PART 1 - GENERAL REQUIREMENTS AND DESIGN CRITERIA

1.1 SPECIFICATIONS
A. THE WORK OF THESE DRAWINGS ADDRESSES STRUCTURAL INFORMATION ONLY. THE STRUCTURAL DOCUMENTS INCLUDE THESE S-SERIES DRAWINGS AND GENERAL NOTES. THERE ARE NO TECHNICAL SPECIFICATIONS IN ADDITION TO THESE GENERAL NOTES.

1.2 ELEVATIONS & DIMENSIONS
A. ALL ELEVATIONS AND DIMENSIONS SHOWN FOR NEW CONSTRUCTION ARE BASED ON THE ARCHITECTURAL DRAWINGS. COORDINATE ALL ELEVATIONS AND DIMENSIONS BEFORE PROCEEDING WITH CONSTRUCTION.
B. ALL ELEVATIONS AND DIMENSIONS SHOWN FOR NEW CONSTRUCTION ARE BASED ON THE ORIGINAL CONSTRUCTION DRAWINGS FOR THE EXISTING BUILDING. FIELD VERIFY ALL ELEVATIONS AND DIMENSIONS BEFORE PROCEEDING WITH CONSTRUCTION.
C. THE TYPICAL SECTIONS, ELEVATIONS, AND DIMENSIONS OF THE EXISTING STRUCTURE ARE OBTAINED FROM THE ORIGINAL DESIGN DRAWINGS BY METALLIC BUILDING COMPANY, DATED DECEMBER 02, 2003. EXISTING DIMENSIONS ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR, AS APPROPRIATE, PRIOR TO FABRICATION OF MEMBERS.

1.3 GOVERNING BUILDING CODES
A. THE FOLLOWING BUILDING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT.
1. "INTERNATIONAL BUILDING CODE - 2018", INTERNATIONAL CODE COUNCIL
2. "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES", (ANSI/ASCE 7-16, 2016), AMERICAN SOCIETY OF CIVIL ENGINEERS.
B. ADDITIONAL CODES FOR MATERIALS SHALL BE FOUND IN THE APPROPRIATE SECTIONS THAT FOLLOW. SEE THOSE SECTIONS FOR THE APPLICABLE CODES.

1.4 DESIGN LOADS
A. FLOOR LIVE LOADS:
1. LOBBIES/STAIRS/EXITS — 100 PSF
2. MECHANICAL FLOOR AREAS — 150 PSF (UNLESS NOTED ON PLAN)
3. PARTITION LOADS — 20 PSF

B. ROOF LIVE LOADS:
1. MINIMUM LIVE LOAD: — 20 PSF (USE SNOW LOAD IF GREATER)
2. ROOF TRUSS BOTTOM CHORD = — 15 PSF
3. WIND UPLIFT= — 15 PSF

C. ROOF SNOW LOAD - PLUS DRIFTING AND SLIDING WHERE APPLICABLE
a. PG = 30 PSF
b. PF = 24.5 PSF
c. CE = 1.0
d. I = 1.0
e. CT = 1.0

D. DEAD LOADS - ALL PERMANENT STATIONARY CONSTRUCTION.

E. WIND LOAD PARAMETERS
1. BASIC WIND SPEED (3-SECOND GUST), V = 111 MPH
2. WIND IMPORTANCE FACTOR, I = 1.0, AND OCCUPANCY CATEGORY = II
3. EXPOSURE CATEGORY: C
4. INTERNAL PRESSURE COEFFICIENT: GC(PI) = +/- 0.18
5. COMPONENTS AND CLADDING:
a. ACTUAL PRESSURE(S) ON EVERY COMPONENT AND CLADDING ELEMENT SHALL BE DETERMINED BY THE CONTRACTOR'S SPECIALTY PROFESSIONAL ENGINEER, LICENSED IN THE PROJECT'S JURISDICTION, RESPONSIBLE FOR THE STRUCTURAL DESIGN OF SUCH ELEMENT(S). THE HIGH PRESSURE CORNER ZONE DIMENSION SHALL BE CALCULATED BASED ON THE OVERALL BUILDING DIMENSION AND SHALL APPLY TO ALL CORNERS (OUTSIDE AND INTERMEDIATE).
b. PRESSURE VALUES LISTED BELOW ARE FOR REFERENCE ONLY:

(i)	MAXIMUM INWARD PRESSURE ON VERTICAL FACE ON:	END ZONE:	26.5 PSF
		INTERIOR ZONE:	26.5 PSF
(ii)	MAXIMUM OUTWARD PRESSURE ON VERTICAL FACE ON:	END ZONE:	-33.5 PSF
		INTERIOR ZONE:	-29.0 PSF

F. SEISMIC LOAD PARAMETERS
1. SEISMIC IMPORTANCE FACTOR, I = 1.0, AND OCCUPANCY CATEGORY = II
2. MAPPED SPECTRAL RESPONSE ACCELERATIONS
a. S(S) = 0.126
b. S(1) = 0.045
3. SITE CLASS: C
4. SPECTRAL RESPONSE COEFFICIENTS
a. S(DS) = 0.109
b. S(D1) = 0.045
5. SEISMIC DESIGN CATEGORY = A
6. BASIC SEISMIC-FORCE-RESISTING SYSTEM: MASONRY SHEAR WALLS (PORT. A); ORDINARY MOMENT FRAMES (PORT. B)
7. DESIGN BASE SHEAR, V = 14 KIPS (PORT. A); V = 3.7 KIPS (PORT. B)
8. SEISMIC RESPONSE COEFFICIENT, C(S) = 0.01
9. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

1.5 GENERAL
A. INSPECTIONS AND CLOSEOUT: OWNER OR CONTRACTOR ARRANGED 3RD PARTY INSPECTIONS/ SPECIAL INSPECTIONS SHALL CONFORM TO LOCAL JURISDICTION REQUIREMENTS AND INSPECTION REQUIREMENTS SHOWN ON THESE DOCUMENTS. FINAL CERTIFICATION FROM THE ENGINEER OF RECORD, IF REQUIRED BY THE AUTHORITY HAVING JURISDICTION OR OWNER, WILL BE PROVIDED ONCE TEC RECEIVES A THIRD PARTY INSPECTION REPORT CONFIRMING THE STRUCTURE WAS INSTALLED PER THE CONTRACT DOCUMENTS. TEC DOES NOT PROVIDE THIRD PARTY INSPECTIONS, AND OUR SITE OBSERVATIONS ARE FOR GENERAL CONFORMANCE, NOT INSPECTION.
B. UNAUTHORIZED REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR RE-SUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.
C. NO PART OF THE BUILDING SHALL BE USED AS A STAGING AREAS RESULTING IN A LOAD(UNDER THE LIMITED LOADED AREA) THAT EXCEEDS THE DESIGN LOADS.
D. THESE DRAWINGS REPRESENT THE COMPLETED PROJECT WHICH HAS BEEN DESIGNED FOR THE WEIGHTS OF MATERIALS, FOR THE SUPERIMPOSED LOADS INDICATED IN THE DESIGN LOAD CRITERIA ABOVE, AND FOR LOADS INDICATED ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSE WORK, STAGING, BRACING, SHEETING AND SHORING, ETC.
E. DEVELOPING AND IMPLEMENTING JOB SITE SAFETY AND CONSTRUCTION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
F. NO CHANGE IN SIZE, DIMENSION, OR POSITION OF STRUCTURAL ELEMENTS SHALL BE MADE, NOR SHALL ANY OPENINGS OR SLEEVES BE PERMITTED THROUGH ANY STRUCTURAL ELEMENT, WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD, UNLESS DETAILED AND SPECIFICALLY NOTED AND APPROVED ON THE SHOP DRAWINGS. PROVIDE SEPARATE SHOP DRAWINGS INDICATED ALL PENETRATIONS THROUGH STRUCTURAL ELEMENTS FOR APPROVAL, PRIOR TO THE SUBMISSION OF THE SHOP DRAWINGS FOR THE AFFECTED STRUCTURAL ELEMENTS.
G ALL COSTS OF INVESTIGATION AND REDESIGN, DUE TO THE CONTRACTOR MIS-LOCATION OF STRUCTURAL ELEMENTS OR OTHER LACK OF CONFORMANCE WITH THE PROJECT DOCUMENTS, SHALL BE AT THE CONTRACTOR'S EXPENSE.
H. CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF OPENINGS, SLEEVES, CONCRETE HOUSEKEEPING PADS, INSERTS AND DEPRESSIONS.
I. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR DETAILED INFORMATION REGARDING FINISHES, WATERPROOFING, FIREPROOFING, ETC.
J. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF NON-LOAD BEARING MASONRY AND DRYWALL PARTITIONS AND PROVIDE SLIP CONNECTIONS THAT ALLOW VERTICAL MOVEMENT AT THE HEADS OF ALL SUCH PARTITIONS. UNLESS SHOWN ON THE DRAWINGS, THE CONNECTIONS SHALL BE DESIGNED TO LATERALLY BRACE THE TOPS OF THE WALLS FOR THE CODE REQUIRED LATERAL LOAD. PROVIDE COMPRESSIBLE FIRE-SAFING AT THE TOP OF RATED WALLS AS SPECIFIED BY THE ARCHITECTURAL DRAWINGS.
K. CONSULT ARCHITECTURAL , MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR LOCATIONS AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, DRIPS, REVEALS, FINISHES, DEPRESSIONS, DOORS AND OTHER SUCH PROJECT REQUIREMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS. ANY SUCH ITEMS SHOWN ON STRUCTURAL DRAWINGS ARE INDICATED FOR INFORMATION ONLY. APPEARANCE OF SAME ON STRUCTURAL DRAWINGS IS NOT MEANT TO CONVEY ACTUAL LOCATION OR EXTENT OF WORK.
L. PROVIDE ANY ALTERATIONS AND/OR ADDITIONAL COMPONENTS NEEDED TO ACCOMMODATE THE INSTALLATION OF EQUIPMENT OF ANY NATURE. COORDINATE SUCH WORK WITH THE EQUIPMENT SUPPLIER. INCORPORATE SUCH REFINEMENTS ON THE SHOP DRAWINGS, AND OBTAIN THE EQUIPMENT SUPPLIER'S APPROVAL (CLEARLY DISPLAYED ON THE DRAWINGS) PRIOR TO SUBMITTING THE SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR APPROVAL.
M. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, THE DETAILS AND SPECIFICATIONS, THE MOST RIGID SHALL GOVERN.
N. ALL DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE NOTED.
O. WORK NOT INCLUDED ON THE DRAWINGS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING LOCATIONS ELSEWHERE ON THE DRAWINGS SHALL BE REPEATED.
P. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING AND NEW UTILITIES AND SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE DURING CONSTRUCTION.
Q. PROVIDE 4" CONCRETE PADS REINFORCED WITH #3 REBAR AT 12" E.W. AT MID DEPTH AT ALL EQUIPMENT SUPPORTED ON SLABS ON GRADE OR ON FRAMED FLOORS UNLESS NOTE OTHERWISE. USE LIGHT WEIGHT CONCRETE FOR ALL PADS ON FRAMED FLOORS. PAD SHALL EXTEND 6" MINIMUM ON ALL SIDES OF THE EQUIPMENT.
R. DO NOT SCALE DRAWINGS.
S. PIPES OF 2" DIAMETER OR LESS AND AIR DUCTS MAY BE SUSPENDED DIRECTLY FROM COMPOSITE DECK SLAB, WHERE APPLICABLE. ALL HANGERS FOR OTHER MECHANICAL PIPING AND EQUIPMENT SHALL BE CONNECTED TO THE STEEL BEAMS ONLY. ALL PIPE GROUPS SHALL BE SUPPORTED ON TRAPEZES WHICH SHALL BE SUSPENDED FROM STEEL BEAMS OR JOISTS. CONTRACTOR MAY PROVIDE SECONDARY MEMBERS SPANNING BETWEEN STRUCTURAL BEAMS AS NEEDED. UNLESS NOTED OTHERWISE, HANGERS SHALL BE LOCATED TO KEEP THE EQUIVALENT UNIFORM LOAD UNDER 10 PSF.
T. THE WEB AND BOTTOM FLANGE OF STEEL BEAMS SHALL NOT BE USED FOR THE LATERAL SUPPORT OF CLADDING SYSTEMS UNLESS A KICKER IS PROVIDED AT THE POINT OF BRACING. THE SLOPE OF THE KICKER SHALL NOT BE STEEPER THAN 2 HORIZ TO 1 VERT.
U. ALL CMU WALLS ON ELEVATED FRAMED FLOORS ARE INDICATED ON THE STRUCTURAL DRAWINGS. NO CMU WALLS ON ELEVATED FRAMED FLOOR SHOULD BE ADDED OR RELOCATED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
V. LINTELS: ALL OPENINGS IN WALLS AND PARTITIONS ARE TO BE PROVIDED WITH LINTELS. CONTRACTOR TO SHORE ALL LINTELS AS REQUIRED TO PREVENT ROTATION DURING CONSTRUCTION AND SHALL PAY PARTICULAR ATTENTION TO ECCENTRICALLY LOADED LINTELS. COORDINATE SIZE, TYPE AND LOCATION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

1.6 SHOP DRAWINGS
A. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS ARE REQUIRED TO BE SUBMITTED BY THE CONTRACTOR AND REVIEWED BY THE STRUCTURAL ENGINEER. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, TARANTINO ENGINEERING CONSULTANTS (TEC) WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT.
B. SHOP DRAWINGS FOR HANGER LAYOUT ABOVE MECHANICAL ROOMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW.
C. SHOP DRAWINGS SUBMITTED FOR STRUCTURAL REVIEW SHALL CONSIST OF ELECTRONIC DRAWINGS. ONLY ONE MARKED UP SET OF ELECTRONIC DRAWINGS WITH THE STRUCTURAL ENGINEER'S COMMENTS WILL BE RETURNED TO THE CONTRACTOR.
D. AT THE TIME OF SHOP DRAWINGS SUBMISSION, THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATIONS OR OMISSIONS FROM THE CONTRACT DRAWINGS.
E. THE GENERAL CONTRACTOR / CONSTRUCTION MANAGER SHALL REVIEW ALL SHOP DRAWINGS BEFORE SUBMITTING TO ENGINEER. MAKE ALL CORRECTIONS AS THEY DEEM NECESSARY AND SHALL CERTIFY ON EACH DRAWINGS AS FOLLOWS:
"WE CERTIFY THAT THE CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN MET AND ALL DIMENSIONS, CONDITIONS, AND QUANTITIES ARE VERIFIED AS SHOWN AND/OR AS CORRECTED ON THIS DRAWINGS."
SIGNED............... (FOR CONTRACTOR)................
F. ALLOW 15 BUSINESS DAYS FOR STRUCTURAL REVIEW OF SHOP DRAWINGS. THIS TIME SHOULD BE ALLOTTED IN THE CONTRACTOR'S SCHEDULE.
G. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT THEY HAVE VERIFIED ALL FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS AND SIMILAR DATA AND HAVE CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION AND COMPLIANCE WITH THE CONTRACT DOCUMENTS.
H. CONTRACTOR DESIGNED COMPONENTS: THE CONTRACTOR SHALL SUBMIT FOR REVIEW, SIGNED AND SEALED DRAWINGS AND CALCULATIONS PREPARED BY A SPECIALTY STRUCTURAL ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION FOR THE FOLLOWING ASSEMBLIES. THIS REVIEW SHALL BE FOR GENERAL CONFORMANCE WITH THE PROJECT'S PARAMETERS AS INDICATED ON THE DRAWINGS, SPECIFICATIONS AND GENERAL NOTES. THE DESIGN OF THESE ASSEMBLIES IS THE RESPONSIBILITY OF THE CONTRACTOR'S ENGINEER WHO HAS SIGNED AND SEALED THESE DRAWINGS AND CALCULATIONS. THESE SUBMISSIONS SHALL BE MADE AVAILABLE IN CONJUNCTION WITH OR PRIOR TO THE SHOP DRAWING FOR THE PRIMARY BUILDING STRUCTURE THAT SUPPORT THESE ASSEMBLIES.
1. CFMF AND CURTAIN WALL SYSTEMS AND RELATED CONNECTIONS:
a. DESIGNS SHALL TAKE INTO ACCOUNT ALL VERTICAL AND LATERAL LOADS REQUIRED BY APPLICABLE BUILDING CODES. BACK-UP SYSTEMS AND CURTAIN WALLS SHALL BE DESIGNED FOR A MAXIMUM LATERAL DEFLECTION OF L/600 OF THE SPAN IN INCHES OR ⅜" WHICHEVER IS LESS FOR THE APPLICABLE DESIGN WIND LOAD. THE SUBMITTED DRAWINGS AND CALCULATIONS SHALL CLEARLY SHOW THE LOAD PATH AND THE REACTIONS AS APPLIED TO THE MAIN BUILDING STRUCTURE.
2. METAL STAIRS AND METAL RAILINGS:
a. DESIGNS SHALL TAKE INTO ACCOUNT ALL VERTICAL AND LATERAL LOADS REQUIRED BY APPLICABLE BUILDING CODES. WHERE HEADERS OR OTHER TYPES OF STRUCTURAL MEMBERS HAVE BEEN DESIGNATED BY THE STRUCTURAL ENGINEER OF RECORD TO SUPPORT STAIRS, THE CONNECTIONS FROM THE STAIRS SHALL BE DESIGNED SO THAT NO ECCENTRIC OR TORSIONAL FORCES ARE INDUCED INTO THESE MEMBERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING EMBEDS AND HARDWARE AS REQUIRED BY THE STAIR DESIGN..
3. TEMPORARY CONDITIONS SUCH AS NEEDLING, SHORING AND BRACED EXCAVATION.
4. STRUCTURAL STEEL CONNECTIONS.
5. SPECIAL STEEL JOISTS.
I. CONTRACTOR SHALL FURNISH DIMENSIONED SHOP DRAWINGS LOCATING ROOF EDGES FOR REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER.
J. CONTRACTOR SHALL FURNISH DIMENSIONED SHOP DRAWINGS SHOWING LOCATIONS OF ALL SLEEVES AND OPENINGS REQUIRED BY ALL TRADES FOR REVIEW BY THE MEP, ARCHITECT AND STRUCTURAL ENGINEER.

PART 2 EXISTING CONDITIONS

2.1 GENERAL REQUIREMENTS
A. EXISTING BUILDING INFORMATION SHOWN IS BASED ON EXISTING BUILDING DRAWINGS, FIELD OBSERVATIONS, OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING BUILDING INFORMATION SHOWN (DIMENSIONS, ELEVATIONS, ETC.) AND NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES.
B. NEW FRAMED FLOOR ELEVATIONS ARE TO MATCH EXISTING ADJACENT FLOOR ELEVATIONS UNLESS INDICATED OTHERWISE. FOUNDATION ELEVATIONS OR THE LENGTH OF VERTICAL LOAD CARRYING ELEMENTS SHALL BE ADJUSTED WITH THE APPROVAL OF THE STRUCTURAL ENGINEER TO ACHIEVE MATCHING SLAB ELEVATIONS.
C. UNLESS NOTED OR DETAILED OTHERWISE ON THE PLANS, NEW FOUNDATIONS ADJACENT TO EXISTING FOUNDATIONS SHALL BEAR AT THE SAME ELEVATION.
D. INASMUCH AS THE REMODELING AND/OR REHABILITATION OF AN EXISTING BUILDING REQUIRES THAT CERTAIN ASSUMPTIONS BE MADE REGARDING EXISTING CONDITIONS, AND BECAUSE SOME OF THESE ASSUMPTIONS CANNOT BE VERIFIED WITHOUT EXPENDING GREAT SUMS OF ADDITIONAL MONEY, OR DESTROYING OTHERWISE ADEQUATE OR SERVICEABLE PORTIONS OF THE BUILDING, THE OWNER AGREES THAT, EXCEPT FOR NEGLIGENCE ON THE PART OF TARANTINO ENGINEERING CONSULTANTS (TEC), THE OWNER WILL HOLD HARMLESS AND INDEMNIFY TARANTINO ENGINEERING CONSULTANTS (TEC) FOR AND AGAINST ANY AND ALL CLAIMS, DAMAGES, AWARDS, AND COSTS OF DEFENSE ARISING OUT OF DEFICIENCIES IN THE ORIGINAL BUILDING STRUCTURE.

PART 3 - CONCRETE

3.1 STANDARD SPECIFICATIONS AND REFERENCE STANDARDS:
A. "ACI MANUAL OF CONCRETE PRACTICE - PARTS 1 THROUGH 5", AMERICAN CONCRETE INSTITUTE."MANUAL OF STANDARD PRACTICE", CONCRETE REINFORCING STEEL INSTITUTE.
B. "PCI DESIGN HANDBOOK - PRECAST AND PRE-STRESSED CONCRETE", PRE-STRESSED CONCRETE INSTITUTE.
C. "POST-TENSIONING MANUAL", POST-TENSIONING INSTITUTE.
D. "RECOMMENDATIONS FOR CONCRETE MEMBERS WITH PRE-STRESSED UNBONDED TENDONS," ACI 423.3;
E. "PCI STANDARD BUILDING CODE FOR PRE-STRESSED CONCRETE," PRE-STRESSED CONCRETE INSTITUTE.
F. FOLLOW THE LATEST RECOMMENDATIONS AND SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE:
1. ACI 301 — STRUCTURAL CONCRETE FOR BUILDINGS
2. ACI 302 — CONCRETE FLOOR AND SLAB CONSTRUCTION
3. ACI 304 — MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE
4. ACI 305 — HOT WEATHER CONCRETING
5. ACI 306 — COLD WEATHER CONCRETING
6. ACI 315 — DETAILING REINFORCING STEEL
7. ACI 318 — GENERAL DESIGN OF ITEMS NOT OTHERWISE SPECIFIED
8. ACI 347 — FORMWORK

3.2 CONCRETE MIX PROPERTIES:

A.

ELEMENT (NORMAL WEIGHT UNO)	28-DAY STRENGTH	W/C MAX(b)	AIR CONTENT(a)
1. FOOTINGS	3,000 PSI	0.55	6%
2. FOUNDATION WALLS AND PIERS:	4,000 PSI	0.50	6%
3. SLAB ON GRADE (INTERIOR)	3,000 PSI	0.50	3½%
4. SLAB ON GRADE (EXTERIOR)	4,500 PSI	0.45	6%

a. AIR CONTENT OF TROWEL FINISHED FLOORS SHALL NOT EXCEED 3%
b. PUMP MIXES: MAXIMUM WATER/CEMENT (W/C) RATIO MUST BE MAINTAINED. IF ADDITIONAL WORKABILITY IS REQUIRED FOR PUMPED PLACEMENT, THE HIGH OR MID-RANGE WATER REDUCERS SHALL BE USED IN LIEU OF ADDITIONAL WATER.
c. ELEVATED DECKS THAT ARE EXPOSED TO FREEZING TEMPERATURES, I.E. PLAZA DECKS, THAT DO NOT RECEIVE A TROWEL FINISH SHALL HAVE AN AIR CONTENT OF 6%
d. MAXIMUM SLUMP WITHOUT ADMIXTURES = 4"

B. PORTLAND CEMENT: ASTM C150, TYPE I OR III. USE TYPE II IN MARINE OR SUBMERGED ENVIRONMENTS.
C. CEMENT SUBSTITUTES: ASTM C595, TYPE LS (LIMIT TO 50% MAX OF CEMENTITIOUS CONTENT BY WEIGHT)
D. AGGREGATES / DENSITY: MAXIMUM COARSE AGGREGATE SIZE = 3/4" TYPICAL, 1/2" MAXIMUM AT SLABS 3" OR LESS
ASTM C33 / 145 PCF - NORMAL WEIGHT

E. AIR-ENTRAINMENT: ASTM C260 (ALL CONCRETE EXPOSED TO WEATHER AND WITHIN 4'-0" OF FINISHED GRADE).
F. SHOP DRAWINGS: CONCRETE MIX DESIGNS SHALL BE MADE BY AN APPROVED LABORATORY FOR ALL CONCRETE AND SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR APPROVAL BEFORE USE. THE MIX MUST CLEAR NOTE WHERE THE CONCRETE IS INTENDED TO BE USED.
G. CALCIUM CHLORIDE SHALL NOT BE PERMITTED IN CONCRETE IN ANY FORM.

3.3 BASE PLATE GROUT: 8,000 PSI 28-DAY COMPRESSIVE STRENGTH.

3.4 STEEL REINFORCEMENT:
1. DEFORMED REINFORCING BARS: ASTM A615 GRADE 60
2. WELDABLE DEFORMED REINF. BARS: ASTM A706 OR APPROVED EQUAL.
3. WELDED WIRE REINFORCEMENT (WWR): ASTM A497 OR A185 (FLAT SHEETS ONLY)

3.5 CONCRETE COVER:

A. MILD REINFORCED CONCRETE

1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:		3 IN.
2. CONCRETE EXPOSED TO EARTH OR WEATHER:		
	#6 BAR OR LARGER	2 IN.
	#5 BAR OR SMALLER	1½ IN.
3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:		
SLABS, WALLS AND JOISTS:	#11 BAR OR SMALLER	¾ IN.
BEAMS AND COLUMNS:	TO TIES, STIRRUPS, OR SPIRALS	1½ IN.

3.6 GENERAL REQUIREMENTS:
A. REINFORCEMENT AT OPENINGS: UNLESS DETAILED OTHERWISE, PROVIDE 2 - #6 AT EACH SIDE OF ALL OPENINGS IN WALLS AND SLABS AND EXTEND 2 FT-6 IN. BEYOND THE OPENING OR AS DETAILED, EXCEPT VERTICAL BARS AT SIDES OF OPENINGS IN WALLS ARE TO EXTEND FROM FLOOR TO FLOOR. BARS MAY BE MOVED ASIDE AT OPENINGS OR SLEEVES, BUT DO NOT CUT OR OMIT.
B. PROVIDE (2) #4 X 4'-0" AT SLAB MID DEPTH AT ALL RE-ENTRANT CORNERS OF FLOOR SLAB (BOTH ELEVATED AND SLAB ON GRADE).
C. MINIMUM REINFORCEMENT: REINFORCE ALL WALLS WITH AT LEAST #4 @ 12 IN. EACH WAY EACH FACE AND 2 - #6 EACH EDGE, UNLESS DETAILED OTHERWISE.
D. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES. HOPPERS, VERTICAL CHUTES, OR TRUNKS SHALL BE USED IN SUFFICIENT NUMBERS SO THAT THE FREE UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED SIX FEET AND TO ENSURE CONCRETE IS KEPT LEVEL AT ALL TIMES.
E. EXISTING SURFACE TREATMENT: PRIOR TO PLACING FRESH CONCRETE AGAINST CONCRETE IN PLACE, THE CONTACT SURFACES SHALL BE CLEANED. ALL LAITANCE SHALL BE REMOVED, AND A CHEMICAL BONDING COMPOUND APPLIED. WHERE NOTED, ROUGHEN EXISTING CONCRETE SURFACES COMMON WITH NEW CONCRETE TO AMPLITUDE OF 1/4 INCH.
F. FORMWORK, SHORING AND RESHORING: SHALL BE DESIGNED AND SUBMITTED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION WITH ALL SUBMISSIONS BEARING THE ENGINEER'S SEAL AND SIGNATURE.
G. ALL KEYS SHALL BE 1.5" DEEP UNLESS NOTED OTHERWISE.
H. INSERTS AND SLEEVES: CONTRACTOR SHALL FURNISH DIMENSIONED SHOP DRAWINGS AT ALL LEVELS SHOWING LOCATIONS OF ALL CAST-IN-PLACE SLEEVES, INSERTS AND OPENINGS REQUIRED BY ALL TRADES FOR REVIEW BY THE MEP, ARCHITECT AND STRUCTURAL ENGINEER, IN THAT ORDER. NO SLEEVE SHALL BE PLACED THROUGH ANY CONCRETE ELEMENT UNLESS SHOWN ON THE APPROVED SHOP DRAWINGS OR SPECIFICALLY AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.
I. CORES AND DRILLED FASTENERS:
1. DRILLED OR POWDER DRIVEN FASTENERS WILL BE PERMITTED WHEN PROVEN TO THE SATISFACTION OF THE STRUCTURAL ENGINEER THAT THE FASTENERS WILL NOT SPALL THE CONCRETE OR DAMAGE EXISTING REINFORCEMENT.
2. CORE DRILLING OF FOUNDATIONS, BEAMS, JOISTS, COLUMNS OR ANY POST-TENSIONED MEMBER SHALL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
3. WHEN INSTALLING EXPANSION OR ADHESIVE ANCHORS, THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DRILLING OR CUTTING OF ANY EXISTING REINFORCING AND DESTRUCTION OF CONCRETE. ALL BOLTS AND ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
G. CONCRETE SLAB-ON-GRADE: SHALL BE 5" THICK, REINFORCED WITH 6 X 6 - W2.9 X 2.9 WWR AND PLACED ON A 6 MIL. VAPOR-RETARDER OVER A 4" MIN. LAYER OF CLEAN, WELL-GRADED GRAVEL OR CRUSHED STONE AND PROPERLY COMPACTED SUBGRADE OR AS INDICATED ON THE PLANS.
H. FLOOR SLABS SHALL BE FINISHED TO A MINIMUM FLATNESS F-NUMBER FF=20 AND A MINIMUM LEVELNESS F-NUMBER F1=17 IN ANY DIRECTION. ALL CONCRETE SHALL BE CURED WITH LIQUID SEALING COMPOUND CONFORMING TO ASTM C-309, TYPE 1 AND FEDERAL SPECIFICATION TT-C-00800 OR OTHER APPROVED METHOD WHICH IS COMPATIBLE WITH FLOORING ADHESIVES AND OTHER TREATMENTS. ALL CONCRETE LEFT EXPOSED AT THE COMPLETION OF THE PROJECT SHALL BE TREATED WITH A CLEAR, PENETRATING ACRYLIC BASED POLYMER CAPABLE OF PREVENTING INFILTRATION OF WATER BORNE CHLORIDES SUCH AS CONSPEC #1 BY CONSPEC MARKETING AND MANUFACTURING COMPANY OR APPROVED EQUAL.
I. ALL INTERIOR CONCRETE SHALL RECEIVE A STEEL TOWELED FINISH. EXTERIOR SLABS ON GRADE TO RECEIVE A BROOM FINISH, UNLESS NOTED OTHERWISE. SUBMIT FINISHED SCHEDULE TO ARCHITECT FOR APPROVAL.
J. CHAMFER ALL EXPOSED CONCRETE CORNERS,3/4 IN. X 3/4 IN. MINIMUM, UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL DRAWINGS.
K. WATERSTOPS: AS SPECIFIED ON THE ARCHITECTURAL DRAWINGS, PROVIDE CONTINUOUS WATERSTOPS AT ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ALL BELOW GRADE FOUNDATION WALLS, ELEVATOR PITS AND OTHER PIT WALLS.
L. CONCRETE QUANTITIES: THE CONCRETE SLABS SHALL BE FINISHED, WITHIN TOLERANCE AND FLOOR FLATNESS REQUIREMENTS, TO THE ELEVATIONS INDICATED ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE AT THEIR COST, ADDITIONAL CONCRETE AS REQUIRED DUE TO FORMWORK AND FRAMING DEFLECTION TO ACHIEVE THIS FINISHED TOP OF SLAB ELEVATION. LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE. A CONCRETE STRUCTURE MAY NOT SUPPORT ITS DESIGN LIVE LOAD UNTIL IT HAS REACHED ITS SPECIFIED STRENGTH. CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES, AND EXCAVATIONS AS REQUIRED FOR COMPLETION OF WORK.
M. IT IS NOT PERMISSIBLE TO DELAY THE APPLICATION OF CURING COMPOUND UNTIL THE MORNING AFTER THE CONCRETE IS CAST.
N. CONCRETE CAST ON SLOPED SURFACES SHALL BEGIN AT THE LOWEST ELEVATION AND CONTINUE MONOLITHICALLY TOWARD THE HIGHER ELEVATION UNTIL THE INTENDED POUR IS COMPLETED.
O. CONDUITS IN CONCRETE SLABS SHALL BE SPACED SUCH THAT THE CENTER TO CENTER DISTANCE BETWEEN CONDUITS IS A MINIMUM OF THREE TIMES THE OUTSIDE DIAMETER OF THE LARGEST CONDUIT.
P. CONDUITS IN CONCRETE SLAB HAVING OUTSIDE DIAMETER LARGER THAN ONE THIRD OF THE SLAB THICKNESS SHALL NOT BE PERMITTED. CONDUITS THAT CROSS EACH OTHER WITHIN THE SLAB SHALL NOT CONSUME MORE THAN ONE THIRD OF THE SLAB THICKNESS AT THE POINT OF INTERSECTION. FOR ELEVATED SLABS WHICH ARE ON A DECK, THICKNESS SHALL BE DIVINED AS THE CLEAR DIMENSION ABOVE THE RIBS.
Q. ALUMINUM CONDUITS WILL NOT BE PERMITTED IN CONCRETE ELEMENTS.
R. LIGHTWEIGHT CONCRETE FILL OF SLAB DEPRESSIONS SHALL BE REINFORCED WITH FIBER REINFORCING.
S. ALL WELDING OF REINFORCING SHALL BE COMPLETED WITH E90XX ELECTRODES IN ACCORDANCE WITH AWS SPECIFICATION D1.4 (LATEST EDITION).

3.7 SPLICING AND PLACEMENT OF REINFORCEMENT:
A. NO SPLICES OF REINFORCEMENT SHALL BE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER. MAKE BARS CONTINUOUS AROUND CORNERS. WHEN PERMITTED, SPLICES SHALL BE MADE BY CONTACT TENSION LAP SPLICE, UNLESS NOTED OTHERWISE.
B. SPLICE WELDED WIRE REINFORCEMENT TWO FULL MESH LENGTHS AND WIRE TOGETHER.
C. SPLICE BARS AS SHOWN ON DRAWINGS BUT NOT LESS THAN 50 BAR DIAMETERS FOR SLABS AND BEAM BOTTOM BARS, AND NOT LESS THAN 65 BAR DIAMETERS FOR WALLS AND BEAM TOP STEEL.
D. NO WELDING OF REINFORCING SHALL BE PERMITTED UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY THE STRUCTURAL ENGINEER.
E. WELDED WIRE REINFORCING SHALL HAVE ENDS LAPPED ONE FULL PANEL AND SPLICE LACED WITH WIRE.
F. ANY MECHANICAL SPLICES USED, MUST BE "TENSION-COMPRESSION" TYPE AND SHALL COMPLY WITH ACI 318 UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER. SHOP DRAWINGS SUBMITTED FOR THE ENGINEER'S APPROVAL MUST INDICATE THE USE AND THE TYPE OF ANY MECHANICAL SPLICES USED.
G. PROVIDE #4 CHAIR BARS, HIGH CHAIRS, TIES, CLIPS, SLAB BOLSTERS AND OTHER ACCESSORIES WHERE NOT SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OR DETAILING REINFORCING CONCRETE STRUCTURES ACI 315 OR CRSI-WRSI MANUAL OF STANDARD PRACTICE. USE PLASTIC TIPS ON ALL CHAIRS PLACED ON THE SIDES OF CONCRETE FORMWORK.
H. PROVIDE PLASTIC TIPPED BOLSTERS AND CHAIRS AT ALL LOCATIONS WHERE THE CONCRETE SURFACE IS IN CONTACT WITH THE BOLSTERS OR CHAIRS IS EXPOSED.

3.8 REINFORCEMENT SHOP DRAWINGS:
A. SUBMIT FOR APPROVAL, COMPLETE BENDING AND PLACING DETAILS OF ALL REINFORCEMENT INCLUDING WELDED WIRE REINFORCEMENT, INDICATING POSITION OF SPLICES. INCLUDE ACCESSORY DRAWINGS. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI-315.
B. UNAUTHORIZED REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR RE-SUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.

3.10 HOUSEKEEPING PADS AND CURBS:
A. PADS AND CURBS MAY BE SHOWN ON PLAN IN CERTAIN INSTANCES FOR REFERENCE ONLY. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR LOCATIONS AND COORDINATE WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS. USE SAME CONCRETE AS BASE SLAB, UNLESS DETAILED OTHERWISE. MAXIMUM PAD THICKNESS IS 6 INCHES.

3.11 CONSTRUCTION JOINTS:
A. CONSTRUCTION AND CONTROL JOINTS IN SLAB ON GRADE SHALL BE ARRANGED TO LIMIT MAXIMUM LENGTH BETWEEN JOINTS TO 15'-0" IN ANY DIRECTION. SUBMIT SHOP DRAWINGS INDICATING JOINT LAYOUT FOR ARCHITECT/ENGINEER APPROVAL. CONSTRUCTION JOINTS FOR MILD-REINFORCED CONCRETE SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE SPAN. PROPOSED CONSTRUCTION JOINT LOCATIONS SHALL BE SHOWN ON THE REINFORCING STEEL SHOP DRAWINGS. ANY STOP IN CONCRETE WORK MUST BE MADE WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS INDICATED OTHERWISE. FOUNDATIONS, PILE CAPS, DRILLED PIERS, SLABS, BEAMS, GIRDERS, AND JOISTS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE UNLESS DETAILED OTHERWISE.
B. CONSTRUCTION JOINTS FOR SLABS ON METAL DECK SHALL BE LOCATED MIDWAY BETWEEN BEAMS THAT ARE PERPENDICULAR TO THE DECK SPAN AND, IN THE MIDDLE THIRD OF THE SUPPORTING BEAM WHERE THE JOINT IS PARALLEL TO THE DECK SPAN. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A SHOP DRAWING INDICATING ALL PROPOSED JOINT LOCATIONS WITH ALL ADDITIONAL REINFORCING STEEL TO BE PLACED IN THE SLAB. ANY STOP IN CONCRETE WORK MUST BE MADE WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS. SLABS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE, UNLESS DETAILED OTHERWISE.
C. WHERE CONSTRUCTION JOINTS ARE PROVIDED THE REINFORCEMENT SHALL PASS CONTINUOUSLY THROUGH THE JOINT AND ADEQUATE SHEAR TRANSFER REINFORCEMENT SHALL BE PROVIDED.

3.12 CONCRETE SLAB ON GRADE CONSTRUCTION:
A. THE CONCRETE SLABS ON GRADE FOR THIS PROJECT HAVE BEEN DESIGNED UTILIZING A MODULUS OF SUBGRADE REACTION "K" EQUAL TO 110 PCI FOR AREAS. PLEASE NOTE THAT THE CONCRETE SLABS ON GRADE THROUGHOUT THIS PROJECT ARE NOT DESIGNED TO SUPPORT THE CRANES USED DURING THE ERECTION OF THE STRUCTURAL STEEL. IF THE CONTRACTOR ELECTS TO PLACE THE CRANE ON THE CONCRETE SLAB ON GRADE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE ALL NECESSARY PRECAUTIONS, INCLUDING THE TEMPORARY INSTALLATION OF WOOD CRIBBING ON THE SLAB, IN ORDER TO PREVENT CRACKS FROM FORMING IN THE SLAB ON GRADE. ALL CRACKS WHICH FORM IN THE CONCRETE SLABS ON GRADE DUE TO THE CRANE BEING PLACED ON THE SLAB WILL BE REPLACED OR REPAIRED TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND OWNER AT THE CONTRACTOR'S EXPENSE.

3.13 INSPECTION AND TESTING:
A. THE OWNER SHALL ENGAGE A TESTING AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS.
B. CAST-IN-PLACE CONCRETE:
1. THE AGENCY SHALL INSPECT THE FORMWORK AND REINFORCING STEEL PLACEMENT FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHOP DRAWINGS. THE AGENCY SHALL MONITOR ALL STRUCTURAL CONCRETE PLACEMENT FOR CONFORMANCE WITH APPLICABLE ACI REQUIREMENTS.
2. SAMPLE FRESH CONCRETE IN ACCORDANCE WITH ASTM C172. MOLD TEST CYLINDERS IN ACCORDANCE WITH ASTM C31.
3. THE FOLLOWING NUMBER OF TEST CYLINDERS SHALL BE CAST FOR EACH DAY'S POUR OR EACH 50 CUBIC YARDS, WHICHEVER RESULTS IN MORE TEST CYLINDERS.
a. FOR FOOTINGS AND OTHER STRUCTURAL CONCRETE:
LAB CURED — 2@7 DAYS, 2@28 DAYS
b. THE AGENCY WILL MAKE ADDITIONAL TESTS OF IN-PLACE CONCRETE AT THE CONTRACTOR'S EXPENSE WHEN THE TEST RESULTS INDICATE SPECIFIED CONCRETE STRENGTHS HAVE NOT BEEN ATTAINED, AS DIRECTED BY THE STRUCTURAL ENGINEER.

PART 4 - MASONRY

4.1 CODES:
A. "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530 / ASCE 5 / TMS 402".
B. "SPECIFICATIONS FOR MASONRY STRUCTURES, ACI 530.1 / ASCE 6 / TMS 602".

4.2 MATERIALS:
A. LOAD BEARING CONCRETE MASONRY:
1. HOLLOW AND SOLID — ASTM C90, LIGHT WEIGHT, NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS = 1900 PSI.
ALL UNITS TO BE TWO CORE TYPE. WEIGHT OF UNITS SHALL BE 30 PSF FOR 6" UNITS, 38 PSF FOR 8" UNITS 47 PSF FOR 10" UNITS AND 55 PSF FOR 12" UNITS WITH A TOLERANCE OF 2 PSF.
B. FACE BRICK — ASTM C216 (CLAY OR SHALE), MINIMUM COMPRESSIVE STRENGTH ON NET AREA = 2000 PSI
C. MORTAR — ASTM C270 - TYPE S. PROPORTIONS MIX BY VOLUME 1: 1½: 3
D. GROUT — ASTM C476, MINIMUM COMPRESSIVE STRENGTH ON NET AREA = 2000 PSI
E. HORIZONTAL JOINT REINF. — ASTM A82, 9-GAGE TRUSS-TYPE GALVANIZED
F. COMP. STRENGTH OF MAS. METHOD PER ACI 530 / ASCE 5 — F'M = 1900 PSI, UNIT STRENGTH METHOD OR PRISM TEST
G. WATER — POTABLE
H. SAND — ASTM C144, FINENESS MODULUS 2.0 TO 2.5
I. HYDRATED LIME — ASTM C207, TYPE S
J. PORTLAND CEMENT — ASTM C150, TYPE I OR II
K. REINFORCING BARS — ASTM A615, GRADE 60

4.3 GENERAL:
A. PROVIDE GALVANIZED STANDARD WEIGHT HORIZONTAL JOINT REINFORCEMENT IN 8 IN. WALLS AND PARTITIONS AND EXTRA HEAVY HORIZONTAL JOINT REINFORCEMENT IN 12" WALLS AND PARTITIONS AT 16 IN. O.C. PROVIDE ONE PIECE PREFABRICATED UNITS AT 8 IN. O.C. AT ALL WALL CORNERS AND INTERSECTIONS. LAP REINFORCEMENT A MINIMUM OF TWO CELLS. PLACE JOINT REINFORCEMENT IN FIRST AND SECOND BED JOINTS ABOVE AND BELOW OPENINGS.
B. PROVIDE MASONRY ANCHORS AT 16 IN. O.C. SET ON COURSING AND ATTACHED TO ALL BEAMS, COLUMNS, PARTITIONS, AND WALLS ABUTTING OR EMBEDDED IN MASONRY.
C. PROVIDE CONTINUOUS BOND BEAMS WITH (2) #4 HORIZONTAL REINFORCEMENT IN ALL MASONRY WALLS AT EACH FRAMING LEVEL.
D. PROVIDE (2) #6 VERTICAL REINFORCEMENT FULL HEIGHT OF WALL AT ALL JAMB LOCATION UNLESS NOTED OTHERWISE.
E. AT COLUMNS LOCATIONS, ANCHOR MASONRY WALLS TO STEEL COLUMNS WITH FLEXIBLE WELD-ON TIES AT SPACING OF 16" MAX ALONG THE HEIGHT OF THE COLUMN.
F. ALL DOUBLE WYTHE CMU WALLS SHALL BE TIED TOGETHER WITH LADDER TYPE HORIZ. JOINT REINFORCING ENGAGING BOTH WYTHES AT 16" O.C. VERTICAL REINFORCING UNLESS NOTED OTHERWISE.
G. ALL TOP CONNECTIONS OF NON-LOAD BEARING MASONRY WALLS TO STRUCTURE MUST BE DETAILED TO PROVIDE A 1" SOFT JOINT FOR INDEPENDENT VERTICAL MOVEMENT OF THE PRIMARY STRUCTURAL MEMBER ABOVE (UNLESS NOTED OTHERWISE).
H. ALL BEARING WALLS AND ALL EXTERIOR MASONRY WALL SHALL BE REINFORCED WITH #5 AT 32" O.C. LOCATED IN THE CENTER OF THE CMU UNLESS NOTED OTHERWISE.
I. ALL CMU BEARING WALL CONSTRUCTION SHALL HAVE FULLY BEDDED MORTAR JOINTS, INCLUDING FACE SHELLS, HEADS AND WEBS.
J. ALL PIERS AND PARTITIONS SHALL BE BONDED OR ANCHORED TO ADJACENT MASONRY WALLS. PROVIDE TIES TO ADJACENT FLOOR AND ROOF CONSTRUCTION IN ACCORDANCE WITH DETAILS AND DRAWINGS.
K. IN MULTIPLE WYTHE WALLS (CAVITY AND COMPOSITE WALLS) BOND THE WYTHES TOGETHER WITH RIGID METAL TIES OR PREFABRICATED JOINT REINFORCEMENT CONFORMING TO ACI 530 / ASCE 5 REQUIREMENTS. COMPLETELY FILL ALL COLLAR JOINTS IN COMPOSITE WALLS WITH MORTAR OR GROUT.
R. GROUT SOLID ALL VERTICAL REINFORCED CELLS, CELLS BELOW GRADE, CELLS AT ANCHOR LOCATIONS, ALL BOND BEAMS WITH HORIZONTAL REINFORCING, ANY UN-REINFORCED CORES INDICATED TO RECEIVE GROUTING ON THE DRAWINGS, AND ALL TOP COURSES OF WALLS.
S. IN GROUTED AND/OR REINFORCED MASONRY WALLS, USE MASONRY UNITS WITH CORES THAT ALIGN VERTICALLY TO PROVIDE CONTINUOUS UNOBSTRUCTED CELLS FOR GROUTING AND REINFORCING STEEL PLACEMENT.
T. LAP SPLICES FOR DEFORMED REINFORCING BARS USED IN MASONRY CONSTRUCTION SHALL BE 48 BAR DIAMETERS.
U. ALL WALL SECTIONS AND PIERS LESS THAN 4 FEET SQUARE IN CROSS-SECTIONAL AREA TO BE FULLY GROUTED OR OF 100% SOLID MASONRY UNITS.
V. CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SUPPORT OF ALL MASONRY WORK UNTIL PERMANENT CONSTRUCTION IS IN PLACE.
W. SEE SPECIFICATIONS AND DETAILS FOR GENERAL CONTROL JOINT REQUIREMENTS. JOINTS ARE TO BE CONSTRUCTED IN ALL WALLS AND PARTITIONS.
X. THE CONTRACTOR SHALL VERIFY ALL OPENINGS BELOW LINTELS INDICATED ARE ADEQUATE TO ACCEPT DOOR FRAMES, LOUVERS, WINDOW FRAMES, ETC. AS SHOWN ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS. NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER OF ANY DISCREPANCIES PRIOR TO LINTEL INSTALLATION.
Y. SUBMIT SHOP DRAWINGS FOR DESIGNER'S APPROVAL INCLUDING COMPLETE BENDING AND PLACING DETAILS OF ALL REINFORCING STEEL INDICATING POSITION OF SPLICES AND LOCATION OF REINFORCEMENT AND GROUT IN THE MASONRY.

4.4 LINTELS
A. ALL OPENINGS IN NEW WALLS AND PARTITIONS ARE TO BE PROVIDED WITH LINTELS. LINTELS SHALL BE STONE, CONCRETE, OR STRUCTURAL STEEL. PROVIDE 4" MINIMUM END BEARING FOR LINTELS IN NON_BEARING PARTITIONS AND 8" MINIMUM END BEARING FOR LINTELS IN ALL EXTERIOR WALLS AND BEARING PARTITIONS. FOR ANY OPENING NOT SPECIFICALLY SHOWN, PROVIDE ONE 4" x 3 1/2" x 5/16" (LLV) ANGLE FOR EACH 4" OF WALL THICKNESS FOR SPANS NOT EXCEEDING 6'-0"; ONE 6" x 3 1/2" x 5/16" (LLV) ANGLE FOR EACH 4" OF WALL THICKNESS FOR SPANS EXCEEDING 6'-0" BUT LESS THAN 8'-0" OR PRECAST CONCRETE LINTELS AS DIRECTED BY THE ARCHITECT. PRECAST CONCRETE LINTELS SHALL HAVE ONE #4 TOP AND BOTTOM FOR EACH 4" OF WALL THICKNESS FOR SPANS NOT EXCEEDING 6'-0"; ONE #5 TOP AND BOTTOM FOR EACH 4" OF WALL THICKNESS FOR SPANS EXCEEDING 6'-0" BUT LESS THAN 8'-0". ALL PRECAST CONCRETE LINTELS SHALL ALSO BE REINFORCED WITH #2 WIRE TIES AT 8"o/c.
B. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF LINTELS. CONSULT STRUCTURAL ENGINEER FOR LINTEL REQUIREMENTS FOR ALL NEW OPENINGS IN EXISTING WALLS.
C. NO OPENINGS SHALL BE PLACED ABOVE ANY LINTEL WITHIN A HEIGHT LESS THAN OR EQUAL TO THE WIDTH OF THE CLEAR OPENING BELOW THE LINTEL, UNLESS DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.
D. CONTRACTOR SHALL SHORE ALL LINTELS AS REQUIRED TO PREVENT ROTATION DURING CONSTRUCTION AND SHALL PAY PARTICULAR ATTENTION TO ECCENTRICALLY LOADED LINTELS.
E. ALL BEAM LINTELS LARGER THAN W8 BEAMS TO HAVE ADJUST MASONRY ANCHORS ON EACH FACE OF WEBS SPACED AT 16" o/c.

4.4 INSPECTION AND TESTING:
A. THE OWNER SHALL ENGAGE A TESTING AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS PER LEVEL 3 QUALITY ASSURANCE OF ACI 530.
B. THE AGENCY SHALL CONTINUOUSLY MONITOR THE FOLLOWING FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS: PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT, THE PLACEMENT OF MASONRY UNITS, GROUT, REINFORCING, CONNECTORS, CONSTRUCTION OF MORTAR JOINTS, AND GROUT SPACE PRIOR TO GROUTING.
C. SUBMIT GROUT AND MORTAR MIX DESIGNS AND MASONRY UNIT AND MATERIAL CERTIFICATIONS TO THE STRUCTURAL ENGINEER FOR APPROVAL.
D. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS IN ACCORDANCE WITH THE MASONRY CODE.
E. THE CONTRACTOR SHALL PREPARE ONE SET OF PRISMS PER ASTM C-1314 FOR TESTING AT 7 DAYS AND ONE SET FOR TESTING AT 28 DAYS. TESTS ARE TO BE CONDUCTED BY THE AGENCY FOR EACH 5000 SQUARE FEET OF WALL INSTALLED, BUT NOT LESS THAN TWO TESTS.

PART 5A - STRUCTURAL STEEL

5A.1 CODES:
A. "STEEL CONSTRUCTION MANUAL", THIRTEENTH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. 2016, (INCLUDING THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, AND THE CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES).
B. "MANUAL OF STEEL CONSTRUCTION, VOLUME II CONNECTIONS", ASD 14TH EDITION, (LRFD 3RD EDITION) AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
C. "STRUCTURAL WELDING CODE - STEEL", AWS D1.1, AMERICAN WELDING SOCIETY.

5A.2 STRUCTURAL SHAPES:
A. WIDE FLANGE SHAPES: ASTM A992
B. ANGLES, PLATES AND CHANNELS: ASTM A36
C. STRUCTURAL PIPE: ASTM A53, TYPE E, GRADE B, FY=35 KSI OR ASTM A501
D. ROUND HSS SHAPES: ASTM A500, GRADE B, FY=42 KSI
E. STRUCTURAL TUBING: ASTM A500, GRADE B, FY=46 KSI

5A.3 FASTENERS, CONNECTORS:
A. HIGH STRENGTH BOLTS: ASTM A325-N (UNLESS DETAILED OTHERWISE) TENSION-CONTROL BOLTS ACCEPTABLE.
B. ANCHOR RODS: ASTM F1554, GRADE 36 (UNLESS DETAILED OTHERWISE)
C. SMOOTH OR THREADED ROD: ASTM A36
D. HEADED SHEAR STUDS: ASTM A108, GRADE 1015 OR 1020
E. WELDING ELECTRODES: CONFORM TO AWS SPECIFICATIONS FOR ELECTRODES BASED ON WELDING PROCESS AND THE TYPE AND GRADE OF STEEL. E70XX ELECTRODES (MIN.) FOR FILLET WELDS.
F. EXPANSION ANCHORS: HILTI KWIK BOLT 3 EXPANSION ANCHORS. INSTALL PER HILTI INSTALLATION RECOMMENDATIONS. UNLESS OTHERWISE NOTED EMBED BOLTS 10 BOLT DIAMETERS.
G. ADHESIVE ANCHORS: HILTI HVA OR HIT SYSTEM AS SPECIFIED OR DETAILED

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I certify that these documents were prepared or approved by me, and that I am a duly licensed engineer under the laws of the Commonwealth of Virginia, license number: 21184 ; expiration date: 12-31-2023.

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GENERAL NOTES

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5A.4 SHOP DRAWINGS:
- A. ERECTION AND DETAIL DRAWINGS.
- B. MILL TEST RECORDS.

5A.5 FABRICATION:
- A. SHOP FABRICATE TO GREATEST EXTENT POSSIBLE BY WELDING INCLUDING BEAM STIFFENERS, COLUMN CAPS AND BASES, HOLES AND CONNECTIONS. SUBMIT COMPLETE SHOP DRAWINGS FROM FIELD DIMENSIONS FOR THE ARCHITECT'S APPROVAL OF ALL STRUCTURAL STEEL PRIOR TO FABRICATION.
- B. PRIOR TO STARTING FABRICATION, CERTIFIED COPIES OF THE MILL TEST REPORTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW.

5A.6 ERECTION:
- A. PROVIDE ANCHOR RODS, STEEL WEDGES, THREADED SCREWS OR SHIMS TO SUPPORT AND PLUMB ALL COLUMNS. GROUT SOLID UNDER BASE PLATES IMMEDIATELY AFTER COLUMNS ARE PLUMB.
- B. PROVIDE BEARING PLATES AND WALL ANCHORS OR ANCHOR RODS FOR ALL BEAMS RESTING ON CONCRETE AND ALL OTHER NECESSARY CONNECTING HARDWARE. SET ANCHOR RODS USING TEMPLATE.
- C. DO NOT FIELD CUT OR FIELD MODIFY ANY STRUCTURAL STEEL WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER FOR EACH SPECIFIC CASE.
- D. THE GENERAL CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE. GAS CUTTING TORCHES SHALL NOT BE USED TO CORRECT FABRICATION ERRORS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
- E. PERMANENT FRAMING AND FINAL CONNECTION DETAILS ARE SHOWN ON THE DRAWINGS. THE FABRICATOR AND ERECTOR ARE RESPONSIBLE FOR THE DESIGN OF TEMPORARY BRACING AND RECOMMENDED ERECTION PROCEDURES.

5A.7 CONNECTIONS:
- A. ALL SHOP AND FIELD CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS OR WELDS. ALL HIGH STRENGTH BOLTS AND NUTS SHALL BE CLEARLY MARKED AS REQUIRED BY AISC SPECIFICATION. CONNECTIONS MADE WITH UNMARKED BOLTS AND NUTS WILL BE REJECTED.
- B. PROVIDE ACCESS FOR INSPECTION OF ALL SHOP AND FIELD CONNECTIONS FOR PROPER MATERIAL AND WORKMANSHIP.
- C. CONTRACTOR NOTE: ALTERNATE CONNECTION DESIGNS SHALL ONLY BE ALLOWED WITH PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. IF SUCH APPROVAL IS GRANTED, ALL CONNECTIONS, SPLICES AND ERECTION PIECES NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS (FABRICATOR'S REDESIGN) SHALL BE DESIGNED BY THE FABRICATOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED BEARING THE ENGINEER'S SEAL AND SIGNATURE.
- D. CONNECTIONS SHALL BE SELECTED FOR REACTIONS AS SHOWN ON PLANS AND AS DETAILED AND SCHEDULED. NO CONNECTION SHALL CONSIST OF LESS THAN (2) ¾ IN. DIAMETER A325-N BOLTS OR WELDS DEVELOPING LESS THAN 10,000 POUNDS (UNFACTORED). MINIMUM WELD: ⅜ IN. FILLET.
- E. UNLESS DETAILED OTHERWISE, ALL A325 BOLTS SHALL BE TIGHTENED TO THE 'SNUG TIGHT' CONDITION DEFINED AS THE TIGHTNESS ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. THE SNUG TIGHT CONDITION MUST ENSURE THAT THE PLIES OF THE CONNECTED MATERIALS HAVE BEEN BROUGHT INTO SNUG CONTACT.
- F. ALL A325 BOLTS SUBJECT TO DIRECT TENSION OR DESIGNED AS SLIP CRITICAL (NOTED SC IN DETAILS) SHALL BE PRE-TENSIONED IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS AS DESCRIBED IN THE AISC "MANUAL OF STEEL CONSTRUCTION": TURN-OF-NUT TIGHTENING, CALIBRATED WRENCH TIGHTENING, OR DIRECT TENSION INDICATOR TIGHTENING.
- G. WHEN INSTALLING EXPANSION BOLTS OR ADHESIVE ANCHORS, THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DRILLING OR CUTTING OF ANY EXISTING REINFORCING AND DESTRUCTION OF CONCRETE. ALL BOLTS AND ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
- H. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE IN ACCORDANCE WITH THE AISC AND AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING IS TO BE REPLACED OR REINFORCED AS ACCEPTABLE TO THE STRUCTURAL ENGINEER.
- I. WELDERS SHALL HAVE CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS. THE ENGINEER MAY REQUEST SUCH EVIDENCE AT ANY TIME DURING THE PROJECT.

5A.8 STEEL FINISH:
- A. PAINT: SHOP PRIME ALL STEEL NOT ENCASED IN CONCRETE OR NOT FIREPROOFED. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FINISH COAT REQUIREMENTS.
- B. ALL STEEL AT AND BELOW FINISHED GRADE OR FLOOR SLAB SHALL RECEIVE TWO (2) COATS OF BITUMINOUS PAINT OR 3 IN. MINIMUM CONCRETE COVER.
- C. ALL STRUCTURAL STEEL THAT IS LOCATED IN EXTERIOR UNHEATED SPACES AND WHICH IS EXPOSED FOR AESTHETICS, INCLUDING STEEL DIRECTLY EXPOSED TO WEATHER, SHALL BE POWER-TOOLED CLEANED AND PAINTED OR GALVANIZED ACCORDING TO DETAILS AND ARCHITECT'S SPECIFICATIONS.
- D. ALL STRUCTURAL STEEL THAT IS SUBJECT TO WETTING WITH SALT-LADEN WATER OR OTHER MILD CHEMICAL ATTACK SHALL BE COMMERCIALLY BLAST CLEANED AND PAINTED WITH THREE COATS OF EPOXY PAINT IN ACCORDANCE WITH THE STEEL STRUCTURES PAINTING COUNCIL SYSTEM SPECIFICATION NO. 13.01. A URETHANE TOPCOAT SHALL BE PROVIDED FOR ALL STEEL EXPOSED TO VIEW.

5A.9 FRAMING:
- A. BEAMS ARE EQUALLY SPACED, UNLESS DIMENSIONED OTHERWISE ON PLAN.
- B. CANTILEVER BEAMS ARE SAME SIZE AS BACKSPAN, UNLESS NOTED OTHERWISE ON PLAN.
- C. CAMBER INDICATED ON THESE DRAWINGS IS THE REQUIRED CAMBER AT THE TIME OF ERECTION BEFORE PLACEMENT OF DECK.
- D. CONCRETE SLABS THAT ARE PART OF COMPOSITE FLOOR FRAMING SYSTEMS SHALL ACHIEVE 28-DAY DESIGN STRENGTH PRIOR TO THE APPLICATION OF ANY SUPERIMPOSED SPANDREL OR EDGE OF SLAB LOADS SUCH AS CURTAIN WALLS, MASONRY VENEERS, AND STAIRS.

5A.10 INSPECTION AND TESTING:
- A. THE OWNER SHALL ENGAGE A TESTING AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS.
- B. STRUCTURAL STEEL:
  1. VISUALLY INSPECT ALL FILLET WELDS, BOLTED CONNECTIONS AND SHEAR STUDS.
  2. THE AGENCY SHALL MONITOR THE INSTALLATION OF BOLTS REQUIRING PRE-TENSIONING FOR CONFORMANCE WITH SPECIFIC PRE-CALIBRATED TIGHTENING PROCEDURES.
  3. EACH FULL PENETRATION BUTT OR GROOVE WELD AND FIFTY PERCENT OF PARTIAL PENETRATION WELDS SHALL BE TESTED BY THE ULTRASONIC METHOD.
  4. 10% OF ALL FIELD FILLET WELDS IN PRIMARY CONNECTIONS AND MULTI-PASS WELDS SHALL BE TESTED BY THE MAGNETIC PARTICLE METHOD.
  5. TEST ANY WELD WHICH VISUAL EXAMINATION INDICATES AN UNUSUAL CONDITION AND/OR POOR QUALITY.
  6. WELDING INSPECTION AND TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH THE AWS CODE.

PART 5B - STEEL DECK

5B.1 CODES:
- A. "DESIGN MANUAL FLOOR DECKS AND ROOF DECKS", STEEL DECK INSTITUTE.
- B. SDI CODE OF RECOMMENDED PRACTICE AND SPECIFICATIONS FOR COMPOSITE STEEL FLOOR DECK.
- C. AISI SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
- D. "STRUCTURAL WELDING CODE - STEEL", AWS D1.1, AMERICAN WELDING SOCIETY.
- E. "STRUCTURAL WELDING CODE - SHEET STEEL", AWS D1.3, AMERICAN WELDING SOCIETY.

5B.2 MATERIALS:
- A. GALVANIZED METAL DECK ASTM A653 (G90)

5B.3 GENERAL:
- A. DECK PROPERTIES ARE BASED ON PRODUCTS MANUFACTURED BY UNITED STEEL DECK, INC. (USD). DECKS BY OTHER MANUFACTURERS MAY BE SUPPLIED PROVIDED SECTION PROPERTIES ARE WITHIN 5% OF THOSE SPECIFIED AND IF APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
- B. PROVIDE STEEL DECK WITH THE FOLLOWING MINIMUM SECTION PROPERTIES:

	DECK TYPE	IP (IN^4)	SP(IN^3)	SN(IN^3)
1.	1½" DEEP - 22 GAGE, TYPE B, ROOF DECK	0.170	0.190	0.200

- C. INSTALL IN ACCORDANCE WITH SDI SUGGESTED SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS. INDIVIDUAL SHEETS SHALL EXTEND OVER AT LEAST THREE SPANS, WITH LAPS TO BE PLACED OVER SUPPORTS.
- D. EXCEPT WHERE NOTED ON PLANS, DECK SUPPLIER SHALL PROVIDE ALL ADDITIONAL FRAMING TO SUPPORT DECK AT OPENINGS THROUGH DECK AND ALL CLOSURE ANGLES AND PLATES WERE REQUIRED TO RESULT IN A COMPLETE INSTALLATION.
- E. USE WELDING WASHERS FOR DECK MATERIAL 0.028 IN. THICK OR LESS AND WHERE RECOMMENDED BY THE DECK MANUFACTURER.
- F. COMPOSITE DECKS SHALL BE WELDED TO ALL SUPPORTS INCLUDING THE EDGE SUPPORT PARALLEL TO THE DECK SPAN WITH 5/8 IN. DIAMETER (EFFECTIVE FUSION DIAMETER) PLUG WELDS OR HEADED STUDS WELDS AT 12 IN. O.C. FASTEN SIDE LAPS WITH 1½ IN. SEAM WELDS OR #10 SELF-TAPPING SCREWS AT 30 IN O.C. HEADED STUDS SHALL BE FIELD INSTALLED BY WELDING THROUGH THE METAL DECK.
- G. ROOF AND NON-COMPOSITE DECKS SHALL BE WELDED TO STEEL SUPPORTS, INCLUDING THE EDGE SUPPORT PARALLEL TO THE DECK SPAN WITH 5/8 IN. DIAMETER (EFFECTIVE FUSION DIAMETER) PLUG WELDS IN 36/4 PATTERNS. FASTEN SIDE LAPS WITH 1½" SEAM WELDS OR #10 SELF-TAPPING SCREWS AT A MAXIMUM SPACING OF 12" O.C.

5B.4 POUR STOPS/DECK CLOSURE:
- A. PROVIDE SHEET METAL POUR STOPS WITH THICKNESS BASED ON SDI CRITERIA (SDI PUBLICATION #29); 14 GAUGE MIN. THICKNESS.
- B. PROVIDE CELL CLOSURE AS REQUIRED.
- C. SEE ARCHITECTURAL DRAWINGS FOR DECKS EDGES AT ROOFING CONDITIONS.

PART 5C - STEEL JOISTS 5C.1 CODES:
- A. "STANDARD SPECIFICATIONS FOR OPEN WEB STEEL, K-SERIES JOIST", STEEL JOIST INSTITUTE.
- B. "STANDARD SPECIFICATIONS FOR LONGSPAN STEEL JOISTS, LH-SERIES AND DEEP LONGSPAN STEEL JOISTS, DLH-SERIES", STEEL JOIST INSTITUTE.
- C. "STANDARD SPECIFICATION FOR JOIST GIRDERS", STEEL JOIST INSTITUTE.

5C.2 STEEL JOISTS:
- A. PROVIDE OPEN-WEB STEEL JOISTS CONFORMING TO THE REQUIREMENTS OF THE SJI. FOR SIZE, TYPE, LENGTH AND SPACING SEE THE CONTRACT DOCUMENTS. PROVIDE BOTTOM CHORD EXTENSIONS AT ALL COLUMNS AND WHERE SPECIFIED BY THE ARCHITECTURAL DRAWINGS.

5C.3 UPLIFT:
- A. DESIGN AND ANCHOR ROOF JOISTS TO RESIST A MINIMUM UPLIFT OF 15 PSF. JOIST MANUFACTURER SHALL PROVIDE ADDITIONAL BRIDGING AS NEEDED TO BRACE THE BOTTOM CHORD, INCLUDING THE FIRST PANEL POINT FROM THE SUPPORT, TO RESIST ASSOCIATED COMPRESSION STRESSES.

5C.4 BRIDGING:
- A. PROVIDE BRIDGING AND CROSS-BRACING CONFORMING TO THE REQUIREMENTS OF THE SJI. JOIST SUPPLIER TO PROVIDE CONNECTIONS FOR CROSS BRACING. ALL BRIDGING, BRIDGING ANCHORS AND JOIST SEATS SHALL BE COMPLETELY INSTALLED PRIOR TO THE APPLICATION OF ANY CONSTRUCTION LOADS.

5C.5 CONCENTRATED LOADS:
- A. APPLY SUSPENDED OR ROOF TOP CONCENTRATED LOADS AT PANEL POINTS OR PROVIDE SUPPLEMENTAL FRAMING TO TRANSFER LOADS TO PANEL POINTS.

5C.6 PAINT:
- A. SHOP PAINT JOISTS.

PART 5D - STRUCTURAL COLD FORMED METAL FRAMING (CFMF)

5D.1 CODES:
- A. "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", AMERICAN IRON AND STEEL INSTITUTE.
- B. "STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS", AMERICAN IRON AND STEEL INSTITUTE.

5D.2 MATERIALS:
- A. STEEL SHEET: ASTM A 1003, STRUCTURAL GRADE, TYPE H, METALLIC COATED, OF GRADE AND COATING WEIGHT AS FOLLOWS:
  1. GRADE: AS REQUIRED BY STRUCTURAL PERFORMANCE.
  2. COATING: G90.
- B. STEEL SHEET FOR VERTICAL DEFLECTION CLIPS: ASTM A 653, STRUCTURAL STEEL, ZINC COATED, OF GRADE AND COATING AS FOLLOWS:
  1. GRADE: AS REQUIRED BY STRUCTURAL PERFORMANCE.
  2. COATING: G90.

5D.3 ANCHORS, CLIPS, AND FASTENERS
- A. STEEL SHAPES AND CLIPS: ASTM A 36, ZINC COATED BY HOT-DIP PROCESS ACCORDING TO ASTM A 123.
- B. ANCHOR BOLTS: ASTM F 1554, GRADE [36] [55], THREADED CARBON-STEEL [HEX-HEADED BOLTS] [HEADLESS, HOOKED BOLTS] [HEADLESS BOLTS, WITH ENCASED END THREADED,] AND CARBON-STEEL NUTS; AND FLAT, HARDENED-STEEL WASHERS; ZINC COATED BY [HOT-DIP PROCESS ACCORDING TO ASTM A 153, CLASS C] [MECHANICALLY DEPOSITION ACCORDING TO ASTM B 695, CLASS 50].
- C. EXPANSION ANCHORS: HILTI KWIK BOLT 3 EXPANSION ANCHORS. INSTALL PER HILTI INSTALLATION RECOMMENDATIONS. UNLESS OTHERWISE NOTED EMBED BOLTS 10 BOLT DIAMETERS.
- D. POWDER-ACTUATED ANCHORS: MANUFACTURED BY HILTI OR APPROVED EQUAL.
- E. MECHANICAL FASTENERS: ASTM C 1513, CORROSION-RESISTANT-COATED, SELF-DRILLING, SELF-TAPPING STEEL DRILL SCREWS.
  1. HEAD TYPE: LOW-PROFILE HEAD BENEATH SHEATHING, MANUFACTURER'S STANDARD ELSEWHERE.
- F. WELDING ELECTRODES: COMPLY WITH AWS STANDARDS.

5D.4 FRAMING SIZES:
- A. FRAMING MEMBERS SHALL BE OF THE TYPE AND GAUGE CALLED FOR ON THE DRAWINGS AND IN THE SPECIFICATIONS.

5D.5 FRAMING SIZES:
- A. THE CONTRACTOR SHALL DESIGN THE COLD FORMED METAL FRAMING SYSTEMS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS AND SUBMIT SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS. THE FRAMING SYSTEMS SHALL CONFORM TO THE CONCEPTS INDICATED ON THE DRAWINGS AND WITH THE MINIMUM SIZES AND GAUGES INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
- B. COLD-FORMED STEEL FRAMING DESIGN, GENERAL: DESIGN ACCORDING TO AISI'S "STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS."
  1. HEADERS: DESIGN ACCORDING TO AISI'S "STANDARD FOR COLD-FORMED STEEL FRAMING - HEADER DESIGN."
  2. DESIGN EXTERIOR NON-LOAD-BEARING WALL FRAMING TO ACCOMMODATE HORIZONTAL DEFLECTION WITHOUT REGARD FOR CONTRIBUTION OF SHEATHING MATERIALS.
  3. ROOF TRUSSES: DESIGN ACCORDING TO AISI'S "STANDARD FOR COLD-FORMED STEEL FRAMING - TRUSS DESIGN."

5D.6 GENERAL:
- A. DESIGN OF ALL COLD-FORMED METAL FRAMING SYSTEMS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE BY THE FABRICATOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. CALCULATIONS AND SHOP DRAWINGS CONSISTING OF FRAMING PLANS, ELEVATIONS, AND DETAILS SHALL BE SUBMITTED BEARING THIS ENGINEER SEAL AND SIGNATURE.
- B. MEMBER DESIGNATIONS AND PROPERTIES ARE BASE ON DIETRICH INDUSTRIES, INC. STEEL FRAMING CATALOGUE. FRAMING BY OTHER MANUFACTURERS MAY BE SUPPLIED PROVIDED SECTION PROPERTIES EQUAL OR EXCEED THOSE SPECIFIED AND IF APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
- C. CONTENTS OF THESE STRUCTURAL DOCUMENTS SHOW THE INTENDED APPLICATION OF COLD-FORMED FRAMING COMPONENTS.
- D. ALL DIMENSIONS SHOWN ON THE STRUCTURAL DOCUMENTS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND MECHANICAL DOCUMENTS PRIOR TO CONSTRUCTION OR FABRICATION.
- E. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS OR AS REQUIRED FOR AN ANGULAR FIT AGAINST ABUTTING MEMBERS. MEMBERS SHALL BE HELD POSITIVELY IN PLACE UNTIL PROPERLY FASTENED.
- F. ALL FIELD CUTTING OF STUDS MUST BE DONE BY SAWING OR SHEARING. TORCH CUTTING OF COLD-FORMED MEMBERS IS UNACCEPTABLE.
- G. SPLICES IN STUDS, JOISTS, OR OTHER LOAD CARRYING MEMBERS ARE NOT PERMITTED.
- H. ALL STRUCTURAL COLD-FORMED METAL FRAMING (EXCLUDING STUDS) MEMBERS SHALL BE UN-PUNCHED UNLESS SPECIFICALLY NOTED OTHERWISE.
- I. FOR AXIAL LOAD BEARING CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ADEQUATE WALL BRACING/BRIDGING IS IN PLACE PRIOR TO LOADING THESE MEMBERS AND UNTIL SHEATHING IS PROPERLY ATTACHED TO BOTH STUD FLANGES. CONTRACTOR SHALL NOT OVERLOAD BEARING MEMBERS DURING CONSTRUCTION.
- J. CONNECTIONS SHALL BE BY WELDING, SCREWING, OR OTHER APPROVED FASTENING DEVICES OR METHODS PROVIDING POSITIVE ATTACHMENT AND RESISTANCE TO LOOSENING. FASTENERS SHALL BE OF COMPATIBLE MATERIAL. WHENEVER POSSIBLE, CONNECTIONS SHALL FOLLOW THE RECOMMENDATIONS MADE BY THE METAL LATH AND STEEL FRAMING ASSOCIATION. THE CONTRACTOR SHALL CONFIRM THAT THE FASTENERS THEY INTEND TO USE MEETS OR EXCEEDS THE DESIGN VALUES SHOWN IN THE SUBMITTED CALCULATIONS.
- K. TOUCH-UP ALL WELDS (IF USED) WITH ZINC RICH PAINT.
- L. FOR FASTENERS PROVIDE THE MINIMUM CLEARANCES, FASTENER SPACING, AND EDGE DISTANCE AS NOTED BELOW, UNLESS OTHERWISE NOTED OR DETAILED:

	FASTENER TYPE	SPACING	EDGE DISTANCE
1.	SCREWS:	½ IN.	½ IN.
2.	POWDER DRIVEN FASTENERS (STEEL):	1½ IN.	½ IN.
3.	POWDER DRIVEN FASTENERS (CONCRETE):	4 IN.	3 IN.

- M. ALTERNATE CONNECTION DESIGNS SHALL ONLY BE ALLOWED WITH PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. IF SUCH APPROVAL IS GRANTED, ALL CONNECTIONS AND/OR DETAILS NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS SHALL BE PREPARED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED BEARING THE ENGINEER'S SEAL AND SIGNATURE.
- N. DESIGN OF TRUSSES, TRUSS TEMPORARY AND PERMANENT BRACING, AND DETAILING OF TRUSS CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE BY THE FABRICATOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. CALCULATIONS AND SHOP DRAWINGS CONSISTING OF TRUSS LAYOUT PLANS AND DETAILS SHALL BE SUBMITTED BEARING THIS ENGINEER'S SEAL AND SIGNATURE.
- O. THE CONTRACTOR SHALL SUBMIT FOR REVIEW DRAWINGS AND CALCULATIONS, SIGNED AND SEALED BY A STRUCTURAL ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION, FOR THE EXTERIOR COLD-FORMED METAL CURTAIN WALL SYSTEM AND RELATED CONNECTIONS. THE DESIGN SHALL TAKE INTO ACCOUNT ALL VERTICAL AND LATERAL LOADS REQUIRED BY THE APPLICABLE BUILDING CODES. THIS REVIEW SHALL BE FOR GENERAL CONFORMANCE WITH THE PROJECTS PARAMETERS AS INDICATED ON THE DRAWINGS AND IN THE GENERAL NOTES. THE DESIGN OF THIS SYSTEM IS THE RESPONSIBILITY OF THE ENGINEER WHO HAS SIGNED AND SEALED THE SHOP DRAWINGS AND CALCULATIONS.
  1. BACK UP SYSTEMS AND CURTAIN WALLS SHALL BE DESIGNED FOR A MAXIMUM DEFLECTION OF L/600 OF THE SPAN IN INCHES, OR ⅜ IN., WHICHEVER IS LESS, FOR THE APPLICABLE DESIGN WIND LOAD. THE SUBMITTED CALCULATIONS SHALL CLEARLY SHOW THE LOAD REACTIONS AS APPLIED TO THE BUILDING STRUCTURE.

PART 3 - FOUNDATIONS / EARTHWORK / GEOTECHNICAL REPORT

31.1 REFERENCE GEOTECHNICAL REPORT:
- A. FOUNDATION DESIGN IS IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT PREPARED BY TIM STOWE, PE, DATED MARCH 28, 2023, AUTHOR'S REPORT NUMBER 07-23-0023.
- B. FOUNDATIONS HAVE BEEN DESIGNED WITH A BEARING CAPACITY OF 2,000 PSF PER THE MAXIMUM ALLOWED BEARING PRESSURE PER THE GEOTECHNICAL REPORT.
- C. ALL FOUNDATIONS SHALL BEAR A MINIMUM OF 36" BELOW ADJACENT EXTERIOR GRADE. THE CONTRACTOR SHALL COORDINATE THESE REQUIREMENTS WITH ALL UNDERGROUND UTILITIES, TUNNELS, ETC. AND NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER IN ADVANCE OF ANY CONSTRUCTION TO ALLOW FOR ADJUSTMENTS.
- D. SEE THE SPECIFICATIONS AND GEOTECHNICAL REPORT REQUIREMENTS FOR EXCAVATION, SUITABILITY AND REPLACEMENT OF THE BEARING MATERIAL, AND PREPARATION OF THE SUBGRADE FOR THE FOUNDATIONS AND THE SLAB ON GRADE, INCLUDING COMPACTION PROCEDURES.
- E. IN THE ABSENCE OF A GEOTECHNICAL REPORT AND DIRECTION, IF UNSUITABLE BEARING MATERIAL IS FOUND, THE POOR MATERIAL SHOULD BE REMOVED AND REPLACED WITH LEAN CONCRETE.
- F. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK/ CONTRACT DOCUMENTS.
- G. REFER TO GEOTECHNICAL REPORT FOR UNDER-SLAB DRAINAGE SYSTEM.
- H. IF UNSUITABLE BEARING MATERIAL IS DISCOVERED THE GEOTECHNICAL ENGINEER SHALL BE ALERTED

31.2 FOUNDATION DESIGN PARAMETERS
- A. SPREAD FOOTINGS:
  1. BUILDING SPREAD AND STRIP FOOTINGS SHALL BEAR ON UNDISTURBED NATURAL SOILS OR PROPERLY PLACED AND COMPACTED ENGINEERED FILL WITH AN ALLOWABLE BEARING PRESSURE OF 2,000 PSF.

31.3 EXCAVATION:
- A. THE SLOPE BETWEEN THE LOWER EDGES OF ADJACENT FOUNDATIONS SHALL NOT EXCEED 30 DEGREES REFERENCED FROM THE HORIZONTAL, UNLESS NOTED OR DETAILED OTHERWISE ON THE PLAN. MAINTAIN A 1V:2H SLOPE FROM BOTTOM EDGE OF ANY EXCAVATION.
- B. THE CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM AS SHOWN PRIOR TO STARTING WORK. CONTRACTOR SHALL COORDINATE THE EXTENT OF THE EXCAVATION, SHORING AND BRACING WITH THE CIVIL ENGINEERS'S DRAWING AND REFER TO THOSE DRAWINGS AND SPECIFICATIONS FOR RELATED INFORMATION NOT COVERED IN THE STRUCTURAL DRAWINGS.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES, ABOVE AND BELOW GRADE STRUCTURES, ETC,. WHETHER INDICATED OR NOT, THAT MAY BE AFFECTED BY THE CONSTRUCTION PROCESS.
- D. UTILITIES LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL UNLESS DETAILED OTHERWISE IN THE PLANS.
- E. ALL SHORING, TEMPORARY BRACED EXCAVATION (INCLUDING STAGED UNDERPINNING PITS), SHEETING AND DEWATERING SHALL BE THE TOTAL RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR'S ENGINEER, REGISTERED IN THE PROJECT'S JURISDICTION, SHALL DESIGN THE SHEETING AND SHORING, AND BRACED EXCAVATION AND PROVIDE SIGNED AND SEALED SUBMITTALS FOR REVIEW.

PART 3 - FOUNDATIONS / EARTHWORK / GEOTECHNICAL REPORT]CONTINUED

31.4 BACKFILL UNDER SLAB ON GRADE:
- A. BACKFILL WHERE REQUIRED BELOW SLABS WITH APPROVED GRANULAR SOIL PLACED IN 6 IN. LAYERS AND COMPACTED TO 95% DENSITY AT OPTIMUM MOISTURE CONTENT AS DEFINED BY ASTM D-1557, METHOD D.
- B. FOLLOWING REQUIRED STRIPPING OPERATIONS, ANY PROOFROLLING SHALL BE AS DIRECTED BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER. THE PURPOSE OF PROOFROLLING WILL BE TO LOCATE ANY ISOLATED AREAS OF SOFT OR LOOSE SOILS REQUIRING IMPROVEMENT OR REPLACEMENT. SOFT AREAS SHALL BE UNDERCUT AND REPLACED WITH PROPERLY COMPACTED MATERIALS.

31.5 BACKFILL AGAINST WALLS:
- A. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL WALL CONCRETE IS AT FULL DESIGN STRENGTH. BACKFILL WITH APPROVED MATERIAL PLACED IN 6 IN. LAYERS AND COMPACTED TO 95% DENSITY AT OPTIMUM MOISTURE CONTENT AND FREE OF DEBRIS AS DEFINED BY ASTM D-1557, METHOD D.
- B. NO BACKFILL MATERIAL SHALL BE PLACED AGAINST FOUNDATION WALLS UNTIL THE WALL HAS ATTAINED 75% OF ITS DESIGN STRENGTH AND THE UPPER BRACING FLOORS ARE IN PLACE FOR AT LEAST 7 DAYS, OR ADEQUATE BRACING IS INSTALLED. THE CONTRACTOR'S ENGINEER, REGISTERED IN THE PROJECT'S JURISDICTION, SHALL DESIGN THE BRACING AND PROVIDE SIGNED AND SEALED SUBMITTALS FOR REVIEW.
- C. WHERE THE FINAL GRADE ELEVATIONS ARE APPROXIMATELY EQUAL ON BOTH SIDES OF A WALL, BACKFILL IN LIFTS TO MAINTAIN LEVEL ELEVATIONS WITHIN 12 IN. ON BOTH SIDES AT ANY TIME.

31.6 FOUNDATION PLACEMENT & PROTECTION:
- A. DO NOT PLACE FOUNDATION CONCRETE IN WATER OR ON FROZEN GROUND. PROTECT IN-PLACE FOUNDATIONS AND SLABS FROM FROST PENETRATION UNTIL THE PROJECT IS COMPLETE. DO NOT USE SALT OR CHLORIDE COMPOUNDS TO DE-ICE THE SITE.
- B. NEW FOOTING BEARING ELEVATION IS TO MATCH ADJACENT EXISTING FOOTING BEARING ELEVATION WHERE APPLICABLE UNLESS NOTED OR DETAILED OTHERWISE ON PLAN.
- C. CONCRETE FOR FOUNDATIONS SHALL BE POURED ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER.
- D. BEARING ELEVATIONS INDICATED ON THE DRAWINGS ARE ESTIMATED FROM SOIL BEARING DATA INDICATED IN THE GEOTECHNICAL REPORT. PRIOR TO PLACING FOUNDATIONS, AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER SHALL FIELD VERIFY ALLOWABLE BEARING PRESSURES AND DETERMINE FINAL BEARING ELEVATIONS.

31.7 STRUCTURAL FILL:
- A. REFER TO SPECIFICATIONS AND GEOTECHNICAL REPORT REQUIREMENTS FOR COMPACTED STRUCTURAL FILL. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK. INSPECTION OF THE PLACEMENT OF COMPACTED STRUCTURAL FILL SHALL BE BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER.

31.8 BELOW GRADE WALL DRAINAGE:
- A. THE BELOW-GRADE AREAS FOR THE STRUCTURE SHOULD BE PROVIDED WITH A PERIMETER DRAINAGE SYSTEM BELOW-GRADE WALL WATERPROOFING SEE ARCH DWGS.

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I certify that these documents were prepared or approved by me, and that I am a duly licensed engineer under the laws of the Commonwealth of Virginia, license number: 21184 ; expiration date: 12-31-2023.

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GENERAL NOTES

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1704.3 STATEMENT OF SPECIAL INSPECTIONS.

THE CONTRACTOR OR BUILDING OWNER SHALL RETAIN AN APPROVED THIRD PARTY AGENCY TO PERFORM SPECIAL INSPECTIONS. SPECIAL INSPECTIONS AND REPORTING SHALL CONFORM TO CHAPTER 17 OF THE 2018 INTERNATIONAL BUILDING CODE.

1704.2.5 SPECIAL INSPECTION OF FABRICATED ITEMS. WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION.

1705.2.1 STRUCTURAL STEEL. SPECIAL INSPECTIONS AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURES AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360.

1705.3 CONCRETE CONSTRUCTION. SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION AND TABLE 1705.3.

TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION		REFERENCE CRITERIA	
	CONTINUOUS	PERIODIC	REFERENCE STANDARD	IBC REFERENCE
1. INSPECTION OF REINFORCING STEEL.	-	X	ACI 318 CH. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A 706; b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS.	- - X	X X -	AWS D1.4 ACI 318:26.5.4	-
3. INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X -	- X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	-
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.4.5, 26.12	1908.10
7. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.4.7-26.4.9	1908.9
9. ERECTION OF PRECAST CONCRETE MEMBERS.	-	X	ACI 318: CH. 26.8	-
10. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	--	X	ACI 318: 26.10.1(b)	-

1. THE AGENCY SHALL INSPECT THE FORMWORK AND REINFORCING STEEL PLACEMENT FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHOP DRAWINGS. THE AGENCY SHALL MONITOR ALL STRUCTURAL CONCRETE PLACEMENT FOR CONFORMANCE WITH APPLICABLE ACI REQUIREMENTS.
2. SAMPLE FRESH CONCRETE IN ACCORDANCE WITH ASTM C172. MOLD TEST CYLINDERS IN ACCORDANCE WITH ASTM C31.
3. THE FOLLOWING NUMBER OF TEST CYLINDERS SHALL BE CAST FOR EACH DAY'S POUR OR EACH 50 CUBIC YARDS, WHICHEVER RESULTS IN MORE TEST CYLINDERS.
   a. FOR FOOTINGS AND OTHER STRUCTURAL CONCRETE:
      LAB CURED 2@7 DAYS, 2@28 DAYS
4. THE AGENCY WILL MAKE ADDITIONAL TESTS OF IN-PLACE CONCRETE AT THE CONTRACTOR'S EXPENSE WHEN THE TEST RESULTS INDICATE SPECIFIED CONCRETE STRENGTHS HAVE NOT BEEN ATTAINED, AS DIRECTED BY THE STRUCTURAL ENGINEER.

1705.6 SOILS. SPECIAL INSPECTIONS AND TESTS OF EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH THIS SECTION AND TABLE 1705.6. THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE. DURING FILL PLACEMENT, THE SPECIAL INSPECTOR SHALL VERIFY THAT PROPER MATERIALS AND PROCEDURES ARE USED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT.

TABLE 1705.6
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION	
	CONTINUOUS	PERIODIC
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY, BY INSTALLATION OF RAMMED AGGREGATE PIERS.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

1705.4 MASONRY CONSTRUCTION. SPECIAL INSPECTIONS AND TESTS OF LEVEL C MASONRY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE QUALITY ASSURANCE PROGRAM REQUIREMENTS OF TMS 402/ACI 530/ASCE 5 AND TMS 602/ACI 530.1/ASCE 6.

ABBREVIATION	WORD OR PHRASE
ASD	ALLOWABLE STRESS DESIGN
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
AWS	AMERICAN WELDING SOCIETY
ARCH	ARCHITECT
@	AT RATE OF
BP	BASE PLATE
B OR BOT	BOTTOM
BM	BEAM
CANT	CANTILEVER
CIP	CAST-IN-PLACE
CL	CENTERLINE
CLR	CLEAR
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CONT	CONTINUOUS
DIA	DIAMETER
DIM	DIMENSION
DWLS	DOWELS
DWG	DRAWING
EA	EACH
EE	EACH END
EF	EACH FACE
ES	EACH SIDE
EW	EACH WAY
EL	ELEVATION
EQ	EQUAL
EX OR (E)	EXISTING
FT	FEET
GALV	GALVANIZED
GA	GAGE
GR	GRADE
HSS	HOLLOW STRUCTURAL SECTION
IN	INCH
INFO	INFORMATION
IBC	INTERNATIONAL BUILDING CODE
JT	JOINT
K	KIP (1000 POUNDS)
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
LW	LIGHTWEIGHT
LRFD	LOAD & RESISTANCE FACTOR DESIGN
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MFR	MANUFACTURER
MATL	MATERIAL
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
NO OR #	NUMBER
OC	ON CENTER
LB OR #	POUND
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REF	REFERENCE
REINF	REINFORCE OR REINFORCEMENT
SECT	SECTION
SF	STEP FOOTING
SIM	SIMILAR
SOG	SLAB-ON-GRADE
SQ	SQUARE
STD	STANDARD
STL	STEEL
SDI	STEEL DECK INSTITUTE
STIFF	STIFFENER
T	TOP
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V OR VERT	VERTICAL
WWR	WELDED WIRE REINFORCEMENT
W/	WITH

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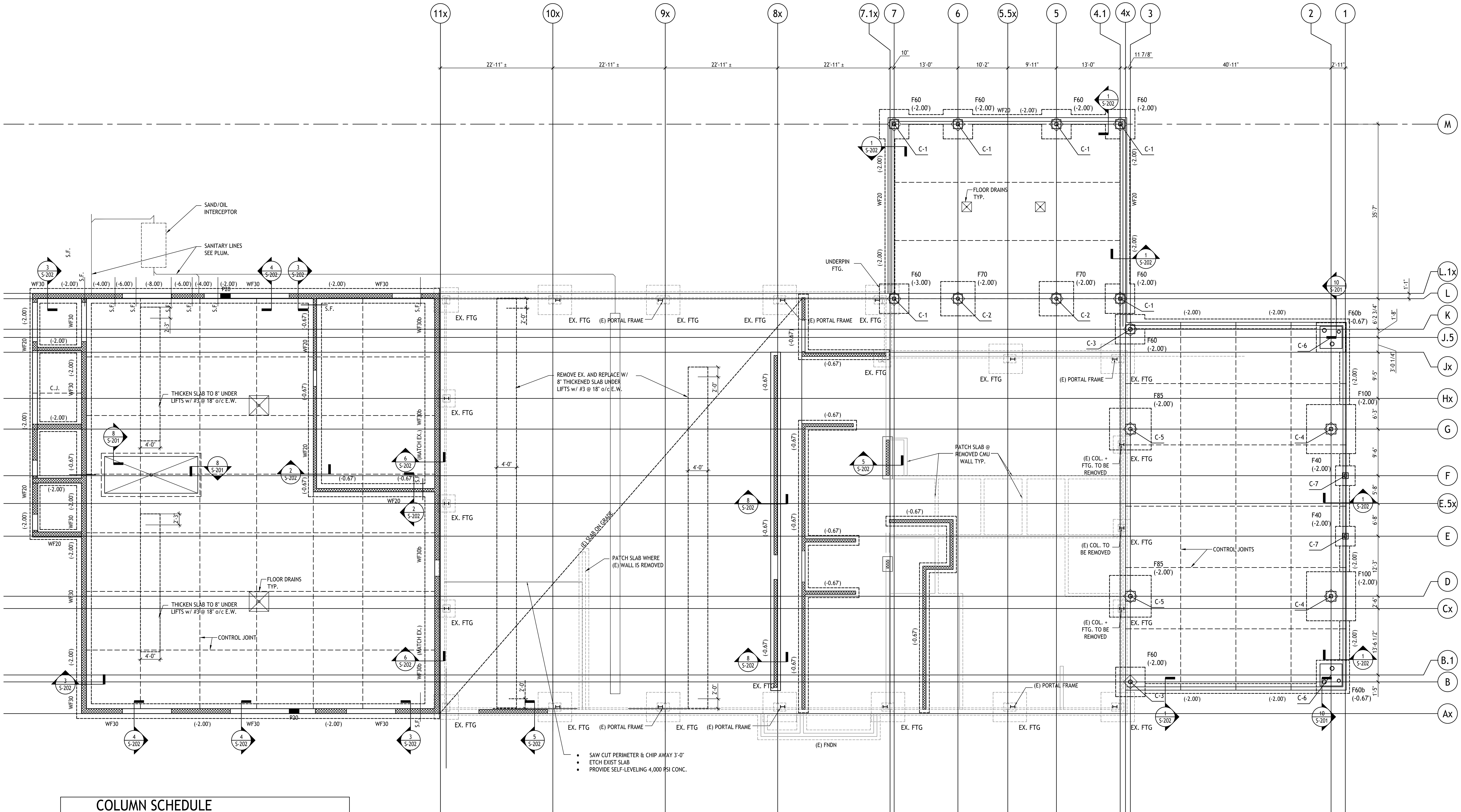
SPEC. INSPECT. & ABBREV.

Project Number: 23-045DL-CMA HYUNDAI-PDG
File Name: 23-045DL-CMA Hyundai Winchester-PDG S-001X_GENERAL NOTES.dwg



COLUMN SCHEDULE

LEVEL \ COLUMN NUMBER	C-1	C-2	C-3	C-4	C-5	C-6	C-6.1	C-6.2	C-6.3	C-7
SHOW RECEP.										
ROOF VARIES / SERVICE ROOF										
VARIES / PORTAL FRAME										
F.F. = 0'-0"	HSS 8 X 8 X 1/2"	HSS 8.625 X 5/8"	HSS 10 X 0.375"	HSS 12 X 12 X 5/8"	HSS 12 X 0.500"	(3) HSS COL. SEE C-4.1-4.3	HSS 10 X 1/2"	HSS 8.63 X 1/4"	HSS 7.63 X 3/8"	HSS 8 X 6 X 3/8"
TOP OF BASE PLATES	1" x 16" x 16"	1 1/4" x 16" x 16"	1 1/2" x 18" x 18"	1 1/2" x 20" x 20"	1 1/2" x 20" x 20"	2" x 48" x 48"				1 1/2" x 20" x 20"
CONC. PIERS	20" x 20" CONC. REINF W/(8) #6 VERTS + #3 TIES @ 8"o/c	20" x 20" CONC. REINF W/(8) #6 VERTS + #3 TIES @ 8"o/c	22" x 22" CONC. REINF W/(8) #8 VERTS + #3 TIES @ 8"o/c	24" x 24" CONC. REINF W/(8) #8 VERTS + #3 TIES @ 8"o/c	24" x 24" CONC. REINF W/(8) #8 VERTS + #3 TIES @ 8"o/c					20" x 20" CONC. REINF W/(8) #6 VERTS + #3 TIES @ 8"o/c
SEE PLAN FOR LOCATION										

A FOUNDATION PLAN

1/8" = 1'-0"

NOTES
1. REFERENCE ELEVATION MEASURED FROM FIRST FLOOR DATUM = (-0.00') ACTUAL ELEVATION +XX.XX'
2. INSTALL NEW 5" THICK CONCRETE SLAB (f'c = 4000 PSI) REINFORCED WITH 6x6 - W2.9/W2.9 WELDED WIRE REINFORCING OVER 20 MIL. POLY OVER 4" #57 STONE. SEE ARCH DWGS FOR SLOPE. SEE DETAILS ON S201 FOR SLAB CONSTRUCTION AND JOINT TYPES. PROVIDE CONTROL JOINTS AT 15'-0" OC MAX. PROVIDE 3/8" EXPANSION JOINT AT ALL NEW SLAB TO WALL INTERFACES. SEE DETAILS 1 AND 2 ON S201 FOR SLAB DETAILS. SLOPE SLAB AND COORDINATE TRENCH DRAINS PER ARCH DRAWINGS.
3. SOIL BEARING VALUE OF 2,000 PSF AND 2,000 PSF FOR CONTINUOUS FOOTINGS AND SPREAD FOOTINGS, RESPECTIVELY. SHALL BE VERIFIED IN FIELD PRIOR TO CONSTRUCTION BY A VIRGINIA REGISTERED GEOTECHNICAL ENGINEER.
4. TOP OF FOOTING ELEVATIONS SHOWN ON PLAN ARE ELEVATED FROM TOP OF SLAB.
5. PROVIDE BACKER ROD AND SEALANT OVER ALL INTERIOR EXPANSION JOINTS.

COLUMN FOOTING SCHEDULE

3000 PSI NW CONCRETE. SAFE BEARING PRESSURE = 2100 PSF

MARK	SIZE	THICKNESS	REINFORCING EACH WAY (BOTTOM)
F40	4'-0" x 4'-0"	12"	(5) #5
F60	6'-0" x 6'-0"	12"	(7) #5
F60b	6'-0" x 6'-0"	24"	(7) #5
F70	7'-0" x 7'-0"	14"	(8) #6
F85	8'-6" x 8'-6"	14"	(9) #6
F10	10'-0" x 10'-0"	16"	(11) #6

WALL FOOTING SCHEDULE

3000 PSI NW CONCRETE. SAFE BEARING PRESSURE = 5000 PSF

MARK	WIDTH	THICKNESS	REINFORCING
WF2.0	2'-0"	12"	BOTTOM: #5 @ 12" OC TRANSVERSE, 2- #5x CONT LONGITUDINAL
WF3.0	3'-0"	12"	BOTTOM: #5 @ 12" OC TRANSVERSE, 3- #5 x CONT LONGITUDINAL
WF3.0b	3'-0"	20"	BOTTOM: #5 @ 12" OC TRANSVERSE, 3- #5 x CONT LONGITUDINAL

NOTES:
1. CENTER WALL ON FOOTINGS U.N.O.
2. STEP FOOTINGS 2 HORIZONTAL : 1 VERTICAL PER TYPICAL DETAIL.
3. PROVIDE WALL DOWELS IN FOOTINGS PER DETAILS.

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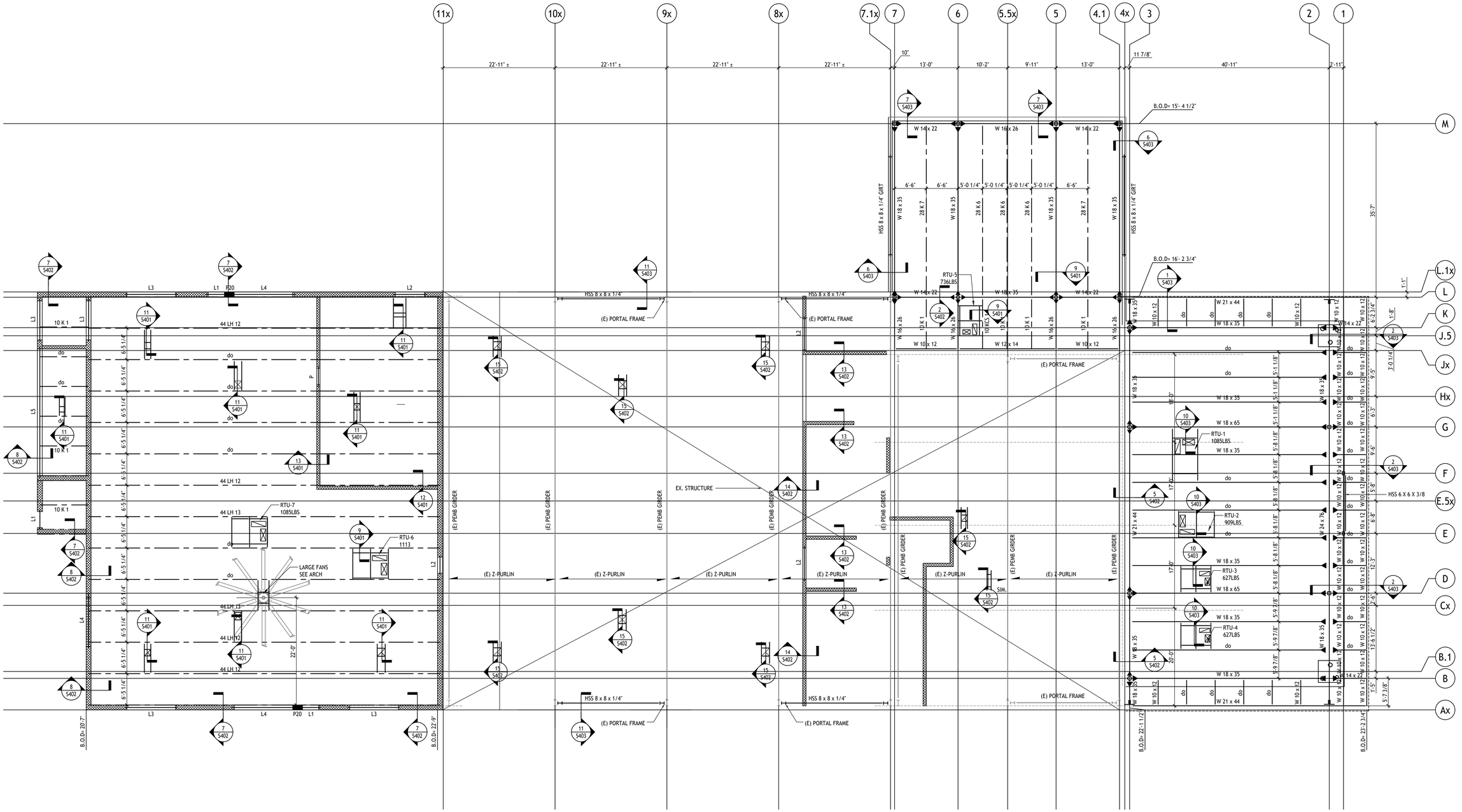
FOUNDATION PLAN

Project Number	File Name
23-045DL-CMA HYUNDAI-PDG	23-045DL-CMA Hyundai Winchester-PDG S-100X_FOUNDATION PLAN.dwg



LINTEL SCHEDULE

MARK	SIZE	REMARKS
L-1	L4 x 3 1/2 x 5/16" FOR EACH 4" THICKNESS OF WALL	FOR OPENINGS UP TO 5'-0"
L-2	L6 x 3 1/2 x 5/16" FOR EACH 4" THICKNESS OF WALL	FOR OPENINGS 5'-1" TO 10'-0"
L-3	W 14 x 22 + 5/16" SUS. PLATE w/ 1/4" HANGERS @ 16" o/c.	AS SHOWN
L-4	W 16 x 26 + 5/16" SUS. PLATE w/ 1/4" HANGERS @ 16" o/c.	AS SHOWN
L-5	W 21 x 48 + 5/16" SUS. PLATE w/ 1/4" HANGERS @ 16" o/c.	AS SHOWN
P	8" PRECAST CONC. WITH #5 T + B FOR EACH 4" WYTHE OF MAS.	AS SHOWN

USE L-1 U.N.O.

ALL OPENINGS IN WALLS AND PARTITIONS ARE TO BE PROVIDED WITH LINTELS. LINTELS SHALL BE STRUCTURAL STEEL OR PRECAST CONCRETE AS DIRECTED . ALL LINTELS SHALL HAVE A 8" MINIMUM BEARING UNLESS OTHERWISE NOTED ON DRAWINGS AND SHALL BE SET IN FULL BED OF MORTAR. CONTRACTOR SHALL SHORE ALL LINTELS AS REQUIRED TO PREVENT ROTATION DURING CONSTRUCTION AND SHALL PAY PARTICULAR ATTENTION TO ECCENTRICALLY LOADED LINTELS. CONTRACTOR SHALL COORDINATE SIZE, TYPE AND LOCATION OF LINTEL WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

ALL BEAM LINTELS LARGER THAN W 8 BEAMS TO HAVE ADJUST MASONRY ANCHORS ON EACH FACE OF WEBS SPACED AT 16" o/c.

A ROOF FRAMING PLAN

1/8" = 1'-0"

PLAN NOTES

1. REFERENCE TOP OF STEEL ELEVATION MEASURED FROM FIRST FLOOR DATUM = (+XX'-X") AT LOW POINTS.
2. ELEVATIONS ARE NOTED AS FOLLOWS, MEASURED FROM THE REFERENCE ELEVATION (xX'-X") INDICATES TOP OF STEEL/BOTTOM OF METAL DECK, STRUCTURE SLOPE TO LOW POINTS AT DRAINS. COORDINATE WITH ARCHITECTURAL ROOF PLANS.
3. NOTATIONS ON THE PLANS DESIGNATE THE FOLLOWING
   ►—— BEAM TO COLUMN OR GIRDER FULLY DEVELOPED MOMENT CONNECTION.
4. STRUCTURAL ROOF SHALL BE 1 1/2" TYPE B x 22 GAUGE GALVANIZED METAL DECK (2 SPAN MIN.) UNO. SEE S001 FOR DECK PROPERTIES.
5. REFER TO S401, S402 & S403 FOR ROOF DETAILS.
6. REFER TO S401 FOR CONNECTION DETAILS.
7. ▩ INDICATES FOOTPRINT OF MECHANICAL UNIT.
8. CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. COORDINATE ALL ROOF PENETRATIONS AND SHAFTS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
9. JOISTS DESIGNED USING 30 D.L. + 30. S.L. + WIND UP LIFT.
10. JOISTS IN SHOP WERE SELECTED WITH CRITERIA IN NOTE 9 PLUS AN ADDITIONAL 2,000 LB LIVE LOAD LOCATED ANYWHERE ON THE BOTTOM CHORD IN ACCORDANCE WITH IBC 1607.1. LOCALIZED BOTTOM CHORD BEND CHECKS SHALL BE PERFORMED BY THE JOIST MANUFACTURER. ALL JOIST DESIGNS ARE USING THE ASD METHOD.

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ROOF FRAMING PLAN

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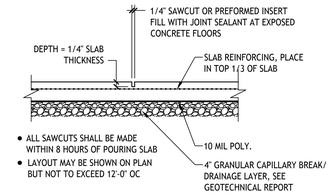
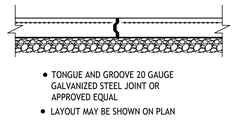
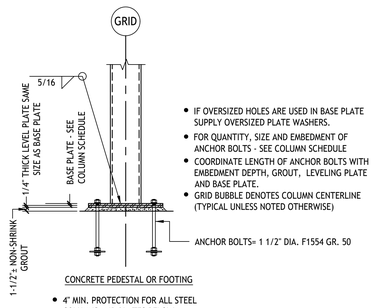
23-045DL-CMA HYUNDAI-PDG	23-045DL-CMA Hyundai Winchester-PDG S-102X_ROOF PLAN.dwg



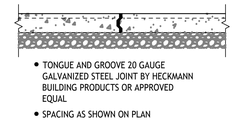
1 TYP SLAB ON GRADE CONTROL JOINT
SCALE : 3/4" = 1'-0"



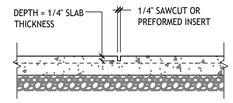
2 TYP SLAB ON GRADE CONSTRUCTION JOINT
SCALE : 3/4" = 1'-0"



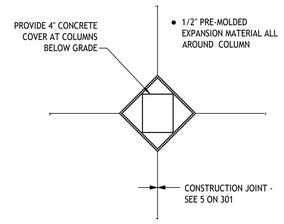
3 TYPICAL COLUMN BASE DETAIL
SCALE : 3/4" = 1'-0"



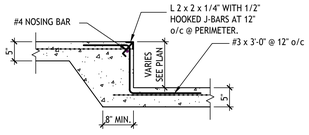
4 TYPICAL CONSTUCTION JOINT IN SLAB ON GRADE
SCALE : 3/4 = 1'-0"



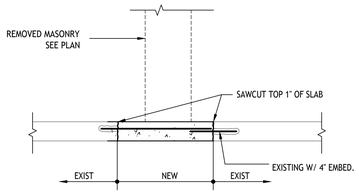
5 TYP. CONTROL JOINT
SCALE : 3/4 = 1'-0"



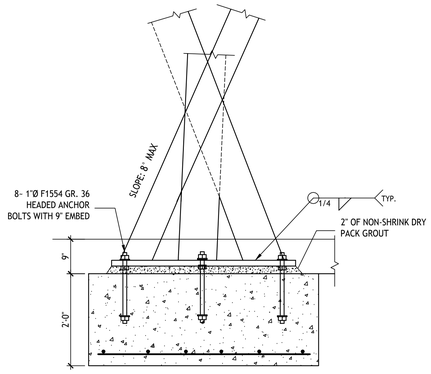
6 PLAN - COLUMN AT SLAB ON GRADE
SCALE : 3/4 = 1'-0"



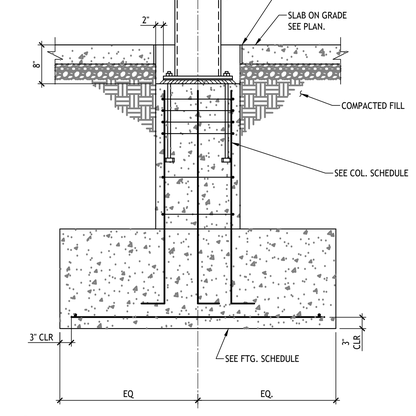
8 RECESSED SLAB
SCALE : 3/4 = 1'-0"



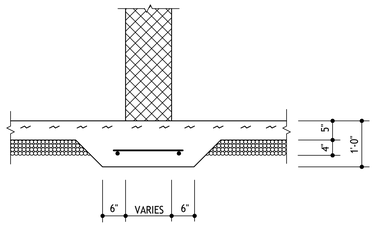
9 SLAB PATCH AT EXIST CMU
SCALE : 3/4 = 1'-0"



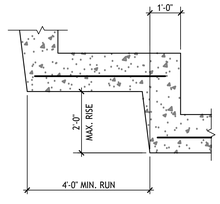
10 BEAM-COLUMN CONNECTION AT COL. C-6
SCALE : 3/4 = 1'-0"



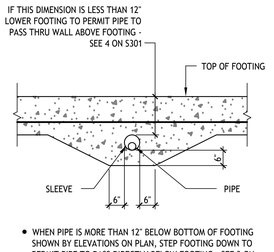
11 INTERIOR CONCRETE PEDESTAL AT STEEL COLUMN
SCALE : 3/4 = 1'-0"



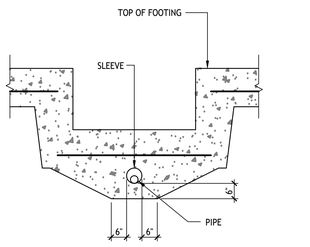
12 FOOTING IN SLAB ON GRADE AT NON-LOAD BEARING PARTITION
SCALE : 3/4 = 1'-0"



13 TYPICAL STEPPED FOOTING
SCALE : 3/4 = 1'-0"



14 TYPICAL PIPE THROUGH FOOTING
SCALE : 3/4 = 1'-0"



15 FOOTING STEPPED DOWN AT PIPE
SCALE : 3/4 = 1'-0"

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Sheet Title
FOUND. DETAILS & SECTIONS

Project Number	File Name
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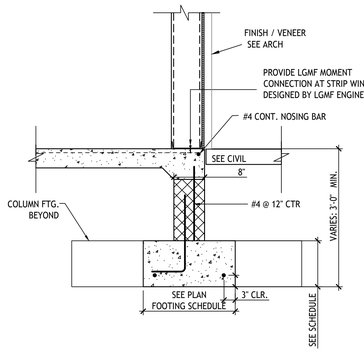
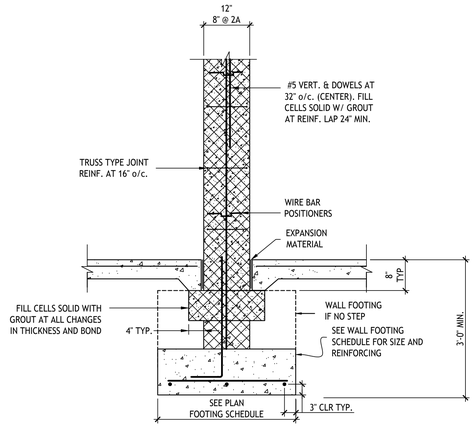


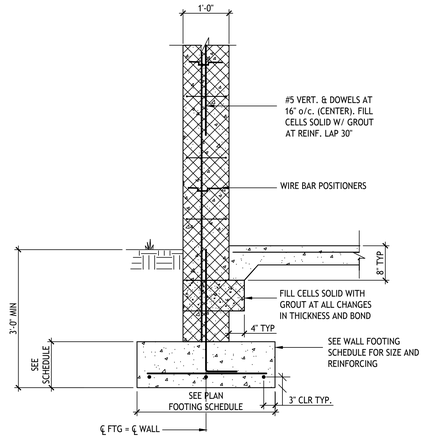
1 EXT. FOUNDATION @ NEW CUSTOMER LOUNGE

SCALE : 3/4 = 1'-0"



2A
2 FOUNDATION AT INTERIOR WALL

SCALE : 3/4 = 1'-0"



3 TYP. EXTERIOR WALL FOUNDATION

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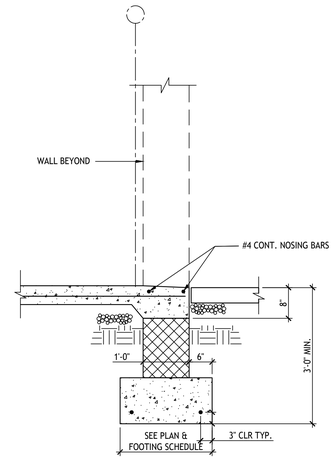
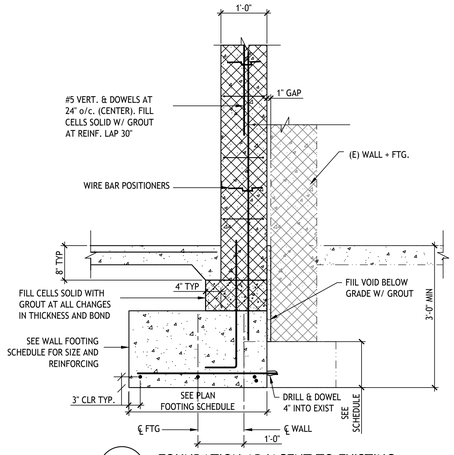


4 TYP. EXTERIOR WALL FOUNDATION @ DOOR OPENING

SCALE : 3/4 = 1'-0"

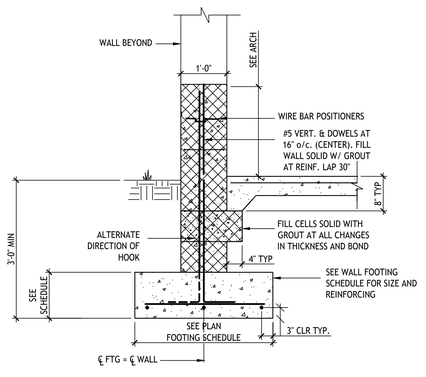
5 MASONRY INFILL

SCALE : 3/4 = 1'-0"



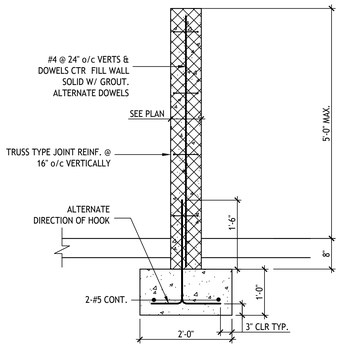
6 FOUNDATION ADJACENT TO EXISTING

SCALE : 3/4 = 1'-0"



7 FOUNDATION AT AIR/OIL ROOM

SCALE : 3/4 = 1'-0"



8 SERVICE BAY DIVIDER WALL

SCALE : 3/4 = 1'-0"

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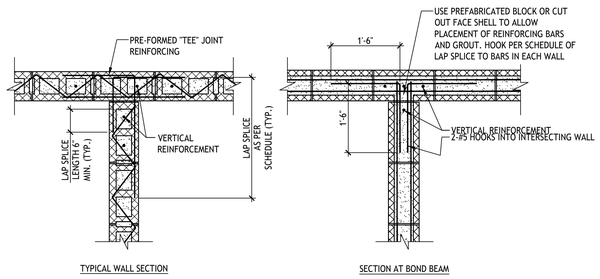
Sheet Number
S-202

Sheet Title
TYP FOUNDATION SECTIONS

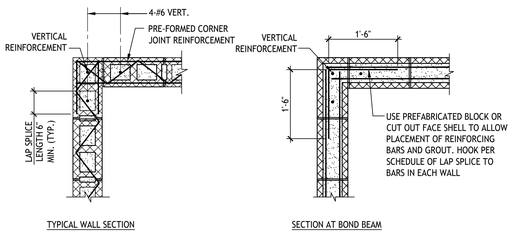
Project Number	File Name
23-0402A.CMA HYUNDAI PDG	23-0402A_CMA Hyundai Winchester PDG S-202_FOUNDATION DETAILS AND SECTIONS.pdf



1 HORIZONTAL CMU WALL INTERSECTION REINFORCEMENT DETAIL

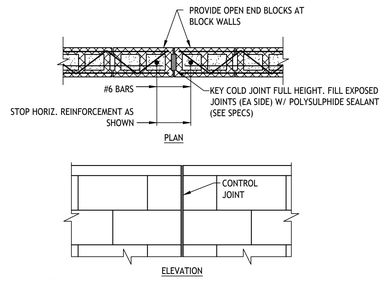
SCALE : 3/4 = 1'-0"

NOTES:
1. SIZE OF HORIZONTAL INTERSECTION REINFORCING BARS TO MATCH BOND BEAM REINFORCING.
2. NORMAL JOINT AND BOND BEAM REINFORCING NOT SHOWN FOR CLARITY.
3. VERTICAL REINFORCING BARS TO EXTEND CONTINUOUSLY THROUGH BOND BEAMS. LAP VERTICALS AS PER SCHEDULE ABOVE BOND BEAMS.



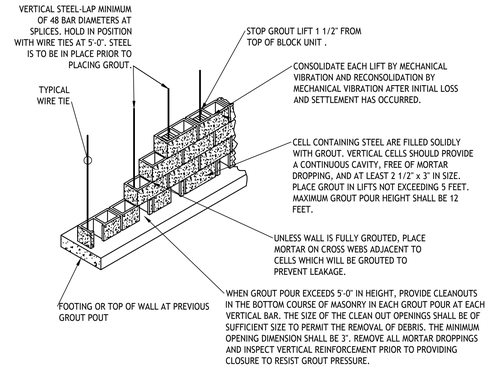
2 HORIZONTAL CMU WALL CORNER REINFORCEMENT DETAIL

SCALE : 3/4 = 1'-0"



3 VERTICAL CONTROL JOINTS

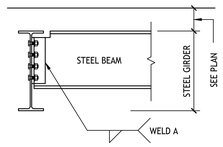
SCALE : 3/4 = 1'-0"



4 TYPICAL REINFORCED MASONRY CONSTRUCTION

SCALE : 3/4" = 1'-0"

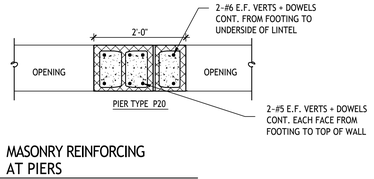
NOTES:
1. USE PRINCIPAL DETAIL EXCEPT WITH THE APPROVAL OF THE STRUCTURAL ENGINEER.



- BOLTED/WELDED DOUBLE ANGLE CONNECTIONS (TABLE 10-1/10-2 LRFD)
- 3/4" FIELD BOLTS - PRETENSIONED (ASTM A325 OR A490)
- SHOP WELDS - E70XX ELECTRODES
- FOR REACTIONS SEE BEAM REACTION SCHEDULE ON S-301.

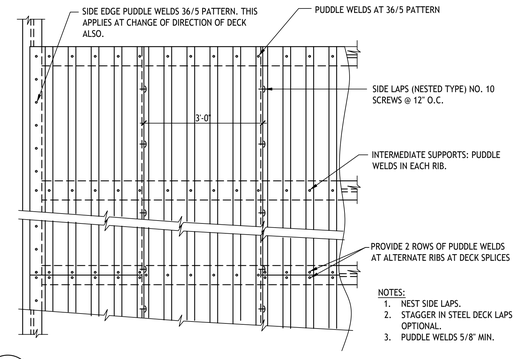
5 TYPICAL SHEAR CONNECTIONS PRINCIPAL DETAIL

SCALE : 3/4" = 1'-0"



6.1 MASONRY REINFORCING AT PIERS

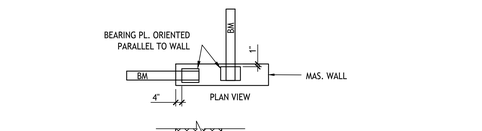
SCALE : 3/4" = 1'-0"



NOTES:
1. NEST SIDE LAPS.
2. STAGGER IN STEEL DECK LAPS OPTIONAL.
3. PUDDLE WELDS 5/8" MIN.

7 TYP ROOF DECK FASTENING PATTERN

SCALE : 3/4" = 1'-0"



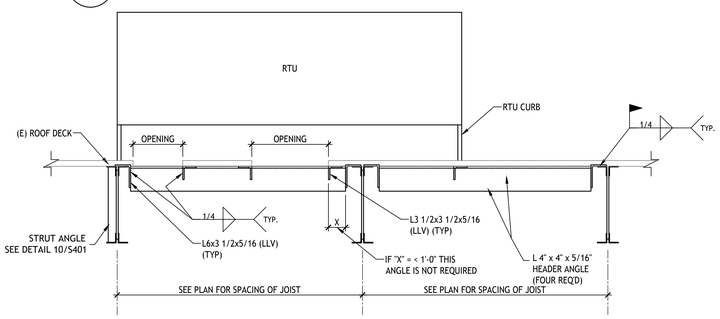
BEARING PLATE SCHEDULE

MARK	SIZE
BP-1	1/2" x 6" x 0'-6"
BP-2	1/2" x 8" x 0'-6"
BP-3	1/2" x 10" x 0'-6"

ALL STEEL BEAMS TO HAVE BEARING PLATES. USE BP-1 U.N.O.

8 TYP. BEAM BEARING ON MASONRY

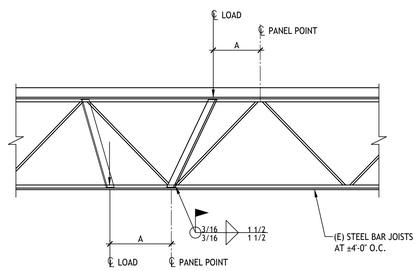
N.T.S.



- PROVIDE ANGLE FRAMES UNDER ALL 4 SIDES OF ANY ROOF TOP EQUIPMENT SUPPORTED BY PREFABRICATED CURBS.
- UNIT TO BE SHOP ASSEMBLED AND FIELD WELDED TO JOISTS.
- SEE ARCH. AND MECH. DRAWINGS FOR SIZE AND LOCATION OF OPENINGS.

9 TYP. ROOF TOP UNIT SUPPORT

SCALE : 3/4" = 1'-0"

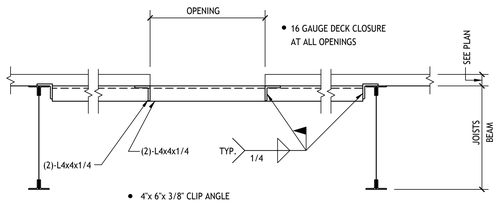


- WHERE DIMENSION "A" IS EQUAL TO OR GREATER THAN 4", FIELD INSTALL 2"x 2"x 1/4" ANGLE AS SHOWN
- DETAIL APPLIES TO CONCENTRATED LOAD APPLIED IN BETWEEN PANEL POINTS AT EITHER TOP OR BOTTOM CHORD

10 ADDITIONAL JOIST WEB REINFORCING AT CONCENTRATED LOADS

TYPICAL DETAIL 3/4"=1'-0"

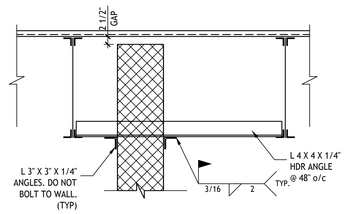
- PROVIDE CHANNEL FRAME BELOW ALL CURBS OF ROOF TOP EQUIPMENT.
- STEEL CONTRACTOR SHALL COORDINATE ALL OPENING SIZES AND LOCATIONS WITH THE MECHANICAL AND ELECTRICAL CONTRACTOR PRIOR TO FABRICATION AND INSTALLATON OF FLOOR.



- 4"x 6"x 3/8" CLIP ANGLE
- SEE ARCH., MECH. AND ELECT. DRAWINGS FOR SIZE AND LOCATION OF OPENINGS AND UNIT CURBS FOR ALL ROOF TOP EQUIPMENT.

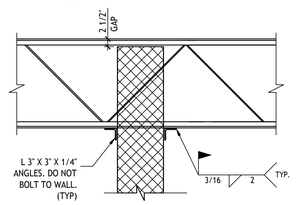
11 OPENING IN METAL ROOF DECK

SCALE : 3/4" = 1'-0"



12 CMU BRACING PARALLEL TO JOISTS

SCALE : 3/4" = 1'-0"



13 CMU BRACING AT JOISTS

SCALE : 3/4" = 1'-0"

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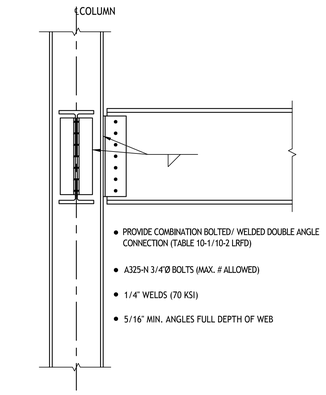
Sheet Number

S-401

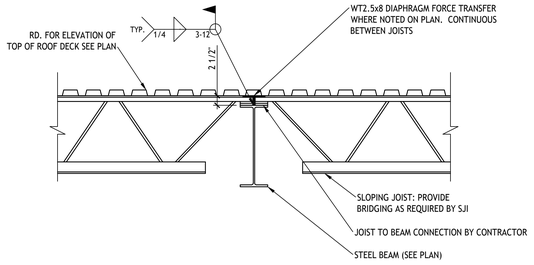
Sheet Title

TYP STEEL & JOIST

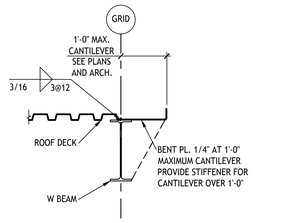
Project Number	File Name
23-045DL-CMA HYUNDAI-PDG	23-045DL-CMA Hyundai Winchester-PDG S-401_ROOF SECTIONS AND DETAILS.dwg



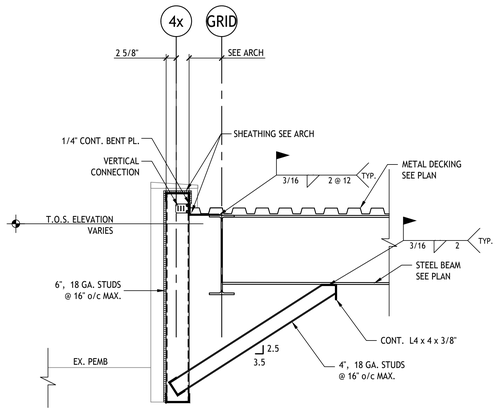
1 BEAM TO COLUMN CONNECTION
SCALE : 3/4" = 1'-0"



2 JOIST BEARING
SCALE : 3/4" = 1'-0"



4 TYPICAL EDGE OF ROOF DECK
SCALE : 3/4" = 1'-0"



5 WALL SECTION
3/4" = 1'-0"

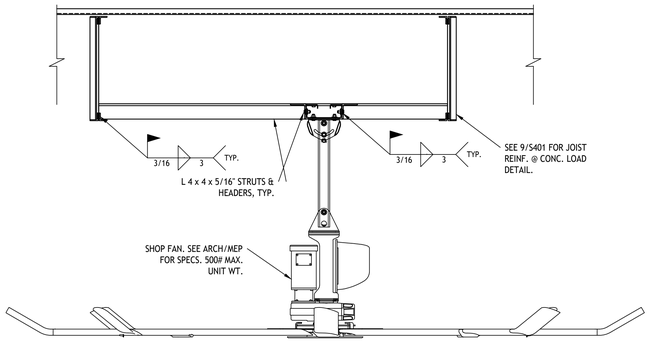
7 WALL SECTION
3/4" = 1'-0"

8 WALL SECTION
3/4" = 1'-0"

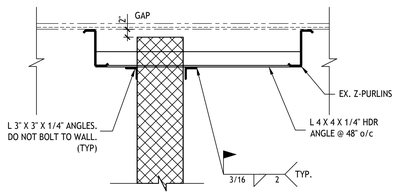
NOTES:
1. C.P. = COMPLETE PENETRATION GROOVE WELD.
2. ALL BOLTED CONNECTIONS SHALL BE SLIP CRITICAL.
3. WHEN MORE THAN ONE MOMENT CONNECTION OCCURS AT A COLUMN, CAP PLATE TO COLUMN WELD CRITERIA:
   A. WEB TO CAP PLATE WELD DEVELOPS THE SMALLER OF - SHEAR CAPACITY OF WEB; OR 0.66Fy x (AREA OF BEAM TOP FLANGES PARALLEL TO COLUMN WEB AND MOMENT CONNECTED TO COLUMN).
   B. FLANGE TO CAP PLATE WELD DEVELOPS THE SMALLER OF - SHEAR CAPACITY OF FLANGES; OR 0.66Fy x (AREA OF BEAM TOP FLANGES PARALLEL TO COLUMN FLANGES AND MOMENT CONNECTED TO COLUMN).
4. WHEN MOMENT CONNECTIONS OCCUR IN BOTH DIRECTIONS: STIFFENERS SHALL BE C.P. WELDED TO COLUMN FLANGES WITH FILLET WELDS TO COLUMN WEB. STIFFENER AND CAP PLATE THICKNESS = $\sqrt{(t_1)^2 + (t_2)^2}$ WHERE t_n = RESPECTIVE BEAM FLANGE THICKNESS.

9 MOMENT CONNECTIONS AT TOP OF COLUMN
SCALE : 3/4" = 1'-0"

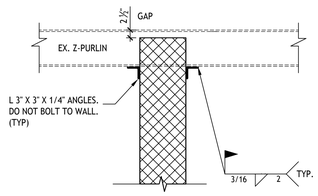
NOTES:
1. SEE TYPICAL MOMENT CONNECTION TO COLUMN FLANGE FOR ADDITIONAL INFORMATION
2. ALL BOLTED CONNECTIONS SHALL BE SLIP CRITICAL.
3. WEB TO CAP PLATE WELD DEVELOPS THE SMALLER OF - SHEAR CAPACITY OF WEB; OR $\geq$ 0.66Fy x (AREA OF BEAM TOP FLANGES PARALLEL TO COLUMN WEB AND MOMENT CONNECTED COLUMN).



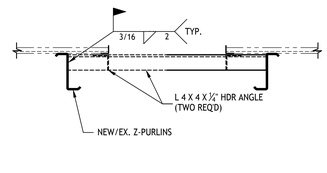
12 LARGE FAN @ SERVICE SHOP
SCALE : 3/4" = 1'-0"



13 CMU BRACING PARALLEL TO EX. PURLINS
SCALE : 3/4" = 1'-0"



14 CMU BRACING PERPENDICULAR TO EX. PURLINS
SCALE : 3/4" = 1'-0"



15 TYP. ROOF OPENING AT EXISTING Z-PURLINS
SCALE : 3/4" = 1'-0"

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No.	Issue / Revision	Date
	Bid Set	2023.07.27
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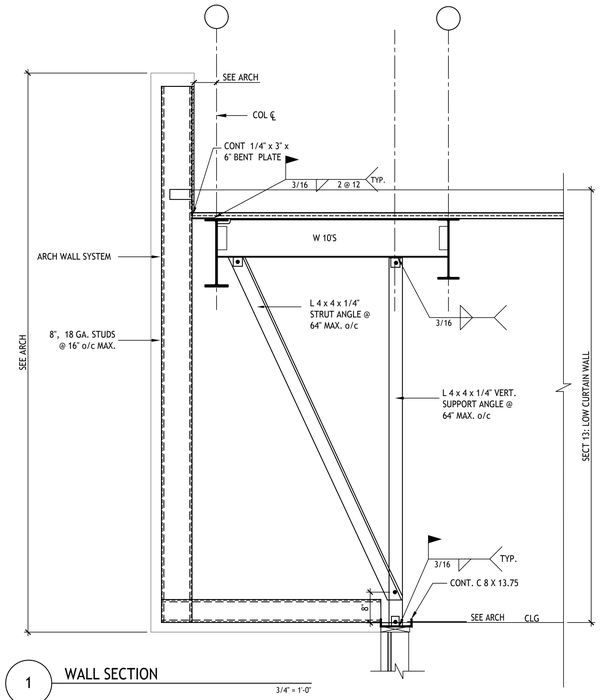
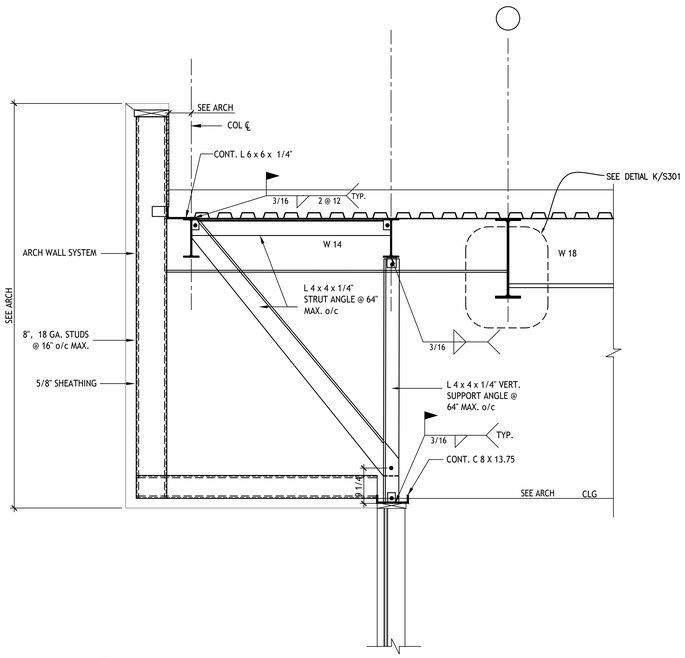
Sheet Number
S-402
Sheet Title
ROOF SECTIONS & DETAILS

Project Number	File Name
23-0450S-CMA HYUNDAI-PDG	23-0450S-CMA Hyundai Winchester-PDG S-401_ROOF SECTIONS AND DETAILS.dwg



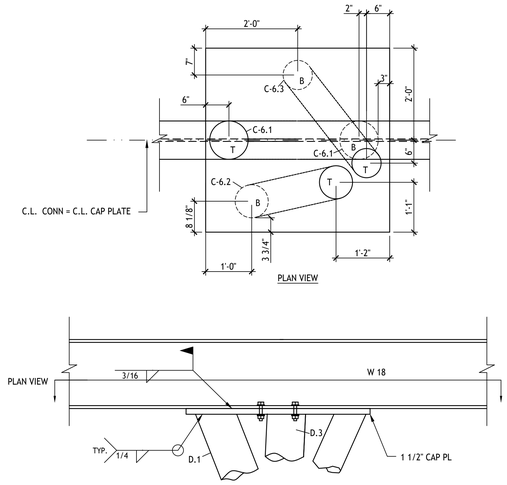
1 WALL SECTION

3/4" = 1'-0"



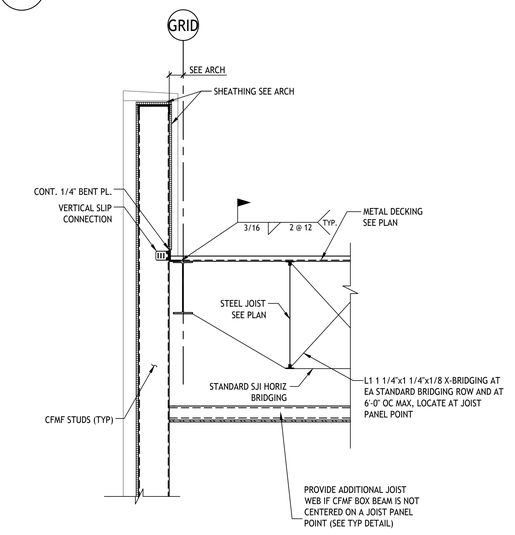
2 WALL SECTION

3/4" = 1'-0"



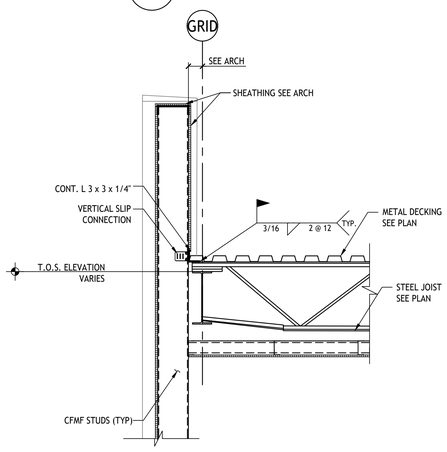
3 DETAIL

3/4" = 1'-0"



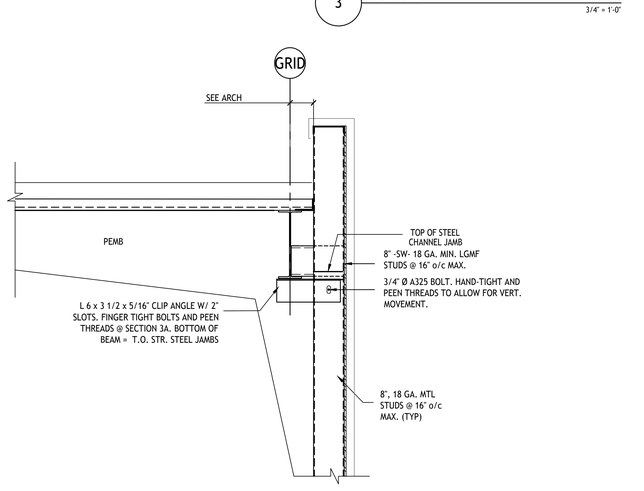
6 WALL SECTION

3/4" = 1'-0"



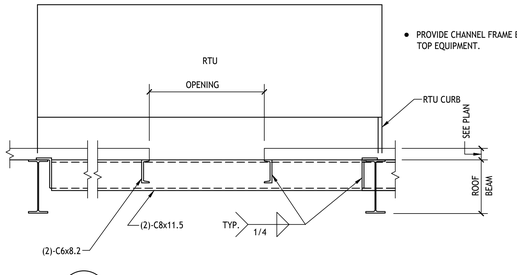
7 WALL SECTION

3/4" = 1'-0"



11 WALL SECTION

3/4" = 1'-0"

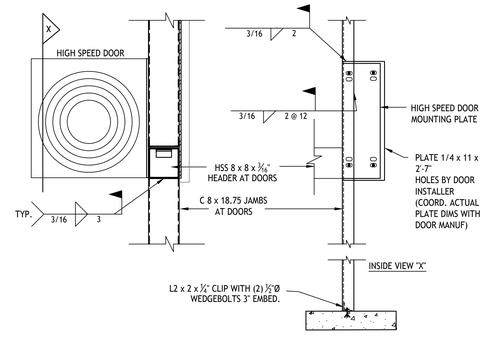


- PROVIDE CHANNEL FRAME BELOW ALL CURBS OF ROOF TOP EQUIPMENT.

10 OPENING IN METAL ROOF DECK

SCALE : 3/4" = 1'-0"

- STEEL CONTRACTOR SHALL COORDINATE ALL OPENING SIZES AND LOCATIONS WITH THE MECHANICAL AND ELECTRICAL CONTRACTOR PRIOR TO FABRICATION AND INSTALLATON OF FLOOR.
- 16 GAUGE DECK CLOSURE AT ALL OPENINGS
- 4"x 8"x 1/2" CLIP ANGLE
- SEE ARCH,, MECH. AND ELECT. DRAWINGS FOR SIZE AND LOCATION OF OPENINGS AND UNIT CURBS FOR ALL ROOF TOP EQUIPMENT.



11 WALL SECTION

3/4" = 1'-0"

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Sheet Number
S-403

Sheet Title
ROOF SECTIONS & DETAILS

Project Number	File Name
23-0402E.CMA HYUNDAI-PDG	23-0402E.CMA Hyundai Winchester-PDG S-401_ROOF SECTIONS AND DETAILS.dwg