

GENERAL NOTES

- STRUCTURAL DESIGN BASED ON THE MANITOBA BUILDING CODE OF CANADA 2011 EDITION.
 - IMPORTANCE CATEGORY: NORMAL
 - WIND LOAD: QSO = 9.4 P.S.F.
 - GROUND SNOW LOAD: SS = 39.6 P.S.F.
 - ASSOCIATED RAIN LOAD: 4.2 P.S.F.
- SEISMIC SITE CLASSIFICATION: NOT APPLICABLE
- DO NOT SCALE DRAWINGS.
- ALL DIMENSIONS ARE TO BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS PROJECT DRAWINGS AND EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
- THESE STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE AND DO NOT INDICATE ALL COMPONENTS NECESSARY FOR SAFETY DURING CONSTRUCTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON AND AROUND THE JOBSITE DURING CONSTRUCTION.

CAST-IN-PLACE CONCRETE

- CONCRETE
- ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA-A23.1-09 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CAN/CSA-A23.2-09 "METHOD OF TEST FOR CONCRETE". PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY, YIELD AND STRENGTH AS SPECIFIED IN CONCRETE MIXES, AND WILL COMPLY WITH CAN/CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
- PROVIDE CERTIFICATION THAT PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH REQUIREMENTS OF CAN/CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
- CONCRETE STRENGTHS AT 28 DAYS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

CURBS: 32 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: C-2
ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

SLABS-ON-GRADE: 32 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: C-2
ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

UNLESS INDICATED OTHERWISE THE CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE CONTRACTOR SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

- UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF CAN/CSA-A23.1-09 AS FOLLOWS:
 - TYPE 1 - BASIC: 3 DAYS $\geq 10^{\circ}\text{C}$ AND FOR A TIME NECESSARY TO ATTAIN 40% OF THE SPECIFIED STRENGTH.
 - TYPE 2 - ADDITIONAL: 7 DAYS $\geq 10^{\circ}\text{C}$ AND FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
 - TYPE 3 - EXTENDED: 7 DAYS WET CURING $\geq 10^{\circ}\text{C}$.

- AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260/C260M-10A "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" OR ASTM C1017/C1017M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINING ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C866/C866M PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17MM OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

REINFORCING STEEL

- ALL REINFORCING STEEL TO BE CAN/CSA-G30.18M GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STRIPPERS WHICH SHALL BE GRADE 40W STEEL. ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA - MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED.
- REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-04 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

CURBS: EXPOSURE CLASS: F-2 1 1/2 IN. OUTSIDE FACE 3/4 IN. INSIDE FACE.

SLABS: EXPOSURE CLASS: C-2 1 1/2 IN. TOP 1 1/2 IN. BOTTOM

- IN CURBS, BEND ALL TOP AND INTERMEDIATE HORIZONTAL STEEL 2'-0" AROUND CORNERS, OR USE EXTRA L BARS 4'-0" LONG.
- ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR WEALED TO THE FORMWORK.
- ALL OPENINGS IN CAST-IN-PLACE CONCRETE FLOWERS TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, EXCEPT AS NOTED.
- ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 MM 16 IN. O/C EACH WAY, UNLESS NOTED.

FORMWORK

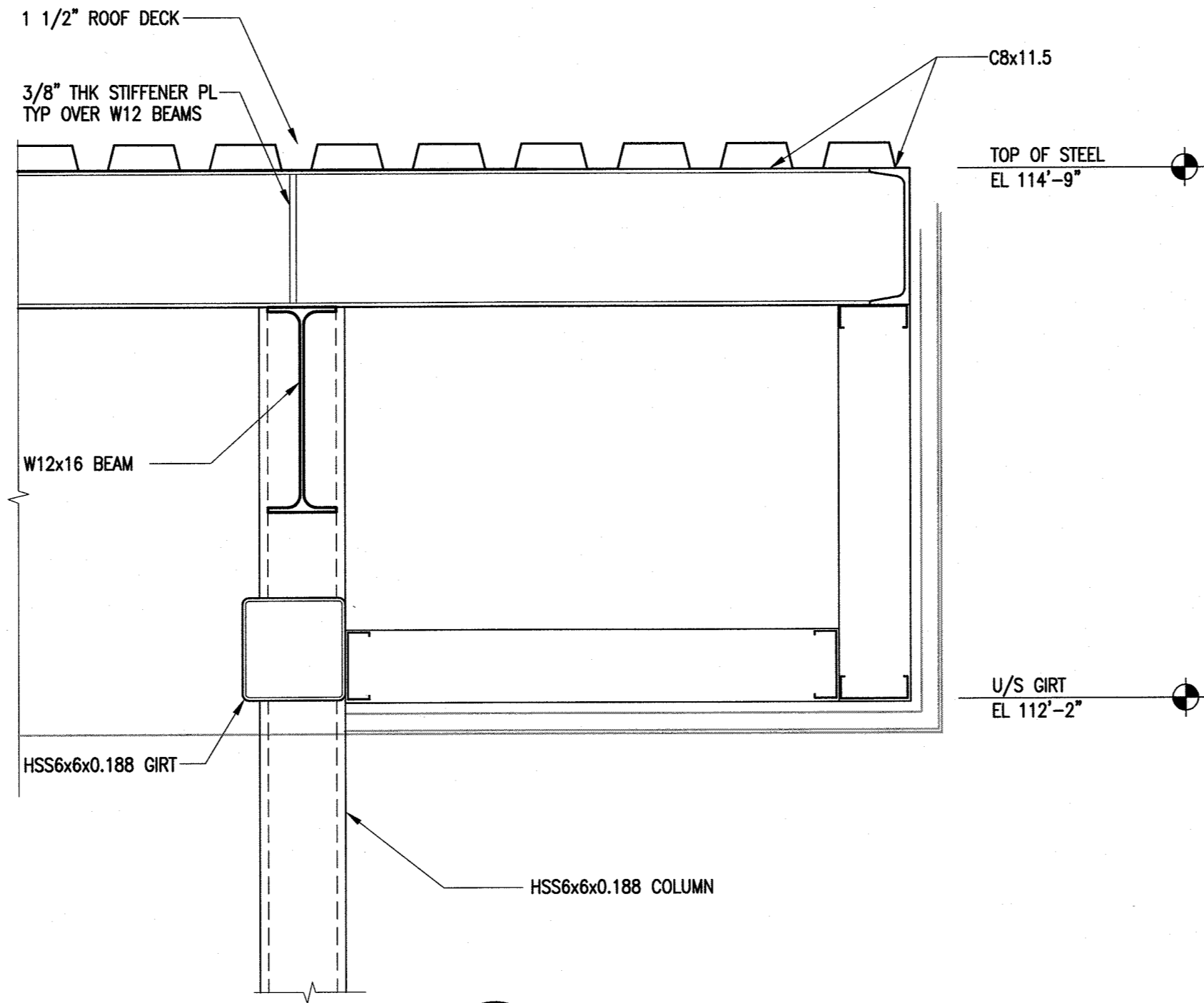
- UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 MM 1/2 IN. ASPHALT IMPREGATED FIBREBOARD.
- ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 1 1/2 IN. DEEP.
- PLACE 10 MIL POLYETHYLENE UNDER ALL SLABS ON FILL AND OVER TOP OF INSULATION.

STRUCTURAL STEEL

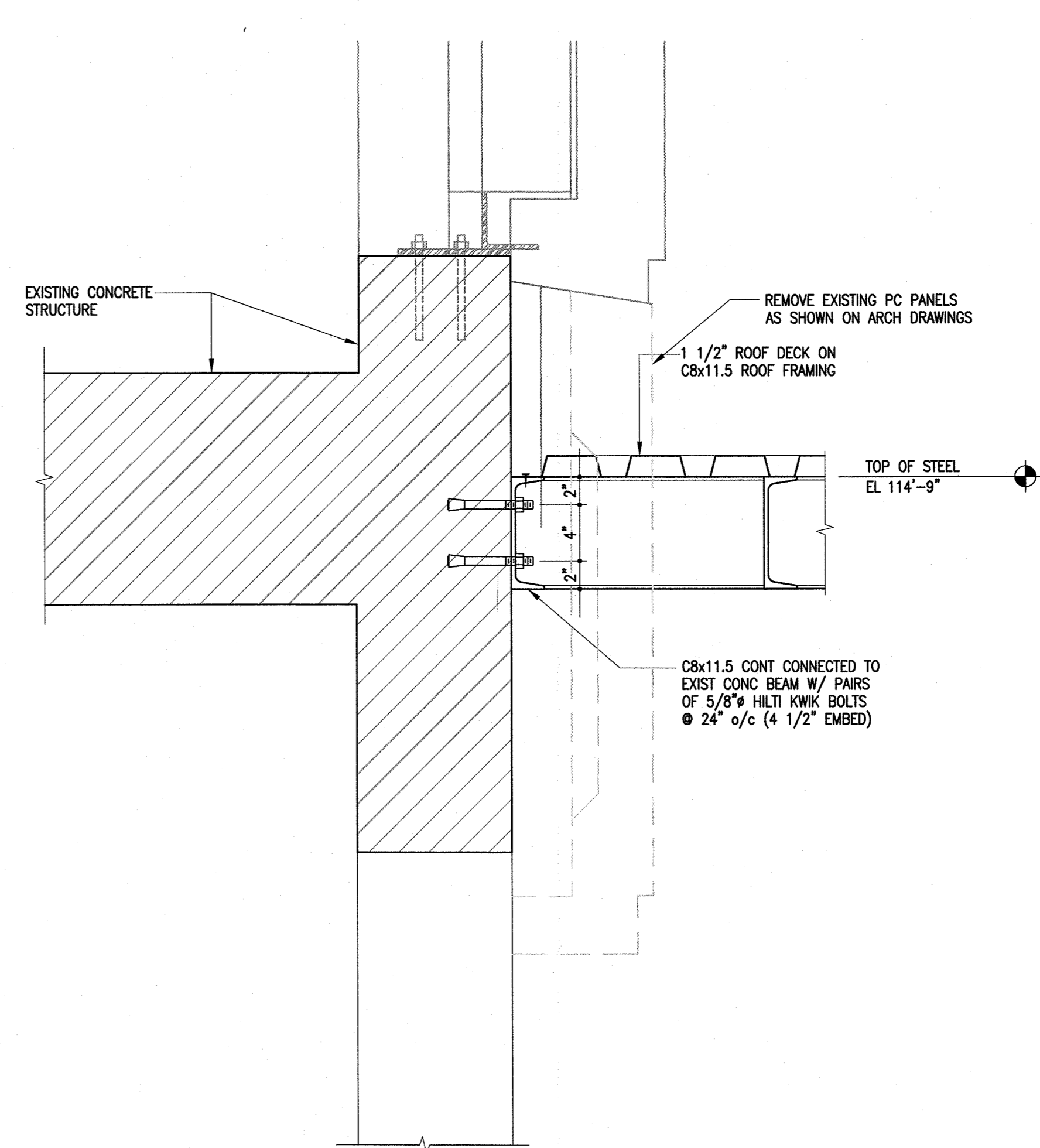
- THE STRUCTURAL STEEL FABRICATOR'S ENGINEER SHALL BE RESPONSIBLE FOR LOCATING AND DESIGNING PROVISIONS FOR ALL TEMPORARY FALL PROTECTION SYSTEMS REQUIRED DURING CONSTRUCTION TO MEET MANITOBA WORKPLACE HEALTH AND SAFETY REGULATIONS.
- STRUCTURAL STEEL TO CONFORM TO CSA-G40.21, "STRUCTURAL QUALITY STEELS" AND CSA-G40.20 "GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL".
- ALL ROLLED OR STEEL STRUCTURAL SECTIONS SHALL BE G40.21-50W, ALL HOLLOW STRUCTURAL SECTIONS TO BE G40.21-50W CLASS COR. ASTM A500. ALL ANGLES, CHANNELS AND PLATES SHALL BE G40.21-44W.
- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE PERFORMED IN ACCORDANCE WITH CAN/CSA S16-09, "STEEL STRUCTURES FOR BUILDINGS".
- ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF CSA W59, "WELDED STEEL CONSTRUCTION". FABRICATORS SHALL BE PROPERLY CERTIFIED IN ACCORDANCE WITH CSA W47.1, "CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES".
- ALL BOLTED CONNECTIONS TO USE A325 HIGH STRENGTH BOLTS. MINIMUM CONNECTION SHALL CONSIST OF 2 BOLTS.
- ALL STRUCTURAL STEEL IS TO RECEIVE ONE COAT OF CISC/CPMA 1-15A QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2. STEEL RECEIVING FINISH PAINTING TO HAVE ONE COAT OF CISC/CPMA 2-75 QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP7.
- NO HOLES PERMITTED IN TOP FLANGE OF BEAMS AT COLUMNS WHERE BEAMS ARE CONTINUOUS OVER COLUMNS.
- ALL CHANNELS CONTINUOUS OVER BEAMS ARE TO HAVE WEB STIFFENERS THE SAME SIZE AND ORIENTATION AS THE BEAM BELOW, UNLESS OTHERWISE NOTED.
- ANCHOR BOLTS TO BE EXPANSION ANCHORS AS NOTED ON DRAWINGS PROVIDED AND SET BY STEEL SUPPLIER.
- FABRICATOR TO NOTIFY CONTRACT ADMINISTRATOR OF ANY PROPOSED MEMBER SUBSTITUTIONS AND CHANGED CONNECTION DETAILS.
- THE STRUCTURAL STEEL SUPPLIER SHALL PROVIDE AND BE RESPONSIBLE FOR ALL HOLES IN STEEL SECTIONS REQUIRED BY OTHER TRADES. SECTION SHALL BE STRENGTHENED WHERE REQUIRED TO GUARANTEE THE ORIGINAL STRENGTH OF THE BEAM. ANY CUTTING OF STEEL AT THE JOB SITE SHALL BE DONE ONLY AS DIRECTED AND APPROVED BY THE CONTRACT ADMINISTRATOR.
- THE STRUCTURAL STEEL ERECTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND ERECTING ALL TEMPORARY GUYING AND BRACING OF THE STEEL FRAMING TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. THESE SHALL REMAIN IN PLACE UNTIL ALL STEEL BECKING IS ERECTED, WELDED IN PLACE AND ALL MASONRY/CONCRETE WALLS CONSTRUCTED.
- ALL DUCTS LARGER THAN 18 IN. X 18 IN. THROUGH ROOF DECK TO BE FRAMED WITH L3 X 3 X 1/4 ANGLES ALL AROUND, EXCEPT AS NOTED. SMALLER OPENINGS THROUGH STEEL DECK TO BE STIFFENED BY STEEL DECK SUPPLIER, WHERE STEEL DECK REVERSES ITS FRAMING DIRECTION. USE L 2 1/2 X 2 1/2 X 1/4 ANGLE TO SUPPORT EDGE.
- STRUCTURAL STEEL SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA COVERING THE DESIGN OF CONNECTIONS, TO THE PROJECT DESIGN ENGINEER FOR REVIEW PRIOR TO FABRICATION. CONNECTION DESIGN TO INCLUDE FOR ALL ADJUSTABLE CONNECTIONS REQUIRED TO SUITE FABRICATION AND ERECTION PROCEDURES AND TOLERANCES.
- STRUCTURAL STEEL WHICH SUPPORTS ARCHITECTURAL FINISHES MUST BE DESIGNED TO BE SUFFICIENTLY ADJUSTABLE TO MEET REQUIRED INSTALLATION TOLERANCES. SEE ARCHITECTURAL FOR REQUIRED FINISH TOLERANCES.

METAL DECK

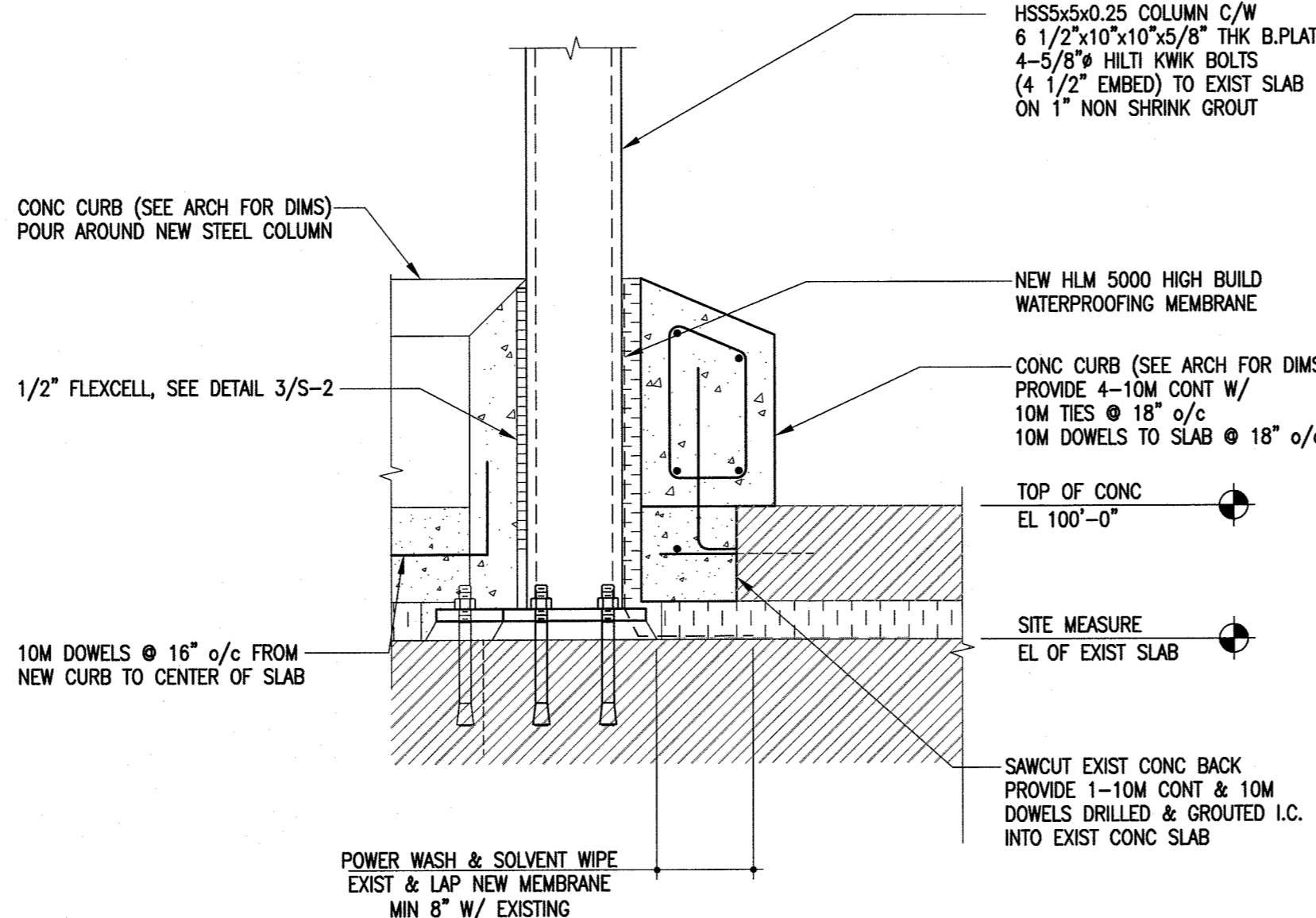
- ROOF DECK SHALL BE 1.5 IN. DEEP PROFILE, 0.03 IN. WITH RIB SPACING OF 6 IN.
- DECK SHALL BE MINIMUM GRADE A WITH A MINIMUM GALVANNEAL Z75.
- DECK SHALL BE ARC SPOT WELDED TO BEARING SUPPORTS AT 12 IN. O/C EXCEPT AT 6 IN. O/C ALONG CHANNEL AT BUILDING EDGE. WELDS SHALL BE 3/4 IN. DIAMETER.
- SIDE LAPS SHALL BE MECHANICALLY FASTENED AT 24 IN. ON-CENTRE.
- DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 6 IN. TO 12 IN. ACROSS THE FLUTES WITH MINIMUM L2 1/2 X 2 1/2 X 1/4 EACH SIDE OF OPENING PERPENDICULAR TO FLUTES. ANGLE SHALL BE WELDED TO AT LEAST TWO FLUTES ON EACH SIDE OF OPENING.
- DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 12 IN. TO 18 IN. ACROSS THE FLUTES WITH SUITABLE REINFORCEMENT BASED ON A STRUCTURAL ANALYSIS OF THE LOADS INVOLVED.
- TOUCH UP DECK WITH ZINC RICH PAINT WHERE ZINC COATING HAS BEEN BURNED BY WELDING.



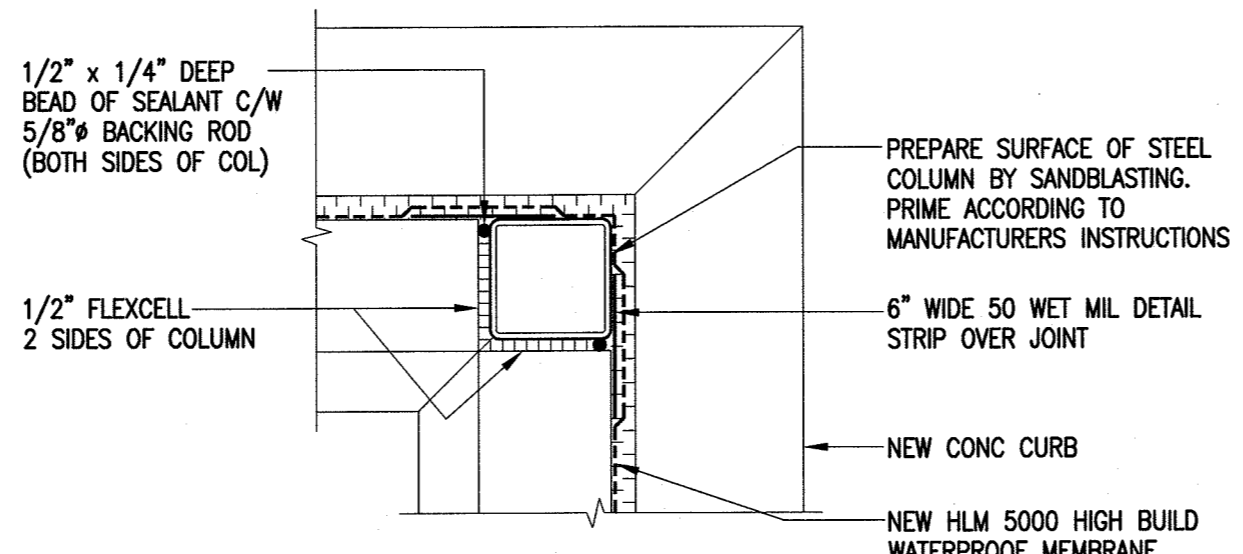
1 SECTION
S-2 1 1/2" = 1'-0"



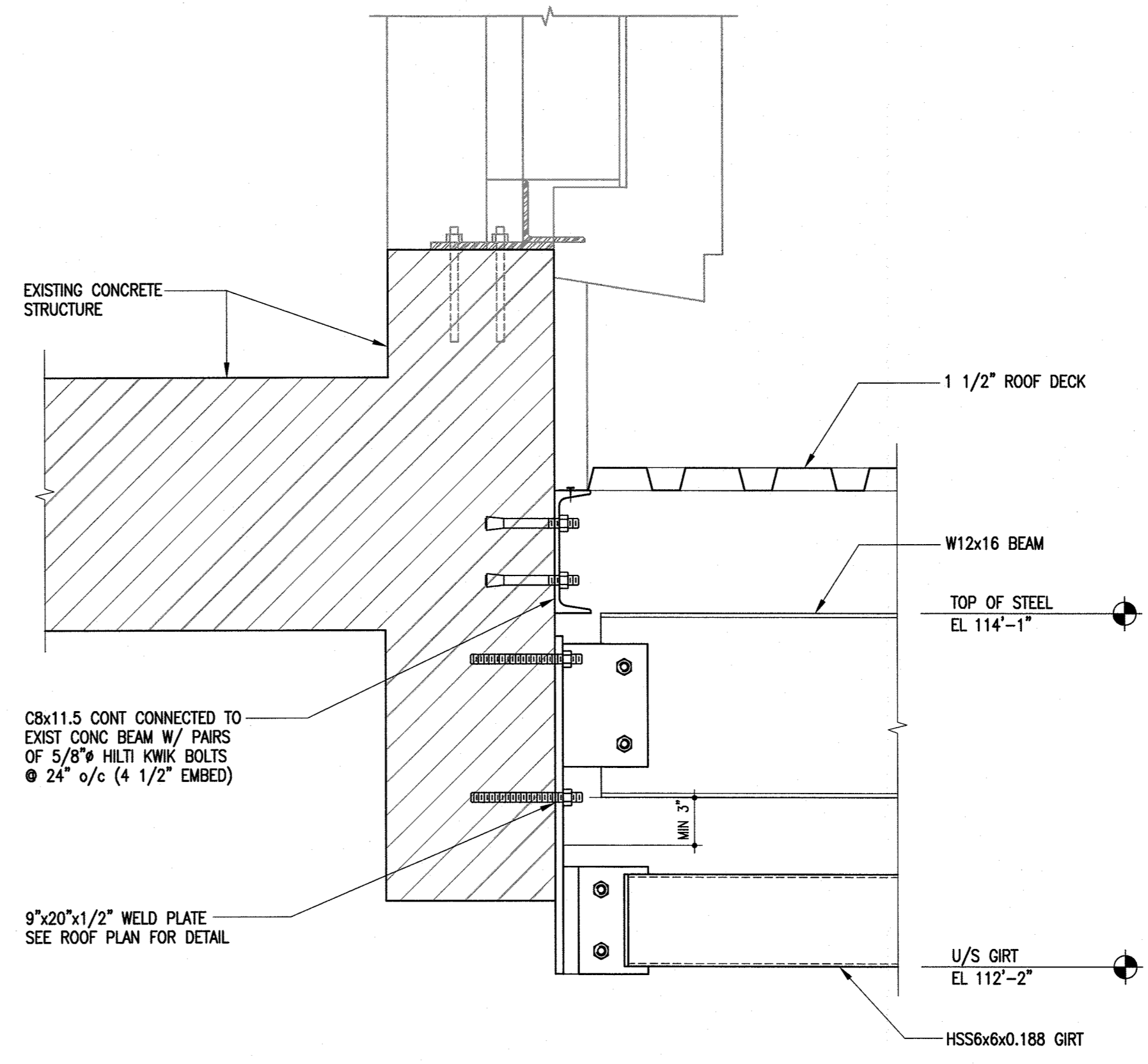
4 SECTION
S-2 1 1/2" = 1'-0"



2 SECTION
S-2 1 1/2" = 1'-0"



3 PLAN DETAIL
S-2 1 1/2" = 1'-0"



5 SECTION
S-2 1 1/2" = 1'-0"

2	Issued for Tender	GDP	11/07/25
1	Issued for Client Review	GDP	12/06/25
NO.	REVISIONS	BY	TR.MB.DT

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PROJECT TITLE
Millennium Library
Renovation and Vestibule Addition
251 Donald Street, Winnipeg, MB

General Notes & Sections

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No. 235 Date: Jul 11, 2012

APPROVED	CHECKED	DRAWN BY
GG	GG	GDP
SCALE	DATE	FILE NO.
Sections	JUNE 2012	2012-0512
DRAWING NUMBER	REVISION NUMBER	
S-2	----	
CAD FILE: 2012-0512_S-2.dwg	DRAWER NO.:	