

SUBMITTAL COVER SHEET #48

PROJECT NAME: Boone County Ignite Institute Renovations

DATE: 5/24/24

ARCHITECT: REH&A

BUILDER: ASHLEY CONSTRUCTION INC.

SUPPLIER: Habegger SUB- Bison

MANUFACTURER (S): Krueger

SPEC SECTION: 233600

SECTION NAME: Air Terminal Units

Ashley Construction Inc.

This submittal has been checked to verify measurements, coordination requirements between sub-contractors, model numbers and performance characteristics, and this submittal conforms to the requirements of the drawings and specifications and reflects any special requirements of the job conditions.

SIGNED: 

DATE 5/29/24

ARCHITECT'S
APPROVAL

SHOP DRAWING REVIEW	
ENGINEER'S REVIEW	RESPONSE REQUIRED OF CONTRACTOR
<input type="checkbox"/> No Exceptions Taken <input type="checkbox"/> Rejected	<input checked="" type="checkbox"/> Confirm <input type="checkbox"/> Resubmit
<input checked="" type="checkbox"/> Note Markings <input type="checkbox"/> Comments Attached	
<small>Engineer's review is for general conformance with the design concept as it relates to Engineer's scope of services. Contractor shall remain responsible for compliance with the project's contract documents and specifications. Markings, comments or lack of any notation shall not be construed as relieving the Contractor from this responsibility. Under no circumstances shall submittal and review of shop drawings be interpreted as acceptance of a modification or change to the contract documents. The Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, and for performing its work in a safe manner.</small>	
SHROUT TATE WILSON CONSULTING ENGINEERS By: Tanner Wallace Date: 06/13/24	

Coordinate unit orientation with
required service clearances

Bison Services LLC



7152 N. AA Hwy
Foster, KY 41043
Phone 606-747-0322 / Fax 606-747-0324

May 24, 2024

Project: Ignite Institue Renovation

Contractor: Ashley Construction

Engineer/Consultant: Shrout Tate and Wilson

Submittals: VAV

Spec Section: 23-36-00

Current Lead Time is 4 to 6 Weeks

Respectfully Submitted,

Jason Meloche

Bison Services, LLC

Ph# 606-747-0322

Fax# 606-747-0324

HABEGGER

Fabrication Division

925 Redna Terrace, Cincinnati, Ohio 45215

(513) 761-0383/1293 (Fax)

Submittals

Prepared By: Habegger Fabrication Division
925 Redna Terrace
Cincinnati, Ohio, 45215
Chalk Fry III

Contractor: **Bison Services**

Job: Ignite Institute Reno- Boone Co BOE

Date: 5/24/2024

Submittal Table of Contents

Krueger Submittal

Single Duct Terminal Unit Schedule

Ignite Institute Reno- Boone Co BOE; TUs/Ignite Institute Reno- Boone Co BOE

Tag	AHU Tag	Room	Model	Size		CFM		Static Pressure			NC Levels			Hot Water Heat Coil								Unit Information		
				Unit	Outlet	Max	Min	Inlet	Down	Min	Rad	Dis	CFM	MBH	EAT	EWT	LAT	APd	GPM	LWT	WPD	Rows	FPI	Hand
VAV-120			LMHS	12	16x15	1500	450	1	0.25	0.43	16	18	750	25.4	55	140	86.2	0.34	2.3	117.6	0.43	2-RH	10	LH
VAV-121			LMHS	10	14x12.5	1000	300	1	0.25	0.37	-	15	500	18.4	55	140	88.9	0.29	2.3	123.8	0.36	2-RH	10	LH
VAV-122			LMHS	10	14x12.5	1300	390	1	0.25	0.58	14	19	650	20.8	55	140	84.4	0.44	2.3	121.7	0.36	2-RH	10	LH
VAV-123			LMHS	10	14x12.5	1000	300	1	0.25	0.37	-	15	500	18.4	55	140	88.9	0.29	2.3	123.8	0.36	2-RH	10	LH
VAV-124			LMHS	12	16x15	1500	450	1	0.25	0.43	16	18	750	25.4	55	140	86.2	0.34	2.3	117.6	0.43	2-RH	10	LH
VAV-125			LMHS	10	14x12.5	1200	360	1	0.25	0.74	12	18	600	26.7	55	140	96	0.62	2.3	116.4	0.33	3-RH	10	LH
VAV-126			LMHS	12	16x15	1700	510	1	0.25	0.76	17	20	850	35.2	55	140	93.2	0.65	2.3	108.9	0.38	3-RH	10	LH
VAV-127			LMHS	14	20x17.5	2300	690	1	0.25	0.88	12	21	1150	46.1	55	140	91.9	0.76	2.3	99.2	0.16	4-RH	10	LH
VAV-C1			LMHS	08	12x10	600	150	1	0.25	0.19	16	21	300	7.3	55	140	77.5	0.12	2.3	133.5	2.78	1-RH	10	LH

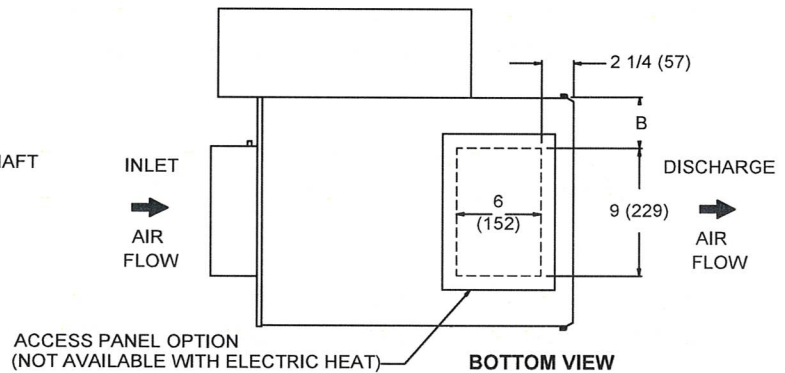
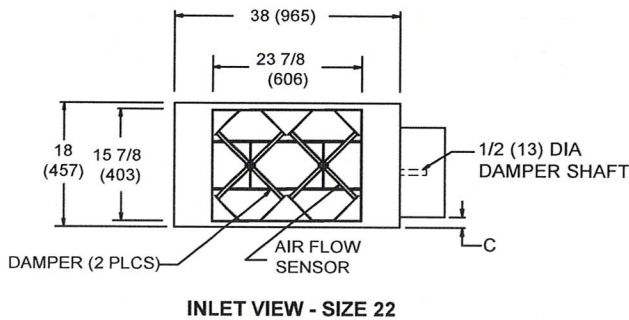
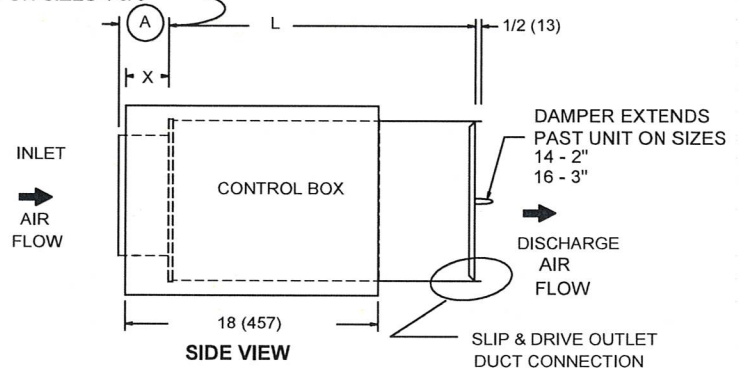
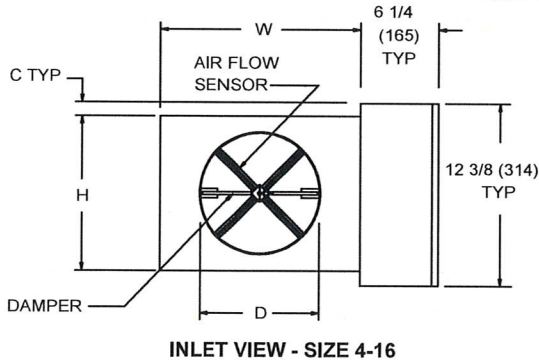
- Notes:
1. Selections are based on Krueger as Manufacturer.
 2. Room NC level shown includes attenuation transfer functions obtained from tables in AHRI Standard 885. "-" indicates a value less than 10.
 3. Sound data obtained from tests conducted in accordance with AHRI Standard 880-11 and corrected for end reflection.
 4. Min static pressure is the pressure loss through the unit. This value includes the air pressure drop of the hot water coil.
 5. All airflow, pressure and heating performance values are corrected for altitude.
 6. Units of Measure: Airflow (CFM), Dimensions (inches), Static Pressure (inches W.G.), Temperature (degree F).
 7. Min CFM can be selected down to a 0.01" signal from the inlet sensor. Recommended Min CFM is based on 0.03".
 8. Water pressure drop (WPD) units is in ft. water. This value only includes water pressure drop through the hot water coil.

Confirm VAV handedness prior to release

LMHS DIGITAL CONTROLS - BASE UNIT

SUBMITTAL SHEET

CHARTED 'A' DIMENSION INCLUDES INLET ADAPTER PROVIDED ON SIZES 4 & 5



STANDARD FEATURES:

- 22 Ga. Zinc coated steel construction.
- **NEMA 1 steel control enclosure for electric or electronic components**
- 1/2" thick dual density fiberglass insulation meeting **NFPA 90A** and **UL 181** safety requirements.
- Four quadrant averaging cross flow sensor
- Variety of electric, analog, and digital control packages for pressure dependent and pressure independent systems.
- ETL listed - Adherence to **UL 429** for electrically operated valves.
- **AHRI 880** certified sound ratings

NOTE: Right hand configuration shown, left hand available.

OPTIONAL FEATURES:

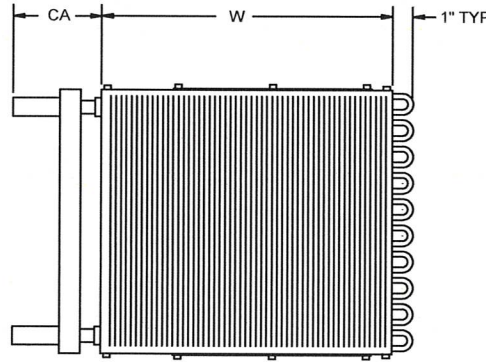
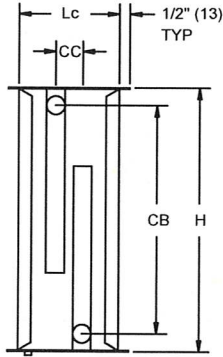
- 20 Ga. Zinc coated steel construction
- Liners: 1/2" dual density fiberglass None
- 1" dual density fiberglass **Steriliner**
- Perforated double wall 1/2" Sterilwall 1/2"
- Perforated double wall 1" Sterilwall 1"
- 1/2" Cellular - fibre free 1" Cellular - fibre free
- Linear averaging sensor.
- 24 Volt transformer
- Disconnect switch for electronic controls. Hanger Brackets
- Dust tight control enclosure.
- Left hand control enclosure.
- Right hand control enclosure.
- Bottom access panel** (not available in size 22)
- Cam lock bottom access panel (not available in size 22)

DIMENSIONS ARE GIVEN AS INCHES (MM)

INLET SIZE	NOM MAX CFM(L/s)	L	W	H	A	B	C	D	X
4	230 (109)	15 1/2 (394)	12 (305)	8 (203)	5 3/8 (136)	1 1/2 (38)	2 1/8 (54)	3 7/8 (98)	7 1/4 (184)
5	360 (170)	15 1/2 (394)	12 (305)	8 (203)	5 3/8 (136)	1 1/2 (38)	2 1/8 (54)	4 7/8 (124)	7 1/4 (184)
6	520 (245)	15 1/2 (394)	12 (305)	8 (203)	3 3/8 (86)	1 1/2 (38)	2 1/8 (54)	5 7/8 (149)	7 1/4 (184)
7	710 (335)	15 1/2 (394)	12 (305)	10 (254)	3 3/8 (86)	1 1/2 (38)	1 1/8 (29)	6 7/8 (175)	7 1/4 (184)
8	925 (437)	15 1/2 (394)	12 (305)	10 (254)	3 3/8 (86)	1 1/2 (38)	1 1/8 (29)	7 7/8 (200)	7 1/4 (184)
9	1200 (566)	15 1/2 (394)	14 (356)	12 1/2 (318)	3 3/8 (86)	2 1/2 (64)	-	8 7/8 (225)	5 1/4 (133)
10	1450 (685)	15 1/2 (394)	14 (356)	12 1/2 (318)	3 3/8 (86)	2 1/2 (64)	-	9 7/8 (251)	5 1/4 (133)
12	2100 (991)	15 1/2 (394)	16 (406)	15 (381)	3 3/8 (86)	3 1/2 (89)	-	11 7/8 (302)	5 1/4 (133)
14	2900 (1369)	15 1/2 (394)	20 (508)	17 1/2 (445)	3 3/8 (86)	5 1/2 (140)	-	13 7/8 (352)	3 1/4 (83)
16	3700 (1746)	15 1/2 (394)	24 (610)	18 (457)	3 3/8 (86)	7 1/2 (191)	-	15 7/8 (403)	3 1/4 (83)
22	7100 (3351)	15 (381)	38 (965)	18 (457)	4 1/4 (108)	NA	1 1/8 (29)	SEE ABOVE	5 1/4 (133)

LMHS HOT WATER COILS

SUBMITTAL SHEET



STANDARD FEATURES:

- Shipped from factory attached to the unit discharge
- Slip and drive field duct work installation
- Coil section is uninsulated
- Coil Casing - 20 Ga. Galvanized Steel
- Connection Tubing – 0.032" thick copper (see O.D. connection diameter in table)
- Coil Tubing – 1/2" diameter x 0.016" thick copper
- Coil Fins – 0.0045" thick aluminum, 10 FPI, mechanically bonded to tubing

OPTIONAL FEATURES:

- Coil Tubing – 0.035" thick copper tube (10 FPI)
- Coil Fins – 12 FPI (0.016" thick copper tube)
- Air Vent and Drain Ports

DIMENSIONS ARE GIVEN AS INCHES (MM)

LMHS INLET SIZE	NUMBER OF ROWS	H	W	Lc	CA	CB	CC	OD WATER CONNECTION
4,5,6	1	7 7/8 (200)	12 (305)	5 (127)	3 (76)	6 1/4 (159)	-	1/2 (13)
	2	7 7/8 (200)	12 (305)	5 (127)	3 (76)	6 1/4 (159)	-	5/8 (16)
	3	7 7/8 (200)	12 (305)	7 1/4 (184)	4 1/4 (108)	5 7/8 (149)	2 3/16 (56)	7/8 (22)
	4	7 7/8 (200)	12 (305)	7 1/4 (184)	4 1/4 (108)	6 1/4 (159)	3 1/4 (83)	7/8 (22)
7,8	1	10 1/4 (260)	12 (305)	5 (127)	3 (76)	8 3/4 (222)	-	1/2 (13)
	2	10 1/4 (260)	12 (305)	5 (127)	2 4/7 (65)	8 3/4 (222)	-	5/8 (16)
	3	10 1/4 (260)	12 (305)	7 1/4 (184)	4 1/4 (108)	8 3/8 (213)	2 3/16 (56)	7/8 (22)
	4	10 1/4 (260)	12 (305)	7 1/4 (184)	4 1/4 (108)	9 (229)	3 1/4 (83)	7/8 (22)
9,10	1	12 3/4 (324)	14 (356)	5 (127)	4 1/4 (108)	10 7/8 (276)	1 1/8 (29)	7/8 (22)
	2	12 3/4 (324)	14 (356)	5 (127)	4 1/4 (108)	11 1/2 (292)	1 1/16 (27)	7/8 (22)
	3	12 3/4 (324)	14 (356)	7 1/4 (184)	4 1/4 (108)	10 7/8 (276)	2 3/16 (56)	7/8 (22)
	4	12 3/4 (324)	14 (356)	7 1/4 (184)	4 1/4 (108)	11 1/2 (292)	3 1/4 (83)	7/8 (22)
12	1	15 1/4 (387)	16 (406)	5 (127)	4 1/4 (108)	13 3/8 (340)	1 1/8 (29)	7/8 (22)
	2	15 1/4 (387)	16 (406)	5 (127)	4 1/4 (108)	14 (356)	1 1/16 (27)	7/8 (22)
	3	15 1/4 (387)	16 (406)	7 1/4 (184)	4 1/4 (108)	13 3/8 (340)	2 3/16 (56)	7/8 (22)
	4	15 1/4 (387)	16 (406)	7 1/4 (184)	4 1/4 (108)	14 (356)	3 1/4 (83)	7/8 (22)
14	1	17 3/4 (451)	20 (508)	7 1/2 (191)	4 1/4 (108)	15 7/8 (403)	1 1/8 (29)	7/8 (22)
	2	17 3/4 (451)	20 (508)	7 1/2 (191)	4 1/4 (108)	16 1/2 (419)	1 1/16 (27)	7/8 (22)
	3	17 3/4 (451)	20 (508)	9 3/4 (248)	4 1/4 (108)	15 7/8 (403)	2 3/16 (56)	7/8 (22)
	4	17 3/4 (451)	20 (508)	9 3/4 (248)	4 1/4 (108)	16 1/2 (419)	3 1/4 (83)	7/8 (22)
16	1	17 3/4 (451)	24 (610)	7 1/2 (191)	4 1/4 (108)	15 7/8 (403)	1 1/8 (29)	7/8 (22)
	2	17 3/4 (451)	24 (610)	7 1/2 (191)	4 1/4 (108)	16 1/2 (419)	1 1/16 (27)	7/8 (22)
	3	17 3/4 (451)	24 (610)	9 3/4 (248)	4 1/4 (108)	15 7/8 (403)	2 3/16 (56)	7/8 (22)
	4	17 3/4 (451)	24 (610)	9 3/4 (248)	4 1/4 (108)	16 1/2 (419)	3 1/4 (83)	7/8 (22)
20	1	10 1/4 (260)	16 (406)	5 (127)	3 (76)	8 3/4 (222)	-	1/2 (13)
	2	10 1/4 (260)	16 (406)	5 (127)	2 9/16 (65)	8 3/4 (222)	-	5/8 (16)
	3	10 1/4 (260)	16 (406)	7 1/4 (184)	4 1/4 (108)	8 3/8 (213)	2 3/16 (56)	7/8 (22)
	4	10 1/4 (260)	16 (406)	7 1/4 (184)	4 1/4 (108)	9 (229)	3 1/4 (83)	7/8 (22)
22	1	17 3/4 (451)	38 (965)	5 (127)	4 1/4 (108)	15 7/8 (403)	1 1/8 (29)	7/8 (22)
	2	17 3/4 (451)	38 (965)	5 (127)	4 1/4 (108)	16 1/2 (419)	1 1/16 (27)	7/8 (22)
	3	17 3/4 (451)	38 (965)	7 1/4 (184)	4 1/4 (108)	15 7/8 (403)	2 3/16 (56)	7/8 (22)
	4	17 3/4 (451)	38 (965)	7 1/4 (184)	4 1/4 (108)	16 1/2 (419)	3 1/4 (83)	7/8 (22)
30	1	10 1/4 (260)	27 1/4 (692)	5 (127)	3 (76)	8 3/4 (222)	-	1/2 (13)
	2	10 1/4 (260)	27 1/4 (692)	5 (127)	2 9/16 (65)	8 3/4 (222)	-	5/8 (16)
	3	10 1/4 (260)	27 1/4 (692)	7 1/4 (184)	4 1/4 (108)	8 3/8 (213)	2 3/16 (56)	7/8 (22)
	4	10 1/4 (260)	27 1/4 (692)	7 1/4 (184)	4 1/4 (108)	9 (229)	3 1/4 (83)	7/8 (22)

JOB NAME _____
 ARCHITECT _____
 ENGINEER _____
 CONTRACTOR _____
 LOCATION _____

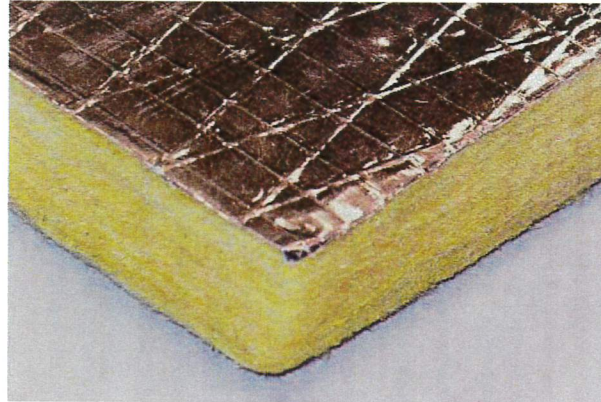
SUBMITTAL SHEET
 Form Number TUIN02-1 Effective Date 6/09
 Replaces From TUIN02



KRUEGER

Excellence in Air Distribution

Steriliner Insulation Submittal



Physical Properties

Material	Foil Faced Duct Board Insulation
Thickness	13/16 inch
R-Value	3.5 @ 75° F
Density	4.0 lbs / ft ³
Operating Temperature	250°F / (121°C)
Maximum air velocity	2400 FPM
Flame Spread	25
Smoke Density	50
Air Erosion	None
Mold Growth and Humidity	None

Code Compliances

UL 181	Air Erosion
UL 181	Mold Growth and Humidity
UL 723	Flame / Smoke (25/50)
ASTM E 84	Flame / Smoke (25/50)
NFPA 90A & 90B	Appliances
ASTM C 665	Corrosiveness Test
ASTM 1338	Fungi Resistance
ASTM G21	Fungi Resistance
ASTM G22	Bacteria Resistant