Colocation Facility Requirements for Open Compute Racks

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Agenda

1. Background & Key Objective
2. Scope / Considerations
   • Data Center Access & Delivery Pathway
   • Structural & Architectural
   • Electrical Systems
   • Cooling
   • Telecommunications Cabling Pathways & Spaces
3. Checklist Matrix
4. Questions?
Challenges: Delivery Clearances
Challenges: Delivery Pathway
Challenges: Floor Loading - An Open Rack is Heavy
Data Center Access & Delivery Pathway
**Structural & Architectural**

**White Space slab to slab and ceiling heights**

- **Optimum**
  - Min 4.5 m

- **Acceptable**
  - Min 3.1 m

- **Access floor**
  - 900 mm to 450 mm
Electrical Systems

Modern Datacenter Design with LES

- Migrate to Distributed UPS within IT load
- Smaller failure domain → Improved uptime

Optimal

Traditional Datacenter Design

- Chilled water based cooling
- Dual redundant UPS’s for power backup

Acceptable

OPEN HARDWARE. OPEN SOFTWARE. OPEN FUTURE.
Cooling

Optimal

Acceptable
Telecommunications Cabling Pathways & Spaces

Pathways

Spaces
<table>
<thead>
<tr>
<th>Data Center Subsystems</th>
<th>Acceptable</th>
<th>Optimum</th>
<th>Note reasoning Acceptable</th>
<th>Note reasoning Optimum</th>
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<tr>
<td>Architectural</td>
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<td>Data Center Access</td>
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<td>Access routes from loading dock to Goods in Area</td>
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<td>Access</td>
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<td>Road level, step and threshold free access</td>
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<td>Loading dock with lift or leveler</td>
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<td>Delivery pathway</td>
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<td>2.7m High x 1.2m Wide unobstructed access and threshold free</td>
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<tr>
<td>2.7m High x 2.4m Deep unobstructed access and threshold free</td>
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- An optimum access design is to use a loading dock with an integral lift or leveler that allows packaged racks on pallets to be transported directly from inside truck level to the data centre goods in area. The advantages of this type of loading dock are 1) Any truck with or without a lifting platform can be used for deliveries 2) Speed of off loading 3) It is a safer method and there is less risk to equipment and personnel.

- An extra height allowance of 490mm above the height of a 2210mm OR is required because we need to take into account that racks are packaged and bolted on pallets and usually maneuvered using a pallet truck.

- An optimum depth measurement of 2.4m should also be considered if there is a security air lock in place between the external and internal space.
Questions?
OCP Web Links and more information

Website
http://www.opencompute.org/

Data Center Project Wiki
http://www.opencompute.org/wiki/Data_Center

Data Center Project Mailing List
http://lists.opencompute.org/mailman/listinfo/opencompute-datacenter

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