



Airflow Direction Inc.

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ADI TECHNICAL BULLETIN – ROOM DIFFERENTIAL PRESSURE

DISCLAIMER: This bulletin is for information only and is not to be relied upon in making any decisions regarding code issues, which of course should be addressed with your state and local officials, a registered professional engineer, your insurance carrier and any other authority having jurisdiction (AHJ.)

SUBJECT: Minimum Room Differential Pressure & ADI's Baulin-tube® Indicator.

DATE: August 10, 2006

ISSUES: 1) What is the recommended minimum room differential pressure required for the ADI indicator to operate? 2) What is the industry "norm" for room differential pressure? 3) What kind of room sealing should be done?

DISCUSSION:

1) The minimum differential pressure for ADI's Baulin-tube® Indicator operation is 0.01 inches of water column (in. w.c.) when the indicator is installed with the factory recommended tilt, and 0.001 in. w.c. when the indicator is installed level (not recommended by ADI.)

The factory recommended tilt is required to provide ADI's unique SELF-CHECK feature. When the room door is open, the differential pressure falls to near zero and gravity rolls the ball down the incline. When the door is closed with a minimum room differential pressure of 0.01 in.w.c. and flowing in the proper direction, the ball rides up the incline to the other side of the room.

2) Regarding the industry "norm" for room differential pressure, ADI recommends 0.02 in.w.c. as an absolute minimum, (0.02 to 0.05 preferred.) The 0.02 should account for measuring instrument differences. The AIA/HHS "Guidelines for Design and Construction of Hospital and Health Care Facilities, 2006 Edition, published by the American institutes of Architects, Washington, D.C. ISBN 1-57165-013-X, Table 2.1-2, footnote 11 for Airborne Infection Isolation rooms and Protective Environment rooms, mandates the room differential pressure be a minimum of 0.01 inches of water column (" w.c.). (Copies can be obtained by calling the AIA at 1-800-242-3837)

Other sources generally agree with the AIA/HHS Guide. For information on these other sources and the differential airflows that produce a desired differential pressure, see the ASHRAE article "Room Pressurization for Critical Environments", February/2003 available through ADI or ASHRAE.

3) Regarding room sealing, definitely seal the door with edge seals and door sweeps (and astragals for double doors.) See the attached PEMKO Summary Sheet for these. In addition, operable windows should be gasketed and light fixtures should surface mounted or non-ventilating. Further, room walls may go to upper deck and sealed and all wall penetrations should be sealed. - END



IMPORTANT NOTE ON DOOR SEALS.

PLEASE NOTE: ADI'S BAULIN-TUBE® REQUIRES A MINIMUM OF 0.007"W.C. DIFFERENTIAL PRESSURE WHEN INSTALLED WITH THE FAILSAFE FEATURE. A MINIMUM ROOM DIFFERENTIAL OF 0.01"W.C. IS RECOMMENDED. CONSULT APPLICABLE CODES AND PRACTICES FOR HIGHER VALUES.

USE DOOR SEALS!

No. 6 x 5/8" PHSMS
(Factory Provided)

DOOR

1/4"

7/8"

1-3/8"

DOOR

1/4"

7/8"

1"

ADD-ON DOOR BOTTOM
SWEEP/SEALS

NYLON BRUSH IS PREFERRED
OVER VINYL FOR LONGEVITY
AND SLIGHTLY UNEVEN FLOORS

PEMKO
MODEL 18137_P
DOOR BOTTOM
NYLON BRUSH
SWEEP/SEAL

PEMKO
MODEL 307_V
DOOR BOTTOM
VINYL SWEEP/SEAL

No. 6 x 5/8" PHSMS
(Factory Provided)

5/8"

15/16"

5/16"

5/8"

3/4"

1/4"

ADD-ON DOOR VERTICAL
JOINT SEAL FOR GAP BETWEEN
TWO SWINGABLE DOORS

PEMKO
MODEL 29326_P-2
DOOR ASTRAGAL
NYLON BRUSH,
CONCEALED SCREWS

PEMKO
MODEL 18061_P2
DOOR ASTRAGAL
NYLON BRUSH,
EXPOSED SCREWS

ADD-ON DOOR EDGE SEAL
FOR DOOR FRAME TOP & SIDES

1/4"

1/2"

PEMKO
MODEL S88
VINYL, COMPRESSION,
ADHESIVE BACK.

FOR PEMKO SALES, CONTACT PEMKO:

WEST COAST USA	EAST COAST USA
800-283-9988	800-824-3018
805-642-2600	901-365-2160
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