



CERTIFICATION



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REVISION      DATE      BY

DATE      PROJECT  
11-2-2005      2005.0039

TITLE

General Notes

SHEET

**S4.1**

**GENERAL**

- Contractor shall be responsible for all existing dimensions and job site conditions. If discrepancies between actual conditions and those shown on documents exist, notify Architect/Engineer in writing prior to construction.
- Governing building codes are as follows:
  - 2000 International Building Code and Indiana Construction Rules.
  - A.C.I. Building Code Requirements for Reinforced Concrete (A.C.I. 318-05).
  - Code of Standard Practice for Steel Construction, A.I.S.C., 9th Edition.
- 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 building and its component parts during erection. This includes the addition of whatever shoring, sheeting, temporary bracing, gusset or tie-downs which might be necessary. Such material shall remain the contractor's property after completion of the project.

**EARTH WORK**

- Remove topsoil, existing fill material, debris, organic pockets, etc. from building and pavement areas. After stripping, grade areas and remove soft pockets. Structural fill shall be compacted to 95% modified proctor density under floor slabs (4" minimum granular fill under floor slabs). Structural fill under footings must be compacted to 95% modified proctor density. Fill material shall be placed in layers not to exceed 6" in loose thickness. See soils report by GME Testing dated August 15, 2005.
- Bottoms of all footings shall be protected from moisture damage by placing 2" seal of lean concrete if the foundation cannot be cast immediately.
- Backfilling of all walls shall be of clean granular fill compacted in 8" maximum layers except the top 18" of backfill occurring outside of the building (not including sidewalks adjacent to building) shall be of well compacted clay as a seal against surface water intrusion. Backfill occurring against both faces of any wall shall be placed simultaneously.
- Net allowable soil pressure are as follows:
  - Spread footings: 3000 psf
  - Continuous wall footings: 2500 psf
- Owner's soil engineer shall field inspect all footings at depths indicated to confirm that soil bearing pressure is as noted on these documents. If suitable bearing is not obtained at depth indicated, soil engineer shall direct method of obtaining stated bearing pressure. Method shall be approved by Architect/Engineer prior to construction. Under no condition shall footings be placed on soft or filled material.

**CONCRETE**

- Mix designs are as follows:
  - Compressive strength (28 day): 3,000 psi, 4,000 psi
  - Water/cement: 0.45, 0.45
  - Gallon/sack (maximum): 31, 5
  - Cement: 419, 6
  - Sand/Volume (minimum): 419, 6
- Maximum slump to be 4".
- Concrete strengths and densities shall be as follows:
  - Interior footings: 3,000 psi
  - Exterior footings: 4,000 psi
  - Interior concrete and foundations: 3,000 psi
- Minimum concrete cover over main reinforcing steel shall be as follows:
  - All foundations: 3"
  - All dirt faces of walls and wall faces exposed to weather: 2"
  - All tie bars, ties and beam stirrups: 1 1/2"
  - All structural slabs and other wall surfaces: 1 1/2"
- Provide shop drawings and/or manufacturer's data for reinforcing steel, forming accessories, admixtures, joint materials and concrete mix design information. Shop drawings shall be approved prior to construction.
- Provide two (2) #5 bars (one at each foot) around all openings in walls and structural slabs. Bars shall extend 2'-0" beyond opening limits where possible or be provided with standard A.C.I. 90 degree bent ends.
- All reinforcing steel shall be ASTM A-315, Grade 60. All W.W.M. shall be of cold drawn wire and shall meet all requirements of ASTM A-185.
- Provide appropriate depressions in slabs for floor material. Maintain full slab depth below these depressions. See architectural finish schedules, floor plans and details for locations and details of required depressions.
- Anchor bolts shall be ASTM F1554 Grade 36, and shall be set true and plumb with the use of templates.
- Provide corner bars in foundation walls, grade beams and trench footings to match horizontal steel.
- All slabs on grade shall have a 15'-0" maximum distance between construction or control joints (C.A.J.). Control joints shall be located along column lines whenever possible. Provide expansion joint (diamond shape) isolation at columns. Saw cuts shall be a quarter of the thickness of the slab. No portion of slab between joints shall have a length which exceeds 150% of the width.

**STRUCTURAL STEEL**

- All structural steel shall be detailed with load transmitting field connections made with 3/4" diameter ASTM A-325 bolts. Shop connections shall be welded. Hinged beam web splices where required are shown on the plan by the following symbol: . A flexible hinge splice shall be provided sufficient for shear. All connections and splices shall be clearly detailed on the shop drawings for approval.
- Structural steel material is as follows:
  - Wide flange shapes: ASTM A992
  - Structural steel plates and rolled shapes other than wide flange shapes: ASTM A36
  - Structural steel tubing: ASTM A500, Grade B
  - Structural steel pipe: ASTM A53, Grade B
- Provide 1/4" beam stiffeners to all beams at center line of columns crossed over by beams except where framed connections of other beams occur.
- Set leveling or bearing plates on cleaned bearing surfaces using wedges or other adjustments as required. Solidly pack open spaces with non-shrink, non-metallic grout.
- Field welds to be made with E70XX electrodes according to AWS. Welded connections using ASTM A992 steel as a base metal shall be made with E70XX low hydrogen electrodes.
- All design, fabrication and erection of structural steel shall be in accordance with AISC and AWS specifications.
- All connections not specifically detailed on contract documents shall be designed and detailed by the structural steel fabricator in compliance with AISC standards. All connections shall be clearly shown on final shop drawings submitted for approval prior to fabrication.
- Lintels not indicated on plans are as follows:
  - Provide angle lintels over all openings and recesses in both interior and exterior walls unless otherwise noted. All lintels for mechanical and electrical openings are not shown. See mechanical and electrical plans for locations of lintels and lengths required for ductwork, pipes, electrical conduits, etc.
  - Angle lintels shall have a minimum end bearing on masonry of 4 1/2", but not less than 1" of such bearing for each foot of opening width. Angles in pairs shall be welded or bolted together with 1/2" diameter bolts at 18" oc. In case of single angle, anchor to concrete or masonry backup with 1/2" diameter expansion type anchors at 18" oc.
  - For 6" block partitions use two (2) - 1/2"x3/8"x6" (LLV) for spans up to 10'-0", for 8" to 10" block partitions use two (2) - 1/2"x3/8"x6" (LLV) for spans up to 7'-0". For spans 7'-0" to 10'-0" use two (2) - 1/2"x3/8"x6" (LLV). For 12" walls use three (3) angles as specified for 8" to 10" walls above.
  - Coordinate masonry rough openings with all trades.

**MASONRY**

- Hollow load-bearing units shall conform to ASTM C-90, Grade A, minimum  $f_m = 1,350$  psi.
- Bond beam block units and plaster block units shall be of same aggregate and surface texture as wall units.
- Install horizontal reinforcement, D#4-Wall or equal, in alternate joints of walls starting with the first joint above starting course.
- Concrete block shall be laid up in running bond with 3/8" thick mortar joints.
- Mortar shall conform to ASTM C-270, Type M or S for masonry.
- Intersecting masonry walls and partitions shall be bonded by use of steel ties at 24" oc maximum. Corners shall have a standard masonry bond by overlapping units.
- Mortar croppings shall be kept out of grout space.
- All grout shall be puddled or vibrated in place.
- Hollow unit masonry shall be grouted in vertical lifts not to exceed 4'-0".
- Where steel framing bearing plates bear on masonry without a masonry plaster grout two block courses full beneath bearing elevation.
- Install CWU bond beams with (2) - #5 bars beneath structural bearing plate elevations and at/ or beneath deck bearing angles on load bearing walls, at top of block walls and at intermediate locations as noted by architectural/structural drawings.

**REINFORCED MASONRY**

- Reinforcing steel shall be lapped 30 bar diameters minimum where spliced (U.N.O.).
- Vertical reinforcing shall have a minimum clearance of 1/4" from masonry.
- Cells containing reinforcement shall be solidly filled with grout and pours shall be stepped 1/2" below top of a course to form a key at pour joints.
- All reinforcing bars shall be Grade 60.
- Provide shop drawings and/or manufacturer's data for the following: reinforcing steel and masonry units. Shop drawings shall show location, size and placement details for all reinforcing bars. Work shall not be started until shop drawings have been approved.
- Where the grout pour exceeds 4'-0" in height, cleanouts shall be provided by suitable openings in face shells in the bottom course of each cell to be grouted or other approved locations. The cleanouts shall be sealed after inspection and before grouting.

**METAL DECK**

- Provide shop drawing details and layout of metal roof and form deck for approval.
- All design, fabrication and erection of metal roof and form deck shall be in accordance with SDI "Metal Deck Specifications". Fasten deck to supporting steel members according to manufacturer's recommendations.
- Form deck units in lengths to span at least three (3) supports, flush, telescoped or nested 2" end laps; nested or interlocking end laps.
- Provide L3/8"x3/8" welded frame at all roof openings 12"x12" or larger. See typical roof opening detail.
- Provide form/deck bearing angle to all (4) sides of columns that penetrate form/roof. Shop weld angles to columns.

**JOISTS**

- All design, fabrication and erection of "K", "LH" and "DLH" series joists and joist girders shall be in accordance with S.J.I. specifications.
- Horizontal joist bridging for "K" and "LH" series joists shall consist of a minimum of two (2) continuous horizontal steel members (unless as required below), one attached to the top chord and the other attached to the bottom chord. Attachment to the joist shall be made by welding or mechanical means. For spans EQUAL TO OR EXCEEDING that shown in the bridging requirement tables for "K" and "LH" series joists (sections 6 and 105 respectively of the S.J.I. specifications), one of the required rows, nearest mid-span, must be bolted diagonal type bridging. For spans through 60 feet, the bolted diagonal bridging must be installed BEFORE releasing the hoisting lines. FOR SPANS OVER 60 FEET, ALL BRIDGING ROWS MUST BE BOLTED DIAGONAL TYPE. Spans over 60 feet through 100 feet require two rows of bolted diagonal bridging to be installed, at one-third points, BEFORE releasing the hoisting lines. Spans over 100 feet require ALL rows of bolted diagonal bridging to be installed BEFORE releasing the hoisting lines. ALL "DLH" SERIES JOISTS REQUIRE ALL BRIDGING ROWS TO BE BOLTED DIAGONAL TYPE. The ends of all bridging lines terminating at walls shall be anchored thereto at top and bottom chords. Joist manufacturer shall verify that horizontal bridging shown is adequate to brace bottom chord against lateral movement under the net uplift pressure.
- Joist manufacturer shall verify design for span, spacings and slope shown on plan. (Note: snow load may govern spacing)
  - Roof Load:
    - Dead Load: 25 psf
    - Live Load: 30 psf
    - Net Uplift: 10 psf
  - Floor Load (U.N.O.):
    - Dead Load: 60 psf
    - Live Load: 150 psf
- Provide shop drawings showing complete details, schedules and layout for steel joist fabrication and erection. Submit shop drawings for approval prior to fabrication.
- Joist manufacturer shall verify locations and sizes of all roof openings and weights and locations of all mechanical units on roof with mechanical contractor prior to fabrication.