



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT**

**APPLICATION FOR HCAI PREAPPROVAL OF
MANUFACTURER'S CERTIFICATION (OPM)**

OFFICE USE ONLY

APPLICATION #: OPM-0734

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: New Renewal/Update

Manufacturer Information

Manufacturer: Door Systems, Inc

Manufacturer's Technical Representative: Jeff Bonnema

Mailing Address: 1150 Las Brisas Place, Placentia, CA 92870

Telephone: (714) 258-7100 Email: jeff@doorsysinc.com

Product Information

Product Name: DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

Product Type: other mechanical or electrical components

Product Model Number: DSI-HS10B

General Description: smoke and fire containment system at elevator door and large openings, from 16 ft to 984 ft.

Applicant Information

Applicant Company Name: EASE LLC.

Contact Person: Tiffany Tonn

Mailing Address: 1515 FAIRVIEW AVE, STE 205, MISSOULA, MT 59801

Telephone: (406) 541-3273 Email: tiffany@easeco.com

Title: Office Assistant

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT**

Registered Design Professional Preparing Engineering Recommendations

Company Name: EASE LLC
Name: Jonathan Roberson California License Number: S4197
Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709
Telephone: (951) 295-1892 Email: jon@EASECo.com

HCAI Special Seismic Certification Preapproval (OSP)

Special Seismic Certification is preapproved under OSP OSP Number: _____

Certification Method

Testing in accordance with: ICC-ES AC156 FM 1950-16
 Other(s) (Please Specify): _____

*Use of criteria other than those adopted by the California Building Standards Code, 2022 (CBSC 2022) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2022 may be used when approved by HCAI prior to testing.

Analysis
 Experience Data
 Combination of Testing, Analysis, and/or Experience Data (Please Specify): _____

HCAI Approval

Date: 8/29/2024
Name: William Staehlin Title: Senior Structural Engineer
Condition of Approval (if applicable): _____

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





**EQUIPMENT ANCHORAGE
& SEISMIC ENGINEERING**

5877 Pine Ave, Ste. 210
Chino Hills, CA. 91709
Phn: (909) 606-7622

The Department of Health Care Access and Information
PREAPPROVAL OF MANUFACTURER'S CERTIFICATION
OPM-0734

THIS PREAPPROVAL CONFORMS TO THE 2022 CALIFORNIA BUILDING CODE

MANUFACTURER: **DOOR SYSTEMS INC** Sheet: 1 of 16
EQUIPMENT NAME: **DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN** Date: 8/28/24

GENERAL NOTES

1. THIS HCAI PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2022 CBC. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2022 CBC
2. THIS DOCUMENT MAY ONLY BE USED WITH THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER LISTED ABOVE FOR THE SPECIFIC PROJECT SITE AND INSTALLATION LOCATION. THIS DOCUMENT IS INVALID WITHOUT SUCH CONSENT.
3. THIS PREAPPROVAL CONFORMS TO THE 2022 CALIFORNIA BUILDING CODE WHERE S_{Ds} IS NOT GREATER THAN 2.00, 2.30.
4. FORCES PER ASCE 7-16 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3,
WHERE $S_{Ds} = 2.00$ $a_p = 1.0$, $I_p = 1.5$, $R_p = 1.5$, $z/h \leq 1$ CONCRETE WALL. SEE FOLLOWING SHEETS FOR Ω_0 .
WHERE $S_{Ds} = 2.30$ $a_p = 1.0$, $I_p = 1.5$, $R_p = 1.5$, $z/h \leq 1$ CONCRETE WALL. SEE FOLLOWING SHEETS FOR Ω_0 .
5. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
6. ALL DESIGN FORCES SHOWN ON THE DRAWINGS ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.
7. SHEET METAL SCREWS SHALL BE TEKS SCREWS BY ITW BUILDEX (ICC ESR-1976).
8. CONCRETE WALL DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION. (i.e. $z/h \leq 1$)
9. REFER TO ESR-4761 FOR DSI 600 SYSTEM'S FIRE AND SMOKE PROTECTION APPROVAL.
10. **RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING**
 - A. PROVIDE SUPPORTING STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
 - B. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2022 CBC AND WITH THE DETAILS, MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PREAPPROVAL DOCUMENTS.
 - C. VERIFY THAT PROJECT SPECIFIC VALUES OF S_{Ds} & z/h RESULT IN SEISMIC FORCES (E_h , E_v) THAT DO NOT EXCEED THE VALUES ON THE DETAILS.
 - D. VERIFY THAT THE CONCRETE WALL TO WHICH THE EQUIPMENT IS ANCHORED MEETS THE REQUIREMENTS OF THE APPLICABLE ICC ESR AND THIS OPM.
 - E. VERIFY THAT THE ANCHORS ARE AN ADEQUATE DISTANCE FROM ANY CONCRETE WALL EDGES OR OPENINGS (SEE TYPICAL DETAIL ON SHEET 2).
 - F. VERIFY THAT ALL NEW OR EXISTING ANCHORS ARE AN ADEQUATE DISTANCE FROM THE UNIT ATTACHMENTS AND CHECK FOR INTERACTION WHERE OTHER ANCHORS ARE WITHIN 18" OR $6h_{ef}$ FROM THIS UNIT'S ANCHORS.
 - G. DESIGN BACKING BARS, STUDS, ETC. WHICH THE UNITS ARE ATTACHED TO AS NOTED ON THE DRAWINGS.



DOOR SYSTEMS INC

DES. J. ROBERSON

SHEET

2

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

JOB NO. 11-2404

DATE 8/28/24

OF 16 SHEETS

11. EXPANSION ANCHORS:

A. ATTACHMENT IS TO BE MADE WITH THE ANCHORS LISTED BELOW AND INSTALLED AS DESCRIBED IN THE CORRESPONDING ICC REPORT.

Anchor Diameter	Concrete Type	Min. f'c (psi)	Anchor Type	ICC Report No.	Min. Embed.	Min. Spacing	Min. + Edge Dist.	Min. Conc. Thickness	Torque Test	Direct Tension
3/8"	Normal Weight	3000	Hilti Kwik Bolt TZ2 (CARBON STEEL)	ESR-4266	2"	6"	8"	4"	30 FT-LB	1982 lb

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 8" AWAY MINIMUM (i.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.

+ FOOTNOTE: MINIMUM ALLOWABLE EDGE DISTANCE OF 2.5" AT GUIDE RAILS ONLY

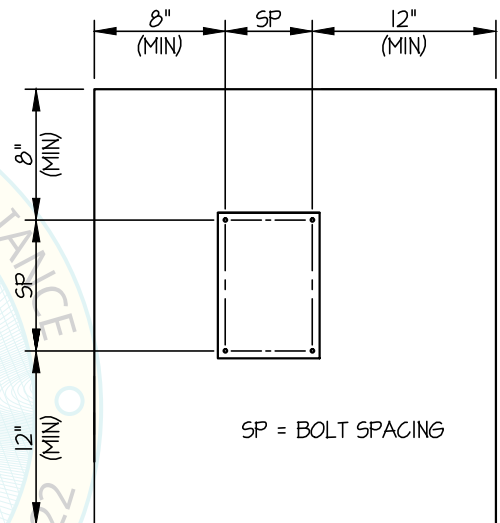
C. TESTING AND SPECIAL INSPECTION OF EXPANSION ANCHORS SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY EMPLOYED BY THE FACILITY OWNER PER CBC 1704A & 1910A.5 AND CAC 7-149. ALL REPORTS SHALL BE SENT TO THE INSPECTOR OF RECORD, OWNER AND THE ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE.

(i) AFTER AT LEAST 24 HOURS HAVE ELAPSED SINCE INSTALLATION, DIRECT PULL TENSION TEST AT LEAST 50% OF THE ANCHORS.

(ii) ACCEPTANCE CRITERIA:

- DIRECT TENSION TEST: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.
- TORQUE TEST: THE APPLICABLE TORQUE MUST BE ACHIEVED WITHIN THE FOLLOWING LIMITS: WEDGE TYPE : 1/2 TURN OF THE NUT

(iii) IF ANY ANCHOR FAILS, TEST ALL ANCHORS.



TYPICAL CONCRETE EDGE DETAIL



DOOR SYSTEMS INC

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

DES. **J. ROBERSON**

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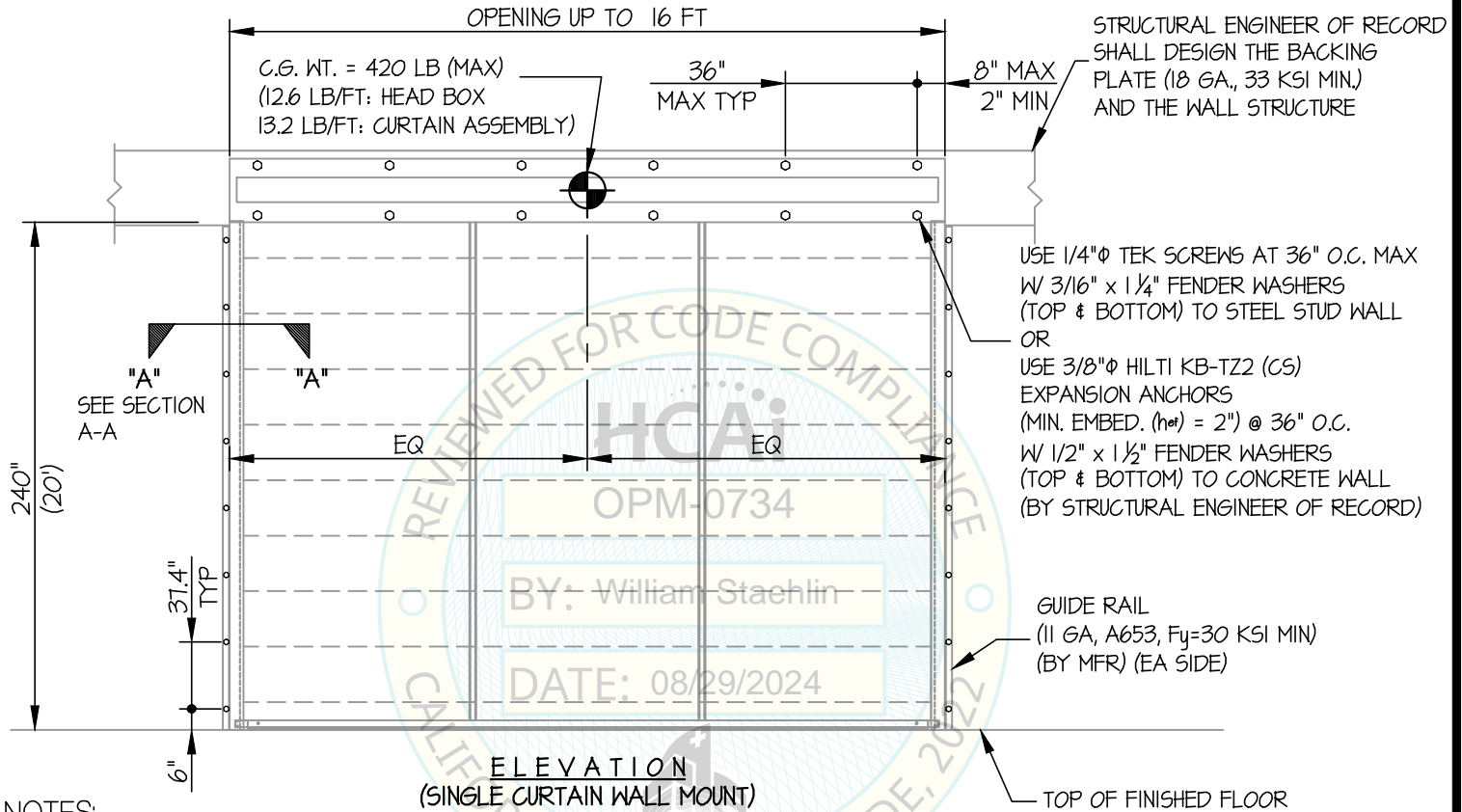
SHEET

3

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED

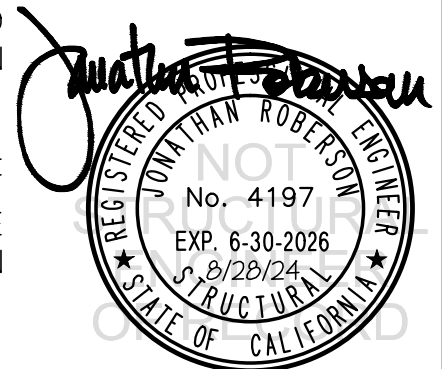


NOTES:

- FORCES ARE DETERMINED PER 2022 CALIFORNIA BUILDING CODE AND ASCE 7-16. STRENGTH DESIGN IS USED. (EXAMPLE: $S_{ds} = 2.00$, $a_p = 10$, $l_p = 15$, $R_p = 15$, $\Omega_o = 2.0$, $z/h \leq 1$)

HORIZONTAL FORCE (E_h) = $2.40 W_p$
 HORIZONTAL FORCE (E_{mh}) = $4.80 W_p$ (FOR CONCRETE ANCHORAGE)
 VERTICAL FORCE (E_v) = $0.40 W_p$

- THIS PREAPPROVA ENCOMPASSES WEIGHTS AND VERTICAL C.G. POSITIONS NOT EXCEEDING VALUES SHOWN.
- THIS PREAPPROVA WAS PREPARED WITHOUT KNOWLEDGE OF ANY SITE CONDITION. COMPATIBILITY FOR USE WITH A SITE SHALL BE EVALUATED BY THE STRUCTURAL ENGINEER OF RECORD OF THE INSTALLATION (SEOR). USE REQUIRES APPROVAL BY THE SEOR.
- STRUCTURAL ENGINEER OF RECORD FOR THE INSTALLATION SHALL VERIFY ALL CONDITIONS, EVALUATE INTERACTION WITH ADJACENT EQUIPMENT AND ANCHORS, AND PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.
- SEE GENERAL NOTES; SHEETS 1 AND 2



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

4

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

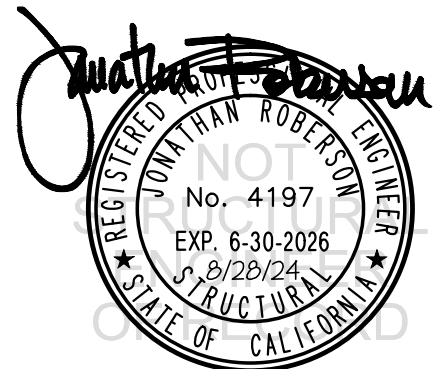
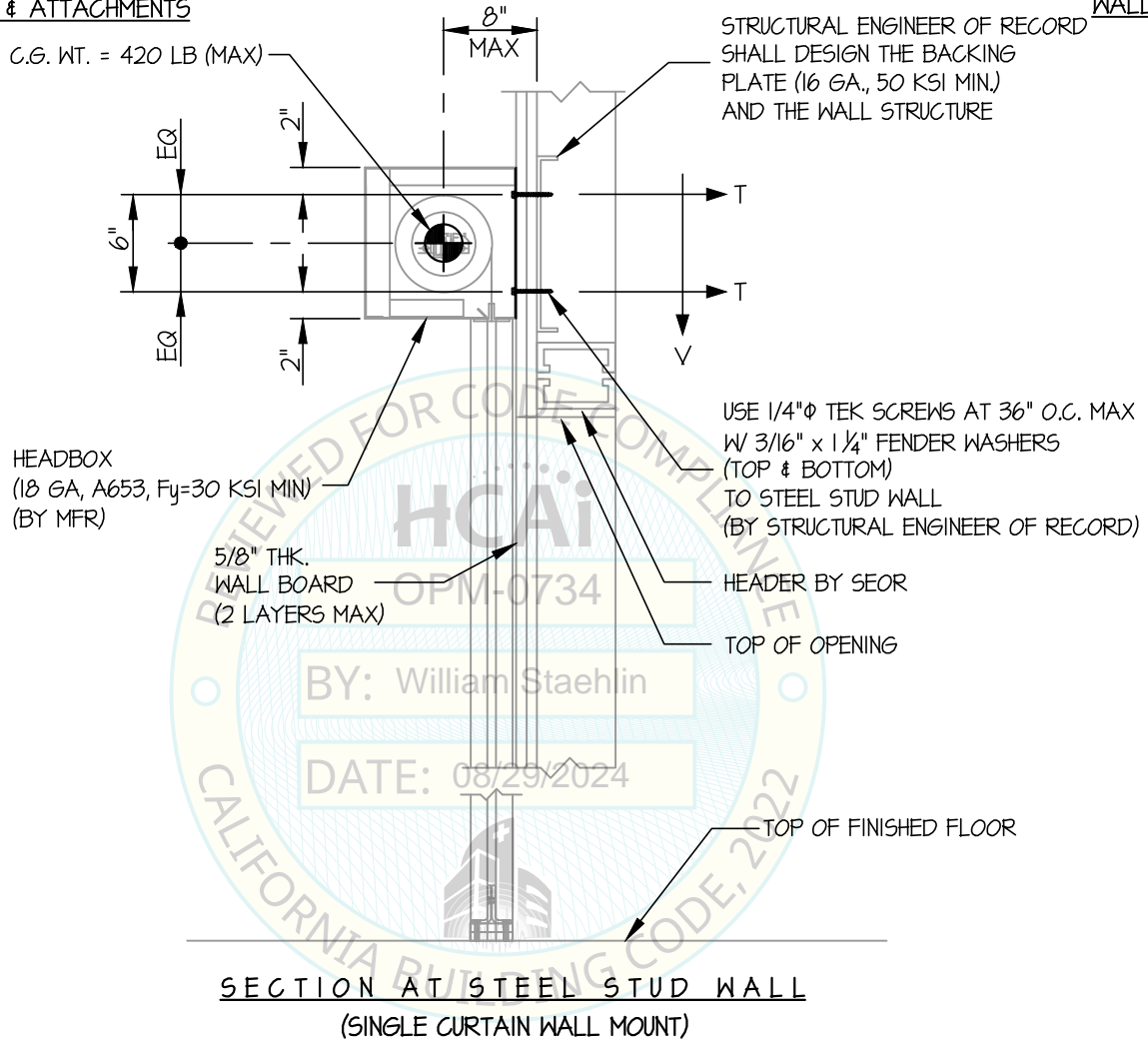
JOB NO. **11-2404**

DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

5

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

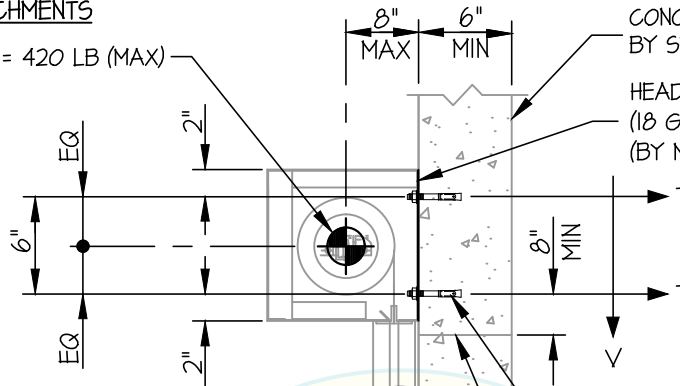
JOB NO. **11-2404**

DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

C.G. WT. = 420 LB (MAX)



CONCRETE WALL (3000 PSI MIN) WALL MOUNTED
BY STRUCTURAL ENGINEER OF RECORD

HEADBOX
(18 GA, A653, Fy=30 KSI MIN)
(BY MFR)

USE 3/8" ϕ HILTI KB-TZ2 (CS) EXPANSION ANCHORS
(MIN. EMBED. (net) = 2") @ 36" O.C.
W/ 1/2" x 1 1/2" FENDER WASHERS
(TOP & BOTTOM) (SEE SCHEDULE)
TO CONCRETE WALL
(BY STRUCTURAL ENGINEER OF RECORD)

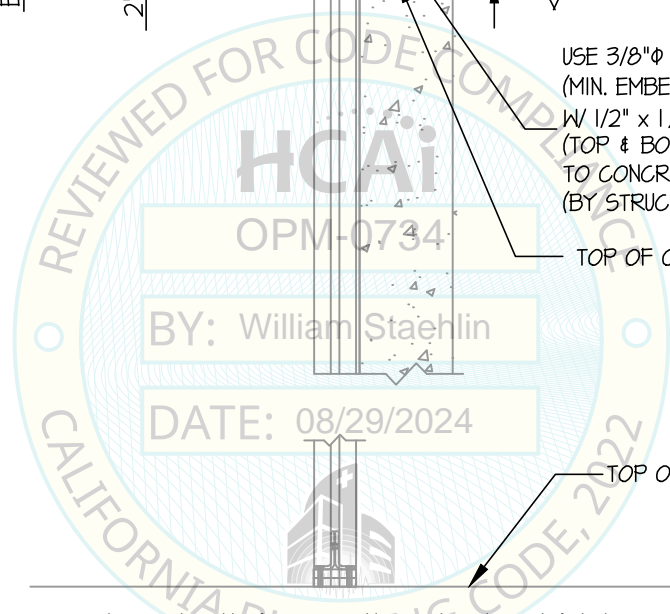
TOP OF OPENING

BY: William Staehlin

DATE: 08/29/2024

TOP OF FINISHED FLOOR

SECTION AT CONCRETE WALL
(SINGLE ROLLER WALL MOUNT)



DOOR SYSTEMS INC

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

DES. J. ROBERSON

JOB NO. 11-2404

DATE 8/28/24

SHEET

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OF 16 SHEETS

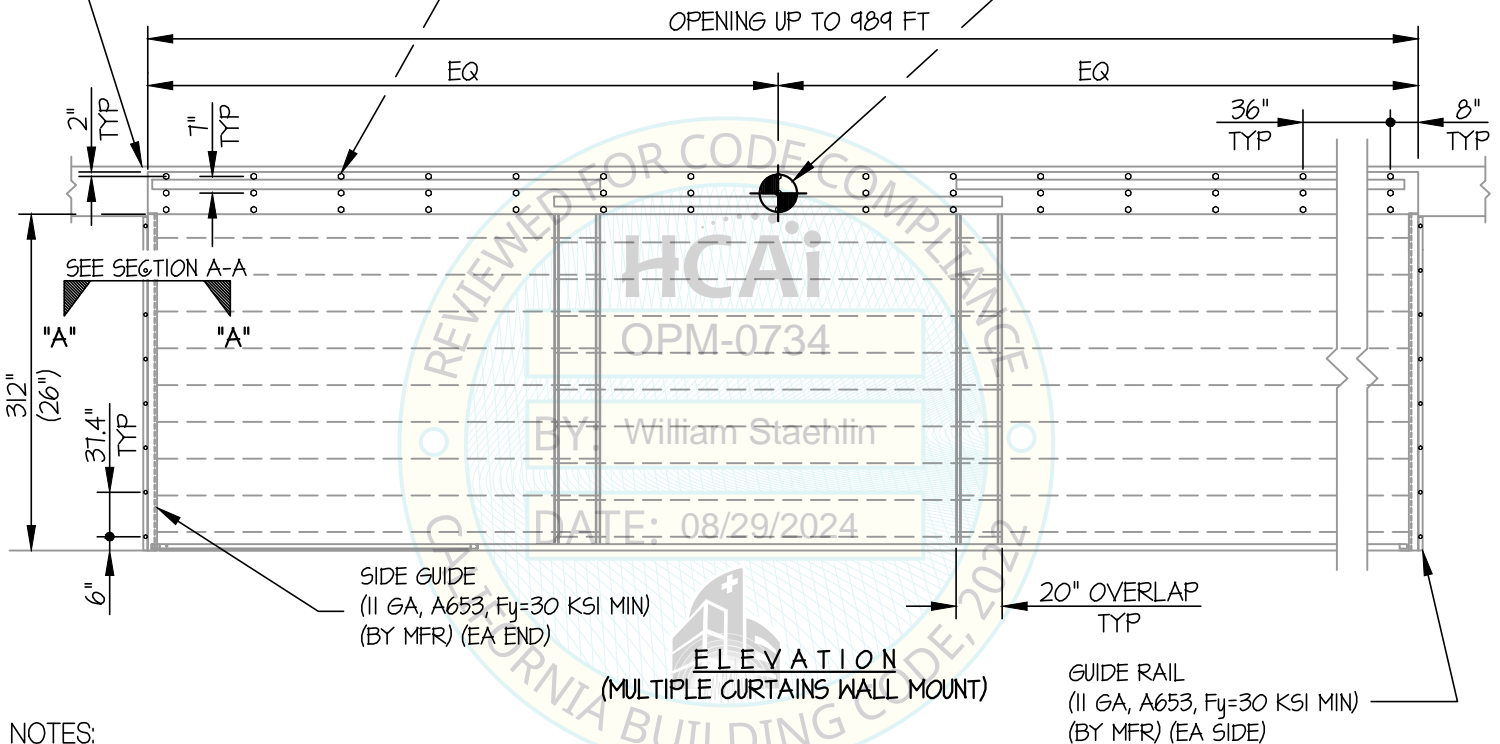
SEISMIC SUPPORTS & ATTACHMENTS

USE 1/4"Φ TEK SCREWS AT 36" O.C. MAX
W/ 3/16" x 1 1/4" FENDER WASHERS
(TOP & BOTTOM) TO STEEL STUD WALL OR
USE 3/8"Φ HILTI KB-T22 (CS) EXPANSION ANCHORS
(MIN. EMBED. (h_{ef}) = 2") @ 36" O.C.
W/ 1/2" x 1 1/2" FENDER WASHERS
(TOP & BOTTOM) TO CONCRETE WALL
(BY STRUCTURAL ENGINEER OF RECORD)

WALL MOUNTED

STRUCTURAL ENGINEER OF RECORD
SHALL DESIGN THE BACKING
PLATE (18 GA., 33 KSI MIN.)
AND THE WALL STRUCTURE

(12.6 LB/FT : HEAD BOX
16.1 LB/FT: CURTAIN ASSEMBLY)



NOTES:

- FORCES ARE DETERMINED PER 2022 CALIFORNIA BUILDING CODE AND ASCE 7-16. STRENGTH DESIGN IS USED. (EXAMPLE: S_{ds} = 2.30, a_p = 1.0, l_p = 1.5, R_p = 1.5, Ω_o = 2.0, z/h ≤ 1)
 - HORIZONTAL FORCE (E_h) = 2.76 W_p
 - HORIZONTAL FORCE (E_{mh}) = 5.52 W_p (FOR CONCRETE ANCHORAGE)
 - VERTICAL FORCE (E_v) = 0.46 W_p
- THIS PREAPPROVA ENCOMPASSES WEIGHTS AND VERTICAL C.G. POSITIONS NOT EXCEEDING VALUES SHOWN.
- THIS PREAPPROVA WAS PREPARED WITHOUT KNOWLEDGE OF ANY SITE CONDITION. COMPATIBILITY FOR USE WITH A SITE SHALL BE EVALUATED BY THE STRUCTURAL ENGINEER OF RECORD OF THE INSTALLATION (SEOR). USE REQUIRES APPROVAL BY THE SEOR.
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- SEE GENERAL NOTES: SHEETS 1 AND 2



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

7

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

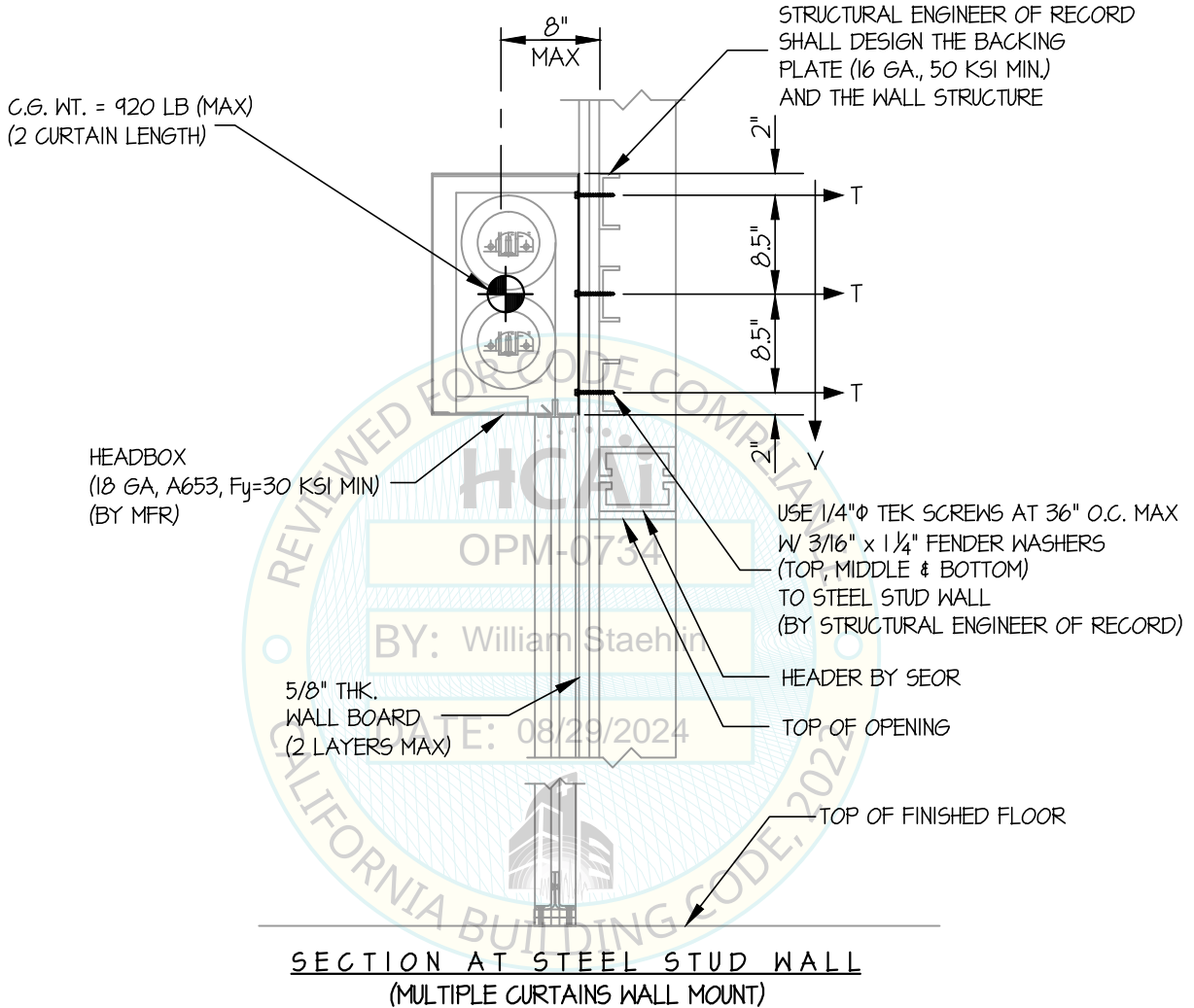
JOB NO. **11-2404**

DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

8

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

JOB NO. **11-2404**

DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED

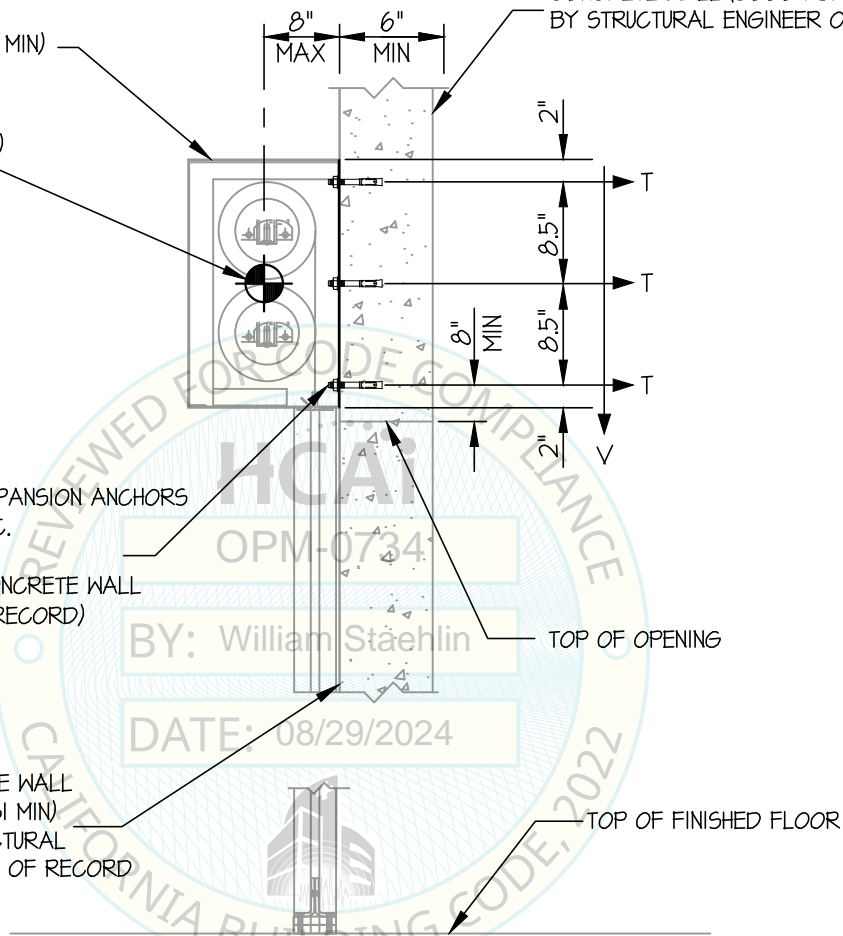
HEADBOX
(18 GA, A653, Fy=30 KSI MIN)
(BY MFR)

C.G. WT. = 920 LB (MAX)
(2 CURTAIN LENGTH)

CONCRETE WALL (3000 PSI MIN)
BY STRUCTURAL ENGINEER OF RECORD

USE 3/8"φ HILTI KB-TZ2 (CS) EXPANSION ANCHORS
(MIN. EMBED. (net) = 2") @ 36" O.C.
W/ 1/2" x 1 1/2" FENDER WASHERS
(TOP, MIDDLE & BOTTOM) TO CONCRETE WALL
(BY STRUCTURAL ENGINEER OF RECORD)

CONCRETE WALL
(3000 PSI MIN)
BY STRUCTURAL
ENGINEER OF RECORD



SECTION AT CONCRETE WALL
(MULTIPLE CURTAINS WALL MOUNT)

REVIEWED FOR CODE COMPLIANCE
HCAI
OPM-0734
BY: William Staehlin
DATE: 08/29/2024

Jonathan Roberson
REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2026
8/28/24
STRUCTURAL
STATE OF CALIFORNIA

DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

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DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

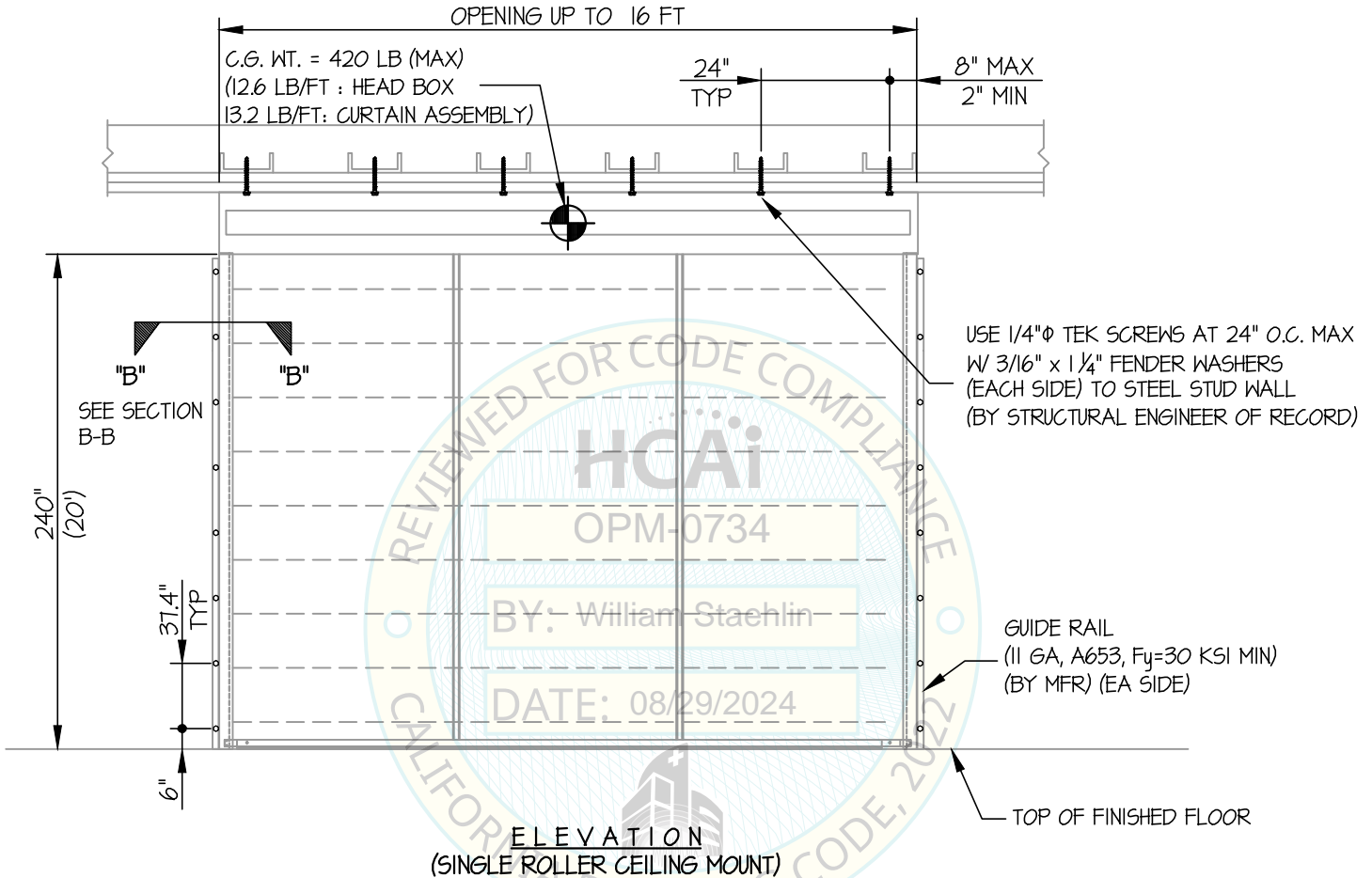
JOB NO. **11-2404**

DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



NOTES:

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- SEE GENERAL NOTES: SHEETS 1 AND 2



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

10

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

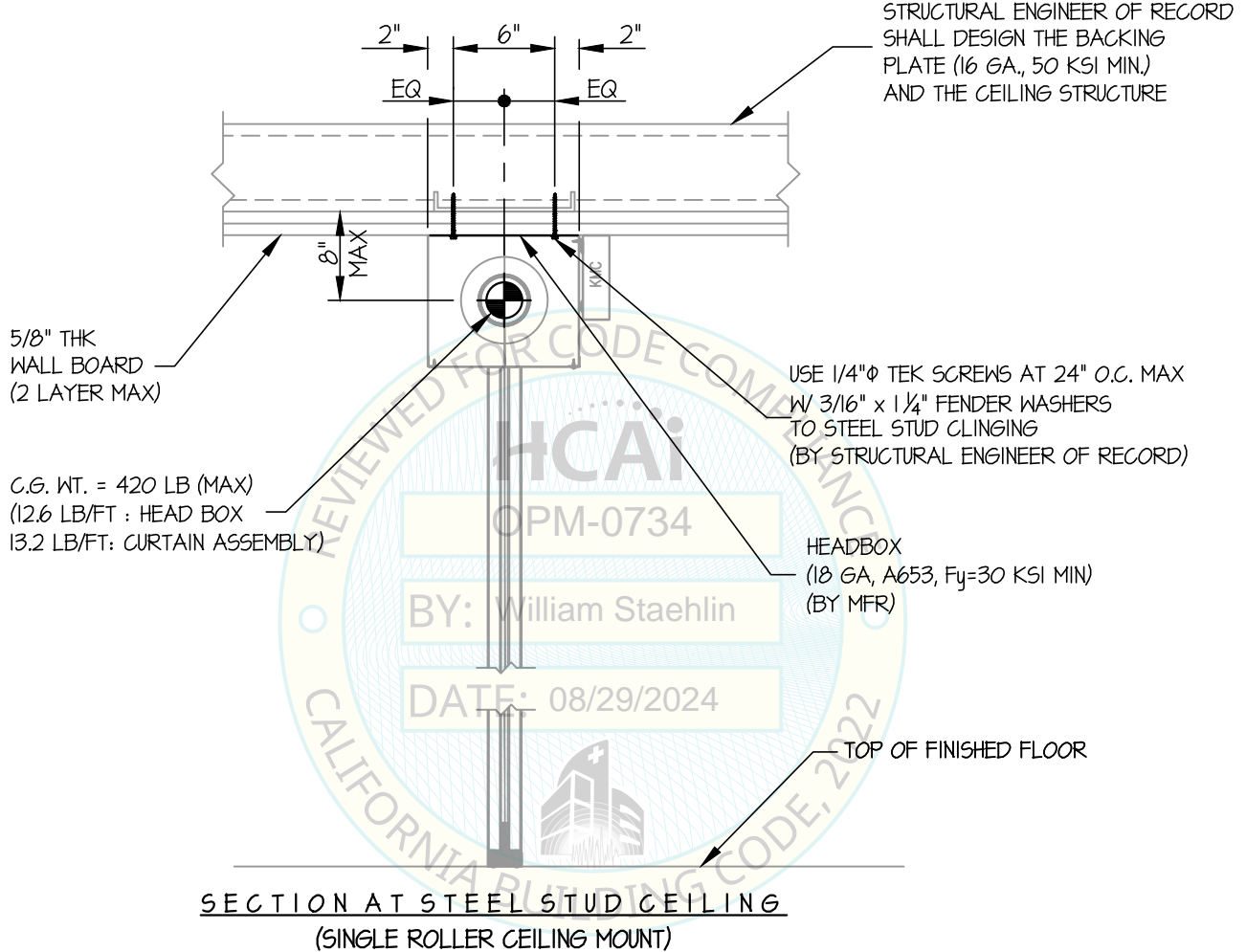
JOB NO. **11-2404**

DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CEILING MOUNTED



Jonathan Roberson
REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
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8/28/24
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DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

11

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

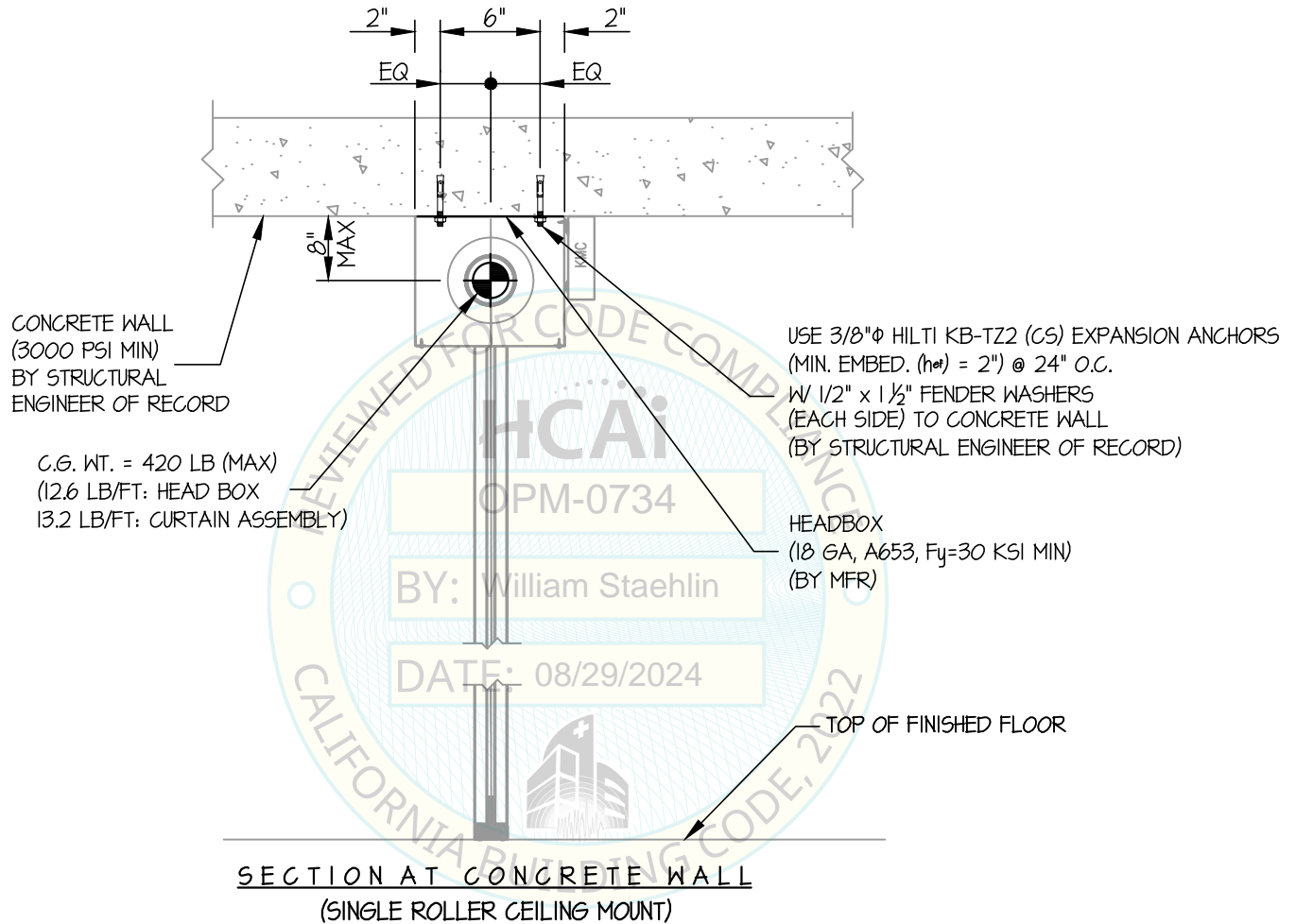
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SEISMIC SUPPORTS & ATTACHMENTS

CEILING MOUNTED



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STRUCTURAL ENGINEER
STATE OF CALIFORNIA

DOOR SYSTEMS INC

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

DES. **J. ROBERSON**

JOB NO. **11-2404**

DATE **8/28/24**

SHEET

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OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

USE 1/4"Φ TEK SCREWS AT 36" O.C. MAX
W/ 3/16" x 1/4" FENDER WASHERS
(3 ROWS) TO STEEL STUD CEILING OR
USE 3/8"Φ HILTI KB-TZ2 (CS) EXPANSION ANCHORS
(MIN. EMBED. (h_{ef}) = 2") @ 36" O.C.
W/ 1/2" x 1 1/2" FENDER WASHERS
(3 ROWS) TO CONCRETE CEILING
(BY STRUCTURAL ENGINEER OF RECORD)

CEILING MOUNTED

(12.6 LB/FT: HEAD BOX
16.1 LB/FT: CURTAIN ASSEMBLY)

OPENING UP TO 989 FT

EQ

EQ

36"
TYP

8" MAX
2" MIN

SEE SECTION B-B

6"

37.4"
TYP

312"
(26')

TOP OF FINISHED FLOOR

ELEVATION
(MULTIPLE CURTAINS CEILING MOUNT)

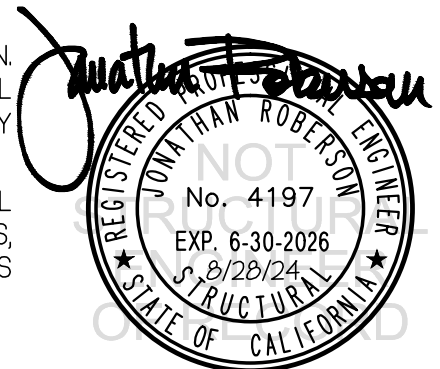
20" OVERLAP
TYP

GUIDE RAIL
(II GA, A653, F_y=30 KSI MIN)
(BY MFR) (EA SIDE)

NOTES:

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HORIZONTAL FORCE (E _h)	= 2.76 W _p
HORIZONTAL FORCE (E _{mh})	= 5.52 W _p (FOR CONCRETE ANCHORAGE)
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- SEE GENERAL NOTES: SHEETS 1 AND 2



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

13

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

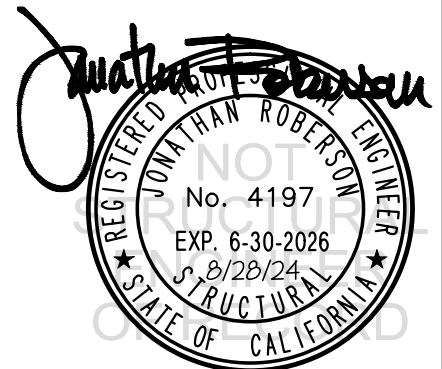
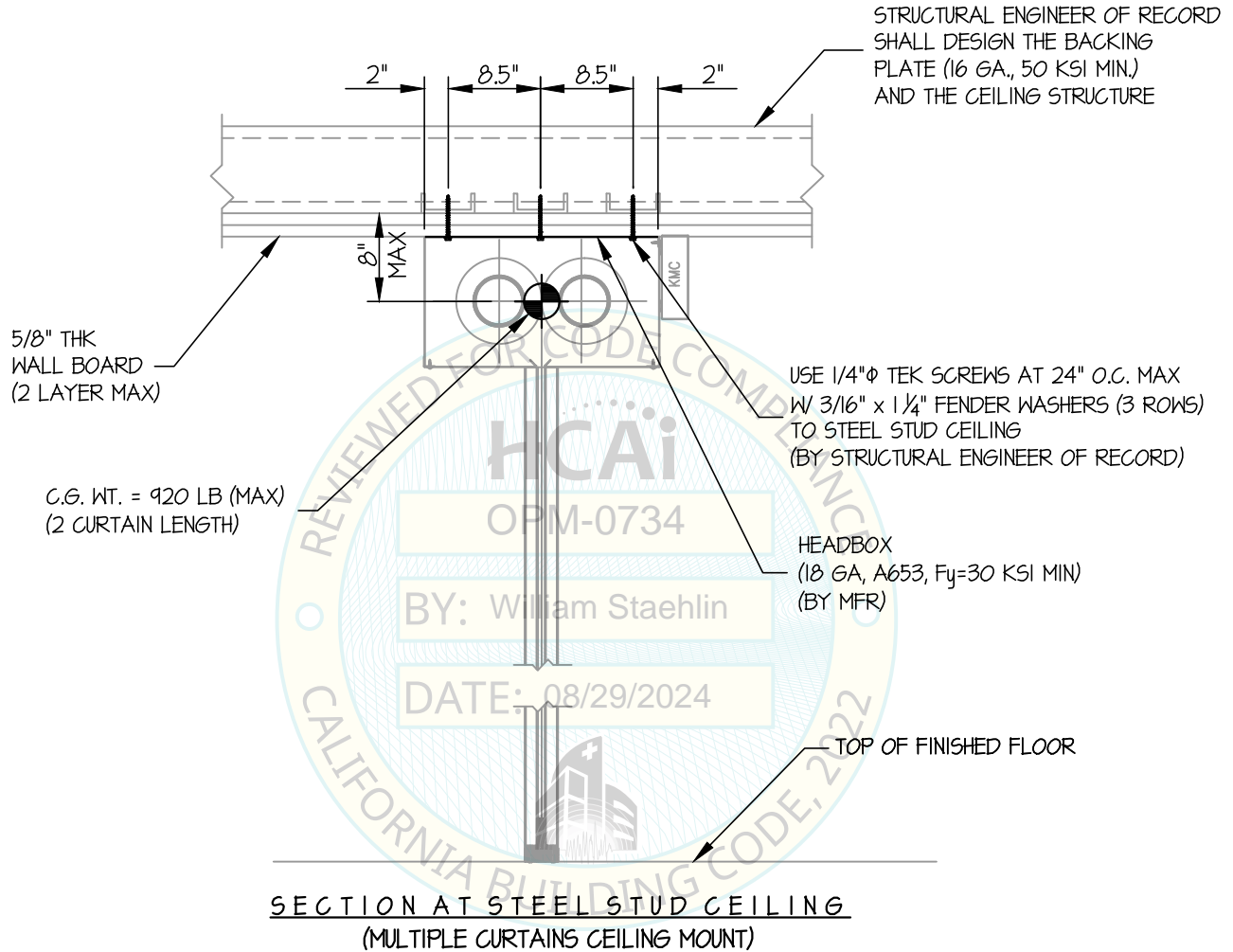
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OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CEILING MOUNTED



DOOR SYSTEMS INC

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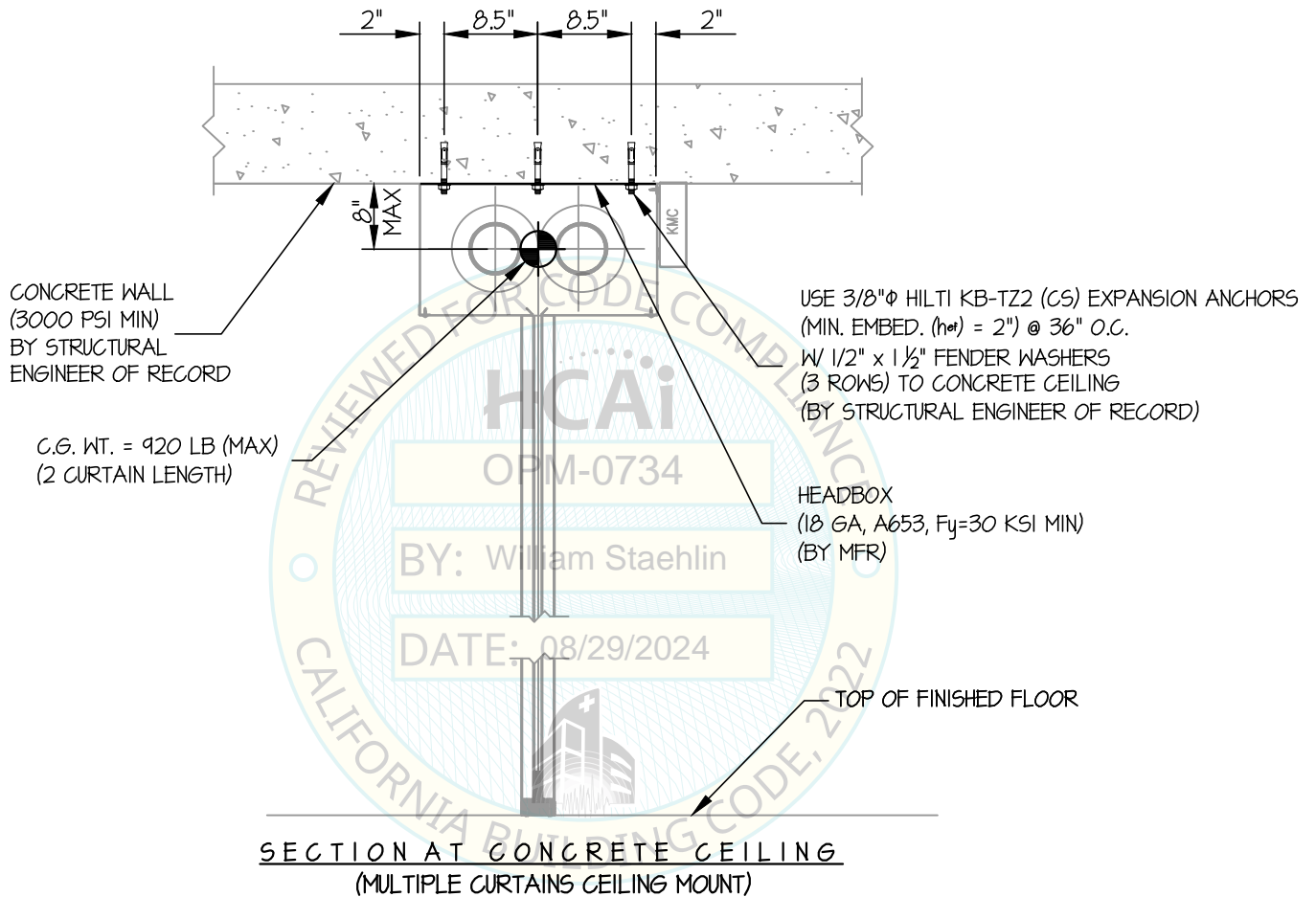
SHEET

14

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CEILING MOUNTED



Jonathan Roberson

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
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DES. **J. ROBERSON**

SHEET

15

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

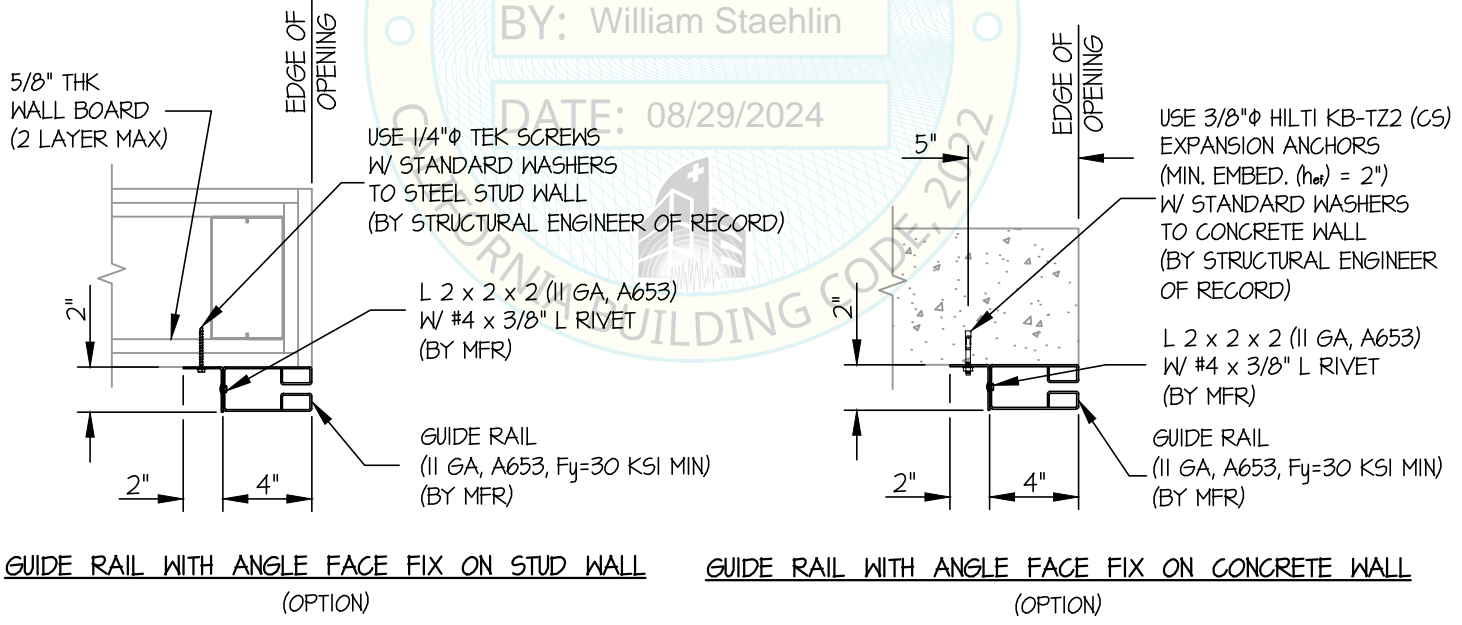
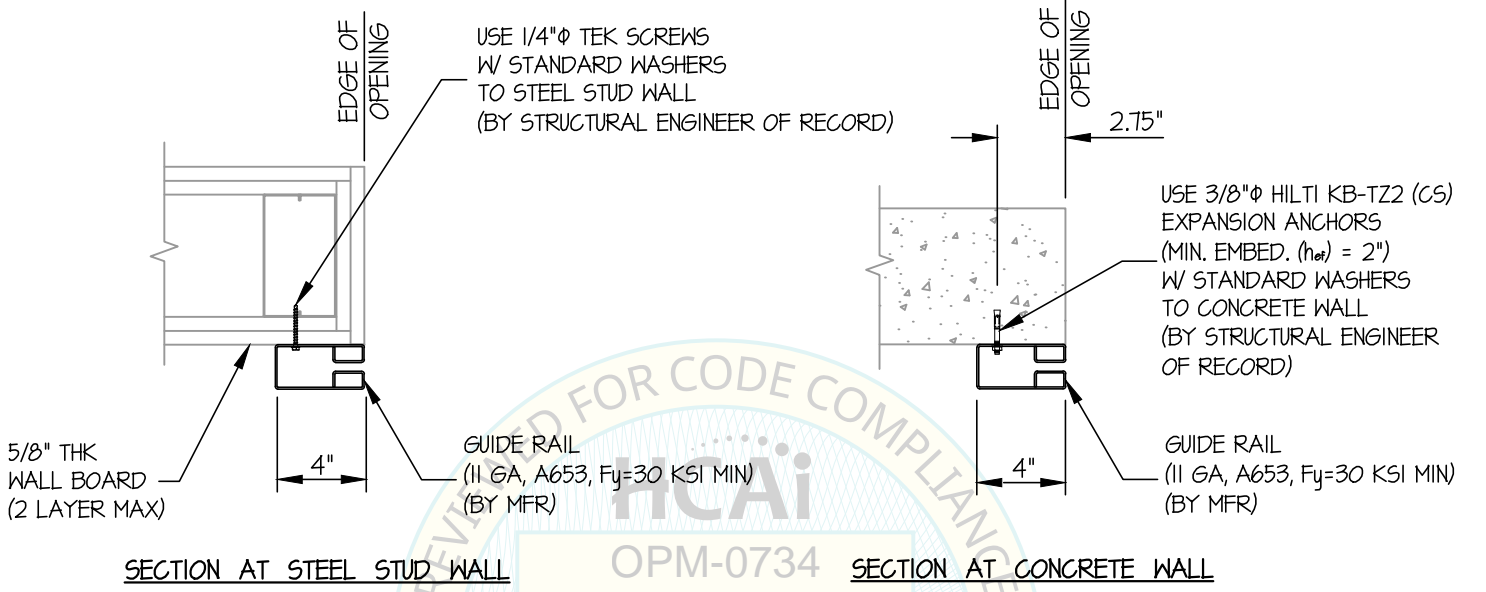
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DATE **8/28/24**

OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



SECTION A-A



DOOR SYSTEMS INC

DES. **J. ROBERSON**

SHEET

16

DSI-HS10B HOSE STREAM RATED SMOKE & FIRE CURTAIN

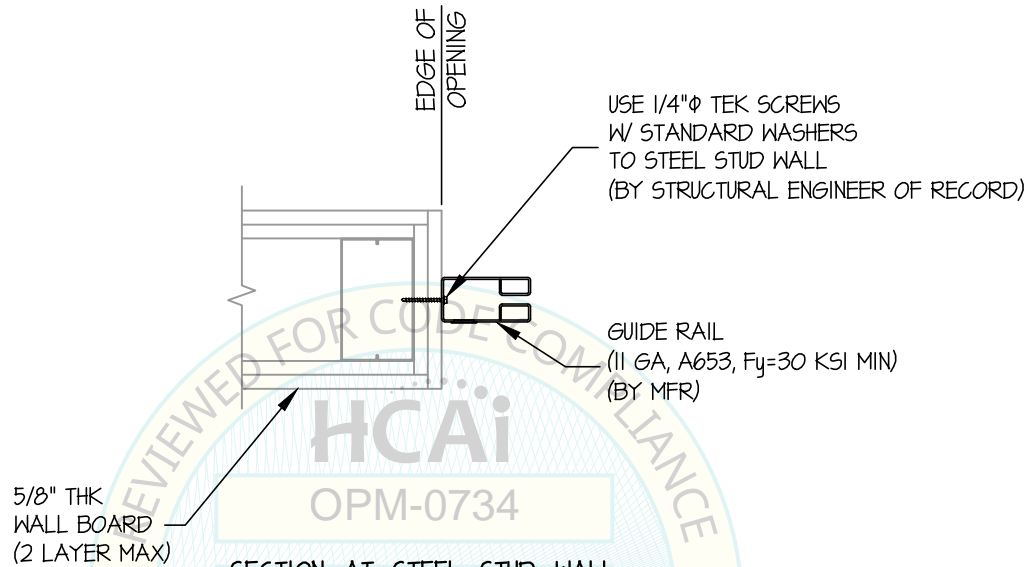
JOB NO. **11-2404**

DATE **8/28/24**

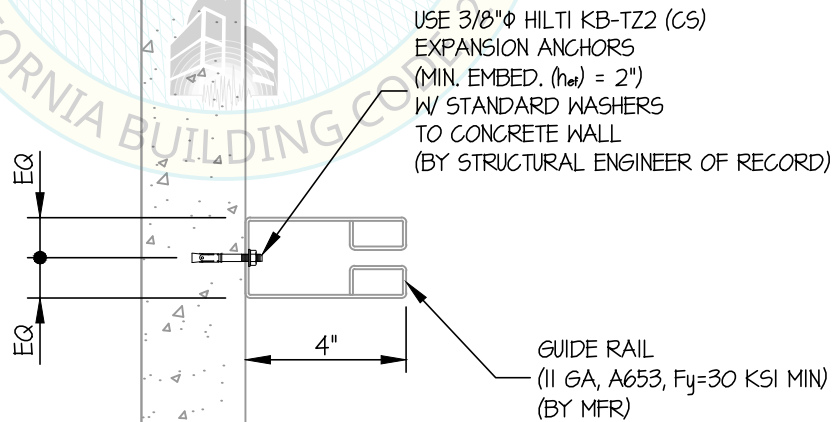
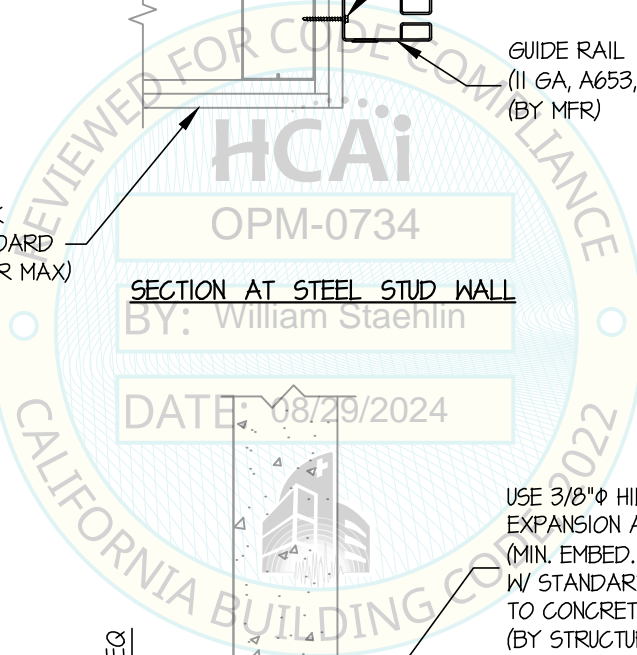
OF **16** SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CEILING MOUNTED



SECTION AT STEEL STUD WALL



SECTION AT CONCRETE WALL

SECTION B-B

