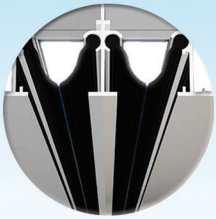
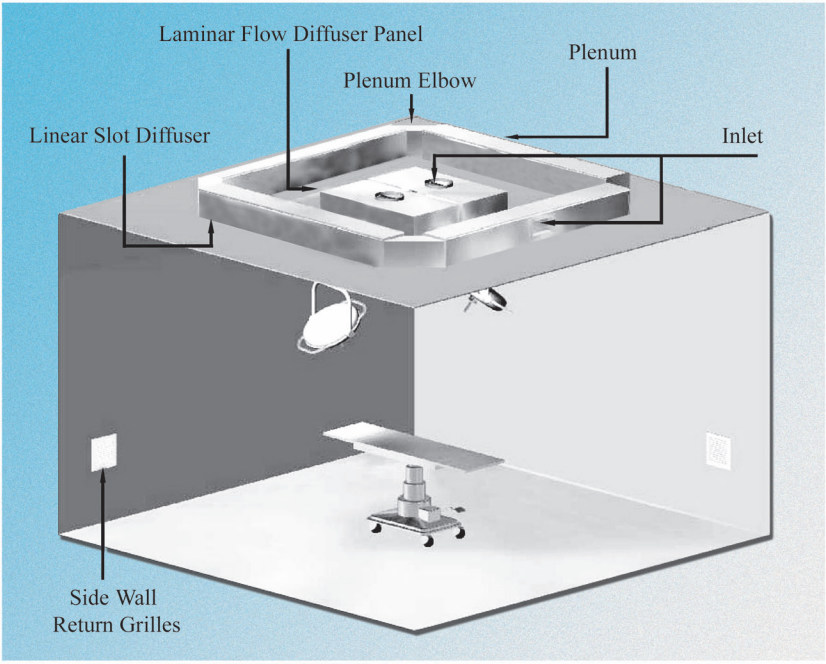
DEKET



Medical / Clean Room Diffusers

دریچه های بیمارستانی

Sterile Environment System For Critical Room Applications



Sterile Environment System For Critical Room Applications

سیستم فضای پاک برای کاربردهای حیاتی

General Information

The system uses three basic components to minimize mixing of room and supply air in the operating table area. (Figure 1)

اطلاعات کلی :

این سیستم شامل سه بخش اساسی برای تامین هوای پاک در اطراف میز عمل یا کار می باشد.(شکل زیر)

Laminar flow Panels

Laminar flow Panel diffusers (model DLFD) are located over the operating table work area. The laminar center panels (1) create a positive pressure over the operating table forcing the air particles out and away from the patient towards the perimeter curtain.
These air particles are then induced in to the air curtain (2) which draws the air particles away from the sterile environment.(3)

طرز کار :

دریچه های مدل DLFD درست بالای میز عمل قرارمی گیرند. این دریچه ها (۱) با ایجاد فشاری مثبت روی میز جراحی ذرات هوا را با نیروی کافی از دو طرف بیمار به اطراف می را نند. سپس این ذرات هوا خود بخشی از پرده هوا شده (۲) و همراه با هوای آلوده به خارج از اتاق رانده می شوند.(۳)

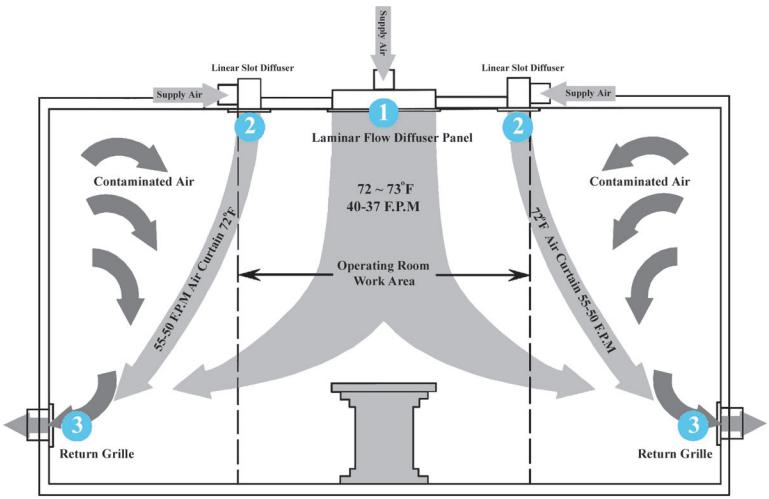


Figure 1. System Components

Selection Procedure & General Information

Required Design Criteria:
• Room Size
• Total CFM or required air changes rate (ASHRAE recommends that operating rooms have no less than 25 air changes per hour)

Selection Example:
Room Size: 20'x20'x9' height
CFM = 2200

1. Calculate the air changes per hour to ensure that the given specifications will fall within ASHRAE recommended guidelines for operating rooms of a minimum of 25 air changes per hour.

Room Volume = 20×20×9=3600 ft^3

ACH = (Total CFM×60 minutes)/Room Volume
= (2200×60 minutes)/3600
= 37 air changes per hour (which is above the 25 air changes per hour minimum)

2. Referencing the performance chart on page 4 , 2200 falls outside the given range for the 8x8, 12x6 systems. The CFM per linear foot for the perimeter and the CFM per square foot for the center panels should be approximately the same. The best designs generally fall midrange from 33-37 CFM per linear foot which allows the system to accommodate unexpected design changes in supply airflow on both the high and low ends. To calculate the CFM per linear foot, use the following:

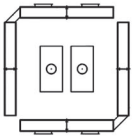
   a. The perimeter of the system should accommodate roughly two thirds of the total CFM with the center panels accommodating the other third.
   b. Perimeter CFM = 2000×0.65 = 1300 CFM
      Center Panel CFM = 2000×0.35 = 700 CFM
      For each system you can then calculate the CFM per linear foot for the perimeter by dividing the Perimeter CFM by the Total perimeter length. The CFM per square foot for the center panels is calculated by dividing the Center Panel CFM by the total center panel area.

System Perimeter	Total Perimeter (ft)	CFM per linear foot using Given CFM	Number of Center Panels	Center Panel Size (ft)	Center Panel Area (ft^2)	CFM per square foot using Given CFM
10x10	40	36	4	(2)4x2, (2)2x2	24	32
12x8	40	36	4	(2)4x2, (2)2x2	24	32
12x12	48	30	4	(2)4x2, (2)2x2	24	32
14x10	48	30	4	(2)4x2, (2)2x2	24	32

   c. As shown in the chart, each of the systems would accommodate the 2200 CFM given . Since the 36 CFM per linear foot is in the midrange, the 10x10 or 12x8 system would be the best choice . Room design and operating room layout may need to be considered at this point to see whether the square or rectangle system is better suited.

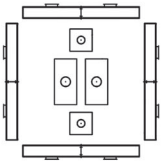
Suggested Layouts

8×8



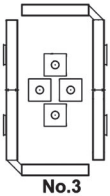
No.1

10×10

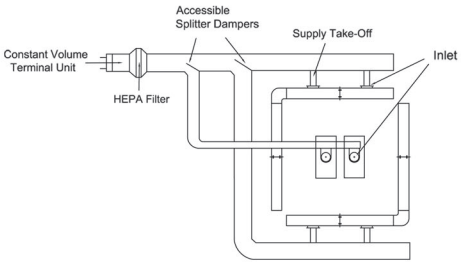


No.2

12×6

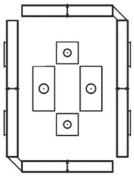


No.3



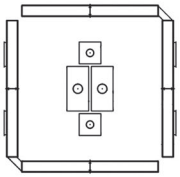
Reflected ceiling view of the system components

12×8



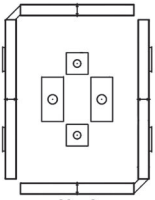
No.4

12×12



No.5

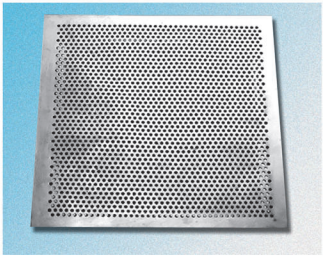
14×10



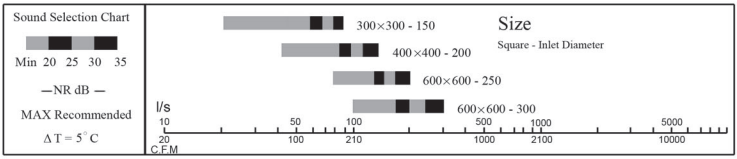
No.6

No	Minimum Total System CFM	Maximum Total System CFM	Recommended Total System CFM	NC	System Perimeter (ft)	Inlet Size (in)	Center Panel Size (ft)	Inlet Size (in)
1	1210	2050	1620	<15	8x8	(4)17x5	4x2	(2)10
2	1680	2740	2150	<15	10x10	(8)12x5	(2)4x2,(2)2x2	(2)10(2)8
3	1400	2050	1750	<15	12x6	(4)20x5	2x2	(4)8
4	1700	2750	2300	<15	12x8	(4)25x5	(2)4x2,(2)2x2	(2)10(2)8
5	1850	3100	2450	<15	12x12	(4)25x5	(2)4x2,(2)2x2	(2)10(2)8
6	1850	3100	2500	<15	14x10	(4)25x5	(2)4x2,(2)2x2	(2)10(2)8

Perforated Diffuser

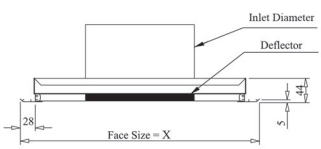


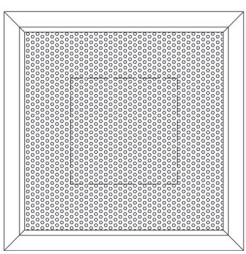
Sound Selection Guide



	Size	× Size	Inlet dia.
A	300 × 300 – 125	300	150
B	400 × 400 – 200	400	200
C	600 × 600 – 250	600	250
D	600 × 600 – 300	600	300

FLUSH MOUNTING





Description :

- Perforated diffuser is designed for flush mounting and suspended ceilings.
- The diffuser is available in 1,2,3 or 4-way blow configurations.
- The perforated face may be removed from the frame for installation and cleaning.
- The frames are made from aluminum with a perforated, galvanized core.

Finish :

- Each diffuser is powder coated with unless otherwise specified.

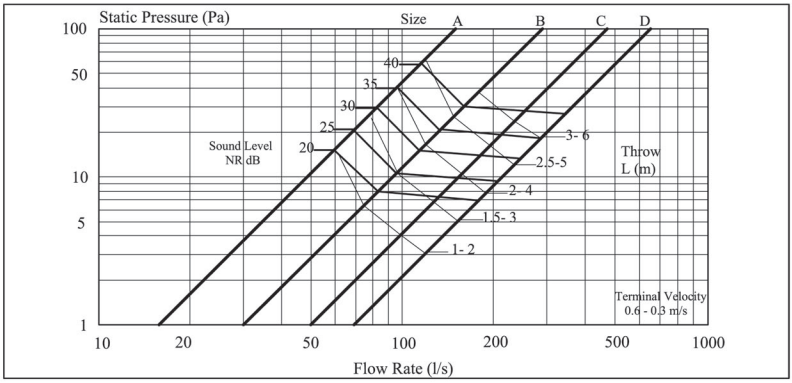
Perforated Diffuser

Engineering Graphs

Throws shown are to a terminal velocity of 0.60 m/s and 0.30 m/s.

Terminal velocity	Approximate air Velocity in room
0.60 m/s 0.30 m/s	0.30 m/s 0.15 m/s

4-way pattern



- One m/sec = 200 F.P.M.
- One Lit/sec = 2.12 C.F.M.
- One mm of H_2O = 9.81 Pascal (N/m^2) = 0.0394 inch of H_2O.