

# DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

WINDOW	
APPLICATION FOR HCAI PREAPPROVAL OF	OFFICE USE ONLY
MANUFACTURER'S CERTIFICATION (OPM)	APPLICATION #: OPM-0678
HCAI Preapproval of Manufacturer's Certification (OPM)	
Type: X New Renewal/Update	
Manufacturer Information	
Manufacturer: Smoke Guard Inc.	
Manufacturer's Technical Representative: Dylan Edme	
Mailing Address: 287 N. Maple Grove, Boise, ID 83704	
Telephone: (808) 344-9234 Email: dylan.emde@smoke	guard.com
Product Information	T
Product Name: Smoke Curtain OPM-0678	
Product Type: Other mechanical and electrical components	
Product Model Number: M2100 & M2100E BY: Jeffrey Kikumoto	
General Description: Closes off elevator openings to curtail smoke migration be	etwee <mark>n sp</mark> aces
E DATE: 09/00/2023	202
Applicant Information	<u>&amp;-/</u>
Applicant Company Name: SGW Designworks	
Contact Person: Mike Witt	

"A healthier California where all receive equitable, affordable, and quality health care"

Mailing Address: 200 E 33RD ST, Garden City, ID 837146615

<del>M</del>



STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

Telephone: (208) 391-4000

Title: Chief Operating Officer

Email: mike.witt@sgwdesignworks.com



# DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

Registered Design Professonal Preparing E	Ingineering Recommendations
Company Name:	
Name: Riley Mahaffey	California License Number: CE51006
Mailing Address: 201 N Maple Grove Rd, Ste 100,	Boise, ID 83704
Telephone: (208) 342-7168	Email:
HCAI Special Seismic Certification Preappr	oval (OSP)
Special Seismic Certification is preapproved ur	nder OSP OSP Number:
	OR CODE CO.
Certification Method	
and attachments are not permitted. For distribution criteria other than those adopted in the CBSC 2022  X Analysis	lifornia Building Standards Code, 2022 (CBSC 2022) for component supports system, interior partition wall, and suspended ceiling seismic bracings, test may be used when approved by HCAI prior to testing.  TE: 09/08/2023
Date: 9/8/2023	
Name: Jeffrey Kikumoto	Title: Senior Structural Engineer
Condition of Approval (if applicable):	

"A healthier California where all receive equitable, affordable, and quality health care"



STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

## PREAPPROVAL OF MANUFACTURER'S CERTIFICATION OPM-0678

THIS PREAPPROVAL CONFORMS TO THE 2022 CALIFORNIA BUILDING CODE MANUFACTURER: SMOKE GUARD

**EQUIPMENT NAME**: M2100/M2100E SMOKE AND FIRE CURTAIN

#### **GENERAL NOTES**

- 1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2022. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2022.
- 2. THIS DOCUMENT MAY ONLY BE USED WITH THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER LISTED BELOW FOR THE SPECIFIC PROJECT SITE AND INSTALLATION LOCATION. THIS DOCUMENT IS INVALID WITHOUT SUCH CONSENT.
- 3. THIS PRE-APPROVAL CONFORMS TO THE 2022 CALIFORNIA BUILDING CODE WHERE S<sub>DS</sub> IS NOT GREATER THAN 2.5.
- 4. FORCES PER ASCE 7-16 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2, & 13.3-3.
- WHERE  $S_{ns} = 2.5$ ,  $a_p = 1.0$ ,  $I_p = 1.5$ ,  $R_p = 1.5$ ,  $z/h \le 1$ . SEE FOLLOWING SHEETS FOR APPLICABILITY OF  $\Omega_0$
- 5. THIS PRE-APPROVAL 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.  $z/h \le 1$ )
- 9. WOOD SCREWS SHALL BE SIMPSON SDWH19600DB (ER-192)
- 10. POST-INSTALLED MECHANICAL ANCHORS FOR MASONRY AND CONCRETE SHALL BE HILTI KH-EZ (ICC ESR-3056; USE IN MASONRY) & (ESR-3027; CRACKED CONCRETE).

### 11. 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 GAUGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.
- C. VERIFY THAT PROJECT SPECIFIC VALUES OF S<sub>DS</sub> & z/h RESULT IN SEISMIC FORCES (Eh, Ev) 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 REPORT AND THIS OPM.

E. VERIFY THAT THE ANCHORS ARE AN ADEQUATE DISTANCE FROM ANY CONCRETE WALL EDGES OR OPENINGS (SEE DIAGRAM TO RIGHT).

MANUFACT	JRER:			NAME	DATE	PROPRIETARY & CONFIDENTIAL
SM	OKE GU	ARD	DRWN BY	FITZGERALD	1/5/2023	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE
PRODUCT:			ENG APPR.			PROPERTY OF ANY REPRODUCTION IN PART
M2100	)/M2100E	=	CHKD BY			OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF
REV:	SIZE: A	SHEET 1 OF 8	CUST. APPR.	No		IS PROHIBITED.
9/8/2	2023					



### RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING (CONT.)

- 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 6hef FROM THIS UNIT'S ANCHORS.
- G. DESIGN BACKING BARS, STUDS, ETC. WHICH THE UNITS ARE ATTACHED TO AS NOTED ON THE DRAWINGS.

### **TEST CRITERIA AND ACCEPTANCE FOR THE SCREW ANCHORS**

ANCHO		MIN STRENGTH	ANCHOR TYPE	ICC REPORT	MIN EMBED	MIN SPACING	MIN EDGE DIST	MIN SUBSTRATE THICKNESS	TENSION TEST	
1/4"	NW CONC	f'c ≥ 3000 psi	HILTI KH-EZ	3027	hef = 2.5"	1.5"	1.5"	6"	215 LBS.	
1/4"	CMU	f'm ≥ 1500 psi	HILTI KH-EZ	3056	hef = 2.5"	4"	4"	8"	250 LBS.	-

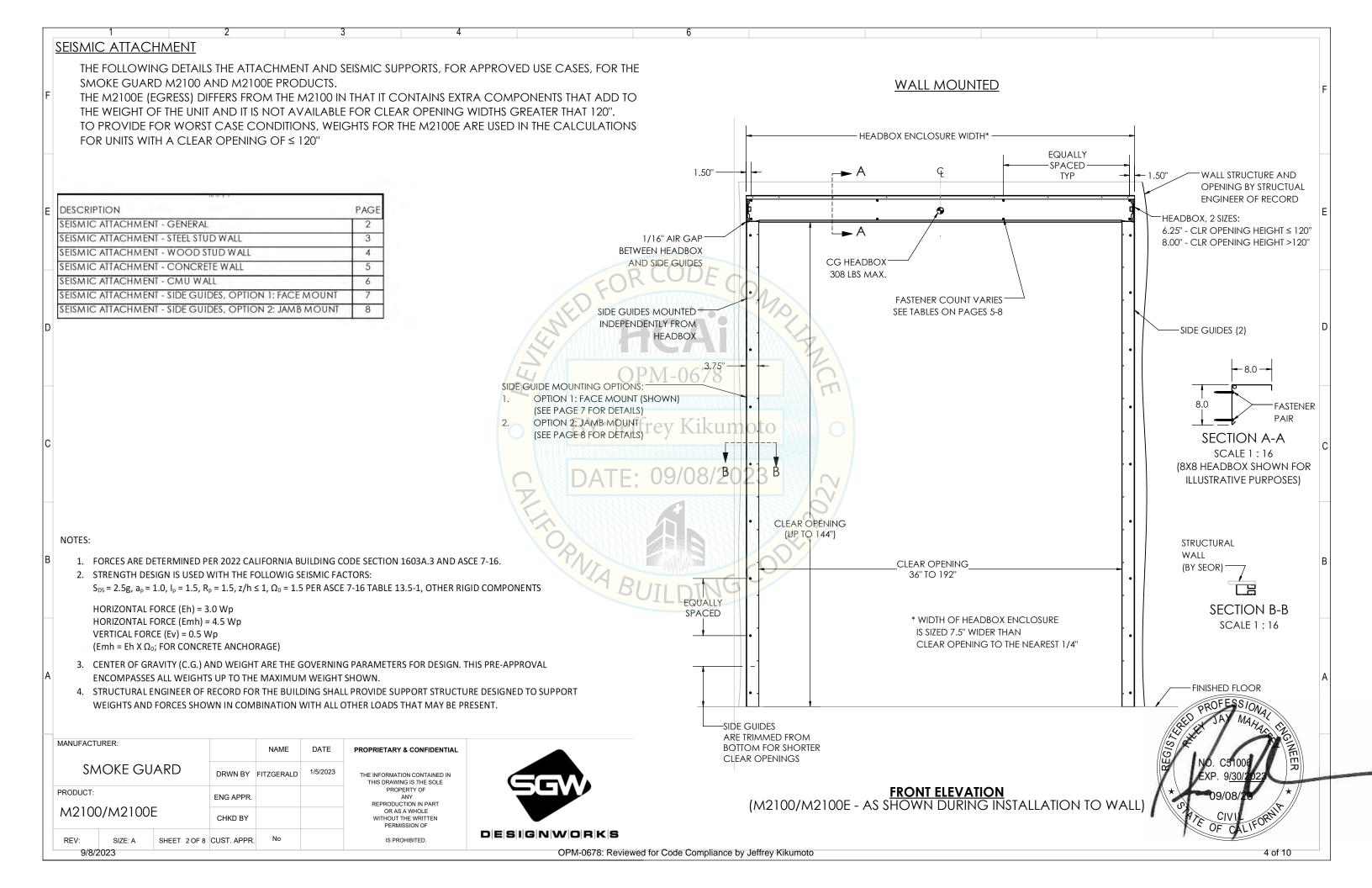
- B. REFER TO TABLE ABOVE FOR MIN EDGE DISTANCES (TO BE PROVIDED IN TWO DIRECTIONS)
- C. TESTING AND SPECIAL INSPECTIONS OF POST INSTALLED ANCHORS MUST BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY EMPLOYED BY THE FACIITY OWNER PER CBC 1704A & 1910A.5, AND CAC 7-149. ALL REPORTS SHALL BE SENT TO THE INSPECTOR OF RECORD, OWNER AND THE ARCHITECT OR ENGINEER IN RESPONSIBLE 09/08/charge.3
  - i. AFTER AT LEAST 24 HOURS HAVE ELAPSED SINCE THE INSTALLATION, DIRECT PULL TENSION TEST AT LEAST 50% OF THE ANCHORS
  - ii. ACCEPTANCE CRITERIAL:
    - TENSION TEST: NO OBSERVABLE MOVEMENT AT THE TEST LOAD
  - iii. IF ANY ANCHOR FAILS, TEST ALL ANCHORS
  - D. AVOID DAMAGEING EXISTING STEEL REINFORCING IN SUBSTRATE WHEN INSTALLING POST INSTALLED ANCHORS.

### POST INSTALLED ANCHORS IN UNCRACKED, GROUT-FILLED CMU

POST INSTALLED ANCHORS DESIGNED TO ICC-ES AC106 ARE LIMITED TO ALLOWABLE STRESS DESIN ONLY IN ACCORDANC WITH AC106 PARAGRAPH 1.2

SEOR MUST VERIFY THAT:

- MASONRY IS NOT CRACKED AS DEFINED IN AC106 PARAGRAPH 1.4.8; CALCULATION TO SHOW MASONRY WALL WOULD NOT CRACK UNDER DESIGN EARTHQUAKE LOADS UNDER ALL SERVICE CONDITIONS; WALL HAS TO REMIAN ELASTIC;
- MASONRY WALL MUST BE FULLY GROUTED IN ACCORDANCE WITH ESR-3056 SECTION 5.0.1



# SEISMIC ATTACHMENT FOR MOUNTING HEADBOX TO STEEL STUD WALL

### SECTION AT STEEL STUD WALL, 6.25 HEADBOX

(M2100/M2100E WITH CLEAR OPENING HEIGHT ≤ 120")

# STRUCTUAL ENGINEER OF RECORD SHALL DESIGN WALL AND FACING: STEEL STUD 16 GA, 50 KSI, MIN. 1 OR 2 LAYERS OF 5/8" GYPSUM BOARD 2.12" 2.65" MAX INSTALL Ø 1/4" TEK SCREWS INTO STEEL STUD QTY = n (SEE CHART BELOW) HEADBOX STRUCTURE: 14 GA, ASTM-A653-19A-CS-TYPE B 30 KSI MIN

C.G. WT. = 268 LBS. MAX (BASED ON CLEAR OPENING WIDTH - SEE CHART BELOW)

OPM-0678

1.63

LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

DATE: 09/08/2023

STRUCTUAL ENGINEER

WALL AND FACING:

OF RECORD SHALL DESIGN

STEEL STUD 16 GA, 50 KSI, MIN.

1 OR 2 LAYERS OF 5/8" GYPSUM BOARD

SECTION AT STEEL STUD WALL, 8.00 HEADBOX

(M2100/M2100E WITH CLEAR OPENING HEIGHT > 120")

3.48" MAX

INSTALL Ø 1/4" TEK SCREWS
INTO STEEL STUD
QTY = n (SEE CHART BELOW)

HEADBOX STRUCTURE:
14 GA, ASTM-A653-19A-CS-TYPE B
30 KSI MIN

C.G. WT. = 308 LBS. MAX.
(BASED ON CLEAR OPENING
WIDTH - SEE CHART BELOW)

LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

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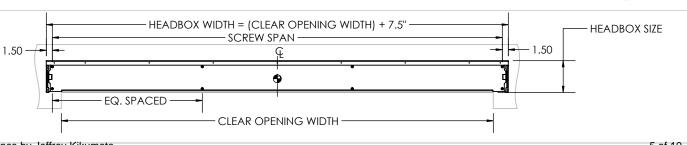
MANUFACTI	IDED:						
WANDI ACTO	JILIN.				NAME	DATE	
SM	OKE GU	ARD	DRWN BY	FITZGERALD	1/5/2023		
PRODUCT:				ENG APPR.			
M2100	)/M2100E	=		CHKD BY			
REV:	SIZE: A	SHEET 3	OF 8	CUST. APPR.	No		
9/8/2	7023						

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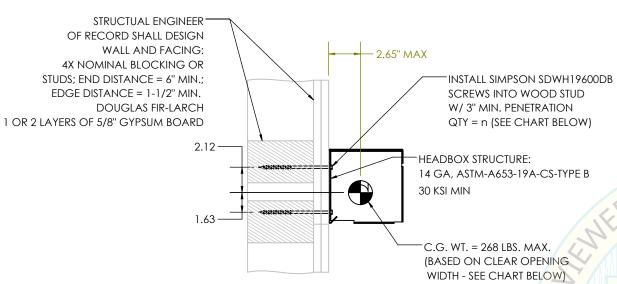


OPM-0678: Reviewed for Code Compliance by Jeffrey Kikumoto

### **SEISMIC ATTACHMENT** FOR MOUNTING HEADBOX TO WOOD STUD WALL

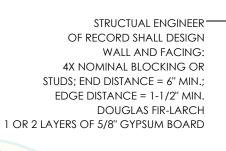
## SECTION AT WOOD STUD WALL, 6.25 HEADBOX

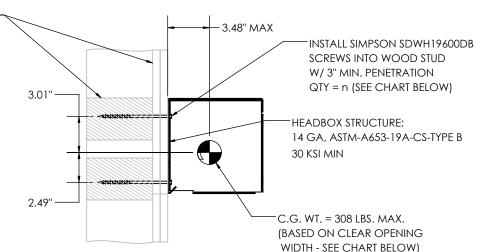
(M2100/M2100E WITH CLEAR OPENING HEIGHT ≤ 120")



## SECTION AT WOOD STUD WALL, 8.00 HEADBOX

(M2100/M2100E WITH CLEAR OPENING HEIGHT > 120")





Clear O Width		Max. Weight	Screw		
from	to	(lbs.)	n	T <sub>max</sub>	V <sub>max</sub>
36.00	48	92	4	104	57
48.25	60	106	4	119	66
60.25	72	120	8	69	37
72.25	84	136	8	78	42
84.25	96	149	8	84	46
96.25	108	171	8	96	53
108.25	120	191	8	107	60
120.25	132	197	8	110	61
132.25	144	211	12	80	44
144.25	156	225	12	85	47
156.25	168	241	12	90	50
168.25	180	254	12	95	53
180.25	192	268	12	100	56

LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

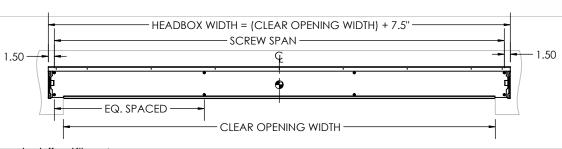
DATE: 09/08/2023

Clear Op Width ( from		Max. Weight (Ibs.)	Screw Count <b>n</b>	T <sub>max</sub>	V <sub>max</sub>
36.00	48	104	4	113	65
48,25	60	122	4	131	76
60.25	72	138	8	77	43
72.25	84	156	8	86	49
84.25	96	172	8	94	54
96.25	108	191	8	103	60
108.25	120	222	8	119	69
120.25	132	228	8	122	71
132.25	144	244	12	89	51
144.25	156	260	12	94	54
156.25	168	276	12	99	57
168.25	180	292	12	104	61
180.25	192	308	12	110	64

LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

MANUFACT	JRER:			NAME	DATE	PROPRIETARY & CONFIDENTIAL
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REV:	SIZE: A	SHEET 4 OF 8	CUST. APPR.	No		IS PROHIBITED.
9/8/2	2023					

DESIGNWORKS

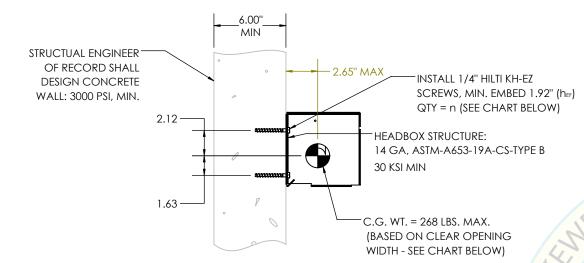


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### **SEISMIC ATTACHMENT** FOR MOUNTING HEADBOX TO CONCRETE WALL

## SECTION AT CONCRETE WALL, 6.25 HEADBOX

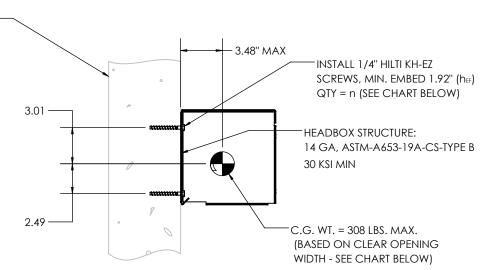
(M2100/M2100E WITH CLEAR OPENING HEIGHT ≤ 120")



# SECTION AT CONCRETE WALL, 8.00 HEADBOX

(M2100/M2100E WITH CLEAR OPENING HEIGHT > 120")

STRUCTUAL ENGINEER OF RECORD SHALL DESIGN WALL AND FACING: CONCRETE, 3000 PSI, MIN.



LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

DATE: 09/08/2023

Clear O	(inch)	Max. Weight	Screw Count <b>n</b>	Tu,	Vu,
from	to	(lbs.)	-0	max	max
36.00	48	104	4	202	125
48.25	60	122	4	234	147
60.25	72	138	8	139	83
72.25	84	156	8	154	94
84.25	96	172	8	168	103
96.25	108	191	8	185	115
108.25	120	222	8	213	133
120.25	132	228	8	218	137
132.25	144	244	12	159	98
144.25	156	260	12	168	104
156.25	168	276	12	178	111
168.25	180	292	12	187	117
180.25	192	308	12	196	123

VALUES INCLUDE  $\Omega_0$ 

LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

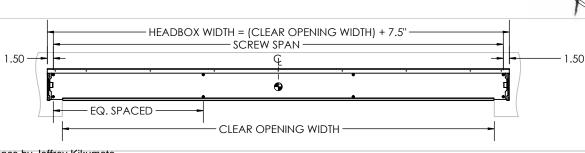
VALUES INCLUDE Ω<sub>0</sub>

MANUFACTI	URER:				NAME	DATE	
SM	NOKE GU	ARD	DRWN BY	FITZGERALD	1/5/2023		
PRODUCT:				ENG APPR.			
M2100	)/M2100E	=		CHKD BY			
REV:	SIZE: A	SHEET 50	)F 8	CUST. APPR.	No		
9/8/2	2023						

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### **SEISMIC ATTACHMENT** FOR MOUNTING HEADBOX TO CMU WALL

### SECTION AT CMU WALL, 6.25 HEADBOX

(M2100/M2100E WITH CLEAR OPENING HEIGHT ≤ 120")

STRUCTUAL ENGINEER 2.65" MAX INSTALL 1/4" HILTI HUS-EZ OF RECORD SHALL DESIGN SCREWS, MIN. EMBED 2.5" CONCRETE MASONRY UNIT (MEASURED FROM OUTSIDE (CMU) WALL SURFACE OF CMU) MIN. REQUIREMENTS: MIN DIST FROM BED JOINT 1.25" **FULLY GROUTED** QTY = n (SEE CHART BELOW) f'm = 1500 PSI2.12 -**HEADBOX STRUCTURE:** 14 GA, ASTM-A653-19A-CS-TYPE B C.G. WT. = 308 LBS. MAX. 1.63 -(BASED ON CLEAR OPENING

# SECTION AT CMU WALL, 8.00 HEADBOX

(M2100/M2100E WITH CLEAR OPENING HEIGHT > 120")

-3.48" MAX STRUCTUAL ENGINEER OF RECORD SHALL DESIGN INSTALL 1/4" HILTI HUS-EZ CONCRETE MASONRY UNIT SCREWS, MIN. EMBED 2.5" (MEASURED FROM OUTSIDE (CMU) WALL MIN. REQUIREMENTS: SURFACE OF CMU) MIN DIST FROM BED JOINT 1.25" **FULLY GROUTED** 3.01 -QTY = n (SEE CHART BELOW) f'm = 1500 PSI**HEADBOX STRUCTURE:** 14 GA, ASTM-A653-19A-CS-TYPE B 30 KSI MIN 2.49 -

> (BASED ON CLEAR OPENING WIDTH - SEE CHART BELOW)

C.G. WT. = 308 LBS. MAX.

LOCATION OF CG VARIES SLIGHTLY WITH CLEAR OPENING WIDTH. DIMENSIONS SHOWN REPRESENT WORST CASE CONDITION FOR CALCULATIONS

WIDTH - SEE CHART BELOW)

effrey Kikumoto

DATE: 09/08/2023

Clear O Width from	1 Y 3 T	Max. Weight (Ibs.)	Screw Count <b>n</b>	(ASD)	(ASD) V <sub>max</sub>
36.00	48	104	4	147	89
48.25	60	122	4	170	105
60.25	72	138	8	100	59
72,25	84	156	8	112	67
84.25	96	172	8	122	74
96.25	108	191	8	134	82
108.25	120	222	8	155	95
120.25	132	228	8	158	98
132.25	144	244	12	115	70
144.25	156	260	12	122	74
156.25	168	276	12	129	79
168.25	180	292	12	136	83
180.25	192	308	12	143	88
	•		VA	LUES INC	LUDE Ω <sub>0</sub>

	LOCATION OF CG VARIES SLIGHTLY WITH CLEAR
	OPENING WIDTH. DIMENSIONS SHOWN REPRESENT
ı	WORST CASE CONDITION FOR CALCULATIONS

MANUEACT	LIDED			I			
MANUFACTURER:				NAME	DATE		
SMOKE GUARD			DRWN BY	FITZGERALD	1/5/2023		
PRODUCT:			ENG APPR.				
M2100/M2100E			CHKD BY				
REV:	SIZE: A	SHEET 6 OF 8	CUST. APPR.	No			
9/8/2023							

Clear Opening

Width (inch)

to

48

60

72

84

96

108

120

132

144

156

168

180

192

from

36.00

48.25

60.25

72.25

84.25

96.25

108.25

120.25

132.25

144.25

156.25

168.25

180.25

Max.

Weight

(lbs.)

92

106

120

136

149

171

191

197

211

225

241

254

268

Screw

Count

n

4

4

8

8

8

8

8

8

12

12

12

12

12

(ASD) (ASD)

Tmax

134

153

89

100

109

124

138

141

103

109

116

122

129

VALUES INCLUDE  $\Omega_0$ 

 $V_{max}$ 

79

91

51

58

64

73

82

84

60

64

69

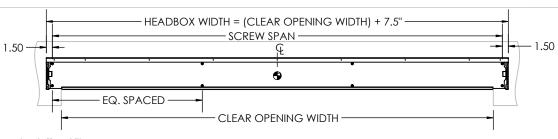
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