



Fire-Rated Assemblies in Commercial Construction

Second Edition



National 
Gypsum®

The PURPLE Book® II



NATIONAL GYPSUM COMPANY

FIRE-RATED ASSEMBLIES
IN COMMERCIAL CONSTRUCTION

SECOND EDITION



PREFACE

The PURPLE Book® II is the second edition of National Gypsum Company's *Fire-Rated Assemblies in Commercial Construction*. Originally published in 2013, The PURPLE Book® has proven to be a trusted resource for architects, contractors and inspectors for assembly details pertaining to National Gypsum Company product applications in fire-rated construction. The PURPLE Book® II features:

- GridMarX® detail, highlighting National Gypsum's patented pre-printed installation guide marks
- MaX 12™ fastener pattern detail, highlighting National Gypsum's 12-inch on center fastener pattern for 1-hour assemblies
- New National Gypsum Company fire-rated wall and ceiling assemblies
- New corner details for steel stud partitions
- New corner details for shaftwall assemblies
- New repair details for shaftwall assemblies

Whatever stage your project is in, our 1-800-NATIONAL® Construction Services experts are here to support you. Whether you have questions regarding fire-rated assemblies, products, specifications or building codes, we can help. Just call 1-800-NATIONAL – it's that easy.

These gypsum board system details are intended solely as technical support incident to the sale and use of National Gypsum Company products. Architects, engineers, design professionals, contractors, building code officials, or competent construction industry trade personnel should consider this information for the selection, specification and use of National Gypsum Company products in these systems.

Architects, engineers, designers and/or contractors involved should review these details with the governing code or inspection official at the time of the job submittal to determine if there are any discrepancies with local code or regulatory requirements. A design professional must provide a complete evaluation and verify the suitability of the system for a given application before beginning a project.

These system details may be printed and/or transferred electronically as needed by the user, subject to terms and limitations of any applicable license agreement. Any unauthorized duplication or reuse of the material contained herein is a violation of law.

For a guide to fire-safety information relating to certain systems described in The PURPLE Book® II, please refer to the information on National Gypsum's website at **ngcfireandsafety.info** or call Construction Services at 1-800-NATIONAL.

TABLE OF CONTENTS

Detail No.	Title	UL Design	Head of Wall Firestop System	Page
GN Series - General Information				
GN 101	UL Designations for Gold Bond® Products			1
GN 102	ASTM and Gypsum Association Standards			2
GN 103	Wall Priority Legend			3
SS Series - Steel Stud Partitions 09 29 00				
MAX 12	Max 12 Fastener Pattern For 1 Hour Partitions	Various		4
SS 102	1 Hour Partition to Steel Deck (Castle Cut)	U465, V438	Firestop Sealant	5
SS 103	1 Hour Partition to Steel Deck	U465, V438	Elastomeric Spray Firestop	6
SS 104	1 Hour Partition to Steel Deck	U465, V438	Firestop Sealant	7
SS 105	1 Hour Partition with Deflection Track	U465, V438	Firestop Sealant, Double Top Track	8
SS 106	1 Hour Partition to Steel Deck	U465, V438	Joint Forming Profile and Elastomeric Spray Firestop	9
SS 107	1 Hour Partition with Deflection Track	U465, V438	Gypsum board, Fire Trak Shadowline	10
SS 108	1 Hour Partition to Steel Beam	U465, V438	Elastomeric Spray Firestop	11
SS 109	1 Hour Partition Offset from Beam	U465, V438	Elastomeric Spray Firestop	12
SS 110	1 Hour Partition to Concrete Slab	U465, V438	Firestop Sealant	13
SS 111	1 Hour 1 Sided Partition to Steel Deck	V497		14
SS 112	1 Hour Chase Wall to Steel Deck	V488	Elastomeric Spray Firestop	15
SS 113	1 Hour Cement Board Partition to Steel Deck	V452	Elastomeric Spray Firestop	16
SS 114	1 Hour Partition to Steel Deck	U465, V438	Elastomeric Spray Firestop	17
SS 202	2 Hour Partition to Steel Deck (Castle Cut)	U411, V438	Firestop Sealant	18
SS 203	2 Hour Partition to Steel Deck	U411, V438	Elastomeric Spray Firestop	19
SS 204	2 Hour Partition to Steel Deck	U411, V438	Firestop Sealant	20
SS 205	2 Hour Partition with Deflection Track	U411, V438	Firestop Sealant, Double Top Track	21
SS 206	2 Hour Partition to Steel Deck	U411, V438	Joint Forming Profile and Elastomeric Spray Firestop	22
SS 207	2 Hour Partition with Deflection Track	U411, V438	Gypsum board, Fire Trak Shadowline	23
SS 208	2 Hour Partition to Steel Beam	U411, V438	Elastomeric Spray Firestop	24
SS 209	2 Hour Partition Offset from Beam	U411, V438	Elastomeric Spray Firestop	25
SS 210	2 Hour Partition to Concrete Slab	U411, V438	Firestop Sealant	26
SS 212	2 Hour Chase Wall to Steel Deck	V488	Elastomeric Spray Firestop	27
SS 213	2 Hour Cement Board Partition to Steel Deck	V452	Elastomeric Spray Firestop	28
SS 214	2 Hour Partition to Steel Deck	U411, V438	Elastomeric Spray Firestop	29
SS 215	2 Hour Partition to Steel Deck	W432, V438	Elastomeric Spray Firestop	30
SS 301	3 Hr Partition to Steel Deck	V438	Elastomeric Spray Firestop	31
SS 302	3 Hr Partition to Steel Deck	W455, V438	Elastomeric Spray Firestop	32
SS 401	4 Hr Partition to Steel Deck	V438	Elastomeric Spray Firestop	33
SS 501	1 Hr Partition Joint Staggering Requirements	U465, V438		34
SS 502	1 Hr Partition Joint Staggering Requirements	U465, V438		35
SS 503	2 Hr Partition Joint Staggering Requirements	U411, V438		36
SS 504	2 Hr Partition Joint Staggering Requirements	U411, V438		37
SS 505	Control Joints for Fire-Rated Systems			38
SS 601	1 Hour Partition Corner Detail	U465, V438		39
SS 602	1 Hour Partition Corner Detail	U465, V438		40
SS 603	2 Hour Partition Corner Detail	U411, V438		41
SS 604	2 Hour Partition Corner Detail	U411, V438		42

TABLE OF CONTENTS

Detail No.	Title	UL Design	Head of Wall Firestop System	Page
SS 610	Intersections of Rated Partitions	V438		43
SS 611	1 Hour Partition at 1 Hour Exterior Wall			44
SS 612	1 Hour Partition at 1 Hour Exterior Wall			45
SS 613	1 Hour Partition at Non-Rated Exterior Wall			46
SS 614	2 Hour Partition at 1 Hour Exterior Wall			47
SS 615	1 Hour Rated Curved Corner Details			48
SS 616	2 Hour Rated Curved Corner Details			49
SW Series - Shaftwall Assemblies 09 21 16.23				
SW 102	1 Hour Shaftwall with Deflection Track	U499, W419	Firestop Sealant	50
SW 103	1 Hour Shaftwall with Deflection Track	U499, W419	Elastomeric Spray Firestop	51
SW 104	1 Hour Shaftwall to Steel Deck	U499, W419	Elastomeric Spray Firestop	52
SW 105	1 Hour Shaftwall to Steel Deck	U499, W419	Elastomeric Spray Firestop	53
SW 106	1 Hour Shaftwall with Deflection Track	U499, W419	Gypsum board, Fire Trak Shadowline	54
SW 107	1 Hour Shaftwall Partition to Steel Beam	U499, W419	Elastomeric Spray Firestop	55
SW 108	1 Hour Shaftwall Partition Offset from Beam	U499, W419	Elastomeric Spray Firestop	56
SW 203	2 Hour Shaftwall with Deflection Track	U497, W419	Firestop Sealant	57
SW 204	2 Hour Shaftwall Partition at Stair	U498, W419	Elastomeric Spray Firestop	58
SW 205	2 Hour Shaftwall to Steel Deck	U497, W419	Elastomeric Spray Firestop	59
SW 206	2 Hour Shaftwall with Deflection Track	U497, W419	Gypsum board, Fire Trak Shadowline	60
SW 207	2 Hour Shaftwall Partition to Steel Beam	U497, W419	Elastomeric Spray Firestop	61
SW 208	2 Hour Shaftwall Partition Offset from Beam	U497, W419	Elastomeric Spray Firestop	62
SW 209	2 Hour Shaftwall to Steel Deck	W441, W419	Elastomeric Spray Firestop	63
SW 301	3 Hour Shaftwall with Deflection Track	W414, W419	Gypsum board, Fire Trak Shadowline	64
SW 401	4 Hour Shaftwall Partition	V451, W419		65
SW 501	Control Joints for Shaftwall Systems			66
SW 601	Shaftwall End Conditions	W419		67
SW 610	1 Hour Shaftwall Corner Detail			68
SW 611	1 Hour Shaftwall Corner Detail			69
SW 612	1 Hour Shaftwall Corner Detail			70
SW 613	1 Hour Shaftwall Corner Detail			71
SW 614	1 Hour Shaftwall Corner Detail			72
SW 615	1 Hour Shaftwall Corner Detail			73
SW 620	2 Hour Shaftwall Corner Detail			74
SW 621	2 Hour Shaftwall Corner Detail			75
SW 622	2 Hour Shaftwall Corner Detail			76
SW 623	2 Hour Shaftwall Corner Detail			77
SW 624	2 Hour Shaftwall Corner Detail			78
SW 625	2 Hour Shaftwall Corner Detail			79
SW 650	Shaftwall Overhang at Slab Edge			80
SW 701	Shaftwall Framing at Duct Penetration			81
SW 702	Shaftwall Framing at Duct Penetration			82
SW 704	2 Hour Horizontal Duct Protection			83
SW 705	2 Hour Horizontal Duct Protection			84

TABLE OF CONTENTS

Detail No.	Title	UL Design	Head of Wall Firestop System	Page
ST Series - Stair Shaftwall Details				
ST 101	Floor Plan of Stair at Lateral Brace			85
ST 102	Stair Shaftwall Corner at Lateral Brace			86
ST 103	Stair Shaftwall Corner at Lateral Brace			87
ST 104	Stair Shaftwall Section at Lateral Brace			88
EV Series - Elevator Shaftwall Details				
EV 101	Elevator Shaft Enclosure Plan			89
EV 102	Position Indicator and Control Box Protection in Elevator Shaftwall			90
EV 103	Elevator Shaftwall Head and Jamb Details			91
SR Series - Shaftwall Repair Details				
SR 101	2 Hr Shaftwall Repair Detail			92
SR 102	2 Hr Shaftwall Repair Detail			93
SR 103	2 Hr Shaftwall Repair Detail			94
SR 104	2 Hr Shaftwall Repair Detail			95
HM Series - Rated Horizontal Membranes				
HM 101	1 Hour Horizontal Membrane			96
HM 201	2 Hour Horizontal Membrane			97
CR Series - Rated Corridor Assemblies				
CR 101	1 Hour Corridor Assembly			98
CR 102	1 Hour Corridor Assembly			99
CR 103	1 Hour Corridor Assembly			100
CR 104	1 Hour Corridor Assembly			101
CR 201	2 Hour Corridor Assembly			102
CR 202	2 Hour Corridor Assembly			103
CR 203	2 Hour Corridor Assembly			104
CR 204	2 Hour Corridor Assembly			105
FC Series - Floor-Ceiling Assemblies				
FC 201	2 Hour Floor-Ceiling Assembly	G514		106
CL Series - Steel Column Assemblies				
CL 101	1 Hour Rated Column	X528		107
CL 201	2 Hour Rated Column	X528		108
CL 301	3 Hour Rated Column	X510		109
CL 401	4 Hour Rated Column	X501		110
BM Series - Rated Steel Beam Assemblies				
BM 201	2 Hour Steel Beam	N501		111
PN Series - Penetrations Through Rated Wall and Floor Assemblies				
PN 201	Pipe Penetration Through Wall	W-L-1041		112
PN 202	Cable Penetration Through Wall	W-L-3035		113
PN 301	Pipe Penetration Through Floor	C-AJ-1163		114
PN 302	Cable Penetration Through Floor	C-AJ-3073		115
PN 303	Void Fill Assembly	C-AJ-0038		116
SN Series - Sound Transmission Class (STC) of Rated Partitions				
SN 101	Sound Ratings for 1 Hour Partitions			117
SN 102	Sound Ratings for 2 Hour Partitions			118
SN 103	Sound Ratings for Shaftwall Partitions			119
RE Series - Repair Details				
RE 101	Repair of Fire-Rated Gypsum Board Partitions			120



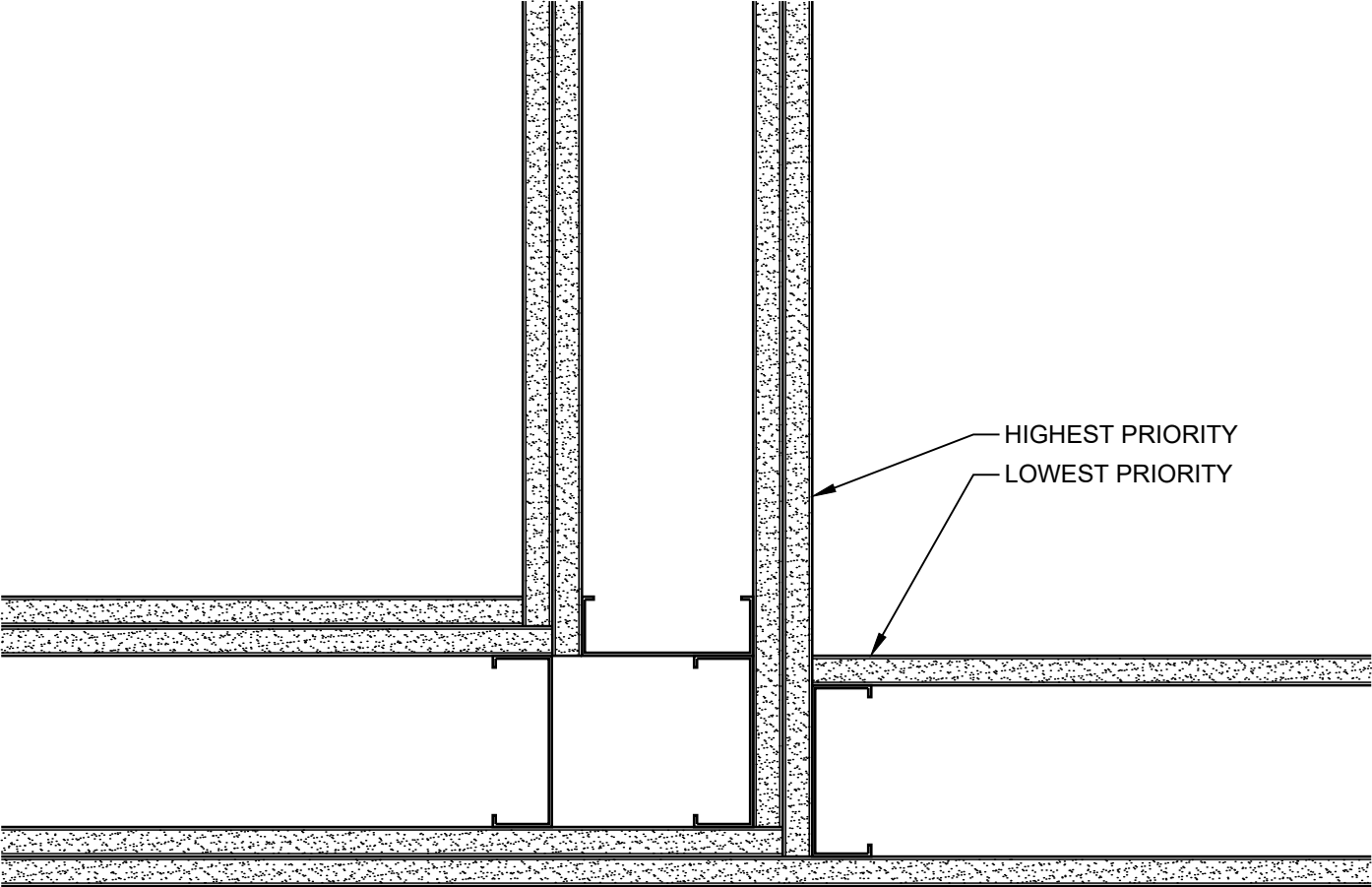
UL Core Type Designation	Product Name
Type FSW	5/16" Gold Bond® Brand Fire-Shield® Gypsum Board 5/8" Gold Bond® Brand Fire-Shield® Gypsum Board, Type X 5/8" Gold Bond® Brand Hi-Abuse® XP® Fire-Shield® Gypsum Board, Type X 5/8" Gold Bond® Brand Hi-Impact® XP® Fire-Shield® Gypsum Board, Type X 5/8" Gold Bond® Brand Fire-Shield® Gypsum Sheathing, Type X 5/8" Gold Bond® Brand XP® Fire-Shield® Gypsum Board, Type X 1" Gold Bond® Brand Fire-Shield® Shaftliner, Type X 1" Gold Bond® Brand Fire-Shield® Shaftliner XP®, Type X
Type FSW-C	1/2" Gold Bond® Brand Fire-Shield C™ Gypsum Board, Type C 5/8" Gold Bond® Brand Fire-Shield C™ Gypsum Board, Type C 5/8" Gold Bond® Brand XP® Fire-Shield C™ Gypsum Board, Type C
Type FSK	5/8" Gold Bond® Brand Kal-Kore® Fire-Shield® Plaster Base, Type X
Type FSK-C	1/2" Gold Bond® Brand Kal-Kore® Fire-Shield C™ Plaster Base, Type C 5/8" Gold Bond® Brand Kal-Kore® Fire-Shield C™ Plaster Base, Type C
Type FSMR-C	1/2" Gold Bond® Brand XP® Fire-Shield C™ Gypsum Board, Type C 5/8" Gold Bond® Brand XP® Fire-Shield C™ Gypsum Board, Type C
Type FSW-G	1/2" Gold Bond® Brand Gridstone® Gypsum Ceiling Panels 1/2" Gold Bond® Brand Gridstone® CleanRoom Gypsum Ceiling Panels
Type FSW-3	5/8" Gold Bond® Brand XP® Fire-Shield® Gypsum Board, Type X
Type FSW-5	5/8" Gold Bond® Brand Hi-Impact® XP® Fire-Shield® Gypsum Board, Type X 5/8" Gold Bond® Brand Hi Abuse® XP® Fire-Shield® Gypsum Board, Type X
Type FSW-6	5/8" Gold Bond® Brand eXP® Extended Exposure Sheathing, Type X 5/8" Gold Bond® Brand eXP® Interior Extreme® Gypsum Panel, Type X 5/8" Gold Bond® Brand eXP® Fire-Shield® Tile Backer, Type X 5/8" Gold Bond® Brand eXP® Interior Extreme® IR Gypsum Panel, Type X 5/8" Gold Bond® Brand eXP® Interior Extreme® AR Gypsum Panel, Type X
Type FSW-7	1" Gold Bond® Brand eXP® Extended Exposure Shaftliner, Type X
Type FSW-8	5/8" Gold Bond® Brand Fire-Shield® Gypsum Sheathing, Type X
Type eXP-C	1/2" Gold Bond® Brand eXP® Interior Extreme® C Gypsum Panel, Type C 5/8" Gold Bond® Brand eXP® Interior Extreme® C Gypsum Panel, Type C
Type FSLX	5/8" Gold Bond® Brand High Strength Fire-Shield® 60 Gypsum Board, Type X
Type FSL30	5/8" Gold Bond® Brand High Strength Fire-Shield® 30 Gypsum Board
Type SoundBreak XP	5/8" Gold Bond® Brand SoundBreak® XP® Gypsum Board, Type X
Type SoundBreak XP Gypsum Board	3/4" Gold Bond® Brand SoundBreak® XP® Gypsum Board
Type UltraShield	3/4" Gold Bond® Brand UltraShield FS® Gypsum Board 3/4" Gold Bond® Brand UltraShield FS® XP® Gypsum Board
Type DEXcell Glass Mat Roof Board	1/4", 1/2", or 5/8" DEXcell® Glass Mat Roof Board 1/4", 1/2", or 5/8" DEXcell® Glass Mat Roof Board

DATE: 09/01/18	UL DESIGNATIONS FOR GOLD BOND® PRODUCTS	
SCALE:	DETAIL: GN 101	

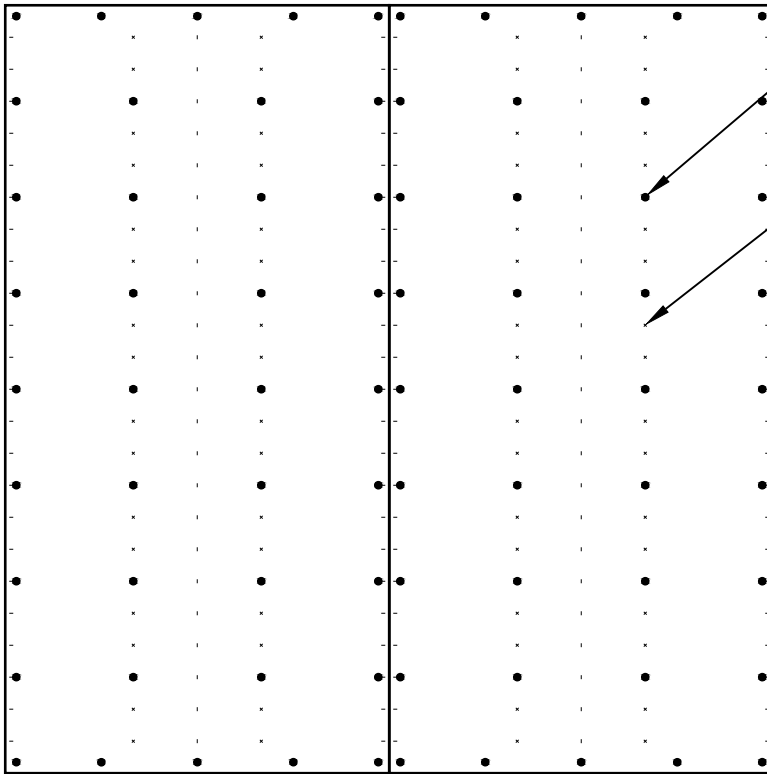
ASTM Product Standards	
C475	Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
C1177	Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
C1178	Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel
C1325	Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units
C1396	Standard Specification for Gypsum Board
C1658	Standard Specification for Glass Mat Gypsum Panels
ASTM Test Standards	
C473	Standard Test Methods for Physical testing of Gypsum Panel Products
C474	Standard Test Methods for Joint Treatment Materials for Gypsum Board Construction
C1629	Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels
D3273	Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
E84	Standard Test Method for Surface Burning Characteristics of Building Materials
E90	Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
E96	Standard Test Methods for Water Vapor Transmission of Materials
E119 (UL 263)	Standard Test Methods for Fire Tests of Building Construction and Materials
E136	Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
G21	Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
ASTM Application Standards	
C840	Standard Specification for Application and Finishing of Gypsum Board
C1280	Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing

Gypsum Association Standards	
GA-214	Recommended Levels of Gypsum Board Finish
GA-216	Application and Finishing of Gypsum Panel Products
GA-253	Application of Gypsum Sheathing

DATE: 09/01/18	ASTM AND GYPSUM ASSOCIATION STANDARDS	
SCALE:	DETAIL: GN 102	



WALL PRIORITY LEGEND		
2 HOUR FIRE AND SMOKE WALL	—————	PRIORITY 1
2 HOUR FIRE WALL	—————>	PRIORITY 2
2 HOUR SHAFTWALL	—————	PRIORITY 3
1 HOUR FIRE AND SMOKE WALL	—————	PRIORITY 4
1 HOUR FIRE WALL	—————	PRIORITY 5
NON-RATED WALL	—————	PRIORITY 5

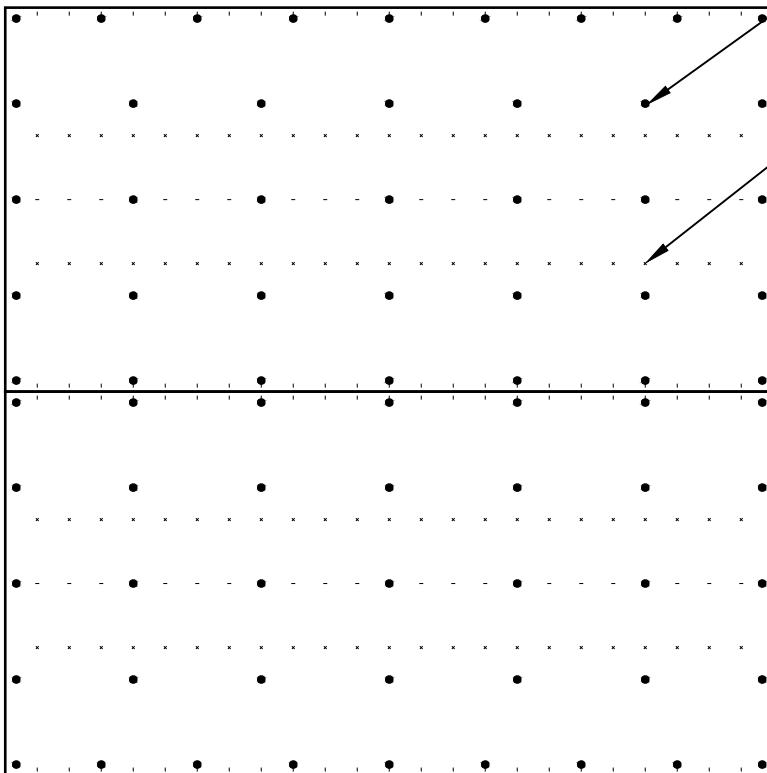


1" TYPE S SCREWS 12"
O.C. AT PERIMETER,
FIELD, AND TOP AND
BOTTOM TRACKS

GRIDMARX PREPRINTED
FASTENING GUIDE

GRIDMARX PREPRINTED GUIDE MARKS RUN THE LENGTH OF THE BOARD AT FIVE POINTS IN FOUR-INCH INCREMENTS. MARKS RUN ALONG BOTH LONG EDGES AND AT 16", 24", AND 32". IN VERTICAL APPLICATIONS, GRIDMARX SERVE AS GUIDE MARKS TO IDENTIFY THE LOCATION OF FRAMING MEMBERS BEHIND THE GYPSUM BOARD AND A REFERENCE POINT FOR THE INSTALLATION OF FASTENERS. IN HORIZONTAL APPLICATIONS, GRIDMARX SERVE AS A REFERENCE POINT TO HELP IDENTIFY THE LOCATION OF FRAMING MEMBERS.

VERTICAL APPLICATION



1" TYPE S SCREWS 12"
O.C. AT PERIMETER,
FIELD, AND TOP AND
BOTTOM TRACKS

GRIDMARX PREPRINTED
FASTENING GUIDE

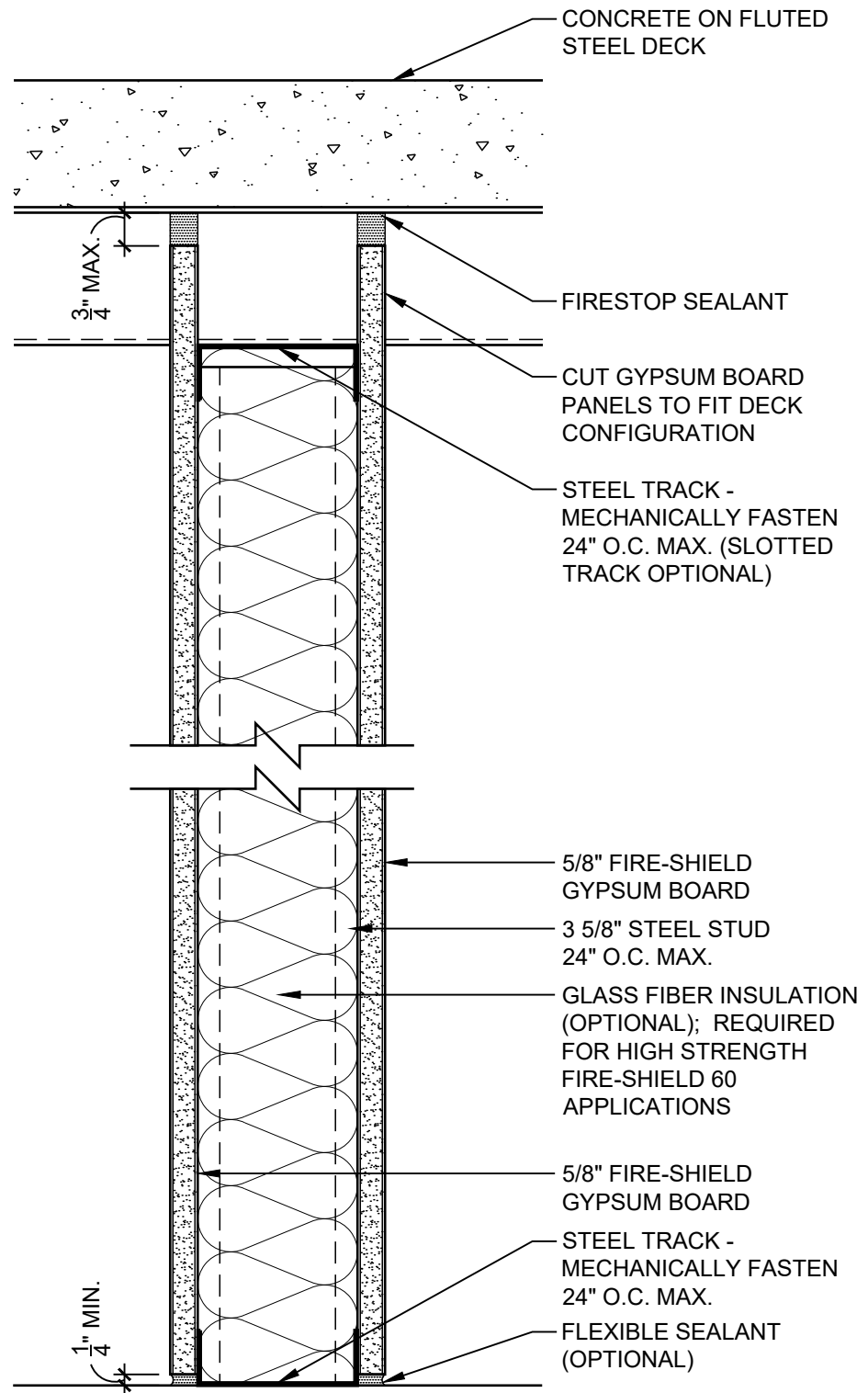
PARTITION - 1 HR
UL DESIGN: U420
UL DESIGN: U465
UL DESIGN: V417
UL DESIGN: V438
UL DESIGN: V450
UL DESIGN: V482
UL DESIGN: V483
UL DESIGN: V486
UL DESIGN: V488
UL DESIGN: W417
UL DESIGN: W421
UL DESIGN: W444

HORIZONTAL APPLICATION

DATE: 09/01/18	MAX 12 FASTENER PATTERN FOR 1 HOUR PARTITIONS	
SCALE: 1/2"=1'-0"	DETAIL: MAX 12	

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0103
UL DESIGN: HW-D-0076

PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438



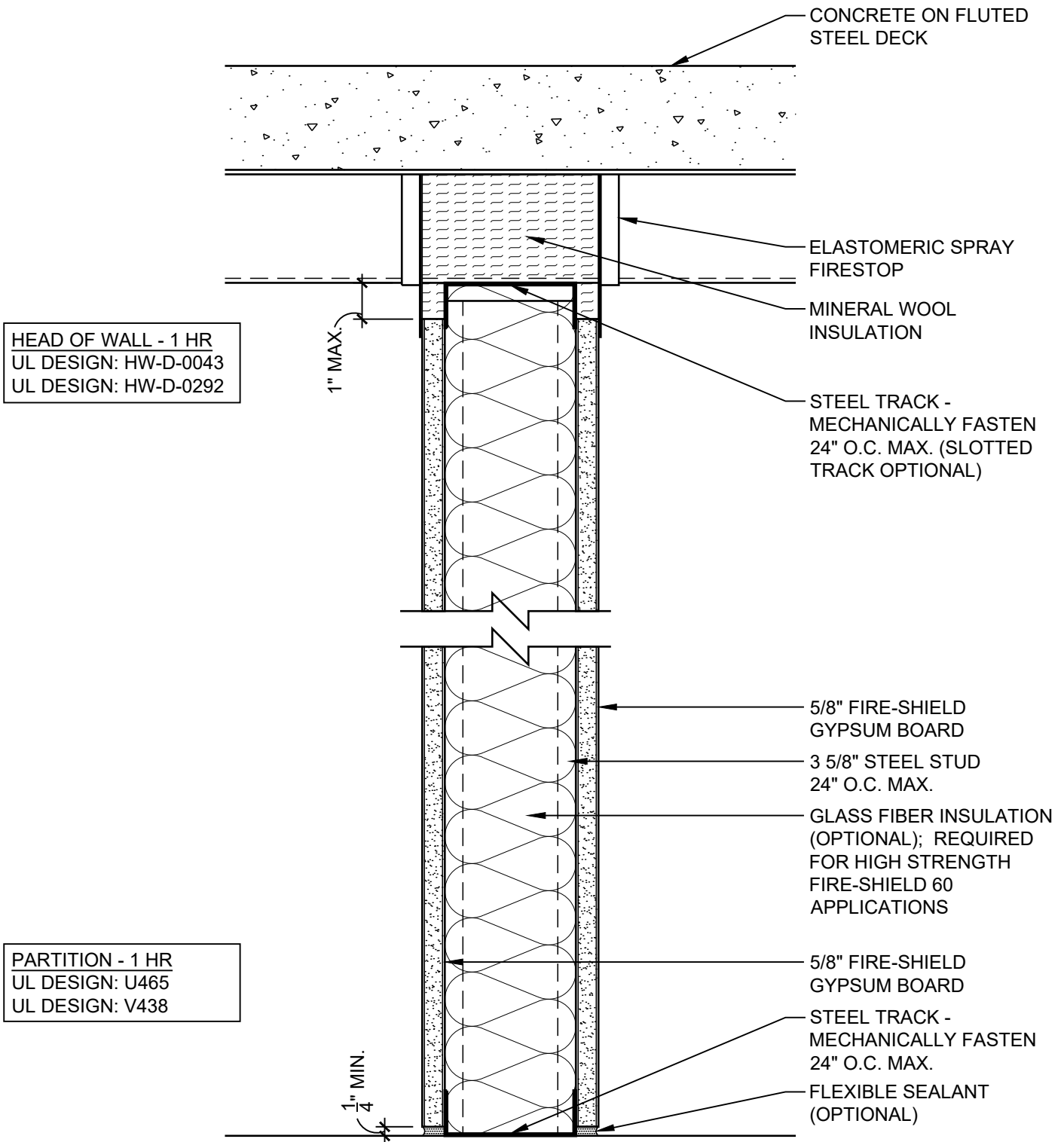
DATE: 09/01/18

1 HOUR PARTITION TO STEEL DECK

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Gypsum

SCALE: 3"=1'-0"

DETAIL: SS 102



DATE: 09/01/18

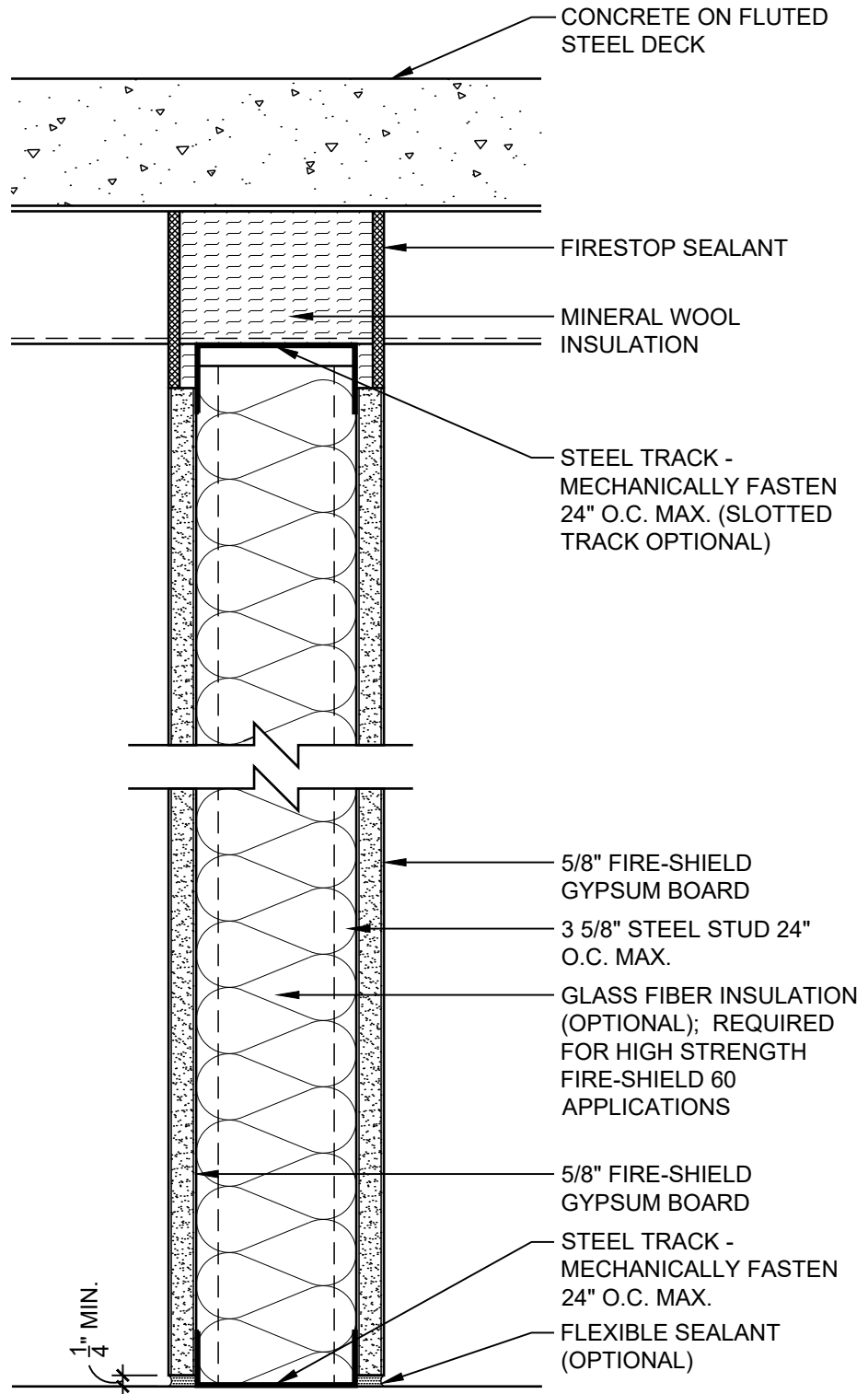
1 HOUR PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 103

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0034
UL DESIGN: HW-D-0045

PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438



DATE: 09/01/18

1 HOUR PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

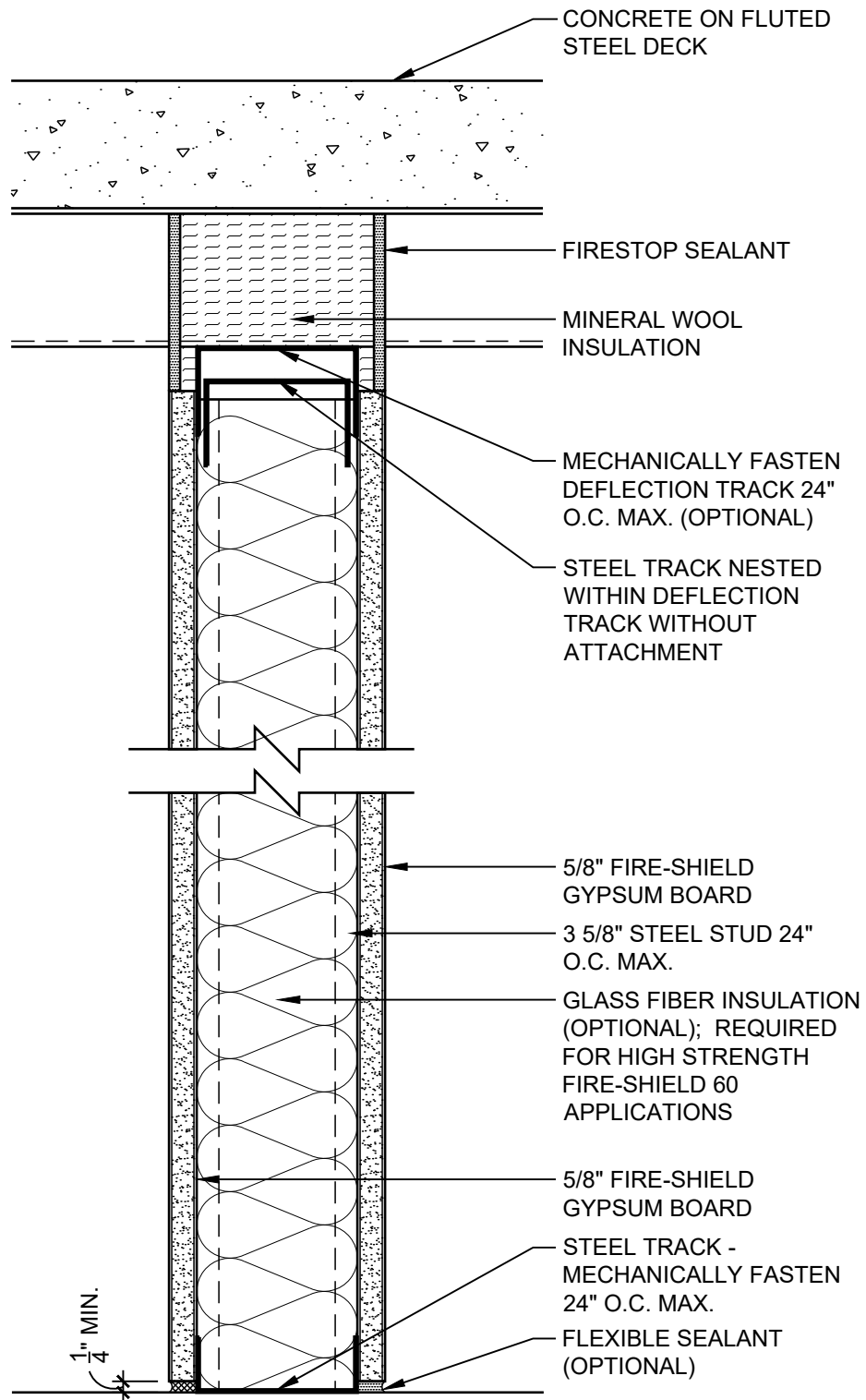
DETAIL: SS 104

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Gypsum

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HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0034
UL DESIGN: HW-D-0045

PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438



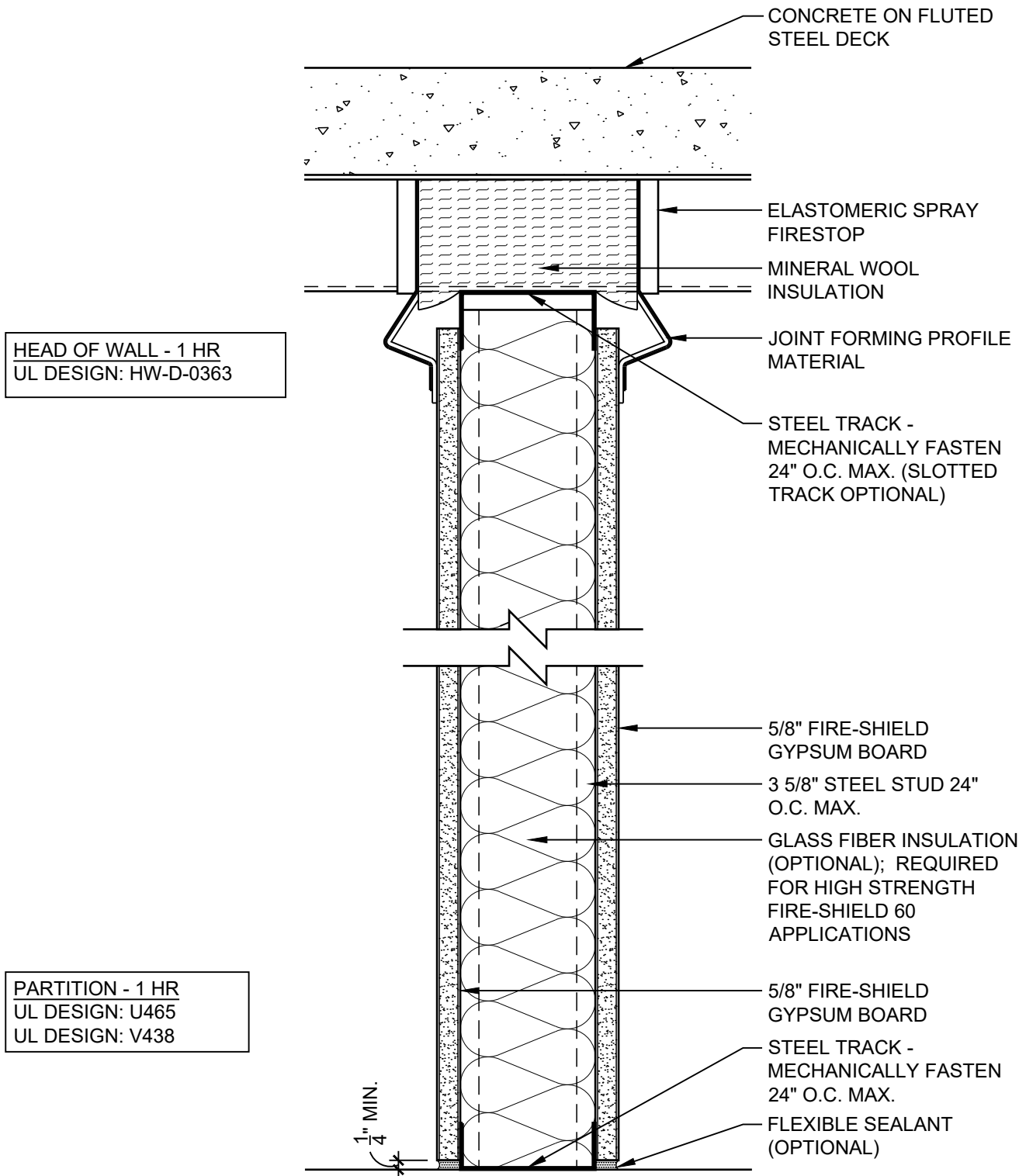
DATE: 09/01/18

1 HOUR PARTITION WITH DEFLECTION TRACK

SCALE: 3"=1'-0"

DETAIL: SS 105

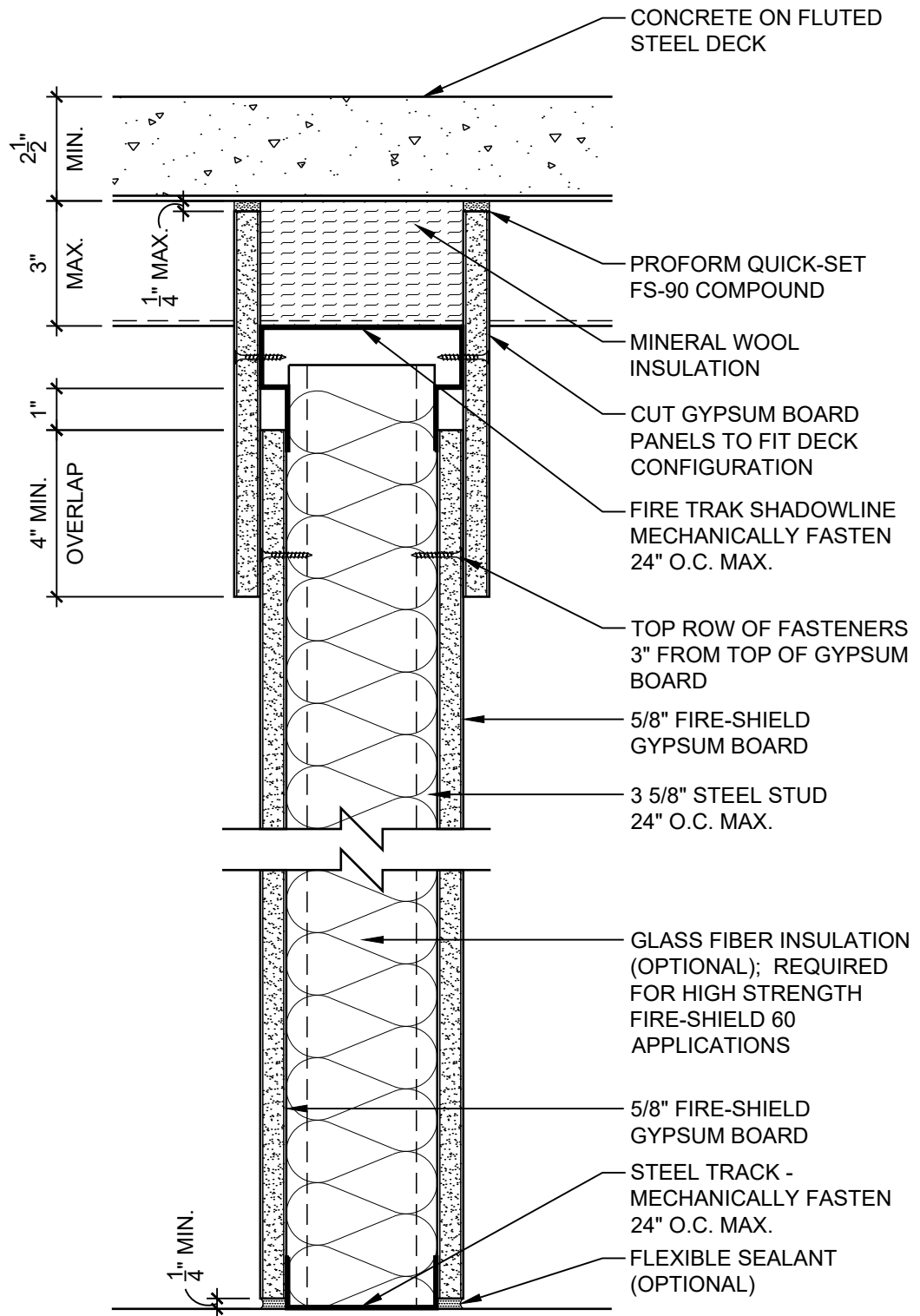
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Gypsum



DATE: 09/01/18	1 HOUR PARTITION TO STEEL DECK	
SCALE: 3"=1'-0"	DETAIL: SS 106	

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0060

PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438



DATE: 09/01/18

1 HOUR PARTITION WITH DEFLECTION TRACK

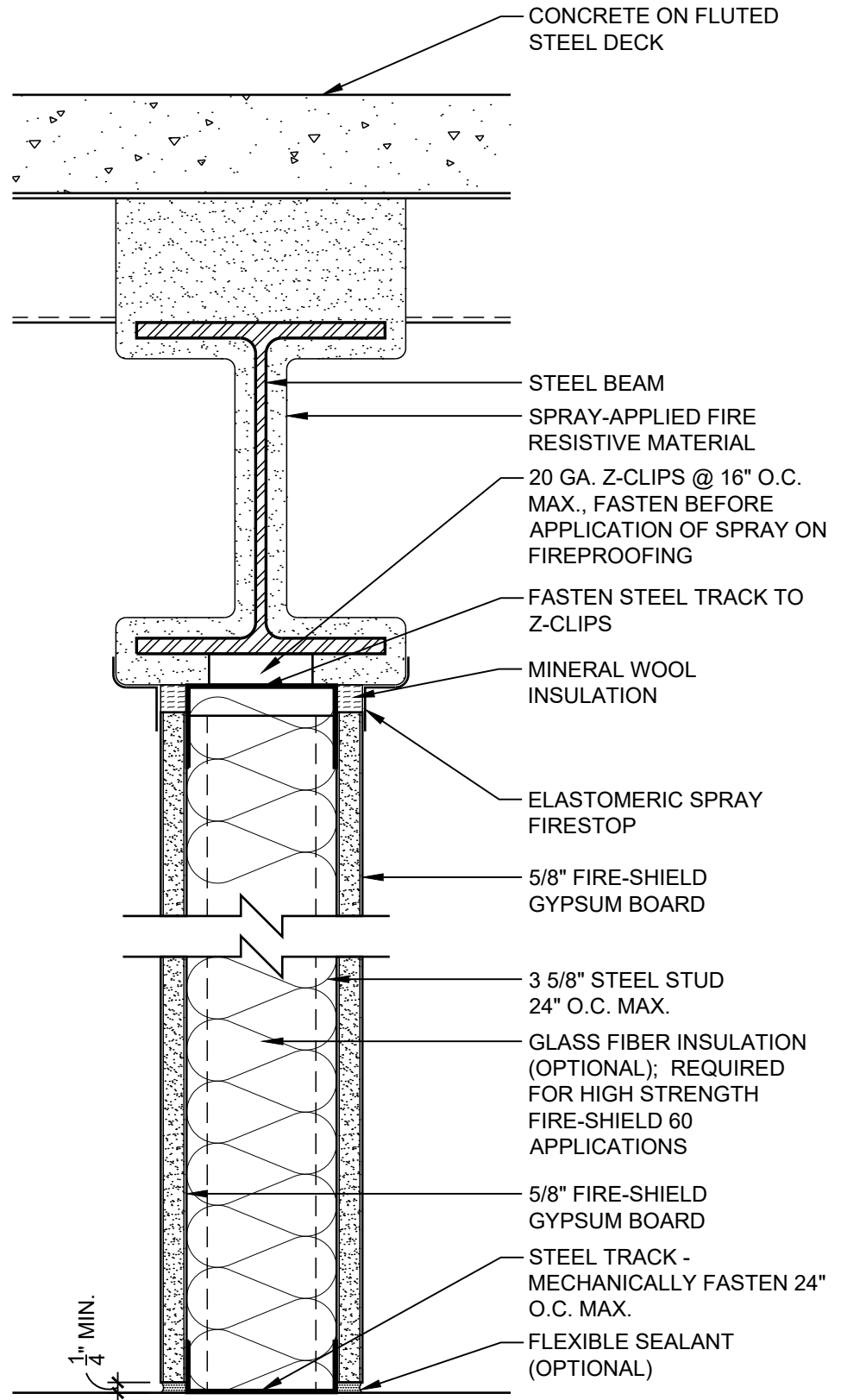
SCALE: 3"=1'-0"

DETAIL: SS 107

National Gypsum

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0252
UL DESIGN: HW-D-0259

PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438



DATE: 09/01/18

1 HOUR PARTITION TO STEEL BEAM

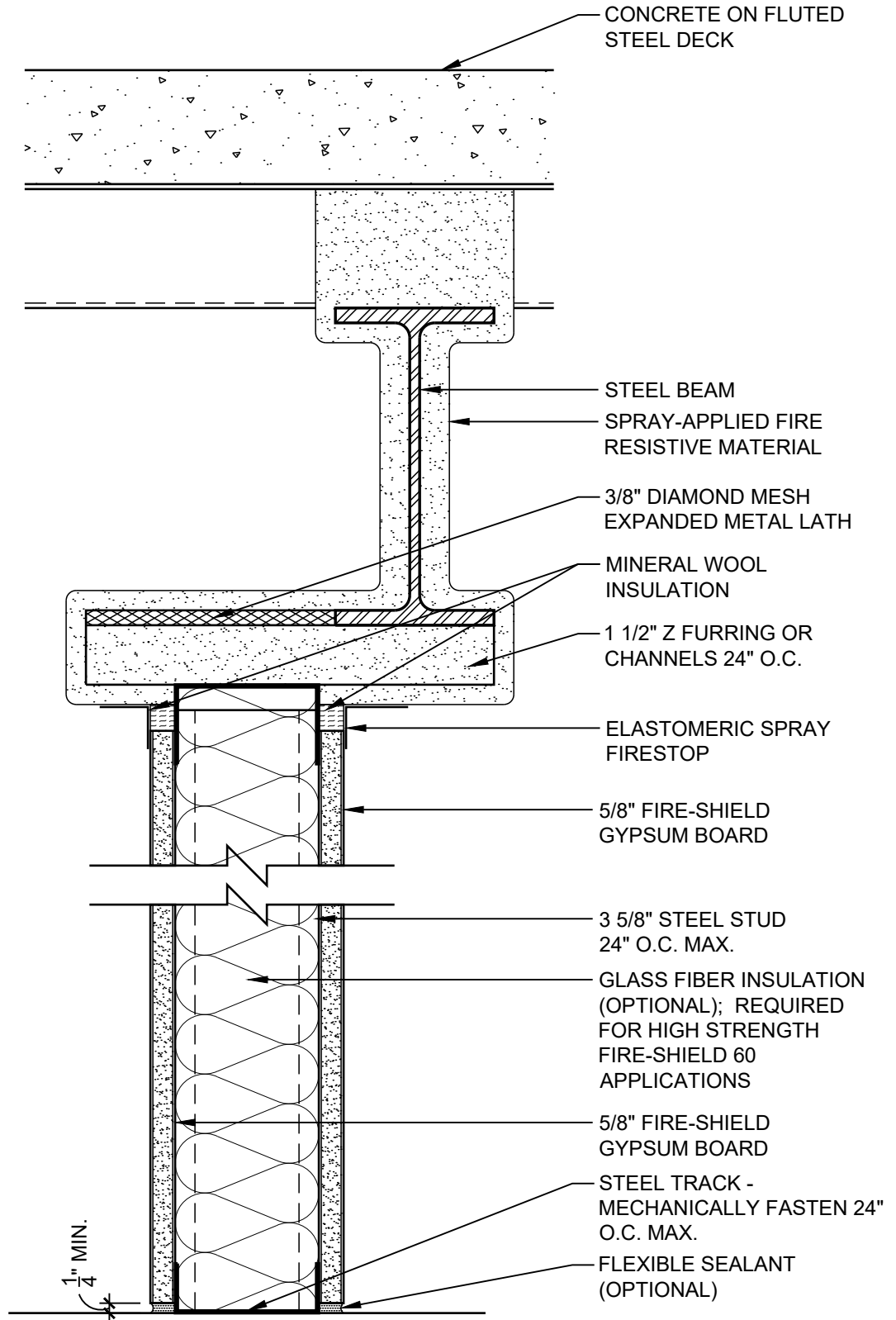
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Gypsum

SCALE: 3"=1'-0"

DETAIL: SS 108

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0617
UL DESIGN: HW-D-0635

PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438



DATE: 09/01/18

1 HOUR PARTITION OFFSET FROM BEAM

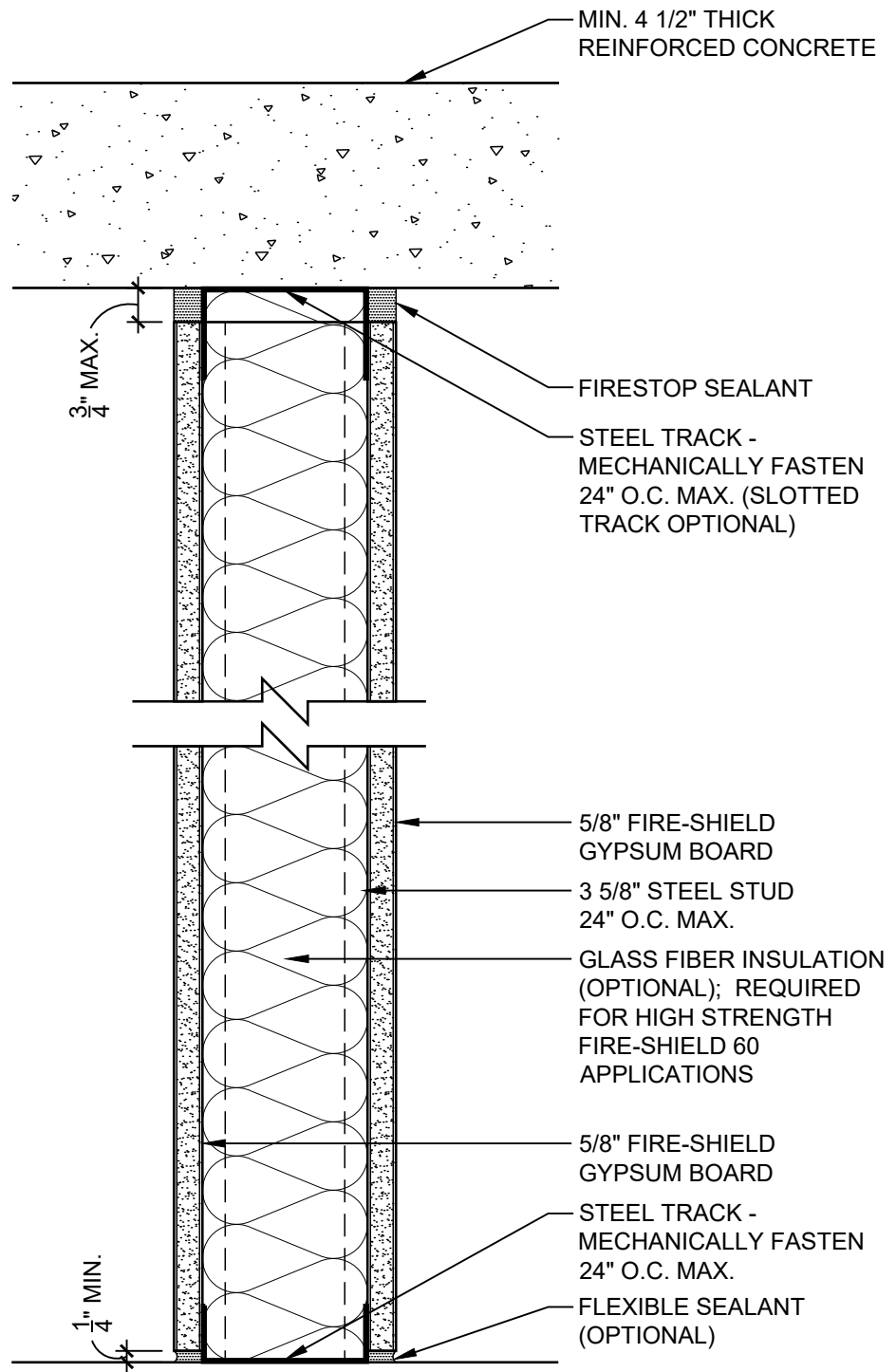
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DETAIL: SS 109

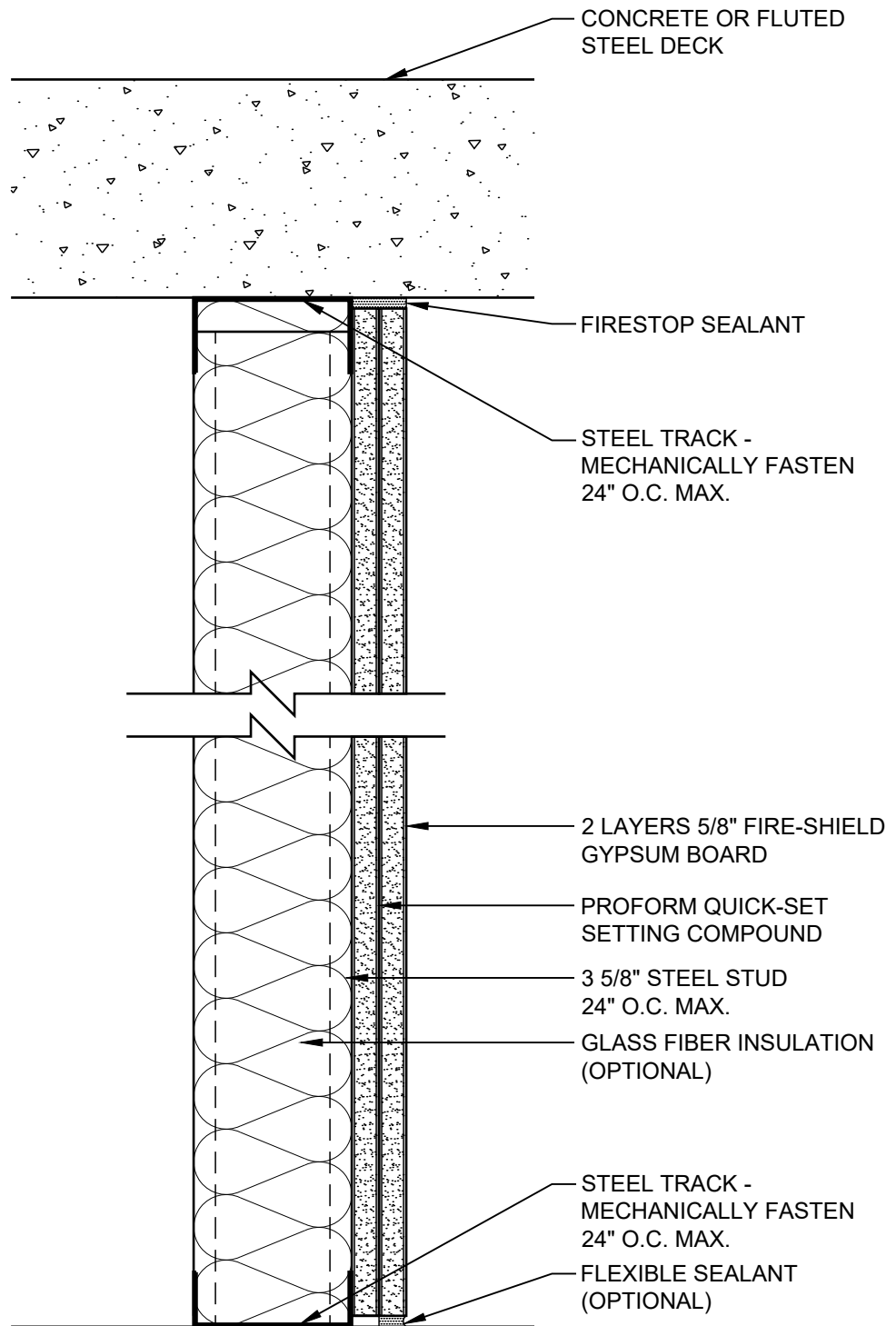


HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0079
UL DESIGN: HW-D-0083

PARTITION - 1HR
UL DESIGN: U465
UL DESIGN: V438



DATE: 09/01/18	1 HOUR PARTITION TO CONCRETE SLAB	
SCALE: 3"=1'-0"	DETAIL: SS 110	



PARTITION - 1 HR
 UL DESIGN: V497
 PARTITION RATED
 FROM BOTH SIDES

DATE: 09/01/18

1 HOUR 1 SIDED PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

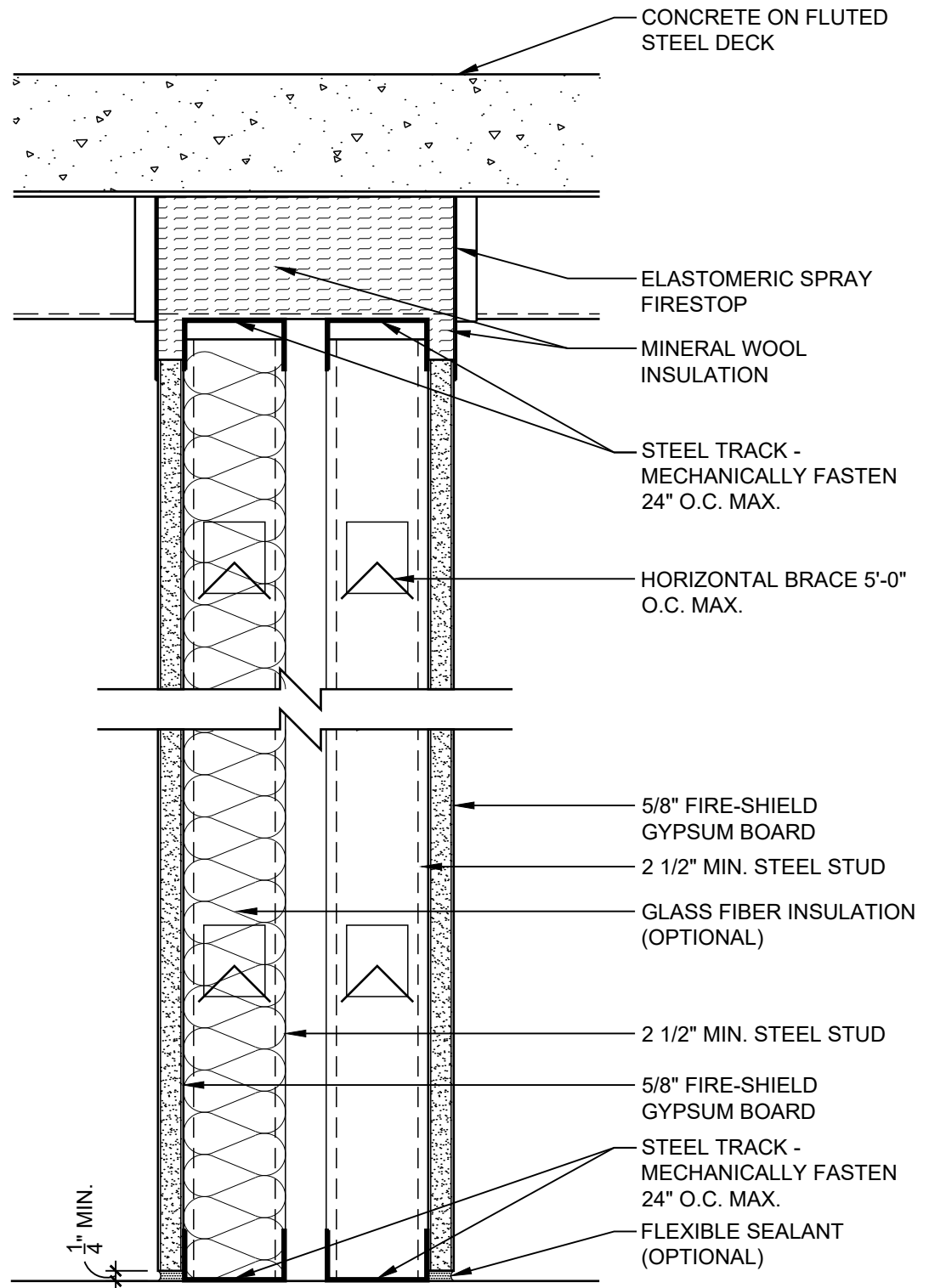
DETAIL: SS 111

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HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0043
UL DESIGN: HW-D-0292

PARTITION - 1 HR
UL DESIGN: V488



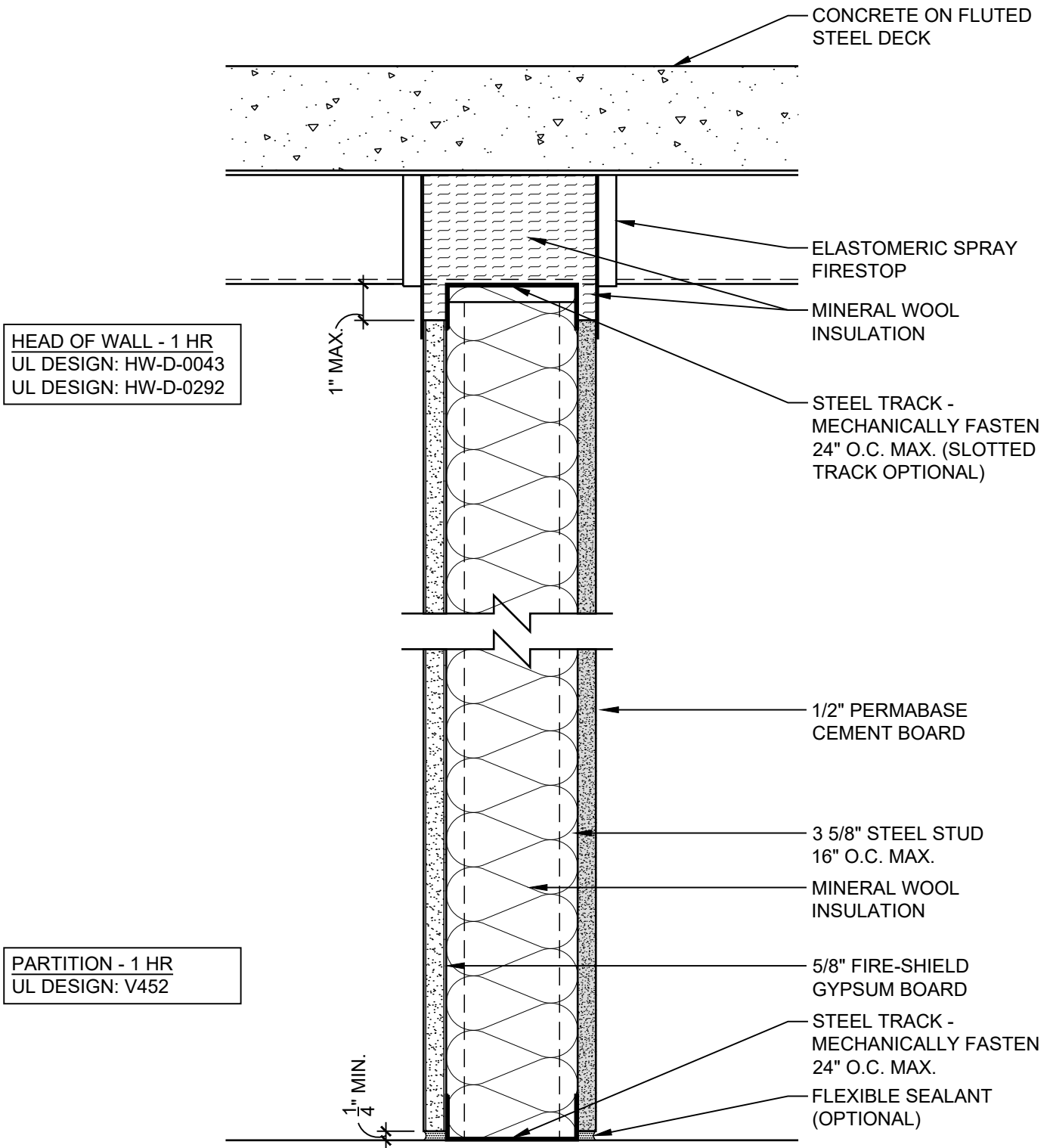
DATE: 09/01/18

1 HOUR CHASE WALL TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 112

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Gypsum



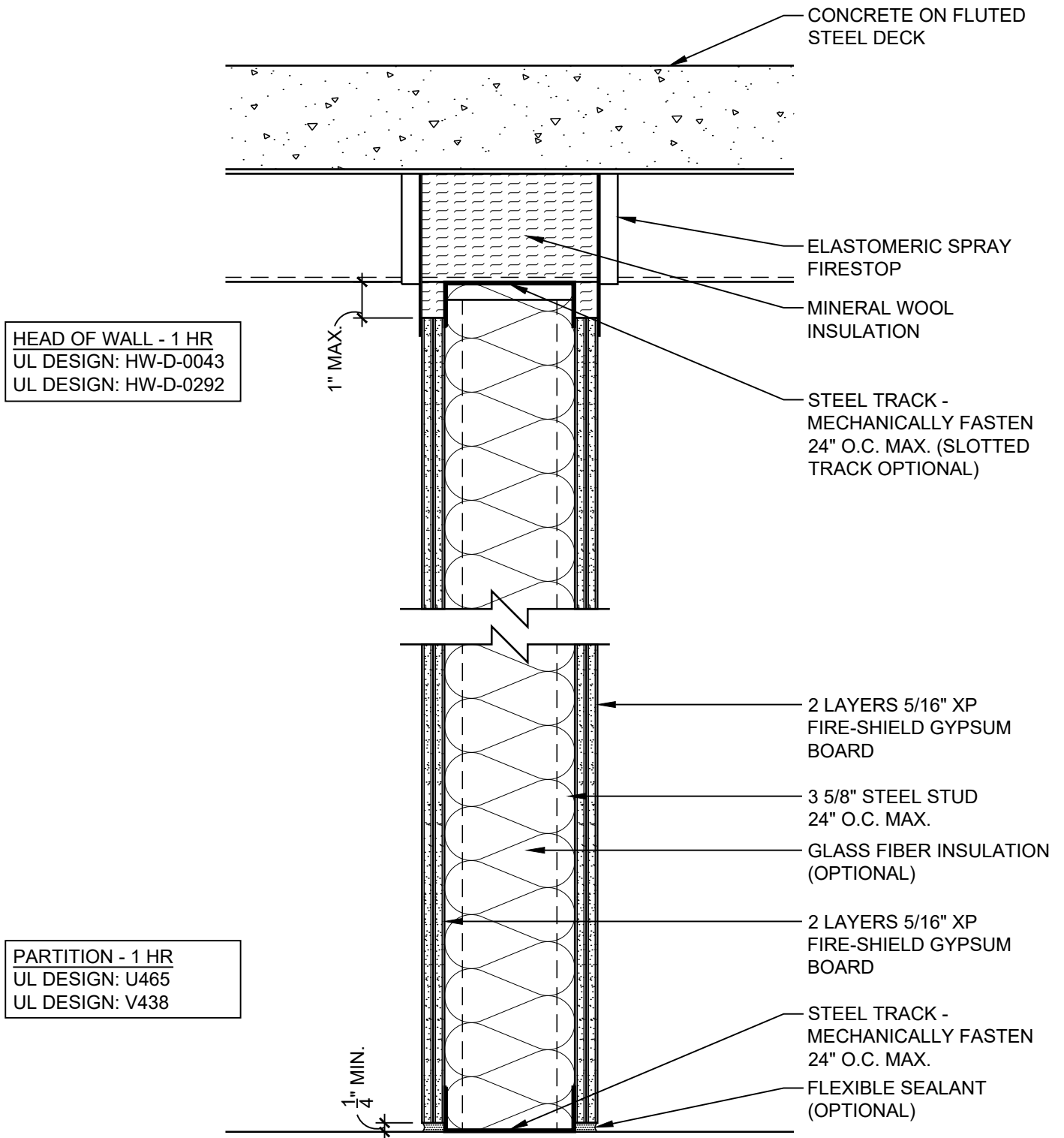
DATE: 09/01/18

1 HOUR CEMENT BOARD PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 113





DATE: 09/01/18

1 HOUR PARTITION TO STEEL DECK

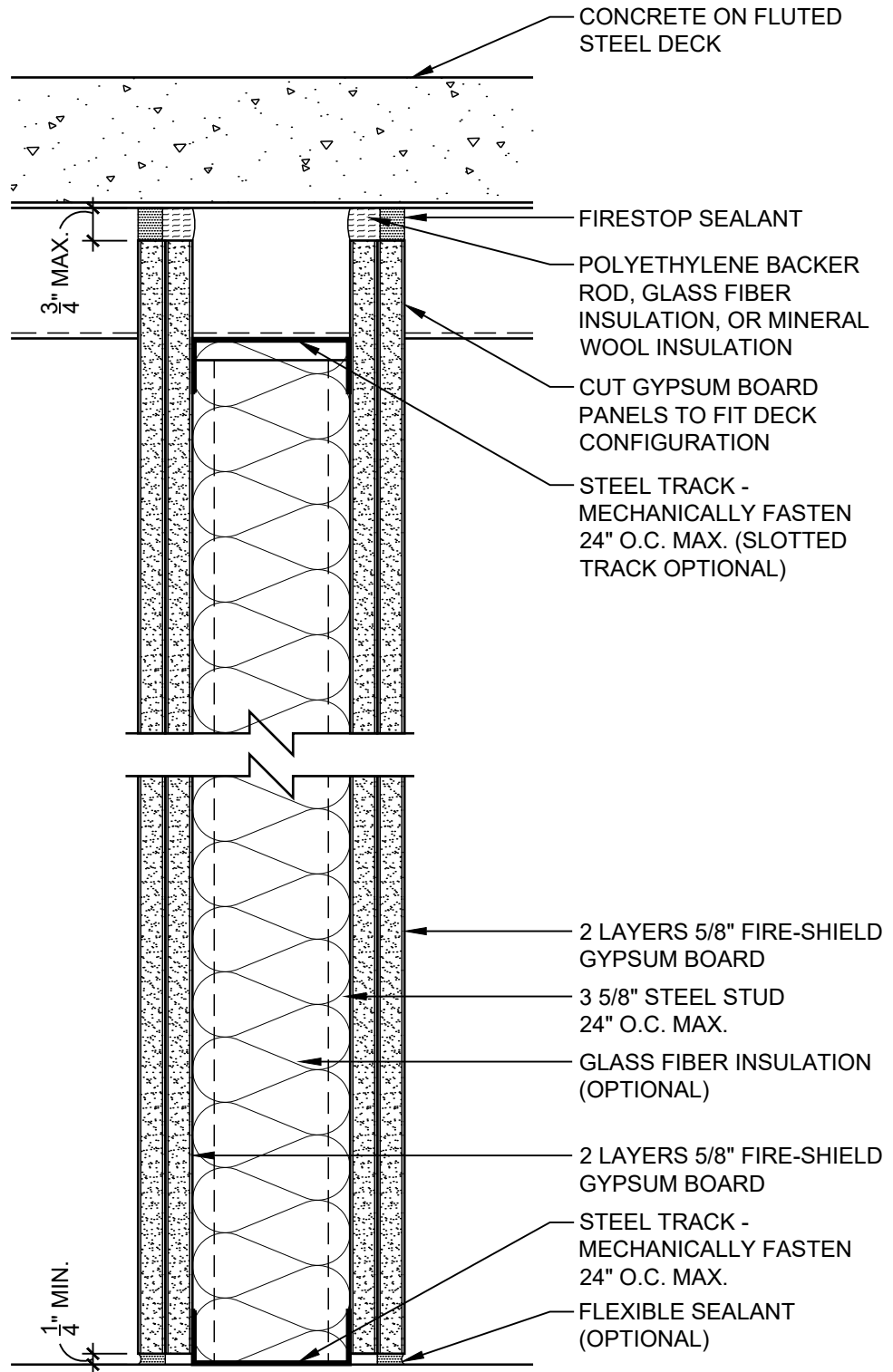


SCALE: 3"=1'-0"

DETAIL: SS 114

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0103
UL DESIGN: HW-D-0076

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



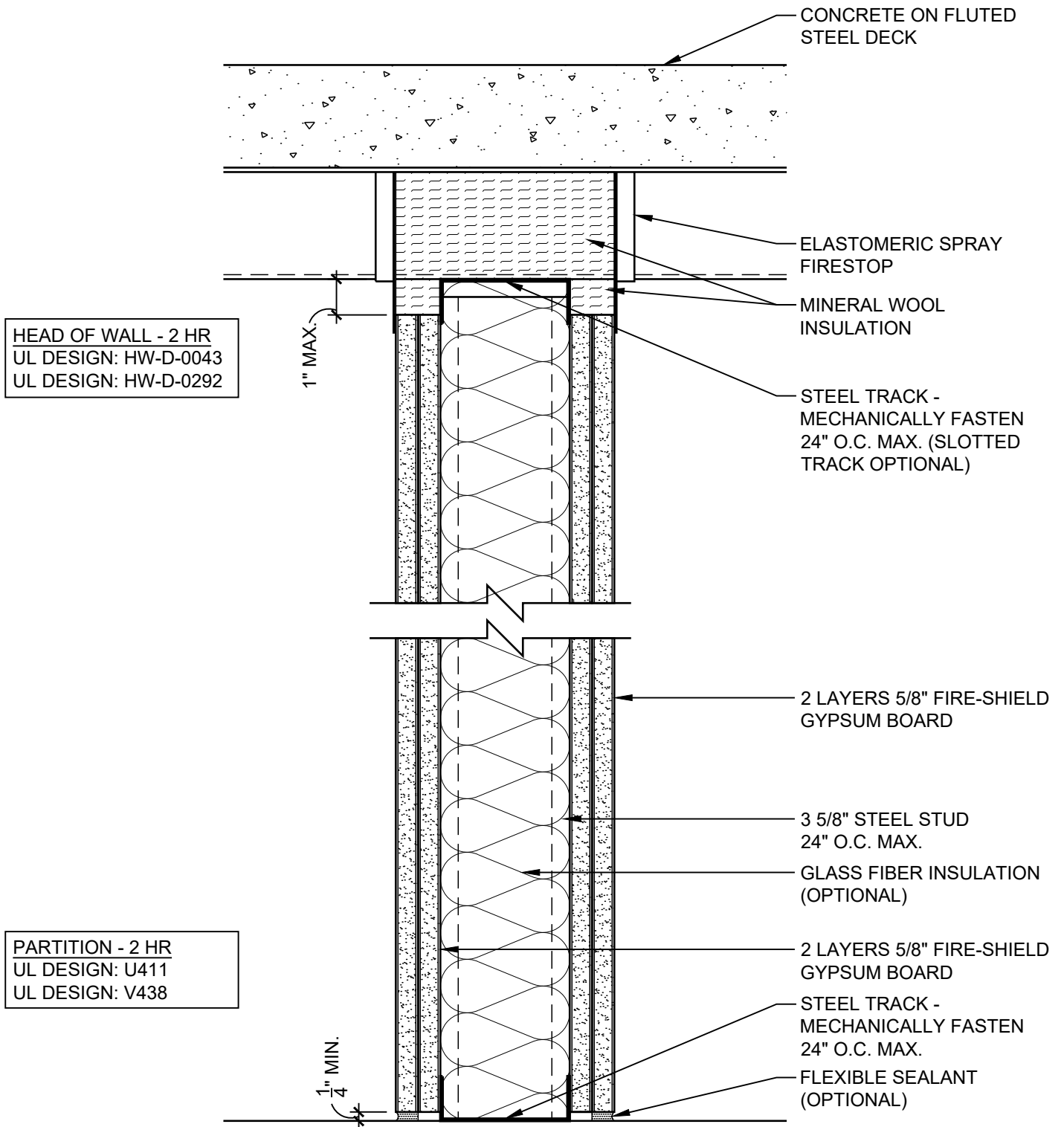
DATE: 09/01/18

2 HOUR PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 202

National
Gypsum



DATE: 09/01/18

2 HOUR PARTITION TO STEEL DECK

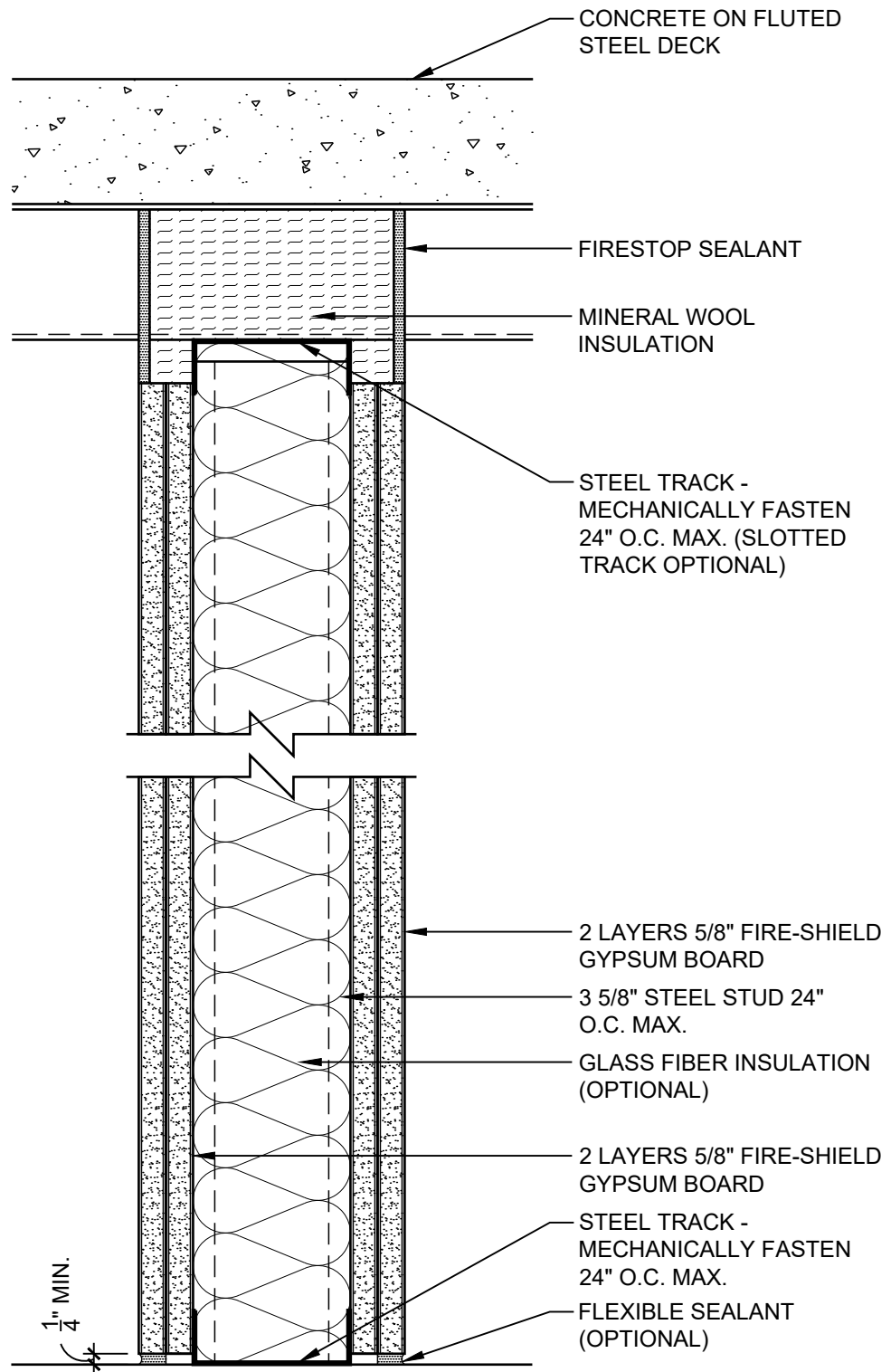


SCALE: 3"=1'-0"

DETAIL: SS 203

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0034
UL DESIGN: HW-D-0045

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18

2 HOUR PARTITION TO STEEL DECK

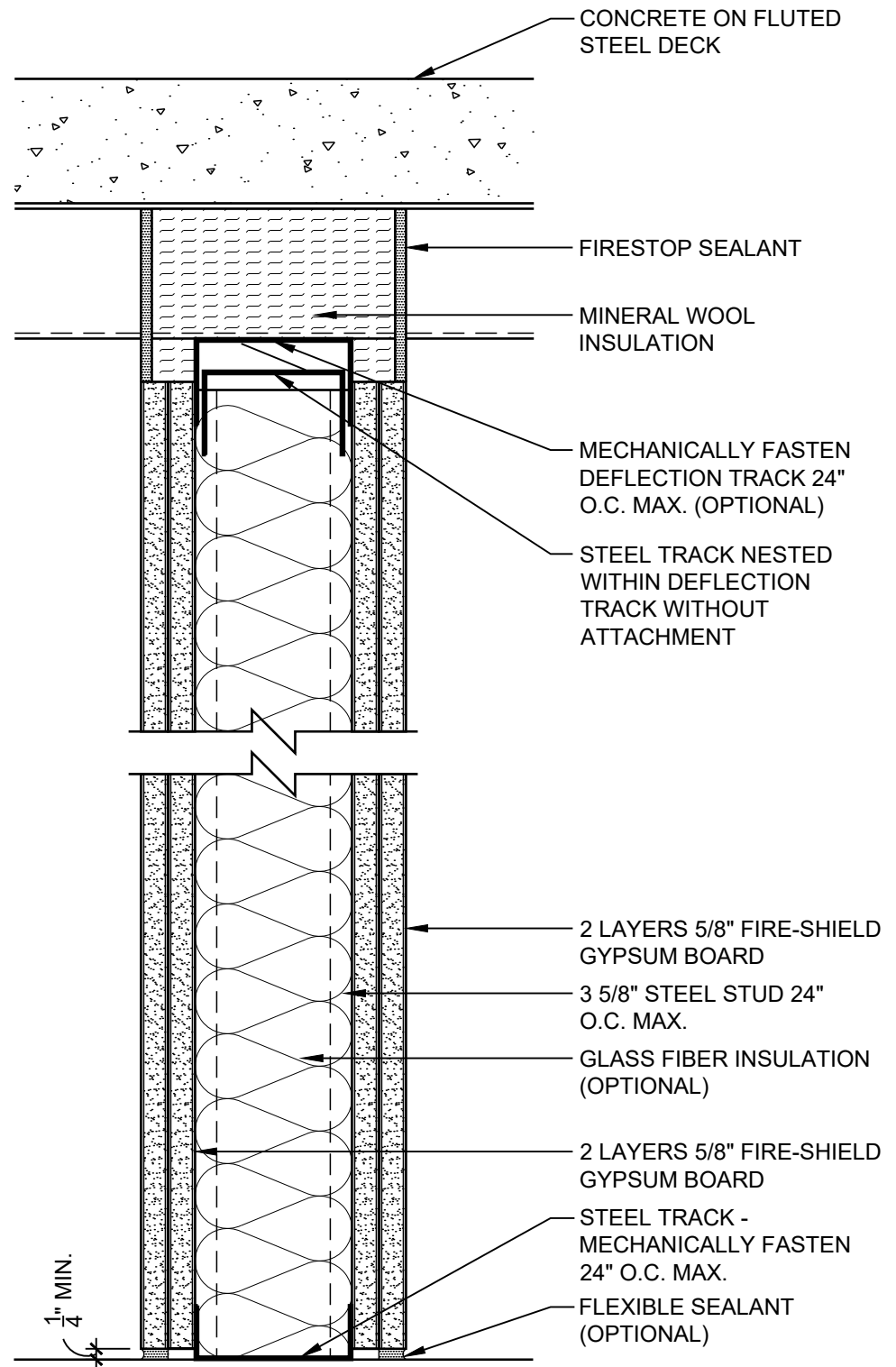
SCALE: 3"=1'-0"

DETAIL: SS 204

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HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0034
UL DESIGN: HW-D-0045

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18

2 HOUR PARTITION WITH DEFLECTION TRACK

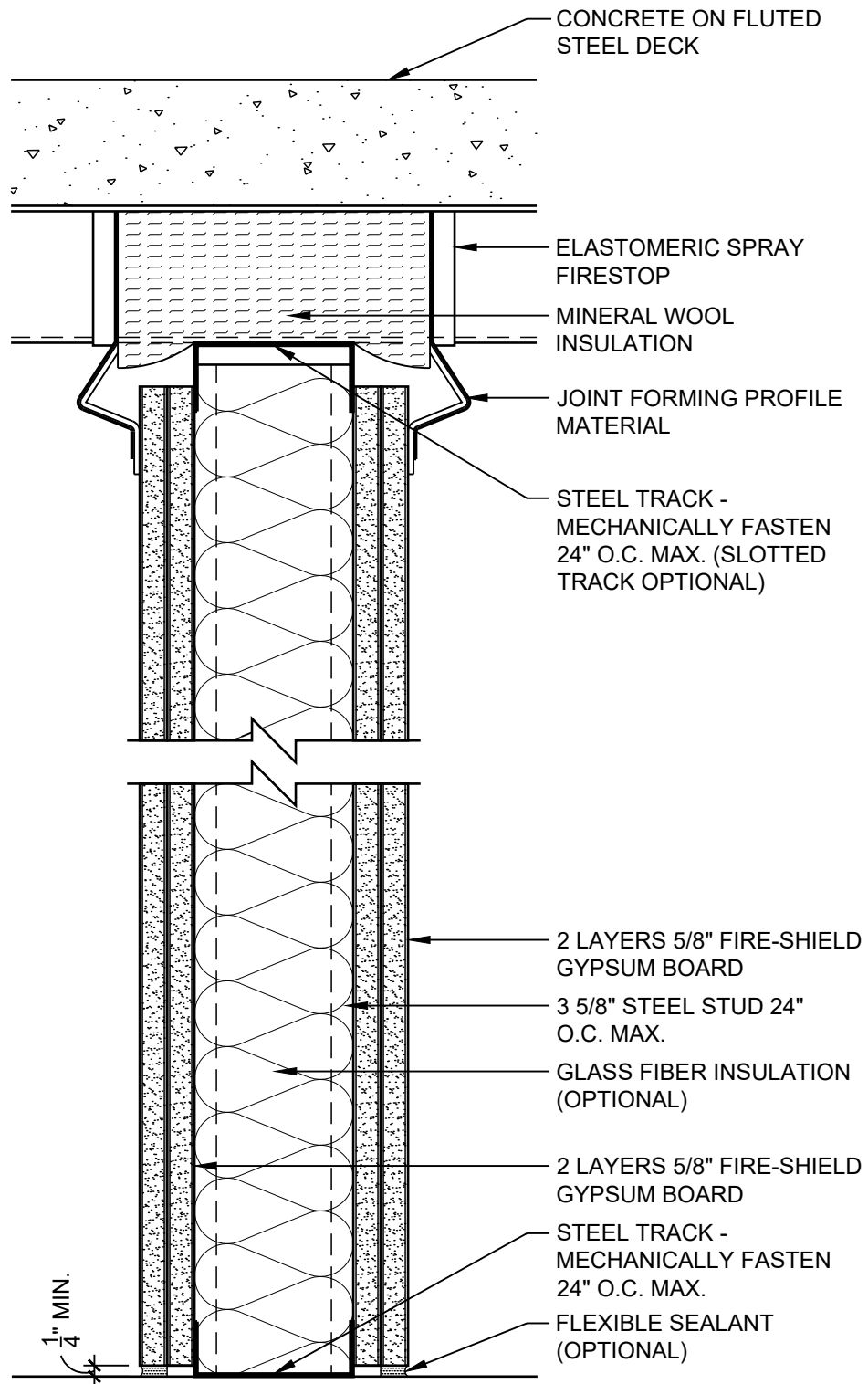
SCALE: 3"=1'-0"

DETAIL: SS 205

National
Gypsum

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0363

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18

2 HOUR PARTITION TO STEEL DECK

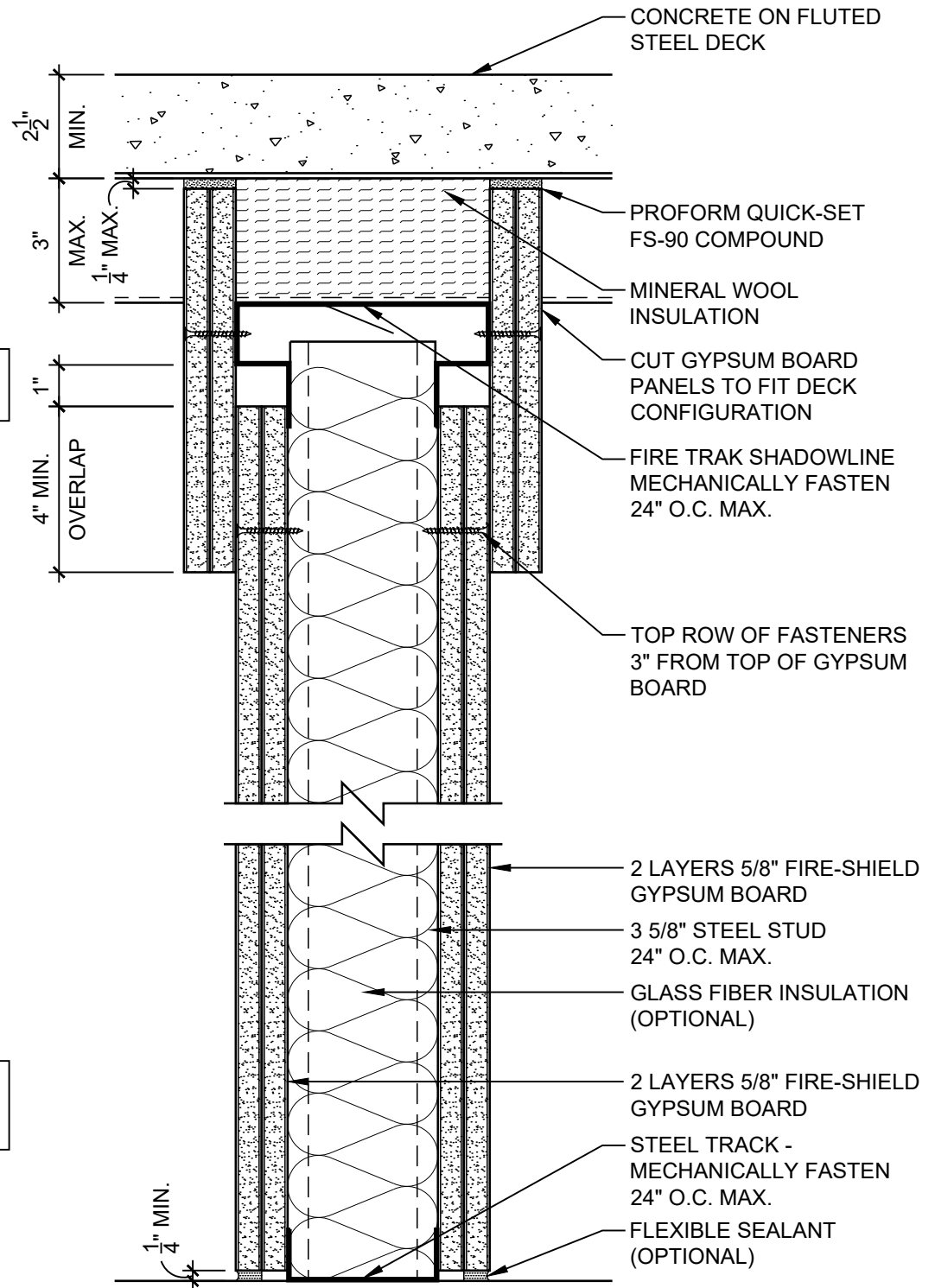
SCALE: 3"=1'-0"

DETAIL: SS 206

National
Gypsum

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0060

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18

2 HOUR PARTITION WITH DEFLECTION TRACK

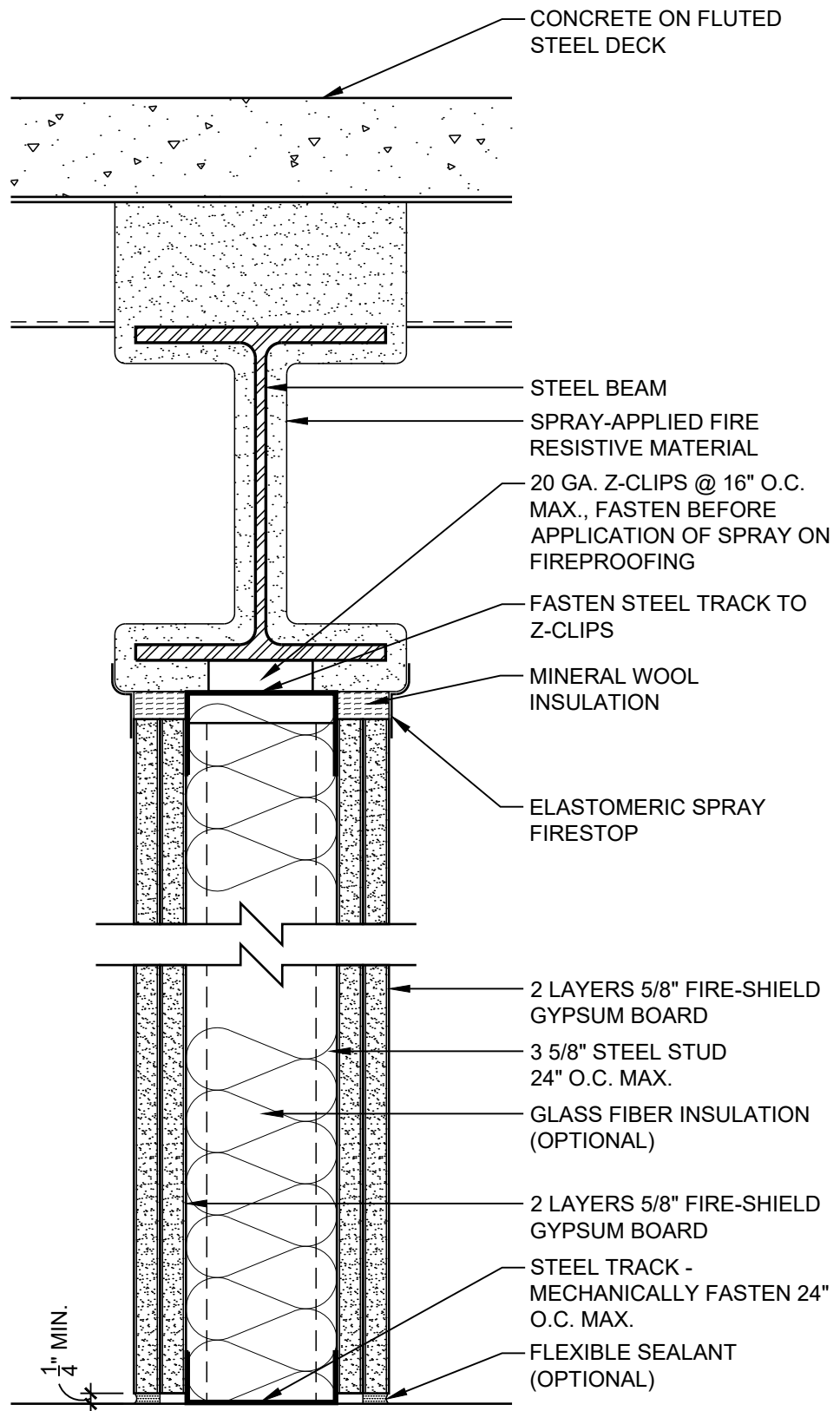
National Gypsum

SCALE: 3"=1'-0"

DETAIL: SS 207

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0252
UL DESIGN: HW-D-0259

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18

2 HOUR PARTITION TO STEEL BEAM

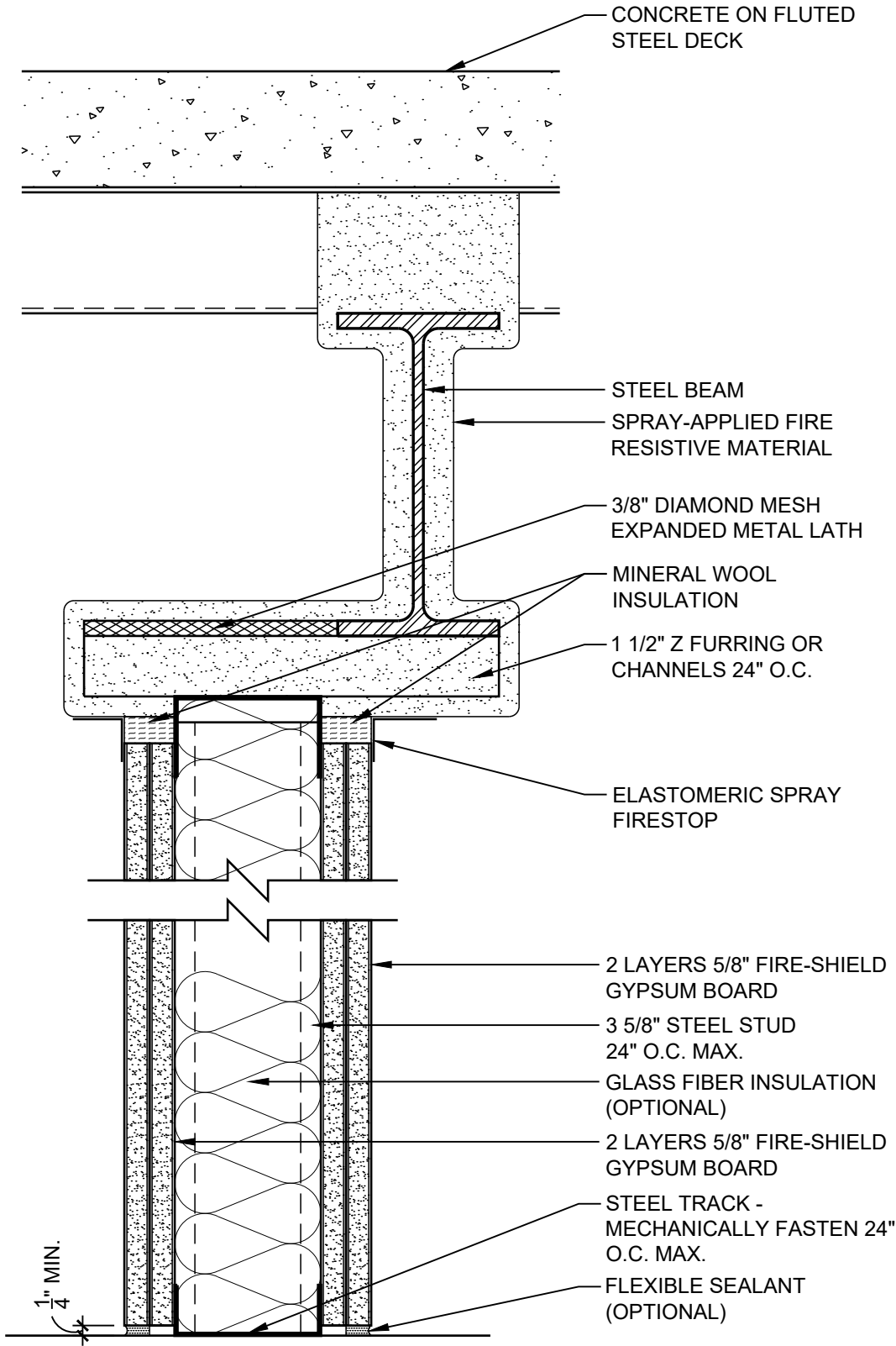
SCALE: 3"=1'-0"

DETAIL: SS 208

National
Gypsum

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0617
UL DESIGN: HW-D-0635

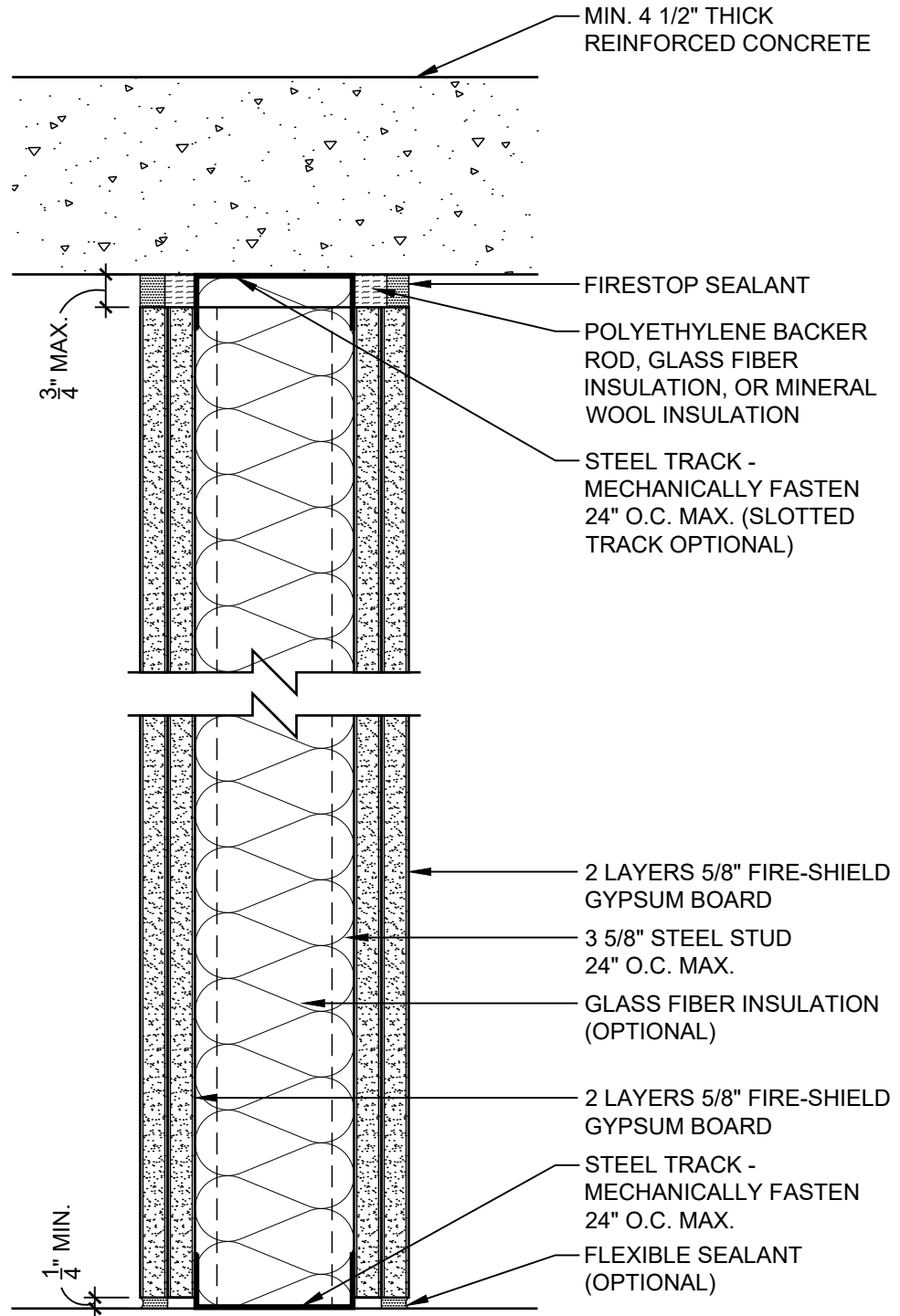
PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18	2 HOUR PARTITION OFFSET FROM BEAM	
SCALE: 3"=1'-0"	DETAIL: SS 209	

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0079
UL DESIGN: HW-D-0083

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18

2 HOUR PARTITION TO CONCRETE SLAB

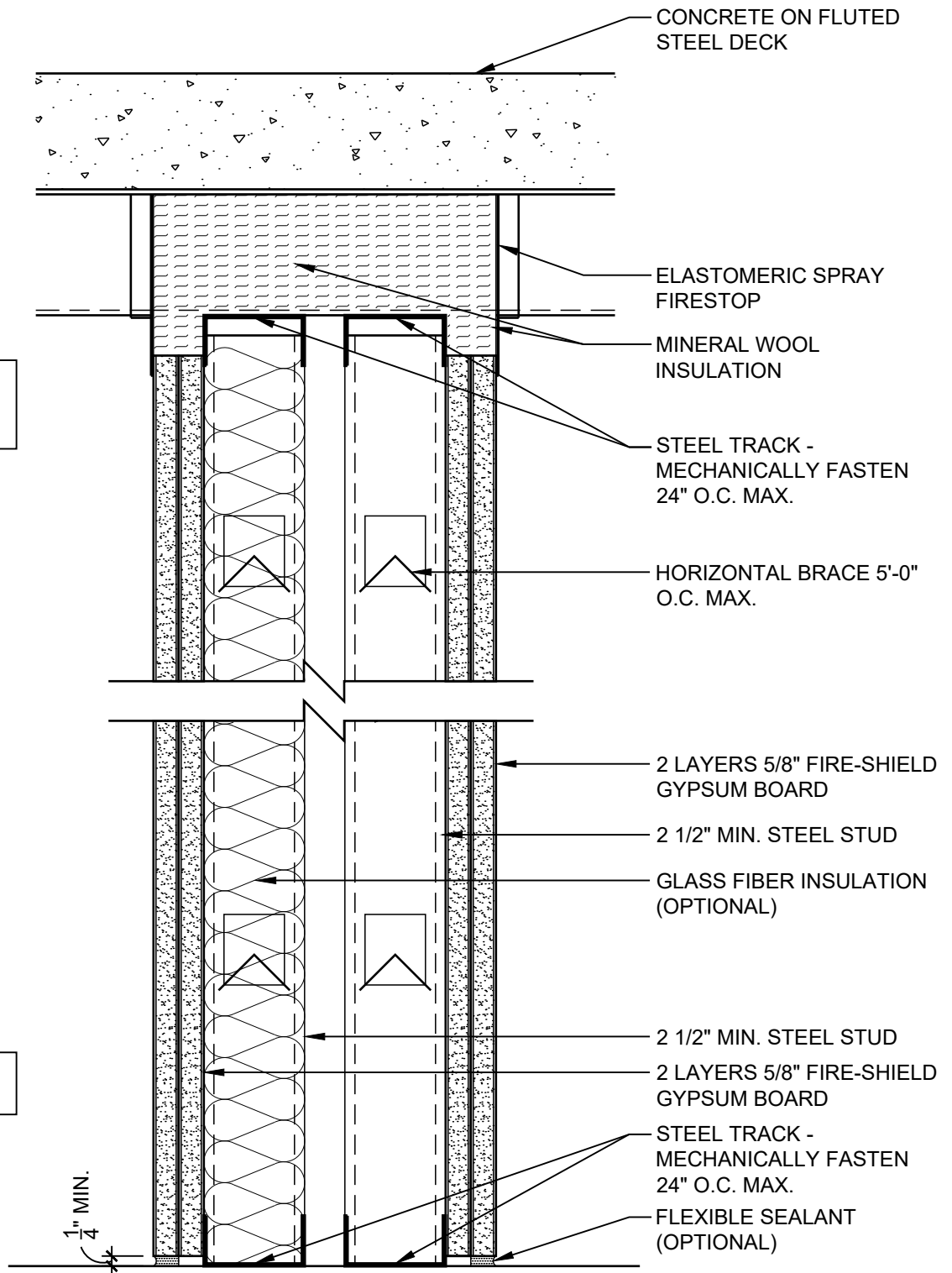
SCALE: 3"=1'-0"

DETAIL: SS 210

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HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0043
UL DESIGN: HW-D-0292

PARTITION - 2 HR
UL DESIGN: V488



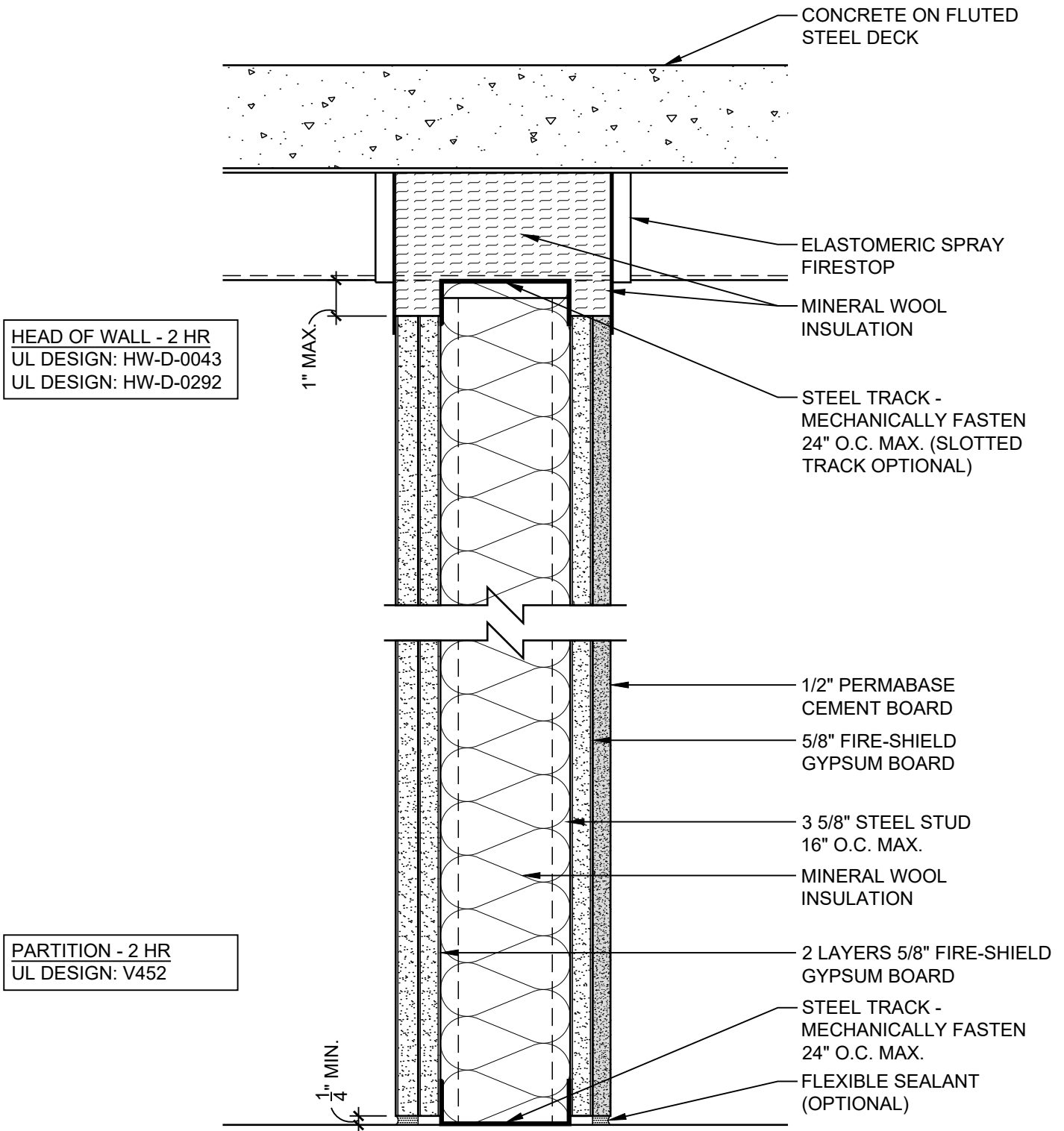
DATE: 09/01/18

2 HOUR CHASE WALL TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 212

National
Gypsum



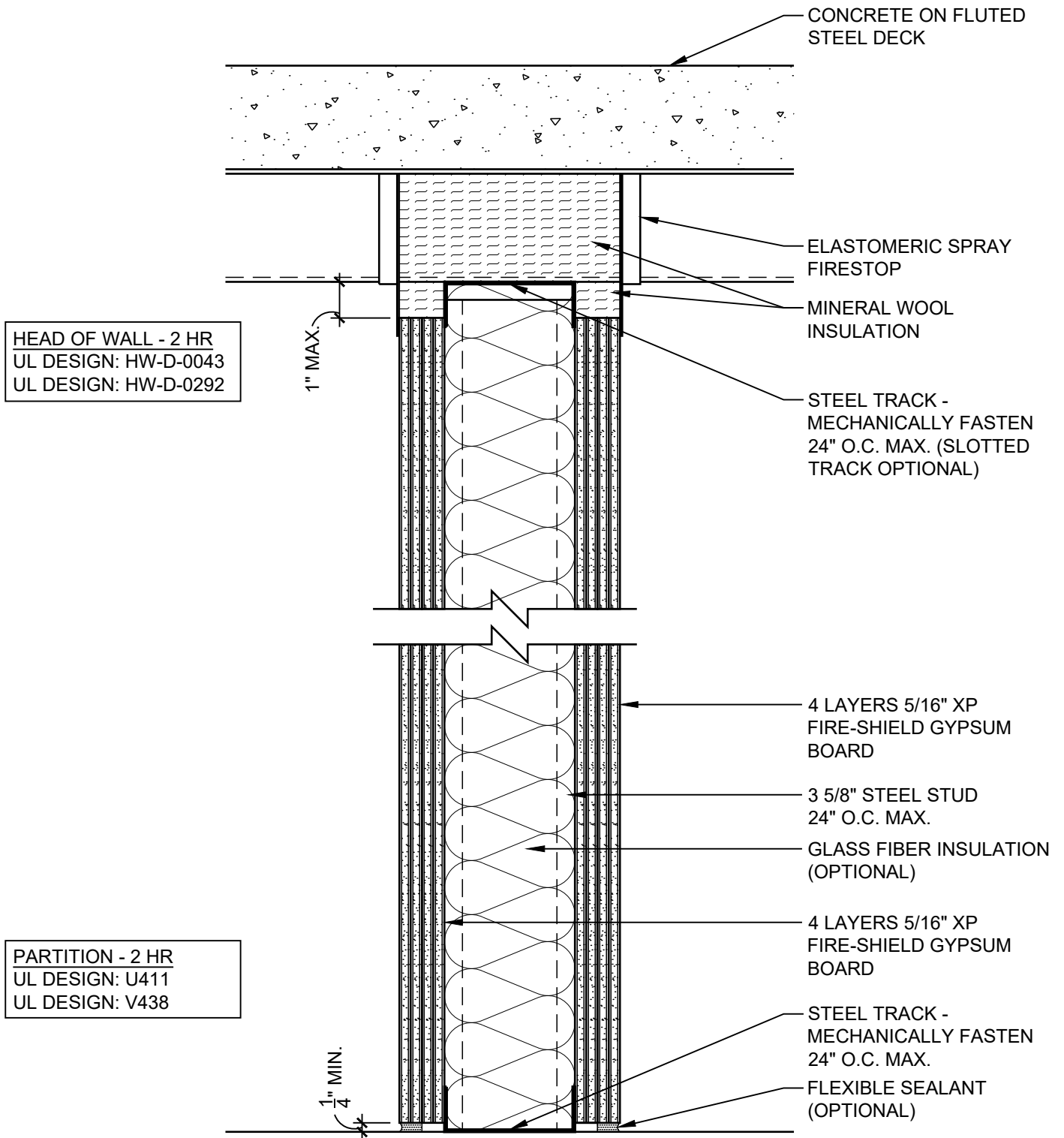
DATE: 09/01/18

2 HOUR CEMENT BOARD PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 213





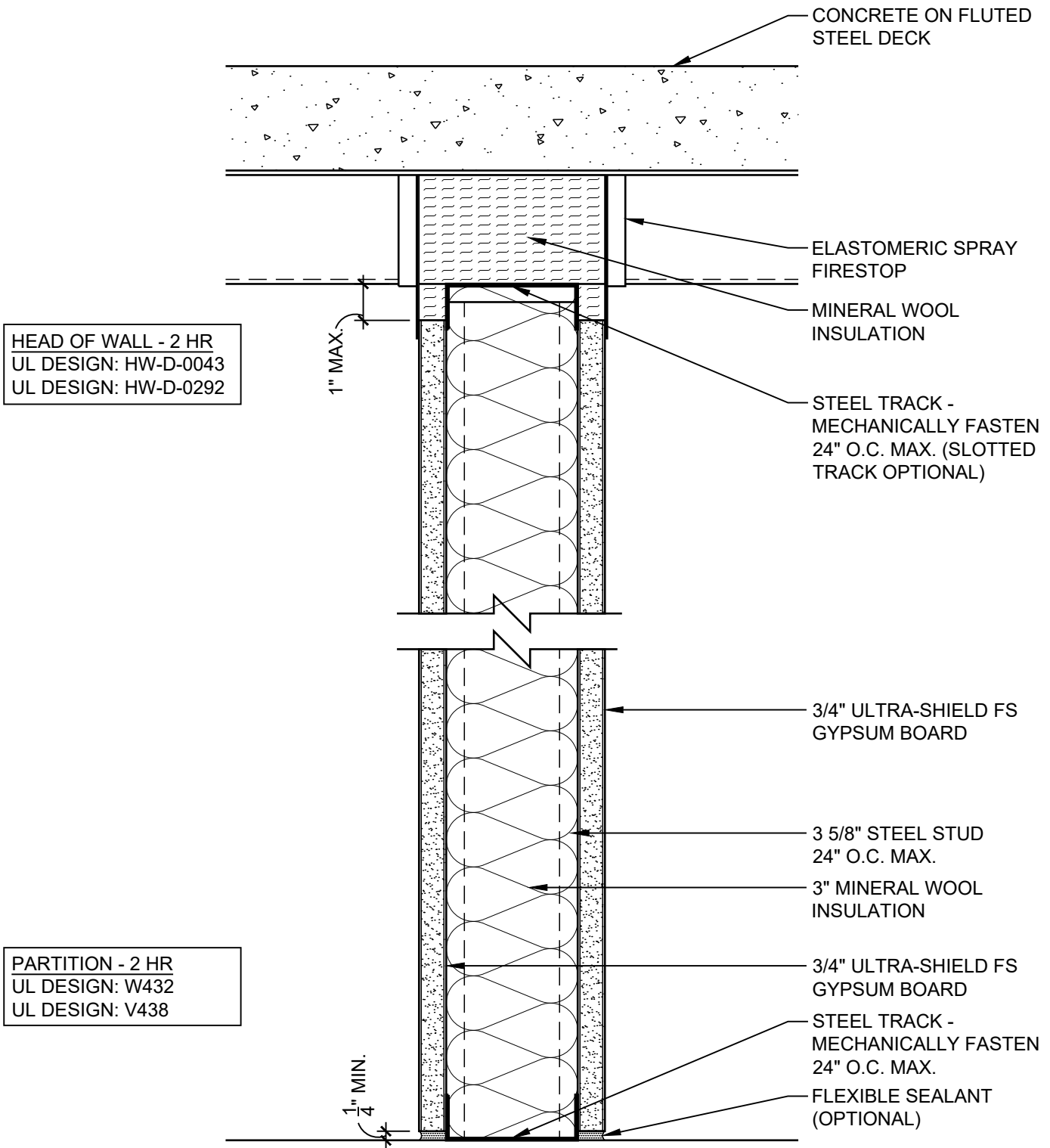
DATE: 09/01/18

2 HOUR PARTITION TO STEEL DECK

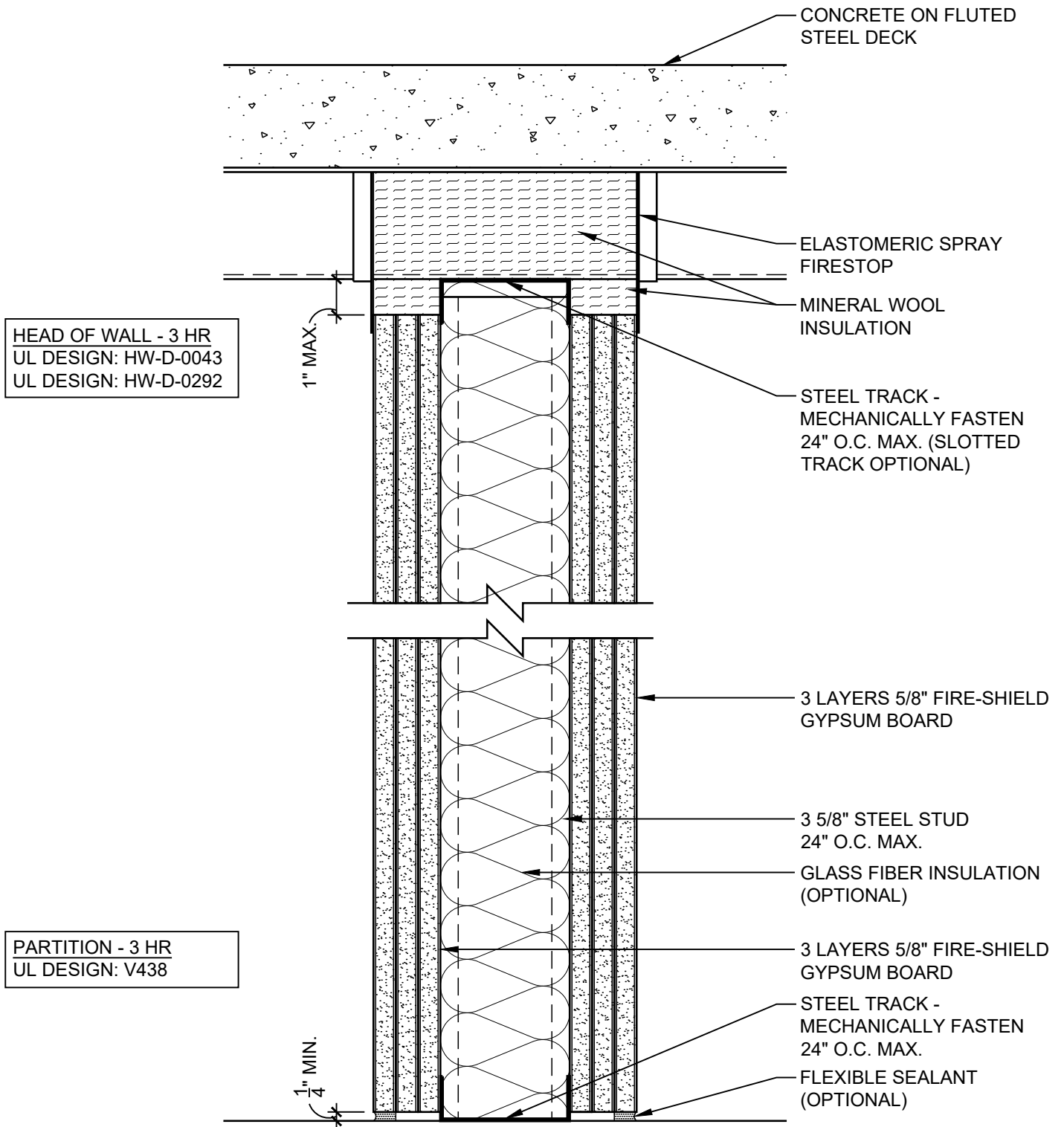


SCALE: 3"=1'-0"

DETAIL: SS 214



DATE: 09/01/18	2 HOUR PARTITION TO STEEL DECK	
SCALE: 3"=1'-0"	DETAIL: SS 215	

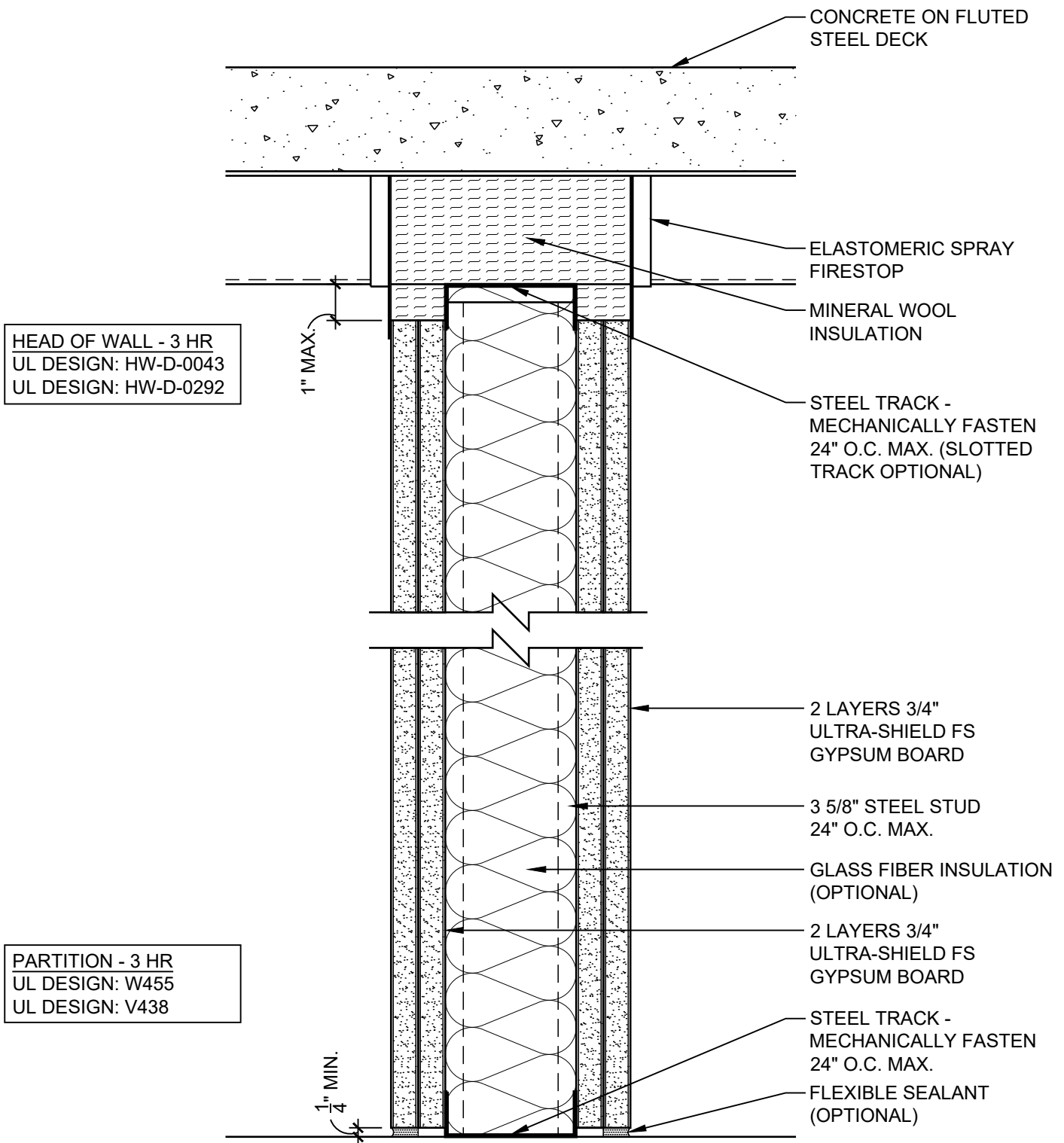


DATE: 09/01/18

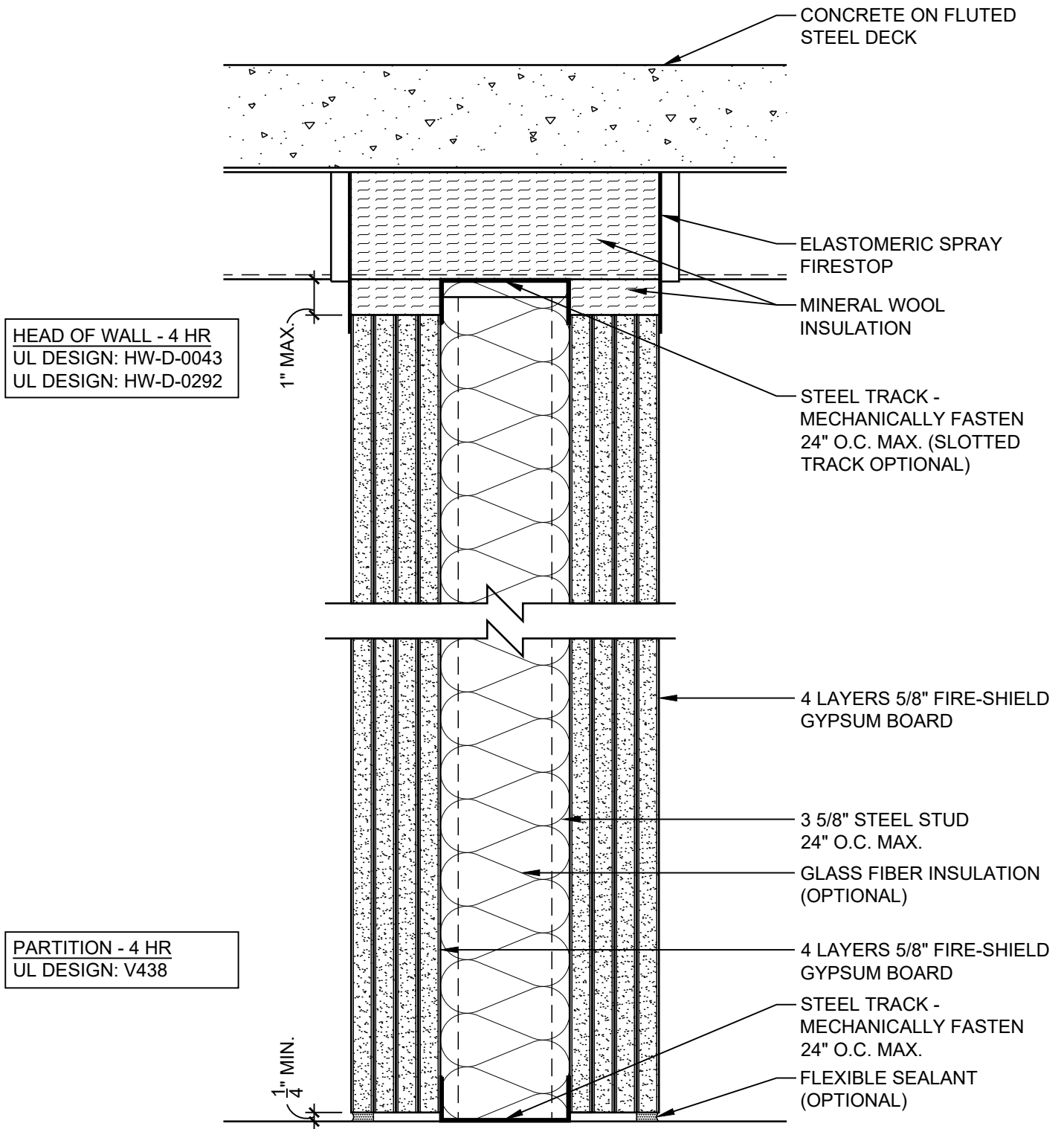
3 HOUR PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 301



DATE: 09/01/18	3 HOUR PARTITION TO STEEL DECK	
SCALE: 3"=1'-0"	DETAIL: SS 302	

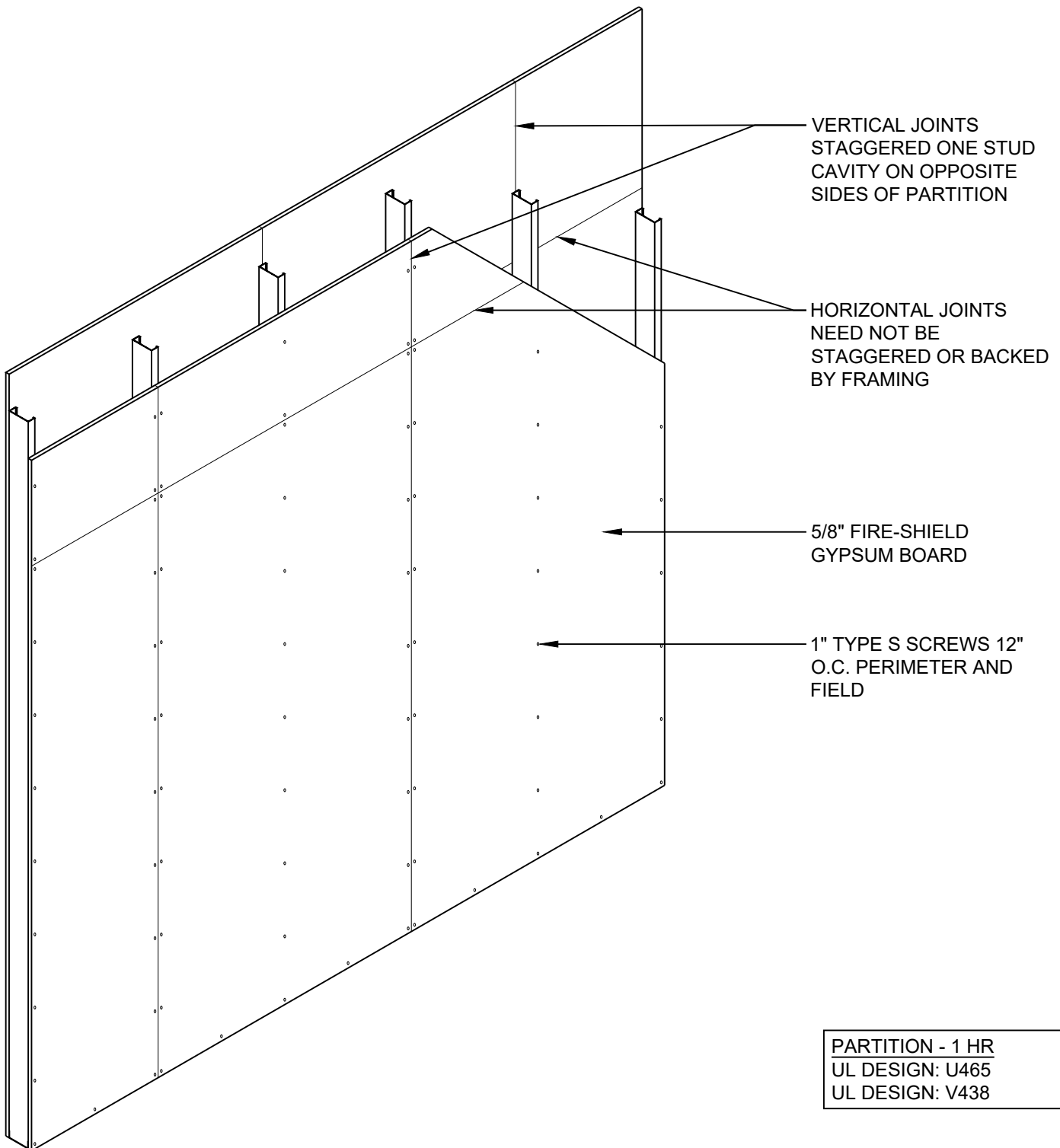


DATE: 09/01/18

4 HOUR PARTITION TO STEEL DECK

SCALE: 3"=1'-0"

DETAIL: SS 401



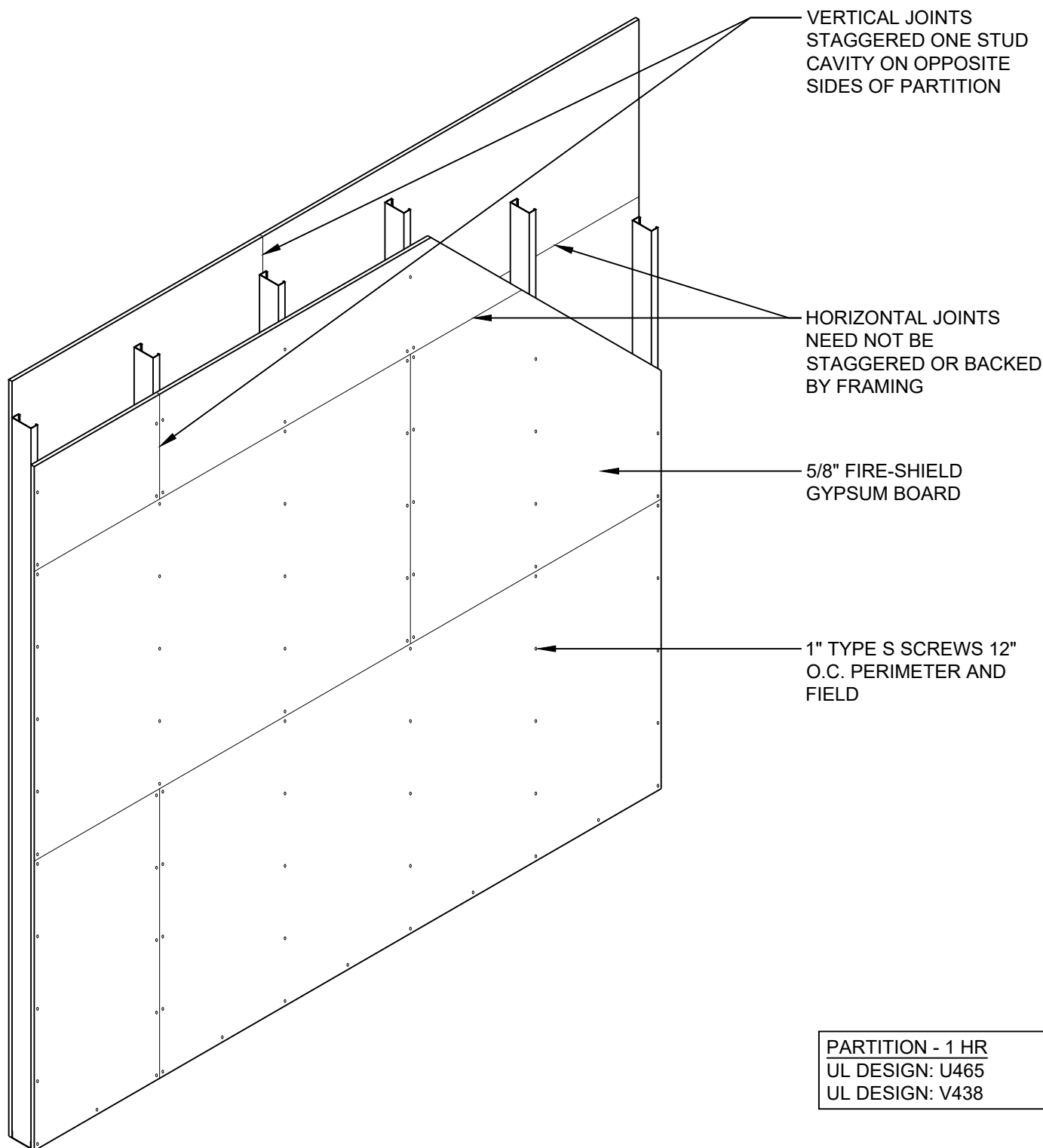
DATE: 09/01/18

1 HR PARTITION JOINT STAGGERING REQUIREMENTS

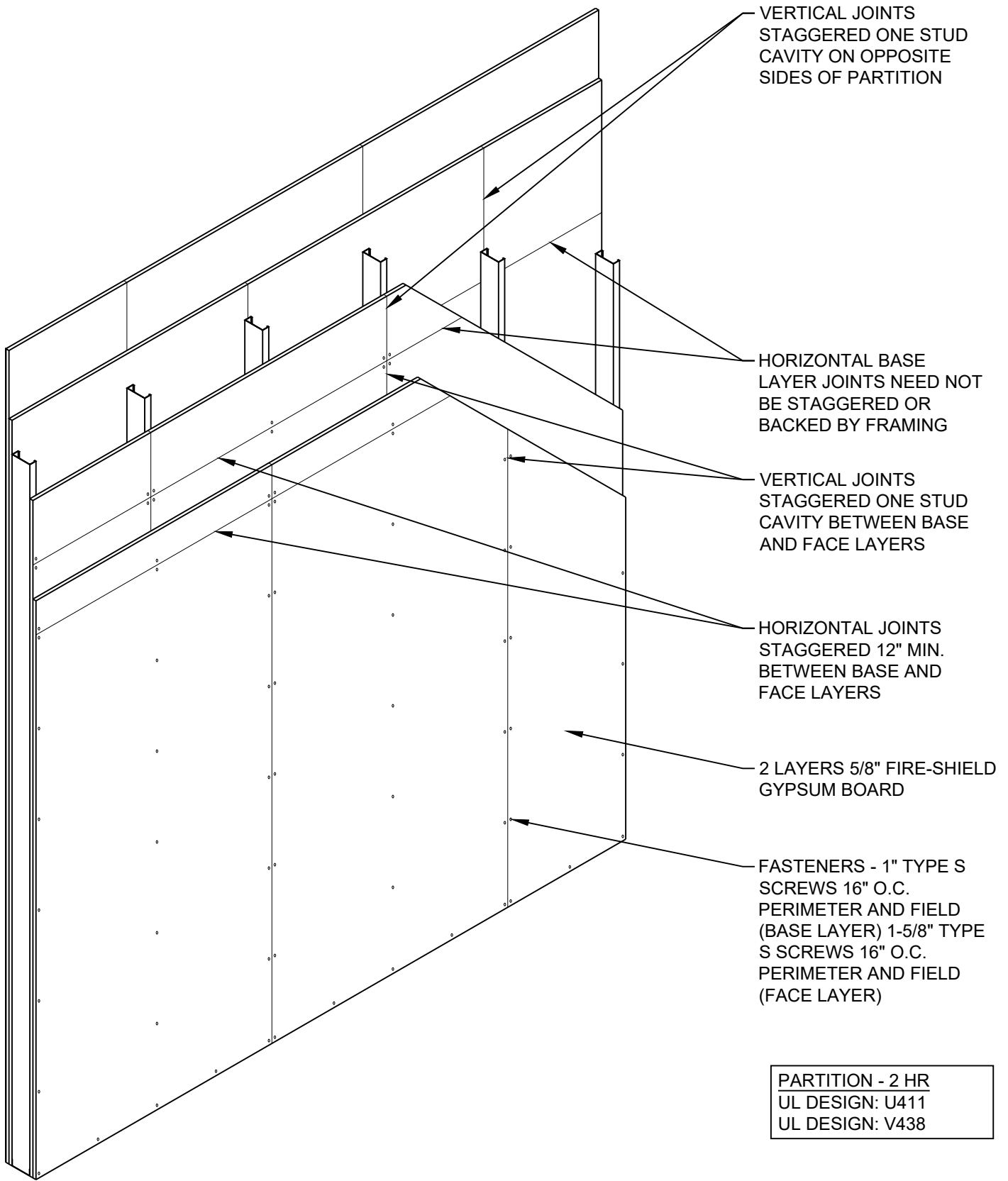
SCALE: 1/2"=1'-0"

DETAIL: SS 501





DATE: 09/01/18	1 HR PARTITION JOINT STAGGERING REQUIREMENTS	
SCALE: 1/2"=1'-0"	DETAIL: SS 502	



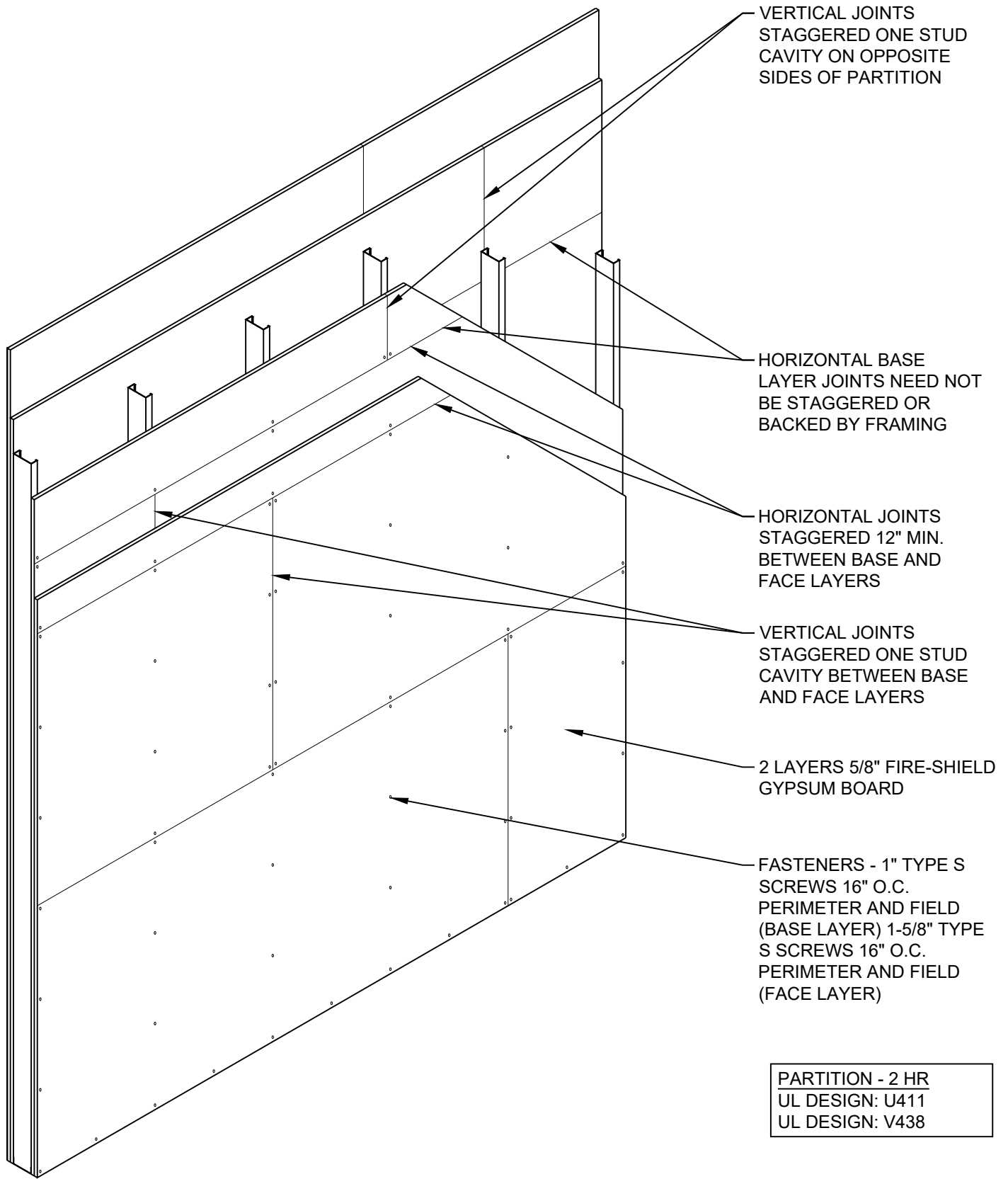
DATE: 09/01/18

2 HR PARTITION JOINT STAGGERING REQUIREMENTS

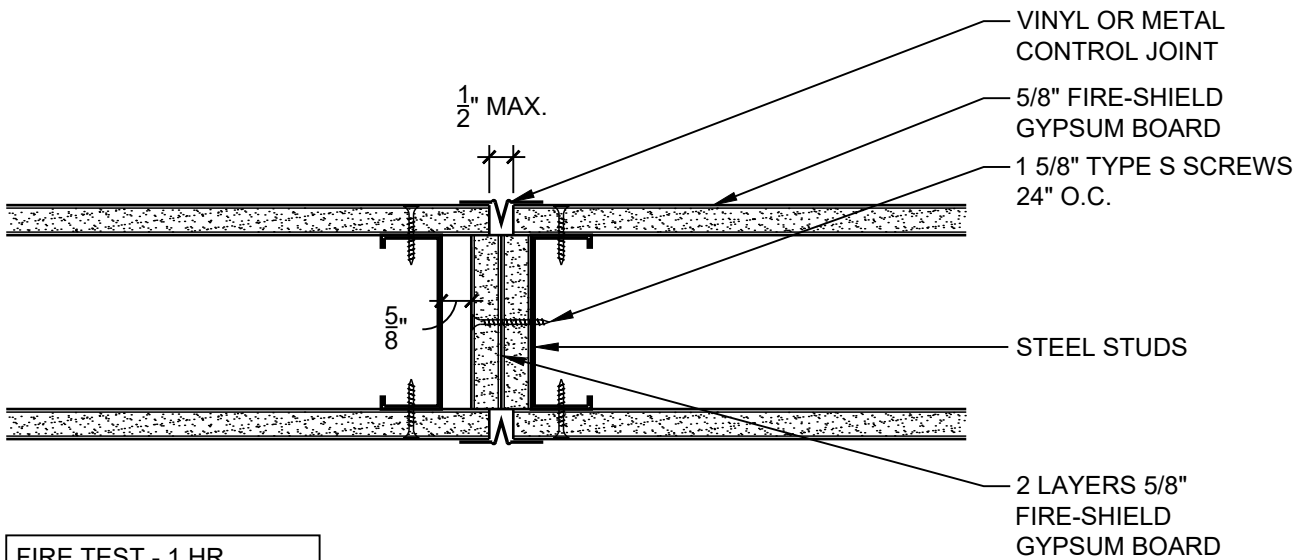
SCALE: 1/2"=1'-0"

DETAIL: SS 503

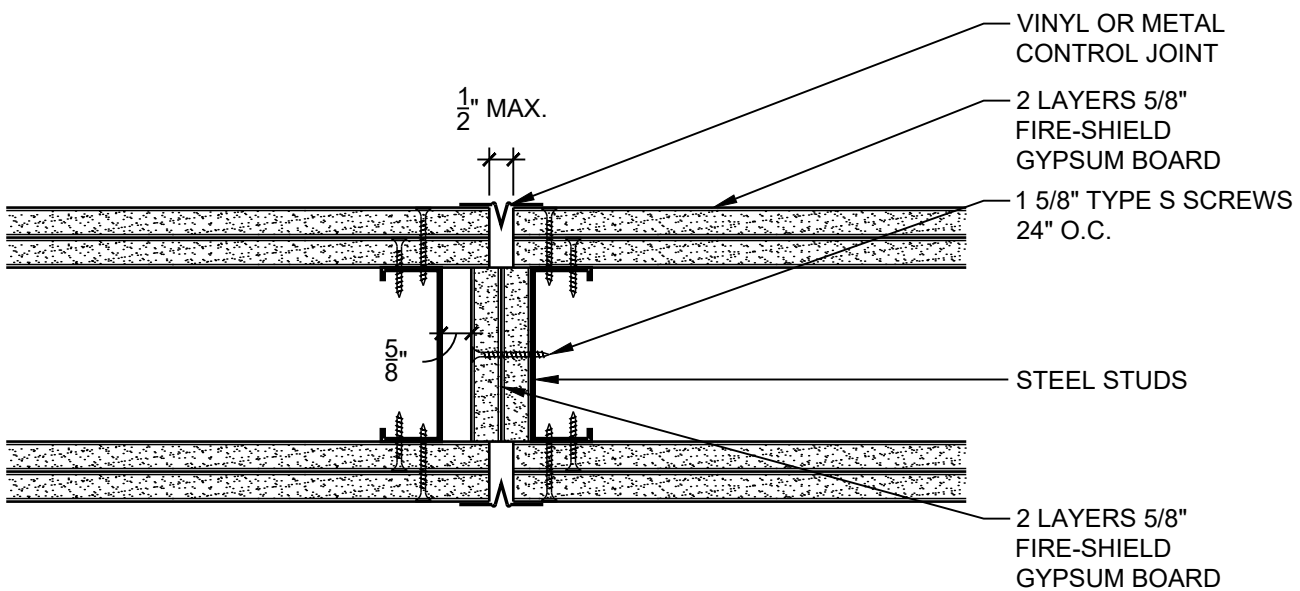




DATE: 09/01/18	2 HR PARTITION JOINT STAGGERING REQUIREMENTS	
SCALE: 1/2"=1'-0"	DETAIL: SS 504	



FIRE TEST - 1 HR
WHI-647-3024



FIRE TEST - 2 HR
WHI-651-0318.1

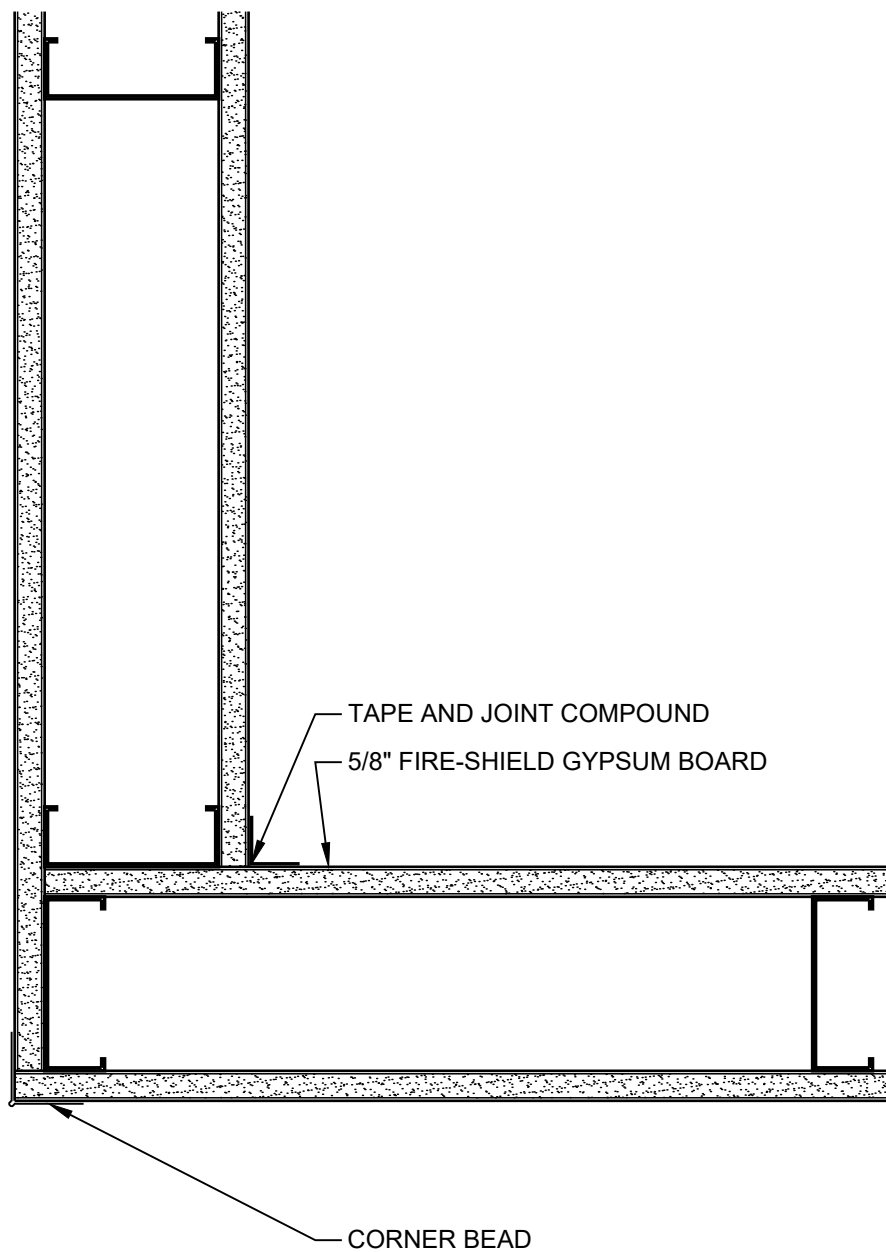
DATE: 09/01/18

CONTROL JOINTS FOR FIRE-RATED SYSTEMS

SCALE: 3"=1'-0"

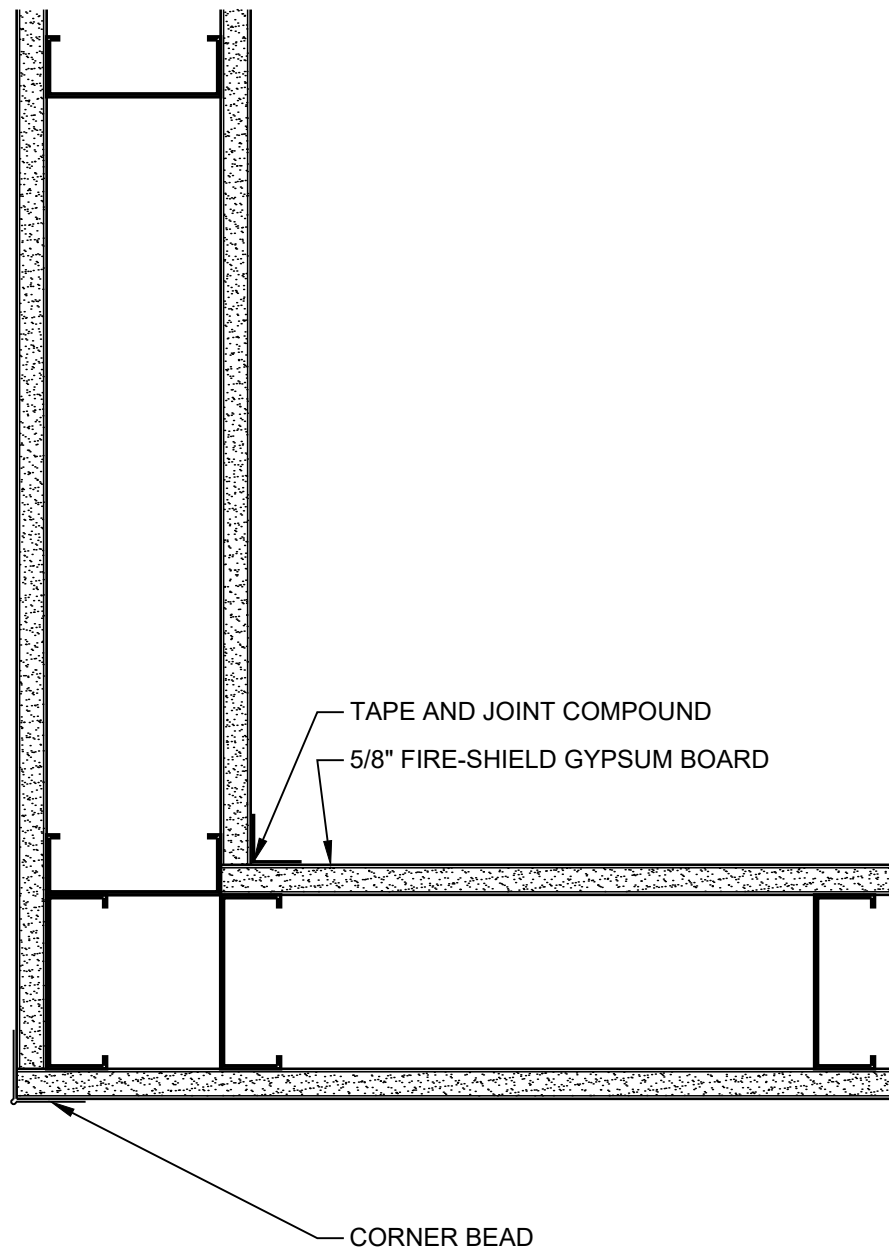
DETAIL: SS 505

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PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438

DATE: 09/01/18	1 HOUR PARTITION CORNER DETAIL	
SCALE: 3"=1'-0"	DETAIL: SS 601	



PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438

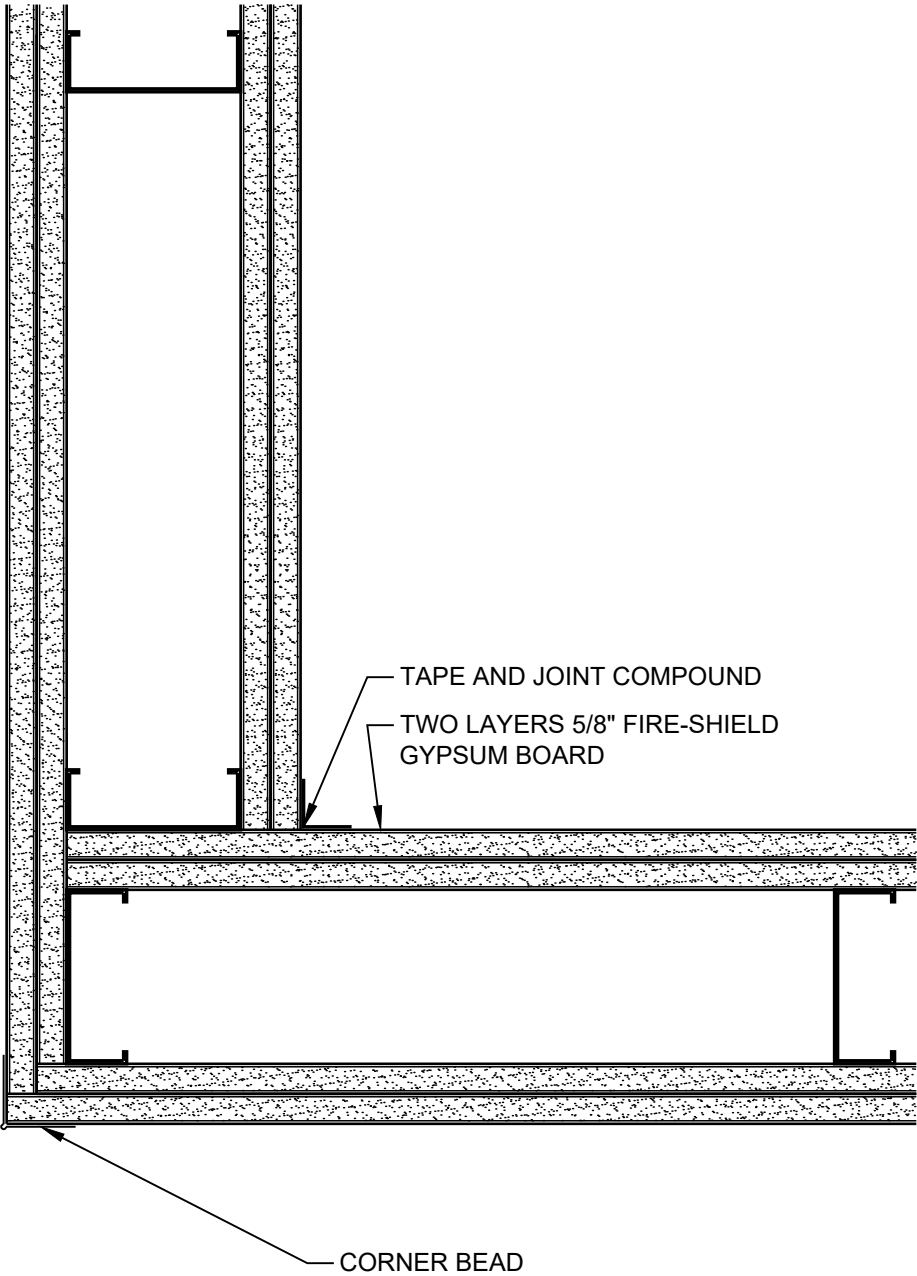
DATE: 09/01/18

1 HOUR PARTITION CORNER DETAIL

SCALE: 3"=1'-0"

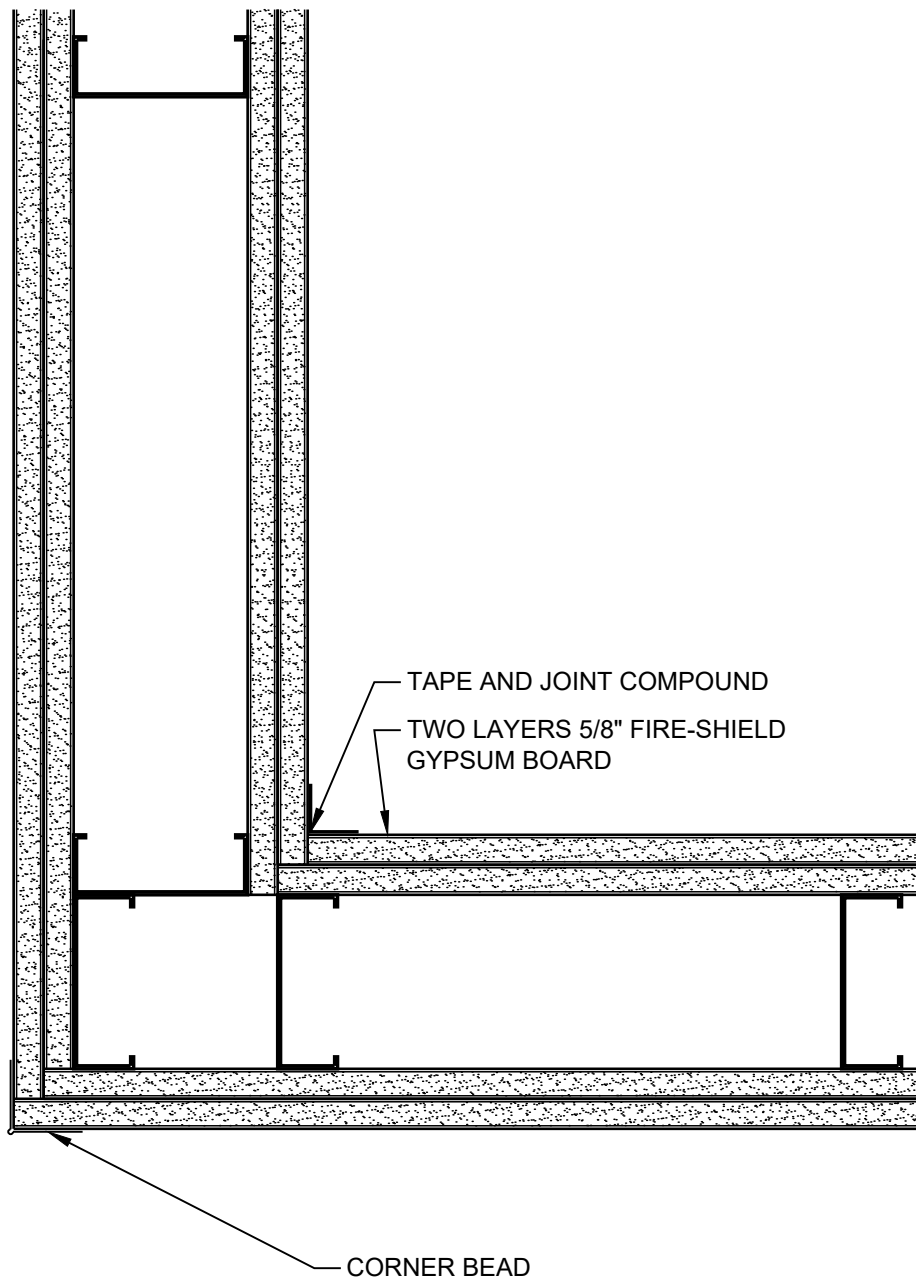
DETAIL: SS 602

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PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438

DATE: 09/01/18	2 HOUR PARTITION CORNER DETAIL	
SCALE: 3"=1'-0"	DETAIL: SS 603	



PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438

DATE: 09/01/18

2 HOUR PARTITION CORNER DETAIL

SCALE: 3"=1'-0"

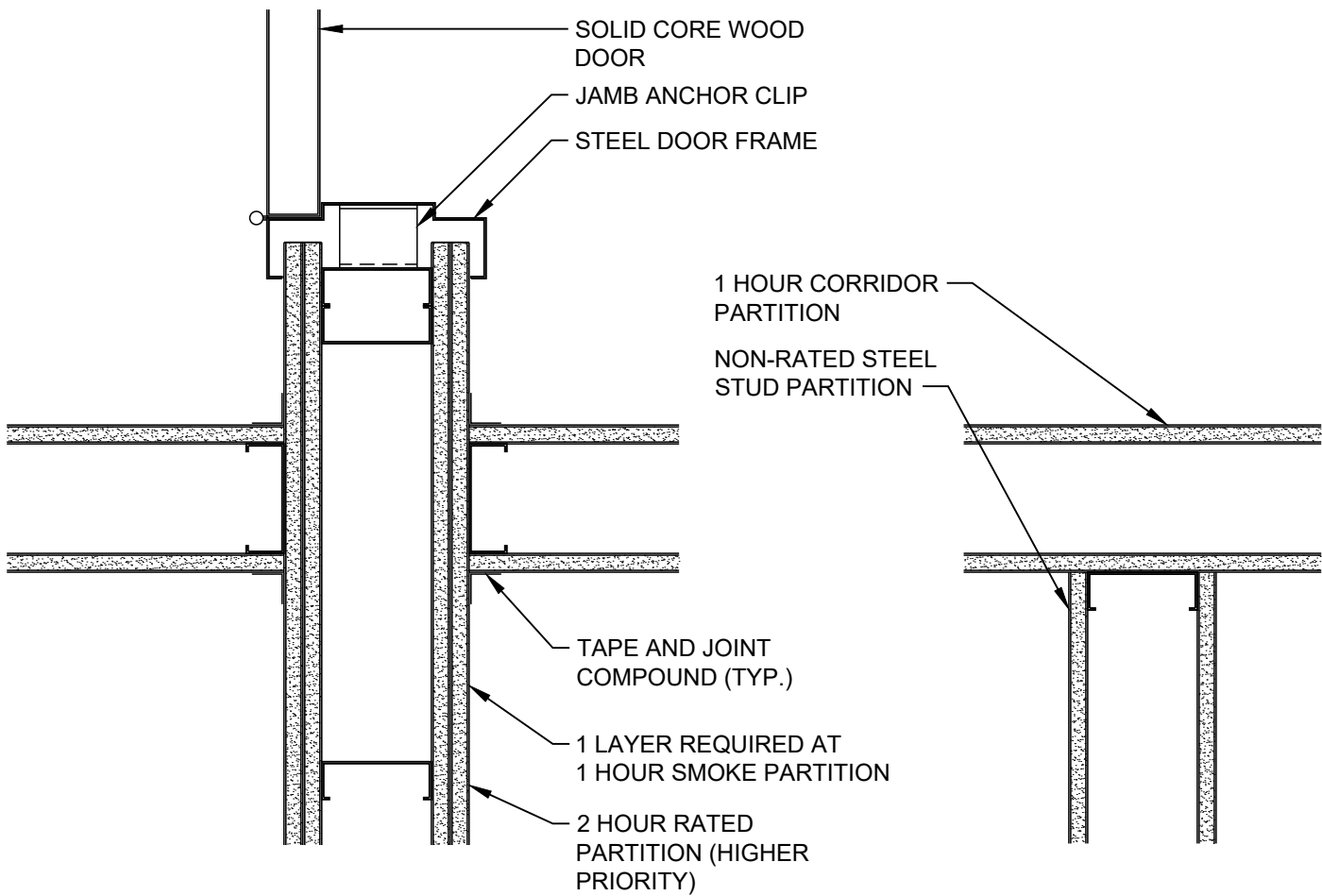
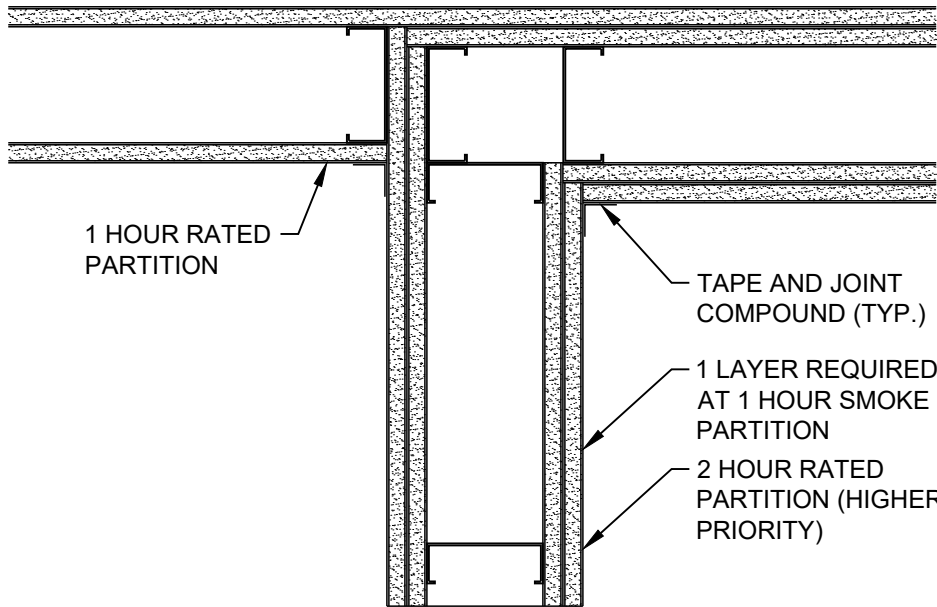
DETAIL: SS 604

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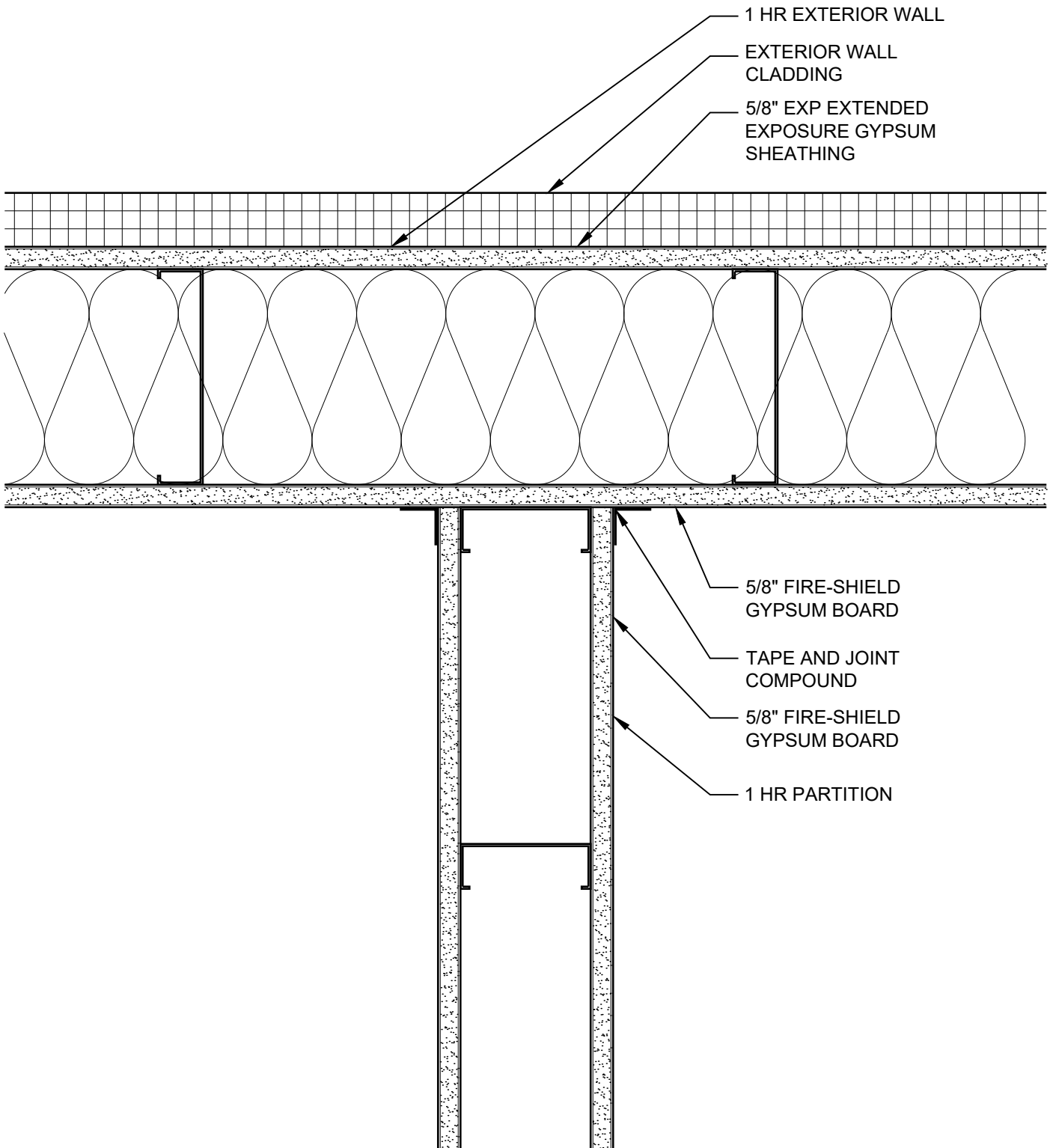
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PARTITION - 1 HR
UL DESIGN: U465
UL DESIGN: V438

PARTITION - 2 HR
UL DESIGN: U411
UL DESIGN: V438



DATE: 09/01/18	INTERSECTIONS OF RATED PARTITIONS	
SCALE: 2"=1'-0"	DETAIL: SS 610	



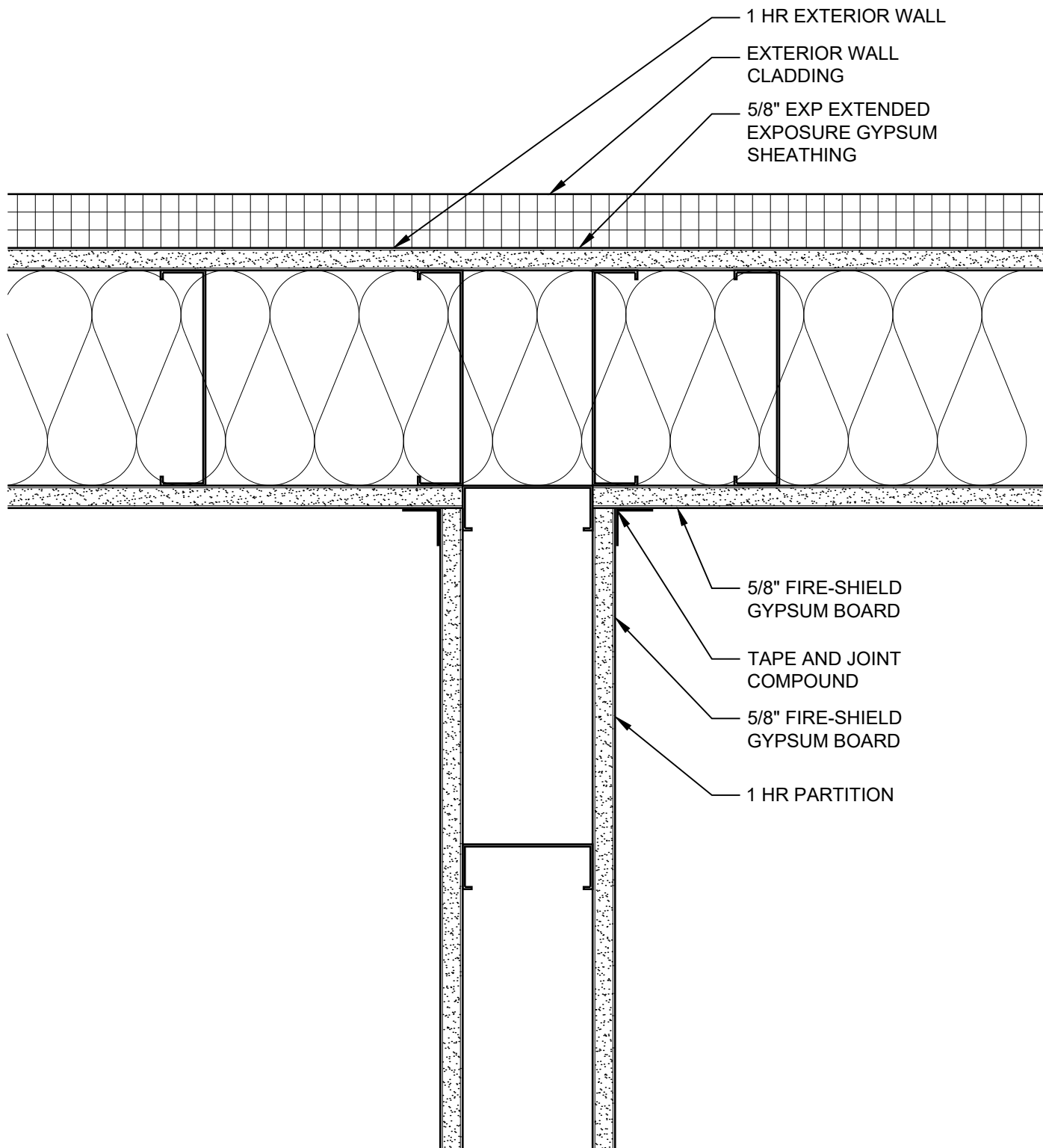
DATE: 09/01/18


1 HOUR PARTITION AT 1 HOUR EXTERIOR WALL

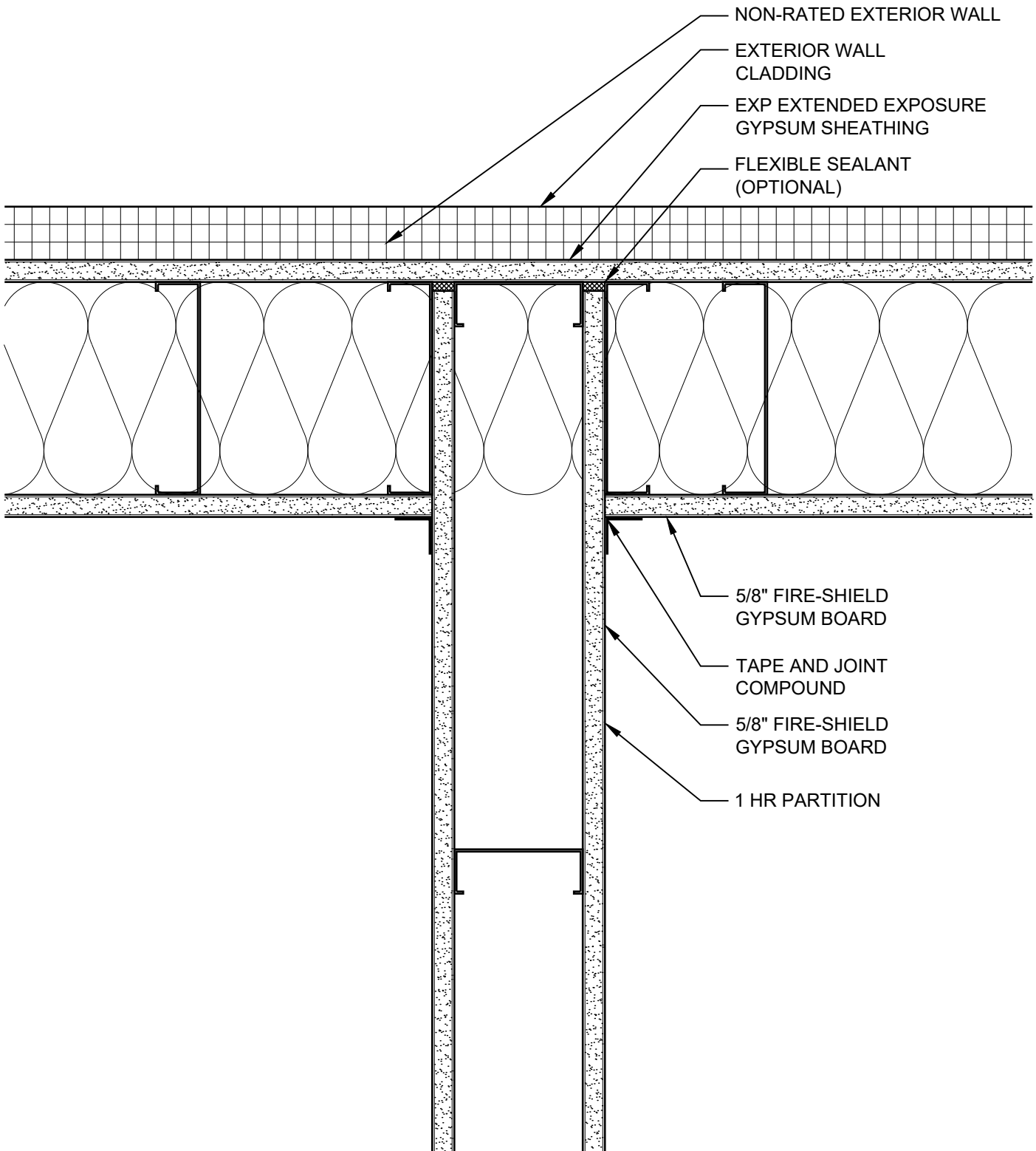
SCALE: 3"=1'-0"

DETAIL: SS 611

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DATE: 09/01/18	1 HOUR PARTITION AT 1 HOUR EXTERIOR WALL	
SCALE: 3"=1'-0"	DETAIL: SS 612	



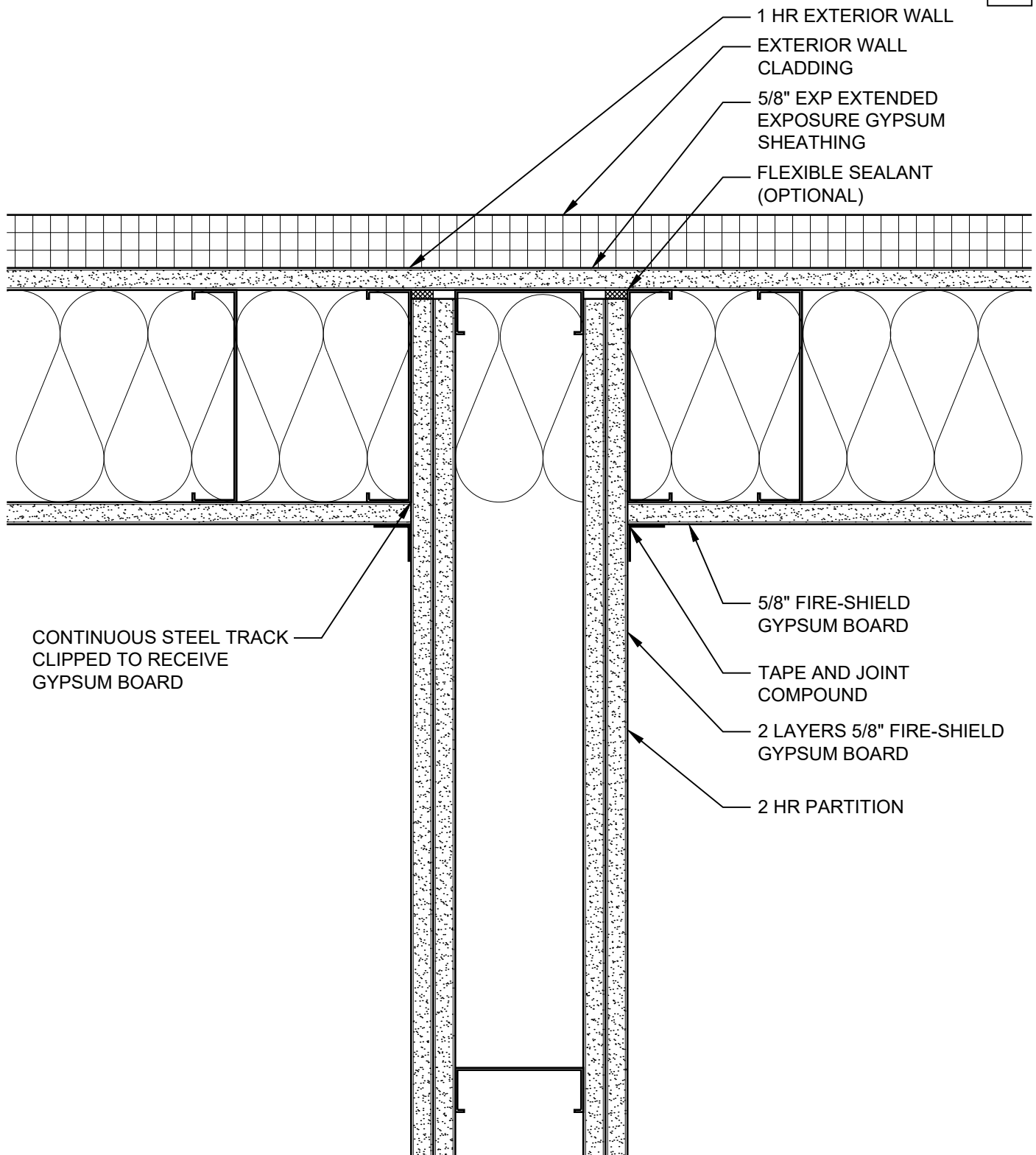
DATE: 09/01/18

1 HOUR PARTITION AT NON-RATED EXTERIOR WALL

SCALE: 3"=1'-0"

DETAIL: SS 613

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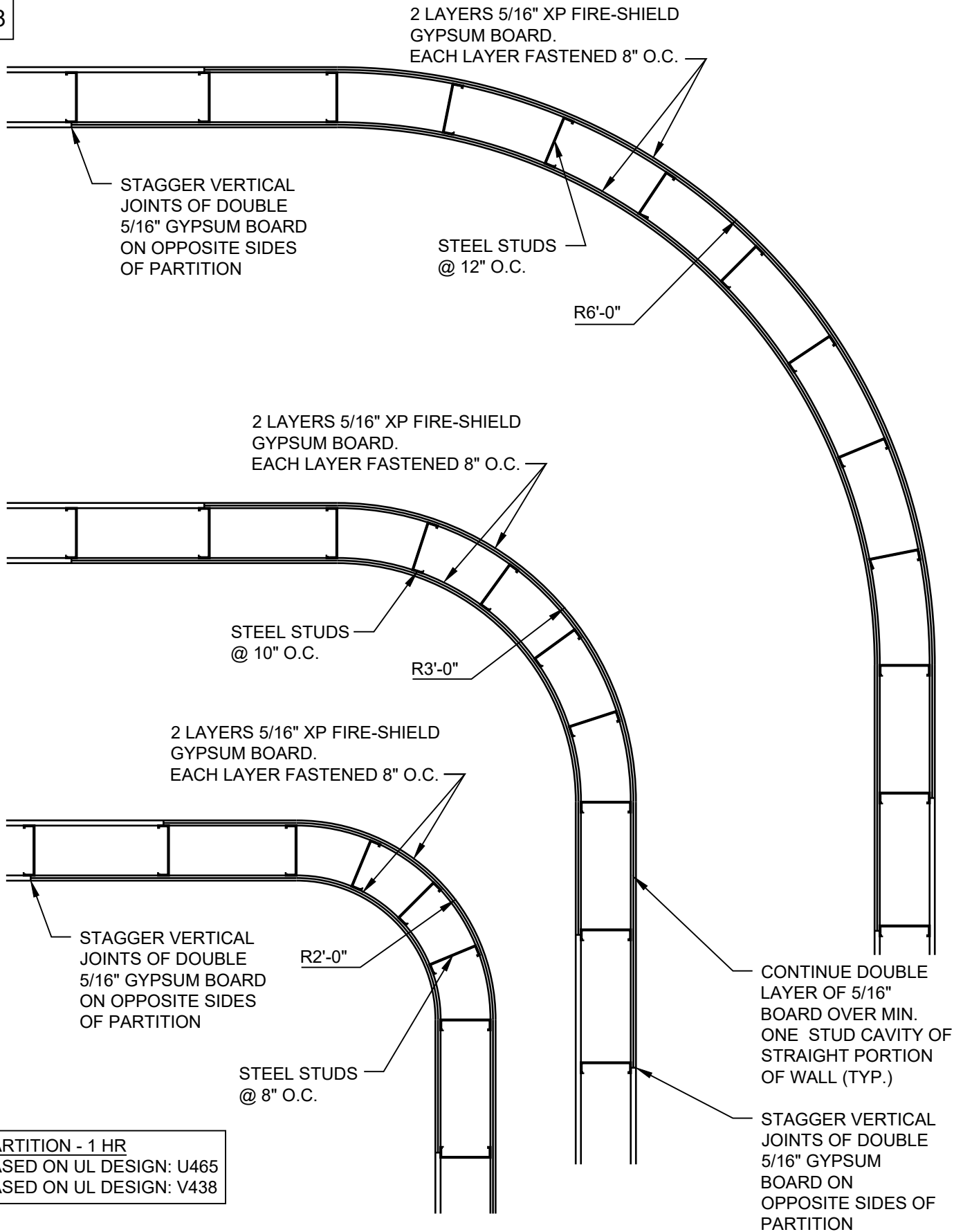
DATE: 09/01/18

2 HOUR PARTITION AT 1 HOUR EXTERIOR WALL

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SCALE: 3"=1'-0"

DETAIL: SS 614

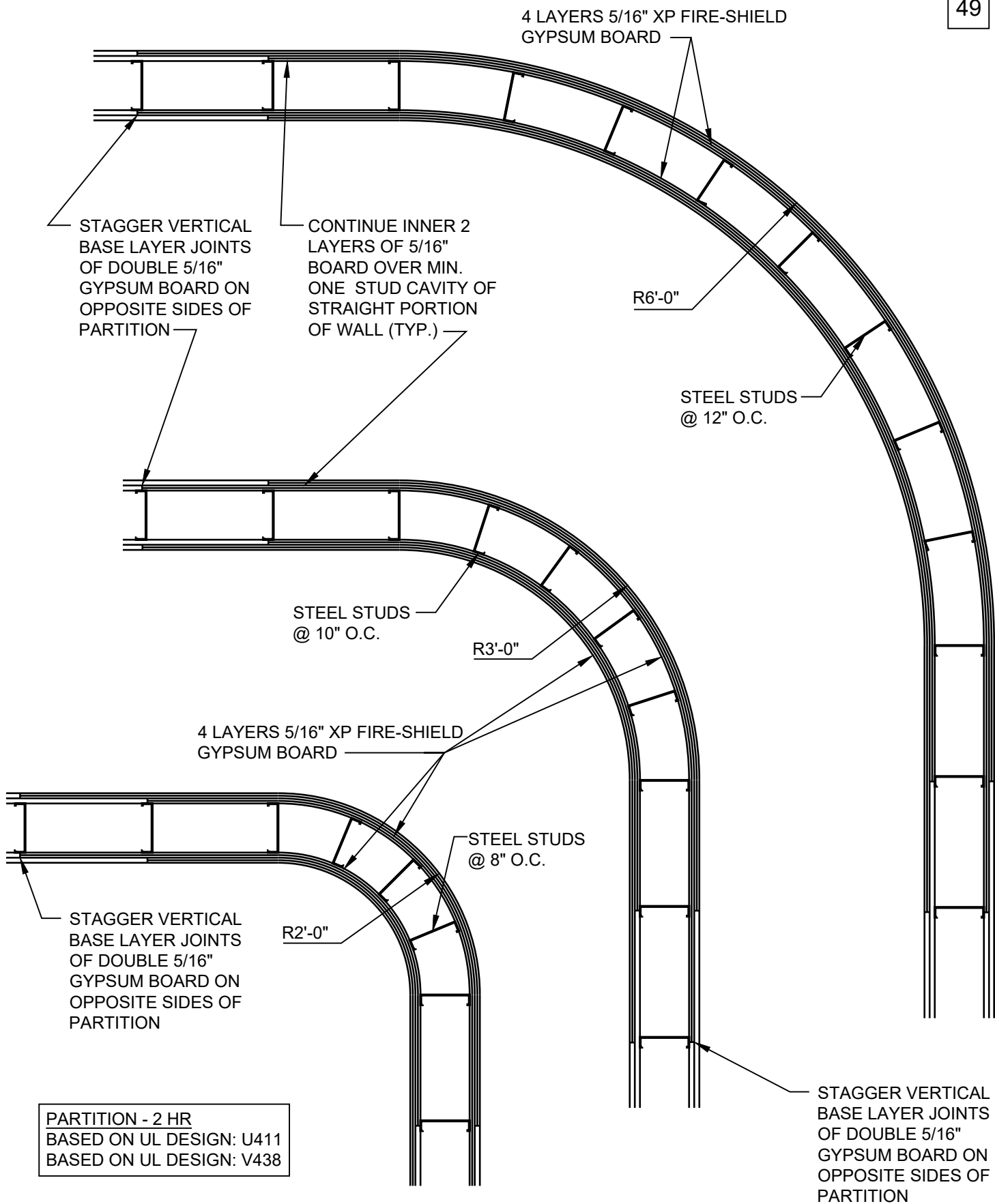


DATE: 09/01/18

1 HOUR RATED CURVED CORNER DETAILS

SCALE: 3/4"=1'-0"

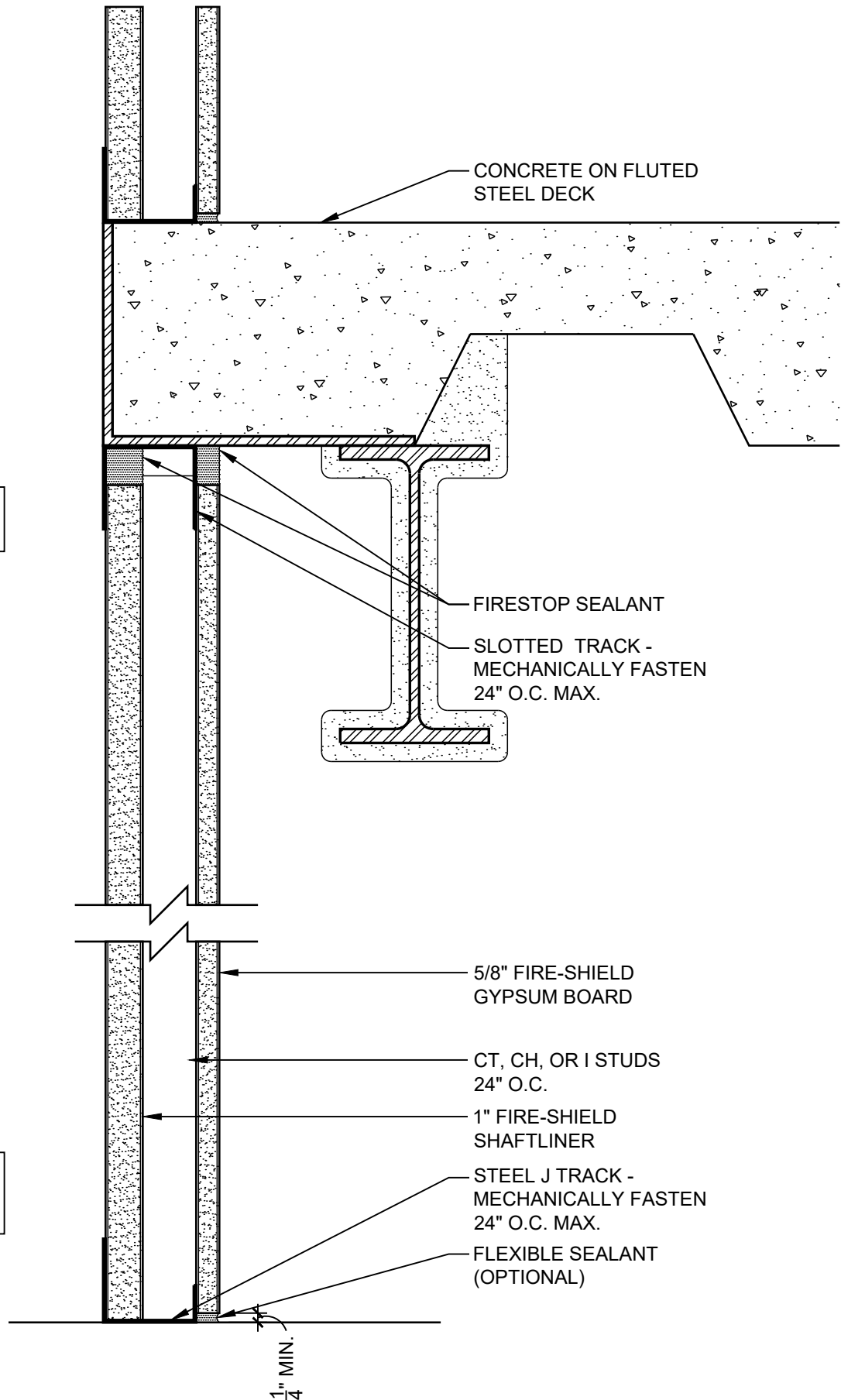
DETAIL: SS 615



DATE: 09/01/18	2 HOUR RATED CURVED CORNER DETAILS	
SCALE: 3/4"=1'-0"	DETAIL: SS 616	

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0194

PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419



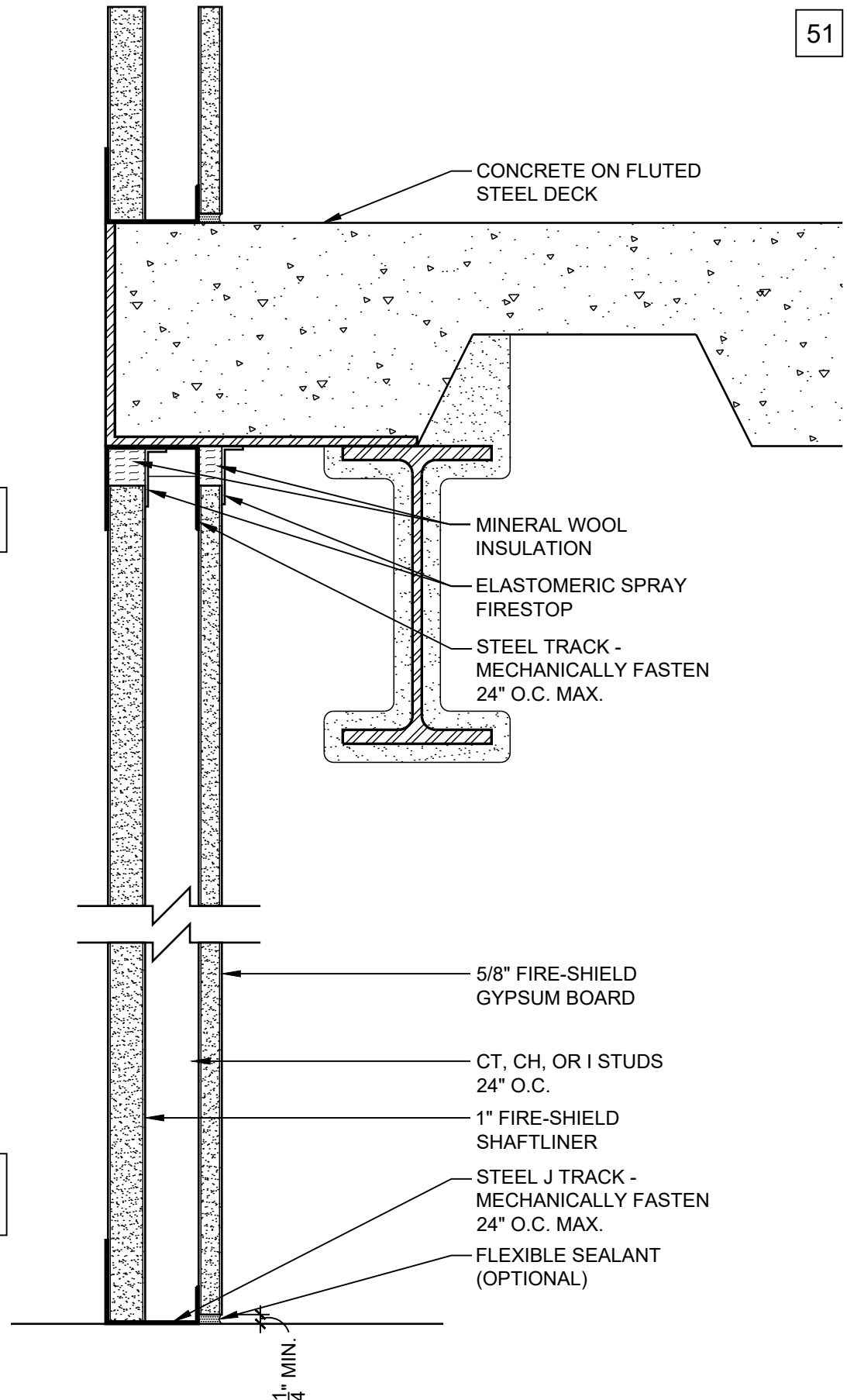
DATE: 09/01/18


1 HOUR SHAFTWALL WITH DEFLECTION TRACK

SCALE: 3"=1'-0"

DETAIL: SW 102

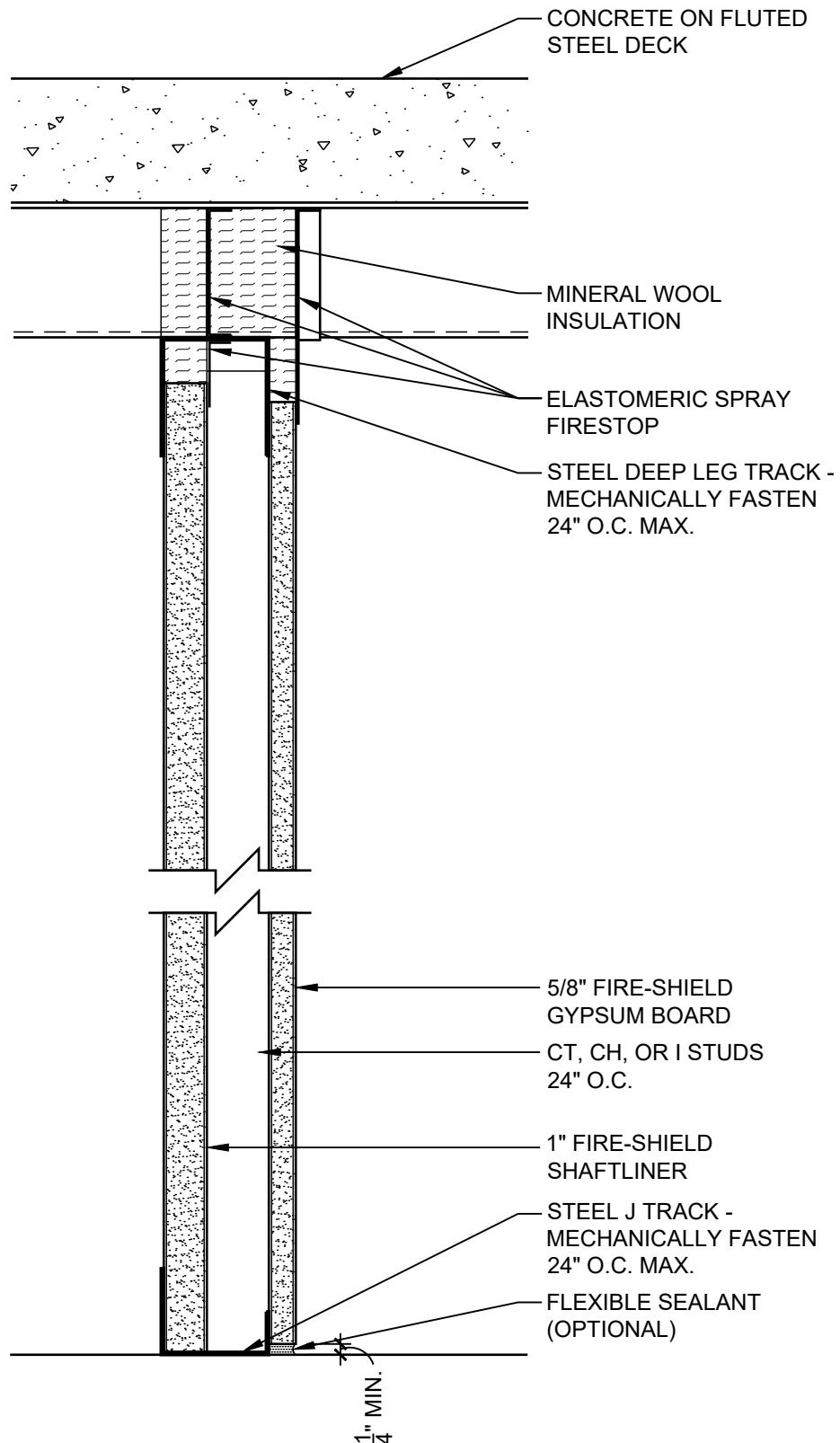
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DATE: 09/01/18	1 HOUR SHAFTWALL WITH DEFLECTION TRACK	
SCALE: 3"=1'-0"	DETAIL: SW 103	

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0548

PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419



DATE: 09/01/18

1 HOUR SHAFTWALL TO STEEL DECK

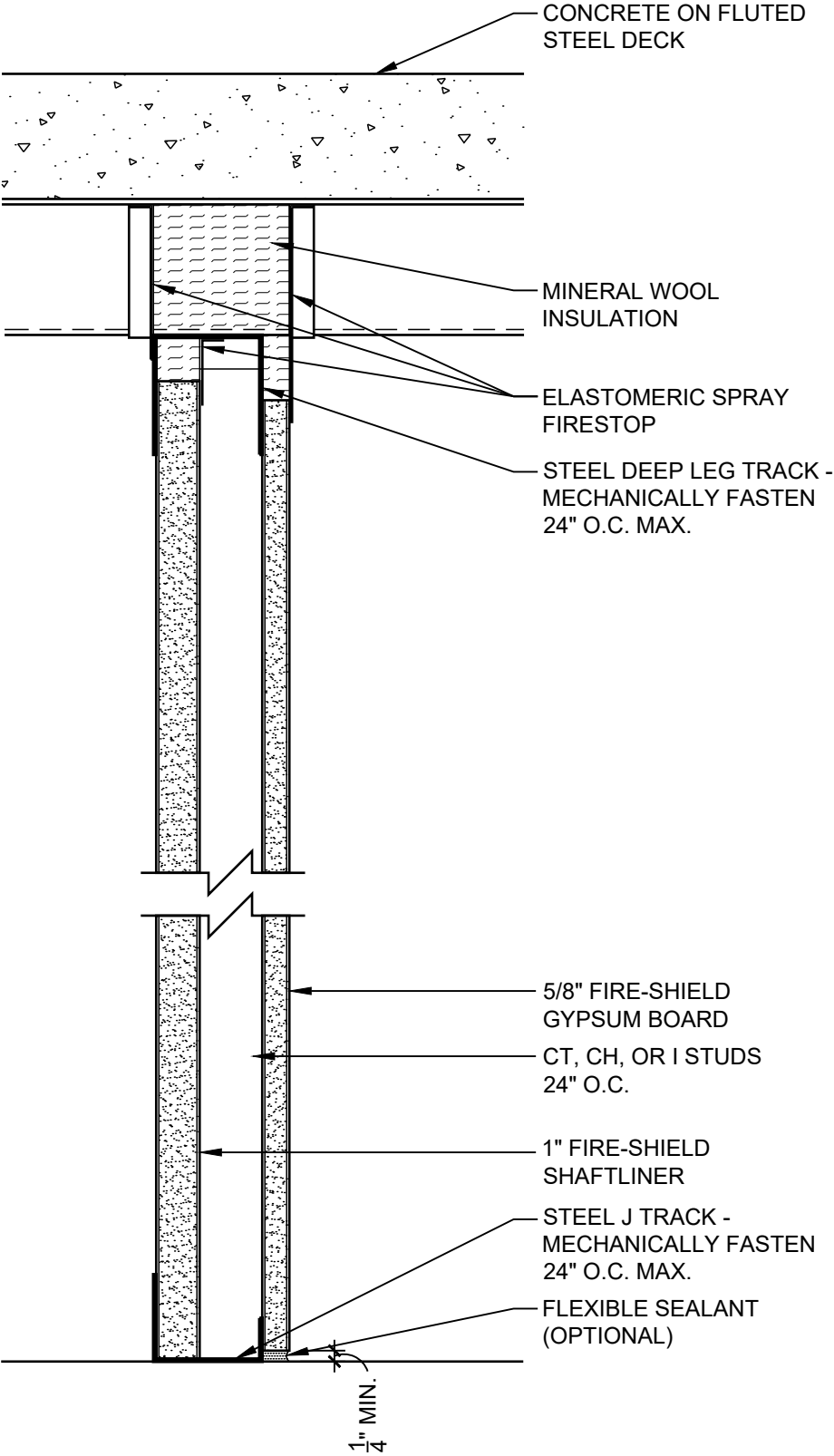
SCALE: 3"=1'-0"

DETAIL: SW 104

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HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0569

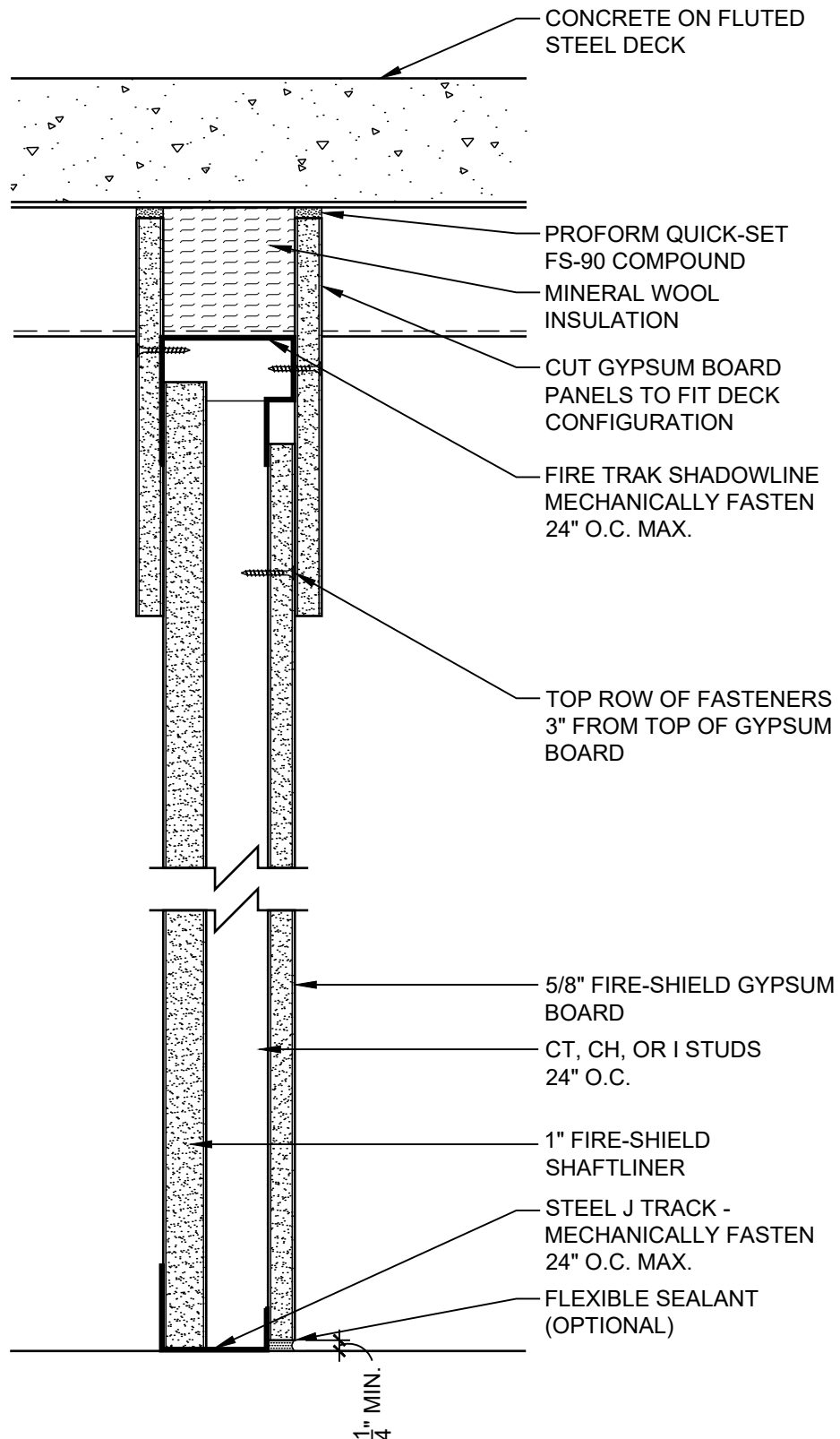
PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419



DATE: 09/01/18	1 HOUR SHAFTWALL TO STEEL DECK	
SCALE: 3"=1'-0"	DETAIL: SW 105	

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0119

PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419



DATE: 09/01/18

1 HOUR SHAFTWALL WITH DEFLECTION TRACK

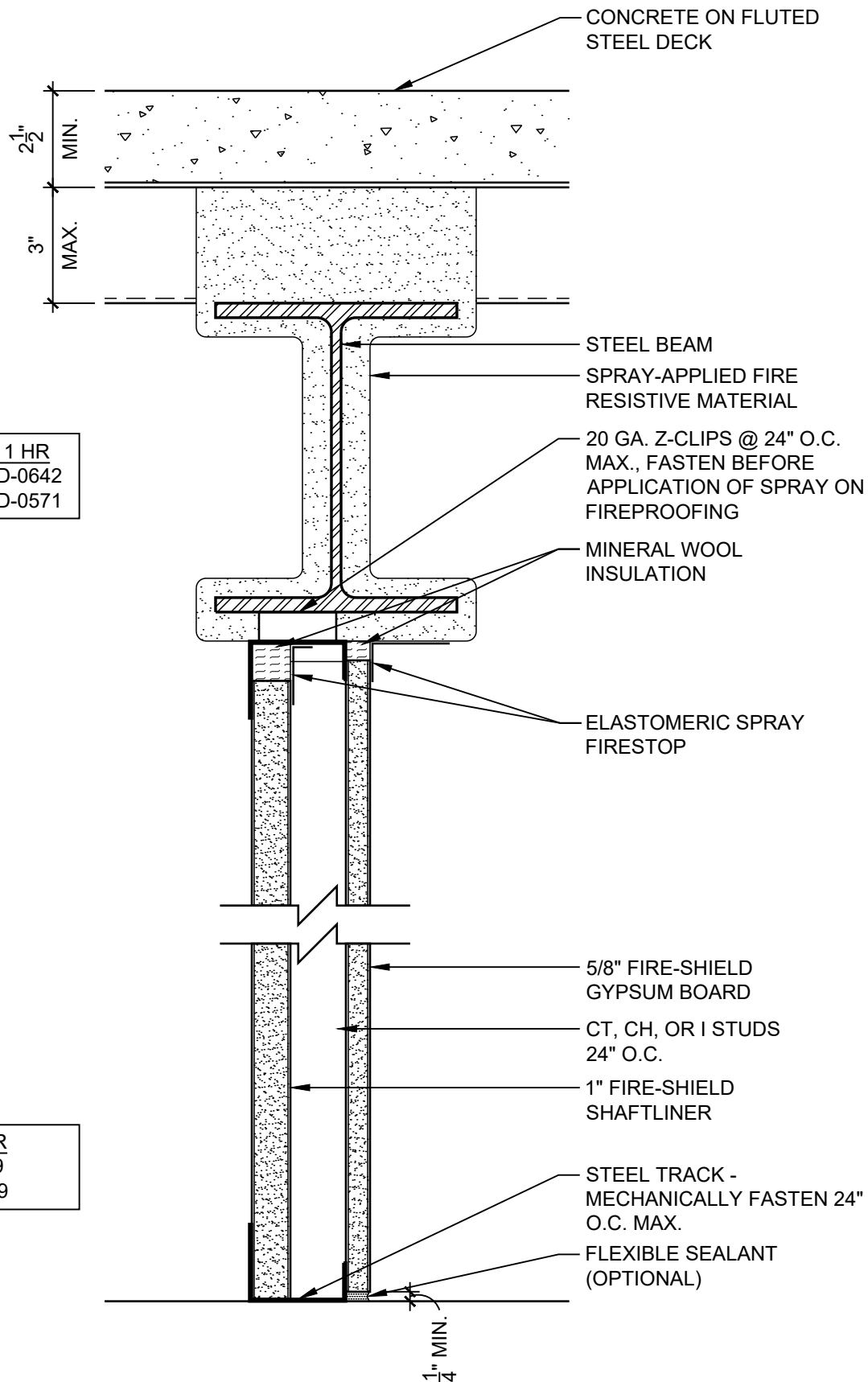
SCALE: 3"=1'-0"

DETAIL: SW 106

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HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0642
UL DESIGN: HW-D-0571

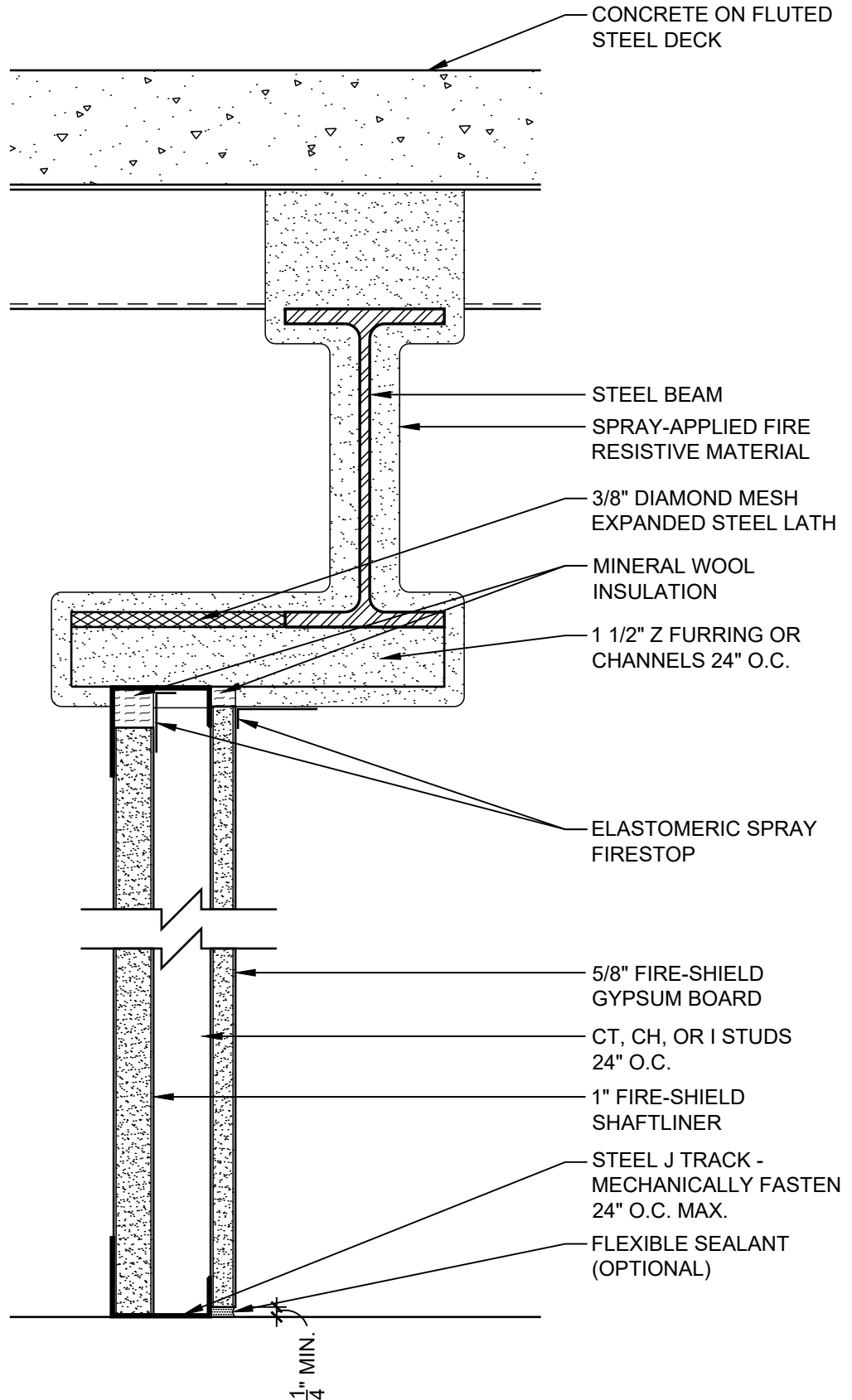
PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419



DATE: 09/01/18	1 HOUR SHAFTWALL PARTITION TO STEEL BEAM	
SCALE: 3"=1'-0"	DETAIL: SW 107	

HEAD OF WALL - 1 HR
UL DESIGN: HW-D-0645
UL DESIGN: HW-D-0636

PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419



DATE: 09/01/18

1 HOUR SHAFTWALL PARTITION OFFSET FROM BEAM

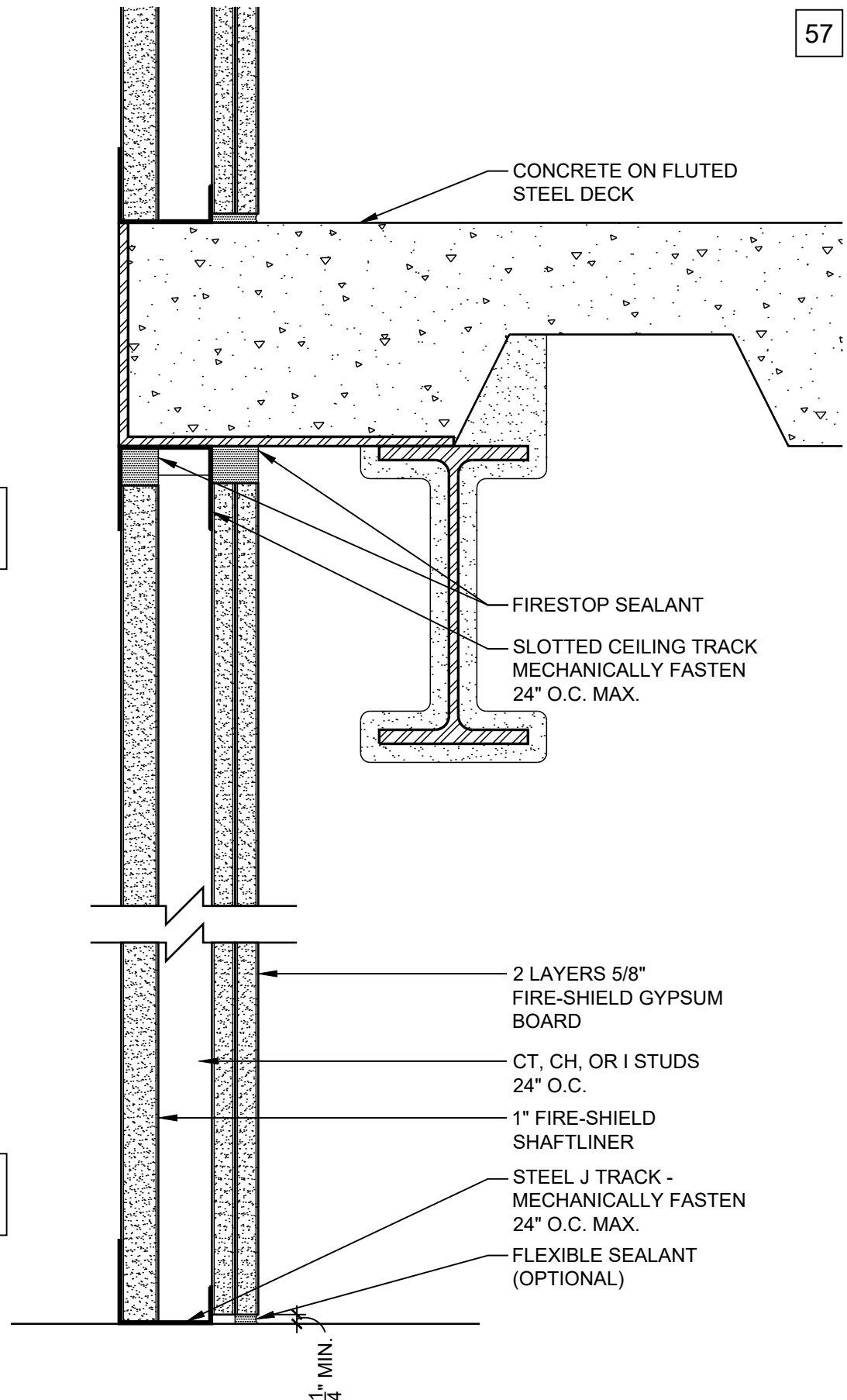
SCALE: 3"=1'-0"

DETAIL: SW 108

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HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0194
UL DESIGN: HW-D-0342

PARTITION - 2 HR
UL DESIGN: U497
UL DESIGN: W419



DATE: 09/01/18

2 HOUR SHAFTWALL WITH DEFLECTION TRACK

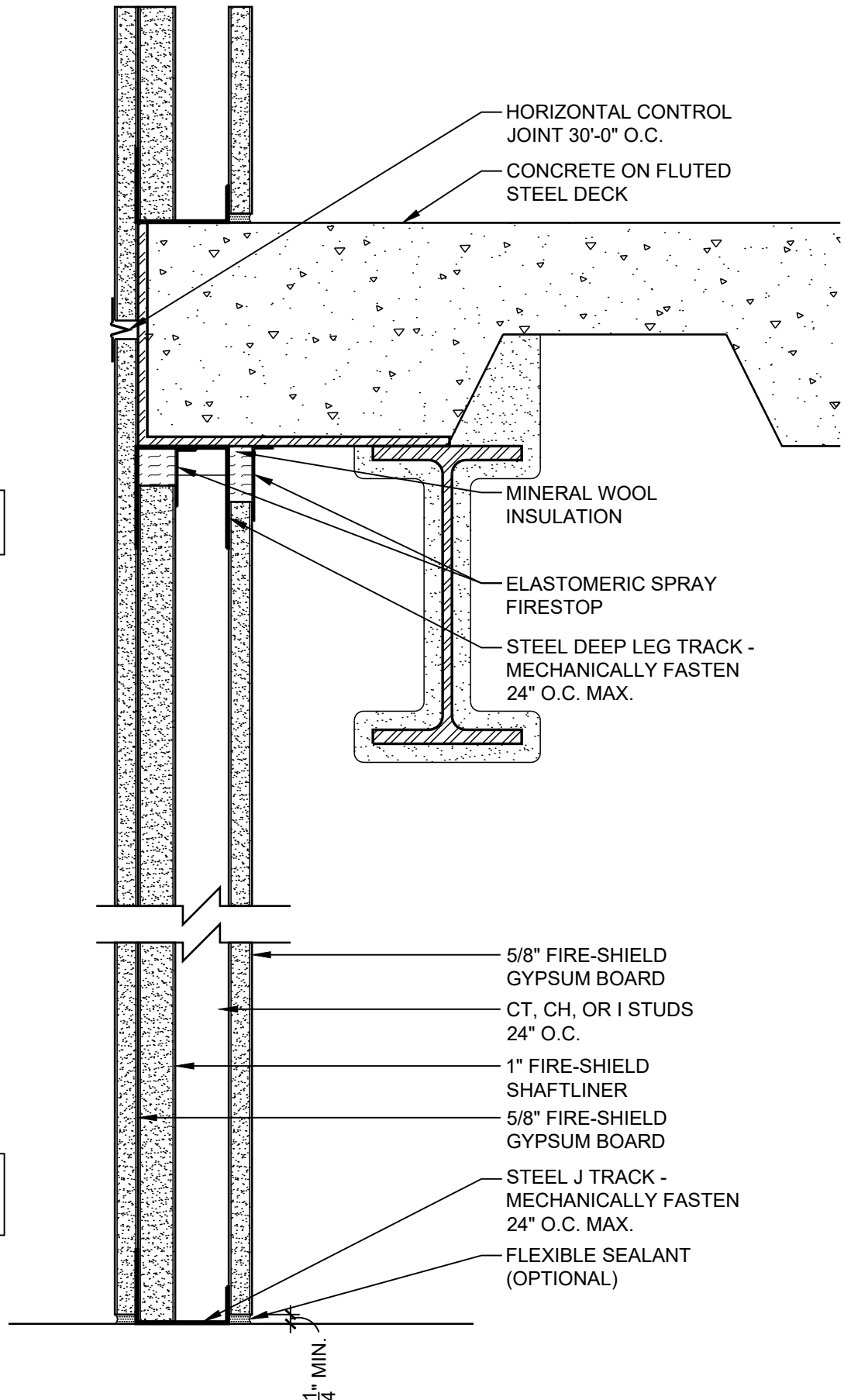
SCALE: 3"=1'-0"

DETAIL: SW 203

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HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0548

PARTITION - 2 HR
UL DESIGN: U498
UL DESIGN: W419



DATE: 09/01/18

2 HOUR SHAFTWALL PARTITION AT STAIR

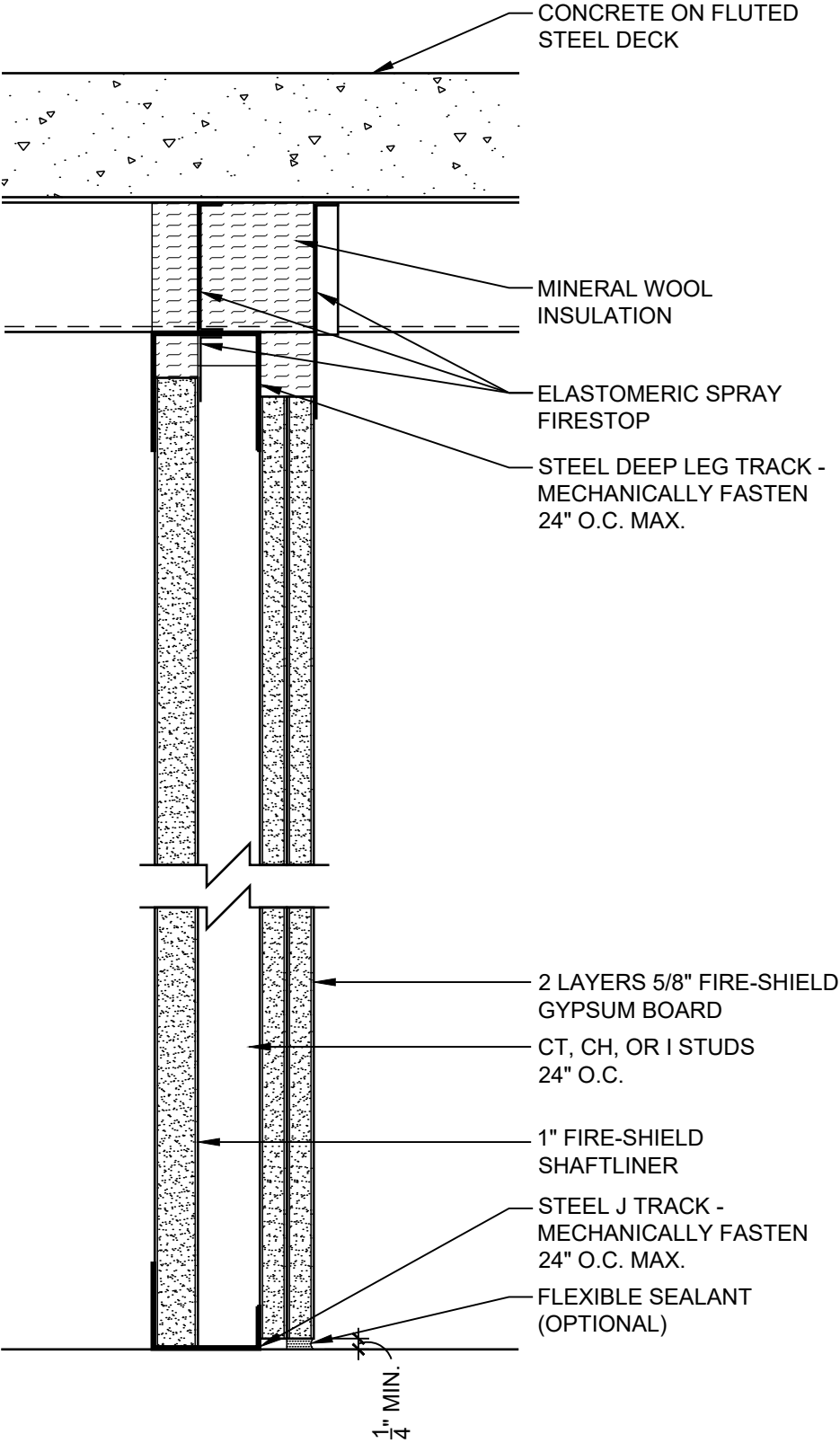
SCALE: 3"=1'-0"

DETAIL: SW 204

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HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0548

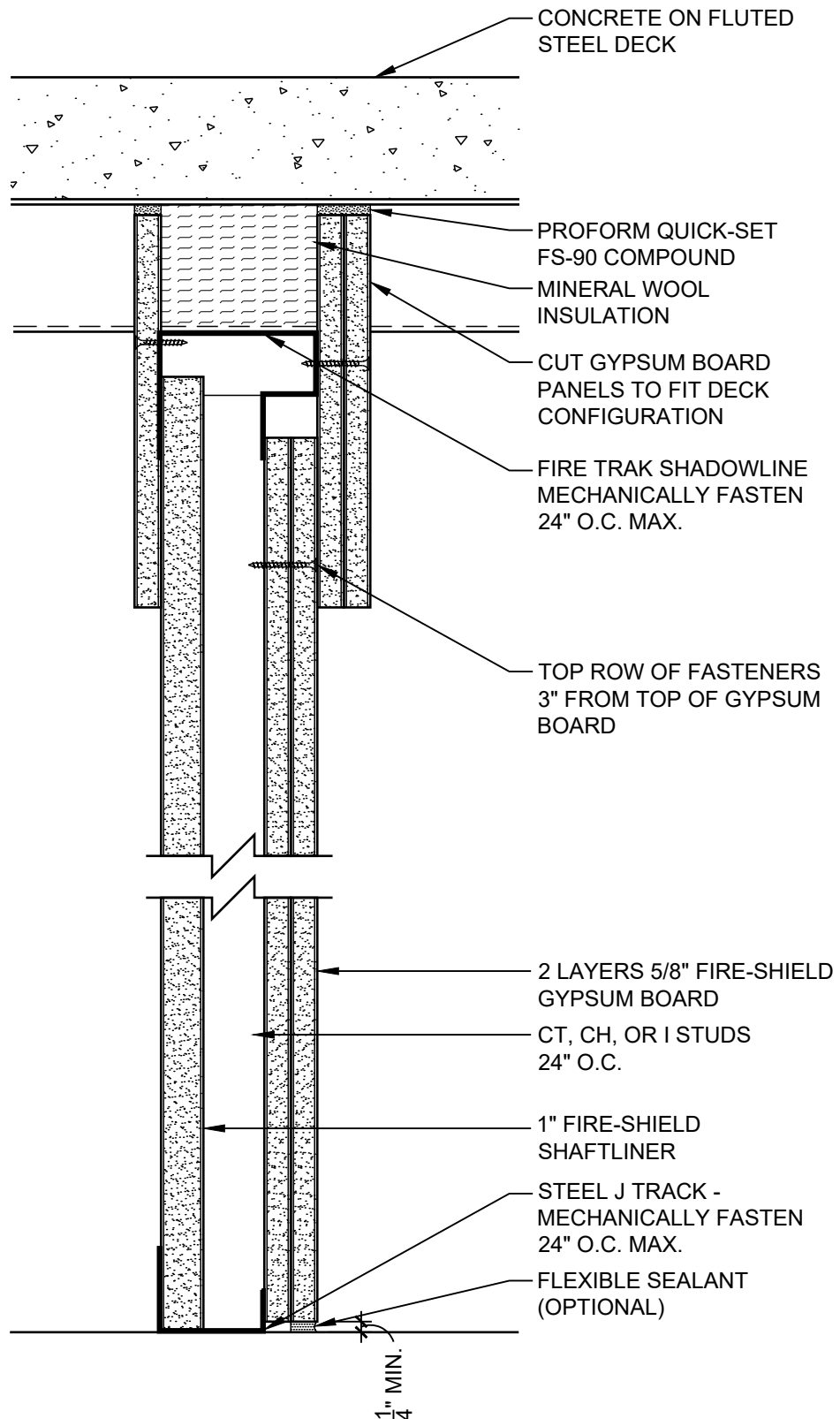
PARTITION - 2 HR
UL DESIGN: U497
UL DESIGN: W419



DATE: 09/01/18	2 HOUR SHAFTWALL TO STEEL DECK	
SCALE: 3"=1'-0"	DETAIL: SW 205	

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0119

PARTITION - 2 HR
UL DESIGN: U497
UL DESIGN: W419



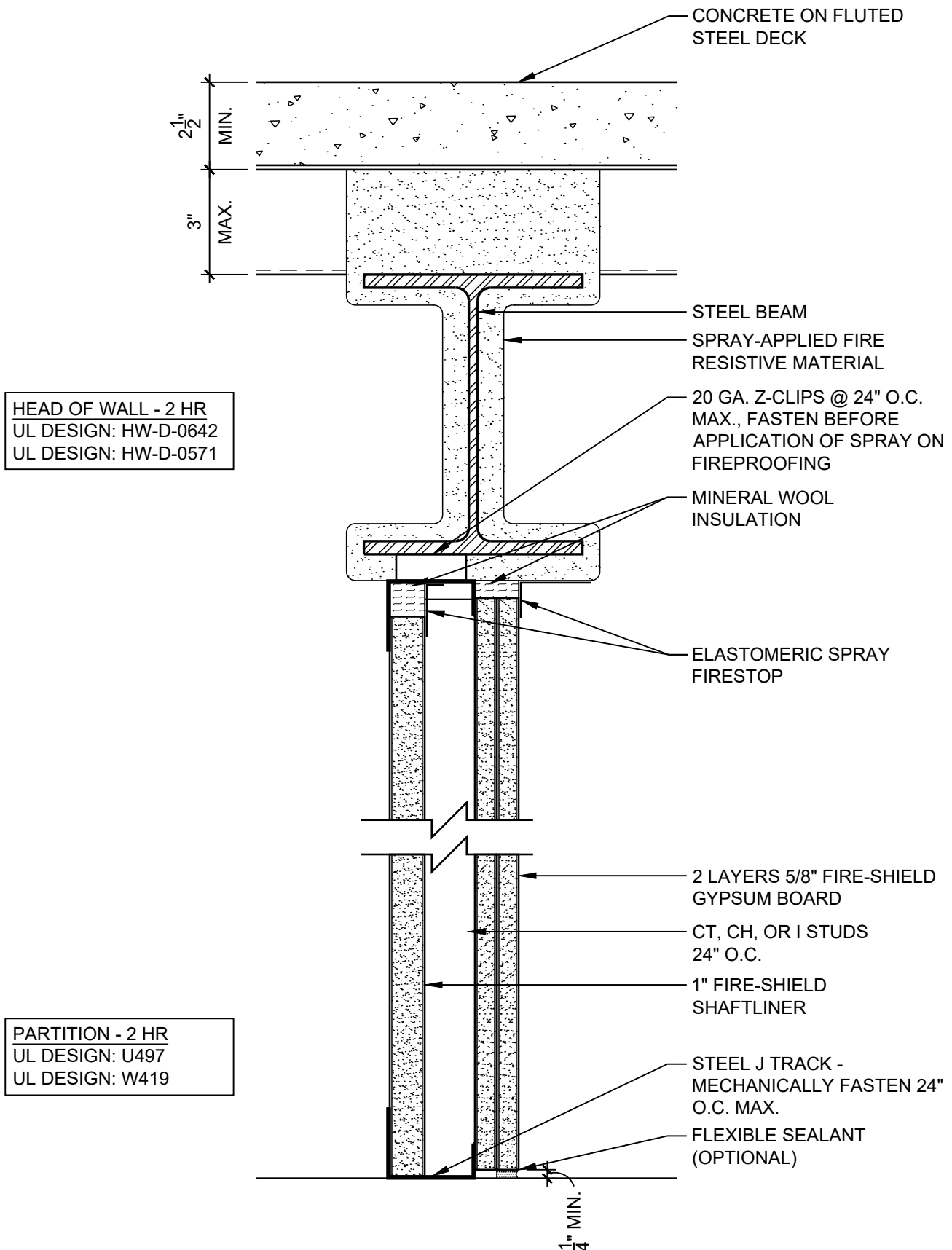
DATE: 09/01/18

2 HOUR SHAFTWALL WITH DEFLECTION TRACK

SCALE: 3"=1'-0"

DETAIL: SW 206

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DATE: 09/01/18

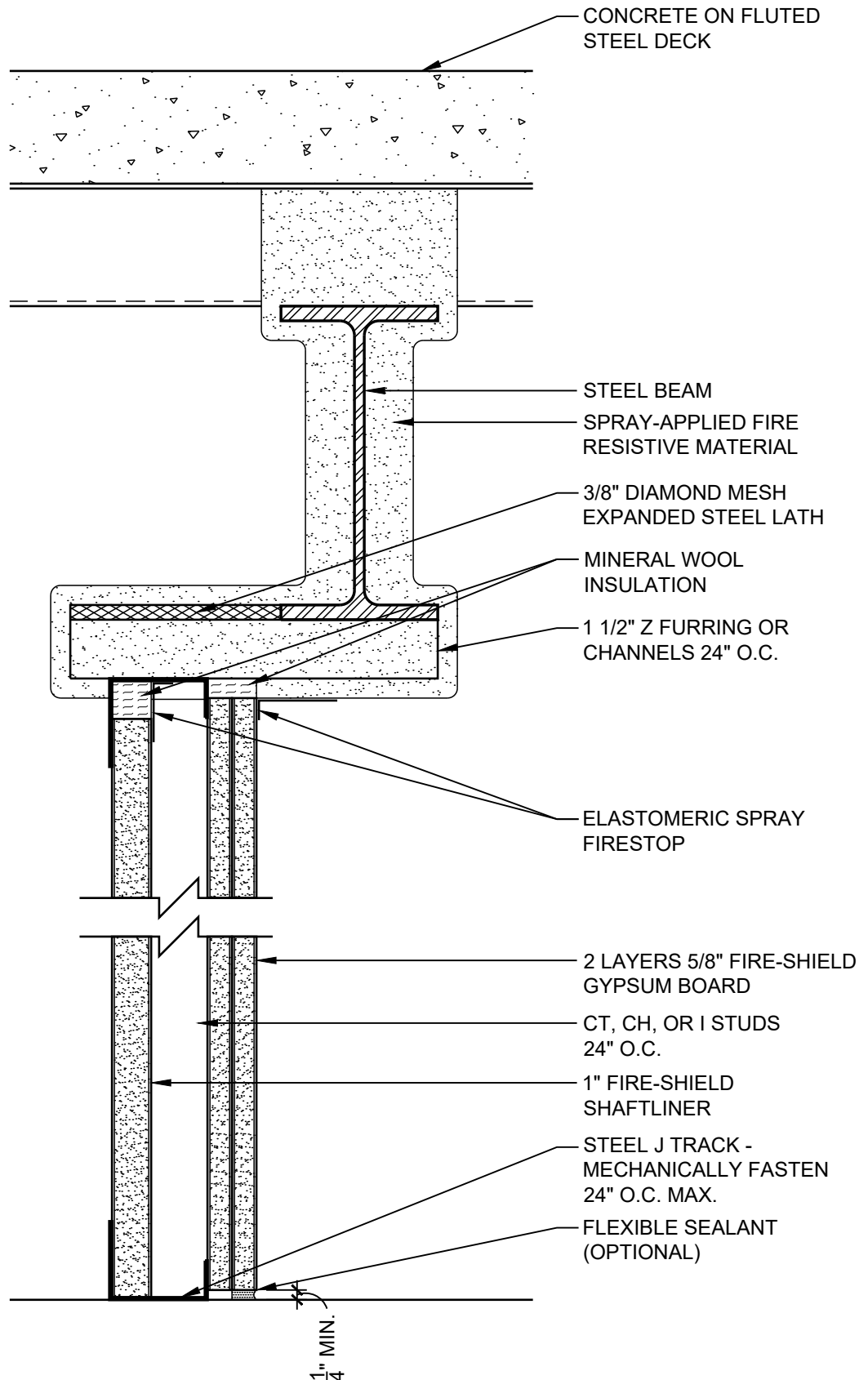
2 HOUR SHAFTWALL PARTITION TO STEEL BEAM

SCALE: 3"=1'-0"

DETAIL: SW 207

HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0645
UL DESIGN: HW-D-0636

PARTITION - 2 HR
UL DESIGN: U497
UL DESIGN: W419



DATE: 09/01/18

2 HOUR SHAFTWALL PARTITION OFFSET FROM BEAM

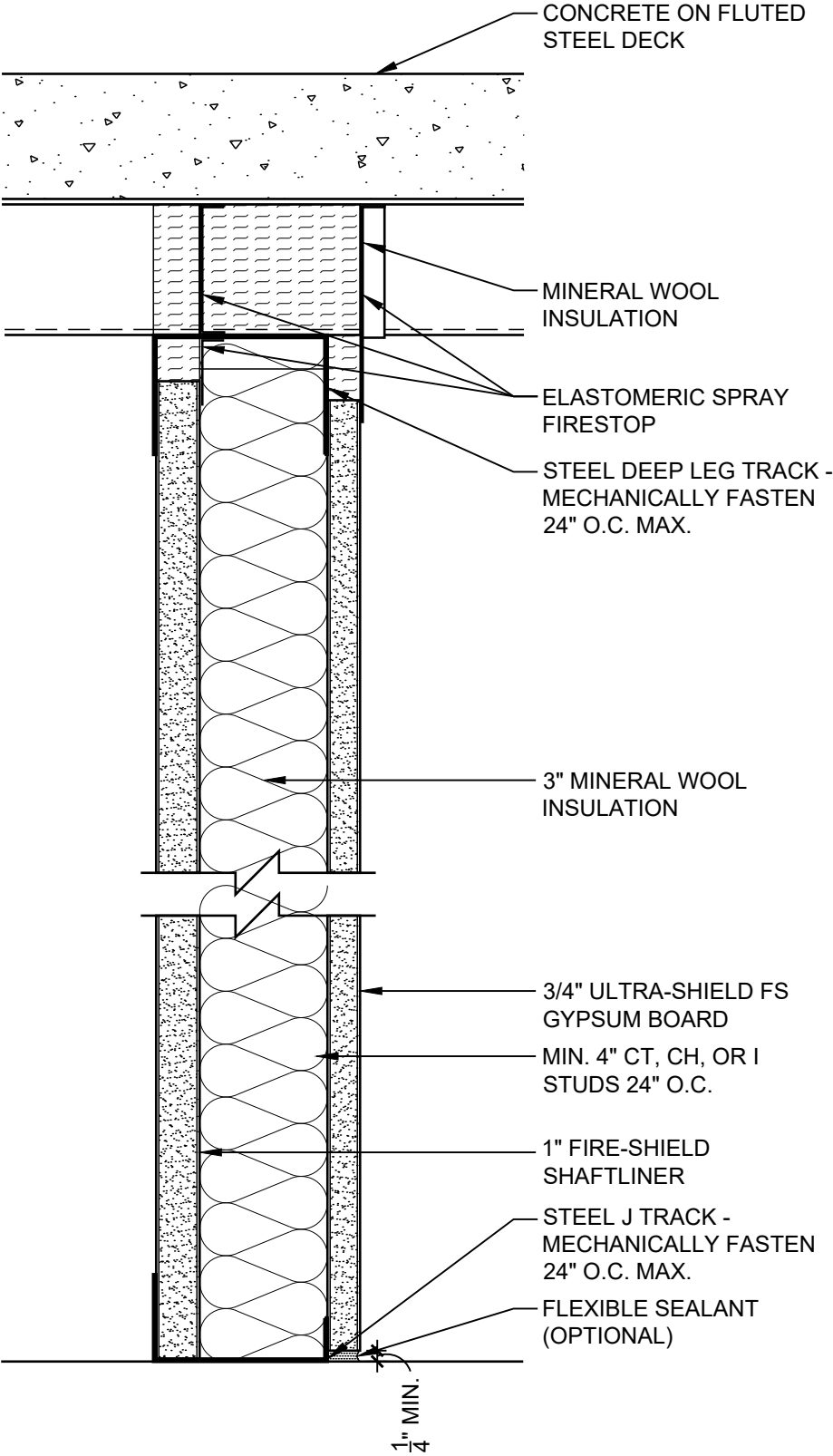
SCALE: 3"=1'-0"

DETAIL: SW 208

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HEAD OF WALL - 2 HR
UL DESIGN: HW-D-0548

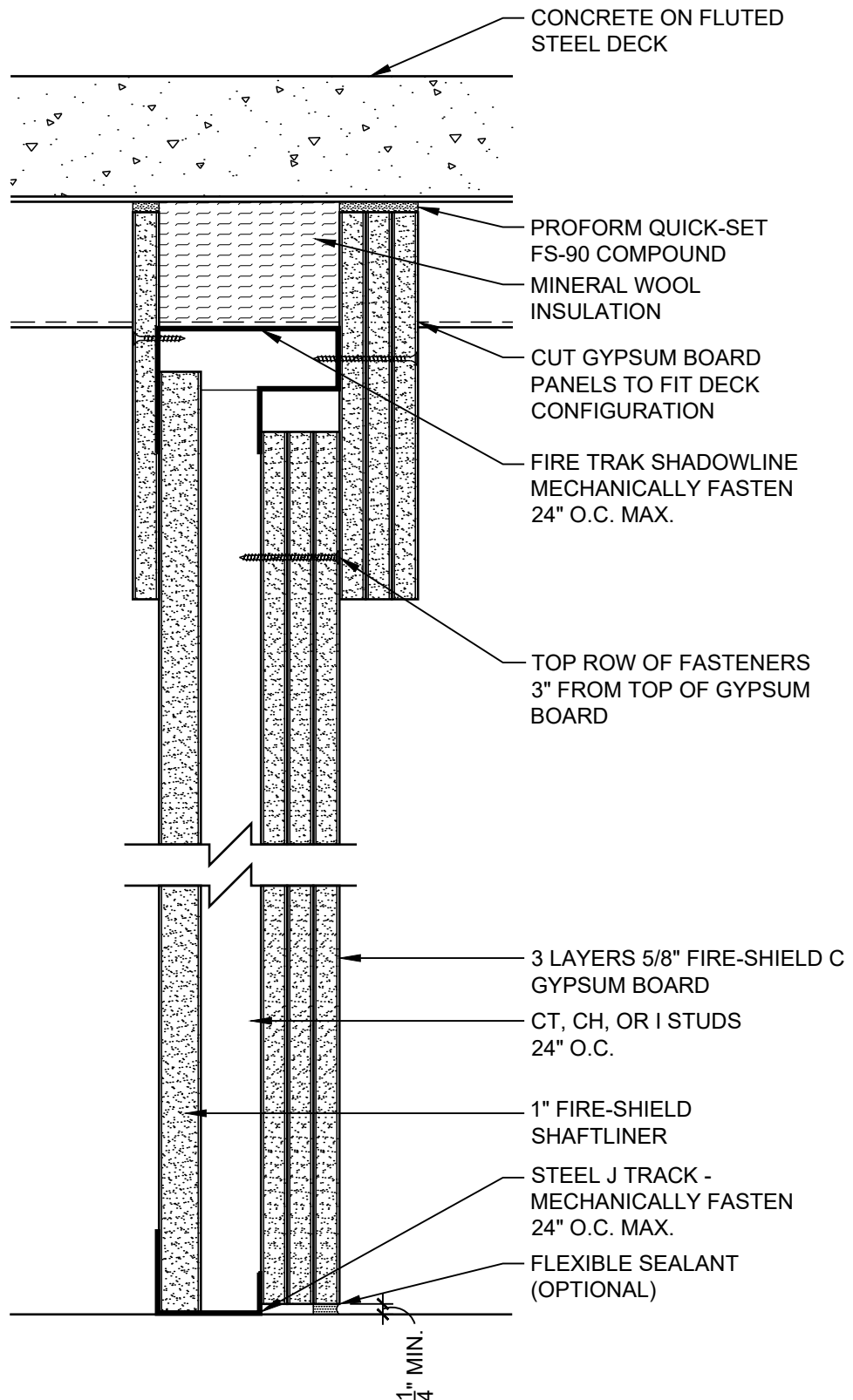
PARTITION - 2 HR
UL DESIGN: W441
UL DESIGN: W419



DATE: 09/01/18	2 HOUR SHAFTWALL TO STEEL DECK	
SCALE: 3"=1'-0"	DETAIL: SW 209	

HEAD OF WALL - 3 HR
UL DESIGN: HW-D-0119

PARTITION - 3 HR
UL DESIGN: W414
UL DESIGN: W419



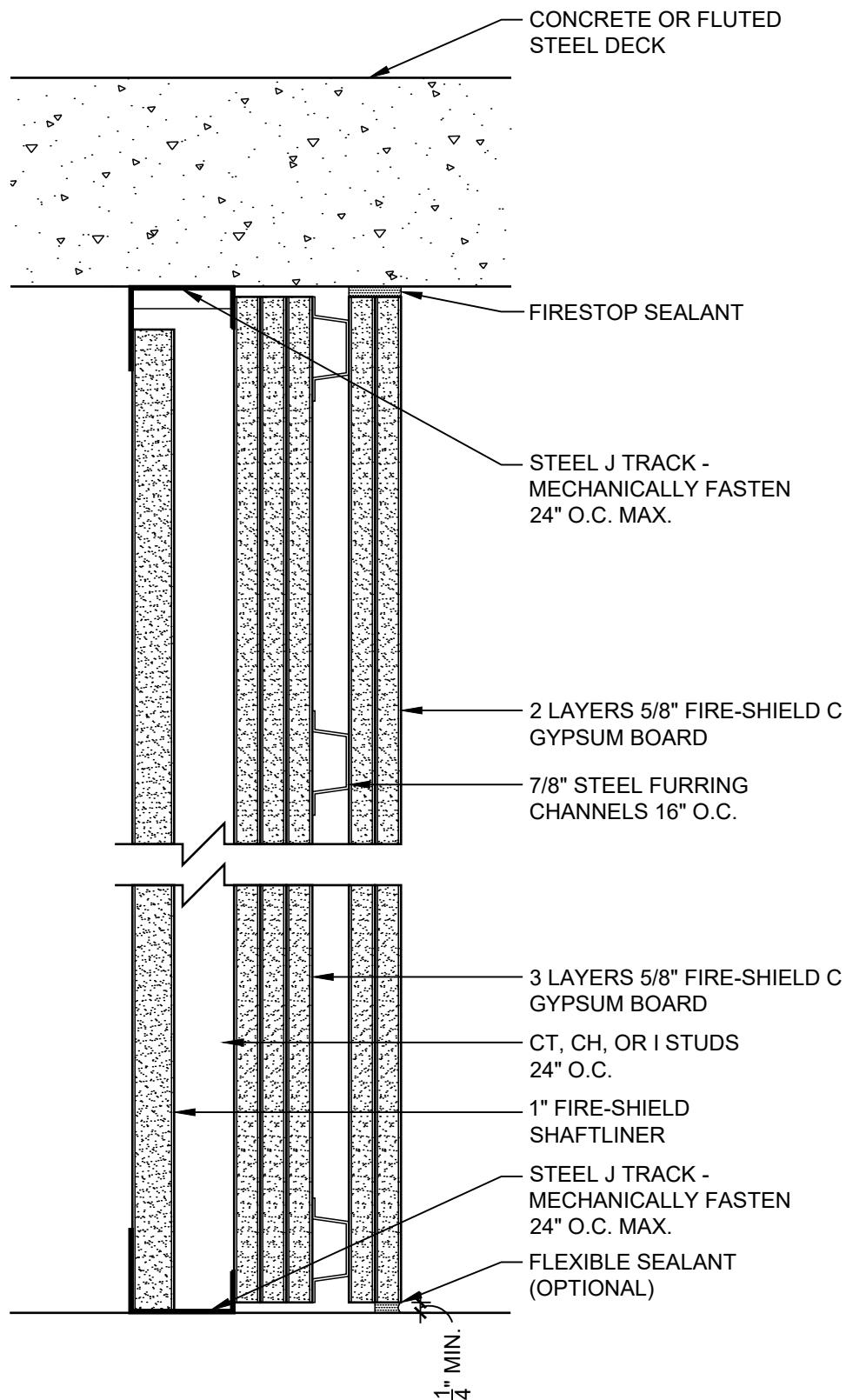
DATE: 09/01/18

3 HOUR SHAFTWALL WITH DEFLECTION TRACK

SCALE: 3"=1'-0"

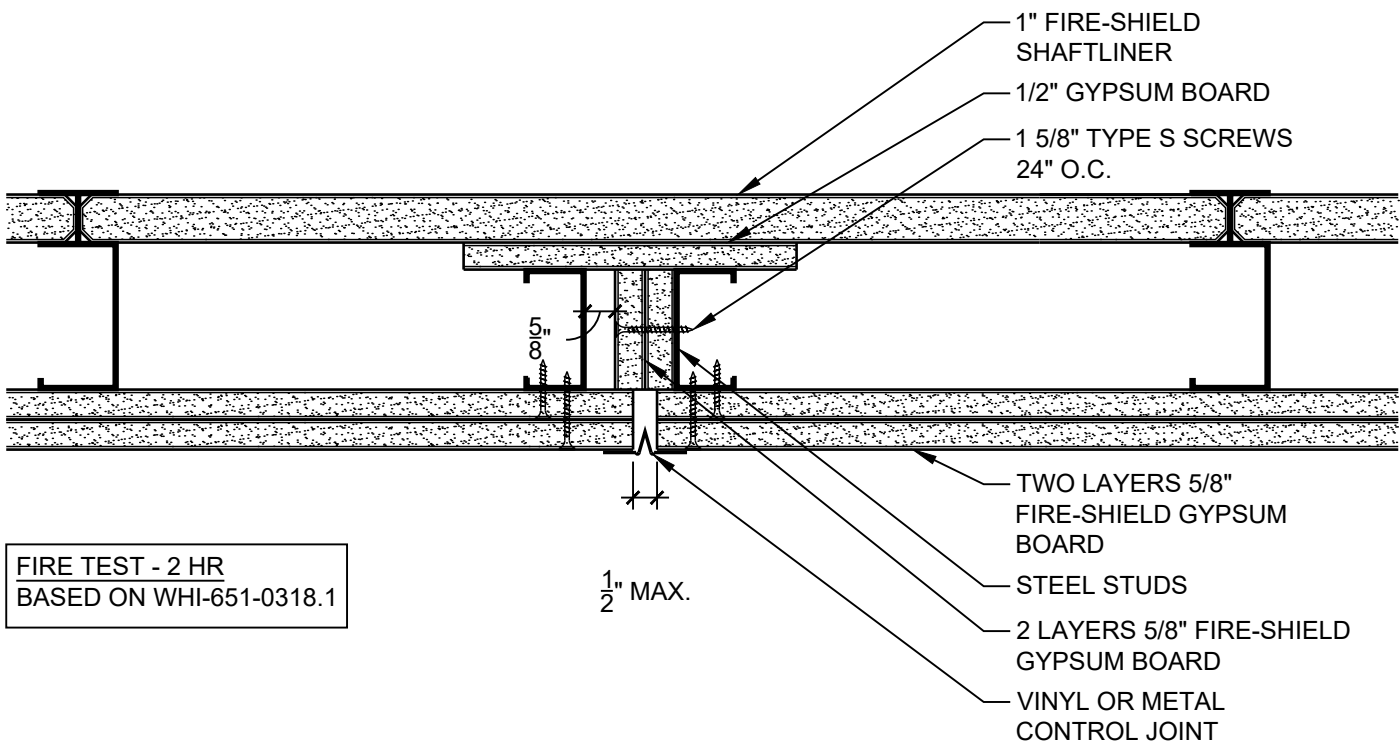
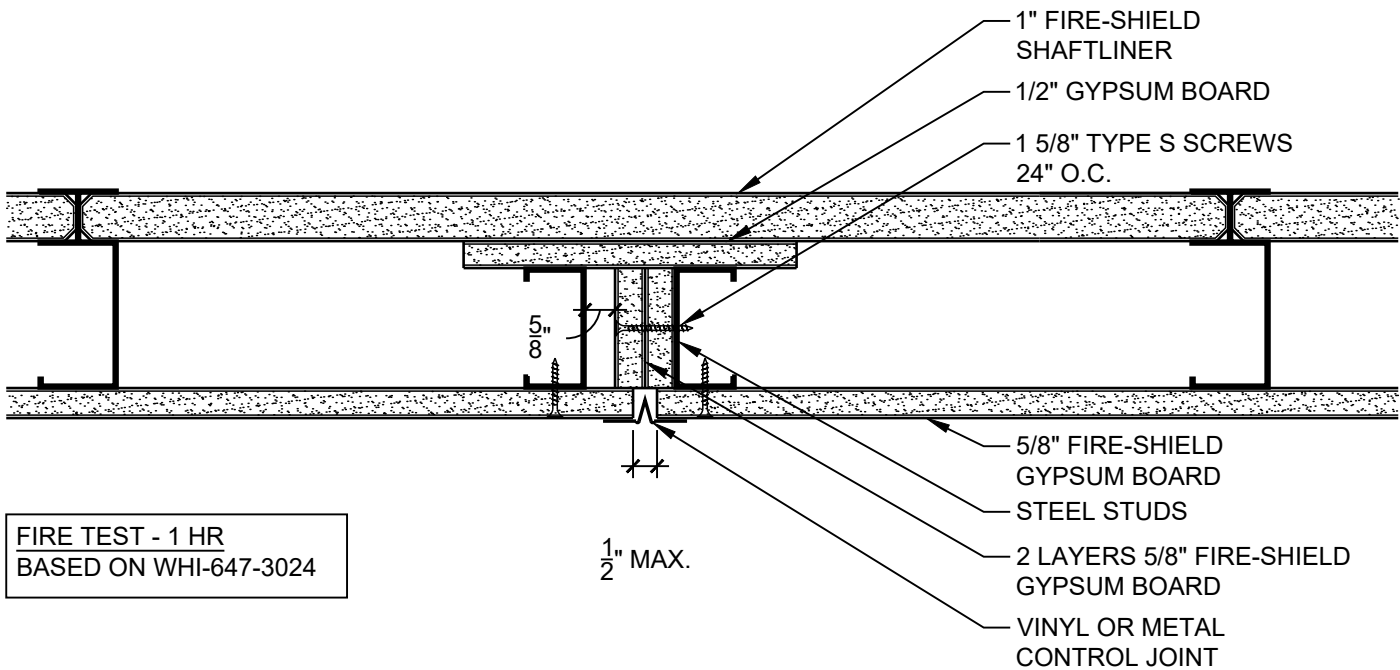
DETAIL: SW 301

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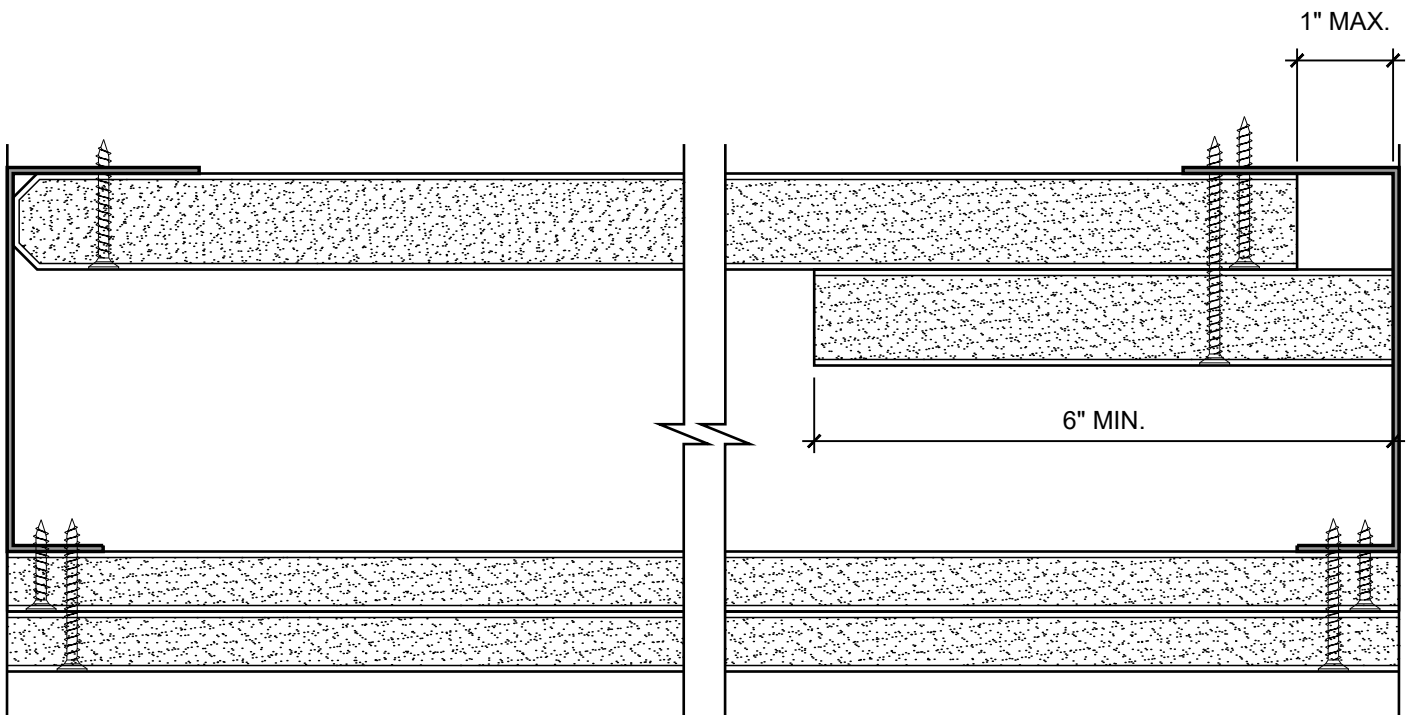


PARTITION - 4 HR
UL DESIGN: V451
UL DESIGN: W419

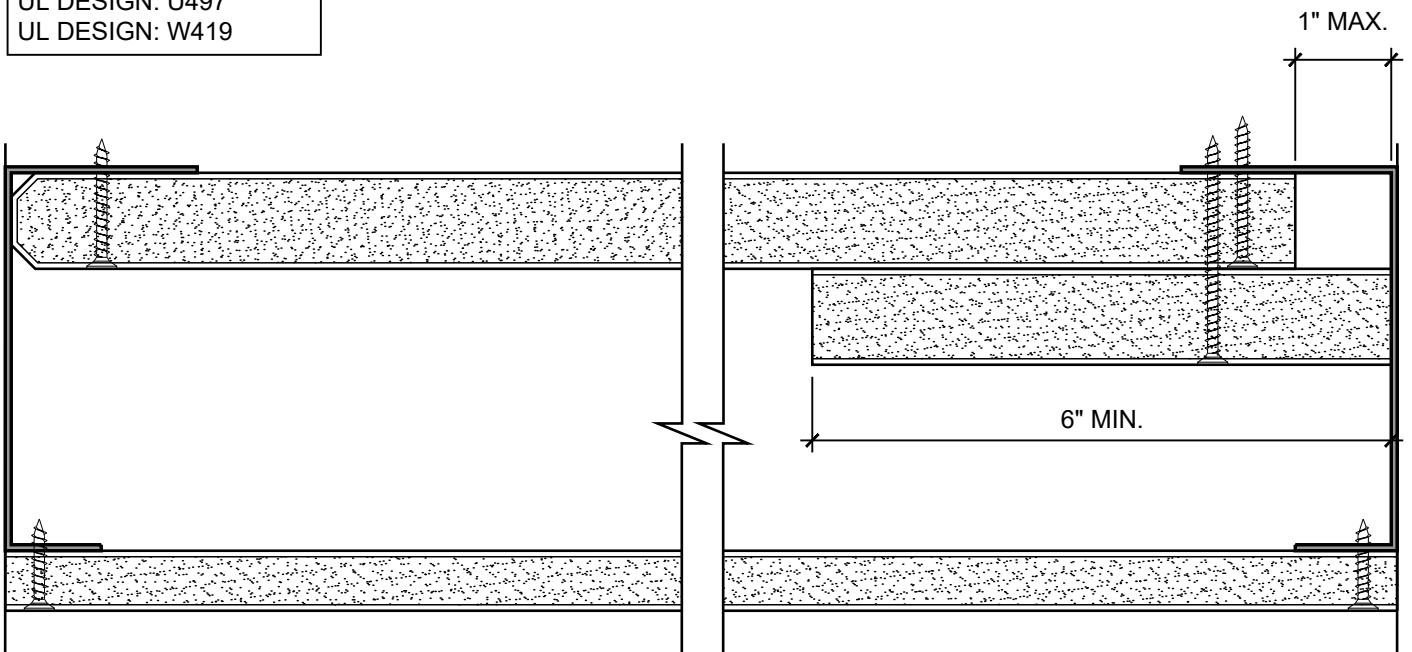
DATE: 09/01/18	4 HOUR SHAFTWALL PARTITION	
SCALE: 3"=1'-0"	DETAIL: SW 401	



DATE: 09/01/18	CONTROL JOINTS FOR SHAFTWALL SYSTEMS	
SCALE: 3"=1'-0"	DETAIL: SW 501	

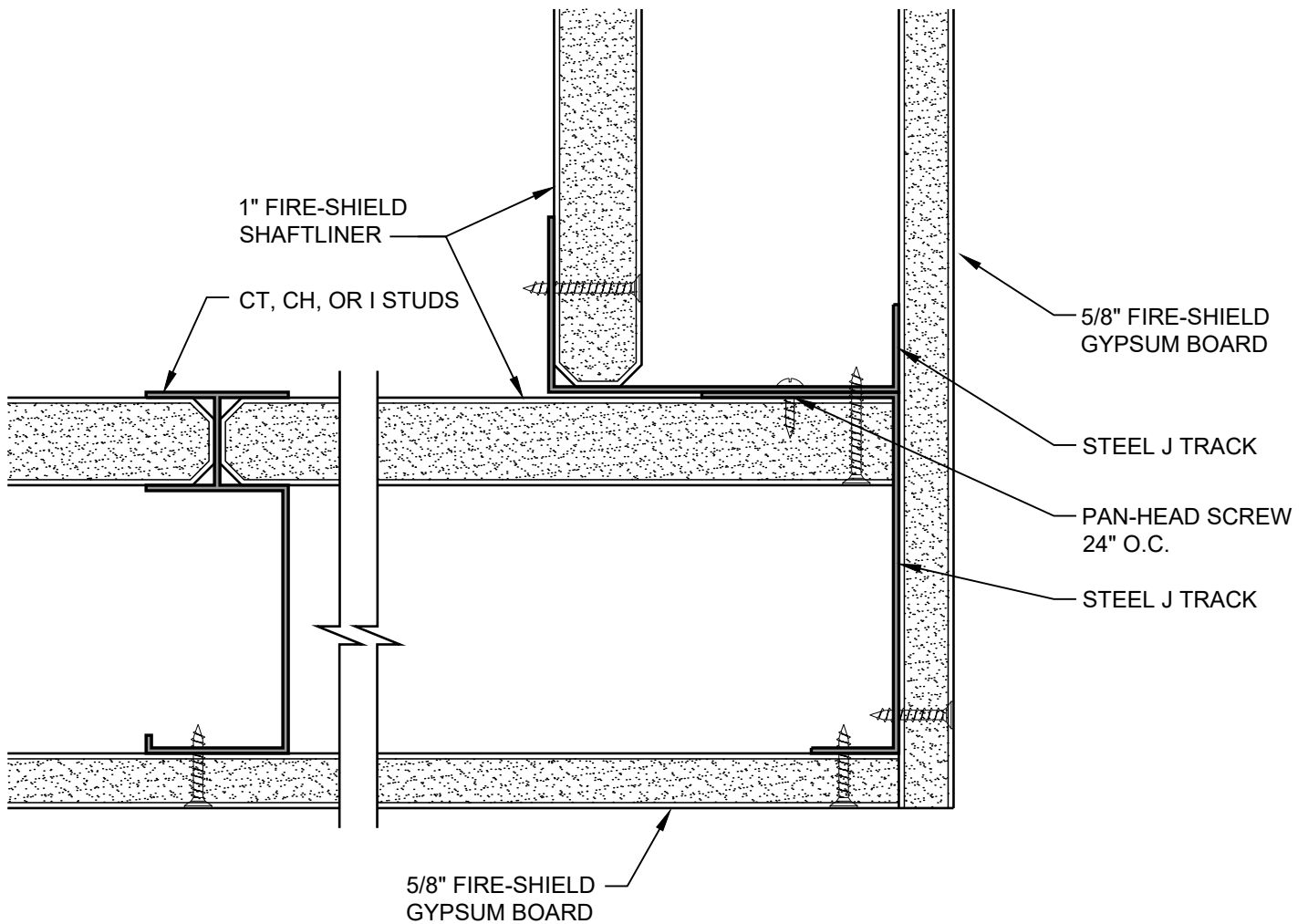


PARTITION - 2 HR
UL DESIGN: U497
UL DESIGN: W419



PARTITION - 1 HR
UL DESIGN: U499
UL DESIGN: W419

DATE: 09/01/18	SHAFTWALL END CONDITIONS	
SCALE: 6"=1'-0"	DETAIL: SW 601	



DATE: 09/01/18

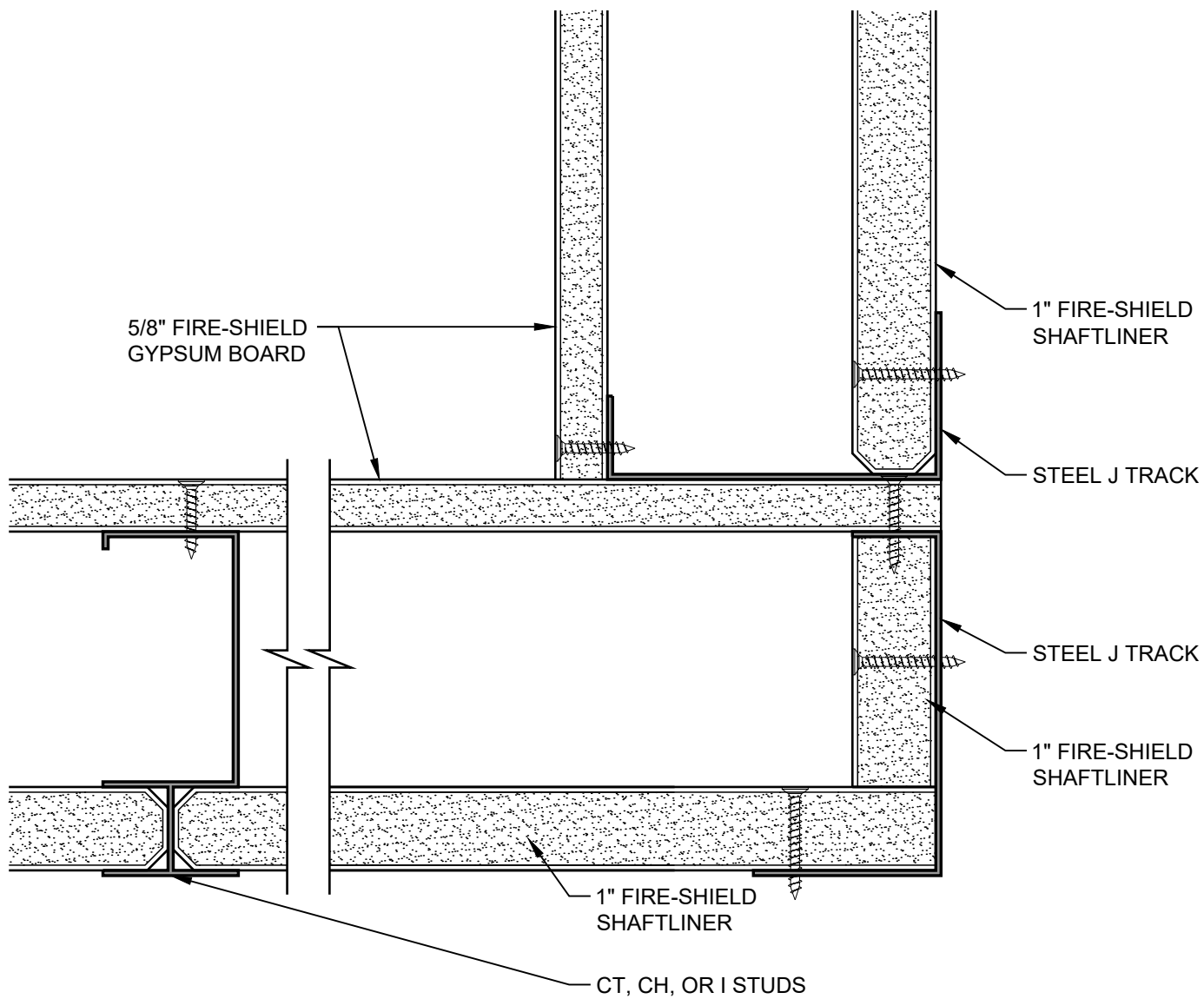
1 HOUR SHAFTWALL CORNER DETAIL

SCALE: 6"=1'-0"

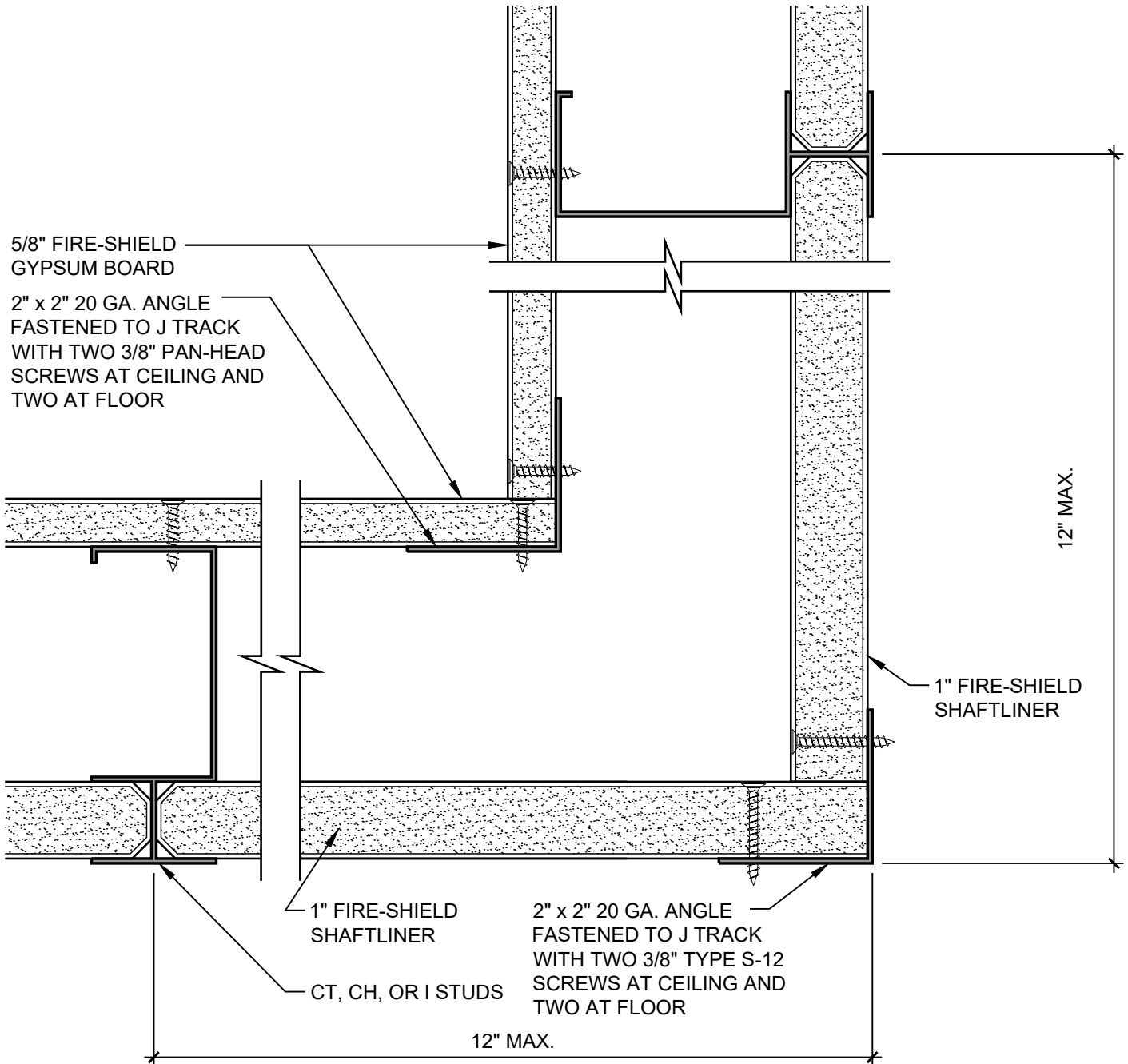
DETAIL: SW 610

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DATE: 09/01/18	1 HOUR SHAFTWALL CORNER DETAIL	
SCALE: 6"=1'-0"	DETAIL: SW 611	



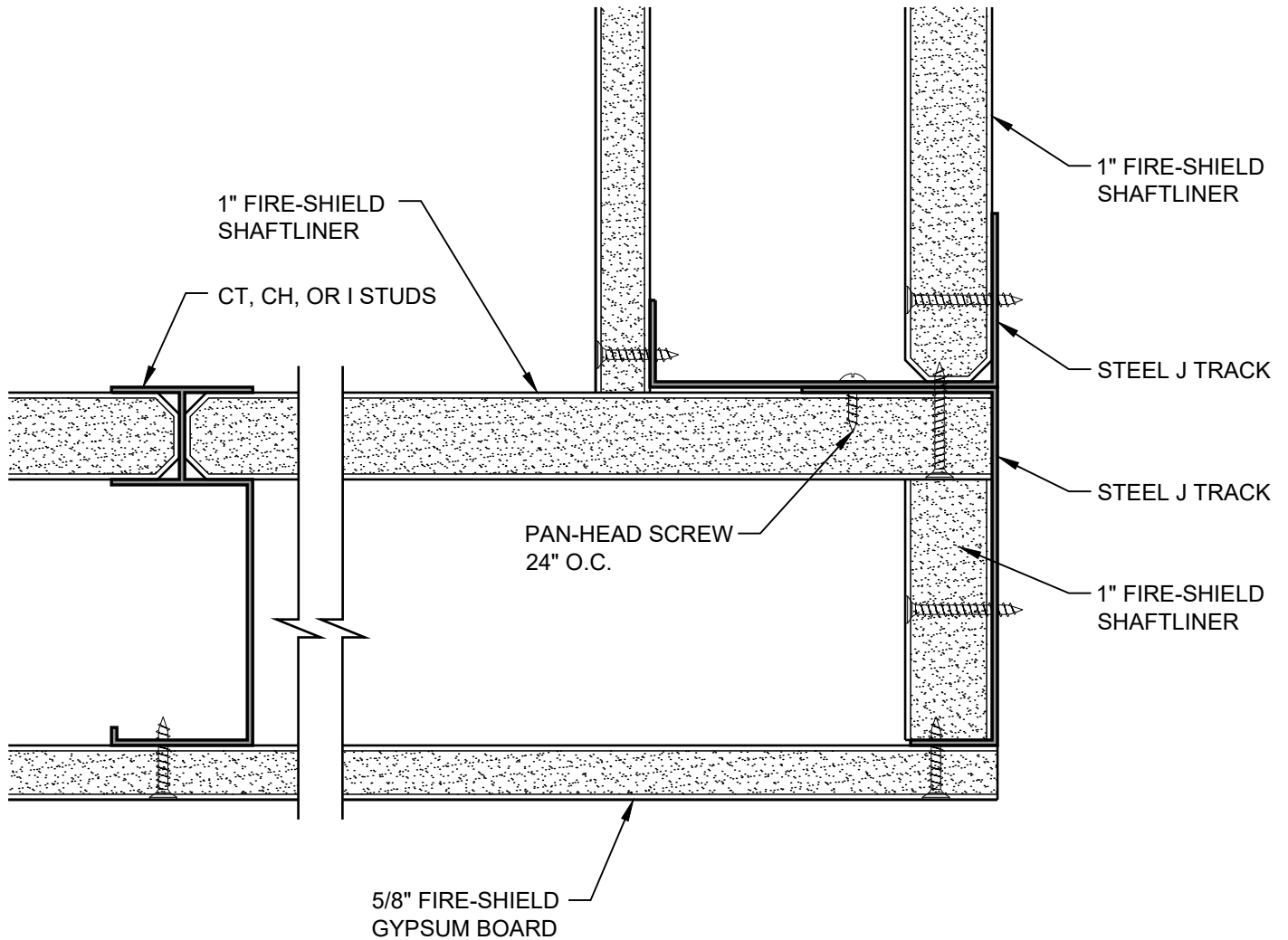
DATE: 09/01/18

1 HOUR SHAFTWALL CORNER DETAIL

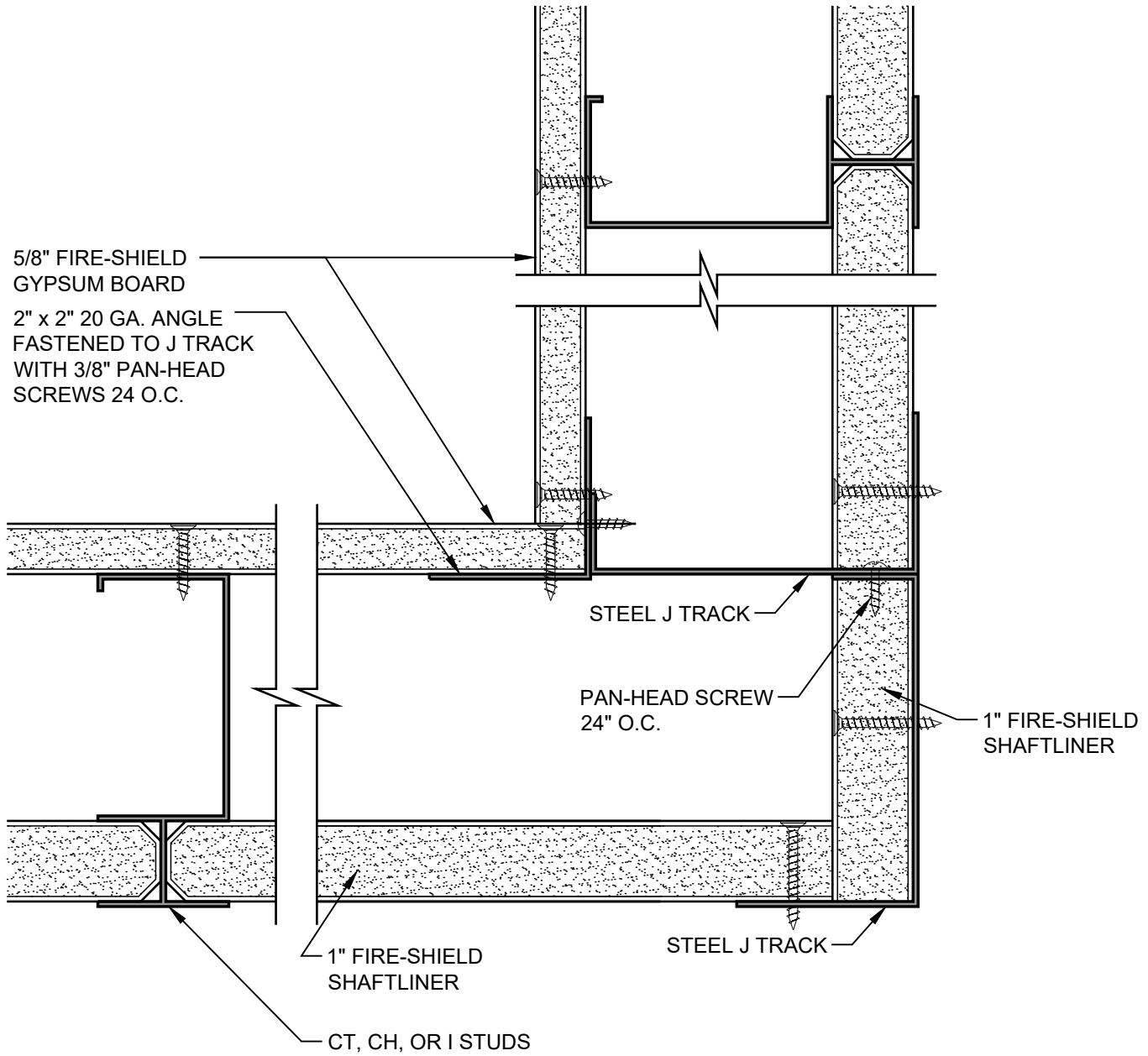
SCALE: 6"=1'-0"

DETAIL: SW 612

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DATE: 09/01/18	1 HOUR SHAFTWALL CORNER DETAIL	
SCALE: 6"=1'-0"	DETAIL: SW 613	



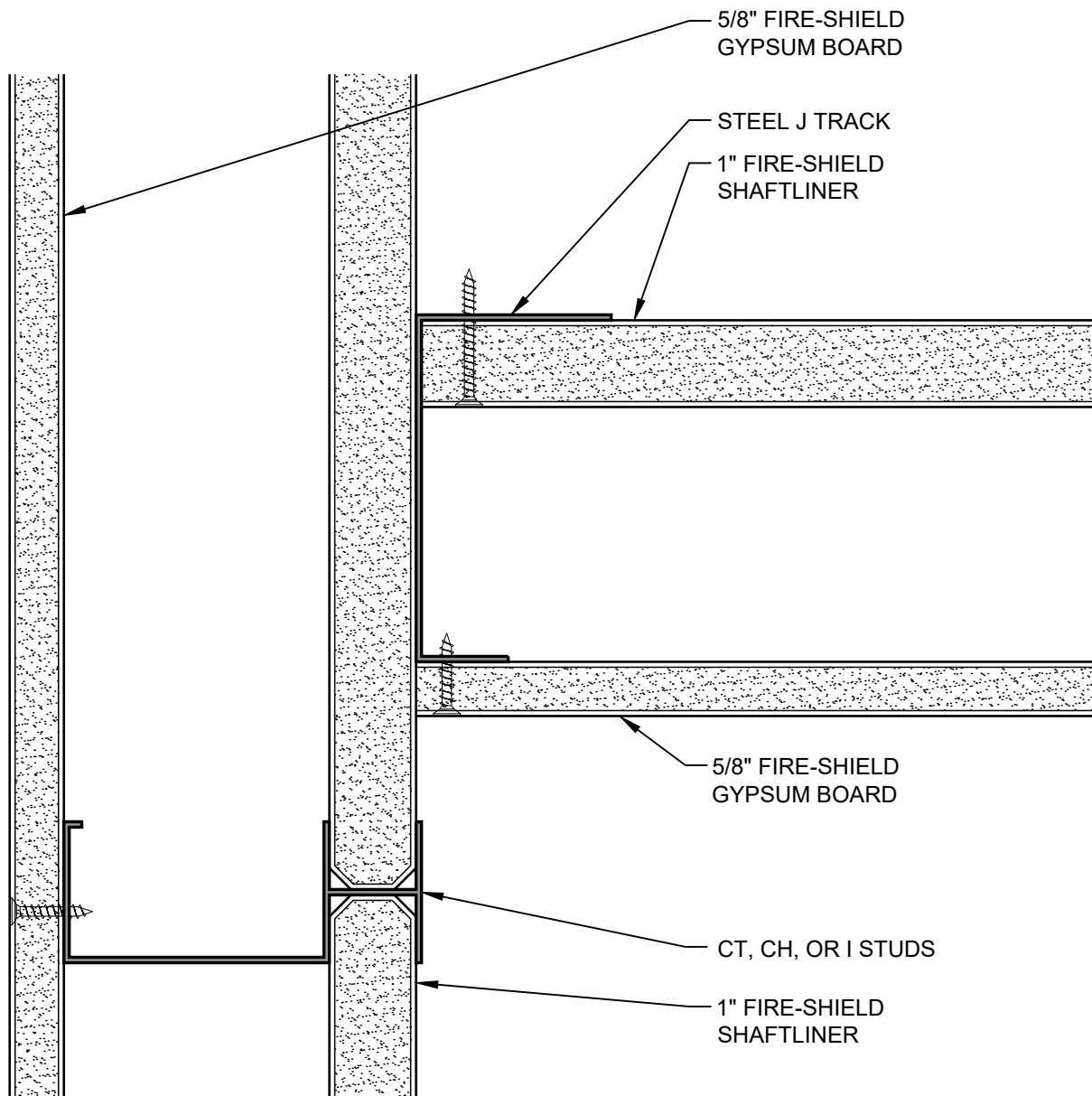
DATE: 09/01/18

1 HOUR SHAFTWALL CORNER DETAIL

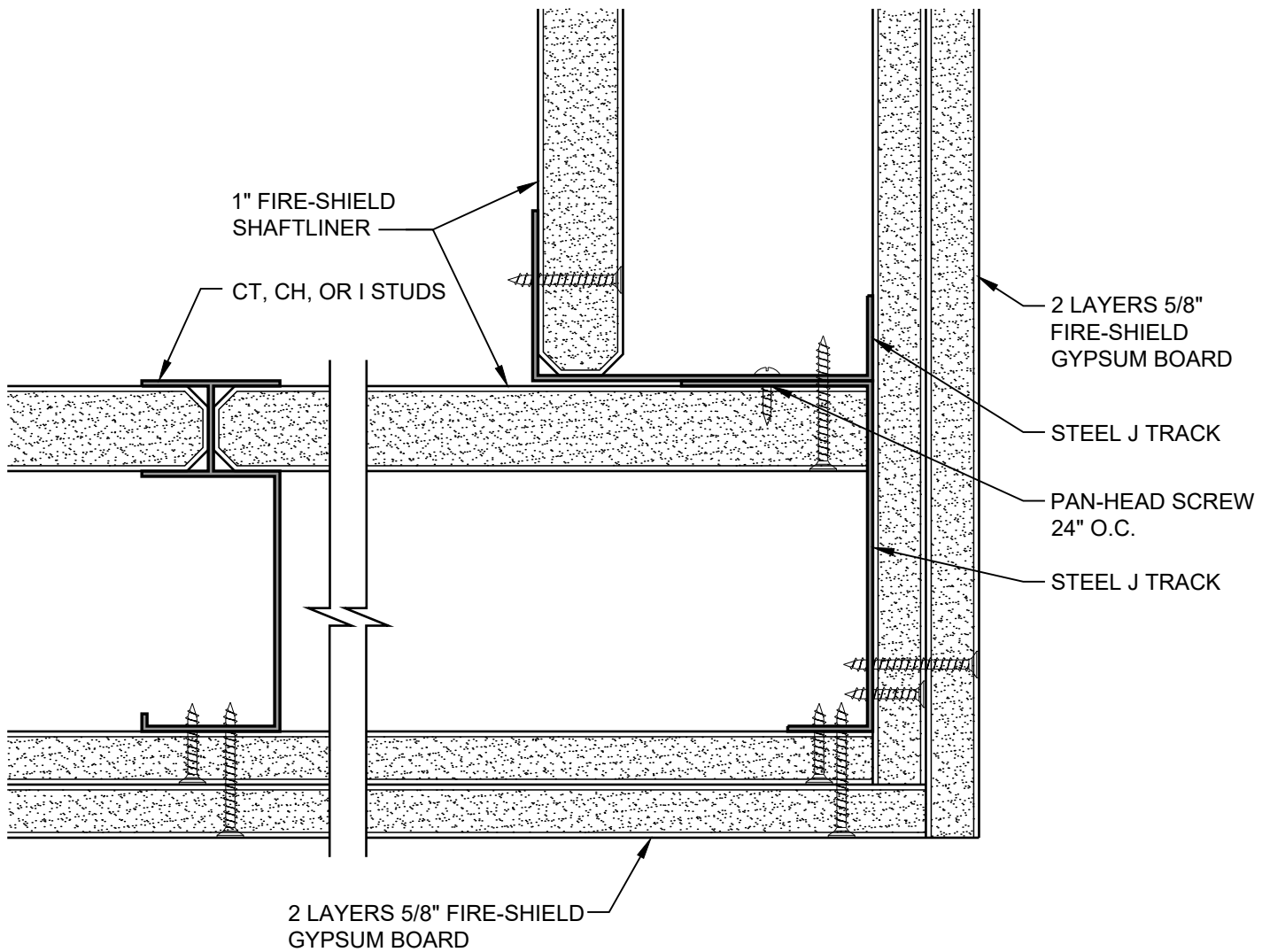
SCALE: 6"=1'-0"

DETAIL: SW 614

National
Gypsum



DATE: 09/01/18	1 HOUR SHAFTWALL CORNER DETAIL	
SCALE: 6"=1'-0"	DETAIL: SW 615	



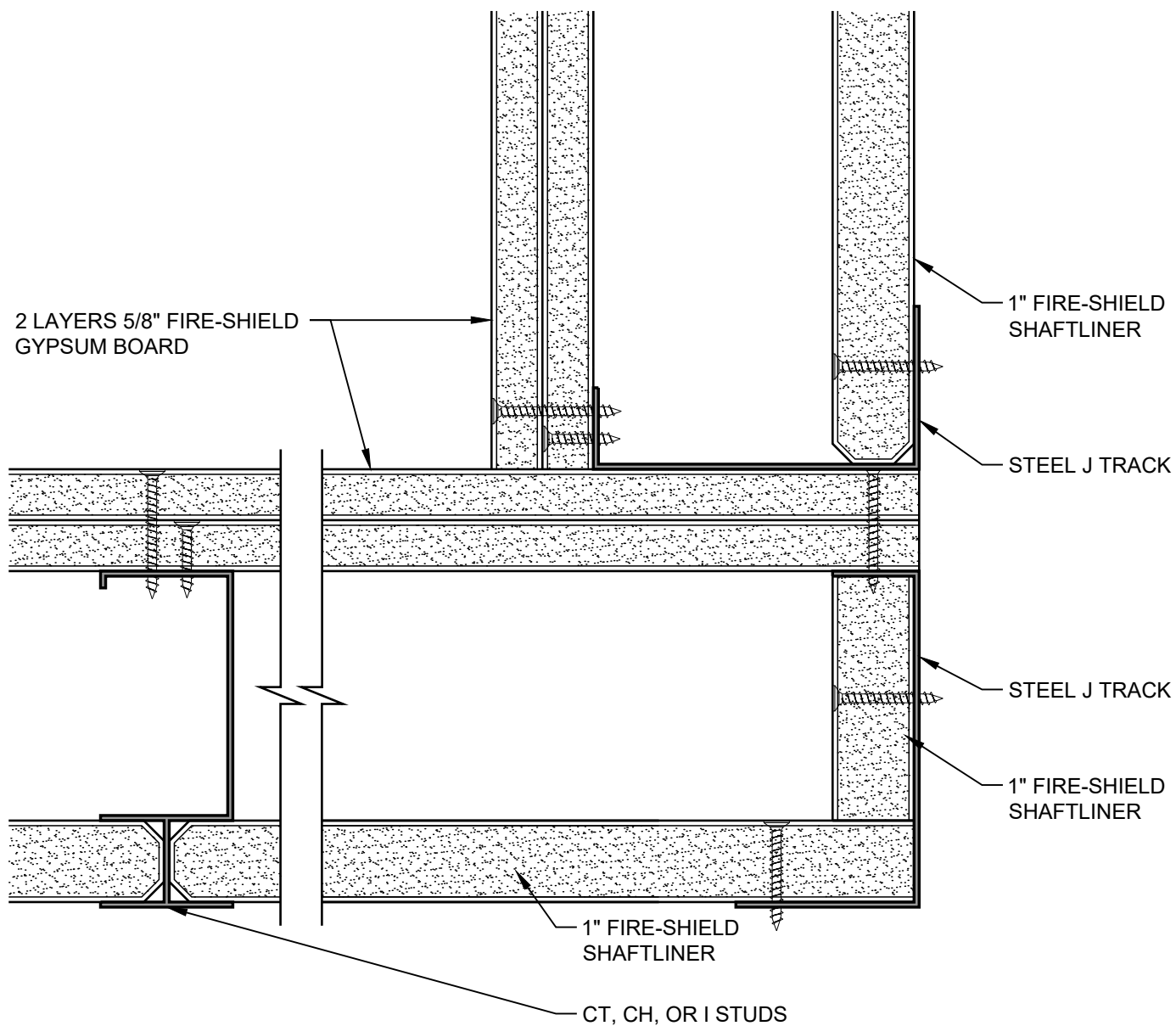
DATE: 09/01/18

2 HOUR SHAFTWALL CORNER DETAIL

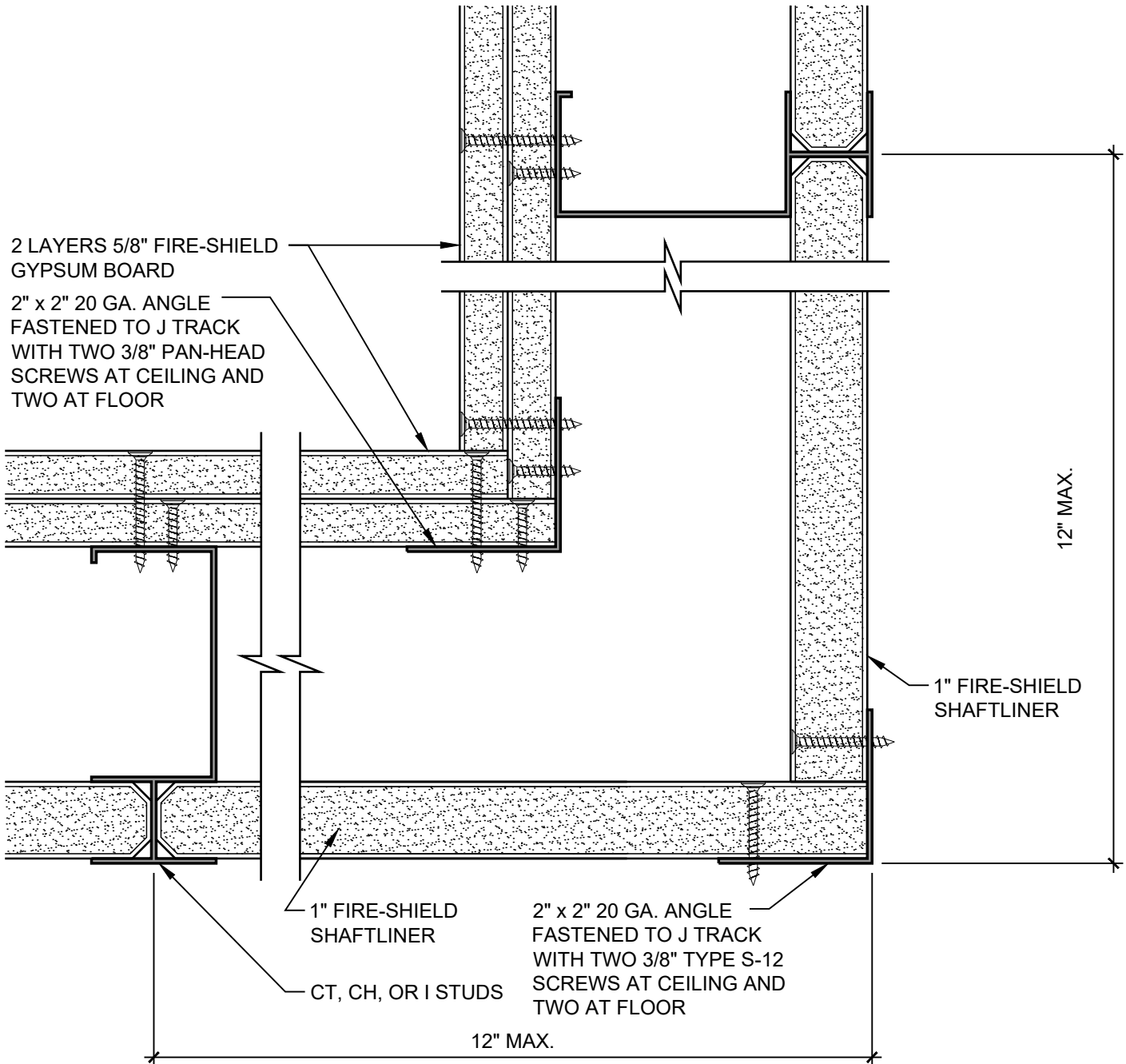
SCALE: 6"=1'-0"

DETAIL: SW 620

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Gypsum



DATE: 09/01/18	2 HOUR SHAFTWALL CORNER DETAIL	
SCALE: 6"=1'-0"	DETAIL: SW 621	



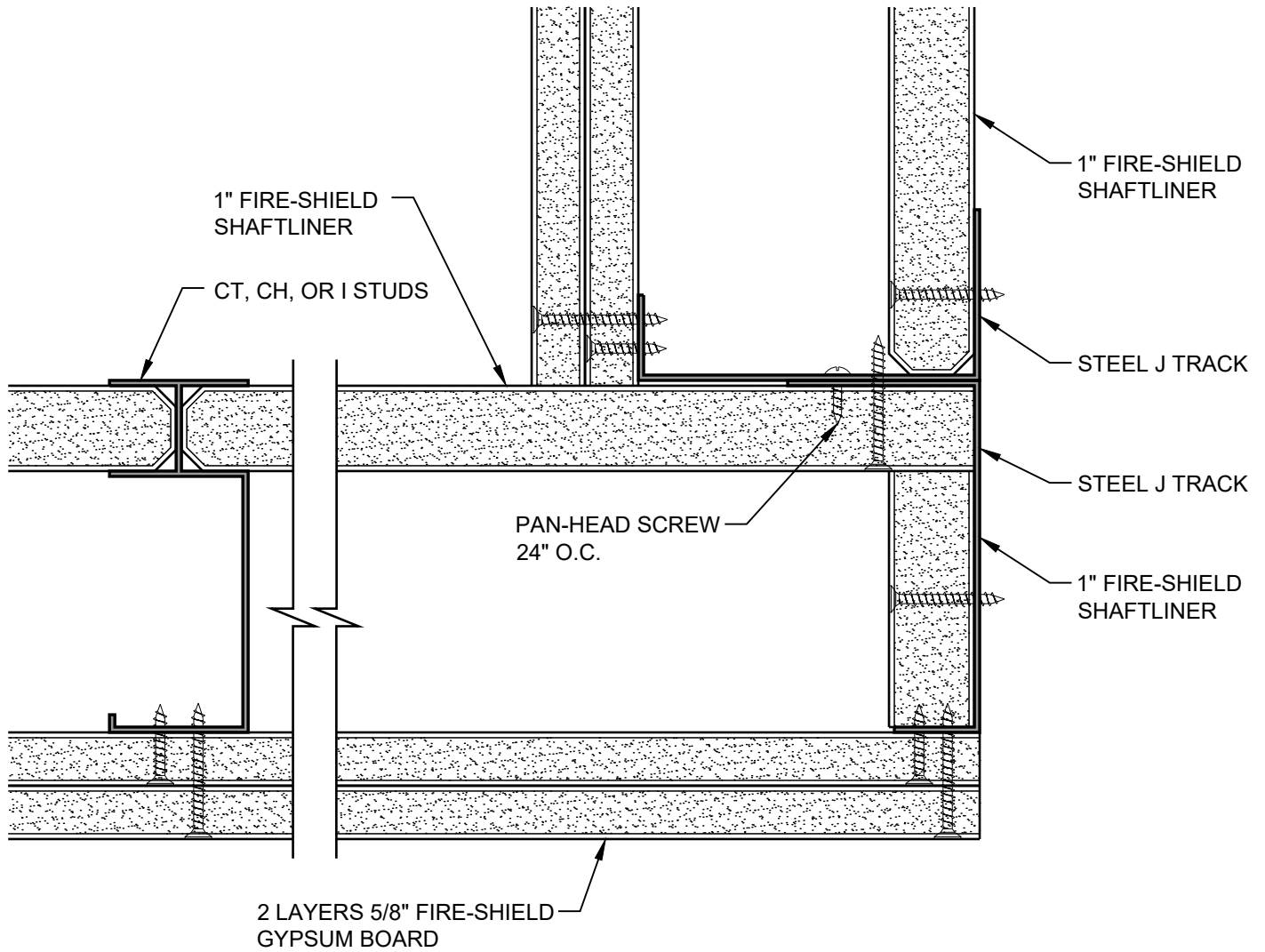
DATE: 09/01/18

2 HOUR SHAFTWALL CORNER DETAIL

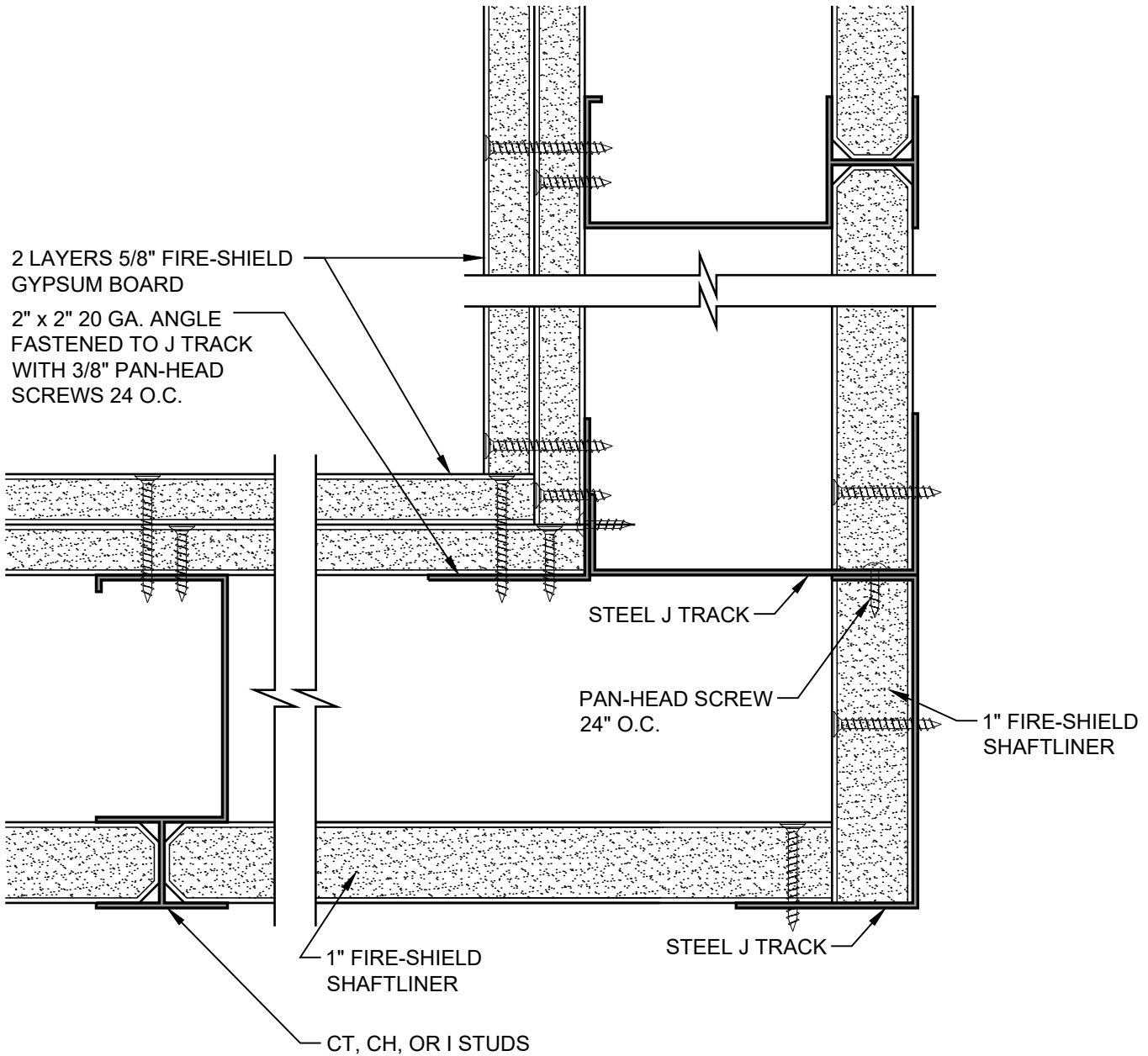
SCALE: 6"=1'-0"

DETAIL: SW 622

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DATE: 09/01/18	2 HOUR SHAFTWALL CORNER DETAIL	
SCALE: 6"=1'-0"	DETAIL: SW 623	



DATE: 09/01/18

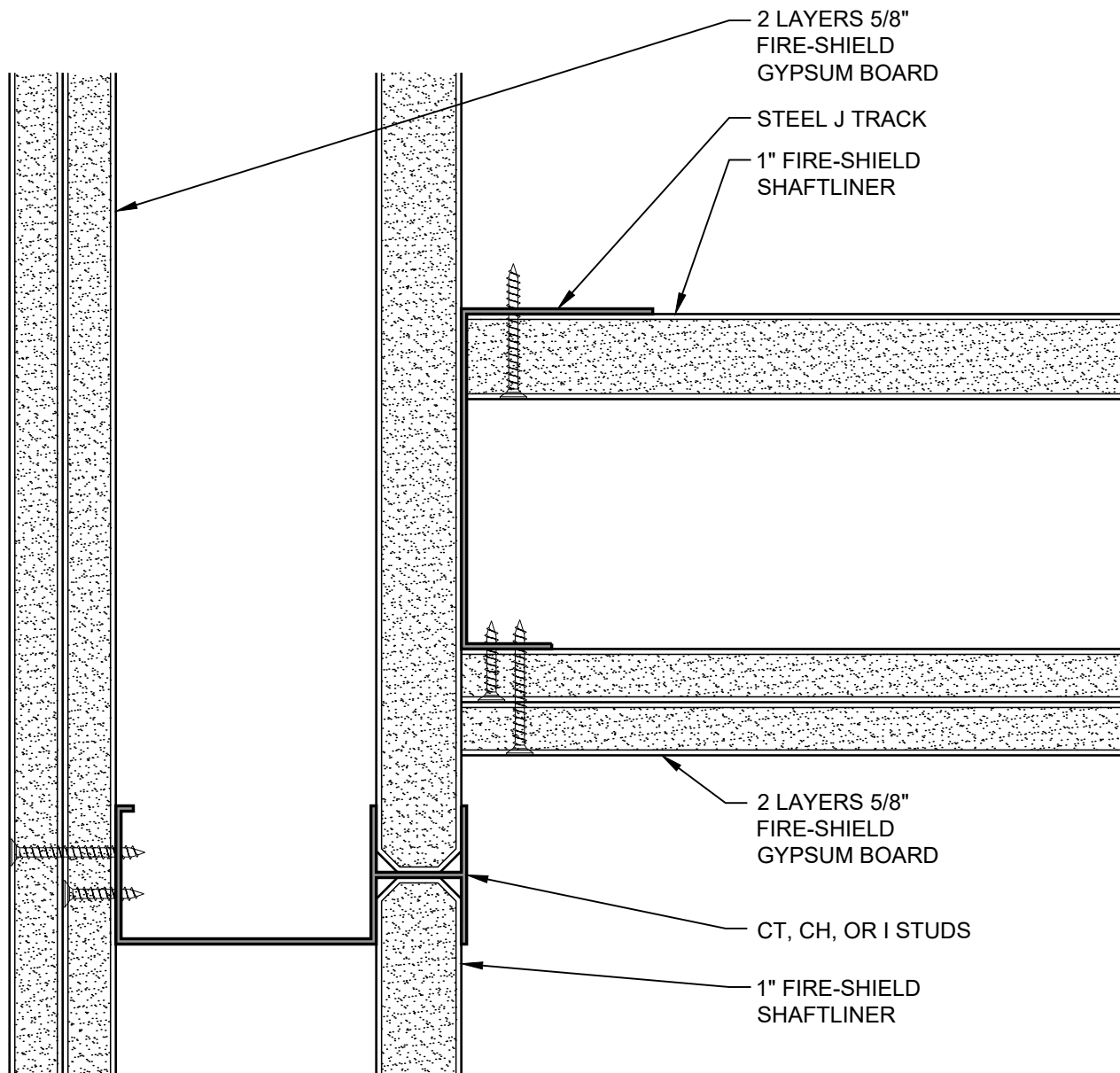
2 HOUR SHAFTWALL CORNER DETAIL

SCALE: 6"=1'-0"

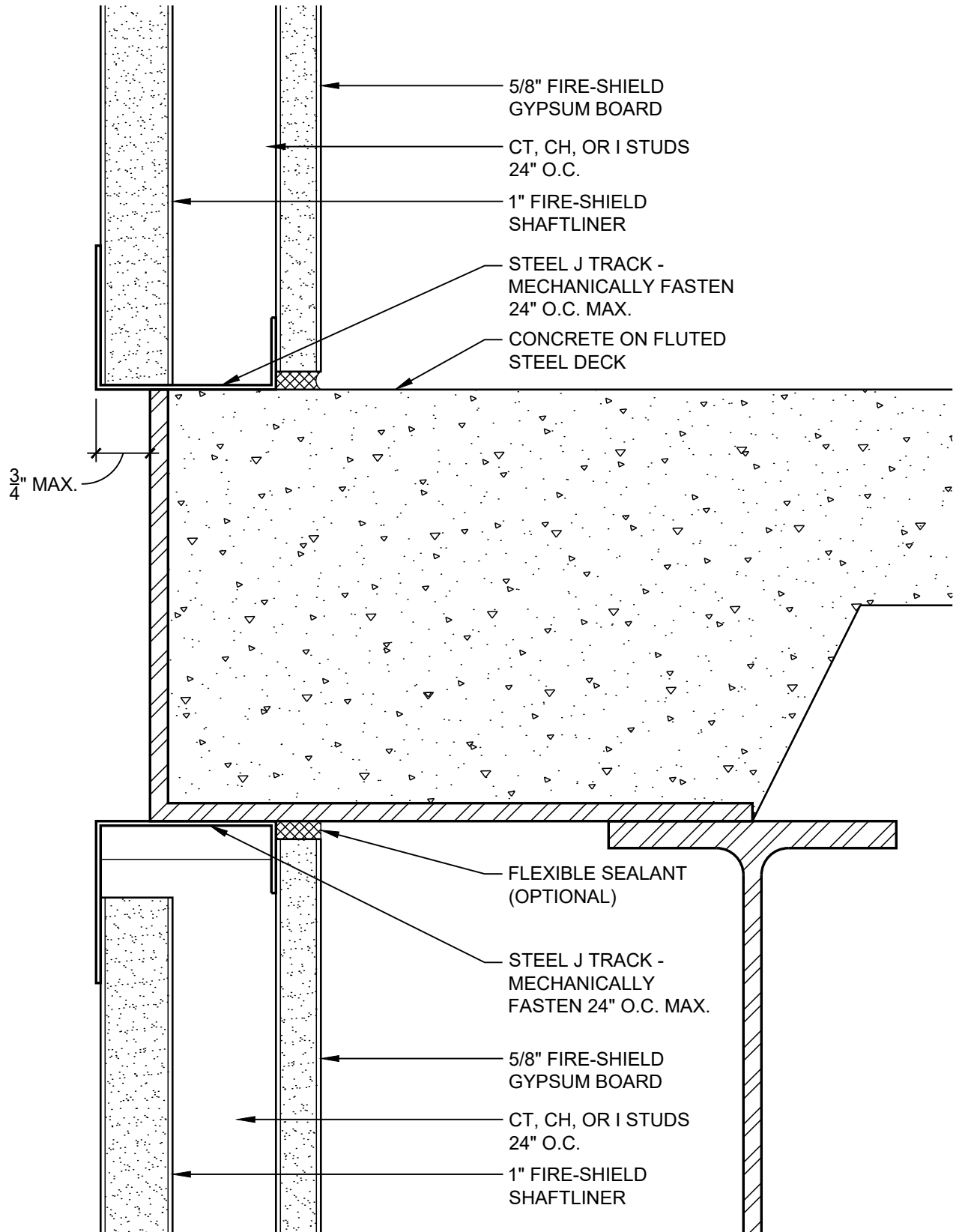
DETAIL: SW 624

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DATE: 09/01/18	2 HOUR SHAFTWALL CORNER DETAIL	
SCALE: 6"=1'-0"	DETAIL: SW 625	



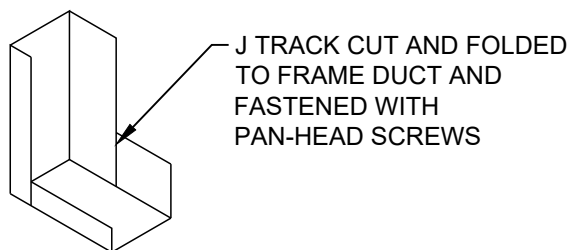
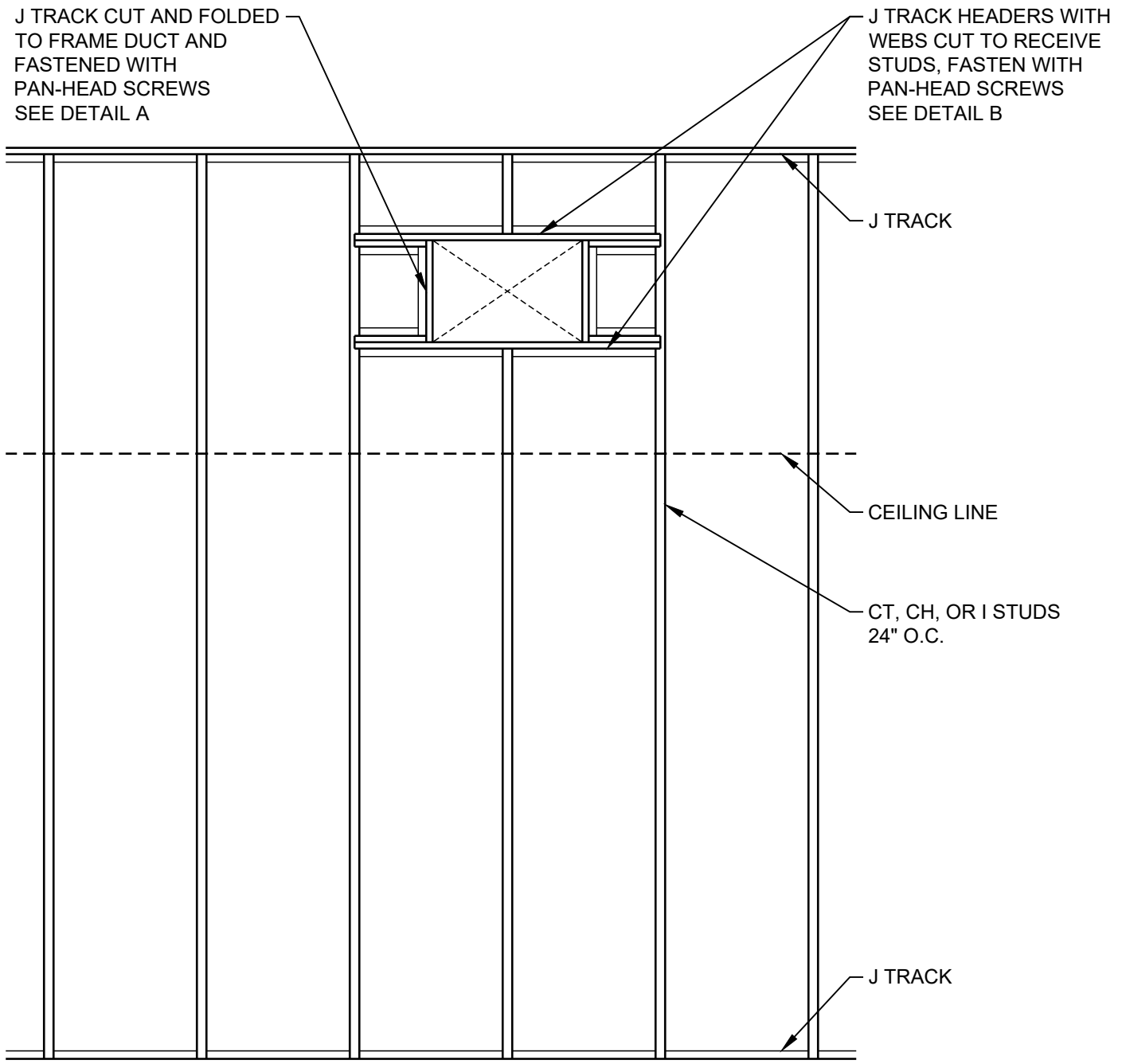
DATE: 09/01/18

SHAFTWALL OVERHANG AT SLAB EDGE

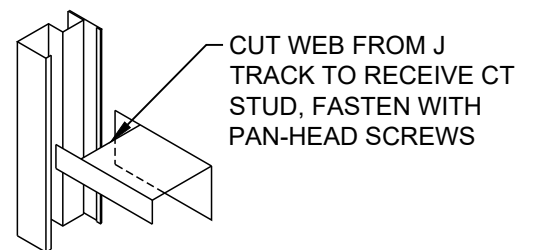
SCALE: 6"=1'-0"

DETAIL: SW 650

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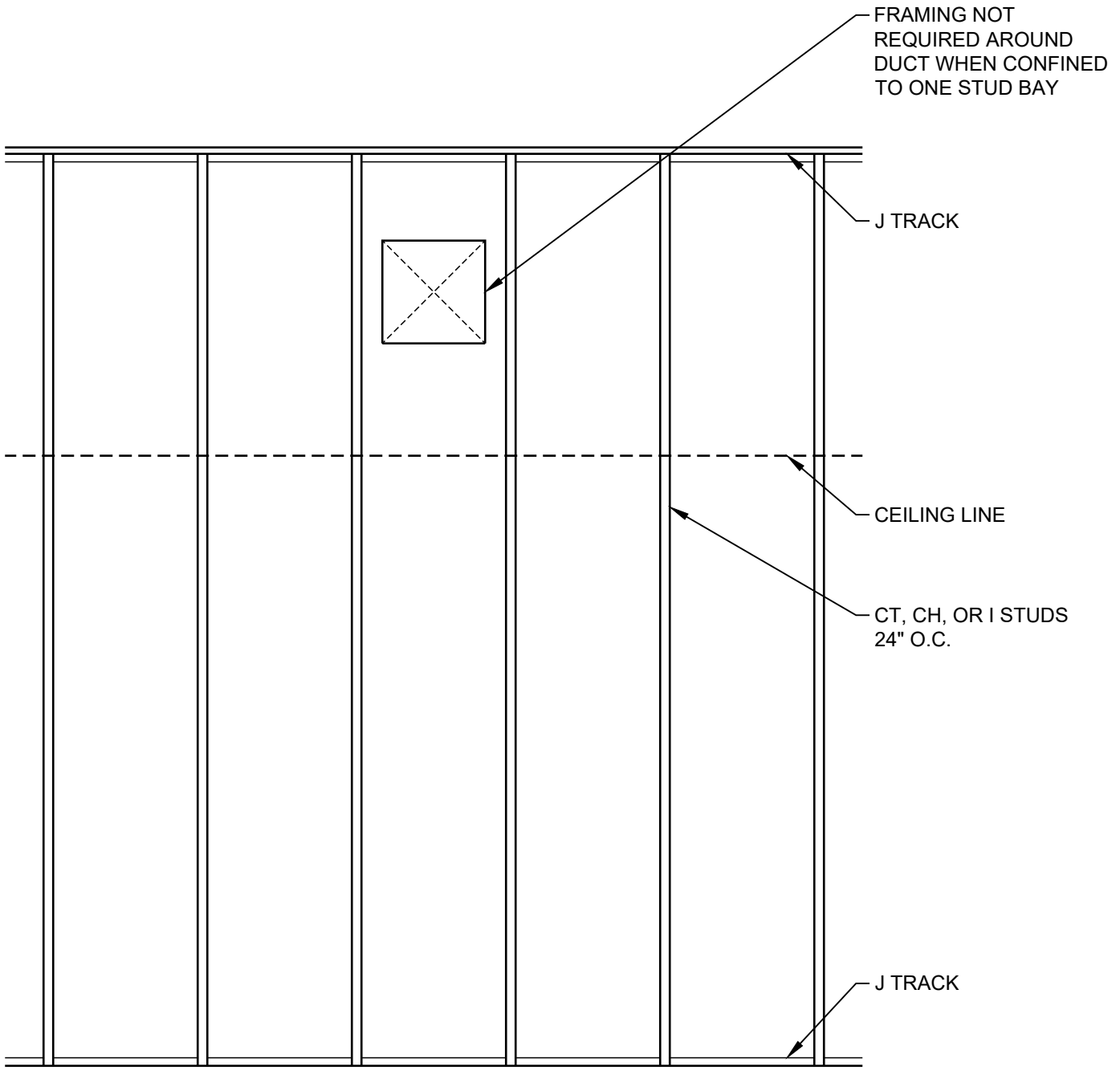


DETAIL A



DETAIL B

DATE: 09/01/18	SHAFTWALL FRAMING AT DUCT PENETRATION	
SCALE: 1/2"=1'-0"	DETAIL: SW 701	



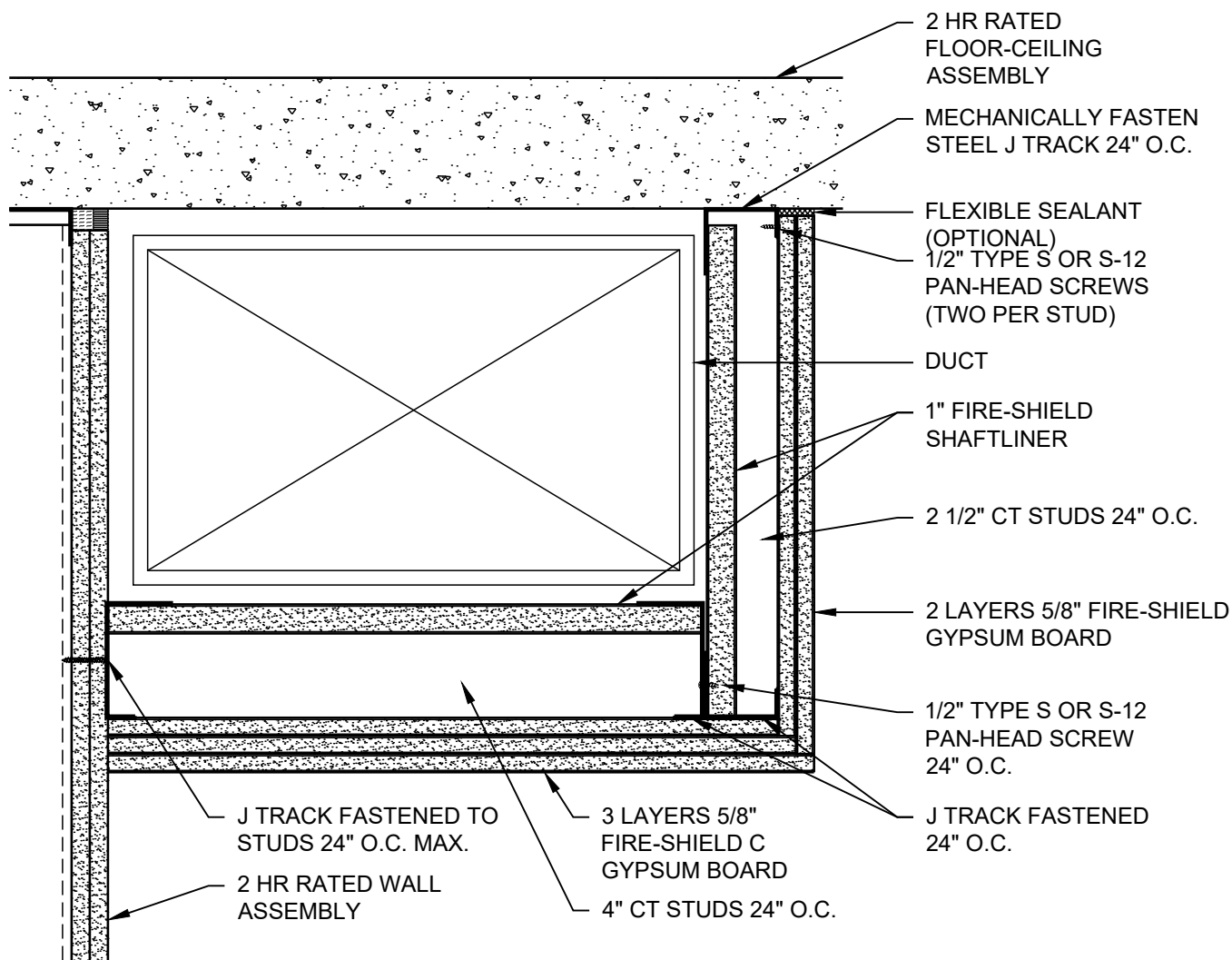
DATE: 09/01/18

SHAFTWALL FRAMING AT DUCT PENETRATION

SCALE: 1/2"=1'-0"

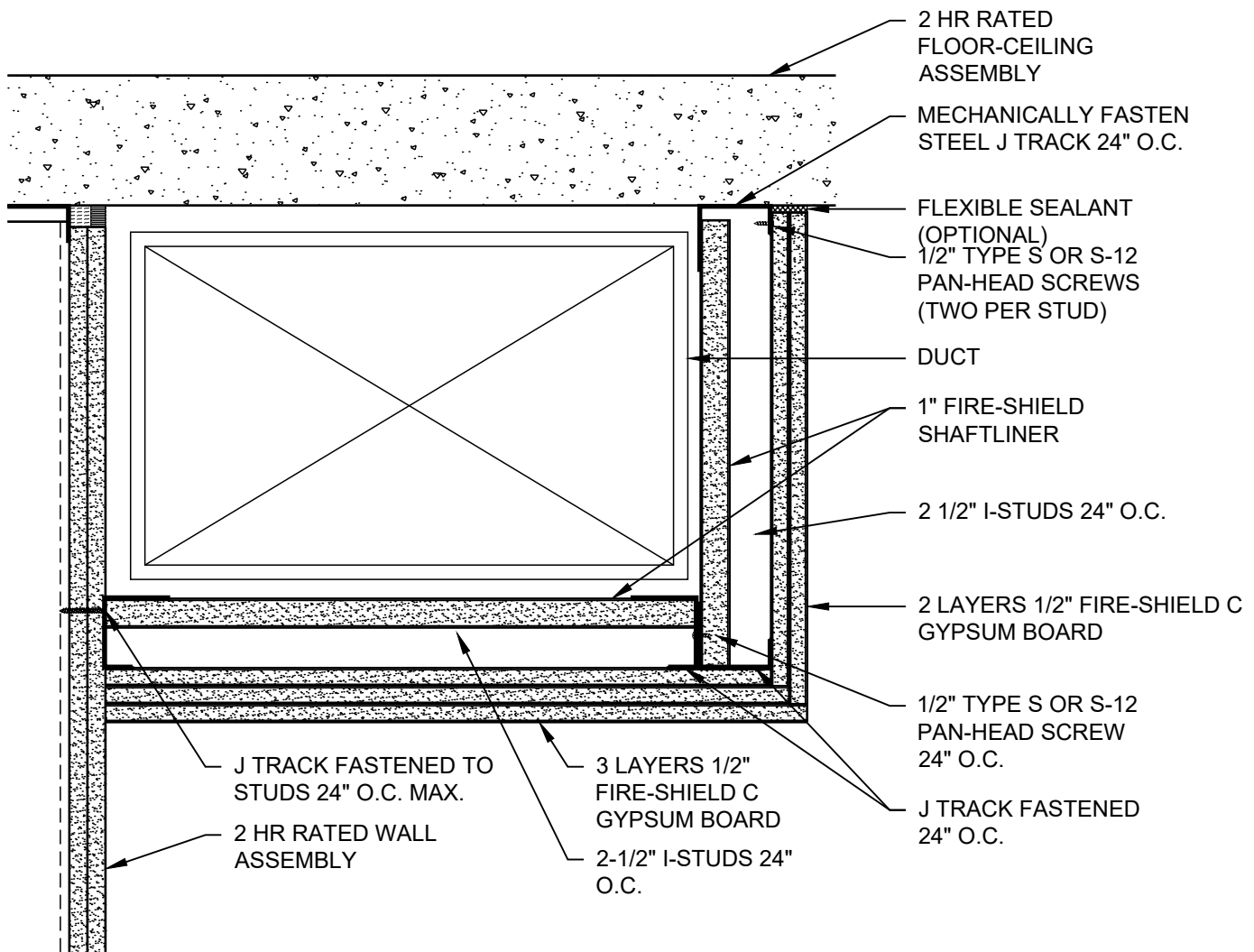
DETAIL: SW 702





VERTICAL - 2 HR
UL DESIGN: U497
HORIZONTAL - 2 HR
UL DESIGN: G586

DATE: 09/01/18	2 HOUR HORIZONTAL DUCT PROTECTION	
SCALE: 2"=1'-0"	DETAIL: SW 704	



UL EVALUATION REPORT
UL ER R3501-02

VERTICAL - 2 HR
UL DESIGN: U497
HORIZONTAL - 2 HR
WHI 694-0300.1

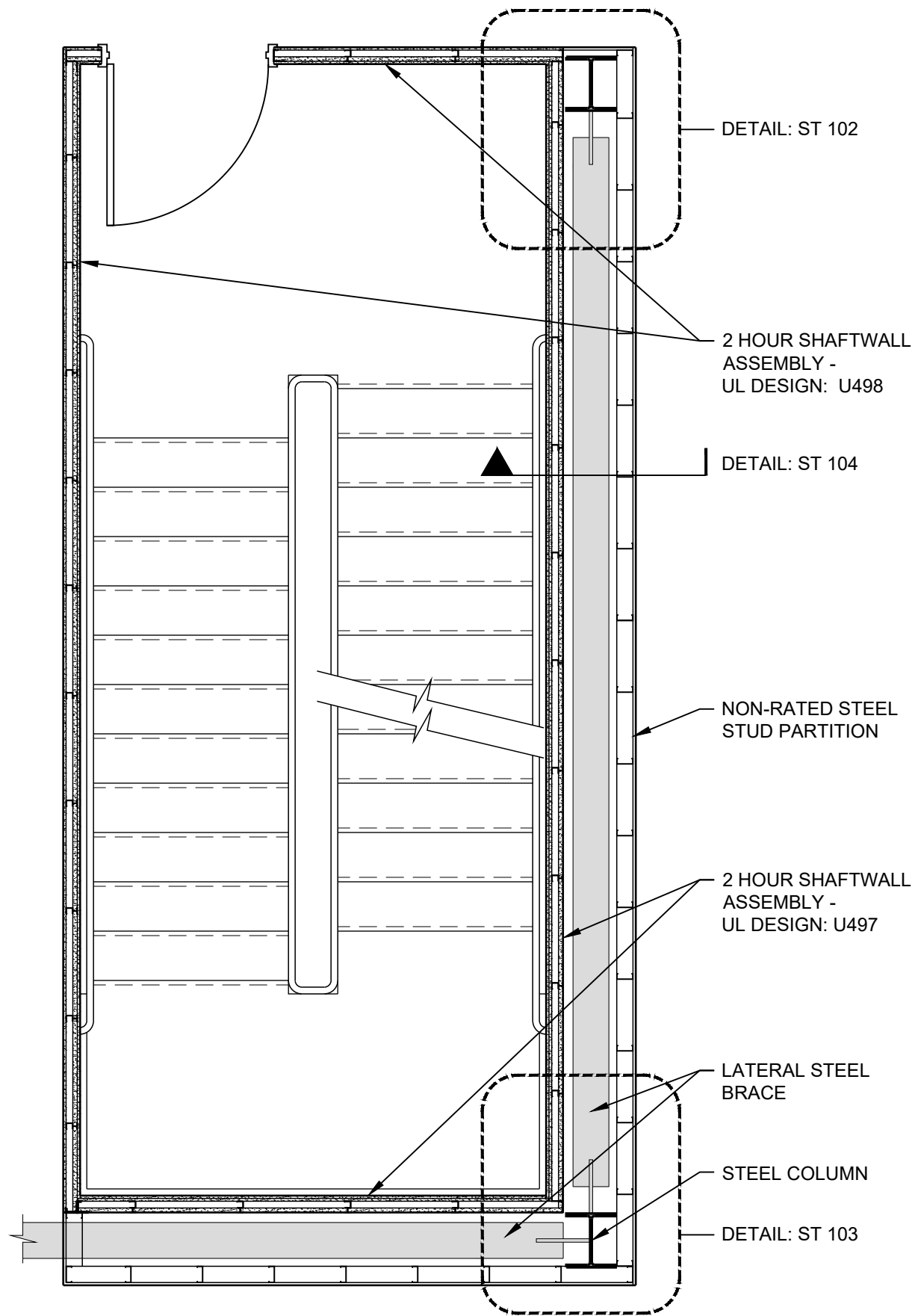
DATE: 09/01/18

2 HOUR HORIZONTAL DUCT PROTECTION

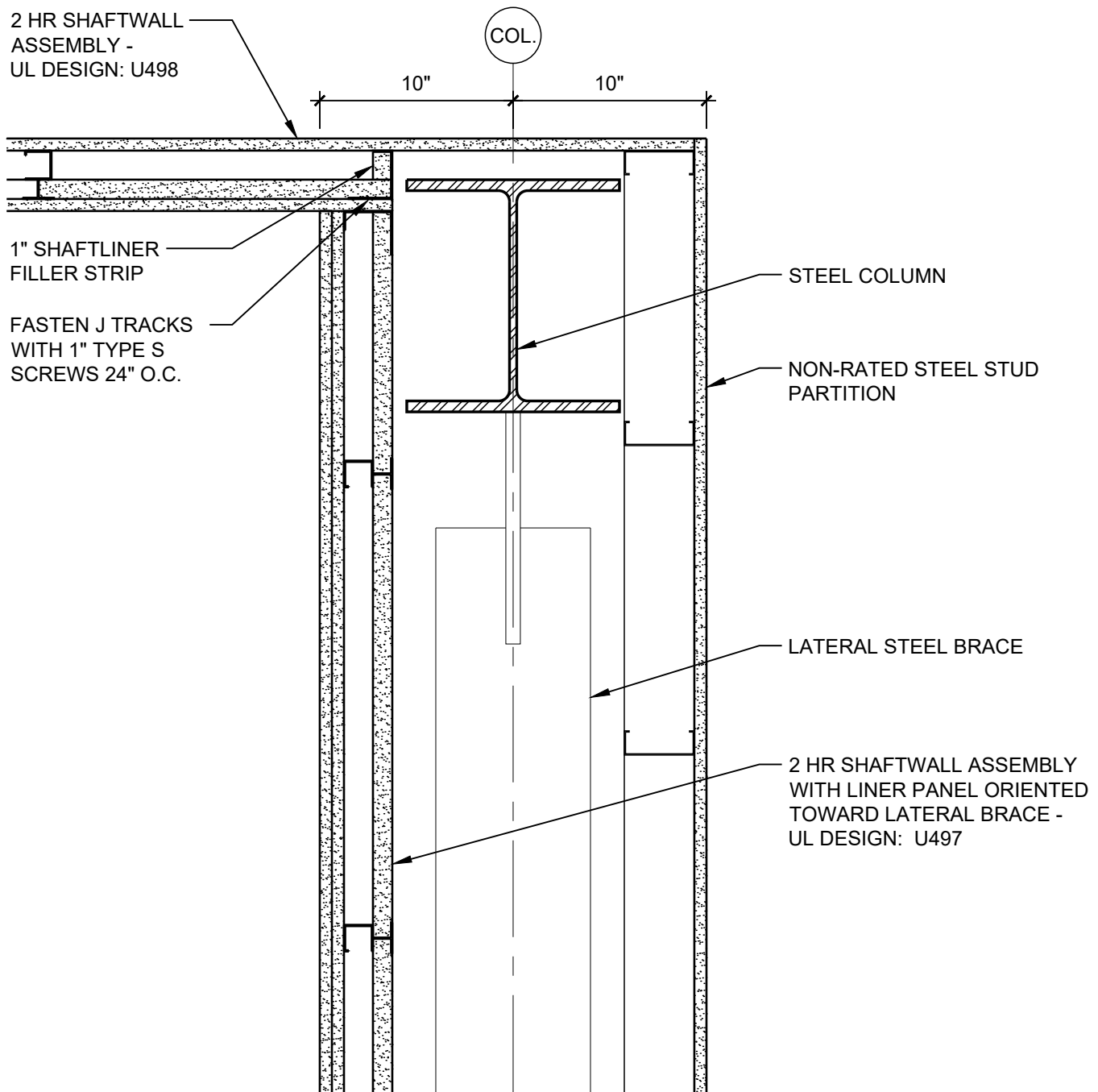
SCALE: 2"=1'-0"

DETAIL: SW 705

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DATE: 09/01/18	FLOOR PLAN OF STAIR AT LATERAL BRACE	
SCALE: 3/8"=1'-0"	DETAIL: ST 101	



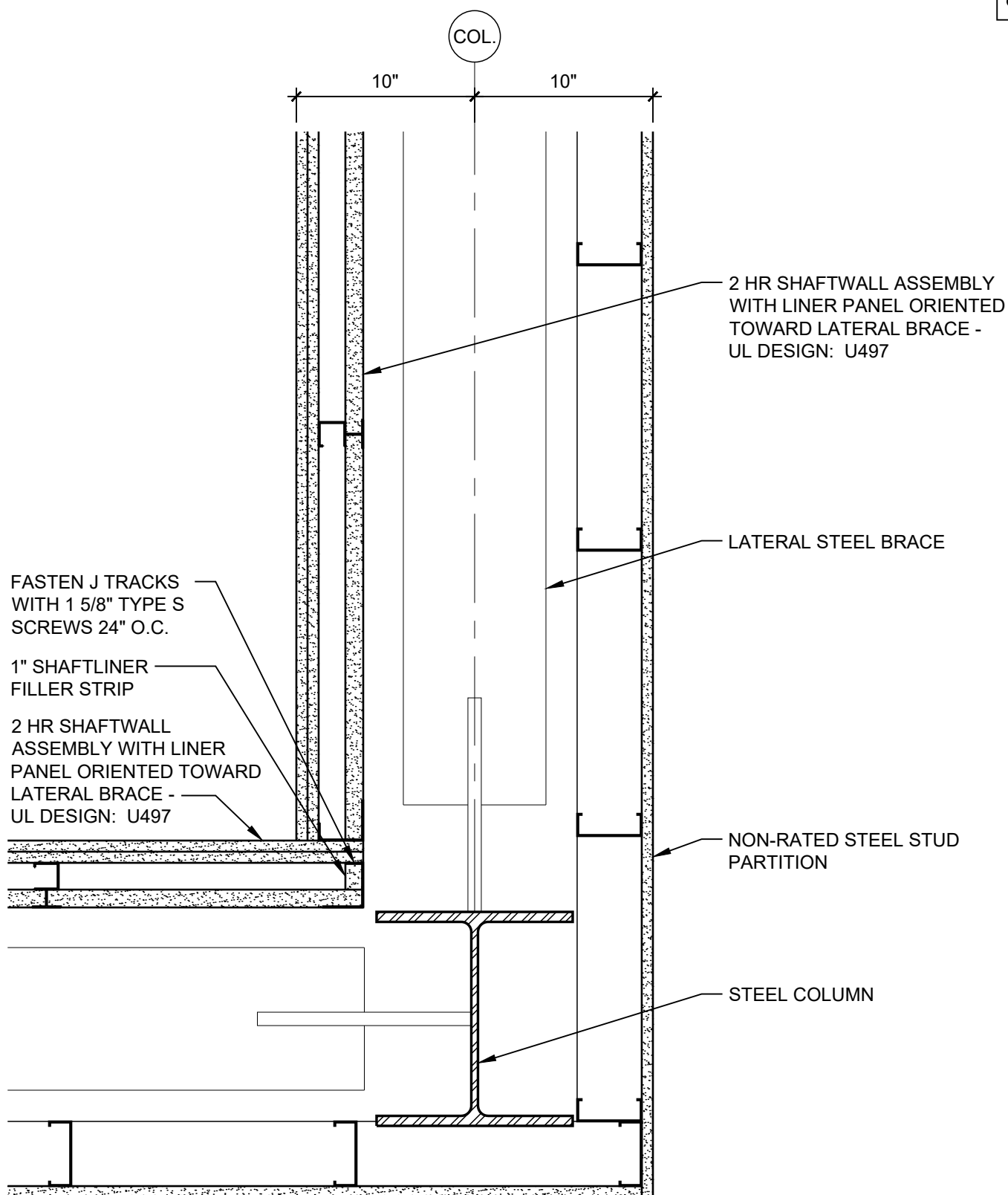
DATE: 09/01/18

STAIR SHAFTWALL CORNER AT LATERAL BRACE

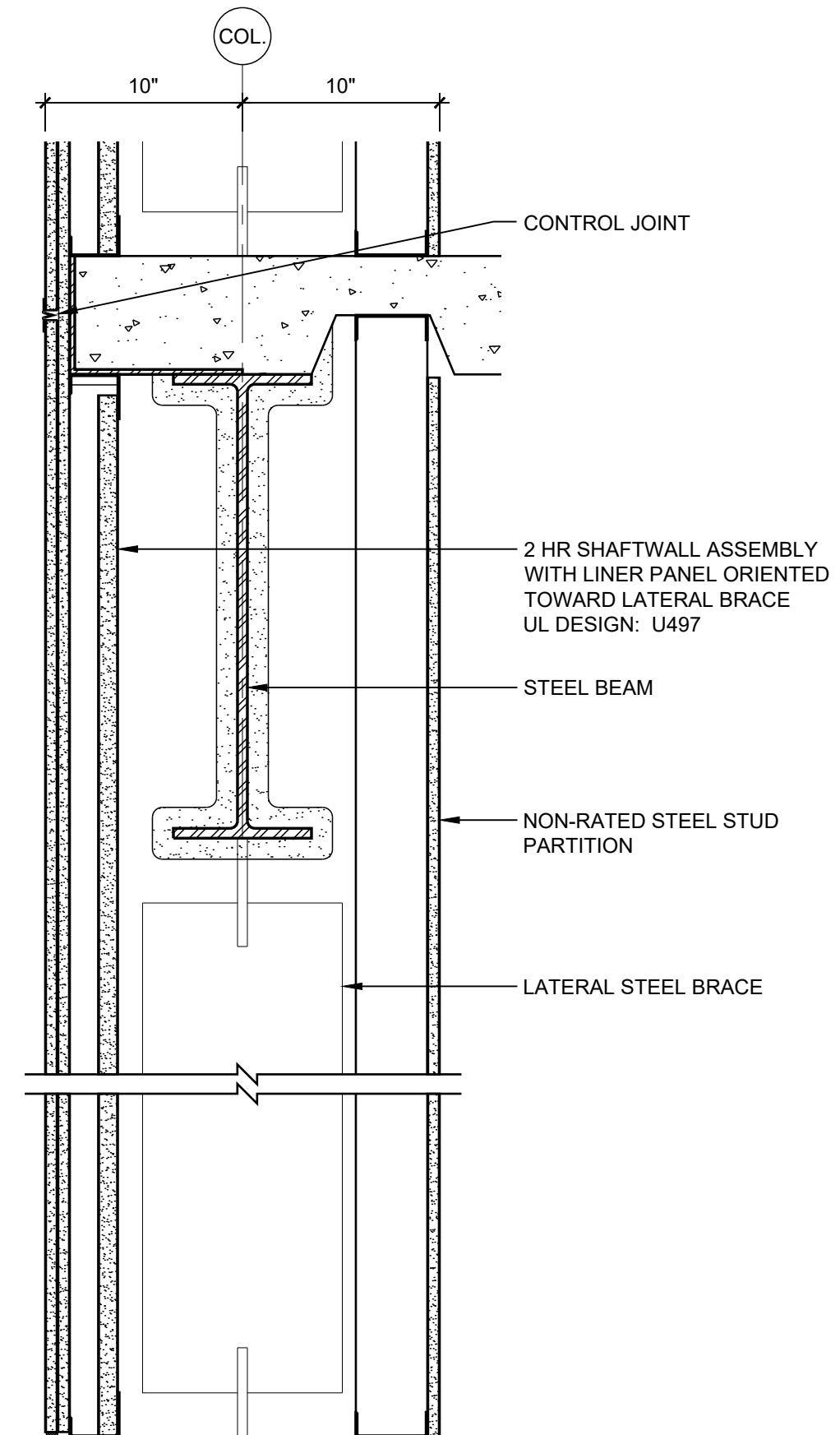
SCALE: 1 1/2"=1'-0"

DETAIL: ST 102

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Gypsum



DATE: 09/01/18	STAIR SHAFTWALL CORNER AT LATERAL BRACE	
SCALE: 1 1/2"=1'-0"	DETAIL: ST 103	



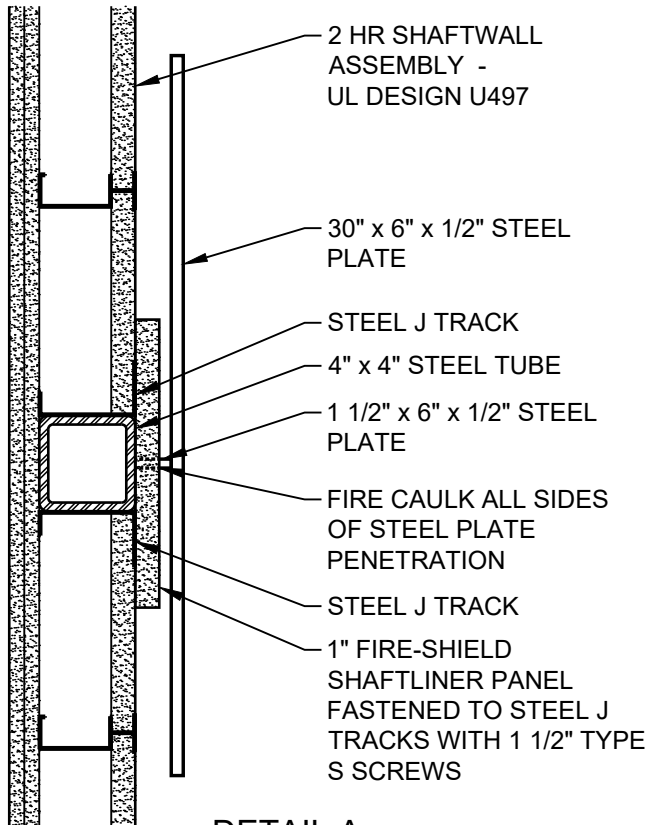
DATE: 09/01/18

STAIR SHAFTWALL SECTION AT LATERAL BRACE

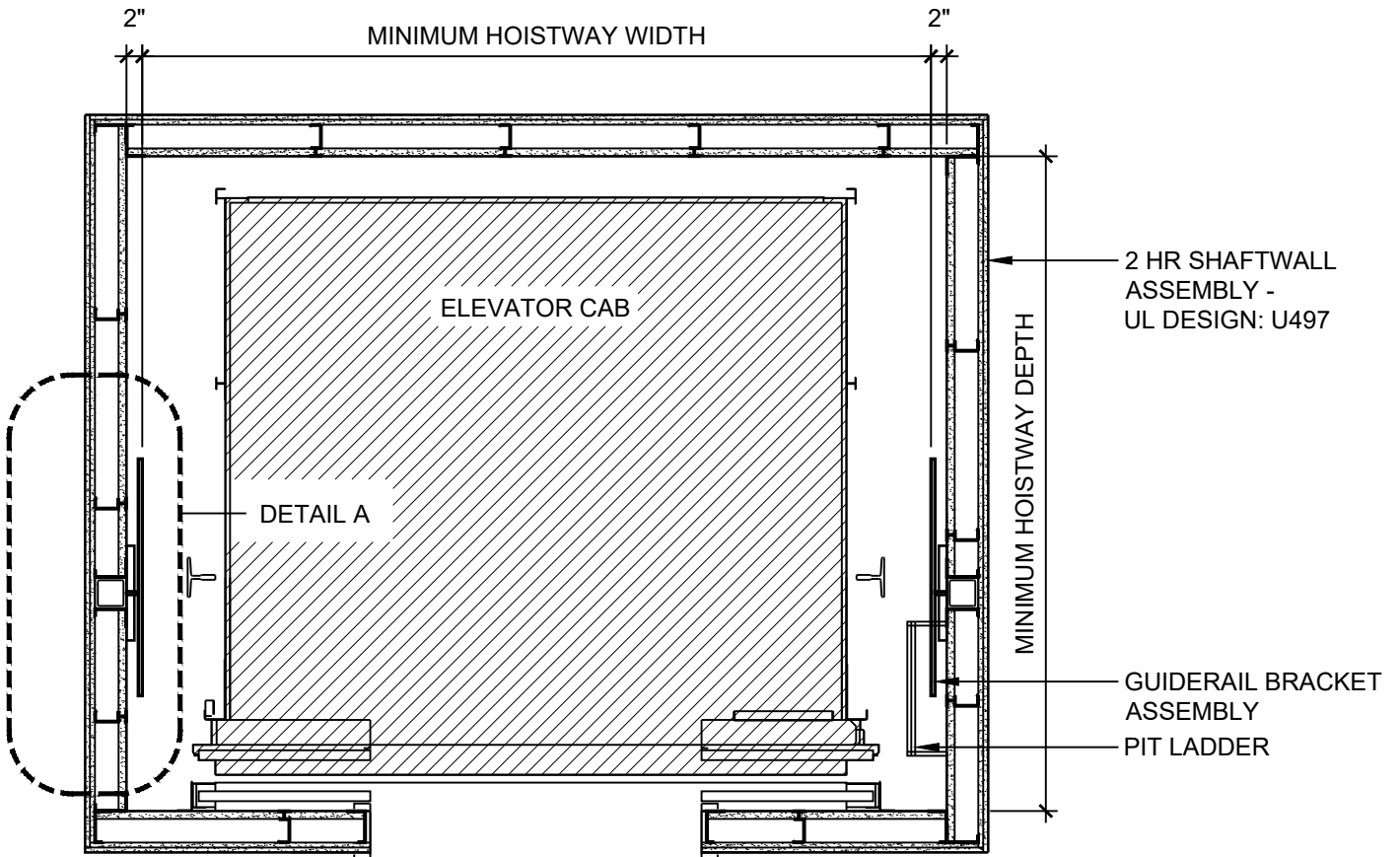
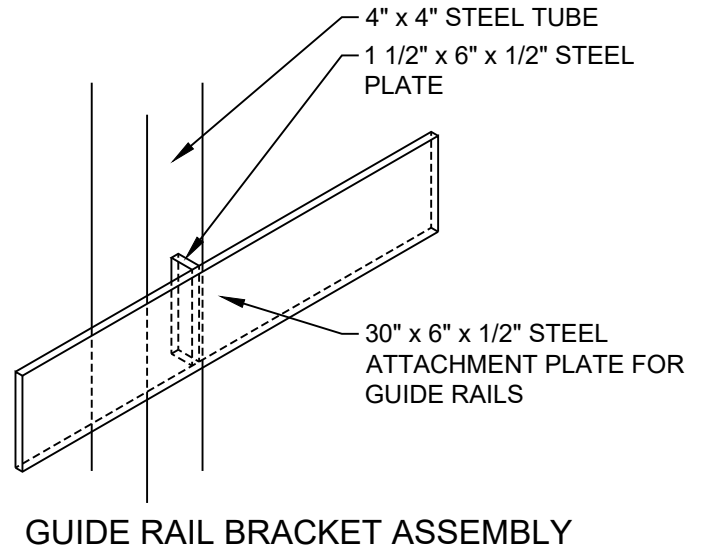
SCALE: 1 1/2"=1'-0"

DETAIL: ST 104

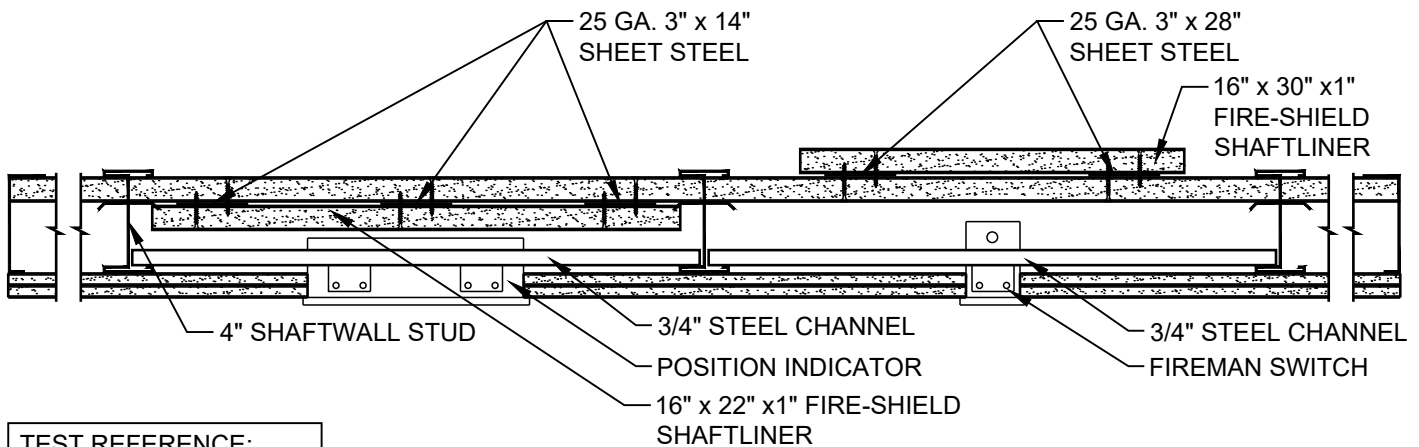
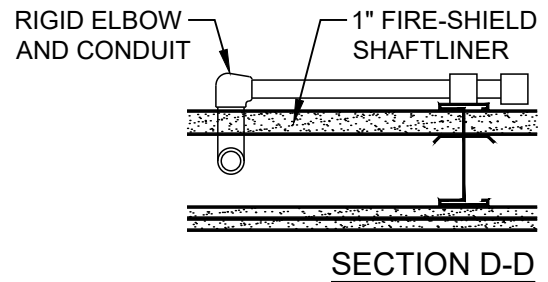
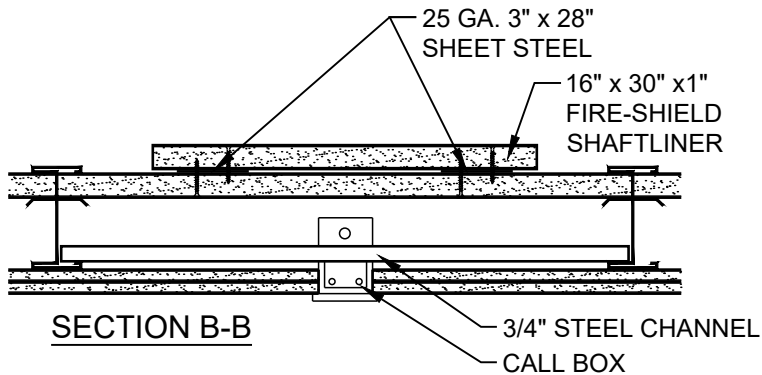
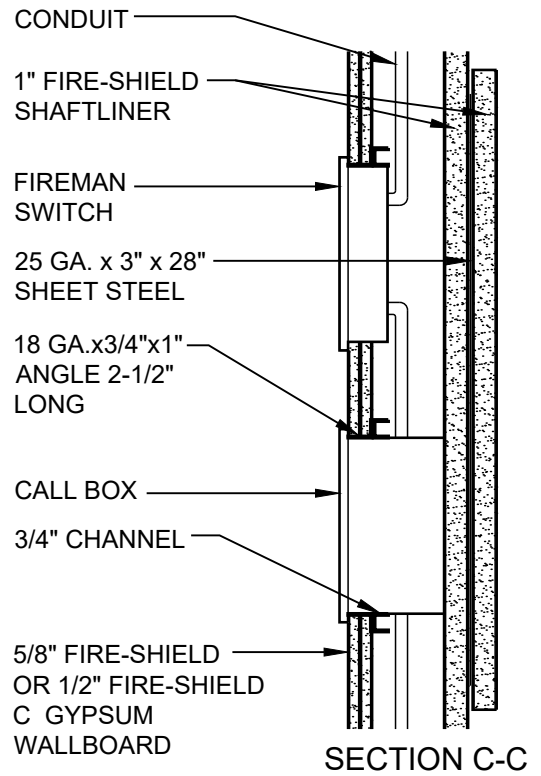
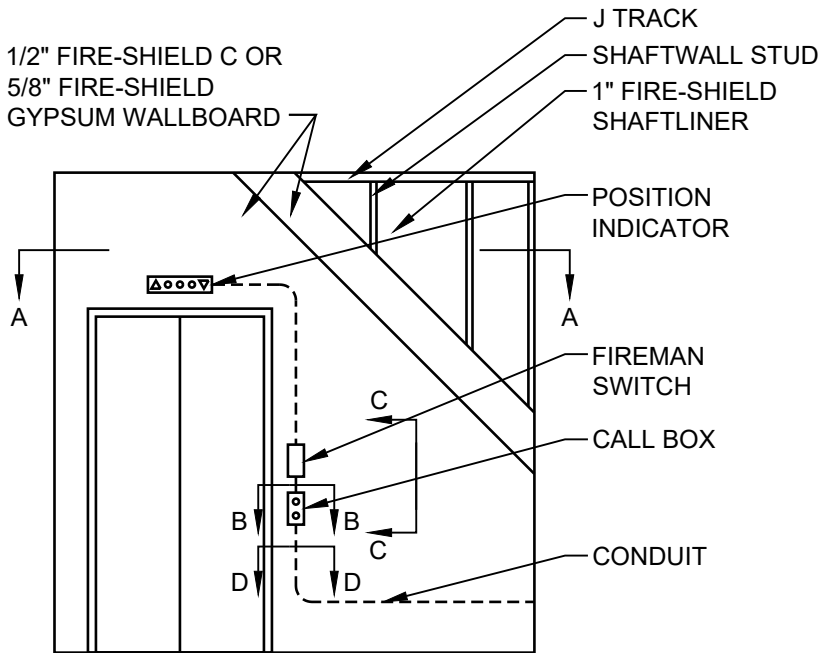
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DETAIL A



DATE: 09/01/18	ELEVATOR SHAFT ENCLOSURE PLAN	
SCALE: 1/2"=1'-0"	DETAIL: EV 101	



TEST REFERENCE:
FM WP-612
FM WP-621

SECTION A-A

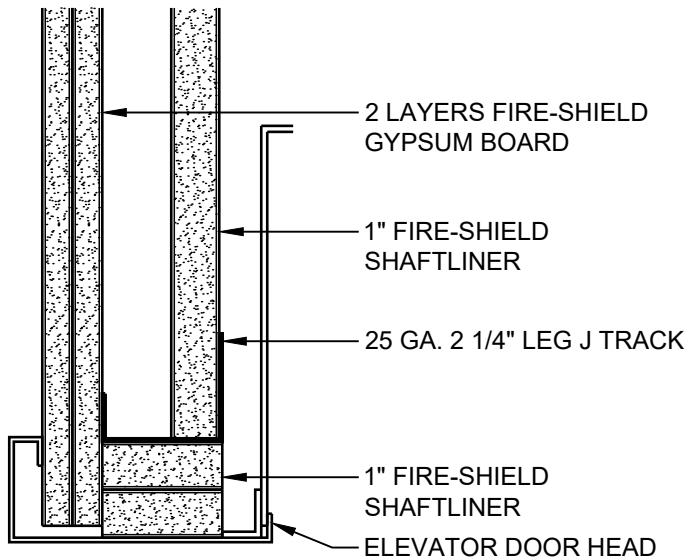
DATE: 09/01/18

POSITION INDICATOR AND CONTROL BOX PROTECTION
IN ELEVATOR SHAFTWALL

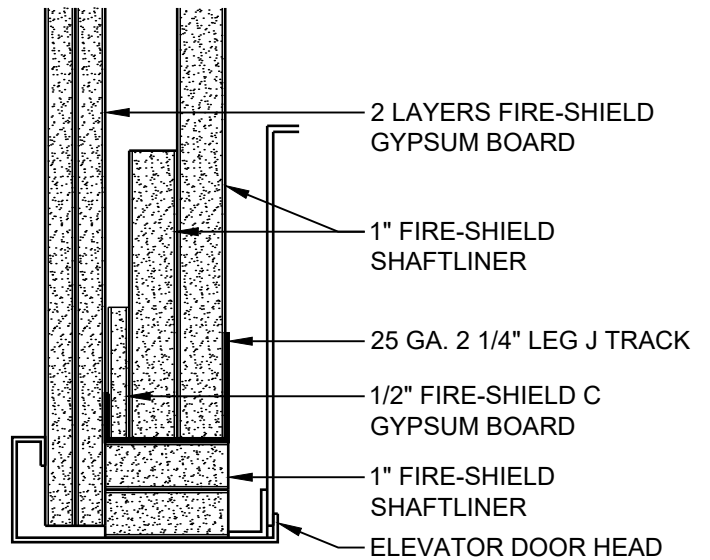
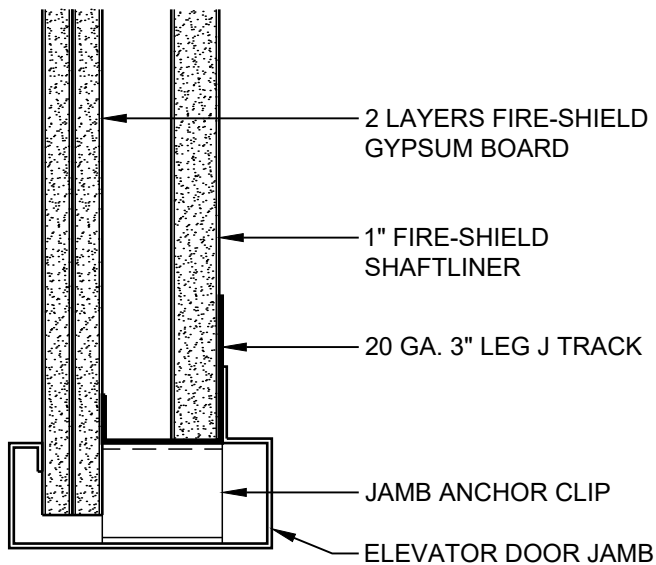
SCALE: 1 1/2"=1'-0"

DETAIL: EV 102

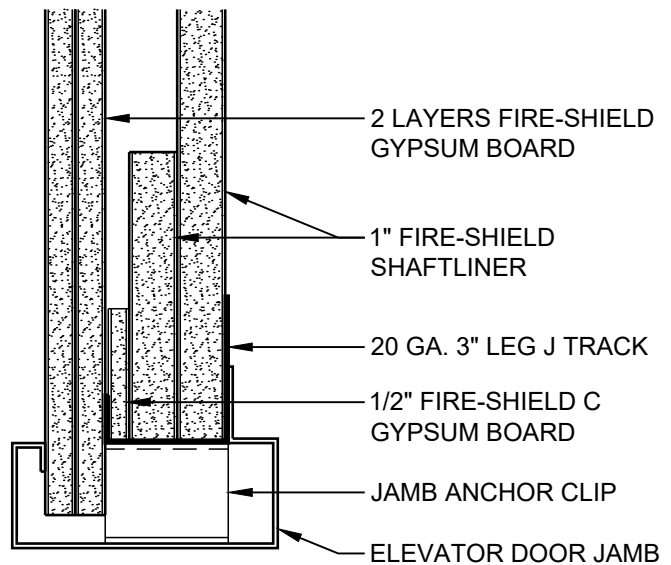
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ELEVATOR DOOR HEAD

ELEVATOR DOOR HEAD
(FOR ELEVATOR DOORS > 7'-0")

ELEVATOR DOOR JAMB

ELEVATOR DOOR JAMB
(FOR ELEVATOR DOORS > 7'-0")

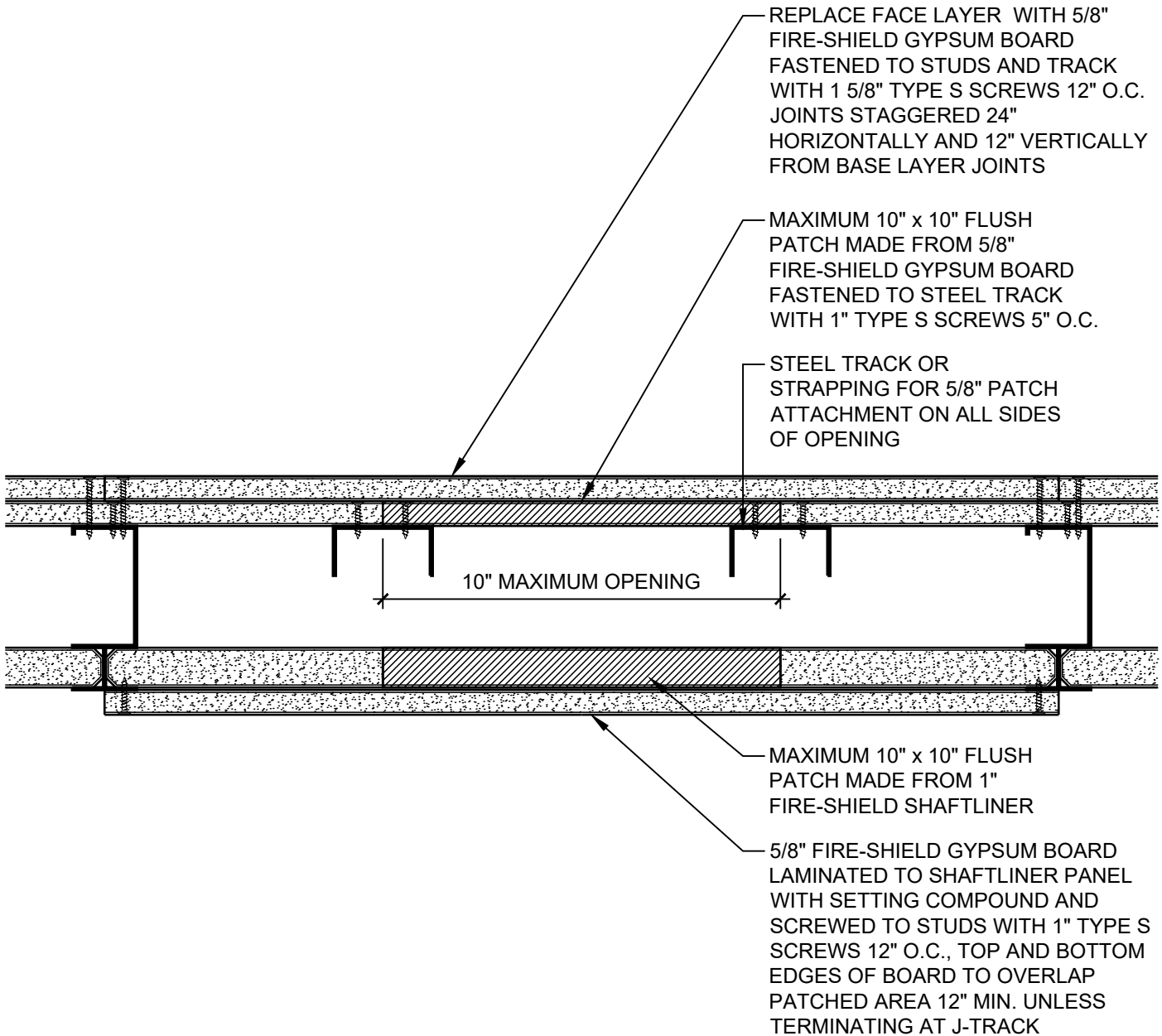
DATE: 09/01/18

ELEVATOR SHAFTWALL HEAD AND JAMB DETAILS



SCALE: 3"=1'-0"

DETAIL: EV 103



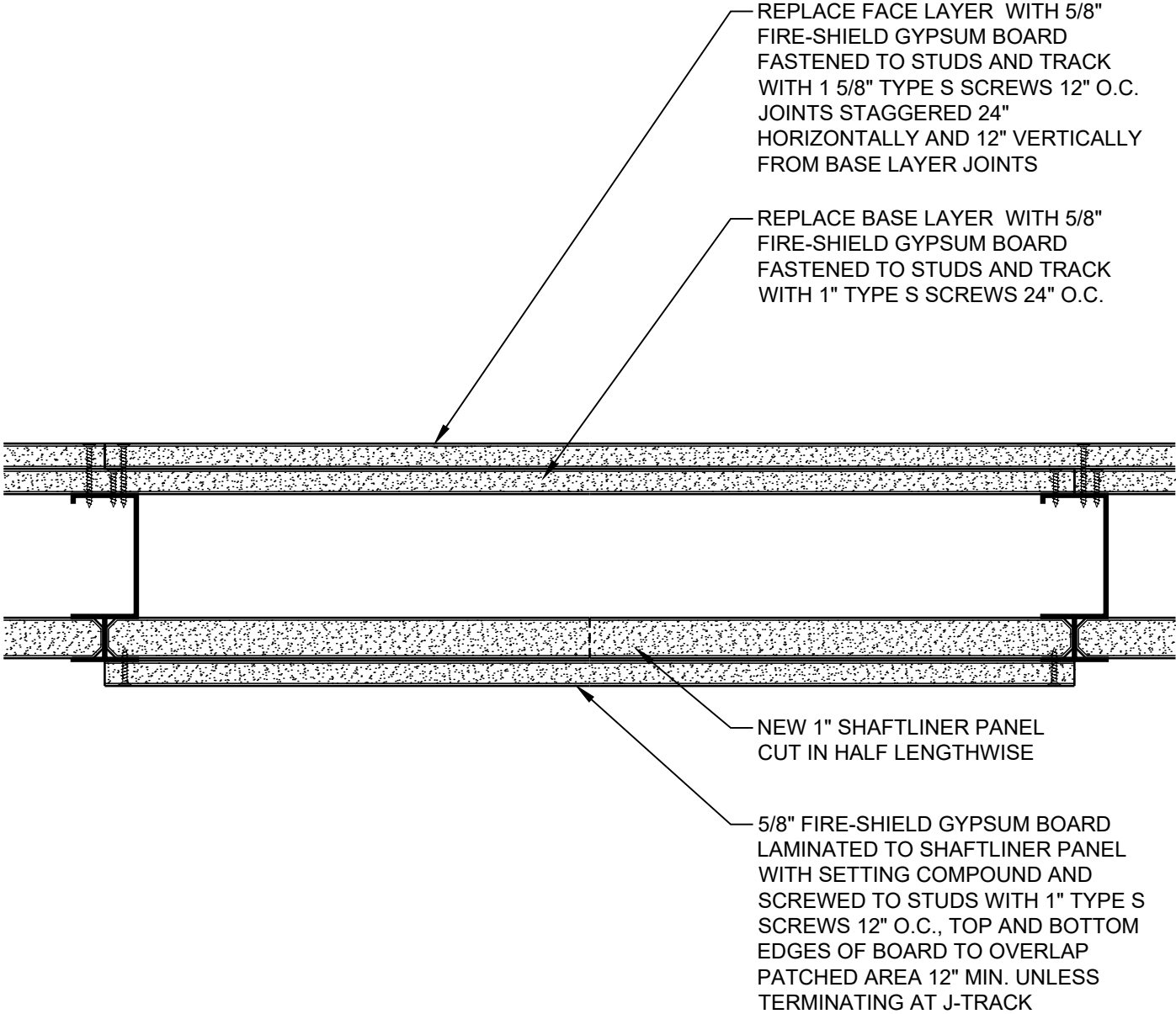
DATE: 09/01/18

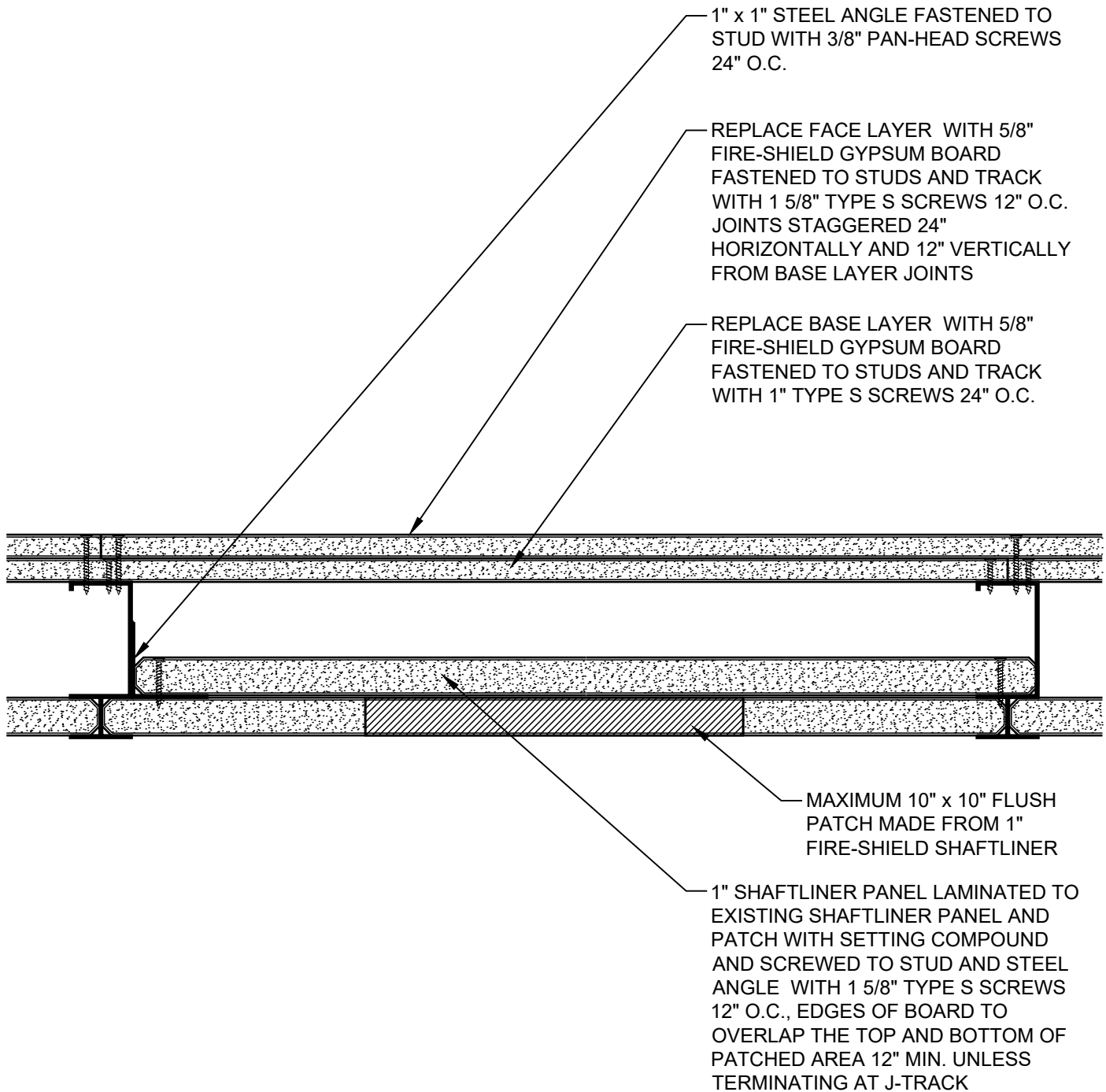
2 HR SHAFTWALL REPAIR DETAIL

SCALE: 3"=1'-0"

DETAIL: SR 101







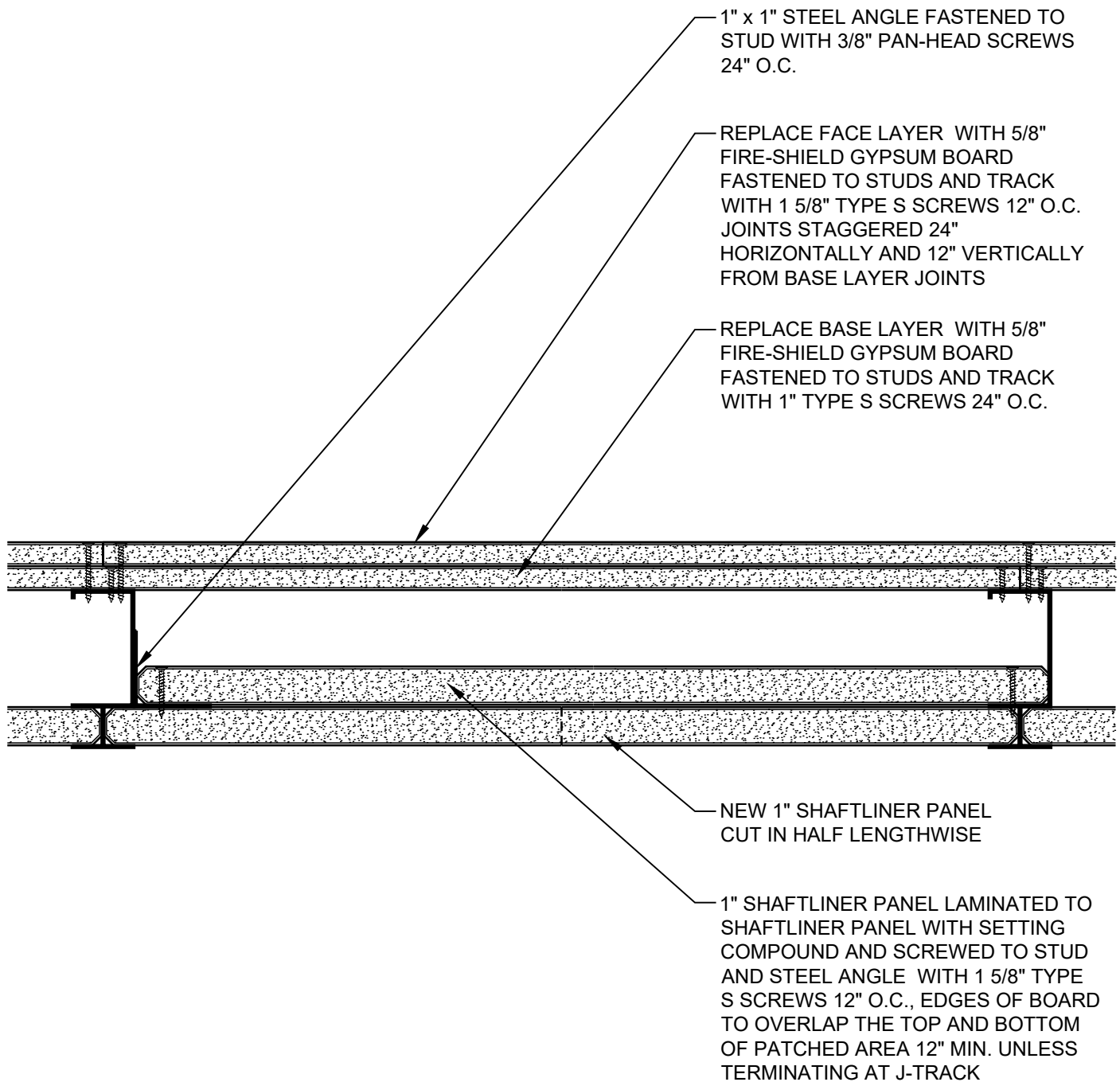
DATE: 09/01/18

2 HR SHAFTWALL REPAIR DETAIL

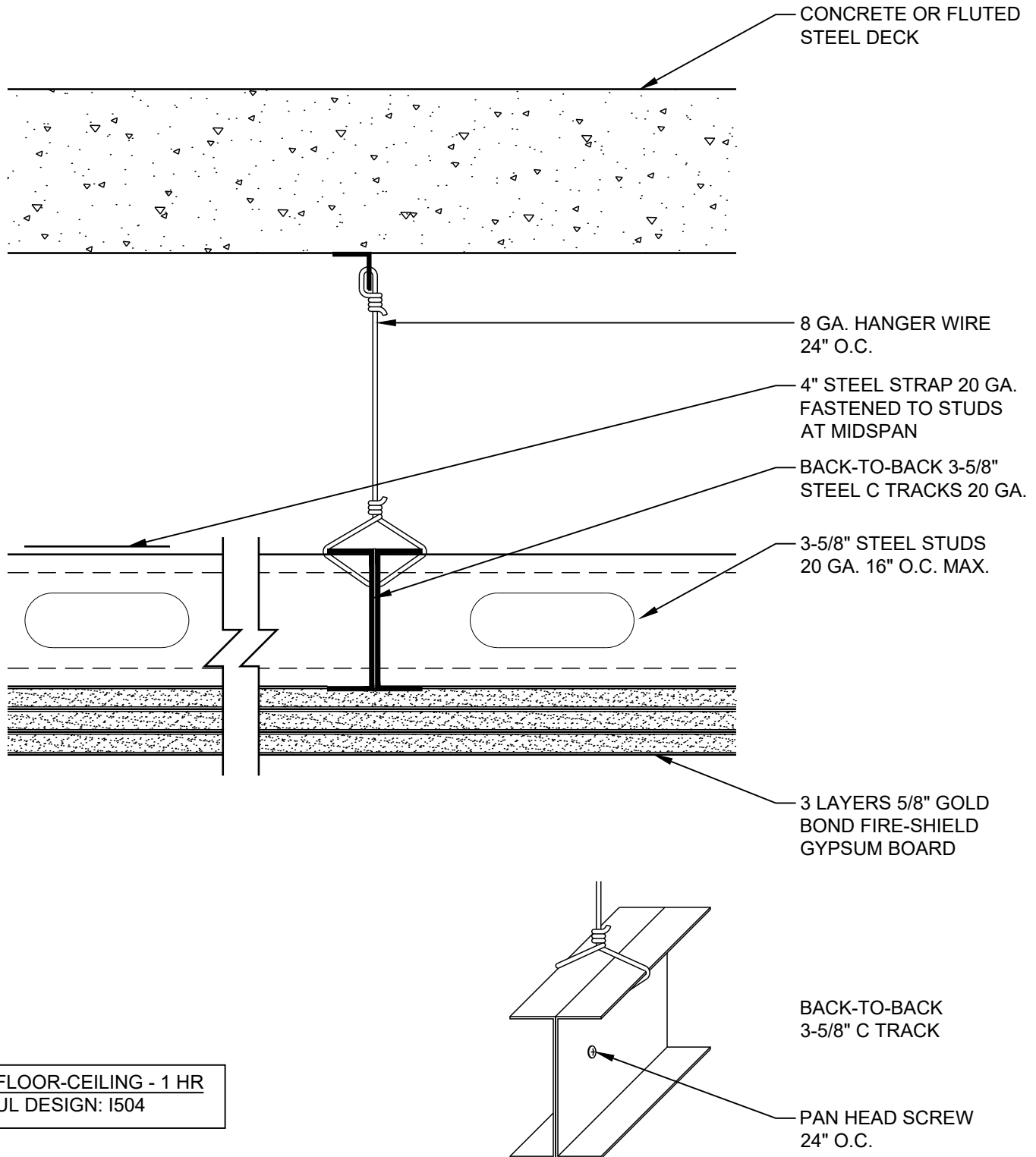
SCALE: 3"=1'-0"

DETAIL: SR 103





DATE: 09/01/18	2 HR SHAFTWALL REPAIR DETAIL	
SCALE: 3"=1'-0"	DETAIL: SR 104	



HANGER ASSEMBLY DETAIL
(REQUIRED FOR SPANS GREATER THAN 8'-0")

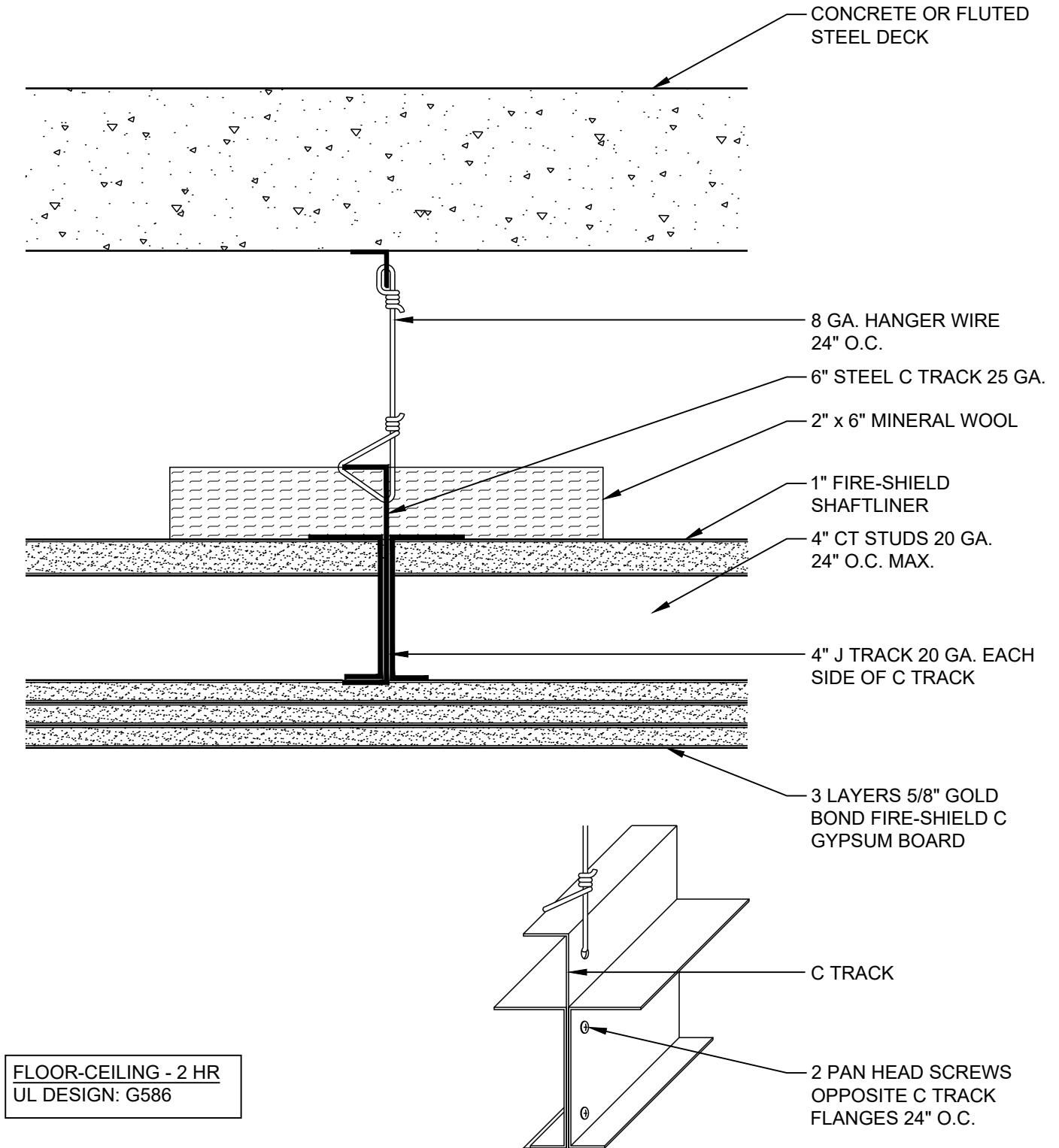
DATE: 09/01/18

1 HOUR HORIZONTAL MEMBRANE

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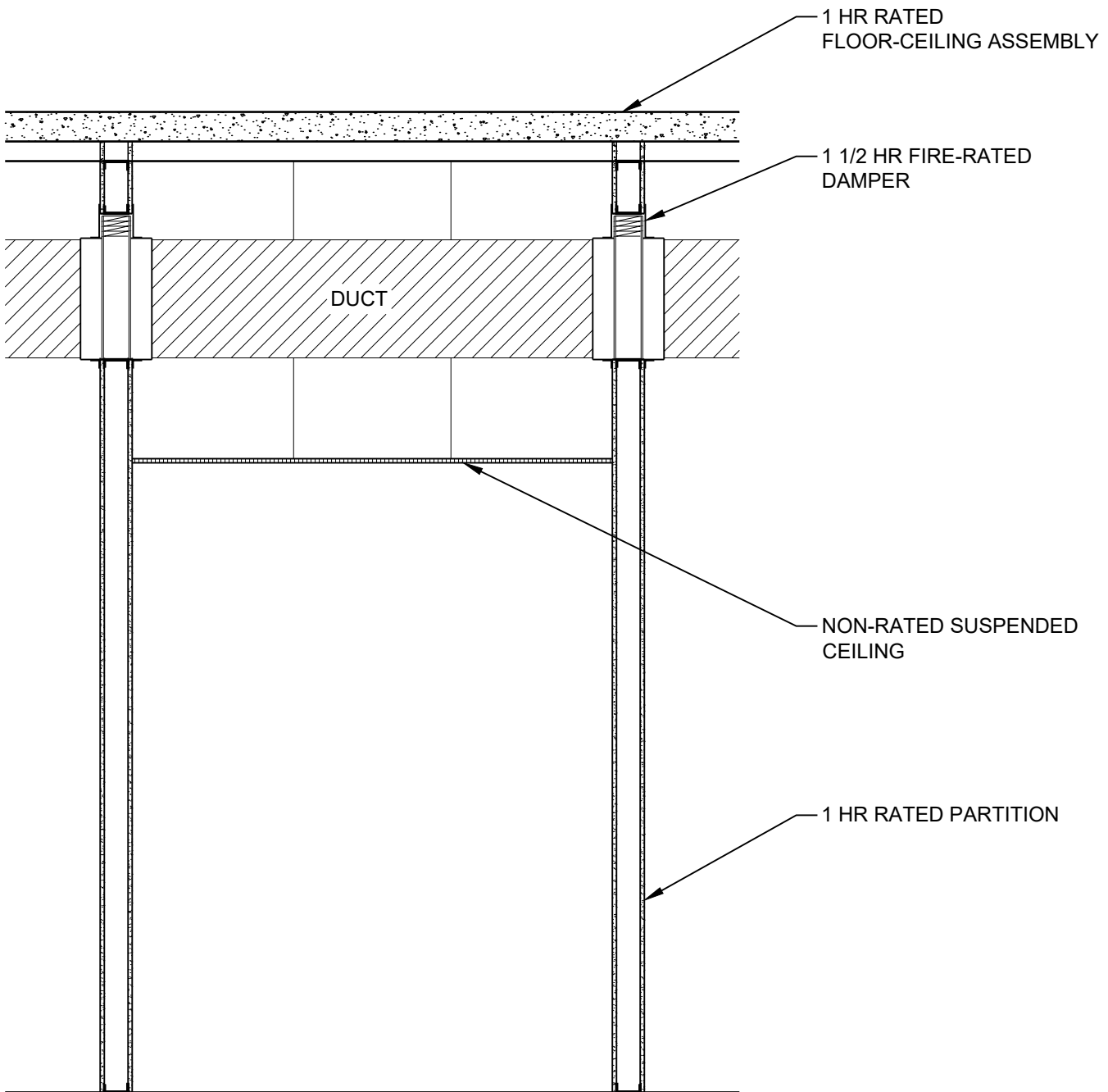
SCALE: 3"=1'-0"

DETAIL: HM 101



HANGER ASSEMBLY DETAIL
(REQUIRED FOR SPANS GREATER THAN 8'-0")

DATE: 09/01/18	2 HOUR HORIZONTAL MEMBRANE	
SCALE: 3"=1'-0"	DETAIL: HM 201	



DATE: 09/01/18

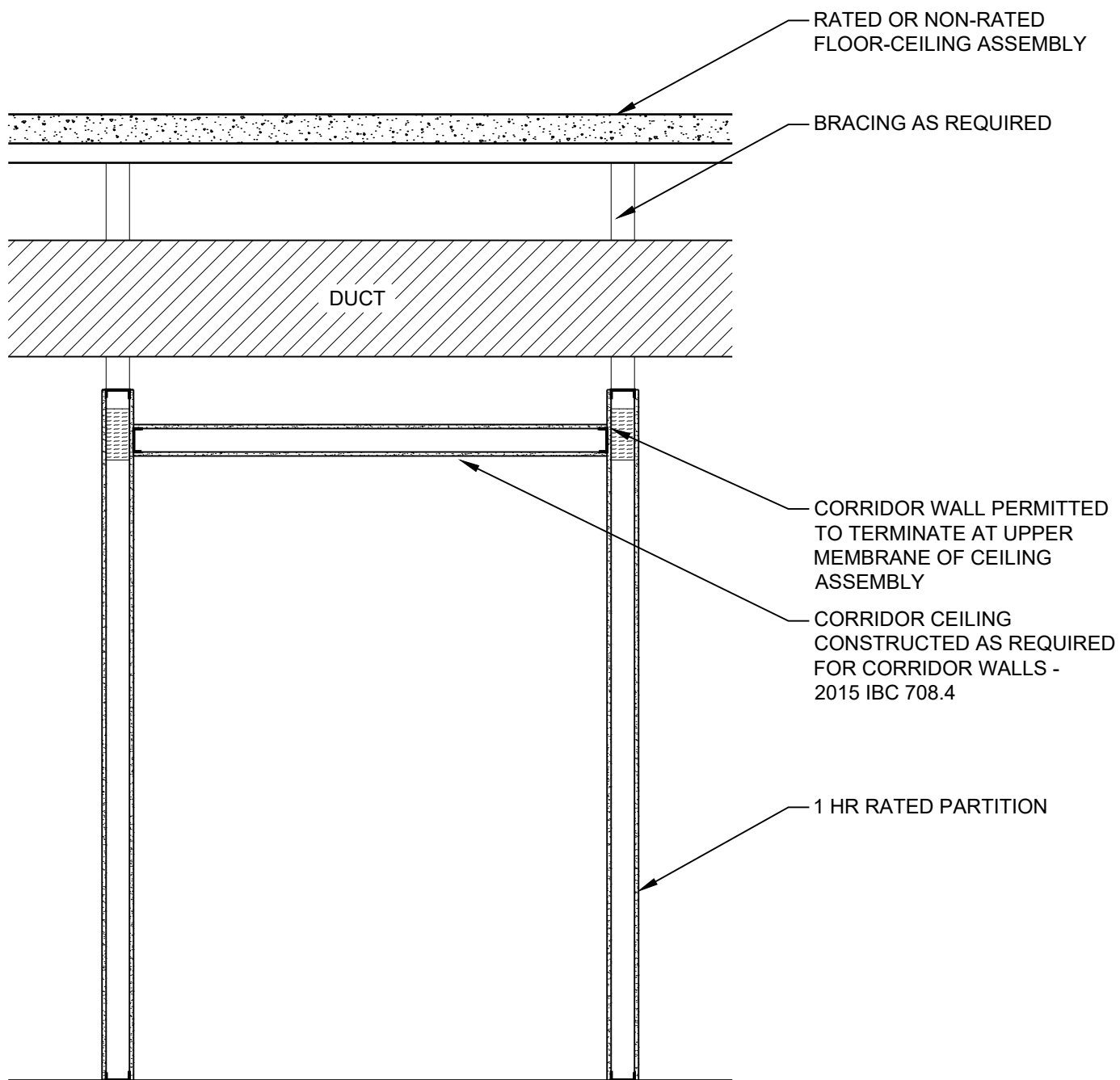
1 HOUR CORRIDOR ASSEMBLY

SCALE: 1/2"=1'-0"

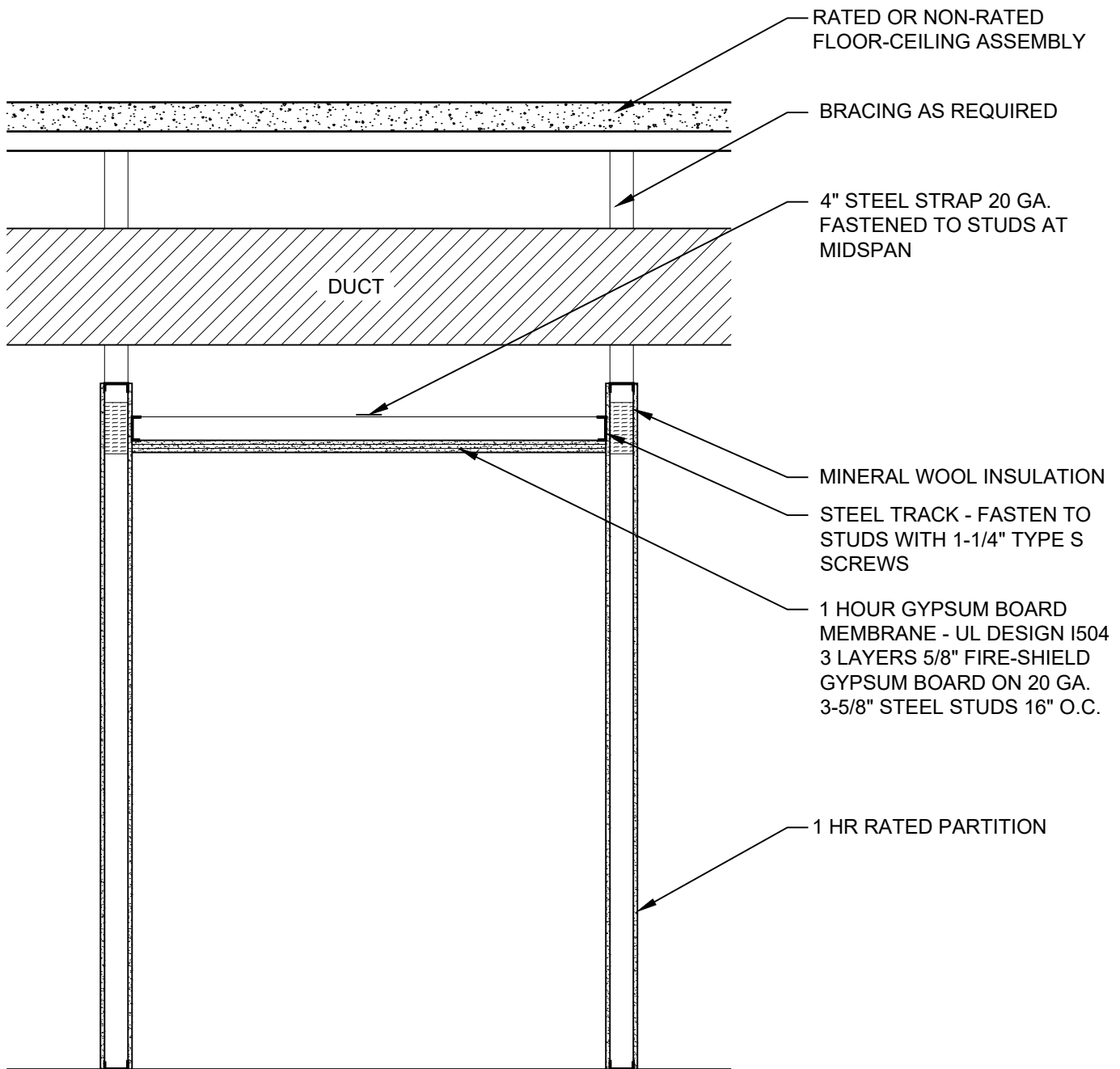
DETAIL: CR 101

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DATE: 09/01/18	1 HOUR CORRIDOR ASSEMBLY	
SCALE: 1/2"=1'-0"	DETAIL: CR 102	



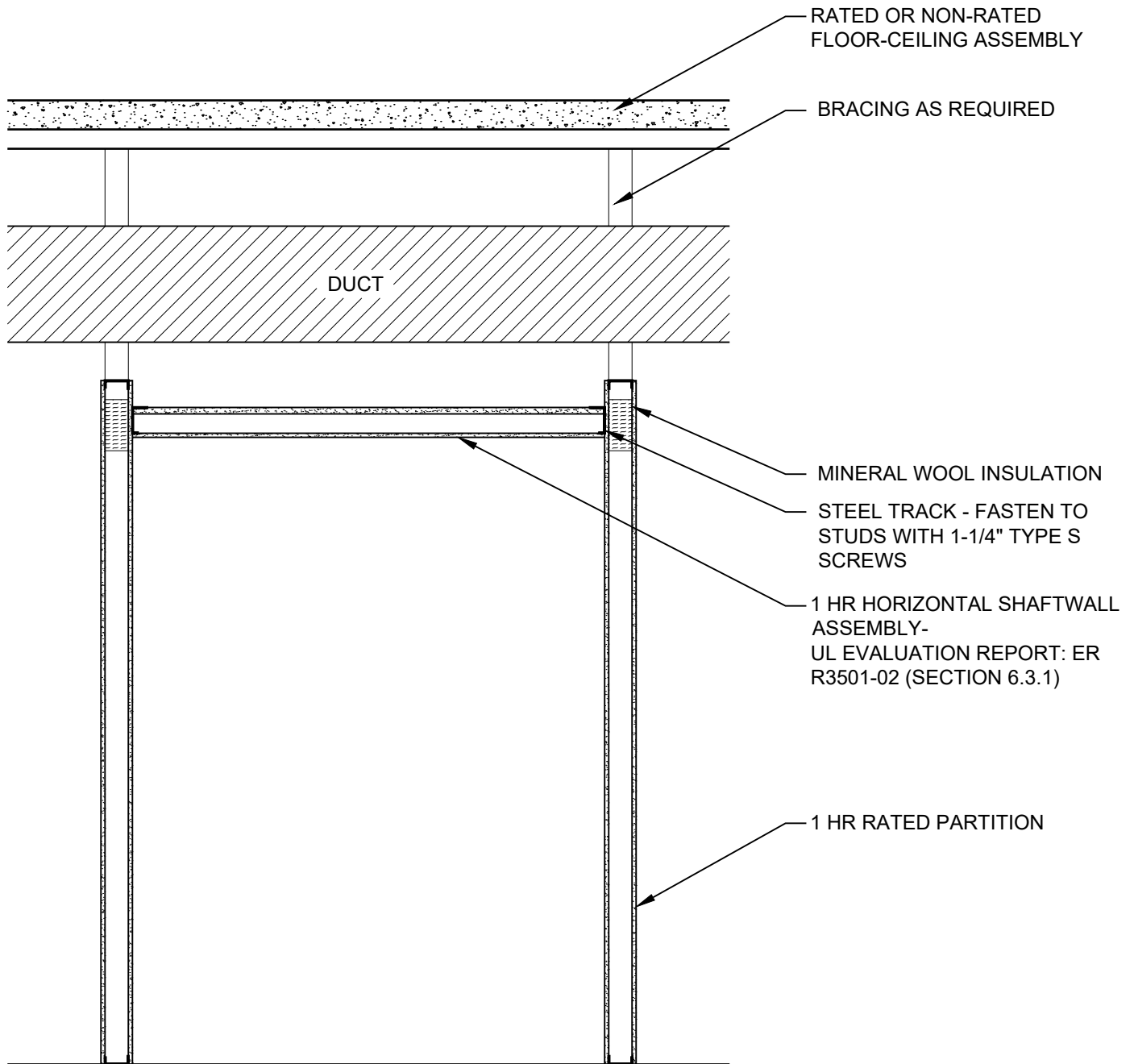
DATE: 09/01/18

1 HOUR CORRIDOR ASSEMBLY

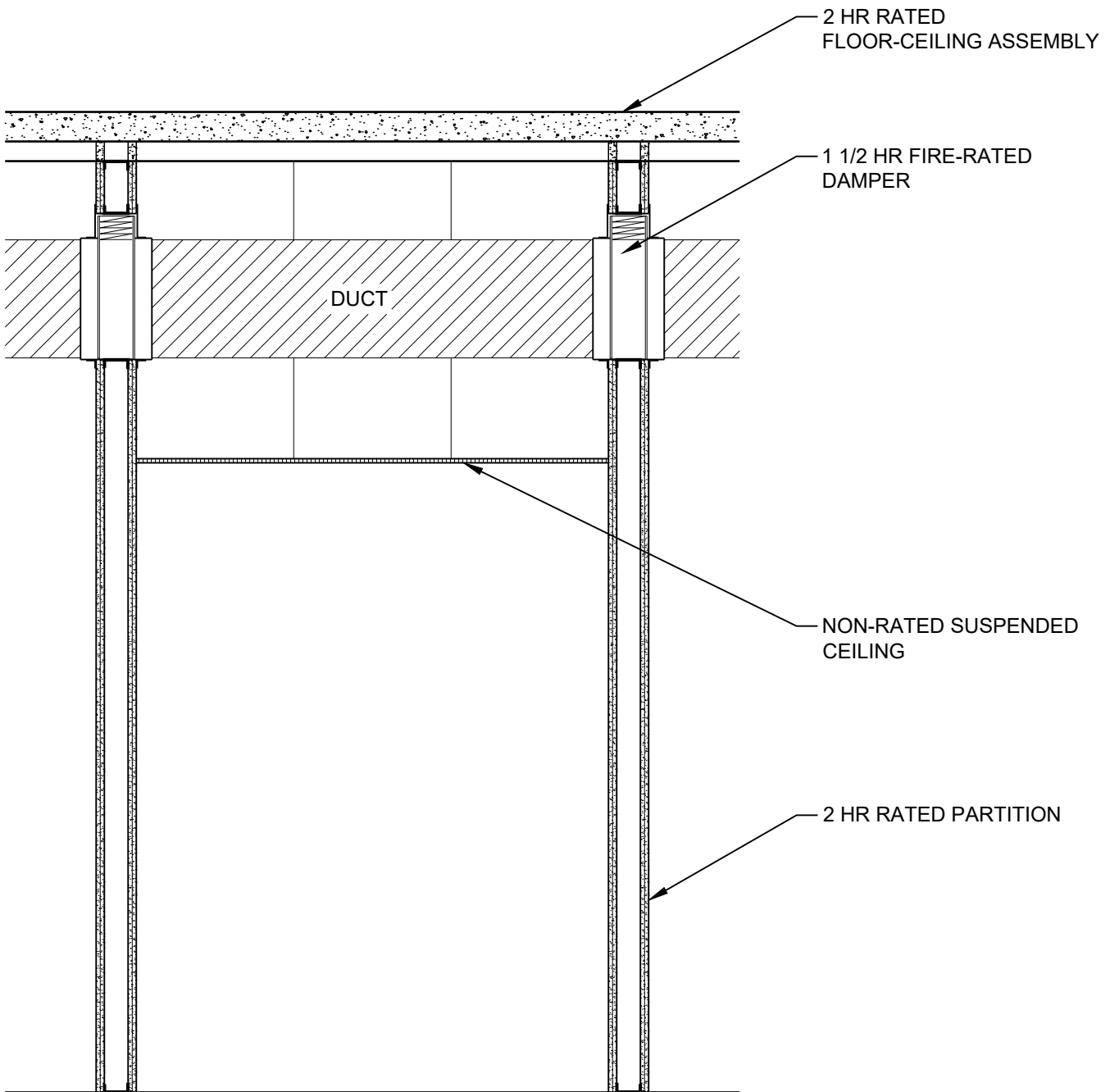
SCALE: 1/2"=1'-0"

DETAIL: CR 103

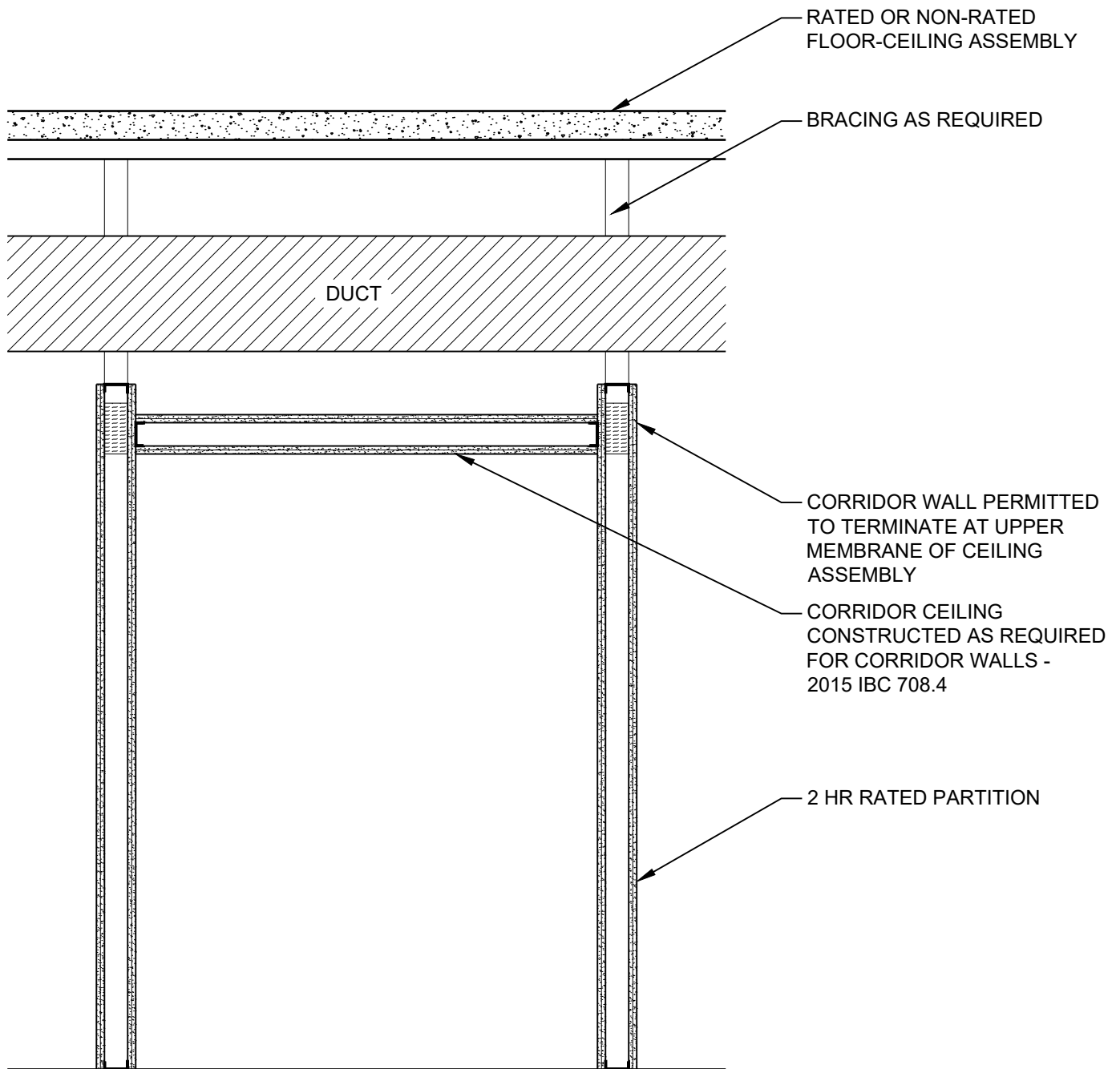




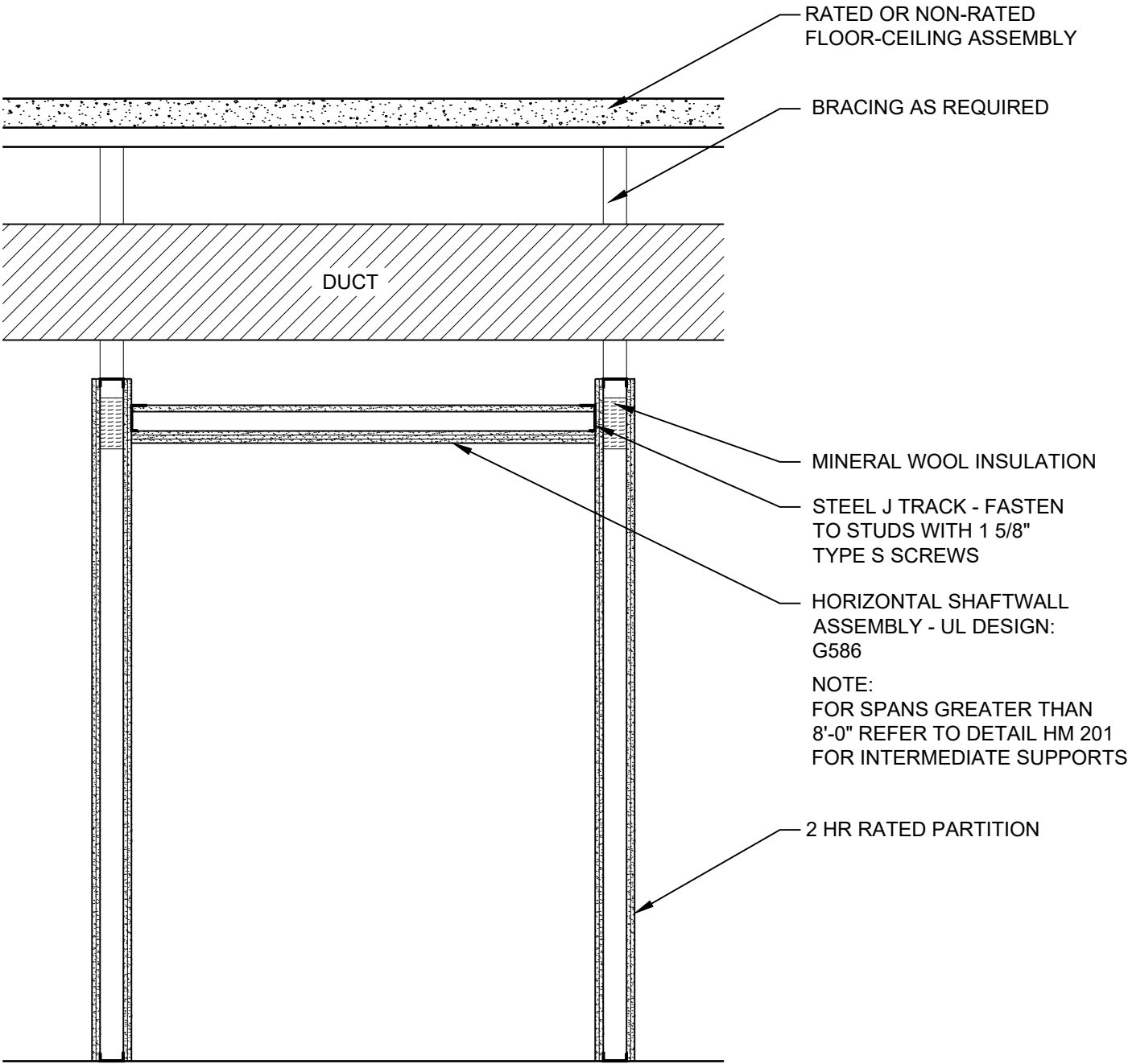
DATE: 04/06/17	1 HOUR CORRIDOR ASSEMBLY	
SCALE: 1/2"=1'-0"	DETAIL: CR 104	



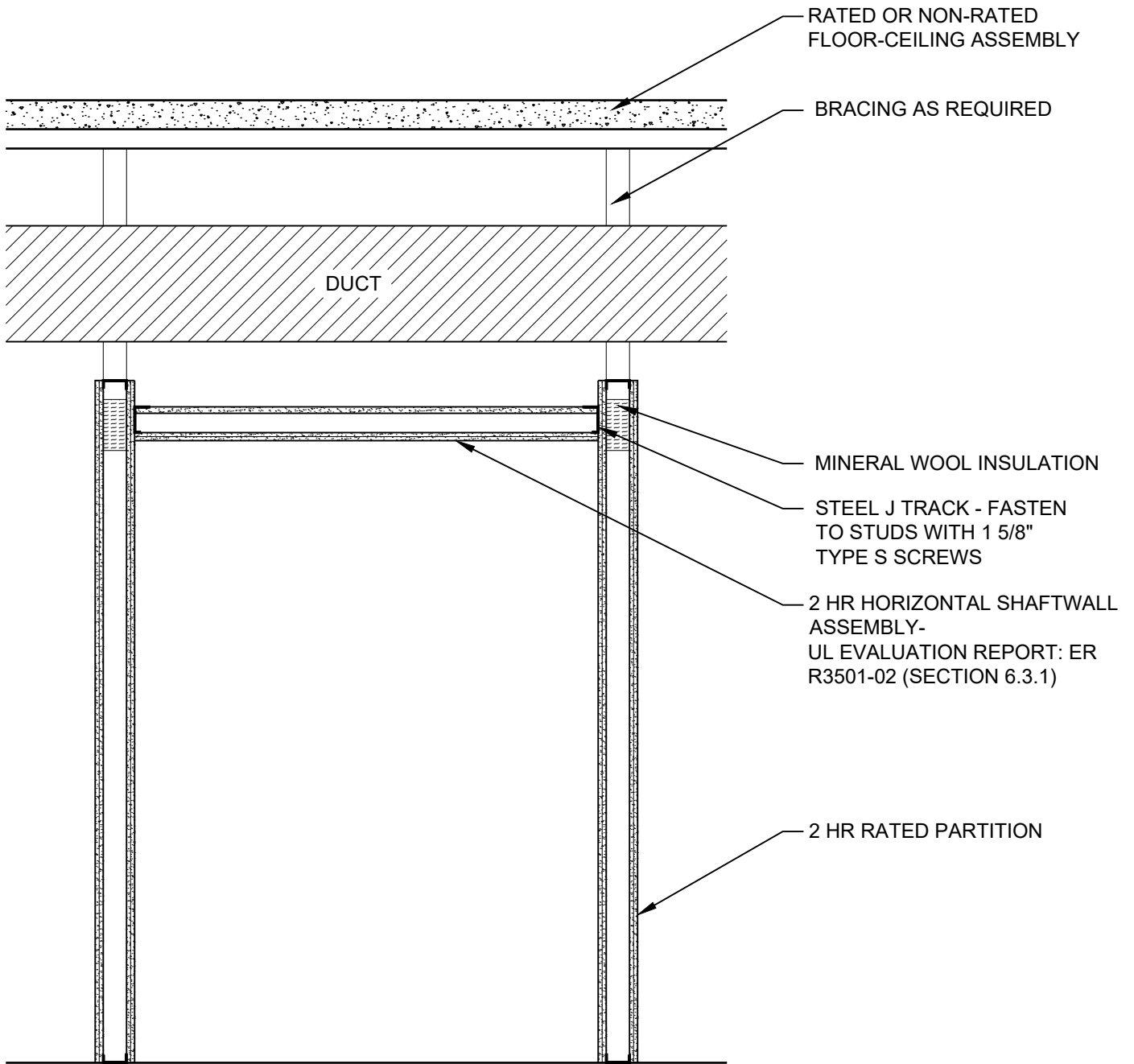
DATE: 09/01/18	2 HOUR CORRIDOR ASSEMBLY	
SCALE: 1/2"=1'-0"	DETAIL: CR 201	



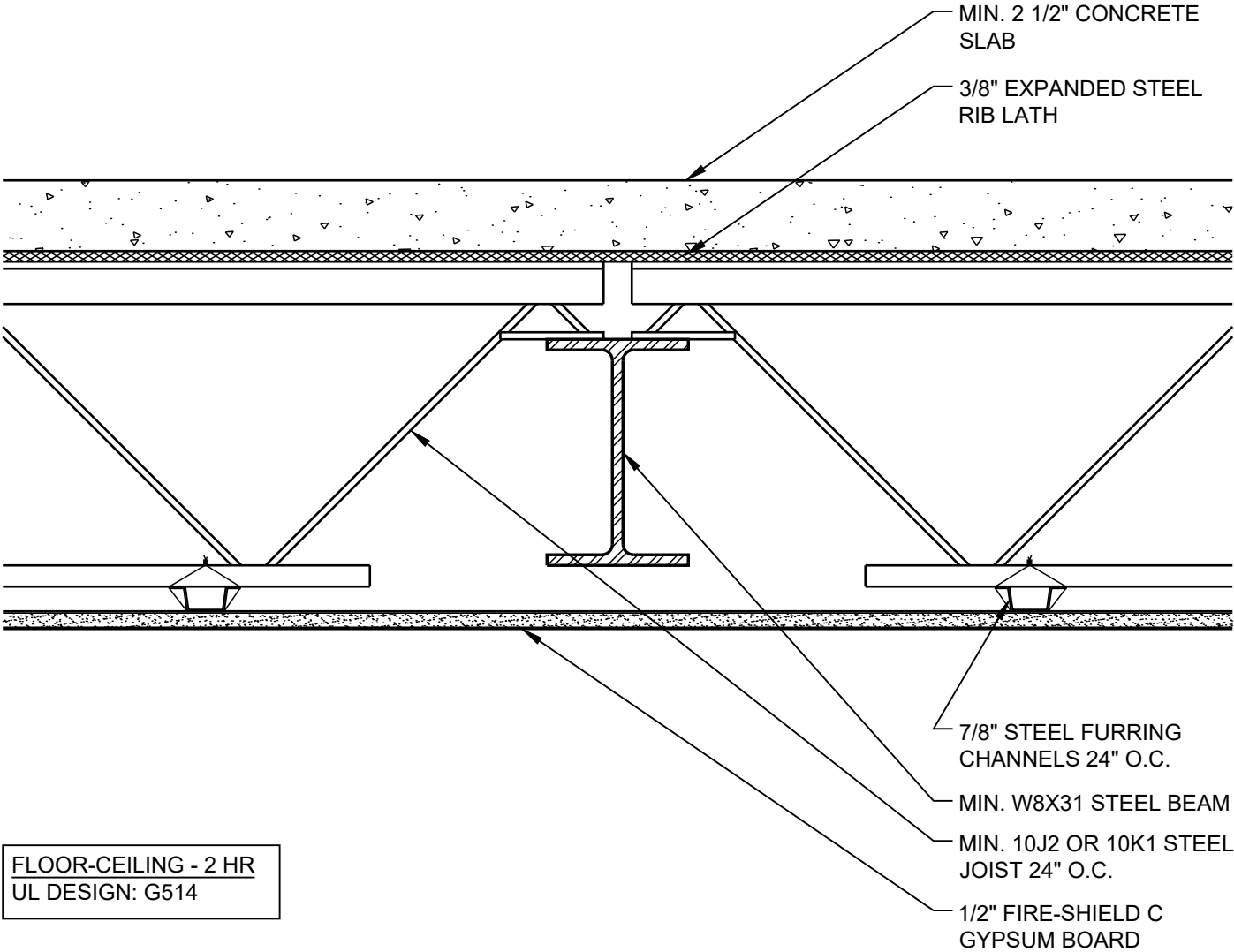
DATE: 09/01/18	2 HOUR CORRIDOR ASSEMBLY	
SCALE: 1/2"=1'-0"	DETAIL: CR 202	



DATE: 09/01/18	2 HOUR CORRIDOR ASSEMBLY	
SCALE: 1/2"=1'-0"	DETAIL: CR 203	



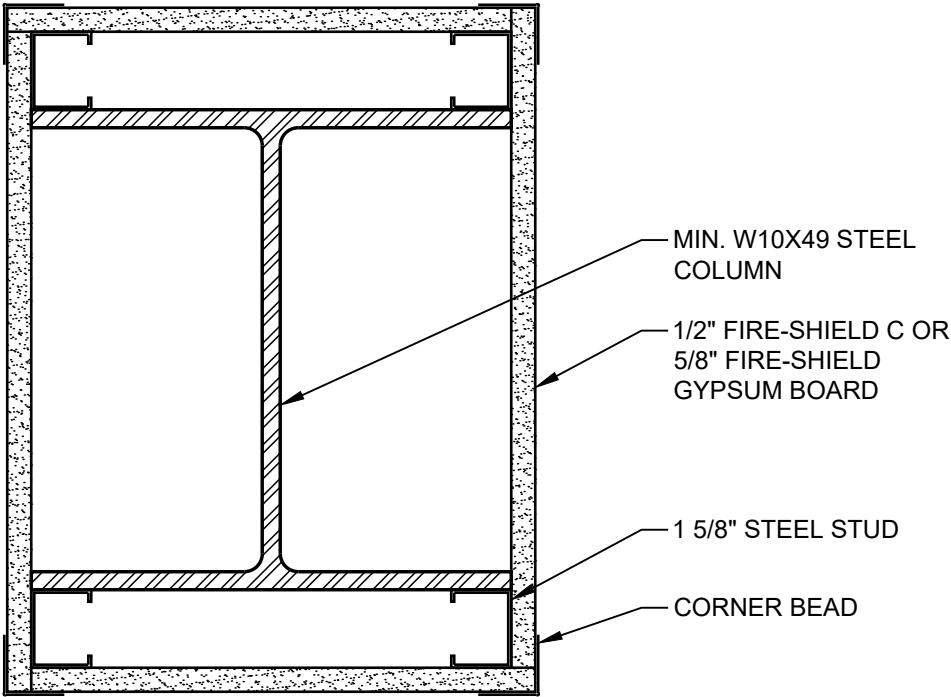
DATE: 09/01/18	2 HOUR CORRIDOR ASSEMBLY	
SCALE: 1/2"=1'-0"	DETAIL: CR 204	



FLOOR-CEILING - 2 HR
UL DESIGN: G514

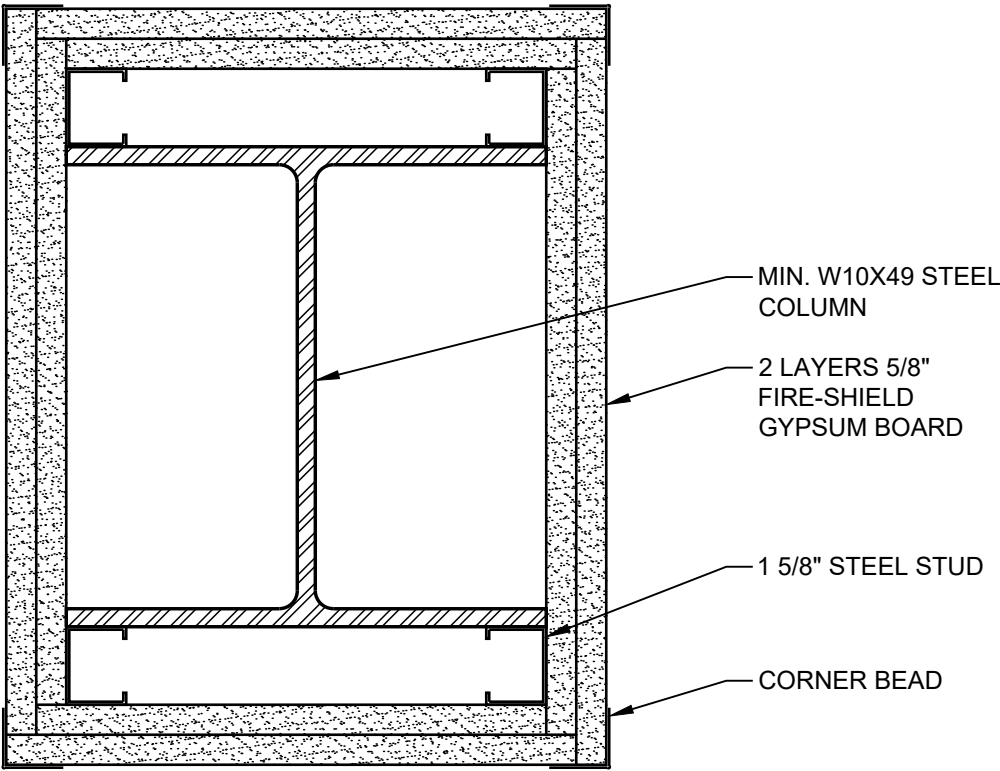
DATE: 09/01/18	2 HOUR FLOOR-CEILING ASSEMBLY	
SCALE: 2"=1'-0"	DETAIL: FC 201	

COLUMN - 1 HR
UL DESIGN: X528



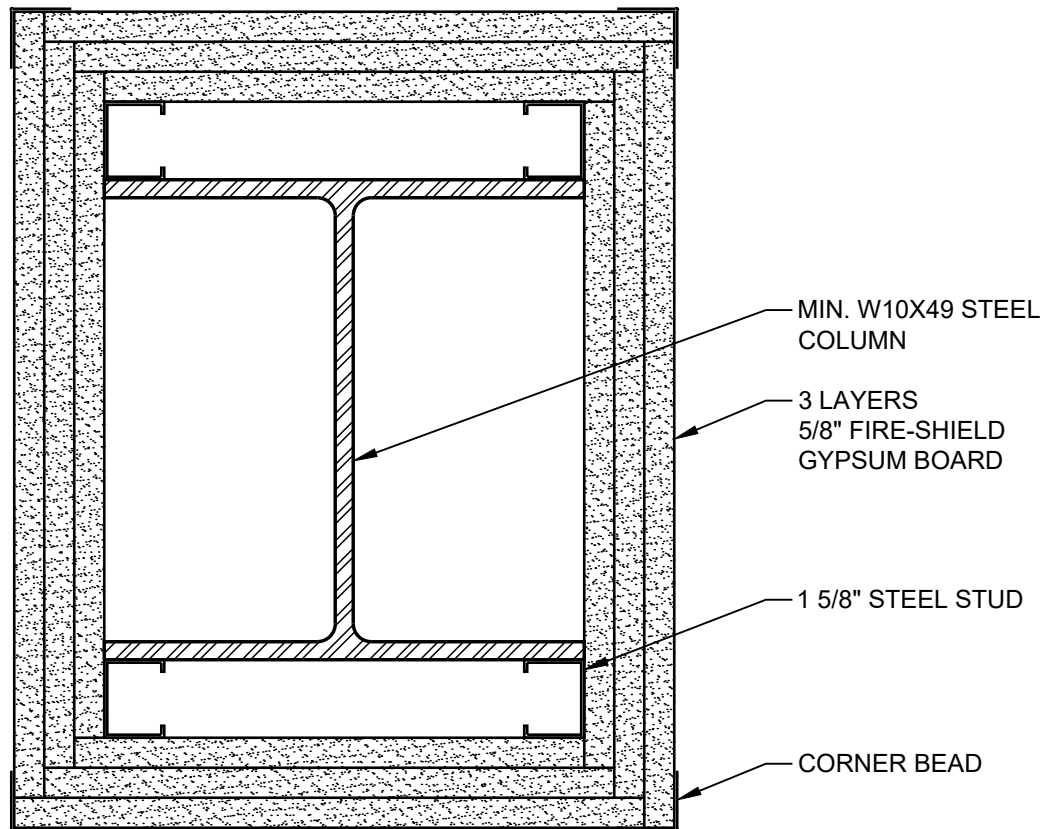
DATE: 09/01/18	1 HOUR RATED COLUMN	
SCALE: 3"=1'-0"	DETAIL: CL 101	

COLUMN - 2 HR
UL DESIGN: X528



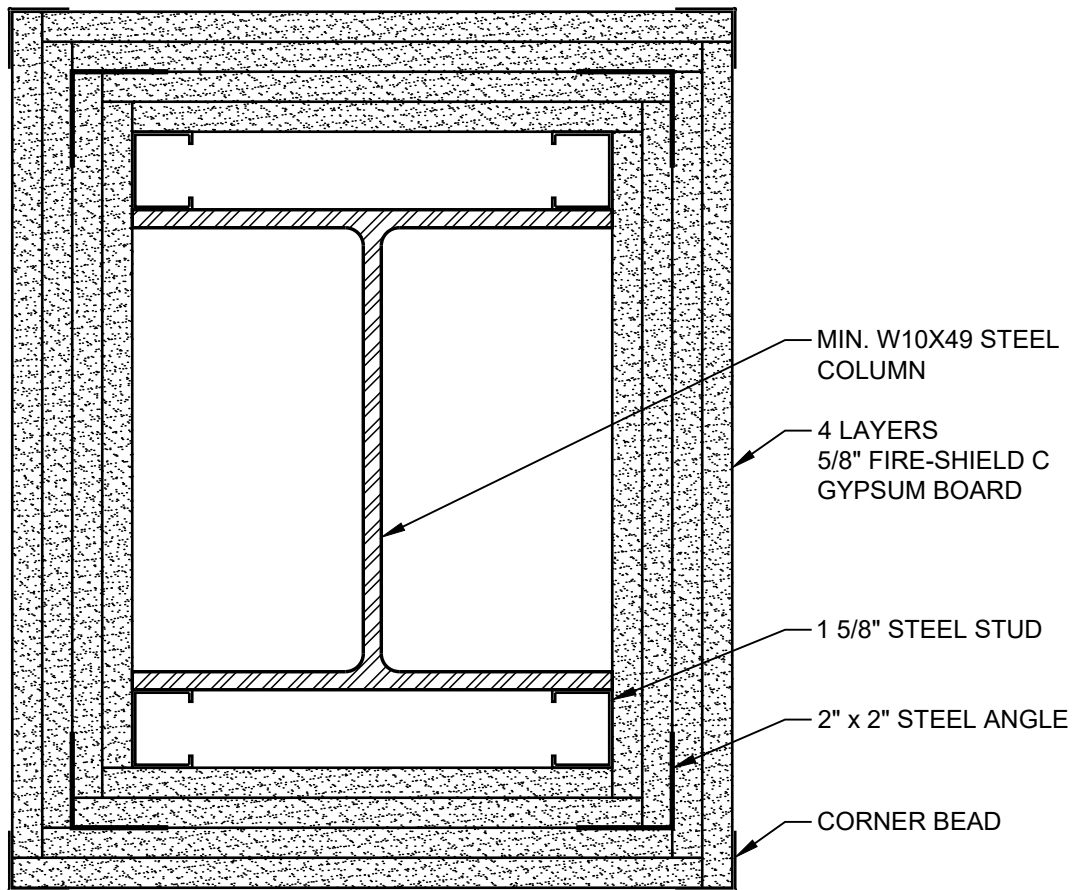
DATE: 09/01/18	2 HOUR RATED COLUMN	
SCALE: 3"=1'-0"	DETAIL: CL 201	

COLUMN - 3 HR
UL DESIGN: X510



DATE: 09/01/18	3 HOUR RATED COLUMN	
SCALE: 3"=1'-0"	DETAIL: CL 301	

COLUMN - 4 HR
UL DESIGN: X501



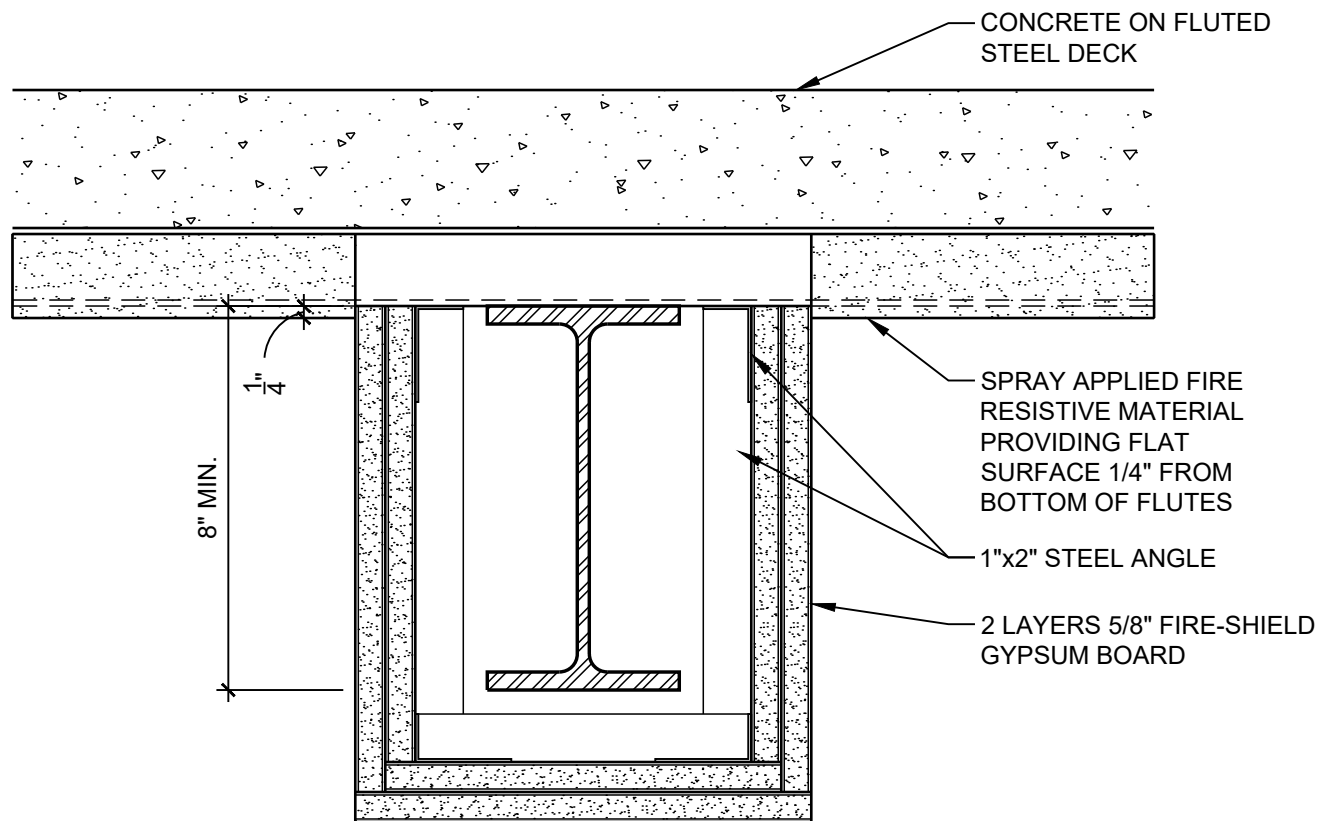
DATE: 09/01/18

4 HOUR RATED COLUMN

SCALE: 3"=1'-0"

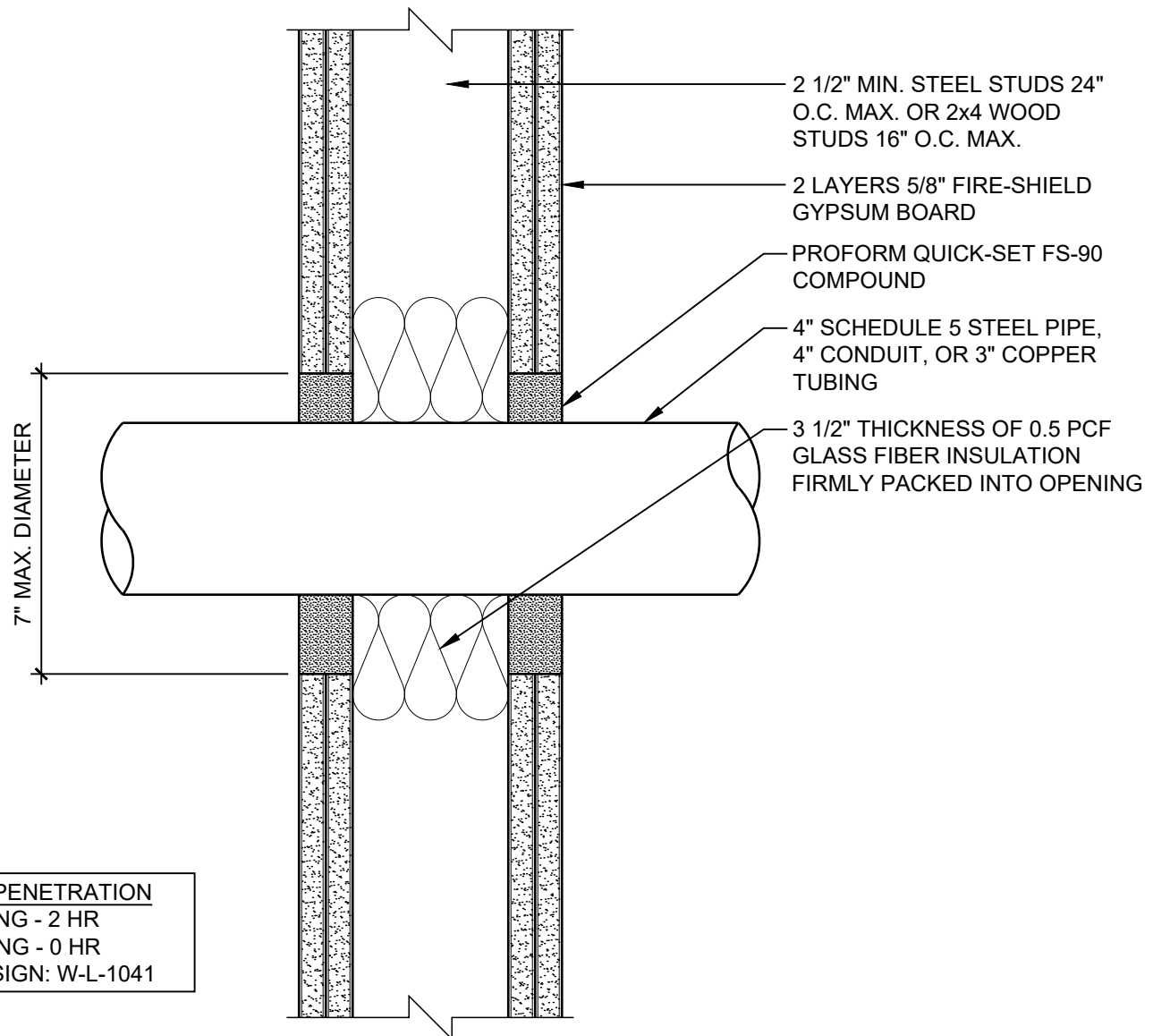
DETAIL: CL 401





BEAM - 2 HR
UL DESIGN: N501

DATE: 09/01/18	2 HOUR STEEL BEAM	
SCALE: 3"=1'-0"	DETAIL: BM 201	



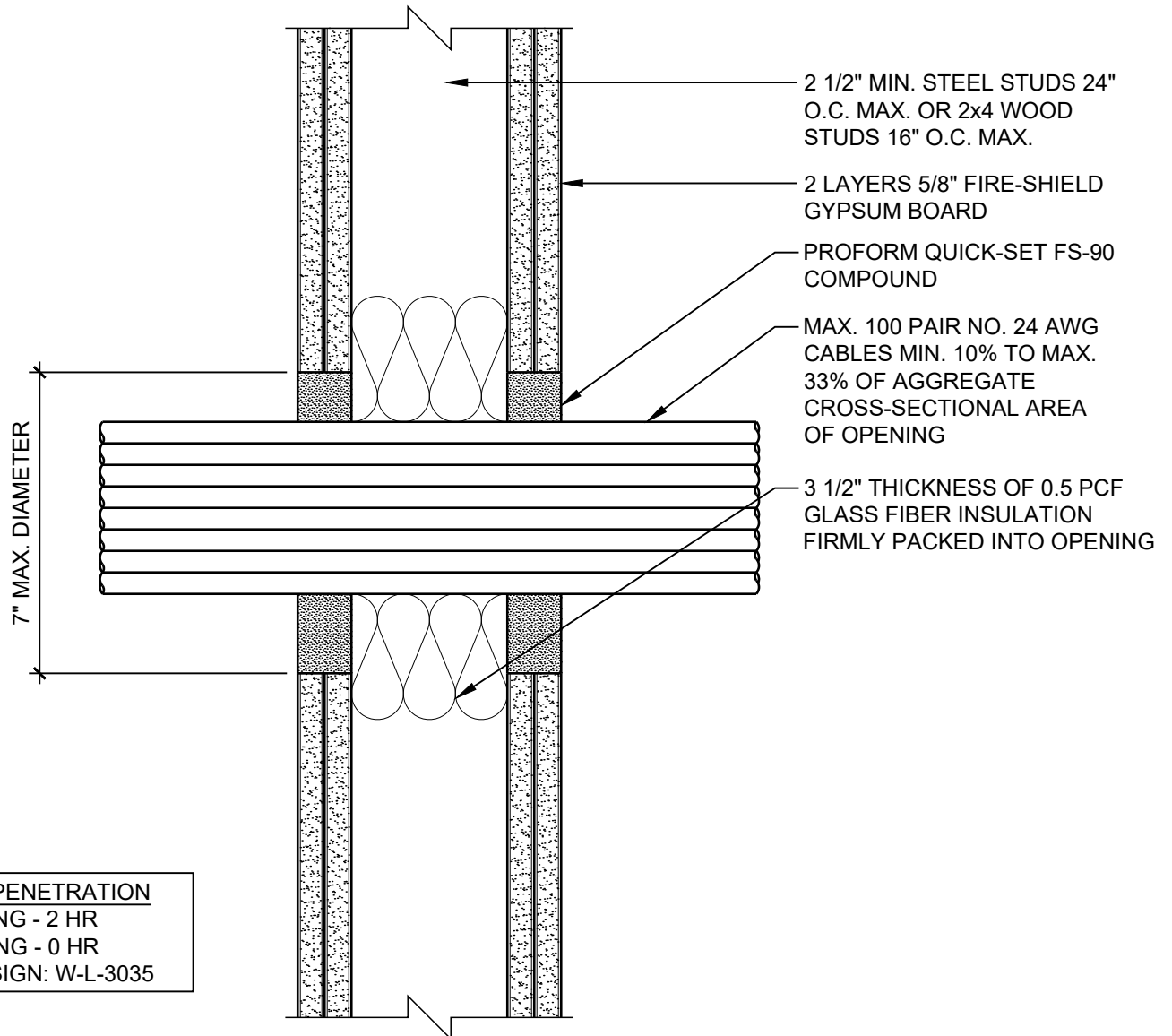
DATE: 09/01/18

PIPE PENETRATION THROUGH WALL

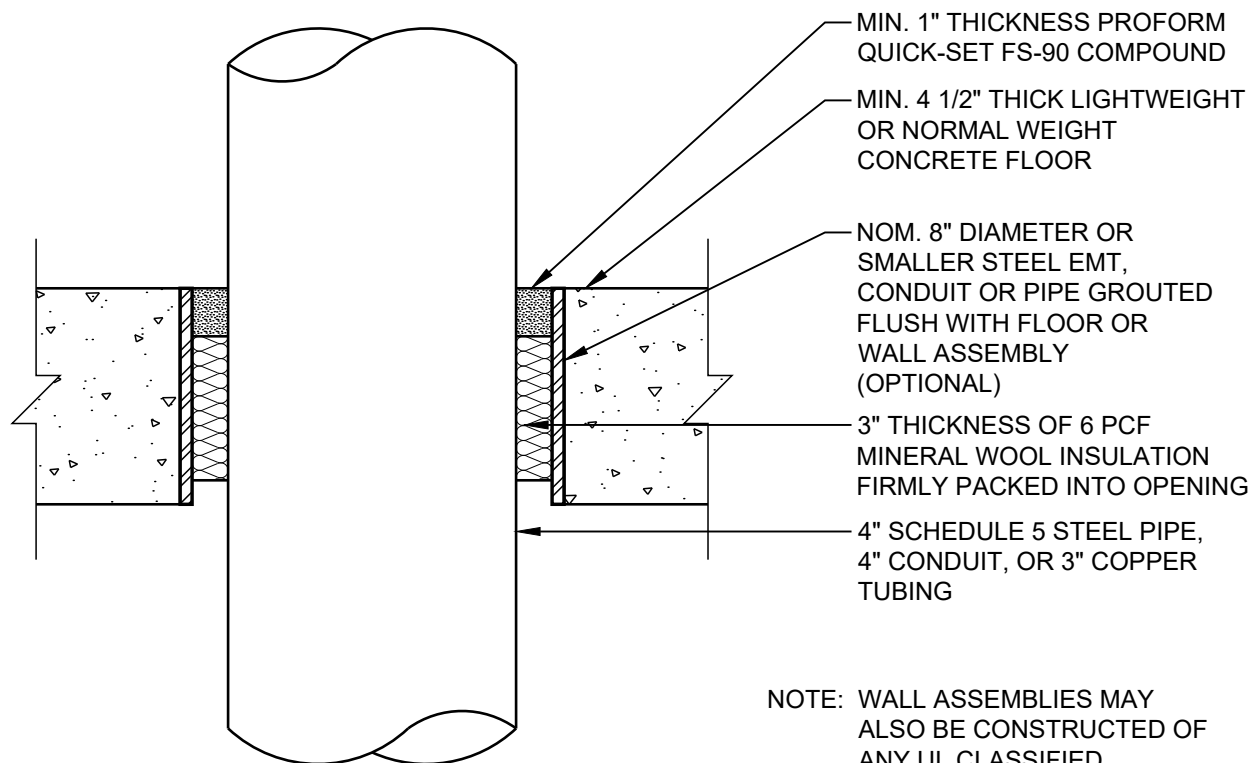
SCALE: 3"=1'-0"

DETAIL: PN 201

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DATE: 09/01/18	CABLE PENETRATION THROUGH WALL	
SCALE: 3"=1'-0"	DETAIL: PN 202	



NOTE: WALL ASSEMBLIES MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS

FLOOR PENETRATION
 F RATING - 3 HR
 T RATING - 0 HR
 UL DESIGN: C-AJ-1163

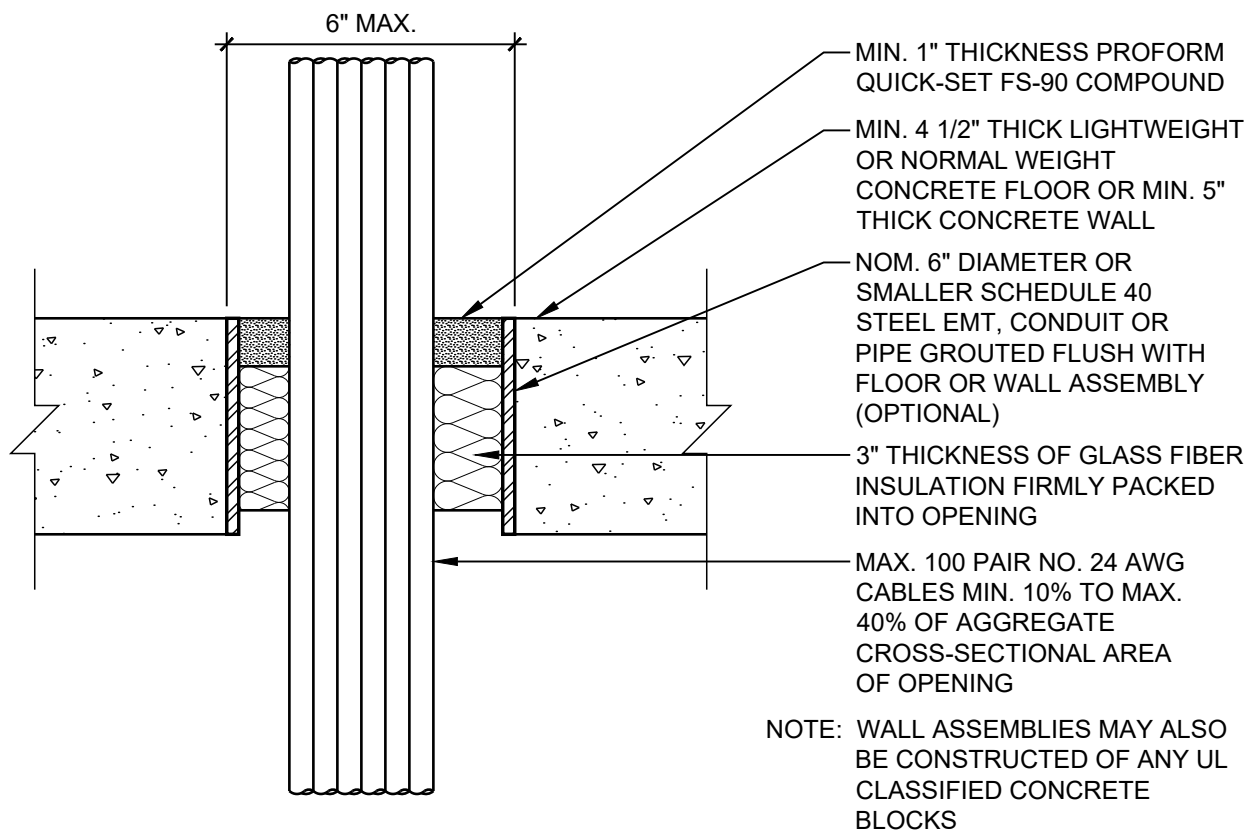
DATE: 09/01/18

PIPE PENETRATION THROUGH FLOOR

SCALE: 3"=1'-0"

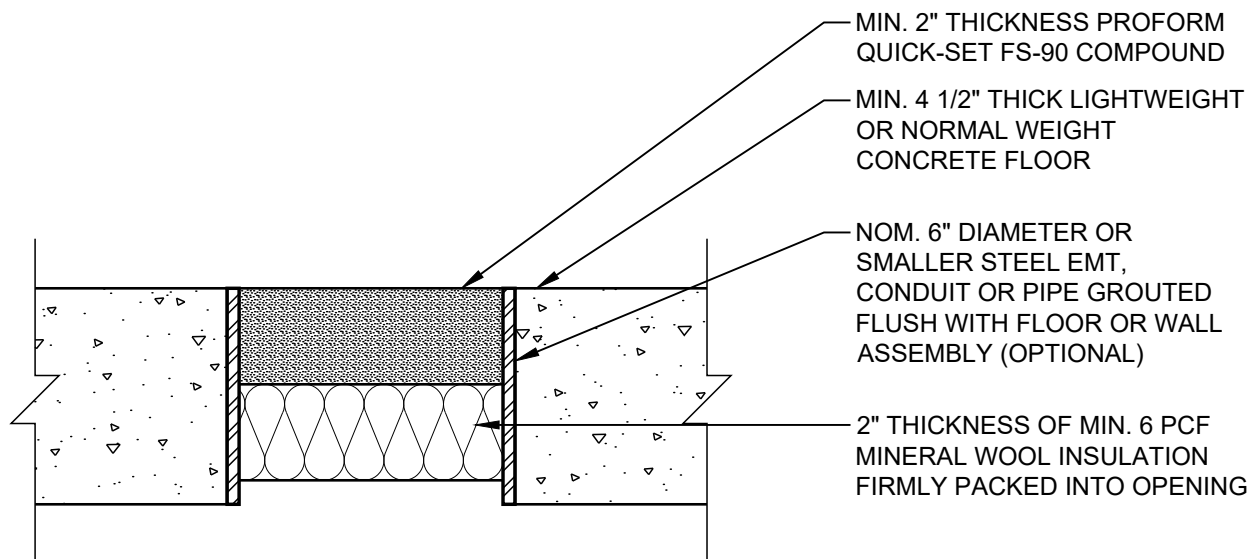
DETAIL: PN 301

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FLOOR PENETRATION
 F RATING - 3 HR
 T RATING - 1/4 HR
 UL DESIGN: C-AJ-3073

DATE: 09/01/18	CABLE PENETRATION THROUGH FLOOR	
SCALE: 3"=1'-0"	DETAIL: PN 302	



NOTE: WALL ASSEMBLIES MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS

VOID ASSEMBLY
F RATING - 3 HR
T RATING - 1/2 HR
UL DESIGN: C-AJ-0038

DATE: 09/01/18

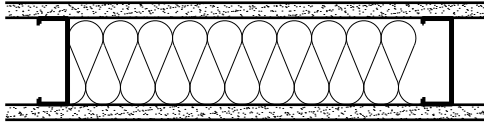
VOID FILL ASSEMBLY

SCALE: 3"=1'-0"

DETAIL: PN 303

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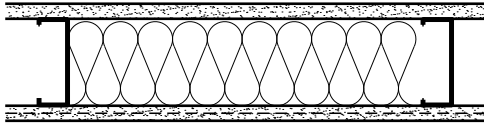
UL DESIGN: U465, V438



5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **16" O.C.**
 3 1/2" GLASS FIBER INSULATION
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 43
 TEST: NGC 2502

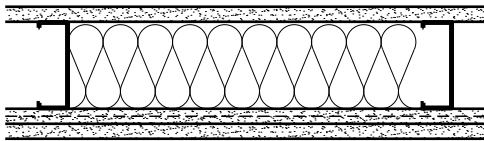
UL DESIGN: U465, V438



5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **16" O.C.**
 3 1/2" GLASS FIBER INSULATION
 5/8" SOUNDBREAK XP GYPSUM BOARD

STC 49
 TEST: NGC2009058

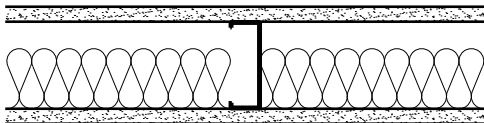
UL DESIGN: U465, V438



5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **16" O.C.**
 3 1/2" GLASS FIBER INSULATION
 5/8" SOUNDBREAK XP GYPSUM BOARD
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 52
 TEST: RAL-TL07-148

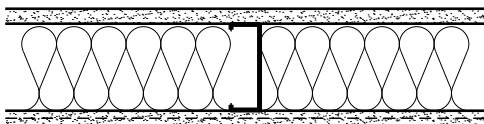
UL DESIGN: U465, V438



5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **24" O.C.**
 2 1/2" GLASS FIBER INSULATION
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 47
 TEST: NGC 2386

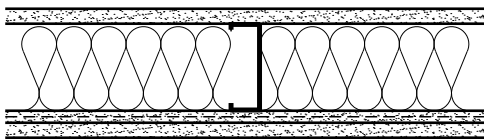
UL DESIGN: U465, V438



5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **24" O.C.**
 3" MINERAL FIBER INSULATION
 5/8" SOUNDBREAK XP GYPSUM BOARD

STC 54
 TEST: RAL-TL07-389

UL DESIGN: U465, V438



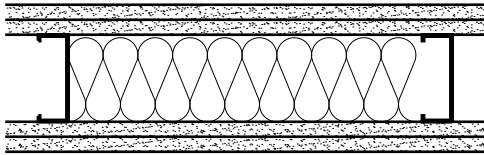
5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **24" O.C.**
 3 1/2" GLASS FIBER INSULATION
 1/2" SOUNDBREAK XP GYPSUM BOARD
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 57
 TEST: RAL-TL06-334

DATE: 09/01/18	SOUND RATINGS FOR 1 HOUR PARTITIONS	
SCALE: 1 1/2"=1'-0"		

DETAIL: SN 101

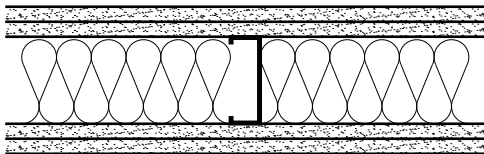
UL DESIGN: U411, V438



2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **16" O.C.**
 3 1/2" GLASS FIBER INSULATION
 2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD

STC 50
 TEST: NGC 2500

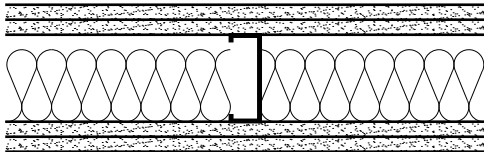
UL DESIGN: U411, V438



2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **24" O.C.**
 3 1/2" GLASS FIBER INSULATION
 2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD

STC 53
 TEST: NGC2007002

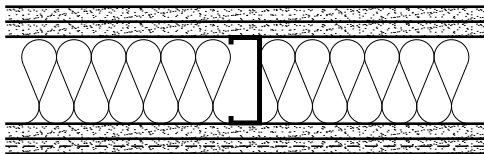
UL DESIGN: U411, V438



2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **24" O.C.**
 3" MINERAL FIBER INSULATION
 2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD

STC 56
 TEST: NGC 3022

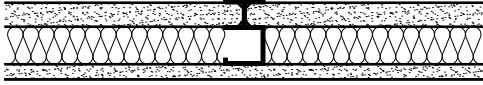
UL DESIGN: U411, V438



2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD
 3 5/8" 25GA. STEEL STUDS **24" O.C.**
 3 1/2" GLASS FIBER INSULATION
 5/8" FIRE-SHIELD GYPSUM BOARD
 5/8" SOUNDBREAK XP GYPSUM BOARD

STC 60
 TEST: RAL-TL07-168

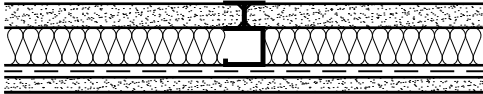
UL DESIGN: U499, W419



1" FIRE-SHIELD SHAFTLINER
 2 1/2" 25GA. CT, CH, OR I STUDS **24" O.C.**
 1 1/2" GLASS FIBER INSULATION
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 42
 TEST: NGC 2542

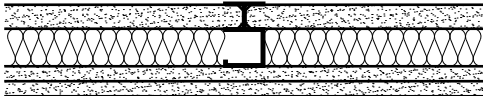
UL DESIGN: U499, W419



1" FIRE-SHIELD SHAFTLINER
 2 1/2" 25GA. CT, CH, OR I STUDS **24" O.C.**
 1 1/2" GLASS FIBER INSULATION
 1/2" RESILIENT CHANNEL 24" O.C.
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 48
 TEST: NGC 2541

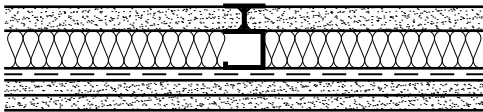
UL DESIGN: U497, W419



1" FIRE-SHIELD SHAFTLINER
 2 1/2" 25GA. CT, CH, OR I STUDS **24" O.C.**
 1 1/2" GLASS FIBER INSULATION
 2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD

STC 48
 TEST: NGC 2507

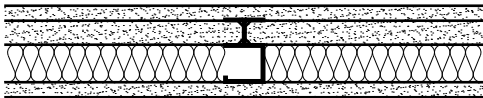
UL DESIGN: U497, W419



1" FIRE-SHIELD SHAFTLINER
 2 1/2" 25GA. CT, CH, OR I STUDS **24" O.C.**
 1 1/2" GLASS FIBER INSULATION
 1/2" RESILIENT CHANNEL 24" O.C.
 2 LAYERS 5/8" FIRE-SHIELD GYPSUM BOARD

STC 51
 TEST: NGC 2540

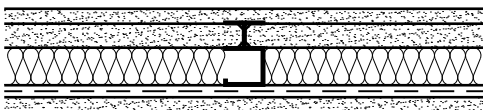
UL DESIGN: U498, W419



5/8" FIRE-SHIELD GYPSUM BOARD
 1" FIRE-SHIELD SHAFTLINER
 2 1/2" 25GA. CT, CH, OR I STUDS **24" O.C.**
 1 1/2" GLASS FIBER INSULATION
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 48
 TEST: NGC 2534

UL DESIGN: U498, W419

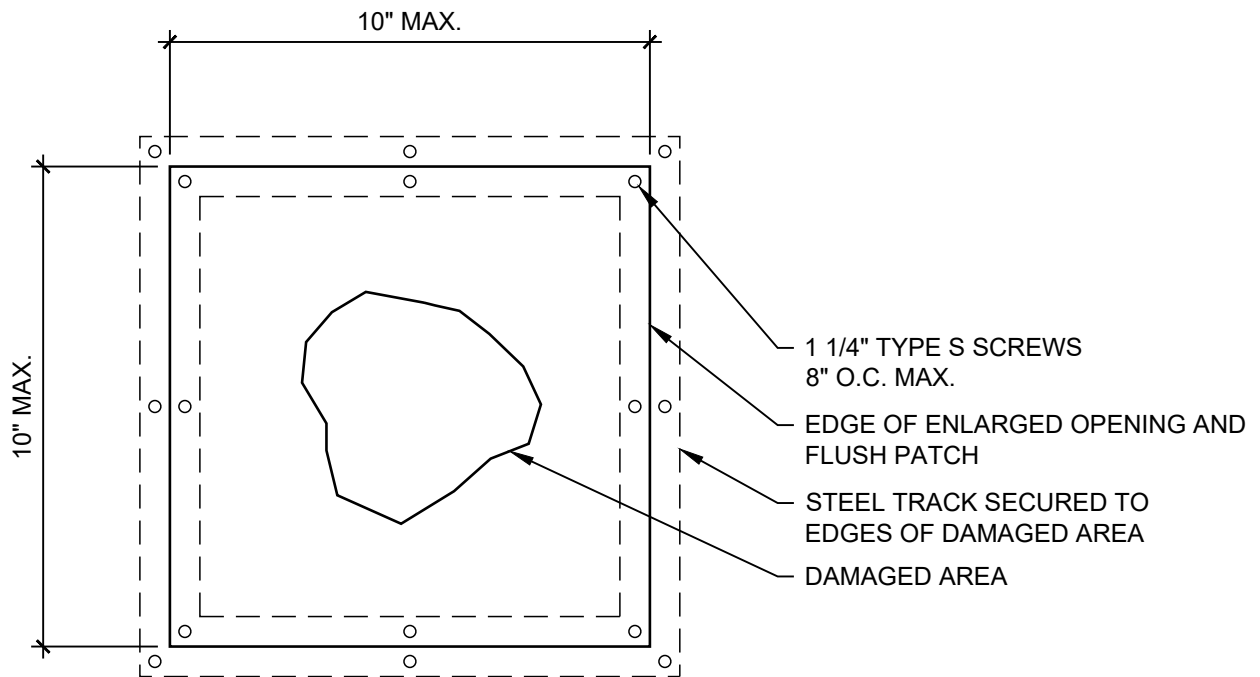


5/8" FIRE-SHIELD GYPSUM BOARD
 1" FIRE-SHIELD SHAFTLINER
 2 1/2" 25GA. CT, CH, OR I STUDS **24" O.C.**
 1 1/2" GLASS FIBER INSULATION
 1/2" RESILIENT CHANNEL 24" O.C.
 5/8" FIRE-SHIELD GYPSUM BOARD

STC 52
 TEST: NGC 2538

DATE: 09/01/18	SOUND RATINGS FOR SHAFTWALL PARTITIONS	
SCALE: 1 1/2"=1'-0"		

DETAIL: SN 103



FLUSH PATCH IN RATED PARTITION
FOR MEMBRANE PENETRATIONS LESS THAN 10" IN DIAMETER

NOTES:
FOR MULTIPLE LAYER SYSTEMS STAGGER VERTICAL
AND HORIZONTAL PATCH JOINTS 12" MINIMUM AND
FASTEN VERTICAL EDGES TO STUD FRAMING

FOR MINOR SURFACE ABRASIONS, PAPER TEARS, OR
SMALL DENTS, REMOVE ALL LOOSE PAPER AND
APPLY SETTING COMPOUND OVER THE DAMAGED
AREA.

DATE: 09/01/18	REPAIR OF FIRE-RATED GYPSUM BOARD PARTITIONS	
SCALE: 3"=1'-0"	DETAIL: RE 101	

Notes

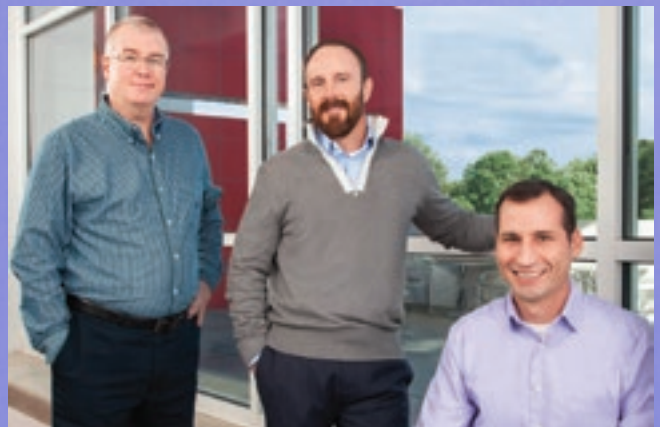
Notes



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With over 85 years of accumulated research, on-the-job experience and knowledge of building products and their application, National Gypsum is your resource for technical information. Beyond simply manufacturing and providing quality building products, National Gypsum has made a total commitment to technical assistance for our customers all along the line at every stage of a project's development.



You've got the questions ... we've got the answers.

From left, the technical service team: Mark Chapman, Jim Farrell and Sam Halverson.

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The PURPLE Book® II

