#### DESIGN CRITERIA

- A. GENERAL BUILDING CODE The Contract Documents are based on the requirements of 1. Standard Building Code, 1997 edition.
- B. DEAD LOADS
  - Partitions. An allowance of 20 PSF has been made for partitions as a uniformly distributed dead
  - 2. Hanging Ceiling and Mechanical Loads. An allowance of 10 PSF has been made for hanging ceiling and mechanical equipment loads such as duct work and sprinkler pipes.

CATEGORY

Design live loads are based on the more restrictive of the uniform load listed below or the concentrated load listed acting over an area 2.5 feet square.

> UNIFORM LOAD CONCENTRATED LOAD (LB)

. Roof 2. Elevated Floors . Terraces, Lobbies 4. Stairways, Exit Facilities 100 5. Elevator Machine Rooms 100 Assumed Egp. Wt. 6. Mechanical Rooms, typical 150 Assumed Eqp. Wt.

1. Live Load Reduction. Live loads have been reduced on any member supporting more than 150 square feet, including flat slabs, except for floors in places of public assembly and for live loads greater than 100 pounds per square foot in accordance with the following formula:

R = r(A-150)

The reduction,, R, shall not exceed 40 percent for members supporting one level only, 60 percent for other members, or R as calculated in the following

R = 23.1 (1 + D)

R = Reduction in percent r = Rate of reduction equal to .08 percent for floors.

A = Area of floor supported by the member. D = Total dead load supported by the member. L = Total, unreduced, live load supported by the member.

- For storage loads exceeding 100 pounds per square foot, no reduction has been made, except that design live loads on columns have been reduced 20 percent.
- D. ELEVATOR LOADS Machine Beam, Car Buffer, Counterweight Buffer, and Guide Rail Loads. Assumed elevator loads to the supporting structure are shown on the drawings, including machine beam reactions, car buffer reactions, counterweight buffer reactions, and horizontal and vertical guide rail loads. The General Contractor shall submit to the Structural Engineer final elevator shop drawings showing all loads to the structure prior to the installation of the elevators for verification of load carrying capacity.
- E. MECHANICAL EQUIPMENT LOADS The General Contractor shall submit actual weights of equipment to be used in the project to the Structural Engineer for verification of loads used in the design at least three weeks prior to fabrication and construction of the supporting structure.
- F. WIND LOADS
  - 1. Wind pressures are based on the American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures, ASCE 7-98 with a Wind Speed = 110 MPH (3 sec. gust), Exposure C, Importance Factor 1.15.
  - Wind pressures used in the design of the cladding are shown on these Drawings.

## II. FOUNDATION

A. GEOTECHNICAL REPORT Foundation design is based on the geotechnical investigation report as follows 1. Reports of Geotechnical exploration, M.E. Rinker

Sr. Hall (Revised Location) Near the southeast Corner of Newell Drive and Inner Road, Gainesville, Alachua County, Florida. Law Engineering and Environmental Services, Inc. January 2, 2001.

The geotechnical report is available to the General Contractor upon request to the Owner. The information included therein may be used by the General Contractor for his general information only. The Architect and Engineer will not be responsible for the accuracy or applicability of such data therein.

- B. FOUNDATION TYPE
  - 1. Spread Footing.
    - a. Design Pressures: . All footings have been designed assuming an allowable bearing pressure of 4000 Allowable pressures are increased 33% for combined gravity and wind loads.
- C. SLAB-ON-GRADE Radon resistant construction guidlines are being followed on this project. The details and specifications for slab—on—grade construction must be adhered to without deviation.

Slab-on-Grade shall be immediately underlain by a 8 mil. vapor barrier. Seams shall be lapped 12 inches and sealed with 2" wide pressure sensitive vinyl tape. All penetrations shall be sealed with tape.

CONSTRUCTION DEWATERING The Contractor shall determine the extent of construction dewatering required for the excavation. The Contractor shall submit to the Geotechnical Engineer for review the proposed plan for construction

dewatering, prior to beginning the excavation.

## III. REINFORCED CONCRETE

A. CLASSES OF CONCRETE All concrete shall conform to the requirements as specified in the table below unless noted otherwise on the drawings:

28 Day Comp. Strength Conc Size W/C Type Agg. Ratio NWT 3/4" 0.48 (PSI) 1. Elevated Floors 4000 NWT 1" 0.55 2. Spread Footings 3000 4000 NWT 1" 0.48 3. Slab-On-Grade 4. Fnd. Walls & Plinths 4000 NWT 1" 0.48

All concrete shall be proportioned for a maximum allowable unit shrinkage of 0.03% measured at 28 days after curing in lime water as determined by ASTM C 157 (using air storage).

- HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS There shall be no horizontal construction joints in any concrete pours unless shown on the drawings. The Architect/Engineer shall approve all deviations or additional joints in writing.
- C. REINFORCING STEEL SPECIFICATION
- 1. All Reinforcing Steel shall be ASTM A615 Grade 60 unless noted otherwise on the drawings or in these
- Welded Reinforcing Steel. Provide reinforcing steel conforming to ASTM A706 for all reinforcing steel required to be welded and where noted on the drawings.
- Galvanized Reinforcing Steel. Provide reinforcing steel galvanized according to ASTM A767 Class II (2.0 oz. zinc PSF where noted on the drawings. 4. Deformed Bar Anchors. ASTM A496 minimum yield strength 70,000 PSI as noted on the drawings.
- deformed bar anchors. Welded Wire Fabric. Welded smooth wire fabric, ASTM A 185, yield strength 65,000 PSI where noted on the drawings. Welded deformed wire fabric for, ASTM A 497, yield strength 70,000 PSI where noted on the drawings.

Reinforcing bars shall not be substituted for

- D. PLACEMENT OF WELDED WIRE FABRIC Wherever welded wire fabric is specified as reinforcement, it shall be continuous across the entire concrete surface and not interrupted by beams or girders and properly lapped one cross wire spacing plus 2".
- E. REINFORCEMENT IN TOPPING SLABS Provide welded smooth wire fabric minimum 6 x 6 W2.9 x W2.9 in all topping slabs unless specified otherwise on the drawings.
- F. REINFORCEMENT IN HOUSEKEEPING PADS Provide welded smooth wire fabric  $6 \times 6 \times 2.9 \times 2.9$ minimum in all housekeeping pads supporting mechanical equipment whether shown on the drawings or not unless
- heavier reinforcement is called for on the drawings. G. REINFORCING STEEL COVERAGE Concrete Cover for reinforcement layer nearest to the surface unless specified otherwise on the drawings.
- Concrete surfaces exposed to earth or weather or where noted on the drawings 2 inches. Concrete surfaces not exposed to weather or in contact with the ground. a. #3 to #11 bars 1 inch

1. Concrete surfaces cast against and permanently

3 inches

H. SPLICES IN REINFORCING STEEL 1. All unscheduled splices shall be Class A tension

exposed to earth.

splice.

#### STRUCTURAL STEEL

- A. MATERIAL Hot Rolled Structural Members. All hot rolled steel plates, shapes, sheet piling, and bars shall be new steel conforming to ASTM Specification A6-
  - 2. ASTM Specification and Grade. Clearly mark the grade of steel on each piece, with a distinguishing mark visible from floor surfaces. for the purpose of field inspection of proper grade of steel. Unless noted otherwise on the drawings, structural steel shall be as follows: a. Wide-Flange Beams. All wide-flange beams and WT shapes shall conform to ASTM A992. ASTM A572 Grade 50 is acceptable as a substitute
    - for A992. Channel Beams. All channels used as beams shall conform to ASTM A572, Grade 50. Channel Girts. All channels used as wind
  - girts shall conform to ASTM A36. d. Edge Angles and Bent Plates. All edge angles and bent plates shall conform to ASTM A36.
  - e. Angle Hangers and Braces (Kickers). All hangers and braces (kickers) shall conform to ASTM A36.
  - f. Wide-Flange Columns. All wide-flange columns shall conform to ASTM A992 (ASTM A572, Grade 50 is acceptable as a substitute for A992) unless noted otherwise on the drawings.
  - Pipes. All pipes shall conform to ASTM A500, Grade B (Fy=42 ksi). h. Hollow Structural Shape. Square or
  - rectangular HSS used shall conform to ASTM  $A\bar{5}00$ , Grade B (Fy=46 ksi). i. Baseplates. All baseplates shall conform to ASTM A572 Grade 50.
    - Connection Material. All connection material, except as noted otherwise herein or on the drawings, including bearing plates, gusset plates, stiffener plates, filler plates, angles, etc. shall conform to ASTM A36 unless a higher grade of steel is required by strength and provided the resulting sizes are compatible with the connected members.
  - Other Steel. Any other steel not indicated otherwise shall conform to ASTM A992 or ASTM A572-50 except plates and angles which shall be ASTM A36.
- 1. Connection details not completely detailed on the drawings including material grade and sizes, weld sizes, and number of bolts shall be designed by the Contractor per the specifications. Refer to the specifications for additional
- requirements. Reactions noted on the plans are based on factored loads and are intended for use with the Load and Resistance Factor design method.
- C. STRUCTURAL BOLTS AND THREADED FASTENERS
  - 1. A325 Bolts. All bolts in structural connections shall conform to ASTM A325 Type 1, unless indicated otherwise on the drawings.
  - A490 Bolts. See drawings for locations requiring ASTM A490 Type 1 bolts.
  - Threaded Round Stock. Threaded rods shall conform ASTM A572 Grade 50 (to 2 inches in diameter). ASTM A572 Grade 42 (greater than 2 inches and up to 6 inches in diameter).
- D. WELDING

Unless noted otherwise, electrodes for welding shall conform to E70XX (SMAW), F7XX-EXXX (SAW), ER70S-X (GMAW), or E7XT-X (FCAW).

c. See drawings for locations.

E. ANCHOR RODS

Unless indicated otherwise in the Column Schedule or on the drawings, anchor rods shall conform to ASTM F1554 Grade 55 with a heavy hex nut at the embedded end. Strike bolt threads at the embedded end at two places below the nut.

Grout below structural steel base plates shall be nonmetallic, non-shrink grout with a minimum strength of STEEL DECKS

STEEL ROOF DECK

- A. ROOF DECK SHALL BE AS FOLLOWS 1. All metal roof deck except where shown on plan shall be  $1 \frac{1}{2}$  deep 20 gage wide rib, galvanized
- B. Roof deck shall be placed in at least two span segments. No single span conditions shall be used.
- C. Steel deck shall conform to ASTM A611 grades C, D, E for primer painted roof deck and ASTM A653-94 structural quality grade 33 or higher for galvanized roof deck, G90
- be 33,000 psi. D. Steel deck shall be galvanized with a protective zinc

coating designation. The minimum yield strength shall

- E. ATTACHMENT
  - 1. WELDING: Roof deck units shall be welded to each structural support member using 5/8" diameter puddle welds at all ribs (36/7 fastener layout). Weld metal shall penetrate all layers of deck material at end laps and side joints and shall be completely fused to the supporting members.

coating conforming to ASTM A924-96, unless noted otherwise.

- Side laps of adjacent units shall be fastened by welding (on 18 gauge or heavier deck only) or sheet metal screws, so that spacing between fasteners and between the first fastener and support does not exceed 12" inches.
- At all roof openings and perimeter roof edge conditions, roof deck units shall be welded to edge steel using 5/8"diameter puddle welds at 6" o.c.
- Provide a minimum end bearing of 2" over supports. End laps of sheets shall be a minimum of two inches and shall occur over supports. Roofs shall be erected beginning at the low side to insure that end laps are shingle fashion.
- 6. Acoustical deck shall not be lapped.

#### CURTAIN WALL

- A. Refer to architects drawings and specifications for all requirements of the curtain wall system.
- STRUCTURAL DESIGN

materials:

- 1. The structural design of the window wall system and its connections to the structural frame shall be performed by or under the direct supervision of a professional engineer registered in the state of Florida, hired by the curtain wall manufacturer.
- The design analysis shall account for wind, dead, and thermal loads in all members and their connections to the structural frame. In the design of the framing members, glass shall not be considered as a lateral brace for support. The calculations for all aluminum components shall comply with the Aluminum Design Manual, sixth edition, as published by the Aluminum Association.
- C. CONNECTIONS TO THE STRUCTURAL FRAME 1. All connection materials, including steel embedded in or bolted to the structural frame, shall be provided by the curtain wall manufacturer.
  - a. Steel plates: A36 b. Anchors: headed studs or deformed bar anchors c. Ductile iron inserts: ASTM A536
  - CORROSION PROTECTION: Embedded plates and anchors shall be shop primed with a zinc rich paint. Exposed surfaces of all plates embedded in
  - concrete shall be painted with ZRC Cold Galvanizing Compound after the connection is completed. Base plates, anchor bolts, nuts, and washers not covered by a minimum of 2" inches of concrete shall be painted with "ZRC Cold
  - Galvanizing Compound" after the connection is completed. c. Exposed steel plates, shapes, and anchors shall be hot dipped galvanized after fabrication. Bolts, nuts, and washers for such connections shall all be galvanized. All welds for exposed connections shall be
  - painted with "ZRC Cold Galvanizing Compound" after welding. 3. All shop and field welding of connections shall be performed by certified welders for

## CONCRETE MASONRY

A. PRISM STRENGTH Compressive Strength, I'm of Non-Reinforced

the type of welding performed.

28 Day Class of Compressive Non-Reinforced Masonry Strength, f'm

1500 psi a. Single Wythe Hollow Masonry 2. Compressive Strength, f'm of Reinforced Masonry Class of Compressive Strength, f'm Reinforced Masonry

## MISCELLANEOUS

CONTRACT DOCUMENTS 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 material suppliers prior to the submittal of shop

drawings, fabrication of any structural members, and

fabrication and installation of any structural members.

a. Single Wythe Grouted Masonry

- erection in the field. DRAWING CONFLICTS The General Contractor shall compare the Architectural and Structural drawings and report any discrepancy between each set of drawings and within each set of drawings to the Architect and Engineer prior to the
- EXISTING CONDITIONS The General Contractor shall verify all dimensions and conditions of the existing building at the job site and report any discrepancies from assumed conditions shown on the drawinas to the Architect and Engineer prior to the fabrication and erection of any members.
- RESPONSIBILITY OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION All structural elements of the project have been designed by the Structural Engineer to resist the required code vertical and lateral forces that could occur in 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. CONFLICTS IN STRUCTURAL REQUIREMENTS Where conflict exists among the various parts of the structural contract documents, structural drawings, general notes, and specifications, the strictest requirements shall govern.
- F. STABILITY AND BRACING OF MASONRY WALLS DURING CONSTRUCTION All masonry walls shown on the architectural and structural drawings have been designed to resist the required code vertical and lateral forces applied to them in the final constructed configuration only assuming full bracing top, bottom, and/or side of wall

as shown. It is the responsibility of the Contractor to properly and adequately brace all masonry walls at all stages during construction to resist erection loads and lateral loads that could possibly be applied prior to completion of construction.

CONTRACTOR SUBSTITUTIONS

Any materials or products submitted for approval that are different from the material or products specified in the structural contract documents will be approved only if the following criteria are satisfied: 1. A cost savings to the Owner is documented and

submitted with the request. The material or product has been approved by the International Conference of Building Officials (ICBO) and the ICBO report is submitted with the

Submittals not satisfying the above criteria will not be considered.

H. ELEVATOR GUIDE RAIL SUPPORTS

The General Contractor shall provide intermediate guide rail supports for elevator cab rails and counterweight rails wherever the floor to floor height exceeds 14'-0".

I. SITE OBSERVATION BY THE STRUCTURAL ENGINEER The contract structural drawings and specifications represent the finished structure, and, except where specifically shown, do not indicate the method or means of construction. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.

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 and 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.

Periodic site observation by field representatives of Walter P. Moore and Associates is solely for the purpose of determining if the work of the Contractor is proceeding in 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 the work, but rather periodic in an effort to guard the Owner against defects or deficiencies in the work of the Contractor.

MAINTENANCE STATEMENT

All structures require periodic maintenance to extend lifespan and to insure structural integrity from exposure to the environment. A planned program of maintenance shall be established by the building owner. This program shall include such items such as but not limited to painting of structural steel, protective coating for concrete, sealants, caulked joints, expansion joints, control joints, spalls and cracks in concrete, and pressure washing of exposed structural elements exposed to a salt environment or other harsh chemicals.

### IX. SUBMITTALS

- A. SUBMITTAL LIST AND SCHEDULE
  - The General Contractor shall prepare a detailed list and schedule of all submittal items to be sent to the Structural Engineer prior to the start of construction. This list shall be updated and revised and kept current as the job progresses. The submittal list shall be organized as shown below: Shop Drawings
  - Manufacturers Literature for Products, Assemblies, and Hardware
  - Products, Assemblies and Hardware Product Certifications, Mill Certificates, and
  - Design Calculations
- B. SHOP DRAWINGS
- 1. The General Contractor shall submit for Engineer review shop drawings for the following items:
  - a. Concrete Mix Designs Construction Joint Locations in Structural Floors, Walls, and Slabs on Grade
  - Elevators (#) Embedded Items (Plates, Angles, Bolts, etc.) or items attached to the structural frame for building cladding attachment or for
  - attachment of other items (#) Exterior Window Wall System(#)
  - Miscellaneous Steel Reinforcing Steel
  - Roof Metal Deck Steel Stairs (\*) Structural Steel (\*)
  - Items marked (\*) shall have shop drawings sealed by a registered engineer in the state where the project is located. Items marked (#) shall be submitted to Engineer for Owner's record only and
  - will not have the Engineer's shop drawing stamp affixed. 2. All shop drawings must be reviewed and sealed by the General Contractor prior to submittal.
  - Contractor shall submit one set of reproducibles and two sets of blueline prints for all shop drawings specified to be returned by the Engineer. 4. The omission from the shop drawings of any materials required by the 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. MANUFACTURERS LITERATURE Submit two copies of manufacturers literature for all materials and products used in construction on the
- project. DESIGN CALCULATIONS The General Contractor shall submit for Engineer review two sets of design calculations sealed by a registered engineer in the state where the project is located for

preparation of shop drawings signifies their acceptance

of all information shown hereon as correct, and

obligates themselves to any job expense, real or

implied, arising due to any errors that may occur

- the following items: 1. Structural Steel Connections
- 2. Steel Stairs REPRODUCTION The use of electronic files or reproductions of these contract documents by any contractor, subcontractor, erector, fabricator, or material supplier in lieu of

# DRAWING INTERPRETATION

A. TYPICAL DETAILS

Details labeled "Typical Details" on the drawings shall apply to all situations occurring on the project that are the same or similar to those specifically detailed. The applicability of the detail to its location on the plans can be determined by the title of the detail. Such details shall apply whether or not they are keyed in at each location. Decisions regarding applicability of Typical Details shall be determined by the Engineer.

W

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NO. ISSUE/REVISION

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**GENERAL** NOTES

**DOCUMENTS** 

11-21-01

AS NOTEL DRAWN BY/CHECKED BY

LMR/JLD