

December 12, 2014

RE: Calculated free area percentage

To whom it may concern:

This letter is in reference to WinTech Louvers (H200, H220, H210, and H200I) regarding calculated free area percentage.

Using the Amana PTAC guidelines, page 26, lower left hand corner, the WinTech H200, H220, H210, and H200I have a calculated free area percentage of 68% (67.97%). Please see attached sketch SK-1 for calculation specifics and the numbers used to achieve the 68%.

WinTech hopes that this letter and attached detailed information clarifies and answers any questions you may have. Please do not hesitate to contact us for any questions or information you may need.

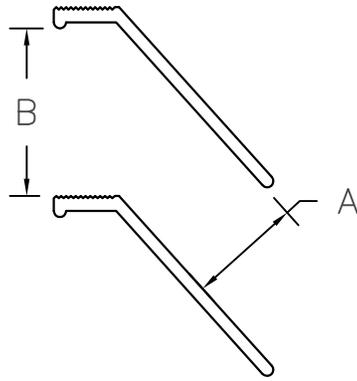
Sincerely,

Michael D Castleberry



Technical Services Director

Attachments: Louver SK-1 Detail calculation.
Amana Architect and Engineer manual page 26.

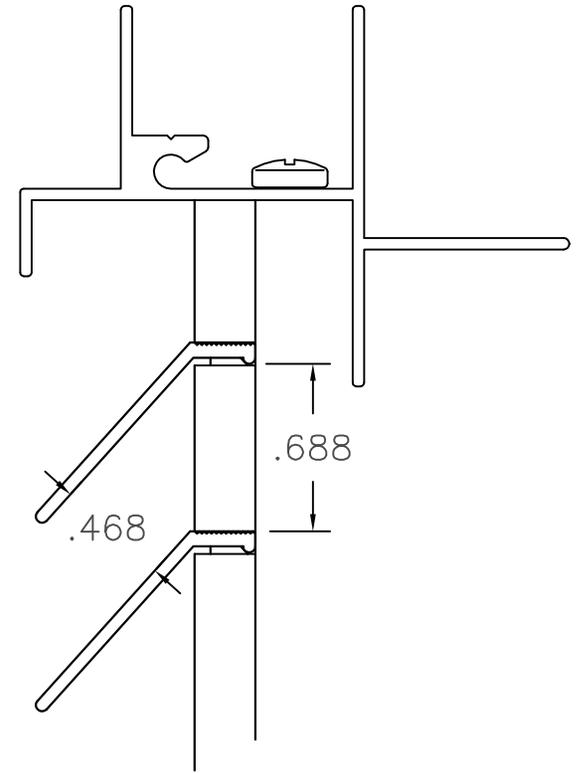


SAMPLE CALCULATION
FACE AREA (%) $A/B=X$
100%

$A=.468$
(SMALLEST AREA THROUGH WHICH
AIR MUST PASS)

$B=.688$
(BLADE SPACING)

F.A. $.468/.688 \times 100\%$
 $= 68\%$
PERCENTAGE OF FREE AREA



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WINTeCH

Window Technology, Inc.
201 Industrial Drive
Monett, MO 65708

SCALE: SCALE	DO NOT SCALE PRINT		
TITLE FREE AREA % FOR WINTeCH LOUVER		NO. SK-1	REV

OUTDOOR GRILLES

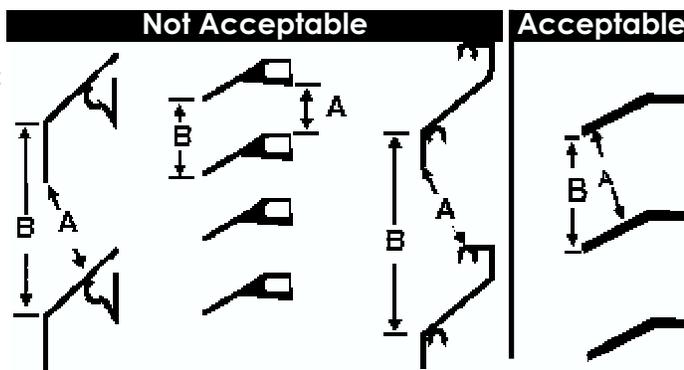
SPECIAL OUTDOOR GRILLES AND EXTERIOR ARCHITECTURAL TREATMENTS

Two styles of exterior grilles are available for the PTAC unit (standard and architectural). Occasionally, the design of a building may necessitate the use of special or oversized louvers for aesthetic reasons. Louvers other than standard Amana® brand exterior grilles may be used on the Amana® brand unit. However, these special louvers or any special exterior architectural treatments of the building facade may restrict the free circulation of condenser airflow. **For successful operation of your PTAC unit, you must refer to Goodman Company, L.P., to obtain our evaluation and approval of these louvers.**

LOUVER GUIDELINES

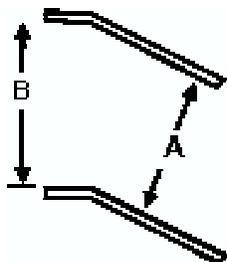
To be considered for approval, the following guidelines should be followed in selecting a non-Amana® brand special or oversized louver:

1. The louver must have a minimum of 65% "free area" and a blade design that will not cause condenser air to be recirculated. ASHRAE defines "free area" as "the minimum area of opening in the grille through which air can pass." To determine the percentage of "free area" your louver provides, divide the A dimension (the smallest distance between blades) by the B dimension.
2. The louver should be attached to the wall sleeve to prevent recirculation of condenser discharge air into the air inlet. If the louver is not attached to the wall sleeve, field-supplied splitters or gaskets are required between the chassis and the louver.
3. Submit drawing to us for approval and possible testing of field-supplied sample.



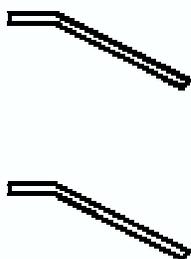
Important Note: Under NO CIRCUMSTANCE should ventilation louvers be used with a PTAC unit. All grilles must be approved for heating and cooling products and designed for Amana® brand PTACs.

It is imperative that the Louver Guidelines be followed, since a louver design that restricts the passage of discharge air or allows recirculation will reduce the unit's capacity and efficiency and increase the current draw, resulting in shortened compressor life and may void the warranty. A scale drawing of the louver section should be sent to Goodman Company, L.P., for approval. To ensure proper performance of the Amana® brand unit and compliance with UL requirements, it may be necessary to send a field-supplied sample louver section (at least 16" x 42") to Goodman Company, L.P., Fayetteville, Tenn., to be tested with the Amana® brand unit. Contact your local Amana® brand salesperson for the louver submittal procedure.



Anodized Architectural Grille
 $A = \frac{1}{2}"$
 $B = \frac{3}{4}"$
 F.A. = 66.7%

PTAC units require airflow that is not restricted by exterior plants or walls. Plants or shrubs should not be planted in close proximity of the outside grille of the PTAC unit. Vegetation planted too close to grilles may cause discharge air to be recirculated, thereby increasing electrical consumption. At no time should plant growth (leaves) be within 30" of the grille. The warranty may be voided if the compressor life is shortened from overheating due to close proximity of outside obstructions.



Sample Calculation
 Face Area (%) $A/B = x$
 100%
 $A = 1"$
 (smallest area through which air must pass)
 $B = 1.5"$
 (blade spacing)
 F.A. $1/1.5 \times 100\% = 66.7\%$
 (percentage of free area)

Discharge air restrictions include – but are not limited to – overhangs that do not allow discharge air to rise, concrete walls, barriers and vegetation.

Important Note:
 Air flow required for PTAC units should not be restricted by exterior plants or walls.