



Corr/Guard II Single Wall Vent

SUBMITTAL RECORD

PROJECT DATA

PROJECT NAME: Webster ISB Boiler and Water Heater

PROJECT LOCATION:

ARCHITECT: _____

ENGINEER: _____

CONTRACTOR: iCON Mechanical

SUBMITTED BY: Eric Eyler - Midwest Machinery Co, 17814 Edison Ave, Chesterfield, MO

APPROVALS

CONTRACTOR: _____ **DATE:** _____

ARCHITECT: _____ **DATE:** _____

ENGINEER: _____ **DATE:** _____

P.O. Box 1138 Wichita, KS 67201
(316) 943-2351 Fax (316) 943-2717

CORR/GUARD II SINGLE WALL VENT

APPLICATION:

Condensing Appliance Vent

MATERIALS OF CONSTRUCTION:

Inside Building: AL29-4C

Outside Building: AL29-4C



Corr/Guard II is listed to UL 1738, Standard for Venting Systems for Gas-Burning Appliances, Categories II, III, IV and ULC S636. These requirements cover venting systems intended for venting Category II, III, or IV gas burning appliances as defined by the Standard for Gas Fired Central Furnaces, ANSI Z21.47 and the National Fuel Gas Code, NFPA 54. Venting systems covered by these requirements are intended to be used with Category II, III, and IV appliances that have been installed in accordance with NFPA 54, and with codes such as the IAPMO Uniform Mechanical Code, ICC International Mechanical Code and local codes.

NOTE: INSTALLATION OF FLANGED CORR/GUARD VENT MUST BE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. OTHERWISE, UL LISTINGS AND MANUFACTURER'S WARRANTIES MAY BE VOIDED.

Qty	Part#	CTO	Description	Weight	Ext Wt
3	4FCSSWEI6	CA0	ECCENTRIC INCREASER 4" TO 6" FLANGED	2.01	6.03
3	6FCSSWCB	CA0	CAP WITH BIRD SCREEN	2.75	8.25
6	6FCSSW9	CA0	9" STRAIGHT LENGTH	1.40	8.40
3	6FCSSWSC	CA0	STORM COLLAR	2.91	8.73
3	6FCSSWF	CA0	FLASHING	8.63	25.89
9	6FCSSW90L	CA0	90 DEGREE ELBOW	2.66	23.94
1	6FCSSW45L	CA0	45 DEGREE ELBOW	1.95	1.95
4	6FCSSW18	CA0	18" STRAIGHT LENGTH	2.14	8.56
8	6FCSSW30L	CA0	30 DEGREE ELBOW	1.80	14.40
3	6FCSSW24	CA0	24" STRAIGHT LENGTH	2.66	7.98
3	6FCSSW12	CA0	12" STRAIGHT LENGTH	1.63	4.89
9	6FCSSWGR	CA0	GUY RING	0.64	5.76
6	6FCSSWPS	CA0	PLATE SUPPORT	4.60	27.60
13	6FCSSWHAR	CA0	HALF ANGLE RING	0.25	3.25
15	6FCSSWVL22	CA0	VARIABLE LENGTH	3.14	47.10
71	6FCSSW36	CA0	36" STRAIGHT LENGTH	3.70	262.70

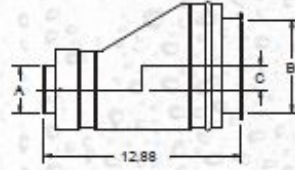
FCS/FCSSW COMPONENTS 6" - 24" DIAMETERS

ECCENTRIC TAPERED INCREASER (EI)

4" - 5" Diameters

A		B		C	
4.00"	(102)	6.00"	(152)	1.00"	(25)
5.00"	(127)	6.00"	(152)	0.50"	(13)

Dimensions in inches (mm).



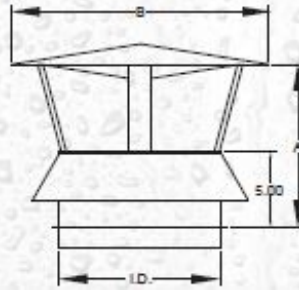
STACK CAP (C) (CB)

6" - 24" Diameters

Flow resistance $K = 0.5$

NOTE: Provides partial rain protection. Use of Drain Tee Cap (TC) or Drain Section (DS) is recommended.

NOTE: Also available with bird screen order as (CB).



PIPE I.D.	A		B	
6" (153)	9.50"	(241)	11.00"	(280)
7" (178)	10.50"	(267)	12.50"	(318)
8" (204)	11.50"	(292)	14.00"	(356)
9" (229)	12.75"	(324)	15.50"	(394)
10" (254)	13.50"	(343)	17.00"	(432)
12" (305)	14.50"	(368)	21.00"	(534)
14" (356)	15.50"	(394)	24.00"	(610)
16" (407)	17.50"	(445)	28.00"	(712)
18" (458)	18.50"	(470)	31.00"	(788)
20" (508)	20.50"	(521)	34.00"	(864)
22" (559)	21.50"	(548)	38.00"	(965)
24" (610)	23.50"	(597)	41.00"	(1041)

Dimensions in inches (mm).

PIPE LENGTHS

NOTE: Deduct 1-1/4" for installed length.

Flow Resistance $K=.4 \left(\frac{L}{D}\right)$ for 6"(152) - 16"(406) diameters

Flow Resistance $K=.3 \left(\frac{L}{D}\right)$ for 18"(458) - 24"(610) diameters

Flow Resistance $K=.25 \left(\frac{L}{D}\right)$ for Engine and turbine exhausts.

L = pipe length in feet

D = pipe diameter in inches

NOTE: Custom lengths available, contact factory.



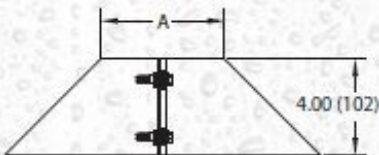
STRAIGHT LENGTH 6" THRU 24"	
PIPE LENGTHS	INSTALLED LENGTH (L)
9.00" (229)	7.75" (197)
12.00" (305)	10.75" (273)
18.00" (458)	16.75" (425)
24.00" (610)	22.75" (578)
36.00" (915)	34.75" (883)

PIPE I.D.	PIPE O.D.
FCSSW	FCS
6" (153)	8" (204)
7" (178)	9" (229)
8" (204)	10" (254)
9" (229)	11" (280)
10" (254)	12" (305)
12" (305)	14" (356)
14" (356)	16" (407)
16" (407)	18" (458)
18" (458)	20" (508)
20" (508)	22" (559)
22" (559)	24" (610)
24" (610)	26" (661)

STORM COLLAR (SC)

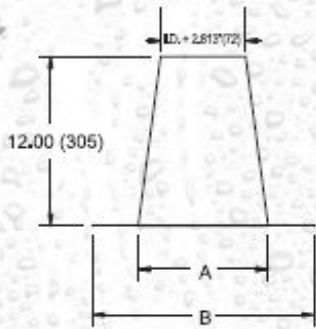
6" – 24" Diameters

A = Pipe Diameter (O.D.)



TALL CONE FLASHING (F)

6" – 24" Diameters
Used for flat roof applications.



PIPE I.D.		FCSSW/FCS			
		A		B	
6"	(153)	12.00"	(305)	24.00"	(610)
7"	(178)	13.00"	(330)	25.00"	(635)
8"	(204)	14.00"	(356)	26.00"	(661)
9"	(229)	15.00"	(381)	27.00"	(686)
10"	(254)	16.00"	(407)	28.00"	(712)
12"	(305)	18.00"	(458)	30.00"	(762)
14"	(356)	20.00"	(508)	32.00"	(813)
16"	(407)	22.00"	(559)	34.00"	(864)
18"	(458)	24.00"	(610)	36.00"	(915)
20"	(508)	26.00"	(661)	38.00"	(966)
22"	(559)	28.00"	(712)	40.00"	(1016)
24"	(610)	30.00"	(762)	42.00"	(1067)

Dimensions in inches (mm).

90° ELBOW (90L)

6" – 24" Diameters

Flow Resistance K:

6" – 8" = 0.38

9" – 18" = 0.42

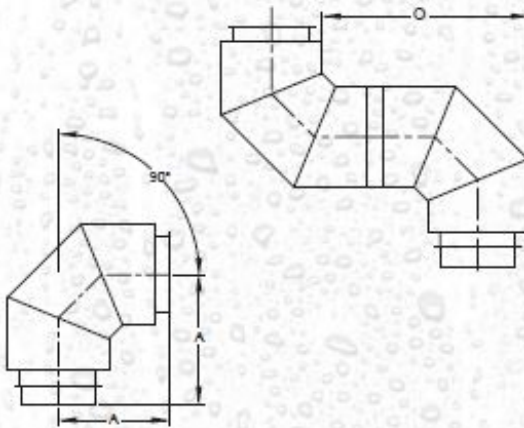
20" – 24" = 0.54

Offset Distance:

$O = 2 \times "A"$

Offset Distance with pipe
length between elbows:

$O = 2 \times "A" + \text{pipe length}$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	8.88"	(225)
7"	(178)	9.38"	(238)
8"	(204)	9.88"	(251)
9"	(229)	10.38"	(264)
10"	(254)	10.88"	(276)
12"	(305)	11.88"	(302)
14"	(356)	12.88"	(327)
16"	(407)	13.88"	(352)
18"	(458)	14.88"	(378)
20"	(508)	15.88"	(403)
22"	(559)	16.88"	(429)
24"	(610)	17.88"	(454)

Dimensions in inches (mm).

45° ELBOW (45L)

6" – 24" Diameters

Flow Resistance $K = 0.15$

Offset Distance:

$$O = 2 \times "A" \times 0.707$$

Offset Distance with

pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.707$$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	5.44"	(138)
7"	(178)	5.63"	(143)
8"	(204)	5.86"	(149)
9"	(229)	6.06"	(154)
10"	(254)	6.26"	(159)
12"	(305)	6.76"	(172)
14"	(356)	7.13"	(181)
16"	(407)	7.51"	(191)
18"	(458)	7.94"	(202)
20"	(508)	8.32"	(211)
22"	(559)	8.76"	(223)
24"	(610)	9.26"	(235)

Dimensions in inches (mm).

30° ELBOW (30L)

6" – 24" Diameters

Flow Resistance $K = 0.12$

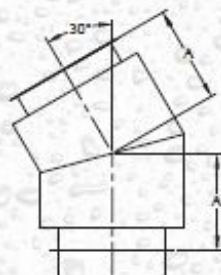
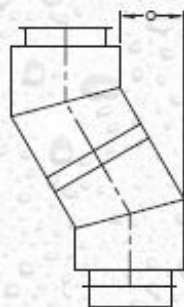
Offset Distance:

$$O = 2 \times "A" \times 0.5$$

Offset distance with

pipe length between elbows:

$$O = (2 \times "A" + \text{pipe length}) \times 0.5$$



PIPE I.D.		A	
		FCSSW / FCS	
6"	(153)	5.00"	(127)
7"	(178)	5.13"	(130)
8"	(204)	5.25"	(133)
9"	(229)	5.38"	(137)
10"	(254)	5.50"	(140)
12"	(305)	5.75"	(146)
14"	(356)	6.06"	(154)
16"	(407)	6.38"	(162)
18"	(458)	6.63"	(168)
20"	(508)	6.88"	(175)
22"	(559)	7.13"	(181)
24"	(610)	7.38"	(187)

Dimensions in inches (mm).

GUY RING (GR)

6" – 24" Diameters

NOTE: Guy Ring clamps around outside of pipe.

A = Flue Diameter for FCSSW

A = Flue Diameter + 2" for FCS

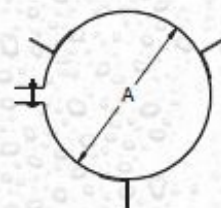


PLATE SUPPORT (PS)

6" – 24" Diameters

Provides vertical or horizontal rigid support.

Includes split plates, clamp flanges, and 1/2 closure bands.

NOTE: Does not allow for thermal expansion.

Plate dimension = Flue diameter + 9"

(Zinc Plated)

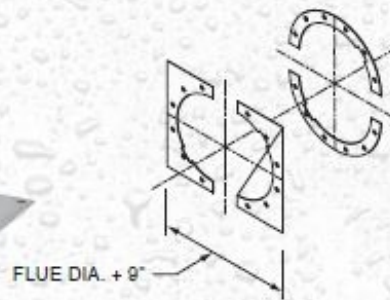
Do not exceed "X" between supports.

6" – 12" FCSSW X = 100'

14" – 24" FCSSW X = 75'

6" – 12" FCS X = 50'

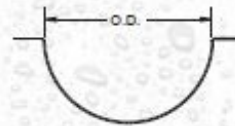
14" – 24" FCS X = 30'



HALF ANGLE RING (HAR)

6" – 24" Diameters

Maximum distance between supports or elbows = 7' 0"



VARIABLE LENGTH (VL22)

Flow Resistance $K = .4\left(\frac{L}{D}\right)$

L = pipe length in feet

D = flue diameter

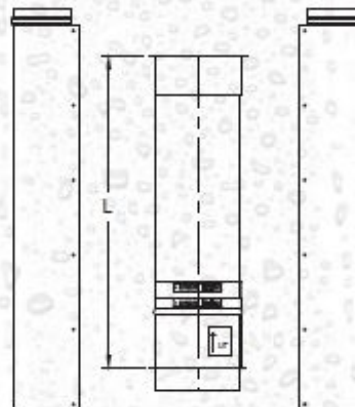
NOTE: Used to fill gaps between standard length components. Does not allow for thermal expansion.

INSTALLED LENGTH (L)

VL22

Minimum: 9" (229)

Maximum: 22" (559)



- Marley Cooling Technologies
- Armstrong Pumps & Heat Exchangers
- Laars Heating Systems
- ClimateMaster Heat Pumps
- Square D Variable Speed Drives



- SMARDT Chillers
- Trend/ Novar Controls
- PEP Filters
- Boiler Room Accessories
- Cooling Tower Service

SUBMITTAL DATA

TO: **iCON Mechanical**
 ATTENTION: **Alex Chambers**
 PHONE:
 FAX:

SUBMITTAL DATE **March 15, 2017**
 CUSTOMER P.O. #
 REVISION
 PREPARED BY **Eric Eyler / BC**
 QUOTE NUMBER **16-0213.6**
 CURRENT LEAD TIME **Weeks**

PROJECT **Webster Univ ISB**
 ENGINEER **William Tao**
 LOCATION **Webster Groves, MO**

QTY.	TAG	DESCRIPTION
------	-----	-------------

Boiler Flue

- 1 **MetalFab Flue**
 AL29-4C Stainless Flue with
 Aluminized Casing
 10"
 See attached Drawing and Details

Water Heater Flue

- 1 **MetalFab Flue**
 AL29-4C Stainless Flue
 304SS Single wall
 6"
 See attached List for Detials

This data is submitted for:

☒

APPROVAL

A purchase order commitment has been issued to MIDWEST MACHINERY COMPANY. Items will not be fabricated or delivered until this approval is returned verifying acceptance.

☐

RECORD PURPOSES

A purchase order commitment has been issued to MIDWEST MACHINERY COMPANY. Items are being fabricated or delivered. This data provided for record purposes.

☐

RE-SUBMITTAL

The items submitted are to record revisions, corrections, or requests for further information on items previously submitted.

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: March 28, 2017

Attention: stl-cac@cannondesign.com

Contact Person / WTA Field Inspector:
Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Nolte

Project No. WT 14127.01

☐ UPS

☐ Courier

☒ **Email**

Copies	No.	Description
1 PDF	235000 M14	(Cannon #23 5000-015)
		Hot Water Boiler and Hot Water Heater Exhaust Flues

Remarks:

- 1. Contractor responsible to confirm required installation lengths and clearances prior to ordering flue vents.**
- 2. Coordinate installation with all other trades.**

c: **Kelvin Patel**
Kpatel@cannondesign.com

☐ Furnish as Submitted

☒ **Furnish as Noted**

☐ Rejected

☐ Revise & Resubmit

☐ Reviewed

☐

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

PROJECT NAME	
ADDRESS	
NUMBER	
OWNER	
ARCHITECT / ENGINEER	
SUBMITTED BY	
CONTRACTOR / CM SUBMITTAL NO.	CANNON DESIGN SUBMITTAL NO.
DRAWING / DETAIL REFERENCE	SPECIFICATION SECTION / PARAGRAPH
MANUFACTURER / SUPPLIER	ITEM / PRODUCT ID
REQUIRED DATE	PRIORITY
CRITICAL	☐

To be completed by Reviewer

CANNON DESIGN SUBMITTAL NUMBER
RECEIVED DATE

- ☐ **A. No Exceptions Taken**
No further review of submittal is required.
- ☐ **B. Make Corrections Noted**
Incorporate corrections in work;
resubmission is not required.
- ☐ **C. Revise and Resubmit**
Revise as noted, and resubmit for review.
- ☐ **D. Rejected**
Submittal is not in compliance with Contract Documents;
provide new submittal.
- ☐ **E. For Record / Information Only**
Submittal was reviewed for Record / Information
purposes only.
- ☐ **F. Not Required for Review**
Submittal is not required by Contract Documents
and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

ITEM BEING SUBMITTED (check only one)

- ☐ Shop Drawings ☐ Certification / Qualifications ☐ Coordination Drawing
☐ Samples ☐ Record Documents ☐ Calculations
 (_____ copies) ☐ Product Data ☐ Schedules
☐ LEED Submittal ☐ O&M Manuals
☐ Other

ITEM BEING SUBMITTED FOR (check only one)

- ☐ Action ☐ Information Only ☐ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

Ry:

By:
Devin D. Gates

REVIEWED BY	DATE

A/E COMMENTS

- ☐
- See attached sheet(s) for additional comments

REVIEWED BY	DATE



77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0535

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 03/22/2017

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: Hot Water Boiler and Hot Water Heater
Exhaust Flues Product

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:		SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings		☒ Approval	☐ Approved as Submitted
☐ Letter		☐ Your Use	☐ Approved as Noted
☐ Prints		☐ As Requested	☐ Returned After Loan
☐ Change Order		☐ Review and Comment	☐ Resubmit
☐ Plans			☐ Submit
☐ Samples		SENT VIA:	☐ Returned
☐ Specifications		☐ Attached	☐ Returned for Corrections
☒ Other: Product Data		☐ Separate Cover Via:	☐ Due Date:

Item	Package	Code	Rev.	Copies	Date	Description	Status
Submittal		235000-015	1		03/22/2017	Hot Water Boiler and Hot Water Heater Exhaust Flues Product Data	Submitted

NOTES:

CC:

Signed: _____
Devin Gates



Mechanical

LETTER OF TRANSMITTAL

TO: Paric Corporation

77 West Port Plaza #250

St. Louis, MO 63146

ATTN: Jason Szachnieski, Devin Gates

DATE: 3/16/17

JOB #: 5768

RE: Webster ISB

We are sending you

☒

Shop drawings

☐ Attached

☐ Prints

☐ Under separate cover

☐ Plans

☐ Samples

☐ Specifications

☐ Copy of letter

☐ Change order

☐ Other

COPIES	DATE	NO.	DESCRIPTION
1	3/16/17	235000-2.5	Low Temperature Boiler Vents

These are transmitted as checked below:

☐ For signature

☐ For your use

☐ As requested

☐ For bids due

☒

For review and comment

☐ Approved as submitted

☐ Approved as noted

☐ Returned for corrections

☐ Prints returned after loan to us

☐ Other

☐ Resubmit

☒ Submit

☐ Return

☐ copies for approval

☐ copies for distribution

☐ corrected prints

Remarks: Please return by 3/23/17. Submittal for Hot Water Boiler and Hot Water Heater exhaust flues.

COPY TO: file

SIGNED:

Alex Chambers



Mechanical

Webster University ISB Webster Groves, MO

Submittal #:

235000-2.5

Submittal Description:

Low Temperature Boiler Vents

Return By:

3/23/17

Please Note: To avoid scheduling delays and equipment release delays, please submit by the "Return By" date.

CHECKED BY:			
DESIGNER:		ENGINEER:	
☒	NO EXCEPTION TAKEN	☐	MAKE CORRECTIONS NOTED
☐	SUBMIT SPECIFIED ITEM	☐	REVISE AND RESUBMIT
☐	REJECTED	☐	
Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Equipment supplier is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and satisfactory performance of his work.			
		Job #:	5768
		Date:	3/16/17
		By:	ARC