

STRUCTURAL NOTES

CONCRETE

- CONFORM WITH ACI 117, ACI 201, ACI 211.1, ACI 301, ACI 302.1R, ACI 305R, ACI 306.1, ACI 308.1, ACI 309R, ACI 315, ACI 318, ACI 330 AND ACI 347R.
- CONCRETE EXPOSED TO WEATHER: NORMAL WEIGHT, F'c=4000 PSI WITH A MAXIMUM WATER/CEMENT RATIO=0.45.
CONCRETE FOR FOOTINGS: NORMAL WEIGHT, F'c=3000 PSI WITH A MAXIMUM WATER/CEMENT RATIO=0.50.
CONCRETE FOR COMPOSITE SLABS: NORMAL WEIGHT, F'c=4000 PSI WITH A MAXIMUM WATER/CEMENT RATIO=0.50.
CONCRETE FOR FOUNDATION WALLS AND PIERS: NORMAL WEIGHT, F'c=3000 PSI WITH A MAXIMUM WATER/CEMENT RATIO=0.50.
CONCRETE FOR SLABS-ON-GRADE: NORMAL WEIGHT, F'c=4000 PSI WITH A MAXIMUM WATER/CEMENT RATIO=0.45.
- COMPACT THE EXISTING SUBGRADE BENEATH ISOLATED AND SPREAD FOOTINGS WITH 3 PASSES OF A VIBRATING PLATE COMPACTOR AND PRIOR TO CONCRETE PLACEMENT. COMPACT IN ACCORDANCE WITH THE SPECIFICATIONS.
- DEFORMED REINFORCING BARS: ASTM A615/A615M (GRADE 60).
- WELDED WIRE FABRIC: ASTM A185 (GALVANIZED AS INDICATED).
- LAP SPLICE CONCRETE REINFORCEMENT AS INDICATED BELOW, UNLESS INDICATED OTHERWISE. WELDING OF STEEL REINFORCEMENT IS NOT PERMITTED.

BAR SIZE	MINIMUM LAP LENGTH
#5	3'-0"

- MINIMUM REINFORCING STEEL COVER: FOOTINGS 3", WALLS AND PIERS 2", ELEVATED SLABS 3/4", UNLESS INDICATED OTHERWISE.
- SUPPORT STEEL REINFORCEMENT AND WELDED WIRE FABRIC BY APPROVED MATERIALS.
- CURE CONCRETE AS SPECIFIED. CONCRETE NOT CURED WILL NOT BE ACCEPTED.
- NONSHRINK GROUT: ASTM C1107, NONMETALLIC.
- EPOXY GROUT: ASTM C881, TYPE IV OR V.
- INTERIOR SLABS-ON-GRADE: PROVIDE CONCRETE SLAB PROTECTION (BEYOND THE 7-DAY CURING PERIOD) UNTIL THE BUILDING ENVELOPE COMPLETELY ENCLOSES AND PROTECTS THE SLAB FROM WIND, SUN AND PRECIPITATION.
- TAPE AND SEAL JOINTS IN VAPOR RETARDER AT EDGES. SEAL VAPOR RETARDER TO CONCRETE AT EDGES.
- PROVIDE WATERSTOPS AT VERTICAL AND HORIZONTAL COLD JOINTS IN THE CONCRETE FOUNDATION ELEVATOR PIT.
- PERFORM FLOOR FLATNESS AND LEVELNESS TESTING FOR SLABS-ON-GRADE WITHIN 24 HOURS OF FINISHING.

MASONRY

- CONFORM TO ACI 530.1-05/ASCE 6-05/TMS 402-05.
- CONCRETE MASONRY UNITS ASTM C90, TYPE 1, NORMAL WEIGHT. MORTAR: ASTM C270. GROUT: ASTM C476 FINE. DEFORMED REINFORCEMENT: ASTM A615/A615M, GRADE 60.
- CONCRETE MASONRY ASSEMBLIES TO HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH: F'm = 1500 PSI.
- PERFORM DAILY MASONRY INSPECTIONS AS SPECIFIED. SUBMIT DAILY MASONRY INSPECTION REPORTS TO THE OWNER WITHIN 24 HOURS AFTER DAY OF INSPECTION. MASONRY CONSTRUCTED WITHOUT THE COMPLETION OF DAILY MASONRY INSPECTIONS WILL NOT BE ACCEPTED AND WILL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- REINFORCE CONCRETE MASONRY WALLS AND PARTITIONS AS INDICATED WITH CELLS GROUTED SOLID UNLESS NOTED OTHERWISE.
- DO NOT MAKE HOLES OR PENETRATIONS THROUGH CMU BOND BEAMS.
- LAP SPLICE REINFORCEMENT AS INDICATED BELOW, UNLESS NOTED OTHERWISE, ON FOUNDATION DETAILS AND MASONRY WALL ELEVATION SHEETS.

BAR SIZE	MINIMUM LAP LENGTH
#5	1'-8"

COLD-FORMED STEEL

- COLD-FORMED METAL FRAMING: GALVANIZED STEEL ASTM A653/A653M, GRADE 33 FOR TRACKS (Fy=33 KSI) G90 COATING. GRADE 50 FOR STUDS: (Fy=50 KSI) G90 COATING.
- EXTERIOR WALL DEFLECTION TRACK SHALL ALLOW FOR 1" OF DEFLECTION AT THE ROOF LEVEL.
- MINIMUM SECTION PROPERTIES FOR 362 S 162-33 STUDS:
MINIMUM AREA = Ag = 0.262 IN²
MINIMUM EFFECTIVE SECTION MODULUS = Se = 0.268 IN³
MINIMUM GROSS MOMENT OF INERTIA = Ix = 0.551 IN⁴
- MINIMUM SECTION PROPERTIES FOR 600 S 162-43 STUDS:
MINIMUM AREA = Ag = 0.447 IN²
MINIMUM EFFECTIVE SECTION MODULUS = Se = 0.767 IN³
MINIMUM GROSS MOMENT OF INERTIA = Ix = 2.32 IN⁴
- MINIMUM SECTION PROPERTIES FOR 800 S 162-97 JOISTS:
MINIMUM AREA = Ag = 1.17 IN²
MINIMUM EFFECTIVE SECTION MODULUS = Se = 2.43 IN³
MINIMUM GROSS MOMENT OF INERTIA = Ix = 9.72 IN⁴

STRUCTURAL STEEL

- CONFORM WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S "MANUAL OF STEEL CONSTRUCTION THIRTEENTH EDITION".
- STEEL FOR ROLLED SECTIONS: ASTM A992/A992M (Fy=50 KSI). STEEL FOR CONNECTIONS, ANGLES, PLATES AND CHANNELS: ASTM A36 (Fy=36 KSI). RECTANGULAR HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE B, (Fy=46 KSI).
- STRUCTURAL BOLTS: ASTM A325/A325M N, TYPE 1 OR ASTM F1852, TYPE 1, TENSION CONTROL. WASHERS: ASTM F436M. NUTS: ASTM A563M.
- WELDING: AWS D1.1 AND AWS D1.3, E70 ELECTRODE.
- GRIND EXPOSED WELDS SMOOTH.
- FULLY TENSION BOLTS.
- TEST AND INSPECT FIELD-BOLTED CONNECTIONS ACCORDING TO RCSC'S "LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
- SUBMIT INSPECTION REPORTS TO THE OWNER WITHIN 48 HOURS OF COMPLETION. SUBMIT WELDING INSPECTION REPORTS TO THE OWNER WITHIN 48 HOURS OF COMPLETION.

STEEL DECK

- STEEL DECKS: AISI S603-3 AND STEEL DECK INSTITUTE "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS". DECK UNITS ASTM A653/A653 SQ, GRADE 33, COATING G90 FOR ASTM A653/A653M. FASTEN FLOOR DECK WITH 3/4" WELDS ON A 36/4 PATTERN. FASTEN ROOF DECK WITH 3/4" WELDS ON A 36/4 PATTERN (NO STITCH CONNECTORS).

STEEL COMPOSITE DECK = NON-CELLULAR, GRADE 33.
MINIMUM DEPTH = 2" (MINIMUM DESIGN THICKNESS: 0.0359 IN (20 GAUGE))
MINIMUM SECTION MODULUS = Sx = 0.357 IN³
MINIMUM MOMENT OF INERTIA = Ix = 0.401 IN⁴

STEEL ROOF DECK = NON-CELLULAR, GRADE C.
MINIMUM DEPTH = 1-1/2" (MINIMUM DESIGN THICKNESS: 0.0474 IN (18 GAUGE))
MINIMUM SECTION MODULUS = Sx = 0.30 IN³
MINIMUM MOMENT OF INERTIA = Ix = 0.27 IN⁴

- PROVIDE 12 GAGE METAL POUR STOPS/CLOSURE ANGLES AT EDGES OF SLABS.

PLYWOOD

- LAY PLYWOOD FLOOR AND WALL SHEATHING PERPENDICULAR TO FRAMING. FASTEN PLYWOOD SHEATHING TO COLD-FORMED STEEL FRAMING WITH #8 SCREWS SPACED 6" ON-CENTER.
- PLYWOOD FLOOR AND WALL SHEATHING SHALL BE FIRE-RETARDANT TREATED.

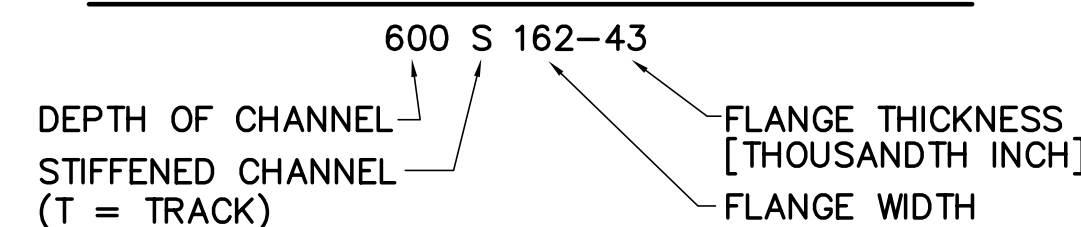
GRATING

- PROVIDE GALVANIZED STEEL BAR-TYPE GRATING (REMOVABLE) OVER THE ELEVATOR PIT SUMP HOLE.
- INSTALL GALVANIZED STEEL GRATINGS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.
- MINIMUM LIVE LOAD CAPACITY: 100 PSF.

POST INSTALLED ANCHORS

- INSTALL POST INSTALLED ANCHORS IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.
- 1/2" DIAMETER ANCHORS/EXPANSION BOLTS SHALL HAVE THE FOLLOWING MINIMUM ALLOWABLE CAPACITIES. CAPACITIES INDICATED ARE PRIOR TO APPLICATION OF ADJUSTMENT FACTORS.
a. SHEAR = 1850 LBS
b. TENSION = 1785 LBS
- 3/4" DIAMETER ANCHORS/EXPANSION BOLTS SHALL HAVE THE FOLLOWING MINIMUM ALLOWABLE CAPACITIES. CAPACITIES INDICATED ARE PRIOR TO APPLICATION OF ADJUSTMENT FACTORS.
a. SHEAR = 2840 LBS
b. TENSION = 1880 LBS
- EPOXY GROUT: ASTM C881.

COLD-FORMED STEEL LEGEND



GENERAL NOTES

- FIELD VERIFY DIMENSIONS AND ELEVATIONS OF STRUCTURAL STEEL MEMBERS PRIOR TO FABRICATION OF ANY MEMBERS. REPORT DISCREPANCIES TO THE OWNER PRIOR TO FABRICATION OF MEMBERS.
- PROVIDE TEMPORARY SUPPORT OF FRAMING DURING CONSTRUCTION TO PREVENT FAILURE AND DAMAGE. PROVIDE DESIGN FOR TEMPORARY SUPPORTS. SUBMIT STAMPED CALCULATIONS TO OWNER FOR APPROVAL.
- COORDINATE THE LOCATION OF CONCRETE, MASONRY AND STEEL MEMBERS WITH ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, FIRE PROTECTION, AND ELECTRICAL PLANS AND DETAILS.
- REQUIRED TESTS AND INSPECTIONS ARE TO BE COMPLETED AND SUBMITTED TO THE OWNER PRIOR TO ACCEPTANCE OF COMPLETED WORK. MATERIAL PLACED WITHOUT THE REQUIRED CONTRACTOR QUALITY CONTROL TESTS OR REQUIRED INSPECTIONS BEING PERFORMED WILL NOT BE ACCEPTED.
- CONSTRUCTION IS SUBJECT TO SPECIAL INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 OF IBC 2009. THE CONTRACTOR SHALL CORRECT DEFICIENCIES AND NOTIFY THE OWNER AFTER DEFICIENCIES HAVE BEEN CORRECTED.
- ASSUME FULL RESPONSIBILITY FOR CHANGES IN FOUNDATION OR FRAMING PLANS AND DETAILS UNLESS APPROVED IN WRITING BY THE SER/OWNER.

BUILDING DESIGN LOADS

ROOF SNOW LOAD (ROOF LIVE LOAD) ASCE 7-05/IBC 2009

GROUND SNOW LOAD (Pg) = 60 PSF

SNOW EXPOSURE FACTOR (Ce) = 1.0
SNOW LOAD ROOF SLOPE FACTOR (Cs) = 1.0
SNOW LOAD THERMAL FACTOR (Ct) = 1.1

BALANCED ROOF SNOW LOAD (Pf) = 51 PSF
SNOW DRIFTING ON ADDITION UPPER ROOF (Pd) = 0 PSF
SNOW DRIFTING ON EXISTING ROOF (Pd) = 15 PSF [W = 5 FT]
SNOW DRIFTING ON ADDITION LOW ROOF (Pd) = 118 PSF [W = 22 FT]
SNOW LOAD IMPORTANCE FACTOR (I) = 1.1
ROOF DEAD LOAD = 17 PSF
ROOF LIVE LOAD = 20 PSF

INTERIOR RAMP/CORRIDOR DEAD LOAD = 10 PSF
ADDITION 2ND FLOOR DEAD LOAD = 51 PSF
FLOOR LIVE LOAD:
ADDITION 1ST FLOOR = 100 PSF
ADDITION 2ND FLOOR = 80 PSF
ADDITION STAIRS = 100 PSF
INTERIOR RAMP/CORRIDOR = 100 PSF

WIND LOAD ASCE 7-05/IBC 2009

BASIC WIND SPEED = 100 MPH
WIND LOAD IMPORTANCE FACTOR = 1.15
WIND EXPOSURE = EXPOSURE B
BUILDING TYPE = "ENCLOSED"
WIND DESIGN PRESSURE:
MAIN WIND FORCE RESISTING SYSTEM = 19 PSF (MAXIMUM PRESSURE)

SEISMIC DESIGN DATA ASCE 7-05/IBC 2009

SHORT PERIOD SPECTRAL RESPONSE ACCELERATION (Ss) = 0.32
ONE SECOND SPECTRAL RESPONSE ACCELERATION (S1) = 0.08
SEISMIC USE GROUP = GROUP II
SEISMIC DESIGN CATEGORY = B
SEISMIC IMPORTANCE FACTOR = 1.25
SITE CLASS = D (ASSUMED PER IBC)
TOTAL BASE SHEAR = 8.9 KIPS

BASIC STRUCTURAL SYSTEM

MASONRY SHEAR-WALLS (INTERMEDIATE)
RESPONSE MODIFICATION COEFFICIENT (R) = 3.50
DEFLECTION AMPLIFICATION FACTOR (Cd) = 2.50
SYSTEM OVER STRENGTH FACTOR (Ro) = 2.25
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE

DESIGN SOIL BEARING PRESSURE = 2,000 PSF (ASSUMED PER IBC)

BEAM BEARING PLATE SCHEDULE

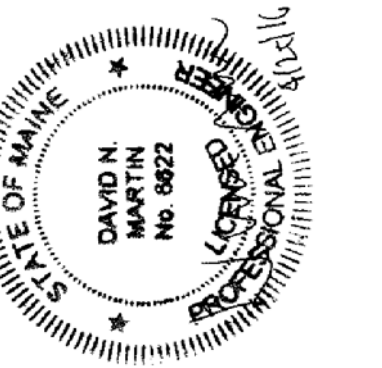
DESIGNATION	LENGTH (IN)	DEPTH (IN)	THICKNESS (IN)
BBP1	8	7	5/8
BBP2	6	4	1/2
BBP3	10	7	5/8
BBP4	8	7	1/2
BBP5	10	4	5/8

NOTES:

- PROVIDE (2) 1/2" DIAMETER x 3-1/2" LONG HEADED ANCHORS SHOP WELDED TO THE BOTTOM OF EACH PLATE.
- WELD BEAM TO BEARING PLATE WITH 1/8" FILLET WELD 2" LONG BOTH SIDES UNLESS NOTED OTHERWISE.

STRUCTURAL ABBREVIATIONS:

±	PLUS OR MINUS
∠	ANGLE
ACI	AMERICAN CONCRETE INSTITUTE
AFF	ABOVE FINISH FLOOR
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ARCH	ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BBP	BEAM BEARING PLATE
BFE	BOTTOM OF FOOTING ELEVATION
BLDG	BUILDING
BP	BASE PLATE
CJ	CONTROL JOINT
∅	CENTERLINE
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DIA	DIAMETER
DWG	DRAWING
EA	EACH
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATION, ELEVATOR
EOD	EDGE OF DECK
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
F'c	CONCRETE COMPRESSIVE STRENGTH
F'm	MASONRY COMPRESSIVE STRENGTH
FND	FOUNDATION
Fy	YIELD STRESS
GA	GAUGE
GALV	GALVANIZED
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
IBC	INTERNATIONAL BUILDING CODE
IN	INCH
INSUL	INSULATION
INV	INVERT
K	KIPS
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MO	MASONRY OPENING
MPH	MILES PER HOUR
MTL	METAL
#, NO	NUMBER
OC	ON CENTER
OPNG	OPENING
PCF	POUNDS PER CUBIC FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS
REINF	REINFORCED
REQ'D	REQUIRED
SER	STRUCTURAL ENGINEER OF RECORD
SIM	SIMILAR
STL	STEEL
TFE	TOP OF FOOTING ELEVATION
TMS	THE MASONRY SOCIETY
TOS	TOP OF STEEL
TPE	TOP OF PIER ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
VERT	VERTICAL
W/	WITH
WWF	WELDED WIRE FABRIC



DESIGNED BY: WFG
DRAWN BY: MJC
CHECKED BY: DNM
PROJECT: 21602.06

REICHE ELEMENTARY SCHOOL
PORTLAND SCHOOL DEPARTMENT

REICHE ELEMENTARY
ELEVATOR ADDITION

353 Cumberland Avenue
Portland, ME 04102

166 Brackett Street
Portland, ME 04102

STRUCTURAL NOTES, DESIGN LOADS AND ABBREVIATIONS

SCALE: AS NOTED

DATE: 04-26-2016

DWG.: S-001

SHEET: 5 OF 40