DESIGN CRITERIA

1. STRUCTURE HAS BEEN DESIGNED TO COMPLY WITH

••		
2. 3.	IBC 2018 ASCE 7-16 ACI 318-14 AISC 360-16 AISI S100 AWS D1.1, D1.3 AND D1.8 NDS-18 AND SDPWS-15 TMS 402/602-16 RISK CATEGORY SNOW:	II 0.DSE
1		0 PSF
4.	SEISMIC SEISMIC DESIGN CATEGORY IMPORTANCE FACTOR SOIL CLASS Ss S1 Sds Sd1 R Cd Ωo	B 1.0 D 0.206 g 0.070 g 0.220 g 0.112 g 6.5 4 2.5 1 0
5.	ρ ANALYSIS PROCEDURE WIND: BASIC WIND SPEED IMPORTANCE FACTOR EXPOSURE CLASS INTERNAL PRESSURE COEFFICIENT,	EQUIVALENT LATERAL FORCE V ULT = 105 MPH 1.0 B ± 0.18

GENERAL

- 1. DURING THE CONSTRUCTION PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONNEL AND PROPERTY ON AND AROUND THE JOBSITE. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING, BRACING, GUYS, ETC. IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
- ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT 3. STRUCTURAL SUBSTITUTIONS MAY BE ALLOWED WITH THE APPROVAL OF THE STRUCTURAL
- ENGINEER. SUPPLIER SHALL PROVIDE SEALED DESIGN CALCULATIONS OR SUITABLE PRODUCT LITERATURE FOR THE COMPONENTS.
- 4. ALL DIMENSIONS AND SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOBSITE PRIOR TO CONSTRUCTION, START OF SHOP DRAWINGS, START OF CONSTRUCTION, AND/OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, OR CONDITIONS DEVELOP THAT ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE ARCHITECT SHALL BE NOTIFIED FOR CLARIFICATION.
- CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ADJACENT EXISTING SURFACES AND AREAS WHICH MAY BE DAMAGED AS A RESULT OF NEW WORK.
- 6. STRUCTURAL DRAWINGS INCLUDE DESIGN REQUIREMENTS AND DIMENSIONS FOR STRUCTURAL INTEGRITY BUT DO NOT SHOW ALL DETAIL DIMENSIONS TO FIT INTRICATE ARCHITECTURAL AND MECHANICAL DETAILS. CONTRACTOR SHALL SO CONSTRUCT THE WORK SO IT WILL CONFORM TO THE CLEARANCES REQUIRED BY ARCHITECTURAL. MECHANICAL AND ELECTRICAL DESIGN.
- ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK. DO NOT SCALE DRAWINGS. PRINTED DIMENSIONS HAVE PRECEDENCE OVER SCALED
- DRAWINGS AND LARGE-SCALE OVER SMALL-SCALE DRAWINGS. CONTRACTOR TO DETERMINE FINAL DIMENSION WITH ARCHITECT. TYPICAL DETAILS SHALL APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE
- SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
- 10. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE AND SAFETY OF WORKMEN DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OR APPROVAL OF THE ABOVE ITEMS AND DO NOT IN ANY WAY RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITIES FOR THE ABOVE.
- 11. SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR DETAILS, CONDITIONS, PITS, TRENCHES, PADS, DEPRESSIONS, ROOF/FLOOR OPENINGS, STAIRS, SLEEVES, ITEMS TO BE EMBEDDED OR ATTACHED TO STRUCTURAL ELEMENTS, ETC., NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- 12. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADE CONTRACTORS. OPENING SIZES AND LOCATIONS SHOWN FOR DUCTS, PIPE, INSERTS AND OTHER PENETRATIONS WHEN SHOWN ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED PRIOR TO FORMING.
- 13. NO HOLES, NOTCHES, BLOCK-OUTS, ETC. ARE ALLOWED IN STRUCTURAL ELEMENTS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
- 14. PENETRATIONS SHALL BE CAST-IN-PLACE AND SHALL NOT BE PERMITTED EXCEPT AS SHOWN IN THE STRUCTURAL DRAWINGS.
- 15. BEFORE SUBMITTING A PROPOSAL FOR THIS WORK, EACH PARTY SHALL VISIT THE PREMISES AND BECOME FULLY ACQUAINTED WITH CONDITIONS IN FIELD, TEMPORARY CONSTRUCTION REQUIRED, QUANTITIES AND TYPE OF EQUIPMENT, ETC. THE PROPOSAL SHALL INCLUDE ALL SUMS REQUIRED TO DO THE WORK.

EXISTING CONDITIONS / DEMOLITION

- 1. EXISTING CONDITIONS: A. EXISTING STRUCTURAL INFORMATION SHOWN WAS OBTAINED FROM EXISTING DRAWINGS:
- a. DATED 11/01/82 BY SAMUEL WU AND ASSOCIATES. B. EXISTING STRUCTURAL INFORMATION SHOWN WAS OBTAINED FROM FIELD TAKE-
- OFF BY IMEG AS PERMITTED BY ACCESS RESTRICTIONS DURING DESIGN. C. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE. CONTRACTOR TO VERIFY EXISTING INFORMATION, DIMENSIONS AND SIZES AS REQUIRED TO COMPLETE THEIR WORK. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE ARCHITECT OR STRUCTURAL ENGINEER SO PROPER CLARIFICATION MAY BE MADE. MODIFICATION OF CONSTRUCTION DETAILS SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE ARCHITECT OR STRUCTURAL FNGINFFR
- ALL DEMOLITION SHALL BE CARRIED OUT IN SUCH A WAY SO AS TO NOT DAMAGE EXISTING ELEMENTS WHICH ARE TO REMAIN.
- ALL ELEMENTS WHICH ARE TO REMAIN AND WHICH ARE DAMAGED DURING DEMOLITION WORK SHALL BE REPLACED AT NO ADDED COST. EXISTING ELEMENTS ARE TO BE PROTECTED TO THE FULLEST EXTENT POSSIBLE TO REDUCE SUCH DAMAGE TO A MINIMUM

- 1. FOUNDATION DESIGN IS BASED ON THE CODE MINIMUM VALUES PER THE 2018 IBC
- 2. SOIL PROPERTIES PER THE GEOTECHNICAL REPORT: ALLOWABLE NET SOIL BEARING PRESSURE: FOOTINGS EQUIVALENT FLUID PRESSURE PASSIVE PRESSURE
- 3. ALL EXCAVATIONS SHALL BE PROPERLY AND SAFELY BACKFILLED. DO NOT PLACE BACKFILL
- DESIGN, PERMITS, AND INSTALLATION OR SHORING AND/OR SHEETING.
- BY THE GEOTECHNICAL ENGINEER.
- SLABS. UTILITIES, ETC.
- STRUCTURES THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
- 8. ALL FOOTINGS AND SLABS ON GRADE SHALL BE PLACED ONTO FIRM UNDISTURBED SOIL OR SOIL SHALL BE PROOF ROLLED BELOW SLABS ON GRADE.
- 9. THE SLAB ON GRADE SELECTED BY THE OWNER AT THE GROUND FLOOR LEVEL OF THIS REQUIREMENTS
- REQUIREMENTS TO THE GEOTECHNICAL ENGINEER.
- 11. FOUNDATION ELEVATIONS SHOWN DESIGNATE A MINIMUM DEPTH WHERE AN ADEQUATE PRESSURE
- 12. ALL REQUIRED BACKFILL AND UTILITY TRENCH BACKFILL WITHIN THE BUILDING AREA SHALL
- ASTM D1557 AND TO THE APPROVAL OF THE INSPECTION AGENCY.
- BETWEEN 2-3% ABOVE OPTIMUM MOISTURE CONTENT. SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO IMPORTING.

REINFORCING STEEL

- 1. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL" (SP-066) EXCEPT AS OTHERWISE SHOWN, NOTED OR SPECIFIE
- 2. CONCRETE REINFORCING STEEL SHALL B CONFORMING TO THE FOLLOWING STAND DEFORMED BARS AS DEFORMED BARS IN SFRS AS WELDED WIRE REINFORCING AS DEFORMED EPOXY-COATED BARS AS DEFORMED GALVANIZED-COATED AS BARS STEEL WIRE AS
- DEFORMED BAR ANCHORS WELDABLE BARS, DEFORMED
- 3. MINIMUM CONCRETE COVER SHALL BE PROVIDED AS FOLLOWS TO THE OUTERMOST REINFORCING BARS: CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND 3' EXPOSED TO WEATHER OR IN CONTACT WITH GROUND #6 BARS OR LARGER
 - #5 BARS OR SMALLER NOT EXPOSED TO WEATHER OR IN CO SLABS, JOIST AND WALLS WITH # SLABS, JOISTS AND WALLS WITH
 - BEAMS, COLUMNS, PEDESTALS A
 - COLUMN VERTICAL BARS BOUNDARY ELEMENTS
- 4. ALL REINFORCING IN CONCRETE USED FOR THE CONTAINMENT OF WATER SHALL BE HOT-DIP GALVANIZED OR EPOXY-COATED.
- 5. WELDING OF REINFORCING BARS TO BE IN ACCORDANCE WITH AWS D1.4.
- SUITABLE WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE
- IN ACCORDANCE WITH THE MANUFACTURER. 7. SUPPORTS FOR REINFORCEMENT SHALL HAVE CLASS 2 PROTECTION AS DEFINED
- IN THE CRSI MANUAL OF STANDARD PRACTICE, UNLESS OTHERWISE NOTED. 8. SUPPORTS FOR COATED REINFORCEMENT SHALL HAVE CLASS 1 PROTECTION AS
- DEFINED IN THE CRSI MANUAL OF STANDARD PRACTICE, UNLESS OTHERWISE
- AND ENDS. 10. CONTINUOUS HORIZONTAL REINFORCING SHALL BE LAPPED AT MIDSPAN FOR TOP BARS AND DIRECTLY OVER SUPPORTS FOR BOTTOM BARS. AT DISCONTINUOUS
- ENDS, THE TOP STEEL SHALL BE BENT DOWN 12 BAR DIAMETERS OR 12" MINIMUM, WHICHEVER IS GREATER. 11. FOR MAT FOUNDATIONS, REINFORCING FOR TOP BARS SHALL BE LAPPED UNDER
- AT DISCONTINUOUS ENDS, THE TOP STEEL SHALL BE BENT DOWN 12 BAR DIAMETERS OR 12" MINIMUM, WHICHEVER IS GREATER. 12. WHERE REINFORCEMENT LENGTH IS SPECIFIED, NO SPLICES ARE PERMITTED
- FNGINFFR 13. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE AND SPACING OR NUMBER AS THE VERTICAL REINFORCING, RESPECTIVELY, UNLESS OTHERWISE NOTED. PROVIDE FOUNDATION DOWELS TO MATCH SIZE AND SPACING OF WALL OR COLUMN REINFORCEMENT. EXTEND
- STANDARD HOOK AT BOTTOM OF FOOTING, UNLESS OTHERWISE NOTED. 14. REINFORCING IN WALL FOOTINGS AND GRADE BEAMS BETWEEN COLUMNS SHALL BE DEVELOPED (Ld) INTO COLUMN FOOTINGS.
- SLEEVES IS NOT ACCEPTABLE. 16. REINFORCING BARS SHALL BE BENT COLD, AND NO METHOD OF FABRICATION
- SHALL BE USED WHICH WOULD BE INJURIOUS TO THE MATERIAL. HEATING OF BARS FOR BENDING IS NOT PERMITTED. 17. FIELD WELDING OR BENDING OF REINFORCING IS NOT PERMITTED EXCEPT AS
- 18. USE TEMPLATES TO SET ALL EMBEDDED ANCHOR BOLTS, LEVELING PLATES, AND DOWEL BARS AS REQUIRED OR INDICATED ON THE DRAWINGS.
- 19. SUBMIT SHOP DRAWINGS FOR FABRICATION AND PLACEMENT OF REINFORCING STEEL. INCLUDE SCHEDULES AND DIAGRAMS OF BENT BARS AND SHOW ENGINEER'S REVIEW WILL BE FOR COMPLIANCE WITH DESIGN REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING DIMENSIONS AND
- QUANTITIES 20. ALL CONCRETE NOT OTHERWISE SPECIFIED SHALL BE REINFORCED TO THE MINIMUM REQUIREMENT OF ACI 318.
- 21. REINFORCE ALL ARCHITECTURAL CONCRETE TOPPING SLABS WITH 6x6-W1.4xW1.4 WWR UNLESS OTHERWISE NOTED.

EARTHWORK

1500 PSF

100 PSF/FT OF DEPTH

BEHIND RETAINING/BASEMENT WALLS BEFORE CONCRETE HAS ATTAINED SPECIFIED COMPRESSIVE STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT ALL WALLS BELOW GRADE FROM LATERAL LOADS UNTIL SUPPORTING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED 7-DAY STRENGTH MINIMUM. BACKFILLING IS NOT PERMITTED FOR FOUNDATION WALLS UNTIL SUPPORTED SLAB TOP AND BOTTOM IS IN PLACE OR THE WALL IS ADEQUATELY BRACED TO RESIST LATERAL LOADS. CONTRACTOR SHALL PROVIDE FOR

4. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER OR SEEPAGE. FREE GROUND WATER WAS NOT ENCOUNTERED IN THE BORINGS. DETAILS OF GROUND WATER INFORMATION CAN BE OBTAINED FROM THE ABOVE-MENTIONED GEOTECHNICAL REPORT. IF GROUND WATER SHOULD OCCUR DURING EXCAVATION, SPECIAL PROCEDURES SHALL BE IMPLEMENTED AS RECOMMENDED

5. WHERE THERE IS NOT SUFFICIENT SPACE FOR SLOPED EMBANKMENTS, SHORING WILL BE REQUIRED. SEE THE GEOTECHNICAL REPORT FOR INFORMATION REGARDING THE DESIGN AND INSTALLATION OF THE SHORING. SHORING THAT IS NOT PART OF THE PERMANENT BUILDING SUPPORT IS THE CONTRACTOR'S RESPONSIBILITY AND OUTSIDE THIS PERMIT. 6. CARE SHALL BE EXERCISED WHEN EXCAVATING OR GRADING ADJACENT TO EXISTING STRUCTURES OR IMPROVEMENTS TO NOT DAMAGE OR UNDERMINE FOUNDATIONS, WALLS,

7. CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILL MATERIAL OR BURIED STRUCTURES SUCH AS CESSPOOLS, CISTERNS AND FOUNDATIONS, IF ANY SUCH MATERIAL OR STRUCTURES ARE FOUND, ARCHITECT/ENGINEER SHALL BE NOTIFIED IMMEDIATELY. ALL ABANDONED FOUNDATIONS, UTILITIES AND OTHER

CONTROLLED COMPACTED FILL, REMOVING ANY EXISTING FILL, ORGANIC MATERIAL, OR UNSUITABLE SOILS, AS RECOMMENDED BY THE GEOTECHNICAL REPORT. EXPOSED NATURAL

BUILDING HAS SOME RISK OF MOVEMENT. THE SLAB OPTION CHOSEN AS PROVIDING SUITABLE PERFORMANCE AT A REASONABLE COST REQUIRES _____ FEET OF OVER-EXCAVATED FILL TO BE PLACED. SEE THE PROJECT GEOTECHNICAL REPORT FOR SPECIFIC

10. THE PREPARATION OF THE SUBGRADE FOR THE SLAB ON GRADE SHALL BE IN STRICT ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT REFERENCED ABOVE. THE CONTRACTOR SHALL DIRECT QUESTIONS REGARDING THE SUBGRADE PREPARATION

SOIL BEARING PRESSURE IS EXPECTED. FOOTINGS, PIERS AND/OR WALLS SHALL BE LOWERED OR EXTENDED AS REQUIRED TO REACH SOIL MEETING THE DESIGN BEARING

BE MECHANICALLY COMPACTED IN "LAYERS TO % MAXIMUM DRY DENSITY PER 13. THE MOISTURE CONTENT OF ONSITE CLAYEY SOILS AT THE TIME OF COMPACTION SHALL BE

14. ANY REQUIRED IMPORT FILL SOIL SHALL HAVE A LOW POTENTIAL FOR EXPANSION AND

TED OR SPECIFIED.	
ALL BE HIGH STRENGTH N	EW BILLET STEE
TANDARDS:	
ASTM A615, GR 40 60 80	Fy = 40 60 80 K
ASTM A706, GR 60	Fy = 60 KSI
ASTM A1064	Fy = 65 KSI
ASTM A775	Fy = 60 KSI
ASTM A767	Fy = 60 KSI
ASTM A1064	Fy = 60 KSI
ASTM A1064	Fv = 70 KSI

ASTM A706, GR 60 Fy = 60 KSI

	2"
	1 1/2"
ONTACT WITH GROUND	
14 AND #18 BARS	1 1/2"
#11 BARS OR SMALLER	3/4"
ND TENSION TIES	1/2"
	2"
	1 1/0"

6. DEFORMED BAR ANCHORS (DBA) SHALL BE AUTOMATICALLY END WELDED WITH

9. ALL WELDED WIRE REINFORCING (WWR) SHALL BE LAPPED 2 PANELS AT EDGES

STRUCTURAL COLUMNS AND WALLS ABOVE AND AT MIDSPAN FOR BOTTOM BARS.

WITHIN THE SPECIFIED LENGTH WITHOUT APPROVAL BY THE STRUCTURAL

DOWELS A LAP SPLICE LENGTH INTO WALL OR COLUMN AND TERMINATE WITH

15. CUTTING OF REINFORCING WHICH CONFLICTS WITH EMBEDDED OBJECTS OR

INDICATED ON THE DRAWINGS OR AS APPROVED BY THE STRUCTURAL ENGINEER.

ARRANGEMENT OF REINFORCEMENT, INCLUDING CONCRETE COVER. STRUCTURAL

STR	JCTURAL ABBREVIATION KEY
ABBR:	DESCRIPTION:
#	NUMBER OR POUNDS
<u>a</u>	DEGREE
Ø	DIAMETER
E) A.B.	ANCHOR BOLT
	ARCHITECT, -URE, -URAL
of	BEAM FLANGE WIDTH
BF BM	BRACE FRAME BEAM
3.N.	BOUNDARY NAILING
BOTT BTWN	BETWEEN
CFSF	COLD FORM STEEL FRAMING
CJP	COMPLETE JOINT PENETRATION WELD
	CLEAR CENTERLINE
CMU	CONCRETE MASONRY UNIT
	CONCRETE
CONT	CONTINUOUS
	COORDINATION DIAMETER
DL	DEAD LOAD
DET DWG	DRAWING
DWL	DOWEL
EA EF	EACH FACE
	EFFECTIVE FLEVATION
	ELECTRICAL
EMBED = N	EMBEDMENT EDGE NAILING
EOD	EDGE OF DECK
EOS EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXP EXT	EXPANSION EXTERIOR
'c	CONCRETE COMPRESSIVE STRENGTH
FDN F.N.	FIELD NAILING
T	
Fy	YIELD STRESS
GA GALV	GALVANIZED
	HORIZONTAL HEADED STUD ANCHOR
ISA ISB	HIGH STRENGTH BOLT
JT K, KIP	JUINT KILOPOUND (1,000 POUNDS)
(SF	KIPS PER SQUARE FOOT KIPS PER SQUARE INCH
-	LENGTH
_BS _L	LIVE LOAD
LH	LONG LEG HORIZONTAL
LV LONG.	LONGITUDINAL
SV	LONG SIDE HORIZONTAL LONG SIDE VERTICAL
TWT	LIGHTWEIGHT
MAX MECH	MECHANICAL
MANUF	
	NOT IN CONTRACT
	NOT TO SCALE ON CENTER
DH .	OPPOSITE HAND
DPNG DSB	ORIENTED STRAND BOARD
PCF	POUNDS PER CUBIC FOOT
п. >JP	PARTIAL JOINT PENETRATION WELD
PLF	PLATE POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
251 PT	POST-TENSION, -ED, -ING
	RADIUS REINFORCING, -MENT, -ED
REQD	REQUIRED
SC	SLIP CRITICAL
	SCHEDULE SEISMIC FORCE-RESISTING SYSTEM
SIM	SIMILAR
SL S.M.S.	SNOW LOAD SHEET METAL SCREW
SP SPECC	SPACE(S)
SQ SQ	SQUARE
STIFF STL	STIFFENER STEEL
SYM	
тав Г.О.	TOP OF

PRE-TENSIONED BOLT TEMPERATURE TEMP BEAM FLANGE THICKNESS THICK THK TRANSVERSE TRANS

TYPICAL TYP UNLESS OTHERWISE NOTED UON VERTICAL VERT

VERIFY IN FIELD VIF WITH | W/ WP

TC

WT

WORK POINT WEIGHT WELDED WIRE REINFORCING WWR





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Sheet Issues/Revisions

No. Date Description 04/18/2022 1A - DEVELOPMENT REVIEW SET

Project Information			
Phase:	1A	Date:	04/18/22
Project No.:	22000736	EIC:	JES/JFS

Pueblo Norte Senior Living Community

Drawing Package

Memory Care Conversion Part 1A -Site Remodel Permit Set

Sheet Title

GENERAL NOTES

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Current Revision

CAST-IN-PLACE CONCRETE

- 1. ALL CONCRETE WORK SHALL CONFORM TO THE CORRESPONDING EDITION OF THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS: ACI 117, ACI 301, ACI 305.1, ACI 306.1, ACI 308.1, ACI 318 AND SP-066, UNLESS OTHERWISE NOTED.
- 2. CONCRETE MATERIALS SHALL CONFORM TO: CEMENT ASTM C150, TYPE V FLY ASH ASTM C618, TYPE C OR F FINE AND COARSE AGGREGATE ASTM C33 LIGHTWEIGHT AGGREGATE ASTM C330 WATER POTABLE ASTM C260 AIR-ENTRAINING ADMIXTURE

WATER REDUCING ADMIXTURE ASTM C494 3. CONCRETE STRENGTHS SHALL CONFORM TO:

INTENDED USE STRENGTH (PSI) EXPOSURE CLASS FOOTINGS 4500 N/A FOUNDATIONS 4500 N/A SLAB ON GRADE 4500 N/A UNLESS OTHERWISE NOTED 4500 N/A

- NORMAL-WEIGHT 28-DAY STRENGTH UNLESS OTHERWISE NOTED. 4. THE MODULUS OF ELASTICITY OF ALL CONCRETE SHALL EXCEED 57,000 SQRT(f'c)
- FOR NORMAL-WEIGHT CONCRETE OR wc1.5 33 SQRT(f'c).
- LIGHTWEIGHT CONCRETE SHALL HAVE A DRY DENSITY OF 107-116 PCF. DRYPACK OR GROUT SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 7000 PSI.
- SLAB-ON-GRADE CONSTRUCTION: LOCATE SAW-CUT CONTROL JOINTS ALONG COLUMN LINES WITH INTERMEDIATE JOINTS SPACED PER THE TABLE BELOW, UNLESS OTHERWISE NOTED. SLAB PANELS SHALL HAVE A MAXIMUM LENGTH TO WIDTH RATIO OF 1.5:1. PROVIDE ADDITIONAL CONTROL JOINTS AT ALL RE-ENTRANT CORNERS. SEE PLAN FOR SPECIAL CASES.

THICKNESS (IN)	MAXIMUM JOINT SPACING EACH WAY (FT)
4	12
5	13
6	15
8	18
10	20
12	22

- 8. CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ENSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHOR BOLTS, INSERTS, NOTCHES, AND EDGES OF WALLS/FOUNDATIONS PRIOR TO PLACING CONCRETE. 9. UNLESS OTHERWISE NOTED, ALL FOOTINGS SHALL BE CENTERED UNDER WALLS,
- PIERS OR COLUMNS. 10. CONSTRUCTION JOINTS SHALL BE THOROUGHLY ROUGHENED TO 1/4" AMPLITUDE BY SAND BLASTING OR MECHANICAL MEANS. CLEAN BEFORE POUR. LOCATION TO BE APPROVED BY THE STRUCTURAL ENGINEER. SUBMIT LOCATION PLAN OF ALL PROPOSED JOINTS NOT INDICATED ON DRAWINGS FOR APPROVAL PRIOR TO **BEGINNING WORK**
- 11. PRIOR TO PLACING CONCRETE, THE CONTRACTOR SHALL ENSURE ALL REINFORCING AND EMBEDMENTS, INCLUDING COLUMN ANCHOR BOLTS, ARE PROPERLY LOCATED AND SECURELY TIED IN PLACE.
- 12. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL PENETRATIONS THROUGH CONCRETE BEFORE PLACING. SECURE SLEEVES TO PREVENT MOVEMENT DURING PLACING OPERATIONS. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS.
- 13. CONFIRM WITH ARCHITECT THAT MATERIALS TO BE EMBEDDED ARE SUITABLE FOR EMBEDMENT IN CONCRETE. 14. CONDUIT, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO
- REQUIREMENTS OF ACI 318, SECTIONS 20.7 AND 26.8. 15. DO NOT PLACE VERTICAL CONDUIT IN CONCRETE COLUMNS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
- 16. NO ALUMINUM SHALL BE ALLOWED IN THE CONCRETE WORK UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION.
- 17. WATERSTOPS SHALL BE A FLEXIBLE BENTONITE PVC PRODUCT. ACCEPTABLE PRODUCTS INCLUDE: CETCO WATERSTOP-RX AND GREENSTREAK SWELLSTOP WESTIC BARRIER TECHNOLOGIES TPE-R WATERSTOP AND GREENSTREAK PVC WATERSTOP
- 18. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH A 3/4 INCH CHAMFER, UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.
- 19. SLOPE SLABS TO DRAINS OR FOR POSITIVE DRAINAGE IF NO DRAINS ARE PRESENT AND PROVIDE DEPRESSIONS WHERE SHOWN ON THE STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS WITHOUT REDUCING THE THICKNESS OF SLAB INDICATED. FOR SLAB-ON-GRADE DEPRESSIONS GREATER THAN 1 INCH, SEE DETAILS FOR ADDITIONAL REINFORCING.
- 20. INTERNALLY VIBRATE ALL CAST-IN-PLACE CONCRETE EXCEPT SLABS-ON-GRADE WHICH NEED ONLY BE VIBRATED AROUND UNDER FLOOR DUCTS AND OTHER EMBEDDED ITEMS. VIBRATE TOPS OF COLUMNS.
- 21. PROVIDE VERTICAL CONTROL JOINTS IN EXPOSED CONCRETE WALLS AT A MINIMUM UNIFORM SPACING NOT TO EXCEED 25 FEET PER ACI 224.3. COORDINATE JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS
- 22. CONCRETE SHALL NOT BE PERMITTED TO DROP MORE THAN 5 FEET. 23. IF CONCRETE IS PLACED BY PUMPING, SUPPORT SHALL BE PROVIDED FOR THE HOSE. THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE REINFORCING AND OTHER EMBEDDED ITEMS.
- 24. CONCRETE SLABS SHALL BE CURED BY KEEPING CONTINUOUSLY WET FOR 7 DAYS. FORMS FOR CONCRETE WALLS SHALL BE LEFT IN PLACE FOR 7 DAYS OR MAY BE STRIPPED AFTER 3 DAYS AND COATED WITH AN APPROVED CURING COMPOUND. 25. NO LOADS SHALL BE PLACED ON STRUCTURAL CONCRETE SLABS WITHIN 7 DAYS
- AFTER CONCRETE IS PLACED. AFTER CONCRETE IS PLACED, IN NO CASE SHALL THE SUPERIMPOSED CONSTRUCTION LOADS BE GREATER THAN SPECIFIED DESIGN LIVE LOADS, UNLESS THE WORK IS SHORED.
- 26. NOTIFY THE ARCHITECT/STRUCTURAL ENGINEER 48 HOURS MINIMUM PRIOR TO ALL POURS. 27. CONTRACTOR SHALL SURVEY ALL CONCRETE WORK WITHIN 48 HOURS OF
- PLACING CONCRETE TO ENSURE PLACEMENT IS IN ACCORDANCE WITH PROJECT REQUIREMENTS
- 28. THE DESIGN AND ENGINEERING OF FORMWORK, SHORING AND RESHORING, AS WELL AS THEIR CONSTRUCTION, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMS SHALL BE DESIGNED TO HAVE SUFFICIENT STRENGTH TO SAFELY WITHSTAND THE LOADS RESULTING FROM PLACEMENT AND VIBRATION OF THE CONCRETE AND SHALL ALSO BE DESIGNED FOR SUFFICIENT RIGIDITY TO MAINTAIN SPECIFIED TOLERANCES. CONTRACTOR SHALL SUBMIT DETAILED FORMWORK SHOP DRAWINGS TO THE ARCHITECT TO BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT ONLY.
- 29. SHORING OF ELEVATED CONCRETE TO REMAIN IN PLACE FOR A MINIMUM OF 3 DAYS FOR POST-TENSIONED SLABS AFTER STRESSING TENDONS AND 14 21 DAYS FOR MILD REINFORCED SLABS. SHORING OF THE STRUCTURAL BAY CONTAINING CONSTRUCTION JOINTS AND/OR POUR STRIPS TO REMAIN IN PLACE UNTIL SLAB CONSTRUCTION IS COMPLETE.
- 30. SHORING OF ELEVATED CONCRETE TO REMAIN UNTIL CONCRETE TESTS, CURED UNDER JOB-SITE CONDITIONS HAVE BEEN TESTED AND INDICATE 80% OF THE DESIGN MODULUS OF ELASTICITY. GENERAL CONTRACTOR TO PROVIDE THE STRUCTURAL ENGINEER WITH MODULUS OF ELASTICITY TEST RESULTS. SHORING OF THE STRUCTURAL BAY CONTAINING CONSTRUCTION JOINTS AND/OR POUR STRIPS TO REMAIN IN PLACE UNTIL SLAB CONSTRUCTION IS COMPLETE.
- 31. CONCRETE FILL THICKNESS SHOWN ON FRAMING PLANS AND DETAIL SHEETS IS MINIMUM THICKNESS. NO ALLOWANCES HAVE BEEN SHOWN FOR ADDITIONAL CONCRETE FILL REQUIRED TO COMPENSATE FOR BEAM OR DECK DEFLECTIONS AND TO MAINTAIN SURFACE TOLERANCES SPECIFIED.
- 32. PROVIDE LIGHTWEIGHT SELF-LEVELING MATERIAL AT ELEVATED CONCRETE SLABS AND SLABS ON STEEL DECK AS REQUIRED TO MEET FLOOR FLATNESS AND LEVELNESS REQUIREMENTS. SUBMIT PROPOSED LOCATIONS AND LEVELING MATERIAL DATA FOR APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.
- 33. CORING OF CONCRETE IS NOT PERMITTED UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
- 34. NO CONCRETE SHALL BE PLACED ONTO OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST, ICE OR SNOW. 35. DURING WINTER CONSTRUCTION, ALL FOOTINGS SHALL BE PROTECTED FROM
- FROST PENETRATION UNTIL THE BUILDING IS ENCLOSED AND TEMPORARY HEAT IS PROVIDED. 36. GENERAL CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR SIZE, LOCATION AND
- HEIGHT OF MECHANICAL EQUIPMENT PADS ON CONCRETE SLAB ON STEEL DECK AND SLAB-ON-GRADE
- 37. THE PROPOSED MATERIALS AND MIX DESIGN SHALL BE FULLY DOCUMENTED AND REVIEWED BY THE TESTING AGENCY. RESPONSIBILITY FOR OBTAINING THE REQUIRED DESIGN STRENGTH IS THE CONTRACTOR'S. SUBMIT TEST DATA ON EACH PROPOSED MIX FOR REVIEW IN ACCORDANCE WITH THE APPLICABLE CODE. MIX DESIGNS SUBMITTED WITHOUT THE REQUIRED TEST DATA WILL BE RETURNED WITHOUT REVIEW.
- 38. PROVIDE SLAB COORDINATION DRAWING SUBMITTAL INDICATING COORDINATED LOCATIONS OF: MEP PENETRATIONS, SLEEVES, OPENINGS, IN-SLAB CONDUIT/DUCT (IF ALLOWED), EMBEDS, CAST-IN ANCHORS, POST-TENSIONED TENDONS AND STRESSING ANCHORS, AND OTHER ITEMS EMBEDDED OR PENETRATING STRUCTURAL ELEVATED SLABS.

- 402/602 "BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES' 2. MINIMUM 28-DAY COMPRESSIVE STRENGTHS FOR CMU CONSTRUCTION SHALL BE:
- DESIGN ASSEMBLY STRENGTH, f'm 2000 PSI
- INDIVIDUAL CONCRETE MASONRY UNITS 2800 PSI GROUT 2000 PSI 3. CMU MATERIALS SHALL CONFORM TO THE FOLLOWING STANDARDS:
- CONCRETE MASONRY UNITS MORTAR

GROUT JOINT REINFORCING

- LINTEL PLUS ONE CELL BEYOND BEARING LENGTH.
- 6. PROVIDE MINIMUM 1 INCH GROUT BETWEEN MAIN REINFORCING AND/OR BOLTS AND CMU UNIT FACE. VERTICAL REINFORCEMENT SHALL BE CENTERED IN WALL, UNLESS OTHERWISE NOTED. VERTICAL REINFORCING BARS SHALL SECURELY BE HELD IN POSITION BY WIRE TIES OR OTHER APPROVED MEANS TO ENSURE DESIGN LOCATION AND
- LAP. PLACE BARS AND LAP PRIOR TO GROUTING. OTHERWISE NOTED.
- WITH VERTICAL REINFORCING STEEL.
- 9. ALL CELLS CONTAINING REINFORCING SHALL BE FILLED SOLID WITH GROUT. LIFTS.
- 11. LIFTS OF GROUT SHALL BE KEYED 1 1/2 INCHES INTO THE PREVIOUS COURSE BELOW. 12. HORIZONTAL BAR REINFORCEMENT SHALL BE FULLY EMBEDDED IN GROUT IN AN UNINTERRUPTED POUR.
- LIFTS AND LAP SPLICED PER LAP LENGTH SCHEDULE.
- WALLS WITH TYPICAL DETAILS, UNLESS OTHERWISE NOTED.
- NOTED
- 16. ALL MULTIPLE WYTHE CMU WALLS SHALL BE GROUTED SOLID BETWEEN EACH WYTHE.

STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE AMERICAN FABRICATED AND ERECTED IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

2. STRUCTURAL STEEL SHALL CONFORM T WIDE FLANGE SHAPES OTHER ROLLED SHAPES PIPE SECTIONS HSS SECTIONS, ROUND HSS SECTION, SQ/RECT HP SHAPES BASE AND CONNECTION PLATES

> ANCHOR RODS HIGH STRENGTH BOLTS HIGH STRENGTH TWIST-OFF BOLTS HEAVY HEX NUTS WASHERS

HEADED STUD ANCHORS ELECTRODES FOR ARC WELDING AWS 5.1, E70XX

- 3. HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH AISC FOR BOLT SIZE AND MATERIAL ASTM DESIGNATION.
- 4. ALL BOLTED CONNECTIONS SHALL BE GRADE A325N BEARING TYPE BOLTS, UNLESS OTHERWISE NOTED. ALL BOLTS SHALL BE INSTALLED TO A MINIMUM "SNUG TIGHT" CONDITION, UNLESS OTHERWISE NOTED.
- 5. FULLY TENSIONED HIGH STRENGTH BOLTS AND SLIP CRITICAL HIGH STRENGTH BOLTS SHALL USE TENSION-CONTROL "TWIST-OFF" BOLTS OR BE INSTALLED USING THE TURN OF THE NUT METHOD.
- 6. EXCEPT WHERE DETAILED OTHERWISE, FABRICATOR SHALL SELECT ASD LRFD BOLTED (OR WELDED EQUIVALENT) SIMPLE SHEAR CONNECTIONS PER AISC 360 PART 10 TO SUPPORT LOADS INDICATED ON THE STRUCTURAL DRAWINGS. WHEN LOADS ARE NOT SHOWN, CONNECTION SHALL SUPPORT 60% OF THE TOTAL UNIFORM LOAD CAPACITY FOR EACH GIVEN BEAM SIZE AND SPAN AS LISTED IN AISC 360 TABLE 3-6. FOR COMPOSITE MEMBERS, CONNECTION SHALL SUPPORT 80% OF THE TOTAL UNIFORM LOAD CAPACITY FOR EACH BEAM SIZE AND SPAN.
- 7. BEAM REACTIONS GIVEN ON THE CONTRACT DOCUMENTS SHALL SUPERSEDE THE PREVIOUS NOTE. IN NO CASE SHALL THE CONNECTIONS BE DESIGNED FOR AN UNFACTORED END REACTION LESS THAN 12 KIPS.
- 8. WELD LENGTHS INDICATED ON THE DRAWINGS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE WELD LENGTH IS NOT SPECIFIED, PROVIDE WELD ALONG ENTIRE INTERSECTION OF THE JOINED PARTS. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM WELD SIZE AS SPECIFIED IN AISC 360, TABLE J2.4. 9. ALL WELDING OF STRUCTURAL STEEL SHALL BE PERFORMED BY CERTIFIED WELDERS WITH EXPERIENCE AND CERTIFICATION IN THE TYPES OF WELDING CALLED FOR. WELDERS SHALL HAVE BEEN RECENTLY QUALIFIED AS PRESCRIBED IN "QUALIFICATION
- PROCEDURES" OF THE AMERICAN WELDING SOCIETY (AWS).
- 10. HEADED STUD ANCHORS (HSA): SHALL BE INSTALLED IN ACCORDANCE WITH AWS D1.1 AND SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE END OF THE HSA AND THE STEEL SHAPE. THERE SHOULD BE NO POROSITY OR EVIDENCE OF LACK OF FUSION BETWEEN THE WELDED END OF THE HSA AND THE STEEL SHAPE. THE HSA SHALL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 5/8"ø AND SMALLER AND 3/16" FOR LARGER THAN 5/8"ø.
- 11. BEAMS SHALL BE CAMBERED UPWARD WHERE SHOWN ON THE DRAWINGS. WHERE NO UPWARD CAMBER IS INDICATED, ANY MILL CAMBER SHALL BE DETAILED UPWARD IN THE BFAMS 12. SPLICING OF STEEL MEMBERS WHERE NOT DETAILED ON THE DRAWINGS IS PROHIBITED
- WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE
- 13. ALL STEEL EXPOSED TO WEATHER OR AS NOTED ON PLAN SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 G60 G90. ABRADED AREAS TO BE TOUCHED UP WITH COLD GALVANIZING COMPOUND IN ACCORDANCE WITH
- ASTM A780. 14. ALL GALVANIZED HOLLOW SECTIONS SHALL HAVE WELDED CAP PLATES TO SEAL EXPOSED ENDS.
- 15. CUTS, HOLES, OPENINGS, ETC., REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS. BURNING OF HOLES AND CUTS IN THE FIELD SHALL NOT BE ALLOWED, EXCEPT BY WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER.
- 16. FURNISH AND INSTALL MISCELLANEOUS STEEL (CURBS, HANGERS, EXPANSION JOINT ANGLES, STRUTS, ETC.) AS CALLED FOR OR AS NECESSARY PER ARCHITECTURAL AND MECHANICAL/ELECTRICAL DRAWINGS.
- 17. GROUT FOR BASE AND BEARING PLATES SHALL BE A NON-SHRINK, NON-METALLIC PRODUCT. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 7000 10,000 PSI. INSTALL GROUT PRIOR TO APPLYING SIGNIFICANT LOADING TO MEMBER. 18. THE STRUCTURAL STEEL FABRICATOR SHALL FURNISH SHOP DRAWINGS OF ALL STRUCTURAL STEEL FOR ARCHITECT/STRUCTURAL ENGINEER'S REVIEW BEFORE
- FABRICATION.

MASONRY

1. CMU CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 530/530.1 TMS

- ASTM C90, NORMAL WEIGHT
- ASTM C270, TYPE S ASTM C270, TYPE N
- ASTM C476

ASTM A82 4. ALL LOAD BEARING CMU WALLS TO HAVE FULL MORTAR BED, HEAD, AND COLLAR JOINTS. 5. GROUT SOLID ALL JAMBS FULL HEIGHT IN LOAD BEARING CMU WALLS TO UNDERSIDE OF

7. HORIZONTAL BOND BEAM AND VERTICAL REINFORCING SHALL BE CONTINUOUS UNLESS

8. CELLS SHALL BE IN VERTICAL ALIGNMENT. DOWELS IN FOOTINGS SHALL BE SET TO ALIGN

10. GROUT CELLS SOLID IN ALL WALLS, UNLESS OTHERWISE NOTED. GROUT IN 4'-0" MAXIMUM

13. EXCEPT FOR WALL PILASTERS, VERTICAL REINFORCEMENT SHALL BE FIELD CUT FOR 4'-0" 14. COORDINATE ANY UNIDENTIFIED PIPE OR DUCT PASSING THROUGH STRUCTURAL CMU

15. SEE ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN, AND JOINT TYPE. ALL BLOCK SHALL BE LAID IN RUNNING BOND, UNLESS OTHERWISE

17. PROVIDE HORIZONTAL TIES WHERE CMU ABUTS CONCRETE.

INSTITUTE OF STEEL CONSTRUCTION (AISC) "DETAILING FOR STEEL CONSTRUCTION" AND

O ASTM STANDARDS AS I	NOTED BELOW:
ASTM A992 ASTM A36 ASTM A53, GR B ASTM A500, GR C ASTM A500, GR C ASTM A572 ASTM A36 A572	Fy = 50 KSI Fy = 36 KSI Fy = 35 KSI Fy = 46 KSI Fy = 50 KSI Fy = 50 KSI Fy = 36 50 KSI
ASTM F1554, GR 36 55 ASTM F3125, GR A325 ASTM F3125, GR F1852 ASTM A563 ASTM F436 ASTM A108, TYPE B	Fy = 36 55 KSI Fv = 120 KSI Fv = 120 KSI

"SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". SEE DETAILS

1. EXPANSION ANCHOR SYSTEMS: a. CONCRETE: USE ONLY EXPANSION ANCHOR SYSTEMS THAT HAVE BEEN ISSUED AN ICC-EVALUATION SERVICES REPORT (ESR) IN ACCORDANCE WITH THE PROVISIONS OF ICC-ES AC193. ANCHOR SYSTEMS SHOULD BE APPROVED FOR USE IN CRACKED CONCRETE AND SEISMIC DESIGN CATEGORIES A-F PER SECTION 2.0 OF THE ICC ESR. ANCHOR SYSTEMS SHALL BE INSTALLED PER THE REQUIREMENTS OF THE ICC ESR FOR THE SPECIFIC ANCHOR AND AS REQUIRED BY THE MANUFACTURER. ALL EXPANSION ANCHORS SHALL BE HILTI KBTZ (ICC ESR-1917), SIMPSON STRONG BOLT 2 (ICC ESR-3037) OR EQUIVALENT, UNLESS SPECIFIED IN THE DETAILS. ANY

MECHANICAL ANCHORS

- SUBSTITUTION MUST BE APPROVED BY THE STRUCTURAL ENGINEER AND OSHPD FOR THE TYPE, INSTALLATION, APPLICATION AND MATERIALS. b. MASONRY: USE ONLY EXPANSION ANCHOR SYSTEMS THAT HAVE BEEN ISSUED AN ICC ESR IN ACCORDANCE WITH THE PROVISIONS OF ICC-ES AC01. ANCHOR SYSTEMS SHOULD BE APPROVED FOR SEISMIC USE DETAILED IN THE CONDITIONS OF USE LISTED IN THE ICC ESR. ANCHOR SYSTEMS SHALL BE INSTALLED PER THE
- REQUIREMENTS OF THE ICC ESR FOR THE SPECIFIC ANCHOR, AND AS REQUIRED BY THE MANUFACTURER. 2. UNDERCUT ANCHOR SYSTEMS:
- A. CONCRETE: USE ONLY UNDERCUT ANCHOR SYSTEMS THAT HAVE BEEN ISSUED AN ICC ESR IN ACCORDANCE WITH THE PROVISIONS OF ICC-ES AC193. ANCHOR SYSTEMS SHOULD BE APPROVED FOR USE IN CRACKED CONCRETE AND SEISMIC DESIGN CATEGORIES A-F PER SECTION 2.0 OF THE ICC ESR. ANCHOR SYSTEMS SHALL BE INSTALLED PER THE REQUIREMENTS OF THE ICC ESR FOR THE SPECIFIC ANCHOR AND
- AS REQUIRED BY THE MANUFACTURER. 3. WHERE THE MANUFACTURER'S INSTALLATION INSTRUCTIONS OR APPLICABLE ICC ESR CALL FOR THE APPLICATION OF AN INSTALLATION TORQUE, THE SPECIFIED TORQUE SHALL BE APPLIED WITH A CALIBRATED TORQUE WRENCH. THE SPECIFIED INSTALLATION TORQUE SHALL NOT BE EXCEEDED.
- 4. ANCHORS ARE TYPICALLY AVAILABLE IN ELECTRO-GALVANIZED CARBON STEEL, HOT-DIP GALVANIZED CARBON STEEL AND STAINLESS STEEL. USE OF ELECTRO-GALVANIZED CARBON STEEL ANCHORS IS TYPICALLY LIMITED TO DRY, INTERIOR LOCATIONS, UNLESS OTHERWISE NOTED. STAINLESS STEEL OR HOT-DIP GALVANIZED ANCHORS ARE GENERALLY SUITABLE FOR APPLICATIONS EXPOSED TO EXTERIOR WEATHER CONDITIONS. FINAL AUTHORITY ON THE TYPE OF ANCHOR COATING UTILIZED RESTS WITH THE STRUCTURAL ENGINEER AND MUST BE APPROVED AS SUCH.
- 5. EXPANSION ANCHORS FOR NON-VIBRATION ISOLATED MECHANICAL EQUIPMENT RATED OVER 10hp ARE NOT PERMITTED BY ASCE 7, SECTION 13.6,5,5, ANCHORS INSTALLED IN OVERHEAD CONDITIONS FOR NON-VIBRATION ISOLATED EQUIPMENT WITH RECIPROCATING OR ROTATING MECHANISMS SHALL BE UNDERCUT ANCHORS.
- 6. THE INSPECTION AGENCY SHALL BE ON THE JOBSITE CONTINUOUSLY DURING ANCHOR INSTALLATIONS, UNLESS OTHERWISE NOTED IN THE ICC ESR, TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS, ANCHOR SPACINGS, EDGE DISTANCES, SLAB THICKNESS, ANCHOR
- EMBEDMENT, AND TIGHTENING TORQUE. 7. THE TENSION TESTING OF THE EXPANSION ANCHORS SHALL BE DONE IN THE PRESENCE OF THE INSPECTION AGENCY AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE ENFORCEMENT AGENCY. IF ANY ANCHORS FAIL THE TENSION TESTING REQUIREMENTS, THE ADDITIONAL TESTING REQUIREMENTS SHALL BE ACCEPTABLE TO
- THE ENFORCEMENT AGENCY. 8. TEST QUANTITY OF ANCHORS AS NOTED BELOW:

APPLICATION	QUANTITY OF BOLTS
STRUCTURAL	100%
NON-STRUCTURAL	50%
SILL PLATE BOLTING	10%

- ANCHORS TO BE TESTED SHALL BE SELECTED AT RANDOM BY THE INSPECTION AGENCY. 10. UNDERCUT ANCHORS THAT ALLOW VISUAL CONFIRMATION OF FULL SET NEED NOT BE TESTED, UNLESS OTHERWISE NOTED BY ENFORCEMENT AGENCY OR STRUCTURAL FNGINEER
- 11. ALL ANCHORS SHALL BE TESTED AS FOLLOWS, IN NORMAL OR LIGHTWEIGHT CONCRETE

ANCHUR	VVE	DGE	SLEEVE		SHELL	
DIAMETER (IN)	LOADS (LBS)	TORQUE (FT-LBS)	LOAD (LBS)	TORQUE (FT-LBS)	LOAD (LBS)	TORQUE (FT-LBS)
3/8	1100	25	700	10	1800	N/A
1/2	2000	50	900	20	2700	N/A
5/8	2300	80	1100	45	3700	N/A
3/4	3700	150	1400	90	5400	N/A

- a. ANCHOR DIAMETER REFERS TO THE THREAD SIZE FOR WEDGE AND SHELL
- CATEGORIES AND TO THE ANCHOR OUTSIDE DIAMETER FOR THE SLEEVE CATEGORY. b. APPLY PROOF TEST LOADS TO WEDGE AND SLEEVE ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE. IF NOT, REMOVE THE NUT AND INSTALL A THREADED COUPLER. NUT TO THE SAME TIGHTNESS OF THE ORIGINAL NUT USING A TORQUE WRENCH AND APPLY LOAD
- c. FOR SLEEVE/SHELL INTERNALLY THREADED CATEGORIES, VERIFY THE ANCHOR IS NOT PREVENTED FROM WITHDRAWING BY A BASEPLATE OR OTHER FIXTURE. IF RESTRAINT IS FOUND. LOOSEN AND SHIM OR REMOVE FIXTURE(S) PRIOR TO TESTING. d. REACTION LOADS FROM TEST FIXTURE MAY BE APPLIED CLOSE TO THE ANCHOR
- BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S). e. SHELL TYPE ANCHORS SHOULD BE TESTED AS FOLLOWS: VISUALLY INSPECT 25% FOR
- FULL EXPANSION AS EVIDENCED BY THE LOCATION OF THE EXPANSION PLUG IN THE ANCHOR BODY. PLUG LOCATION OF A FULLY EXPANDED ANCHOR SHOULD BE AS RECOMMENDED BY THE MANUFACTURER, OR IN THE ABSENCE OF SUCH RECOMMENDATION, AS DETERMINED ON THE JOBSITE FOLLOWING THE
- MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND PROOF LOAD 5% AS INDICATED IN THE TABLE ABOVE, BUT NOT LESS THAN THREE ANCHORS PER DAY FOR EACH DIFFERENT PERSON OR CREW INSTALLING ANCHORS, OR TEST 50% OF THE ANCHORS PER ITEM i
- f. TEST EQUIPMENT SHALL BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.
- g. TORQUE TESTS FOR SHELL TYPE ANCHORS ARE OMITTED DUE TO LACK OF DATA. TORQUE TESTING CAN OCCUR ON AN INDIVIDUAL BASIS WHEN TEST PROCEDURES
- ARE SUBMITTED AND APPROVED BY THE ENFORCEMENT AGENCY. TABULATED VALUES MAY BE FORTHCOMING ONCE THE ENFORCEMENT AGENCY HAS MORE DATA TO EVALUATE THE FEASIBILITY OF STANDARD TORQUE VALUES. h. TESTING SHOULD OCCUR 24 HOURS MINIMUM AFTER INSTALLATION OF THE SUBJECT
- ANCHORS. i. FOR WEDGE AND SLEEVE TYPE ANCHORS, TEST 50% OF THE ANCHORS. ALTERNATE ANCHORS IN ANY GROUP ARRANGEMENT. IF ANY FAILURES OCCUR, THE IMMEDIATE
- ADJACENT ANCHOR MUST THEN BE TESTED 12. THE TEST LOAD MAY BE APPLIED BY ANY METHOD THAT WILL EFFECTIVELY TRANSMIT A MEASURABLE TENSION LOAD TO THE ANCHOR. ACCEPTABLE METHODS INCLUDE:
- a. USE OF A HYDRAULIC JACK, WHEREBY EITHER UNCONFINED OR CONFINED TESTING SHALL BE ACCEPTABLE
- b. USE OF CALIBRATED SPRING-LOADED DEVICES c. USE OF A CALIBRATED TORQUE WRENCH FOR TORQUE-CONTROLLED EXPANSION ANCHORS
- 13. THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS: a. HYDRAULIC RAM METHOD: THE ANCHOR SHALL HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD. FOR EXPANSION ANCHORS, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE.
- b. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN ONE-HALF (1/2) TURN OF THE NUT.
- 14. IF ANY ANCHOR FAILS TESTING, TEST ALL ANCHORS OF THE SAME TYPE, INSTALLED BY THE SAME TRADE, NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME THE INITIAL TEST FREQUENCY.

- DRILLED-IN ANCHOR. ANCHOR DIA (IN) 3/8 (10m 1/2 (12m 5/8 (16m
- 3/4 (20m

- 2. MECHANICAL ANCHORS: a. EXPANSION ANCHORS ANCHOR
- INTO GROUTE MASONF UNCRACK CONCRE
- CRACKE CONCRE
- ANCHOR
- INTO GROUTE MASON
- UNCRACH CONCRE CRACKE CONCRETE
- SHALL BE PROVIDED.
- ANCHORE INTO HOLLOV MASONF
- GROUTE MASONF CONCRE

- A. CONCRETE CONSTRUCTION
- B. MASON C. STEEL
- D. SOILS 3. SEE ARCHI
- SPECIFICA STRUCTUR

MECHANICAL ANCHORS

15. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE, PRE- OR POST-TENSIONED, LOCATE THE PRESTRESSED TENDONS BY USING A NONDESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF 1" BETWEEN THE REINFORCEMENT AND THE

16. IF REBAR IS ENCOUNTERED DURING THE DRILLING, THE CONTRACTOR SHALL IMMEDIATELY TERMINATE DRILLING AND CONTACT THE STRUCTURAL ENGINEER. 17. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.

18. IF THE CONCRETE CRACKS DURING THE INSTALLATION OF THE ANCHOR, THE ANCHOR SHALL BE REMOVED OR ABANDONED. 19. UNLESS OTHERWISE NOTED. PROVIDE MINIMUM EMBEDMENT OF ANCHORS AS FOLLOWS

THERWISE NOTED, PROVIDE MINIMOM EMBEDMENT OF ANCHORS AS FOLLOW				
METER	WEDGE ANCHOR EMBED (IN)	HEAVY DUTY SLEEVE ANCHOR EMBED (IN)*	UNDERCUT ANCHOR EMBED (IN)**	
ım)	2	2 3/4	4	
ım)	2	3 1/4	5	
ım)	3 1/8	4	7 1/2	
ım)	3 3/4	5	9 7/8	

* EMBEDMENT BASED ON ICC ESR-1545 ** EMBEDMENT BASED ON ICC ESR-1546

20. REQUIRED TEST LOADS SHALL BE DETERMINED AS THE LESSER OF TWICE THE MAXIMUM

ALLOWABLE TENSION LOAD PROVIDED IN THE ICC ESR FOR THE SPECIFIC ANCHOR OR 80% OF THE NOMINAL YIELD STRENGTH OF THE ANCHOR ELEMENT.

POST-INSTALLED ANCHORS

1. ANCHORS SERVING AS THE BASIS OF DESIGN ARE SHOWN ON THE DRAWINGS ACCEPTABLE ALTERNATIVE ANCHORS MAY BE SUPPLIED PROVIDED THE QUANTITY AND CONFIGURATION MATCH THE CAPACITY OF THE DESIGN ANCHOR QUANTITY AND CONFIGURATION. ANY ALTERNATES ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. BELOW SUMMARIZES EACH ANCHOR TYPE USED ON THE PROJECT.

ED	BASIS OF DESIGN	ACCEPTABLE ALTERNATES
ED RY	HILTI KB3 (ESR-1385)	DEWALT POWER STUD+ SD1 (ESR-2966) SIMPSON WEDGE-ALL (ESR-1396)
KED TE	HILTI KB3 (ESR-2302)	DEWALT POWER STUD+ SD2 (ESR-2502) RED HEAD TRUBOLT+ (ESR-2427) SIMPSON STRONG BOLT 2 (ESR-3037)
ED TE	HILTI KBTZ (ESR-1917)	DEWALT POWER STUD+ SD2 (ESR-2502) RED HEAD TRUBOLT+ (ESR-2427) SIMPSON STRONG BOLT 2 (ESR-3037)

b. THREADED SCREW ANCHORS

ED	BASIS OF DESIGN	ACCEPTABLE ALTERNATES
ED	HILTI KWIK HUS-EZ	DEWALT WEDGE-BOLT+ (ESR-1678) SIMPSON
RY	(ESR-3056)	TITEN HD (ESR-1056)
KED	HILTI KWIK HUS-EZ	DEWALT POWER SCREW-BOLT+ (ESR-3889)
ETE	(ESR-3027)	SIMPSON TITEN HD (ESR-2713)
ED	HILTI KWIK HUS-EZ	DEWALT POWER SCREW-BOLT+ (ESR-3889)
ETE	(ESR-3027)	SIMPSON TITEN HD (ESR-2713)

3. ADHESIVE ANCHORS: SHALL CONSIST OF DEFORMED REINFORCING BARS OR ASTM A193 GRADE B7 RODS, HEAVY DUTY NUTS AND WASHERS AND A TWO COMPONENT STRUCTURAL ADHESIVE, WHERE ANCHORING INTO HOLLOW MASONRY, A SCREEN TUBE

NO VI		
ED	BASIS OF DESIGN	ACCEPTABLE ALTERNATES
N RY	HILTI HIT-HY 270 (ESR-4143)	DEWALT AC 100+ GOLD (ESR-3200) SIMPSON SET-XP (ESR-0265)
ED RY	HILTI HIT-HY 270 (ESR-4143)	DEWALT AC 100+ GOLD (ESR-3200) RED HEAD A7 ACRYLIC (ESR-3951) SIMPSON SET-XP (ESR-0265)
TE	HILTI HIT-HY 200 (ESR-3187)	DEWALT AC 200+ (ESR-4027) SIMPSON SET-3G (ESR-4057)

4. CRACKED CONCRETE REPRESENTS ALL CONCRETE FOR PROJECTS LOCATED IN SEISMIC DESIGN CATEGORY C OR HIGHER, TENSILE ZONES SUCH AS BOTTOMS OF BEAMS AND SLABS, OR WHERE NOTED ON THE DRAWINGS.

TESTING, INSPECTIONS, AND OBSERVATIONS

1. THE STRUCTURAL ENGINEER DOES NOT PROVIDE INSPECTIONS OF CONSTRUCTION. STRUCTURAL ENGINEER MAY MAKE PERIODIC OBSERVATIONS OF THE CONSTRUCTION, SUCH OBSERVATIONS SHALL NOT REPLACE REQUIRED INSPECTIONS BY THE GOVERNING AUTHORITIES OR SERVE AS "SPECIAL INSPECTIONS" AS MAY BE REQUIRED BY CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE. 2. UNLESS NOTED, MATERIALS SHALL CONFORM AND TESTS AND INSPECTIONS SHALL BE PERFORMED BY THE INSPECTION AGENCY WHO IS APPROVED THE ARCHITECT AND THE STRUCTURAL ENGINEER. CONTINUOUS AND PERIODIC TESTING AND INSPECTION SHALL CONFORM TO IBC CHAPTER 17, AND AS FOLLOWS: 1704 4 1705

ETE CONSTRUCTION	1704.4 1705.3
IRY CONSTRUCTION	1704.5 1705.4
CONSTRUCTION	1704.3 1705.2 CHAPTER N OF AISC 360
	1704.7 1705.6
TECTURAL, CIVIL, MECHANICAL	L, PLUMBING, AND ELECTRICAL DRAWINGS OR
TIONS FOR TESTING AND INSPI	ECTION REQUIREMENTS OF NON-
AL COMPONENTS.	

4. DUTIES OF THE INSPECTION AGENCY PER IBC CHAPTER 17: A. SUBMIT A PROPOSED TESTING AND INSPECTION PROGRAM TO THE OWNER, THE ARCHITECT AND THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF WORK.

B. PERFORM ALL TESTING AND INSPECTION REQUIRED PER APPROVED TESTING AND INSPECTION PROGRAM. C. FURNISH INSPECTION REPORT TO THE BUILDING OFFICIAL, THE OWNER, THE

ARCHITECT, STRUCTURAL ENGINEER AND THE GENERAL CONTRACTOR. THE REPORTS SHALL BE COMPLETED AND FURNISHED WITHIN 48 HOURS OF INSPECTED WORK.

D. SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE SPECIAL INSPECTION AGENCY'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

5. SPECIAL INSPECTIONS AND TESTS ARE REQUIRED FOR MATERIALS AND SYSTEMS REQUIRED TO BE INSTALLED IN ACCORDANCE WITH ADDITIONAL MANUFACTURER'S INSTRUCTIONS THAT PRESCRIBE REQUIREMENTS NOT CONTAINED IN CHAPTER 17 OF THE IBC OR IN STANDARDS REFERENCED BY THE IBC. THESE ITEMS INCLUDE: A. POST-INSTALLED ANCHORS - INSPECTION



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GENERAL NOTES

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Sheet Title NORTH COURTYARD -FOUNDATION PLAN

<u>Sheet Number</u> <u>Cur</u> 1A-S300.1

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ENLARGED SOUTH COURTYARD -



KEY PLAN



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-4'-0" MAXIMUM WIDTH.

FOOTING

WHERE TRENCH WIDTH

STRUCTURAL ENGINEER

PRIOR TO PLACEMENT OF

EXCEEDS 3'-0", NOTIFY

FILLET WELD SIZE: 1/2" DIA BOLT: 5/8" TO 7/8" DIA BOLT: 5/16" 1" DIA BOLT:

> NOTES: A307 OR BETTER REQUIRED 4. EXPANSION BOLTS SHALL BE USED ONLY WHERE SPECIFICALLY NOTED ON

DRAWINGS 5. AUTOMATIC WELDED STUDS (NELSON STUDS) MAY BE USED AS AN ALTERNATE TO BENT ANCHORS WELDED AS SHOWN



- DOUBLE HORIZONTAL

REINFORCING BARS, ANY SIZE

CORNER BARS TO MATCH

SIZE AND SPACING OR HORIZONTAL REINFORCING.

LAP PER SCHEDULE -

- BEND CORNER BARS

AROUND VERTICAL

REINFORCING

PLAN - TYPICAL WALL CORNER IN MASONRY WALL

INTERSECTION DETAIL.

2. DETAIL ASSUMES CORNER IS CONSTRUCTED IN RUNNING BOND WITH UNITS INTERLOCKED. IF CONTINUOUS VERTICAL JOINT OCCURS, SEE WALL

GROUT NOT SHOWN FOR CLARITY.

1. TYPICAL VERTICAL REINFORCING AND

PLAN - SINGLE REINFORCING

SMALLER

SINGLE HORIZONTAL

SMALLER

REINFORCING BAR #5 OR

SINGLE HORIZONTAL REINFORCING BAR #5 OR

4

MASONRY 1 MIN BAR SEE BELOW ALL OTHER BAR SPACING (IN) SIZE BARS 3 3 1 7/8 13 13 4 2 22 22 5 2 35 35 6 2 54 48 7 2 63 56 8 2 72 64 9 2 82 73

(1) LAP LENGTHS BASED ON LAP SPLICE PER IBC 2018 AND SECTION

(2) MINIMUM BAR SPACING IS MEASURED AS CLEAR DISTANCE

DESIGNATED AS "COLLECTOR", "CHORD", OR "DRAG"

TYPICAL REBAR LAP SCHEDULE -

LENGTHS ARE IN INCHES.

MASONRY (ASD)

2107 FOR UNCOATED BARS IN MASONRY. F'm=2000 PSI. ALL LAP

BETWEEN BARS OR CLEAR DISTANCE TO EDGE OF MASONRY

(3) HORIZONTAL REINFORCING IN LINTELS, BOND BEAMS, AT FLOORS

AND ROOFS, ALL WALL VERTICAL REINFORCING, ALL BARS

SPACING NOTED IN SCHEDULE **TYPICAL REBAR LAP SCHEDULE -**CONCRETE

(2) BAR SPACING IS MEASURED AS CLEAR DISTANCE BETWEEN BARS. NOTIFY ENGINEER WHERE BAR SPACING IS LESS THAN MIN

PER ACI 318-14 FOR NORMAL WEIGHT CONCRETE AND UNCOATED BARS. ALL LAP

(1) LAP LENGTHS BASED ON CLASS B LAP SPLICE

101 113 87 (3) SEE PLAN OR GSN FOR DESIGN CONCRETE STRENGTH (4) TOP BARS ARE BARS SO PLACED THAT 12 INCHES OR MORE OF FRESH CONCRETE IS CAST IN MEMBER

BELOW SPLICE

63 81 70 54 93 72 62 80 105 81 91 70 118 91 102 79 143 | 110 | 131

2 20 16 19 14 3 30 23 28 22 4 31 37 41 29 1 5 1 1/4 51 39 47 36 6 1 1/2 61 47 56 43 7 1 3/4 89 68 8 101 78 2 9 2 1/4 114 88 10 2 1/2 129 99

11 2 3/4

LENGTHS ARE IN INCHES

TYPICAL STANDARD REBAR BENDING DETAILS NO SCALE

ALL REINFORCING EXCEPT STIRRUPS AND TIES ALL OTHER REINFORCING ¹ (2 1/2" MIN)

STIRRUP AND TIE HOOKS <u>OFFSET BAR</u> MINIMUM FINISHED BEND DIAMETER 6d UP TO #8 BAR, 8d FOR #9 THRU #11, 12d FOR #14 AND #18. TYPICAL FOR

6d FOR #5 AND SMALLER 12d FOR #6 THRU #8

- MINIMUM FINISHED BEND ONI Y





BOLT

1/2"

5/8"

3/4"

7/8"

1"

1 1/4"

EMBEDMEN[®]

EXPANSION BOLT OR SCREW ANCHOR THREADS MAY BE INCLUDED

IN SHEAR PLANE AT FACE OF

1. PROVIDE ANCHORS, ANCHOR BOLTS AND EXPANSION BOLTS PER THIS SCHEDULE UNLESS NOTED OTHERWISE ON PLANS OR DETAILS. ALL MATERIAL SHALL BE ASTM 2. POST INSTALLED BOLTS USED IN MASONRY SHALL BE EXPANSION OR SCREW ANCHOR WITH CURRENT ICC APPROVAL IN MASONRY. INSTALL ONLY IN SOLID GROUTED MASONRY PER MANUFACTURER REQUIREMENTS. SPECIAL INSPECTION 3. EXPANSION BOLTS USED IN CONCRETE SHALL HAVE CURRENT ICC APPROVAL

VERT BOLT HORIZ BOLT

LENGTH

4"

9"

DIAMETER EMBEDMENT EMBEDMENT

LENGTH

11"

/ DIAMETER 4d FOR #5 BAR AND SMALLER, 6d FOR #6 THRU #8. TYPICAL FOR STIRRUPS AND TIES

NOTES:

1. d = DIAMETER.

2. ALL REINFORCING SHALL BE BENT COLT UON ON PLANS OR DETAILS.

3. REINFORCING PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS SPECIFICALLY NOTED ON PLAN OR DETAILS.

	4500 PSI				
R S	TOP BARS <u>(</u>	OTHER BARS			
	15	12			
	23	18			
	31	24			
	38	29			
	46	35			
	67	51			
	76	58			
	86	66			
	96	74			
	107	82			
	1				



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Sheet Title CONCRETE AND CMU SECTIONS AND DETAILS

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HSS STEEL COLUMN AT CAISSON **FOOTING** 3/4" = 1'-0"



4 TRELLIS AT MASONRY PIER



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STEEL FRAMING SECTIONS AND DETAILS

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