

**R.A.P. (PATENT PENDING)**  
**AT A GLANCE**  
*Specifications*

R.A.P. Sizes	Opening Dimensions	Flange Dimensions	Grille Dimensions
12.4	12" x 4"	14" x 6"	13¾" x 5¾"
10.6	10" x 6"	12" x 18"	11¾" x 7¾"
8.8	8" x 8"	10" Sq.	9¾" Sq.
12.6	12" x 6"	14" x 8"	13¾" x 7¾"
14.8	14" x 8"	16" x 10"	15¾" x 9¾"
12.12	12" x 12"	14" Sq.	13¾" Sq.

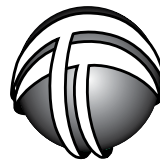
- ✓ All new construction models include a sheetrock flange.
- ✓ The depth between the flanges is 3-1/2".
- ✓ The overall depth is 4-5/8".
- ✓ Each unit comes with a pair of white grilles.

*Retrofit models are available in the same sizes as the new construction models. The retrofit models consist of two telescoping pieces that install from each side of a wall and do not include the sheetrock flange.*

***“That’s a R.A.P.!”***

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Contact your customer service representative or local distributor for more information.



*“Ventilation for Life”*

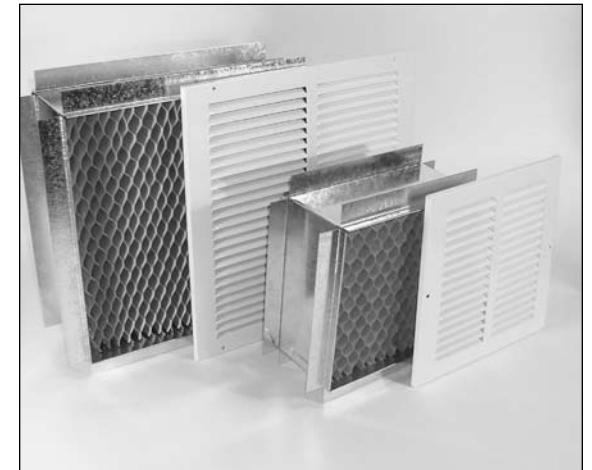
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**The Gap Under the Door  
 Doesn’t Cut It Anymore!**

**It takes more than that  
 to relieve the pressure.**

***Introducing—  
 Return Air Pathways  
 (R.A.P. patent pending)***



**A simple answer to a moldy  
 HVAC problem.**

# SIMPLE PRESSURE IMBALANCE ENCOURAGES MOLD GROWTH

Closing the bedroom door can cause mold growth! Closing the bedroom door will unbalance an air conditioning system with a hallway return, preventing air from easily flowing back to the air handler. The system tries to balance itself by drawing more air from the hallway, and hot, humid air leaks down from the attic, strikes a cool surface, moisture condenses, and mold thrives. It's like a slow drip from a leaky faucet.

## IT DOESN'T TAKE MUCH

It is remarkable how small the pressure imbalance needs to be. A pressure difference as small as 2.5 Pascals can cause problems over time. What's a Pascal? It's an increment on the metric pressure scale. 2.5 Pascals is less pressure than one of the bubbles in a sparkling drink. (.01" wg) It's a miniscule amount of pressure. Pressure imbalances mean that the HVAC system is working harder than it should, so efficiency drops and comfort and health can be compromised.

By running individual returns to each room, you can eliminate the pressure problem but introduce a budget problem. Extra duct work increases installed system cost.

That's why most forced air systems use a central return register.

## WHY NOT JUST UNDERCUT THE DOOR?

Many builders, contractors, and HVAC installers feel that simply "undercutting", leaving a gap at the bottom of the door – 1/2" to 1" – provides sufficient pressure relief for a system with a central return. (Undercutting more than 1" will probably create customer complaints.) But that gap is just not enough! Just 50 cubic feet per minute (cfm) delivered to the supply register of a room will push the pressure up above 10 Pascals even with a 1/2" undercut 30" wide door. A 1" undercut allows 100 cfm to be delivered to the room at 10 Pascals.

The pressure has to be kept below 2.5 Pascals to prevent drawing moist air down from the attic. To keep the air pressure at 2.5 Pascals, a 1/2" undercut door will allow only 25 cfm to be delivered to the room, 50 cfm for a 1" undercut! To deliver 150 cfm to a room with a 30" wide door would require almost a 3" undercut to keep the pressure difference at 2.5 Pascals.

## WHY NOT CUT A BIG HOLE IN THE WALL?

Privacy. A big hole in the wall eliminates the need for a door on the room.

Tamarack Technologies, Inc. has better ideas, better "holes" – the R.A.P. (Return Air Pathway). The Patent Pending R.A.P. can provide an easy path for the air to move through the wall, eliminating the pressure imbalance while still limiting the transfer of light and

sound. The baffle in the R.A.P. smoothes the flow of air, straightening the turbulent paths. But because light and sound travel best in a straight line, only the most direct light and sound sources move easily through the pathways and privacy is greatly enhanced.

### Air Flow at 2.5 Pascals

	2.5 Pascals
30" Door 1/2" Gap	25 CFM
30" Door 1" Gap	50 CFM
R.A.P. 12.4	48 CFM
R.A.P. 10.6	61 CFM
R.A.P. 8.8	65 CFM
R.A.P. 12.6	69 CFM
R.A.P. 14.8	109 CFM
R.A.P. 12.12	127 CFM

1. Determine the amount of air being delivered to the room through the HVAC supply vent.
2. Select the combination of R.A.P. and door gap that will match the flow of air delivered.

For example: if 177 cfm is delivered to the room, the pressure can be relieved by using a 1" gap under the 30" wide door and a R.A.P. 12.12 (50 + 127cfm).