

- GENERAL NOTES
- GENERAL BUILDING CODE
- I. CODES AND SPECIFICATIONS
    - A. GENERAL BUILDING CODE
      1. International Building Code, 2003.
    - B. CONCRETE CODES
      1. ACI 318, American Concrete Institute Building Code with Commentary.
      2. ACI 318 Section 7, unless specified otherwise on the drawings.
      3. CRSI, Manual of Standard Practice.
    - C. STRUCTURAL STEEL CODES
      1. AISC - Load and Resistance Factor Design, Third Edition.
      2. AISC - Steel Construction Manual, Thirteenth Edition.
      3. AWS/AWS D1.1, American Welding Society - Steel.
  - II. DESIGN CRITERIA
    - A. DEAD LOADS
      1. Dead loads: Dead load materials assumed in the design are shown on the drawings.
      2. Partitions: An allowance of 20 psf has been made for partitions as a uniformly distributed live load.
    - B. LIVE LOADS
      1. Mechanical Rooms, typical 150 psf.
    - CATEGORY
 

UNIFORM LOAD (PSF)	CONCENTRATED LOAD (#)	Actual Equip. Wt.
150		
  - III. FOUNDATION - GENERAL
    - A. GEOTECHNICAL REPORT
      1. Foundation design is based on the following geotechnical report:
        - Report No. 7-1314
        - Prepared by: LFC, Inc.
        - Address: 4930 Washington, Houston, Texas.
        - Dated: April, 2007
      2. All recommendations therein that relate to the work shown on these drawings shall be followed.
    - B. FOUNDATION APPROVAL AND INSPECTION BY AUTHORIZED INSPECTOR
      1. The General Contractor shall notify the Geotechnical Engineer or other authorized inspector for review of foundation bearing surface, inspection of foundation without inspector's approval.
      2. The Contractor shall notify the authorized inspector 24 hours in advance of any major foundation pour.
  - IV. DRILLED PIER FOUNDATION
    - A. DESIGN SOIL PRESSURES
      1. Allowable Pressure = 6000 psf for trial (dead + live) loads.
    - B. FIELD INSPECTION OF BEARING STRATUM
      1. The bearing stratum of each drilled pier shall be inspected and approved by the Geotechnical Engineer or other authorized inspector prior to pouring of concrete.
      2. Actual required bearing elevation may vary as required to provide proper capacity as determined by the geotechnical engineer. Footings shall be poured immediately after excavation.
      3. Provide and install 1/8 inch steel templates to accurately set vertical pier reinforcing steel, and anchor bolts for steel columns.
  - V. CONCRETE
    - A. CLASSES OF CONCRETE
      1. All concrete shall conform to the requirements as specified in the table below unless noted otherwise on the Drawings.

USAGE	28 DAY COMP. STRENGTH (PSI)	TYPE	MAX. SIZE AGGREGATE
Foundings, Grade Beams, Piers	3000	NW	1 1/2"
Footings, Slabs (under reamed)	3000	LW	1"
Metal Deck Slab	3000	LW	3/4"

Note: NW = Normal weight concrete  
LW = Lightweight concrete slab (Density = 115 pcf max)

    2. Admixtures used shall be compatible with floor treatments.
    3. Concrete shall have a maximum water-cement ratio of 0.50.
    4. Concrete shall comply with the requirements of ACI 301 and ACI 318.

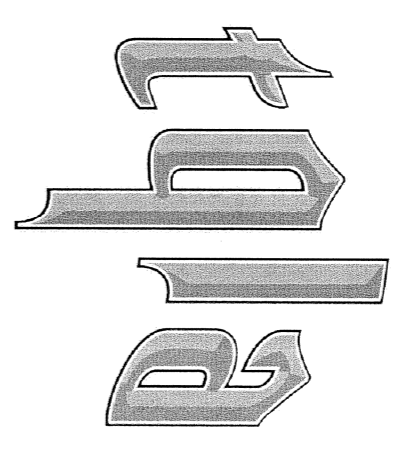
- VI. REINFORCING STEEL
  - A. SPECIFICATION
    1. Reinforcing steel shall be as shown on the drawings, unless noted otherwise on the drawings. Welded Reinforcing Steel, ASTM A 706.
  - B. REINFORCING STEEL COVERAGE
    1. Cover in structural members not specified below shall conform to the requirements of ACI 318 Section 7, unless specified otherwise on the drawings.
    - a. Grade Beams 1 1/2" top, 3" bottom, 3" sides
    - b. Drilled Piers 3" sides
- VII. STRUCTURAL STEEL
  - A. MATERIAL
    1. All hot rolled steel plates, shapes and bars shall be new steel conforming to ASTM Specification A5-84c.
    2. All wide flanged beams shall conform to ASTM A992, Grade 50.
    3. All tubes shall conform to ASTM A500 Grade B.
    4. All steel reinforcement material shall conform to ASTM A63 unless stronger required.
  - B. CONNECTIONS
    1. Typical connection details are indicated on the Drawings.
    2. The design of all steel connections shall be performed under the direct project is located, employed by the fabricator.
    3. It is the intention of the plans and specifications that shop connections be welded or bolted and that field connections be bolted, unless detailed otherwise on the Drawings.
    4. Typical beams and connections shall be standard double angle or shear beam and bolt connections. Shear tab connections are not permitted. Shear beam connections shall not be used unless indicated on the Drawings. Provide full depth shear tab if beam frames on only one side of a girder.
    5. All composite beams:
      - a. Composite beams: Support a reaction R (unless specified otherwise) equal to multiplier, defined below, times one-half the total uniform load capacity from the table of Uniform Load Constant.

Beam Size	Multiplier	Beam Size	Multiplier
W10	2.55		
W12	2.35		
W14	2.00		
W16	1.90		
W18	1.85		

  6. Add to the reaction listed above, any loads or reactions of members supported by the beam within three feet of beam end and the vertical components of forces in brace members framing into the beams.
  7. Bolts:
    - a. All bolts shall conform to ASTM A325, Type 1, High Strength Bolts. All shear plates, minimum bolt diameter shall be 3/4 inch. All bolts shall be tightened to a snug-tight condition, unless noted below.
    - b. All bolts shall be new and shall not be re-used.
- VIII. NON-SHRINK GROUT FOR BASE PLATES AND BEARING PLATES
  - A. SPECIFICATIONS
    1. Grout base plates and bearing plates shall be a non-metallic, shrinkage resistant, permeated, non-corrosive, non-staining product containing Portland cement, silica sands, shrinkage compensating agents, and fluidity improving admixtures.
    2. Grout shall conform to Corps of Engineers Specification for Non-Shrink Grout, CE-CRD-C821. Twenty-eight day compressive strength as determined by grout cube tests, shall be 5,000 PSI. Minimum thickness of grout under all base plates and bearing plates shall be 1 inch, unless specified otherwise on the drawings.
    3. Grout shall be placed under base plates under base plates that have a form built around them for grout confinement. Grout should be cured according to manufacturer's recommendations.
  - B. SHEAR CONNECTORS (HEADED STUDS)
    1. Shear studs and their installation shall meet all requirements of AWS D1.1, welding.
    2. Stud diameter and length shall be 3/4 inch diameter X 3-7/8 inch long before welding.
    3. Studs shall be welded in the field (not the shop) using automatically timed stud welding equipment.
    4. The top surface of the beam must be unpainted and free of heavy rust, mill scale, and other foreign materials.
- X. STEEL FLOOR DECK (COMPOSITE METAL DECK)
  - A. SCHEDULE
 

Depth of Deck	Min. Concrete Thickness	Total Slab Thickness	Reinforcing Steel	Design Load
18ga	1 1/2"	5 1/2"	#3@19" O.C.	150 PSF
  1. Provide floor deck as noted below.

- B. SPECIFICATION
  1. The design, fabrication, and erection of all floor deck shall conform to the Steel Deck Institute Design Manual for Composite Decks, Form Decks, and Roof Decking (SDI Form Decking Manual).
  2. Steel deck shall be manufactured from steel conforming to ASTM A 653-94, structural quality.
  3. Steel deck shall be galvanized with a protective zinc coating conforming to ASTM A 653-94 G60 class.
- C. ATTACHMENT
  1. Floor deck units shall be welded to each structural support member using 5/8 inch diameter puddle welds at each end of sheet and each intermediate support beginning at edge rib and at a maximum spacing of 12 inch centers. Weld metal shall penetrate all layers of deck material at end laps and side joints and shall have good penetration of supporting members. Welding washers shall be used where required and shall conform to AWS D1.1, welding.
  2. Side laps of adjacent units shall be fastened by sheet metal screws so that spacing between supports and fasteners does not exceed 36 inches.
  3. Provide a minimum end bearing of 1-1/2 inches over supports.
  4. End laps of sheets shall be minimum of 2 inches and shall occur over supports.
- D. DECK SPANS
  1. Metal deck spans shall not exceed the maximum center to center spans as required by SDI criteria. Where possible, all metal deck shall extend over three or more supports. Two span deck shall be used only where deck layout does not permit the use of three spans. Single span deck is not permitted. All deck shall be designed as unbraced construction unless noted otherwise.
- E. CHLORIDE ADMIXTURES
  1. The use of admixtures in concrete containing chloride salts shall not be permitted for metal deck concrete.
- F. EXTRA CONCRETE REQUIRED BY DECK DEFLECTION
  1. The General Contractor shall include in his bid additional concrete required for metal deck slabs to account for deck deflection.
- G. OPENINGS IN METAL DECK SLAB
  1. For all openings in metal deck not framed with structural steel and greater than 10 inches in width in either direction, provide 2 - #5 x opening with bars bearing in a direction perpendicular to deck, ribs each side of opening with bars bearing to deck, ribs each side of opening with bars bearing on top of ribs and 2 - #5 x deck span plus 1'-0" each side of opening spaced 3/4" up from bottom of nearest reinforcement is indicated on the drawings. Provide blockout in slab for opening with deck uncut. Cut deck at opening after concrete has reached 75% of its design strength.
- XI. SUBMITTALS
  - A. SHOP DRAWINGS
    1. The General Contractor shall submit for Engineer review shop drawings for the following items:
      - a. Structural Steel
      - b. Reinforcing Steel
      - c. Metal Deck
      - d. Concrete Mix Designs
    2. All shop drawings must be reviewed and sealed by the General Contractor prior to submittal.
    3. Contract Documents to be furnished shall not relieve the contractor of the responsibility of furnishing and installing such materials, regardless of whether the shop drawings have been reviewed and approved.
  - B. REPRODUCTION
    1. The use of reproductions of these Contract Documents by any contractor, subcontractor, erector, fabricator, or material supplier in lieu of preparation of shop drawings signifies his acceptance of all information shown hereon as correct, and obligates himself to any job expense, real or implied, arising due to any errors that may occur herein.
- XII. MISCELLANEOUS
  - A. CONTRACT DOCUMENTS
    1. It is the responsibility of the General Contractor to obtain all Contract Documents and latest addenda and to submit such documents to all subcontractors and suppliers. The General Contractor shall be responsible for the preparation of any structural members, and erection in the field.
  - B. DRAWING CONFLICTS
    1. The General Contractor shall compare the Architectural and Structural drawings and drawings of the contractor and shall seal drawings and submit each set of drawings to the Architect and Engineer prior to the fabrication and installation of any structural members.
  - C. EXISTING CONDITIONS
    1. The General Contractor shall verify all dimensions and existing conditions at the drawings to the Architect and Engineer prior to the fabrication and erection of any members.
  - D. RESPONSIBILITY OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION
    1. The General Contractor shall be responsible for the design and construction of the final completed structure only. It is the responsibility of the Contractor to provide all required bracing during construction to maintain the stability and safety of all structural elements during the construction process until the structure is tied together and completed.
  - E. HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE FLOORS
    1. There shall be no horizontal construction joints in any concrete pours unless shown on the drawings. All deviations or additional joints shall be approved in writing by the Architect/Engineer.



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MATRIX  
STRUCTURAL  
ENGINEERS  
MSE-10066

Issue Date & Issue Description By Check

05/19/10 ISSUE FOR BID & CONSTRUCTION

Subsignature	Name	Title
	N. Van Houshelt	Engineer
	THE FIRM	Registration No. 15440



Project Name: TOLA

Project Number: 02/005/000

CAD File Name: 10066-CD-DWG

Description: GENERAL NOTES

Scale:

S1.01