ULTRASUITE®

OPERATING ROOM DIFFUSER SYSTEM WITH LED LIGHTING

price | CRITICAL ENVIRONMENTS

ULTRASUITE®
Operating Room Diffuser System with LED Lighting

Ultrasuite is a customizable air distribution and lighting solution specifically engineered for hospital operating rooms. High-output LED lighting combined with precision equalized laminar airflow eliminates the traditional "light ring", opening valuable ceiling space for surgical equipment while optimizing contaminant removal from the surgical zone. Conforming to all ASHRAE 170 requirements, the patented (pat. 10,401,049) Ultrasuite is the perfect combination of performance, aesthetics and efficiency.

12 in. low profile common plenum is quickly installed, and can be easily integrated in retrofit installations

Integrated LED lighting reduces ceiling congestion to provide space for ceiling mounted equipment

System layout can be customized to meet the unique requirements of each project

Single large diffuser array provides ideal laminar diffuser coverage for a contaminant free surgical zone

Booms and structural mounting by others

LED
High Efficiency 100+ lm/W LED

L80
L80 > 60,000 hours

Dimmable

IP67
IP67 Sealed LED

90+ CRI

INTEGRATED LED LIGHTING

+ The Ultrasuite transforms a typical laminar flow array diffuser into a combination high performance LED light fixture and laminar diffuser by incorporating LED lighting inside each individual diffuser module.

+ Lighting at the surgical table is optimized with the Ultrasuite positioned directly above the patient, reducing shadows within the surgical zone.

+ The large light-emitting surface of the Ultrasuite provides even lighting with a low luminous intensity to reduce glare on monitors and other reflective surfaces.

+ Various lighting color temperatures and flexible dimming control allow the Ultrasuite to meet the unique requirements of modern healthcare facilities.

+ Optional green lighting facilitates improved visibility of flat panel displays for the surgeon by enhancing images while also eliminating the glare that traditional overhead white lights cast on monitors.

TYPICAL APPLICATIONS

The Ultrasuite® is a fully customizable lighting and air distribution packaged system designed specifically for Operating Rooms. The Ultrasuite® meets the unique needs of operating rooms by providing low velocity laminar airflow, providing lighting directly above the patient table, and by freeing up valuable ceiling space for ceiling mounted equipment.

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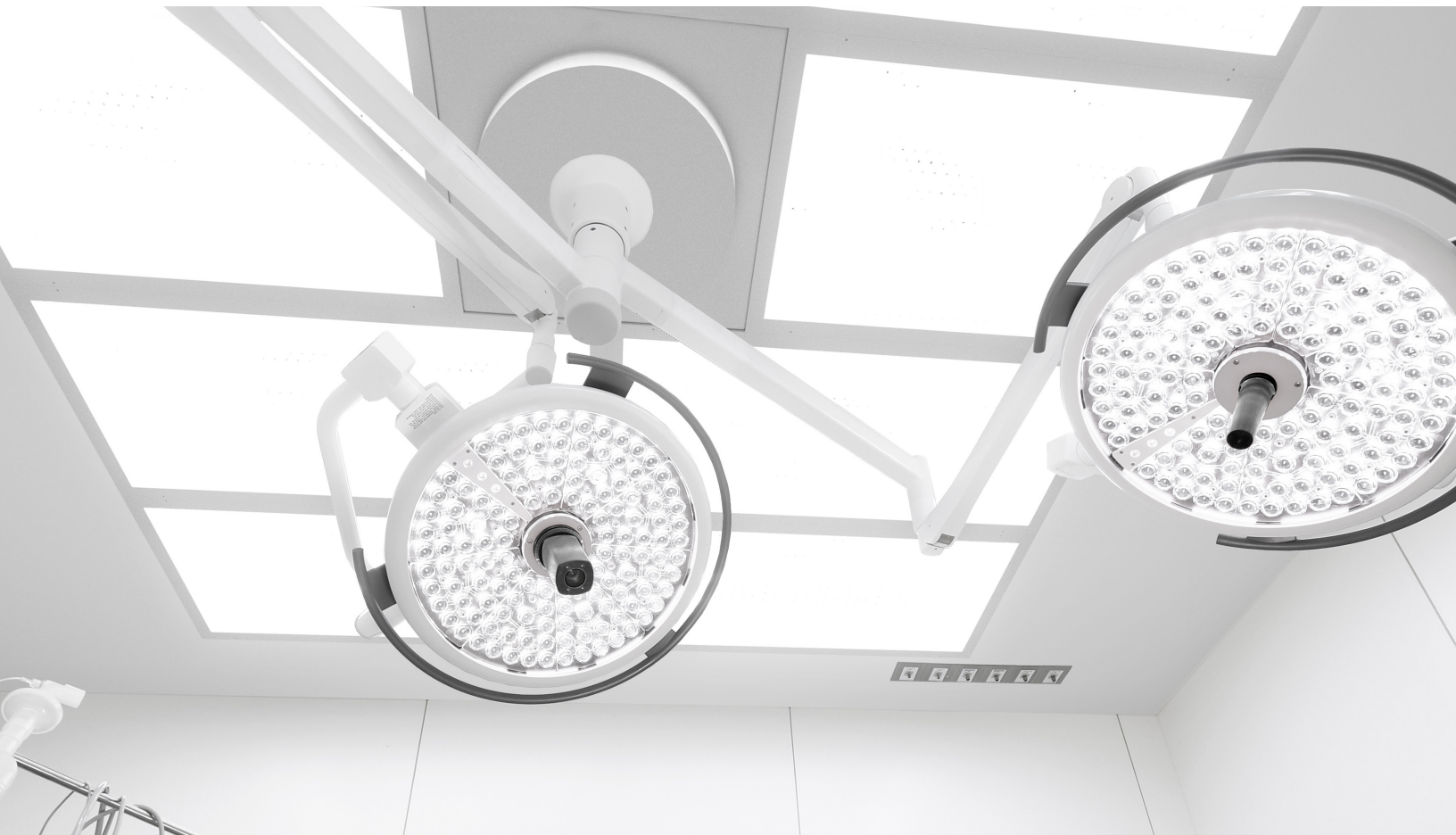
Traditional perimeter lighting and
laminar diffuser system (168 sq. ft.)

Ultrasuite integrated light and
diffuser system (80 sq. ft.)
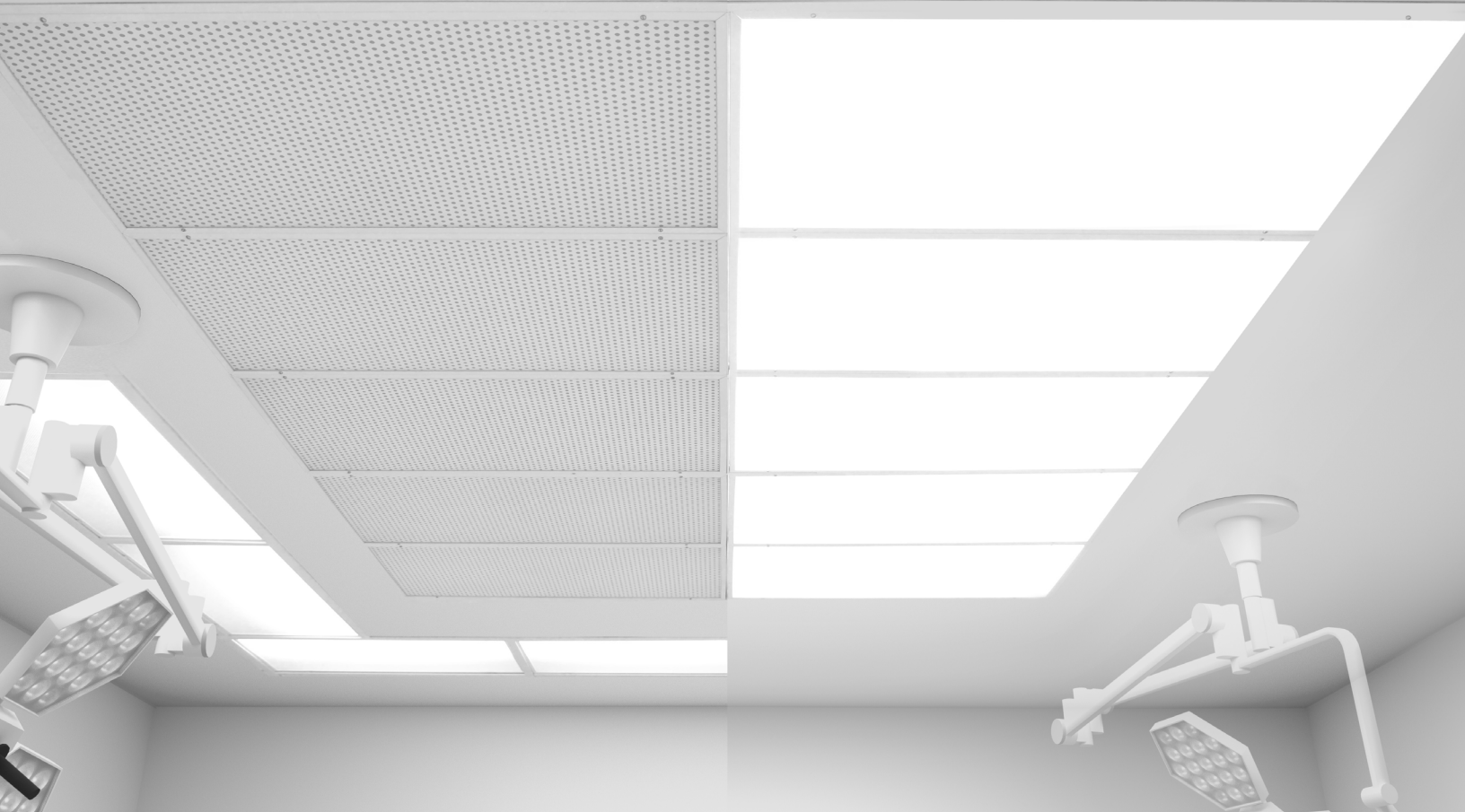
REDUCED CEILING CONGESTION

+   The Ultrasuite dramatically reduces the HVAC footprint in the ceiling by incorporating high-performance LED lighting directly within the laminar flow diffusers, effectively freeing space for other ceiling mounted equipment.

SINGLE LARGE DIFFUSER ARRAY

+   The single large diffuser design consists of a number of laminar flow diffusers, with a 12 in. low profile common plenum.

+   A highly engineered dispersion baffle and perforated face ensure even distribution of airflow within each diffuser module, regardless of system layout or inlet location.
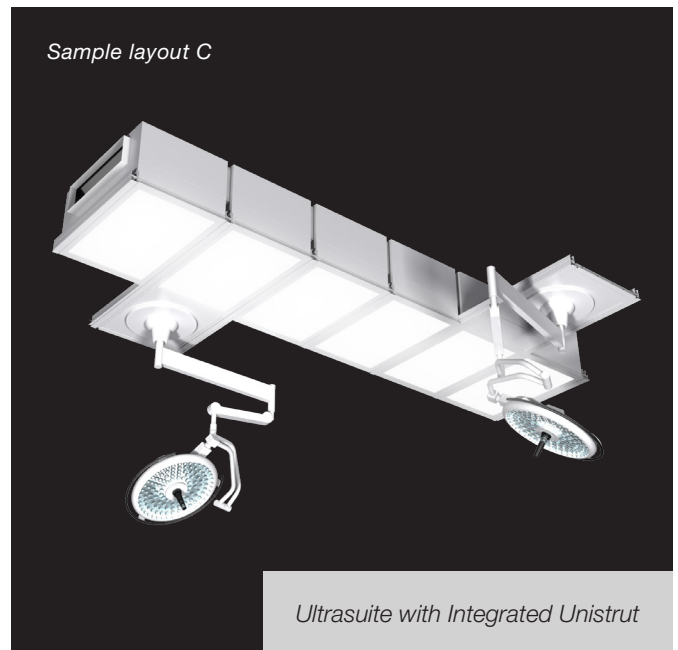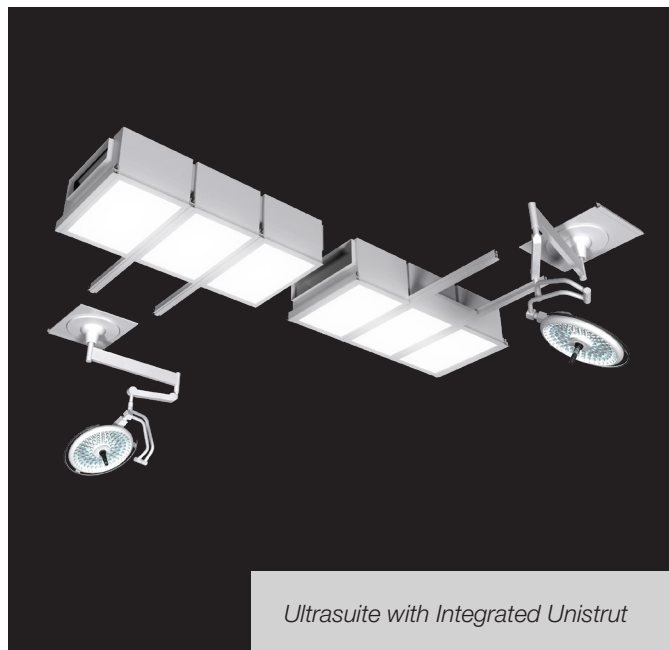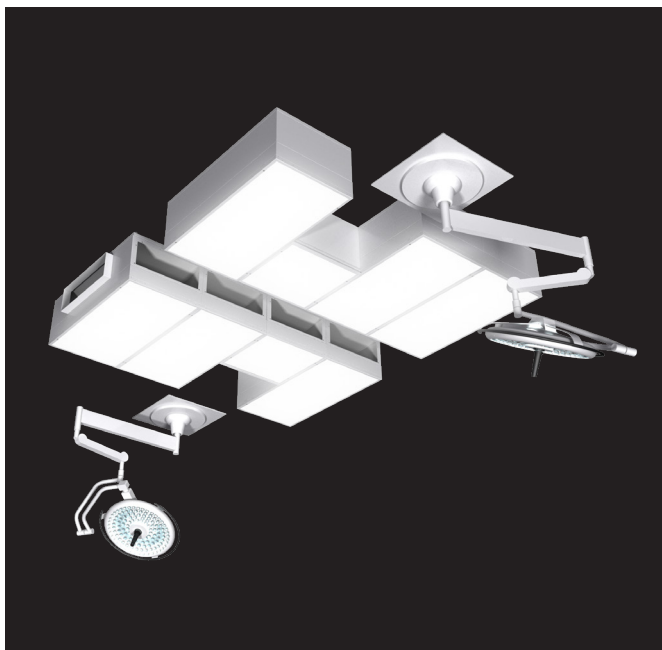
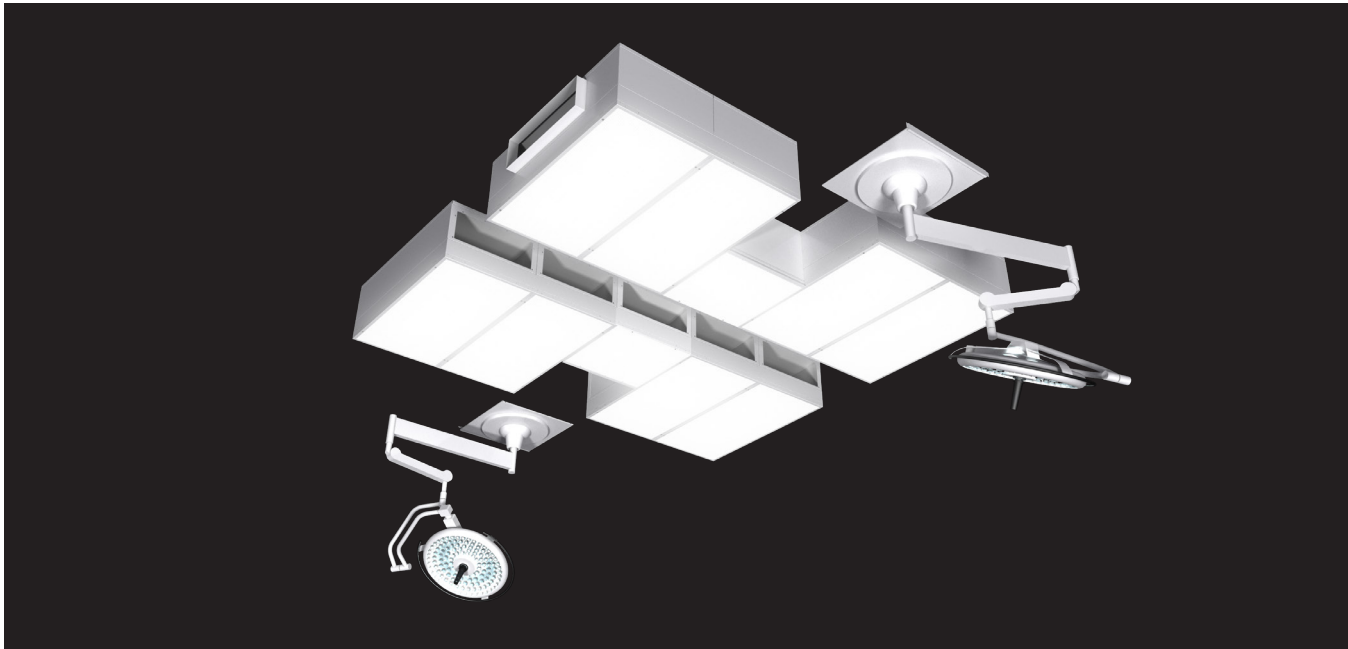*Sample layout A*
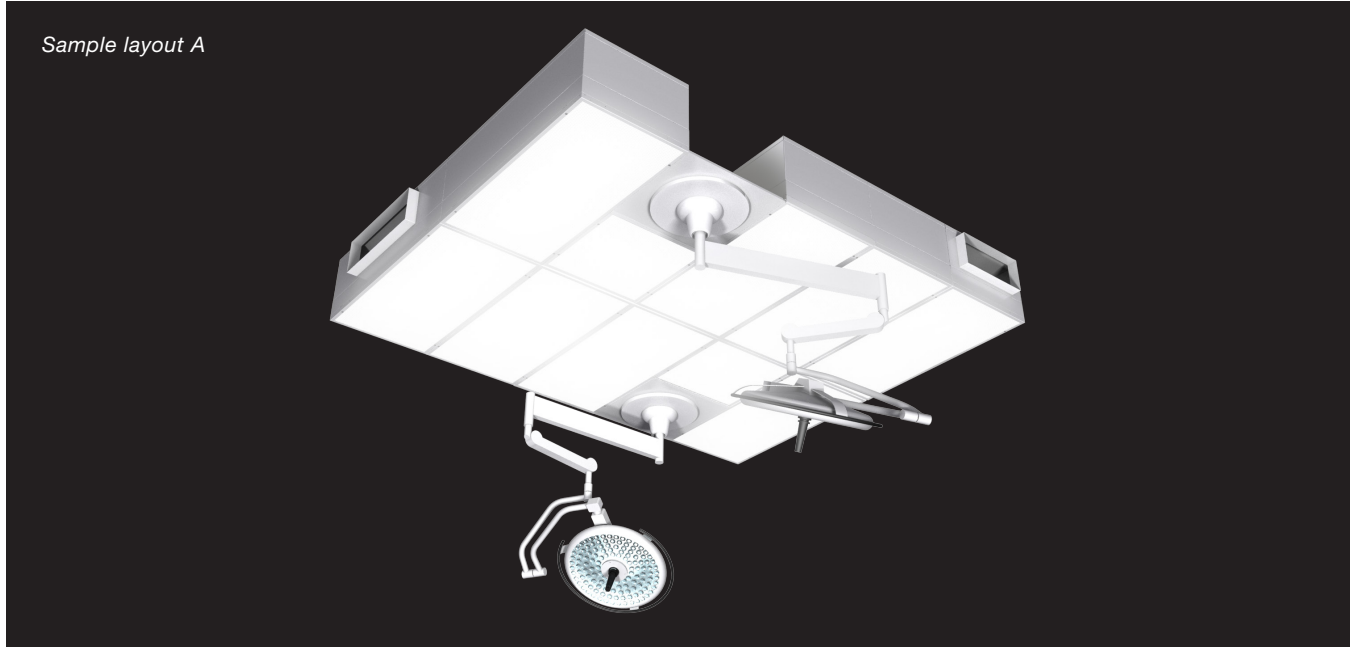
Sample layout B

Sample layout C

Ultrasuite with Integrated Unistrut
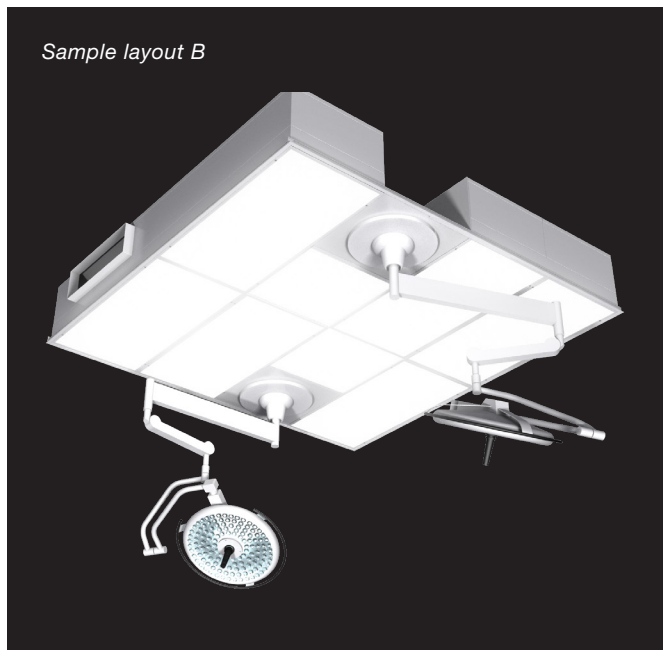
FULLY CUSTOMIZABLE

+ Flexible system and module sizes to suit any equipment layout.

+ Inlets can be positioned on the sides or top of the plenum to suit existing ductwork configurations, or to optimize ductwork layout for new construction.

Ultrasuite with Integrated Unistrut

EASY INSTALLATION

+ The Ultrasuite ships in large, factory-assembled sections to minimize installation time, and the closed-cell gasketed joints ensure an effective seal between modules.

+ Integrated balancing dampers at each module as well as factory installed and wired lighting with quick connect cables make set-up and commissioning simple and efficient.

+ Each Ultrasuite system ships with remote mounted driver cabinets. Each driver cabinet is factory wired for single point high voltage connection. All field wiring between the remoter driver cabinets and Ultrasuite is low voltage class 2 wiring.

SIMPLE MAINTENANCE

+ The Ultrasuite meets all ASHRAE 170 requirements for cleanability with stainless steel fasteners and retainer cables for easy removal of the diffuser face.

+ Optional room-side replaceable HEPA filters inside each Ultrasuite module provide clean air to the surgical zone. Integrated HEPA filters feature a gel seal to prevent filter bypass and pass on-site filter integrity testing.

+ Integrated LED lighting is a sealed, IP67 rated fixture that effectively seals out debris and liquids.

+ A remotely mounted control enclosure housing the LED drivers provides easy access for maintenance and replacement.

+ High quality LED lights have a long lifespan, rated at 80% original brightness for 60,000 hours. If required, individual LED strips are tool-free replaceable with quick-connect wiring.
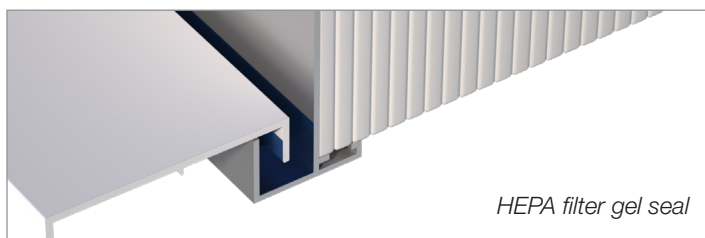

Remotely mounted LED drivers and enclosure
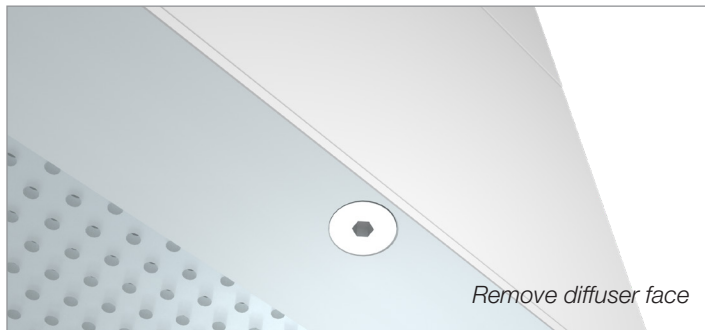
Remove diffuser face

Undo filter retainer tabs
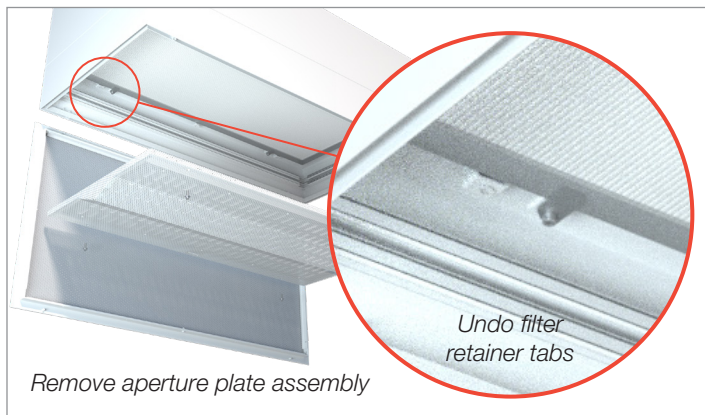
Remove aperture plate assembly

HEPA filter gel seal

Remove filter

SEISMIC CERTIFICATION PREAPPROVAL

+ Optional HCAI special seismic certification preapproval as per OSP-0627-10.

CODE COMPLIANCE & LISTINGS

+ **NFPA 90A-2018** Installation of Air Conditioning and Ventilating Systems

+ **ASHRAE 170-2017** Ventilation of Healthcare Facilities

+ **UL1598** Air-Handling Luminaries

+ **UL 2043** Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces

+ **UL2108** Low Voltage Lighting System

+ **UL8750** Light Emitting Diode (LED) Equipment for Use in Lighting Products

+ **UL1310** Class 2 Power Units

+ **UL94** Flammability of Plastic Materials for Parts in Devices and Appliances

+ **IP67** rated Ingress Protection Against Dust and Liquids

PERFORMANCE DATA

Individual Module

Unit Size	Inlet Size	Air Flow (cfm)	Face Velocity (fpm)	Static Pressure (in. w.g.)	NC
24 in. x 24 in.	10 in. x 3 in.	100	25	0.05	-
		120	30	0.07	19
		140	35	0.10	24
	14 in. x 3 in.	100	25	0.04	-
		120	30	0.06	-
		140	25	0.08	17
24 in. x 48 in.	20 in. x 3 in.	200	25	0.05	-
		240	30	0.06	20
		280	35	0.09	26

Performance Notes:
1. All pressure drops are in inches water gauge (in. w.g.)
2. cfm = Air flow in cubic feet per minute.

3. NC = Noise Criteria. NC values are based on room absorption of 10dB re 10^{-12} watts.
4. Blanks "-" indicate NC level below 15.

5. Static pressure and NC performance assumes fully open damper and no filter.
6. Tested in accordance with ASHRAE Standard 70.

Array

Configuration	Quantity 24 in. x 24 in. Modules	Quantity 24 in. x 48 in. Modules	Inlet Quanity	Inlet Size	Inlet Velocity (fpm)	Air Flow (cfm)	Face Velocity (fpm)	Static Pressure (in. w.g.)	Static Pressure with HEPA filter (in. w.g.)	NC
A	2	8	2	24 in. x 10 in.	540	1800	25	0.05	0.13	25
					648	2160	30	0.07	0.16	31
					756	2520	35	0.09	0.20	35
B	2	6	2	24 in. x 8 in.	525	1400	25	0.05	0.13	24
					630	1680	30	0.07	0.16	30
					735	1960	35	0.09	0.20	35
C	0	6	1	32 in. x 10 in.	540	1200	25	0.05	0.13	22
					648	1440	30	0.07	0.16	28
					756	1680	35	0.09	0.20	32

Performance Notes:
1. Ultrasuite array performance is dependant on array layout. Configurations A,B, and C are sample layouts shown on page 6.
2. Recommended inlet velocity is 500-800 fpm.

3. All pressure drops are in inches water gauge (in. w.g.).
4. cfm = Air flow in cubic feet per minute.
5. NC = Noise Criteria. NC values are based on room absorption of 10dB re 10^{-12} watts.

6. Blanks "-" indicate NC level below 15.
7. Static pressure and NC are calculated values based on test data with a fully open damper.
8. Tested in accordance with ASHRAE Standard 70.

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