light grey
dark grey
black

CAN YOU SEE THE AIRPLANES? THE ADJACENT SAMPLES SHOW THREE DIFFERENT LEVELS OF SHADING. SETTINGS FOR VIEWING AND PRINTING DRAWING CONTENT ARE OPTIMIZED WHEN ALL THREE PLANES ARE VISIBLE. THIS GUIDANCE IS PROVIDED FOR REFERENCE ONLY.

GENERAL

STRUCTURAL DRAWINGS ARE A PART OF THE CONTRACT DOCUMENTS AND ARE COMPLEMENTARY TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS, THE SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THE CONTRACT DOCUMENTS INTO THEIR SHOP DRAWINGS AND WORK. AS REQUIRED BY THE GENERAL CONDITIONS, THE CONTRACTOR SHALL PROMPTLY REPORT TO THE ARCHITECT ANY ERRORS, INCONSISTENCIES, OR OMISSIONS IN THE CONTRACT DOCUMENTS DISCOVERED BY OR MADE KNOWN TO THE CONTRACTOR.

THE GENERAL STRUCTURAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. WHERE CONFLICT EXISTS, THE MORE STRINGENT OR RESTRICTIVE REQUIREMENT SHALL GOVERN UNTIL CLARIFICATION IS REQUESTED.

CODE REQUIREMENTS:
CONFORM TO THE 2025 OREGON STRUCTURAL SPECIALTY CODE (OSSC), BASED ON THE 2024 INTERNATIONAL BUILDING CODE (IBC).

TEMPORARY CONDITIONS:
THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES UNTIL COMPLETION.

CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

EXCAVATIONS SHALL NOT REDUCE THE VERTICAL OR LATERAL SUPPORT FOR ANY FOUNDATION OF THIS PROJECT OR ANY ADJACENT STRUCTURE WITHOUT FIRST UNDERPINNING OR PROTECTING THE FOUNDATION AGAINST DETRIMENTAL LATERAL AND/OR VERTICAL MOVEMENT. REF. SUBMITTALS SECTION FOR CONTRACTOR'S DELEGATED DESIGN RESPONSIBILITY WHERE SUCH SUPPORT IS REQUIRED.

EXISTING CONDITIONS:
ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SIGNIFICANT DISCREPANCIES FROM CONDITIONS SHOWN ON THE DRAWINGS.

CONTRACTOR TO VERIFY EXISTING DIMENSIONS AS THEY MAY VARY IN THE FIELD FROM WHAT IS SHOWN IN THE DRAWINGS.

DESIGN CRITERIA

DESIGN WAS BASED ON THE STRENGTH AND DEFLECTION CRITERIA OF THE OSSC. IN ADDITION TO THE DEAD LOADS, THE FOLLOWING LOADS AND ALLOWABLES WERE USED FOR DESIGN, WITH LIVE LOADS (L.L.) REDUCED PER OSSC:

GRAVITY SYSTEM CRITERIA		
OCCUPANCY OR USE	**UNIFORM LOAD**	**CONCENTRATED LOAD**
PARKING	40 PSF L.L.	3,000 LBS.
INTERIOR ASSEMBLY AREAS	100 PSF L.L.	-
ROADWAY - SIDEWALKS	250 PSF L.L.	8,000 LBS.
ROADWAY & ROADWAY EXPANSION JOINTS	250 PSF L.L.	16,000LBS (10"x20" CONTACT AREA)
GRAVITY LOADING NOTES:	1. LIVE LOADS REDUCED PER OSSC. 2. MEMBERS DESIGNED FOR MORE CRITICAL OF UNIFORM OR CONCENTRATED LOAD. 3. LOADING IS BASED ON EXISTING DRAWINGS. NO VERIFICATION OF (E) ROADWAY CAPACITY DONE AS A PART OF THIS PROJECT	
SNOW CRITERIA		
GROUND SNOW LOAD	Pg= 48 PSF	
FLAT ROOF SNOW LOAD	Pf = 40 PSF	
SNOW EXPOSURE FACTOR	Ce = 1.0	
THERMAL FACTOR	Ct = 1.2	
WIND CRITERIA		
RISK CATEGORY	III	
BASIC WIND SPEED	VULT = 103 MPH (3-SECOND GUST)	VASD = 80 MPH (3-SECOND GUST)
EXPOSURE CATEGORY	C	
GUST / INTERNAL PRESSURE	GCpi = +/- 0.18	
SEISMIC CRITERIA		
RISK CATEGORY	III	
SEISMIC DESIGN CATEGORY	D	
SITE CLASS	F	
SEISMIC IMPORTANCE FACTOR	IE = 1.25	

SEISMIC CRITERIA FOR BIDDER DESIGNED ELEMENTS	
RISK CATEGORY	SEE ABOVE
SEISMIC DESIGN CATEGORY	SEE ABOVE
SITE CLASS	SEE ABOVE
COMPONENT IMPORTANCE FACTOR (Ip)	1.0 OR 1.5 PER ASCE 7 SECTION 13.1.3
DESIGN SPECTRAL ACCELERATION	SDS = 0.80g
NFPA SEISMIC COEFFICIENT	Cp = 0.56

STRUCTURAL OBSERVATIONS

THE STRUCTURAL ENGINEER OF RECORD (SEOR) WILL PERFORM STRUCTURAL OBSERVATIONS BASED ON THE REQUIREMENTS OF THE OSSC AT THE STAGES OF CONSTRUCTION LISTED BELOW. CONTRACTOR SHALL PROVIDE SUFFICIENT ADVANCED NOTICE AND ACCESS FOR THE SEOR TO PERFORM THESE OBSERVATIONS.

ITEM	COMMENTS
DURING SELECT DEMO	
PRIOR TO CONCRETE POURS	AFTER REBAR PLACEMENT
AS REQUIRED TO ADDRESS STRUCTURAL ISSUES	

A FIELD REPORT WILL BE SUBMITTED TO THE BUILDING DEPARTMENT FOLLOWING EACH SITE VISIT.

STRUCTURAL OBSERVATION IS FOR THE GENERAL CONFORMANCE OF THE STRUCTURAL DRAWINGS AND DOES NOT ALLEVIATE ANY SPECIAL INSPECTION REQUIREMENTS.

SPECIAL INSPECTIONS AND TESTING

SPECIAL INSPECTION WILL BE PROVIDED BY THE OWNER BASED ON THE REQUIREMENTS OF THE OSSC AS SUMMARIZED IN THE SPECIAL INSPECTION AND TESTING PROGRAM ON SHEETS S004-S005. CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE AND ACCESS FOR THE SPECIAL INSPECTOR TO PERFORM THESE INSPECTIONS.

SUBMITTALS

SUBMIT SHOP DRAWINGS AND OTHER SUBMITTALS TO THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION AND CONSTRUCTION OF STRUCTURAL ITEMS. IF THE SUBMITTALS DIFFER FROM OR ADD TO THE STRUCTURAL CONTRACT DOCUMENTS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF OREGON. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ARE SUBJECT TO REVIEW AND ACCEPTANCE BY THE SEOR.

FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DIFFER FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.

THE USE OF REPRODUCTIONS OR PHOTOCOPIES OF THE CONTRACT DRAWINGS SHALL NOT BE PERMITTED. WHEN CAD OR REVIT FILES ARE PROVIDED TO THE CONTRACTOR OR SUBCONTRACTORS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUBCONTRACTOR TO REMOVE ALL INFORMATION NOT DIRECTLY RELEVANT TO THE SCOPE OF THE SUBMITTAL AS WELL AS ALL REFERENCES TO OUTSIDE SOURCE FILES.

DELEGATED DESIGN SUBMITTALS SHALL INCLUDE DESIGN DRAWINGS AND CALCULATIONS FOR ITEMS THAT ARE DESIGNED BY OTHERS. DELEGATED DESIGN SUBMITTALS SHALL BEAR THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OREGON ON EVERY DRAWING SHEET AND ON THE CALCULATION COVER SHEET, AND SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER PRIOR TO FABRICATION. CALCULATIONS AND DETAILS SHALL BE INCLUDED FOR ALL CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS. DESIGN SHALL BE BASED ON THE REQUIREMENTS OF THE OSSC AND AS NOTED UNDER "DESIGN CRITERIA".

SUBMITTALS AND DELEGATED DESIGN SUBMITTALS SHALL INCLUDE THE FOLLOWING:

ITEM	SUBMITTAL	DELEGATED DESIGN SUBMITTAL	COMMENTS
MEPF SYSTEMS ANCHORAGE AND BRACING		X	REF. TABLE NOTE 1
CONCRETE MIX DESIGNS	X		
CONCRETE REINFORCEMENT	X		
CONCRETE ANCHORAGES	X		
EMBEDDED STEEL ITEMS	X		
STRUCTURAL STEEL	X		
STEEL WELDING PROCEDURES	X		
PENETRATIONS OF SLABS/DECKS, WALLS, ETC.	X		REF. TABLE NOTE 3
GUTTER PRODUCTS AND SYSTEMS	X		
EXPANSION JOINTS	X	X	SEE NOTE 4

TABLE NOTES:

1. AT MEPT DEFERRED SUPPORT AND ANCHORAGE SUBMITTALS, THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS, ALONG WITH GRAVITY AND OTHER LOADING AS REQ'D. FOR THE DELEGATED DESIGN SYSTEM, OF MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT, MACHINERY, AND ASSOCIATED PIPING WITH THE STRUCTURE. SYSTEM FRAMING AND THEIR CONNECTIONS TO STRUCTURE SHALL CONFORM TO ASCE 7-22 CHAPTER 13, BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE OF OREGON, AND SHALL BE SUBMITTED TO THE PORT PRIOR TO FABRICATION. FOR RISK CATEGORY III AND IV BUILDINGS, THE SYSTEMS ENGINEER SHALL SPECIFY THE REQUIREMENTS FOR EQUIPMENT SEISMIC CERTIFICATION IN THE DEFERRED SUBMITTAL IN ACCORDANCE WITH OSSC SECTION 1705.12.6 AND ASCE 7-22 SECTION 13.2.
2. BIDDER DESIGNED ELEMENTS SHALL ACCOMMODATE DIFFERENTIAL SETTLEMENT AND INTERSTORY DRIFT PROVIDED IN THE SEISMIC CRITERIA WHERE APPLICABLE .
3. CONTRACTOR SHALL COORDINATE AND SHOW ALL REQUIRED PENETRATIONS, WITH DIMENSIONS FOR MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, TECHNOLOGY AND OTHER SERVICES ON A SINGLE DRAWING FOR REVIEW AT EACH SLAB/DECK, STRUCTURAL WALL AND/OR BEAM.
4. EXPANSION JOINT PRODUCTS SHALL BE ABLE TO ACCOMMODATE THE REQUIRED MOVEMENT SHOWN IN THE SEISMIC JOINT PLAN ON S0.050 COVER PLATE SHALL BE TO SUPPORT LOADS DESCRIBED IN LOADING CRITERIA.

CONCRETE MIX DESIGNS

CONCRETE WORK SHALL CONFORM TO CHAPTER 19 OF THE OSSC. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD CYLINDER TESTS PER ASTM C39. CONCRETE MIX TO BE DESIGNED AND PROPORTIONED BY THE CONTRACTOR IN ACCORDANCE WITH ACI 318-19 CHAPTER 26, ACI 301-16 SECTION 4 AND THE FOLLOWING INFORMATION:

MIX TYPE	USE	f'c (PSI)	TEST AGE (DAYS)	MAX. W/CM RATIO	MAX. AGG. SIZE	EXPOSURE CLASS			
A	MISC. INTERIOR CURBS, PADS, ETC.	3,000	28	N/A	1"	F0	S0	W0	C0
B	SLAB ON METAL DECK - EXPOSED TO WEATHER	5,000	28	0.55	1/2"	F1	S0	W0	C0

TABLE NOTES:

1. REF. ACI 318-19 TABLE 19.3.2.1 FOR ADDITIONAL MIX REQUIREMENTS SPECIFIC TO EXPOSURE CLASS.
2. ALL CONCRETE MIXES TO BE NORMAL WEIGHT CONCRETE, U.N.O.
3. EXPOSURE CATEGORY "F" APPLIES TO LEVEL OF FREEZE THAW EXPOSURE.
4. EXPOSURE CATEGORY "S" APPLIES TO LEVEL OF SULFATE EXPOSURE.
5. EXPOSURE CATEGORY "W" APPLIES TO REQUIRED LEVEL OF PERMEABILITY.
6. EXPOSURE CATEGORY "C" APPLIES TO CORROSIVE LOCATIONS - INCLUDING SURROUNDING ENVIRONMENT (SUCH AS MARINE ENVIRONMENT) AND CORROSIVE SOILS.
7. ESTABLISH WATER-CEMENTITIOUS MATERIAL RATIO PER ACI 301-16 SECTION 4.
8. VERIFY WATER-CEMENTITIOUS MATERIAL RATIO WITH FLOOR COVERING MANUFACTURER FOR CONCRETE FLOORS WITH MOISTURE SENSITIVE FLOOR COVERINGS.
9. REFERENCE SLABS EXPOSED TO VIEW GENERAL NOTES FOR ADDITIONAL MIX REQUIREMENTS.
10. POST-TENSIONED OR PRESTRESSED CONCRETE SHALL NOT CONTAIN MORE THAN 0.06% CHLORIDE IONS BY WEIGHT OF CEMENT.

PORTLAND CEMENT CONTENT MAY BE REPLACED WITH FLY ASH CONFORMING TO ASTM C618 (INCLUDING TABLE 2A) TYPE F OR TYPE C, SLAG CEMENT CONFORMING TO ASTM C989, AND SILICA FUME CONFORMING TO ASTM C1240 PROVIDED THAT THE MIX STRENGTH IS SUBSTANTIATED BY TEST DATA.

FOR MIX DESIGNS WITH f'c = 5,000 PSI OR LESS, SLAG CEMENT MAY BE SUBSTITUTED FOR FLY ASH AT A 1:1 RATIO WITHOUT TEST DATA. WHEN SLAG CEMENT IS SUBSTITUTED IN HIGHER STRENGTH MIXES OR AT A DIFFERENT RATIO, THE MIX STRENGTH MUST BE SUBSTANTIATED BY TEST DATA.

ALL CONCRETE SUBJECT TO EXPOSURE CLASSES F1, F2 OR F3 SHALL BE AIR ENTRAINED. AIR-ENTRAINING AGENTS SHALL CONFORM TO ASTM C260. THE AMOUNT OF ENTRAINED AIR SHALL BE ACCORDING TO ACI 318-19 TABLE 19.3.3.1 AS INDICATED BELOW WITH A FIELD TOLERANCE OF ± 1.5 PERCENT BY VOLUME. THE AMOUNT OF ENTRAINED AIR SHALL BE MEASURED IN THE FIELD AT THE DISCHARGE FROM THE TRUCK.

CONCRETE MIX AIR CONTENT		
MAX. AGGREGATE SIZE	**CONCRETE SUBJECT TO FREEZE/THAW (EXPOSURE CLASS F1)**	**CONCRETE SUBJECT TO CONT. MOISTURE AND/OR DEICING CHEMICALS (EXPOSURE CLASS F2 AND F3)**
3/8"	6.0%	7.5%
1/2"	5.5%	7.0%
3/4"	5.0%	6.0%
1"	4.5%	6.0%
1-1/2"	4.5%	5.5%
ANY WET-MIX SHOTCRETE	5.0%	6.0%

A WATER-REDUCING ADMIXTURE CONFORMING TO ASTM C494 USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS SHALL BE INCORPORATED IN CONCRETE MIX DESIGNS. A HIGH-RANGE WATER-REDUCING (HRWR) ADMIXTURE CONFORMING TO ASTM C494 TYPE F OR G MAY BE USED IN CONCRETE MIXES PROVIDING THAT THE SLUMP DOES NOT EXCEED 10".

THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS ALONG WITH ENVIRONMENTAL PRODUCT DECLARATIONS (EPD), GLOBAL WARMING POTENTIAL REDUCTION CALCULATIONS, AND TEST DATA COMPLIANT WITH ACI 301-16 AND ACI 318-19 A MINIMUM OF TWO WEEKS PRIOR TO PLACING CONCRETE. NO WATER MAY BE ADDED TO CONCRETE IN THE FIELD UNLESS SPECIFICALLY APPROVED IN WRITING BY THE CONCRETE SUPPLIER AND SEOR IN CONJUNCTION WITH THE CONCRETE MIX DESIGN.

NO.	DATE	BY	REVISIONS	APP

NO.	DATE	BY	REVISIONS	APP

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2025D018 DESIGN NUMBER

102970 PROJECT NUMBER

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 19608
DIGITALLY SIGNED
OREGON
NOV. 14, 2006
CRAIG J. TOTTEN
EXPIRES 06-30-26

PORTLAND INTERNATIONAL AIRPORT

TERMINAL UPPER ROADWAY JOINT REPLACEMENT

GENERAL STRUCTURAL NOTES - 1

SUBMITTED BY	JAY OSTLUND		
DESIGN BY	S. THOMAS		
DRAWN BY	J. DE BOER		
CHECKED BY	C. TOTTEN		
DATE	OCTOBER 2026		
SHEET NO.	15	TYPE:	CD
DRAWING NO.	PDX 2026-514	DISC. SHT. NO.	S0.002

DRAWING SCALE IS REDUCED 95% WHEN SHEET SIZE IS 11" x 17".
0 1/4" 1/2" 1" 2"
GRAPHIC SCALE-FOR REFERENCE ONLY