



# North Central Regional Planning Commission

109 N. Mill • P.O. Box 565 • Beloit, KS 67420 [www.ncrpc.org](http://www.ncrpc.org)  
Telephone: (785) 738-2218 • Facsimile: (785) 738-2185

December 23, 2020

Enclosed are the bid packets for weatherization work. The bid proposals must be signed and returned to the NCRPC no later than **1:30 p.m. on Friday, January 15, 2021**. The bid opening will be held at 2:05 p.m. at the Commission offices that same day. *Contracts shall be in effect from the date of issuance until March 15, 2021.* Payment shall not be rendered prior to January 31st, 2021 on these contracts. You may fax, mail, or email your bid in for this letting.

fax number: 785-738-2185

Email: [weatherization@ncrpc.org](mailto:weatherization@ncrpc.org)

Address: PO Box 565 Beloit, KS 67420.

## THINGS TO NOTE:

- If you would like to schedule a walk-thru, please contact the property manager, Mike Peschel at (785)562-7410.
- If there are any technical questions, please call Devin Karraker at 785-262-5838.
- Any clarifications/changes in proposed work scope will be publicly shared on the NCRPC website and by email if we have an email address. <http://www.ncrpc.org/procurement/weatherizationcontractors/>
- Contractors will complete the attached bid form for all sections they desire to bid on. Contractors are **not required** to bid on all sections, but **must** bid on each item within a section.
- HVAC Bids – Please include an additional page explaining what you are planning to install as the PTAC replacements
- All bids are due by 1:30 PM on Friday, January 15<sup>th</sup>, 2021 and will be open to the public.
- Selected bids may be based on low price, ability to meet deadlines and/or previous quality of work. Agency reserves the right to reject any and all bids and to deviate from these bid procedures as it deems necessary.
- The weatherization program requires all work scope measures to be deemed cost effective. Cost effectiveness can only be confirmed after accurate pricing is obtained through the bid process. The final work scope will be established after pricing is obtained through a competitive bid process. Items not deemed cost effective will be removed from the final work scope.
- Contracts will be executed as quickly as possible.
- All items must be completed by March, 15, 2021. The grant that is paying for this work ends March 31, 2021. This should allow time for our inspector to be able to final inspect and for any corrections to be made by contractors.
- Contractors **are responsible** for obtaining any required local permits and following all local codes.

**All work performed must meet the desired professional outcomes, specifications, and objectives found in the Kansas SWS Field Guide unless otherwise noted in writing on the bid form. Any and all exemptions or exceptions from these standards must be approved and in writing from the agency. Please contact the agency about any questions concerning the quality of work expectations.** All materials used must be in accordance with 10 CFR 440/Appendix A. Please see the Kansas SWS Field Guide by visiting: <http://www.ncrpc.org/wp-content/uploads/2019/03/KSSWSFieldGuide2018.1.pdf>

## SEE ATTACHED SWS PAGES

## INFORMATION:

1. Call the inspector at the following cell number to set appointments for final inspections:  
Devin Karraker (DK) **263-5838** If unavailable, leave a message and we will return your call.
2. **Contracts will be awarded** to the most responsible and qualified bidders *whose bids are considered reasonable and prudent. Preference will also be given to those contractors who have shown they can complete the work in a timely manner.* The NCRPC is not obligated to accept lowest or any other bid.
3. Follow the **Kansas SWS Field Guide** and you won't have trouble passing the final inspection.
4. Contractors are required to make the appointments and accompany the inspector on the final inspection. You must call the inspector and schedule the final inspection. **NOTE: I must have your paperwork back into this office at least two days before we write checks. NCRPC checks are written on the 15<sup>th</sup> (or the Friday before if the 15<sup>th</sup> falls on the weekend) & the last working day of the month.**
5. A "re-inspection fee" of \$50.00 per re-inspection will be charged to you if you call for an inspection when the work has not been completed and the inspector must leave site for you to complete the task. **Please final inspect your work before calling for a final inspection.**

Amanda Peterson, Weatherization Director [apeterson@nckcn.com](mailto:apeterson@nckcn.com)  
Kendra Ryser, Weatherization Assistant [kryser@nckcn.com](mailto:kryser@nckcn.com)

# Kansas Weatherization Assistance Program

## Multifamily Contractor Bid Form



The Kansas Weatherization Assistance Program (KWAP) seeks to reduce the energy costs for low-income families by improving the energy efficiency of their homes while ensuring their health and safety.

The following steps generically outline the process for weatherizing a multifamily complex. Additional project specific items may be added.

- Agency identifies a property, ensures property and tenant eligibility, conducts a full energy audit, and develops a proposed/tentative work scope.
- Contractors are publicly solicited for the proposed work scope.
- Contractors will complete the attached bid form for all sections they desire to bid on. Contractors are not required to bid on all sections.
- All bids are due by the specified time and date, or in accordance with agency procedures.
- Bids openings will be open to the public on the date specified.
- Selected bids may be based on price, ability to meet deadlines and/or previous quality of work. Agency reserves the right to reject any and all bids and to deviate from these bid procedures as it deems necessary.
- The weatherization program requires all work scope measures to be deemed cost effective. Cost effectiveness can only be confirmed after accurate pricing is obtained through the bid process. The final work scope will be established after pricing is obtained through a competitive bid process. Items not deemed cost effective will be removed from the final workscope.
- Contracts will be executed as quickly as possible.
- Contractors are responsible for obtaining any required local permits and following all local codes.

**All work performed must meet the desired professional outcomes, specifications, and objectives found in the Kansas SWS Field Guide unless otherwise noted in writing on the bid form. Any and all exemptions or exceptions from these standards must be approved and in writing from the agency. Please contact the agency about any questions concerning the quality of work expectations.**

<http://www.ncrpc.org/wp-content/uploads/2019/03/KSSWSFieldGuide2018.1.pdf>

All materials used must be in accordance with 10 CFR 440/Appendix A.

## Items to bid

Bid ONLY appropriate sections, each section MUST be bid in its entirety **with grand total at end of section.**

**Twin Valley Developmental Services  
1601 Carolina, Marysville, KS 66548  
Property Manager – Mike Peschel (785)562-7410**

### Section A: Air sealing/Insulation

	Description	Unit QTY	Unit Material Price	Unit Labor Price	Unit Total	Line Total
1.	Air Sealing: Per specification Current Attic Access: Install 24"x24" new plywood door, W/S, insulate back, latch All Units - 8	8				
2.	Air Sealing: Per specification: Current Attic Access: Install 24"x24" new plywood door, W/S, insulate back, latch Common Area	1				
3.	Air Sealing: Per specification: Block and seal open cavity above shower 4'x 1' (see picture Units – 4 , Apt 5, 6, 7, 8	4				
3.	Install blown insulation with a value of R-25 to achieve an R-38 in the attic area All Units – 8 total 3,948 sq ft	3,948 sq ft				
4.	Install blown insulation with a value of R-25 to achieve an R-38 in the attic area Common Area 1,274 sq ft	1274 sq ft				
5.	Vent range hood to exterior. Duct is 5" insulated metal duct that is running to soffit vents, install hood in soffit to vent to exterior. 2' of 5" metal duct, metal elbow, 5" duct in All Units - 8	8				
6.	Install CO alarms per specs – NCRPC will pay \$15 per detector to install. Alarms are supplied by NCRPC to contractor. All Units - 8	8	N/A	15	8	120
<b>Notes:</b> <ul style="list-style-type: none"> <li>• All materials and work practices shall be in accordance with the Kansas SWS Field Guide and 10 CFR 440/Appendix A</li> </ul>						

**SECTION TOTAL - A:**

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## Section B: HVAC

	Description	Unit QTY	Unit Material Price	Unit Labor Price	Unit Total	Line Total
1.	Remove existing PTAC unit and replace with new 9K heat pump PTAC. Efficiency of new units shall equal or exceed 9K/3.0 COP/9.7 EER Electric Heat Pump & have a 3.5K electric back up heat strip. New unit needs to fit to old sleeve. Air seal unit sleeve. 7 Units, Apts 1, 2, 3, 4, 6, 7, 8	7				
2.	Remove existing PTAC unit and replace with new 9K heat pump PTAC. Efficiency of new units shall equal or exceed 9K/3.0 COP/9.7 EER Electric Heat Pump & have a 3.5K electric back up heat strip. New unit needs to fit to old sleeve. Air seal unit sleeve. Common and Office Area : 2 units	2				
3.	PTAC units are wired to operate off of a wall thermostat. Wire new unit to wall thermostat 4 units Apts 1, 2,6, 7	4				
4.	PTAC units are wired to operate off of a wall thermostat. Wire new unit to wall thermostat Common and Office area: 2 units	2				
<b>Notes:</b> <ul style="list-style-type: none"> <li>• All materials and work practices shall be in accordance with the Kansas SWS Field Guide and 10 CFR 440/Appendix A</li> </ul>						

**SECTION TOTAL - B:**

## Section C: ASHRAE

	Description	Unit QTY	Unit Material Price	Unit Labor Price	Unit Total	Line Total
1.	<p>ASHRAE: Replace old bath fan/light with new ASHRAE fan/light &amp; vent out back side of roof. (No vents on the front side of roof) Appx 20' duct &amp; hood.</p> <p><b>**NCRPC will provide the fan**</b></p> <p>Old bath fan is 12" round and new fan is 12" flange to flange – there will probably be some air sealing done (see pictures) All units</p>	8				
<p>Notes:</p> <ul style="list-style-type: none"> <li>• All materials and work practices shall be in accordance with the Kansas SWS Field Guide and 10 CFR 440/Appendix A</li> </ul>						
<b>SECTION TOTAL - C:</b>						

*Please sign and date this Bid Form showing your full understanding and acceptance of the Bid Letter, and the requirement to follow the expectations, specifications, and objectives of the Kansas Weatherization Program's SWS Field Guide for all measures identified on the Work Scope.*

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Unit #	PTAC Unit	Wall Thermostat	ASHRAE	ATTIC HATCH, INSTALLED, INSULATED, W/S, LATCH, DAM	Fridge	Attic Insulation	Air Sealing	Range Hood vented soffit to exterior	CO Alarm	Notes
1	X	X	X	X	X	525sq ft	X	X	1	
2	X	X	X	X	X	483 sq ft	X	X	1	
3	X		X	X	X	483sq ft	X	X	1	
4	X		X	X	X	525sq ft	X	X	1	
5			X	X	X	483sq ft	X	X	1	
6	X	X	X	X	X	483sq ft	X	X	1	
7	X	X	X	X	X	483sq ft	X	X	1	
8	X		X	X	X	483sq ft	X	X	1	
Common Space/Office	2	2		1		1274sq ft	X			
<b>SUM:</b>	<b>9</b>	<b>6</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>5222 sq ft</b>	<b>9</b>	<b>8</b>	<b>8</b>	

Complex Name: Twin Valley Developmental Services LLC  
Address: 1601 Carolina St, Marysville, KS 66548  
# of Units: 8  
Year Build: 1992

**Notes**

**NOTES:** All measures installed will meet the objectives and desired outcomes of the Kansas SWS Field Guide Version 2018.1 or most recent version; available at <http://www.ncrpc.org/wp-content/uploads/2019/03/KSSWSFieldGuide2018.1.pdf>

**Heatpump PTAC:** remove existing PTAC unit and replace with new 9K heat pump PTAC. Efficiency of new units shall equal or exceed 9K/3.0 COP/9.7 EER, and will have a 3.5K electric back up heat strip. New Unit needs to fit old sleeve. Air seal sleeve. Old units are wired to operate off wall thermostat. Wire PTAC unit to wall thermostat. Replace old mercury thermostat in Apts 1, 2, 6, & 7 with new digital thermostat. Also replace thermostats in common areas and wire to new PTAC unit.

**Insulation:** Attic only, installation of R-25 insulation.

**Attic Hatch:** Replace current attic hatch with 24"x24" new plywood door, insulate back, S/W, Latch, Dam, according to SWS standards.

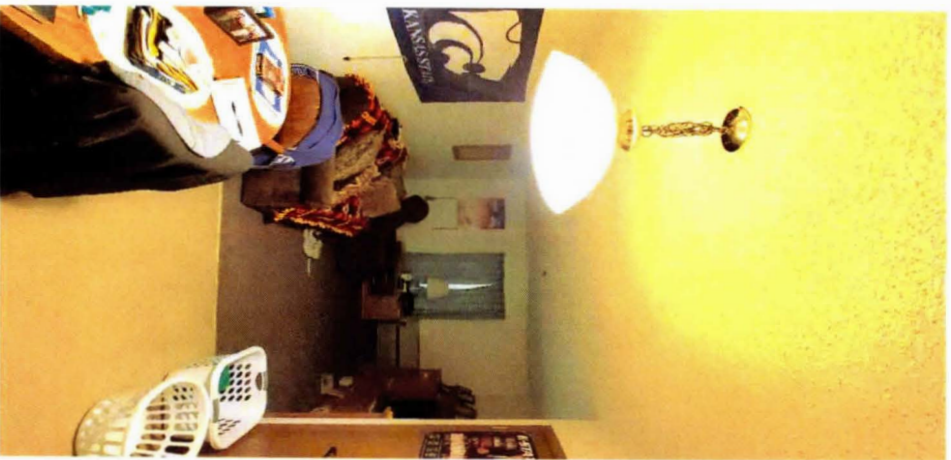
**Range Hood:** Duct is 5" insulated metal duct that is running to soffit vents. Install hood in soffit to vent to exterior. 2' of 5" metal duct, metal elbow, 5" duct insulation and hood.

**ASHRAE:** Fans will be supplied by NCRPC, and installed in current bath fan location, venting to the back side of roof. Approx. 20' duct. CFM set to 36 continuously.

**CO Alarm:** 1 CO alarm (Defender Sealed Lithium Battery CO Alarm with LCD display, CA6150) will be provided by NCRPC for installation to each unit. No smoke alarms are needed for this property.

**Special Notes:**

# Runnebaum, #5, Marysville



(MS) TWIN VALLEY  
APARTMENTS (APT #5) (2)



(MS) TWIN VALLEY APARTMENTS (APT #5) (4)

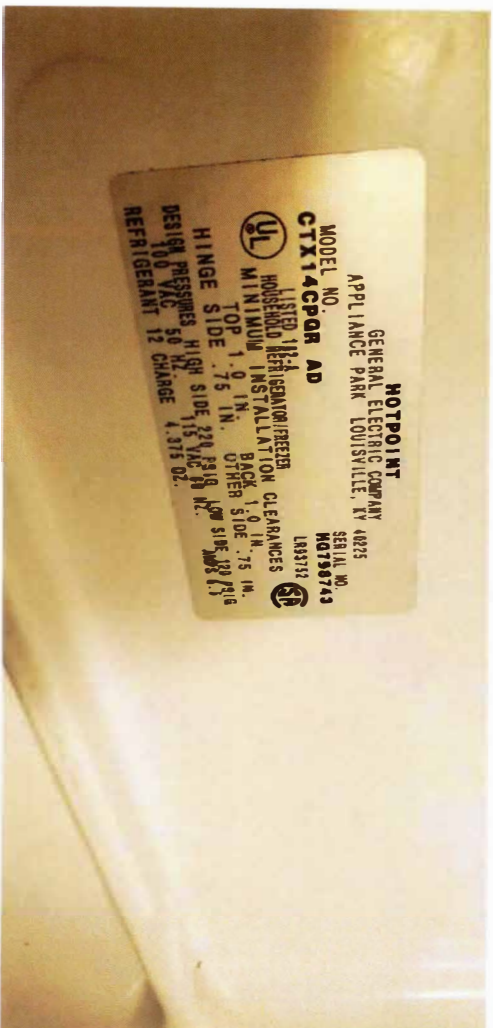


(MS) TWIN VALLEY  
APARTMENTS (APT #5) (3)



(MS) TWIN VALLEY  
APARTMENTS (APT #5) (5)

# Runnebaum, #5, Marysville



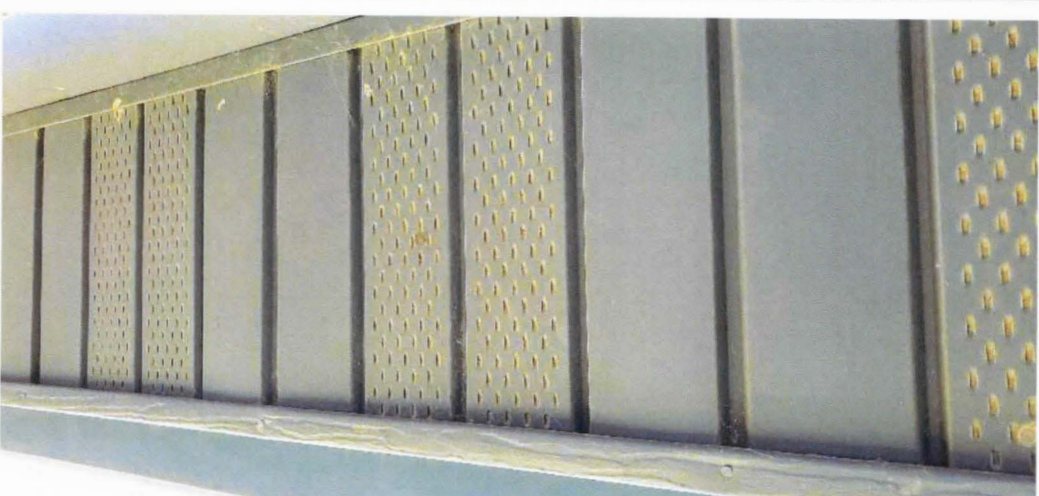
(MS) TWIN VALLEY APARTMENTS (APT #5) (6)



(MS) TWIN VALLEY APARTMENTS (APT #5) (7)



TWIN VALLEY APARTMENTS ATTIC PICTURES (RANGE HOOD DUCT)



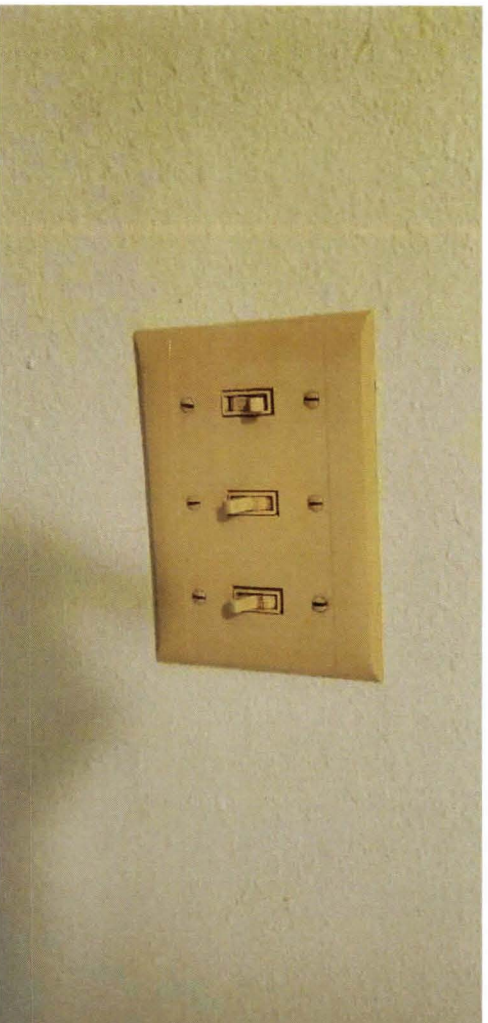
TWIN VALLEY APARTMENTS (SOFFIT)



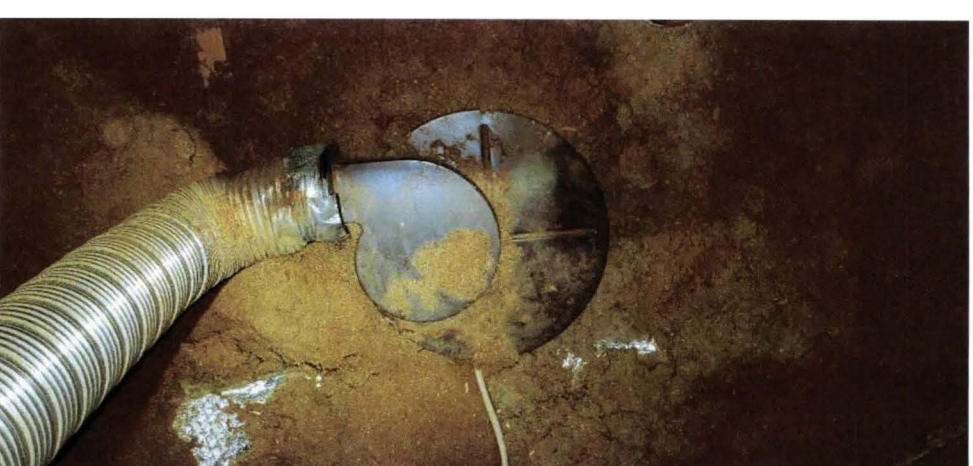
# Runnebaum, #5, Marysville



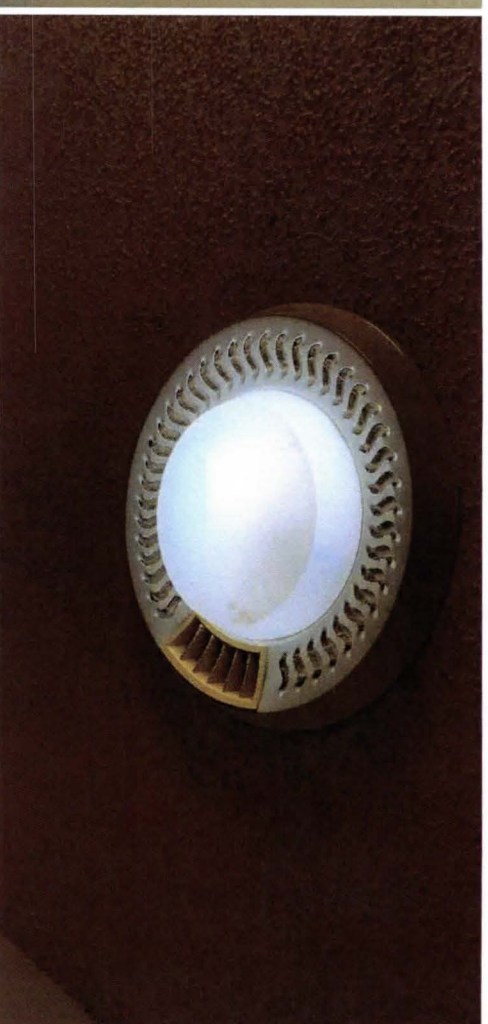
TWIN VALLEY APARTMENTS (BATH FAN) (3)



TWIN VALLEY APARTMENTS (BATHROOM FAN AND LIGHTS SWITCHES)



TWIN VALLEY APARTMENTS  
(BATH FAN) (4)



TWIN VALLEY APARTMENTS (BATH FAN) (1)

# Runnebaum, #5, Marysville



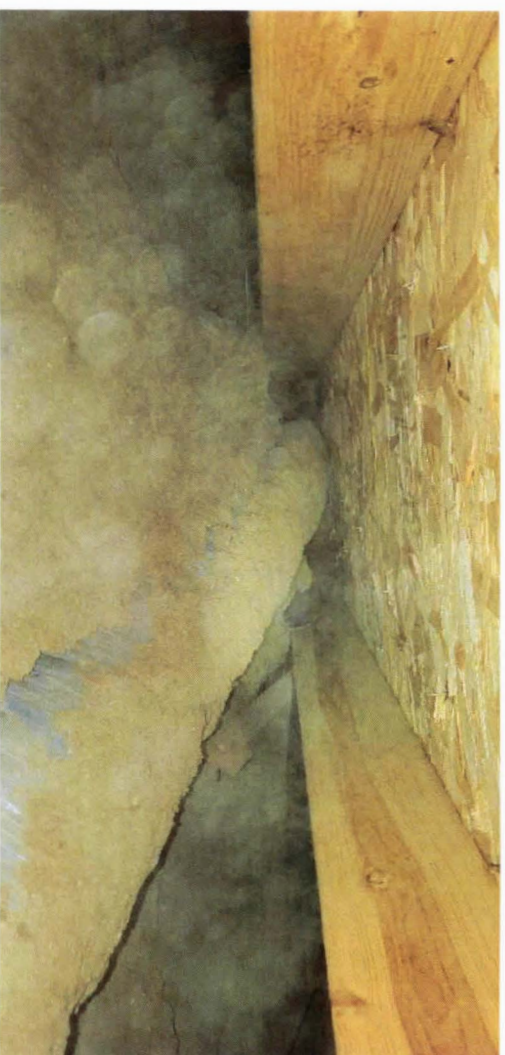
TWIN VALLEY APARTMENTS  
(RANGE HOOD DUCT  
RAN TO SOFFIT) (1)



TWIN VALLEY APARTMENTS  
(EXISTING BATH FAN DUCT -  
RAN TO SOFFIT)

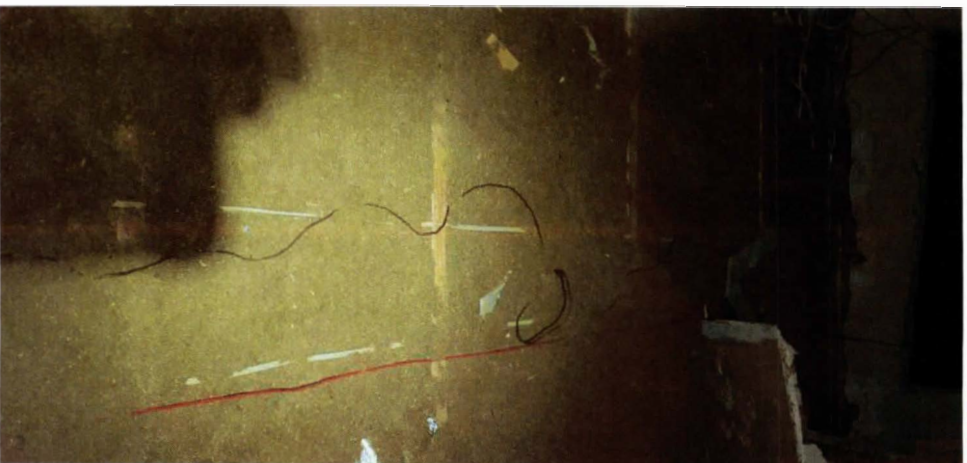


TWIN VALLEY APARTMENTS  
ATTIC PICTURES (14)



TWIN VALLEY APARTMENTS (RANGE HOOD DUCT RAN TO SOFFIT) (2)

# Runnebaum, #5, Marysville



TWIN VALLEY APARTMENTS  
ATTIC PICTURES  
(INSULATION) (2)



TWIN VALLEY APARTMENTS  
ATTIC PICTURES  
(BATH FAN DUCT) (2)



TWIN VALLEY APARTMENTS ATTIC PICTURES (BATH FAN) (1)



TWIN VALLEY APARTMENTS ATTIC PICTURES (INSULATION) (1)

# **Kansas SWS Field Guide Pages**

**We do not guarantee that we attached all pages that apply, its is the Contractor's responsibility to be sure to follow our minimum specifications. The Kansas SWS Field Guide may be supplied by request. It is also found at <http://www.ncrpc.org/wp-content/uploads/2019/03/KSSWSFieldGuide2018.1.pdf>**

## 3.1001.2 - Chase Capping

### Desired Outcome:

Chase capped to prevent air leakage and moisture movement between the attic and conditioned space

## 3.1001.2d - Support

### Desired Outcome:

Chase capped to prevent air leakage and moisture movement between the attic and conditioned space

### Specification(s):

Support material will be installed for spans wider than 24", except when air barrier material is rated to span greater distance under load (e.g., wind, insulation)

### Objective(s):

Ensure seal stays in place and does not sag



Spans greater than 24 inches require additional bracing before capping



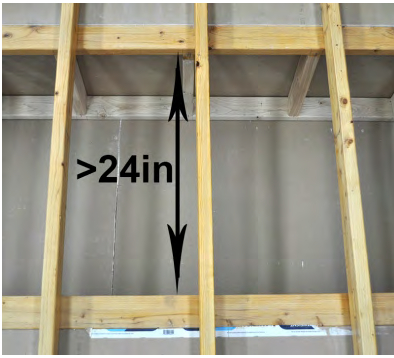
Support should prevent cap from sagging or moving

### Tools:

1. Drill
2. Saw
3. Tape measure

### Materials:

1. Lumber
2. Drywall
3. Fasteners



Create bracing to support spans larger than 24", either from above or below



When supporting from above, apply adhesive between drywall and bracing



Bracing can be screwed to drywall before capping chase



Ensure new bracing is secure by using screws to fasten to joist



Once chase is capped, it is now ready to be sealed along framing

## 3.1001.2 - Chase Capping

### Desired Outcome:

Chase capped to prevent air leakage and moisture movement between the attic and conditioned space

## 3.1001.2e - Joint seal

### Desired Outcome:

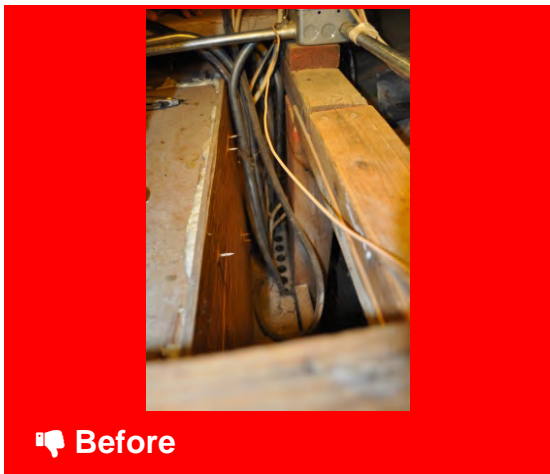
Chase capped to prevent air leakage and moisture movement between the attic and conditioned space

### Specification(s):

Continuous seal will be installed around seams, cracks, joints, edges, penetrations, and connections

### Objective(s):

Provide airtight, durable seal that does not move, bend, or sag



Chases need to be capped and sealed to prevent leakage



Chase is sealed along all cracks, gaps, and penetrations

### Tools:

1. Spray foam gun
2. Caulk gun

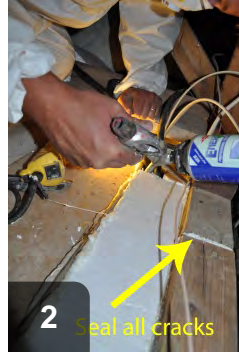
### Materials:

1. Spray foam
2. Caulk

Always wear protective gloves when working with sealants.



Chase has been capped but needs to be sealed



Sealant is used to fill in all cracks and gaps along edges of chase cap



Cap is sealed



## 3.1001.2 - Chase Capping

### Desired Outcome:

Chase capped to prevent air leakage and moisture movement between the attic and conditioned space

## 3.1001.2f - Adjacent framing

### Desired Outcome:

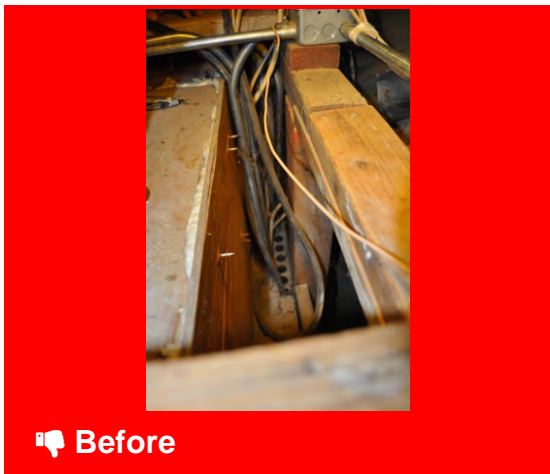
Chase capped to prevent air leakage and moisture movement between the attic and conditioned space

### Specification(s):

All remaining gaps at the top of the chase will be sealed

### Objective(s):

Ensure airtight seal from one finished side of the chase to the other



Chases need to be capped and sealed to prevent leakage



Chase is sealed along all cracks, gaps, and penetrations

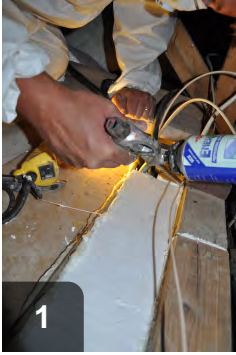
### Tools:

1. Spray foam gun
2. Caulk gun

### Materials:

1. Spray foam
2. Caulk

Always wear gloves when working with sealant.



Sealant is used to fill in all cracks and gaps along edges of chase cap



Extend seal along adjacent framing

## 4.1006.2 - Access Doors and Hatches

### Desired Outcome:

Attic access door properly sealed and insulated

## 4.1006.2a - Installation

### Desired Outcome:

Attic access door properly sealed and insulated

### Specification(s):

Hatches will be insulated to the maximum R-value structurally allowable up to the R-value of the adjoining insulated assembly

Attic hatches rough opening will be surrounded with a durable,rigid protective baffle that is higher than the level of the surrounding attic floor insulation

### Objective(s):

Achieve uniform R-value on the attic door or hatch

Achieve uniform R-value on the attic floor

Prevent loose attic floor insulation from entering the living area



 Before

Uninsulated attic hatches and access panels weaken the thermal envelope



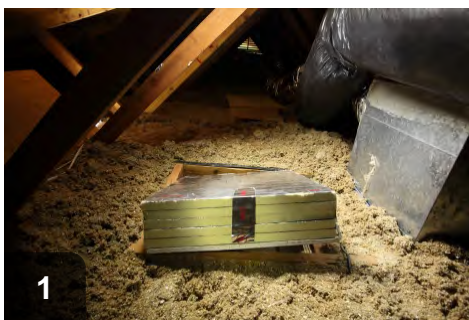
 After

Hatch cover or panel access door should match r-value of attic insulation

**Materials:**

1. XPS
2. Lumber
3. Weatherstripping
4. Fasteners

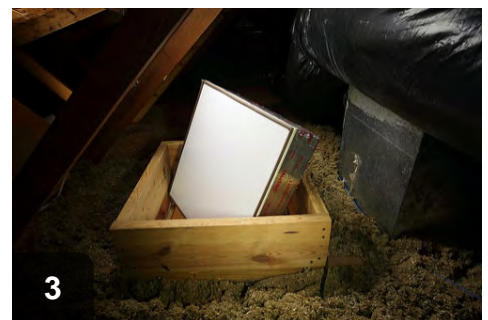
Attic hatches will be dammed around with a strong and durable material that is higher than the level of the surrounding attic insulation. Weather stripping should be appropriate for the hatch material to ensure durability and appropriate seal. See SWS 4.1006.2a, 4.1006.2b, and 4.1006.2c. Modifications and deviations can be made to ensure accessibility, i.e. low clearances may require a shorter or flexible dam. New hatches must be finished to match surrounding ceiling. i.e painted or stained.



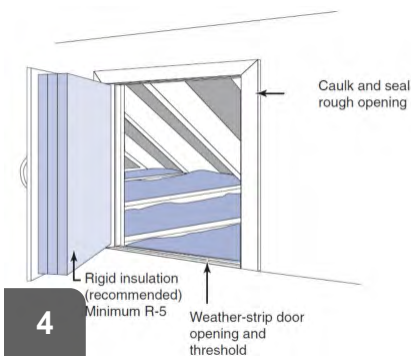
1 Create hatch cover that matches r-value of surrounding insulation



2 Build dam to hold back attic insulation and hold cover in place tightly



3 Weatherstrip underside of hatch cover to create tight seal



4 Alternate installation for vertical access panel to attic

## 4.1006.2 - Access Doors and Hatches

### Desired Outcome:

Attic access door properly sealed and insulated

### 4.1006.2b - Sealing

### Desired Outcome:

Attic access door properly sealed and insulated

### Specification(s):

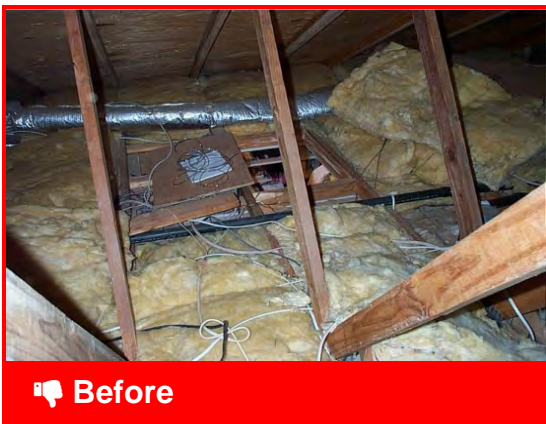
Access hatch frames will be sealed using caulk, gasket, weather-strip, or otherwise sealed with an air barrier material, suitable film, or solid material

Options will include installing a latch or lock or frictionally engaged components that do not require a latch

The measure must include a protective baffle or insulation barrier

### Objective(s):

Prevent air leakage



Unsealed attic hatches and panel doors allow air leakage to and from attic



Once sealed, air leakage at attic hatch or door should be minimized

### Materials:

1. Weatherstripping
2. 3/4" Lumber
3. Caulk

See SWS 4.1006.2a, 4.1006.2b, and 4.1006.2c.



**1**  
Remember to seal around finish details and framing on interior



**2**  
Build insulation dam from 3/4 inch lumber and seal around base



**3**  
Weatherstrip around bottom edge of hatch cover to create air tight seal

## 4.1006.2 - Access Doors and Hatches

### Desired Outcome:

Attic access door properly sealed and insulated

### 4.1006.2c - Attachment

### Desired Outcome:

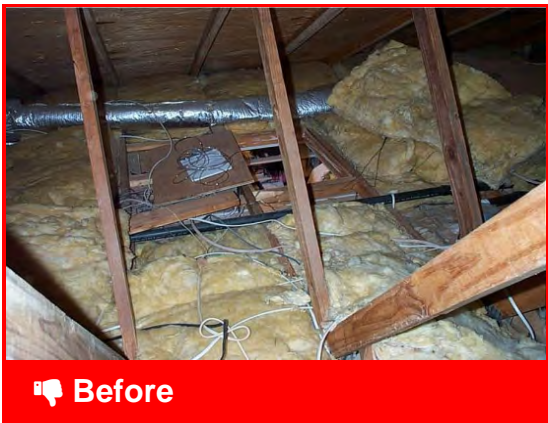
Attic access door properly sealed and insulated

### Specification(s):

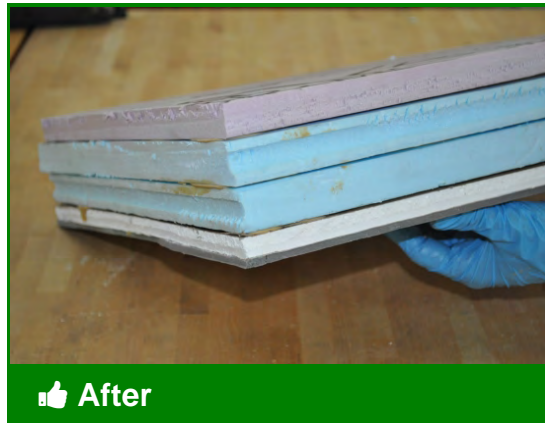
Insulation will be permanently attached and in complete contact with the air barrier

### Objective(s):

Insulate to prescribed R-value



Unsealed and uninsulated attic hatches and access doors allow leakage



Rigid insulation on back of new hatch cover attached firmly and squarely to allow for airtight fit

### Tools:

1. Caulk gun
2. Utility knife

### Materials:

1. XPS
2. Adhesive

See SWS 4.1006.2a, 4.1006.2b, and 4.1006.2c.



1 Apply foam tape to "warm side" face of attic hatch



2 Ensure an air tight seal by making sure foam tape has no gaps



3 Apply strong adhesive to "cold-side" of hatch



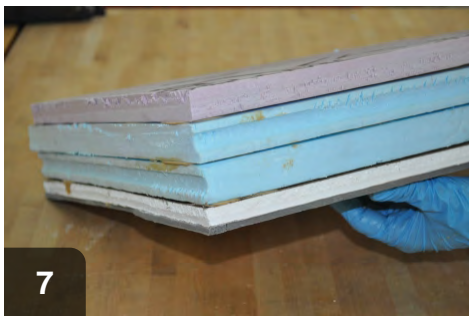
4 Adhesive should ring perimeter as well as criss-crossing hatch to ensure complete attachment of insulation



5 Affix XPS insulation to "cold-side" of hatch with adhesive, ensuring XPS is tight and square to hatch



6 Repeat adhesive and XPS layers to reach maximum R-value without making hatch excessively heavy or awkward



7 All XPS layers should be attached firmly to one another and square to hatch



# North Central Regional Planning Commission

## ASHRAE 62.2-16 Fan Installation and Specifications

Job: \_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_

Inspector: \_\_\_\_\_

City: \_\_\_\_\_

Phone: \_\_\_\_\_

---

Fan Location: \_\_\_\_\_

Fan CFM Setting: \_\_\_\_\_

Fan Cycle Time, If needed: \_\_\_\_\_

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Special Instructions:

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Final CFM Measurement: \_\_\_\_\_ Date: \_\_\_\_\_

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### SPECIFICATIONS:

Fans are to be provided by NCRPC and installed according to manufacturer specs. (see manual)

Ductwork shall be 6" diameter R-8, UL181 listed flex duct. It needs a 2-3 ft straight run coming off fan before 1<sup>st</sup> elbow. Short straight runs if possible. Use hard duct elbows, sealed and insulated, if turns are 90 degree or greater.

All connections on ductwork shall be mechanically fasten and sealed.

Fans must vent to exterior through roof or wall cap with termination to keep animals out.

### Specification Submittal Data / Panasonic Ventilation Fan

#### Description

Customizable Ventilation Fan/Light shall be low some ceiling mount rated for continuous run. Fan shall be ENERGY STAR® rated and certified by the Home Ventilating Institute (HVI). Fan shall include energy efficient LED lighting. Evaluated by Underwriters Laboratories and conform to both UL and cUL safety standards.

#### Motor/Blower:

- Enclosed DC brushless motor technology rated for continuous run.
- Fan ventilation rates shall be manually adjustable for 50-80-110 CFM.
- Power rating shall be 120 volts and 60 Hz.
- Fan shall be UL listed for tub/shower enclosure when used with a GFCI protected circuit and used in insulated ceiling (TYPE I.C.).
- Fan equipped with thermal cutoff fuse.
- Removable, permanently lubricated, plug-in motor.

#### Housing:

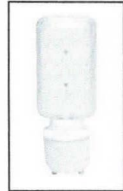
- Rust proof paint, galvanized steel body.
- Integrated dual 4" or 6" diameter duct adapter.
- Built-in metal flange provides blocking for penetrations through drywall as an Air Barrier, and assists with the decrease in leakage in the Building Envelope during blower door testing.
- Built in backdraft damper.
- Articulating and expandable installation bracket up to 24".

#### Grille:

- Attractive design using Poly Pro material.
- Attaches directly to housing with torsion springs.
- Includes a motion sensor cap for use as a cover when the motion sensor Plug 'N Play™ module has not been selected.

#### Light:

- Two replaceable, ENERGY STAR® rated, 7W GU24 base LED lamps



\* (2) 7W GU24 base LED lamps included.

#### Warranty:

- ALL Parts: 3 Years from original purchase date.
- DC Motor: 6 Years from original purchase date.
- LED: 5 years from original purchase date.

#### Architectural Specifications:

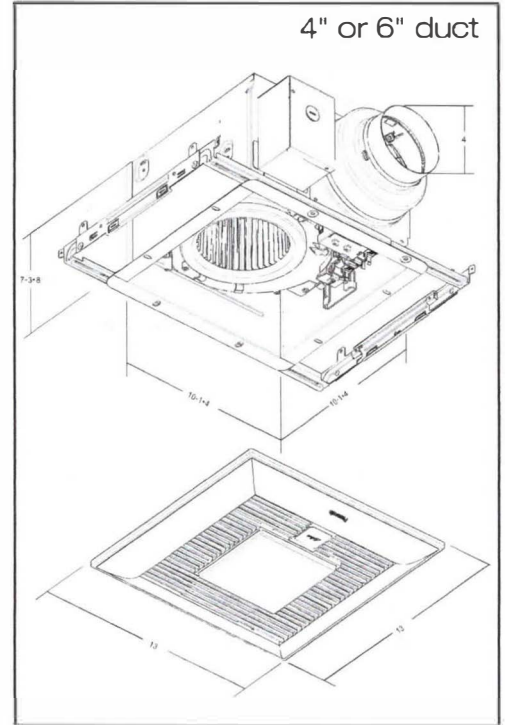
Customizable Ventilation Fan/Light shall be ceiling mount, ENERGY STAR® rated type with **multi-speed control** (0, 30-100 CFM, in 10 CFM increments) that shall be **built-in** with a high/low adjustable delay timer and activated by a wall switch, Motion Sensor Plug 'N Play™ module or Condensation Sensor Plug 'N Play™ module. Features a built-in speed selector. Select from 50/80/110 CFM and no more than <0.3/<0.3/0.4 sones as certified by the Home Ventilating Institute (HVI) at 0.1 w.g. with no less than 53/86/114 CFM and no more than <0.3/0.6/0.9 sones at .25 w.g. Power Consumption shall be no greater than 4.0/6.0/11.1 watts at 0.1 w.g. and 7.0/11.1/18.0 watts at 0.25 w.g. ENERGY STAR® rated with efficiency of no less than 12.8/13.3/9.9 CFM/watt at 0.1 w.g. and than 7.7/7.7/6.3 CFM/watt at 0.25 w.g. The motor shall be enclosed with brushless DC motor engineered to run continuously. DC motor speed shall automatically increase when the fan senses static pressure to maintain selected CFM. Power rating shall be 120v/60Hz. Duct diameter shall be no less than 4", inclusive of an integrated dual 4" or 6" duct adapter. **Plug 'N Play™ modules** provide up to **two** additional features. Select from Condensation Sensor, LED Night Light and Motion Sensor. Fan shall be UL and cUL listed for tub/shower enclosure when used with a GFCI protected circuit. Fan can be used to comply with ASHRAE 62.2, LEED, ENERGY STAR®, IAP, EarthCraft, California Title-24 and WA Ventilation Code. Lamps shall be of the LED type with the fan utilizing no less than two 7 Watt, ESTAR rated, GU24 base LED lamps.

#### DC Motor Technology:

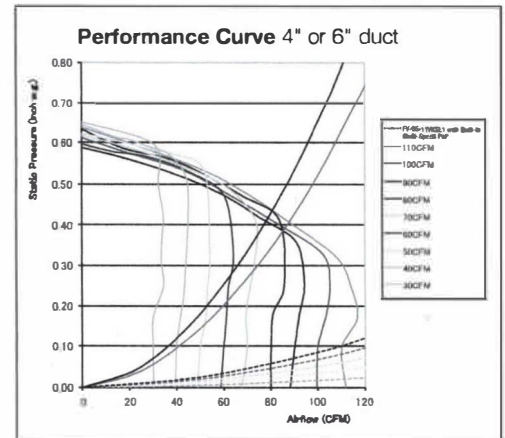
When fan senses static pressure, its speed is automatically increased to ensure that the desired CFM is not compromised, which allows the fan to perform as rated.



For complete Installation Instructions visit [us.panasonic.com/ventfans](http://us.panasonic.com/ventfans)



FV-05-11VKSL1



Model	Quantity	Comments	Project:
			Location:
			Architect:
			Engineer:
			Contractor:
			Submitted by:
			Date:

## Plug 'N Play™ Modules

Plug 'N Play™ modules provide up to **two** features (multi-speed is already built-in to FV-05-11VKSL1). Select from Motion Sensor, Condensation Sensor and LED Night Light.



### FV-VS15VK1: Multi-Speed with Time Delay - N/A for this Fan, already built-in.

Allows you to select the proper CFM settings to satisfy ASHRAE 62.2 continuous ventilation requirements. The fan runs continuously at a pre-set lower level (0, 30-100 CFM, in 10 CFM increments), then elevates to a maximum level of operation (50-80-110 CFM) when the wall switch is turned on, or when the motion sensor or Condensation Sensor module is activated. A High/Low delay timer returns the fan to the pre-set CFM level after a period of time set by the user.



### FV-MSVK1: Motion Sensor

Automatically activates when someone enters the room. Once the settings have been applied, the fan becomes truly automatic. This module also activates a 20 minute delay off timer for the fan.



### FV-CSVK1: Condensation Sensor

Helps control bathroom condensation to prevent mold and mildew. Sensor technology detects relative humidity and temperature to anticipate dew point, automatically turning the fan on to control humidity. Built-in Relative Humidity (RH) sensitivity adjustment enables fine tuning for moist conditions and for satisfying CalGreen requirements. When the condensation sensor is used in conjunction with multi-speed functionality, the fan will kick up to high speed when the condensation sensor detects moisture in the room. This module also activates a 20 minute delay off timer for the fan.



### FV-NLVK1: LED Night Light

A photocell automatically turns on the 1 watt LED night light when darkness is sensed in the room. High/Low brightness switch enables you to fine tune the photocell to work in conjunction with the darkness level of your bathroom. This module also activates an automatic 20 minute delay off timer for the fan.

Fan Specifications	WhisperGreen Select™: FV-05-11VKSL1																	
Static Pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25		
Air Volume (CFM)	110	114	100	105	90	94	80	86	70	71	60	62	50	53	40	43	30	35
Noise (sones)	0.4	0.9	<0.3	0.8	<0.3	0.6	<0.3	0.6	<0.3	0.4	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Power Consumption (watts)	11.1	18.0	8.7	15.0	7.0	12.8	6.0	11.1	4.7	8.9	3.9	7.6	4.0	7.0	2.8	5.7	2.5	5.0
Energy Efficiency (CFM/Watt)	9.9	6.3	11.6	7.1	13.1	7.5	13.3	7.7	15.3	8.2	15.9	8.4	12.8	7.7	14.6	7.7	12.8	7.4
Speed (RPM)	960	1237	926	1213	872	1184	837	1157	796	1119	769	1102	740	1081	739	1077	731	1058
Current (amps)	0.12	0.17	0.09	0.15	0.08	0.13	0.07	0.12	0.05	0.09	0.05	0.08	0.04	0.07	0.04	0.06	0.03	0.06
MAX. Current (amps)	0.42																	
Power Rating (V/Hz)	120/60																	
ENERGY STAR rated	Yes																	

0.25=Installed Performance

ASHRAE FAN TO BE INSTALLED

