

**STRUCTURAL NOTES:**

**DESIGN CRITERIA:**

**ROOF:**

- LIVE LOAD: 30 PSF
- SNOW LOAD: 31 PSF

**SECOND FLOOR:**

- LIVE LOAD: 100 PSF
- DEAD LOAD: 20 PSF

- WIND LOAD: ASCE 7-98  
CATEGORY: II  
EXPOSURE: 'C'  
IMPORTANCE FACTOR: 1.15  
BASIC WIND SPEED: 100 MPH

- SEISMIC LOAD: AY = 0.1  
Aa = 0.1  
GROUP II  
SITE COEFFICIENT 2

**MECHANICAL MEZZANINE FLOOR:**

- LIVE LOAD: 200 PSF

**APPLICABLE CODES:**

- ALTHOUGH THE ENGINEER OF RECORD HAS STRIVED TO MEET ALL APPLICABLE CODES AND LOCAL ORDINANCE REQUIREMENTS, THE CONTRACTOR IS STILL RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CODES AND ORDINANCES OF THE EVENT OF CONFLICT OR OVERSIGHT IN THE DRAWINGS THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER OF ANY CONFLICT OF DISCREPANCY ENCOUNTERED SO THAT APPROPRIATE REMEDIES MAY BE UNDERTAKEN.
- THE APPLICABLE CODES ARE: THE BOCA NATIONAL BUILDING CODE -1999.  
A.C.I. 318-99 FOR REINFORCED CONCRETE.  
A.S.D. MANUAL, 9th. EDITION FOR STRUCTURAL STEEL.

**OWNER, ARCHITECT, AND CONTRACTOR NOTE:**

- CHECK FOR SHOP DRAWINGS AND INSPECTIONS OF REINFORCEMENT IN THE FIELD ARE REQUIRED IF THIS OFFICE IS TO BE HELD RESPONSIBLE FOR THE STRUCTURAL ADEQUACY OF THE CONSTRUCTED BUILDING.

**COORDINATION:**

- COORDINATE ALL DIMENSIONS, ELEVATIONS & OPENINGS WITH ARCHITECTURAL DRAWINGS. REPORT ANY DISCREPANCIES TO OUR OFFICE.

**ELEVATIONS:**

- DATUM ELEVATION 0'-0" IS 16'-8" MLLW.

**FOUNDATIONS:**

- THE FOUNDATION DESIGN IS ACCORDING TO THE GEOTECHNICAL MEMORANDUM PROVIDED BY BARRY SCHEFF, P.E. OF WOODARD & CURREN DATED November 17, 2003. SHALLOW FOUNDATIONS ARE TO SIT ON WELL COMPACTED STRUCTURAL FILL WITH MAXIMUM BEARING PRESSURE 2000 PSF. PRIOR TO INSTALLATION OF FOOTINGS, THE CONTRACTOR MUST OBTAIN APPROVAL STATEMENT FROM THE GEOTECHNICAL ENGINEER THAT CERTIFIES THE EXCAVATION AND SOIL IMPROVEMENT ARE IN COMPLIANCE WITH THE GEOTECHNICAL SPECIFICATION AND THE IN-PLACE BEARING CAPACITY HAS REACHED 2000 PSF.

**CAST-IN PLACE CONCRETE:**

- UNLESS NOTED OTHERWISE, CONCRETE STRENGTH SPECIFIED HEREIN IS 28-DAY NORMAL WEIGHT CONCRETE COMPRESSION STRENGTH. DESIGN SLUMP IS 4 INCHES, +/- 1 INCH. GC SHOULD SUBMIT SIGNED AND SEALED CONCRETE MIX DESIGN BY THE MANUFACTURER TO BEA INTERNATIONAL FOR REVIEW AND APPROVAL.

**DESIGN CONCRETE STRENGTH:**

- SLAB ON GRADE: 3000 PSI
- ALL OTHER CAST-IN-PLACE CONCRETE: 4000 PSI
- GROUT FOR MASONRY FILLED CELL: 3000 PSI

- A MINIMUM OF 5 CONCRETE SPECIMENS SHALL BE TAKEN FROM EVERY 50 CU. YD. OR PORTION THEREOF. SPECIMENS SHALL BE TESTED ACCORDING TO ASTM C-39, ONE AT 3, ONE AT 7, AND 3 AT 28 DAYS.

**CONCRETE COVER:**

- CONCRETE CAST AGAINST EARTH: 3"
- FORMED CONCRETE IN CONTACT WITH EARTH: 2"
- BEAMS AND COLUMNS: 1-1/2"
- INTERIOR SLAB: 3/4"
- EXTERIOR SLAB: 1-1/2"

**REINFORCING STEEL:**

- REINFORCING BARS, INCLUDING STEEL TIES, SHALL CONFORM TO ASTM A-615 GRADE 60 REBAR - FABRICATION, TERMINATION AND LAP SPLICE SHOULD CONFORM TO INSTRUCTIONS IN THIS CONSTRUCTION DOCUMENT AS WELL AS ACI 315. ANY NON-CONFORMING TERMINATION OR LAP SPLICE MUST BE APPROVED BY BEA INTERNATIONAL. GC SHALL SUBMIT ALL REBAR SHOP DRAWINGS FOR CAST-IN-PLACE CONCRETE TO BEA INTERNATIONAL FOR REVIEW AND APPROVAL. - ALL ACCESSORIES ARE TO HAVE UPTURNED LEGS AND BE PLASTIC DIFFED AFTER FABRICATION.

**STRUCTURAL STEEL:**

- ALL STRUCTURAL STEEL, SHAPES & PLATES SHALL CONFORM TO A.S.T.M. A-36 GRADE.
- ALL STRUCTURAL STEEL WELDING SHALL BE PERFORM WITH AWS. D.11.
- ALL ANCHOR BOLTS SHALL CONFORM TO A.S.T.M. A-307.
- ALL BOLTS SHALL CONFORM TO A.S.T.M. A-325.
- ALL PIPE COLUMNS SHALL CONFORM TO A.S.T.M. A-53, GRADE B (Fy = 46 KSI).
- PROVIDE ONE SHOP COAT OF RUST INHIBITING PAINT MIN. 3 ML. DRY FILM THICKNESS.
- FABRICATIONS AND ERECTIONS SHALL BE DONE IN ACCORDANCE WITH THE LATEST A.I.S.C. SPECIFICATIONS.

**WELDING:**

- ALL WELDING SHOULD BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH BY AWS. BY CERTIFIED WELDERS.
- CONTRACTORS TO USE E-70 SERIES LOW HYDROGEN ELECTRODES.

**STEEL JOISTS:**

- DESIGN FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST S.J.I. SPECIFICATIONS.
- PROVIDE ONE SHOP COAT OF RUST INHIBITING PAINT (MIN. 3 ML. DRY FILM THICKNESS) TOUCH UPS REQUIRED AFTER ERECTION.
- CONTRACTOR TO COORDINATE LOCATION OF ALL EQUIPMENT, AND PROVIDE DOUBLE JOIST SUCH WHERE DEEMED NECESSARY.

**CONCRETE MASONRY:**

- CMU SHALL BE C-90 TYPE WITH fm' = 1500 PSI. MORTAR SHALL CONFORM TO ASTM C 270 TYPE 'M' (2500 PSI). CONCRETE GROUT FOR FILLED CELL SHALL BE fc' = 3000 AT 28 DAYS, SLUMP 9" TO 11". CMU SHALL BE PLACE IN RUNNING BONDS. MAXIMUM FOUR LIFT FOR BLOCKS AND GROUT SHALL BE 4'-0".
- LOAD BEARING WALLS IDENTIFIED IN PLANS SHALL BE ERECTED PRIOR TO THE STRUCTURE ABOVE IS FOUED. NON LOAD BEARING WALLS IDENTIFIED IN PLANS SHALL BE ERECTED AFTER THE STRUCTURE ABOVE HAS BEEN FOUED AND ATTAINED ITS DESIGN STRENGTH.
- PROVIDE VERTICAL REINFORCEMENT AS SPECIFIED ON STRUCTURAL DRAWINGS. HORIZONTAL REINFORCING SHALL BE 3 GAGE LADDER TYPE #16' EMBEDDED IN MORTAR.

**STEEL CONNECTIONS & EMBEDS:**

- STEEL SHALL CONFORM TO ASTM A36. FABRICATION SHOP DRAWING SHALL BE REVIEWED AND APPROVED BY BEA INTERNATIONAL. WELDING ELECTRODES SHALL BE LOW HYDROGEN E-70 SERIES.

**TIMBER:**

- GLUED LAMINATED WOOD TIMER, WESTERN SPECIES. COMBINATION SYMBOL 22F-V8, SPECIES OUTER LAMINATIONS AS DF/DF, WITH Fbxx=2200 psi IN BOTH TENSION AND COMPRESSION ZONE, Fvxx= 165 psi, Exx= 1,100,000 psi.

**SLAB ON FILL: (PLACED ACCORDING TO ACI 302)**

- JOINTS: ISOLATION JOINTS MUST BE USED AT JUNCTIONS WITH WALLS AND COLUMNS, USE 1/2" THICK PREMOLDED JOINTS FULL DEPTH OF SLAB. CONTROL JOINTS PLACED AT CENTERLINE OF COLUMN LINES PROVIDE INTERMEDIATE JOINTS IF COLUMN SPACING IS GREATER THEN 30' IN SIDEWALKS PROVIDE TOOLED JOINTS SPACED AT INTERVALS EQUAL TO THE WIDTH OF THE SLAB.
- 4' x 5' SLABS: \_\_\_\_\_" DEEP TOOLED JOINTS MUST BE SAUED BEFORE 24 HOURS AFTER CONCRETING. CONSTRUCTION JOINTS MUST BE PLACED IN THE SLAB WHERE BUILDING EXPANSION JOINTS ARE SHOWN AND WHERE CONTROL JOINTS ARE SHOWN. WHEN CONCRETING AND OPERATING ARE CONCLUDED FOR THE DAY, CONSTRUCTION JOINTS SHALL BE FORMED WITH BURKE KEYED KOLD METAL JOINT FORM OR APPROVED EQUAL.
- VAPOR BARRIERS: WATERPROOF MEMBRANES (OVERLAPPED 6" AT JOINTS) WITH A PERMEANCE OF LESS THAN 0.3% PERMS IN ACCORDANCE WITH A.S.T.M. E-98 SHALL BE PROVIDED UNDER INTERIOR SLAB. WHERE NO VAPOR BARRIER IS USED THE SUBGRADE MUST BE DAMPENED WITH WATER IN ADVANCE OF CONCRETING NO FREE WATER STANDING ON THE SUBGRADE NOR ANY MUDDY OR SOFT SPOT IS PERMITTED.
- ANY STRUCTURAL MEMBER PENETRATING SLAB ON FILL IS TO BE 1/2" PRE-MOLDED JOINT FILLER COMPLYING WITH A.S.T.M. D-1152, TYPE I.
- FINISHING: NO PREMATURE FINISHING SHALL BE ALLOWED. IMMEDIATE FOLLOWING FLOATING TROWELING WITH STEEL TROWELS SHOULD BE COMMENCED IF REQUIRED BROOMING SHALL BE AFTER THE STEEL TROWELING OPERATION.
- SLAB FINISHES: (UNLESS OTHERWISE NOTED BY THE ARCHITECT)  
BUILDING: \_\_\_\_\_ STEEL TROWELED  
OUTSIDE SLAB: \_\_\_\_\_ BROOMED

**SHORING, RE-SHORING, AND TEMPORARY BRACING:**

- THE GENERAL CONTRACTOR (GC) IS RESPONSIBLE FOR HIRING A REGISTERED ENGINEER SPECIALIZED IN THE FIELD OF FORM WORK AND SHORING DESIGN. SHORING AND RESHORING DESIGN MUST INCLUDE CONSIDERAION OF THE RATE AND METHOD OF PLACING CONCRETE. GC SHOULD SUBMIT SIGNED AND SEALED SHORING AND RESHORING DESIGN DRAWINGS TO BEA INTERNATIONAL FOR REVIEW AND APPROVAL. SHORING INSTALLATION MUST BE INSPECTED BY THE SHORING DESIGN ENGINEER PRIOR TO PLACEMENT OF CONCRETE.

**SHOP DRAWING SUBMITTALS:**

- GENERAL CONTRACTOR SHOULD REVIEW AND STAMP THE SHOP DRAWINGS PRIOR TO DELIVERING TO BEA INTERNATIONAL FOR REVIEW. SUBMIT 4 COPIES TO BEA. 3 COPIES WITH ORIGINAL MARKUP AND STAMP WILL BE RETURNED TO THE GC. SHOP DRAWING REVIEW CYCLE IS GENERALLY 2 WEEKS.

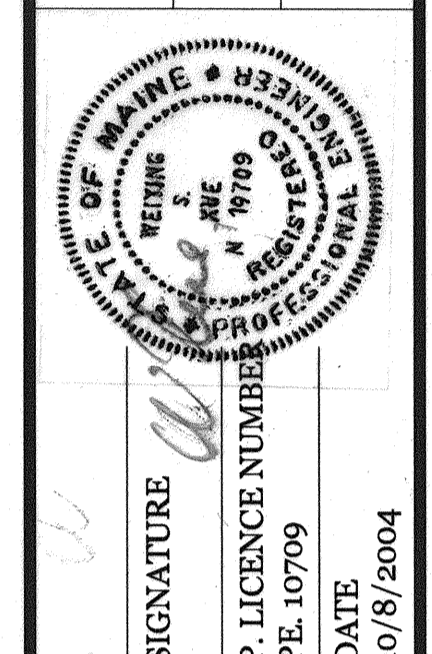
**SAFETY OSHA AND LABOR LAWS:**

- THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSABILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, ETC. THAT MAY BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT.
- THE STRUCTURAL ENGINEER OF RECORD DOES NOT POSSES, NOR PRESUMES TO POSSES ANY KNOWLEDGE OR EXPERTISE IN MATTERS TO JOB SITE EMPLOYEE SAFETY, OSHA OR LABOR LAE REQUIREMENTS FOR A CONSTRUCTION PROJECT. SAFETY AND COMPLIANCE WITH OSHA AND LABOR LAWS ARE THE ABSOLUTE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THOSE CONSULTANTS HE HIRES TO ADDRESS THESE MATTERS. THE STRUCTURAL ENGINEER OF RECORD SPECIALIZES IN STRUCTURAL DESIGN ONLY, AND THE BOARD OF PROFESSIONAL REGULATION FORBIDS HIM FROM ASSUMING RESPONSIBILITY OUTSIDE HIS AREA OF EXPERTISE.

IN ASSOCIATION WITH:  
CORRILL-PALMER CONSULTING ENGINEERS  
PERATROVICH, NOTTINGHAM, & DRAGE  
WINTON SCOTT ARCHITECTS  
PALEY & ALDRIDGE



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
PROJECT NUMBER 009215.00  
PIN  
009215.00



PROJ. MANAGER	PAUL	POTTE	DATE
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGN-2-DETAILED			
DESIGN-3-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

CITY OF PORTLAND  
OCEAN GATEWAY PHASE 1  
RECEIVING STATION  
GENERAL NOTES