

INSTALLATION NOTES AND REQUIREMENTS

1. INSTALLATION REQUIREMENTS

- SUPPORTING STRUCTURE:**
THE SUPPORTING STRUCTURE TO WHICH THE BASE SHOE IS MOUNTED MUST BE ABLE TO WITHSTAND THE DESIGN LOADS AS SPECIFIED IN ARTICLE 4.1.5.14 (LOADS ON GUARDS AND HANDRAILS) OF THE 2024 ONTARIO BUILDING CODE. THE STRUCTURE MUST RESIST A UNIFORMLY DISTRIBUTED HORIZONTAL LOAD OF 0.5 KN/M APPLIED OUTWARD AND A CONCENTRATED HORIZONTAL LOAD OF 1.0 KN APPLIED AT ANY POINT. ALL STRUCTURAL ELEMENTS AND LOAD-BEARING CAPACITY ARE TO BE VERIFIED BY A QUALIFIED PROFESSIONAL ENGINEER.
- WOOD SUBSTRATE REQUIREMENTS:**
WOOD SUBSTRATE SHALL BE SOUND, DRY, STRUCTURAL WOOD FRAMING / BLOCKING CAPABLE OF PROVIDING ADEQUATE FASTENER WITHDRAWAL AND LATERAL RESISTANCE FOR THE SPECIFIED WOOD SCREW FASTENERS. FASTENERS SHALL BE INSTALLED INTO STRUCTURAL JOISTS, RIM JOISTS, BLOCKING, OR OTHER STRUCTURAL WOOD MEMBERS ONLY. DECKING BOARDS SHALL NOT BE RELIED UPON FOR STRUCTURAL ANCHORAGE.
- ATTACHMENT TO NEW BLOCKING:**
NEW BLOCKING ATTACHED TO EXISTING DECK STRUCTURES SHALL BE SECURED USING MINIMUM STAINLESS STEEL 16D 3-1/2" NAILS (TYPICAL). ALL FASTENERS MUST MEET CORROSION RESISTANCE REQUIREMENTS FOR THE INTENDED APPLICATION ENVIRONMENT.
- FASTENER SPECIFICATIONS FOR OUTDOOR APPLICATIONS:**
HOT-DIPPED GALVANIZED OR STAINLESS STEEL FASTENERS SHALL BE USED FOR EXTERIOR INSTALLATIONS. HOT-DIPPED GALVANIZED FASTENERS MUST CONFORM TO ASTM A153 STANDARDS. FOR COASTAL OR HIGHLY CORROSIVE ENVIRONMENTS, STAINLESS STEEL 316 GRADE IS RECOMMENDED.
- BASE SHOE / FASTENER CORROSION PROTECTION FOR EXTERIOR USE:**
BASE SHOE, FASTENERS, AND EXPOSED CONNECTION COMPONENTS SHALL BE SUITABLE FOR EXTERIOR EXPOSURE, DURABILITY, AND CORROSION RESISTANCE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. PROVIDE NON-CONDUCTIVE ISOLATION BETWEEN DISSIMILAR METALS WHERE REQUIRED TO REDUCE RISK OF GALVANIC CORROSION.

2. APPLICABLE CODES

- DESIGN LOAD COMPLIANCE:**
THE BASE SHOE ANCHORING SYSTEM IS DESIGNED IN ACCORDANCE WITH ARTICLE 4.1.5.14 (LOADS ON GUARDS AND HANDRAILS) OF THE 2024 ONTARIO BUILDING CODE, WHICH ADOPTS THE NATIONAL BUILDING CODE OF CANADA 2020. THE SYSTEM MUST RESIST THE SPECIFIED LOADS: 0.5 KN/M UNIFORMLY DISTRIBUTED HORIZONTAL LOAD AND 1.0 KN CONCENTRATED HORIZONTAL LOAD.
- TIMBER CONNECTION DESIGN:**
STRUCTURAL WOOD SCREW FASTENER WITHDRAWAL RESISTANCE AND TIMBER CONNECTION CAPACITY ARE CALCULATED IN ACCORDANCE WITH CSA O86 "ENGINEERING DESIGN IN WOOD" (CURRENT EDITION). CALCULATION ARE COMPLETED FOR THE FOLLOWING CONDITIONS: MINIMUM DRY UNTREATED OR DRY PRESERVATIVE-TREATED, UNINCISED SPRUCE-PINE-FIR (SPF)
- CONCRETE ANCHORING DESIGN:**
CONCRETE ANCHORS SHALL BE INSTALLED INTO SOUND NORMAL-WEIGHT CONCRETE HAVING MIN. 25 MPa COMPRESSIVE STRENGTH. DO NOT INSTALL INTO TOPPING, HOLLOW MASONRY, DETERIORATED CONCRETE, OR CONCRETE OF UNKNOWN CONDITION WITHOUT REVIEW BY THE ENGINEER. TILE, TOPPING, MORTAR BED, FINISHES, AND NON-STRUCTURAL MATERIALS SHALL NOT BE COUNTED AS ANCHOR EMBEDMENT.

3. PROFESSIONAL VERIFICATION REQUIREMENTS

- STRUCTURAL ENGINEERING VERIFICATION:**
IF SUBSTRATE CONDITIONS DIFFER FROM THOSE SHOWN ON THESE DRAWINGS, A LICENSED PROFESSIONAL ENGINEER SHALL REVIEW THE SUPPORTING STRUCTURE, ANCHORAGE SYSTEM, AND CONNECTIONS, AND SHALL PROVIDE WRITTEN CONFIRMATION OF STRUCTURAL ADEQUACY PRIOR TO INSTALLATION.
- SITE-SPECIFIC ASSESSMENT:**
ALL INSTALLATIONS REQUIRE SITE-SPECIFIC EVALUATION TO VERIFY SUBSTRATE CONDITIONS, EXISTING STRUCTURAL CAPACITY, AND PROPER LOAD TRANSFER PATHS.
- BUILDING PERMIT AND INSPECTION:**
CONTRACTOR / OWNER SHALL CONFIRM APPLICABLE BUILDING PERMIT AND INSPECTION REQUIREMENTS WITH THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.

BASE SHOE, GLASS, FASTENERS, GASKETS, SHIMS, CAP RAILS, AND ACCESSORIES SHALL BE INSTALLED AS A COMPLETE COMPATIBLE SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

4. GUARD SYSTEM REQUIREMENTS (SECTION 9.8.8)

- (OBC 2024 – SECTION 9.8.8)
THE GLASS GUARD SYSTEM SHALL COMPLY WITH OBC 2024 SECTION 9.8.8 AND APPLICABLE LOADING REQUIREMENTS OF SECTION 4.1.5.14.

LOCATION REQUIREMENTS

- GUARDS SHALL BE PROVIDED WHERE THE DIFFERENCE IN ELEVATION BETWEEN ADJACENT WALKING SURFACES EXCEEDS 600 MM.

MINIMUM GUARD HEIGHTS

(MEASURE VERTICALLY FROM FINISHED WALKING SURFACE TO TOP OF GUARD)

- 1070 MM (42") – COMMERCIAL AND MULTI-UNIT RESIDENTIAL BUILDINGS
- 900 MM (36") – WITHIN A SINGLE DWELLING UNIT
- 900 MM (36") – EXTERIOR GUARDS SERVING A SINGLE DWELLING UNIT WHERE WALKING SURFACE IS ≤ 1.8 M ABOVE GRADE
- 1500 MM (59") – EXTERIOR STAIRS AND LANDINGS MORE THAN 10 M ABOVE GRADE
- CONTRACTOR SHALL VERIFY REQUIRED GUARD HEIGHT BASED ON OCCUPANCY AND SITE CONDITIONS.

5. GLASS REQUIREMENTS:

- GLASS PANELS SHALL BE 12 MM TEMPERED SAFETY GLASS FOR RESIDENTIAL SINGLE DWELLING APPLICATIONS WITH PANEL WIDTH ≤1524 MM
- ALL OTHER APPLICATIONS SHALL USE 13.52 MM LAMINATED TEMPERED SAFETY GLASS (SGP RECOMMENDED).
- GLASS SUPPLIER SHALL VERIFY FINAL GLASS TYPE, THICKNESS, EDGE TREATMENT, PANEL WIDTH, AND COMPATIBILITY WITH THE BASE SHOE SYSTEM PRIOR TO FABRICATION. GLASS SUPPLIER SHALL VERIFY COMPLIANCE WITH APPLICABLE OBC 2024 GUARD LOADING AND SAFETY GLAZING REQUIREMENTS.

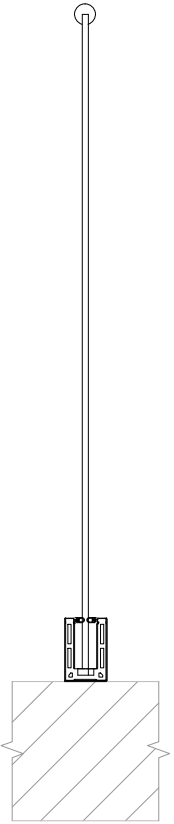
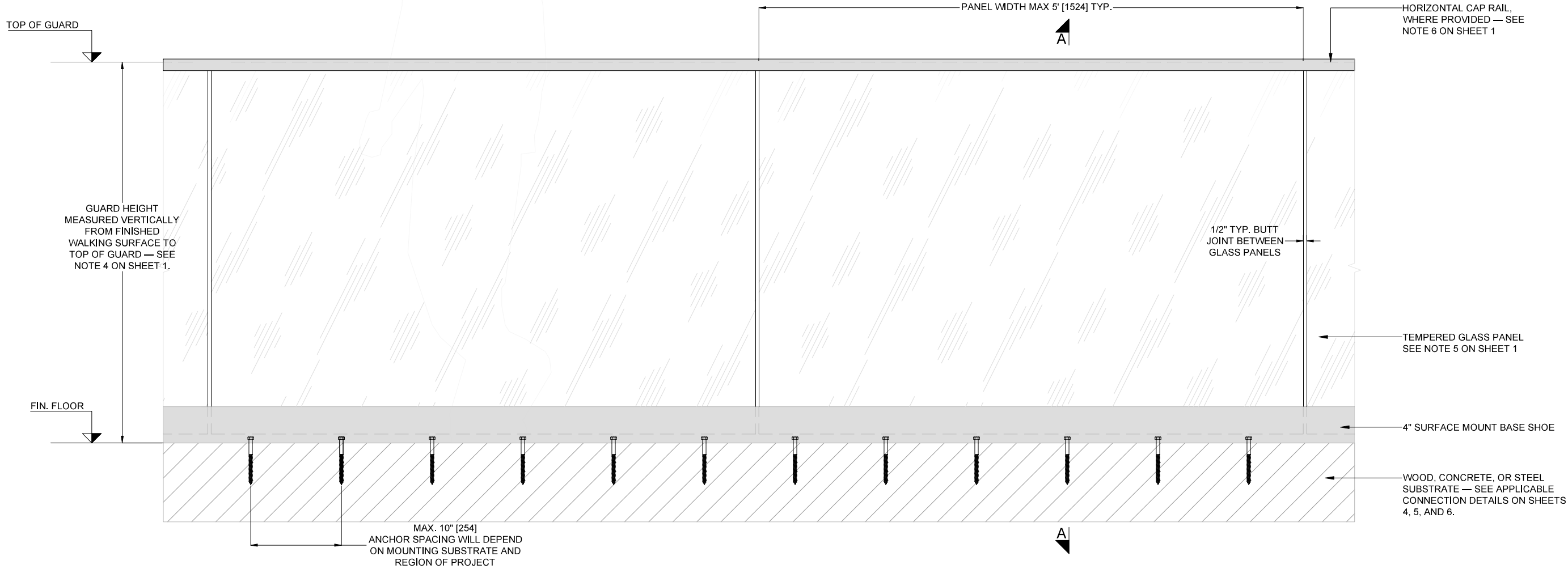
6. CAP RAIL

TOP RAIL

WHERE A TOP RAIL IS PROVIDED, IT SHALL BE CONTINUOUS ALONG THE GUARD LENGTH AND SUITABLE FOR THE INTENDED GUARD APPLICATION. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. THE GUARD SYSTEM SHALL COMPLY WITH REQUIRED GUARD LOADING WHETHER A TOP RAIL IS PROVIDED OR NOT.



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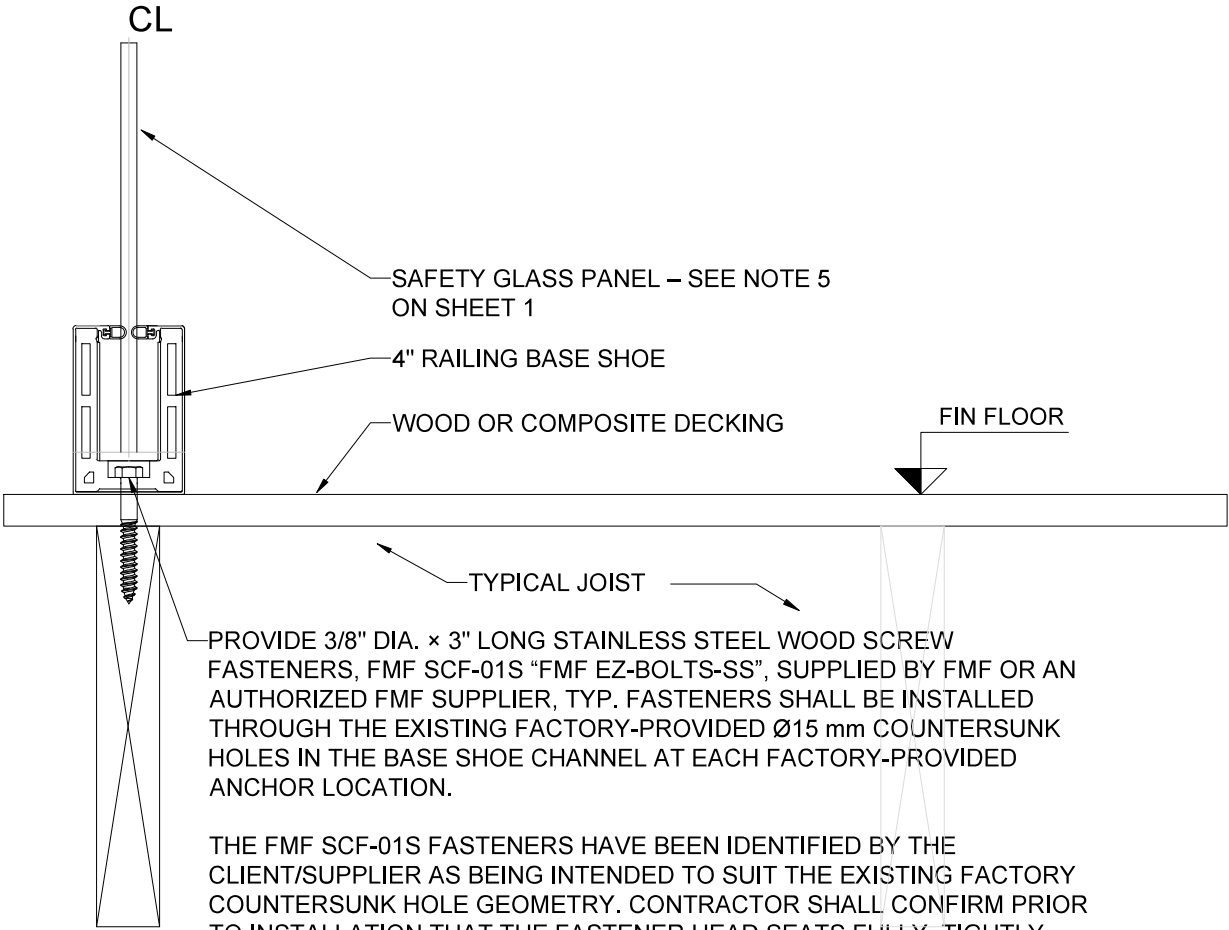
SECTION AA

REQUIRED 4" RAILING BASE SHOE ARRANGEMENT
SCALE: 1"=1'-0"



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CONNECTION TO WOOD SUBSTRATE



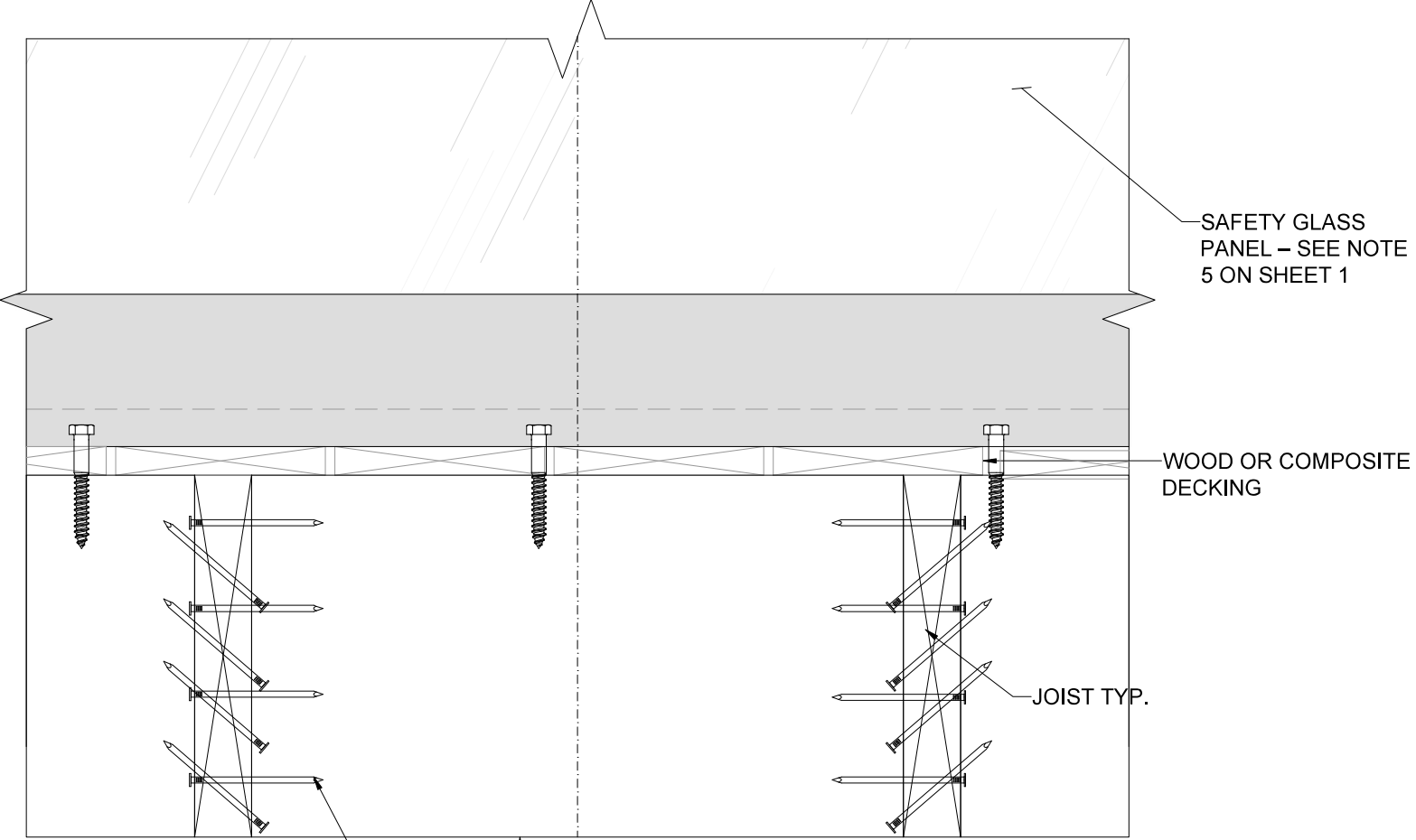
THE FMF SCF-01S FASTENERS HAVE BEEN IDENTIFIED BY THE CLIENT/SUPPLIER AS BEING INTENDED TO SUIT THE EXISTING FACTORY COUNTERSUNK HOLE GEOMETRY. CONTRACTOR SHALL CONFIRM PRIOR TO INSTALLATION THAT THE FASTENER HEAD SEATS FULLY, TIGHTLY, AND UNIFORMLY WITHIN THE EXISTING COUNTERSUNK RECESS. LOOSE-FITTING, ROCKING, MISALIGNED, PARTIALLY SEATED, OR IMPROPERLY BEARING FASTENER HEADS ARE NOT ACCEPTABLE.

SUBSTITUTE FASTENERS ARE NOT PERMITTED UNLESS CONFIRMED IN WRITING TO BE COMPATIBLE WITH THE EXISTING FACTORY COUNTERSUNK HOLES AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION. INSTALL STRICTLY IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, TYP.

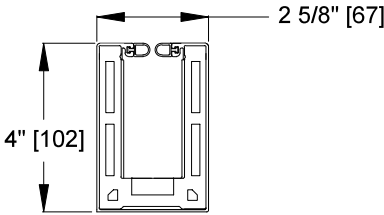
CONTRACTOR SHALL CONFIRM THAT FASTENERS ACHIEVE THE MINIMUM REQUIRED THREAD PENETRATION INTO SOUND STRUCTURAL WOOD MEMBERS IN ACCORDANCE WITH THE FASTENER MANUFACTURER'S REQUIREMENTS.

1. WHERE BASE SHOE IS NOT LOCATED DIRECTLY ABOVE A CONTINUOUS STRUCTURAL JOIST / RIM JOIST / EDGE BEAM, PROVIDE NEW STRUCTURAL BLOCKING BELOW. BLOCKING TO MATCH ADJACENT RIM JOIST SIZE, MIN. 2x8, AND BE FASTENED TO ADJACENT RIM JOIST / DECK FRAMING WITH 16d x 3-1/2" CORROSION-RESISTANT STRUCTURAL NAILS, TYP.
2. RIM JOIST / EDGE BEAM SUPPORTING THE BASE SHOE SHALL BE Laterally restrained against rotation / torsional movement by solid blocking connection to adjacent deck framing, TYP.
3. DECKING BOARDS SHALL NOT BE RELIED UPON FOR STRUCTURAL ANCHORAGE. BASE SHOE FASTENERS SHALL PENETRATE INTO STRUCTURAL JOISTS OR STRUCTURAL WOOD MEMBERS BELOW.

CONNECTION TO WOOD SUBSTRATE
(JOISTS/RIM JOIST PARALLEL TO GUARD LINE)



CONNECTION TO WOOD SUBSTRATE
(JOISTS PERPENDICULAR TO GUARD LINE)

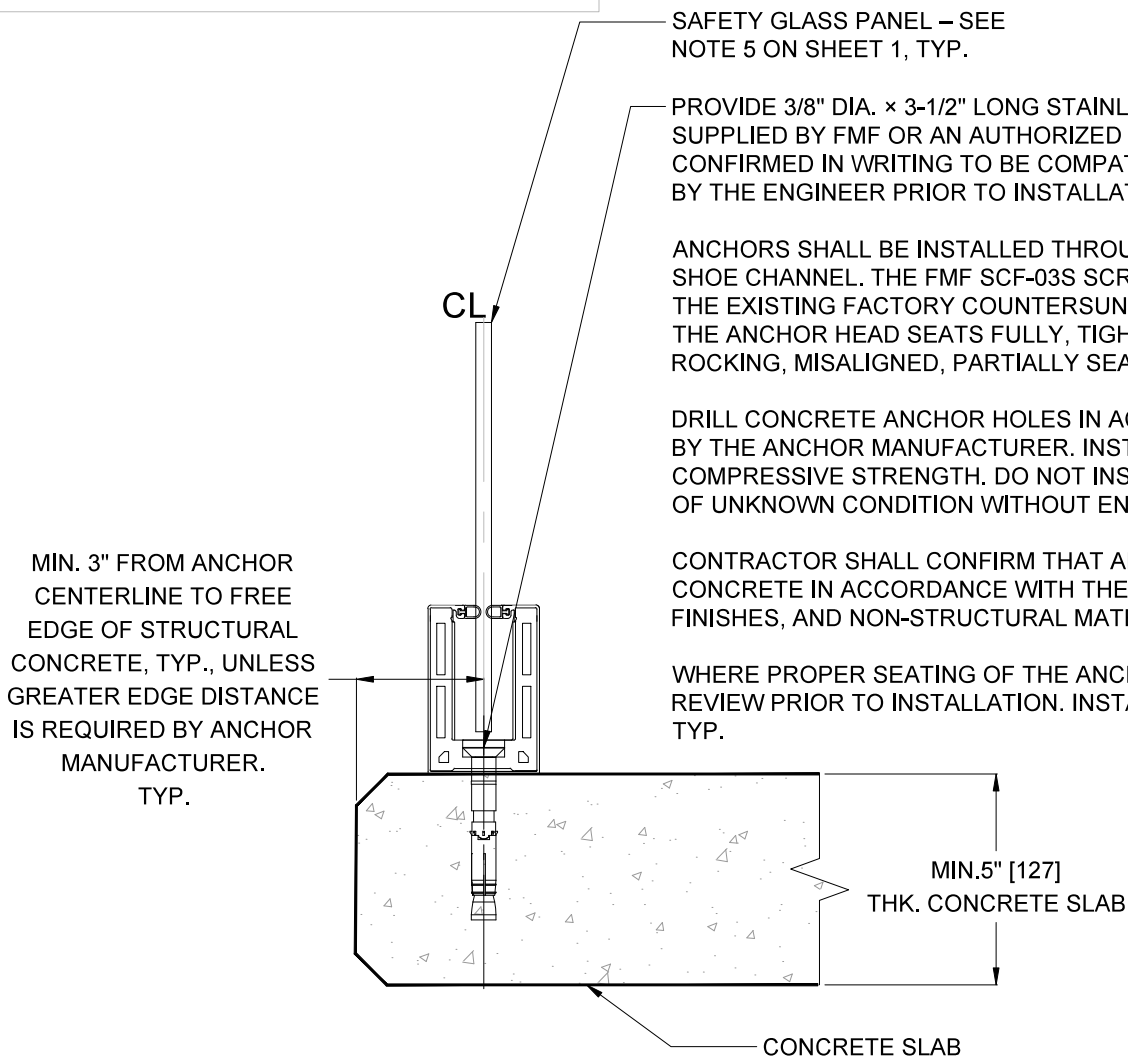


4" RAILING BASE SHOE



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CONNECTION TO CONCRETE SUBSTRATE



OPTION A

SAFETY GLASS PANEL – SEE NOTE 5 ON SHEET 1, TYP.

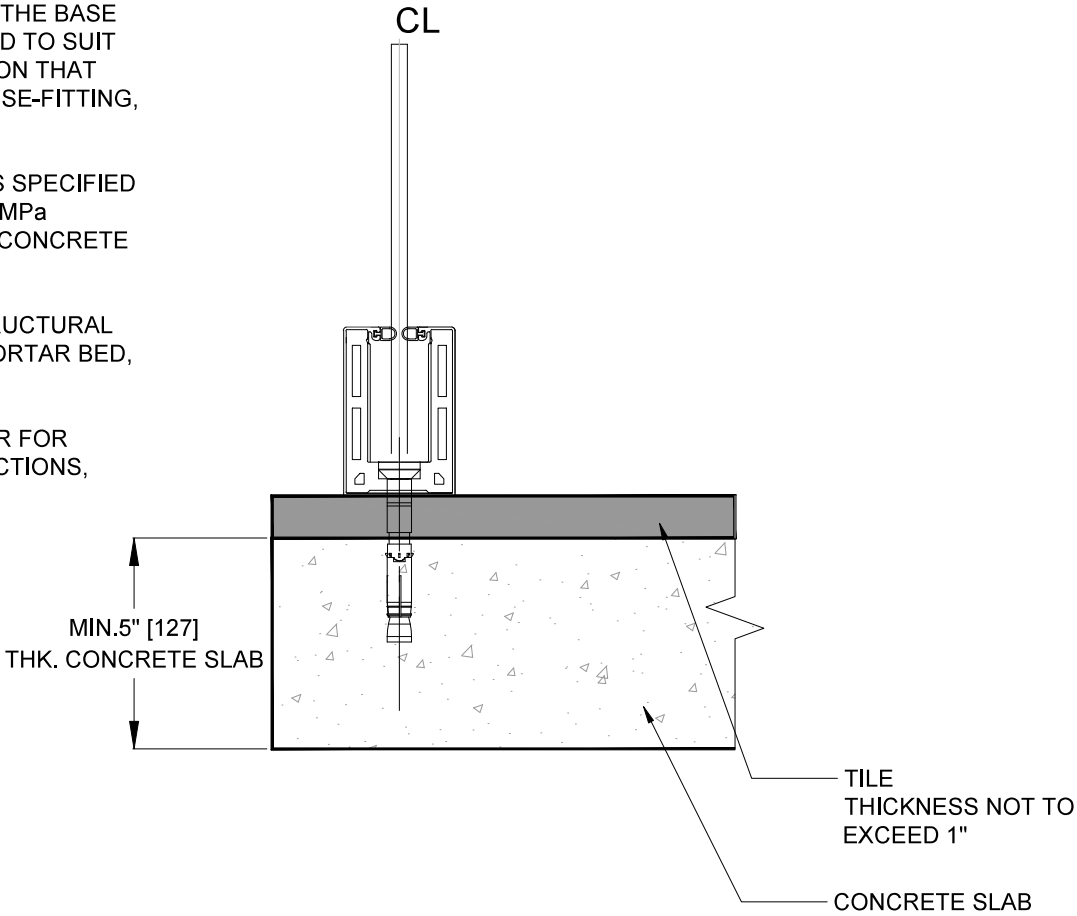
PROVIDE 3/8" DIA. × 3-1/2" LONG STAINLESS STEEL COUNTERSUNK CONCRETE SCREW ANCHORS AT 12" O.C., FMF SCF-03S, SUPPLIED BY FMF OR AN AUTHORIZED FMF SUPPLIER, TYP. SUBSTITUTE FASTENERS ARE NOT PERMITTED UNLESS CONFIRMED IN WRITING TO BE COMPATIBLE WITH THE EXISTING FACTORY-PROVIDED COUNTERSUNK HOLES AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

ANCHORS SHALL BE INSTALLED THROUGH THE EXISTING FACTORY-PROVIDED Ø15 mm COUNTERSUNK HOLES IN THE BASE SHOE CHANNEL. THE FMF SCF-03S SCREWS HAVE BEEN IDENTIFIED BY THE CLIENT/SUPPLIER AS BEING INTENDED TO SUIT THE EXISTING FACTORY COUNTERSUNK HOLE GEOMETRY. CONTRACTOR SHALL CONFIRM PRIOR TO INSTALLATION THAT THE ANCHOR HEAD SEATS FULLY, TIGHTLY, AND UNIFORMLY WITHIN THE EXISTING COUNTERSUNK RECESS. LOOSE-FITTING, ROCKING, MISALIGNED, PARTIALLY SEATED, OR IMPROPERLY BEARING ANCHOR HEADS ARE NOT ACCEPTABLE.

DRILL CONCRETE ANCHOR HOLES IN ACCORDANCE WITH THE DIAMETER, DEPTH, AND CLEANING REQUIREMENTS SPECIFIED BY THE ANCHOR MANUFACTURER. INSTALL ANCHORS INTO SOUND NORMAL-WEIGHT CONCRETE HAVING MIN. 25 MPa COMPRESSIVE STRENGTH. DO NOT INSTALL INTO TOPPING, HOLLOW MASONRY, DETERIORATED CONCRETE, OR CONCRETE OF UNKNOWN CONDITION WITHOUT ENGINEER REVIEW.

CONTRACTOR SHALL CONFIRM THAT ANCHORS ACHIEVE THE MINIMUM REQUIRED EMBEDMENT INTO SOUND STRUCTURAL CONCRETE IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S WRITTEN REQUIREMENTS. TILE, TOPPING, MORTAR BED, FINISHES, AND NON-STRUCTURAL MATERIALS SHALL NOT BE COUNTED AS ANCHOR EMBEDMENT.

WHERE PROPER SEATING OF THE ANCHOR HEAD CANNOT BE ACHIEVED, STOP WORK AND NOTIFY THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION. INSTALL STRICTLY IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, TYP.



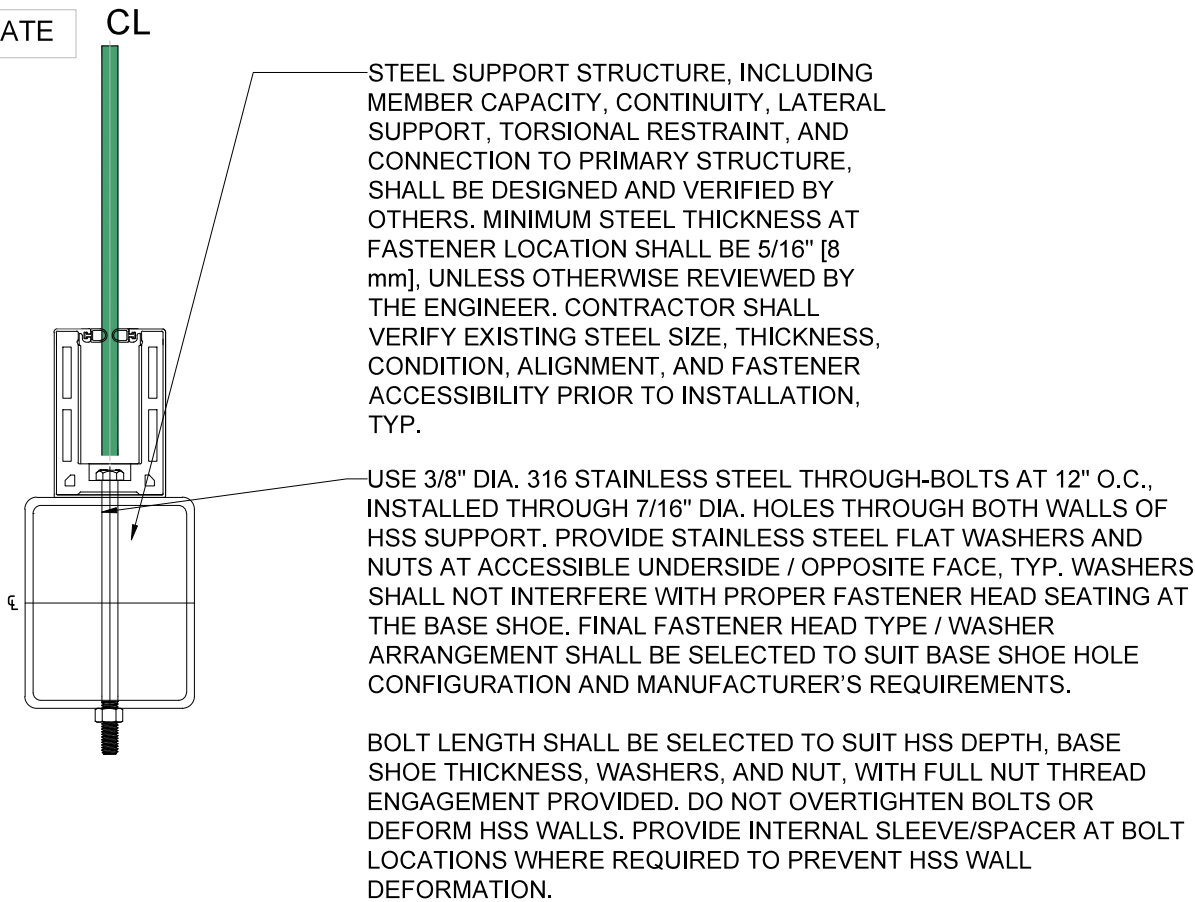
OPTION B

1. TILE / FINISH THICKNESS NOT TO EXCEED 1". ANCHOR EMBEDMENT SHALL BE INTO STRUCTURAL CONCRETE ONLY. TILE / FINISH, MORTAR BED, TOPPING, AND NON-STRUCTURAL MATERIALS SHALL NOT BE COUNTED AS ANCHOR EMBEDMENT. CONTRACTOR SHALL CONFIRM REQUIRED EMBEDMENT IS ACHIEVED WITH SELECTED ANCHOR LENGTH.



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CONNECTION TO CONCRETE SUBSTRATE



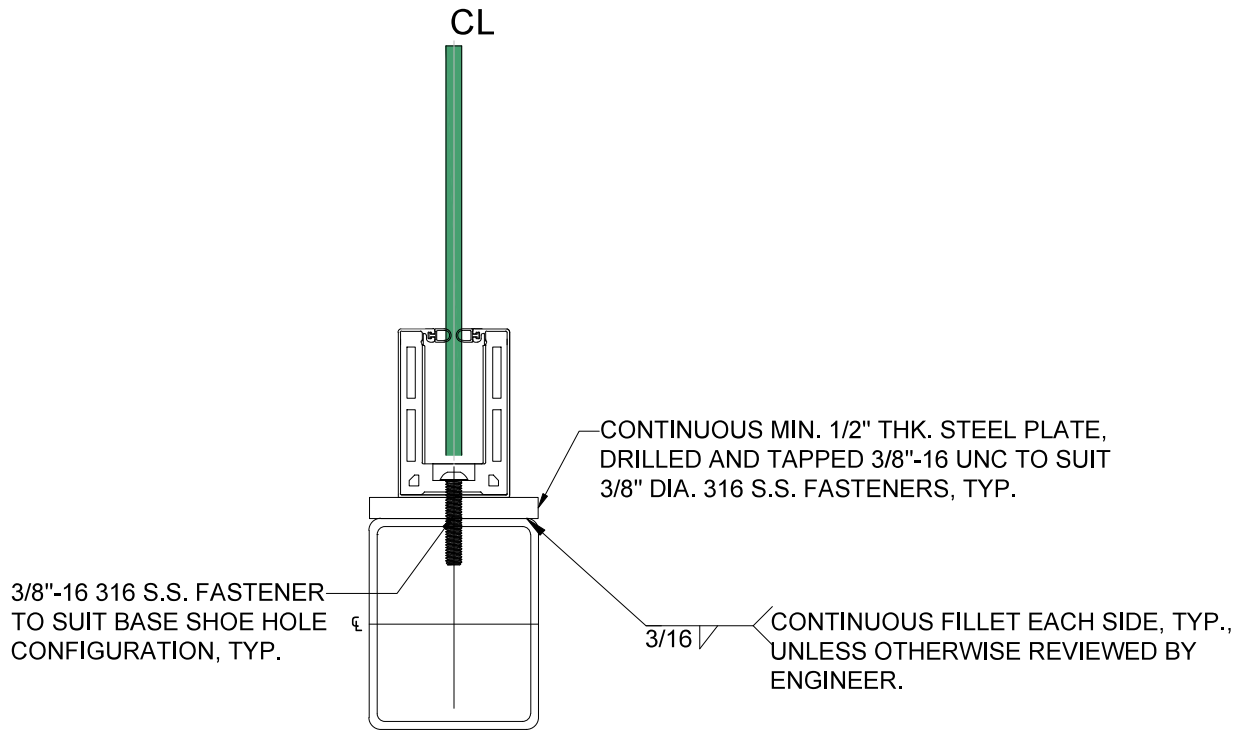
NOTE:

WHERE THROUGH-BOLTING IS NOT FEASIBLE DUE TO SITE CONDITIONS OR ACCESS LIMITATIONS, REFER TO OPTION B

NOTES:

- FASTENER HEAD TYPE / WASHER ARRANGEMENT SHALL BE SELECTED TO SUIT THE BASE SHOE HOLE CONFIGURATION AND MANUFACTURER'S REQUIREMENTS. WHERE BASE SHOE ANCHOR HOLES ARE COUNTERSUNK, FASTENER HEAD SHALL SEAT FULLY, TIGHTLY, AND UNIFORMLY WITHIN THE COUNTERSUNK RECESS, OR AN APPROVED SEATING ARRANGEMENT SHALL BE PROVIDED. WHERE BASE SHOE ANCHOR HOLES ARE NOT COUNTERSUNK, FASTENER HEADS / WASHERS SHALL BEAR FULLY, TIGHTLY, AND UNIFORMLY AGAINST THE BASE SHOE. LOOSE-FITTING, ROCKING, MISALIGNED, PARTIALLY SEATED, OR IMPROPERLY BEARING FASTENER HEADS ARE NOT ACCEPTABLE.
- CONTRACTOR SHALL VERIFY EXISTING STEEL MEMBER SIZE, THICKNESS, CONDITION, AND ACCESSIBILITY PRIOR TO INSTALLATION. DO NOT INSTALL WHERE STEEL MEMBER IS LESS THAN THE MINIMUM REQUIREMENTS SHOWN OR WHERE FIELD CONDITIONS DIFFER FROM THIS DETAIL WITHOUT ENGINEER REVIEW.
- PROVIDE SUITABLE CORROSION PROTECTION AND NON-CONDUCTIVE ISOLATION BETWEEN STAINLESS STEEL FASTENERS/STANDOFFS AND CARBON STEEL SUPPORT, AS REQUIRED, TO PREVENT BIMETALLIC/GALVANIC CORROSION.
- STEEL SUPPORT MEMBER SHALL HAVE ADEQUATE LATERAL SUPPORT AT THE UPPER FLANGE AND/OR WEB TO PREVENT TWISTING, ROTATION, OR LATERAL INSTABILITY UNDER APPLIED GUARD LOADS.
- ALL FIELD-DRILLED HOLES IN STEEL SUPPORT SHALL BE DEBURRED, CLEANED, AND PROVIDED WITH SUITABLE CORROSION-PROTECTION TOUCH-UP COATING PRIOR TO FINAL INSTALLATION.
- WHERE ACTUAL SITE CONDITIONS, HSS SIZE, WALL THICKNESS, OR SUPPORT CONFIGURATION DIFFER FROM THIS DETAIL, ENGINEER SHALL BE NOTIFIED PRIOR TO INSTALLATION.

OPTION A



NOTES:

- ALTERNATE STEEL CONNECTION WHERE THROUGH-BOLTING IS NOT FEASIBLE: PROVIDE CONTINUOUS MIN. 1/2" THK. STEEL PLATE BELOW BASE SHOE, EXTENDING FULL LENGTH OF BASE SHOE AND MIN. FULL WIDTH OF BASE SHOE / STEEL SUPPORT, AS APPLICABLE. PLATE SHALL BE CENTERED BELOW BASE SHOE, WELDED TO STEEL SUPPORT MEMBER, AND DRILLED / TAPPED 3/8"-16 UNC TO SUIT 3/8" DIA. 316 STAINLESS STEEL FASTENERS AT EACH FACTORY-PROVIDED BASE SHOE ANCHOR LOCATION.
- PROVIDE MIN. 3/16" CONTINUOUS FILLET WELD EACH SIDE ALONG FULL LENGTH OF PLATE TO STEEL SUPPORT, TYP., UNLESS OTHERWISE REVIEWED BY ENGINEER. DO NOT RELY ON THREADING INTO HSS WALL THICKNESS ONLY. TAPPED PLATE SHALL PROVIDE FULL THREAD ENGAGEMENT.
- FASTENER HEAD TYPE / WASHER ARRANGEMENT SHALL BE SELECTED TO SUIT THE BASE SHOE HOLE CONFIGURATION AND MANUFACTURER'S REQUIREMENTS. WHERE BASE SHOE ANCHOR HOLES ARE COUNTERSUNK, FASTENER HEAD SHALL SEAT FULLY, TIGHTLY, AND UNIFORMLY WITHIN THE COUNTERSUNK RECESS, OR AN APPROVED SEATING ARRANGEMENT SHALL BE PROVIDED. WHERE BASE SHOE ANCHOR HOLES ARE NOT COUNTERSUNK, FASTENER HEADS / WASHERS SHALL BEAR FULLY, TIGHTLY, AND UNIFORMLY AGAINST THE BASE SHOE. LOOSE-FITTING, ROCKING, MISALIGNED, PARTIALLY SEATED, OR IMPROPERLY BEARING FASTENER HEADS ARE NOT ACCEPTABLE.
- PROVIDE SUITABLE CORROSION PROTECTION AND NON-CONDUCTIVE ISOLATION BETWEEN DISSIMILAR METALS, AS REQUIRED. ALL FIELD WELDS SHALL BE CLEANED AND PROVIDED WITH CORROSION-PROTECTION TOUCH-UP COATING PRIOR TO FINAL INSTALLATION.

OPTION B



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