

GENERAL NOTES

Design Criteria

Applicable Building Code: New York State Building Code 2020

- Design live loads
 - A. Floor loads
 - Retail = 50 psf
 - First floor (Racking & Lift) = 500 psf
 - B. Roof loads
 - Minimum roof snow or live load dictated by Building Official = n/a
 - Minimum roof live load by code = 20 psf
 - Ground snow load = 30 psf
 - Snow exposure factor (se) = 1.0
 - Snow importance factor (Is) = 1.0
 - Thermal Factor (Ct) (Building) = 1.0
 - Thermal Factor (Ct) (Canopy) = 1.2
 - Flat roof snow load (Pi) (Building) = 21 psf
 - Flat roof snow load (Pi) (Canopy) = 25 psf
 - Rain on snow = 0 psf
 - Total design snow load = 25 psf + drifting
 - Roof design is governed by the minimum roof live load or total design snow load + drifting whichever is more stringent.

- Design wind loads
 - A. Basic wind speed (3 second gust) (Ultimate) = 115 mph
 - Exposure = C
 - Risk Category = II

Components and Cladding Wind Loads (PSF) (Ultimate)

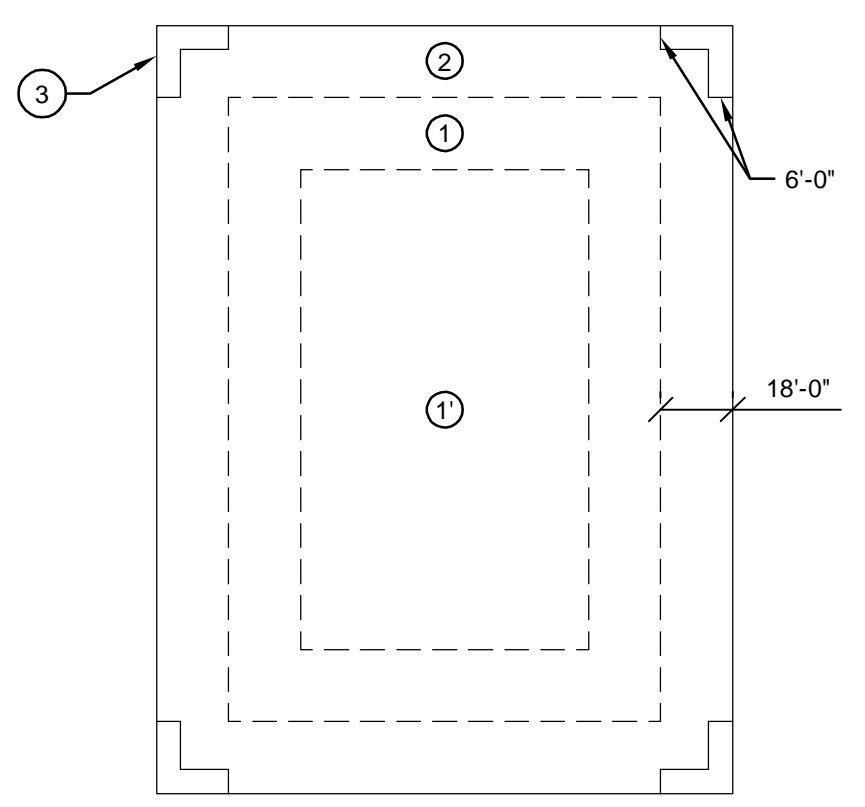
Height	Effective Area (sq.ft.)							
	Interior Zone				Exterior Zone			
	10	20	50	100	10	20	50	100
0-33'	34.0	32.5	29.7	28.2	34.0	32.5	29.7	28.2

WALLS - LEeward COMPONENTS AND CLADDING

Height	Effective Area (sq.ft.)							
	Interior Zone				Exterior Zone			
	10	20	50	100	10	20	50	100
0-33'	36.9	35.4	32.5	31.1	45.5	42.6	38.3	36.9

ROOF UPLIFT - COMPONENTS AND CLADDING

Effective Wind Area	Gross				Net (roof joists)			
	10	20	50	100	10	20	50	100
Zone 1'	25.9	25.9	25.9	25.9	7.9	7.9	7.9	7.9
Zone 1	54.1	51.3	45.5	42.6	36.1	33.3	27.5	24.6
Zone 2	71.4	65.7	59.9	57.0	53.4	47.7	41.9	39.0
Zone 3	97.3	88.7	77.2	68.5	79.3	70.7	59.2	50.5



CANOPY ROOF UPLIFT - COMPONENTS AND CLADDING									
Effective Area (sq. ft.)	Gross				Net (roof joists)				
	10	20	50	100	10	20	50	100	
Interior Zone (Zone 1)	29.4	29.4	29.4	29.4	15.0	15.0	15.0	15.0	
Inside Perimeter (Zone 2) (6.4' wide)	44.1	44.1	44.1	44.1	29.7	29.7	29.7	29.7	
Outside Perimeter (Zone 3) (6.4' wide)	85.7	85.7	85.7	85.7	71.3	71.3	71.3	71.3	

- Components and cladding: use the most stringent wind load obtained from code, underwriter criteria (Factory Mutual, etc.), and the project specifications. Cladding manufacturer shall consider increased pressure coefficients at building perimeter, corners, eaves, and rakes. Loads noted in general notes are obtained from code.
- Seismic
 - $S_s = 0.239$
 - $S_1 = 0.057$
 - $S_{D1} = 0.191$
 - $S_{D2} = 0.065$Seismic importance factor (Ie) = 1.0
Risk Category = II
Seismic design class = C
Seismic design category = B
Response Modification factor (R) = 3
Seismic Response Coefficient (Cs) = 0.064
Basic seismic force resistance system = Ordinary precast shear walls
Analysis procedure = Equivalent lateral force method
Design base shear (V) = 161.25 kips (Ultimate)
- Frost depth = 48"

General

- The term General Contractor (G-C) as used in these documents refers to the Contractor / Construction Manager in responsible charge of the project in terms of coordination, scheduling, subcontractor coordination, etc. This term refers to, but is not limited to, General Contractor, Construction Manager, Design Build Contractor, Prime Contractor, etc. The term is referencing the entity that coordinates the work of other trades.
- All referenced standards, such as codes, specifications, and other publications noted herein, are intended to refer to the edition of said standard as referenced by the applicable building code or the latest edition published as of the date on the contract documents.
- The structure is designed to be self-supporting and stable after the building is fully completed. It is solely the contractor's responsibility to determine erection procedure and sequence and to insure the safety of the construction personnel, public, building and its component parts. This includes the addition of whatever temporary or permanent shoring, bracing, etc. that may be necessary to brace new construction, so that the structure is braced for wind, seismic, gravity, construction loads, etc. and so that no horizontal or vertical settlement or any damage occurs. Temporary supports shall be maintained in place until permanent supports and/or shoring and bracing are installed. Design of these supports shall be by an engineer registered in the state where the project is located in the employ of the contractor.
- Full protection support from perimeter of structure shall be provided in accordance with OSHA requirements as required. Such material shall remain the contractor's property after completion of the project.
- It is the contractors' responsibility to enforce all applicable safety codes and regulations during all phases of construction.

General (cont.)

- The contractor shall perform all construction for the project in a manner and sequence that are based on accepted industry standards that recognize the interaction of the components that comprise the structure, without causing distress, unanticipated movements or irregular load paths as a result of the construction means and methods employed.
- Construction loads shall not exceed design live loads. The contractor shall be responsible for all design required to support construction equipment used in constructing this project. Shoring and re-shoring is the responsibility of the contractor.
- Principal openings through the structure are shown on these drawings. The general contractor shall examine the structural and mechanical, electrical, plumbing and other trades drawings for the required openings and shall verify size and location of all openings with the appropriate trade contractor. Providing all openings required for mechanical, electrical, plumbing, or other trades shall be a part of the general contractor, whether or not shown in the structural drawings. Any deviation from the openings shown on the structural drawings shall be brought to the engineer's attention for review.
- All contractors are required to examine the drawings and specifications carefully, visit the site and fully inform themselves as to all existing conditions and limitations, prior to agreeing to perform the work. Failure to visit the site and familiarize themselves with the existing conditions and limitations will in no way relieve the contractor from furnishing any materials or performing any work in accordance with drawings and specifications without additional cost to the owner.
- Details labeled "Typical Details" on drawings apply to situations occurring on the project that are the same or similar to those specifically detailed. Such details apply whether or not details are referenced at each location. Notify engineer for clarifications regarding applicability of "Typical Details".
- Work these drawings with architectural, mechanical, electrical, and plumbing drawings, along with all other drawings and specifications included in the contract documents.
- Do not scale drawings.
- Any discrepancies between structural and architectural drawings shall be brought to the attention of the architect and structural engineer.
- Should any of the general notes conflict with any details or instructions on plans, or in the specifications, the strictest provision shall govern.
- Shop drawings and submittals:

- These drawings shall be checked and coordinated with other materials and contracts by the general contractor and shop drawings and submittals shall bear the contractor's review stamp with the checker's initials before being submitted to the architect for approval.
- When the fabricator has been authorized to use the architect's and engineer's drawings as erection drawings, the fabricator must remove all title blocks, professional seals and any other references to the architect and engineer from that erection drawing. The fabricator's name and title shall be placed on the erection drawings.
- Where dimensions and elevations of existing construction could affect the new construction, it is the contractor's responsibility to make field measurements in time for their incorporation in the shop drawings.

Building Pad Preparation

- All building pad preparation shall follow the recommendations of the geotechnical report (uno).
- Foundation design is based upon the removal of unsuitable soil and replacement with engineered fill per the geotechnical report.
- All trees, brush, roots, topsoil, rubble, organically contaminated or otherwise objectionable materials encountered are to be removed from structural areas of the site per the geotechnical report.
- Subgrade sectors which will exist in cut and those which are to support lift structures are to be proof rolled. Areas exhibiting instability are to be undercut and back filled on a lift-by-lift basis with each lift carefully compacted.
- If unstable subgrade sectors cannot be stabilized by excavation and re-compaction, then crushed stone or similar coarse aggregate materials shall be rolled into the subgrade until a firm subgrade reaction is achieved.
- The geotechnical engineer shall determine on site off site imported material that can be used for engineered fill. All fill material shall be approved by the geotechnical engineer.
- The proposed engineered fill materials are to be placed in lifts not exceeding nine (9) inches in loose measured thickness. Each lift is to be compacted as follows:
 - Slab on grade: Minimum of 95% maximum density by ASTM D1557.
 - Footings: bearing on fill. A minimum of 95% maximum density by ASTM D1557.
- The earthwork program should be conducted under the supervision of a soils testing laboratory. The in-place densities achieved are to be verified by tests.

Foundation

- The contractor shall familiarize themselves with the survey and the geotechnical investigation report before starting construction. All foundation work shall be in accordance with the recommendations of the geotechnical report by Whitestone Associates, Inc. dated August 9, 2019 except where noted otherwise on drawings or specifications.
- A soils testing laboratory shall be retained by the owner to provide construction review to insure conformance with the construction documents during the excavation, back fill, and foundation phases of the project.
- The soils testing laboratory shall:
 - Discuss with the engineer the design intent of the construction documents and the testing procedures used to ensure conformance with the construction documents before construction begins.
 - Inform the engineer of any variance in these procedures.
- It shall be the responsibility of the soils testing laboratory to:
 - Determine topsoil and excavation stripping depth.
 - Inspect all subsoil exposed during stripping, site grading, and excavation operations;
 - Approve fill materials, perform density tests of fills to insure placement per specification requirements;
 - Inspect foundation bearing surfaces.
- Foundation design is based on 4,000 psf bearing pressure on firm, native soil per the geotechnical report.
- Top of footing elevations, footing steps and thickness of footings are shown on the drawings and are based upon the information from the geotechnical report and the civil drawings available at the time of design. The top and bottom of footing may vary depending on the conditions encountered at the site. Frost depth shall be maintained and coordinated with final grading and location of footing steps. If proper foundation bearing is found to be deeper than that shown on the drawings then foundations shall be thickened maintaining the top of footing elevation to assure proper foundation bearing. The contractor shall submit unit prices for such work and shall qualify the extent of work in the base bid. If top of footing elevations noted to vary for final site conditions then the general contractor shall coordinate the effort of other trades.
- Step footings, where required, at a ratio of one (1) vertical to two (2) horizontal with a maximum vertical step of 2'-0" unless noted otherwise.
- Inundation and long term exposure of bearing surfaces, which will result in deterioration of bearing formations, shall be prevented. Footings shall be placed immediately following footing excavations and bearing surface inspection.
- All fill materials shall be free of organic contaminations and other deleterious matter.
- For back fill against retaining walls, footings, etc. place 9" thick layers, with each lift compacted at near optimum moisture content, until a minimum in place density of 95% of the maximum density as determined by ASTM D1557 is achieved.
- All soil surrounding and under footings shall be protected from frost action and freezing during the course of construction.
- Notify structural engineer of any unusual soil conditions that are in variance with the geotechnical report.

Concrete

- All concrete construction shall conform to ACI 301, "Specifications for Structural Concrete", ACI 308.1, and ACI 308.1 unless noted otherwise.
- All detailing, fabrication and placing of reinforcing bars, unless otherwise noted, shall conform to ACI 318, "Building Code Requirements for Structural Concrete", ACI 117, and the ACI Detailing Manual.
- | Concrete Types Schedule | | | | | | |
|---|--|--|---|--|---|---------------------------------|
| Type of Concrete | Minimum cementitious content (lb/cu. yd) | Maximum water/cement ratio (by weight) | Specified 28-day compressive strength (psi) | Specified slump (range for placement with W.R. inches) | Specified air content range (%) by volume | Maximum size aggregate (inches) |
| • Spread footings | 470 | 0.60 | 3000 | 5 | 0-3 Entrapped | 1 1/2 |
| • Interior concrete | 564 | 0.48 | 4000 | 3-5 | 0-3 Entrapped | 1 |
| • Concrete permanently exposed to the weather or vulnerable to de-icers or freeze thaw cycles | 564 | 0.45 | 4500 | 5-6 | 6 ±1.5% | 1 |
| • Exterior slabs | | | | | | |
| • Exterior walls | | | | | | |

Concrete (cont.)

- Notes:**
 - All cement shall be Type I or Type III Portland Cement per ASTM C150. Types IA and IP are not acceptable. Use one brand of cement throughout project.
 - Minimum cementitious content shall consist of 100% cement or a combination of cement and Fly Ash per Note C. Fly Ash shall not be used in combination with GGBFS as a substitute for cement.
 - Fly Ash is permitted and shall conform to ASTM C618 Type C or F, but shall not exceed 15% of cementitious content by weight indicated above on a substitution basis and shall be included in the water-to-cement ratio. Fly Ash is used, the mix design submittals shall have tests using the same amount of Fly Ash. The contractor's schedule shall account for the use of Fly Ash.
 - Ground granulated blast furnace slag (GGBFS) is not permitted.
 - Mixes to be pumped shall be so identified on the mix design submittal. All pumped mixes shall have a mid-range or high-range water reducer.
 - All admixtures other than superplasticizers shall be added at the batch plant. Superplasticizers, designed for addition to the mix at the plant, may be added at the batch plant with verifications from the structural engineer and verifications that the water-to-cement ratio has not been exceeded. Superplasticizers added at the site shall be sent in pre-measured containers from the batch plant.
 - All concrete used for cast-in-place concrete slabs shall contain the specified water reducing or water-reducing/retarding admixture. All concrete slabs, placed at air temperature below 50°F shall contain the specified non-corrosive, non-chloride accelerator. All concrete placed at air temperature above 80° shall contain specified water-reducing/retarder admixture. All concrete required to be air-entrained shall contain an approved air-entraining admixture. All pumped concrete shall contain the specified high-range water-reducing admixture. Concrete with a water-cement ratio above 0.40 to 0.60 shall contain the specified water reducer.
 - All concrete requiring a high slump for placement (e.g. pumping, etc.) shall contain mid-range and high-range superplasticizer. Increased slump may not be achieved by exceeding the specified maximum water cement ratio. Maximum slump is 8 inches with use of water reducing admixture (ASTM C494).
 - Calcium chloride shall not be permitted, nor shall any admixture containing calcium chloride be permitted.
- No electrical conduit shall be placed above the welded wire fabric or top reinforcing of slabs.
- All aluminum in contact with concrete or dissimilar metals shall be coated with two coats coal tar epoxy, approved by the architect, unless otherwise noted.
- Concrete shall be discharged at the site within 1 1/2 hours after water has been added to the cement and aggregates. Addition of water to the mix at the project site will not be permitted. All water must be added at the batch plant. Slump may be adjusted only through the use of additional water reducing admixture or high range water reducing admixture.
- All concrete shall be placed without horizontal construction joints, except where specifically noted. Horizontal reinforcement shall be continuous through vertical construction joints.
- Construction joint locations other than shown on the drawings are permitted subject to prior approval of the engineer. Expansion joint and control joint locations are mandatory as shown. Contractor shall submit drawings showing intended placing sequences and location of construction joints to the engineer for approval. At poured in place walls, construction joints shall be located so as to provide a 60'-0" maximum horizontal length of concrete placement in any direction.
- All exposed edges of concrete members shall be chamfered 3/4" unless shown otherwise on architectural drawings.
- See architectural drawings for concrete finishes, masonry anchors, and for miscellaneous embedded pipes, bolts, anchors, angles, etc.
- The placement of sleeves, outlet boxes, box-outs, anchors, etc., for the mechanical, electrical and plumbing trades is the responsibility of the trade involved; however, any box-outs not covered by typical details in the structural drawings shall be provided for approval.
- Reinforcing bars shall conform to ASTM A615, grade 60. No tack welding of reinforcing in the field will be permitted.
- Welded wire fabric reinforcing shall conform to ASTM A1064 and be furnished in flat sheets and installed on chairs.
- Reinforcing bar sizes #3 through #5 may be bent cold the first time, provided reinforcing bar temperature is above 32°. For other bar sizes, preheat reinforcing bars before bending. See procedures as outlined in ACI 301.
- Wire bar supports shall be furnished for all reinforcing within slabs, inclusive of welded wire fabric. Bottom bars in slabs on grade may be supported by other suitable supports. Reinforcing shall be properly positioned prior to concrete placement and may not be re-positioned once concrete operations have begun. Wire bar and other types of supports shall be in accordance with the Concrete Reinforcing Steel Institute Manual of Standard Practices.
- Reinforcement shall be continuous through all construction joints unless otherwise noted on drawings.
- All hooks shown on drawings shall be standard hooks unless otherwise noted.
- Where continuous bars are called for, they shall run continuously around corners and be lapped at necessary splices, or hooked at discontinuous ends. Lap lengths shall be as given in the splice and development table.
- In reinforced concrete walls and footings provide corner dowels of same size and spacing as horizontal reinforcing. Dowels shall have a class "B" lap with horizontal reinforcing in each direction.

Minimum Lap Splice and Anchorage Dimension Table

Top Bars			Other Bars		
Bar size	Lap	Anchorage	Bar Size	Lap	Anchorage
#3	28"	22"	#3	22"	17"
#4	37"	29"	#4	29"	22"
#5	47"	36"	#5	36"	28"
#6	56"	43"	#6	43"	33"
#7	81"	63"	#7	63"	48"

Top Bars			Other Bars		
Bar Size	Lap	Anchorage	Bar Size	Lap	Anchorage
#3	19"	15"	#3	19"	15"
#4	33"	25"	#4	25"	19"
#5	41"	31"	#5	31"	24"
#6	49"	37"	#6	37"	29"
#7	71"	54"	#7	54"	42"

- "Top Bars" as noted in the tables indicates the condition where horizontal bars are so placed that more than 12 inches of fresh concrete is cast below the splice.
- In lapping two different size bars, use the lap dimension of the smaller bar or the anchorage dimension of the larger bar. Use whichever dimension is larger.

Minimum Concrete Cover for Reinforcing

- Unless noted otherwise, concrete reinforcing shall be placed with proper cover to provide protection in accordance with ACI 318, and within deviation tolerances listed in ACI 117.
- | Location | Minimum Cover |
|--|-------------------------------------|
| Footings cast against and permanently exposed to earth | 3" |
| Slabs on grade (W.V.F.) | 1/3 slab thickness from top of slab |
| Exterior slabs and stairs: #5 and smaller | 1 1/2" |
| #6 and smaller | 2" |
| Walls exterior face: #5 and smaller | 1 1/2" |
| #6 and smaller | 2" |
| Piers (vert. reinf.) | 2" |
| Piers ties | 1 1/2" |

Structural Precast Wall System

- It shall be the responsibility of the precast supplier to design and furnish all material required for a complete job. This shall include, but not be limited to, all precast elements, embedded connection material, loose connection material including erection to building structure and miscellaneous items as required by the architectural drawings and specifications. Also included is all tracing and/or girds required to brace or span to the building structure.
- The precast manufacturer shall notify the general contractor in writing of any items required to facilitate his work and which is not included in his contract. The general contractor shall assign these items to the appropriate subcontractors. Failure of the precast manufacturer to notify the general contractor of additional items required to do work shall imply that these items are included in his contract price.
- Precast supplier shall submit fabrication and erection drawings and structural calculations to the engineer for review. Shop drawings and calculations shall bear the stamp of an engineer registered in the state where the project is located.
- Precast supplier shall coordinate fabrication and erection of loose connection material with general contractor as required.
- The precast shall be designed to resist all wind out-of-plane loads.
- The precast shall be designed to support and resist all loads given on the drawings.

Post-Installed Anchors and Reinforcing Dowels

- Design of anchors, adhesives, and embedments specified on the drawings is based on Hilti products. Any substitutions shall meet or exceed the allowable shear and allowable tension values published in the Hilti North American Product Technical Guide.
- The contractor shall submit ICC ESR Evaluation reports and manufacturer installation instructions for all post-installed anchors being used on the project.
- The contractor shall ensure the installers of post-installed anchors shall have at least three (3) years of experience installing anchors in similar installations. If installers do not have the required experience with similar installations they must conduct a thorough training with the manufacturer's representative. Training shall consist of but not be limited to, proper hole drilling procedures, hole preparation and cleaning techniques, adhesive injection techniques and dispenser training / maintenance, rebar dowel preparation and installation and proof loading/testing.
- The contractor shall provide manufacturer product information for any requests for substitution for review to the EOR for compliance with the contract documents.
- The contractor shall submit the specific product information, for each application, for any product requesting substitution. For each application being substituted, provide anchor type, embedment depth, adhesive type, edge distances, etc., along with the allowable shear and tension capacity for the requested applications. Do not provide generic product data; only specific values for each substitution will be reviewed. If this information is not fully provided, the submittal will be immediately rejected.
- Post-installed anchors and dowels shall be used only where specifically indicated on the drawings or for post-specific conditions approved by the engineer. Items indicated to be cast-in-place shall not be substituted with post-installed methods or products unless prior approval is given by the engineer. When requesting a substitution of a post-installed anchor in lieu of cast-in-place anchor, calculations, for a post-installed alternate, shall be provided by an engineer registered in the appropriate jurisdiction of the project.
- Fastener and anchor material shall be as follows:
 - Bolts and Studs: ASTM A307; ASTM A449 (where indicated as 'High Strength')
 - Carbon and Alloy Steel Nuts: ASTM A493
 - Carbon Steel Washers: ASTM F436
 - Carbon Steel Threaded Rod: ASTM F1554, GR 36
 - Wedge Anchors: ASTM A108
 - Stainless Steel Bolts, Hex Cap Screws, and Studs: ASTM F953
 - Stainless Steel Nuts: ASTM F594
 - Zinc Plating: ASTM B633
 - Hot-Dip Galvanizing: ASTM A153
 - Reinforcing Dowels: ASTM A615
- The following anchors shall only be used where indicated on the drawings, unless specifically noted otherwise in sections or details in the drawings:

CONCRETE ANCHORS (CRACKED AND UNCRACKED CONCRETE)		
ANCHOR TYPE	ADHESIVE TYPE	ROD TYPE
Adhesive	Hilti HIT-HY200 SafeSet System	Hilti HIT-Z Rod
Mechanical	-	Hilti KWIK-HIS-EZ

CONCRETE REINFORCING (CRACKED AND UNCRACKED CONCRETE)		
ANCHOR TYPE	ADHESIVE TYPE	REINFORCING
Medium Duty Adhesive	Hilti HIT-HY100 SafeSet System	As indicated on drawings.
Heavy Duty Adhesive	Hilti HIT-HY200 SafeSet System	As indicated on drawings.

Steel Joists and Joist Girders

- Steel joist design, fabrication and erection shall conform to the latest specifications and code of standard practice of the Steel Joist Institute, the requirements of OSHA section 1926.757, and as shown on the drawings. All joist girders to conform to latest edition of AISI and SJI specifications. Joist girder supplier shall supply a copy of all girder calculations and section properties with shop drawings. Joists shown as "special" joints on the drawings shall be designed for the load diagrams shown.
- All steel joists and joist girders shall receive one standard shop coat of white or light gray oxide paint unless noted otherwise on drawings. Asphaltic paints are not acceptable.
- All steel joists and joist girders shall be designed to resist net uplift forces shown at beginning of general notes.
- An open web joist girder to have bottom chord braces as required by design and erection. Braces to be furnished by the joist girder supplier.
- Ends of every joist which rests on steel supports shall be welded per SJI requirements.
- General contractor shall verify all structural steel joist locations, mechanical unit weights and opening sizes and locations with mechanical contractor and vendor's drawings for actual mechanical units purchased.
- No light gauge framing, mechanical, electrical, or other equipment shall be suspended from or attached to any interior bridging.
- Where lighting, ductwork or mechanical equipment is located in joist spaces, contractor shall remove horizontal and/or diagonal bridging interfering with duct or equipment installation once joists are erected and deck is installed. Once ductwork or equipment is installed, horizontal bottom chord bridging shall be reinstalled. Coordinate all proposed removal locations with E.O.R. and joist supplier prior to removing.
- Field modifications to joists and joist girders are prohibited without the written consent from the joist manufacturer. The contractor shall copy the architect and engineer on all correspondence.

Structural Steel

- Detailing, fabrication, and erection shall conform to the latest edition as referenced by the applicable building code, of the AISI "Steel Construction Manual" and AISI 360 "Specifications for Structural Steel Fabrications", herein referred to as "AISC Manual" and "AISC Specification".
Structural Steel: (W shapes) ASTM A992 (Fy=50ksi)
(M, S, C shapes) ASTM A36 one
(Plate, Angles) ASTM A36 one
HSS: (tubular shapes) ASTM A500 grade C (Fy=50ksi)
All anchor rods shall be ASTM F1554 grade 36, uno.
All structural steel not to receive spray fire-proofing shall be primed white or light gray; asphaltic paints are not acceptable.
All column base plates shall have a minimum of four anchor rods.

- Connections shown on these drawings are generally schematic. They are intended to define the spatial relationship of the framed members and show a feasible method of making the connection. Any connection that is not shown or is not completely detailed on the structural drawings shall be designed by a registered professional engineer, retained by the fabricator. Details and connections may be designed to conform to AISC Manual. Completely detailed means the following information is shown on the shop detail drawings:
 - All plate dimensions and grade.
 - All weld sizes, lengths, pitches and returns.
 - All hole sizes and spacings.
 - Number and type of bolts: where bolts are shown but no number is given, the connection has not been completely detailed.
 - Where partial information is given, it shall be the minimum requirement for connection.
 - Method of design.
- Details and connections completely detailed in the contract drawings may not be altered without written approval by the engineer. Where approved, altered connections shall be completely detailed by the fabricator's engineer clearly on the shop drawings.
- Alterations of schematic connection details may impact architectural concept and shall not be made without prior written approval of the engineer.
- Minimum connection plate thickness shall be 3/8", unless otherwise indicated in the contract drawings.
- For W, M, S, and C shapes, unless otherwise noted, beam to beam connections and beam to column connections shall be one of the following double angle (1 min=5/16") framed beam connections:
 - Shop welded per Table 10-2, AISC Manual for using weld A, and using 3/4" diameter ASTM 325-n bolts in standard or horizontally slotted holes for the field connection.
 - All bolted connections per Table 10-1, AISC Manual. Controlling strength of connection shall be least of bolt / angle strength or beam web strength taking into account coped flanges.
- The minimum length of connection angles shall be equal to one-half the depth of the member to be supported.
- Unless otherwise noted, all connections at HSS sections shall be designed and detailed in accordance with the AISC Manual and AISC Specification.
- Where the reactions of uniformly loaded beams and girders are not shown on the drawings, the connections shall be designed to support the reactions due to the maximum allowable uniform load as indicated in the load tables of the AISC Manual, Part 3 for the given beam size and span. For beams and girders not uniformly loaded see plan for reaction; if no reaction is shown, contact Engineer of Record for reactions.
- All bolts not designated as slip critical bolts shall be considered bearing bolts. Do not over tighten bearing bolts, especially for beams to support concrete slabs. Tighten bearing bolts to a snug condition only, per AISC specifications.

Structural Steel (cont.)

- Twist-off type tension control bolts are not permitted to be used as bearing bolts.
- All welding shall be done using E-70xx electrodes in accordance with the latest AWS specifications.
- Work these drawings with architectural drawings for nailer holes and architectural clearances.
- General contractor shall verify all structural beam locations, mechanical unit weights and opening sizes and locations with mechanical contractor and vendor's drawings for actual mechanical unit purchased.
- Splicing of structural members where not detailed on the drawings is prohibited without prior approval of the structural engineer.
- Cuts, holes, coping, etc. required for work of other trades shall be shown on the shop drawings and made in the shop. Cuts or burning of holes in structural steel members in the field will not be permitted, unless specifically approved in each case by the structural engineer.
- All HSS shapes (round, square, rectangular, etc.) are to have a 1/4" cap plate at all exposed ends. Cap plates to be seal welded all around, uno. Provide 3/8"x12" weep holes in the center of the plate.
- All weld sizes not shown in details herein shall be the minimum required size based on thickness of thinner part as per AISC Specification, Tables J2.3 & J2.4. Exception: At member splices welds or bolts shall develop full strength of the member or components being connected.
- All around welds indicated herein shall be discontinuous at the flange tips of open sections.
- All structural steel, including base plates and tops of anchor bolts, to be exposed to soil are to be coated with an approved coal tar epoxy, 16 mils minimum thickness.
- Any alteration made by the detailer on the structural steel shop drawings to schematic or completely detailed connections shown on the contract drawings must be clearly identified by clouding or by direct note on the shop drawing by the detailer prior to submission to the engineer.
- Any member sizes shown on the plans, and currently listed in the AISC Steel Manual, which are not currently available must be brought to the architect's and structural engineer's attention prior to award of steel contract. No claim for additional cost will be accepted after the award, for member/but up member substitutions for these sizes.
- All supplemental steel required for roof units and roof openings over 12"x12" to be supplied by structural steel fabricator and be coordinated by general contractor with the joist fabricator, mechanical drawings and mechanical equipment supplier.
- Hot dip galvanize per ASTM A123 after fabrication the following structural steel members:
 - Items identified on the architectural and structural drawings. All steel permanently exposed to weather shall be hot dipped galvanized unless specified otherwise on the architectural drawings. For members shown to be galvanized, all connection material shall also be galvanized.

Steel Stairs

- All stair landings, stairs and stair supports to be designed by stair manufacturer; layout of stairs, landings, handrails, etc. shall comply with the Architectural drawings. Supply structural design calculations and drawings stamped by an engineer registered in the appropriate jurisdiction of the project to the structural engineer for review of structural loading requirements. Stair layouts, landings, handrails, etc. are the responsibility of the Architect and stair manufacturer to review for code and AIA compliance. Stair manufacturer shall provide all posts, brackets, hangers, etc. to support stairs. Hangers and posts shall be located in partition walls. Posts or hangers shall load the structure concentrically.

Metal Roof Decking

- All metal roof decking shall comply with the provisions of the latest edition of SDI-RD "Standard for Steel Roof Deck" and underwriter requirements (Factory Mutual, etc.).
- Deck and accessories shall be shop primed with white or light gray rust inhibitive primer where indicated.
- Deck and accessories where indicated shall be galvanized.
- No light gauge framing, mechanical, electrical or other equipment shall be suspended from or attached to any metal roof deck.
- See plans for deck attachment.