

Design Specifications:

- ASCE 7-10
ACI 318-11
ACI 530-11
ASCS 360-10
ASCS 341-10
ANSI S100-07
ANSI/AIA PA NDS-12

Design Loads:

- Roof Loads: Dead Load, Live Load
Mezzanine Loads: Dead Load, Live Load
Seismic Loads: Seismic Force Resisting System, Analysis Procedure Used

General:

- 1. The structural systems shown on these documents have been designed for the final, in place usage of the structure based on the intended occupancy and code requirements.
2. The Contractor shall field verify all existing dimensions prior to fabrication.
3. The Contractor shall notify the Engineer of any observed discrepancies in dimensions, detailing, or other items as shown on the plans or specified prior to proceeding with work relating to said discrepancies.
4. The Contractor shall not alter or modify work shown on the structural drawings without receiving written approval from the Engineer.
5. The Contractor shall be responsible for supplying shop drawings for reinforcing steel.
6. See architectural, mechanical, and electrical drawings for other pertinent information related to the structural work and coordinate as required.
7. The building and the independent structural components shown in these documents are not structurally stable until all connections, framing, shear walls, diaphragms, permanent bracing, metal decking, interior and exterior concrete slabs on grade, and exterior or interior load-bearing walls are complete and have achieved their design strength.
8. The Contractor is responsible for verifying all existing dimensions and conditions of the existing building and reporting discrepancies from the assumed conditions shown on the structural drawings to the Engineer of record prior to fabrication and erection of any member.
9. The Contractor shall coordinate the roof drainage system with the Architect as required to ensure that no more than 3 1/2" of water can accumulate before entering an overflow drainage system.
10. The drawings and notes represent the finished foundation system only. The pre-engineered metal building manufacturer is responsible for the entire design of the steel superstructure, roof, deck, fasias, support, bracing, wall panels, lateral system and related work.

Structural Engineer Site Observations:

- 1. The contract structural drawings & specifications represent the finished structure, and, except where specifically shown, do not indicate the method or means of construction.
2. The Engineer shall not have control nor charge of and shall not be responsible for, construction means, methods, techniques, sequences, or procedures, for safety precautions & programs in connection with the work, for the acts or omission of the Contractor, subcontractor, or any other persons performing any of the work, or for the failure of any of them to carry out the work in accordance with the contract documents.
3. Periodic site observation by field representatives of BSE Structural Engineers LLC is solely for the purpose of determining if the work of the Contractor is proceeding in general accordance with the structural contract documents. This limited site observation should not be construed as exhaustive or continuous to check the quality or quantity of work, but rather periodic in an effort to guard the Client against defects or deficiencies in the work of the Contractor.

Slab On Grade:

- 1. Welded wire fabric shall be supplied in sheets only. Rolls will not be permitted.
2. Welded wire fabric shall be supported on chairs or blocks prior to concrete placement. Mesh shall not be hooked and pulled up during concrete placement.
3. Welded wire fabric shall have end and edge laps of one full mesh plus 2" between cross wires. Wire all laps securely together.
4. Welded wire fabric shall conform to ASTM A1064.

- Floor finish requirements: Slab on grade shall be finished to overall floor flatness, overall floor levelness, local floor flatness, and local floor levelness requirements as defined by the Owner. Coordinate requirements as required with G.C. prior to slab-on-grade placement. Floor finish requirements to be determined in accordance with ASTM E 1155.

Foundations:

- 1. Foundations for this project have been designed in accordance with requirements set forth in a geotechnical report prepared by Terrason, dated January 30, 2018, project No. EH175314. Cont. & indiv. footings have been designed for an allowable soil bearing value of 2,000 psf. The Contractor shall refer to the geotech. report for all requirements & recommendations pertinent to this project.
2. Anchor rods shall conform to ASTM F1554 Gr. 36 and shall be located by means of a template. Provide a not above and below template to assure proper vertical alignment.
3. All foundations shall be square and level.
4. Grout shall be dry and stiff to prevent shrinkage, with a minimum compressive strength of 3,000 psi. Grout below column base plates. Thoroughly compact grout beneath base plate.
5. Grout below precast panels. Grout mix shall be shrink resistant with a minimum compressive strength of 3,000 psi.
6. Foundations for this project have been designed based on reactions provided by INSERT STRUCTURE DESIGNER

Concrete and Reinforcing Steel:

- 1. Concrete mix designs shall meet the following requirements:

Table with 6 columns: Location, Minimum Compressive Strength (psi), Max. Aggregate Size, Max. Water/Cement Ratio, Slump (in.), Air Entrainment (%). Rows include Interior Slabs, Exterior Slabs, Interior Foundations, Perimeter Foundations, and Exterior Walls & Pedestals.

- 2. Fly ash shall not be used unless approved in writing by the Engineer. Fly ash, if approved, shall conform to ASTM C618 and ACI 232.2R-96. Fly ash shall be limited to types C & F and shall not exceed 15% of the total cement volume.
3. The use of admixtures to increase the slump shall not be used unless approved in writing by the Engineer.
4. All concrete is reinforced unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas.
5. Construction joints in grade beams shall be at midspan unless noted otherwise. Reinforcing steel shall be continuous through construction joints unless noted otherwise.
6. No aluminum items shall be embedded in any concrete or placed in contact with concrete.
7. Reinforcing bars #4 and larger (except ties and stirrups) shall meet ASTM A615 with Supplementary Requirements (S1), Grade 60. Smaller bars shall be Grade 40.

- 8. Concrete coverage of reinforcement shall have the following clear distances unless noted otherwise on the drawings: Cast against earth: 3" Formed concrete exposed to earth or weather: 2" Not exposed to earth or weather: 1" Slabs, 1 1/2" Beams and columns
9. Embedded and all reinforcing bars marked continuous shall be embedded to develop the full tensile capacity of the bar. Laps shall be Class B tension laps unless specified otherwise on the drawings. Unless shown otherwise, splice top bars near midspan and splice bottom bars over supports.
10. Supply corner bars 4" 0" long (min. 2" 0" in each direction) in outside face of wall at corners of all walls and grade beams, matching size and spacing of horizontal bars. Where there are no vertical bars in outside face of wall, supply three (3) #4 vertical support bars for corner bars.

- 11. All bars are to be supported in forms and spaced with wire bar supports per ACI "Manual of Standard Practice for Detailing Concrete Structures" (latest edition). Bars shall be securely wired per the latest edition of CSI's "Recommended Practice for Placing Reinforcing Bars." Accessories for exposed concrete shall be plastic or shall have plastic-tipped feet.
12. Concrete placed during cold weather shall conform to the requirements of the most recent version of ACI 306R. Cold weather is defined as a period when, for more than 3 successive days, the mean daily temperature drops below 40°F.
13. Concrete placed during hot weather shall conform to the requirements of the most recent version of ACI 305R. Hot weather is defined as that combination of air temperature, concrete temperature, relative humidity and wind speed that will cause a rate of evaporation of 0.2 lb/sq.ft./hr. or more as defined by Figure 2.1.5 of ACI 305R.

- 14. Do not add water to concrete during delivery, at Project Site, or during placement, unless approved by the Engineer.
15. Provide 3/4" chamfer on all exposed corners unless noted otherwise on architectural or structural construction documents.
16. All cold joints shall be roughened and cleaned unless noted otherwise.
17. Vertical control joints in walls shall be placed at 30'-0" maximum spacing unless noted otherwise. Locate joints inside in lieu of control joints with walls, near corners, and in concealed locations where possible. Construction joints may be placed in line of control joints at contractor's discretion. Coordinate location of control joints with Architect.

Post-Installed Anchors:

- 1. Post-Installed anchors shall only be used where specified in the construction documents.
2. The Contractor shall obtain written approval from the Engineer prior to installing post-installed anchors for mis-placed anchors.
3. Care shall be taken with placing post-installed anchors to avoid damaging existing reinforcement.
4. The holes shall be drilled and cleaned in accordance with the manufacturer's specifications.
5. Post-installed anchors shall meet ACI 318 Appendix D criteria. The following are acceptable post-installed anchors:

- All adhesive anchoring systems referred to in these drawings shall be one of the following: a. Hilti HIT HY 200 b. Powers AC108+ Gold c. Simpson Strong-Tie SET-XP d. Or Approved Equivalent

- All screw anchors referred to in these drawings shall be one of the following: a. Hilti KH-EZ b. Powers Wedge Bolt+ c. Simpson Strong-Tie Titen HD d. Or Approved Equivalent

Structural Steel:

- 1. All structural steel shall conform to the following: Structural Steel Wide Flangers: ASTM A992 Miscellaneous Steel: ASTM A36 Structural Tubing: ASTM A513, Grade B (Fy = 46 ksi) Steel Pipe: ASTM A53, Type E or S, Grade B

- 2. Bolts shall be as follows: Connection Bolts: ASTM A325 Anchor Bolts: ASTM F1554, Grade 36 Shear Studs: ASTM A108, Grade 1015 through 1020

- 3. Welding shall conform to the latest publication of applicable codes set forth by the American Welding Society. Welding electrodes shall be E70XX.
4. All structural steel exposed to weather shall be hot-dipped galvanized and painted per Architect unless noted other

Special Inspector:

- 1. The following items require special inspection in accordance with the building code: a. Reinforced masonry construction - level 1 inspection b. Concrete & masonry grout design mix c. Placing of concrete & reinforcing steel d. Bolts & anchors embedded in concrete & masonry e. Concrete formwork f. Structural steel fabrication g. Structural steel bolting & welding h. Inspection of roof & deck attachment i. Post installed anchors in masonry & concrete j. In-situ soils, excavations, filling & compaction
2. The Contractor shall request special inspection of the items listed above prior to those items becoming inaccessible & unobservable due to progression of the work.
3. The Special Inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection.
4. The Special Inspector shall observe the work assigned for conformance with the approved design drawings and specifications.
5. The Special Inspector shall furnish inspection reports to the Building Official, the Engineer and Architect of record, and other designated persons. All discrepancies shall be brought to the immediate attention of the Contractor for correction, then if uncorrected, to the proper design authority and to the Building Official.
6. The Special Inspector shall submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of the governing building codes.

Prefabricated Metal Trusses:

- 1. Roof trusses shall be factory-manufactured cold formed galvanized metal trusses. Trusses shall be designed for the loads shown on the construction drawings. Truss manufacturers shall provide design calculations, shop drawings and erection drawings for review by the Engineer prior to construction. Contractor shall install all blocking, load transfer assemblies, hangers, accessories, etc. as recommended by the truss manufacturer or these construction drawings.
2. Roof trusses shall be designed by a Professional Engineer. All calculations and shop drawings shall bear the seal of a Professional Engineer registered in the state in which the trusses are to be used.
3. All trusses shall be designed for the following deflection criteria: Total Load: L/240 Live Load: L/360
4. Truss designer shall be responsible for all connections of truss system to supporting structure.

Earthwork:

- 1. The Inspector must verify that the preparation of the natural ground and the placement of engineered fill is performed in accordance with the geotechnical engineer's recommendations as stated in the geotechnical report.
2. The Inspector must monitor the placement of all fill to determine whether the type of material, moisture content, and degree of compaction are within the recommended limits contained in the geotechnical report. Proceed with subsequent earthwork only after test results for previously completed work comply with recommended limits contained in the geotechnical report.
3. All subgrade supporting footings and slabs must be inspected immediately prior to the placement of reinforced concrete.
4. Paved and building slab areas shall be tested at subgrade and at each compacted fill and backfill layer, at least once for every 2000 sq. ft. or less of paved or building slab areas, but in no case fewer than 3 tests.
5. Foundation wall backfill shall be tested at each compacted initial and final backfill layer, at least once for each 100 ft. or less of wall length, but no fewer than 2 tests.
6. Trench backfill shall be tested at each compacted initial and final backfill layer, at least once for each 150 ft. or less of trench length, but no fewer than 2 tests.
7. Test compaction of soils-in-place in accordance with ASTM D 1556, ASTM D 1586, ASTM D 2922, or ASTM D 2937, as applicable.
8. Test Reporting: Test results must be reported to the general contractor in writing within 24 hours after testing, via fax. Reports must contain the project name, the date of the test and the location of the test.

Concrete:

- 1. Strength test cylinders shall be prepared for each day's pour of each concrete mix and at a minimum frequency of every 50 cu. yd. on all concrete placed. Conform to ASTM C39.
2. Four (4) test cylinders are to be made and cured on site for the first 24 hours. Test one of the specimens at 7 days and two at 28 days. Hold the fourth specimen in reserve for later testing if needed.
3. Slump, air content and temperature tests shall be conducted at a minimum when strength specimens are made and at any other times as specified by the Engineer.
4. Perform slump tests on a representative concrete sample at the point of discharge. Perform additional tests when concrete consistency seems to have changed. The maximum allowable field slump is 5 inches. Conform to ASTM C143.
5. Perform air content tests on all concrete specified to be air-entrained. Conform to ASTM C231.
6. Perform a temperature test every hour when air temperature is 40°F and below, or when air temperature is 80°F and above. Conform to ASTM C 1064.
7. Prior to the closing of forms or the delivery of concrete to the job site, the inspector shall verify that the reinforcing steel is in conformance with the city-approved plans, specifications and shop drawings. The inspector shall confirm that the reinforcing steel is of the correct size and grade and ensure that the proper spacing, clearances, splice lengths and embedded items have been provided. All reinforcing steel shall be in place prior to the placement of concrete and be secured against displacement.
8. The Inspector shall verify that the bolt size, location and embedment length of all anchor bolts are in conformance with the city-approved plans, specifications and shop drawings.
9. Anchor rods 3/4"Ø or smaller may be floated in place following concrete placement, provided that anchor bolts are worked easily by hand into the fresh concrete to allow for full contact with the shank of the bolt. Bolts shall be placed by means of a template and shall be worked into concrete in vertical alignment.
10. Test Reporting: Test results must be reported to BSE and the General Contractor in writing within 24 hours after testing, via fax or email. Reports of compressive strength tests must contain the project name, the date of concrete placement, the location of concrete placement within the structure and the concrete mix design being used.

ABBREVIATIONS LIST

Table with 2 columns: Symbol and Abbreviation. Includes AND, DEGREES, EQUALS, FEET, GREATER THAN, INCHES, LESS THAN, MINUS, PLUS, ABOVE FINISHED FLOOR, ARCHITECT BUILDING, BOTTOM OF STEEL, CONTROL/CONSTRUCTION JOINT, CENTER LINE, CONCRETE MASONRY UNIT, CEILING, COLUMN, CONCRETE, CONTINUOUS COORDINATE, DIAMETER, DRAWING, FINISHED FLOOR ELEVATION, ELEVATION, EQUIPMENT, EXISTING, FACE, FINISHED FLOOR ELEVATION, FOOTING BEARING ELEVATION, GENERAL CONTRACTOR, GALVANIZED, GYPSUM, HORIZONTAL, JOIST BEARING ELEVATION, JOINT, LINEAR FEET, LONG LEG HORIZONTAL, LONG LEG VERTICAL, METAL BUILDING MANUFACTURER, MECHANICAL ELECTRICAL PLUMBING, MINIMUM, MISCELLANEOUS, NOT APPLICABLE, NEAR SIDE, NOT TO SCALE, PRE-ENGINEERED METAL BUILDING, POUNDS PER SQUARE FOOT, POUNDS PER SQUARE INCH, REQUIRED SQUARE FEET, SIMILAR, SPACING, SPECIFICATION, SQUARE, TOP OF CONCRETE, TOP OF FOOTING, TOP OF STEEL, TOP OF WALL THROUGH, TYPICAL, UNLESS NOTED OTHERWISE, VERTICAL, WELDED WIRE FABRIC, WEIGHT, WITHOUT.

SHEET LIST

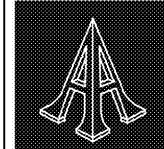
Table with 2 columns: Sheet Number and Sheet Name. Includes YS-1 GENERAL NOTES, YS-2 FOUNDATION PLAN, YS-3 TYPICAL FOUNDATION DETAILS, YS-4 LUBE PIT, YS-5 LUBE PIT, YS-6 FOUNDATION DETAILS, YS-7 FOUNDATION DETAILS.

MATERIALS LEGEND

Table with 2 columns: Material Name and Pattern. Includes ALUMINIUM, CONCRETE, EARTH, GRAVEL, GROUT, INSULATION - RIGID, MASONRY - BRICK, MASONRY - CMU, PLYWOOD, STEEL, TILT / PRE-CAST.

SYMBOLS LEGEND

Table with 2 columns: Symbol and Description. Includes DETAIL (DRAWING NUMBER, SHEET NUMBER, AREA OF DETAIL), ELEVATION (DRAWING NUMBER, SHEET NUMBER), SECTION (DRAWING NUMBER, SHEET NUMBER), BEAM DESIGNATION (BEAM DESIGNATION, CAMBER OF BEAM IN INCHES, SHEAR STUD COUNT, BEAM TYPE & SIZE), COLUMN DESIGNATION (COLUMN SIZE, COLUMN TYPE), FOOTING DESIGNATION (FOOTING MARK, BEARING ELEVATION), PIER DESIGNATION (FOOTING MARK, TOP OF PIER ELEVATION), COLUMN GRID (GRID DESIGNATION), MOMENT CONNECTION, NORTH ARROW, REVISION DESIGNATION, JOIST BEARING ELEVATION, SLAB THICKNESS TRANSITION.



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Revisions table with columns No. and Date.

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