



Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110

Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITTAL

August 13, 2012

Submittal No: 15800-018

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan
Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **Kuck Mechanical Contractors, LLC.**
395 West 67th Street
Loveland, CO 80593
970-461-3553 Melanie Peterson

SUBJECT: Blower Building Louvers (TAG: L-1, L-2, L-3, and L-4)

SPEC SECTION: 15800 - Heating & Ventilating

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Engineer's Stamp:

Date: 9/13/12

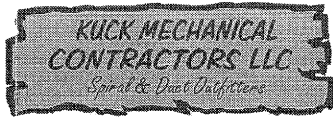
Reviewed by: John Jacob

(x) Reviewed Without Comments

() Reviewed With Comments

ENGINEER'S

COMMENTS:



395 West 67th Street
P.O. Box 388
Loveland, CO 80539-0388
Phone: (970) 461-3553
Fax: (970) 461-3443

DATE: 08/09/12

SENT TO: Weaver General Contractors

Attn: John Jacob

JOB: Harold D. Thompson WRF (#01135)
9001 Birdsall Rd.
Fountain, CO 80817

SUBMITTAL NO.: 00025

SUBMITTAL DUE:

PACKAGE: n/a

VIENDOR NAME: CFM

SPECIFICATION #: 15800

SUBJECT: Blower Bldg - Louvers

REVIEW DETAILS:

Review #: 1	Received: 08/09/12	Priority: Normal
Desc: Blower Bldg - Louvers	Sent: 08/09/12	Status: Open
Reviewer: John Jacob	Returned:	Sepias: 0
Weaver General Contractors	Forwarded:	Prints: 0

Sent for the following action(s):

- For Approval
 For Distribution
 For Your Use/Files
 As Req'd per

Action Needed:

Sincerely,
Melanie Peterson
Kuck Mechanical Contractors
PM Assistant
395 W. 67th Street
Loveland, CO 80538



CFM COMPANY

AIR CONDITIONING / HEATING / VENTILATING EQUIPMENT

413D North Highway 287 - Ft. Collins, CO 80524

Phone: (970) 493-7293 / Fax: (970) 493-7297

Harold D Thomposon Blower Building

TAG: L-1, 2, 3, 4

6" Adjustable Blade Drainable Louver with Primer Finish

Submittal Date: 8/8/2012

Submitted by: Sam Heilbronner

SUBMITTAL

Job Title: **HD Thompson Blower Building 073112 RP**

Elevation: (ft) 5,280

Date: 08/08/12

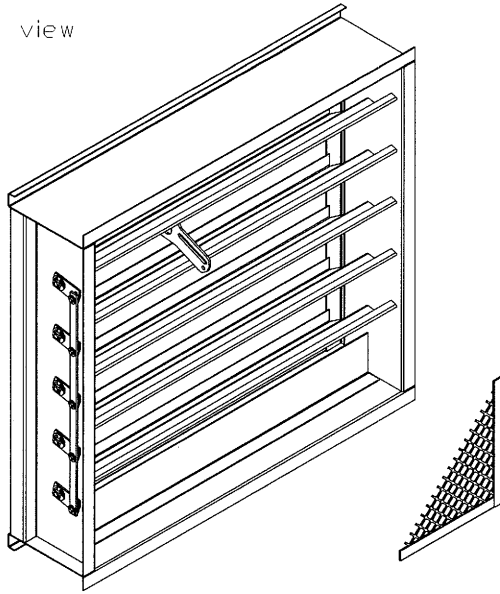
Submitted By: Raechelle Powell

CFM COMPANY
413D NORTH HWY 287
FORT COLLINS , CO 80524-1346
US
Phone: (970)493-7293
Fax: (970)493-7297
Email Address: samh@cfmcompany.com



P.O. Box 410 Schofield, WI 54476 (715) 359-6171 FAX (715) 355-2399 www.greenheck.com

Internal view



FAD-635

Application & Design

FAD-635 is fabricated adjustable louver designed to protect air intake and exhaust openings in building exterior walls that requires tight air shut off. Design incorporates a drainable head member and adjustable drainable blades to channel water to the jambs which guides the water through vertical downspouts for escape at the sill. The FAD-635 is an extremely efficient louver with AMCA LICENSED PERFORMANCE DATA enabling designers to select and apply with confidence.

Width and Height furnished approximately 0.250 in under size.

Construction Features

Frame Depth (in):	6	Frame Thickness (ga):	16	Louver Material:	Galvaneal
Sizing:	Nominal	Fixed Blade Thick. (ga):	N/A	Adj. Blade Thick. (ga):	16
Blade/Jamb Seals:	Yes	Axle Bearings:	Synthetic	Axle Material:	Steel
Actuator Type:	120 VAC	Actuator Mount.:	Internal	Actuator Location:	Left
Actuator Fail. Pos.:	Closed	Act. Operating Mode:	Two Position	Transformer:	None
NEMA Enclosure:	4x				
Frame Type:	Channel				
Product Warranty:	1-Year Standard				

Options and Accessories

Finish Type:	Primer	Finish Color:	N/A	Bird Screen Mat'l:	Galvanized
Bird Screen:	Internal	Bird Screen Type:	Wire Cloth		
Bird Screen Finish:	Mill				

Summary

ID #	Tag	Qty.	W (in)	H (in)	Free Area (ft2)	Drive.	Actuator Model	Sect. Wide	Sect. High	Sect. Ship	Actuators/Ship Section
1-1	L-1-2	2	72.000	72.000	19.89	21-1FIL-1	MS4120F1204	2	1	2	1
1-2	L-3-4	2	54.000	95.000	20.58	11-1FIL-0	MS4120F1204	1	1	2	1

Performance

ID #	Application	Volume (CFM)	Press. Drop (in wg)	Free Area Velocity (ft/min)	BPWP (ft/min)
1-1	Intake	17,500	0.078	848	959
1-2	Intake	17,500	0.078	850	959

**Calculated pressure drop does not include the effects of screens, filters or other accessories

Larger openings may require field assembly of multiple louver panels to make up the overall opening size. Individual louver panels are designed to withstand a 25 PSF wind-load (please consult Greenheck if the louvers must withstand higher wind-loads). Design, materials and installation of structural reinforcement required to adequately support large sections or multiple section assemblies within a large opening are not provided by Greenheck. Unless specifically indicated, the following are NOT included in the quote provided: structural steel, installation hardware (anchors, angle clips, continuous angles, shims, fasteners, inserts, backer rod and sealant), field measuring and/or installation, miscellaneous flashing, trim or enclosures, blank off panels, mullion covers or mullion hardware, hinged frames or removable subframes, custom bird/insect screen, 3-coat, metallic and/or exotic paint finishes, bituminous paints for unlike metals, any applicable taxes, stamped and sealed structural calculations or seismic calculations.

AMCA



GreenheckFanCorporation certifies that the louver shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance and water penetration ratings. The AMCA licensed performance data has been modified for installation, appurtenances, accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the air control device.

Louvers Product Limited Warranty

Thank you for purchasing Greenheck louvers. Greenheck warrants this equipment to be free from defect in material and workmanship for a period of **1 year** from the date of product shipment. Any units or parts, which prove defective during the warranty period, will be repaired or replaced at our option when returned to our factory, transportation prepaid. Unless agreed upon otherwise Greenheck will not be held responsible for costs associated with removal or installation of product(s).

The legal remedies described in this Limited Warranty are the sole exclusive remedy of Customer. This limited warranty will be void if payment from Customer is not received within a commercially reasonable time frame. GREENHECK MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This limited warranty is extended solely to the Customer. It is nontransferable and non-assignable, and the Customer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Customer.

In the event of material breach by the Customer of any of the conditions of this warranty, Greenheck shall have no liability for and product failure claims.

Failure to pay Greenheck in full for original services will automatically make this warranty null and void.

Greenheck will not be held liable for incidental or consequential damages of any kind. The limited warranty of product(s) replaced or repaired under this limited warranty shall be limited to the remainder of the original warranty period. Greenheck reserves the right to reasonable field access to diagnose and repair any product alleged to be defective. This limited warranty may not be modified by anyone and may not be changed by such things as purchase order forms or acceptance forms, unless otherwise agreed upon by Greenheck.

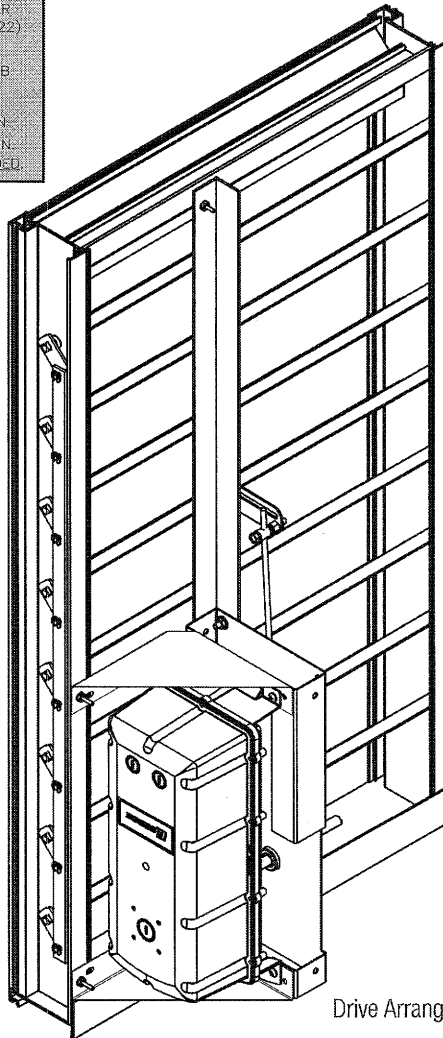
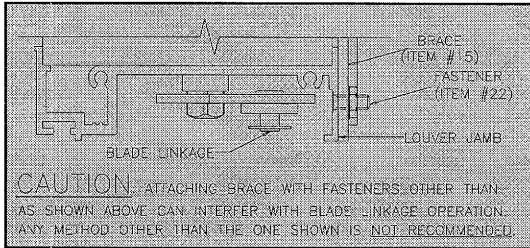
This limited warranty is provided in lieu of any other warranty requirements or obligations, including, but not limited to, those within project specifications.

All notices and claims given under or pursuant to this agreement shall be in writing and sent by certified or registered mail, postage prepaid, return receipt requested to: Greenheck, Attn: Louver Sales, 525 Western Road, Schofield, WI 54476.

By proceeding to use our products and services on your project, you accept the terms of these limited warranties.

Installation, Operation, and Maintenance Instructions

This manual is the property of the owner, and is required for future maintenance.
Please leave it with the owner when the job is complete.



Note: This drawing depicts how the actuator looks after installation. The louver shown is intended to be a general representation and the actual louver model may vary. Reference the drawing on page 2 for an exploded view and parts list.

SAFETY WARNING:

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

Prior to Adjusting

1. Louver MUST BE installed level and square for blades to operate correctly.
2. Install actuator and linkage similar to the drawing on page 1 and make the following linkage adjustments. Place ball swivel at initial location as show below. Adjust crankarm on the actuator so that it is 30° pass vertical towards the unit. If unit is "Fail Open" all adjustments will need to be made with the actuator in power on position

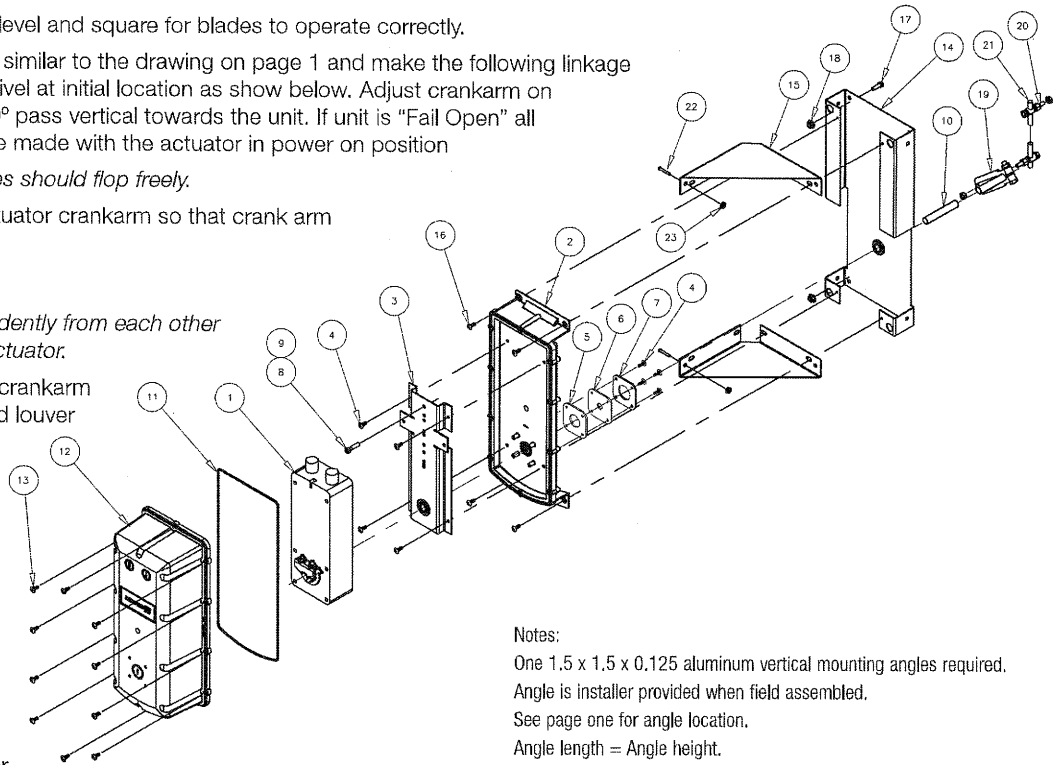
Note: At this time the blades should flop freely.

3. Loosen nut and bolt on actuator crankarm so that crank arm rotates freely by hand.

Adjustment Process

Note: Adjust actuators independently from each other if there is more than one actuator.

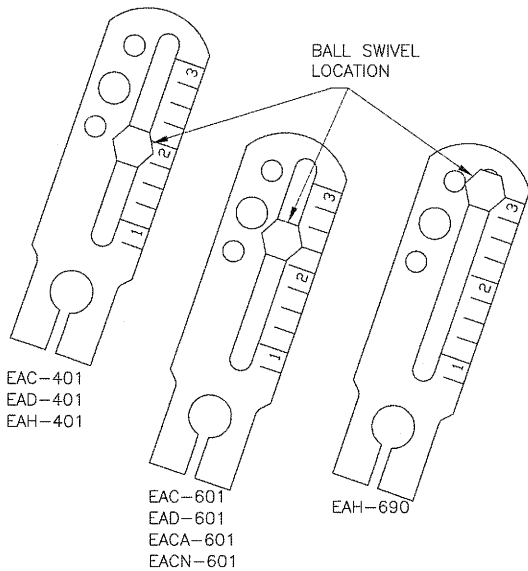
1. With blades closed, rotate crankarm on actuator 1/8 turn toward louver from original starting point. Hold blade with ball swivel in closed position and tighten driver blade ball swivel to drive rod.
2. Rotate crankarm on actuator 1/8 turn back to original position. Tighten nut and bolt on crankarm. This will apply extra pressure to blade seals.



Notes:
 One 1.5 x 1.5 x 0.125 aluminum vertical mounting angles required. Angle is installer provided when field assembled.
 See page one for angle location.
 Angle length = Angle height.

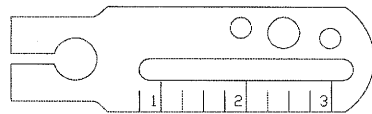
Caution: Before operating louver, make sure the ball swivel on the crankarm is in the correct location. If the blades are not completely closing, the ball swivel can be adjusted SLIGHTLY. An over adjustment can cause damage to the blades.

Caution: Before operating the louver, make sure the location of the ball swivel on the crankarm allows the proper travel length.



Item No.	Part No.	Qty.	Description
1	VARIES	1/SECT	ACTUATOR (VARIES)
2	470045	1	BASE, NEMA 4X ENCLOSURE
3	869954	1	MOUNTING BRACKET ASSEMBLY
4	416657	8	M4 X 15 SCREW
5	470723	1	EPDM SEAL
6	470722	1	FOAM SEAL
7	470043	1	NEMA 4X PLATE
8	416639	1	ANTI-ROTATION PIN
9	416638	1	RETAINING CLIP
10	593832	1	1/2" DIA ROD - 9.5"
11	470719	1	ROPE SEAL
12	470044	1	COVER, NEMA 4X ENCLOSURE
13	416656	10	M4 X 20 SCREW
14	842033	1	BRACKET ASSEMBLY, NEMA 4X
15	727796	2	BRACE FOR BRACKET
16	416464	4	10 X 5/8 HH SMS
17	415034	2	1/4-20 X 3/4 HH ZP MS
18	415455	2	1/4-20 X HH ZP NUT
19	812097	1	CRANKARM ASSEMBLY
20	451554	2	1/4-20 BALL SWIVEL
21	656473	1	16"-5/16 GALVANIZED ROD
22	416052	2	10-32 THREADSTUD
23	415991	2	10-32 HEX NUT

It maybe necessary to adjust the swivel on the crankarm after the initial adjustments are made. This can be done by sliding the swivel in or out on the crankarm.



→ Sliding the swivel out on the crankarm will cause the blade to open more.
 ← Sliding the swivel in on the crankarm will cause the blade to close more.



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 Various Actuators (Single) Part #471566
 May 2008

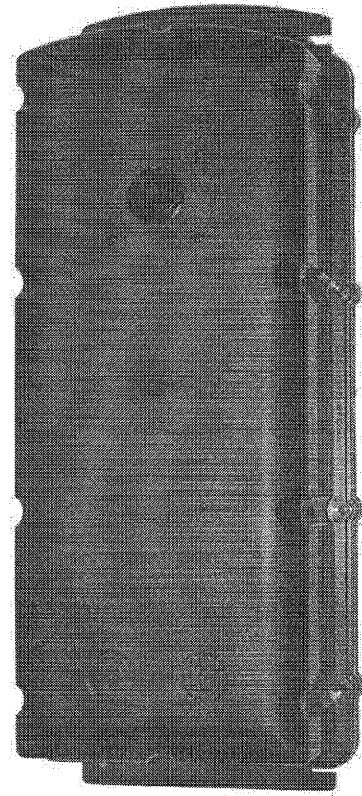
Greenheck Fan Corporation reserves the right to make product changes.

Nema 4/4X Enclosure

Nema 4 enclosure are constructed for either indoor or outdoor use to provide protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose directed water.

Nema 4X enclosure includes all NEMA 4 protection plus corrosion protection.

Nema 4/4X enclosure is designed to be used on Siemens, Honeywell, or Belimo direct drive actuators. This enclosure can be used on internal or external mount actuators.



Honeywell MS4120 and MS8120 Two Position Actuators

Application

The MS4120, MS4620, MS8120 fast acting, two position actuators are spring return direct coupled actuators (DCA) for on/off damper control. The actuator accepts an on/off signal from a single-pole, single-throw (spst) controller. Reversible mounting allows actuator to be used for either clockwise (cw) or counterclockwise (ccw) spring rotation.

Torque rating (at rating voltage)

Typical Holding: 175 lb-in. (20 N•m)

Stall Maximum: 425 lb-in. (48 N•m)

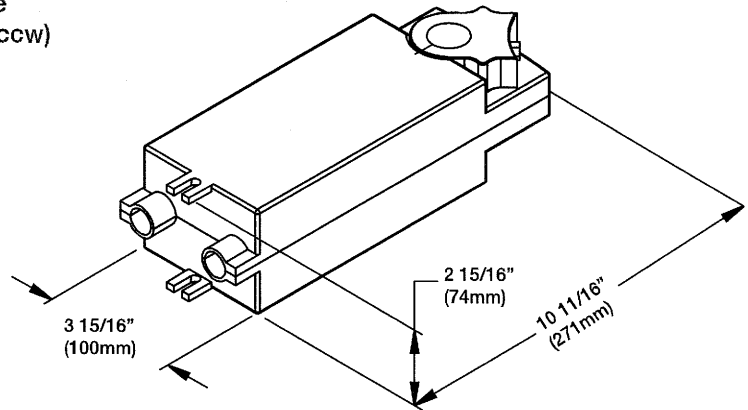
Spring Return: 175 lb-in. (20 N•m)

Typical Driving: 175 lb-in. (20 N•m)

Timing (at rated torque and voltage)

Drive Open: 15 seconds typical

Spring Close: 15 seconds maximum



Environmental Protection Ratings:

Nema 1

Model	Auxiliary Switches	Power Consumption		Voltage Input in Vac
		Running	Holding	
MS4120F1006	No	0.35A,	0.15A,	120 ±10%
MS4120F1204	Yes	35W	10W	60 Hz
MS8120F1002	No	45 VA	10 VA	24 +20%,
MS8120F1200	Yes			-10%
				50/60 Hz

Due to continuous product improvement, the actuator manufacturer reserves the right to change specifications without notice. For the most up-to-date information and maintenance, go to www.customer.honeywell.com