PROJECT:

TAS-ADA Concrete Ramp-Railing and Stairs-Decking
City of Houston COH Northwest Patrol Substation Adminstration Building
Houston, Texas
B C S E Project No. 2010-12N-01 (25-02)

DESIGN:

Building Codes:
International Building Code 2006 Edition with Dallas Amendments
ADA Standards for Accessible Design, 1994

The live loads:
100 psf floor

50 lbs/ft linear uniform load
or 200 lbs single concentrated loa applied in
any direction on top of railing

Wind loads: 90 mph for 3-second gusts, Exposure "C"

TAS-ADA PARTIAL REQUIREMENTS:

4.8 RAMPS

TAS SECTIONS 4.8.1 - GENERAL
A. Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with 4.8

TAS SECTIONS 4.8.2 - SLOPE AND RISE
A. The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30".

TAS SECTION 4.8.4 - LANDINGS
A. Level landings required at top and bottom of each run, with the following features:
1. Minimum Width: Equal to width of ramp
2. Length: Minumum 60" clear
3. At change of direction landing shall be 60" x 60" min.

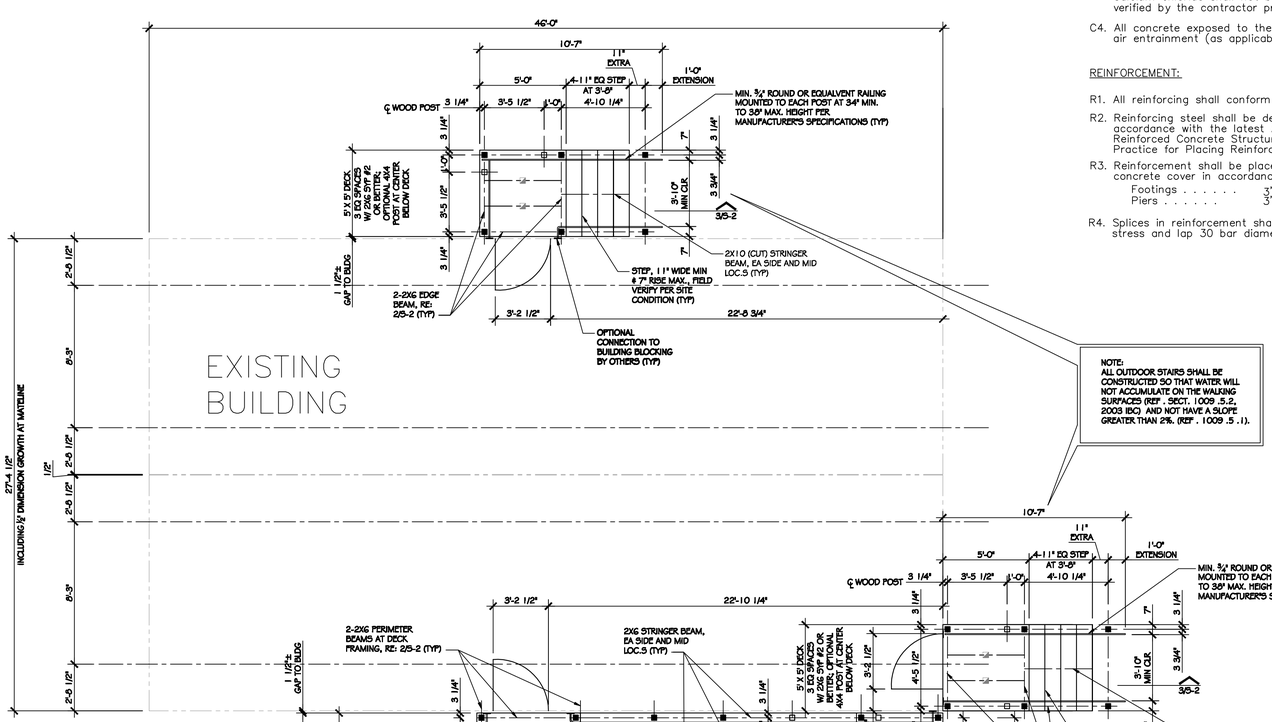
TAS SECTION 4.8.5 - HANDRAILS
A. Handrails are required at all ramps with > 6" rise.
B. Height: 34-38" above ramp surface
C. The clear space between the handrail and the wall shall be 1 1/2".

TAS SECTIONS 4.8.7 - EDGE PROTECTION
A. Ramps and landings with drop offs shall have curbs, walls, railings, or projecting surfaces that prevent slipping off the ramp. Curbs shall be a minimum of 2" high.

4.9 STAIRS

TAS SECTIONS 4.9.2 - TREADS AND RISERS
A. All steps on a flight of stairs shall have uniform riser heights tread widths
1. Minimum tread depth shall be 11", measured from riser to riser (not including nosing).
2. Maximum tread rise shall be 7".
3. Open risers are not permitted.

TAS SECTION 4.9.4 - HANDRAILS
A. Non-continuous handrails shall extend 12" beyond the top riser and 12" plus the width of one tread beyond the bottom riser. At the top, the extension shall be parallel to the floor. At the bottom, the handrail shall continue to slope for a distance of one tread width (11"); the remaining extension shall be horizontal.
B. Height: 34" - 38", measured from the stair nosing.




1 RAMP, DECK, AND STAIRS PLANS AT BUILDING
1/4" = 1'-0"

NOTES:
1. THE HANDRAIL AND RAILINGS SHALL BE 34" MINIMUM AND 38" MAXIMUM IN HEIGHT PER SECTION 1009.11.1 OF THE IBC 2003 EDITION.
2. THE GUARDRAIL SHOULD BE 42" MINIMUM IN HEIGHT PER SECTION 1012.2 OF THE IBC 2003 EDITION.

RAMP & STAIRS FOUNDATION AT EXPANSIVE SOILS:

F1. The foundation with wood supporting posts for the ramp, deck, and stairs may be seated on existing concrete/ashphalt pavement. Alternatively, the foundation system could be used concrete round footings bearing on an assumed soil pressure of 2,000 psf maximum over the compacted fill at one (1) foot below existing grade. Local soil is expansive type based on the USDA Soil Survey, Dallas County, 1981. No geotechnical study/report is available for the subject site at this time.

F2. If the isolated concrete footing will be proposed to support each wood post, all surface vegetation should be stripped from the areas to be developed. If the exposed soils (at finished grade) are wet, they should be scarified and allowed to dry. The area should then be proof rolled with a rubber tired vehicle such as a partially loaded dump truck to detect any soft areas. Soft areas should be excavated and backfilled with compacted suitable materials compacted to approximate the surrounding soils. The subgrade should then be compacted to 95% of Standard Proctor (ASTM D-698).

F3. The fill materials should be a sandy type with a Plasticity Index (PI) between 7 and 20 percent and a Liquid Limit below 40 percent. The fill should be placed in maximum lifts if eight (8) inches and The fill should be placed in maximum lifts if six (6) to eight (8) inches and compacted to 95% of the maximum density obtained by the Standard Proctor Compaction Test, ASTM D-698.

F4. Provide a positve earth surface drainage at a minimum slope of 2% away from the building and ramp structure exterior.

CONCRETE:

C1. If any, concrete work shall be executed in strict accordance with the latest American Concrete Institute Building Code (ACI 318).

C2. Concrete specifications shall be as follows:

| 28-Day Strength | Sack Content | Aggregate | Slump |
|---|---|---|---|
| 3000 psi | 5/c.y. | H.R. | 2"-5" |

Portland cement shall conform to A.S.T.M. C-150. Aggregate shall conform to A.S.T.M. C-33 (H.R.).

C3. The concrete mix design shall have the water content limited to a maximum of six (6) gallons per sack of cement. The water cement ratio shall not exceed 0.52. No water shall be added at the site unless it is hold-water from the batch plant. Calcium chloride shall not be used in concrete mix. Jobsite conditions shall be verified by the contractor prior to the fabrication of materials.

C4. All concrete exposed to the weather shall have 5 to 6 percent air entrainment (as applicable or as local practice).

REINFORCEMENT:

R1. All reinforcing shall conform to A.S.T.M. A-615, Grade 60.

R2. Reinforcing steel shall be designed, detailed, fabricated, and placed in accordance with the latest ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI-315)," and the CRSI "Recommended Practice for Placing Reinforcing Bars," latest edition.

R3. Reinforcement shall be placed in order to provide a minimum concrete cover in accordance with the following:
Footings . . . . . 3" from bottom or 2" from sides
Piers . . . . . 3" from bottom and sides

R4. Splices in reinforcement shall occur at points of minimum stress and lap 30 bar diameters minimum unless noted otherwise.

FRAMING:

1. All solid-sawn, dimension lumber shall be pressure-treated and conform to the following table with lumber grades and allowable stresses in accordance with AMERICAN FOREST & PAPER ASSOCIATION NATIONAL DESIGN SPECIFICATION (NDS) for wood construction, 2005 edition.

| Members | Species | Grade |
|---|---|---|
| Deck | Southern Pine & Douglas Fir-Larc | Commercial |
| Stud or Sill | Southern Pine & Douglas Fir-Larch | Stud, #3 or better |
| Beam, Joist & Post | Southern Pine & Douglas Fir-Larch | #2 or better |

Notes:
A. All members contracted to concrete or dirt or exposed to weather shall be preservative treated per AWPA C2 or C9 standards.
B. All wood framing members shall have 19% or less misture contect.

2. Hanger supports, column bases and caps, etc., where shown on the drawings, shall be manufactured by the Simpson Strong-Tie Company or equivalent. Unless otherwise noted on the drawings, all connectors shall be able to support a load equal to the shear capacity of the specified joist, beam, or column.
3. Nails & spacing shall be in accordance with the connector manufacturer's recommendations and local building code requirements.
4. Nailing not noted shall be in accordance with 2006 I.B.C. Table 2304.9.1. Staples will be permitted as a substitute for nails only if a size and location as permitted by governing building authority/s. Refer to NER-272 for equivalent fastener evaluations.
5. Bolts, lag screws, wood screws, etc. shall be galvanized A307 Steel or better. Provide galvanized fasteners at exposed conditions. All connectors, fasteners, and metal framing anchors shall conform to the following:
5.1. Connectors: Hot-dip galvanzied steel sheet, ASTM A446, Grade A; ASTM A 525, G60.
5.2. Nails, wires, brads and stapels: FS FF-N-105, ASTM F1667.
5.3. Power driven fasteners: National Evaluation Report NER-272.
5.4. Wood screws: ANSI B18.6.1, FS FF-S-111.
5.5. Bolts: ASTM A 307 Grade A, FS FF-B-575.
5.6. Lag screws: ANSI B18.2.1, FS FF-B-561.
5.7. Nuts: FS FF-N-836, ASTM F563.
5.8. Metal framing anchors: Hot-dip galvanized steel sheet, ASTM A446, Grade A; ASTM A 525, G60.
6. Work shall be done in accordance with plans, specifications and reports and shall meet codes, rules and regulations of all applicable governing agencies having jurisdiction (City, State, National and Utility Companies). Refer to specifications and other relative drawings for materials, conditions and workmanship.
7. If plans and specifications differ from required minimum standards set forth in ordinances of all governing agencies, ordinances shall govern.
8. The project specifications shall be considered an integral part of the contract documents. The contractor shall review the specifications prior to construction and notify the engineer for any discrepancies before proceeding with the work.

NOTE:

THE RAMP ELEVATIONS TO BE SITE VERIFIED BASED UPON THE FINAL ELEVATION OF THE BUILDING (AFTER INSTALLATION IS COMPLETE).

NOTES:

- ALL WOOD MEMBERS EXPOSED TO WEATHER CONDITION ARE TO BE PRESSURED-TREATED LUMBERS.
- ALL NAILS, BOLTS, LAG SCREWS, AND OTHER CONNECTORS TO BE GALVANIZED FOR PROTECTION.

PLAN NOTES:

1. VERIFY THE SITE CONDITION PRIOR TO THE CONSTRUCTION.
2. EACH FLOOR TRANSION SHALL NOT EXCEED 1/2". FLUSH IS PERFORABLE, I.E., FLOOR AND LANDING ON EACH SIDE OF EXTERIOR DOORS ARE AT THE ABOUT SAME ELEVATION ON EACH SIDE OF THE DOORS.
3. ALL RAMPS SHALL HAVE A HAND RAIL ON EACH SIDE.
4. LEGENDS:
- ■ POST ON FOUNDATION
- □ POST ON BEAM
- ◪ STUB POST BELOW DECK

STATE OF TEXAS
XUESONG BAI
89538
REGISTERED
PROFESSIONAL ENGINEER
02/02/10


XUESONG BAI, P.E.
B. C. STRL ENGRS REG.: TX #F-10942
957 FALCON DR.
ALLEN, TX 75013 214-991-5117


| LTR | REVISION | BY | DATE |
|---|---|---|---|
| | | | |

DATE: 02/02/2010
DRAWN BY: sb
SCALE: As Shown
PROJECT: Ramp & Stairs Plan - Nexus Recovery, 8733 La Parda Dr., Dallas, TX 75228
SHEET: S-1


NORTEX MODULAR SPACE
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