

TRIAD GRILLE

MANAGED AIRFLOW GRILLE

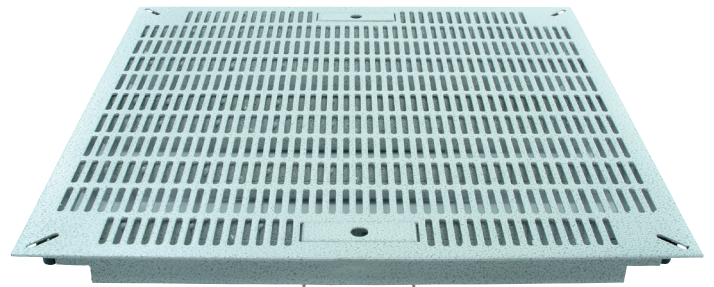
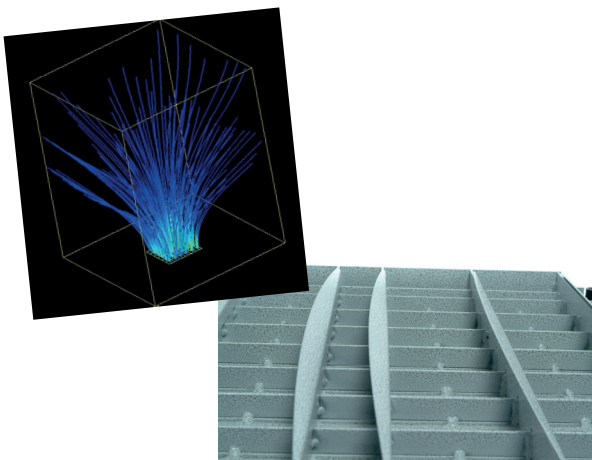
PRODUCT OVERVIEW

Application

Standard flat bottom floor grilles have a major design flaw that leads to jet stream, short cycling and negative airflow.

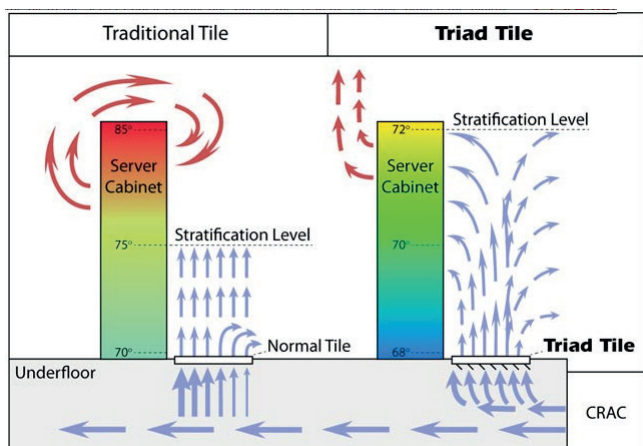
In tests carried out by the Uptime Institute it was found that only 28% of air coming through a tile actually passes through the servers.

The Triad managed airflow grille is different, its specially designed Hi-Plume Stratification fin creates a dispersed pattern of airflow out of the tile. The fin causes the air to "bend" outwardly allowing it to flow into the servers and reach servers at the top of the racks.



Features & Benefits

- Hi-Plume Stratification fin increases cooling capacity and lowers server temperatures by 5 to 15°F.
- 4% Energy cost saving for each degree Fahrenheit raised in CRAC set points.
- Delivers air to full height of the rack.
- 600mm x 600mm heavy duty steel tile.
- 65% Open design delivers 2-3 times more CFM.
- TopSat leveler allows level to be adjusted both vertically and horizontally to allow a flush mount to the existing raised floor.
- Load rating of 680Kg (1,500lbs).
- Dual Lift-n-Lock integrated handles eliminate the need for suction cup lifters.
- Optional dampers and baffles can be fitted.



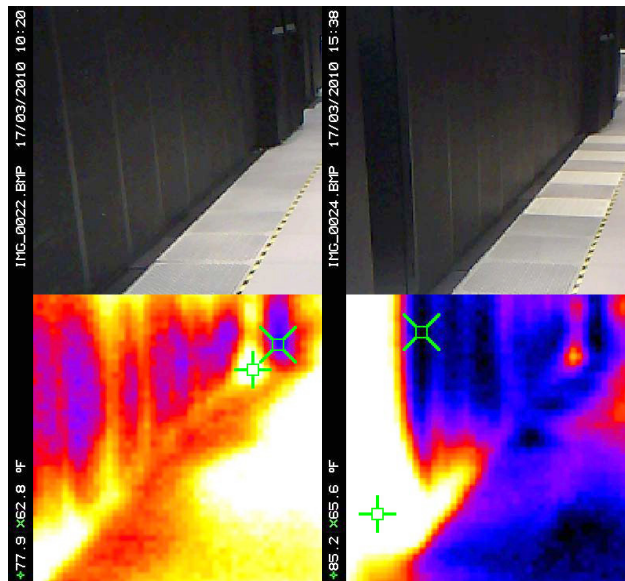
Performance Parameters

1. Removes the short cycle that is prevalent in flat bottom tiles. This lowers the temperature of air coming out of the tile by 2°C.
2. Disperses the air into the server. This improves the mass flow rate through the server.
3. Stratifies to 2.1m (7') enabling the upper servers to be cooled.
4. Stratifying to top of racks prevents hot air wrapping over top of racks.

Performance

Before Installation

This thermal image of a row of racks, shows the amount of heat radiating from the servers despite a full row of 56% open floor grilles.

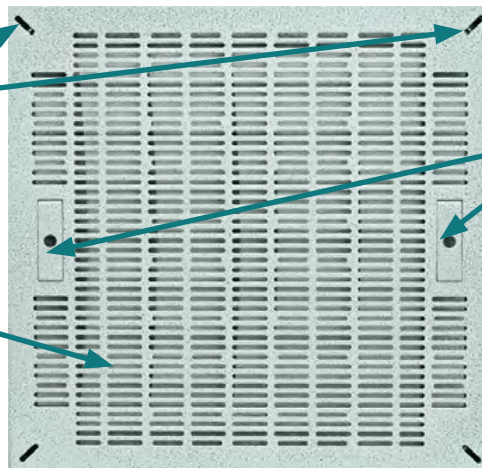


Two Minutes After Installation

In this thermal image just three Triad airflow grilles have been inserted into the row, the results are dramatic. After just two minutes the cooling dispersion from the three Triads creates a 360° dispersion pattern and a balanced stratification level that reaches the top of the rack.

TopSet Leveler Adjusters
Level can be adjusted in each corner from above the tile

Slotted Multi-Dispersion Design
Different sized openings improves airflow



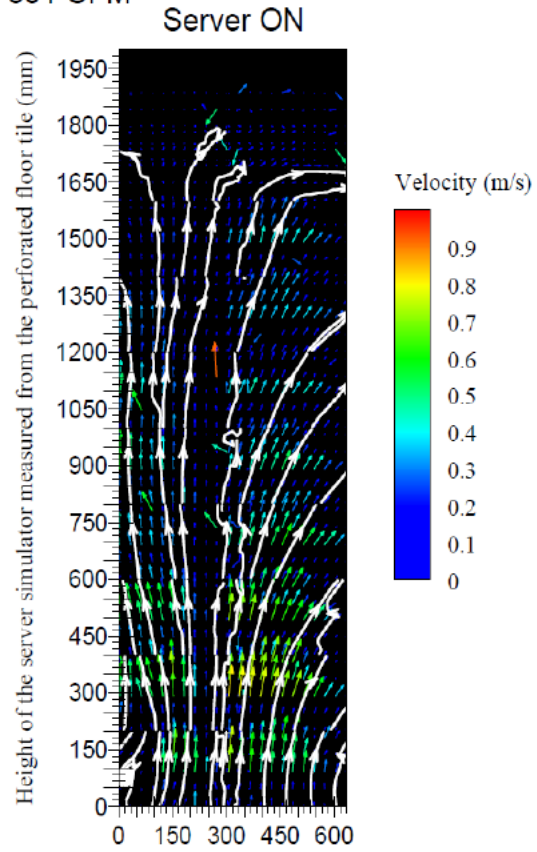
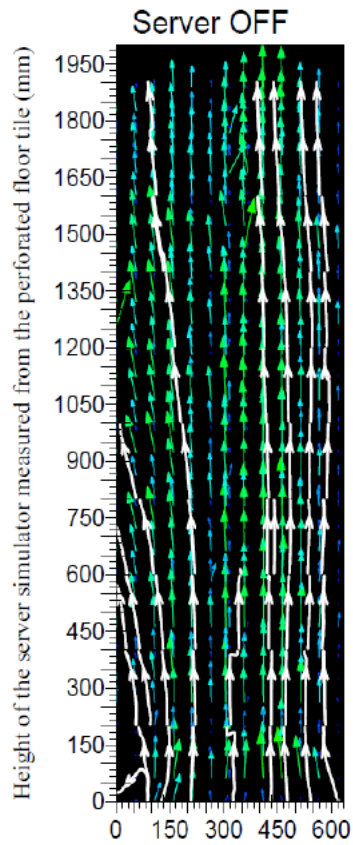
Dual Lift-n-Lock Integrated Handles
Eliminates need of tile lifter

Hi-Plume Stratification Fin
Fin creates a 360° dispersion pattern and stratification to top of rack



Corner Tunnel Leveller
Provides vertical and horizontal adjustment to align with existing raised floor

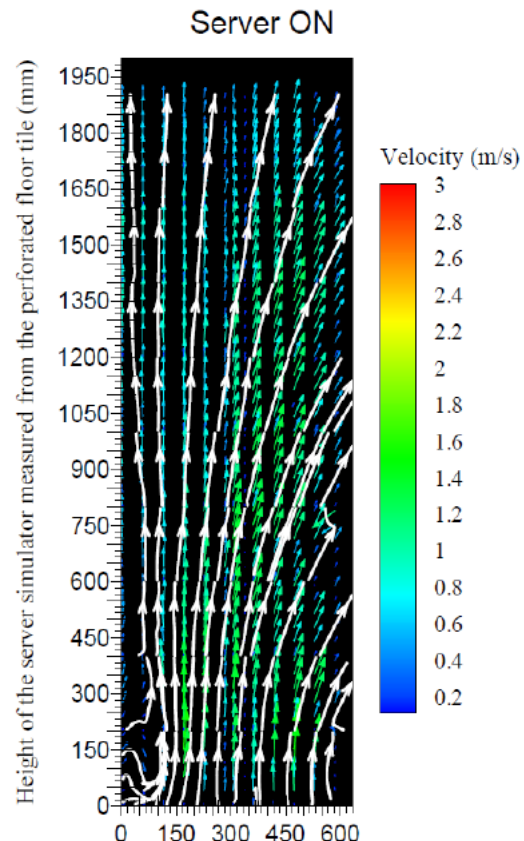
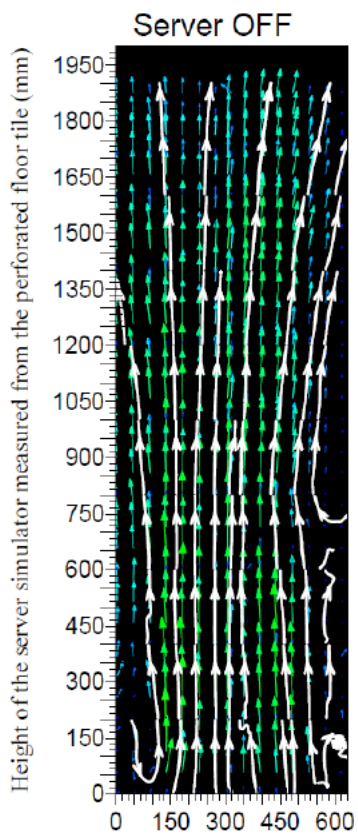
Tile flow rate: 501 CFM



Distance measured from the centre of cold aisle (mm)

Distance measured from the centre of cold aisle (mm)

Tile flow rate: 896 CFM



Distance measured from the centre of cold aisle (mm)

Distance measured from the centre of cold aisle (mm)

Directional Heat Transfer Test

Model TSS / TSM Slotted Opening

Static / Press.	Pa	Kw per Rack ¹ (135 & 177 cfm/Kw)	No Damper (cfm)	OPD Damper Full Open (cfm)	OPD Damper ½ Open (cfm)	Slide Damper Full Open (cfm)	Slide Damper ½ Open (cfm)	Short Cycle ² (cfm)	Velocity ³ (fpm)	Stratification Height ⁴ (inches / cm)	Heat Transfer Effectiveness (HTE) (percent)	Mass Flow Rate Through Door ⁵ (fpm)
.01	2.49	7 & 5	945	879	473	520	260	None	30 to 177	12 to 60 30.5 to 152	95%	44.0 to 0.00
.02	4.98	8 & 6	1107	1088	553	609	304	None	48 to 299	12 to 84 30.5 to 213	95%	75.4 to .927
.03	7.47	10 & 8	1390	1293	695	759	379	None	28 to 307	12 to 84 30.5 to 213	95%	77.5 to 1.01
.04	9.96	12 & 9	1595	1483	797	877	435	None	52 to 331	12 to 96 30.5 to 244	95%	81.5 to 1.22
.05	12.45	13 & 10	1798	1673	900	988	494	None	86 to 365	12 to 96 30.5 to 244	95%	92.0 to 1.40
.06	14.94	15 & 11	1984	1845	990	1091	545	None	52 to 354	12 to 108 30.5 to 274	95%	94.2 to 2.32
.07	17.44	16 & 12	2182	2029	1090	1200	600	None	54 to 440	12 to 108 30.5 to 274	95%	107 to 3.49
.08	19.93	17 & 13	2474	2115	1232	1355	676	None	96 to 444	12 to 120 30.5 to 305	95%	115 to 5.95
.09	22.42	18 & 14	2668	2386	1228	1366	686	None	94 to 429	12 to 120 30.5 to 305	95%	130 to 8.95
.10	24.91	19 & 15	2896	2514	1298	1427	713	None	83 to 480	12 to 132 30.5 to 335	95%	145 to 13.4

1. 1 Triad per 2 racks. Estimate based on open cold aisle, to nearest Kw whole #.
2. 36 Point test data, short cycle reading.
3. 36 Point 2" (5.1cm) above floor.
4. 36 Point test data, low to high.
5. 36 Point 12" (30.5cm) above floor to server intake.