loads, etc., during construction. Bracing shall remain in place until the structure is capable of sustaining all loads.
16. All columns shall be furnished with cap plates and base plates of sizes called for and shall be shop welded.
17. All steel shall receive one shop coat of Sherwin-Williams Steel Spec Structural Steel Primer B50AV11, unless otherwise noted.
18. All welding shall be in accordance with the latest edition of the "Structural Welding Code" as published by the American Welding Society.
19. All connections to be made with framing angles.
20. All welding, shop and field, shall be performed by welders qualified according to American Welding Society standards.
21. Where reaction values of beams are not shown on the structural drawings, the connections selected shall have a minimum value equal to 50% of the total uniform load, as shown in the tables of Uniform Load Constants in the latest edition of the AISC Manual of Steel Construction. The effect of concentrated loads near an end connection shall be considered.
22. Openings of 10" or less in roof deck shall be framed by the roof deck applicator. For full extent of all roof openings, see architectural and mechanical drawings.
23. All welding electrodes to be E70XX.
24. Provide frames around all roof openings unless otherwise shown.
25. Provide support for metal deck around all penetrations including columns.
26. Fabricate all beams with natural camber up.

STEEL JOISTS

1. Joist manufacturer shall submit written certification that all joists conform to the latest specification of the Steel Joist Institute; such certification shall bear the seal of a Professional Engineer licensed in the same state as that of the project. Joist manufacturer shall be under Steel Joist Institute quality control.
2. All steel joists shall be bolted or welded to supports as required by the latest specification of the Steel Joist Institute. Due consideration shall be given to lateral stability of the structural frame prior to final anchorage of the joists. Provide bolted connections as required to attain such stability.
3. Provide bridging, anchored to walls and beams, as per the latest specification of the Steel Joist Institute.
4. All roof joists shall be anchored down to resist uplift forces in accordance with the latest specification of SJI. A single line of bottom chord bridging must be provided near the first bottom chord panel points whenever uplift due to wind forces is a design consideration.
5. Bridging shall be laid out so as to clear all roof openings.
6. The full bottom chord of joists shall be extended where joists frame to columns. Steel Fabricator to provide stabilizer plate. Coordinate with Joist Manufacturer.
7. Check mechanical drawings for ducts passing through or between joists and adjust bridging to suit.
8. Do not suspend or support concentrated loads from or on joists without Architect's approval. However, when so approved, loads shall be suspended from or supported on top chords at panel points and distributed to a minimum of two (2) joists. If required, trade involved shall supply secondary steel to locate units, etc., in the above manner.
9. Contractors shall not overload any members with construction loads.

STEEL ROOF DECK

1. Steel roof decking shall be as manufactured by Vulcraft, or equal, and shall be designed using ASD method and installed in accordance with the "Basic Design Specifications" as adopted by the Steel Deck Institute.
2. Steel decking shall be 1 1/2" deep, 20 gauge, type "B" and rolled from structural quality cold rolled carbon steel with ribs spaced 6" on center.
3. Deck shall be capable of supporting a uniformly distributed live load of 30 pounds per square foot without live load deflection exceeding 1/240th of the span length center to center of supports.
4. Steel deck shall be directly welded with 5/8" diameter puddle welds, unless specifically approved otherwise. Deck shall be attached at 1'-0" on center max. to all supporting members, whether running parallel to or perpendicular to the span of the deck. Equivalent fastening methods can be submitted for approval.
5. If Factory Mutual rating is required, fastening of the steel deck, as stated above, must be modified to accommodate such requirements. Other loading requirements must also be considered on the joists, roofing, etc. Consult with Factory Mutual for the latest requirements.
6. All sheets must be detailed so as to be a minimum of three span continuous.
7. End laps of metal deck sheets shall be a minimum of 2" and shall occur over supports; at these points welds shall be placed at 6" on center.
8. Spacing between side lap fasteners and bar joists or beams should not exceed 3'-0". If an interlocking deck is used, fastening can be accomplished by crimping the interlock with a button punch. Overlapping sheets require self-tapping screws no smaller than No. 10's.
9. Where deck surfaces meet at changes of direction, cover joint with a 20 gauge steel plate fastened to deck on both sides of joint with self-tapping screws at 12" on center.
10. Top flanges of deck shall be level when tested with a 4'-0" straightedge.
11. Any and all steel cant strips or ridge and valley plates necessary to afford a proper installation to provide a finished surface for the application of insulation and roofing shall be furnished by the deck manufacturer.
12. Job finish of roof deck shall be one prime coat of manufacturer's standard paint, light gray.
13. Deck erector shall cut all openings in the roof deck that are shown on the architectural drawings, and are required by mechanical trades.

LIGHT-GAUGE STEEL FRAMING

1. All steel framing members shown are for estimating purposes, shall be of type and size shown on the drawings, and shall be manufactured by Marino\WARE, or approved equal. Consult the Manufacturer for suggested connection details. Submit shop drawings, including details of all light-gauge steel framing. Drawings must be signed and sealed by an Engineer licensed in the State of New Jersey. Calculations must be included to substantiate connections specified.
2. All structural framing members shall be manufactured from galvanized steel sheet.
3. All galvanized steel joists, studs, and accessories, 16 gauge or heavier, shall conform to ASTM A-653 (minimum yield point 50,000 psi).
4. All galvanized steel joists, studs and accessories, 18 gauge and 20 gauge, shall conform to ASTM A-653(minimum yield point of 33,000 psi).
5. Care shall be exercised at all times to avoid damage through careless handling during unloading, storing, and erection of steel framing members and subassemblies.
6. The ends of steel joists shall be reinforced to adequately stiffen the joist web and to transfer the loads to the supports. Minimum end bearing shall be 1 1/2 inches. Minimum bearing for intermediate supports shall be 3 1/2 inches.
7. Joining of structural framing members shall be made with self-drilling screws or welding. Wire tying of framing members in structural applications shall not be permitted. All welds shall be touched up with a zinc-rich paint.
8. Horizontal steel strapping, when required by the applicable tables, shall be fastened to the bottom flange of the steel joist and attached to both sides of all studs.
9. Strapping shall be installed and securely anchored to suitable restraining columns or walls prior to the erection of structure above.
10. Steel joist and stud wall bridging shall be provided where indicated on drawings, or as per manufacturer's specifications. Steel bridging is to be fastened to each stud or joist.
11. Splices in steel studs shall not be permitted.
12. During erection, the builder shall provide means of adequate distribution of concentrated loads so that the carrying capacity of any steel framing member is not exceeded.
13. Temporary bracing should be used to support walls until permanent connections are completed.
14. Provide slotted connections to accommodate anticipated deflection of structural members. Submit detail of connection to Engineer for his review.

STRUCTURAL STEEL TESTING

1. All structural steel work shall be inspected and tested by a qualified testing laboratory, paid by the General Contractor, who shall be responsible only to the Owner. Testing laboratory shall perform the following services:
   a. Check bearing contact of column bases.
   b. Check plumbness and alignment of all steel members.
   c. Check High Strength bolted connections at all columns by means of calibrated wrenches (unless load indicator bolts are used).
   d. Check standard bolt connections for tightness.
   e. Observe and record any damage or deformation in structural member.
   f. Issue 3 copies of reports to Owner.
2. Steel Contractor shall be responsible for notifying the General Contractor or testing laboratory when the structural steel work is sufficiently complete to permit testing.

VISIT TO SITE:

1. All Contractors must visit the site and note all existing conditions as well as all conditions to be met before submitting bid. Lack of thorough understanding of the project requirements shall not constitute an excuse for errors or omissions, nor justify a request for extra compensation.

SHOP DRAWINGS

1. If shop drawings are submitted electronically, one print of each drawing must be submitted. If prints are not provided, the contractor will be required to pay the cost of printing one set of drawings. These drawings will be returned electronically. If shop drawings are not submitted electronically, then submit three prints each of all shop drawings for review. The Engineer will retain one copy, send two copies to the Architect, who will return one copy to the Contractor for his reproduction and distribution to all others requiring copies. The Engineer will not mark up more than the above copies. Shop drawings must be checked by the detailer prior to submission; failure to do so will be cause for rejection.
2. Reproductions of structural contract documents may be submitted as erection plans provided that PBA Engineering, P.C. is contacted and grants approval. A nominal fee will be charged for release of files in electronic format. DON'T EVEN THINK OF IGNORING THIS NOTE!
3. Detailer must use column designations as shown on the Engineer's drawings.
4. All revisions to shop drawings after the first submission must be so identified on subsequent submissions.
5. Review of shop drawings shall not relieve the Contractor of any contract requirement, even if such items are not shown on the shop drawings.
6. Any changes, proposed by the Detailer, must be clearly identified on the shop drawings and, upon request of the Engineer, substantiated by submission of the calculations used to design such change.
7. All Subcontractors must work with a full set of drawings, including architectural and mechanical. It is the Subcontractor's responsibility to request any drawings not furnished by the General Contractor.
8. Contractors shall submit shop drawings for review at least ten working days prior to the required date for return from review. The Contractor will be responsible for deadlines missed due to late shop drawing submission.
9. Shop drawings submitted must include erection plans and all piece details.
10. Joist and deck shop drawings must be reviewed for completeness by the joist and/or deck supplier prior to submission to this office.
11. Structural steel fabrication shall be performed by an AISC Certified company experienced in fabrication of similar type and size projects. A copy of the certification must be supplied to the owner with the bid. The fabricator may submit documentation of equivalent experience in the fabrication of said type projects, in lieu of certification, for review and approval by the owner.

JOISTS

NOTES :

LL DEFL **L/240** TL DEFL JOIST SPACING

DWG	MARK	QTY	BCX	DESIGNATION	SPAN	SPACE	NU PSF	TCX L	TCX R	COMMENTS
	M01	4		20K3	27'-0"	3	35	0.38'		1, 2
	M02	4		20K3	27'-0"	3.75	35	0.38'		1, 3
	M03	2		20K3	27'-0"	4.75	35	0.38'		4, 5
	M04	4		20K3	27'-0"	5	23	0.38'		6, 7
	M05	1		20K4	28'-4"	3	35			2
	M06	1		20K4	28'-4"	3.75	35			8
	M07	1		20K4	28'-4"	3	35			9
	M08	1		20K4	28'-4"	3.75	35			10
	M09	1		20K4	28'-4"	4.75	35			
	M10	2		20K4	28'-4"	5	23			
TOTAL		21	0							

NOTES

1	ADD'L NU = 8 PSF FTE TO 12'-0"		
2	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 74 PLF UDL @ ENTIRE TC		
3	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 42 PLF UDL @ ENTIRE TC & 49 PLF DRIFT LOAD FTE TO 5.62'.		
4	ADD'L NU = 8 PSF FTE TO 7'-0"		
5	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 114 PLF DRIFT LOAD FTE TO 10.5'.		
6	ADD'L NU = 12 PSF FTE TO 12'-0"		
7	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 120 PLF DRIFT LOAD FTE TO 10.5'.		
8	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 42 PLF UDL @ ENTIRE TC		
9	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 74 PLF UDL @ FTE TO 9 & 19'-0" TO REST		8
10	CASE 2 (SNOW): TL/LL = 50/20 PSF, ADD'L 42 PLF UDL @ FTE TO 9 & 19'-0" TO REST		
			19