

Abbreviations

Table of abbreviations and their corresponding full names, including Adj, Arch, BC, Bldg, Bm, Bim, BP, Br, BS, BW, C, Cnl, CJ, CL, Cr, CMU, Col, Conc, Conn, Const, Cont, Coord, D, Dia, Dim, Dwg, Dwl, Ea, EF, Elec, Elev, Embed, Eq, Equip, EW, Exist, Exp, Ext, Fnd, FFE, FF, FS, Fig, Ga, Galv, Horiz, Ins, Int, Jst, Jt, K, KSI, LB, LD, LL, LLL, LLV, Long, LWC, Manuf, Mat, Max, Mech, Mezz, Mid, Min, Misc, N/A, NS, NTS, o.c., OF, Opp, Perp, PL, PEB, Prelim, Proj, PSF, PSI, Rad, RD, Reinf, Req'd, Rev, RW, Sched, Sect, SH, Sim, Spec, Sq, SS, Struct, Sym, T, T/T.O, T/Conc, T/Fig, T/Slab, T&B, Temp, Thk, TOS, TOW, Trnv, Typ, UNO, Vnt, W, w/o, WWP.

General Notes

- 1. No provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the contract documents) shall be effective to change the duties and responsibilities of the owner, contractor, architect, engineer, supplier, or any of the consultants, agents, or employees from those set forth in the contract documents, nor shall it be effective to assign to the structural engineer of record (S.E.R.) or any of the S.E.R.'s consultants, agents, or employees any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibilities contrary to the provisions of the contract documents.
2. Reference to standard specifications (concerning structural design) of any technical society, organization, or association or to codes of local or state authorities, shall mean the latest standard codes, specification or tentative specification adopted at the date of taking bids, unless specifically stated otherwise.
3. In the event contract documents conflict with the code of practice or specifications of ACI, PCI, AISC, AISI, SJI or other standards, contact structural engineer for clarification.
4. Notes and specific details on the drawings shall take precedence over general structural notes and typical details. Contact the architect / engineer for a determination of intent before proceeding with related work if there is any discrepancy or question regarding which note to follow.
5. Material, workmanship, and design shall conform to the referenced building code.
6. The contractor shall verify the dimensions, elevations and site conditions before starting work. The architect / engineer shall be notified of any discrepancy.
7. The design, adequacy, and safety of erection bracing, shoring, temporary supports, etc. is the sole responsibility of the contractor.
8. The contractor shall coordinate the architectural, mechanical, electrical, plumbing and civil works with the structural contract documents. The architect / engineer shall be notified of any discrepancies or omissions.
9. The contractor shall notify, in writing, the engineer of conditions encountered in the field that are contradictory to those shown on the contract documents.
10. For dimensions not shown on the structural drawings see the architectural drawings.

Design Criteria

- 1. 2003 International Building Code (IBC)
2. Live Loads (reduced as allowed by the building code):
A. Roof = 20 psf
B. Floor : office = 50 psf; corridor = 80 psf; lobby = 100 psf
3. Dead Loads:
A. Roof = 15 psf
B. Floor = 62 psf + 20 psf partition
4. Snow Loads:
A. Ground Snow Load: Pg = 10 psf
5. Wind Loads:
A. Basic wind speed (3 second gust): 90 mph
B. Wind Importance Factor: 1.0
C. Wind Exposure: B
D. Internal Pressure Coefficient: +0.18/-0.18
E. Components and Cladding Pressure: 12.3 psf
5. Seismic loads:
A. Occupancy Category: II
B. Spectral Response Coefficients: Sds = 0.799, Sd1 = 0.376
C. Soil Site Class: D
D. Seismic Design Category: D
E. Response modification factor: R= 7.0
F. Deflection amplification factor: Cd = 5.5
G. System overstrength factor: 2.5
H. Seismic force revisiting system: Dual System: Special Moment Frames - Steel and Specially Reinforced Concrete Shear Walls
I. Design base shear: V = CwW
J. Analysis procedure: Equivalent Lateral Force

Shallow Foundations

- 1. Foundations are designed based upon recommendations contained in the geotechnical report prepared by Geotechnology, Inc. of Memphis, TN on July 20, 2012.
2. The general contractor shall obtain a copy of the geotechnical evaluation and observe all recommendations in the report.
3. Allowable soil bearing pressures used in design:
A. Spread footings: 2200 psf
B. Continuous footings: 2000 psf
4. Footing excavations shall be observed by an experienced geotechnical engineer prior to steel or concrete placement in order to assess that the foundation materials are consistent with the findings in the geotechnical evaluation.
5. In the event that the soils test results are disapproved, footing excavations shall be undercut (under the direction of the soils engineer) until soils of adequate bearing capacity are encountered. Backfill under footings shall consist of concrete f'c = 2500 psi @ 28 days placed up to the proposed bottom of footing elevation.
6. All filling, backfilling, compacting and recompacting must have a minimum compaction percentage of the maximum density as specified in the geotechnical report.
7. For requirements of earthwork, subgrade preparation, engineered backfill and compaction, over excavation, waterproofing, and other pertinent requirements and information refer to geotechnical evaluation and specifications.
8. Footing elevations shown on the plans are for estimating purposes only. Actual footing elevations shall be determined by the contractor at the site and shall be a minimum of 12" below finished grade.
9. All water shall be removed from foundation excavations prior to placing of concrete. If bottoms of trenches become softened due to water before footings are cast, the contractor, at his own expense, shall excavate the softened material and replace with concrete.
10. All pipes (water lines, sewer lines, etc.) And conduits running through walls / slabs shall be protected with 1/2" expansion material.
11. Continuous footing perpendicular to pipe runs shall be either lowered to allow pipes to pass through above such footings or have concrete jacket if pipes are low enough to be placed below such footings. Footings parallel to pipe runs shall be lowered to avoid surcharge onto the trench excavations.
12. Refer to civil/architectural plans for limits of excavation.

13. The Geotechnical Engineer for this project recommends that building construction be delayed until all structural fill is placed and fill induced settlement has taken place. The delay is expected to be 1-3 months after all fill has been placed. As well a settlement monitoring program is recommended. Please consult the geotechnical report for project No. J020732.01 prepared by Geotechnology, Inc. of Memphis, TN on July 20, 2012 for more information.

Structural Steel

- Structural steel
1. Structural steel shall conform to ASTM A572, Grade 50 unless noted otherwise. Pipe columns shall conform to ASTM A53 type E or S Grade B. Tubes shall conform to ASTM A500 Grade B.
2. Design, fabrication, and erection shall be in accordance with AISC specification for the design, fabrication, and erection of structural steel buildings.
3. Structural steel shall be detailed in accordance with standard practices of AISC
a. Connections: AISC Manual standard connections, unless noted.
b. High-strength bolts: ASTM A325 bearing type N installed in accordance with "specification for structural joints Using ASTM A325 or A490 Bolts", research council on riveted and bolted structural joints.
4. All welds must be made in accordance with the American Welding Society Code D-1.1.
5. Field and shop connections shall be welded as shown on drawings or bolted with high strength bolts, unless noted otherwise.
6. See architectural drawings for angles, clips, bars, plates, and other items attached to structural members, and for chamfers on concrete walls, beams, etc.
7. Provide temporary bracing as required to maintain alignment and security of structures during construction.
8. Do no cutting, drilling or modifying of structural members without the approval of the engineer.
9. The manufacturer's name, brand or trademark (mill identification marks) shall be shown in raised letters at intervals along the length. (ASTM A6M 96-97, paragraph 12.2) note: For beams with the greatest cross-sectional dimension not exceeding (6") six inches, the producer or processor has the option of marking or tagging a bundle of such beams with the above information.

Metal Decking

- 1. Provide design, fabrication, and erection of metal deck conforming to the Steel Deck Institute's "Code of Recommended Standard Practice and Basic Design Specifications".
2. Form roof deck from steel sheets conforming to ASTM A611 or A653 or higher specifications with minimum yield strength of 33 ksi.
3. Attach sheets to steel support members as indicated and in accordance with the manufacturer's instructions for installation. When deck is scheduled to be exposed, de-stag, clean and touched up welds with a zinc-rich primer.
4. Lap roof ends minimum of 2 inches when fastening deck to support members provide welding materials installation procedures to prevent burning of holes in deck.
5. Metal deck fabricator to furnish shop drawings for structural engineer's review prior to fabrication. Shop drawings shall include welding procedure, side lap connections, testing programs for welding, coating material and erection sequence.
6. Roof deck shall have the following minimum section properties.
a. Section properties (per foot of width).
Type = 1.5B;
20 gauge; I = .212 in^4; Sp = .234 in^3; Sn = .247 in^3
7. Floor decking shall have the following minimum section properties.
a. Section properties (per foot of width).
Type 3VLU; 18 gauge; Ip = 1.254 in^4; In = 1.252 in^4; Sp = .770 in^3; Sn = .797 in^3
Joists & Joist Girders

- 1. Provide open web under slung, parallel chord joists and joist girders unless noted otherwise on the drawings.
2. Design, fabricate, and erect open web steel joists and joist girders to the specifications of the Steel Joist Institute, latest edition.
3. Unless noted otherwise, weld K-series joists to supporting beams or bearing plates with 3/16 inch fillet weld, 1-1/2 inches long on each side of joist seat. Use minimum of 2-3/4 inch diameter A325-N bolts at joist connections on or nearest to column lines.
4. Unless noted otherwise, weld LH or DLH-series joists to supporting beams or bearing plates with 1/4 inch fillet weld, 2 inches long on each side of joist seat. Use minimum of 2-3/4 inch diameter A325-N connector bolts at joist connections on or nearest to column lines.
5. Provide joist bridging, size and spacing, in accordance with Steel Joist Institute. Provide supplemental bridging as required for net uplift pressures.
6. Design roof joists for the following net uplift wind uplift pressures
a. Edge zones (regions within "Z" distance of roof edge) = 20 psf.
b. Corner zones (regions within "Z" distance of two intersecting roof edges) = 25 psf.
c. Interior zones (regions that are not edge or corner zones) = 15 psf.
d. Distance Z = 10.0 ft.
7. Joist and joist girder sizes as shown on drawings are based on gravity load capacities. Design joists and joist girders for the gravity load capacities in addition to other loads (uplift, axial loads, concentrated loads, moments, etc.) as indicated on drawings.
8. Shop drawings for joists, joist accessories, joist girders and joist girder accessories to be prepared by the joist manufacturer's detailers.
9. Submit design calculations in accordance with steel joist institute design standards for all joist and joist girders. Design calculations to be signed and sealed by a professional engineer licensed in the state where the project is located.
10. Provide 2-1/2 inch minimum bearing on structural steel for K-series joists, 4 inch minimum bearing on masonry or provide bearing lengths per steel joist institute requirements unless greater lengths are shown on drawings.
11. Verify size, weight, location and configuration of all roof top equipment with the architect and mechanical engineer. Coordinate openings with the mechanical and general contractor.
12. All concentrated loads greater than 100 pounds supported by open web steel joists and girders shall be located within 6 inches of joist or girder panel points or the joist or girder shall be reinforced with an additional web member. Refer to the "Typical Joist Modification Detail" on the structural drawings.
13. Provide special bearing ends to accommodate slopes from sloped joists, sloped girders or sloped bearing conditions.
14. Extend all joist bottom chords at columns and weld after dead load is applied. Provide additional bottom chord extensions as required indicated in structural or architectural drawings.
15. At joist parallel to beams anchor bridging by welding to beams. At joists parallel to walls, weld bridging to an L3x3x3/16 at top and bottom. Anchor angle to wall using (2) 3/8" diameter sleeve anchors.

Concrete

- 1. All phases of work pertaining to the concrete construction shall conform to the "Building Code Requirements for Structural Concrete" (ACI 318), latest edition with modifications as noted in the drawings or specifications.
2. Concrete mixes shall be designed by a qualified testing laboratory and approved by the structural engineer.
3. All exposed corners or edges of columns, piers, walls, etc., shall be formed with a 3/4" chamfer unless noted otherwise on structural or architectural drawings.
4. All reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position prior to placing concrete.
5. Provide sleeves for plumbing and electrical openings in concrete before placing concrete. Do not cut any reinforcing that may conflict. Coring is not permitted except as shown. Notify the structural engineer in advance of conditions not shown on the drawings.
6. Conduit or pipe size (o.d.) shall not exceed 30% of the slab thickness and shall be placed between the top and bottom reinforcing unless specifically detailed otherwise. Concentrations of conduits or pipes shall be avoided except where detailed openings are provided.
7. Curing compounds on concrete that is to receive special finish shall be approved by the manufacturer before use.
8. Roughen surface of horizontal or nearly horizontal construction joints so that the aggregate shall be exposed uniformly, leaving no laitance, loose particles or damaged concrete.
9. Locate joints not indicated to least impair strength and appearance of the structure. Locate horizontal joints in concrete only where they normally occur or where indicated. Locate vertical joints in middle third of spans of slabs, beams, or girders unless a beam intersects a girder at middle location, in which case offset joints in girders twice the width of the beam.
10. Once formwork has been removed from concrete retaining walls, brace walls thoroughly before placing soil against wall and keep bracing in place for a minimum of 7 days after earthwork is complete.

Table: Schedule of Concrete Strengths. Columns: Use (Location), 28 Day Strength, Aggregate Size (Max.), Cement/CY (Min.), W/C ratio (Max.), Slump (Max.), Air Entrainment. Rows: Slab-on-grade (Interior), Exposed Concrete, Footings.

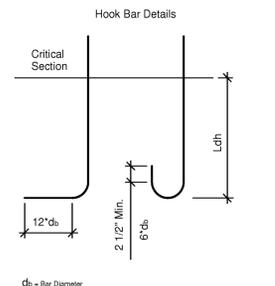
Composite Framing Notes

- Beams @ 2nd studs are designed as composite beams, to be unshored during construction. They are designated on the framing plans, as shown below.
Reaction
Beam Size
# Of Shear Studs (If Studs Are to Be Evenly Spaced Across Entire Span)
Reaction
Sub Column
Transverse Beams
# Of Shear Studs Along Segment L4 (If Stud Spc. Varies Per Segment)
Shear Studs: 3/4"o x 5-1/4" long, headed. Shear capacity per stud = 11.5 kips.
Stud Attachment: Shear studs shall be welded to the top flange of the beam, through the floor deck as per AWS D1.1, Section 4, Part F.
Stud Spacing: The required number of shear studs is indicated on the framing plans. The spacing shall be determined as follows: Where the number of studs is shown as one numeral following the beam size, that number of studs is to be evenly spaced along the entire span of the beam. Where the number of studs is shown as a series of numerals below the beam, one numeral per beam segment, each numeral represents the number of studs to be evenly spaced along that particular segment of the beam. (A segment refers to a portion of the beam between transverse beams or sub columns.) For example, in the beam shown above, the number of studs might be indicated by the (20) above the beam. This would mean that twenty studs are to be evenly spaced along the entire span of the beam. Or, the number of studs might be indicated by the numerals (9), (3), (2), and (6), shown below the beam. This would mean that nine studs are to be spaced evenly along segment L1, three studs are to be spaced evenly along segment L2, two studs are to be spaced evenly along segment L3, and six studs are to be spaced evenly along segment L4, in no case shall the stud spacing exceed 36 inches.
Deck Attachment: To resist uplift, the floor deck shall be anchored to each composite beam at a spacing not to exceed 16 inches. This anchorage shall be provided by the stud connectors, or by 3/4" arc spot (puddle) welds.

Reinforcing

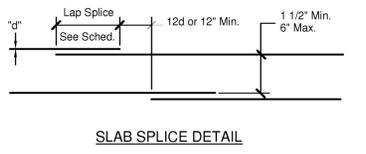
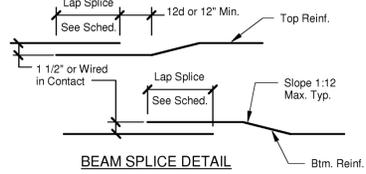
- 1. Reinforcing shall be detailed and placed in conformance with ACI Detailing Manual.
2. Reinforcing bars shall conform to the requirements of ASTM A615 Grade 60 except all reinforcing in concrete moment frames and shear walls and all welded reinforcement shall conform to ASTM A706 Grade 60.
3. Welded wire fabric shall conform to ASTM A185.
4. Minimum lap of welded wire fabric shall be 6" or one full mesh + 2", whichever is greater.
5. Dowels between footings and walls shall be the grade, size and spacing or number as the vertical reinforcing, respectively.
6. Reinforcing steel in all concrete walls and footings shall be continuous around corners.
7. Provide (2) #5 extra reinforcing bars around all side of openings in concrete, unless noted otherwise on the plans. Extend bars 2'-0" beyond each edge of opening.
8. Minimum clear coverage of concrete over reinforcement shall be:
a. Concrete cast against and permanently exposed to earth .....3"
b. Concrete exposed to earth or weather:
i. No. 6 through no. 18 bar: .....2"
ii. No. 5 bar, w31 or d31 wire or smaller .....1-1/2"
c. Concrete not exposed to weather or in contact with ground:
i. Slabs walls and joists no. 14 & no. 18 .....1-1/2"
ii. Slabs walls and joists no. 11 & smaller .....3/4"
iii. Beams, columns: ties and primary reinforcing .....1-1/2"

Table: REINFORCING EMBEDMENT / DEVELOPMENT LENGTH. Columns: Bar Size, f'c = 3000 PSI, f'c = 4000 PSI, f'c = 5000 PSI. Rows: #3, #4, #5, #6, #7, #8, #9, #10, #11. Sub-columns: Ld, Ldh.



- Notes:
1. Fy = 60 ksi
2. Ld = Straight Bar Development Length
3. Ldh = Development Length w/ Standard Hook.

Table: REINFORCING LAP SPICE LENGTH SCHEDULE. Columns: Bar Size, f'c = 3000 PSI, f'c = 4000 PSI, f'c = 5000 PSI. Rows: #3, #4, #5, #6, #7, #8, #9, #10, #11.



- Notes:
1. Fy = 60 ksi
2. Splice lengths are for normal weight concrete.
3. All splices shall be staggered as shown. If more than 50% of the reinforcing is lap spliced within the required lap splice length, the lap splice length shall be increased by 33%.
4. Lap lengths specifically detailed in drawings shall govern in lieu of schedule.
5. Smaller bar required lap length shall be used when splicing with a larger bar.

Quality Assurance (IBC 2003)

- SPECIAL INSPECTIONS (PER SECTION 1704 OF IBC 2003)
1. The owner shall employ one or more special inspectors to provide inspections during construction.
2. Inspections required shall mean special inspections as defined and required by the IBC 2003.
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. Continuous inspections, where required means the full-time observation of the work by an approved special inspector who is present in the area of work being performed.
5. Periodic inspection shall be as indicated in the appropriate section.
REPORT REQUIREMENT
1. Special inspectors shall keep records of inspections.
2. The special inspector shall furnish inspection reports to the building official and to the registered design professional.
3. Reports shall indicate that work was inspected and was done in conformance to approved construction documents.
4. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional prior to the completion of that phase of the work.
5. A final report of inspections documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted to the building official and to the registered design professional.

- STRUCTURAL STEEL INSPECTIONS AND TESTING
1. Inspections designated as periodic shall have a minimum of 5% of bolting or welding inspected.
2. Fillet welds shall be visually inspected per AWS D1.1 section 6 as follows:
A. Multi-pass fillet welds shall be continuously inspected.
B. Single pass fillet welds > 5/16" shall be continuously inspected.
C. Single pass fillet welds < or = 5/16" shall be periodically inspected.
3. Complete and partial penetration groove welds shall be continuously inspected per AWS D1.1 section 6. All complete penetration groove welds shall be tested.
4. Inspectors shall review welder certificates for verifying welders employed on the work have AWS qualification within previous 12 months.
5. Mill test reports shall be submitted indicating structural strength and destructive and non-destructive test analysis.
6. Manufacturer's mill certificates shall certify products meet or exceed the specified requirements.
7. High strength bolting inspection:
A. While the work is in progress, the special inspector shall determine that the requirements for bolts, nuts, washers, and paint; bolted parts; and installation and tightening in such standards are met.
B. For bolts requiring pre-tensioning, the special inspector shall observe the pre-installation testing and calibration procedures when such procedures are required by the installation method; determine that all piles of connected materials have been drawn together and properly snugged; and monitor the installation of bolts to verify that the selected procedure for installation is properly used to tighten bolts.
C. For joints required to be tightened only to the snug tight condition, the special inspector need only verify that the connected materials have been drawn together properly snugged.
D. Installation of bearing-type high strength bolts shall be periodically inspected.
E. Installation of slip-critical high strength bolts shall be continuously inspected.
8. Steel framed joint details shall be periodically inspected for compliance with approved construction documents to confirm bracing and stiffening, member size and locations, application of joint details at each connection.

- CONCRETE INSPECTIONS AND TESTING
1. Inspection is not required for installation of foundations except at locations designated as shear walls.
2. Periodic inspection shall be required at 25% of the shear wall locations.
3. Inspector shall verify use of the required design mix periodically.
4. Placement of concrete for proper technique shall be inspected.
5. Inspection for maintenance of specified curing temperature and techniques shall be periodically performed.
6. Submit certified copies of mill test report of reinforcement materials analysis.
7. Manufacturer's mill certificates shall certify products meet or exceed the specified requirements.
8. Placement of reinforcing steel for size, quantity, spacing and coverage shall be performed periodically.
9. Welding of reinforcing steel shall be inspected periodically.
10. Inspect bolts to be installed in concrete prior to and during placement of concrete where designated on drawings.
11. Qualified field testing technicians shall perform tests on fresh concrete at the job site.
A. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 150 cubic yards of concrete, nor less than once for each 5000 s.f. of surface area for slabs or walls.
B. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days or at the test age designated for determination of f'c.
C. Concrete shall be tested for slump, air content and temperature at the time of making specimens for strength tests.
MASONRY INSPECTIONS AND TESTING
1. Inspections designated as periodic shall be inspected prior to each grouting operation.
2. As masonry construction begins, the inspector shall verify:
A. Proportions of site prepared mortar.
B. Construction of mortar joints.
C. Location of reinforcement and connectors.
3. The inspector shall periodically verify:
A. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.
B. Specified size, grade and type of reinforcement.
C. Protection of masonry during cold weather (below 40 degrees f) or hot weather (above 90 degrees f).
4. Prior to grouting the inspector shall verify:
A. Grout space is clean.
B. Placement of reinforcement and connectors.
5. Grout placement shall be continuously inspected to ensure compliance with code and construction document provisions.
6. Preparation of required grout specimens, mortar specimens and/or prisms shall be continuously observed.
7. The compressive strength of masonry, f'm, shall be verified prior to construction either by the unit strength method, per IBC 2015.2.2.1 or the prism test method, per IBC 2105.2.2.2.

SHELBY COUNTY SHERIFF'S OFFICE RANGE OPERATIONS BUILDING 800 DOVECREST MEMPHIS, TENNESSEE
CLARK/DIXON ARCHITECTS 2025 HADISON AVENUE MEMPHIS, TN 38104 clark@dixonarchitects.com
SHELBY COUNTY SHERIFF'S OFFICE RANGE OPERATIONS BUILDING 800 DOVECREST MEMPHIS, TENNESSEE
SEAL OF THE SHERIFF OF TENNESSEE
REVISIONS:
DATE: Aug 28, 2012
DRAWN BY: JTS
SHEET TITLE: General Notes
SHEET NO:
Allen&Hoshall engineering since 1915 A&H Job No: 61902