STRUCTURAL GENERAL NOTES

1. GENERAL

a. Provide construction conforming to the 2006 International Building Code with the 2007, 2009, and 2010 Georgia amendments. Reference to other standards, specifications, or codes means the latest standard or code published and adopted.
b. Material tests and inspections per Chapter 17 of the 2006 International Building Code are required. Refer to the project Statement of Special Inspections in the construction documents for required tests and inspections. Special inspection reports and a final report in accordance with Section 1704.1.2 of the 2006 International Building Code with the 2007, 2009, and 2010 Georgia amendments at the time the building is approved for occupancy.
c. The structural general notes apply except where indicated otherwise on the drawings or in the specifications. A detail shown for one condition applies for all like or similar conditions even though not specifically indicated on the drawings.
d. Verify all existing conditions, dimensions, and elevations before starting work. Notify the Architect and Structural Engineer of Record in writing of any discrepancy.
e. The Contractor is solely responsible for the design, adequacy, and safety of erection bracing, shoring, temporary supports, and all other means, methods, techniques, sequences, and procedures of construction.
f. Coordinate the structural contract documents with architectural, mechanical, electrical, plumbing, civil, and all other consultants. Notify the Architect and Structural Engineer of Record in writing of any conflict and/or omission.
g. Coordinate and verify floor and roof opening sizes and locations with architectural, mechanical, plumbing, and electrical drawings. For additional openings not shown on the structural drawings refer to the architectural and mechanical drawings.
h. Review of the submittals and/or shop drawings by the Structural Engineer of Record is only for general conformance with the contract documents and does not relieve the Contractor of the responsibility to review and check shop drawings before submittal to the Structural Engineer of Record. The Contractor must review and stamp all submittals prior to submission. The Contractor remains solely responsible for errors and omissions associated with the preparation of shop drawings as they pertain to member sizes, details, and dimensions specified in the contract documents. Do not begin fabrication until shop drawings are completed and reviewed by the Structural Engineer of Record.
i. Do not make shop drawings using reproductions of the contract documents or referencing the contract documents.

2. REINFORCED CONCRETE

a. Provide reinforced concrete conforming to the following standards:
ACI 301-05, Specifications for Structural Concrete for Buildings
ACI 318-05, Building Code Requirements for Reinforced Concrete
ACI 302.1R-04, Guide for Concrete Floor and Slab Construction
ACI 360R-06, Design of Slabs-on-Ground
b. Unless noted otherwise, provide normal weight concrete with 3000 PSI compressive strength at 28 days.
c. Provide 4% to 6% entrained air by volume in concrete permanently exposed to weather.
d. Provide concrete with a maximum water-to-cementitious materials ratio of 0.50.
e. Fully document and submit for review the proposed materials and mix design for all concrete. The Contractor is responsible for obtaining the required design strength. All concrete test data must be available at the job site.
f. The use of calcium chloride, chloride ions, or other salts is not permitted.
g. Place concrete at a slump of 4" ± 1".
h. Chamfer or round all exposed corners a minimum of 3/4".
i. Detail concrete reinforcement according to ACI SP-66 detailing manual. Submit shop drawings for approval, showing all fabrication dimensions and locations for placing concrete reinforcing and accessories. Do not begin fabrication until shop drawings are completed and reviewed by the Structural Engineer of Record. Unless specifically approved otherwise, detail all concrete walls and beams in elevation.
j. Unless noted otherwise, provide reinforcing steel conforming to ASTM A 615, Grade 60.
k. Tie all reinforcing steel and embedded items securely in place prior to placing concrete. Provide sufficient supports to maintain the position of the reinforcement within specified tolerances during all construction activities. "Sticking" dowels, anchor rods, or other embedded items into wet concrete is not permitted.
l. Provide corner bars at all corners and intersections of all footings, beams, and walls.
m. Provide basic class "B" tension laps in all reinforcing bars indicated as continuous.
n. The placement of all reinforcing steel must be reviewed by a professional engineer registered in the state of Georgia or by a representative responsible to him (Ref: ACI 318, 1.3.1).
o. Unless noted otherwise, provide the following concrete cover on all reinforcing steel:
Concrete against earth (not formed): 3"
Formed concrete exposed to earth or weather:
#6 through #18 bars: 2"
#5 bars and smaller: 1 1/2"
Formed concrete not exposed to earth or weather:
Slabs, joists, and walls: 3/4"
Beams (stirrups) and Columns (ties): 1 1/2"
p. Do not place pipes or ducts with a maximum dimension exceeding one-third the slab or wall thickness within the slab or wall unless specifically shown and detailed on the structural drawings.
q. Do not weld or tack weld reinforcing steel unless approved or directed by the Structural Engineer of Record. Provide reinforcing steel conforming to ASTM A 706, Grade 60 where welding is approved or directed.

3. STRUCTURAL STEEL

a. Provide structural steel conforming to the following standards:
AISC Manual of Steel Construction, 13th Edition
AISC 360-05, Specification for Structural Steel Buildings
AISC 303-05, Code of Standard Practice for Structural Steel Buildings and Bridges
AISC 326-02, Detailing for Steel Construction, 2nd Edition
b. Unless noted otherwise, provide steel shapes made of material conforming to the following standards:
Wide flange and WT shapes: ASTM A 992
Angles, plates, and channels: ASTM A 36
Hollow Structural Sections (HSS): ASTM A 500, Grade B
Steel pipe: ASTM A 53, Type E or S, Grade B
Headed studs: ASTM A 29
Deformed Bar Anchors (DBA): ASTM A 496
c. Unless noted otherwise, provide anchor rods for cast-in-place conditions in concrete that conform to ASTM F 1554, Grade 36. Unless noted otherwise, install connections so they are snug-tight.
d. Unless noted otherwise, provide anchor rods for post-installed conditions in concrete that conform to manufacturer's requirements. Install connections so they are pre-tensioned per manufacturers specifications.
e. Unless noted otherwise, make all connections with 3/4" minimum diameter ASTM A 325 bolts with threads included in the shear plane. Unless noted otherwise, install connections so they are pre-tensioned. Calibrate tightening methods used so they are in conformance with Section 8, Installation and Tightening of AISC "Specification for Structural Joints using ASTM A325 or A490 bolts. Use one of the following tightening methods: calibrated wrench, direct tension indicator, or alternative bolt with twist off element. Do not use turn of the nut method, unless continuously observed by testing agency.
f. Make all welded connections in accordance with AWS D1.1-04 "Structural Welding Code", using type E70XX electrodes. Use only certified welders. Proof of certification must be maintained at the job site.

4. FOUNDATIONS

a. Foundations have been designed for an allowable bearing pressure of 2000 psf (assumed).
b. The Geotechnical Engineer must verify the condition and/or adequacy of all subgrades, fills, and backfills prior to the placement of foundations, footings, slabs, walls, etc.
c. If any interference appears between existing foundations and the specified design, notify the Architect so that the foundations may be redesigned as required.
d. Coordinate top of footing elevations with the requirements of other trades (plumbing, electrical, etc.).
e. Place all column footings and wall footings monolithically with adjacent footings at the same elevation.
f. All footings must bear on original undisturbed soil where possible.
g. Remove all organic soils and replace with clean structural fill at the direction of the Geotechnical Engineer. Place fill soils in 6" maximum (loose) lifts at moisture contents as described in the geotechnical report. Compact all fill within 10'-0" of the building limit to 95% Standard Proctor. Field density tests must be made as described in the geotechnical report to verify adequate compaction and design bearing pressure.
h. Sides of foundations must be formed unless conditions permit earth forming. Foundations placed against the earth require the following precautions: slope sides of excavations as approved by the Geotechnical Engineer and clean up sloughing before and during concrete placement.
i. Where footing steps are necessary, slope no steeper than one vertical to two horizontal.
j. Do not backfill against basement walls (walls supported at the top and bottom) until slabs, framing, and diaphragms are in place to provide support at top and bottom of wall. Concrete diaphragms must reach 65% of their design 28 day compression strength prior to backfilling.
k. Deposit backfill evenly against both sides of the wall until the lower finished grade is reached.
l. Unless noted otherwise, place all slabs on grade on a 10 mil polyethylene vapor retarder and a crushed stone base over a properly compacted subgrade.

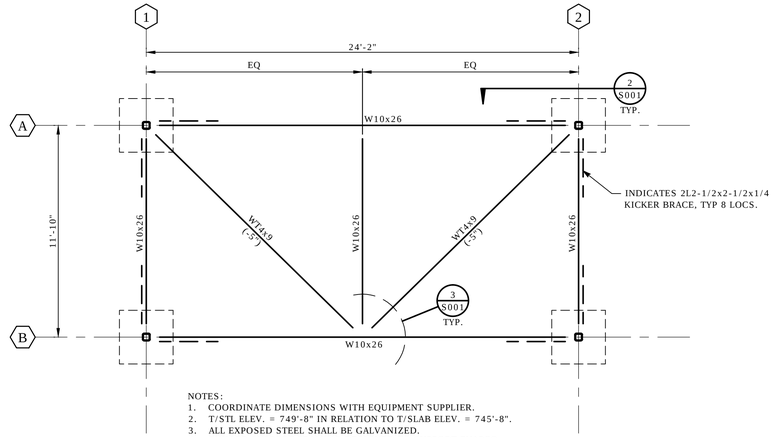
5. DESIGN LOADS

a. Dead Loads:
Cooling Tower 31,000 LBS

b. Wind Design Data:
1. Basic Wind Speed (3 second gust): 90 MPH
2. Wind Importance Factor: I = 1.0
Occupancy Category: Category II
3. Wind Exposure: Exposure C
4. Internal pressure Coefficient: ± 0.18

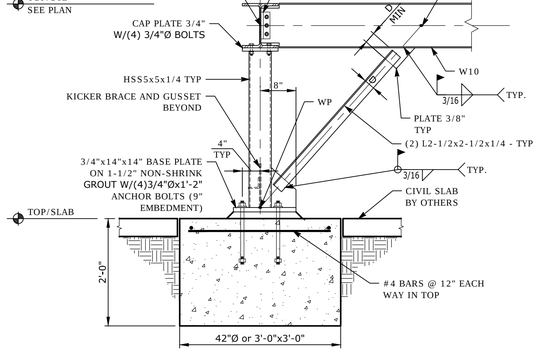
d. Seismic Design Data:
1. Seismic Importance Factor: I = 1.0
Occupancy Category: Category II
2. Mapped Spectral Response Accelerations: Ss = 0.261
S1 = 0.092
3. Site Class: Site Class D (Assumed)
4. Spectral Response Coefficients: Sds = 0.277
Sd1 = 0.147
5. Seismic Design Category: Category C
6. Basic Seismic Force Resisting System: Structural steel system not specifically detailed for seismic resistance
(Response Modification Factor) (R=3.0)
7. Seismic Response Coefficient: Cs = 0.092
8. Design Base Shear: V = 3 kips
9. Analysis Procedure: Equivalent Lateral Force Procedure

e. Snow Loads:
1. Ground Snow Load: Pg = 5 PSF



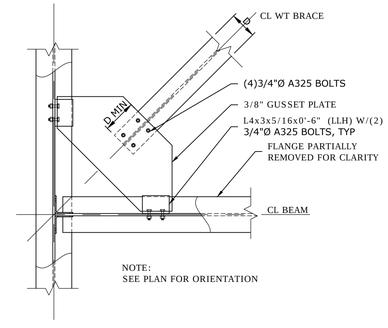
NOTES:
1. COORDINATE DIMENSIONS WITH EQUIPMENT SUPPLIER.
2. T/STL ELEV. = 749'-8" IN RELATION TO T/SLAB ELEV. = 745'-8".
3. ALL EXPOSED STEEL SHALL BE GALVANIZED.
4. CHILLER SUPPORT FRAMING DESIGNED TO SUPPORT EVAPCO COOLING TOWER - MODEL AT-212-824.
5. (±X") INDICATES THE CENTERLINE LOCATION OF THE HORIZONTAL BRACING IN RELATION TO THE TOP OF STEEL ELEVATION.

PLAN — COOLING TOWER SUPPORT — 1 / S002
SCALE: 1/4" = 1'-0"



NOTES:
1. ALL EXPOSED STEEL SHALL BE GALVANIZED.

SECTION — 2 / S001
SCALE: 3/4" = 1'-0"



NOTE:
SEE PLAN FOR ORIENTATION

SECTION — TYPICAL HORIZONTAL BRACE AT BEAM — 3 / S001
SCALE: 3/4" = 1'-0"

ISSUED: 15 JAN 2014

NO.	REMARKS	DATE

Athens-Clarke County Jail
Expansion - Cooling Tower Support
Athens, Georgia

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PALMER engineering company
PEC PROJECT No. 14003
ENGINEER: JAY FELH

GEORGIA REGISTERED 1-15-14 NO. 23732 PROFESSIONAL ENGINEER PATRICK L. HAGBERG

GENERAL NOTES, PLAN, & DETAILS

SHEET S001 1 OF 1