GARDNER ENGINEERING
CIVIL · LAND PLANNING
MUNICIPAL · LAND SURVEYING

6-29-2021

Weber County
Building Inspection Department
2380 Washington Boulevard, Suite 240
Ogden, Utah 84401
Phone: (801) 399-8374

Attention: Stan Berniche Building Official

Subject: Crimson Ridge Well House – Resolution to Plan Review Comments 1st Review

Mr. Berniche:

Please find the resolutions to comments provided by West Coast Code Consultants, Inc. (WC3). Comments have been addressed in writing and phone correspondence. Revised plans and component submittals have been included as requested by review. Response comments are provided in the attached Plan Review Comments 1st Review document. Structural comments have been addressed in a Memo provided by ARW Engineers.

Attached Documents:
GE Plan Review Resolutions
ARW Plan Review Resolutions
Submittals – Base Board Heater, Gas Heater (to be submitted), Interior Lights,
REVISED CONSTRUCTION PLANS

Mike Durtschi P.E.
Project Engineer

GARDNER REVIEW RESOLUTION
908 WEST GORDON AVE., SUITE #3
LAYTON, UT 84041
(801) 547-8133

June 17, 2021

FIRST REVIEW
WC[3] Project #: *221-525-026*
Weber County

Weber County
Building Inspection Department
2380 Washington Boulevard, Suite 240
Ogden, Utah 84401
Phone: (801) 399-8374

Attention: Stan Berniche Building Official

Subject: Crimson Ridge Well House – Plan Review Comments 1st Review

Mr. Berniche:

West Coast Code Consultants, Inc. (WC[3]) has completed the first review of the proposed Crimson Ridge Well House project located in Eden, UT. This review was based upon the following:

1. Architectural drawings
2. Civil drawings by Gardner Engineering, sealed and signed by Michael Duane Durtschi, Professional Engineer.
3. Structural drawings dated 11/23/2020 by Gardner Engineering, sealed and signed by David L. Pierson, Professional Structural Engineer.
4. Electrical drawings dated 4/8/2021 by Gardner Engineering, sealed and signed by Daniel Leon White, Professional Engineer.
5. Geotechnical investigation report (#1200541) dated 9/15/2020 by AGEC Applied GeoTech, sealed and signed by Christopher J. Beckman, Professional Engineer.

The 2018 International Codes and 2017 NEC, as adopted by the State of Utah, were used as the basis of our review. Specific comments regarding this project are enclosed with this cover letter. If you have any questions regarding this review, please contact me.

Applicant responses are shown in red on the following pages. Appropriate plan sheets and product submittals are being transmitted concurrent with this response.

Sincerely,

Mike Molyneux

Mike Molyneux , P.E.
Senior Plan Review Engineer

Attachment: Comments

Plan Review Comments

Project Name: Crimson Ridge Well House
Location(s): North of Lot #5 Valley View Drive, Eden, UT
Checked By:

Code Review by: George Williams
Structural by: Scott Porter
MEP by: George Williams

OCCUPANCY & BUILDING SUMMARY:

Type of Construction	Use Group(s)	Occupant Load	Risk Category	Square Footage	Building Height	Sprinklers
V-B	U	2*	II	550 ft²	1-story, 16-feet	No

*Per IBC Table 1004.5, Accessory storage areas, mechanical equipment room (550 s.f. / 300)- added to cover sheet

~~N/P- Items noted with N/P were not provided by the design professional.~~

GENERAL INFORMATION:

The submitted documents for the above-mentioned project, as outlined in the cover letter, have been reviewed. The following comments address areas of concern, non-compliance with the governing code, potential errors, or omissions in the proposed design. The appropriate design professional must address each comment below and submit a written response in addition to revised plans and calculations if necessary. **Please cloud any revisions made to the construction drawings and provide the date of the latest revision on each revised sheet.** Please note that the attached revised plan set includes both unmarked revision clouds AND revision clouds marked with a "1" enclosed in a triangle. The unmarked revision clouds are in response to a Division of Drinking Water Review dated April 29, 2021.

The revision clouds marked with a  **are in response to the Weber County review dated June 17, 2021.**

CODE REVIEW COMMENTS:

A1. Please list on the plans the applicable codes that apply to this project, which would be the 2018 International Codes, 2017 NEC, and the ICC A117.1-09. Included on plan cover sheet.

A2. Please provide a basic code analysis. An architect may not be required for this project, based on the size and scope; however, the design professional is responsible to demonstrate code compliance. Please list a construction type, use and occupancy (there may be multiple), occupant load, square footages, building heights, etc. as outlined in the table at the top of this review letter. *(Assumed values have been provided)*. Addressed through the satisfaction of comment A1.

A3. Provide Safety Data Sheets and list quantities and classes of all materials to be stored and used in the building per IBC 414.1.3. Indicate the location and quantities of materials being stored and used. This information is needed to determine whether compliance with Sections 414 and 415 of the IBC is required. SDS for gaseous chlorine in 150# cylinders is attached. There will be 2 cylinders installed in the chlorinator room. Room ventilation shall provide 1 complete room air change per minute, as noted in the unmarked revision cloud.

A4. Please add the following to a stamped plan sheet, as the engineer is assuming responsibility for the design of this building:

A. IBC 1013.4 requires tactile exit signs be provided at the entrances to the stairways and at all exterior exit doors. Callout for such included on Sheet W3.

B. Please indicate the size and location of portable fire extinguishers as required by IBC 906.3. Code requires 2-A:5-B:C, callout for 4-A:60B:C included on Sheet W3.

C. As indicated in Section 1008.3.2 item 5 of the IBC, the lights above the exit discharge landings need to be provided with emergency power. The emergency backup generator will power all circuits in the building. No plan sheet changes have been made in response to this comment A4.C.

A5. Sheet C5/C8: Please address the following:

A. Please follow the geotechnical report recommendations requiring 6" of all within the first 10' of the exterior of the building. Grading recommendations for 6" of fall within the first 10' outside the exterior of the building have been shown on Sheet C5.

MECHANICAL REVIEW COMMENTS:

M1. Per IMC 106.3.1 "Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code." General notes, plans sheets, details and equipment schedules must be included and provide sufficient information. Please provide stamped mechanical plans or otherwise indicate that no mechanical scope of work will be associated with this permit application. The extent of the mechanical aspect of this project is shown on sheets E1 through E4, which sheets are stamped by Dan White, P.E. Please provide the following:

I. Specify the make, model and fuel type for each of the proposed unit heaters. A "gas" heater in the chlorinator room does not seem to be plausible as shown. 750 watt Wall Heater in Chlorine Room, see Electrical Sheets 1,2 and 3 and Submittal for Baseboard Heater. Gas Heaters

~~B.~~

~~I.~~II. Provide a proposed mounting detail and show required venting/combustion air. See Submittal for Gas Heaters

~~II.~~III. If electric heaters are proposed, please provide product information, and account for loads in the electrical plan sheets. See E3/E6 suggesting electric unit heaters. See Baseboard Heater Submittal.

~~C.~~B. Provide equipment schedules for all proposed exhaust fans. Added to Sheet E3

PLUMBING REVIEW COMMENTS:

P1. Per IPC 106.3.1 "Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code." General notes, plans sheets, and equipment schedules must show sufficient information.

A. Please list proposed pipe materials, and proposed slopes. Material submittals are attached. The callout on Sheet W5 is for " 3" drain piping and fittings per code". The intent was to have slope governed "by code".

B. Show code compliant venting of all proposed plumbing fixtures. There will be no plumbing fixtures requiring venting in this building.

C. Please list proposed water lines supply, backflow prevention, material, size, locations, etc. Typically, a hose bib or water source would be provided for this type of building. There will be no accessory water lines in this building. The building is for the purpose of protecting source water production plumbing and has been designed in accordance with the Rules for such, promulgated by the Utah State Division of Drinking Water.

D. Provide a gas line schematic, showing proposed gas line routing, sizing, lengths and loads served.

I. Include sediment trap details, meter location, etc. See Sheet C4 for approximate location of Gas Line Meter and Sediment Trap. See W3 for pipe approximate location.

ELECTRICAL REVIEW COMMENTS:

E1. Sheet E1/E6: Please address the following:

A. Please show emergency lights at the exterior side of all required exits. IBC 1008.3.2 #5 requires where buildings are required to have two or more exits, emergency power for illumination shall be provided at all exit doors. Building will have a generator in event of power failure.

B. Provide a 110v exterior WP/GFCI at the service location. NEC 210.63Added to Sheet E1

Sheet E2/E6: Please address the following: Proposed language: Electrical Comment A2 was discussed with Mr. Williams, Dan White of Gardner Engineering and Mike Wood of Wood Electric. it was determined that the necessary information to develop a response to I, II, and III of A2 is on the plans and that it is an acceptable response to indicate that appropriate design considerations were made, based on engineering judgement. As such, please note that our response to Electrical Comments under A2 is that appropriate design considerations were made, based on engineering judgement.

E2.

A. Per NEC 110.9 and 110.10, please provide complete and detailed available fault current calculations and show the following on the plans:

I. Based on the calculations, specify the amount of available fault current which could be provided to each panel and each piece of electrical equipment.

II. Specify on the plans the short circuit current ratings of all overcurrent protection devices or add a note on the plans indicating all overcurrent protection devices will have the same fault current rating as the rating of the panel or switchgear they are located within.

III. Please indicate on the plans the calculated available fault current which could be provided to the service equipment will be field marked, as required by NEC 110.24(A).

ENERGY REVIEW COMMENTS:

N1. Please provide complete information on the plans showing the extent of the thermal envelope and the corresponding R-values as required by IECC C402.1.3. This is generally accompanied by a COMcheck, Envelope Compliance Certificate. If not providing an ECC, please indicate prescriptive compliance per

IECC C402.1.3 for walls (no insulation shown), attic (noted), slab edge condition (not details) and door U-factors. After a telephone discussion with Mr. Williams on June 23, 2021, it was mutually determined that for this building, a callout for R-38 insulation in the attic, and R-19 insulation in the 6" exterior walls would sufficiently address tis comment N1. Such callouts have been added.

A. For slab insulation to be counted in the design of the envelope, it must extend to the top of the slab-on-grade, as noted in IECC C402.2.5. Please address. See above.

N2. Please provide a lighting power analysis for the interior lighting (i.e., COMcheck), in accordance with IECC C405.4. Each of the 8 interior luminaires draws 44 watts for a total of 352 watts. Please see attached submittal sheet.

GEOTECHNICAL COMMENTS:

G1. The geotechnical report indicated that risk of landslides and slope instability is high. Please explain how this has been addressed in design or submit a letter from the geotechnical engineer indicating that the proposed building is located appropriately to mitigate these risks.

STRUCTURAL COMMENTS: SEE STRUCTURAL MEMO

Structural Drawings:

S1. Sheet S1: Please address the following:

A. Foundation note C.1b references a soils report by Christensen Geotechnical. The two soils reports provided were by AGEC and Western Geologic. Please provide the Christensen Geotechnical report for review or revise the notes to reference the correct soils report.

B. Foundation note C.1.d states that exterior foundations are to bear a minimum of "…" inches below grade. Please fill in the missing frost depth dimension.

S2. Sheet S3: Several details on S5 are referenced. Sheet S5 was not found in the submitted plans. Please provide sheet S5 or revise the detail references.

S3. Detail 7/S4 references 4/S5 for holdown information. Sheet S5 was not found in the submitted plans. Please provide sheet S5 or revise the detail reference.

Structural Calculations:

S4. Page 1 lists the seismic R value as 7. This is greater than the value of 6.5 listed in the structural notes and the value of 6.5 for wood shear walls in ASCE 7-16 Table 12.2-1 item A.15. Please address.

S5. Page 2 indicates that 0 psf seismic snow load was used in the design. Per ASCE 7-16 §12.7.2, when the roof snow load exceeds 30psf, as in this case where the roof snow load is 60psf, 20% of the roof snow load is required to be included in the effective seismic weight. Utah amendments to the IBC require additional seismic snow load at high altitude sites with the seismic snow $S=(0.2+0.025(A-5))P_f$. Please address.

S6. Page 50: The header calculation indicates that the (2) 2x12 header is fully braced against lateral torsional buckling. If the top of the header is not at the roof level, then it appears that the header would be unbraced laterally. Please address.

If you have any questions regarding the above comments, please contact Mike Molyneux at mikem@wc-3.com or by phone at (801) 547-8133.

[END]

STRUCTURAL PLAN REVIEW RESPONSE

Project: Crimson Ridge Water Tank

Date: 06/24/2021 ARW Project No: 20208

Engineer of Record: David L. Pierson License #: 177464

Reviewed By: Mike Molyneux, P.E. Company: WC^3

RE: Crimson Ridge Well House – Plan Review Comments 1st Review

Items Reviewed:

Structural Drawings:

S1. Sheet S1: Please address the following:

A. Foundation note C.1b references a soils report by Christensen Geotechnical. The two soils reports provided were by AGEC and Western Geologic. Please provide the Christensen Geotechnical report for review or revise the notes to reference the correct soils report.

ARW Response: The soils report listed in the structural notes is correct. The correct soils report will be provided.

B. Foundation note C.1.d states that exterior foundations are to bear a minimum of "…" inches below grade. Please fill in the missing frost depth dimension.

ARW Response: The structural note indicated has been updated to show 30" for frost depth. See the updated drawings dated 06/28/2021.

S2. Sheet S3: Several details on S5 are referenced. Sheet S5 was not found in the submitted plans. Please provide sheet S5 or revise the detail references.

ARW Response: See the attached drawings including sheet S5.

S3. Detail 7/S4 references 4/S5 for hold down information. Sheet S5 was not found in the submitted plans. Please provide sheet S5 or revise the detail reference.

ARW Response: See the attached drawings including sheet S5.

Structural Calculations:

S4. Page 1 lists the seismic R value as 7. This is greater than the value of 6.5 listed in the structural notes and the value of 6.5 for wood shear walls in ASCE 7-16 Table 12.2-1 item A.15. Please address.

ARW Response: The R value of 7 shown on page 1 has been updated to 6.5. The actual seismic load calculation using an R value of 6.5 is shown on page 15 of the original calculations.

S5. Page 2 indicates that 0 psf seismic snow load was used in the design. Per ASCE 7-16 §12.7.2, when the roof snow load exceeds 30psf, as in this case where the roof snow load is 60psf, 20% of the roof snow load is required to be included in the effective seismic weight. Utah amendments to the IBC require additional seismic snow load at high altitude sites with the seismic snow $S=(0.2+0.025(A-5))P_f$. Please address.

ARW Response: Page 2 has been updated to show the correct amount of seismic snow load. 20% of the 60psf snow load was included in the original seismic weight calculation on sheet S17.

The site is located at elevation 5180 ft. When the equation provided by the Utah amendment is used, it will add an additional 50 lb. of seismic weight from what was originally accounted for in the calculations. The original calculations rounded up the seismic force from 3.37 kips to 3.4 kips, so the additional seismic snow weight will not increase the design force used in the original calculations.

S6. Page 50: The header calculation indicates that the (2) 2x12 header is fully braced against lateral torsional buckling. If the top of the header is not at the roof level, then it appears that the header would be unbraced laterally. Please address.

ARW Response: See the attached updated calculations for an un-braced header calculation.

Copy to: Mike Dirtschi

20208_rsp01_20210624

STRUCTURAL COMMENTS
S4 AND S5 UPDATED
CALCULATION

ENGINEERS
structural consultants

PROJECT DESIGN CRITERIA

Version Date: May 04,2020 Updated by: Scott VanderDoes

Governing Building Code :	2018 IBC
Building Risk Category :	II

Street:		Latitude :	41.27914
City:		Longitude :	-111.8293
State:		Elevation :	5175 ft

(Elevation based on USGS 3DEP 1/3 arc-second layer hosted at the NGTOC)

WIND DESIGN

Basic Wind Speed, V_{3s} :	103	mph
Wind Exposure :	C	
K_e :	0.83	

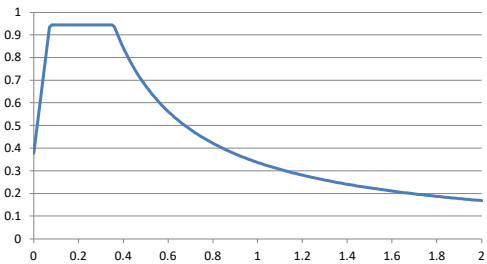
SEISMIC DESIGN

USGS Design Code:	2018 IBC		
Site Class :	D		
Seismic Importance Factor, I_e :	1.00		
Overall Structural Height :	9 ft		
Structure Type :	Other		
Approximate Period :	0.104 sec	$1.5T_s$ =	0.936 sec
Design Category :	D		
Basic Seismic Force Resisting System :	Light Framed wall W/ structural plywood sheathing		
Response Modification Factor, R :	6.5		
Type of Analysis :	STATIC		
C_s :	0.109	C_{s_max} : 0.653	C_{s_min} : 0.031

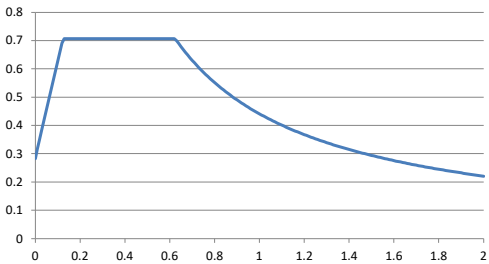
USGS–Provided Output

S_s = 0.945 g	F_a = 1.122	S_{MS} = 1.060 g	S_{DS} = 0.707 g
s_1 = 0.337 g	F_v = 1.963	S_{M1} = 0.662 g	S_{D1} = 0.441 g

MCE_R Response Spectrum



Design Response Spectrum



A R W ENGINEERS
structural consultants

ROOF FRAMING

ROOF A: DEAD LOADS

			Comments
Roofing:	2	psf	asphault shingles
Batting/Blown Insulation:	1.5	psf	16" blown in insulation
Sheathing:	2	psf	1/2" plywood
Framing:	2.5	psf	wood trusses @ 24" o.c.
Mechanical Ducts/Misc.:	5	psf	
Fire Sprinkling:		psf	
Ceilings:	2	psf	1/2" gypboard
Collateral:		psf	
Total Dead Load:	**15**	psf	
Seismic Roof Snow Load:	12.27	psf	per utah amendment
Seismic Mass Dead Load:	**27.27**	psf	

ROOF B: DEAD LOADS

			Comments
Roofing:		psf	
Batting/Blown Insulation:		psf	
Sheathing:		psf	
Framing:		psf	
Mechanical Ducts/Misc.:		psf	
Fire Sprinkling:		psf	
Ceilings:		psf	
Collateral:		psf	
Total Dead Load:	**0**	psf	
Seismic Roof Snow Load:	0	psf	
Seismic Mass Dead Load:	**0**	psf	

			Comments
LIVE LOADS	20	psf	

SNOW LOADS

Ground Snow Load :	72.0	psf
Snow Exposure Factor, C_e :	1	
Snow Importance Factor, I_s :	1.0	
Thermal Factor, C_t :	1.2	
Flat Roof Snow Load :	**60**	psf
Roof slope factor, Cs:	1	psf
Sloped Roof Snow Load:	**60**	psf

A R W ENGINEERS
structural consultants

WALLS

WALL A: DEAD LOAD

			Comments
Framing:	2	psf	2x6 studs @ 16" o.c.
Batting/Blown Insulation:	1	psf	6" batt insulation
Sheathing:	2	psf	1/2" plywood
Veneer:	2	psf	light weight siding
Mechanical Ducts/Misc.:	1	psf	
Gypsum Board:	2	psf	1/2" gyp board
Collateral:		psf	
Total Dead Load:	**10**	psf	
Seismic Mass Dead Load:	**10**	psf	

WALL B: DEAD LOAD

			Comments
Framing:		psf	
Batting/Blown Insulation:		psf	
Sheathing:		psf	
Veneer:		psf	
Mechanical Ducts/Misc.:		psf	
Gypsum Board:		psf	
Collateral:		psf	
Total Dead Load:	**0**	psf	
Seismic Mass Dead Load:	**0**	psf	

WALL C: DEAD LOAD

			Comments
Framing:		psf	
Batting/Blown Insulation:		psf	
Sheathing:		psf	
Veneer:		psf	
Mechanical Ducts/Misc.:		psf	
Gypsum Board:		psf	
Collateral:		psf	
Total Dead Load:	**0**	psf	
Seismic Mass Dead Load:	**0**	psf	

WALL D: DEAD LOAD

			Comments
Framing:		psf	
Batting/Blown Insulation:		psf	
Sheathing:		psf	
Veneer:		psf	
Mechanical Ducts/Misc.:		psf	
Gypsum Board:		psf	
Collateral:		psf	
Total Dead Load:	**0**	psf	
Seismic Mass Dead Load:	**0**	psf	

A R W ENGINEERS
structural consultants

SOILS INFORMATION

Net Bearing Pressure :	1500	psf
Frost Depth :	30	inches
Friction Coefficient :	0.35	
Subgrade Modulus, k :	--	

Uniform Lateral Pressures

Wall Height (ft.)	Active Pressures Case (psf)	Moderately Yielding Case	At Rest/Non-Yielding Case	Passive Case (psf)

STRUCTURAL COMMENT S6
UPDATED CALCULATION

Wood Beam

File: 20208 - Crimson Ridge Wellhouse.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.17

Lic. # : KW-06002489 — ARW ENGINEERS

DESCRIPTION: header for 6' opening

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

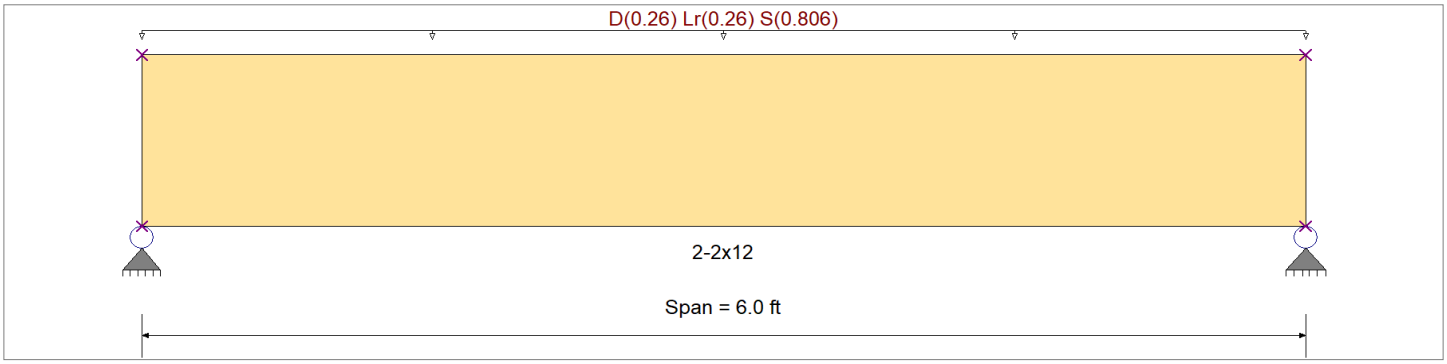
Wood Species : Douglas Fir-Larch
Wood Grade : No.2

Beam Bracing : Completely Unbraced

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020, Lr = 0.020, S = 0.0620 ksf, Tributary Width = 13.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.895 : 1	Maximum Shear Stress Ratio	=	0.476 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb: Actual	=	909.65 psi	fv: Actual	=	98.56 psi
Fb: Allowable	=	1,016.14 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	3.000 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.042 in	Ratio =	1734 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.055 in	Ratio =	1311 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+H													0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.278	0.148	0.90	1.000	1.00	1.00	1.00	1.00	0.99	1.17	221.87	799.19	0.54	24.04	162.00
+D+L+H					1.000	1.00	1.00	1.00	1.00	0.99			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.250	0.134	1.00	1.000	1.00	1.00	1.00	1.00	0.98	1.17	221.87	886.30	0.54	24.04	180.00
+D+Lr+H					1.000	1.00	1.00	1.00	1.00	0.98			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.403	0.214	1.25	1.000	1.00	1.00	1.00	1.00	0.98	2.34	443.73	1102.10	1.08	48.08	225.00
+D+S+H					1.000	1.00	1.00	1.00	1.00	0.98			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.895	0.476	1.15	1.000	1.00	1.00	1.00	1.00	0.98	4.80	909.65	1016.14	2.22	98.56	207.00
+D+0.750Lr+0.750L+H					1.000	1.00	1.00	1.00	1.00	0.98			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.352	0.187	1.25	1.000	1.00	1.00	1.00	1.00	0.98	2.05	388.27	1102.10	0.95	42.07	225.00
+D+0.750L+0.750S+H					1.000	1.00	1.00	1.00	1.00	0.98			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.726	0.386	1.15	1.000	1.00	1.00	1.00	1.00	0.98	3.89	737.71	1016.14	1.80	79.93	207.00
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	0.98			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.159	0.083	1.60	1.000	1.00	1.00	1.00	1.00	0.97	1.17	221.87	1398.49	0.54	24.04	288.00

Wood Beam

Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.17

DESCRIPTION: header for 6' opening

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
+D+0.750Lr+0.750L+0.450W+H					1.000	1.00	1.00	1.00	1.00	0.97			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.278	0.146	1.60	1.000	1.00	1.00	1.00	1.00	0.97	2.05	388.27	1398.49	0.95	42.07	288.00
+D+0.750L+0.750S+0.450W+H					1.000	1.00	1.00	1.00	1.00	0.97			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.528	0.278	1.60	1.000	1.00	1.00	1.00	1.00	0.97	3.89	737.71	1398.49	1.80	79.93	288.00
+0.60D+0.60W+0.60H					1.000	1.00	1.00	1.00	1.00	0.97			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.095	0.050	1.60	1.000	1.00	1.00	1.00	1.00	0.97	0.70	133.12	1398.49	0.32	14.42	288.00
+D+0.70E+0.60H					1.000	1.00	1.00	1.00	1.00	0.97			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.159	0.083	1.60	1.000	1.00	1.00	1.00	1.00	0.97	1.17	221.87	1398.49	0.54	24.04	288.00
+D+0.750L+0.750S+0.5250E+H					1.000	1.00	1.00	1.00	1.00	0.97			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.528	0.278	1.60	1.000	1.00	1.00	1.00	1.00	0.97	3.89	737.71	1398.49	1.80	79.93	288.00
+0.60D+0.70E+H					1.000	1.00	1.00	1.00	1.00	0.97			0.00	0.00	0.00	0.00
Length = 6.0 ft	1	0.095	0.050	1.60	1.000	1.00	1.00	1.00	1.00	0.97	0.70	133.12	1398.49	0.32	14.42	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0549	3.022		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.198	3.198
Overall MINimum	2.418	2.418
+D+H	0.780	0.780
+D+L+H	0.780	0.780
+D+Lr+H	1.560	1.560
+D+S+H	3.198	3.198
+D+0.750Lr+0.750L+H	1.365	1.365
+D+0.750L+0.750S+H	2.594	2.594
+D+0.60W+H	0.780	0.780
+D+0.750Lr+0.750L+0.450W+H	1.365	1.365
+D+0.750L+0.750S+0.450W+H	2.594	2.594
+0.60D+0.60W+0.60H	0.468	0.468
+D+0.70E+0.60H	0.780	0.780
+D+0.750L+0.750S+0.5250E+H	2.594	2.594
+0.60D+0.70E+H	0.468	0.468
D Only	0.780	0.780
Lr Only	0.780	0.780
S Only	2.418	2.418
H Only		

GRAINGER

DAYTON

GRAINGERCHOICE

36 in, Residential Grade, Electric Baseboard Heater, 750W, 120V AC, Hardwired, Conventional

Item #3UG77
Mfr. Model #3UG77
UNSPSC #40101814
Catalog Page #3072

Country of Origin USA. Country of Origin is subject to change.

Standard electric baseboard heaters work by convection and have a heating element encased in a metal sheath surrounded by aluminum fins to transfer h View More

Web Price
$56.88 / each

Qty 1 Add to Cart

Shipping Pickup

Availability

Expected to arrive
Mon. Jun 28.

Ship to **84040** | Change

Shipping Weight **7 lbs**

Ship Availability Terms

Chat with an Agent

Technical Specs

Item	Electric Baseboard Heater
Overall Depth	2 7/8 in
Overall Height	6 3/4 in
Overall Length	36 in
Duty Rating	Residential Grade
Heating Method	Convection
Key Features	Overheat Protection
Programming	Not Programmable
Remote Control Functions	No Remote Control Included
Setback Control	No
Smart Connectivity	No Connectivity
Tamper Resistant	No
Thermal Overheat Protection	Automatic Reset
Thermostat Included	No
Voltage	120V AC

Housing Finish	Enamel
Housing Material	Steel
Housing Style	Conventional
Mounting Type	Floor
Hold Function	No
Heating Capacity	2560 BtuH
Frequency	60 Hz
Thermostat Contact Type	Double Pole
Safety Tip-Over Switch Included	No
Phase	1
Control Type	Thermostat

Housing Color	White
Disconnect Switch	No
Amperage	6.3A
Automatic Fan Delay (On/Off)	No
Building Management System Compatible	No
Includes	Built in Cable Clamp, Grounding Wire Pigtail in Both Junction Boxes, High Temperature Safety Limit Switch, Pre Notched Guide Marks in Rear of Cabinet
Standards	UL Listed, C-UL Listed
NEMA Plug Configuration	Hardwired

Compliance and Restrictions

This item is restricted in certain countries. View all countries.

Documentation

Dayton Electric Baseboard Heater OIPM

Dayton Electric Baseboard Heaters 3UG46D 3ENA5 3ENC1 3UG82D 4TM76D Replacement Parts List

Chat with an Agent

available replacement part for model: **3UG77**

There are no replacement parts available for this product.

GRAINGER

DAYTON

GRAINGERCHOICE

Wall-Mount, Electric Baseboard Heater Thermostat, 55° to 85°F, 120/208/240/277V AC

Item #3UF74
Mfr. Model #3UF74
UNSPSC #40101821
Catalog Page #3072

Country of Origin Mexico. Country of Origin is subject to change.

Electric baseboard heater thermostats control the temperature of standard and oil-filled electric baseboard heaters.

Web Price
$25.64 / each

Qty 1 Add to Cart

Shipping Pickup

Availability

Expected to arrive **Fri. Jun 25.**

Ship to **84040** | Change

Shipping Weight **0.7 lbs**

Ship Availability Terms

Add to List

Technical Specs

Item	Electric Baseboard Heater Thermostat
For Use With	Baseboard Heaters
Contact Rating	22A @ 120-277V AC
Overall Height	4 1/2 in
Overall Width	3 in
Overall Depth	3 in
Programming Capability	Not Programmable

Voltage	120/208/240/277V AC
Number of Poles	2
Mounting Type	Wall-Mount
Thermostat Control Amperage	18A/22A
Thermostat Control Type	Mechanical Selector Dial
Thermostat Control Voltage	120/208/240/277V AC

Chat with an Agent

Range	Degrees F

Housing Color	White

Includes	Installation Instructions
Standards	UL Listed, CSA Certified

Compliance and Restrictions

This item is restricted in certain countries. View all countries.

⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

Replacement Parts

1 available replacement part for model: **3UF74**

Ship to 84040

DAYTON

Knob, Single Pole, For Use With Grainger Item Number 3UF74, 3UH07, Fits Brand Berko, Dayton, Qmark

Item # **23TE56** Mfr. Part # **42521-032-10**

Availability
Expected to arrive **Wed. Jun 30**.

Web Price
$4.48 / each

Qty 1

Add to Cart

Chat with an Agent

KT-VTLED44-4A-8XX-VDIM-P

VAPOR TIGHT FIXTURE

DESCRIPTION

4' 44W LED Vapor Tight Fixture | 120–277V Input | 0–10V Dimming | Premium Series

APPLICATION

Used for commercial and industrial rugged or outdoor applications

PRODUCT FEATURES

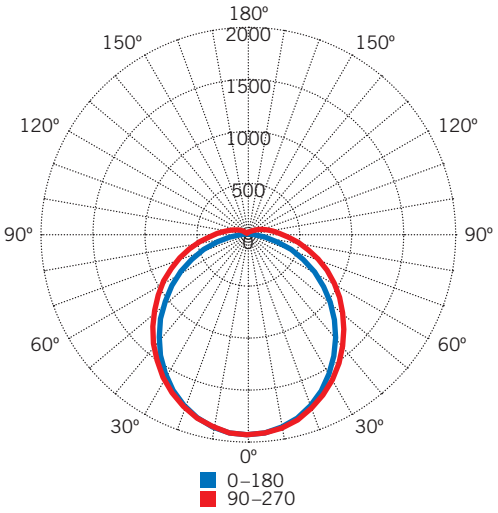
- Traditional design, narrow body, Vapor Tight fixture, suitable for rugged, demanding applications
- Powered by Keystone 0–10V dimming LED drivers
- IP66, suitable for wet location
- Smooth, diffused lens for even appearance
- Stainless steel lens clips
- 0–10V dimming, 10% minimum
- High quality, impact resistant Poly Carbonate lens
- Impact Resistance Rating: IK10
- NEMA 4X rated, protected against corrosion
- Compatible with Keystone SmartSafe emergency backups, max of 30C ambient operating temperature with emergency pack installed
- Ambient operating temperature: –20ºC/–4ºF to 45ºC/114ºF
- UL Listed 1598
- THD: <20%
- PF: >0.95
- LED chip lifetime: L70>100,000 hours @ 25ºC/77ºF ambient fixture temperature
- Includes mounting hardware
- ETL Sanitation Listed NSF/ANSI Standard 2 - Food Equipment, Splash Zone (Not for Direct Food Zone)

PRODUCT SPECIFICATIONS

Catalog Number	Color Temperature	Nominal Length	Input Voltage	Wattage	CRI	Lumen Output	Efficacy
KT-VTLED44-4A-840-VDIM-P	4000K	4 ft.	120–277V	44W	>82.0	5,630 lm	128 lm/W
KT-VTLED44-4A-850-VDIM-P	5000K	4 ft.	120–277V	44W	>82.0	5,720 lm	130 lm/W

PHOTOMETRIC SPECIFICATIONS

LUMINOUS INTENSITY DISTRIBUTION



ZONAL LUMEN SUMMARY

Degree	Flux (Lumens)	% Luminaire
0~10°	178.7 lm	3.08%
0~20°	686.1 lm	11.83%
0~30°	1,443.3 lm	24.89%
0~40°	2,340.3 lm	40.35%
0~50°	3,260.8 lm	56.23%
0~60°	4,101.8 lm	70.73%
0~70°	4,781.5 lm	82.45%
0~80°	5,248.5 lm	90.50%
0~90°	5,508.3 lm	94.98%
0~100°	5,648.2 lm	97.39%
0~110°	5,726.8 lm	98.75%
0~120°	5,765.8 lm	99.42%
0~130°	5,781.7 lm	99.70%
0~140°	5,788.0 lm	99.80%
0~150°	5,792.4 lm	99.88%
0~160°	5,796.1 lm	99.94%
0~170°	5,798.5 lm	99.98%
0~180°	5,799.2 lm	100.00%

WOOD ELECTRIC
SINCE 1974

6/2/21

SUBMITTAL

Crimson Ridge Well House

- Generator Room:
  - WBB1922504, 36"W X 54"H Louver/Damper, Qty. 2
  - WBB1249577, Shutter Motor, Qty. 2

- Pump Room:
  - WB294497A, 24" Exhaust Fan, Qty. 1
  - WBB771606, 24" Fixed Louver for Ex-Fan outside, Qty. 1
  - WBB771623, 24" Louver/Damper Intake, Qty. 1
  - WBB771491, Shutter Motor for Louver/Dampers, Qty. 2
  - WBB2370560 Paddle Fan w/t-stat, Qty. 1

- Chlorine Room:
  - 5C516 4" Inline Fan, Qty. 1
  - 2ZU22 4" Neoprene Coupling, Qty. 2
  - WBB1249578 12" Louver/Damper, Qty. 1
  - WBB771491, Shutter Motor, Qty. 1

Gardner Engineering
SUBMITTAL REVIEW
Reviewed for design intent. Does not release the responsibility of the requirements of the contract documents.
☑ No Exception Taken
☐ Make Corrections Noted
☐ Revise and Resubmit
☐ Rejected
Date: _____ By: _____

2298 EAST 3025 NORTH
LAYTON, UTAH 84040
801-552-1806

Search keyword or part number

GENERATOR ROOM (2)

"INTAKE - EXHAUST"

Account
Sign In

Reorder

$0.00 (0)

Home › HVAC/R & Fans › Dampers, Diffusers, Grilles, Louvers, Registers › Louvers & Vents › Combination Louver Dampers

Combination Louver / Damper with Flange 36"W x 54"H - ACL-F-36x54

Item #: WBB1922504

Not Yet Rated

Enter zip code for delivery date estimate

Price: $921.00

or

$153.50/mo suggested payments with 6 month special financing

OR Save 5%on Purchase.

Learn How | Apply Now

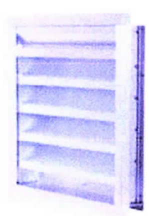
1 ADD TO CART

Quantity

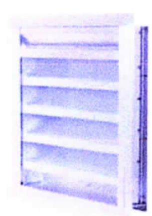
ADD TO LIST

Email Print

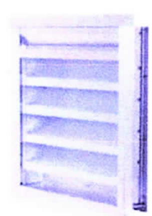
Customers Also Viewed



Combination Louver / Damper with Flange 18" - ACL-F 18

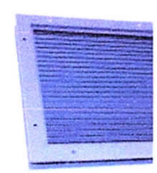


Combination Louver / Damper with Flange 24" - ACL-F 24



Combination Louver / Damper with Flange 60"W x 60"H - ACL-F-60x60

Motor Pack for Model ACL-F, 100-240 Volt - MTR-ACL MP



Steel Door Louv SDL 24x24

Product Information | Customer Review | Product Q&A

ACP, ACL-F-36x54, Combination Louver / Damper with Flange 36"W x 54"H

Combination Louver / Damper - The Model ACL offers superior resistance to rain and weather while also offering you the ability to completely close the opening off if needed. The channel frame is 4" deep with a 1-1/2" flange and drainable 45 degree fixed blades in the front with adjustable blades with seals for tight shutoff in the back all within one frame. The adjustable rear blades are operated with a thumb screw and come standard with birdscreen on the back.

MADE IN THE USA

BRAND	Air Conditioning Products
DEPTH INCHES	4
INSIDE HEIGHT INCHES	53-1/2
OUTSIDE WIDTH INCHES	38-1/2
NOMINAL SIZE INCHES	36 x 54
OUTSIDE HEIGHT INCHES	56-1/2
ROUGH OPENING INCHES	36W x 54H
WEIGHT LBS	63
FINISH	Mill Finish

NUMBER OF PANELS	1
TYPE	Intake or Exhaust
APPLICATION	Commercial / Industrial
LIMITED WARRANTY YEARS	1
MANUFACTURER'S PART NUMBER	ACL-F-36x54
INSIDE WIDTH INCHES	35-1/2
CONSTRUCTION	Aluminum
MAXIMUM VELOCITY FEET PER MINUTE	1118 FPM - Water Penetration
MOUNT TYPE	Vertical
FREE AREA SQ. FT.	5.92

Customer Review

Not Yet Reviewed

Write a Review

Product Q & A

There are no questions for this product.

Ask A Question

Copyright © 2021 by Global Equipment Company Inc. All Rights Reserved. **Shop With Confidence - 30 Day Satisfaction Guarantee**

FOR GENERATOR ROOM ONLY

Search keyword or part number

Account Sign In

Reorder

$0.00 (0)

Motor Pack for Model ACL-F 54" and 60", 24-240 Volt - MTR-ACL-NFBUP-S

Item #: WBB1249577

Not Yet Rated

Enter zip code for delivery date estimate

Price: $367.95

or

Save $18.40 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 ADD TO CART

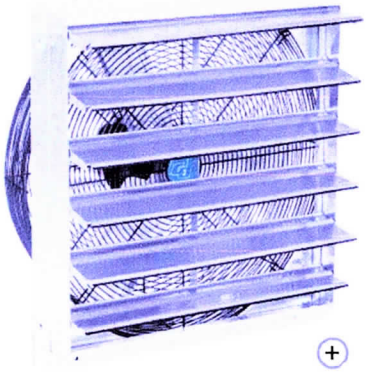
Quantity

ADD TO LIST

Email Print

so Viewed

PUMP ROOM "EXHAUST"



Continental Dynamics® 24" Direct Drive Exhaust Fan With Shutter, 1/4 HP, 2 Speed

Item #: WB294497A

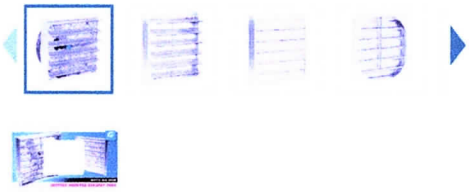
★★★★☆ (16)

Ships same day. ?

Enter zip code for delivery date estimate

Speeds

2



Price: $309.95

or

Save $15.50 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 ADD TO CART

Quantity

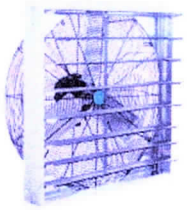
ADD TO LIST

Email Print

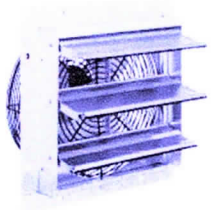
Customers Also Viewed

Continental Dynamics® 10" Direct Drive Single Speed Exhaust Fan With Shutter, 1/30

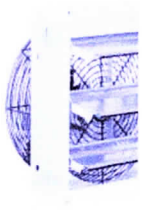
Vostermans Mechanical Thermostat For Fan Or Heater TT15WDCAM1A Single Pole



Continental Dynamics® 30" Single Speed Direct Drive Exhaust Fan With Shutter, 1/4



Continental Dynamics® Direct Drive 12" Exhaust Fan With Shutter, 1/12 HP, Single Speed



Continental Dyn Speed Direct Dri Fan With Shutte

Product Information | Photo/Video Gallery | Customer Review | Product Q&A | Warranty

EXHAUST FAN

Guarded exhaust fans feature 120V, single-phase totally permanently lubricated motors with provisions for direct wiring, UL, cUL listedand conforms to UL507 Standard.These shutter mounted fans install on inside wall and eliminate the need for external framing and shutter. Quiet operation makes it ideal for commercial environments. Aluminum blades are enclosed in a sturdy steel spiral wire guard.
Note: Rough-in hole size is 1/2 inch (+/- 5/16) larger than fan blade size.
1 year limited warranty.

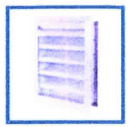
PUMP ROOM EX-FAN OUTSIDE COVER

Drainable Blade Fixed Louver with Flange 24" - DFL-F 24

Item #: WBB771606

Not Yet Rated

Enter zip code for delivery date estimate



Price: $216.95

or

Save $10.85 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 ADD TO CART

Quantity

ADD TO LIST

Email Print

Customers Also Viewed

Search by keyword or part number "PUMP ROOM" "INTAKE"

Account Sign In | Reorder | $0.00 (0)

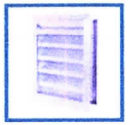
Home › HVAC/R & Fans › Dampers, Diffusers, Grilles, Louvers, Registers › Louvers & Vents › Combination Louver Dampers

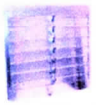
Combination Louver / Damper with Flange 24" - ACL-F 24

Item #: WBB771623

Not Yet Rated

Enter zip code for delivery date estimate



Price: $317.95

or

Save $15.90 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 ADD TO CART

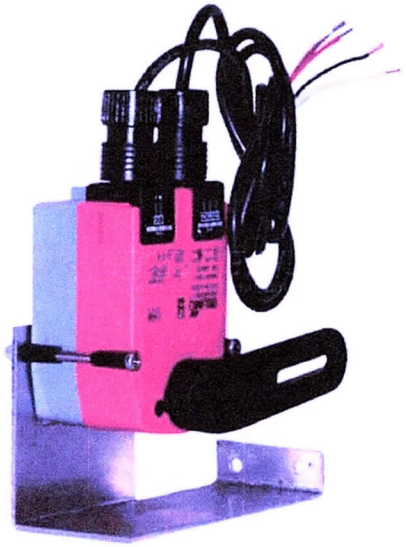
Quantity

ADD TO LIST

Email Print

Customers Also Viewed

FOR ALL LOUVERS (3)



Motor Pack for Model ACL-F, 100-240 Volt - MTR-ACL MP

Item #: WBB771491

Not Yet Rated

Enter zip code for delivery date estimate

Price: $220.95

or

Save $11.05 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 ADD TO CART

Quantity

ADD TO LIST

Email Print

Customers Also Viewed

PUMP ROOM "CEILING"

Search keyword or part number

Account Sign In | Reorder | $0.00 (0)

Home › HVAC/R & Fans › Fans › Residential Ceiling Fans › Hunter Ceiling Fans

Hunter Fan 52" Cabo Frio-Matte Sil - 5256 CFM

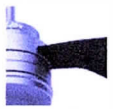
Item #: WBB2370560

Not Yet Rated

Enter zip code for delivery date estimate

Blade Finish

Matte Black


Price: $199.99

or

Save $10.00 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 Quantity

ADD TO CART

ADD TO LIST

Email Print

Product Information | Photo/Video Gallery | Customer Review | Product Q&A

GRAINGER

FANTECH

Thermoplastic Inline Centrifugal Duct Fan, Fits Duct Dia. 4 in, Voltage 120V

Item #**5C516** Mfr. Model #**FR100**
UNSPSC #**40101604** Catalog Page #2946

Country of Origin Germany. Country of Origin is subject to change.

This FANTECH inline centrifugal duct fan is prewired and has a lower sound level than comparable surface-mounted fans. Model comes with an exte View More

Web Price
$154.88 / each

Qty 1 Add to Cart

Shipping Pickup

Availability

Expected to arrive **Thu. Jun 03.**

Ship to **84040** | Change

Shipping Weight **5.15 lbs**

Ship Availability Terms

Add to List

Technical Specs

Item	Inline Centrifugal Duct Fan
Housing Material	Thermoplastic
Fits Duct Dia.	4 in
Voltage	120V
Max. Amps	0.17 A
Max. Wattage	19
Number of Speeds	1
Housing Dia.	9 1/2 in

CFM @ 0.000-In. SP	151
CFM @ 0.200-In. SP	120
CFM @ 0.400-In. SP	94
CFM @ 0.600-In. SP	63
CFM @ 0.800-In. SP	20
Max. Inlet Temp.	140 Degrees F
Inlet and Outlet Dia.	3 7/8 in
Hz	60

Length	9 5/8 in
Motor RPM	2900
Motor Enclosure	Totally Enclosed
Bearing Type	Ball
Flange Width	7/8 in
Speed Control	Mfr. No. 48C172
Mounting Position	Horizontal or Vertical

Motor HP	1/50 hp
Standards	HVI Certified, UL Recognized, CSA Certified, UL Listed (E128817) for outdoor use/wet locations
Includes	Mounting Bracket
Green Environmental Attribute	Product Contributes To Reducing Energy Consumption
Green Certification or Other Recognition	ENERGY STAR(R) Certified

Compliance and Restrictions

Green Product -This item has been designated by the manufacturer as an environmentally preferable product (EPP) because this item is ENERGY STAR(R) Certified.

CHLORINE ROOM "INTAKE"

Search keyword or part number

Account Sign In | Reorder | $0.00 (0)

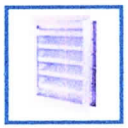
Home › HVAC/R & Fans › Dampers, Diffusers, Grilles, Louvers, Registers › Louvers & Vents › Combination Louver Dampers

Combination Louver / Damper with Flange 12"W x 12"H - ACL-F-12x12

Item #: WBB1249578

Not Yet Rated

Enter zip code for delivery date estimate



Price: $202.95

or

Save $10.15 with 5% off when you use your Global Industrial Credit Card.

Save 5%† | Apply Now

1 ADD TO CART

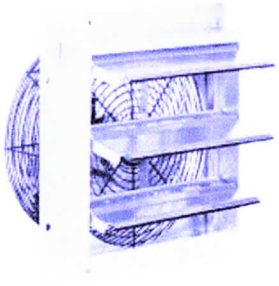
Quantity

ADD TO LIST

Email Print

so Viewed

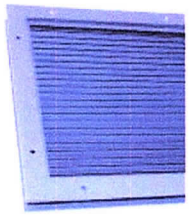
Combination Louver / Damper with Flange 18" - ACL-F 18



Continental Dynamics® 12" 3-Speed Direct Drive Exhaust Fan With Shutter, 1/12 HP

Combination Louver / Damper with Flange 24" - ACL-F 24

Motor Pack for Model ACL-F, 100-240 Volt - MTR-ACL MP



Steel Door Louv SDL 24x24

Product Information | Photo/Video Gallery | Customer Review | Product Q&A

Combination Louver / Damper - The Model ACL offers superior resistance to rain and weather while also offering you the ability to completely close the opening off if needed. The channel frame is 4" deep with a 1-1/2" flange and drainable 45 degree fixed blades in the front with adjustable blades with seals for tight shutoff in the back all within one frame. The adjustable rear blades are operated with a thumb screw and come standard with birdscreen on the back.

MADE IN THE USA

BRAND	Air Conditioning Products
DEPTH INCHES	4
INSIDE HEIGHT INCHES	11-1/2
OUTSIDE WIDTH INCHES	14-1/2
NOMINAL SIZE INCHES	12 x 12
OUTSIDE HEIGHT INCHES	14-1/2
ROUGH OPENING INCHES	12W x 12H
WEIGHT LBS	12
FINISH	Mill Finish
NUMBER OF PANELS	1
TYPE	Intake or Exhaust
APPLICATION	Commercial / Industrial