

1 ROOF PLAN
 1" = 40'-0"
 NORTH

- WEST ELEVATION NORTH OF FRONT EXTERIOR CURTAINWALL - PROVIDE HLL AS SHOWN AS BASE BID. CONTRACTOR TO SUPPLY SEPARATE ADD PRICE AND FULL DESCRIPTION OF SYSTEM TO ACCESS SLOPED CURTAINWALL.
- WEST ELEVATION NORTH OF FRONT INTERIOR CURTAINWALL - PROVIDE HLL AS SHOWN AS BASE BID. CONTRACTOR TO SUPPLY SEPARATE ADD PRICE AND FULL DESCRIPTION OF SYSTEM TO ACCESS SLOPED CURTAINWALL. THIS MAY ALSO USE A SLEEVE SYSTEM SIMILAR TO 4/56.
- EAST ELEVATION A-FRAME INTERIOR CURTAINWALL - PROVIDE HLL AS SHOWN AS BASE BID. CONTRACTOR TO SUPPLY SEPARATE ADD PRICE AND FULL DESCRIPTION OF SYSTEM TO ACCESS SLOPED CURTAINWALL.

621 Little Drive North
 Minneapolis, MN 55422-4609
 (763) 545-9196
 Fax (763) 541-0056
 www.clark-eng.com



ENGINEER NAME: KURT A. BESELAND
 REG. NO.: 20141
 DATE:

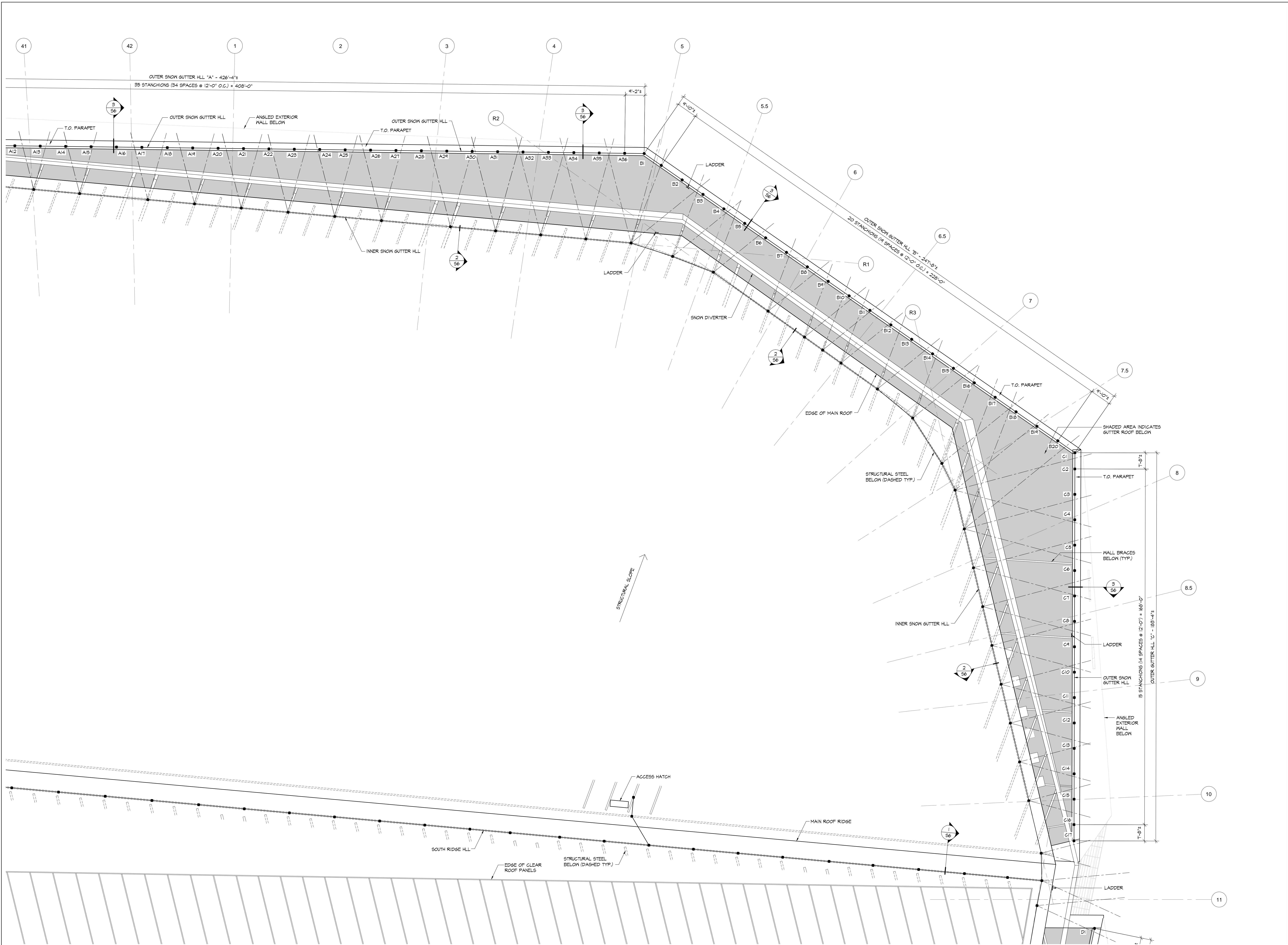
HORIZONTAL LIFE LINE (HLL)
 MINNESOTA MULTI-PURPOSE STADIUM
 MINNEAPOLIS, MINNESOTA

SHEET TITLE
 PROJECT

02/07/2015
 02/19/2015

REVISIONS
 1
 2
 3

DRAWN BY: MDH
 CHECKED BY: KAB
 DATE: 1/29/15
 PROJECT NO.: 14006
 SHEET NO.:



82 PARTIAL ROOF PLAN
 1/16" = 1'-0"
 NORTH

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 ENGINEERING CORPORATION

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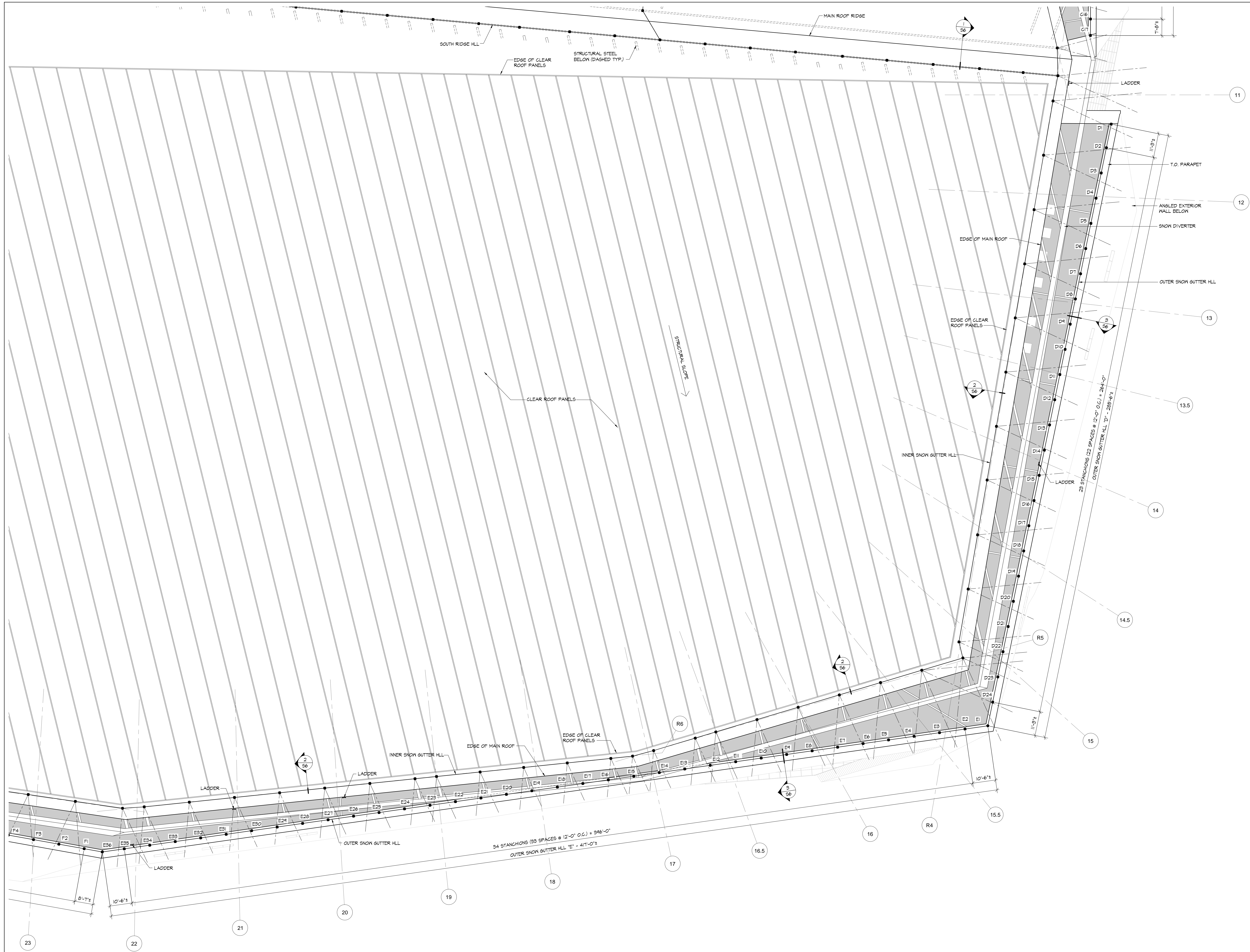
HORIZONTAL LIFE LINE (HLL)
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REVISIONS:
 02/07/2015 OUTER HLL STANCHION DESIGN
 02/18/2015 REVISE OUTER STANCHION POSTS

DRAWN BY: MDH
 CHECKED BY: KAB
 DATE: 1/29/15
 PROJECT NO.: 14006
 SHEET NO.:

S2
 SHEET OF



PARTIAL ROOF PLAN
 5/16" = 1'-0"
 NORTH

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 Minneapolis, MN 55422-4609
 (763) 545-9196
 Fax (763) 541-0056
 www.clark-eng.com



ENGINEER NAME: KURT A. BESELAND
 REG. NO.: 20411 DATE: _____
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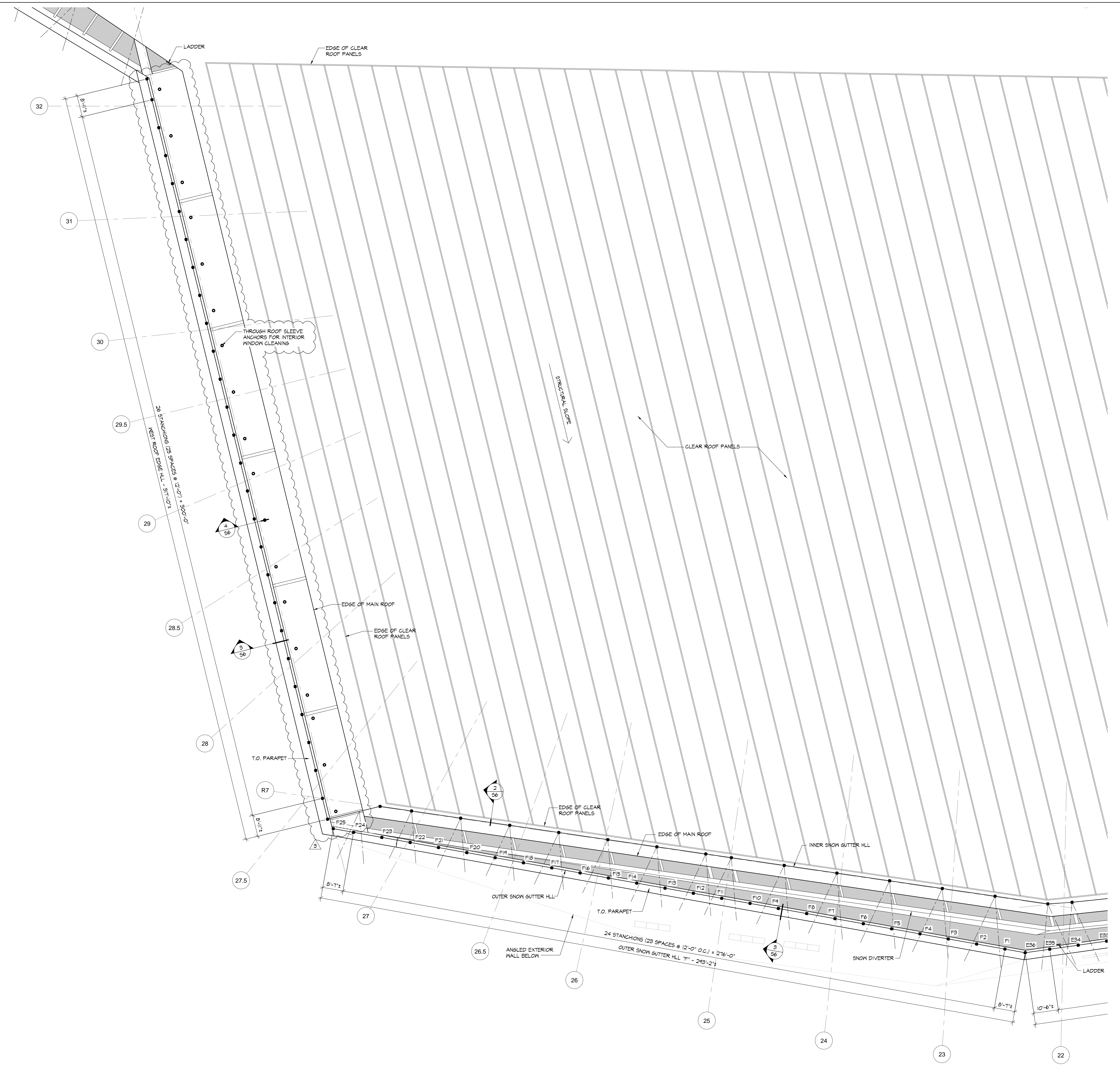
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MINNESOTA MULTI-PURPOSE STADIUM
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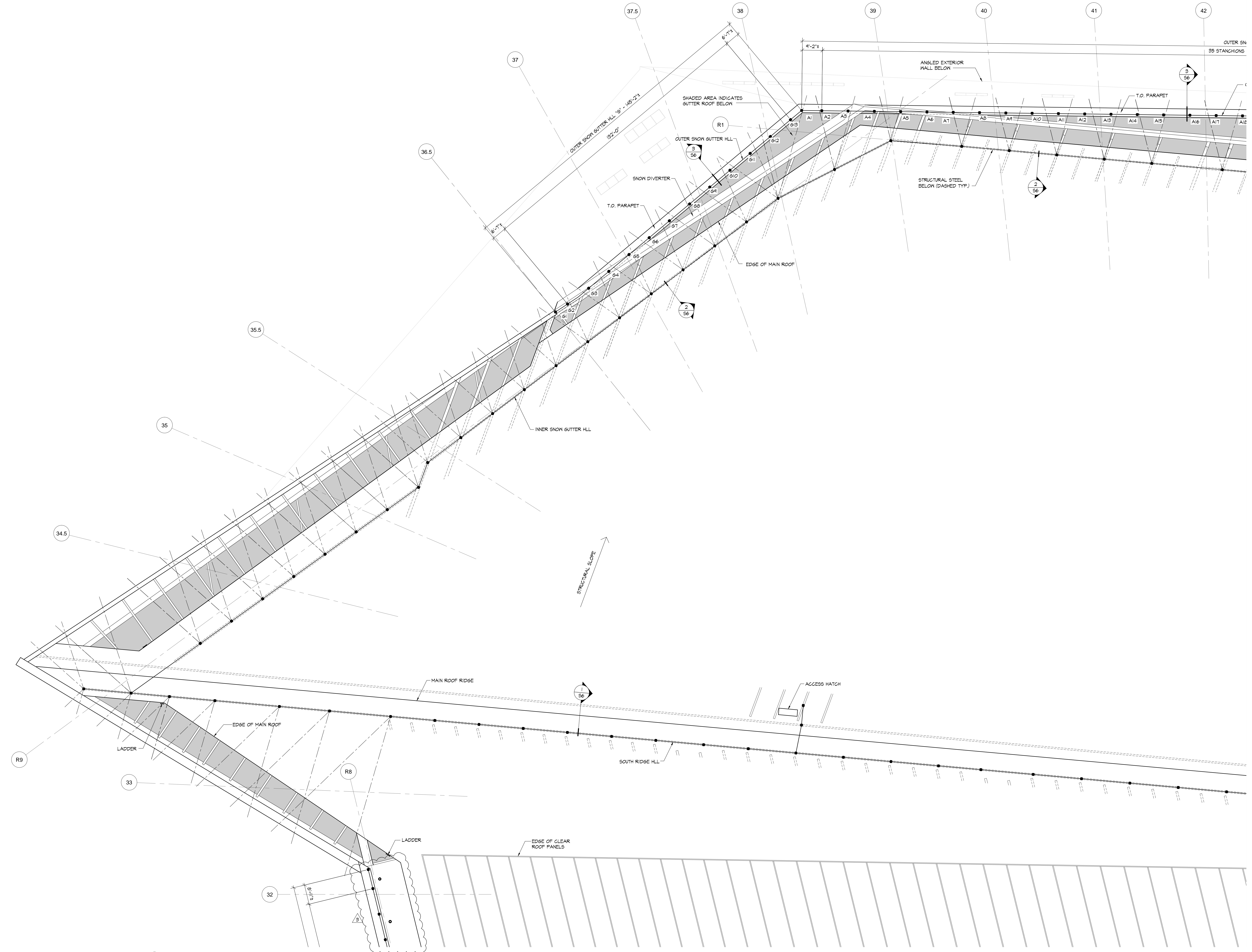
SHEET TITLE: _____
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S3
 SHEET OF





PARTIAL ROOF PLAN
 1/16" = 1'-0"

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 Minneapolis, MN 55422-4609
 (763) 545-9196
 Fax (763) 541-0056
 www.clark-eng.com

CLARK
 ENGINEERING CORPORATION

I AM AN ENGINEER IN THE STATE OF MINNESOTA. I AM A LICENSED PROFESSIONAL ENGINEER IN MECHANICAL ENGINEERING. I AM A LICENSED PROFESSIONAL ARCHITECT IN THE STATE OF MINNESOTA. I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MINNESOTA.

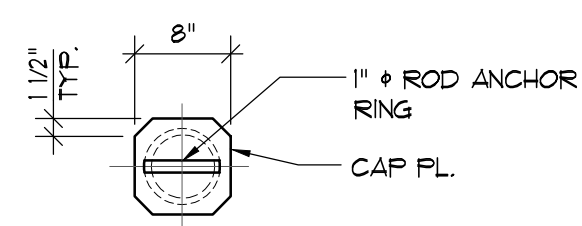
 ENGINEER NAME: **KURT A. BESELAND**
 REG. NO.: _____ DATE: _____

SHEET TITLE: **HORIZONTAL LIFE LINE (HLL)**
 PROJECT: **MINNESOTA MULTI-PURPOSE STADIUM**
 MINNEAPOLIS, MINNESOTA

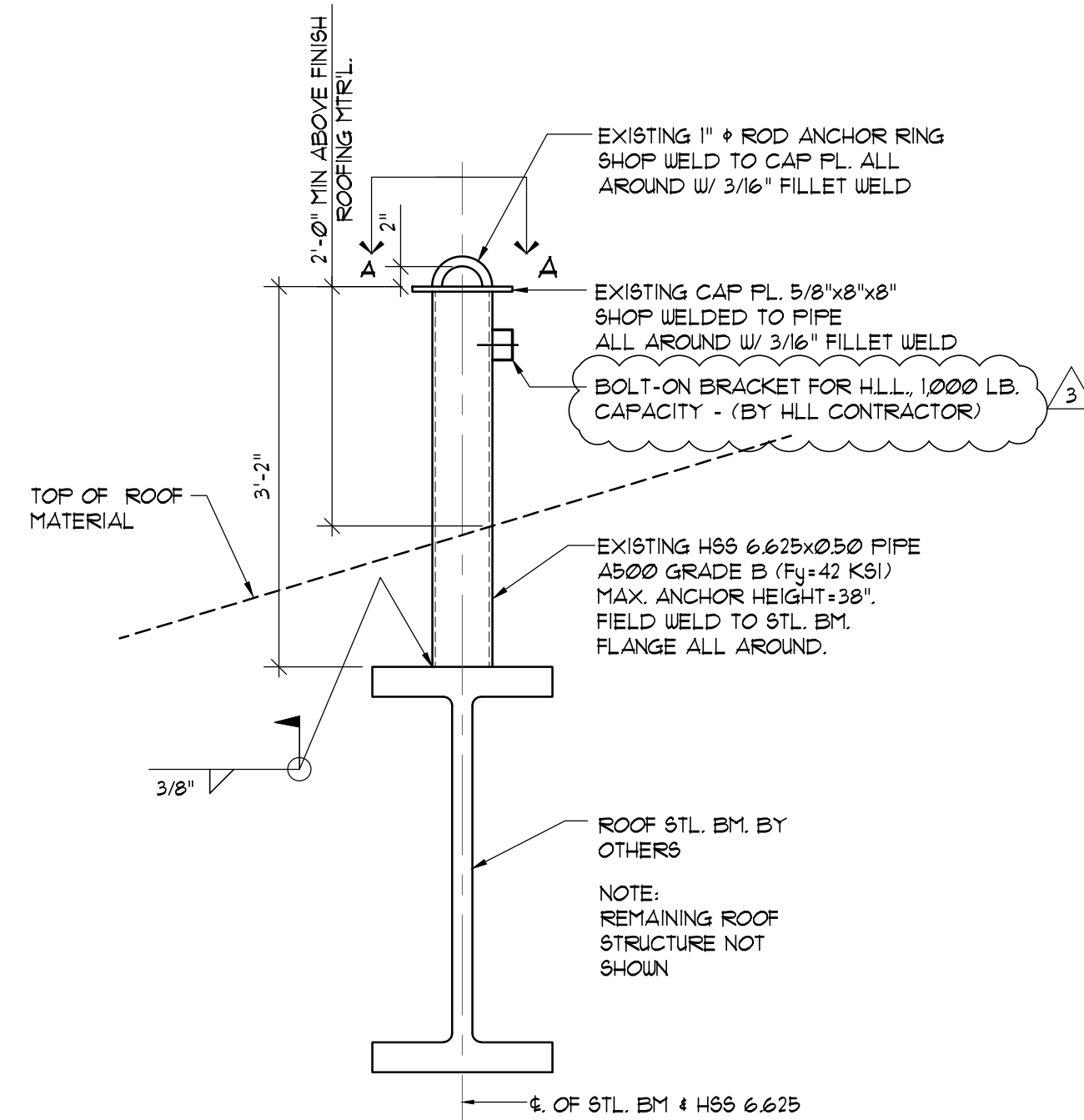
REVISIONS:
 02/02/2015 OUTER HLL STANCHION DESIGN
 02/02/2015 REVISE OUTER STANCHION POSTS

DRAWN BY: **MDH**
 CHECKED BY: **KAB**
 DATE: **1/29/15**
 PROJECT NO.: **14006**
 SHEET NO.:

S5
 SHEET OF

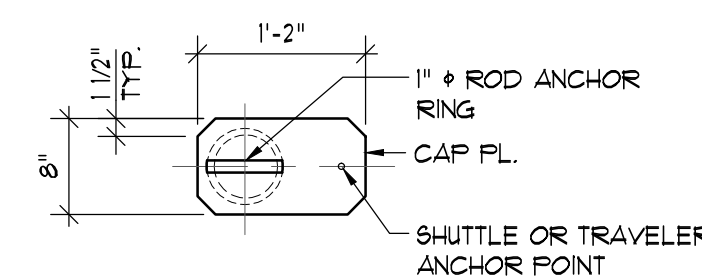


PLAN DETAIL A-A

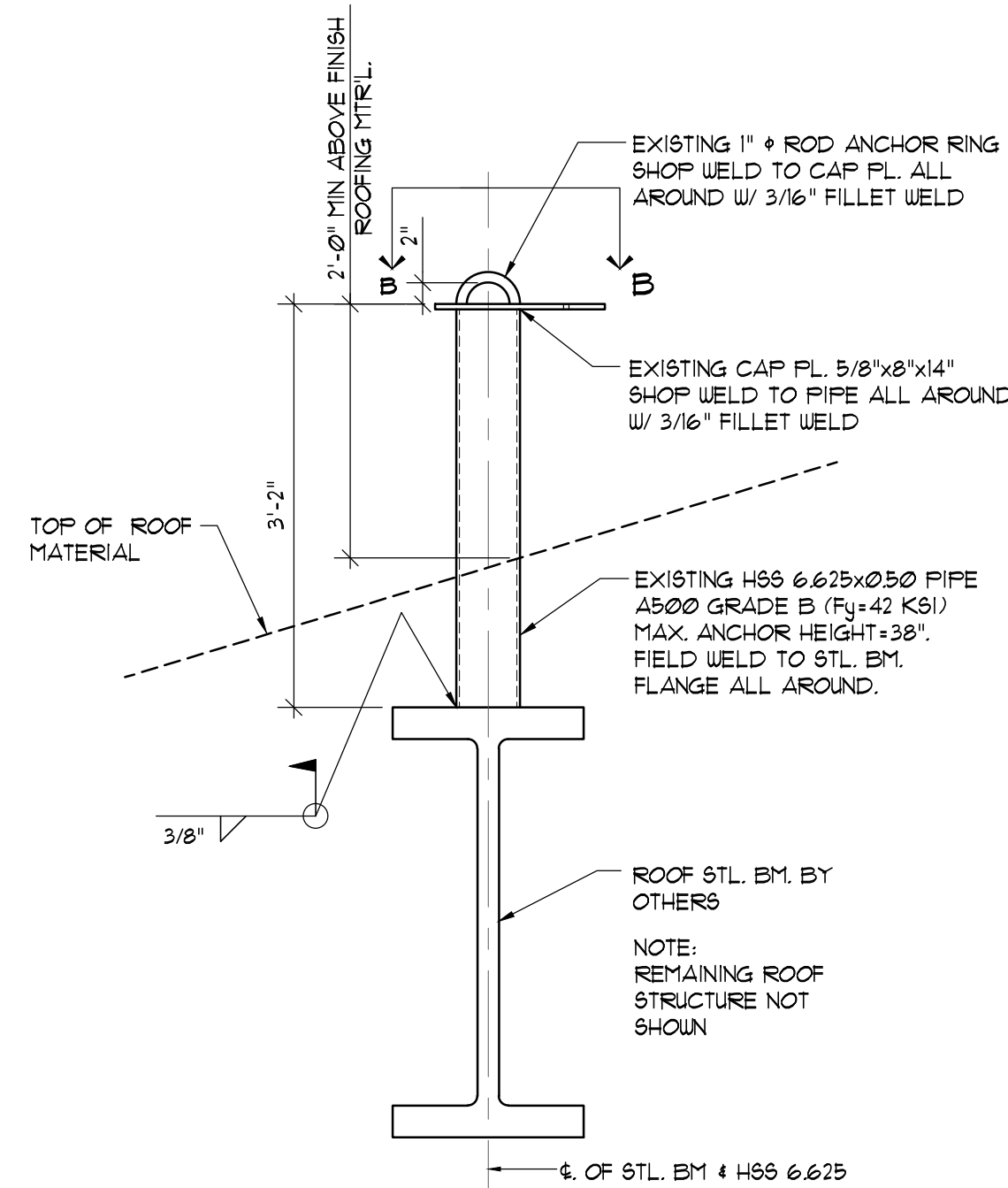


1 SECTION - HLL @ SOUTH RIDGE

3/4" x 1"-Ø
EXISTING STANCHION CONSTRUCTION NOT IN THIS BID. BOLT-ON BRACKET AND HLL IS PART OF THIS BID

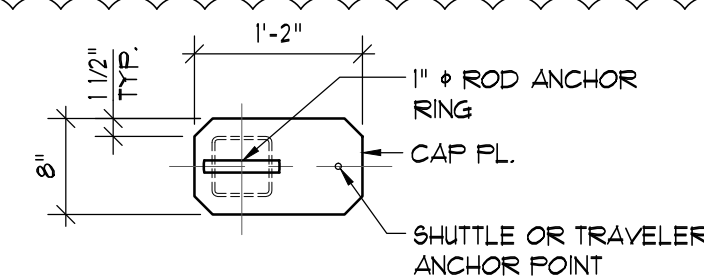


PLAN DETAIL B-B

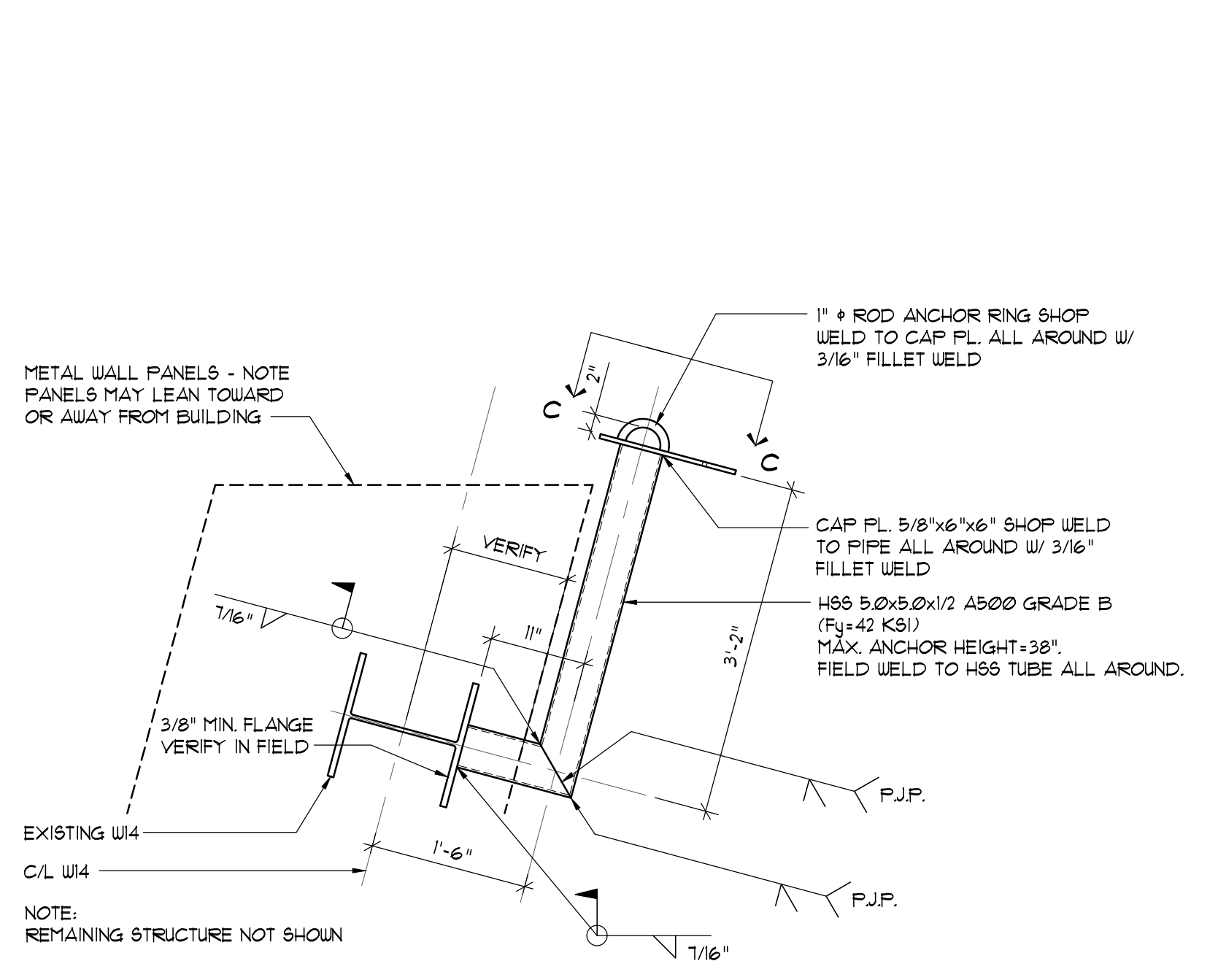


2 SECTION - HLL @ INNER SNOW GUTTER RING & WEST ROOF EDGE

3/4" x 1"-Ø
STANCHION CONSTRUCTION NOT IN THIS BID. DETAIL SHOWN FOR HLL CONTRACTOR ATTACHMENT REFERENCE

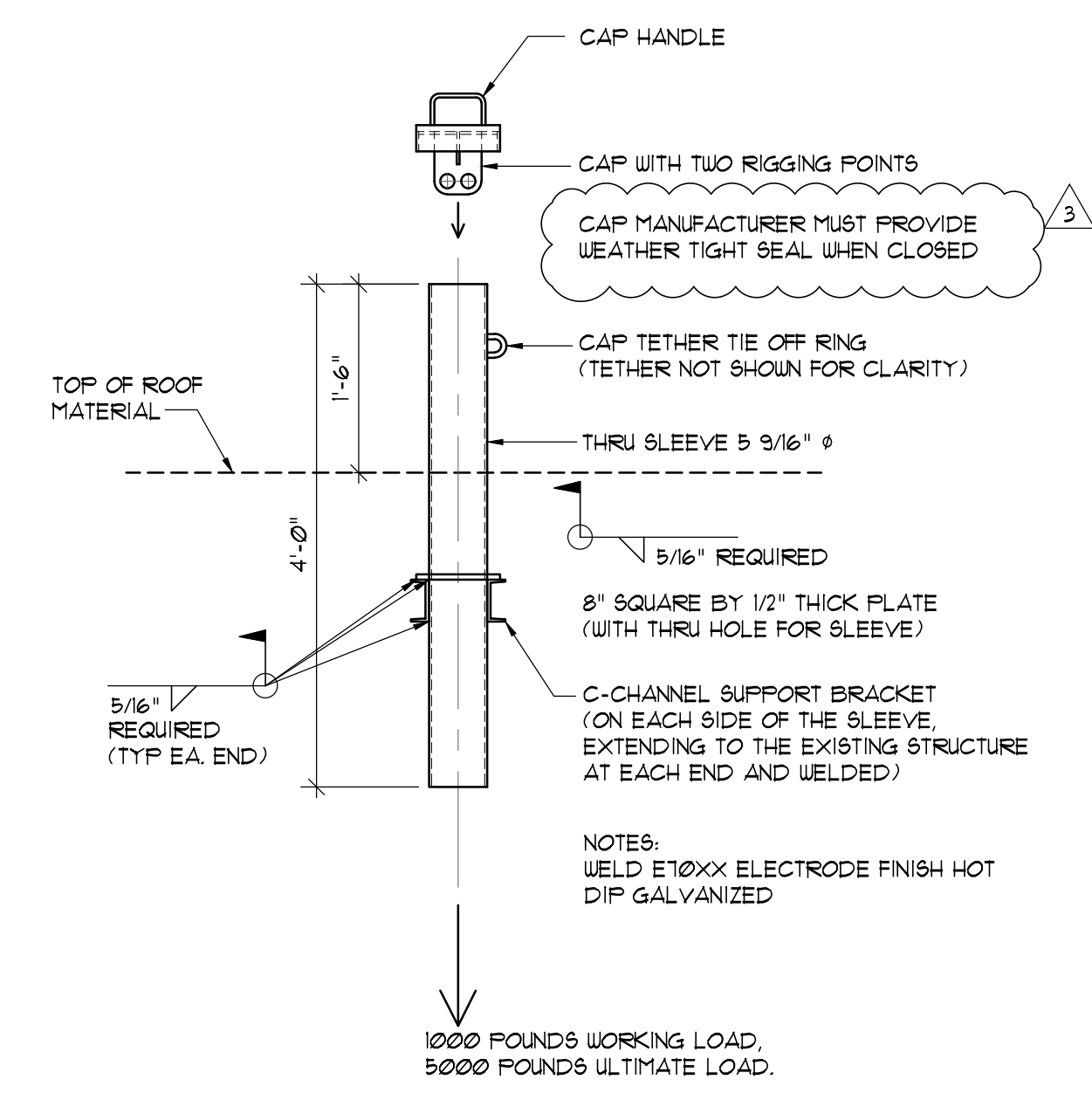


PLAN DETAIL C-C



3 SECTION - HLL @ OUTER SNOW GUTTER RING

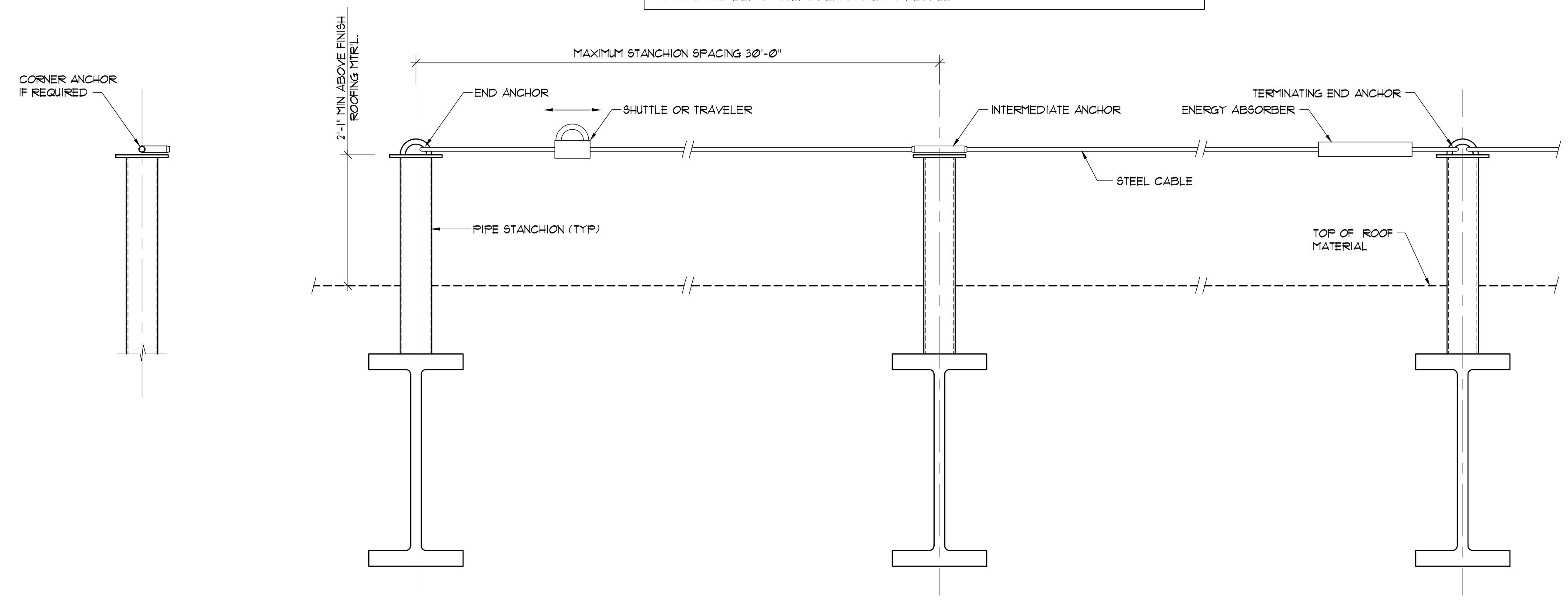
3/4" x 1"-Ø
STANCHION CONSTRUCTION NOT IN THIS BID. DETAIL SHOWN FOR HLL CONTRACTOR ATTACHMENT REFERENCE



4 SECTION - HLL @ WEST ROOF EDGE THROUGH ROOF ANCHOR SLEEVE

3/4" x 1"-Ø
ALL COMPONENTS SHOWN ON DETAIL 4/56 ARE TO BE INCLUDED AS PART OF THIS BID.

HORIZONTAL LIFE LINE LOADING:
1. THE LOAD FOR END/INTERMEDIATE SUPPORTS: 22.24 kN (5,000 LBS.) ULTIMATE
2. THE LOAD FOR CORNER SUPPORTS: 32.03 kN (7,200 LBS.) ULTIMATE, DIRECTION 360 DEGREES.
MAXIMUM NUMBER OF USERS PER SYSTEM: 2 PEOPLE



5 TYPICAL HORIZONTAL LIFE LINE DETAIL

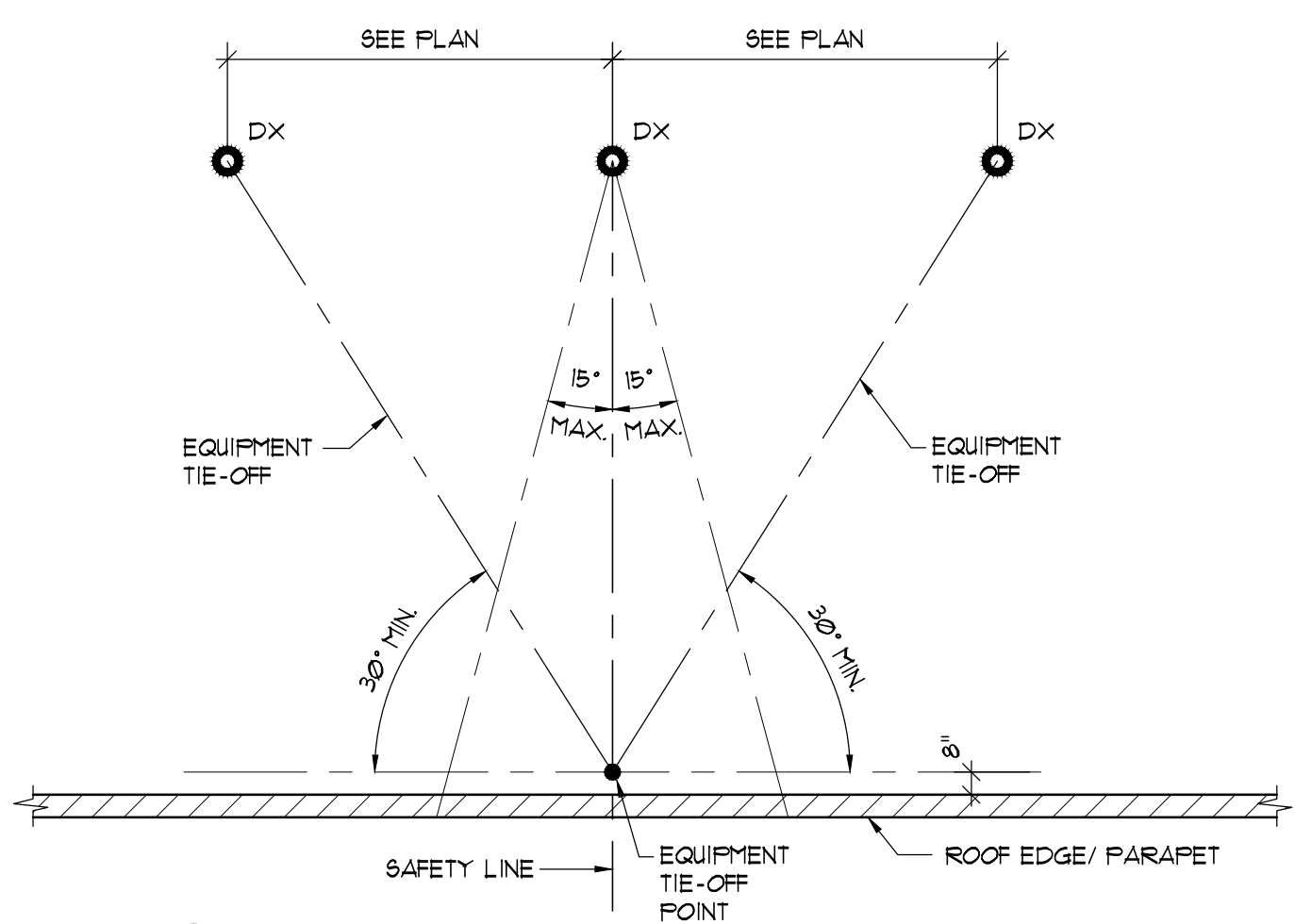
NOT TO SCALE

ID * DX
CERTIFIED TO 5,000 LBS STANDARD
FOR FALL ARREST USE ONLY
APPROVED PERSONAL FALL ARREST EQUIPMENT REQUIRED
WARNING: NOT FOR ANY OTHER USE.
LAST DATE CERTIFIED: dd/mm/yyyy
MUST BE INSPECTED BEFORE EACH USE AND CERTIFIED EVERY 1 YEAR.

NOTE:
1. CONTRACTOR TO PROVIDE ROOF ANCHORAGE TAG. ATTACH TO ANCHORAGE PIPE ABOVE ROOF LINE.
2. REPLACE TAG AS REQUIRED FOR DETERIORATION, OR EVERY 5 YEARS

ROOF ANCHORAGE TAG

NOTE: ALL STEEL COMPONENTS EXPOSED TO WEATHER, SUSTAINED CYCLIC MOISTURE OCCURRENCE, OR OTHER CORROSIVE CONDITIONS MUST BE HOT DIPPED GALVANIZED AS PER SPECIFICATIONS OF ASTM A123, GR50 COATING ENDS OF THREADED BOLTS AND NUTS AND FIELD WELDED CONNECTIONS SHALL BE WIRE BRUSHED, CLEANED AND COVERED WITH COLD GALVANIZING PAINT (595C-PAINT 120). ALL PAINTING SHALL COMPLY WITH STANDARDS OF THE SOCIETY FOR PROTECTIVE COATINGS (STEEL STRUCTURES PAINTING COUNCIL'S) LATEST EDITION OF THE '595C PAINTING MANUAL' AND ASTM STANDARDS.



5 SINGLE LINE RIGGING DIAGRAM

1/8" = 1'-0"

- GENERAL CONSTRUCTION NOTES:
- Reference Standards: Unless otherwise noted, all standards shall be current edition with latest addenda if applicable.
 - Contractor shall verify all existing dimensions, member sizes and field conditions prior to any demolition, fabrication, construction or installation and notify engineer if conditions, materials, sizes and dimensions are different from those shown.
 - The contract structural drawings and specifications represent the finished structure. Unless otherwise indicated, they do not indicate the means or method of construction. The contractor is solely responsible for the protection of the structure during all phases of demolition, construction and installation. Provide all measures necessary to protect the structure, workmen or other persons by means of shoring, bracing, etc.
 - Cross reference all dimensions and details with architectural and mechanical drawings before commencing any fabrication and/or construction.
 - Details and conditions not specifically shown shall be constructed in accordance with details shown for similar conditions and materials.
 - Shop drawings prepared by suppliers, sub-contractors, etc. shall be reviewed, coordinated and signed/stamped by general contractor prior to submitting to the engineer.
 - Contractor is solely responsible for protection of existing building during all phases of construction.
 - Horizontal Life Line Contractor: The HLL installation shall be performed by an experienced facade access contractor. The contractor shall have at least 3 years satisfactory experience in installing HLL systems of a similar type, size and complexity.

DESIGN CRITERIA LOADS AND STRESSES:
CODES:
1. International Building Code (2006) with State of Minnesota Amendments.

LATERAL LOADS:
7000 lbs in any direction. - Ridge and inner HLL support posts only
1000 lbs. - HLL

STEEL: (Fy)
36,000 PSI ASTM A36 plates, angles etc.
46,000 PSI ASTM A500 grade B structural tubes (HSS)

GENERAL STEEL NOTES:
1. Construction of structural steel shall comply with all the requirements of the 'Manual of Steel Construction' by the AISC, 15th Edition.
2. All welds as per latest specifications of the AWS E10xx electrodes.

INSPECTION & TESTING SCHEDULE					
MATERIAL	SPECIFICATION	FREQUENCY	AGENCY	FREQUENCY OF REPORT	DESCRIPTION
Welding Structural Steel	CS12C	Periodic	Testing Agent	Work is done	IT04.3

- STRUCTURAL STEEL:
1. Observe high strength bolting.
2. Observe field welding.
3. Observe installation of mechanical anchorage devices.

GENERAL TESTING NOTES:
1. Contractor shall field load test 25% of all post-installed anchors for a 4,000 lbs. axial load prior to installing davits.
2. Contractor to field load test all new davits. Field test load 5,000 lbs applied horizontally to top of davit.