13 Key Issues to Keep In-Mind when Selecting a Method for Distributing Electrical and Mechanical Services in a Data Center

Planning to build a new data center?

It may come as a surprise, but one of the first and most critical and often overlooked decisions you'll have to make, is how to distribute mechanical and electrical services to the cabinets. What you choose will affect the operational effectiveness, efficiency, and economics of the facility over its lifetime.

Check the Items You Find Important and /or Interesting						
	Conventional Raised Floor (CRF)	✓	On-Slab Flooded Room	✓	Interstitial's TIER E/A	✓
#1: Optimization of the Building Design and Floor Space *Space is Gold and Cabinets are Diamonds*	Excess Space Requ'd Due to # of Cooling Units and Their Spacing		Buildings Need to be Larger Due to Cooling Equip. & Aisle Widths		Optimizes Space Can Reduse White Space Up to 30%	
#2: Effective Cooling of Servers *Cooling servers is costly...even more costly when they aren't cooled efficiently*	More than 50% of Server Fans Must Work Harder & Cabinets Over 5 kW a Challenge		Server Fans Work Harder: 17% for 9 kW Cabinets 28% for 12 kW Cabinets 39% for 15 kW Cabinets		100% of Servers have Required Air Anywhere in the Room	
#3: Precision Air Distribution *There's little value to precision cooling equipment unless there's a precision means of delivering that cooling.*	Obstructed Underfloor Prevents Predictable Airflow		No Control of Air Flow in the Individual Aisles for Varing Cabinet kW		Precise Air Delivery Anywhere in the Entire Room. Adjustable at Every Cabinet	
#4: Power Distribution *There are 2 ways to distribute power--overhead or underfloor.*	Underfoor or Overhead Underfloor Congests Airflow–Plenum Rated Wire and Cabling Req'd		Overhead Only Costly to Install Adds Load to Roof Working from Ladders		Underfoor Easier and Faster to Deploy and Manage	
#5: Structured Cable Distribution *There are only 2 ways to install structured cable --overhead or underfloor*	Overhead or Underfoor Underfloor Congests Airflow–Plenum Rated Wire and Cabling Req'd		Overhead Only Costly to Install Adds Load to Roof Working from Ladders		Overhead or Underfoor Underfoor Easier and Faster to Deploy and Manage	
#6: Containment *Containing the hot and cold air from one another...*	Optional But, Generally Prefered		Mandatory and Costly Complicates Work for Operations Staff		Not Required Simplifies Installation and MAC	
#7: A/C Redundancy *Uptime is critical and downtime a catastrophe*	Effective Redundancy is Unachievable Because of A/C Zone Limitations		Almost Non-Existent because of A/C Units Relation to Aisles		Effective N+1	
#8: MAC *Moves, Adds and Changes are Inevitable*	Complicated Due to Containment and Access to Wiring		Changes Can be Messy if Sprinklers, Lighting & Smoke Detectors Moved		Simple Changes of Air, Power and Cables	
#9: Deployment Time *The quicker the better...*	Average Design and Build Time		Longer Engineering & Inst. Time Due to A/C, Containment and Wiring		Easier Engineering and Faster Deployment	
#10: Floor Slab Loading *Concrete and steel are costly*	312 # per sf for 2,500 # Cabinets		312 # per sf for 2,500 # Cabinets		189 # per sf for 2,500 # Cabinets	
#11. Roof Reinforcement *Reinforcing the roof structure is costly whether an existing or a new roof*	Only Required if Overhead Distribution of Wires and Cables		Mandatory		Not Required	
#12: Seismic *This isn't an issue unless you're in an earthquake zone*	Special Reinforcement		Special Reinforcement		Inherent for Most of North America	
#13: EMI/RFI --SRS (Signal Reference Structure) *This complex issue can be critical for your client*	Possible, but Costly		Difficult and Costly		Inherent	

* For a more detailed explanation of these 13 points please contact us.

Interstitial Systems developed TIER E/A as a holistic solution to solve the problems associated with the effective and efficient operation of the modern data center. It is a comprehensive system that not only addresses distribution issues, it goes beyond that, making related issues simpler and operationally better than conventional methods.

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