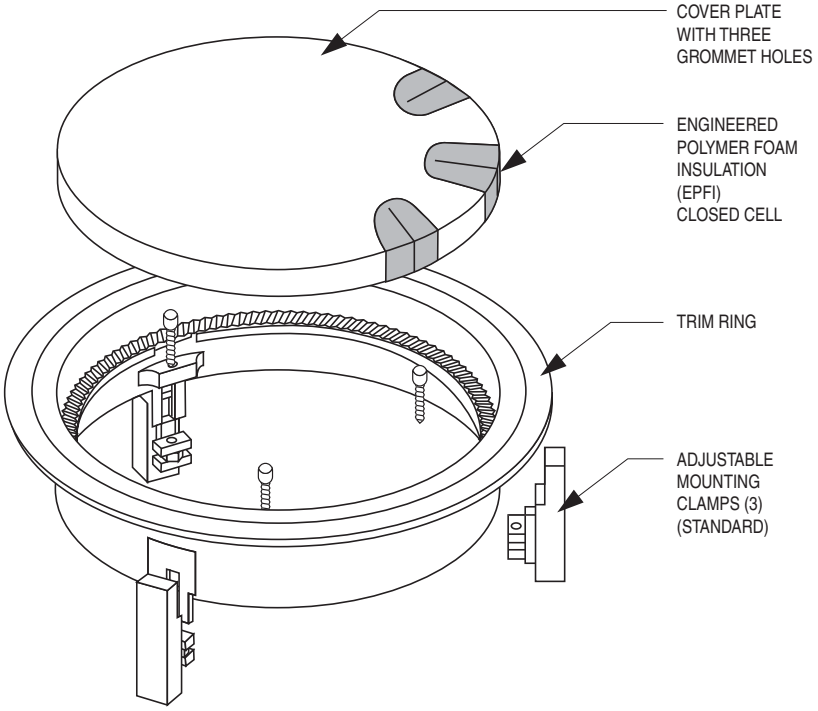
Nailor® Industries Inc.

ALUMINUM FLOOR ACCESS OUTLET
FOR ELECTRICAL AND COMMUNICATION CABLE ROUTING
UNDERFLOOR AIR DISTRIBUTION SYSTEMS
MODEL: ANFA • SIZE 10

DESCRIPTION:
The Nailor ANFA Floor Access Outlet is for use in raised access floor air distribution systems. It is designed to complement the model ANFD Floor "Swirl" Diffuser.
The ANFA is an architecturally pleasing and functional means for providing through the floor routing of electrical, telephone and data communication cables.

FEATURES:
- **Meets all requirements of NFPA 90A.**
- Cast aluminum construction.
- Nominal size 10" (254) dia.
- Three grommet holes will each accept cables or conduit up to 1 1/4" (32) dia. Heavy duty grommet seals (EPFI closed cell foam) prevent air leakage.
- Removable cover plate features a tamper-proof locking mechanism to prevent unwanted removal.
- Architecturally appealing face design compliments contemporary decor.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Standard finish is textured GRT Gray or BKT Black.



PRECISION FLOOR OPENING DIAMETER
MC Mounting Clamps = 10 7/16" (265)
PFG Press Fit Gasket = 10 9/16" (268)

SELECTION:
1. Mounting:
   - ❑ MC Mounting Clamps (standard)
   - ❑ PFG Press Fit Gasket (optional)
2. Finish:
   - ❑ GRT Gray
   - ❑ BKT Black
   - ❑ SPT Special (custom color by architect)
     Specify _____ .

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 10 - 11**	**ANFA**	**NEW**	**ANFA-1**

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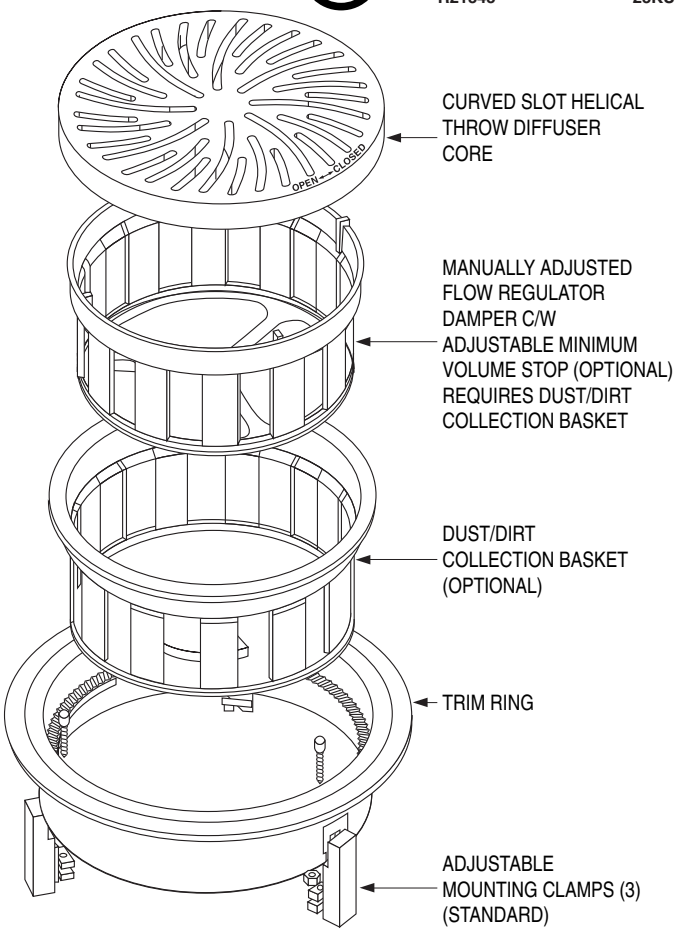
ALUMINUM FLOOR "SWIRL" DIFFUSER
ROUND • SIZE 8 & 10
UNDERFLOOR AIR DISTRIBUTION SYSTEMS
MODEL: ANFD

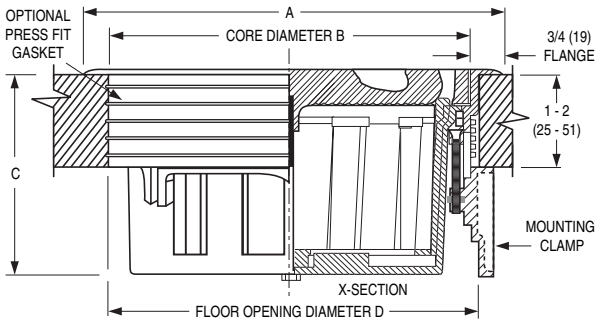
DESCRIPTION:
The Nailor ANFD aluminum floor diffuser is designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. The NFD core design produces a low velocity helical "swirl" discharge air pattern. This design achieves high induction rates of room air which optimizes mixing for maximum comfort conditions.

FEATURES:
- **Meets all the requirements of NFPA 90A.**
- Complete assembly is UL tested and classified in accordance with UL standard 2043.
- Cast aluminum construction.
- Available in 8" (203) and 10" (254) dia. nominal sizes. Low profile design.
- Dust/dirt collection basket catches anything that might fall through diffuser face. Removable for cleaning.
- Optional flow regulator damper adjustable without removing the diffuser core, features visual open/closed indication and includes an adjustable minimum volume stop.
- Low pressure drop core/damper assembly design.
- Core lies flush with trim ring flange, with or without damper.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Standard finish is GRT Gray or BKT Black Textured baked enamel.

SELECTION:
1. ❑ TR Trim Ring (std.) ❑ None
2. Dirt Basket/Damper
   - ❑ BDA Attached to Core (std.) ❑ BDL Loose
   - ❑ BOO Basket Only ❑ None
3. Mounting (requires trim ring):
   - ❑ MC Mounting Clamps (std.)
   - ❑ PFG Press Fit Gasket (opt.)
4. Finish:
   - ❑ GRT Gray ❑ BKT Black
   - ❑ SPT Special (custom color by architect) Specify _____ .
5. Accessories:
   - ❑ CLC Core Locking Clips
   - ❑ BDEX Basket/Damper Extension (see submittal NFD-BDEX)

NAILOR INDUSTRIES INC.
FLOOR DIFFUSER
"AS TO HEAT RELEASE RATE AND SMOKE OPTICAL DENSITY ONLY"
R21545 **25KU**





Precision Floor Opening Diameter

Nominal Size	Mounting	D
8 (203)	MC	8 1/4 (210)
	PFG	8 3/8 (213)
10 (254)	MC	10 7/16 (265)
	PFG	10 9/16 (268)

Tolerance: +/– 1/32 (0.8).

Dimensional Data

Nominal Size	A	B	C
8 (203)	9 5/16 (237)	7 3/4 (197)	4 1/4 (108)
10 (254)	11 1/2 (292)	9 15/16 (252)	5 1/2 (140)

Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**11 - 26 - 15**	**NFD**	**2 - 28 - 11**	**ANFD-1**

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VAV FLOOR "SWIRL" DIFFUSER WITH ACTUATOR

UNDERFLOOR AIR DISTRIBUTION SYSTEMS

ALUMINUM • VAV • COOLING ONLY

MODEL: ANFD-VAV • SIZE 8 AND 10

DESCRIPTION:

The Nailor ANFD-VAV aluminum floor diffuser with actuator is designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. An integral modulating actuator provides variable air volume control in cooling applications for precise zone temperature control. The ANFD-VAV core design produces a low velocity helical "swirl" discharge air pattern. The design achieves high induction rates of room air which optimizes mixing for maximum comfort conditions.

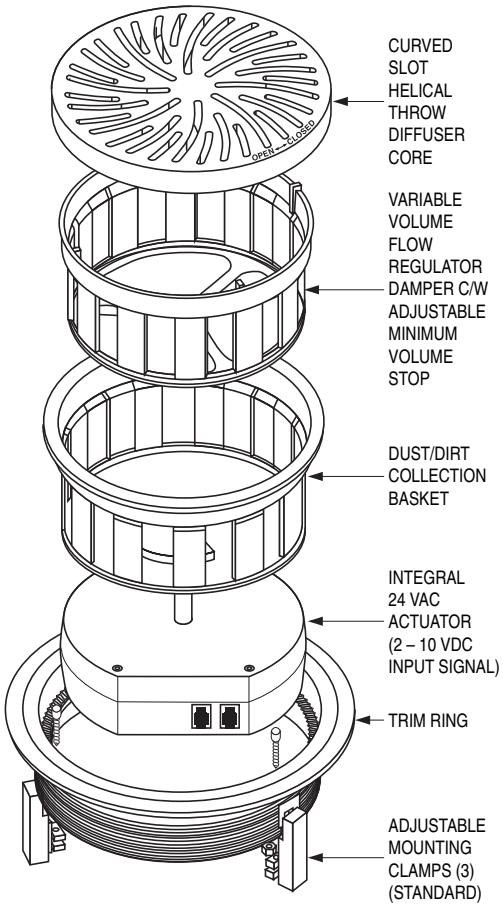
FEATURES:

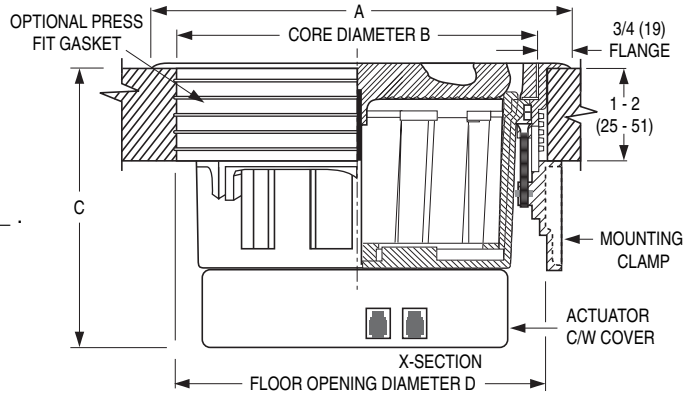
- **Meets all the requirements of NFPA 90A.**
- Complete assembly including actuator is UL tested and classified in accordance with UL standard 2043.
- Diffuser & components constructed of cast aluminum.
- Available in 8" (203) and 10" (254) dia. nominal sizes. Low profile design.
- Dust/dirt collection basket catches anything that might fall through diffuser face. Removable for cleaning.
- Variable volume flow regulator damper, features visual open/closed indication and includes built in end stops.
- Compact 24 VAC direct drive proportional actuator.
- Minimum and maximum airflow limits are achieved by limiting the range of the control signal.
- Actuator features two RJ12 ports for simple interconnection using modular plenum rated cables. Multiple units can be 'daisy-chained' together.
- Optional thermostat, thermostat cable and power supply modules are available (see next page).
- Low pressure drop core/damper assembly design.
- Architecturally pleasing face design compliments contemporary decor and lies flush with trim ring flange.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Standard finish is GRT Gray or BKT Black Textured baked enamel.

SELECTION:

1. Mounting:
   - ❑ MC Mounting Clamps (standard)
   - ❑ PFG Press Fit Gasket (optional)
2. Actuator Cable:
   - ❑ 12 12 ft. long (standard)
   - ❑ 20 20 ft. long (optional)
3. Finish:
   - ❑ GRT Gray ❑ BKT Black
   - ❑ SP Special (custom color by architect) Specify _____ .
4. Special Features:
   - ❑ _____ .

NAILOR INDUSTRIES INC.
FLOOR DIFFUSER
"AS TO HEAT RELEASE RATE AND SMOKE OPTICAL DENSITY ONLY"
R21545 25KU





Precision Floor Opening Diameter

Nominal Size	Mounting	D
8 (203)	MC	8 1/4 (210)
	PFG	8 3/8 (213)
10 (254)	MC	10 7/16 (265)
	PFG	10 9/16 (268)

Tolerance: +/– 1/32 (0.8).

Dimensional Data

Nominal Size	A	B	C
8 (203)	9 5/16 (237)	7 3/4 (197)	6 1/8 (156)
10 (254)	11 1/2 (292)	9 15/16 (252)	7 3/8 (187)

SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 10 - 11**	**NFD**	**6 - 26 - 09**	**ANFD-VAV-1**

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VAV FLOOR "SWIRL" DIFFUSER CONTROL DIAGRAM

UNDERFLOOR AIR DISTRIBUTION SYSTEMS

ALUMINUM • VAV • COOLING ONLY

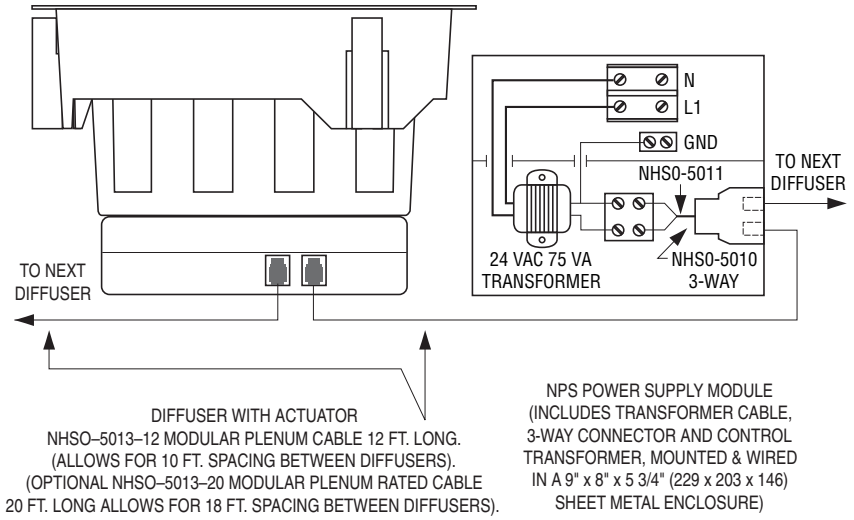
MODEL: ANFD-VAV • SIZE 8 AND 10

DESCRIPTION:

The Nailor ANFD-VAV aluminum floor diffuser is designed to provide VAV control in cooling applications. Advanced micro-computer electronics and P+I control algorithms provide precise temperature control.

CONTROL FEATURES:

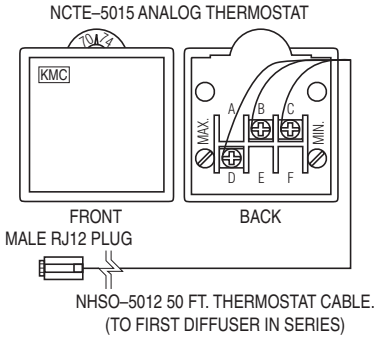
- Fast connection/wiring between units with RJ12 (phone jack) connections. Allows units to be quickly installed or relocated.
- Compact direct-drive 24 VAC actuator utilizes a 2 – 10 VDC control signal for precise airflow control.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cables optional).
- Power supply modules allow connection of up to 12 units on each line voltage connection (6 diffusers on each side) (8 units total or 4 on each side with opt. 20 ft. cables).
- Each thermostat can control a maximum of 3 power supplies.
- Minimum and maximum airflow limits are adjusted underneath the thermostat cover.



DETAIL A

ACCESSORIES:

1. Thermostat
   - ❑ NCTE-5015-10 °F Scale
   - ❑ NCTE-5015-11 °C Scale
2. Cables:
   - ❑ NHSO-5012 50 ft. Thermostat Cable
3. Power Supply (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheetmetal enclosure):
   - ❑ NPS-120 120 Volt Supply Voltage
   - ❑ NPS-277 277 Volt Supply Voltage
   - ❑ NPS-240 240 Volt Supply Voltage
   - ❑ NPS-480 480 Volt Supply Voltage
4. Special Features: ❑ _____ .



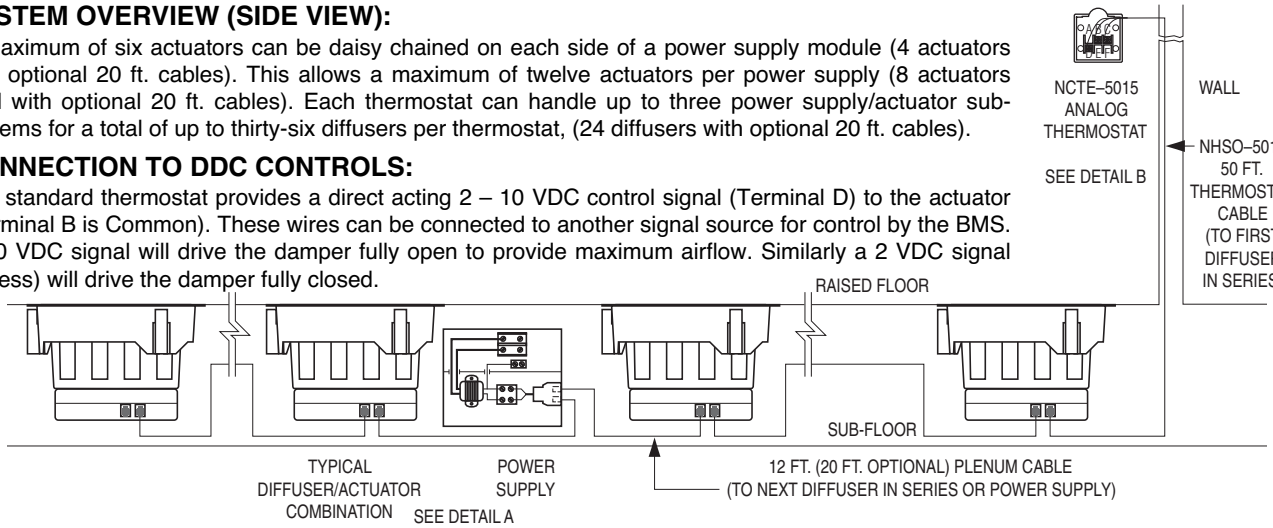
DETAIL B

SYSTEM OVERVIEW (SIDE VIEW):

A maximum of six actuators can be daisy chained on each side of a power supply module (4 actuators with optional 20 ft. cables). This allows a maximum of twelve actuators per power supply (8 actuators total with optional 20 ft. cables). Each thermostat can handle up to three power supply/actuator sub-systems for a total of up to thirty-six diffusers per thermostat, (24 diffusers with optional 20 ft. cables).

CONNECTION TO DDC CONTROLS:

The standard thermostat provides a direct acting 2 – 10 VDC control signal (Terminal D) to the actuator (Terminal B is Common). These wires can be connected to another signal source for control by the BMS. A 10 VDC signal will drive the damper fully open to provide maximum airflow. Similarly a 2 VDC signal (or less) will drive the damper fully closed.



SCHEDULE TYPE:	Page 2 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**2 - 10 - 11**	**NFD**	**6 - 26 - 09**	**ANFD-VAV-1**

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Nailor Industries Inc.

FLOOR ACCESS OUTLET

FOR ELECTRICAL AND COMMUNICATION CABLE ROUTING
UNDERFLOOR AIR DISTRIBUTION SYSTEMS

MODEL: NFA

DESCRIPTION:

The Nailor NFA Floor Access Outlet is for use in raised access floor air distribution systems. It is designed to complement the model NFD Floor "Swirl" Diffuser.

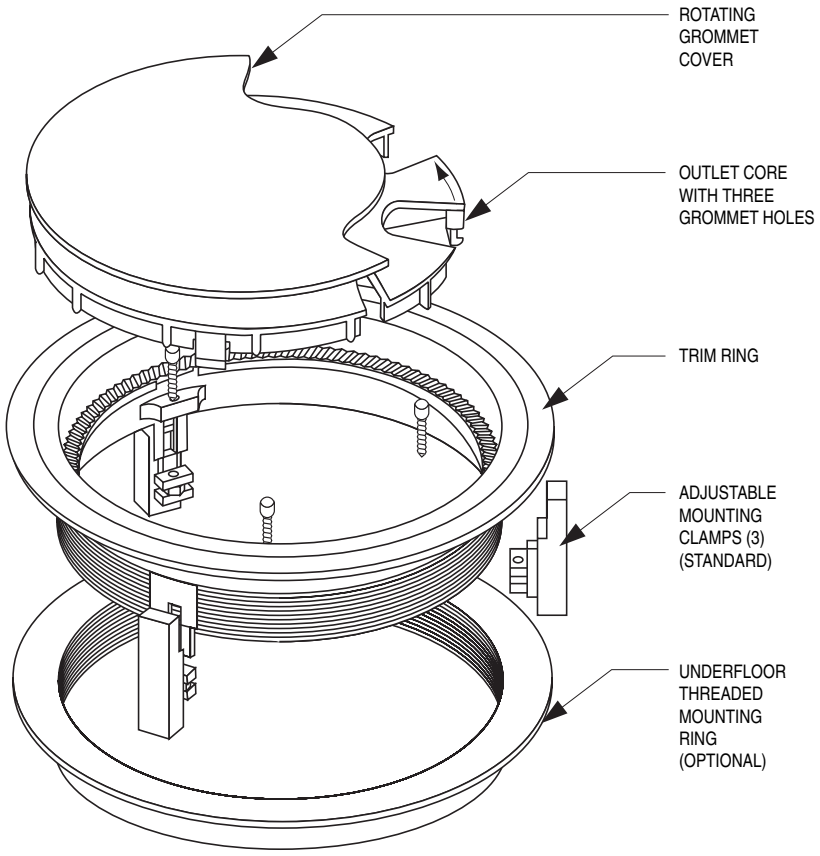
The NFA is an architecturally pleasing and functional means for providing through the floor routing of electrical, telephone and data communication cables.

FEATURES:

- Constructed of high impact polycarbonate plastic complying with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia.
- Grommet holes will accept one or two cables or conduit up to 1 1/4" (32) dia. and a third reduced size grommet hole for telephone and/or computer cables.
- Rotating cover plate can be positioned for 1, 2, 3 or no cable openings and can be secured in place.
- Architecturally appealing face design compliments contemporary decor.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Optional underfloor mounting ring available.
- Standard finish is GR Gray or BK Black.

SELECTION:

1. Mounting:
   - ❑ MC Mounting Clamps (standard)
   - ❑ PFG Press Fit Gasket (optional)
   - ❑ MR Mounting Ring (optional)
2. Finish:
   - ❑ GR Gray
   - ❑ BK Black
   - ❑ SP Special (custom color by architect)
     Specify _____ .



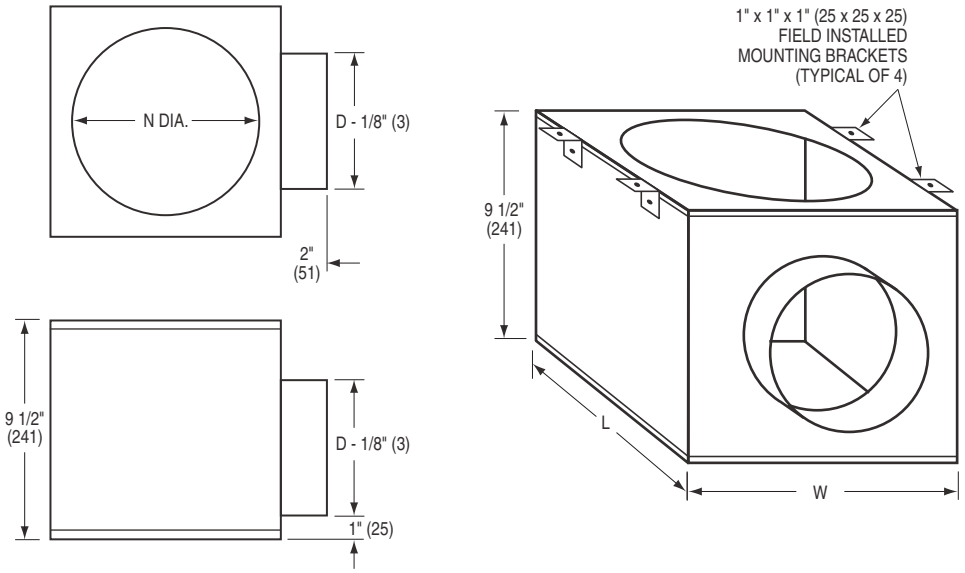
HOLE OPENING DIAMETER

MC Mounting Clamps = 8 1/4" (210).
PFG Press Fit Gasket = 8 3/8" (213) +/– 1/32" (0.8).

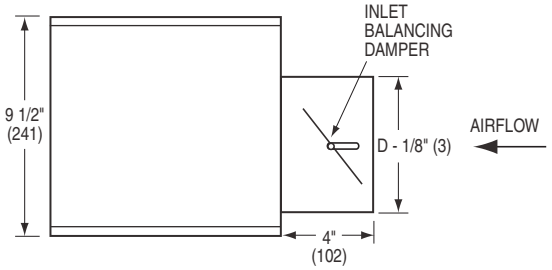
SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**6 - 26 - 09**	**NFA**	**2 - 12 - 07**	**NFA-1**

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FLOOR BOOT (FOR ROUND "SWIRL" DIFFUSERS)
UNDERFLOOR AIR DISTRIBUTION SYSTEMS
DUCTED CONNECTION
MODEL: NFB-D



NFB-D WITH OPTIONAL ID INLET DAMPER



Dimensional Data

Unit/Diffuser Size	N (diameter)	W/L	D (diameter)
08	8 1/8 (205)	10 (254)	6" (152) or 8" (203)
10	10 5/16 (262)	12 (305)	

DESCRIPTION:

1. The Nailor Floor Boot is specifically designed for mounting on the underside of a floor tile under a Nailor (A)NFD Series Round Floor "Swirl" Diffuser. A top plate with a round discharge hole outlet helps ensure proper sealing to the diffuser even when structural depressions (waffle design) exist on the bottom surface of the floor tile.
2. The NFB-D has a round inlet collar that enables a flexible duct connection to a fan powered terminal unit in order to provide variable air volume or constant volume cooling and / or heating.
3. Material: 22 ga. (0.85) corrosion resistant steel. Mechanically sealed.
4. The NFB-D is supplied with four L-shaped mounting brackets, shipped loose for field attachment. This enables the NFB-D to be installed in any desired position and the brackets to be suitably positioned for attachment to the lower face areas of a "waffle type" floor tile.
5. Nailor (A)NFD Round "Swirl" Diffusers are available with a PFG Press Fit Gasket option which further assists air leakage control.

OPTIONS:

❑ CFF2 Acoustic Liner. 1/2" (13) Closed cell foam.

❑ ID Inlet balancing damper (Duro Dyne JDS snap-in type).

SCHEDULE TYPE	Dimensions are in inches (mm).			
PROJECT				
ENGINEER	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR	**10 - 13 - 14**	**NFB**	**6 - 29 - 09**	**NFB-1**

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Nailor® Industries Inc.

FLOOR "SWIRL" DIFFUSER

FIXED DISCHARGE PATTERN • ROUND
UNDERFLOOR AIR DISTRIBUTION SYSTEMS

MODEL: NFD

DESCRIPTION:

The Nailor NFD floor diffuser is designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. The NFD core design produces a low velocity helical "swirl" discharge air pattern. This design achieves high induction rates of room air which optimizes mixing for maximum comfort conditions.

FEATURES:

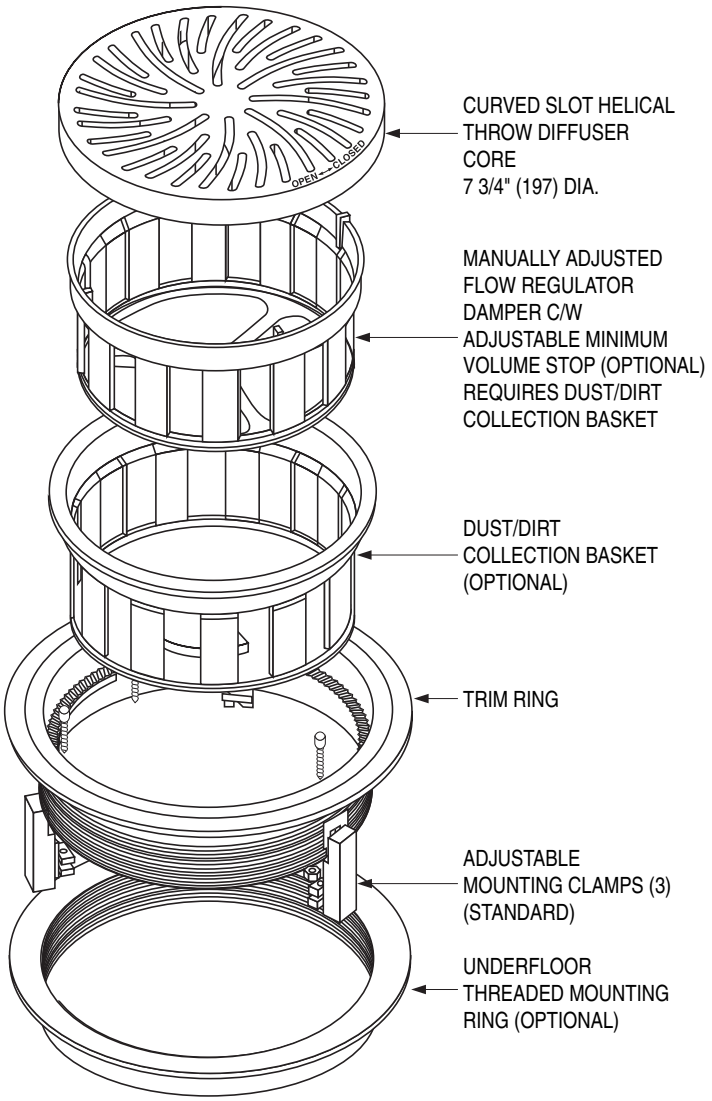
- Constructed of high impact polycarbonate plastic complying with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia. Low profile design.
- Dust/dirt collection basket catches anything that might fall through diffuser face. Removable for cleaning.
- Optional flow regulator damper adjustable without removing the diffuser core, features visual open/ closed indication and includes an adjustable minimum volume stop.
- Low pressure drop core/damper assembly design.
- Core lies flush with trim ring flange, with or without damper.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Optional underfloor mounting ring available.
- Standard finish is GR Gray or BK Black core and trim ring. Damper/basket are black.

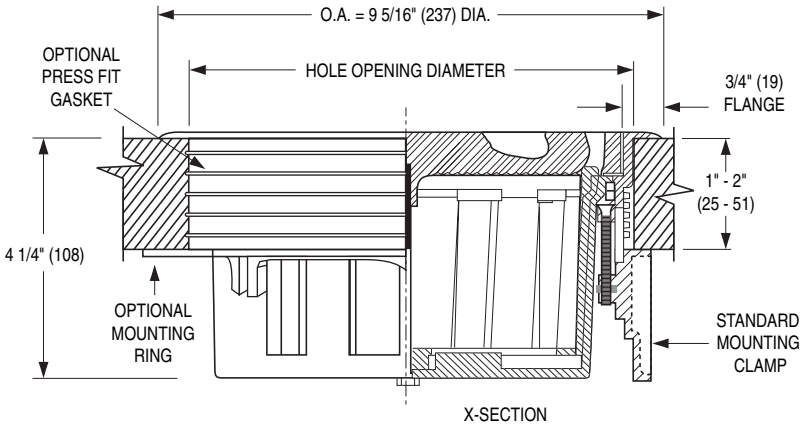
SELECTION:

1. ❑ TR Trim Ring (standard)
   ❑ None
2. Dirt Basket/Damper
   ❑ BDA Attached to Core (standard)
   ❑ BDL Loose
   ❑ BOO Basket Only
   ❑ None
3. Mounting (requires trim ring):
   ❑ MC Mounting Clamps (standard)
   ❑ PFG Press Fit Gasket (optional)
   ❑ MR Mounting Ring (optional)
4. Finish:
   ❑ GR Gray
   ❑ BK Black
   ❑ SP Special (custom color by architect)
   Specify _____ .
5. Accessories:
   ❑ CLC Core Locking Clips
   ❑ BDEX Basket/Damper Extension (see submittal NFD-BDEX)

HOLE OPENING DIAMETER

MC Mounting Clamps = 8 1/4" (210).
PFG Press Fit Gasket = 8 3/8" (213) +/– 1/32" (0.8).





Dimensions are in inches (mm).

SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR:	2 - 28 - 11	NFD	6 - 26 - 09	NFD-1

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VAV FLOOR "SWIRL" DIFFUSER WITH ACTUATOR

UNDERFLOOR AIR DISTRIBUTION SYSTEMS

VAV • COOLING ONLY

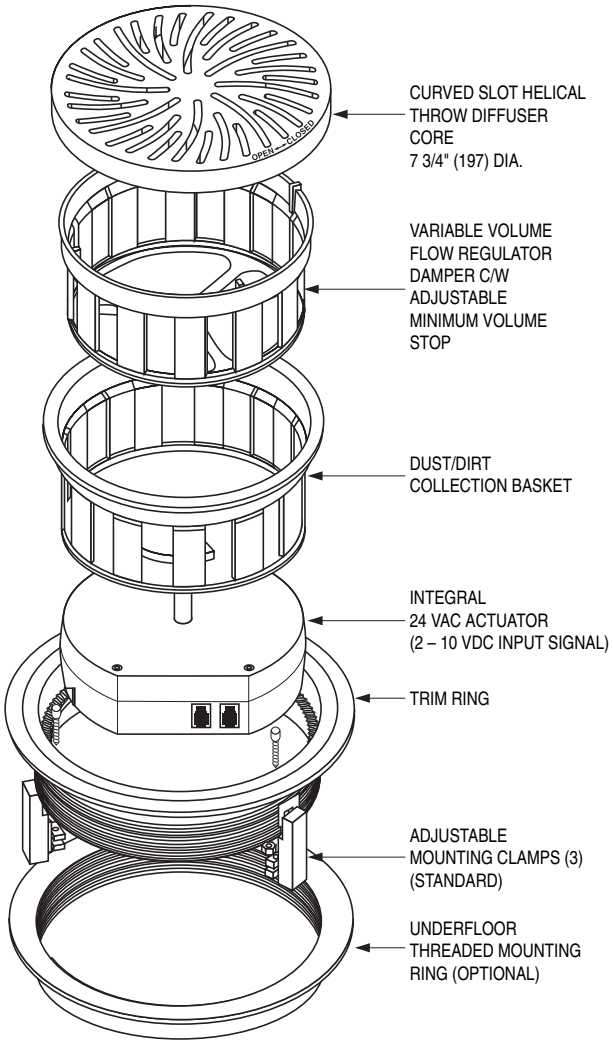
MODEL: NFD-VAV

DESCRIPTION:

The Nailor NFD-VAV floor diffuser with actuator is designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. An integral modulating actuator provides variable air volume control in cooling applications for precise zone temperature control. The NFD-VAV core design produces a low velocity helical "swirl" discharge air pattern. The design achieves high induction rates of room air which optimizes mixing for maximum comfort conditions.

FEATURES:

- Constructed of high impact polycarbonate plastic complying with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia. Low profile design.
- Dust/dirt collection basket catches anything that might fall through diffuser face. Removable for cleaning.
- Variable volume flow regulator damper, features visual open/closed indication and includes built in end stops.
- Compact 24 VAC direct drive proportional actuator.
- Minimum and maximum airflow limits are achieved by limiting the range of the control signal.
- Actuator features two RJ12 ports for simple interconnection using modular plenum rated cables. Multiple units can be 'daisy-chained' together.
- Optional thermostat, thermostat cable and power supply modules are available (see next page).
- Architecturally pleasing face design compliments contemporary decor and lies flush with trim ring flange.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- Optional underfloor mounting ring available.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Standard finish is GR Gray or BK Black core and trim ring. Damper/basket are black.



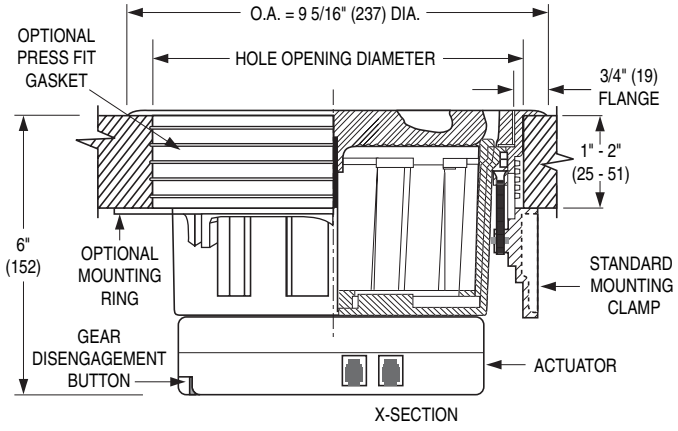
SELECTION:

1. Mounting:
   - ❑ MC Mounting Clamps (standard)
   - ❑ PFG Press Fit Gasket (optional)
   - ❑ MR Mounting Ring (optional)
2. Actuator Cable:
   - ❑ 12 12 ft. long (standard)
   - ❑ 20 20 ft. long (optional)
3. Finish:
   - ❑ GR Gray
   - ❑ BK Black
   - ❑ SP Special (custom color by architect) Specify _____ .
4. Special Features:
   - ❑ _____ .

HOLE OPENING DIAMETER

MC Mounting Clamps = 8 1/4" (210).

PFG Press Fit Gasket = 8 3/8" (213) +/– 1/32" (0.8).



SCHEDULE TYPE:				
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**6 - 26 - 09**	**NFD**	**5 - 15 - 09**	**NFD-VAV-1**

Dimensions are in inches (mm).

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VAV FLOOR "SWIRL" DIFFUSER CONTROL DIAGRAM

UNDERFLOOR AIR DISTRIBUTION SYSTEMS

VAV • COOLING ONLY

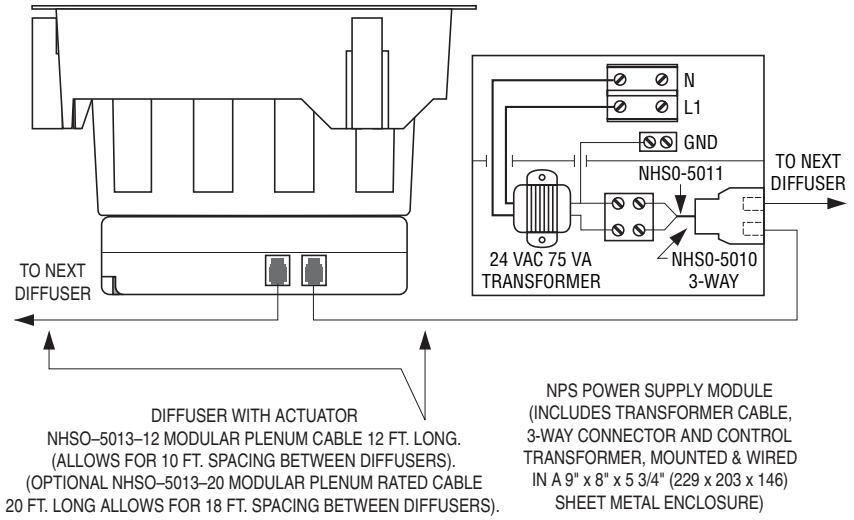
MODEL: NFD-VAV

DESCRIPTION:

The Nailor NFD-VAV floor diffuser is designed to provide VAV control in cooling applications. Advanced micro-computer electronics and P+I control algorithms provide precise temperature control.

CONTROL FEATURES:

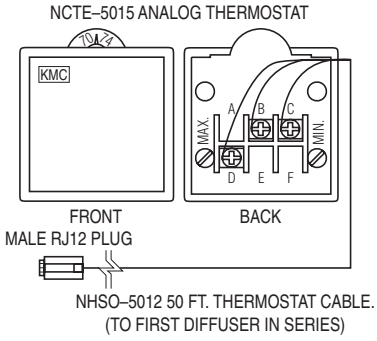
- Fast connection/wiring between units with RJ12 (phone jack) connections. Allows units to be quickly installed or relocated.
- Compact direct-drive 24 VAC actuator utilizes a 2 – 10 VDC control signal for precise airflow control.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cables optional).
- Power supply modules allow connection of up to 12 units on each line voltage connection (6 diffusers on each side) (8 units total or 4 on each side with optional 20 ft. cables).
- Each thermostat can control a maximum of 3 power supplies.
- Minimum and maximum airflow limits are adjusted underneath the thermostat cover.



DETAIL A

ACCESSORIES:

1. Thermostat
   - ❑ NCTE-5015-10 °F Scale
   - ❑ NCTE-5015-11 °C Scale
2. Cables:
   - ❑ NHSO-5012 50 ft. Thermostat Cable
3. Power Supply Module (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheetmetal enclosure):
   - ❑ NPS-120 120 Volt Supply Voltage
   - ❑ NPS-277 277 Volt Supply Voltage
   - ❑ NPS-240 240 Volt Supply Voltage
   - ❑ NPS-480 480 Volt Supply Voltage
4. Special Features: ❑ _____ .



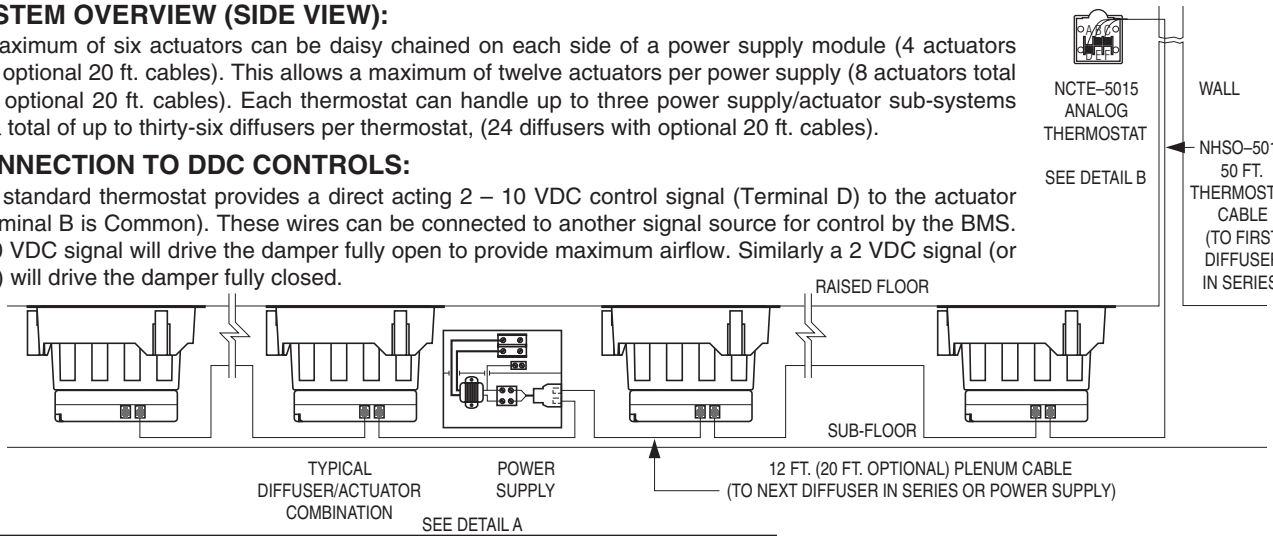
DETAIL B

SYSTEM OVERVIEW (SIDE VIEW):

A maximum of six actuators can be daisy chained on each side of a power supply module (4 actuators with optional 20 ft. cables). This allows a maximum of twelve actuators per power supply (8 actuators total with optional 20 ft. cables). Each thermostat can handle up to three power supply/actuator sub-systems for a total of up to thirty-six diffusers per thermostat, (24 diffusers with optional 20 ft. cables).

CONNECTION TO DDC CONTROLS:

The standard thermostat provides a direct acting 2 – 10 VDC control signal (Terminal D) to the actuator (Terminal B is Common). These wires can be connected to another signal source for control by the BMS. A 10 VDC signal will drive the damper fully open to provide maximum airflow. Similarly a 2 VDC signal (or less) will drive the damper fully closed.



SCHEDULE TYPE:	Page 2 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**6 - 26 - 09**	**NFD**	**5 - 15 - 09**	**NFD-VAV-1**

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FLOOR "SWIRL" DIFFUSER ACCESSORY DIRT BASKET / DAMPER EXTENSION (DIFFUSER MODELS ANFD & NFD) OPTION CODE: BDEX

Nailor® Industries Inc.

❑ BDEX Basket/Damper Extension

DESCRIPTION:

The BDEX Dirt Basket / Damper Extension permits the installation of Nailor Model ANFD and NFD Round Floor Diffusers in poured concrete floors or other solid or blocked floors over 2" (51) and up to 9" (229) thick, that are deeper than standard raised access floor tiles.

The BDL Dirt Basket / Damper assembly sits in the bottom of a coated steel sleeve extension. The outer basket has three tabs which locate in three slots in the bottom of the sleeve to prevent rotation.

The manually adjusted flow regulator damper is accessible by removing the diffuser core face and reaching down inside to permit field balancing.

See submittal ANFD-1 or NFD-1 for diffuser details.

Standard BDEX depth is 9" (229). Other custom lengths are available.

Specify _____ .

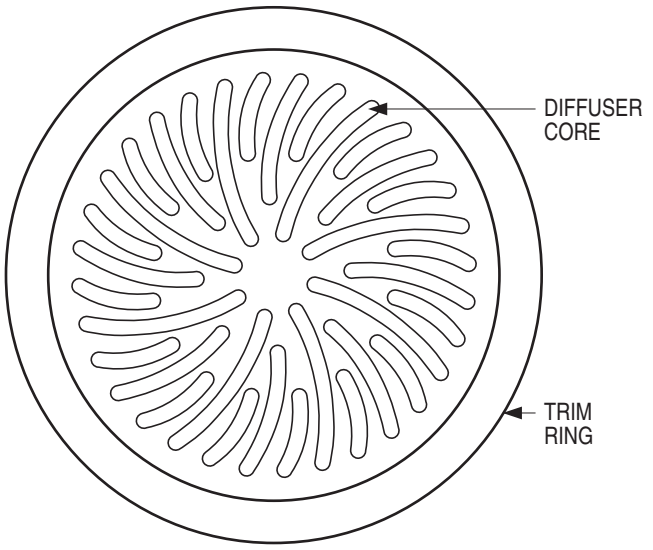
ACCESSORY:

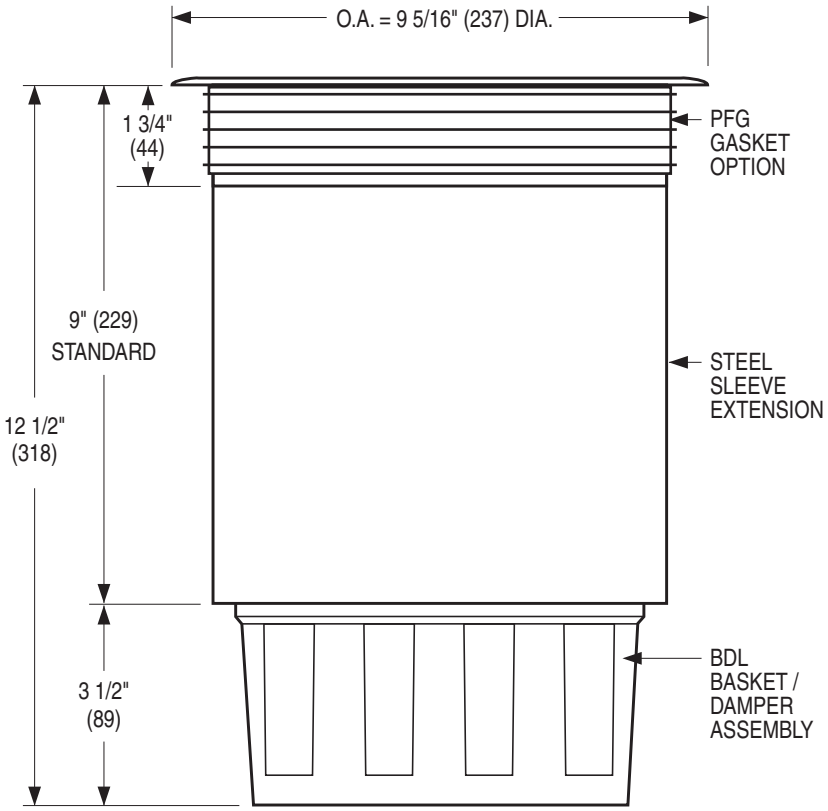
❑ CLC Core Locking Clips

INSTALLATION:

The diffuser can be supplied with an optional PFG Press Fit Gasket, but the hole opening tolerance required to ensure secure installation may be difficult to achieve in a poured concrete floor slab or other thick floor.

To ensure a secure diffuser installation in the opening, it is recommended that the diffuser trim ring be caulked in place.





NOTE: Hole opening requirement in floor for installation = 8.375" (213) diameter. Tolerance +/- 0.03125" (0.8)

SCHEDULE TYPE	Dimensions are in inches (mm).			
PROJECT				
ENGINEER	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR	**2 - 28 - 11**	**NFD**	**4 - 15 - 09**	**NFD-BDEX**

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VAV FLOOR "SWIRL" DIFFUSER WITH ACTUATOR

UNDERFLOOR AIR DISTRIBUTION SYSTEMS • VAV COOLING ONLY • EXTENDED DEPTH FLOW REGULATOR/ DUST BASKET OPTION

MODEL: NFD-VAV

DESCRIPTION:

The Nailor NFD-VAV floor diffuser with actuator is designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. An integral modulating actuator provides variable air volume control in cooling applications for precise zone temperature control. The NFD-VAV core design produces a low velocity helical "swirl" discharge air pattern. The design achieves high induction rates of room air which optimizes mixing for maximum comfort conditions.

The extended basket option is ideal for raised floor applications where thicker floor tiles or slabs up to 5" (127) in depth are required. Performance is comparable to standard basket height and provides the same high induction, helical “swirl” air pattern.

FEATURES:

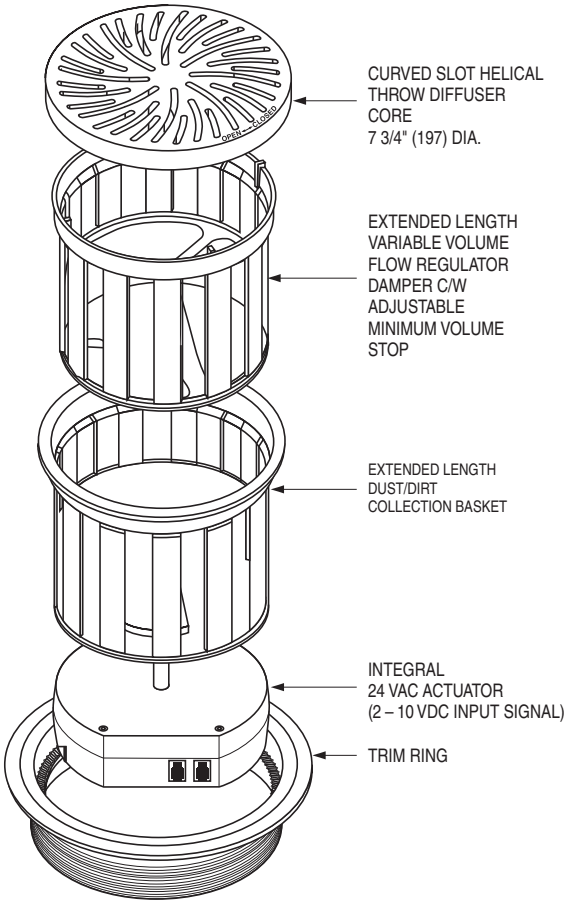
- Constructed of high impact polycarbonate plastic complying with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia.
- Dust/dirt collection basket catches anything that might fall through diffuser face. Removable for cleaning.
- Variable volume flow regulator damper, features visual open/closed indication and includes built in end stops.
- Compact 24 VAC direct drive proportional actuator.
- Minimum and maximum airflow limits are achieved by limiting the range of the control signal.
- Actuator features two RJ12 ports for simple interconnection using modular plenum rated cables. Multiple units can be 'daisy-chained' together.
- Optional thermostat, thermostat cable and power supply modules are available (see next page).
- Architecturally pleasing face design compliments contemporary decor and lies flush with trim ring flange.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- A PVC ribbed Press Fit Gasket is also available as a "labor saving" mounting option.
- Standard finish is (GR) Gray or (BK) Black core and trim ring. Damper/basket are black.

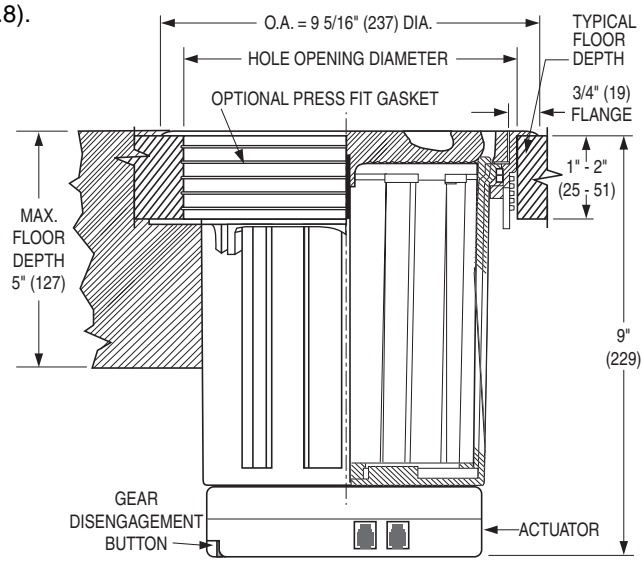
SELECTION:

1. Mounting:
   - ❑ PFG Press Fit Gasket (optional)
2. Actuator Cable:
   - ❑ 12 12 ft. long (standard)
   - ❑ 20 20 ft. long (optional)
3. Finish:
   - ❑ GR Gray
   - ❑ BK Black
   - ❑ SP Special (custom color by architect) Specify _____ .
4. Special Features:
   - ❑ _____ .

HOLE OPENING DIAMETER

PFG Press Fit Gasket = 8 3/8" (213) +/– 1/32" (0.8).





SCHEDULE TYPE:	Page 1 of 2 Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**9 - 28 - 15**	**NFD**	**8 - 20 - 14**	**NFD-VAV-2**

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VAV FLOOR "SWIRL" DIFFUSER WITH ACTUATOR

UNDERFLOOR AIR DISTRIBUTION SYSTEMS • VAV COOLING ONLY• EXTENDED DEPTH FLOW REGULATOR/ DUST BASKET OPTION

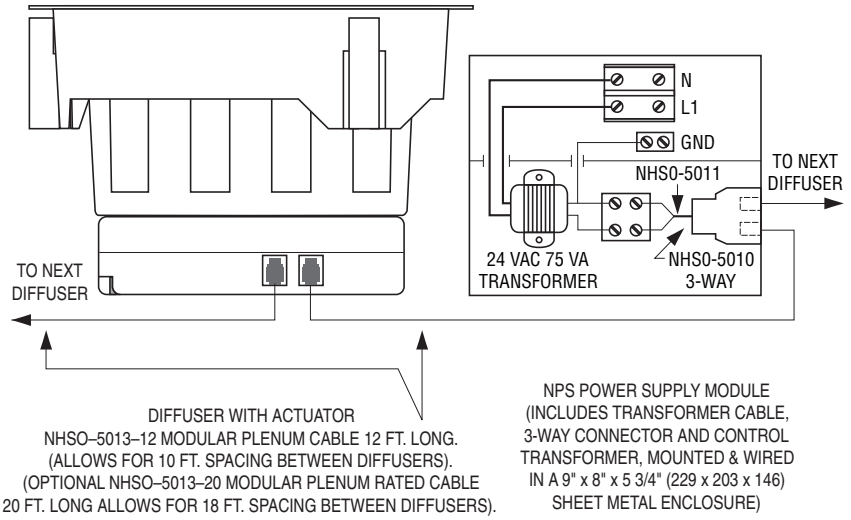
MODEL: NFD-VAV

DESCRIPTION:

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CONTROL FEATURES:

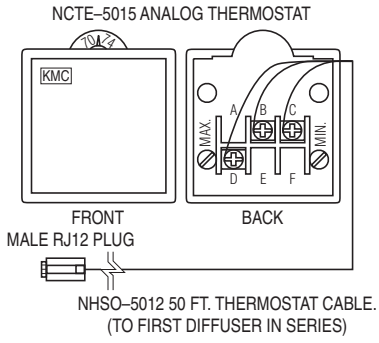
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- Each thermostat can control a maximum of 3 power supplies.
- Minimum and maximum airflow limits are adjusted underneath the thermostat cover.



DETAIL A

ACCESSORIES:

1. Thermostat
   - ❑ NCTE-5015-10 °F Scale
   - ❑ NCTE-5015-11 °C Scale
2. Cables:
   - ❑ NHSO-5012 50 ft. Thermostat Cable
3. Power Supply Module (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheetmetal enclosure):
   - ❑ NPS-120 120 Volt Supply Voltage
   - ❑ NPS-277 277 Volt Supply Voltage
   - ❑ NPS-240 240 Volt Supply Voltage
   - ❑ NPS-480 480 Volt Supply Voltage
4. Special Features: ❑ _____ .



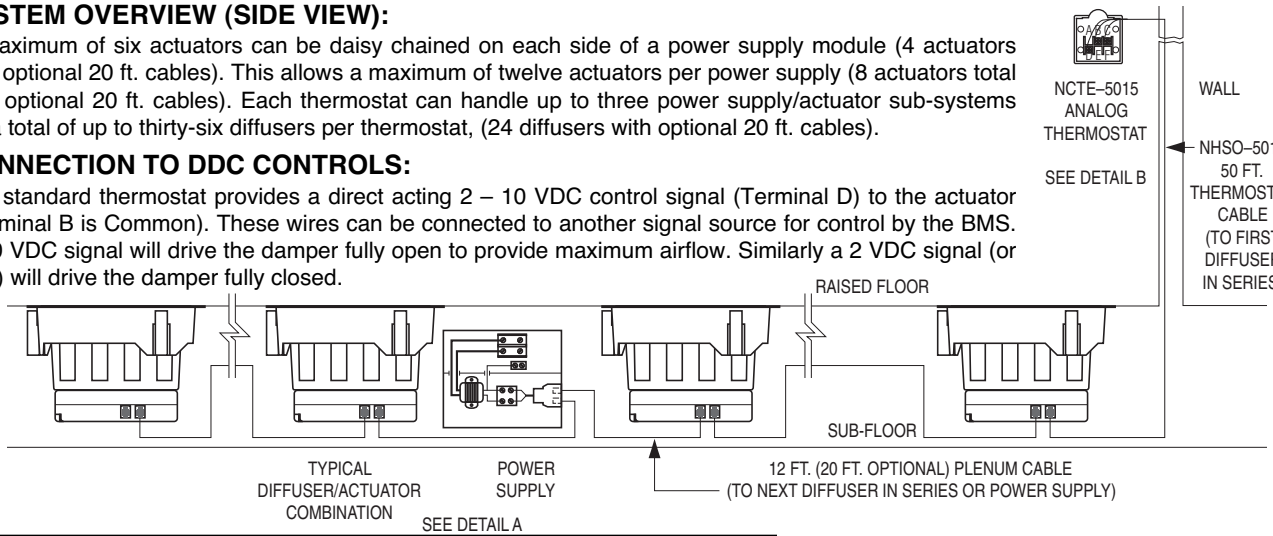
DETAIL B

SYSTEM OVERVIEW (SIDE VIEW):

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CONNECTION TO DDC CONTROLS:

The standard thermostat provides a direct acting 2 – 10 VDC control signal (Terminal D) to the actuator (Terminal B is Common). These wires can be connected to another signal source for control by the BMS. A 10 VDC signal will drive the damper fully open to provide maximum airflow. Similarly a 2 VDC signal (or less) will drive the damper fully closed.



SCHEDULE TYPE:	Page 2 of 2. Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**9 - 28 - 15**	**NFD**	**8 - 20 - 14**	**NFD-VAV-2**

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Nailor® Industries Inc.

ALUMINUM FLOOR "SWIRL" DIFFUSERS
ROUND • SIZE 8 AND 10
UNDERFLOOR AIR DISTRIBUTION SYSTEMS
MODELS: ANFD, ANFD-VAV

Performance Data

Size	Airflow, cfm	40	50	60	70	80	90	100	110	120
8	Plenum Pressure	.014	.021	.031	.042	.054	.069	.085	.103	0.122
	Vertical Projection, ft. @ 150, 100, 50 fpm	< .5	< .5	1.0-1.5-2.0	2.0-2.5-3.0	2.5-2.5-3.0	2.5-3.0-4.0	3.0-3.5-4.5	3.0-4.0-5.0	3.5-4.0-5.0
	Horizontal Spread, ft. @ 150, 100, 50 fpm	1.0-1.5-2.0	2.0-2.0-2.5	1.5-2.0-4.5	2.0-2.5-5.5	2.0-2.5-6.0	1.5-2.0-6.5	1.0-1.5-6.5	1.0-1.5-6.5	1.0-1.5-7.0
	NC	–	–	–	–	–	–	15	18	20
10	Airflow, cfm	55	70	85	100	115	130	145	160	175
	Plenum Pressure	0.012	0.019	0.028	0.039	0.052	0.066	0.082	0.100	0.119
	Vertical Projection, ft. @ 150, 100, 50 fpm	1.0-1.0-1.5	1.0-1.5-2.5	1.0-1.5-2.5	1.5-1.5-2.5	1.5-2.0-3.0	1.5-2.0-3.5	2.0-3.0-5.0	2.5-3.5-5.0	3.0-3.5-6.0
	Horizontal Spread, ft. @ 150, 100, 50 fpm	1.0-1.5-1.5	1.0-1.0-2.5	1.5-1.5-2.5	2.0-2.0-2.5	2.0-2.0-3.0	2.0-2.0-3.5	2.0-2.5-3.5	2.0-2.5-3.5	2.5-3.0-4.0
	NC	–	–	–	–	–	15	18	21	26

Selection Data

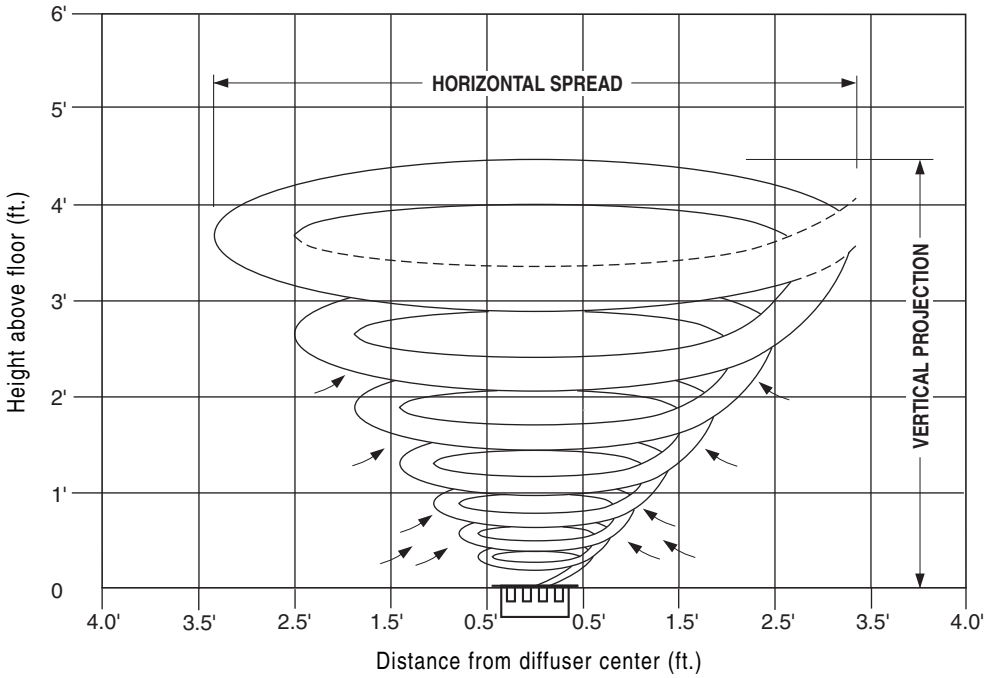
Size	Plenum Pressure	.03	.04	.05	.06	.07	.08	.09	.10	.11
8	Airflow, cfm	59	69	77	84	91	97	103	108	114
10	Airflow, cfm	88	101	113	124	134	143	152	160	168

Correction Factors for other supply air temperature differentials.

ΔT (°F)	-6	-8	-10	-12	-14	-16
Projection, ft.	x 1.33	x 1.11	x 1.00	x 0.96	x 0.92	x 0.91
Spread, ft.	x 0.87	x 0.94	x 1.00	x 1.06	x 1.11	x 1.16

Performance Notes:

1. Projection and Spread data were determined in a room with a 11' ceiling height and 10°F ΔT, between supply air and averaged occupied room temperature.
2. Vertical projection (throw) is the maximum height above the floor where terminal velocities of 150, 100 and 50 fpm were observed. Horizontal Spread is the total width of the isovel where terminal velocities of 150, 100 and 50 fpm were observed.
3. Noise Criteria (values) based on 10 dB room absorption, re 10^{-12} watts. Dash (-) in space denotes an NC value of less than 15.
4. Pressure is in inches w.g..
5. Tests conducted with dirt basket/damper installed. Damper fully open. Size 8 Ak = 0.104. Size 10 Ak = 0.142.
6. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1996.



ANFD Size 8 High induction "Swirl" Pattern. 100 cfm supply @10°F ΔT. Outline indicates maximum room air velocity of 50 fpm.

SCHEDULE TYPE	Dimensions are in inches (mm).			
PROJECT				
ENGINEER	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR	1 - 20 - 11	NFD	2 - 26 - 04	ANFD-2

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Nailor Industries Inc.

FLOOR "SWIRL" DIFFUSERS
FIXED DISCHARGE PATTERN • ROUND
UNDERFLOOR AIR DISTRIBUTION SYSTEMS
MODELS: NFD, NFD-VAV

Performance Data

Airflow, cfm	30	40	50	60	70	80	90	100	110	120
Plenum Pressure	0.012	0.020	0.029	0.040	0.050	0.063	0.077	0.093	0.108	0.125
Vertical Projection, ft. @ 150, 100, 50 fpm	0.1-0.5-1.2	0.4-1.0-2.0	0.8-1.8-2.8	1.2-2.6-3.5	1.6-3.4-4.2	2.2-4.1-4.8	3.1-4.6-5.3	3.9-5.1-5.8	4.6-5.5-6.2	5.2-5.8-6.6
Horizontal Spread, ft. @ 150, 100, 50 fpm	1.0-1.0-1.5	1.0-1.0-2.0	1.5-1.8-2.7	1.7-2.9-4.1	1.9-4.0-5.5	2.1-4.1-5.8	2.5-3.9-5.7	2.9-3.8-5.5	3.1-3.7-5.4	3.3-3.6-5.3
NC	–	–	–	–	–	–	–	15	18	20

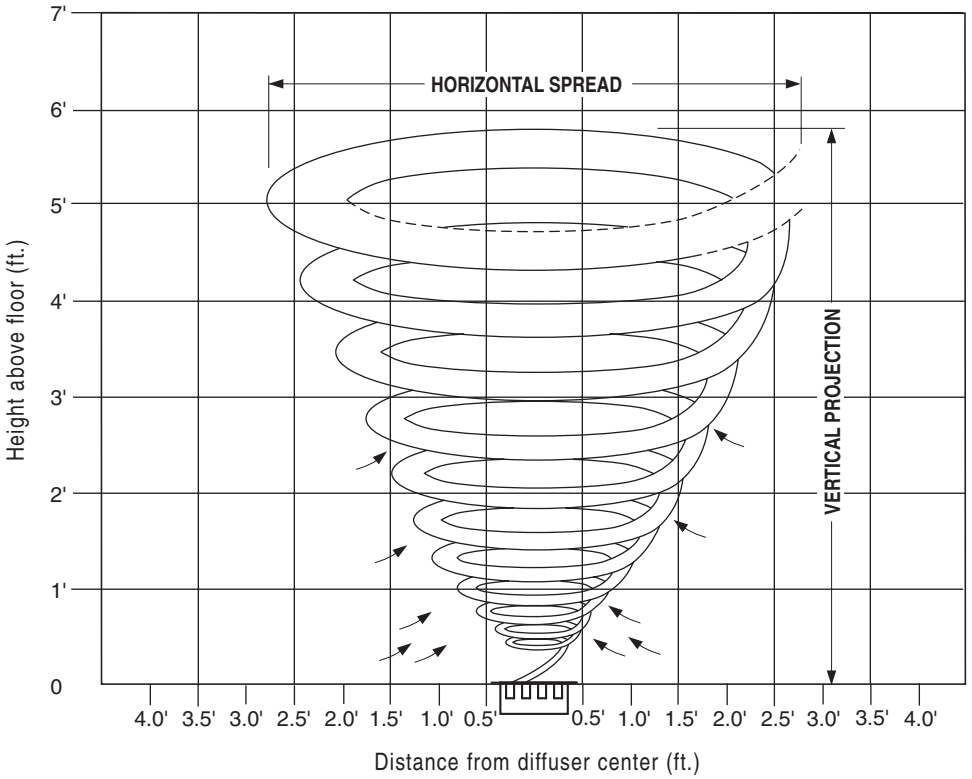
Correction Factor for Return Air Applications: Multiply Plenum Pressure by x 2.65 to determine static pressure drop.

Correction Factors for other supply air temperature differentials.

ΔT (°F)	-6	-8	-10	-12	-14	-16
Projection, ft.	x 1.33	x 1.11	x 1.00	x 0.96	x 0.92	x 0.91
Spread, ft.	x 0.87	x 0.94	x 1.00	x 1.06	x 1.11	x 1.16

Performance Notes:

1. Projection and Spread data were determined in a room with a 11' ceiling height and 10°F ΔT, between supply air and averaged occupied room temperature.
2. Vertical projection (throw) is the maximum height above the floor where terminal velocities of 150, 100 and 50 fpm were observed. Horizontal Spread is the total width of the isovel where terminal velocities of 150, 100 and 50 fpm were observed.
3. Noise Criteria (values) based on 10 dB room absorption, re 10^{-12} watts. Dash (-) in space denotes an NC value of less than 15.
4. Pressure is in inches w.g..
5. Tests conducted with dirt basket/damper installed. Damper fully open. Ak = 0.104
6. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1991.



High induction "Swirl" Pattern. 100 cfm supply @10°F ΔT. Outline indicates maximum room air velocity of 50 fpm.

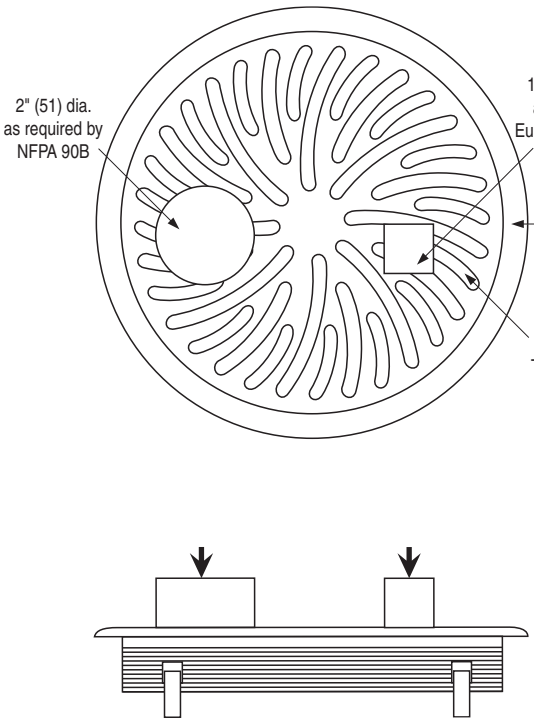
SCHEDULE TYPE	Dimensions are in inches (mm).			
PROJECT				
ENGINEER	DATE	B SERIES	SUPERSEDES	DRAWING NO.
CONTRACTOR	2 - 26 - 04	NFD	9 - 5 - 02	NFD-2

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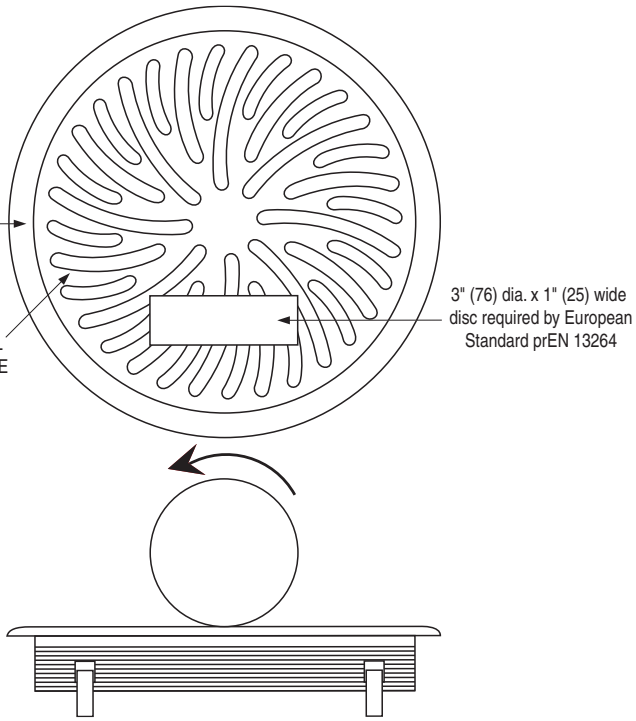
Nailor® Industries Inc.

FLOOR "SWIRL" DIFFUSER
MAXIMUM FLOOR LOADING
UNDERFLOOR AIR DISTRIBUTION SYSTEMS
MODELS: NFD AND ANFD

Static Concentrated Load



Dynamic Rolling Load



Maximum Recommended Floor Loading

Standard	Static Concentrated Load Test		Dynamic Rolling Load Test		
	Load Applied	Indentor Type	Load Applied	Indentor Type	Cycles
European Standard prEN 13264	674 lbs (306 kg)	1" x 1" (25mm x 25mm)	674 lbs (306 kg)	3" (76mm) dia. x 1" (25) wide wheel	25
NFPA 90B	200 lbs (91 kg)	2" dia. (51mm) disc			

Description:

1. Test results are based on Nailor Floor Swirl Diffuser models NFD, constructed from high impact polycarbonate plastic, and model ANFD constructed from cast aluminum. Both samples were installed in an 8" (203mm) diameter floor opening according to the manufacturers recommended installation instructions.
2. The maximum recommended load values shown in the chart represent the load that can be applied to the product without permanent deflection to the diffuser face. The required safety load tested for actual structure integrity is generally 2 to 5 times greater.
3. Concentrated load test in accordance with NFPA 90B. Units were tested with a concentrated load on a 2" (51mm) diameter disk applied to multiple locations on the most critical areas of exposed face floor diffuser. In accordance with the standard, the tests were conducted at an elevated temperature of 165° F (74° C). The standard requires the grilles to resist, without structural failure a concentrated load of 200 lbs (90.7 kg).
4. Concentrated load test in accordance with European Standard prEN 13264. The NFD unit was tested at the concentrated load with a 1" x 1" indentor applied to multiple locations on the most critical areas of the diffuser face without structural failure.
5. Rolling load test is in accordance with European Standard prEN 13264. Units were tested at the load shown with a 3" (76mm) diameter, 1" (25mm) wide steel wheel, traversed across the diffuser face a minimum of 25 times in both horizontal and vertical directions without structural failure.

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**1 - 30 - 12**	**NFD**	**NEW**	**NFDLOADTEST**

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