



Avera St. Luke's Hospital FANWALL® Retrofit

Aberdeen, SD



Case for Action

Critical Care Areas Served by Single Fan AHU – No Backup

ENDOSCOPY
OUTPATIENT
SERVICES
SAME DAY
SURGERY

Avera 
St. Luke's

UNIVERSITY OF MICHIGAN HEALTH SYSTEM

Duct and Ceiling Damage From Past Moisture Carryover During High Humidity Periods



Final Filters Became Waterlogged And Ineffective From Moisture Carryover

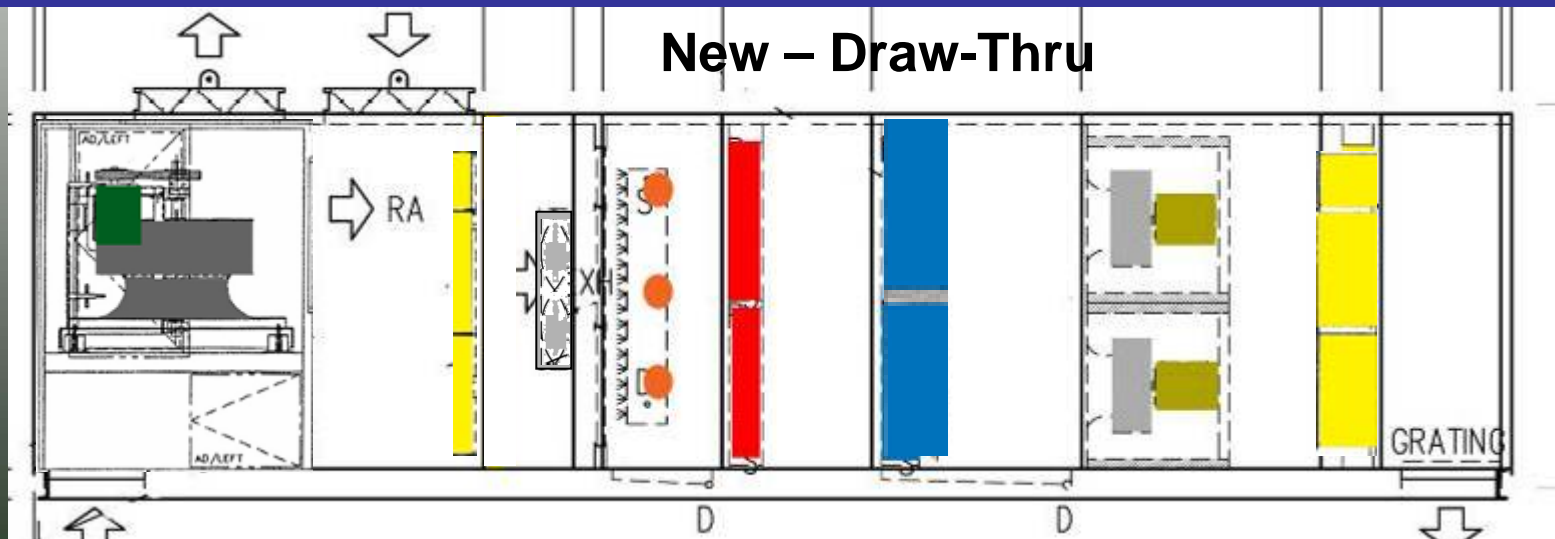
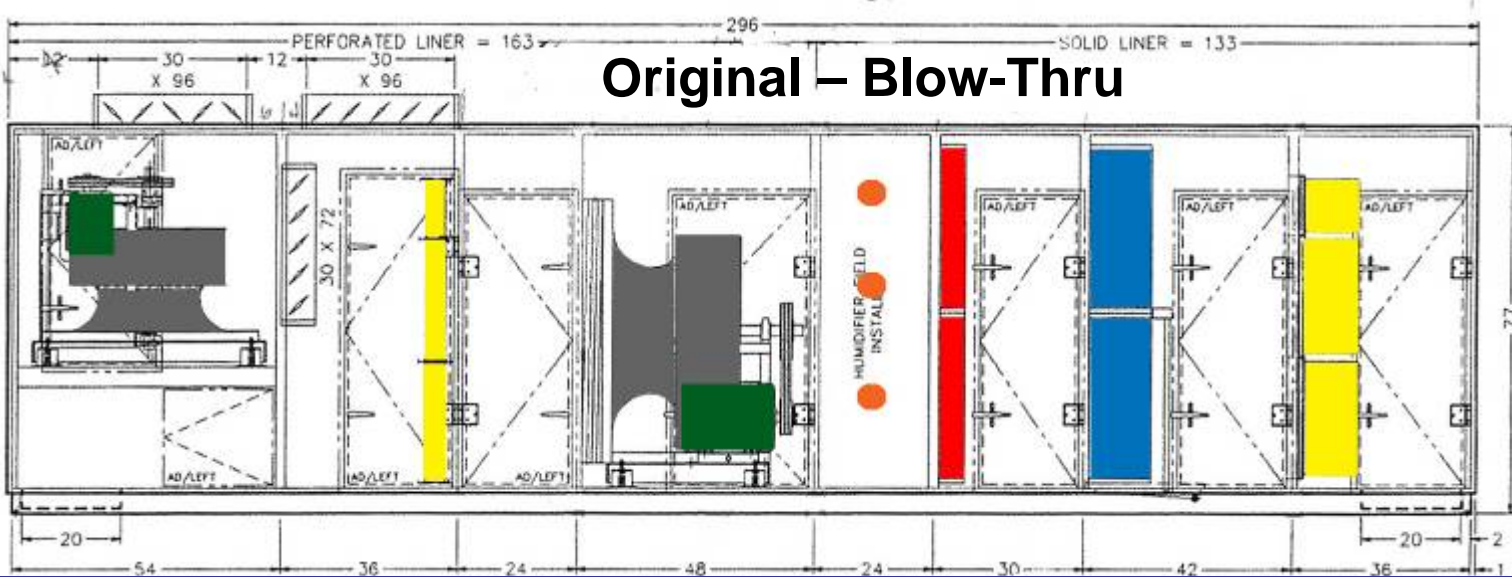


2nd Floor Interior Mechanical Equipment Room with Surrounding Medical Offices



How FANWALL TECHNOLOGY® Helped To Solve The Problems

AHU Configuration Change



19,020 cfm, 5" TSP, 24 BHP, 2x2 FANWALL® Array

FANWALL® Arrival and Unpack For Installation



Friday 3:15 pm

Easy To Cart FANWALL® Cells in to Location



Friday 3:35 pm

Easy to Move FANWALL Through Hallways and into Elevator



Friday 4:00 pm

Staging Area for FANWALL[®] Cells



Friday 4:02 pm

16-Year Old Temtrol® Air Handler



Friday 4:04 pm

Removing Old 30HP Motor and Cutting Out Single Fan Wheel



Friday 4:37 pm

Goodbye Belts



Reconfigured from Blow-Thru to Draw-Thru



Friday 5:45 pm

Cooling Coil Still Good After 16 Years



Friday 6:17 pm

Reusing Existing Panels and Frame – Temtrol® Welded-Frame Construction Solid After 16-Years



Friday 7:19 pm

Reuse/Reinstallation of Drain Pan



Friday 7:43 pm

Pre-Filter Section Reused



Past Cooling Coil Base Reinforced For FANWALL® Cells



Saturday 8:31 am

Time to bring in the FANWALL® Cells



Saturday 8:32 am

Four Men Safely Lift The FANWALL[®] Cell



Saturday 8:34 am

One



Two



Three

Saturday 8:45 am

Insulation Ships With The FANWALL® Cells For Insertion On All Four Sides for Coplanar Silencer



And Four



Saturday 10:08 am

Ready for Electrical Wiring



Saturday 10:12 am

Repositioning the Coils



Saturday 1:04 pm

Motor Wiring To Common Conduit Channel



Conduit Channel
Conceals Wiring



Inlet Screens Upstream of FANWALL® Cell Help to Reduce Air Turbulence and Sound



Unit Reconfigured And Re-piped



Sunday 12:47 pm

Frequency Drive Re-Programmed for Design Condition Speed of 89 Hz



Sunday 5:25 pm

Automation System Updated With New Set Points



Sunday 5:35 pm

New Drain Trap Designed Due To Static Pressure Change



Sunday 5:55 pm

FANWALL® Specs

1 FANWALL TECHNOLOGY® – Supply Fan Patent No 7,137,775 B2 and 7,179,046 B2 issued and others pending

1.1 Configuration / Quantity

a. Orientation	Horizontal Standard
b. Row Qty	2
c. Column Qty	2
d. Active Fans	4
e. Redundant Fans	0
f. Ship Loose Fans	0

1.3 Fan Wheel

a. Diameter	18
b. % Width	95
c. RPM	2595
d. Class	CLASS 2
e. Rotation	CW
f. Material	Aluminum

1.5 Construction

a. Inlet Cone Material	Steel Flat Cone
b. Inlet Cone Location	Upstream Removable
c. Coplanar Silencer	2 inch 1.5# Fiberglass
d. Air Straightener	Yes
e. Discharge Screen	None
f. Backdraft Damper	None
g. Finish	Powder Coat - grey

1.2 Performance

a. Total CFM	19,020
b. CFM per Fan	4,755
c. ESP	
d. TSP	5.00
e. Total BHP	23.63
f. BHP per Fan	5.91

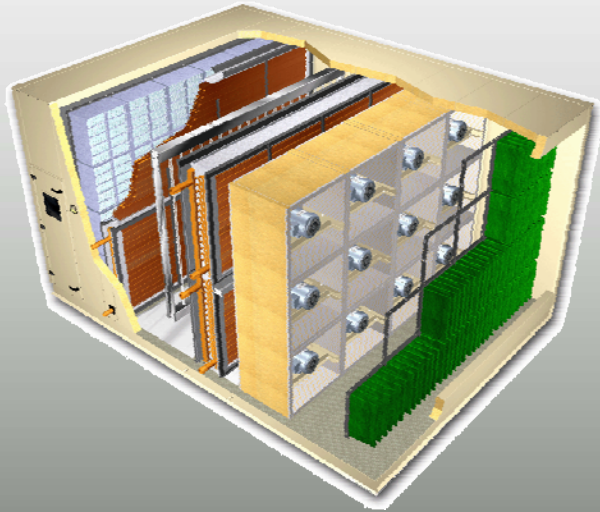
1.4 Motor

a. Manufacturer	Baldor
b. Model	EM3770T
c. Horsepower	7.5
d. RPM	1770
e. Frame	213T
f. Enclosure	TEFC
g. Efficiency	91.7
h. F.L. Amps	9.5
i. Service Factor	1.15
j. Voltage	460
k. Phase	Three Phase
l. Hertz	60
m. Shaft Grounding	AEGIS Shaft Grounding Ring - SGR-33.4-1

Timeline Overview

- **4 pm Friday**
 - Disassemble unit
 - Cut-out old fan
 - Rearrange sections from blow-thru to draw-thru
- **Saturday**
 - Install FANWALL™ array
 - Wire Fans
 - Reinstall Cooling Coils, Heating Coils and Humidifier
 - Add Air Blender
- **6 pm Sunday**
 - Re-pipe coils
 - Program VFD
 - Reprogram Automation System
 - Start-up
- **Completed ahead of schedule**

Multiple-Fan Arrays



FANWALL TECHNOLOGY[®] by HUNTAIR[®]

- Smaller footprint saves real estate
- Multiple fans adds reliability
- Low frequency sound reduction means quieter operation often without expensive sound traps or vibration isolation
- Smaller motors & air wheels are easier to maintain and retrofit
- Higher efficiency fan wheel means energy savings
- Direct drive fans means no belt maintenance
- Creates “Piston of Air” airflow meaning better utilization of filter and coil surface areas

Collateral \$ Savings with FANWALL® Systems

- ✓ Cost of Downtime
- ✓ Savings in real estate space
- ✓ Cost avoidance of sound attenuation and spring isolation
- ✓ Energy savings from less junk in the air trunk and high efficiency fans on VFDs
- ✓ Cost savings from reduced electrical service
- ✓ Cost savings from smaller backup generator
- ✓ Cost avoidance of belt and drive maintenance
- ✓ Cost avoidance on spare parts with common motors
- ✓ Cost savings from increased filter life and better coil effectiveness
- ✓ Cost avoidance in future maintenance with smaller fans and motors
- ✓ Cost savings from smaller and fewer fan sections to rig
- ✓ Cost savings from speed of retrofits