THE FOLLOWING BUILDING CODES AND STANDARDS SHALL BE REFERENCED DURING CONSTRUCTION:

IBC 2009	EDITION OF THE IBC INTERNATIONAL BUILDING CODE
ASCE 7	AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
ACI 301	AMERICAN CONCRETE INSTITUTE SPECIFICATION FOR STRUCTURAL CONCRETE
AISC	AMERICAN CONCRETE INSTITUTE SPECIFICATION FOR STRUCTURAL CONCRETE
ACI 318	AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
NDS	NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION BY NATIONAL FOREST PRODUCTS ASSOCIATION, 2001.

REFERENCE ARCHITECTURAL PLANS FOR DIMENSIONS NOT SHOWN. REFERENCE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL PLANS FOR SIZES AND LOCATIONS OF WALL AND SLAB OPENINGS, DUCTS, PIPING, CURBS, AND EQUIPMENT PADS. IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS, SPECIFICATIONS, OR NOTES ON THE DRAWINGS, THE ENGINEER SHALL BE NOTIFIED PRIOR TO CONSTRUCTION.

EXISTING DIMENSIONS AND CONDITIONS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL EXISTING CONSTRUCTION AND DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION OR FABRICATION. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORK.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DEVIATIONS OR CHANGES ARE REQUIRED TO THE CONTRACT DOCUMENTS OR APPROVED SHOP DRAWINGS DUE TO INTERFERENCES, FABRICATION ERRORS, OR OTHER CAUSES.

THE STRUCTURE IS SELF-SUPPORTING AND STABLE AFTER THE ENTIRE BUILDING IS COMPLETELY CONSTRUCTED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ERECTION PROCEDURES AND SEQUENCING DURING CONSTRUCTION AND ERECTION TO PROVIDE AND ENSURE LOCAL AND OVERALL STABILITY OF THE BUILDING AND ITS COMPONENTS DURING CONSTRUCTION AND ERECTION. THE CONTRACTOR SHALL RETAIN A LICENSED STRUCTURAL ENGINEER TO DESIGN TEMPORARY BRACING/SHORING AND DETERMINE WHERE THE TEMPORARY BRACING/SHORING IS NEEDED.

GENERAL NOTES

SCALE: NTS

LIVE LOAD:
LIGHT MANUFACTURING = 125 PSF
MEZZANINE LIGHT STORAGE = 125 PSF

SNOW LOADS:
GROUND SNOW LOAD, Pg = 50 PSF
SNOW EXPOSURE FACTOR, Ce = 1.0
SNOW LOAD IMPORTANCE FACTOR, I = 1.1
FLAT ROOF SNOW LOAD, Pf = 38.5 PSF + DRIFT

MAIN WINDFORCE-RESISTING SYSTEM:
BASIC WIND SPEED = 100 MPH
EXPOSURE B
WIND LOADS (INCLUDES WINDWARD + LEEWARD) = 13 PSF

SEISMIC CRITERIA:
SOIL SITE CLASSIFICATION = E
DESIGN SPECTRAL RESPONSE ACCELERATION:
Sds = .481
Sd1 = .179
SEISMIC USE GROUP I
SEISMIC DESIGN CATEGORY C
RESPONSE MODIFICATION COEFFICIENT.....R = 2
OCCUPANCY IMPORTANCE FACTOR.....I = 1.0
BASE SHEAR.....V_E = Cs * W = 0.241 * W
(W = SEISMIC WEIGHT)

DESIGN CRITERIA

SCALE: NTS

ALL CONCRETE WORK, INCLUDING MATERIAL SELECTION, ADMIXTURES, MIXING, AND PLACEMENT OF CONCRETE SHALL BE IN CONFORMANCE WITH APPLICABLE BUILDING CODES. IN ADDITION, REFERENCE THE FOLLOWING CONCRETE STANDARDS AND SPECIFICATIONS:

ACI 318 AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
ACI 301 AMERICAN CONCRETE INSTITUTE SPECIFICATIONS FOR STRUCTURAL CONCRETE
ACI 305 STANDARD SPECIFICATION FOR HOT WEATHER CONCRETING
ACI 306 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING
ACI 308 STANDARD PRACTICE FOR CURING CONCRETE

REQUIRED CONCRETE PARAMETERS ARE AS FOLLOWS:

LOCATION	MAX W/C RATIO	f'c	AIR-ENTRAINMENT
INT. CONC./WALLS/SLABS	.52	3,000 PSI	2% ± 1½%
FOUNDATIONS, FOOTINGS, & FOUNDATION WALLS	.52	3,000 PSI	5-7%
INT. SLAB-ON-GRADE	.47	4,000 PSI	NONE
EXT. SLAB-ON-GRADE	.45	4,000 PSI	6% ± 1½%

WHERE: W/C = WATER TO CEMENT RATIO AND
f'c = COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS

MAXIMUM AGGREGATE SIZE SHALL BE ¾", IN CONFORMANCE WITH ASTM C33.
USE PORTLAND CEMENT TYPE II, IN CONFORMANCE WITH ASTM 150.
AIR ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C 260.
ADMIXTURES SHALL CONFORM TO "SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" ASTM C 494.
FLY ASH USED AS ADMIXTURES SHALL CONFORM TO ASTM C 618.
CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE IS NOT PERMITTED.

MAXIMUM SLUMP AFTER THE ADDITION OF A WATER-REDUCING ADMIXTURE IS 8 INCHES.

CONCRETE EXPOSED TO FREEZING AND THAWING, INCLUDING FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, AND EXTERIOR WALKWAYS SHALL BE AIR ENTRAINED WITH AIR CONTENT BETWEEN 5% AND 6%. CONTRACTOR SHALL NOT PLACE CONCRETE ON FROZEN GROUND OR IN WATER. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING NEAR-FREEZING OR FREEZING WEATHER. REFERENCE ACI 306, AS NOTED ABOVE, FOR RECOMMENDATIONS FOR COLD WEATHER CONCRETING.

CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE MIX DESIGN AND LABORATORY TESTS OF FABRICATED CYLINDERS VERIFYING CONCRETE STRENGTH OR PERFORMANCE HISTORY OF MIX TO ENGINEER FOR ACCEPTANCE PRIOR TO PLACEMENT OF CONCRETE. CONCRETE USED ON SITE SHALL BE FIELD TESTED IN ACCORDANCE WITH AND IN THE PRESENCE OF AN APPROVED TESTING AGENCY. FIELD TESTING INFORMATION SHALL INDICATE SLUMP, AIR CONTENT, AND TEMPERATURE. COMPRESSION TEST 1 CYLINDER AT 7 DAYS AND 2 AT 28 DAYS. HOLD AN ADDITIONAL CYLINDER FOR A 56 DAY BREAK, IF NECESSARY. PROVIDE A SET OF 4 CYLINDERS FOR EACH PLACEMENT AND PER 50 CUBIC YARDS OF CONCRETE PLACED. THE OWNER SHALL PAY FOR ALL CONCRETE TESTING.

CONSTRUCTION JOINTS IN WALLS SHALL BE PERMITTED AS DETAILED ON THE STRUCTURAL DRAWINGS. SURFACES OF CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND LAITANCE REMOVED. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED. VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL NOT EXCEED A SPACING OF 40 FEET.

WHERE ELECTRICAL CONDUIT/ RADIANT HEATING TUBES RUN IN THE SLAB, THEY SHALL BE LOCATED AT MID-DEPTH OF THE SLAB. ALUMINUM CONDUIT AND SLEEVES ARE NOT PERMITTED.

ANCHOR BOLTS SHALL CONFORM TO ASTM A307. ANCHOR BOLTS SHALL HAVE HEAVY HEX NUTS AND LOCK WASHERS.

CONCRETE NOTES

SCALE: NTS

USE DEFORMED BILLET-STEEL REINFORCING BARS, GRADE 60, IN CONFORMANCE WITH ASTM A615. REINFORCEMENT SHALL BE ACCURATELY PLACED AND SUPPORTED PRIOR TO CONCRETE PLACEMENT, AND SHALL BE SECURED AGAINST DISPLACEMENT.

THE CONTRACTOR SHALL SUBMIT REINFORCING SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO COMMENCING FABRICATION. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING OF REINFORCED CONCRETE STRUCTURES". SHOP DRAWINGS SHALL SHOW REINFORCING STEEL PLACEMENT DETAILS AND SECTIONS.

MINIMUM CONCRETE COVER FOR REINFORCEMENT	
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER	2 INCHES
CONCRETE NOT EXPOSED TO EARTH OR WEATHER IN SLABS AND WALLS (FOR PRIMARY REINFORCEMENT, TIES, AND STIRRUPS)	1½ INCHES
CONCRETE NOT EXPOSED TO EARTH OF WEATHER IN COLUMNS AND BEAMS	1½ INCHES

CONTINUOUS REINFORCEMENT SHALL BE TENSION LAP SPLICED PER LAP SPLICE LENGTH TABLE, U.N.O..

LAP SPLICE LENGTH TABLE							
BAR SIZE	#3	#4	#5	#6	#7	#8	#9
MIN LAP SPLICE (INCHES)	18	24	30	36	48	64	81

REINFORCEMENT HOOKS SHALL CONFORM TO STANDARD HOOKS ACCORDING TO ACI 318.
WELDING OF REINFORCEMENT IS NOT PERMITTED, U.N.O.

CONCRETE REINFORCING NOTES

SCALE: NTS

SUBGRADE PREPARATION AND DETERMINATION (INCLUDING ALLOWABLE BEARING PRESSURE, STRUCTURAL FILL GRADATION REQUIREMENTS, COMPACTION REQUIREMENTS AND POST-CONSTRUCTION SETTLEMENT ANALYSIS) BENEATH FOOTINGS AND SLABS-ON-GRADE AND BEHIND FOUNDATION WALLS SHALL BE PROVIDED BY A GEOTECHNICAL ENGINEER. ALL FILL USED TO SUPPORT FOUNDATIONS AND SLABS-ON-GRADE SHALL CONSIST OF A WELL-GRADED, GRANULAR MATERIAL PER THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. STRUCTURAL SLABS SHALL BE CONSTRUCTED ON A MINIMUM 12" THICK LAYER OF STRUCTURAL FILL SOIL WITH PROPERTIES PER THE GEOTECHNICAL ENGINEER.

PRESUMED ALLOWABLE SOIL BEARING PRESSURE USED IN DESIGN = 2,000 PSF.
BEARING CAPACITIES SHALL BE VERIFIED BY GEOTECHNICAL ENGINEER.
MINIMUM FROST DEPTH COVER = 4'-0" FOR EXTERIOR FOOTINGS BELOW FINAL EXTERIOR GRADE. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.

FOUNDATIONS SHALL BEAR ON UNDISTURBED NATIVE SOIL, UNLESS NOTED OTHERWISE. BEARING ELEVATIONS SHALL BE LOWERED WHERE SUITABLE SOILS ARE NOT ENCOUNTERED. WHERE OVEREXCAVATION HAS OCCURRED, CONTRACTOR MAY PLACE LEAN CONCRETE ON TOP OF NATIVE SOIL. THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL AND STRUCTURAL ENGINEER IF ANY UNSUITABLE SOILS ARE ENCOUNTERED PRIOR TO PLACING FOUNDATIONS.

FOUNDATION WALLS SHALL BE BACKFILLED SIMULTANEOUSLY ON BOTH SIDES OF THE WALL. FOUNDATION WALLS AND SLAB-ON-GRADES SHALL REACH THEIR FULL 28 DAY COMPRESSIVE STRENGTH PRIOR TO BACKFILLING. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING/BRACING FOR WALLS WHEN BACKFILL IS PLACED PRIOR TO CONCRETE ACHIEVING ITS FULL 28 DAY STRENGTH. BACKFILL FOR FOUNDATION WALLS IS BASED ON DRAINED CONDITIONS. SEE ARCHITECTURAL, CIVIL, AND MECHANICAL DRAWINGS FOR FOUNDATION DRAINAGE SYSTEM.

PROTECT FOUNDATIONS FROM FROST AND KEEP BOTTOM OF TRENCH DRY DURING CONSTRUCTION. IF GROUNDWATER IS ENCOUNTERED NEAR OR ABOVE THE BASE OF THE FOOTINGS, EXCAVATIONS SHALL BE DEWATERED DURING CONSTRUCTION. SURFACE WATER SHALL BE DIVERTED AWAY FROM EXCAVATIONS.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE SHORING AND BRACING OF EXISTING STRUCTURES DURING EXCAVATION, BACKFILLING, AND CONSTRUCTION. CONTRACTOR SHALL SLOPE EXCAVATIONS TO ACHIEVE SOIL STABILITY.

FOUNDATION NOTES

SCALE: NTS

REFERENCE THE FOLLOWING STANDARD SPECIFICATIONS FROM THE LATEST EDITION OF THE STEEL JOIST INSTITUTE:

SPECIFICATIONS FOR OPEN WEB STEEL JOISTS, K-SERIES
SPECIFICATIONS FOR LONGSPAN STEEL JOISTS, LH-SERIES AND DEEP LONGSPAN STEEL JOISTS, DLH-SERIES
SPECIFICATIONS FOR JOIST GIRDERS
RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS AND JOIST GIRDERS

STEEL JOIST MANUFACTURER SHALL BE A MEMBER OF THE STEEL JOIST INSTITUTE. STEEL USED FOR THE FABRICATION OF STEEL JOISTS, BRIDGING, AND MISCELLANEOUS SHALL CONFORM TO ASTM A36 OR ASTM A572, GRADE 50 WITH PROVISIONS FROM AISC TECHNICAL BULLETIN NO. 3. U.N.O., A SHOP COAT OF GREY PAINT SHALL COMPLY WITH THE APPLICABLE STEEL JOIST INSTITUTE SPECIFICATION OF LATEST ADOPTION.

STEEL JOISTS SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH THE PARAMETERS OUTLINED IN THE STRUCTURAL DRAWINGS INCLUDING SIZE, SPACING AND LOADING FOR THE STEEL JOISTS. IN ADDITION, STEEL ROOF JOISTS SHALL BE DESIGNED FOR A NET WIND UPLIFT OF XXX PSF. FASTEN ENDS OF ALL JOISTS TO SUPPORTING MEMBERS IN ACCORDANCE WITH THE JOIST MANUFACTURER'S RECOMMENDATIONS, UNO BY STRUCTURAL DRAWINGS.

CONTRACTOR SHALL SUBMIT STEEL JOIST SHOP DRAWINGS FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION. SHOP DRAWINGS SHALL SHOW ALL JOIST AND BRIDGING SIZES, DIMENSIONS AND LAYOUT IN ADDITION TO SUPPORT DETAILS AND BRIDGING CONNECTIONS. SHOP DRAWINGS SHALL INDICATE DEAD, LIVE, AND SPECIAL LOADING CONDITIONS ALONG WITH CAMBER REQUIREMENTS ON ERECTION DRAWINGS. CONTRACTOR SHALL ALSO SUBMIT STAMPED CALCULATIONS FOR STEEL JOIST DESIGNS DEPICTING EACH APPLICABLE LOADING CONDITION AS INDICATED ON THE STRUCTURAL DRAWINGS.

STEEL JOISTS MANUFACTURER SHALL SUBMIT DESIGN DATA TO THE STEEL JOIST INSTITUTE, OR DESIGNATED AGENCY BY THE STEEL JOIST INSTITUTE, FOR VERIFICATION OF COMPLIANCE WITH THE STEEL JOIST INSTITUTE REGULATIONS AND SPECIFICATIONS. MANUFACTURER SHALL VERIFY THROUGH PERIODIC IN-PLANT INSPECTIONS, PER SPECIFICATIONS, THAT ALL MATERIALS MEET SPECIFICATION REQUIREMENTS.

FOR CONCENTRATED LOADS BETWEEN PANEL POINTS, INSTALL MINIMUM WEB MEMBER L2x2x¼ FROM LOCATION OF CONCENTRATED LOAD TO PANEL POINT ON OPPOSITE CHORD. USE 5/16" FILLET WELD WITH 3" MINIMUM LENGTH.

STEEL JOIST NOTES

SCALE: NTS

ROOF DECK, ACCESSORIES, AND WORKMANSHIP SHALL CONFORM TO THE THE STEEL DECK INSTITUTE'S "SDI SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK" AND THE "CODE OF RECOMMENDED STANDARD PRACTICE". STEEL DECK SHALL BE OF DEPTH AND GAGE SHOWN ON STRUCTURAL DRAWINGS. STEEL DECK AND FLASHINGS SHALL CONFORM TO ASTM A653. THE STEEL DECK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A924 WITH MINIMUM COATING OF G60, U.N.O.. ROOF DECKING SHALL CONFORM TO ASTM A653. MINIMUM YIELD STRENGTH OF DECK SHALL BE 33 KSI.

SPAN OVER FOUR SUPPORTS (CONTINUOUS OVER THREE OR MORE SPANS) WHERE FRAMING PERMITS. WHERE TWO UNITS ABUT, FASTEN EACH TO STEEL FRAMING. WHERE STEEL MEMBERS ARE PARALLEL TO FLUTES OF DECK, ADJUST DECK LAYOUT SO THAT DECK MAY BE WELDED TO STEEL. WELD DECK TO STEEL WITH SAME WELDING AS REQUIRED AT SIDE BOUNDARIES. ALL WELDING SHALL BE IN CONFORMANCE WITH AWS D1.3. TOUCH-UP ALL WELDS AND ABRASIONS IN THE FIELD.

FASTEN ROOF DECK TO SUPPORTS PER STRUCTURAL DRAWINGS. FOR 1½" DECK, MINIMUM FASTENING IS 5/8" PUDDLE WELDS AND A 36/4 PATTERN, SPACING WELDS AT 6" o.c. AT EDGE OF DECK AND END LAPS, UNO. SIDE LAPS SHALL BE FASTENED TOGETHER WITH 10-#10 TEK SCREWS PER SPAN, U.N.O.. LAP ENDS OF DECK 2" MINIMUM.

TYPICAL ROOF DECK PENETRATION REINFORCEMENT SHALL CONSIST OF 14 GAGE PLATE WELDED TO THE DECK. EXTEND PLATE MINIMUM OF 6" BEYOND OPENING, ON EACH SIDE. MAXIMUM PENETRATION SIZE IS 1'-6" DIAMETER WITHOUT ADDITIONAL REINFORCEMENT.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS DEPICTING DECK SHEET LAYOUT, DIMENSIONS, PROPERTIES, FASTENING SCHEDULE, AND DETAILS FOR DECK SUPPORT AND EDGE CONDITIONS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY STOPS, EDGE PIECES, AND ACCESSORIES.

STEEL DECK NOTES

SCALE: NTS

ALL STRUCTURAL STEEL WORK SHALL CONFORM TO:

AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, NINTH EDITION
AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES

STRUCTURAL STEEL MEMBERS SHALL BE IN CONFORMANCE WITH THE FOLLOWING:

ALL STEEL, U.N.O.	ASTM A572, GRADE 50
ANGLES, PLATES	ASTM A36, Fy=36 KSI
STRUCTURAL TUBING	ASTM A500, GRADE B, Fy=46 KSI
STEEL PIPE	ASTM A53, TYPE E OR S, GRADE B, Fy=35 KSI

SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO COMMENCING FABRICATION.

SHOP DRAWINGS SUBMITTALS SHALL INCLUDE:
1. CERTIFIED MILL TEST REPORTS OF STRUCTURAL STEEL (INCLUDING NAMES AND LOCATIONS OF MILLS AND SHOPS).
2. CERTIFIED MILL TEST REPORTS OF BOLTS, NUTS AND WASHERS (INCLUDING NAMES AND LOCATIONS OF MILLS AND SHOPS).
3. STRUCTURAL STEEL FABRICATION AND ERECTION DRAWINGS WHICH INCLUDE BOLTED CONNECTIONS (SHOP AND FIELD) AND WELDED CONNECTIONS (SHOP AND FIELD) DEPICTING AWS WELDING SYMBOLS.
4. METAL DECK SHOP DRAWINGS DEPICTING SHEAR STUD LAYOUT ON BEAMS AND GIRDERS.

OWNER SHALL RETAIN A QUALIFIED TESTING AGENCY TO PERFORM AND VERIFY THE FOLLOWING:
1. VISUAL INSPECTION OF ALL WELDS.
2. ULTRASONIC TESTING, IN ACCORDANCE WITH ASTM E-164, ON 100% OF ALL FIELD FULL PENETRATION WELDS.
3. PROVIDE RANDOM VERIFICATION VIA ULTRASONIC TESTING OF SHOP FULL PENETRATION WELDS.
4. FIELD BOLTED CONNECTIONS, INCLUDING VERIFICATION OF BOLT GRADES.
5. SHEAR STUD QUANTITY, PROPER INSTALLATION, SIZE, AND SPACING. SHEAR STUDS SHALL CONFORM TO AWS D1.1.

BOLTED CONNECTIONS:
1. FIELD CONNECTIONS SHALL UTILIZE MINIMUM ¾" DIAMETER A325 HIGH STRENGTH BOLTS, U.N.O.. BOLTED CONNECTION SHALL BE SLIP CRITICAL (SC) AT ALL MOMENT FRAMES, BRACED FRAMES, AND AT ADDITIONAL LOCATIONS INDICATED IN THE DRAWINGS. SLIP CRITICAL CONNECTIONS SHALL UTILIZE LOAD INDICATOR WASHERS OR TENSION CONTROL BOLTS. BOLT HOLES SHALL BE STANDARD SIZE, U.N.O..
2. HIGH STRENGTH BOLTS SHALL BE INSTALLED AND TIGHTENED PER AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS.
3. ANCHOR BOLTS SHALL CONFORM TO ASTM A307, GRADE A, STANDARD HEX HEAD FURNISHED WITH HEAVY HEX NUTS AND LOCK WASHERS.
4. CONTRACTOR SHALL DESIGN CONNECTIONS NOT ALREADY DETAILED ON STRUCTURAL DRAWINGS. DESIGN SHALL BE STAMPED BY A LICENSED STRUCTURAL ENGINEER AND SUBMITTED PRIOR TO COMMENCING FABRICATION.

WELDED CONNECTIONS:
1. WELDING SHALL CONFORM TO AWS D1.1. USE LOW-HYDROGEN SMAW ELECTRODES WITH MINIMUM TENSILE STRENGTH OF 70 KSI.

STRUCTURAL STEEL SHALL RECEIVE THE FOLLOWING PROTECTIVE COATINGS:
1. DO NOT PAINT SURFACES TO RECEIVE METAL DECK AND/ OR SHEAR CONNECTORS FASTENED BY WELDING, CONTACT SURFACES OF HIGH STRENGTH BOLTED CONNECTIONS, FINISHED BEARING SURFACES, AND SURFACES TO BE WELDED IN THE FIELD. IF REQUIRED, PROTECT THESE SURFACES BY RUST-INHIBITING COATING THAT CAN BE REMOVED EASILY PRIOR TO ERECTION.
2. UNEXPOSED STRUCTURAL STEEL SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP3 AND PAINTED WITH PRIMER PAINT, TNEMEC 10-99, OR EQUIVALENT, U.N.O..
3. EXPOSED STRUCTURAL STEEL TO RECEIVE ZINC-RICH EPOXY PAINT SHALL BE FIRST CLEANED IN ACCORDANCE WITH SSPC-SP6 ,COMMERCIAL BLAST CLEANING. USE TNEMEC ZIN-RICH EPOXY PAINT, OR EQUIVALENT. APPLY FINISH COAT PER ARCHITECT.
4. EXPOSED STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED SHALL BE IN ACCORDANCE WITH ASTM A123.

SHEAR CONNECTOR STUDS:
1. SHEAR CONNECTOR STUDS SHALL BE NELSON, OR EQUIVALENT, ¾" DIAMETER, U.N.O.. WELD STUDS PER STUD MANUFACTURER'S RECOMMENDATIONS THROUGH METAL DECKING. STUD LENGTH SHALL BE 1" BELOW TOP OF CONCRETE SLAB-ON-DECK.
2. SHEAR STUDS, WHERE REQUIRED, ARE INDICATED ON THE DRAWINGS AS [XX], WHERE XX IS THE NUMBER OF STUDS EQUALLY SPACED BETWEEN SUPPORTS ON A BEAM OR GIRDER.

STRUCTURAL STEEL NOTES

SCALE: NTS

MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530/ASCE5/TMS 402) AND SPECIFICATION FOR MASONRY STRUCTURES (ACI 530.1/ASCE6/TMS 602).

MASONRY:
A. CONCRETE UNITS
1. UNITS: ASTM C90 GRADE N, TYPE 1 WITH MINIMUM COMPRESSIVE STRENGTH = 1,900 PSI
2. MORTAR: ASTM C270, TYPE S
3. ASSEMBLY/PRISM MINIMUM COMPRESSIVE STRENGTH f'm = 1,500 PSI
4. ALL UNITS SHALL BE LAID IN RUNNING BOND, UNLESS NOTED OTHERWISE
5. PLACE MASONRY WHILE MORTAR IS SOFT AND PLASTIC
6. CONCRETE MASONRY UNITS (CMU) SHALL BE STANDARD UNITS WITH NOMINAL FACE DIMENSIONS LENGTH = 16 INCHES, HEIGHT = 8 INCHES, WIDTH AS INDICATED

B. VERTICAL REINFORCEMENT
1. ASTM A615, GRADE 60
2. UNLESS NOTED OTHERWISE, PROVIDE #5 BAR @ 32" o.c.
3. PROVIDE ADDITIONAL VERTICAL REINFORCEMENT AT EACH SIDE OF CONTROL JOINTS, AT INTERSECTION OF EXTERIOR WALLS, AND AT EACH SIDE OF ALL MASONRY OPENINGS.
4. VERTICAL REINFORCEMENT SHALL BE CONTINUOUS FOR FULL HEIGHT OF WALL

C. GROUT
1. ASTM C476 WITH MINIMUM COMPRESSIVE STRENGTH = 2000 PSI
2. FULLY GROUT ALL CELLS WITH REINFORCEMENT AND ANCHORS
3. CONSOLIDATE AND RECONSOLIDATE GROUT ASSEMBLED WALLS WITH VIBRATOR

C. HORIZONTAL JOINT REINFORCEMENT
1. ASTM 951, HOT DIPPED GALVANIZED OR STAINLESS STEEL
2. 2xW2.1 (8 GA) LADDER REINFORCEMENT SPACED AT 16" o.c. VERTICAL
3. BEGIN HORIZONTAL REINFORCEMENT AT TOP OF FIRST COURSE AND LAP 6 INCHES, MIN.
4. MINIMUM COVER: 5/8 INCHES WHEN EXPOSED TO EARTH OR WEATHER, ½ INCH OTHERWISE

PROVIDE VERTICAL CONTROL JOINTS IN WALLS AT A MAXIMUM SPACING OF 24'-0" AND AT APPROXIMATELY ½ WALL HEIGHT FROM WALL INTERSECTIONS.

SECURE ALL CMU WALL SUPPORTED FIXTURES, EQUIPMENT, ETC. TO CMU WALL PER STRUCTURAL DRAWINGS AND MANUFACTURER'S RECOMMENDATIONS. DO NOT USE EXPANSION ANCHORS.

MASONRY NOTES

SCALE: NTS

AB	ANCHOR BOLT	L	ANGLE
ADDL	ADDITIONAL	LL	DOUBLE ANGLE
ARCH	ARCHITECT	LB	POUND
&	AND	LF	LINEAR FOOT
		LLH	LONG LEG HORIZONTAL
B/FTG, BOF	BOTTOM OF FOOTING	LLV	LONG LEG VERTICAL
BLDG	BUILDING		
BM	BEAM	MAX	MAXIMUM
BOT	BOTTOM	MECH	MECHANICAL
BRG	BEARING	MFR	MANUFACTURER
BTWN	BETWEEN	MIN	MINIMUM
		MISC	MISCELLANEOUS
C	STRUCTURAL STEEL CHANNEL		
CANT	CANTILEVER	NF	NEAR FACE
CIP	CAST-IN-PLACE CONCRETE	NO	NUMBER
CJ	CONTROL JOINT	NS	NEAR SIDE
CL	CENTERLINE	NTS	NOT TO SCALE
CLR	CLEAR		
CMU	CONCRETE MASONRY UNIT	OC	ON CENTER
CNJ	CONSTRUCTION JOINT	OF	OUTSIDE FACE
COL	COLUMN	OPNG	OPENING
CONC	CONCRETE	OPP	OPPOSITE
CONN	CONNECTION		
CONT	CONTINUOUS	P	PIER DESIGNATION
CONTR	CONTRACTOR	PL	PLATE
CP	COMPLETE PENETRATION WELD	PP	PARTIAL PENETRATION WELD
CY	CUBIC YARD	PREFAB	PREFABRICATED
		PSF	POUNDS PER SQUARE FOOT
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIM	DIMENSION		
DISCONT	DISCONTINUOUS	REINF	REINFORCING STEEL
DWG	DRAWING	REQ, REQD	REQUIRED
		RD	ROOF DRAIN
(E), EX, EXIST	EXISTING		
EA	EACH	SC	SLIP CRITICAL
EF	EACH FACE	SECT	SECTION
EL, ELEV	ELEVATION	SHEATH	SHEATHING
EQ	EQUAL	SIM	SIMILAR
EQUIP	EQUIPMENT	SOG	SLAB-ON-GRADE
ES	EACH SIDE	SPAC	SPACING
EW	EACH WAY	SPECS	SPECIFICATIONS
EXP	EXPANSION	SS	STAINLESS STEEL
EXT	EXTERIOR	STD	STANDARD
		STIFF	STIFFENER
F	FOOTING DESIGNATION	STL	STEEL
FDN	FOUNDATION	STR	STRAIGHT
FF	FINISH FLOOR	STRUCT	STRUCTURAL
FLG	FLANGE		
FLR	FLOOR	T	TOP
FT	FOOT	T&B	TOP AND BOTTOM
FTG	FOOTING	TOC, T/CONC	TOP OF CONCRETE
FV	FIELD VERIFY	T/FTG, TOF	TOP OF FOOTING
		TEMP	TEMPERATURE
G	GAGE	T/SHELF	TOP OF SHELF
GALV	GALVANIZED	T/SLAB	TOP OF SLAB
		T/STL	TOP OF STEEL
HOR, HORIZ	HORIZONTAL	T/WALL	TOP OF WALL
HSS	HOLLOW STRUCTURAL SHAPE	TS	STRUCTURAL TUBING
HT	HEIGHT	TYP	TYPICAL
IF	INSIDE FACE	UNO	UNLESS NOTED OTHERWISE
IN	INCH		
INFO	INFORMATION	VER, VERT	VERTICAL
		VIF	VERIFY IN FIELD
JT	JOINT		
		W	STRUCTURAL STEEL WIDE FLANGE
K	KIP (1 KIP = 1,000 LBS)	w/	WITH
KSI	KIPS PER SQUARE INCH	w/O	WITHOUT
		WP	WORK POINT
		WT	WEIGHT
		WWF	WELDED WIRE FABRIC

ABBREVIATIONS

SCALE: NTS

SLOPE DESIGNATION — SLOPE
ELEVATION MARK
ROOF PITCH — 12 / 8
SPAN DIRECTION
SECTION MARK — X/XXX — SECTION No. / DWG. WHERE SHOWN

UNDISTURBED EARTH
LEDGE
COMPACTED STRUCTURAL FILL
CONCRETE
GROUT
BRICK
CMU

LEGEND

SCALE: NTS

CASCO BAY ENGINEERING
424 Fore Street
Portland, ME 04101
Phone 207.842.2800
Fax 207.842.2828
www.cascobayengineering.com

CLIENT:
WHIPPLE-CALLENDER ARCHITECTS
136 PLEASANT AVE
PORTLAND, ME 04103

STATE OF MAINE — ERIC DUBE No. 12630 — LICENSED PROFESSIONAL ENGINEER

MAINE PARTS & MACHINE
68 WALDRON WAY PORTLAND, ME
BUILDING ADDITION

ISSUED

No.	DESCRIPTION	DR. BY	CKD. BY	DATE
A	FOR PRICING ONLY	TD	ED	2-10-12
B	FOR PERMIT - NOT FOR CONSTRUCTION	TD	ED	3-8-12

Apr 02, 2012

SHEET TITLE:
STRUCTURAL NOTES

DESIGNED:	TD
DRAWN:	TD
DATE:	9-29-09
CADD FILE:	9080-S1.dwg
PROJECT NUMBER:	9080

S0