

GENERAL STRUCTURAL NOTES

- A-GENERAL NOTES**
- THESE DRAWINGS ARE INCOMPLETE UNLESS ACCOMPANIED BY THE CONTRACT SPECIFICATIONS.
 - THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL OTHER DRAWINGS CONTRACTORS SHALL COORDINATE THE WORK OF OTHER TRADES INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS FOR SLEEVES, INSERTS, HOLES, HANGERS AND ANCHORS.
 - THE GENERAL SCOPE OF THIS STRUCTURAL WORK IS A TWO-STORY TERMINAL BUILDING WITH A PARTIAL MECHANICAL MEZZANINE SITTING ON A CONCRETE PIER WHICH IS DESIGNED BY F/IND Incorporated, Consulting Engineers.
 - REPORT DISCREPANCIES IN DIMENSIONS BETWEEN DIFFERENT DRAWINGS TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK IN AREAS THAT WILL BE AFFECTED.
 - DETAILS ENTITLED OR NOTED AS "TYPICAL," APPLY, NOT ONLY WHERE SPECIFICALLY INDICATED OR REFERENCED, BUT ALSO IN ALL OTHER CASES WHERE THE NATURE OF THE CONSTRUCTION REQUIRES THEIR USE. DETERMINE APPLICABILITY OF TYPICAL DETAILS FROM DESCRIPTIVE TITLES OR FROM THE SIMILARITY OF A CONSTRUCTION CONDITION TO ANOTHER CONDITION WHERE THE DETAIL IS SPECIFICALLY INDICATED OR REFERENCED.
 - ELEVATIONS ON THE STRUCTURAL DRAWINGS ARE DENOTED AS (X'-X"), REFERENCED TO THE FINISHED FIRST FLOOR ELEVATION DATUM ± 0'-0". ACTUAL FINISHED FIRST FLOOR ELEVATION (1&87) NGVD.
 - VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ETC., NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW WORK RELATIVE TO THE EXISTING STRUCTURE. TAKE ALL MEASUREMENTS NECESSARY FOR PROPER FABRICATION, ALIGNMENT, AND INSTALLATION OF STRUCTURAL MEMBERS AND COMPONENTS.
 - REPRODUCTION OF CONTRACT DRAWINGS SHALL NOT BE USED AS SHOP DRAWINGS UNDER ANY CIRCUMSTANCE.
 - ALL ITEMS SHOWN IN THESE DRAWINGS ARE NEW CONSTRUCTION UNLESS SPECIFICALLY NOTED AS EXISTING.
 - THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTED AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE AND TO ENSURE THE STABILITY OF THE BUILDING AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS DURING ERECTION.

B-DESIGN CRITERIA

- STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE FOLLOWING CODES AND SPECIFICATIONS:
 - AISC NATIONAL BUILDING CODE 1989
 - ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 - ASCE 7 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
 - MANUAL OF STEEL CONSTRUCTION ALLOWABLE STRESS DESIGN NINTH EDITION.
- DESIGN LOADS:

SECOND FLOOR	100 PSF
MEZZANINE	200 PSF
STAIR	100 PSF

NOTE: LIVE LOAD REDUCTION WAS NOT USED IN THE DESIGN OF THIS STRUCTURE.

C) WIND LOAD:	BASIC WIND SPEED, V	85 MPH
	WIND IMPORTANCE FACTOR, I _w	1.23
	WIND EXPOSURE	D
	INTERNAL PRESSURE COEFFICIENTS, GCp1	-.025

GROUND SNOW LOAD, S _G	50 PSF
SNOW EXPOSURE FACTOR, C _e	0.8
SNOW LOAD IMPORTANCE FACTOR, I _s	1.1
THERMAL FACTOR, C _t	1.0
- SEISMIC LOAD:

SEISMIC HAZARD EXPOSURE GROUP	II
PEAK VELOCITY-RELATED ACCELERATION, A _v	0.1
SEISMIC ACCELERATION, A _s	0.1
SEISMIC PERFORMANCE CATEGORY	2
BASIC SEISMIC-FORCE-RESISTING SYSTEM DUEL SYSTEM WITH AN ORDINARY MOMENT FRAME OF STEEL CAPABLE OF RESISTING AT LEAST 25% OF THE PREScribed SEISMIC FORCES CONCENTRICALLY BRACED FRAMES	5
RESPONSE MODIFICATION FACTOR (R)	4.5
DEFLECTION AMPLIFICATION FACTOR (C _d)	4.5
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE PROCEDURE

C-CONCRETE CONSTRUCTION NOTES

- CAST-IN-PLACE CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM 28-DAY COMPRESSIVE STRENGTHS (f_c):

A) FILL ON COMPOSITE FLOOR DECK	FILL IN STAIR PANS AND TREADS AND ALL INTERIOR CONCRETE	3500 PSI
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- CONCRETE DENSITY SHALL BE NORMAL WEIGHT UNLESS SPECIFICALLY OTHERWISE NOTED.
- CONCRETE REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A618/A618M, GRADE 60.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A685. PROVIDE SHEET-TYPE WELDED WIRE FABRIC. SHEET LAPS SHALL BE TIED AND LAPPED ONE FULL MESH SPACING.
- CONCRETE REINFORCING STEEL SHALL BE CONTINUOUS UNLESS OTHERWISE INDICATED. CONTINUOUS REINFORCING STEEL SHALL BE LAPPED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318.
- MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS INDICATED. IN NO CASE SHALL REINFORCEMENT COVER BE LESS THAN THE REQUIREMENTS OF ACI 318.

A) SLABS AND WALLS	1"
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- REINFORCING STEEL SHALL BE SPREAD AT SLEEVES, TIEBACKS, RECESSES AND OTHER EMBEDDED ITEMS UNLESS OTHERWISE INDICATED. REINFORCEMENT SHALL NOT BE CUT TO FACILITATE PLACEMENT OF EMBEDDED ITEMS.
- ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 1" OR AS INDICATED.
- ALUMINUM SHALL NOT BE PLACED IN DIRECT CONTACT WITH CONCRETE UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION AND ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTIMATING AND SUPPLYING ANY ADDITIONAL CONCRETE REQUIRED TO ACHIEVE SPECIFIED FLOOR FINISHES CRITERIA.

D-STEEL NOTES

- STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

A) SQUARE AND RECTANGULAR TS	ASTM A 5000 GRADE B, F _y = 46 KSI
B) ROUND TS	ASTM A 5000 GRADE B, F _y = 40 KSI
C) WIDE-FLANGE SHAPES AND TEES	ASTM A 992, F _y = 50 KSI
D) CHANNELS AND S-SHAPES	ASTM A 571 / A 571M, GRADE 50
E) PLATES AND ANGLES	ASTM A 36 / A 36M
F) HIGH STRENGTH BOLTS	ASTM A 325
G) ANCHOR BOLTS	ASTM A 307, GRADE 36
H) WELDED JOINTS	ASTM A 36 / A 36M
I) WELDING ELECTRODES	A601 E70T1, E70XX
- FIELD CUTTING OF STRUCTURAL STEEL MEMBERS BY ANY TRADE SHALL NOT BE PERMITTED. BOLT HOLES SHALL NOT BE CUT OR ENLARGED BY FLAME CUTTING IN THE FIELD.

- SHEAR CONNECTIONS FOR BEAMS SHALL BE DESIGNED FOR INFLECTED (SERVICE) REACTIONS SHOWN ON THE DRAWINGS. WHERE FORCES ARE NOT PROVIDED ON THE DRAWINGS, SHEAR CONNECTIONS SHALL BE DESIGNED THE FULL UNIFORM LOADS AS INDICATED IN THE ALLOWABLE LOAD TABLES OF PART 2 OF THE AISC MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN, NINTH EDITION. FOR COMPOSITE BEAMS, CONNECTIONS SHALL BE DESIGNED 1/3X THE FULL UNIFORM LOADS AS INDICATED ABOVE UNLESS SHOWN OTHERWISE. HIGH STRENGTH THREADED FASTENERS ARE REQUIRED FOR ALL CONNECTIONS.
- BEAMS FRAMING INTO A GIRDER FROM ONE SIDE ONLY SHALL BE MADE WITH DOUBLE ANGLE CONNECTIONS. ALL OTHER CONNECTIONS MAY BE DOUBLE ANGLE CONNECTIONS OR SINGLE PLATE SHEAR CONNECTIONS DESIGNED FOR A FLEXIBLE SUPPORT CONDITION, UNLESS INDICATED OTHERWISE.
- MOMENT CONNECTIONS SHALL BE DESIGNED FOR THE MOMENT AND SHEAR AS SHOWN IN THE DRAWINGS.
- FULL PENETRATION AND PARTIAL PENETRATION FIELD WELDS IN MATERIAL OVER 5/16" THICK AND WELDED FIELD SPLICE OF MAIN MEMBERS SHALL BE SUBJECT TO NON-DSTRUCTIVE TESTING BY THE INDEPENDENT LABORATORY. ALL BOLTS IN BRACED FRAMES AND BOLTS IN SHEAR CONNECTIONS USED IN CONNECTION WITH FULL OR PARTIAL PENETRATION WELDS SHALL BE S/LIF CRITICAL TYPE.
- COMPOSITE BEAMS AND GIRDERS ARE DESIGNED TO BE UNSHORED DURING CONSTRUCTION.
- ALL SHELF ANGLES, LINTELS IN EXTERIOR WALLS, ALL EXTERIOR STEEL EXPOSED TO THE ELEMENTS, AND ALL ITEMS INDICATED ON THE DRAWINGS AS GALVANIZED, SHALL BE GALVANIZED.
- INCLUDE AN ALLOWANCE IN THE BID TO PROVIDE AND ERECT 5 ADDITIONAL TONS OF STRUCTURAL AND/OR MISCELLANEOUS STEEL SHAPES, ANGLES, PLATES, ETC.; MATERIAL OT BE USED AND ITS APPLICATION SHALL BE DETERMINED BY THE ARCHITECT. CONNECTIONS, IF REQUIRED, SHALL BE FIELD-WELDED.

E-STEEL JOISTS

- SPECIFICATIONS:
 - FABRICATION AND ERECTION TO BE S/LI REQUIREMENTS.
 - MEMBER TO BE A MEMBER OF S/LI.
- BRIDGING:
 - NUMBER OF ROUS AS SHOWN IN THE CONTRACT DRAWINGS.
 - HORIZONTAL BRIDGING TO BE WELDED TO THE JOISTS. THE POINT OF INTERSECTION ENDS OF DIAGONAL BRIDGINS ARE TO BE ANCHORED WITH HORIZONTAL BRIDGING UNLESS SHOWN OTHERWISE. HORIZONTAL BRIDGING IN NO MORE THAN TWO CONSECUTIVE BAYS MAY BE USED TO PROVIDE PASSAGE FOR DUCT WORK.
 - ANCHOR BRIDGING TO INTERSECTING STRUCTURAL STEEL OR MASONRY WALLS.
- BEARING:
 - WELD ALL JOISTS TO SUPPORTING STEEL WITH 1-1/2 INCHES OF 1/8 FLEET FOR K-SERIES JOISTS AND 2 INCHES OF 1/4 INCH FILLETED WELD FOR LH- OR DLH-SERIES JOISTS. EACH SIDE OF BEARING JOISTS ARE TO BE FIELD BOLTED AT COLUMN LINES OR IF THERE ARE NO JOISTS AT THE COLUMN LINE, FIELD BOLT THE JOIST NEAREST THE COLUMN ON EACH SIDE OF THE BEAM EXTEND BOTTOM CHORDS OF THE SAME JOISTS AND WELD THEM TO THE BEAM OR COLUMN. BEAMS AND JOISTS 1 INCH MINIMUM FROM CENTERLINE OF SUPPORTING MEMBER WHERE POSSIBLE; BEARINGS TO BE PER DRAWINGS; OR WHERE SPECIAL DETAILS ARE SHOWN, AS THEY GIVEN, ACCORDING TO THE STANDARDS SPECIFICATIONS OFP S/LI.
 - MISCELLANEOUS:
 - ADJACENT JOISTS OF THE SAME DEPTH ARE TO HAVE WEB MEMBERS IN LINE TO PERMIT PASSAGE OF HVAC DUCTS.
 - SEE DRAWINGS FOR SPECIAL BEARING SHOES, EXTENDED ENDS, LOAD DIAGRAM, ETC.
 - JOISTS AND JOIST GIRDERS WITH CONCENTRATED LOADS ON THE TOP OR BOTTOM CHORDS NOT LOCATED AT A PANEL POINT SHALL BE REINFORCED WITH A FIELD INSTALLED MEMBER. THE FIELD INSTALLED MEMBER SHALL BE LOCATED AT THE CONCENTRATED LOAD AND SHALL BRACE THE CHORD BACK TO A PANEL POINT IN ACCORDANCE WITH THE TYPICAL JOIST REINFORCEMENT DETAIL.

F-STEEL DECK NOTES

- ROOF DECK SHALL BE GALVANIZED STEEL CONFORMING TO ASTM A653-94 WITH A MINIMUM YIELD STRENGTH OF 33 KSI. STEEL ROOF DECK SHALL BE 11/2" DEEP WIDE RIB ACQUAUSTICAL DECK WITH THE FOLLOWING MINIMUM SECTION PROPERTIES:

A) 1x10-0258 1x (20 Gage)
B) 1x10-0230 1x (20 Gage)
C) 5x4-0234 1x3/16"
D) 5x4-0241 1x3/16"

MADE WITH #10 SELF TAPPING SCREWS AT 10" O.C. BETWEEN SUPPORTS. FASTEN DISCONTINUOUS SIDE OF ROOF DECK TO SUPPORTING STRUCTURE WITH 5/8" DIAMT RIVBULE WELDS AT 10" ON CENTER UNLESS OTHERWISE NOTED.
- COMPOSITE FLOOR DECK SHALL BE GALVANIZED STEEL CONFORMING TO ASTM A653-94 WITH A MINIMUM YIELD STRENGTH OF 40 KSI. COMPOSITE FLOOR DECK SHALL BE 2" DEEP. DEEP DECK RIBS SHALL BE SPACED AT 12" ON CENTER. COMPOSITE FLOOR DECK SHALL HAVE THE FOLLOWING MINIMUM SECTION PROPERTIES:

A) 1x10-0258 1x (20 Gage)
B) 1x10-0418 1x4/16"
C) 5x4-0235 1x3/16"
D) 5x4-0230 1x3/16"

- ATTACH DECK TO SUPPORTS USING 3/4" DIAM X 5 3/16" LONG HEADED STUDS AT THE QUANTITY INDICATED ON THE FRAMING PLANS. WHERE STUD SPACING EXCEEDS 12" ON CENTER, WELD DECK TO SUPPORTS USING 5/8" DIAMT RIVBULE WELDS AT 12" ON CENTER. SIDE LAP CONNECTIONS SHALL BE MADE WITH 3 #0 SCREW CONNECTIONS PER SPAN DISCONTINUOUS SIDE OF FLOOR DECK TO SUPPORTING STRUCTURE WITH 5/8" DIAMT RIVBULE WELDS AT 12" ON CENTER UNLESS OTHERWISE NOTED.
- WHERE 4 OR MORE SUPPORTS ARE PROVIDED, STEEL DECK SHALL SPAN CONTINUOUSLY OVER A MINIMUM OF 4 SUPPORTS (3-SPAN CONDITION) UNLESS OTHERWISE NOTED.
 - ALL COMPOSITE STEEL FLOOR DECK IS DESIGNED AS UNSHORED CONSTRUCTION UNLESS OTHERWISE NOTED.
 - CONSTRUCTION JOINTS RUNNING PARALLEL TO BEAMS OR GIRDERS SHALL NOT CONDUCE WITH THE CENTERLINE OF THE BEAM OR GIRDER. CONSTRUCTION JOINTS RUNNING PERPENDICULAR TO BEAMS OR GIRDERS SHALL BE LOCATED AT APPROXIMATELY THE 1/3 POINT OF THE BEAM OR GIRDER SPAN.
 - PERMANENT SUSPENDED LOADS SHALL NOT BE SUPPORTED BY STEEL ROOF DECK.

G-SAFETY OSHA AND LABOR LAWS

- THE STRUCTURAL ENGINEER OF RECORD DOES NOT POSSESS OR POSSESS ANY KNOWLEDGE OR EXPERTISE IN MATTERS TO JOB SITE EMPLOYEE SAFETY, OSHA OR LABOR LAW REQUIREMENTS FOR A CONSTRUCTION PROJECT. SAFETY AND COMPLIANCE WITH OSHA AND LABOR LAWS ARE THE ABSOLUTE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND HIS CONSULTANTS TO ADDRESS THESE MATTERS. THE STRUCTURAL ENGINEER OF RECORD, SPECIALIZES IN STRUCTURAL DESIGN ONLY. THE BOARD OF PROFESSIONAL REGULATION FORBIDS HIM FROM ASSUMING RESPONSIBILITY OUTSIDE HIS AREA OF EXPERTISE.

H-LIGHT GAGE METAL FRAMING

- ALL STUDS USED FOR WALL FRAMING SHALL BE 6" AND 3 3/8" METAL 'C' STUDS SPACED 16" AS INDICATED BELOW

16 GAGE	4, 12" IN 4
14 GAGE	1/2 (MINIMUM)
- STUDS WHICH SERVE AS BACKUP FOR METAL BECK AND SYNTHETIC STUCCO

6" STUDS WHICH SERVE AS BACKUP FOR METAL SIDING	16 GAGE	2, 86 IN 4
3 1/8" STUDS WHICH SERVE AS BACKUP FOR SYNTHETIC STUCCO (INTERIOR)	18 GAGE	0, 419 IN 4

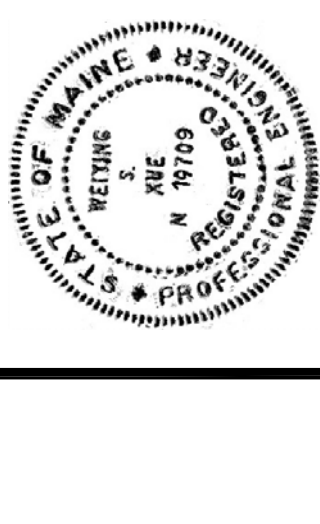
- ALL STUD CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR FOR THE REACTIONS INDUCED BY THE LOADS INDICATED BELOW.
 - HORIZONTAL WIND LOAD = 50 PSF INWARD OR OUTWARD FOR EXTERIOR STUDS 5 PSF FOR INTERIOR STUDS.
 - BOTTOM OF STUD WALLS SHALL BE ANCHORED TO CONCRETE WITH 1/2" DIAMETER EXPANSION BOLTS AT A MAXIMUM SPACING OF 4'-0" ON CENTER.

J-MASONRY CONSTRUCTION NOTES:

- DESIGN MASONRY ASSEMBLY STRENGTH, f_m = 1800 PSI. NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS SHALL BE A MINIMUM OF 1800 PSI.
- CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C900 AND BE MANUFACTURED WITH LIGHTWEIGHT AGGREGATE.
- MORTAR SHALL CONFORM TO ASTM C 210 TYPE 'M' (2500 PSI). GROUT FOR FILLED CELL SHALL CONFORM TO ASTM C416 AND SHALL NOT CONTAIN ADMIXTURES. GROUT SHALL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI, SLUMP 3 IN.
- REINFORCEMENT SHALL BE DEFORMED BARS CONFORMING TO ASTM A618 / A618M, GRADE 60 AND SHALL HAVE FABRICATION TOLERANCES IN ACCORDANCE WITH ACI 318. SHOP-FABRICATE REINFORCING BARS WHICH ARE INDICATED TO BE BENT OR HOOKED.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PROJECT NUMBER 009215.00
PIN
009215.00



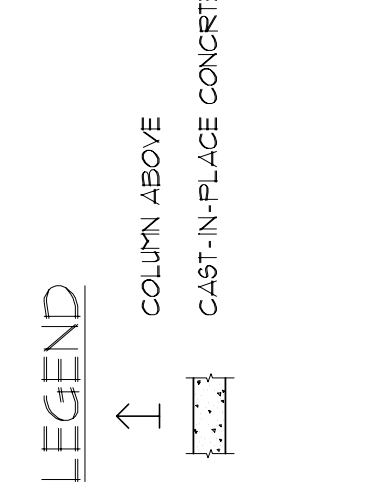
DATE	10/15/05
REVISIONS	1
REVISIONS	2
REVISIONS	3
REVISIONS	4
FIELD CHANGES	

PROJ. MANAGER	PAUL POTTLE
BY	
DATE	
DESIGN-DRAWN	
CHECKED-REVIEWED	
DESIGN-DETAILED	
DESIGN-2-DETAILED	
DESIGN-3-DETAILED	
REVISIONS 1	VAPR 22 DESIGN CHANGE
REVISIONS 2	10/15/05
REVISIONS 3	11/15/05
REVISIONS 4	12/02/05

P. LICENSE NUMBER	10709
DATE	10/15/05

SIGNATURE: *Paul Pottle*

AN ASSOCIATION WITH
 GORRILL-PALMER CONSULTING ENGINEERS
 PRATYOVICH, NOTTMAN & DRAGE
 WINTON SCOTT ARCHITECTS
 HALEY & ALDRICH



CITY OF PORTLAND OCEAN GATEWAY PHASE 1 GENERAL BUILDING GENERAL NOTES

S001-T