HAVERHILL ELEMENTARY SCHOOL **BID PACKAGE 5: FOOTINGS AND** FOUNDATIONS **PORTAGE PUBLIC SCHOOLS** Portage, Michigan **CONSTRUCTION DOCUMENTS**

DESIGN TEAM ARCHITECT/ENGINEER

TowerPinkster Architecture · Engineering · Interiors

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SITE ADDRESS

PORTAGE PUBLIC SCHOOLS HAVERHILL ELEMENTARY SCHOOL 6633 HAVERHILL AVENUE PORTAGE, MICHIGAN 49024

REFERENCED CODES

2015 MICHIGAN BUILDING CODE AND 2012 NFPA 101 LIFE SAFETY CODE BUILDING: ENERGY: 2015 MICHIGAN ENERGY CODE PLUMBING: 2018 MICHIGAN PLUMBING CODE MECHANICAL 2015 MICHIGAN MECHANICAL CODE FUEL GAS: (IFGC) 2015 INTERNATIONAL FUEL GAS CODE 2017 NATIONAL ELECTRICAL CODE WIT **ELECTRICAL:** TH MICHIGAN AMENDMENTS **BARRIER-FREE**: 2015 MICHIGAN BUILDING CODE AND 2009 ICC & C A117. USE GROUP:

CONSTRUCTION TYPE: AUTOMATIC SPRINKLERS: PROJECT AREA

TOTAL FIRST FLOOR:

TOTAL SECOND FLOOR: TOTAL FINISHED PROJECT:

DRAWING INDEX

GENERAL G 001 COVER SHEET

- STRUCTURAL S 001 GENERAL NOTES I
- S 002 GENERAL NOTES II
- SPECIAL INSPECTIONS AND STRUCTURAL TESTING S 003
- SCHEDULES, LEGENDS, AND ABBREVIATIONS S 004
- S 005 LAP SPLICE SCHEDULES
- LOADING DIAGRAMS S 006
- FOUNDATION PLAN S 100 S 111 FIRST FLOOR CMU PLAN
- TYPICAL FOOTING DETAILS S 200
- TYPICAL SLAB ON GRADE DETAILS S 211
- GATHERING STAIR PARTIAL PLAN, SECTIONS, AND SCHEDULE S 212
- S 500 TYPICAL STEEL COLUMN DETAILS TYPICAL MASONRY WALL DETAILS S 600
- S 605 TYPICAL MASONRY SECTIONS
- S 609 ELEVATOR SECTIONS

FULLY SPRINKLED

42,026 SQ. FT. 26,115 SQ. FT. 68,141 SQ. FT.





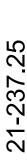
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DATE

SCHOOL S AND PROJECT TITLE HAVERHILL ELEMENTARY BID PACKAGE 5: FOOTING FOUNDATIONS

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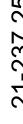
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SHEET TITLE COVER SHEE



	GENERAL REQUIREMENTS	CD-2 SEE DESI
GR-1	AS USED IN THESE GENERAL NOTES: "DRAWINGS" MEANS THE LATEST STRUCTURAL DESIGN DRAWINGS, UON. "SPECIFICATIONS" MEANS THE LATEST PROJECT SPECIFICATIONS, UON. "CONTRACT DOCUMENTS" IS DEFINED AS THE DESIGN DRAWINGS AND THE SPECIFICATIONS	CD-3 SEE DESI LOADS. CD-4 OCCUPAI
	"SER" IS DEFINED AS THE STRUCTURAL ENGINEER OF RECORD FOR THE STRUCTURE IN ITS FINAL CONDITION. "DESIGN PROFESSIONALS" IS DEFINED AS THE OWNER'S ARCHITECT AND SER.	CD-5 <u>SNOW LC</u> FLAT ROO
	"MEP" INCLUDES, BUT IS NOT LIMITED TO MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION. "CONTRACTOR" IS DEFINED TO INCLUDE ANY OF THE FOLLOWING: GENERAL CONTRACTOR AND THEIR SUBCONTRACTORS, CONSTRUCTION MANAGER AND THEIR SUBCONTRACTORS, STRUCTURAL STEEL FABRICATOR OR STRUCTURAL STEEL ERECTOR.	GROUND SNOW EX SNOW LO THERMAI SNOW DF
	"BASE BUILDING STRUCTURE" IS DEFINED AS THE STRUCTURAL FRAME DESIGNED BY THORNTON TOMASETTI. "STRUCTURE IN ITS FINAL CONDITION" MEANS ALL STRUCTURAL ELEMENTS SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS ARE INSTALLED AND COMPLETELY CONNECTED AND	SEE DES SNOW LO
	INSPECTED WITH NO OUTSTANDING NON-COMPLIANCE ISSUES. "DELEGATED DESIGN" MEANS A SCOPE OF WORK THAT MEETS PERFORMANCE CRITERIA ESTABLISHED IN THE CONTRACT DOCUMENTS AND IS TO BE COMPLETED BY THE CONTRACTOR'S LICENSED ENGINEER. "SERVICE LEVEL" LOADS ARE DEFINED AS NOMINAL OR UNFACTORED LOADS TO BE COMPLIANCE.	CD-6 <u>WIND LO</u> MAIN WII BASIC W EXPOSU INTERNA
	"SERVICE LEVEL" LOADS ARE DEFINED AS NOMINAL OR UNFACTORED LOADS TO BE COMBINED USING ALLOWABLE STRESS LOAD COMBINATIONS "STRENGTH LEVEL" LOADS ARE DEFINED AS FACTORED LOADS TO BE COMBINED USING STRENGTH DESIGN LOAD COMBINATIONS	<u>COMPON</u> REFER T
GR-2	THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE STRUCTURAL WORK WITH THE ARCHITECTURAL, CIVIL, MEP CONTRACT DOCUMENTS, AS WELL AS ANY OTHER APPLICABLE TRADES.	<u>ROOF EF</u> REFER T
GR-3	THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE UNTIL THE CONSTRUCTION OF THE STRUCTURE REACHES ITS FINAL CONDITION.	CD-7 <u>SEISMIC</u> SEISMIC S₅
GR-4	THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND REMOVAL OF TEMPORARY BRACING AND CONSTRUCTION SUPPORTS, FOR NEW AND EXISTING STRUCTURES, AS NECESSARY TO COMPLETE THE PROJECT. NO PORTION OF THE PROJECT WHILE UNDER CONSTRUCTION IS INTENDED TO BE STABLE IN THE ABSENCE OF THE CONTRACTOR'S TEMPORARY SUPPORTS AND BRACES. CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED TO DESIGN TEMPORARY BRACING AND CONSTRUCTION SUPPORTS.	S1 S _{DS} S _{D1} SITE CLA SEISMIC LATERAL SEISMIC
GR-5	LATERAL LOAD RESISTANCE AND STABILITY OF THE STRUCTURE IN ITS FINAL CONDITION IS PROVIDED BY MASONRY WALL AND LATERAL STABILITY OF OTHER ELEMENTS IS PROVIDED THROUGH PRECAST PLANK TOPPING SLAB.	RESPON ANALYSI DESIGN I
GR-6	THE SPECIFICATIONS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENTS AND SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS.	CD-8 IN CASES EQUIPME CONTRA
GR-7	THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS AND COORDINATE WITH THE STRUCTURAL DRAWINGS, ARCHITECTURAL DRAWINGS, DRAWINGS FROM OTHER CONSULTANTS, PROJECT SHOP DRAWINGS AND FIELD CONDITIONS.	PROCEEI CD-9 DISTRIBL ETC OVE
GR-8	IN CASES OF CONFLICT BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND OTHER DISCIPLINES OR EXISTING CONDITIONS, CONTRACTOR SHALL NOTIFY THE DESIGN PROFESSIONALS AND OBTAIN CLARIFICATION PRIOR TO BIDDING AND PROCEEDING WITH WORK.	LOADS L COORDIN FRAMING
GR-9	APPLY DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS WHERE CONDITIONS ARE SIMILAR TO THOSE INDICATED BY DETAIL, DETAIL TITLE OR NOTE.	CD-10 ELEVAT ELEVAT SUBMIT SUBMIT
	0 ONLY USE DIMENSIONS INDICATED ON THE DRAWINGS. DO NOT SCALE DRAWINGS.	CD-11 STRUCT
	1 ASSUME EQUAL SPACING BETWEEN ESTABLISHED DIMENSIONS, IF NOT INDICATED ON DRAWINGS. 2 CENTERLINES OF COLUMNS AND FOUNDATIONS COINCIDE WITH GRID LINE INTERSECTIONS, UON.	EQUIPM CD-12 SERVICI
	3 CENTERLINES OF WALLS COINCIDE WITH CENTERLINES OF FOUNDATIONS, UON.	LIVE LO
GR-1	4 CENTERLINES OF FRAMING MEMBERS COINCIDE WITH COLUMN CENTERLINES, UON.	LONG-TE
GR-1	5 THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITIES FROM DAMAGE.	LATERA
GR-1	6 THE CONTRACTOR SHALL VERIFY THAT CONSTRUCTION LOADS DO NOT EXCEED THE CAPACITY OF THE STRUCTURE AT THE TIME THE LOAD IS APPLIED.	CD-13 CONNEC CLADDIN VERTICA
GR-1	THE STRUCTORE AT THE TIME THE LOAD IS APPLIED. 7 THE CONTRACTOR SHALL COORDINATE THE BOTTOM OF BASE PLATE ELEVATIONS WITH THE AS- BUILT TOP OF SUPPORT ELEVATIONS.	GENERA FOR FUE PREVEN
GR-1	8 THE CONTRACTOR SHALL VERIFY ALL OPENING SIZES AND LOCATIONS WITH OTHER DISCIPLINES. THE DRAWINGS DO NOT SHOW ALL OPENINGS REQUIRED. ADDITIONAL OPENINGS, BLOCKOUTS AND SLEEVES MAY BE REQUIRED BY OTHER DISCIPLINES AND SHALL BE CONSTRUCTED USING THE TYPICAL DETAILS AND/OR THE CRITERIA INDICATED ON THE DRAWINGS. OPENINGS REQUIRED BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS MUST BE APPROVED BY THE SER.	CD-14 FOR FIR ASSEMB CONTINI UNREST
GR-1	9 ELEVATIONS INDICATED ON STRUCTURAL DRAWINGS MUST BE APPROVED BY THE SER. 0 NOT SHOWN ON THE STRUCTURAL DRAWINGS ARE BASED ON A PROJECT DATUM INDICATED ON THE CIVIL DRAWINGS.	CD-15 THERE F PURPOS
GR-2	0 SEE ARCHITECTURAL, CIVIL, AND MEP CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION RELATING TO THE COORDINATION OF STRUCTURAL COMPONENTS INCLUDING, BUT NOT LIMITED TO:	DI-1 THE CON
	<u>CIVIL</u> : PROJECT DATUM	WHERE T PERFORI INDICATE
	SITING OF BUILDING GRID LINES WITH RESPECT TO CITY BENCHMARKS SITE PREPARATION BACKFILLING MATERIALS AND REQUIREMENTS	COLD FO METAL P
	PAVING AND SITE ELEMENTS OUTSIDE OF BUILDING ENVELOPE NEW AND EXISTING SITE UTILITIES	MEP ACC STRUCTU STEEL JC
	ARCHITECTURAL: PLAN DIMENSIONS AND PROJECT DATUM SLAB EDGE DIMENSIONS	<u>SU SUBMITT</u>
	FINISH ELEVATIONS WATERPROOFING AND DAMP-PROOFING DETAILS RAMP GEOMETRY, PITS, SLAB SLOPES AND DEPRESSIONS EMBEDMENTS, INSERTS, BLOCKOUTS, ETC.	SU-1 THE CON OUTLINE DOCUME
	EXACT OPENING SIZES FOR PIPES, DUCTS, ETC. CONCRETE FINISHES AND TOPPING SLABS CONCRETE CURBS AND HOUSEKEEPING PADS FIRE RATINGS METAL PAN STAIRS AND SUPPORTS	031 032 033 033 034
	MEP: PIPE AND DUCT SIZES FOR OPENING AND SLEEVE COORDINATION	034 042 051 052
	FLOOR DRAINS UNDERFLOOR AND PERIMETER DRAINAGE SYSTEMS EQUIPMENT CURBS	052 053 316
	CONDUITS AND EMBEDMENTS IN WALLS AND SLABS	S = CA
	CODES AND DESIGN CRITERIA PERFORM ALL CONSTRUCTION IN CONFORMANCE WITH THE BUILDING AND DESIGN CODES	SU-2 SUBMIT I DESIGNE
	REFERENCED WITHIN THESE DOCUMENTS. THE PROJECT DOCUMENTS REFER TO THE FOLLOWING CODES AND STANDARDS, UON: MICHIGAN BUILDING CODE 2015 (INTERNATIONAL BUILDING CODE, 2015 EDITION)	PR EX
	<u>STRUCTURAL CONCRETE:</u> "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" THE AMERICAN CONCRETE INSTITUTE (ACI 318-14)	AR ELI ME CA ME
	<u>MASONRY:</u> "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" THE AMERICAN CONCRETE INSTITUTE (TMS 402-13)	WHERE (DIFFER F SEALED
	"SPECIFICATION FOR MASONRY STRUCTURES" THE AMERICAN CONCRETE INSTITUTE (TMS 602-13)	SEALED / IS LOCAT "THE CON
	<u>STRUCTURAL STEEL:</u> "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", (AISC 360-10) CONFORMING TO THE PROVISIONS OF LOAD RESISTANCE FACTOR DESIGN, BY THE AMERICAN INSTITUTE OF STEEL	BUILDING
	CONSTRUCTION (AISC-LRFD)	WHERE C CONDITIO TO SER I

GN LOAD DIAGRAMS ON SHEET S-006 FOR LOCATIONS AND EXTENT OF LIVE LOAD.

GN LOAD DIAGRAMS ON SHEET S-006 FOR LOCATIONS AND EXTENT OF SUPERIMPOSED DEAD

ICY OR RISK CATEGORY: III

DS (SERVICE LEVEL) SNOW LOAD (Pf): 23.1 PSF 30 PSF SNOW LOAD (Pg) POSURE FACTOR (Ce): 1.0 AD IMPORTANCE FACTOR (Is): 1.1 FACTOR (Ct): 1.0 RIFTING PER CODE

GN LOAD DIAGRAMS ON SHEET S-007 FOR LOCATIONS AND EXTENT OF ROOF AND

<u>D DESIGN DATA (STRENGTH LEVEL):</u> D FORCE RESISTING SYSTEM ND SPEED, V 120 MPH

PRESSURE COEFFICIENT ± 0.18 ENT AND CLADDING DESIGN PRESSURES

TABLE ON S 007 FOR COMPONENT AND CLADDING DESIGN PRESSURES

TIVE WIND AREA TABLE ON S 007 FOR ROOF DESIGN PRESSURES

C LOAD DESIGN DATA (STRENGT	<u>H LEVEL):</u>
C IMPORTANCE FACTOR (Is)	1.25
	0.117 g
	0.054 g
	0.125 g
	0.087 g
ASS	D
C DESIGN CATEGORY	В
AL SYSTEM DESCRIPTION	ORDINARY REINFORCED MASONRY WALLS
C RESPONSE COEFFICIENT (Cs)	0.078
NSE MODIFICATION FACTOR (R)	2
SIS PROCEDURE DESCRIPTION	EQUIVALENT LATERAL FORCE
N BASE SHEAR	410 KIPS

WHERE THE CONTRACTOR DETERMINES THAT SUSPENDED OR FLOOR MOUNTED NT LOADS EXIST WHICH EXCEED DESIGN LOADS INDICATED ON CONTRACT DOCUMENTS. TOR SHALL SUBMIT LOAD DATA TO DESIGN PROFESSIONALS FOR REVIEW PRIOR TO DING WITH WORK.

TE THE MAXIMUM LOAD HUNG FROM ANY STRUCTURAL MEMBER FOR DUCTWORK, PIPING THE MEMBER'S TRIBUTARY AREA IN A WAY THAT THE MEP DESIGN SUPERIMPOSED DEAD STED IN CONTRACT DOCUMENTS ARE NOT EXCEEDED. THE CONTRACTOR SHALL ATE THE LOADS OF ALL TRADES AND PROVIDE ADDITIONAL SUPPORT OR DISTRIBUTION AS REQUIRED TO ACHIEVE THE ALLOWABLE LOAD DISTRIBUTION.

R GUIDERAIL SUPPORTS, MACHINE ROOMS, PITS, AND PENTHOUSES ARE BASED ON R TYPES INDICATED ON ARCHITECTURAL CONTRACT DOCUMENTS. CONTRACTOR SHALL FOR REVIEW ANY PLANNED CHANGE TO ELEVATORS TO DESIGN PROFESSIONALS PRIOR TO ING CORRESPONDING STRUCTURAL SHOP DRAWINGS FOR ACTION.

IRAL COMPONENTS ARE NOT DESIGNED FOR VIBRATING EQUIPMENT. MOUNT VIBRATING INT ON VIBRATION ISOLATORS.

ABILITY

D DEFLECTION IS LESS THAN L/360

RM TOTAL DEFLECTION IS LESS THAN L/240

DRIFT DUE TO WIND LOADS IS LESS THAN OR EQUAL TO H/400

TIONS OF SYSTEMS DESIGNED BY CONTRACTOR'S ENGINEER SUCH AS, BUT NOT LIMITED TO, G, STAIRS, ELEVATORS, ESCALATORS, PRECAST, AND MEP LOADS ARE ASSUMED TO IMPOSE AND/OR HORIZONTAL LOADS ON THE BASE BUILDING STRUCTURAL MEMBERS WITHOUT TING TORSION IN THE SUPPORTING STRUCTURAL MEMBERS. CONTRACTOR IS RESPONSIBLE NISHING AND INSTALLING ALL SUPPLEMENTARY BRACING MEMBERS AS REQUIRED TO TORSION ON THE BASE BUILDING STRUCTURE.

RATING AND FIREPROOFING ASSEMBLY EVALUATIONS, CONSIDER THE FOLLOWING IES RESTRAINED: COMPOSITE WIDE-FLANGE STEEL FRAMING, INTERIOR BAYS OF OUS CAST-IN-PLACE CONCRETE CONSTRUCTION. CONSIDER ALL OTHER ASSEMBLIES RAINED.

AVE BEEN NO LOAD RESTRICTION FACTORS APPLIED TO THE STRUCTURAL DESIGN FOR THE ES OF SELECTING FIREPROOFING ASSEMBLIES.

<u>ED DESIGN ITEMS</u>

RACTOR SHALL EMPLOY OR RETAIN A PROFESSIONAL ENGINEER LICENSED IN THE STATE HIS PROJECT IS LOCATED TO DESIGN AND DETAIL DELEGATED DESIGN ITEMS TO MEET THE ANCE AND DESIGN CRITERIA ESTABLISHED AS PART OF THE BASE BUILDING STRUCTURE D IN THE CONTRACT DOCUMENTS INCLUDING BUT NOT LIMITED TO:

RMED METAL FRAMING

N STAIRS ESS PLATFORMS

RAL PRECAST HOLLOWCORE PLANK AND CONNECTIONS ISTS, BRIDGING AND CONNECTIONS

RACTOR SHALL PROVIDE THE REQUIRED SUBMITTALS FOR STRUCTURAL REVIEW AS) IN THE SPECIFICATIONS. THIS INCLUDES BOTH ITEMS FULLY DESIGNED ON THE CONTRACT NTS AND ITEMS LISTED AS DELEGATED DESIGN. ITEMS INCLUDE BUT ARE NOT LIMITED TO:

1000 2000	S CALC S	CONCRETE FORMWORK CONCRETE REINFORCEMENT AND EMBEDDED ASSEMBLIES
3000	S	CAST-IN-PLACE CONCRETE
3000	CALC	CONCRETE MIX DESIGNS
4100	S CALC	PRECAST STRUCTURAL CONCRETE
2200	S	CONCRETE MASONRY UNITS
1200	S	STRUCTURAL STEEL
2000	S CALC	STRUCTURAL STEEL JOISTS
3000	S	STEEL DECK
6100	S	FOOTINGS
=	SHOP DRA	WINGS REQUIRED

.C = SUPPORTING CALCULATIONS REQUIRED, SEALED AND SIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED

DADS IMPOSED ONTO BASE BUILDING STRUCTURE BY THE FOLLOWING CONTRACTOR OSYSTEMS:

CAST PLANK CONCRETE AND CONNECTIONS

ERIOR CLADDING SYSTEMS CHITECTURAL ORNAMENTATION (FLAGPOLES, BANNERS, MASTS, ETC.)

VATOR REACTIONS

TAL STAIRS WALKS

P EQUIPMENT

ONTRACTOR LOADS IMPOSED DO NOT EXCEED AND/OR CONNECTION CONDITIONS DO NOT ROM WHAT IS INDICATED IN THE STRUCTURAL DRAWINGS, SUBMIT FOR RECORD A LETTER ND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT ED STATING THE FOLLOWING:

TRACTOR DESIGNED SYSTEM HAS BEEN DESIGNED TO IMPOSE LOADS ON THE BASE STRUCTURE THAT ARE WITHIN THE LOAD LIMITS AND AT THE LOCATIONS INDICATED ON THE RAL DRAWINGS."

ONTRACTOR LOADS IMPOSED FOR THE ITEMS LISTED ABOVE EXCEED AND/OR CONNECTION INS DIFFER FROM WHAT IS SHOWN IN THE STRUCTURAL DRAWINGS, SUBMIT FOR APPROVAL TO SER LOADS IMPOSED ON THE PRIMARY STRUCTURAL FRAME DUE TO THE DEAD, LIVE, AND WIND/SEISMIC LOADS INDICATED ON THE CONTRACT DOCUMENTS.

SUBMITTAL SHALL LIST THE DESIGN LOADS USED AND BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. SUBMITTAL SHALL INCLUDE LOCATION, MAGNITUDE AND DIRECTION OF UNFACTORED IMPOSED LOADS, GRAPHICALLY REPRESENTED IN THEIR APPROPRIATE LOCATIONS ON A COPY OF THE CONTRACT DOCUMENT STRUCTURAL FRAMING PLANS OR ELEVATIONS AS APPROPRIATE. DETAIL REFERENCES IN THE CONNECTIONS APPLICABLE AT EACH LOCATION SHALL BE NOTED ON THE SUBMITTAL DRAWINGS.

FOR EXTERIOR WALL ASSEMBLIES, THE LOADS IMPOSED SUBMITTAL SHALL BE COMPREHENSIVE INDICATING THE LOADS IMPOSED ON THE BASE BUILDING STRUCTURE AND SHALL INCLUDE THE REACTIONS BASED ON THE ACTUAL LOADS OF THE ENTIRE ASSEMBLY, INCLUDING BUT NOT LIMITED TO GLAZING, CLADDING, METAL STUD BACKUP, AND MULLIONS.

FOR MEP SYSTEMS, THE LOADS IMPOSED SUBMITTAL SHALL BE COMPREHENSIVE INDICATING THE LOADS IMPOSED ON THE BASE BUILDING STRUCTURE AND SHALL INCLUDE THE REACTIONS BASED ON THE ACTUAL LOADS OF THE ENTIRE MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION SYSTEM, INCLUDING BUT NOT LIMITED TO PIPING, DUCTS, ELECTRICAL RACEWAYS, AND EQUIPMENT WEIGHTS.

A SUBSTITUTION REQUEST MAY BE REQUIRED WHERE CONTRACTOR LOADS IMPOSED EXCEED AND/OR CONNECTION CONDITIONS DIFFER FROM THE BASIS OF DESIGN.

SU-3 THE SER'S REVIEW OF SUBMITTALS SHALL BE FOR GENERAL CONFORMANCE WITH THE DESIGN INTENT. NO WORK SHALL BE STARTED WITHOUT SUCH REVIEW.

FN FOUNDATIONS

- FN-1 THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY DRIESENGA & ASSOCIATES, INC. DATED JULY 28, 2022.
- FN-2 FOUNDATIONS HAVE BEEN DESIGNED BASED ON THE FOLLOWING DESIGN VALUES FROM THE GEOTECHNICAL REPORT (SERVICE LEVEL):

NET ALLOWABLE BEARING CAPACITY:

- SEE GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS AND INFORMATION. DESIGN VALUES SHALL BE FIELD VERIFIED BY QUALIFIED GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.
- FN-3 THE CONTRACTOR SHALL VERIFY ALL EARTHWORK AND FOUNDATION INSTALLATION/CONSTRUCTION IS IN CONFORMANCE WITH THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT
- FN-4 CONTRACTOR SHALL BE RESPONSIBLE TO ADEQUATELY PROTECT ALL EXCAVATION. WHERE NECESSARY, SHEET AND SHORE THE EXCAVATION WITH ALL REQUIRED TIEBACKS AND BRACING AS DETERMINED BY CONTRACTOR'S ENGINEER.

CM CONCRETE MATERIALS

- CM-1 CONCRETE STRENGTH SHALL MEET THE FOLLOWING 28-DAY COMPRESSIVE STRENGTHS (f' c), UON: FOOTINGS AND PIERS
- FOUNDATION WALLS, PILASTERS, BUTTRESSES 4,000 PSI NON-SHRINK GROUT SLAB ON GRADE HOLLOW CORE PRECAST PLANK
- CONCRETE TOPPING
- CM-2 PROVIDE NORMALWEIGHT CONCRETE WITH CURED DENSITY OF 145 +/- 5 PCF. AND AGGREGATE CONFORMING TO ASTM C33, UON.
- CM-3 THE USE OF CALCIUM CHLORIDE AND OTHER CHLORIDE CONTAINING AGENTS IS PROHIBITED. THE USE OF RECYCLED CONCRETE IS PROHIBITED. PLACEMENT WITHIN AND CONTACT BETWEEN ALUMINUM ITEMS, INCLUDING ALUMINUM CONDUIT, AND CONCRETE IS PROHIBITED.
- CM-4 ALL CAST-IN-PLACE CONCRETE WILL EXPERIENCE DIFFERING VARIATIONS OF CRACKING. ANY ELEMENT EXPOSED TO DIRECT WEATHER AND/OR TEMPERATURE VARIATIONS DURING CONSTRUCTION OR IN THE FINAL CONDITION IS TO BE TREATED AND REGULARLY MAINTAINED TO PREVENT PROPAGATION OF CRACKS AND WATER PENETRATION. THE CONTRACTOR SHALL DEVELOP A REGULAR MAINTENANCE PROGRAM AND SUBMIT IT TO THE OWNER.

RE CONCRETE REINFORCEMENT

- RE-1 ALL CONCRETE SHALL INCLUDE REINFORCEMENT. IF REINFORCEMENT IS NOT SPECIFICALLY INDICATED ON THE DRAWINGS VERIFY WITH THE SER.
- RE-2 REINFORCEMENT SHALL CONFORM TO THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES UON:

DEFORMED BARS:

WELDABLE DEFORMED BARS: EPOXY COATED DEFORMED BARS: WELDED WIRE REINFORCEMENT EPOXY COATED WELDED WIRE REINFORCEMENT

- RE-3 DETAIL REINFORCEMENT BASED ON THE PROJECT REQUIREMENTS, ACI-318 AND ACI-315, UON.
- RE-4 WHERE A 90-DEG, 135 DEG OR 180-DEG HOOK IS GRAPHICALLY INDICATED, PROVIDE CORRESPONDING ACI STANDARD HOOKS UON.
- RE-5 DOWELS SHALL MATCH SIZE AND SPACING OF MAIN REINFORCEMENT UON.
- RE-6 REINFORCEMENT SHALL HAVE CONCRETE PROTECTION (CLEAR COVER) PER ACI 318 UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- RE-7 LAP REINFORCEMENT ONLY AT LOCATIONS AS SPECIFICALLY DETAILED ON THE DRAWINGS EXCEPT REINFORCEMENT MARKED AS CONTINUOUS CAN BE SPLICED AT LOCATIONS DETERMINED BY CONTRACTOR USING TENSION LAP SPLICES (LTS). SEE LAP SPLICE AND EMBEDMENT SCHEDULE.
- RE-8 UNLESS OTHERWISE NOTED ALL LAP SPLICES ARE TO BE TENSION LAP SPLICES PER LAP SPLICE AND EMBEDMENT SCHEDULE.
- RE-9 LAP WELDED WIRE REINFORCEMENT TWO PANEL SPACINGS. UON

CJ CONCRETE CONSTRUCTION AND CONTRACTION JOINTS

- CJ-1 PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI-318. SUBMIT SHOP DRAWINGS SHOWING PROPOSED CONSTRUCTION JOINT LOCATIONS, DETAILS AND THE PLACEMENT SEQUENCE FOR THE SER'S APPROVAL PRIOR TO PROCEEDING WITH WORK
- CJ-2 UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED IN FOOTINGS, PILE CAPS, MAT FOUNDATIONS, GRADE BEAMS, BEAMS, UPTURNED BEAMS, SLABS, AND WALLS WITHOUT PRIOR WRITTEN APPROVAL FROM THE SER BEFORE CONSTRUCTION.
- CJ-3 PLACE VERTICAL CONSTRUCTION JOINTS TO PROVIDE A 60 FT MAXIMUM LENGTH OF CONCRETE PLACEMENT AND LOCATE AS FOLLOWS: A. FOUNDATION WALLS: MINIMUM OF 8 FT FROM ANY WALL INTERSECTION, PILASTER, PIER, OR WALL OPENING
- CJ-4 PROVIDE CONTINUOUS WATERSTOPS AT ALL CONSTRUCTION JOINTS EXPOSED TO SOIL OR WATER AS DESCRIBED IN THE SPECIFICATIONS AND WHERE INDICATED IN THE ARCHITECTURAL DOCUMENTS.
- CJ-5 UNLESS OTHERWISE INDICATED ON DRAWINGS, PROVIDE CONTRACTION JOINTS IN CONCRETE SLAB ON GRADE AT COLUMN CENTERLINES AND BETWEEN COLUMN CENTERLINES AT A SPACING NOT TO EXCEED 36 X THE SLAB THICKNESS. REFER TO TYPICAL CONCRETE SLAB ON GRADE DETAIL FOR ADDITIONAL INFORMATION.

2,000 PSF (ISOLATED FOOTINGS WITH COLUMN LOADS EXCEEDING 100 KIPS) 2,500 PSF (ISOLATED FOOTINGS OTHERWISE) 2,500 PSF (CONTINUOUS WALL FOOTINGS)

4,000 PSI 8.000 PSI 4.000 PSI

5,000 PSI AND HIGHER WHERE NEEDED, SEE PLAN 5.000 PSI AND HIGHER WHERE NEEDED. SEE PLAN

ASTM A615 GRADE 60
ASTM A706
ASTM A615 / A775
ASTM A1064
ASTM A1064 / A884

SP STRUCTURAL PRECAST CONCRETE

- SP-1 TYPICAL DETAILS INDICATE GENERAL CRITERIA FOR DESIGN AND DETAILING OF PRECAST CONCRETE. PROVIDE DESIGNS THAT MEET INDICATED CRITERIA AND LISTED CODES AND STANDARDS.
- SP-2 PROVIDE CONNECTIONS BETWEEN ADJACENT PRECAST UNITS TO TRANSMIT 1000 POUNDS PER LINEAR FOOT OF DIAPHRAGM LOADS. SP-3 PROVIDE CAMBER TO LIMIT DEFLECTION SUCH THAT NO POINT OF THE DEFLECTED STRUCTURE
- EXCEEDS THE PLANK SPAN OVER 360 BELOW THE STATED ELEVATION. CAMBER DESIGN SHALL INCLUDE EFFECTS OF LONG-TERM DEFLECTION, SHRINKAGE, CREEP, AND MAXIMUM ALLOWABLE CONSTRUCTION TOLERANCES.
- SP-4 DO NOT USE POWER-DRIVEN ANCHORS OR ANCHORS WHICH REQUIRE DRILLING INTO PRESTRESSED UNITS. SUBMIT PROPOSED ANCHOR PROCEDURES FOR PRECAST UNITS TO THE DESIGN PROFESSIONALS AND PRECAST SUPPLIER FOR REVIEW.

MA MASONRY

MA-1 LOAD BEARING, NON-LOAD BEARING, AND BACKUP WALL CONCRETE MASONRY CONSTRUCTION SHALL CONFORM TO THE FOLLOWING MATERIAL STANDARDS: CONCRETE MASONRY UNITS: ASTM C90, NORMALWEIGHT (135 PCF) (MINIMUM NET AREA

MORTAR: MORTAR USAGE (UON ON DRAWINGS):

GROUT: **REINFORCEMENT:** JOINT REINFORCEMENT:

EXTERIOR JT REINF: INTERIOR JT REINF:

TYPICAL RELATIVE HUMIDITY >75% ADHESIVE ANCHORS:

ASTM A951, TRUSS OR LADDER TYPE GALVANIZE PER ASTM A153 GALVANIZE PER ASTM A641 GALVANIZE PER ASTM A153 HILTI HIT-HY 270

ASTM C270, TYPE S, M OR N

NON-LOAD-BEARING WALLS

ASTM A615, GRADE 60

ASTM C476

CONTACT WITH SOIL; USE TYPE S MORTAR FOR ALL

TYPE N MORTAR FOR ALL EXTERIOR AND INTERIOR

EXTERIOR AND INTERIOR LOAD-BEARING WALLS; USE

- MA-2 THE MINIMUM COMPRESSIVE STRENGTH OF THE MASONRY (f'm) SHALL BE 2,000 PSI, UON ON DRAWINGS, DETERMINED BY THE UNIT STRENGTH METHOD IN ACCORDANCE WITH THE ABOVE **REFERENCED SPECIFICATIONS.**
- MA-3 CALCIUM CHLORIDE SHALL NOT BE USED IN MORTAR OR GROUT.
- MA-4 LAY MASONRY UNITS IN RUNNING BOND UON WITH UNITS DESIGNED TO ALIGN WITH WEBS IN EACH COURSE.
- MA-5 ALL CELLS WITH REINFORCEMENT SHALL BE GROUTED SOLID. ALL CELLS WHERE MASONRY IS IN CONTACT WITH SOIL SHALL BE GROUTED SOLID.
- MA-6 GROUT MINIMUM OF ONE (1) CELL WITH REINFORCEMENT AT EACH SIDE OF ALL OPENINGS. SEE DRAWINGS FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.
- MA-7 VENEER MASONRY TIE SYSTEM TO BE COORDINATED WITH TIE MANUFACTURER AND COMPONENT AND CLADDING WIND LOADING REQUIREMENTS OF IBC/MBC

SS STRUCTURAL STEEL

SS-1 STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS: ASTM A6 ROLLED W SHAPES AND CHANNELS: ASTM A572 OR A992, MINIMUM YIELD STRENGTH 50 KSI

MISCELLANEOUS ANGLES: ASTM A36. MINIMUM YIELD STRENGTH 36 KSI HOLLOW STRUCTURAL SECTIONS: ASTM A500 GRADE C, MINIMUM YIELD STRENGTH 46 KSI FOR ROUND AND 50 KSI FOR RECTANGULAR HSS PLATES: ASTM A572 OR A529, MINIMUM YIELD STRENGTH 50 KSI SS-2 CONNECTION MATERIAL SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS OR AS NEEDED FOR CONNECTION DESIGN:

ANGLES: ASTM A572 OR A529, MINIMUM YIELD STRENGTH 50 KSI UON WTs: ASTM A572 OR A992, MINIMUM YIELD STRENGTH 50 KSI PLATES: ASTM A572 OR A529, MINIMUM YIELD STRENGTH 50 KSI UON ASTM F3125 GRADES A325 AND F1852 OR A490 AND F2280 BOLTS: OR AS INDICATED IN DETAILS NUTS: ASTM A563 WASHERS: ASTM F436 ANCHOR RODS: ASTM F1554 GRADE 55 WITH WELDABILITY SUPPLEMENT S1 HEADED STUDS: ASTM A108, GRADE 1010 THROUGH 1020 HEADED STUD TYPE, COLD-FINISHED CARBON STEEL, AWS D1.1, TYPE B 3/4" DIAMETER UON

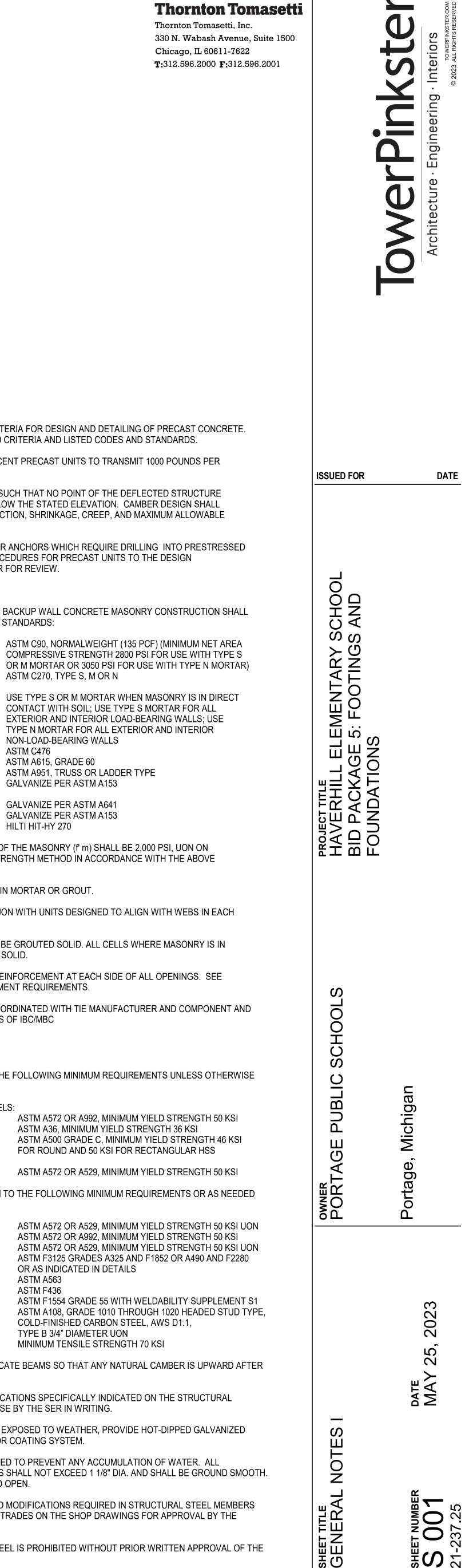
WELD ELECTRODES:

SS-3 WHERE NO CAMBER IS INDICATED, FABRICATE BEAMS SO THAT ANY NATURAL CAMBER IS UPWARD AFTER ERECTION.

MINIMUM TENSILE STRENGTH 70 KSI

- SS-4 SPLICES SHALL BE ALLOWED ONLY AT LOCATIONS SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS UNLESS APPROVED OTHERWISE BY THE SER IN WRITING.
- SS-5 FOR STEEL MEMBERS AND EMBEDMENTS EXPOSED TO WEATHER, PROVIDE HOT-DIPPED GALVANIZED FINISH OR APPROVED ZINC RICH EXTERIOR COATING SYSTEM.
- SS-6 PROVIDE HOLES IN ALL STEEL AS REQUIRED TO PREVENT ANY ACCUMULATION OF WATER. ALL PENETRATIONS THROUGH MAIN MEMBERS SHALL NOT EXCEED 1 1/8" DIA. AND SHALL BE GROUND SMOOTH. THESE DRAINS MUST BE KEPT CLEAN AND OPEN.
- SS-7 SHOW ALL COPES, HOLES, OPENINGS AND MODIFICATIONS REQUIRED IN STRUCTURAL STEEL MEMBERS FOR ERECTION OR THE WORK OF OTHER TRADES ON THE SHOP DRAWINGS FOR APPROVAL BY THE DESIGN PROFESSIONALS.
- SS-8 FIELD MODIFICATION OF STRUCTURAL STEEL IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL OF THE DESIGN PROFESSIONALS.

Thornton Tomasetti, Inc.



SC	STRUCTURAL STEEL CONNECTIONS	<u>SD</u>	STEEL DECK GEN
	ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC-LOAD AND RESISTANCE FACTOR DESIGN.	SD-1	THE MANUFACTUI MINIMUM, BE IN A
	ALL CONNECTIONS, UNLESS INDICATED AS BEING COMPLETELY DESIGNED ON THE STRUCTURAL DRAWINGS, SHALL BE DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. THE DESIGN AND DETAILING SHALL COMPLY WITH ALL APPLICABLE CODES AND SPECIFICATION SECTIONS.	SD-2	ROOF DECKS" OF DESIGN OF LIGHT AMERICAN IRON A CONFIGURE ALL S
SC-3	UNLESS INDICATED AS BEING COMPLETELY DESIGNED, DETAILS ON DRAWINGS INDICATE GENERAL CRITERIA FOR DESIGN AND DETAILING OF CONNECTIONS AND ARE NOT INTENDED TO CONVEY		CONFIGURE ALL S
	COMPLETE CONNECTOR SIZES, PLATE SIZES, WELD SIZES, NUMBER OF BOLTS, OR ANY OTHER SPECIFIC INFORMATION THAT IS OBTAINED THROUGH DESIGNING OF AN INDIVIDUAL CONNECTION FOR A GIVEN SET OF LOADS. DETAILS DO NOT SHOW ERECTION AIDS. PROVIDE ERECTION AIDS AS	RD	STEEL ROOF DEC
	REQUIRED AND REMOVE THEM AFTER WORK IS COMPLETE.	RD-1	STEEL ROOF DEC
	SUBMIT CONNECTIONS NOT SPECIFICALLY INDICATED AS COMPLETELY DESIGNED ON THE DRAWINGS TO THE SER FOR REVIEW PRIOR TO REVIEW OF SHOP DRAWINGS. FOR BIDDING PURPOSES, WHERE NO MOMENT IS INDICATED ON DRAWINGS PROVIDE FULL MOMENT CAPACITY OF MEMBER (.9 Fy Z)		ASTM A653-HOT-D
	AND WHERE NO VERTICAL SHEAR IS INDICATED ON DRAWINGS PROVIDE FULL SHEAR CAPACITY (.54 Fy d tw).		ROOF DECK SHAL
	ALTERNATE CONNECTIONS TO THOSE SHOWN ON DRAWINGS WILL BE CONSIDERED AS A SUBSTITUTION REQUEST. SEE PROJECT SPECIFICATIONS.	2 חם	STRUCTURAL QUA
	FOR CONNECTION DESIGN AND DETAILING, SET CONNECTION WORK POINT AT INTERSECTION OF MEMBER CENTERLINES, UON.		ANCHORAGE TO S
	DESIGN ALL CONNECTIONS FOR FORCES INDICATED ON THE DRAWINGS. CONNECTION DESIGN FORCES INDICATED ON THE DRAWINGS ARE FACTORED PER LRFD DESIGN BASIS UON.	ND-5	FASTENING REQU
	USE NO MORE THAN TWO BOLT DIAMETERS, ALL BOLTS OF THE SAME DIAMETER SHALL BE OF THE SAME GRADE, SKIP ONE SIZE BETWEEN DIAMETERS. BOLTS FOR THIS PROJECT SHALL BE:		5/8 INCH DIAME B. SIDE LAPS OF A SPACED AT 24
	3/4" DIAMETER F3125 GRADE A325 OR F1852 OR 1" DIAMETER F3125 GRADE A490 OR F2280		1/2 INCH.
	BEAM CONNECTION DESIGN NOTES:	RD-4	NO LOADS SHALL OF THE DECK SUF
	SEE PLANS AND ELEVATIONS FOR BEAM REACTIONS AND MOMENTS. DEVELOP THE LARGER OF THE BEAM SHEAR REACTION SHOWN ON PLANS OR ELEVATIONS. IF NO	RD-5	DECKING CONTRA ARCHITECTURAL
	SHEAR REACTIONS ARE SHOWN ON PLANS OR ELEVATIONS THEN ALLOW FOR SHEAR CONNECTION WITH FULL SHEAR CAPACITY (.54 Fy d tw).		AS REQUIRED BY OPENINGS THROU
	DEVELOP THE LARGER OF THE MOMENT SHOWN ON PLANS OR ELEVATIONS. IF NO MOMENT REACTIONS ARE SHOWN ON PLANS OR ELEVATIONS THEN ALLOW FOR MOMENT CONNECTION THAT DEVELOPS THE FULL BEAM SECTION MOMENT CAPACITY (.9FyZ).		
	DEVELOP THE LARGER OF THE AXIAL FORCE DENOTED AS P OR TF SHOWN ON PLANS OR ELEVATIONS. SEE STEEL BEAM LEGEND.	AC-1	TYPICAL DETAILS CLADDING TO BAS CONFORM TO LIS
	ALL BEAM REACTIONS, AXIAL FORCES AND MOMENTS SHOWN ACT CONCURRENTLY. UON, BEAM REACTIONS ACT IN GRAVITY DIRECTION WHILE AXIAL FORCES AND MOMENTS ARE TO BE CONSIDERED		NOTES FOR ADDI
	REVERSIBLE.		ADHESIVE ANCHO
	WHERE NO AXIAL FORCE IS SHOWN, ALL BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM AXIAL FORCE EQUAL TO 5% OF THE FACTORED DEAD LOAD PLUS LIVE LOAD VERTICAL BEAM SHEAR. FOR THE PURPOSES OF DESIGNING FOR THIS MINIMUM AXIAL FORCE: THE VERTICAL BEAM SHEAR	FA-1	SEISMIC DESIGN (
	AND CORRESPONDING MINIMUM AXIAL FORCE NEED NOT BE CONSIDERED TO ACT CONCURRENTLY AND BEARING BOLTS IN CONNECTIONS WITH SHORT SLOTTED HOLES PARALLEL TO THE AXIAL FORCE		ADHESIVE: HILTI H
	ARE PERMITTED. SHEAR CONNECTIONS INDICATED AS COMPLETELY DESIGNED IN THESE DRAWINGS HAVE BEEN DESIGNED TO MEET THESE MINIMUM AXIAL FORCE REQUIREMENTS.		THREADED ROD: I THREADED ROD: I
	EXCEPT WHERE "SNUG TIGHT" INSTALLATION IS SPECIFICALLY PERMITTED ON DRAWINGS OR "SLIP CRITICAL" DETAILING IS REQUIRED, ALL HIGH STRENGTH BOLTS SHALL BE INSTALLED AS FULL PRETENSIONED BOLTS.		OVERHEAD AND/C DRAWINGS SHALL WRITING BY THE S
	AT A MINIMUM ALL BOLTED MOMENT AND AXIAL CONNECTION SHALL HAVE PRETENSIONED BOLTS IN STANDARD HOLES.	PA-2	PROOF TESTING (SPECIFICATIONS. PER THE ADHESIN
	BOLTED MOMENT CONNECTIONS AT CANTILEVERS AND BACKSPANS SHALL USE SLIP CRITICAL BOLTS. DO NOT USE OVERSIZED OR SLOTTED HOLES FOR ANY CONNECTIONS UNLESS SPECIFICALLY	PA-3	FIELD DRILLED EX
	INDICATED ON THE DRAWINGS OR APPROVED IN WRITING BY THE SER. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE STRUCTURAL WELDING CODE.		HILTI KWIK BOLT
	ANSI/AWS D1.1, LATEST EDITION. ALL WELD SIZES SHALL BE THE LARGER OF THE SIZE REQUIRED BY CONNECTION FORCES, THE MINIMUM SIZE PER ANSI/AWS D1.1, OR 3/16 INCH MINIMUM FILLET WELD UON. ANY WELD SIZES SHOWN ON THE DESIGN DRAWINGS ARE CONSIDERED EFFECTIVE WELD SIZES AND SHALL BE INCREASED IN ACCORDANCE WITH AWS AS REQUIRED BY GAPS OR SKEWS		PROOF TESTING (PROJECT SPECIFICADE SHALL BE
SC 11	BETWEEN COMPONENTS. USE RUNOFF TABS AT ALL BEVEL AND COMPLETE JOINT PENETRATION WELDS. REMOVE RUNOFF	PA-5	FIELD DRILLED TH
00-11	TABS BY NEAT CUTS AFTER WELD IS COMPLETED. GRIND SMOOTH WHERE REQUIRED BY DETAIL.	PA-6	ALTERNATIVE SYS
SC-12	WHERE REQUIRED BY DETAIL REMOVE WELD BACK UP BARS AND GRIND SMOOTH AFTER WELD IS COMPLETED.	PA-7	WILL BE CONSIDE
SC-13	DESIGN, DETAIL, FURNISH AND INSTALL STIFFENERS, CONTINUITY PLATES, DOUBLER PLATES, OR OTHER NECESSARY ADDITIONAL LOCAL STRENGTHENING MEASURES AS REQUIRED. MEMBER SIZES INDICATED ON THE DRAWINGS ARE BASED ON MEMBER BEHAVIOR AWAY FROM CONNECTIONS.		INSTALL ANCHOR CURRENT MANUE
SJ	OPEN WEB STEEL JOISTS AND JOIST GIRDERS	PA-9	LOCATE, BY NON- INSTALLATION OF ANCHORS AS IND
	DESIGN, MANUFACTURE, AND ERECT JOISTS AND BRIDGING IN ACCORDANCE WITH THE "STANDARD SPECIFICATION FOR OPEN WEB JOISTS" OF THE STEEL JOIST INSTITUTE (SJI), CURRENT EDITION, AS A MINIMUM.	PA-1(DESIGN PROFESS) INSTALL ANCHOF
	JOISTS AND JOIST GIRDERS SHALL BE DESIGNED AND PROVIDED BY CONTRACTOR PER THE SJI SPECIFICATIONS AS INDICATED ON THE DRAWINGS. SEE DRAWINGS FOR JOIST SPACING, LOAD CRITERIA, AND DEPTH LIMITATIONS.	PA-1 ²	LEAST ONE COUF
	BRIDGING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR PER THE SJI SPECIFICATIONS.	BN	BID NOTES
	BEFORE STEEL DECK IS PLACED, ATTACH ALL BRIDGING TO THE JOISTS AND ANCHOR ALL BRIDGING TERMINATING AT WALLS OR BEAMS TO THE WALLS OR BEAMS. WELD OR BOLT ALL BRIDGING CONNECTIONS TO STEEL JOISTS AND BEAMS.	BN-1	DRAWINGS HAVE CONTRACTOR TO
SJ-5	DESIGN AND DETAIL STEEL JOISTS AND JOIST CONNECTIONS TO CARRY THE MOST SEVERE	BN-2	PRICING TO BE PR
	COMBINATION OF DIAPHRAGM FORCES, KICKER FORCES, GRAVITY LOADS, SNOW LOADS, AND WIND UPLIFT FORCES SHOWN ON THE DRAWINGS. IT IS NOT ACCEPTABLE TO DESIGN JOISTS FOR SJI STANDARD LOADS IN LIEU OF THE LOADS SHOWN ON THE DRAWINGS. IN ADDITION TO THE LOADS SHOWN ON THE DRAWINGS, JOISTS SHALL BE DESIGNED FOR:	BN-3	ISSUED WITH 100°
	 A. A MINIMUM NET UPLIFT FORCE OF 16 PSF (STRENGTH LEVEL), UON B. ADDITIONAL SERVICE POINT LOAD AT ANY PANEL POINT OF 300 LBS FOR K-SERIES JOISTS AND 700 LBS FOR LH AND DLH-SERIES JOISTS 		
	DESIGN JOISTS TO LIMIT DEFLECTION UNDER TOTAL LOAD TO SPAN LENGTH DIVIDED BY 240, UON. DESIGN JOISTS TO LIMIT DEFLECTION UNDER LIVE LOAD TO SPAN LENGTH DIVIDED BY 360, UON.		
SJ-7	CAMBER JOISTS PER SJI STANDARDS, UON.		
	PROVIDE DOUBLE ANGLE TOP AND BOTTOM CHORDS.		
	HANGING AND POINT BEARING LOADS AT JOISTS SHALL ONLY BE PERMITTED AS INDICATED ON THE DRAWINGS. DESIGN JOIST FOR HANGING AND POINT BEARING LOADS AT ANY ADJACENT PANEL POINT. COORDINATE HANGING AND POINT BEARING LOADS WITH ARCHITECTURAL AND MEP DRAWINGS.		
	EXTEND BOTTOM CHORDS OF JOISTS AND JOIST GIRDERS AT COLUMNS, SEE JOIST DETAILS FOR ADDITIONAL INFORMATION. COORDINATE BOTTOM CHORD EXTENSIONS WITH ARCHITECTURAL DRAWINGS.		
	AT EDGE CONDITIONS EXTEND JOIST TOP CHORDS BEYOND SUPPORTING BEAMS TO PERIMETER ANGLE OR BENT PLATE, UNO.		

SJ-11 AT EDGE CONDITIONS EXTEND JOIST TOP CHORDS BEYOND SUPPORTING BEAMS TO PERIMETER ANGLE OR BENT PLATE, UNO.

SJ-12 JOIST SERIES, SEAT, AND SUPPORT INFORMATION SHOWN ON THE DRAWINGS IS A MINIMUM. JOIST DESIGN ENGINEER TO REVIEW ALL SJI REQUIREMENTS AND NOTIFY ENGINEER OF RECORD IF SELECTED SYSTEM DIFFERS FROM CONTRACT DOCUMENTS PRIOR TO FABRICATION OF JOISTS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION BETWEEN SELECTED JOIST SYSTEM AND OTHER TRADES.

ENERAL REQUIREMENTS

FURE AND ERECTION OF STEEL DECK AND ITS ANCHORAGE SHALL, AT A ACCORDANCE WITH "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND OF THE STEEL DECK INSTITUTE (SDI), CURRENT EDITION AND "SPECIFICATIONS FOR HT GAGE COLD FORMED STEEL STRUCTURAL MEMBERS" AS PUBLISHED BY THE N AND STEEL INSTITUTE (AISI), CURRENT EDITION.

L STEEL DECK USING THREE SPAN CONTINUOUS LAYOUTS WHEREVER POSSIBLE. L STEEL DECK AS SHOWN ON THE DRAWINGS.

ECK

ECK SHALL CONFORM TO THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES:

T-DIPPED GALVANIZED CONFORMING TO ASTM A924 G60

ALL BE HOT-DIP GALVANIZED, UON

EEL DECK UNITS AND ACCESSORIES FROM STEEL SHEET CONFORMING TO ASTM A653 QUALITY GRADE 50, WITH A MINIMUM YIELD STRENGTH OF 50 KSI.

L ROOF DECK WITH DEPTH AND MINIMUM GAGE INDICATED ON DRAWINGS. PROVIDE O SUPPORTING MEMBERS AS INDICATED ON DRAWINGS.

ID ITS ANCHORAGE TO SUPPORTING MEMBERS SHALL MEET THE FOLLOWING MINIMUM QUIREMENTS:

UNITS AND AT ALL INTERMEDIATE SUPPORTS: BY PUDDLE WELDS NOT LESS THAN METER SPACED NOT MORE THAN 12 INCHES ON CENTER MAX. ADJACENT UNITS SHALL BE FASTENED BY SIDE SEAM WELDING OR SIDELAP SCREWS 24 INCHES ON CENTER MAX. ARC SEAM WELDS SHALL BE A MINIMUM OF 1-1/2 INCH BY

LL BE HUNG DIRECTLY FROM STEEL ROOF DECK WITHOUT PRIOR WRITTEN APPROVAL SUPPLIER AND REVIEW BY THE SER.

RACTOR SHALL COORDINATE DECK OPENING SIZES AND LOCATIONS FROM L AND MEP CONTRACT DOCUMENTS, PROVIDE HEADER MEMBERS OR REINFORCEMENT BY TYPICAL DETAILS EVEN IF NOT SHOWN ON THE PLANS, AND SUBMIT PROPOSED OUGH SLAB/DECK FOR REVIEW BY THE DESIGN PROFESSIONALS.

L CLADDING

LS INDICATE GENERAL CRITERIA FOR ASSUMED CONNECTIONS OF ARCHITECTURAL BASE BUILDING STRUCTURE. PROVIDE DESIGNS THAT MEET INDICATED CRITERIA AND ISTED CODES AND STANDARDS. REFER TO SUBMITTALS SECTION IN THESE GENERAL DITIONAL REQUIREMENTS.

ED ANCHORS

HOR SYSTEMS USED FOR DESIGN:

N CATEGORY A - F

I HIT-HY 200 V3

HILTI HAS OR HILTI HIT-Z

D/OR CONSTANT TENSION ADHESIVE ANCHOR INSTALLATIONS NOT SHOWN ON THE ALL NOT BE PERMITTED UNLESS EACH CONDITION IS REVIEWED AND APPROVED IN SER.

G OF ADHESIVE ANCHORS SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT S. UNLESS NOTED OTHERWISE, ADHESIVE ANCHOR PROOF TENSION LOADS SHALL BE SIVE ANCHOR PROOF SCHEDULES.

EXPANSION ANCHOR SYSTEMS USED FOR DESIGN:

TZ2

G OF EXPANSION ANCHORS SHALL BE PERFORMED IN ACCORDANCE WITH THE CIFICATIONS. UNLESS NOTED OTHERWISE, EXPANSION ANCHOR PROOF TORQUE BE PER THE EXPANSION ANCHOR PROOF SCHEDULES.

THREADED SCREW ANCHOR SYSTEMS USED FOR DESIGN:

SYSTEM EQUIVALENT TO OR EXCEEDING THE PROPERTIES OF THE SYSTEMS ABOVE DERED AS A SUBSTITUTION REQUEST. SEE PROJECT SPECIFICATIONS.

TO BE MINIMUM 3/4" DIAMETER WITH A MINIMUM EMBEDMENT OF 6", UON.

ORS TO MEET THE REQUIREMENTS INDICATED IN THE CONTRACT DOCUMENTS AND THE UFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII).

N-DESTRUCTIVE MEANS, AND AVOID ALL EXISTING REINFORCEMENT PRIOR TO OF ANCHORS. IF EXISTING REINFORCING LAYOUT PROHIBITS THE INSTALLATION OF NDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE SSIONALS.

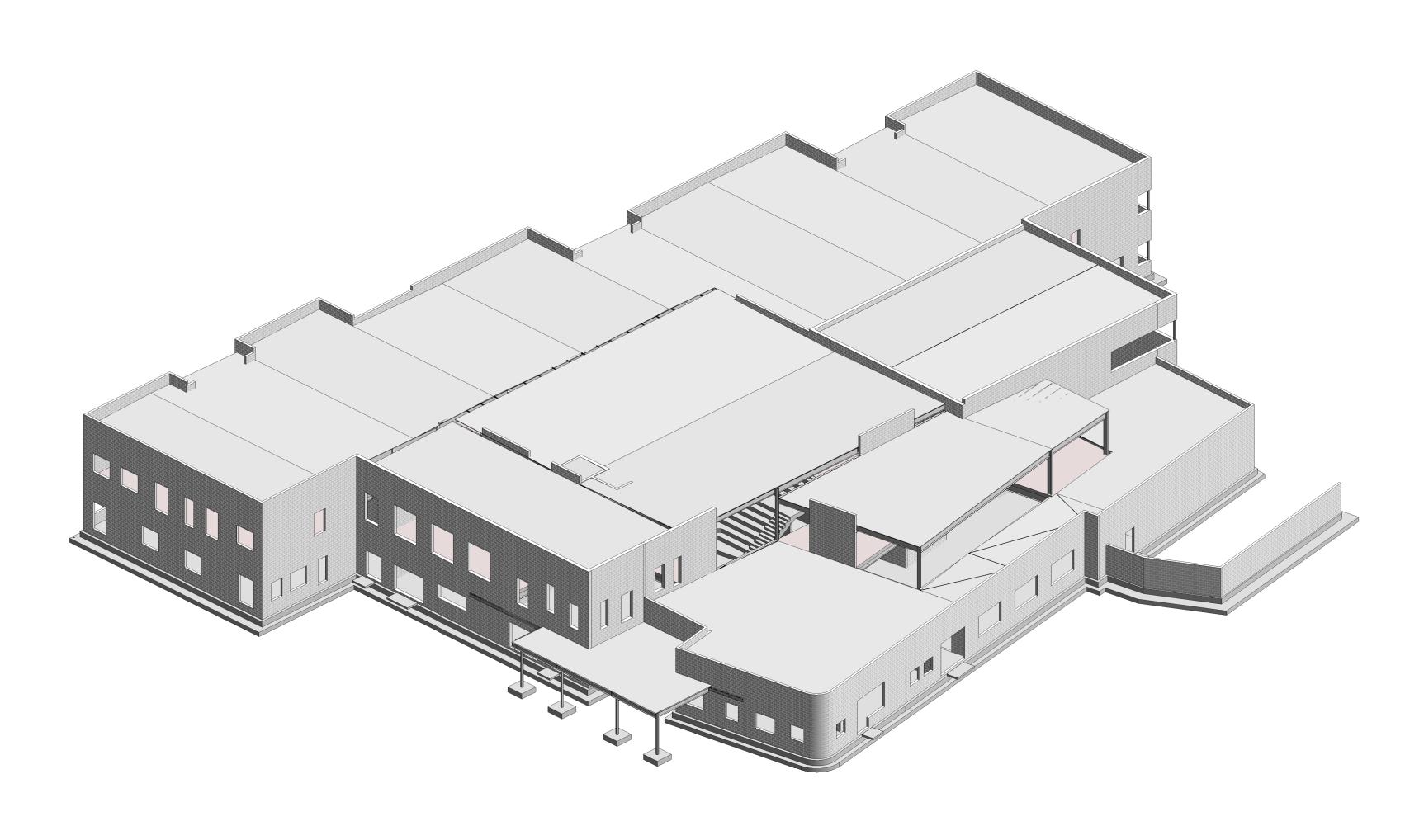
ORS IN SOLID MASONRY OR IN HOLLOW MASONRY THAT HAS BEEN GROUTED SOLID AT OURSE ABOVE TO ONE COURSE BELOW THE ANCHOR, UON.

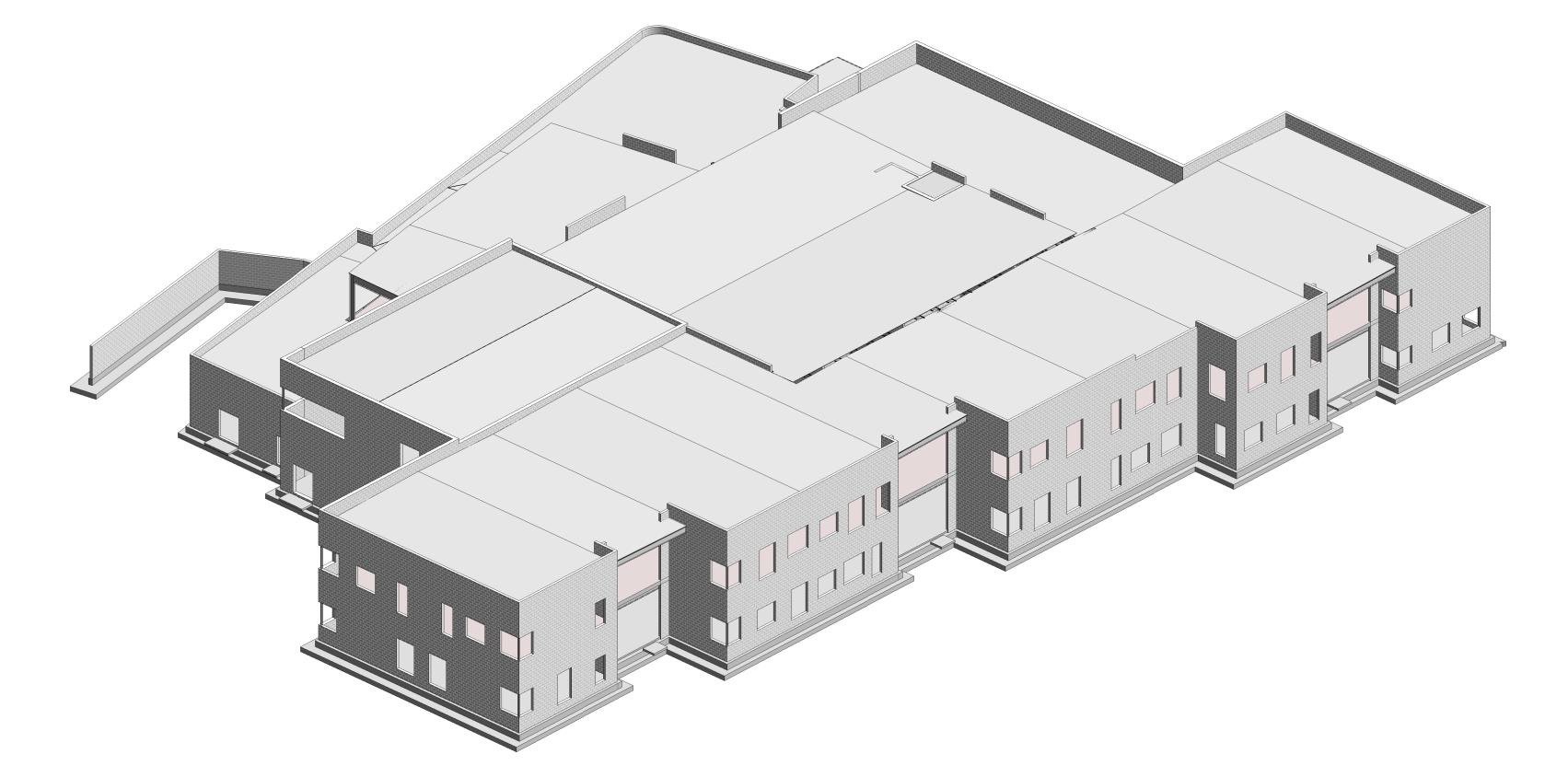
SPECIFICATIONS FOR POST-INSTALLED ANCHOR INSPECTION REQUIREMENTS.

'E BEEN ISSUED FOR PROCUREMENT OF BELOW GRADE FOUNDATION ELEMENTS ONLY. TO COORDINATE DELINEATION OF SCOPE.

PROVIDED BASED ON QUANTITIES AND DESIGN INFORMATION SHOWN IN DRAWINGS. ATION OF CMU DOWEL LOCATIONS AND AND OTHER EMBEDDED ELEMENTS TO BE 00% CONTRACT DOCUMENTS.

CLUDED IN THIS PACKAGE AND WILL BE INCLUDED IN SUPERSTRUCTURE PACKAGE.









					I		
			VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENC
1.			T REINFORCEMENT, INCLUDING PRESTRESSING NS, AND VERIFY PLACEMENT.	_	x	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2.	REI	NFO	RCING BAR WELDING:				
	ļ		ERIFY WELDABILITY OF REINFORCING BARS OTHER HAN ASTM A706;	—	Х	AWS D1.4,	
	E		SPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; ND		Х	ACI 318: 26.6.4	_
	(SPECT ALL OTHER WELDS.	Х			
3. ⊿			T ANCHORS CAST IN CONCRETE	—	X	ACI 318: 17.8.2	
4.	COI	NCR	T ANCHORS POST-INSTALLED IN HARDENED ETE MEMBERS. ^(B)				_
		0	DHESIVE ANCHORS INSTALLED IN HORIZONTALLY R UPWARDLY INCLINED ORIENTATIONS TO RESIST	X		ACI 318: 17.8.2.4	_
	E		JSTAINED TENSION LOADS ECHANICAL ANCHORS AND ADHESIVE ANCHORS				-
		N	OT DEFINED IN 4.A.		X	ACI 318: 17.8.2	
5.	VEF	RIFY	ING USE OF REQUIRED DESIGN MIX.	—	x	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904 1908.2, 1908
6.	PRI	OR 1	TO CONCRETE PLACEMENT, FABRICATE SPECIMENS			ASTM C172	
			RENGTH TESTS, PERFORM SLUMP AND AIR CONTENT AND DETERMINE THE TEMPERATURE OF THE	Х	_	ASTM C31,	1908.10
	COI	NCR	ETE			ACI 318: 26.4, 26.12	
7.		-	T CONCRETE AND SHOTCRETE PLACEMENT FOR R APPLICATION TECHNIQUES	Х	-	ACI 318: 26.5	1908.6, 1908 1908.3
8.			MAINTENANCE OF SPECIFIED CURING TEMPERATURE CHNIQUES	_	Х	ACI 318: 26.5.3-26.5.5	1908.9
9.			T PRESTRESSED CONCRETE FOR:				
			ICATION OF PRESTRESSING FORCES; AND	Х		ACI 318: 26.10	_
10.			JTING OF BONDED PRESTRESSING TENDONS	X	 X	ACI 318: CH 26.8	
-			IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING		~	AGI 310. GIT 20.0	
	OF REN	TEN MOV	DONS IN POST-TENSIONED CONCRETE AND PRIOR TO AL OF SHORES AND FORMS FROM BEAMS AND FURAL SLABS.	_	x	ACI 318: 26.11.2	_
12.			T FORMWORK FOR SHAPE, LOCATION AND IONS OF THE CONCRETE MEMBER BEING FORMED.	_	X	ACI 318: 26.11.1.2 ^(B)	
			TO OF THE CONCRETE MEMBER BEING FORMED.				
			REQUIRED VERIFICATION AND INSPI	ECTION OF	STEEL C	CONSTRUCTION	
			VERIFICATION AND INSPECTION		PERIODIC	REFERENCED STANDARD	IBC
1	N / N T			CONTINUCUS	FLINDIG	REFERENCED STANDARD	REFERENCE
1.			AL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS SHERS:				
	Α.		INTIFICATION MARKINGS TO CONFORM TO ASTM		X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM	
		CO	NSTRUCTION DOCUMENTS.			MATERIAL STANDARDS	
	Β.		NUFACTURER'S CERTIFICATE OF COMPLIANCE QUIRED.	_	Х	—	
2.	INS	PEC	TION OF HIGH-STRENGTH BOLTING:				
	A.				X		
	B. C.		P-CRITICAL CONNECTIONS. ETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-	X	Х	AISC 360, SECTION M2.5	
		OF	NUT WITH MATCHMARKING, TWIST-OFF BOLT OR RECT TENSION INDICATOR METHODS OF INSTALLATION.	Х	_		
3.	MAT		AL VERIFICATION OF STRUCTURAL STEEL AND COLD-FOR	MED STEEL DEC	K:		
	А.		R STRUCTURAL STEEL, IDENTIFICATION RKINGS TO CONFORM TO AISC 360.		Х	AISC 360, SECTION A3.1H	2203.1
	Β.	FO	R OTHER STEEL, IDENTIFICATION MARKINGS TO			APPLICABLE ASTM	
			NFORM TO ASTM STANDARDS SPECIFIED IN THE PROVED CONSTRUCTION DOCUMENTS.		Х	MATERIAL STANDARDS	
	C.	MA	NUFACTURER'S CERTIFIED MILL TEST REPORTS.			ASTM A 6 OR ASTM A 568	
4.			AL VERIFICATION OF WELD FILLER MATERIALS:				
	А.	SPI	ENTIFICATION MARKINGS TO CONFORM TO AWS			AISC 360, SECTION A3.5 AND APPLICABLE AWS A5	
	В.		CUMENTS. NUFACTURER'S CERTIFICATE OF COMPLIANCE			DOCUMENTS	
		RE	QUIRED.		Х		
5.	INSF A.		FION OF WELDING: RUCTURAL STEEL AND COLD-FORMED STEEL DECK:	—			
	<i>/</i> \.	1.	COMPLETE AND PARTIAL PENETRATION GROOVE	X			
		0	WELDS. MULTIPASS FILLET WELDS.		1		
		2. 3.	SINGLE-PASS FILLET WELDS > 5/16"	TUDED		AWS D1.1	1705.2.1
		4.	PLUG AND SLOT WELDS.	IDATIO	И / —		1100.2.1
		5.	MULTIPASS FILLET WELDS. SINGLE-PASS FILLET WELDS > 5/16" PLUG AND SLOT WELDS. SINGLE-PASS FILLET WELDS ≤ 5/16" FLOOR AND ROOF DECK WELDS.	NUA!	F \		
		6.	FLOOR AND ROOF DECK WELDS.	NDATIO COPE O VORK	7	AWS D1.3	
	Β.		NFORCING STEEL: BID	VORK			
		1.	VERIFICATION OF WELDABILITY OF REI STEEL OTHER THAN ASTM A 706.		Х		
		2.	REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL				
			MOMENT FRAMES, AND BOUNDARY ELEMENTS OF	Х	_	AWS D1.4, ACI 318: 3.5.2	_
			SPECIAL REINFORCED CONCRETE SHEAR WALLS				
			AND SHEAR REINFORCEMENT.				
		3.		X			

D		V
Б.	MEMBER LOCATIONS.	 X
C.	APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	 Х

6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR

DETAILS SUCH AS BRACING AND STIFFENING.

COMPLIANCE WITH APPROVED CONSTRUCTION

DOCUMENTS:

RE	REQUIRED SPECIAL INSPECTIONS OF OPEN-WEB STEEL JOISTS AND JOISTS GIRDERS								
	TYPE CONTINUOUS PERIODIC SPECIAL SPECIAL SPECIAL INSPECTION INSPECTION REFERENCED STANDARD ^(a)								
1. INS	1. INSTALLATION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS								
A.	EN	D CONNECTIONS - WELDING OR BOLTED		Х	SJI SPECIFICATIONS LISTED IN SECTION 2207.1.				
В.	B. BRIDGING - HORIZONTAL OR DIAGONAL								
	1.	STANDARD BRIDGING		Х	SJI SPECIFICATIONS LISTED IN SECTION 2207.1.				
	2.	BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN SECTION 2207.1.		Х					

Х

— | X

^(a) WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

		FREQUENCY ^(a)		REFERENCE FOR CRITERIA	
	INSPECTION TASK	CONTINUOUS	PERIODIC	TMS 402/ACI 530 /ASCE 5	TMS 602/ACI 530. /ASCE 6
1. VE	ERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.	_	Х		ART. 1.5
2. AS	MASONRY CONSTRUCTION BEGINS, THE FOLLOWING ARE I	N COMPLIANCE:			1
А.	PROPORTIONS OF SITE-PREPARED MORTAR	_	Х		ART. 2.1, 2.6A
Β.	CONSTRUCTION OF MORTAR JOINTS		Х		ART. 3.3B
C.	GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES		Х		ART. 2.4B, 2.4H
D.	LOCATION OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES		Х		ART. 3.4, 3.6A
E.	PRESTRESSING TECHNIQUE	_	Х	_	ART. 3.6B
F.	PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X(p)	X (c)		ART. 2.1C
3. PI	RIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN C	COMPLIANCE:			
А.	GROUT SPACE		Х		ART. 3.2D, 3.2F
Β.	GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	_	1	SEC. 1.16	ART. 2.4, 3.4
C.	PLACEMENT OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS AND ANCHORAGES			SEC. 1.16	ART. 3.2E, 3.4, 3.6A
D.	PROPORTION OF SITE-PREPARED GROUT AI PRESTRESSING GROUT FOR BONDED TENDO	INCLUDE DUNDATI SCOPE	OF	_	ART. 2.6B, 2.4G.1.B
E.	CONSTRUCTION OF MORTAR JOINTS	SCOPE WORK			ART. 3.3B
4. VI	ERIFY DURING CONSTRUCTION:	WO			
A.	SIZE AND LOCATION OF STRUCTURAL ELEMENTS	_	Х	_	ART. 3.3F
B.	TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION.		Х	SEC. 1.16.4.3, 1.17.1	
C.	WELDING OF REINFORCEMENT	Х		SEC. 2.1.7.7.2, 3.3.3.4(c), 8.3.3.4 (b)	
D.	PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F (4.4°C)) OR HOT WEATHER (TEMPERATURE ABOVE 90°F (32.2°C)).		Х		ART. 1.8C, 1.8D
E.	APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE.	Х		_	ART. 3.6B
F.	PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	Х		_	ART.3.5, 3.6C
G.	PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X(p)	X (c)	_	ART. 3.3B.8
	BSERVE PREPARATION OF GROUT SPECIMENS, ORTAR SPECIMENS, AND/OR PRISMS		Х		ART. 1.4B.2.A.3, 1.4B.2.B.3, 1.4B.2.C.3 1.4B.3, 1.4B.4

(a) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK

LISTED OR PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE. (b) REQUIRED FOR THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY.

(c) REQUIRED AFTER THE FIRST 5000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY.

REQUIRED VERIFICATION AND INSPECTION OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		Х
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		Х
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		Х
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	Х	_
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		Х

		REQUIRED VERIFICATION OF ST	DED	STRUCT EL	ION
		REQUIRED VERIFICATION OF ST OTHER THAN STOLE VERIFICATION AND IN RIAL VERIFICATION OF COL	ATION PE OF	ERIODIC	REFERENCED STANDARD
1.	MATE	ERIAL VERIFICATION OF COL	rK		
А.	S	ENTIFICATION MARKINGS TO TANDARDS SPECIFIED IN THE ONSTRUCTION DOCUMENTS	_	Х	APPLICABLE ASTM MATERIAI STANDARDS
Β.	M	ANUFACTURER'S CERTIFIED TEST REPORTS		Х	
2.	INSP	ECTION OF WELDING:			
А.	С	OLD-FORMED STEEL DECK:			
	1.	FLOOR AND ROOF DECK WELDS		Х	AWS D1.3
Β.	R	EINFORCING STEEL:			
	1.	VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706		Х	
	2.	REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT	Х	_	AWS D1.4, ACI 318: 3.5.2
	3.	SHEAR REINFORCEMENT	Х	_	
	4.	OTHER REINFORCING STEEL		Х	

SI SPECIAL INSPECTIONS AND STRUCTURAL TESTING

- **SI-1)** SPECIAL INSPECTIONS SHALL BE PERFORMED BY A SPECIAL INSPECTOR PER IBC SECTIONS 1704 AND 1705. THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY THE OWNER AND NOT BY THE CONTRACTOR OR ANY OTHER PERSON RESPONSIBLE FOR THE WORK.
- SI-2) THE SPECIAL INSPECTOR SHALL BE A QUALIFIED (LICENSED) PERSON WHO SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING HIS OR HER COMPETENCE AND RELEVANT TRAINING OR EXPERIENCE TO THE SATISFACTION OF THE BUILDING OFFICIAL. EXPERIENCE SHALL BE FOR SPECIAL INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- SI-3) THE CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY PER IBC SECTION 1704.4 TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK WHEN RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND FORCE OR SEISMIC FORCE RESISTING SYSTEM. THE STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.

SI-4) THE FOLLOWING WORK REQUIRES STRUCTURAL TESTS. FOR SPECIFIC REQUIREMENTS OF STRUCTURAL TESTS, SEE THE SPECIFICATIONS AND GENERAL NOTES.

- 1. CONCRETE REINFORCEMENT CAST-IN-PLACE CONCRETE
- SHOTCRETE POST-INSTALLED ANCHORS
- GROUTED DOWELS
- CONCRETE UNIT MASONRY STRUCTURAL STEEL MATERIALS AND FABRICATION 7
- WELDING: STRUCTURAL STEEL AND REINFORCING STEEL
- 9. STEEL DECKING
- 10 COLD FORMED METAL FRAMING

SI-5) THE FOLLOWING ITEMS SHALL RECEIVE SPECIAL INSPECTION BY A CERTIFIED SPECIAL INSPECTOR IN ACCORDANCE WITH IBC 1704 AND 1705.





ADHESIVE ANCHOR PROOF LOAD SCHEDULE							
A615 GR 60 RE	A615 GR 60 REINFORCEMENT IN NORMAL WEIGHT CONCRETE (3000 PSI MIN)						
		TENSI	ON TEST VALUE	(LBS)			
BAR SIZE	EMBEDMENT (IN)	HILTI HIT-HY 200	HILTI HIT-RE 500-SD	SIMPSON SET-XP			
#4	4	6010	6150	5690			
#5	5	9940	9330	7640			
#6	6	13660	12860	9770			
#7	7	15750	13550	12250			
#8	8	20670	16540	15430			
#9	9	26270	19580	NA			
#10	10	32500	22060	24100			

ADHESIVE ANCHOR PROOF LOAD SCHEDULE

A193 B7 THREADED ROD IN NORMAL WEIGHT CONCRETE (3000 PSI MIN)

EXPANSION ANCHOR PROOF LOAD SCHEDULE													
ANCHORS IN NORMAL W	ANCHORS IN NORMAL WEIGHT CONCRETE (3000 PSI MINIMUM)												
	TORQUE TEST	VALUE (FT-LBS)											
ANCHOR DIAMETER (IN)	HILTI KWIK BOLT TZ	SIMPSON STRONG-BOLT 2											
3/8	25	30											
1/2	40	60											
5/8	60	90											
3/4	110	150											

EXPANSION ANCHOR PROOF LC

ANCHORS IN LIGHTWEIGHT CONCRETE (30

ANCHOR DIAMETER	TORQUE TES
(IN)	HILTI KWIK BOLT TZ
3/8	25
1/2	40
5/8	60
3/4	NA

TORQUE PROOF LOAD NOTES:

1. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING PROOF TESTING OF EXPANSION ANCHORS.

THREADED		TENSION TEST VALUE (LBS)									
ROD DIAMETER (IN)	EMBEDMENT (IN)	HILTI HIT-HY 200	HILTI HIT-RE 500-SD	SIMPSON SET-XP							
3/8	3	3360	3510	3620							
1/2	4	6010	6150	5690							
5/8	5	9440	9330	7640							
3/4	6	7120	12860	9770							
7/8	7	15750	13620	12250							
1	8	20670	16440	15430							
1-1/4	10	32500	22060	24100							

TENSION PROOF LOAD NOTES:

1. PROOF TESTING OF REINFORCEMENT FOR CONCRETE HOUSEKEEPING PADS IS NOT REQUIRED.

2. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING PROOF TESTING OF ADHESIVE ANCHORS.

1 ANCHOR PROOF LOAD SCHEDULES

DA	DAD SCHEDULE											
000	000 PSI MINIMUM)											
EST \	VALUE (FT-LBS)											
	SIMPSON STRONG-BOLT 2											
	30											
	60											
	90											
	150											

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ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ADDL	ADDITIONAL	LL	LIVE LOAD
ADJ	ADJACENT	LLH	LONG LEG HORIZONTAL
ALT	ALTERNATE	LLV	LONG LEG VERTICAL
APPRX	APPROXIMATE	LONG	LONGITUDINAL
ARCH	ARCHITECT OR ARCHITECTURAL	LP	LOW POINT
В/	BOTTOM OF	LW	LIGHTWEIGHT
B/B	BACK TO BACK	LWC	LIGHTWEIGHT CONCRETE
BAL	BALANCE	Μ	MOMENT
BLDG	BUILDING	MATL	MATERIAL
BLK	BLOCK	MAX	MAXIMUM
BLKG	BLOCKING	MC	MOMENT CONNECTION(S)
BM	BEAM	MECH	MECHANICAL ELECTRICAL PLUM
BOT	BOTTOM	MEP	MECHANICAL, ELECTRICAL, PLUME FIRE PROTECTION
BRDG	BRIDGING	MEZZ	MEZZANINE
BRG BTWN	BEARING BETWEEN	MFR	MANUFACTURER
C	COMPRESSION	MID	MIDDLE
C/C	CENTER TO CENTER	MIN	MINIMUM
CIP	CAST-IN-PLACE	MISC	MISCELLANEOUS
CJP	COMPLETE JOINT PENETRATION	NIC	NOT IN CONTRACT
CL	CENTER LINE	NO	NUMBER
CLR	CLEAR OR CLEARANCE	NOM	NOMINAL
CMU	CONCRETE MASONRY UNIT	NS	NEAR SIDE
COL	COLUMN	NTS	NOT TO SCALE
COMP	COMPRESSION	NW	NORMAL WEIGHT
CONC	CONCRETE	NWC	NORMALWEIGHT CONCRETE
CONN	CONNECTION(S)	OC	ON CENTER
CONST	CONSTRUCTION	OD	OUTSIDE DIAMETER
CONT	CONTINUOUS	OF	OUTSIDE FACE
db	REINFORCING BAR DIAMETER	OH	OPPOSITE HAND
DBL	DOUBLE	OPNG(S)	OPENING(S)
DCW	DEMAND CRITICAL WELD	OPP	OPPOSITE
DEG	DEGREE(S)	OSL	OUTSTANDING LEG
DET	DETAIL	PC	
DIA	DIAMETER	PCY	POUNDS PER CUBIC YARD
DIAG	DIAGONAL	PERP PG	PERPENDICULAR PLATE GIRDER
DIM(S)	DIMENSION(S)	PJP	PARTIAL JOINT PENETRATION
DL		PL	PLATE
DWG(S) DWL	DRAWING(S)	PRC	PRECAST
EA	DOWEL(S) EACH	PRLL	PARALLEL
ECC	ECCENTRICITY	PSF	POUNDS PER SQUARE FOOT
EE	EACH END	PSI	POUNDS PER SQUARE INCH
EF	EACH FACE	PT	POINT OR POST-TENSION(ED) OR
EL	ELEVATION	RAD	RADIUS
ELEC	ELECTRICAL	REF	REFERENCE
ENGR	ENGINEER	REINF	REINFORCE(D) (ING) OR (MENT)
EOD	EDGE OF DECK	REQD	REQUIRED
EOS	EDGE OF SLAB	S&T	SHRINKAGE AND TEMPERATURE
EQ	EQUAL	SCHED	SCHEDULE(D)
EQUIP	EQUIPMENT	SDL	SUPERIMPOSED DEAD LOAD
EW	EACH WAY	SECT	SECTION
EXP	EXPANSION	SER	STRUCTURAL ENGINEER OF RECC
EXST	EXISTING	SF	SQUARE FOOT (FEET)
EXT	EXTERIOR	SFRS	SEISMIC FORCE RESISTING SYSTE
F/F	FACE TO FACE	SHT	SHEET
FIN	FINISH(ED)	SIM SOG	SIMILAR
FLR	FLOOR	SP	SLAB ON GRADE SPACE
FND	FOUNDATION	SPEC(S)	SPECIFICATION(S)
FP FS	FIREPROOF(ING)	STD	STANDARD
FTG	FAR SIDE FOOTING	STL	STEEL
GA		STR	STRUCTURE
GALV	GAGE, GAUGE GALVANIZED	STRCTL	STRUCTURAL
GB	GRADE BEAM	SYM	SYMMETRICAL
GEN	GENERAL	T	TENSION
GR	GRADE	T&B	TOP AND BOTTOM
HK	HOOK	Τ/	TOP OF
HORIZ	HORIZONTAL	TEMP	TEMPERATURE OR TEMPORARY
HP	HIGH POINT	TEN	TENSION
HT	HEIGHT	ТНК	THICK OR THICKNESS
ID	INSIDE DIAMETER	TYP	TYPICAL
IF	INSIDE FACE	UON	UNLESS OTHERWISE NOTED
INFO	INFORMATION	V	SHEAR
INT	INTERIOR	VERT	VERTICAL
INTRM	INTERMEDIATE	VIF	VERIFY IN FIELD
JST(S)	JOIST(S)	W/	WITH
JT	JOINT	W/O	WITHOUT
K	KIPS (1,000 POUNDS)	WD	WOOD
N		WP	WORK POINT
KLF	KIP PER LINEAR FOOT		
	KIP PER LINEAR FOOT KIP PER SQUARE FOOT	WPFG	WATERPROOFING
KLF			

ABBREVIATION

DESCRIPTION

IENT) ATURE AD OF RECORD G SYSTEM

TC Ή (ED) OR (ING)

TION

ΤE

L, PLUMBING,

ISSUED FOR

SCHOOL S AND

PROJECT TITLE HAVERHILL ELEMENTARY S BID PACKAGE 5: FOOTINGS FOUNDATIONS

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SCHOOL(

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AGE

OWNER PORT

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SHEET TITLE SCHEDULES, LEGENDS ABBREVIATIONS

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SHEET NUMBER S 004 21-237.25

DESCRIPTION

ABBREVIATION

DATE

SLAB/SLAB-ON-GRADE REINFORCEMENT LAP SPLICE LENGTH SCHEDULE (INCHES)

BAR	MINIMUM BAR			TENSIO	N (LTS)								
SIZE	SPACING (INCHES)	f'c = 3 KSI f'c = 4 KSI f'c = 5 KSI f'c = 6 KSI f'c = 7 KSI f'c											
#4	5.500	22	19	17	16	14	14						
#5	5.375	32	28	25	23	21	20						
#6	5.250	43	37	34	31	28	27						
#7	5.125	69	60	54	49	46	43						
#8	5.000	86	74	67	61	56	53						

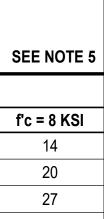
COLUMN REINFORCEMENT LAP SPLICE LENGTH SCHEDULE (I BAR MINIMUM BAR **TENSION (LTS)** SIZE SPACING (INCHES) f'c = 4 KSI f'c = 9 🖡 f'c = 7 KSI f'c = 8 KSI f'c = 5 KSI f'c = 6 KSI #5 2.125 28 25 23 20 21 19 #6 2.250 27 37 34 31 28 #7 2.375 54 49 39 45 41 #8 2.500 62 56 51 47 44 42 #9 2.875 70 63 57 53 50 #10 3.250 79 71 56 53 64 60 62 #11 3.625 87 78 71 66 58

	FOOTING/MAT REINFORCEMENT LAP SPLICE LENGTH SCHEDULE (INCHES)														SEE NOTE :
BAR	R MINIMUM BAR														
SIZE	SPACING (INCHES)	f'c = 4	4 KSI	f'c =	5 KSI	f'c =	6 KSI	f'c = 7	KSI	f'c = 8	KSI	f'c = 9) KSI	f'c = 1	0 KSI
SIZE	SPACING (INCHES)	TOP BARS	OTHER												
#4	5.500	20	15	18	14	16	13	15	12	14	12	13	12	13	12
#5	5.375	25	19	22	17	20	16	19	14	18	14	17	13	16	12
#6	5.250	29	23	26	20	24	19	22	17	21	16	20	15	19	15
#7	5.125	43	33	38	29	35	27	32	25	30	23	29	22	27	21
#8	5.000	49	37	44	34	40	31	37	28	35	27	33	25	31	24
#9	4.875	63	49	57	44	52	40	48	37	45	35	42	33	40	31
#10	4.750	82	63	74	57	67	52	62	48	58	45	55	42	52	40
#11	4.625	104	80	93	72	85	65	79	61	74	57	69	54	66	51

	FOUNDATION WALL REINFORCEMENT - VERTICAL INSIDE BARS LAP SPLICE LENGTH SCHEDULE (INCHES) SEE NOT													
BAR	R MINIMUM BAR TENSION (LTS)													
SIZE	SPACING (INCHES)	f'c = 4 KSI	f'c = 5 KSI	f'c = 6 KSI	f'c = 7 KSI	f'c = 8 KSI	f'c = 9 KSI	f'c = 10 KSI	f'c = 11 KSI	f'c = 12 KSI	COMPRESSION (LCS)			
#4	5.500	15	14	13	12	12	12	12	12	12	15			
#5	5.375	23	20	18	17	16	15	14	14	14	19			
#6	5.250	31	28	25	23	22	21	20	20	20	23			
#7	5.125	50	45	41	38	35	33	32	32	32	27			
#8	5.000	62	56	51	47	44	42	39	39	39	30			
#9	4.875	76	68	62	57	54	51	48	48	48	34			
#10	4.750	92	82	75	69	65	61	58	58	58	39			
#11	4.625	108	97	89	82	77	72	69	69	69	43			

FOUNDATION WALL REINFORCEMENT - HORIZONTAL INSIDE BARS

		FUUND							JE BARS		SEE NOTE 5				
BAR	BAR MINIMUM BAR TENSION (LTS)														
SIZE	SPACING (INCHES)	f'c = 4 KSI	f'c = 5 KSI	f'c = 6 KSI	f'c = 7 KSI	f'c = 8 KSI	f'c = 9 KSI	f'c = 10 KSI	f'c = 11 KSI	f'c = 12 KSI	COMPRESSION (LCS)				
#4	5.500	20	18	16	15	14	13	13	13	13	15				
#5	5.375	25	22	20	19	18	17	16	16	16	19				
#6	5.250	29	26	24	22	21	20	19	19	19	23				
#7	5.125	48	43	39	36	34	32	31	31	31	27				
#8	5.000	61	54	50	46	43	41	39	39	39	30				
#9	4.875	75	67	61	57	53	50	47	47	47	34				
#10	4.750	91	82	75	69	65	61	58	58	58	39				
#11	4.625	109	97	89	82	77	73	69	69	69	43				



					DE	VE	LO	PN	1EN	IT	LEN	IGT	Ή	SCI	HE	DU	LE	(IN	CH	IES	5)								SE	EE NO	TE 5
	MINIMUM BAR		TENSION									COMPRESSION																			
	-			NC	DTED /	AS Ld	ON D	RAWI	NGS					NOT	ED A	S Ldh	ON D	RAWI	NGS					NO		S Ldc	ON D	RAWI	NGS		
BAR	SPACING		f'c (PSI) f'c (PSI)								f'c (PSI)																				
SIZE	(INCHES) [MAX(1",db) + db] NOTE 2	3000	4000	5000	6000	7000	8000	0006	10,000	11,000	12,000	3000	4000	5000	6000	7000	8000	0006	10,000	11,000	12,000	3000	4000	5000	6000	7000	8000	0006	10,000	11,000	12,000
#4	1.500	22	19	17	16	15	14	13	12	12	12	11	10	9	8	8	7	7	6	6	6	11	10	9	9	9	9	9	9	9	9
#5	1.625	28	24	22	20	18	17	16	15	15	15	14	12	11	10	9	9	8	8	8	8	14	12	12	12	12	12	12	12	12	12
#6	1.750	33	29	26	24	22	21	19	18	18	18	17	15	13	12	11	11	10	9	9	9	17	15	14	14	14	14	14	14	14	14
#7	1.875	48	42	38	34	32	30	28	27	27	27	20	17	15	14	13	12	12	11	11	11	20	17	16	16	16	16	16	16	16	16
#8	2.000	55	48	43	39	36	34	32	30	30	30	22	19	17	16	15	14	13	12	12	12	22	19	18	18	18	18	18	18	18	18
#9	2.375	62	54	48	44	41	38	36	34	34	34	25	22	20	18	17	16	15	14	14	14	25	22	21	21	21	21	21	21	21	21
#10	2.625	70	61	54	50	46	43	41	39	39	39	28	25	22	20	19	18	17	16	16	16	28	25	23	23	23	23	23	23	23	23
#11	2.875	78	67	60	55	51	48	45	43	43	43	31	27	24	22	21	19	18	17	17	17	31	27	26	26	26	26	26	26	26	26

DEVELOPMENT LENGTH SCHEDULE NOTES:

1. WHERE MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST BELOW THE DEVELOPMENT LENGTH, MULTIPLY Ld BY 1.3.

2. WHERE STIRRUPS OR TIES ARE NOT PRESENT THROUGHOUT Ld, MINIMUM BAR SPACING MUST BE INCREASED TO [MAX(1", db) + 2db] FOR SCHEDULED VALUES TO BE APPLICABLE.

T INC	HES)			SEE NOTE 5
				COMPRESSION
KSI	f'c = 10 KSI	f'c = 11 KSI	f'c = 12 KSI	(LCS)
9	18	18	18	19
5	24	24	24	23
6	35	35	35	27
2	39	39	39	30
7	44	44	44	34
3	50	50	50	39
3	55	55	55	43

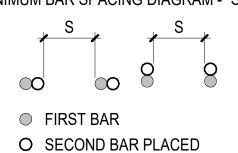
BAR	MINIMUM BAR	TENSION (LTS)										
SIZE	SPACING (INCHES)	f'c = 4 KSI	f'c = 5 KSI	f'c = 6 KSI	f'c = 7 KSI	f'c = 8 KSI	f'c = 9 KSI	f'c = 10 KSI	f'c = 11 KSI	f'c = 12 KSI	(LCS)	
#4	5.500	15	14	13	12	12	12	12	12	12	15	
#5	5.375	19	17	16	14	14	13	12	12	12	19	
#6	5.250	23	20	19	17	16	15	15	15	15	23	
#7	5.125	33	29	27	25	23	22	21	21	21	27	
#8	5.000	37	34	31	28	27	25	24	24	24	30	
#9	4.875	49	44	40	37	35	33	31	31	31	34	
#10	4.750	63	57	52	48	45	42	40	40	40	39	
#11	4.625	80	72	65	61	57	54	51	51	51	43	
<i>"</i> , , , , , , , , , , , , , , , , , , ,			TION WA		I	ENT - HC		AL OUTS	I	I	SEE N	

BAR	MINIMUM BAR	TENSION (LTS)					COMPRESSION				
SIZE	SPACING (INCHES)	f'c = 4 KSI	f'c = 5 KSI	f'c = 6 KSI	f'c = 7 KSI	f'c = 8 KSI	f'c = 9 KSI	f'c = 10 KSI	f'c = 11 KSI	f'c = 12 KSI	(LCS)
#4	5.500	20	18	16	15	14	13	13	13	13	15
#5	5.375	25	22	20	19	18	17	16	16	16	19
#6	5.250	29	26	24	22	21	20	19	19	19	23
#7	5.125	43	38	35	32	30	29	27	27	27	27
#8	5.000	49	44	40	37	35	33	31	31	31	30
#9	4.875	63	57	52	48	45	42	40	40	40	34
#10	4.750	82	74	67	62	58	55	52	52	52	39
#11	4.625	104	93	85	79	74	69	66	66	66	43

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LAP SPLICE NOTES:

- 1. TABULATED VALUES ARE PER ACI 318-11 REQUIREMENTS FOR NORMALWEIGHT CONCRETE. THE VALUES ON THIS SHEET DO NOT APPLY TO LIGHTWEIGHT CONCRETE
- 2. SEE TYPICAL DETAILS FOR CLEAR COVER
- 3. MINIMUM BAR SPACING DIAGRAM "S"



OR SPLICE BAR

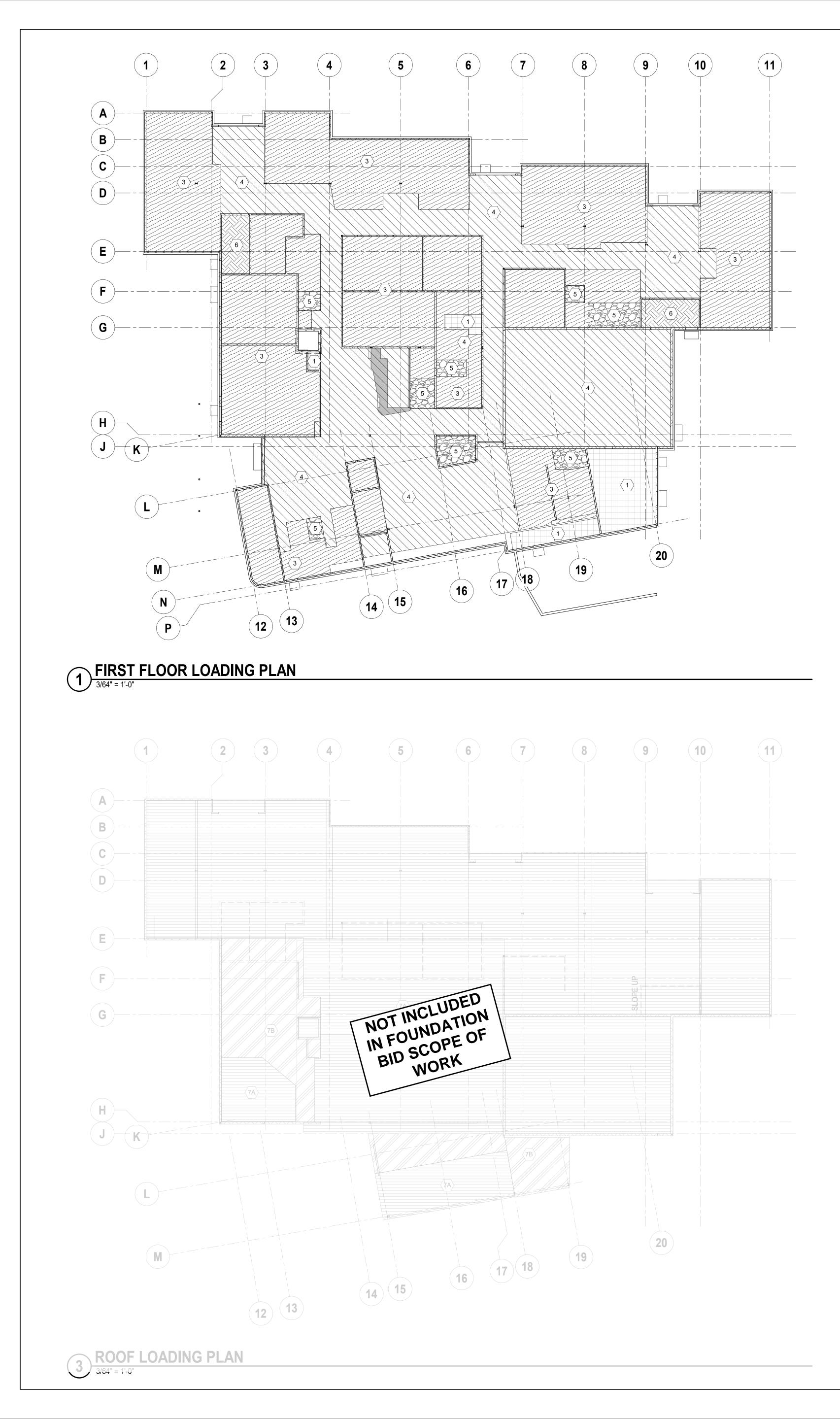
- 4. WHERE ACTUAL CONDITIONS DIFFER FROM THE CLEAR COVER SHOWN ON THE TYPICAL DETAILS OR DIFFER FROM PROVIDED SCHEDULED BAR SIZE MINIMUM SPACING AND/OR f'c, LENGTHS SHALL BE ADJUSTED ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
- 5. TABULATED VALUES ARE FOR NON-EPOXY COATED GRADE 60 REINFORCEMENT IN NORMALWEIGHT CONCRETE
- FOR EPOXY COATED REINFORCEMENT:
- MULTIPLY Ld BY 1.5
- MULTIPLY Ldh BY 1.2 Ldc IS NOT AFFECTED
- MULTIPLY LTS BY 1.3 FOR "TOP BARS"
- MULTIPLY LTS BY 1.5 FOR ALL OTHER REINFORCEMENT

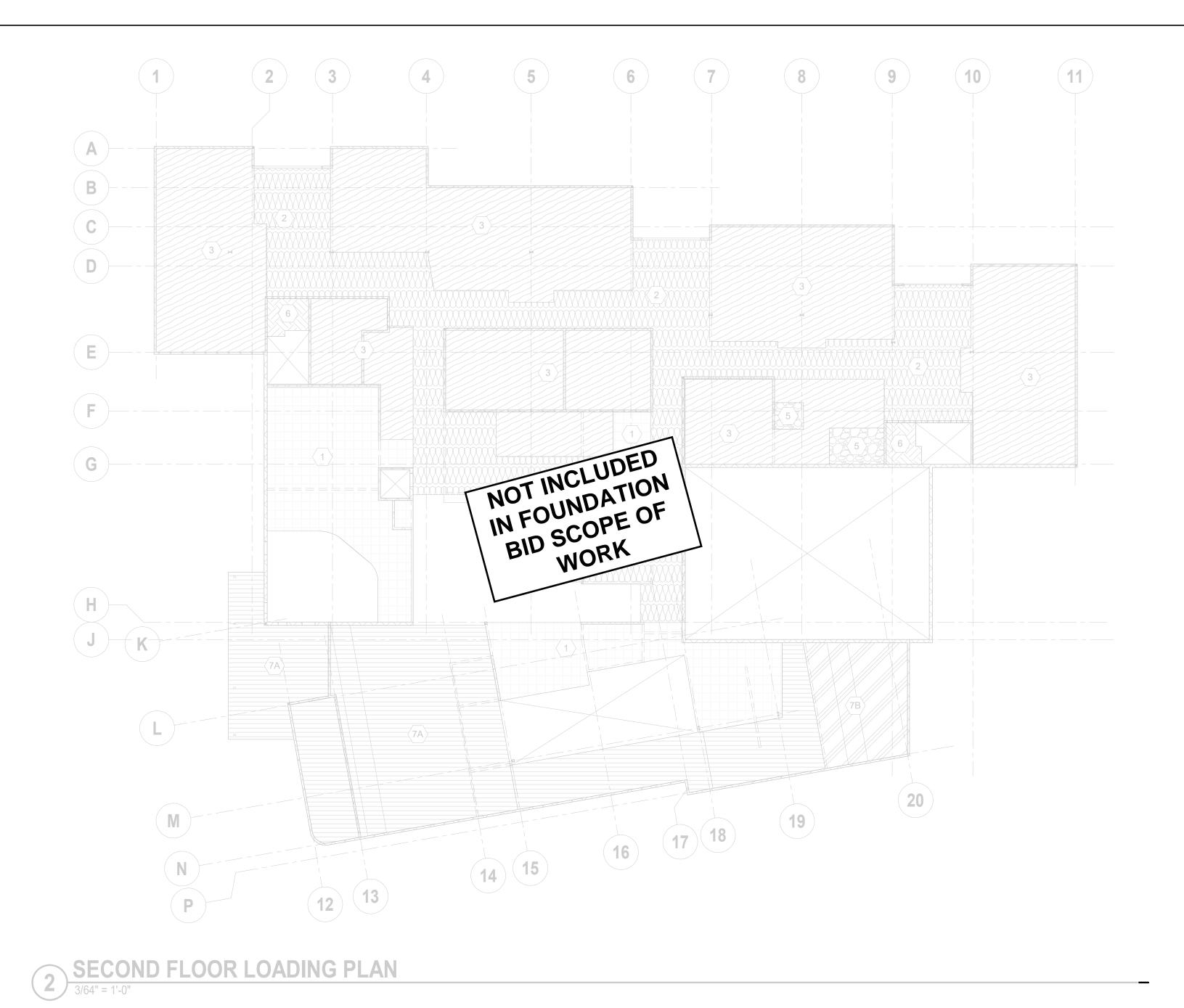
FOR GRADE 75 REINFORCEMENT: MULTIPLY Ld, Ldh, Ldc, AND LTS BY 1.25

- MULTIPLY Lcs BY 1.45
- 6. WHERE BARS OF DIFFERENT SIZES ARE LAP SPLICED IN TENSION, THE TENSION LAP SPLICE LENGTH (LTS) SHALL BE THE LARGER OF THE TENSION DEVELOPMENT LENGTH (Ld) OF THE LARGER BAR AND THE TENSION LAP SPLICE LENGTH OF THÉ SMALLER BAR.
- 7. WHERE BARS OF DIFFERENT SIZES ARE LAP SPLICED IN COMPRESSION, THE COMPRESSION LAP LENGTH (LCS) SHALL BE THE LARGER OF THE COMPRESSION DEVELOPMENT LENGTH (Ldc) OF THE LARGER BAR OR THE COMPRESSION LAP SPLICE LENGTH OF THE SMALLER BAR.
- 8. "TOP BARS" ARE DEFINED AS HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST BELOW THE DEVELOPMENT LENGTH OR SPLICE "OTHER BARS" ARE ALL BARS FOR WHICH THIS DOES NOT APPLY









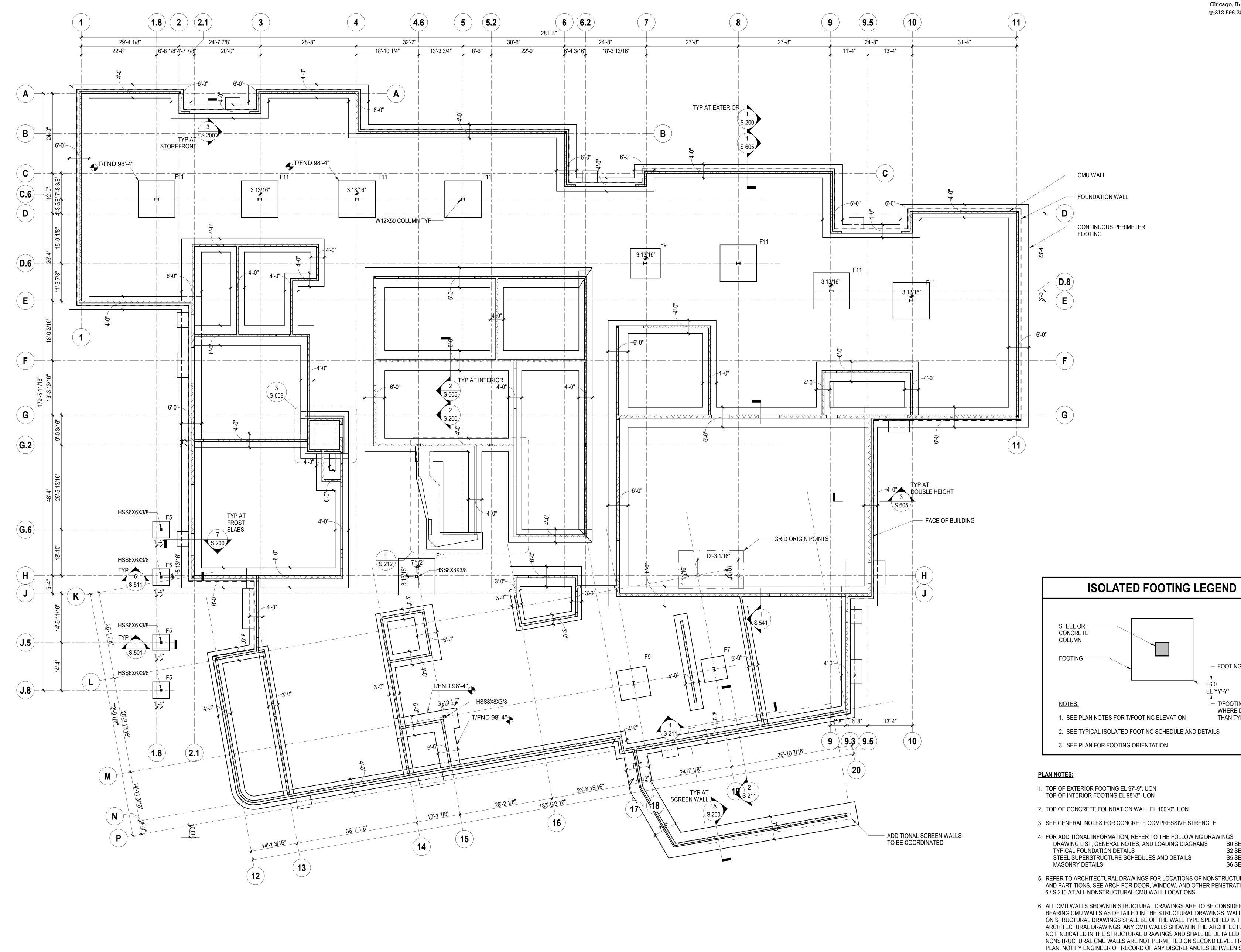
LOAD SCHEDULE						
MARK	LOCATION	LIVE LOAD (PSF)	SUPERIMPOSED DEAD LOAD (PSF)			
	MECHANICAL/ ELECTRICAL	150	60 (L02 ONLY) (4" TOPPING + CMEP)			
	SECOND FLOOR CORRIDORS	80	65 (4" TOPPING + CMEP + FINISH)			
3	STUDIO/WORKSHOP/ OFFICE/RR	40 + 15 PARTITION	5 (L01) (FINISH) 65 (L02) (4" TOPPING + CMEP + FINISH)			
4	LOBBY/ASSEMBLY/ GYMNASIUM (FIRST FLOOR)	100	5 (FINISH)			
	LIGHT STORAGE	125	5 (L01) (FINISH) 65 (L02) (4" TOPPING + CMEP + FINISH)			
6	STAIRS	100	0 (L01) 50 (L02) (4" TOPPING)			
(7A)	ROOF	20	20 (CMEP + ROOFING)			
78	ROOF (ABOVE MECHANICAL SPACE)	20	35 (CMEP ABOVE MECHANICAL + ROOFING)			

NOTE: ALL LOADS ARE SERVICE LEVEL

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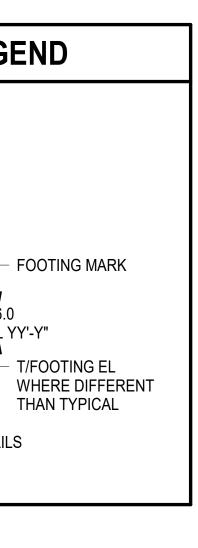
FOUNDATION PLAN 3/32" = 1'-0"

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- 5. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF NONSTRUCTURAL CMU WALLS AND PARTITIONS. SEE ARCH FOR DOOR, WINDOW, AND OTHER PENETRATIONS. PROVIDE 6 / S 210 AT ALL NONSTRUCTURAL CMU WALL LOCATIONS.
- 6. ALL CMU WALLS SHOWN IN STRUCTURAL DRAWINGS ARE TO BE CONSIDERED LOAD-BEARING CMU WALLS AS DETAILED IN THE STRUCTURAL DRAWINGS. WALLS NOT INDICATED ON STRUCTURAL DRAWINGS SHALL BE OF THE WALL TYPE SPECIFIED IN THE ARCHITECTURAL DRAWINGS. ANY CMU WALLS SHOWN IN THE ARCHITECTURAL PLANS AND NOT INDICATED IN THE STRUCTURAL DRAWINGS AND SHALL BE DETAILED AS <u>CMU-X</u> TYPE. NONSTRUCTURAL CMU WALLS ARE NOT PERMITTED ON SECOND LEVEL FRAMING UON ON PLAN. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN STRUCTURAL AND ARCHITECTURAL DRAWINGS.

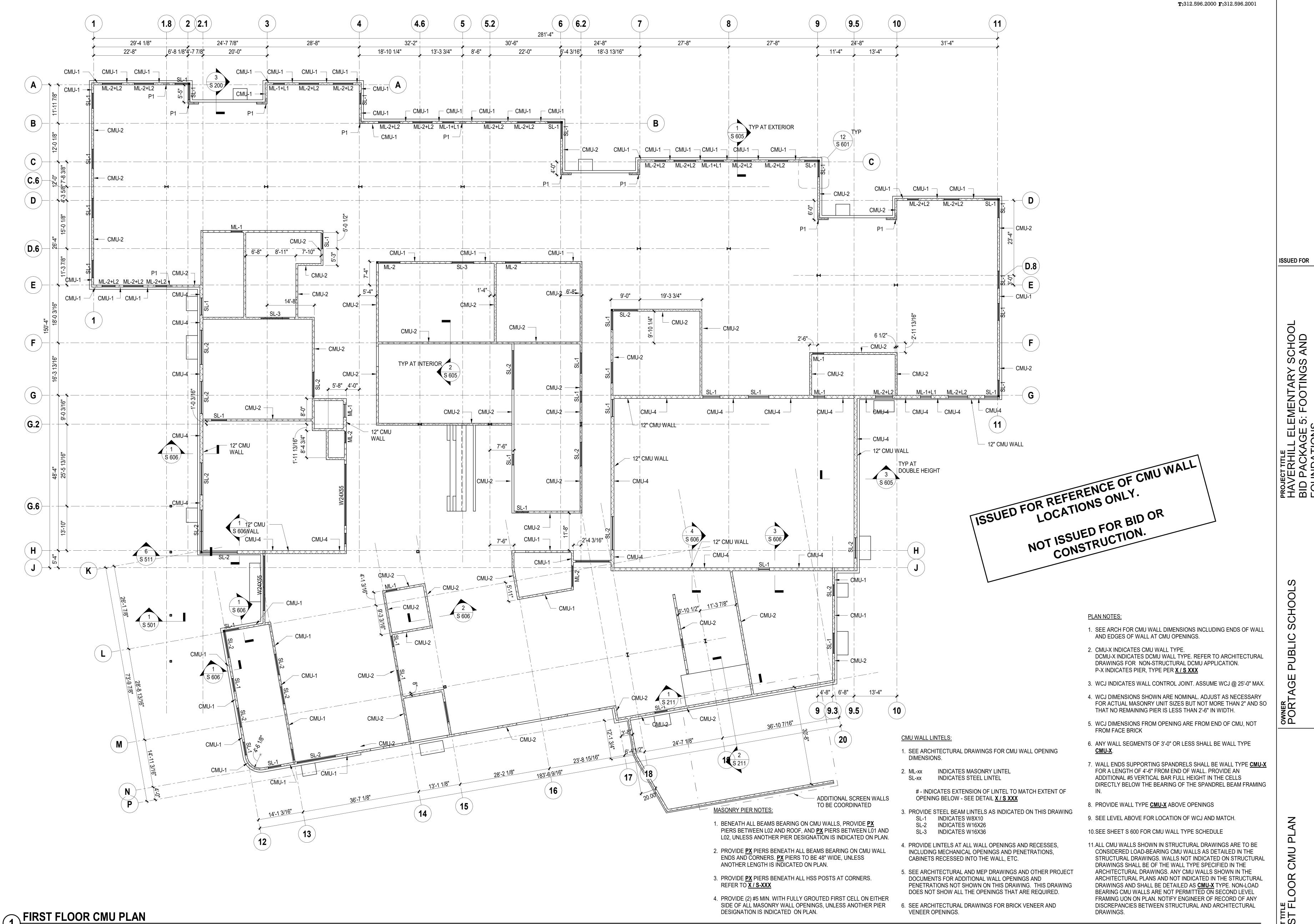






EL YY'-Y"

S0 SERIES DRAWINGS S2 SERIES DRAWINGS S5 SERIES DRAWINGS S6 SERIES DRAWINGS

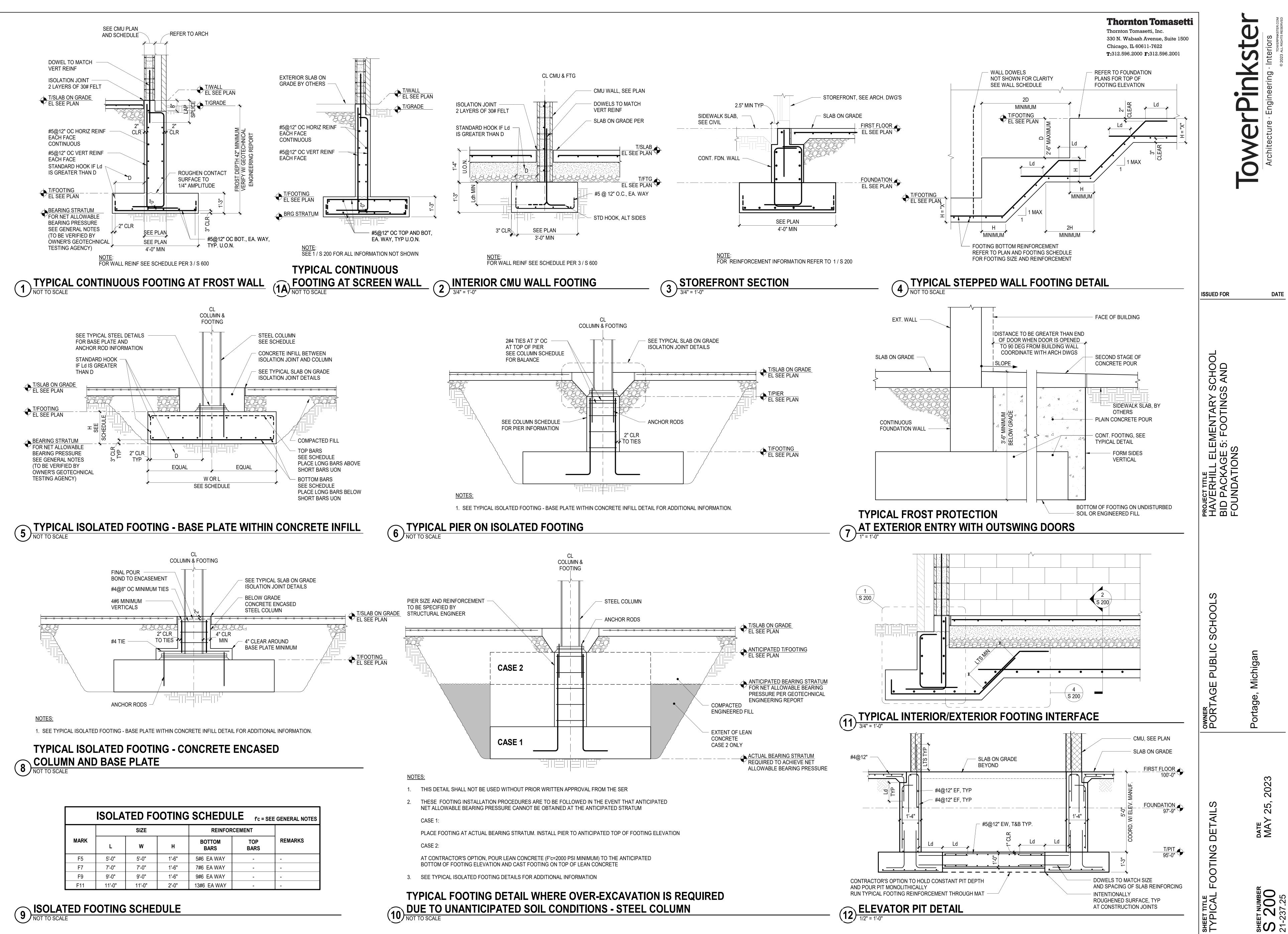


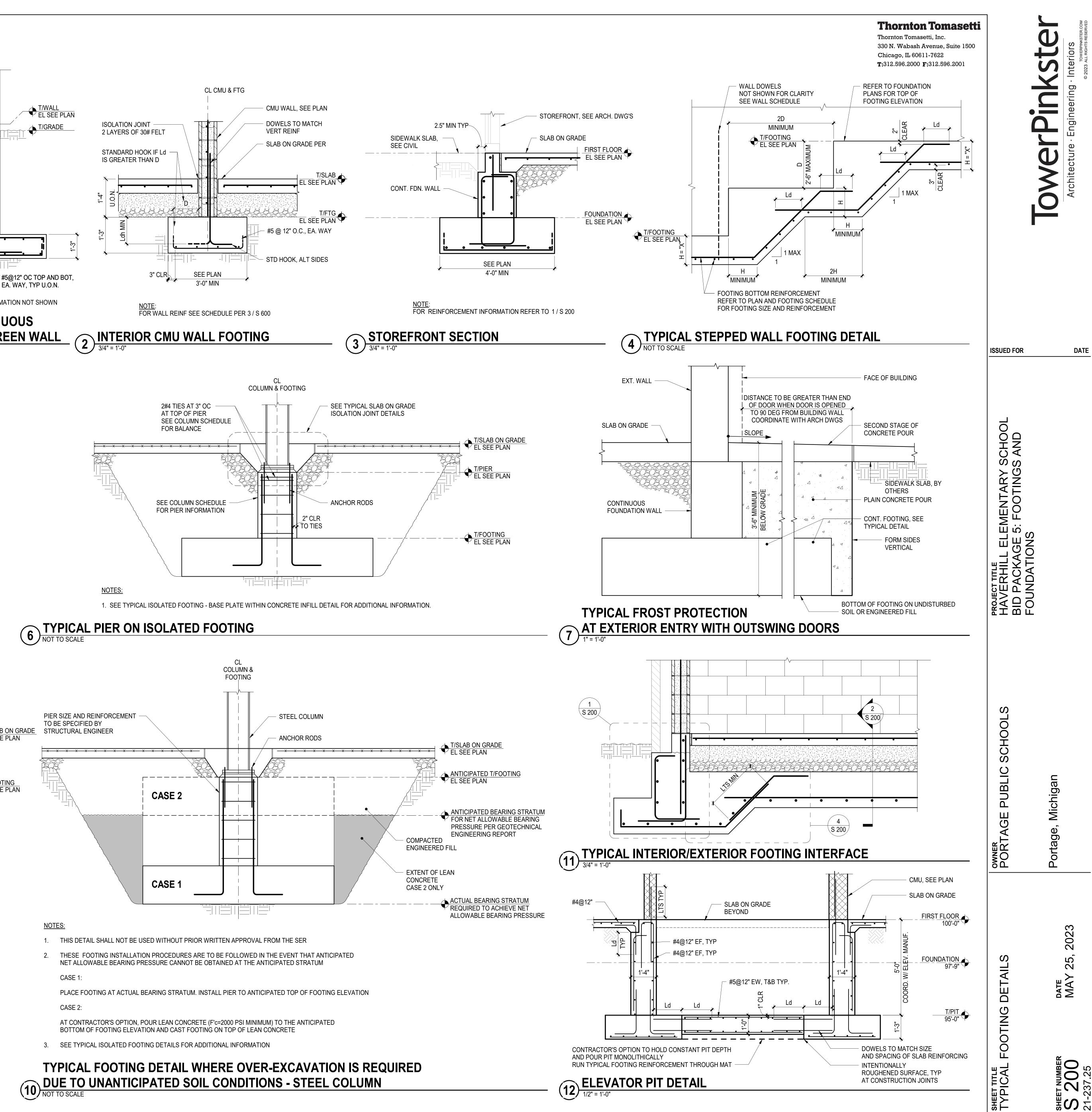
3/32" = 1'-0"

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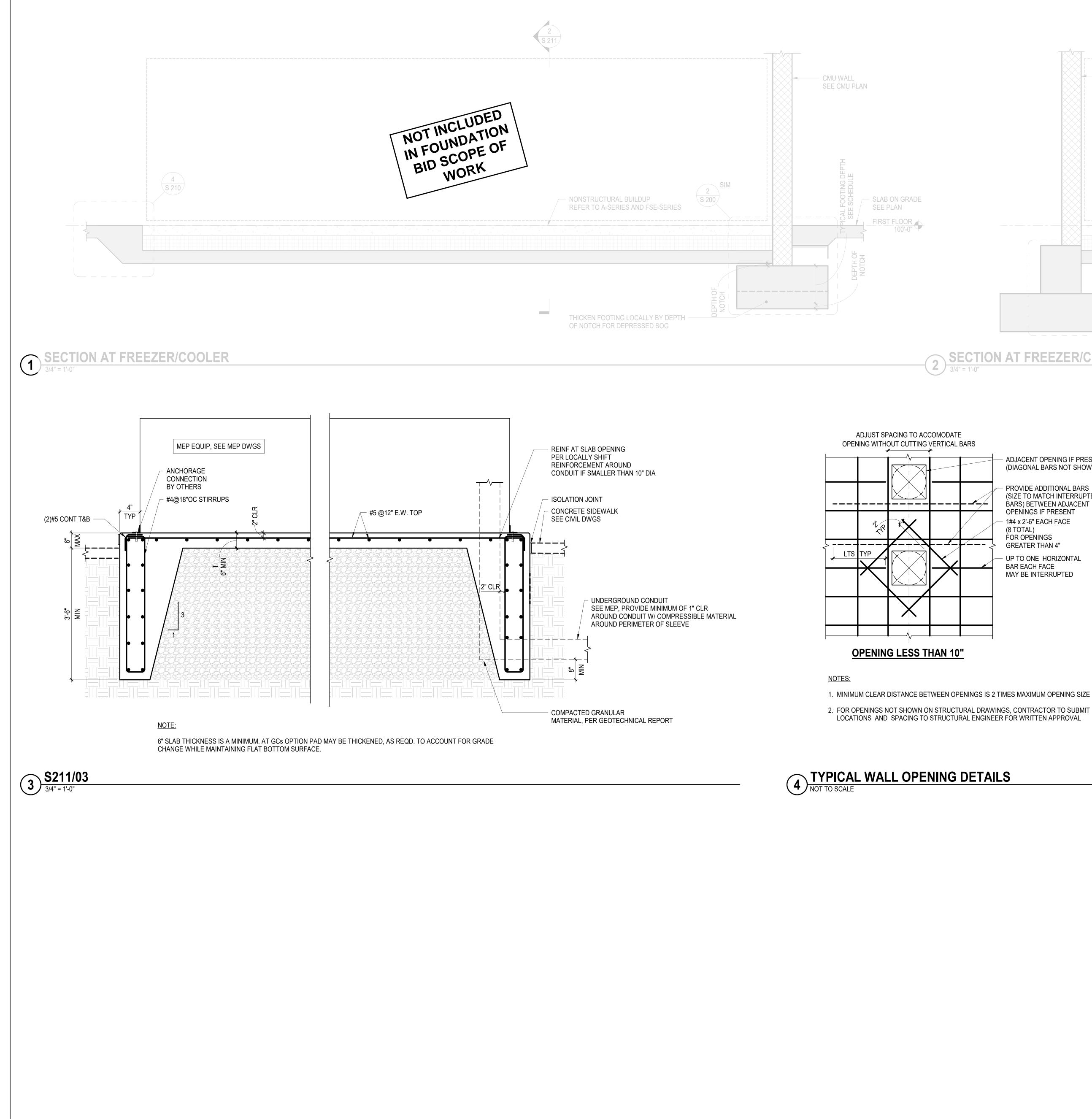
330 N. Wabash Avenue, Suite 1500 Chicago, IL 60611-7622

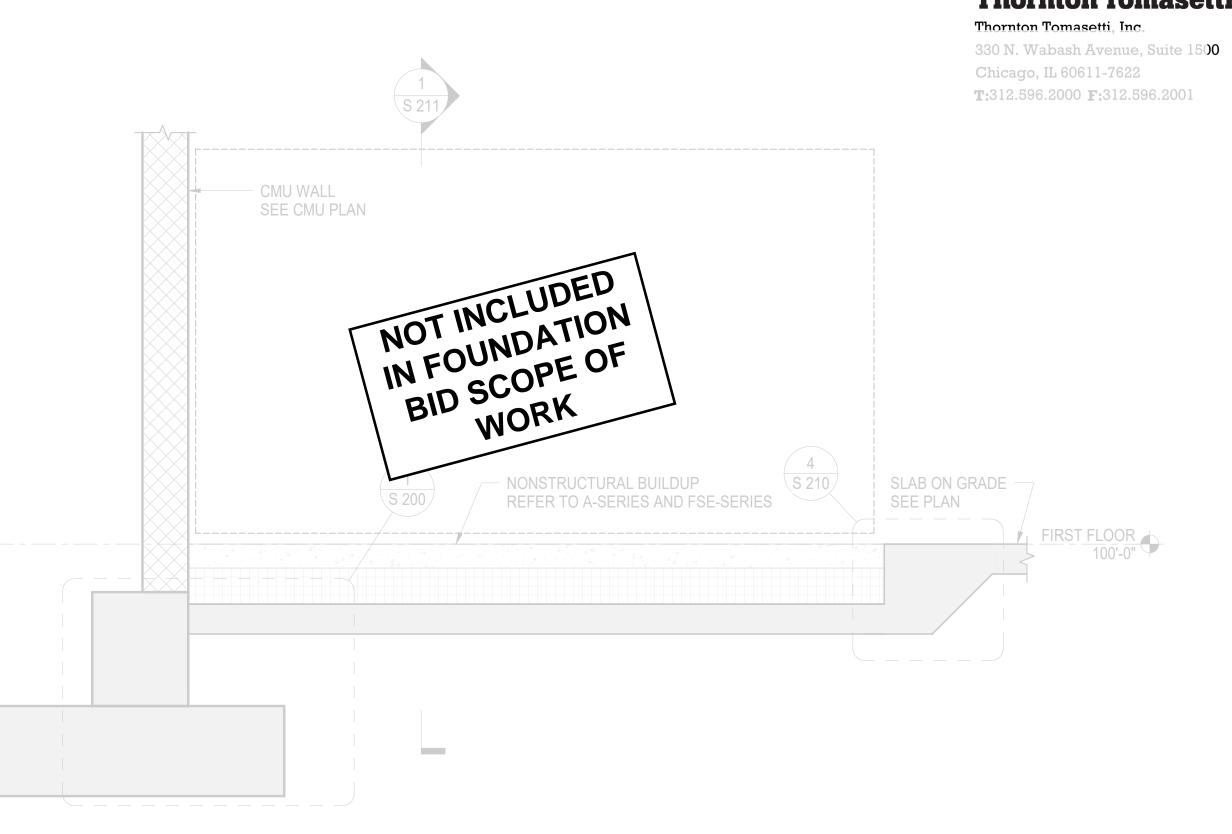












2 SECTION AT FREEZER/COOLER

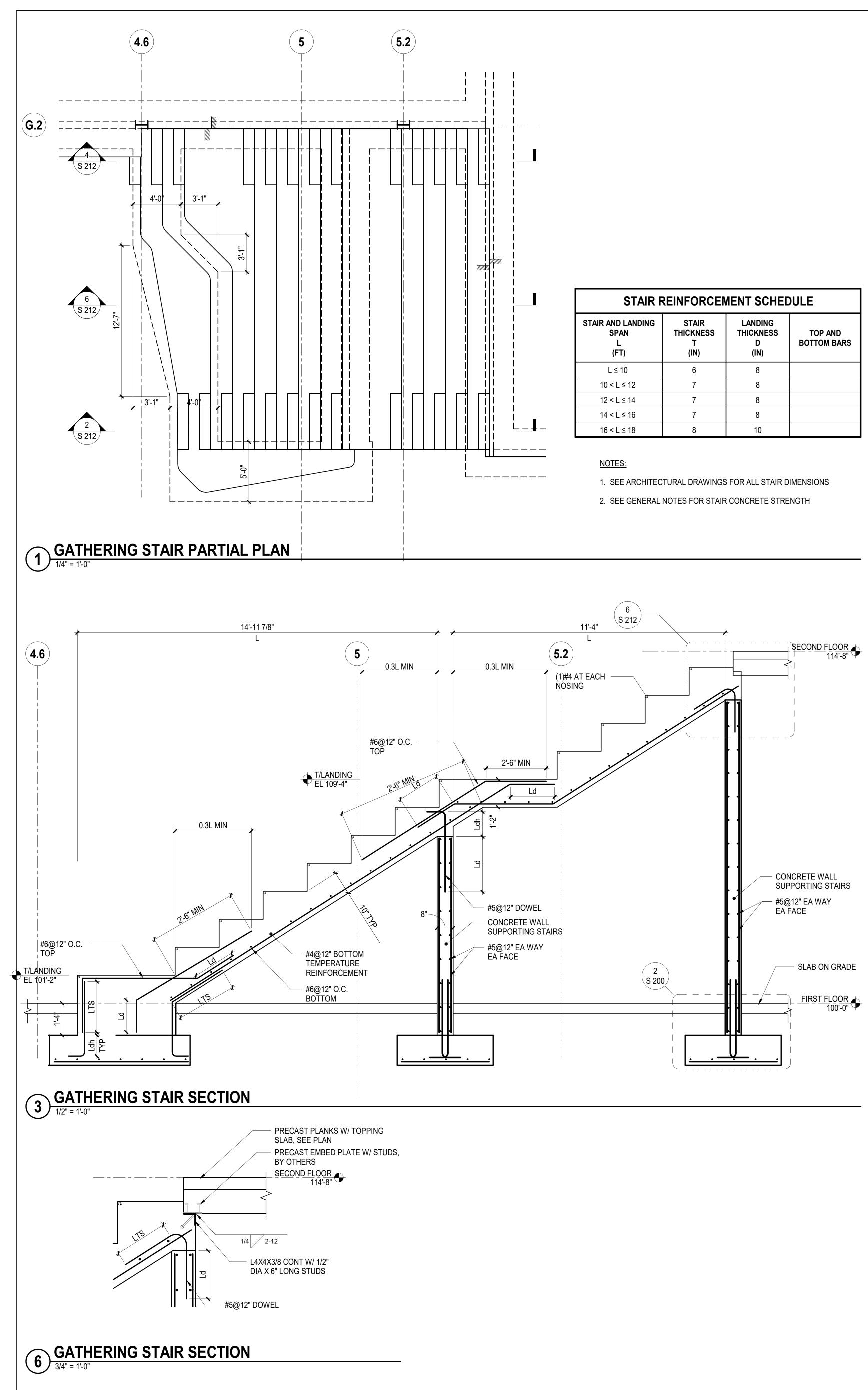
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ADJACENT OPENING IF PRESENT (DIAGONAL BARS NOT SHOWN)

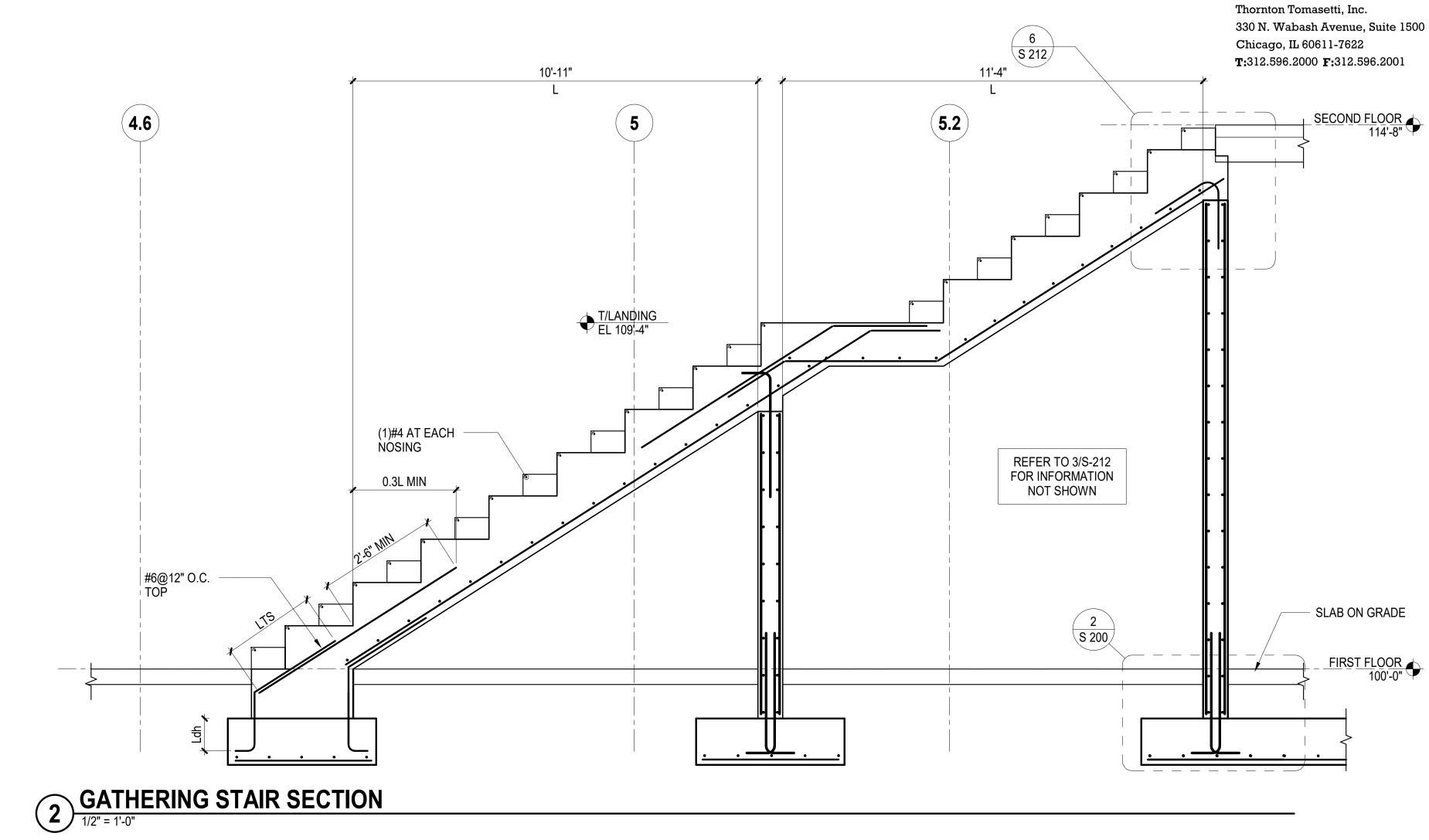
> - PROVIDE ADDITIONAL BARS (SIZE TO MATCH INTERRUPTED BARS) BETWEEN ADJACENT OPENINGS IF PRESENT - 1#4 x 2'-6" EACH FACE (8 TOTAL) FOR OPENINGS GREATER THAN 4" - UP TO ONE HORIZONTAL BAR EACH FACE MAY BE INTERRUPTED

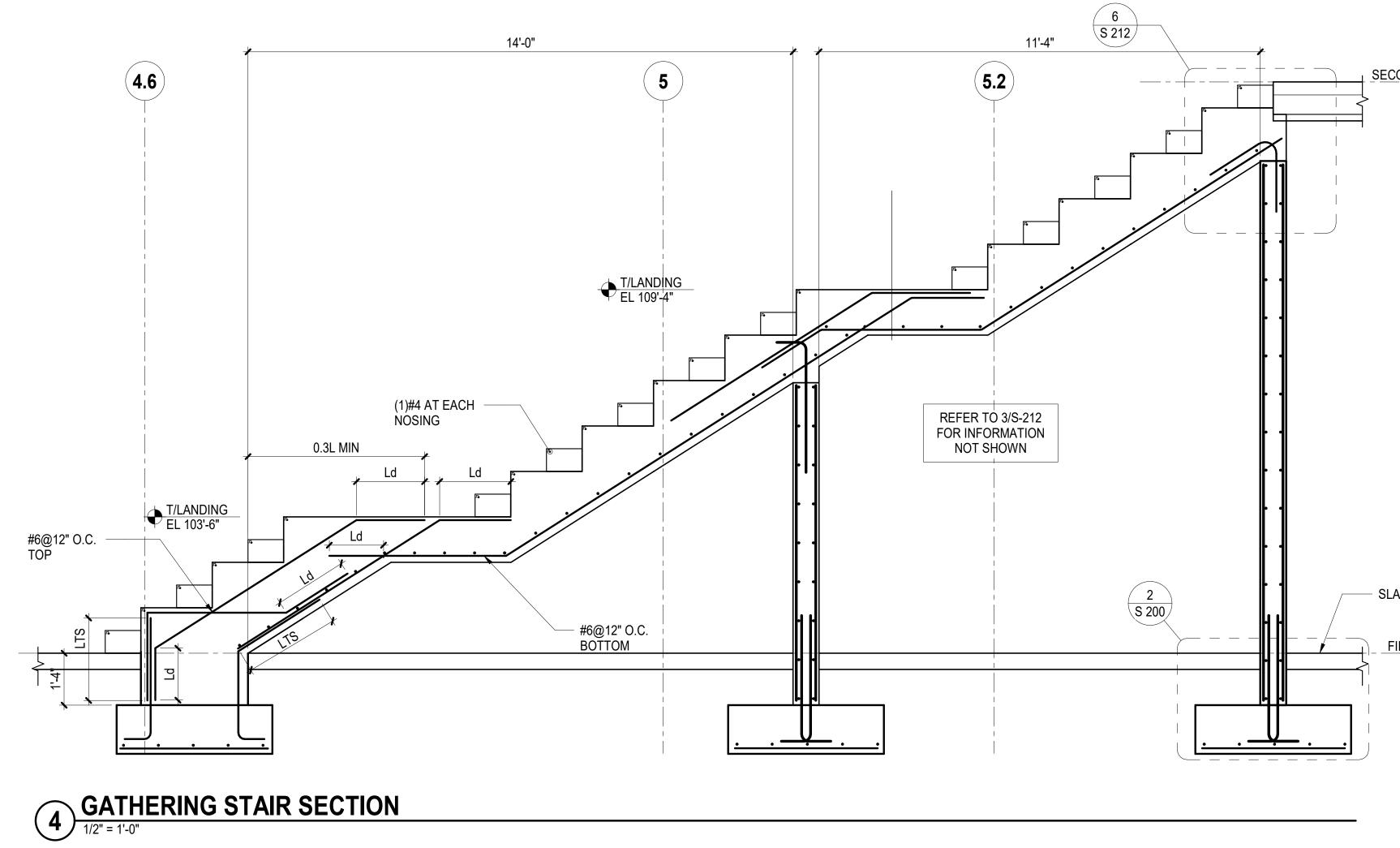
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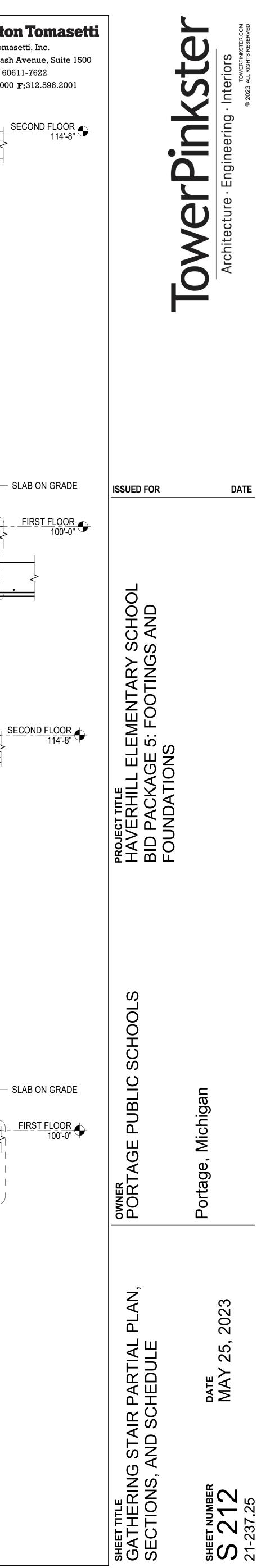


STAIR REINFORCEMENT SCHEDULE						
STAIR AND LANDINGSTAIRSPANTHICKNESSLT(FT)(IN)		LANDING THICKNESS D (IN)	TOP AND BOTTOM BARS			
L ≤ 10	6	8				
10 < L ≤ 12	7	8				
12 < L ≤ 14	7	8				
14 < L ≤ 16	7	8				
16 < L ≤ 18	8	10				





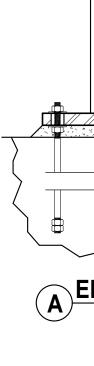
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BASE PLATE W/ OVERSIZED HOLE, PER SCHEDULE A
BOTTOM OF BASE PLATE
MINIMUM ANCHOR ROD PROJECTION ABOVE BASE PLATE PER SCHEDULE A
NOMINAL GROUT THICKNESS PER SCHEDULE A
9" MINIMUM EMBEDMENT LENGTH
ANCHOR ROD PER ANCHOR ROD SCHEDULE / COLUMN SCHEDULE
FULLY TIGHTENED DOUBLE NUTS OR HEX BOLT HEAD

SCHEDULE A						
ANCHOR ROD DIAMETER BASE PL HOLE DIA		MIN MIN MIN PRO WASHER WASHER ABOVE SIZE t BASE PL		-	NOMINAL GROUT THICKNESS	
3/4"	1-5/16"	2"	1/4"	3"	2"	

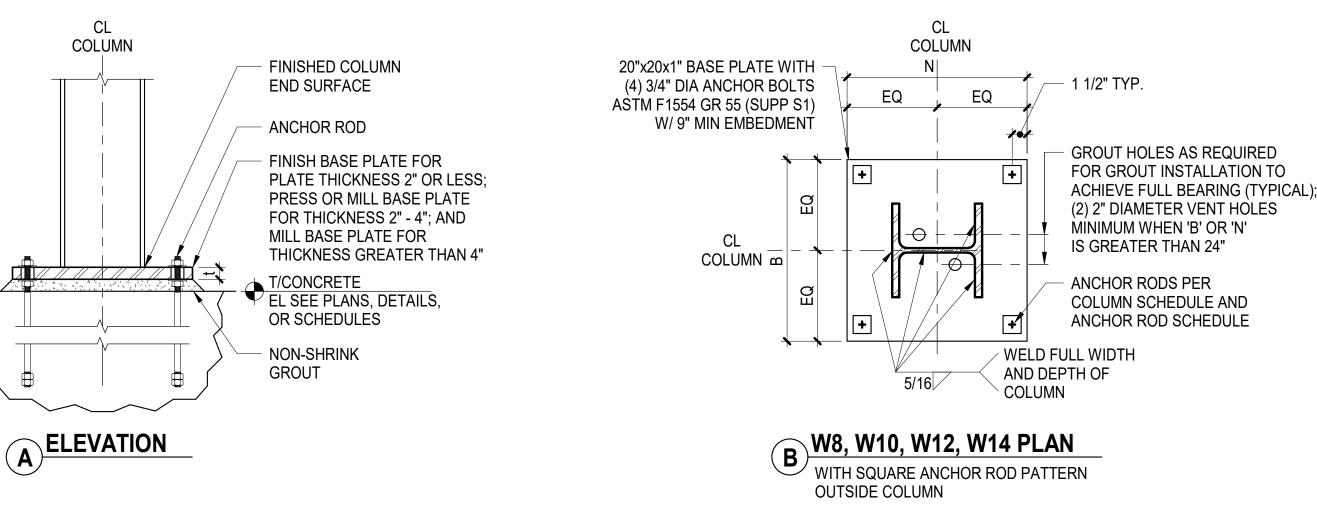
1 TYPICAL ANCHOR ROD DETAIL NOT TO SCALE



NOTES:

- 4. SEE ANCHOR ROD SCHEDULE AND TYPICAL ANCHOR ROD DETAIL FOR ADDITIONAL INFORMATION
- 5. CONTRACTOR'S OPTION TO FIELD WELD COLUMNS TO BASEPLATES FOR HEAVY BASEPLATES
- 6. ANCHOR ROD CONFIGURATION IS TO USE SQUARE PATTERN OUTSIDE COLUMN. IF SPECIFIED BASE PLATE SIZE DOES NOT PERMIT OUTSIDE PLACEMENT
- USE SQUARE PATTERN INSIDE COLUMN. USE RECTANGULAR ANCHOR ROD CONFIGURATION WHERE NOTED



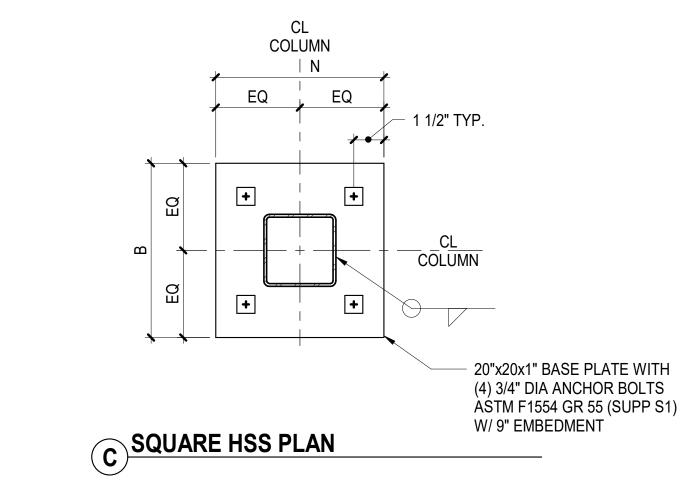


1. SEE COLUMN SCHEDULE FOR BASE PLATE SIZE, ORIENTATION AND THICKNESS

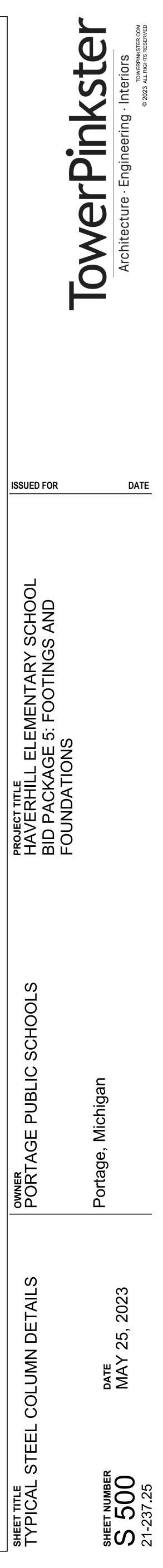
3. COLUMN STABILITY DURING ERECTION IS RESPONSIBILITY OF CONTRACTOR

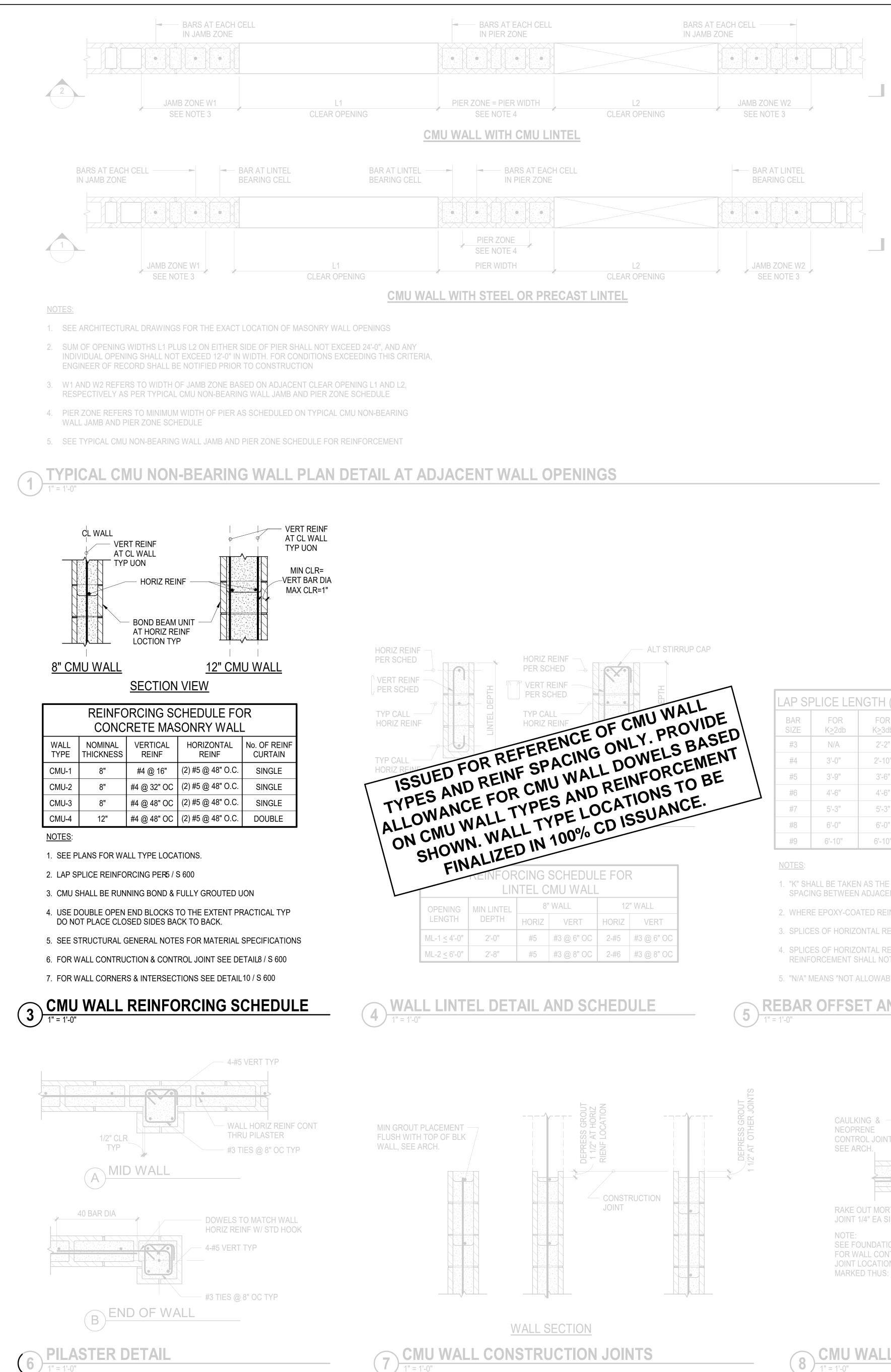
DIMENSION AFTER ALL MILLING IS COMPLETED

2. BASE PLATE THICKNESS SHOWN ON SCHEDULE IS A MINIMUM.

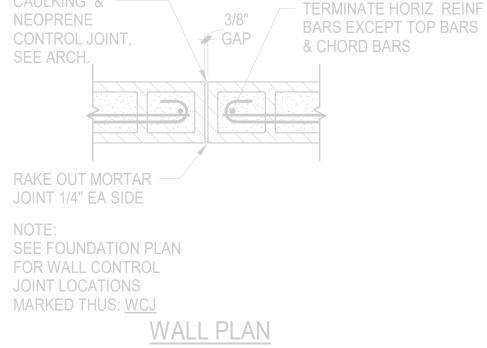








8 CMU WALL CONTROL JOINT



	SCHEDUL MU WALL		R		
8"	WALL	12" WALL			
ORIZ VERT		HORIZ	VERT		
#5	#3 @ 6" OC	2-#5	#3 @ 6" O		
#5	#3 @ 8" OC	2-#6	#3 @ 8" 00		

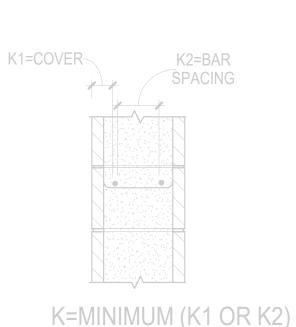
CMU WAS PES AND TYPE LC IN 100%	REINFO. CATIONS CD ISSUAN	TO E
ING SCHEDUL		
EL CMU WALL 8" WALL		

/ERT REINF PER SCHED		HLA		7
YP CALL	- OF C	MUW	ALL	
ERENC	E OF C	LY. PR	BASE	
PESA	ND ND I OCAT	IONS CLIAN	CE.	
TYPE	% CD IS	5501		
SPACE MU W	E OF C NG ON ALL DO ND REI LOCAT % CD IS	NFOR	TO BE	

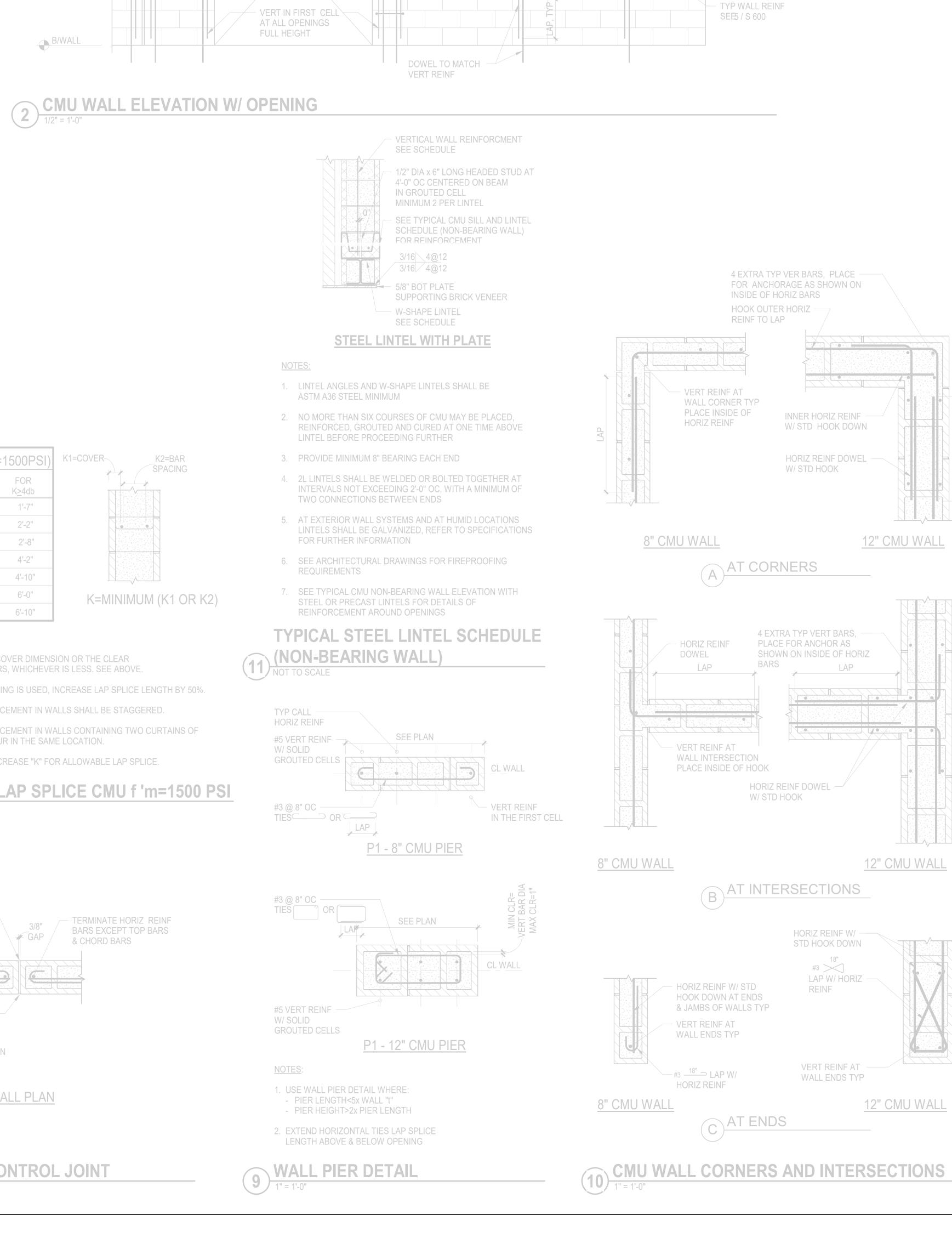
5. "N/A" MEANS "NOT ALLOWABLE" INCREASE "K" FOR ALLOWABLE LAP SPLICE. OFFSET AND LAP SPLICE CMU f 'm=1500 PSI

- 4. SPLICES OF HORIZONTAL REINFORCEMENT IN WALLS CONTAINING TWO CURTAINS OF REINFORCEMENT SHALL NOT OCCUR IN THE SAME LOCATION.
- 3. SPLICES OF HORIZONTAL REINFORCEMENT IN WALLS SHALL BE STAGGERED.
- 2. WHERE EPOXY-COATED REINFORCING IS USED, INCREASE LAP SPLICE LENGTH BY 50%.
- 1. "K" SHALL BE TAKEN AS THE CMU COVER DIMENSION OR THE CLEAR SPACING BETWEEN ADJACENT BARS, WHICHEVER IS LESS. SEE ABOVE.

LAP SPLICE LENGTH (f 'm=1500PSI)						
BAR SIZE	FOR K <u>></u> 2db	FOR K <u>></u> 3db	FOR K <u>></u> 4db			
#3	N/A	2'-2"	1'-7"			
#4	3'-0"	2'-10"	2'-2"			
#5	3'-9"	3'-6"	2'-8"			
#6	4'-6"	4'-6"	4'-2"			
#7	5'-3"	5'-3"	4'-10"			
#8	6'-0"	6'-0"	6'-0"			
#9	6'-10"	6'-10"	6'-10"			



HOOK VERT TRIM WHERE EMBED BEYOND OPNG 1'-4" MIN BTWN LESS THAN LAP SPLICE 1'-4" MIN BTWN **OPENINGS TYP** TOP BARS & CHORD -OPENING TYP - VERT IN FIRST CELL BARS CONT THRU WCJ / LAP SPLICE OF LINTEL & PIER AT DUCT OPENING SEE MECH S 600/ **EMBED TYP** SIZE NEAREST TO **BLOCK MODULE** T/WALL • • OPENING LENGTH " SEE LINTEL SCHEDULE BOND BEAM UNITS -(INVERTED) VERT REINF IN 8 FIRST CELL, UON #5 \$ 600 S 600 MIN BAR DIA USE AT \checkmark ENDS, OR CORNERS OPENING LENGTH "L" SEE LINTEL SCHEDULE **TYP WALL REINF** - VERT IN FIRST CELL AT ALL OPENINGS FULL HEIGHT B/WALL DOWEL TO MATCH -

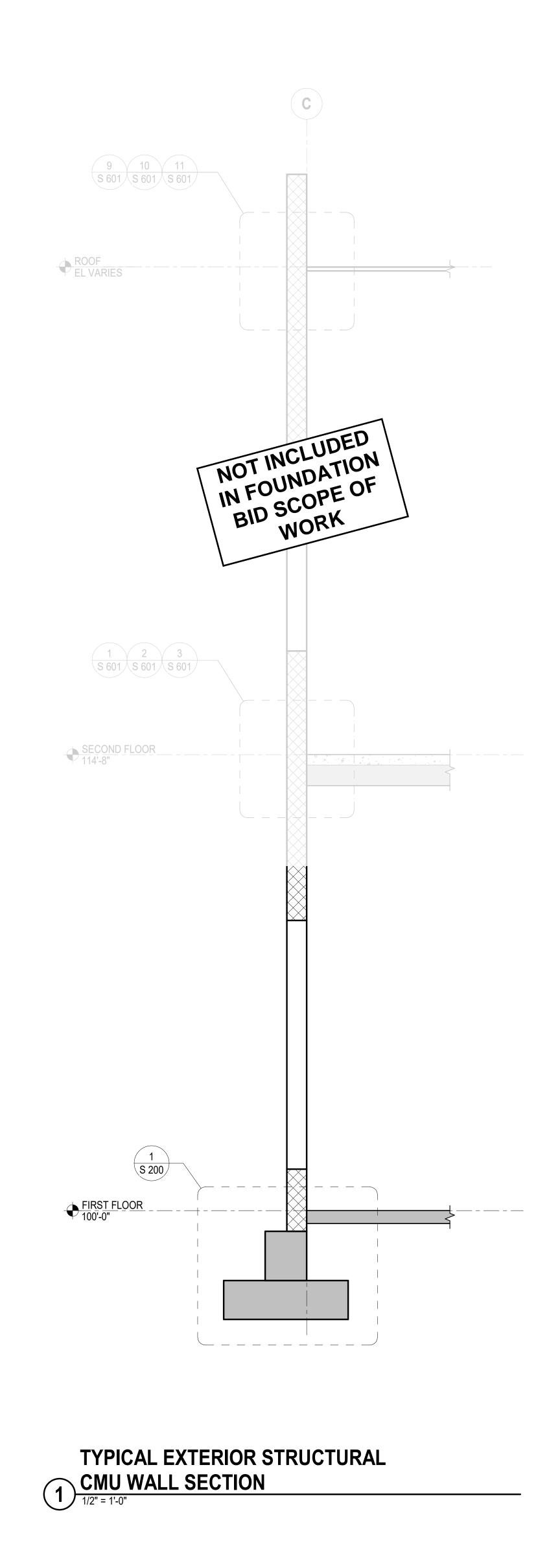


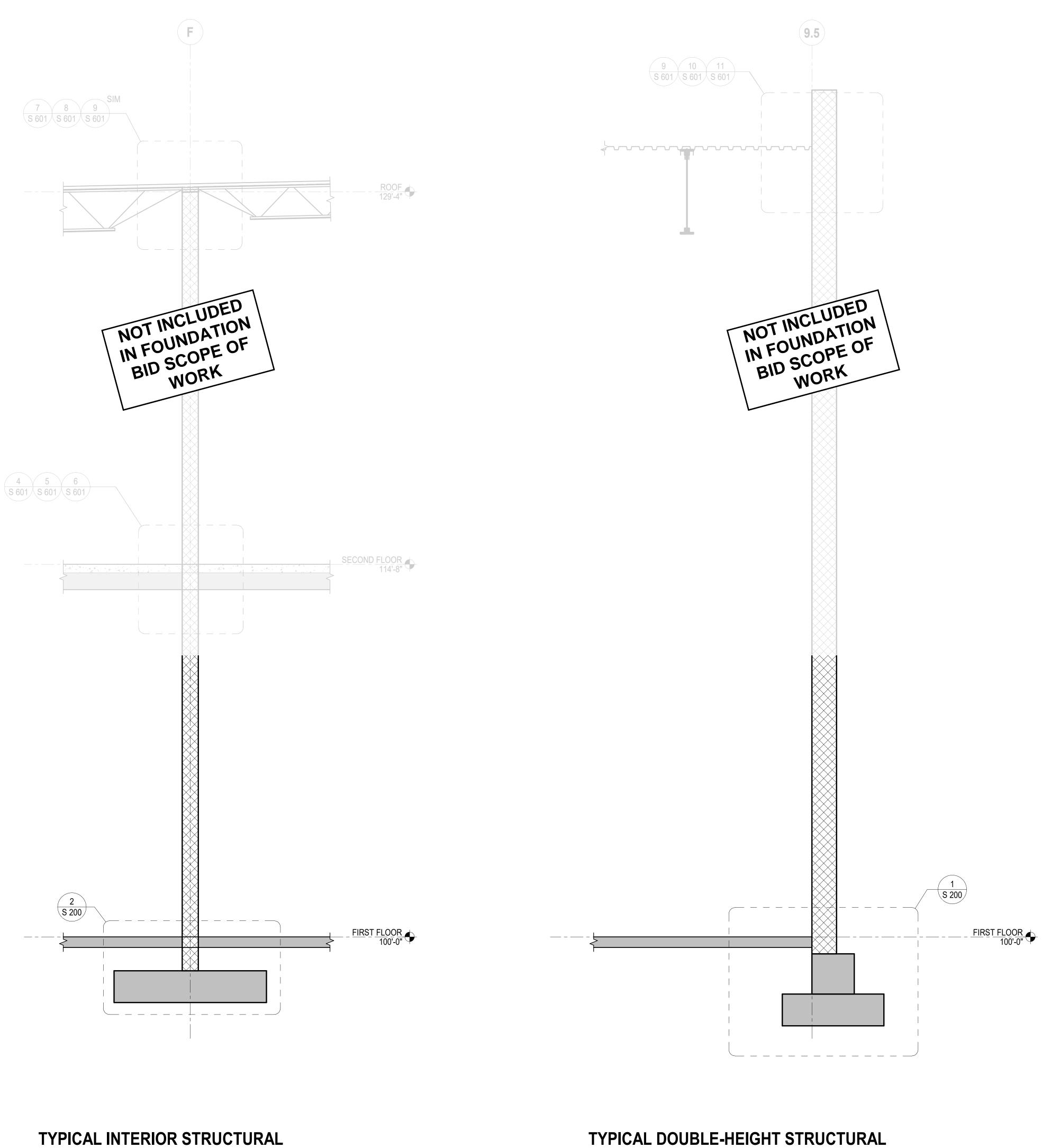
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2 CMU WALL SECTION

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TYPICAL DOUBLE-HEIGHT STRUCTURAL 3 CMU WALL SECTION





