

Wall Mounted Diffusers

Price Wall Mounted Displacement Diffusers supply fresh, clean air directly into the occupied zone, offer traditional displacement style, and can be easily integrated into architectural features or blended into a space. Typical applications for these diffusers include classrooms, lobbies, offices, and large public spaces such as libraries. The superior air quality achieved by displacement ventilation systems offers unique benefits for educational applications, including reduced absenteeism and higher test scores.

Wall Mounted Family:

- DF1
- DF3
- DF1C
- DR90
- DR180
- DR180U



Superior air quality for classrooms



Optional duct covers and bases



Rail-mounting system for easy installation



Architectural integration

Displacement Ventilation Wall Mounted Diffusers

Product Overview

Models

Price Wall Mounted Displacement Diffusers are designed to be integrated with the architecture in a space and provide a low velocity air pattern into a room. These diffusers are typically placed against a wall, pillar or in the corner of a room with no visible fasteners. They are most commonly used in hotels, schools, office spaces, convention centers and theaters.

Applications

Price Wall Mounted Displacement Diffusers feature high gauge steel, flat perforated faces that are held by high strength extruded aluminum frames. The perforated faces and internal baffle ensure equalized air flow across the face of the diffuser and provide low velocity air into the room. These diffusers are typically installed along a side-wall, against a pillar, or integrated onto features such as bookcases. The **DF1** can also be recessed into a wall to maintain a flush appearance. With the exception of the **DF1C**, Price Wall Mounted Displacement Diffusers use a patent-pending rail mounting system that is easy to install and has no visible fasteners.

Accessories

The accessories available for Price Wall Mounted Displacement Diffusers include duct covers, bases and adjustable flow sensing devices (AFSDs).

Duct covers are commonly used to hide ductwork to the diffusers and increase architectural appeal. Price duct covers are constructed of the same heavy gauge steel panels and high strength extruded aluminum frames used in their applicable diffuser. Following the same contour as its respective diffuser, duct covers are available in solid or perforated steel, and are ideal for hiding ductwork and other vertically running cables or conduit. When using a perforated duct cover, Price recommends that the duct be painted black to avoid any visible metal through the duct cover.

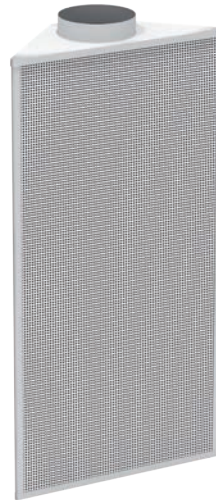
With the exception of the DF1C, duct covers are supplied assembled in solid or perforated steel are available in varying lengths, and use the same easy-to-install patent-pending Price rail-mounting system.

Diffuser bases offer a look that is consistent with the rest of the space, providing protection from damage or the moisture of cleaning while hiding the ductwork. The bases are designed to be inset 1" from the face of the diffuser; however, they are free to be specified to match any décor or baseboard appearance.

DF1



DF1C



The Adjustable Flow Sensing Device features both a manually adjustable damper for volume control and the Price SP300 multi-point sensor to provide accurate pressure measurement. Utilizing the gauge taps for flow measurement and the damper locking mechanism ensures quick and accurate balancing of each diffuser during the balancing process.

Wall Mounted Displacement Diffusers DF1C Series



Product Information

The **Price DF1C Series** displacement diffusers are designed to produce a low velocity air supply perpendicular to the diffuser face. The DF1C discharges air evenly across its perforated face with minimal turbulence or induction of room air. The cool supply air flows down to the floor level and gradually fills the occupied space. Typically installed at the junction of two walls or in a 90° recess, this appealing diffuser meshes seamlessly into any décor. The superior air quality and low noise levels realized with the DF1C make it suitable for office space, restaurants, supermarkets, theaters, hotels, convention centers, schools, or any application where air quality and occupant comfort demands are high.

Features

Optional inlet location:

- Top inlet location for exposed ductwork or with duct cover option.
- Bottom inlet location for hidden ductwork.
- Field-cut inlet option.
- Ships with protective film on face and inlet.

Construction/Finish

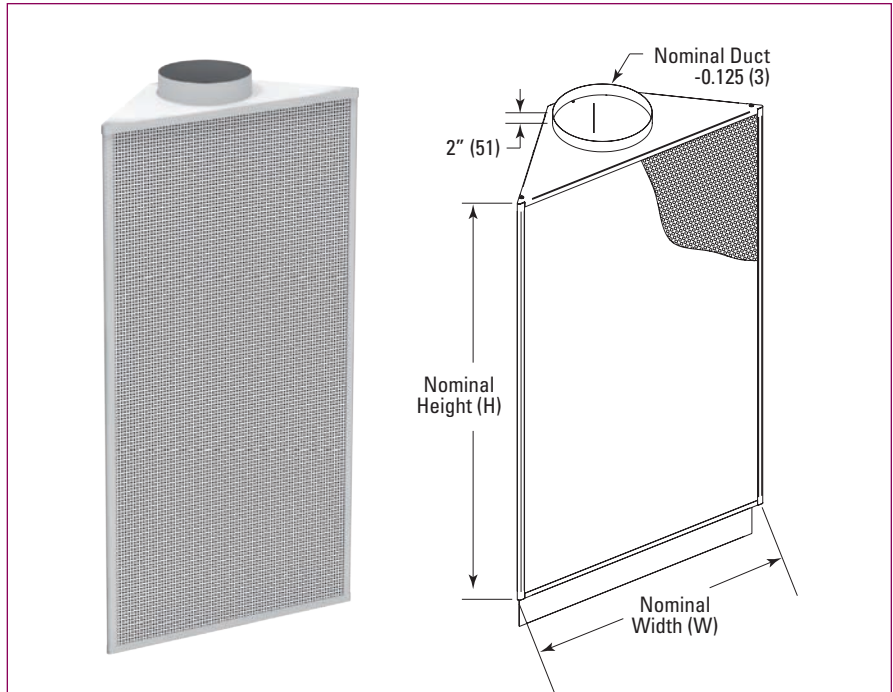
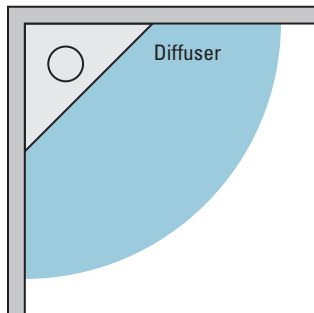
- Diffuser Frame and Equalization Baffle – Aluminum
- Side, Top and Bottom Panels – Coated Steel
- Perforated Front Panel – Coated Steel
- Finish – B12 White (Standard)

For optional and special finishes see color matrix.

Accessories

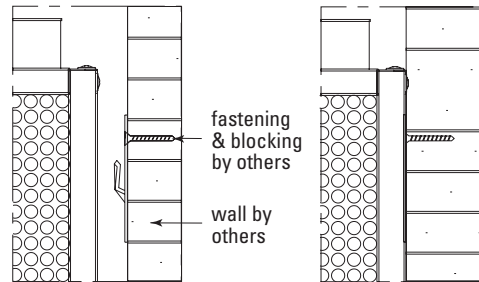
- Base
- Duct Covers
- AFSD

Air Pattern



Surface Mount Detail

Slide Plenum Onto Wall Mount Plate



Dimensional Data - Imperial (inches)/Metric (mm)

W X H	Duct	W X H	Duct
24x24	8	30x60	10
24x36	8	30x72	10
24x48	8	36x24	8
24x60	8	36x24	10
24x72	8	36x24	12
30x24	8	36x36	12
30x24	10	36x48	12
30x36	8	36x60	12
30x36	10	36x72	12
30x48	10		

For a complete list of standard sizes and inlets, refer to www.price-hvac.com/submittals

Dimensional Data - Metric (mm)

W X H	Duct
600 x 600	200
600 x 900	200
600 x 1200	200
600 x 1500	200
750 x 600	200, 250
750 x 900	200
750 x 1200	250
750 x 1500	250
750 x 1800	250
900 x 600	200, 250, 315
900 x 900	315
900 x 1500	315
900 x 1800	315

Wall Mounted Displacement Diffusers DF1C Series



Performance Data – Imperial Units

Unit Size W x H [in] Face Area [ft ²]	Inlet Size [in]	Face Velocity [fpm]	Air Flow [cfm]	Total Pressure [in. w.g.]	Static Pressure [in. w.g.]	Noise Criteria [NC]	Proximity to Outlet [ft]			
							ΔT = 5 °F		ΔT = 10 °F	
							DR		DR	
							15%	20%	15%	20%
24 x 24 [3.6]	8	20	71	--	--	--	--	2	--	
		30	107	0.02	0.01	--	--	5	2	
		40	142	0.03	0.02	--	--	7	4	
		50	178	0.04	0.03	--	--	8	5	
30 X 24 [4.5]	10	20	90	--	--	--	--	2	--	
		30	135	0.01	--	--	--	4	2	
		40	180	0.02	0.02	--	--	6	3	
		50	225	0.04	0.02	--	--	8	5	
36 x 24 [5.5]	12	20	109	--	--	--	--	2	--	
		30	164	0.01	--	--	--	4	2	
		40	218	0.02	0.01	--	--	6	3	
		50	273	0.03	0.02	--	--	8	5	
24 x 36 [5.4]	8	20	109	0.01	--	--	3	--	5	
		30	163	0.02	0.01	--	--	8	5	
		40	217	0.04	0.02	--	--	10	7	
		50	272	0.07	0.03	--	--	12	12	
30 x 36 [6.9]	10	20	138	--	--	--	2	--	5	
		30	206	0.02	0.01	--	--	8	5	
		40	275	0.03	0.02	--	--	10	7	
		50	344	0.05	0.03	--	--	12	8	
36 x 36 [8.3]	12	20	167	--	--	--	2	--	5	
		30	250	0.02	--	--	--	8	5	
		40	333	0.03	0.02	--	--	10	7	
		50	417	0.04	0.03	--	--	12	8	
24 x 48 [7.3]	8	20	146	0.01	--	--	5	2	8	
		30	219	0.03	--	--	8	5	11	
		40	292	0.06	0.01	--	--	13	10	
		50	365	0.09	0.02	19	--	15	11	
30 x 48 [9.3]	10	20	185	0.01	--	--	5	2	7	
		30	278	0.03	--	--	7	4	10	
		40	370	0.05	0.02	--	--	13	9	
		50	463	0.07	0.03	16	--	15	11	
36 x 48 [11.2]	12	20	224	--	--	--	4	2	7	
		30	336	0.02	0.01	--	--	10	7	
		40	448	0.04	0.02	--	--	13	9	
		50	560	0.06	0.03	--	--	15	11	
24 x 60 [9.2]	8	20	184	0.02	--	--	7	4	10	
		30	276	0.04	--	--	10	6	13	
		40	367	0.07	--	15	--	15	12	
		50	459	0.11	--	22	--	17	14	
30 x 60 [11.6]	10	20	233	0.01	--	--	7	3	9	
		30	349	0.03	--	--	9	6	13	
		40	465	0.06	0.01	--	--	15	12	
		50	582	0.09	0.02	19	--	17	13	
36 x 60 [14.1]	12	20	282	0.01	--	--	6	3	9	
		30	422	0.03	--	--	9	6	13	
		40	563	0.05	0.02	--	--	15	11	
		50	704	0.07	0.02	17	--	17	13	
24 x 72 [11.1]	8	20	221	0.02	--	--	8	5	12	
		30	332	0.05	--	--	12	8	15	
		40	442	0.08	--	18	--	17	13	
		50	553	0.13	--	25	--	19	15	
30 x 72 [14]	10	20	280	0.02	--	--	8	5	11	
		30	420	0.04	--	--	11	8	14	
		40	560	0.07	--	15	--	17	13	
		50	700	0.11	--	22	--	19	15	
36 x 72 [17]	12	20	339	0.01	--	--	8	5	11	
		30	509	0.03	--	--	11	8	14	
		40	678	0.06	0.01	--	--	17	13	
		50	848	0.09	0.02	20	--	19	15	

DISPLACEMENT VENTILATION

Performance Notes:

1. Sound and pressure drop tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow is in cubic feet per minute, cfm.
3. Pressure is in inches of water, in. w.g.
4. The NC values, sound pressure level, are based on a room absorption of 10 dB, re 10⁻¹² watts and one diffuser.
5. ΔT is the difference between the room air temperature 3 ½ ft above the floor and the temperature of the supply air.
6. Proximity to outlet is the minimum distance from an outlet to the occupant in order to achieve the listed DR value.
7. Distances closer to the diffuser have a higher DR than the cataloged value.
8. DR is the predicted percentage of people dissatisfied (PPD) due to draft. A value of less than 20 meets the requirements of ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy.
9. Blanks (--) indicate that the DR is below the specified value at all distances from the diffuser face.
10. DR catalog data is presented for an occupant density of 25 people/1000ft², which is the default occupancy density for classrooms (ages 5-8) given by ASHRAE 62.1-2004. For other occupant densities, please refer to the DV Room Designer Software.
11. Performance data for standard diffusers not listed in the catalog is available in Price AIO Software.

Wall Mounted Displacement Diffusers DF1C Series



Performance Data – Metric Units

Unit Size W x H [mm] Face Area [m ²]	Inlet Size [mm]	Face Velocity [m/s]	Air Flow [L/s]	Total Pressure [Pa]	Static Pressure [Pa]	Noise Criteria [NC]	Proximity to Outlet [m]			
							ΔT = 2.8 °C		ΔT = 5.6 °C	
							DR		DR	
							15%	20%	15%	20%
600 x 600 [0.3]	200	0.10	35	--	--	--	--	--	0.6	--
		0.15	52	4.5	2.9	--	0.6	--	1.5	0.6
		0.20	70	8.2	5.2	--	1.2	--	2.1	1.2
		0.25	88	12.9	8.2	--	1.5	0.9	2.4	1.5
750 X 600 [0.4]	200	0.10	44	2.5	--	--	--	--	0.6	--
		0.15	66	5.7	3.0	--	0.6	--	1.2	0.6
		0.20	88	10.1	5.4	--	1.2	--	1.8	0.9
		0.25	110	15.8	8.4	--	1.5	0.6	2.4	1.5
900 x 600 [0.5]	315	0.10	53	--	--	--	--	--	0.6	--
		0.15	79	2.7	--	--	0.6	--	1.2	0.6
		0.20	106	4.9	3.8	--	0.9	--	1.8	0.9
		0.25	132	7.6	5.8	--	1.5	0.6	2.4	1.5
600 x 900 [0.5]	200	0.10	53	3.0	--	--	0.9	--	1.5	0.6
		0.15	79	6.7	2.9	--	1.5	0.6	2.4	1.5
		0.20	106	12.1	5.2	--	2.1	1.2	3.0	2.1
		0.25	132	18.7	8.1	--	2.7	1.8	3.0	3.7
750 x 900 [0.6]	250	0.10	67	--	--	--	0.6	--	1.5	0.6
		0.15	100	5.4	2.9	--	1.5	0.6	2.4	1.5
		0.20	133	9.6	5.2	--	2.1	1.2	3.0	2.1
		0.25	166	14.9	8.0	--	2.7	1.5	3.7	2.4
900 x 900 [0.7]	315	0.10	80	--	--	--	0.6	--	1.5	0.6
		0.15	120	4.04	2.61	--	1.5	0.6	2.4	1.5
		0.20	160	7.18	4.6	--	2.1	1.2	3.0	2.1
		0.25	200	11.22	7.3	--	2.7	1.5	3.7	2.4
600 x 1200 [0.7]	315	0.10	71	--	--	--	1.5	0.6	2.4	1.5
		0.15	106	3.6	2.50	--	2.4	1.5	3.4	2.1
		0.20	142	6.5	4.5	--	3.0	2.1	4.0	3.0
		0.25	177	10.1	7.0	--	3.7	2.4	4.6	3.4
750 x 1200 [0.8]	250	0.10	89	3.2	--	--	1.5	0.6	2.1	1.2
		0.15	134	7.2	2.7	--	2.1	1.2	3.0	2.1
		0.20	178	12.6	4.7	--	3.0	1.8	4.0	2.7
		0.25	222	19.6	7.3	--	3.4	2.4	4.6	3.4
900 x 1200 [1.0]	315	0.10	107	--	--	--	1.2	0.6	2.1	1.2
		0.15	160	5.3	2.8	--	2.1	1.2	3.0	2.1
		0.20	214	9.5	4.9	--	2.7	1.8	4.0	2.7
		0.25	268	14.8	7.7	--	3.4	2.4	4.6	3.4
600 x 1500 [0.8]	200	0.10	89	5.0	--	--	2.1	1.2	3.0	1.8
		0.15	133	11.1	--	--	3.0	1.8	4.0	2.7
		0.20	177	19.6	--	--	3.7	2.7	4.6	3.7
		0.25	222	30.9	--	20	4.3	3.0	5.2	4.3
750 x 1500 [1]	250	0.10	111	3.9	--	--	2.1	0.9	2.7	1.8
		0.15	167	8.8	--	--	2.7	1.8	4.0	2.7
		0.20	223	15.7	3.2	--	3.7	2.4	4.6	3.7
		0.25	278	24.3	5.0	17	4.3	3.0	5.2	4.0
900 x 1500 [1.3]	315	0.10	134	2.9	--	--	1.8	0.9	2.7	1.8
		0.15	201	6.6	2.60	--	2.7	1.8	4.0	2.7
		0.20	268	11.7	4.6	--	3.7	2.4	4.6	3.4
		0.25	335	18.3	7.2	--	4.3	3.0	5.2	4.0
600 x 1800 [1.0]	200	0.10	107	5.9	--	--	2.4	1.5	3.7	2.4
		0.15	160	13.2	--	--	3.7	2.4	4.6	3.4
		0.20	213	23.5	--	16	4.3	3.0	5.2	4.0
		0.25	267	36.9	--	23	4.9	3.7	5.8	4.6
750 x 1800 [1.3]	250	0.10	134	4.7	--	--	2.4	1.5	3.4	2.4
		0.15	201	10.5	--	--	3.4	2.4	4.3	3.4
		0.20	268	18.7	--	--	4.3	3.0	5.2	4.0
		0.25	335	29.2	--	20	4.9	3.7	5.8	4.6
900 x 1800 [1.5]	315	0.10	161	3.5	--	--	2.4	1.5	3.4	2.4
		0.15	242	7.9	--	--	3.4	2.4	4.3	3.4
		0.20	322	14.0	3.7	--	4.3	3.0	5.2	4.0
		0.25	403	21.9	5.8	17	4.9	3.7	5.8	4.6

DISPLACEMENT VENTILATION

Performance Notes:

- Sound and pressure drop tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow is in Litres per second, L/s.
- Pressure is in Pascals, Pa.
- The NC values, sound pressure level, are based on a room absorption of 10 dB, re 10⁻¹² watts and one diffuser.
- ΔT is the difference between the room air temperature 1 m above the floor and the temperature of the supply air.
- Proximity to outlet is the minimum distance from an outlet to the occupant in order to achieve the listed DR value.
- Distances closer to the diffuser have a higher DR than the cataloged value.
- DR is the predicted percentage of people dissatisfied (PPD) due to draft. A value of less than 20 meets the requirements of ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy.
- Blanks (--) indicate that the DR is below the specified value at all distances from the diffuser face.
- DR catalog data is presented for an occupant density of 25 people/100m², which is the default occupancy density for classrooms (ages 5-8) given by ASHRAE 62.1-2004. For other occupant densities, please refer to the DV Room Designer Software.
- Performance data for standard diffusers not listed in the catalog is available in Price AIO Software.

Wall Mounted Displacement Diffusers

SECTION 23 06 30 – PRODUCT

PART 1 - GENERAL

1.1 Summary

- A. This section includes the following:
 - 1. Floor mounted displacement diffusers

1.2 Related Documents

- A. 23 01 00 – Operation and Maintenance of HVAC Systems
- B. 23 05 00 – Common Work Results for HVAC
- C. 23 09 00 – Instrumentation of Control for HVAC
- D. 23 20 00 – HVAC Piping and Pumps
- E. 23 30 00 – HVAC Air Distribution

1.3 Submittals

- A. Product Data: For each type of product indicated, include rated capacities, furnished specialties and accessories.
- B. Shop Drawings: For each type of product indicated, include the following:
 - 1. Detail equipment assemblies and indicated dimensions.
 - 2. Required clearances.
 - 3. Method of field assembly.
 - 4. Revit models
- C. Coordination Drawings: Include floor plans, and other details, drawn to scale, one which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Ceiling-mounted items including;
 - a. Fixtures
 - b. Lightning fixtures
 - c. Speakers
 - d. Sprinklers
 - e. Access panels
 - f. Diffusers
 - g. Grilles
 - h. Air inlets
 - i. Perimeter molding for exposed or partially exposed cabinets.
- D. Operation and Maintenance Data: To include in emergency, operation and maintenance manuals, maintenance schedules and repair part lists for all parts.

1.4 Quality Assurance

- A. Product Options: Include drawings indicating size, profiles and dimensional requirements of the displacement ventilation diffusers that are based on the specific system indicated.
- B. Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70, Article 100 by a testing agency acceptable to authorities having jurisdiction and marked for intended use.

1.5 Coordination

- A. Coordinate layout and installation of diffusers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

- B. Specific configuration of the supply and return ductwork and at each unit has been indicated on the drawings. If the configuration of the units furnished on the project differs from that indicated on the drawings (whether or not the units furnished are the specific units or an acceptable substitute), it shall be the contractor's responsibility to modify ductwork, etc., as required to accommodate the actual configuration of units furnished on the project.

PART 2 – PRODUCTS

2.1 General

- A. Manufacturer shall be responsible for examining applications of each type of unit to assure that each will operate properly in the intended application.
- B. Unit sizes are shown as selected in accordance with the principles set forth in the ASHRAE Guide and Manufacturer's literature.
- C. All items of a given type shall be the products of the same manufacturer.

2.2 Manufactureres

- A. In Part 2 articles where titles below introduce lists, the following requirements apply to selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
Manufacturers shall demonstrate that they have successfully supplied and installed displacement ventilation products, as well as the computer modeling thereof for a minimum of 10 years. Manufacturers must be pre-qualified to bid based on the completion of a minimum of xx jobs in similar climates. Manufacturers shall provide a list of completed jobs and references.

2.3 DF1 Displacement Diffusers

- A. Approved Manufacturers:
 - 1. Price
- B. Description: Furnish and install Price model series DF1 (WxHxD) with the sizes and capacities indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even across the diffuser face, in all ducting configurations and without the use of nozzles.
Diffuser Manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006. Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2004. A manufacturer software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.

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D. Construction: The 1 way flat faced Displacement diffuser, model DF1 shall be constructed with an equalization baffle behind the operative diffuser face for uniform, low velocity, distribution of supply air. Both the equalization baffle and face shall be securely retained in the diffuser frames. Plastic nozzle arrays or any plastic components are unacceptable. The diffuser frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the operative face and side panels. There shall be no visible fasteners on the front or side panels. The operative face shall be constructed of painted 16 gauge perforated steel, rear side and end panels shall be provided in painted 20 gauge steel. The frame and internal baffling elements shall be constructed of Aluminum. The diffuser shall be available for duct connection at the top, bottom, side or rear of the diffuser with a factory or field cut inlet. The paint shall be powder coat polyester. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The diffuser shall be supplied with a rail mounting system that does not require puncturing the diffuser to install.

Mounting/Fastening: The diffuser shall fasten to the wall via a rail mounting system. The rail mounting system with metal cover strips to conceal all visible fasteners.

2.4 DF3 Displacement Diffusers

- A. Approved Manufacturers:
1. Price
- B. Description: Furnish and install Price model series DF3 (WxHxD) with the sizes and capacities indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even across the diffuser face, in all ducting configurations and without the use of nozzles. Diffuser Manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006. Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2004. A software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.
- D. Construction: The 3 way flat faced Displacement diffuser, model DF3 shall be constructed with an equalization baffle behind the operative diffuser faces for uniform, low velocity, distribution of supply air. Both the equalization baffle and faces shall be securely retained in the diffuser frames. Plastic nozzle arrays or any plastic components are unacceptable. The diffuser frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the operative face and side panels. There shall be no visible fasteners on the front or side panels. The operative faces shall be constructed of painted 16 gauge perforated steel,

rear and end panels shall be provided in painted 20 gauge steel. The frame and internal baffling elements shall be constructed of Aluminum. The diffuser shall be available for duct connection at the top, bottom, or rear of the diffuser with a factory or field cut inlet. The paint shall be powder coat polyester. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The diffuser shall be supplied with a rail mounting system that does not require puncturing the diffuser to install.

- E. Mounting/Fastening: The diffuser shall fasten to the wall via a rail mounting system. The rail mounting system with metal cover strips to conceal all visible fasteners.

2.5 DF1C Displacement Diffusers

- A. Approved Manufacturers:
1. Price
- B. Description: Furnish and install Price model series DF1C (WxH) with the sizes and capacities indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even across the diffuser face, in all ducting configurations and without the use of nozzles. Diffuser Manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006. Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2004. A software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.
- D. Construction: The 1 Way Flat Faced Corner Displacement diffuser, model DF1C, shall be constructed with an equalization baffle behind the operative diffuser face for uniform, low velocity, distribution of supply air. Both the equalization baffle and face shall be securely retained in the diffuser frames. Plastic nozzle arrays or any plastic components are unacceptable. The diffuser frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the operative face and side panels. There shall be no visible fasteners on the front or side panels. The operative face shall be constructed of painted 16 gauge perforated steel, side and end panels shall be provided in painted 20 gauge steel. The frame and internal baffling elements shall be constructed of Aluminum. The diffuser shall be available for duct connection at the top, bottom, or rear of the diffuser with a factory or field cut inlet. The paint shall be powder coat polyester. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The diffusers shall be supplied with concealed mounting brackets that do not require puncturing the diffuser to install.
- E. Mounting/Fastening: The diffuser shall be supplied with concealed mounting bracket that do not require puncturing the diffuser to install.

Wall Mounted Displacement Diffusers

2.6 DR90 Displacement Diffusers

- A. Approved Manufacturers:
 - 1. Price
- B. Description: Furnish and install Price model series DR90 (DiAxH) with the configurations and mounting types indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even across the diffuser face, in all ducting configurations and without the use of nozzles. Diffuser Manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006. Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2004. A software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.
- D. Construction: The 90 Degree Supply Radial Displacement diffuser, model DR90 shall be constructed with an equalization baffle behind the operative diffuser face for uniform, low velocity, distribution of supply air. Both the equalization baffle and face shall be securely retained in the diffuser frames. Plastic nozzle arrays or any plastic components are unacceptable. The diffuser frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the operative face and side panels. There shall be no visible fasteners on the front or side panels. The operative face shall be constructed of painted 18 gauge perforated steel, top and bottom panels shall be provided in painted 20 gauge steel. The frame and internal baffling elements shall be constructed of Aluminum. The diffuser shall be available for duct connection at the top, bottom, or rear of the diffuser with a factory or field cut inlet. The paint shall be powder coat polyester. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The diffuser shall be supplied with a rail mounting system that does not require puncturing the diffuser to install.
- E. Mounting/Fastening: The diffuser shall fasten to the wall via a rail mounting system. The rail mounting system with metal cover strips to conceal all visible fasteners.

2.7 DR180 Displacement Diffusers

- A. Approved Manufacturers:
 - 1. Price
- B. Description: Furnish and install Price model series DR180 (DiAxH) with the configurations and mounting types indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even across the diffuser face, in all ducting configurations and without the use of nozzles. Diffuser Manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE standard 70-2006. Performance data for Draft

Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2004. A manufacturer software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.

- C. Construction: The 180 Degree Supply Radial Displacement diffuser, model DR180 shall be constructed with an equalization baffle behind the operative diffuser face for uniform, low velocity, distribution of supply air. Both the equalization baffle and face shall be securely retained in the diffuser frames. Plastic nozzle arrays or any plastic components are unacceptable. The diffuser frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the operative face and side panels. There shall be no visible fasteners on the front or side panels. The operative face shall be constructed of painted 18 gauge perforated steel, top and bottom panels shall be provided in painted 20 gauge steel. The frame and internal baffling elements shall be constructed of aluminum. The diffuser shall be available for duct connection at the top, bottom, or rear of the diffuser with a factory or field cut inlet. The paint shall be powder coat polyester. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The diffuser shall be supplied with a rail mounting system that does not require puncturing the diffuser to install.
- D. Mounting/Fastening: The diffuser shall fasten to the wall via a rail mounting system. The rail mounting system with metal cover strips to conceal all visible fasteners.

2.8 DR180U Displacement Diffusers

- A. Approved Manufacturers:
 - 1. Price
- B. Description: Furnish and install Price model series DR180U (DiAxH) with the configurations and mounting types indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even across the diffuser face, in all ducting configurations and without the use of nozzles. Diffuser Manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006. Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2004. A manufacturer software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.

Wall Mounted Displacement Diffusers

- D. Construction: The 180U Degree Supply Radial Displacement diffuser, model DR180U shall be constructed with an equalization baffle behind the operative diffuser face for uniform, low velocity, distribution of supply air. Both the equalization baffle and face shall be securely retained in the diffuser frames. Plastic nozzle arrays or any plastic components are unacceptable. The diffuser frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the operative face and side panels. There shall be no visible fasteners on the front or side panels. The operative face shall be constructed of painted 18 gauge perforated steel, top and bottom panels shall be provided in painted 20 gauge steel. The frame and internal baffling elements shall be constructed of Aluminum. The diffuser shall be available for duct connection at the top, bottom, or rear of the diffuser with a factory or field cut inlet. The paint shall be powder coat polyester. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The diffuser shall be supplied with a rail mounting system that does not require puncturing the diffuser to install.
- E. Mounting/Fastening: The diffuser shall fasten to the wall via a rail mounting system. The rail mounting system with metal cover strips to conceal all visible fasteners.

2.9 Diffuser Accessories

- A. Bases for displacement diffuser models: DF1, DF3, DF1C, DR90, DR180, DR180U
Diffuser manufacturer shall provide bases under each displacement diffuser. The base shall allow for removal from the space for access to the inlet of the diffuser if ducted from below. The base shall have an extruded aluminum frame and 20 gauge solid steel face. Base heights shall be as indicated on the drawings. Finish shall be B12 – white, or as indicated.
- B. Duct Covers for displacement diffuser models: DF1, DF3, DR90, DR180, DR180U
Diffuser manufacturer shall provide duct covers available for all inlet locations. The duct covers shall be manufactured by the diffuser manufacturer. The duct cover face shall be constructed of painted 18 gauge (solid/perforated) steel. The duct cover frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the face and side panels. The duct cover shall be supplied with a rail mounting system with metal cover strips to conceal all fasteners. All duct covers shall be factory assembled and shipped complete with the associated diffuser. There shall be no visible fasteners on the duct cover panels. The paint shall be powder coat polyester to match the diffuser or as selected by the architect. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. The paint shall be powder coat polyester to match the diffuser or as selected by the architect.

- C. Duct Covers for displacement diffuser models: DF1C
Diffuser manufacturer shall provide duct covers available for all inlet locations. The duct cover face shall be securely retained in the mounting frames. The duct cover face shall be constructed of painted 18 gauge (solid/perforated) steel. The duct cover frames shall be constructed of high strength aluminum extrusion for rigidity and protection of the face. There shall be no visible fasteners on the duct cover panels. The paint shall be powder coat polyester to match the diffuser or as selected by the architect. Epoxies and their derivatives are unacceptable. Visible non-metallic components are unacceptable. All duct covers shall ship complete with the associated diffuser.
- D. AFSD's for displacement diffuser models: DF1, DF3, DF1C, DR90, DR180, DR180U
1. Approved Manufacturers:
a. Price
B. Description: Furnish and install Price model series Adjustable Flow Station for Displacement Diffusers, AFSD, (DiAxH) as indicated on the plans and air outlet schedule.
C. Performance: The manufacturer shall supply pressure loss data and air flow ranges for the various sensing device sizes.
D. Construction: The air flow sensor shall be of a cross configuration. The sensor shall have twelve total pressure sensing ports and a center averaging chamber designed to accurately average the flow across the inlet of the assembly. Sensor shall meet accuracy within 5% with a 90° sheet metal elbow directly at the inlet of the assembly. The air flow sensor shall amplify the sensed air flow signal. Two flexible tubes, one connected to the high pressure port and the other connected to the low pressure port of the air flow sensor, shall extend through the assemble housing to allow for easy monitoring of the air flow.
The unit shall be constructed of 22 gauge zinc coated steel. The damper shall incorporate a lever for manual adjustment and a wing-nut for locking the damper in position.

PART 3 – EXECUTION

3.1 Installation – General

- A. Install displacement diffusers level and plumb. Maintain sufficient clearance for normal services, maintenance, or in accordance with construction drawings.
- B. Complete installation and startup checks according to manufacturer's instructions and perform the following.
1. Verify that inlet duct connections are as recommended by manufacture to achieve proper performance.
 2. Verify that any identification tags are visible.
 3. Verify locations of thermostats, humidistats, and other exposed control sensors with Drawings and room details before installation.