



Nailor
Industries Inc.

VAV LINEAR FLOOR DIFFUSERS

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VAV LINEAR FLOOR DIFFUSERS WITH ACTUATOR

- VARIABLE AIR VOLUME
- COOLING AND/OR HEATING
- HEAVY DUTY ALUMINUM GRILLES
- DUCTED OR NON-DUCTED

Models:

NLD-VC

NLD-VH

NLD-VCD

NLD-VHD

NLD-VCHD

NLD-VHCD



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



Model NLD-VHD

The **Nailor Model Series NLD VAV Linear Floor Diffusers with Actuators** are designed for use in raised access floor air distribution systems. High quality, heavy duty, extruded aluminum linear grilles are featured providing an architecturally appealing face design that compliments contemporary decor. Heavy gauge steel plenums incorporate a large dust/dirt collection area that catches anything that might fall through the diffuser face.

Model Series NLD provides variable air volume cooling and/or heating control for ducted and/or non-ducted applications. A 90° rotation low leakage damper and integral modulating actuator provide precise airflow control.

FEATURES:

- Meets all the requirements of NFPA 90A.
- Complete assembly including actuator is UL tested and classified in accordance with UL Standard 2043.
- Simple installation, unit fits into place from the top (room side) of the floor panel.
- 12" (305) overall height allows installation in 12" (305) raised access floors.
- Five available heavy duty core styles to choose from.
- All heavy duty cores are removable and supplied with core clips as standard.
- Two available frame options (Frame F or H).
- Standard fastening is Type B friction spring clips.
- Compact 24 VAC direct drive proportional actuator c/w cover.

- 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.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cable optional).
- Standard finish is AW Appliance White.
- Optional finishes include GRT Gray or BKT Black (textured), AL Aluminum, BK Black enamel, SA Satin (clear) Anodized, BC Brushed Clear Coat Lacquer and MI Mill finish. Other finishes are also available.

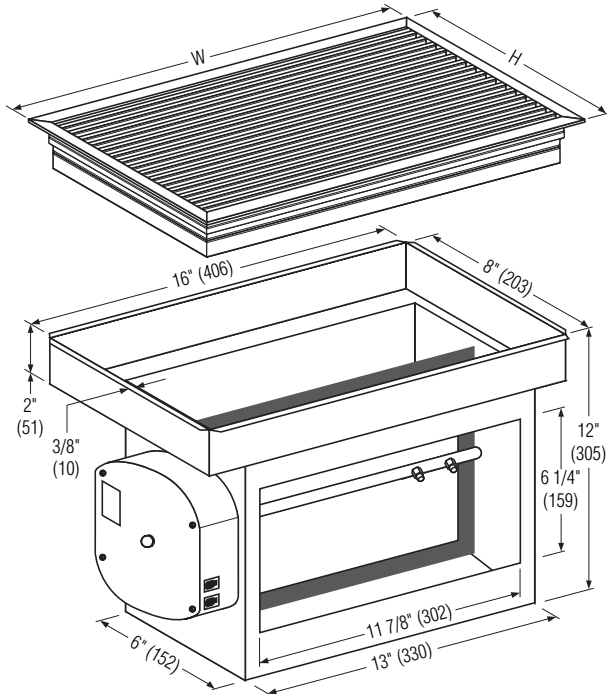
OPTIONS:

- Thermostat, thermostat cable and power supply modules are available (see following pages).
- Type DV directional vanes provide an adjustable discharge pattern to enhance coverage of perimeter windows and reduce throw.
- BKP black painted finish on interior plenum surfaces.
- BDD backdraft damper is available on Models NLD-VCHD and NLD-VHCD.

Dimensional Data

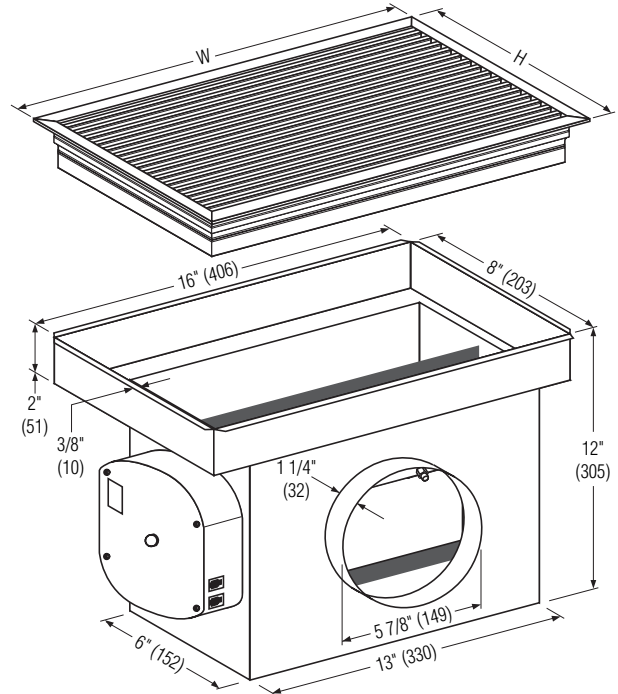
Model Series NLD • VAV Linear Floor Diffusers • Heating or Cooling Only

Model NLD-VC - VAV - Cooling Only - Non-ducted



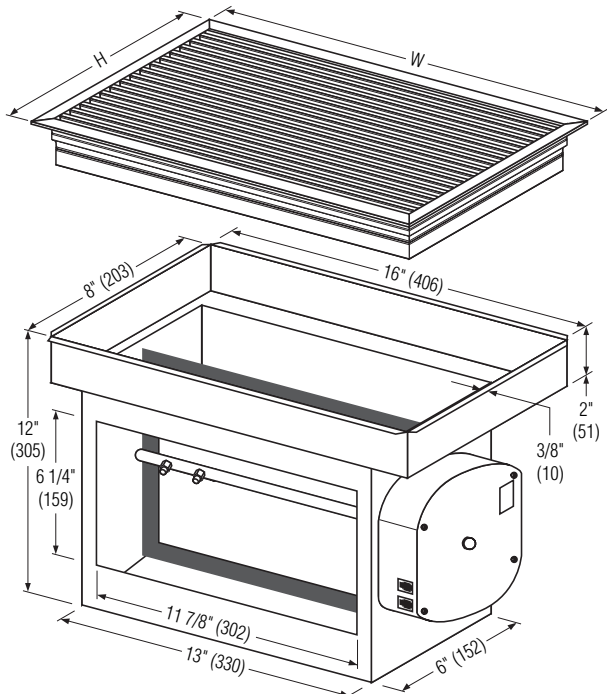
FLOOR OPENING = 16 1/4" x 8 1/4" (413 x 210)
 W = 17 5/8" (448) FOR FRAME F OR 17 1/8" (435) FOR FRAME H
 H = 9 5/8" (244) FOR FRAME F OR 9 1/8" (232) FOR FRAME H

Model NLD-VCD - VAV - Cooling Only - Ducted



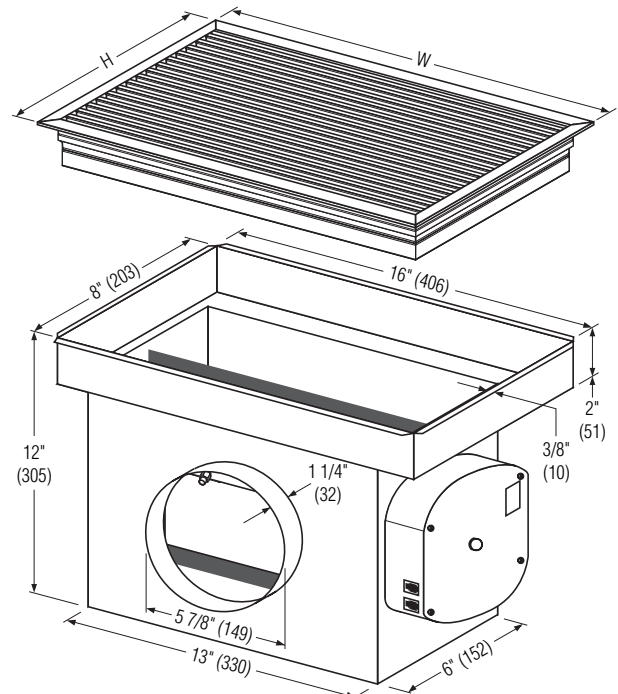
FLOOR OPENING = 16 1/4" x 8 1/4" (413 x 210)
 W = 17 5/8" (448) FOR FRAME F OR 17 1/8" (435) FOR FRAME H
 H = 9 5/8" (244) FOR FRAME F OR 9 1/8" (232) FOR FRAME H

Model NLD-VH - VAV - Heating Only - Non-ducted



FLOOR OPENING = 16 1/4" x 8 1/4" (413 x 210)
 W = 17 5/8" (448) FOR FRAME F OR 17 1/8" (435) FOR FRAME H
 H = 9 5/8" (244) FOR FRAME F OR 9 1/8" (232) FOR FRAME H

Model NLD-VHD - VAV - Heating Only - Ducted

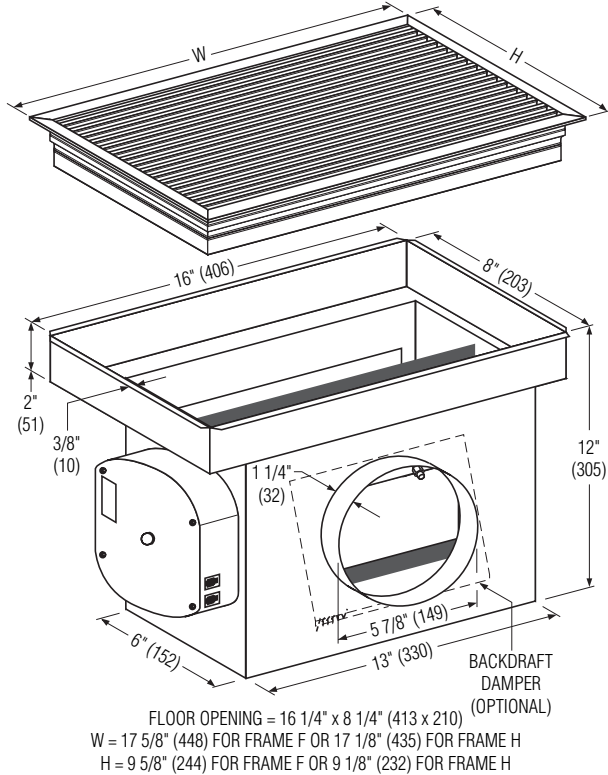


FLOOR OPENING = 16 1/4" x 8 1/4" (413 x 210)
 W = 17 5/8" (448) FOR FRAME F OR 17 1/8" (435) FOR FRAME H
 H = 9 5/8" (244) FOR FRAME F OR 9 1/8" (232) FOR FRAME H

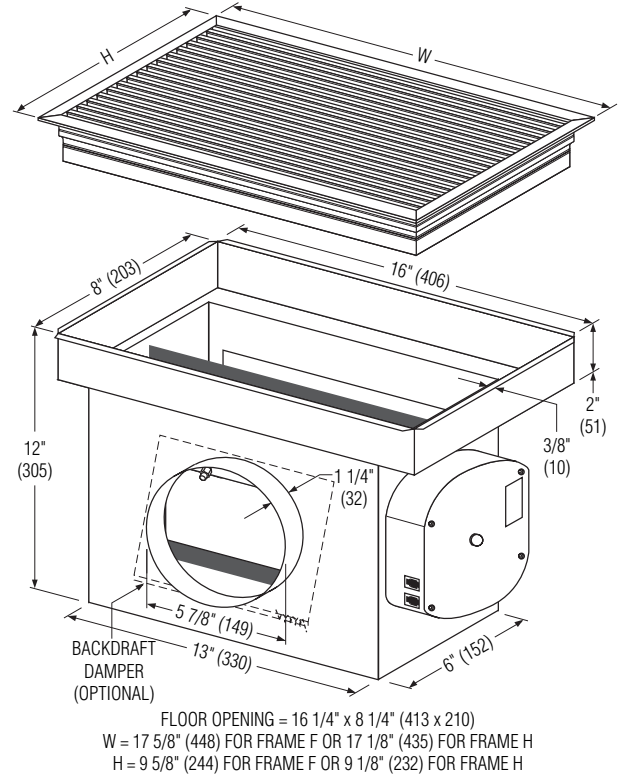
Dimensional Data

Model Series NLD • VAV Linear Floor Diffusers • Heating and Cooling

Model NLD-VHCD - VAV - Heating with Ducted Cooling



Model NLD-VCHD - VAV - Cooling with Ducted Heating



Model Series NLD

C

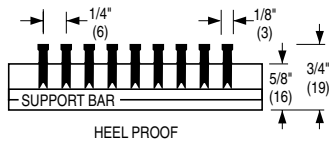
VAV LINEAR FLOOR DIFFUSERS

Selection Options

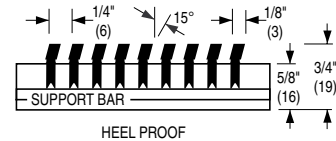
Model Series NLD • VAV Linear Floor Diffusers

Available Core Styles

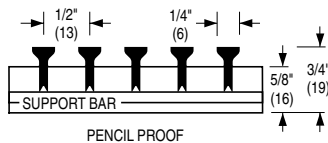
480 (standard) - 1/4" (6) Spacing
 - 1/8" (3) Bars
 - 0° Deflection (Standard)



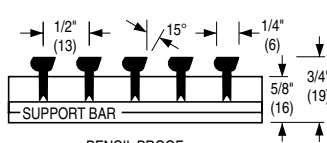
481 - 1/4" (6) Spacing
 - 1/8" (3) Bars
 - 15° Deflection



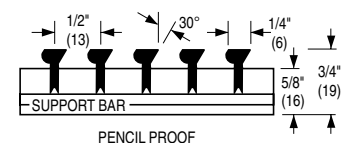
240 - 1/2" (13) Spacing
 - 1/4" (6) Bars
 - 0° Deflection



241 - 1/2" (13) Spacing
 - 1/4" (6) Bars
 - 15° Deflection

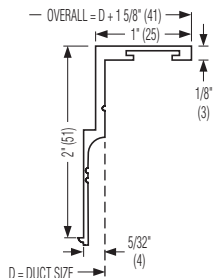


243 - 1/2" (13) Spacing
 - 1/4" (6) Bars
 - 30° Deflection

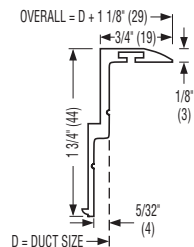


Frame Type

F (Standard)
 1" (25) Border Flange

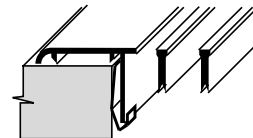


H (Optional)
 3/4" (19) Beveled Border Flange

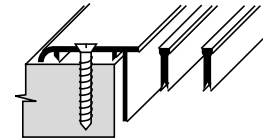


Fastening

B (Standard)
 Spring Clip (Frames F or H)



A (Optional)
 #8 Countersunk Screw Holes
 (Frame F only)



Actuator Cable Length

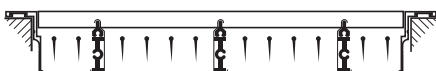
12 12 ft. long (Standard)
20 20 ft. long

Available Finishes

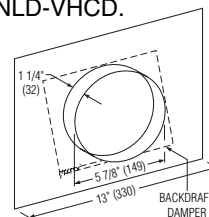
AW Appliance White (Standard)	SA Satin (clear) Anodized
GRT Gray (Textured)	BC Brushed Clear-Coat Lacquer
BKT Black (Textured)	MI Mill
AL Aluminum	BK Black
SP Special _____	SPT Special (Textured) _____

Optional Items

Type DV Directional Vanes
 Fully adjustable extruded aluminum blades
 on 3/4" (19) centers perpendicular to length.



BDD Backdraft damper available
 on models NLD-VCHD and
 NLD-VHCD.



BKP Plenum interior
 painted black.

Control Diagram

Model Series NLD • VAV Linear Floor Diffusers

DESCRIPTION:

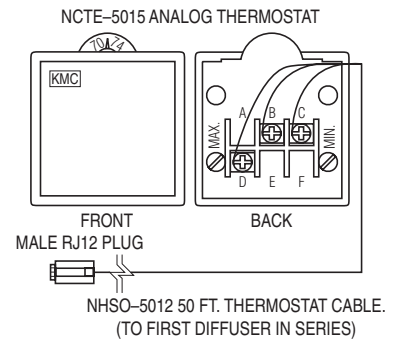
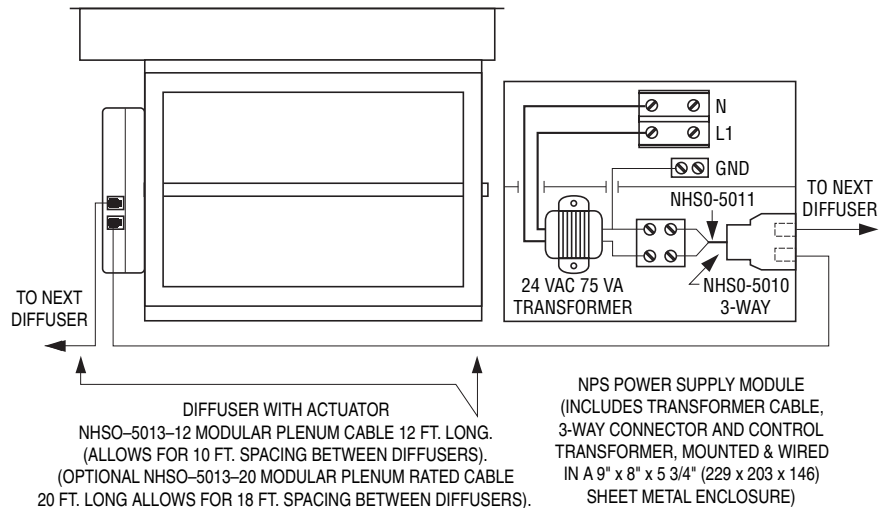
The Nailor NLD Series floor diffusers are designed to provide VAV control in cooling and/or heating applications. Advanced micro-computer electronics and P+I control algorithms provide precise temperature control.

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.

ACCESSORIES:

- NCTE-5015-10 °F Scale Thermostat or NCTE-5015-11 °C Scale Thermostat.
- NHSO-5012 50 ft. Thermostat Cable
- Power Supply Module (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheet metal enclosure):
NPS-120 120 Volt Supply Voltage, NPS-277 277 Volt Supply Voltage,
NPS-240 240 Volt Supply Voltage or NPS-480 480 Volt Supply Voltage.

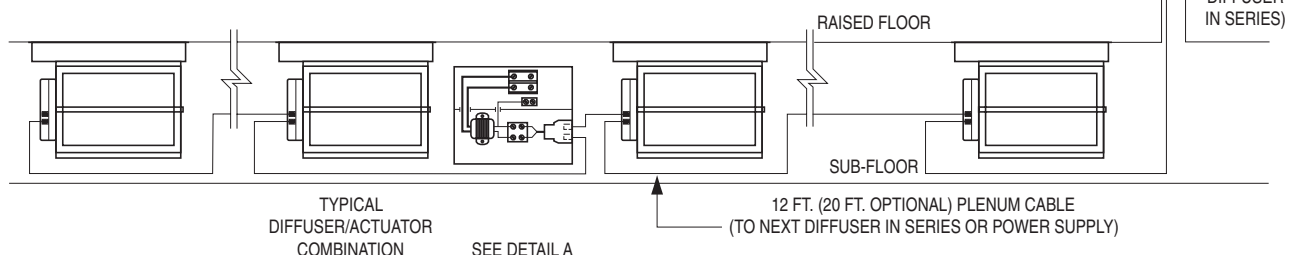


SYSTEM OVERVIEW (SIDE VIEW):

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. For cooling only units 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.



HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

VAV Linear Floor Diffusers with Actuator – Rectangular – Model Series NLD

NLD - VC - 16x8 - 480 - F - B - 12 - AW - DV

BASE MODEL

- VAV Linear Floor Diffuser w/Actuator NLD

PLENUM TYPE

- VAV Cooling Only VC
 - VAV Cooling Only - Ducted VCD
 - VAV Heating Only VH
 - VAV Heating Only - Ducted VHD
 - VAV Cooling with Ducted Heating VCHD
 - VAV Heating with Ducted Cooling VHCD

NOMINAL SIZE

- 16 x 8 (406 x 203) (default)

CORE STYLE

- 1/8" (3) Bars – 1/4" (6) Spacing – 0° Deflection 480 (default)
 - 1/8" (3) Bars – 1/4" (6) Spacing – 15° Deflection 481
 - 1/4" (6) Bars – 1/2" (13) Spacing – 0° Deflection 240
 - 1/4" (6) Bars – 1/2" (13) Spacing – 15° Deflection 241
 - 1/4" (6) Bars – 1/2" (13) Spacing – 30° Deflection 243

FRAME TYPE

- 1" (25) Heavy Duty Flange F (default)
 - 3/4" (19) Bevelled Heavy Duty Flange H

Note:

1. Thermostats, thermostat cable and power supplies have individual model numbers (see previous page).

OPTIONS

- Directional Vanes DV
 - Plenum Interior BKP
 painted Black
 - Backdraft Damper BDD
 (Models VCHD or VHCD only)

FINISH

- Appliance White (Default) AW
 - Gray (Textured) GRT
 - Black (Textured) BKT
 - Aluminum AL
 - Satin (clear) anodized SA
 - Brushed clear-coat lacquer BC
 - Mill MI
 - Black BK
 - Special custom color (Textured) SPT
 - Special custom color SP

ACTUATOR CABLE

- 12 ft. long (default) 12
 - 20 ft. long 20

FASTENING

- Friction spring clip (default) B
 - Countersunk screw holes A
 (Frame F only)

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model NLD VAV Linear Floor Diffusers with Actuators** of the size and type shown on the plans and air distribution schedules. Units shall be complete with all connecting cables and power supply modules as shown. The diffusers shall incorporate heavy duty extruded aluminum linear grilles mounted in a heavy gauge galvanized steel plenum. The actuator shall be mounted within a protective enclosure. The entire assembly shall be tested and classified in accordance with UL Standard 2043. The diffuser shall meet all requirements of NFPA 90A. The plenum shall incorporate a 90 degree rotation low leakage damper and an integral 24 VAC direct drive actuator which operates from a 2 – 10 VDC control signal for precise airflow control. The actuator shall incorporate two RJ12 ports for simple interconnection using modular plenum rated cables and allowing multiple units to be daisy chained together. Each diffuser shall include a standard 12 ft. (20 ft. optional) modular plenum rated cable, for interconnection between diffusers, allowing diffusers to be spaced on 10 ft. (18 ft. optional) intervals. The plenum shall incorporate a dust/dirt collection area to catch anything that might fall through the diffuser face. Finish on visible surfaces shall be AW Appliance White baked enamel (other finishes are available).

Power supply modules shall be provided for each diffuser system as shown on the plans and air distribution schedules. Modules shall include a 120 volt control transformer (277, 240 or 460 volt optional) mounted and wired in a protective control enclosure. All electrical components shall be ETL or UL listed or recognized and installed in accordance with the National Electrical Code. The entire assembly shall be ETL listed and so labeled.

Each diffuser system shall be complete with a 50 ft. plenum rated cable for connection to a thermostat or to the DDC/BMS system as provided by others.

(Optional) Each zone shall be complete with an analog 2 – 10 VDC thermostat as shown on the plans. Thermostats shall incorporate advanced micro-computer electronics that include P+I control algorithms for precise temperature control. Thermostat shall have temperature setpoint adjustment in degrees Fahrenheit (Celsius optional) and include a light almond (ash white optional) setpoint cover.

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 – 1991.

Performance Data

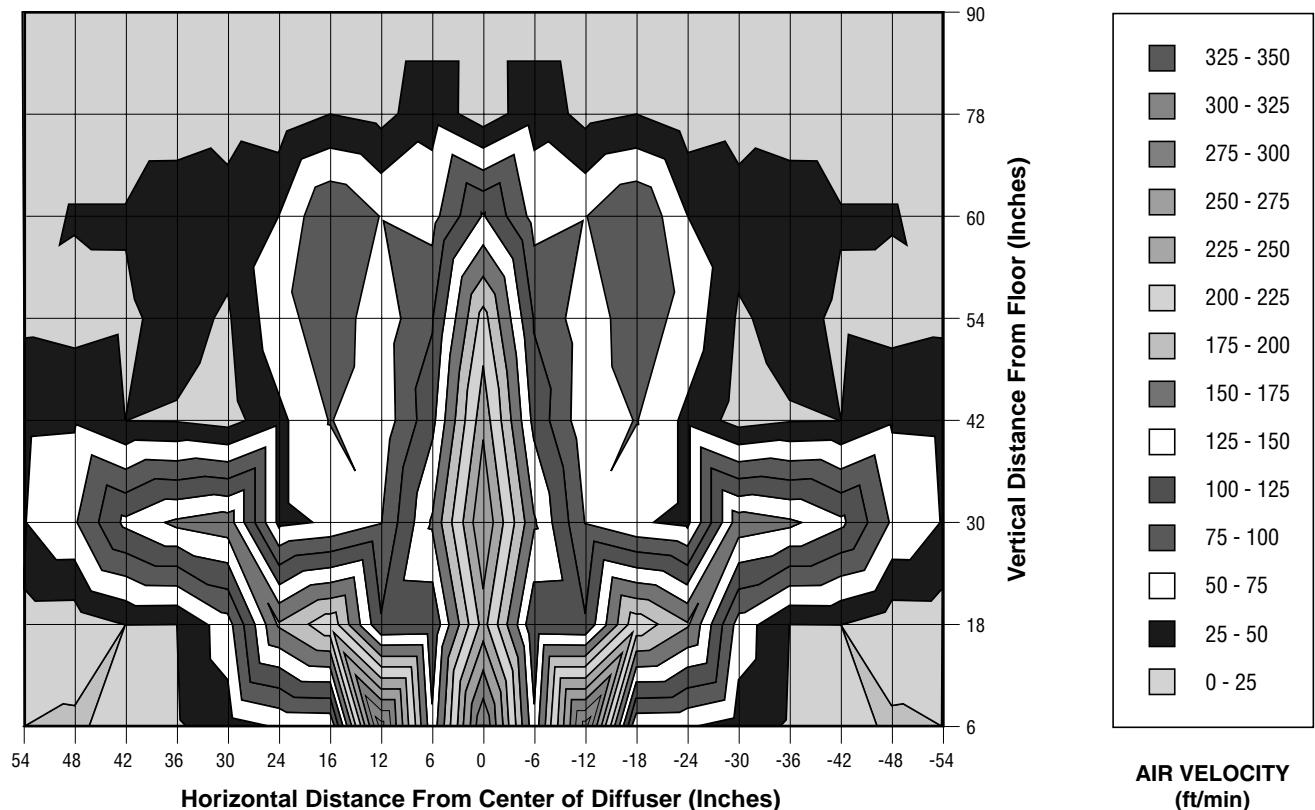
Model Series NLD

Airflow, cfm	50	75	100	125	150
NC	–	–	–	–	18
22 Degree Blade Deflection					
Plenum Pressure, in w.g.	0.0045	0.010	0.017	0.024	0.033
Vertical Projection, ft. @ 150, 100, 50 fpm	0-1-2	0.5-2-3	1.5-4.5-5	4-5.5-6.5	6-6.5-8
Horizontal Spread, ft. @ 150, 100, 50 fpm	0-1-1.5	0.5-1.5-2.5	1.5-2.5-5	3-4-7.5	4-5-10
45 Degree Blade Deflection					
Plenum Pressure, in w.g.	0.0045	0.010	0.017	0.025	0.035
Vertical Projection, ft. @ 150, 100, 50 fpm	0-1-2	1-2-3	1-3.5-4.5	3-5-5.5	5-6-6.5
Horizontal Spread, ft. @ 150, 100, 50 fpm	0-1-1.5	0.5-1-4	2.5-4-5	5-6-7	6-7.5-9
60 Degree Blade Deflection					
Plenum Pressure, in w.g.	0.005	0.011	0.018	0.056	0.080
Vertical Projection, ft. @ 150, 100, 50 fpm	0-1-1.5	1.5-2.5-3.5	3-4-5	4-5-5.5	5-5.5-6
Horizontal Spread, ft. @ 150, 100, 50 fpm	0-1-2	0.5-1-4.5	2.5-4-5	4.5-6-8	6.5-8.5-11

Performance Notes:

1. Projection and Spread data were determined in a room with an 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. Tests conducted on units complete with directional vanes adjusted to the deflection settings of 22, 45 or 60 degrees. Damper fully open.
5. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1991.

PERFORMANCE TEST – MODEL NLD @ 150 CFM



Note: The graph above shows actual air velocities and the associated isovels. This data was obtained in a full scale mock-up test performed on a standard Model NLD @ 150 cfm with a 10°F ΔT and a 45° blade deflection.

VAV LINEAR FLOOR DIFFUSERS WITH ACTUATOR

- VARIABLE AIR VOLUME
- COOLING OR HEATING
- HEAVY DUTY ALUMINUM GRILLES

Models:

NLYD-VC

NLYD-VH



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



Model NLYD-VH

The **Nailor Model Series NLYD VAV Linear Floor Diffusers with Actuators** are designed for use in raised access floor air distribution systems. High quality, heavy duty, extruded aluminum linear grilles are featured providing an architecturally appealing face design that compliments contemporary decor. Heavy gauge steel plenums incorporate a dust/dirt collection area that catches anything that might fall through the diffuser face.

Model Series NLYD provides variable air volume cooling or heating control for non-ducted (pressurized access floor) applications. A 90° rotation low leakage damper and integral modulating actuator provide precise airflow control.

FEATURES:

- Meets all the requirements of NFPA 90A.
- Complete assembly including actuator is UL tested and classified in accordance with UL Standard 2043.
- Simple installation, unit fits into place from the top (room side) of the floor panel.
- 9" (229) overall height allows installation in 9" (229) raised access floors.
- Five available heavy duty core styles to choose from.
- All heavy duty cores are removable and supplied with core clips as standard.
- Two available frame options (Frame F or H).
- Standard fastening is Type B friction spring clips.
- Compact 24 VAC direct drive proportional actuator c/w cover.

- 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.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cable optional).
- Standard finish is AW Appliance White.
- Optional finishes include GRT Gray or BKT Black (textured), AL Aluminum, BK Black enamel, SA Satin (clear) Anodized, BC Brush Clear Coat Lacquer and MI Mill finish. Other finishes are also available.

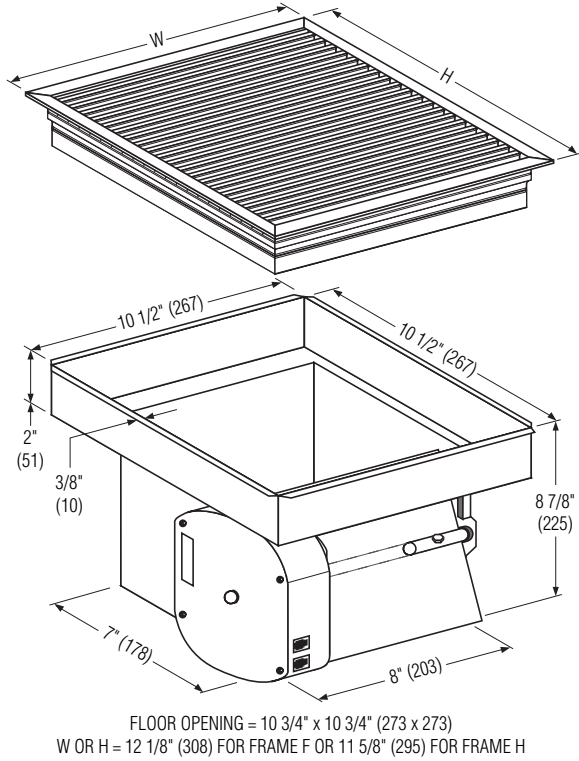
OPTIONS:

- Thermostat, thermostat cable and power supply modules are available (see following pages).
- Type DV directional vanes provide an adjustable discharge pattern to enhance coverage of perimeter windows and reduce throw.
- BKP black painted finish on interior plenum surfaces.

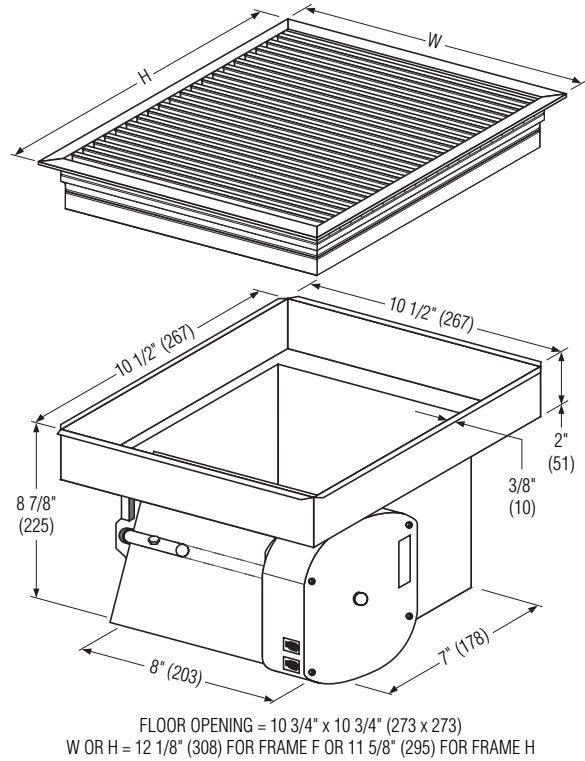
Dimensional Data

Model Series NLYD • VAV Linear Floor Diffusers • Heating or Cooling Only

Model NLYD-VC - VAV - Cooling Only - Non-ducted



Model NLYD-VH - VAV - Heating Only - Non-ducted



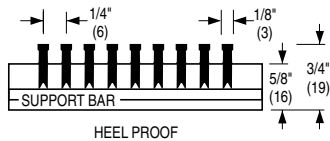
Model Series NLYD

Selection Options

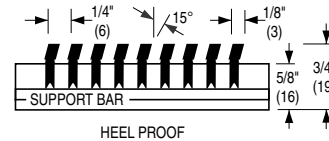
Model Series NLYD • VAV Linear Floor Diffusers • Selection Options

Available Core Styles

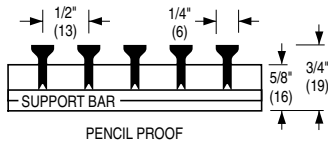
480 (standard) - 1/4" (6) Spacing
 - 1/8" (3) Bars
 - 0° Deflection (Standard)



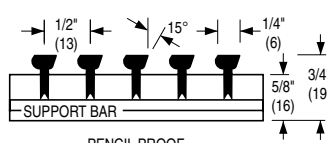
481 - 1/4" (6) Spacing
 - 1/8" (3) Bars
 - 15° Deflection



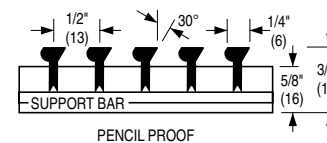
240 - 1/2" (13) Spacing
 - 1/4" (6) Bars
 - 0° Deflection



241 - 1/2" (13) Spacing
 - 1/4" (6) Bars
 - 15° Deflection

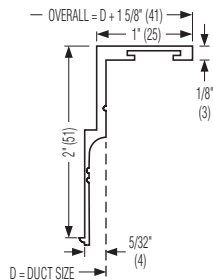


243 - 1/2" (13) Spacing
 - 1/4" (6) Bars
 - 30° Deflection

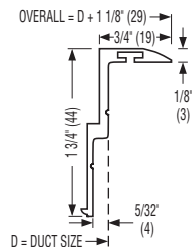


Frame Type

F (Standard)
 1" (25) Border Flange

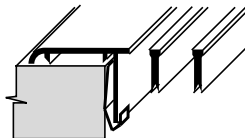


H (Optional)
 3/4" (19) Beveled Border Flange

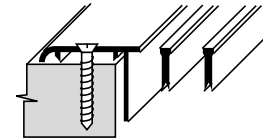


Fastening

B (Standard)
 Spring Clip (Frames F or H)



A (Optional)
 #8 Countersunk Screw Holes
 (Frame F only)



Actuator Cable Length

12 12 ft. long (Standard)
20 20 ft. long

Available Finishes

AW Appliance White (Standard)	SA Satin (clear) Anodized
GRT Gray (Textured)	BC Brushed Clear-Coat Lacquer
BKT Black (Textured)	MI Mill
AL Aluminum	BK Black
SP Special _____	SPT Special (Textured) _____

Optional Items

Type DV Directional Vanes
 Fully adjustable extruded aluminum blades
 on 3/4" (19) centers perpendicular to length.



BKP Plenum interior
 painted black.

Control Diagram

Model Series NLYD • VAV Linear Floor Diffusers

DESCRIPTION:

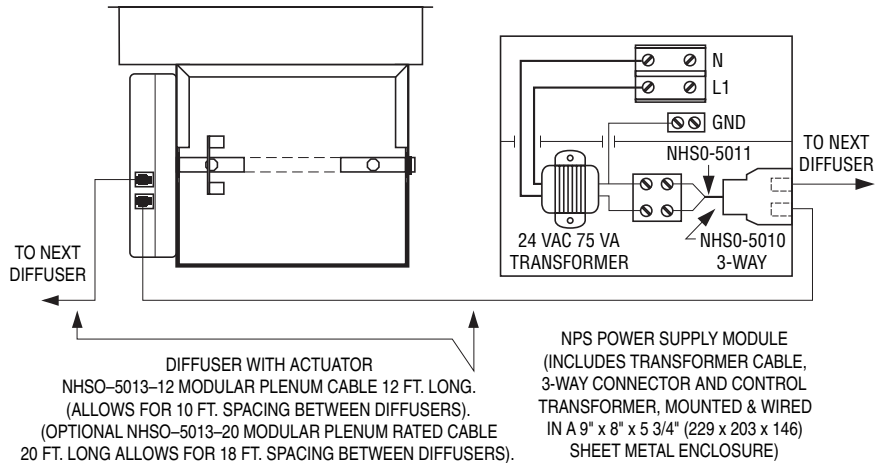
The Nailor NLYD floor diffuser is designed to provide VAV control in heating or cooling only applications. Advanced micro-computer electronics and P+I control algorithms provide precise temperature control.

CONTROL FEATURES:

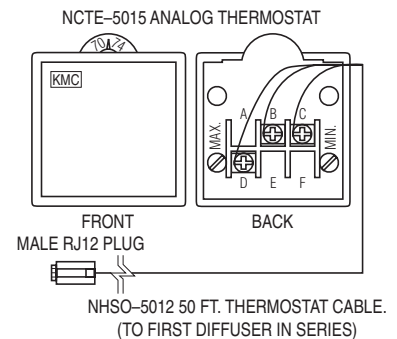
- Fast connection/wiring between units with RJ12 (phone jack) connections. Allows units to be quickly installed or relocated.
- Compact direct-drive 24 VAC actuator utilizes a 2 – 10 VDC control signal for precise airflow control.
- Standard 12 ft. modular plenum rated cables, for interconnection between 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.

ACCESSORIES:

- NCTE-5015-10 °F Scale Thermostat or NCTE-5015-11 °C Scale Thermostat.
- NHSO-5012 50 ft. Thermostat Cable.
- Power Supply Module (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheet metal enclosure):
NPS-120 120 Volt Supply Voltage, NPS-277 277 Volt Supply Voltage,
NPS-240 240 Volt Supply Voltage or NPS-480 480 Volt Supply Voltage.



DETAIL A



DETAIL B

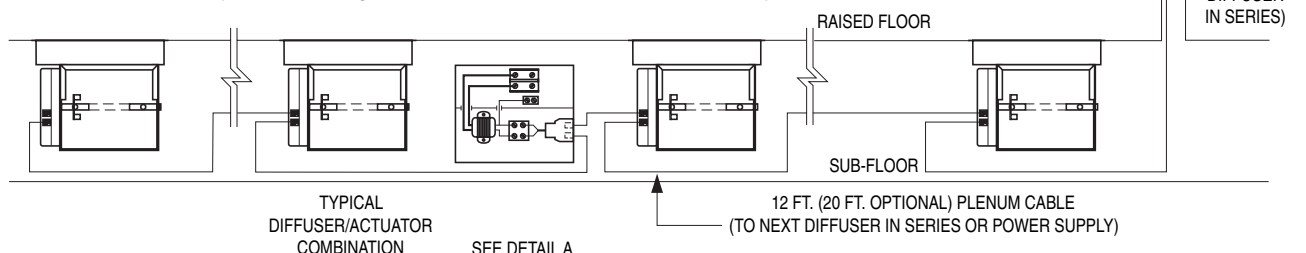
VAV LINEAR FLOOR DIFFUSERS

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. For cooling only units 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.



HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

VAV Linear Floor Diffusers with Actuator – Square – Model NLYD

NLYD - VC - 10 1/2 x 10 1/2 - 480 - F - B - 12 - AW - DV

BASE MODEL

- VAV Linear Floor Diffuser with Actuator **NLYD**

PLENUM TYPE

- VAV Cooling Only **VC**
- VAV Heating Only **VH**

NOMINAL SIZE

- 10 1/2 x 10 1/2 (267 x 267) (default)

CORE STYLE

- 1/8" (3) Bars – 1/4" (6) Spacing – 0° Deflection 480 (default)
- 1/8" (3) Bars – 1/4" (6) Spacing – 15° Deflection 481
- 1/4" (6) Bars – 1/2" (13) Spacing – 0° Deflection 240
- 1/4" (6) Bars – 1/2" (13) Spacing – 15° Deflection 241
- 1/4" (6) Bars – 1/2" (13) Spacing – 30° Deflection 243

FRAME TYPE

- 1" (25) Heavy Duty Flange **F** (default)
- 3/4" (19) Bevelled Heavy Duty Flange **H**

Note:

1. Thermostats, thermostat cable and power supplies have individual model numbers (see previous page).

OPTIONS

- Directional Vanes **DV**
- Plenum Interior painted Black **BKP**

FINISH

- Appliance White (default) **AW**
- Gray (textured) **GRT**
- Black (textured) **BKT**
- Aluminum **AL**
- Satin (clear) anodized **SA**
- Brushed clear-coat lacquer **BC**
- Mill **MI**
- Black **BK**
- Special custom color (textured) **SPT**
- Special custom color **SP**

ACTUATOR CABLE

- 12 ft. long (default) **12**
- 20 ft. long **20**

FASTENING

- Friction spring clip (default) **B**
- Countersunk screw holes **A** (Frame F only)

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model NLYD VAV Linear Floor Diffusers with Actuators** of the size and type shown on the plans and air distribution schedules. Units shall be complete with all connecting cables and power supply modules as shown. The diffusers shall incorporate heavy duty extruded aluminum linear grilles mounted in a heavy gauge galvanized steel plenum. The actuator shall be mounted within a protective enclosure. The entire assembly shall be tested and classified in accordance with UL Standard 2043. The diffuser shall meet all requirements of NFPA 90A. The plenum shall incorporate a 90 degree rotation low leakage damper and an integral 24 VAC direct drive actuator which operates from a 2 – 10 VDC control signal for precise airflow control. The actuator shall incorporate two RJ12 ports for simple interconnection using modular plenum rated cables and allowing multiple units to be daisy chained together. Each diffuser shall include a standard 12 ft. (20 ft. optional) modular plenum rated cable, for interconnection between diffusers, allowing diffusers to be spaced on 10 ft. (18 ft. optional) intervals. The plenum shall incorporate a dust/dirt collection area to catch anything that might fall through the diffuser face. Finish on visible surfaces shall be AW Appliance White baked enamel (other finishes are available).

Power supply modules shall be provided for each diffuser system as shown on the plans and air distribution schedules. Modules shall include a 120 volt control transformer (277, 240 or 460 volt optional) mounted and wired in a protective control enclosure. All electrical components shall be ETL or UL listed or recognized and installed in accordance with the National Electrical Code. The entire assembly shall be ETL listed and so labeled.

Each diffuser system shall be complete with a 50 ft. plenum rated cable for connection to a thermostat or to the DDC/BMS system as provided by others.

(Optional) Each zone shall be complete with an analog 2 – 10 VDC thermostat as shown on the plans. Thermostats shall incorporate advanced micro-computer electronics that include P+I control algorithms for precise temperature control. Thermostat shall have temperature setpoint adjustment in degrees Fahrenheit (Celsius optional) and include a light almond (ash white optional) setpoint cover.

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 – 1991.

Performance Data

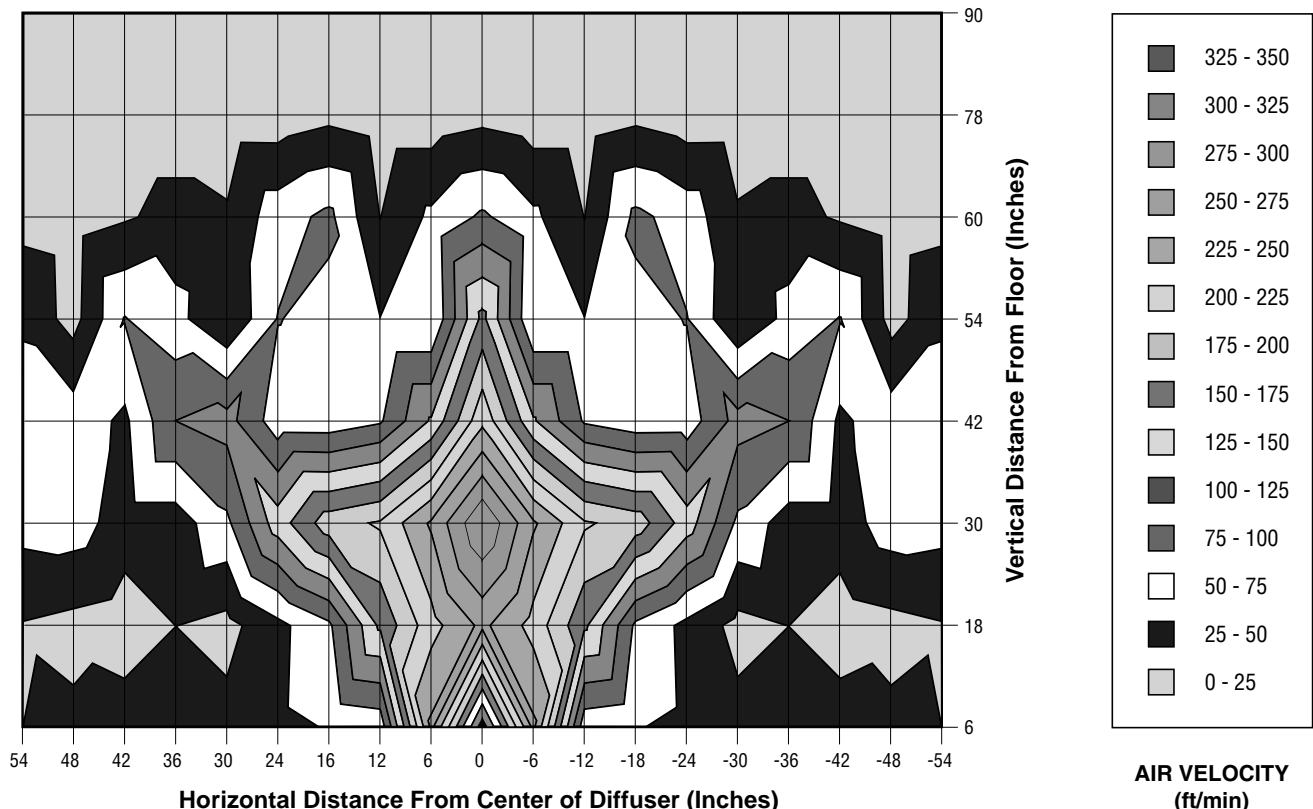
Model Series NLYD

Airflow, cfm	50	75	100	125	150
NC	–	–	–	–	18
22 Degree Blade Deflection					
Plenum Pressure, in w.g.	0.008	0.018	0.033	0.047	0.068
Vertical Projection, ft. @ 150, 100, 50 fpm	0-1.5-2	1.5-3-3.5	3-4-5	3.5-4.5-6	4.5-5.5-7
Horizontal Spread, ft. @ 150, 100, 50 fpm	0.5-1-1.5	1.5-2-2.5	1.5-3.5-5.5	2-3.5-7.5	2.5-4-9
45 Degree Blade Deflection					
Plenum Pressure, in w.g.	0.009	0.020	0.033	0.050	0.072
Vertical Projection, ft. @ 150, 100, 50 fpm	0-1-2	0.5-2-3	2.5-3-3.5	3.5-4-5	4.5-5-6
Horizontal Spread, ft. @ 150, 100, 50 fpm	0.5-1-2	0.5-2.5-4	1-2.5-5.5	2.5-4.5-8.5	4-6-11
60 Degree Blade Deflection					
Plenum Pressure, in w.g.	0.010	0.022	0.036	0.056	0.080
Vertical Projection, ft. @ 150, 100, 50 fpm	0-1-2	1.5-2.5-3.5	3-4-4.5	4-5-5	4.5-5.5-6
Horizontal Spread, ft. @ 150, 100, 50 fpm	0.5-1-1.5	1.5-2-3	1.5-2-5	2-3-7	3-4-8.5

Performance Notes:

1. Projection and Spread data were determined in a room with an 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. Tests conducted on units complete with directional vanes adjusted to the deflection settings of 22, 45 or 60 degrees. Damper fully open.
5. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1991.

PERFORMANCE TEST – MODEL NLYD @ 150 CFM



Note: The graph above shows actual air velocities and the associated isovels. This data was obtained in a full scale mock-up test performed on a standard Model NLYD @ 150 cfm with a 10°F ΔT and a 45° blade deflection.

