



Customer installation guidelines

The basics, airflow management, power, cabling and combustibles

Policies and best practices



Welcome to our Equinix International Business Exchange™ (IBX®) Data Center

Use this guide as a how to and best practices set of guidelines for the correct installation of IT equipment.

Incorrect installation can affect your equipment performance and could impact claims under your Service Level Agreement.

Follow these guidelines to comply with Equinix standards and policies.



Server energy efficiency

Built-in server power management

Typically, our customers' IT equipment uses 70%* of the energy consumed by our data centers.

To support energy savings and carbon emission reductions as well as improve the reliability of your equipment, we highly recommend applying built-in server power management features.

In some cases, this is a requirement by law (e.g., Netherlands). Please consider reviewing your IT equipment settings and applying these measures.

Energy Star provides an [overview](#) to approaching these changes and advice for tackling [idle server energy savings](#).

- ❗ Please ensure your servers have variable fan speed cooling enabled. This improves the efficiency of data center cooling systems and supports server reliability at elevated temperatures.**



Customer's equipment— installation and operation

Customer's equipment may not be stacked or resting on any other equipment and must be securely fixed within a cabinet or rack.

Where practical, the heaviest or hottest components of the customer's equipment should be installed in the lower sections of a cabinet to make the most effective use of the supplied cooling.

Equinix may require removal of any customer's equipment that causes a threat to safety or unreasonably interferes with the operations of Equinix or another customer.

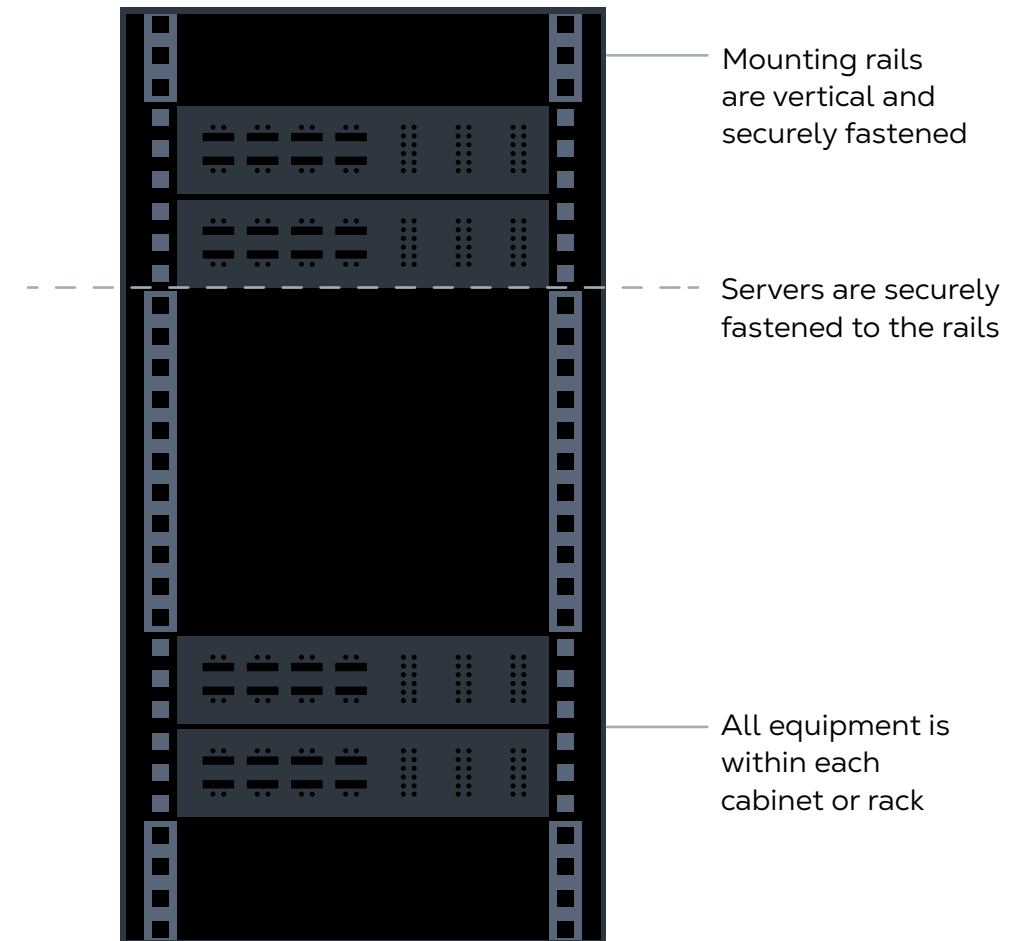


Figure 1. Equipment Securely Fixed in a Rack

Open cabinets

Open cabinets are discouraged

Two-post or four-post open racks are discouraged with active equipment due to poor air containment. Active equipment should be placed in closed cabinets where possible.

Open cabinets for passive equipment

Passive equipment may be installed in an open cabinet, however the open cabinet should be situated within the hot aisle.

- ❗ Do not locate open cabinets at the end of the aisle, as this hinders end-of-aisle containment doors.

Retrofit

Existing deployments will be improved where possible in partnership with Equinix.

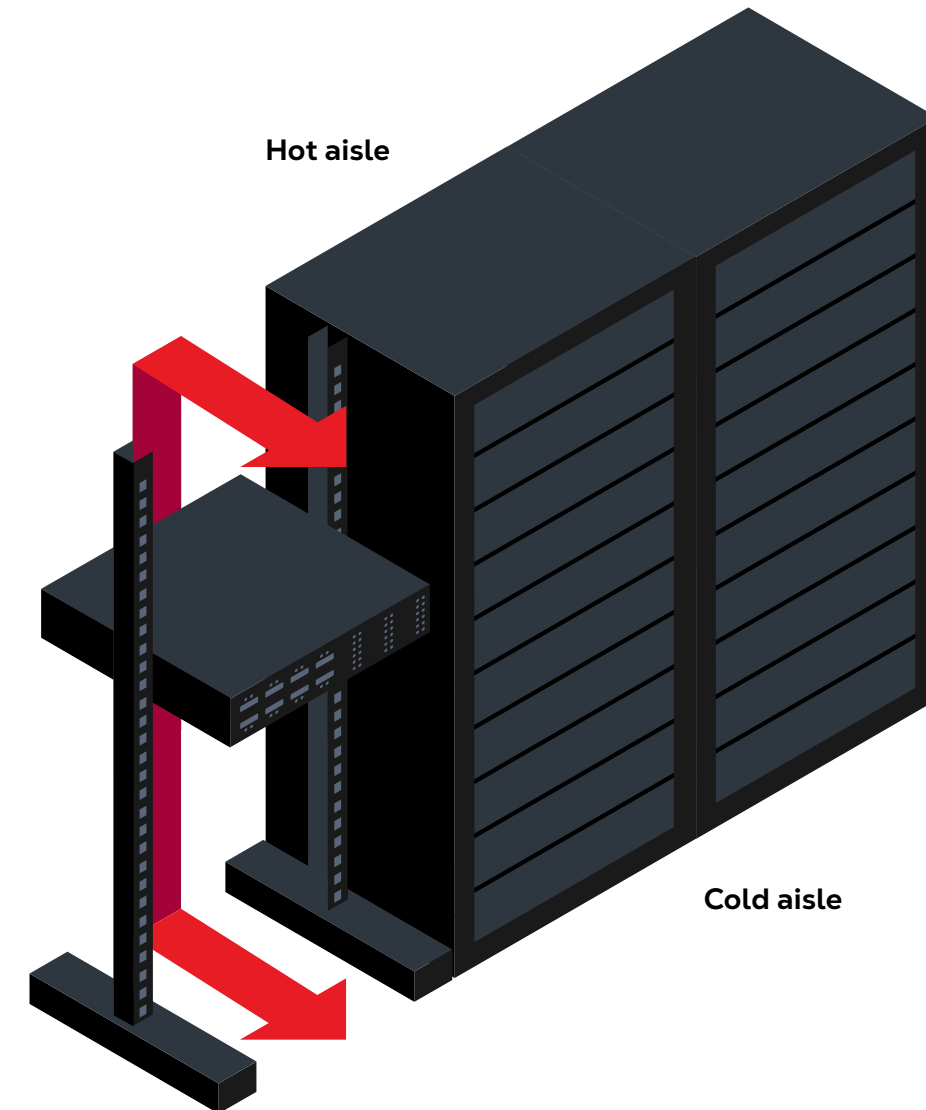


Figure 2. Open Cabinet With Poor Air Containment

Airflow management

Correct equipment installation and airtight cold aisles are critical to maintaining your IT equipment in the correct temperature and humidity ranges while ensuring energy-efficient and sustainable operations.

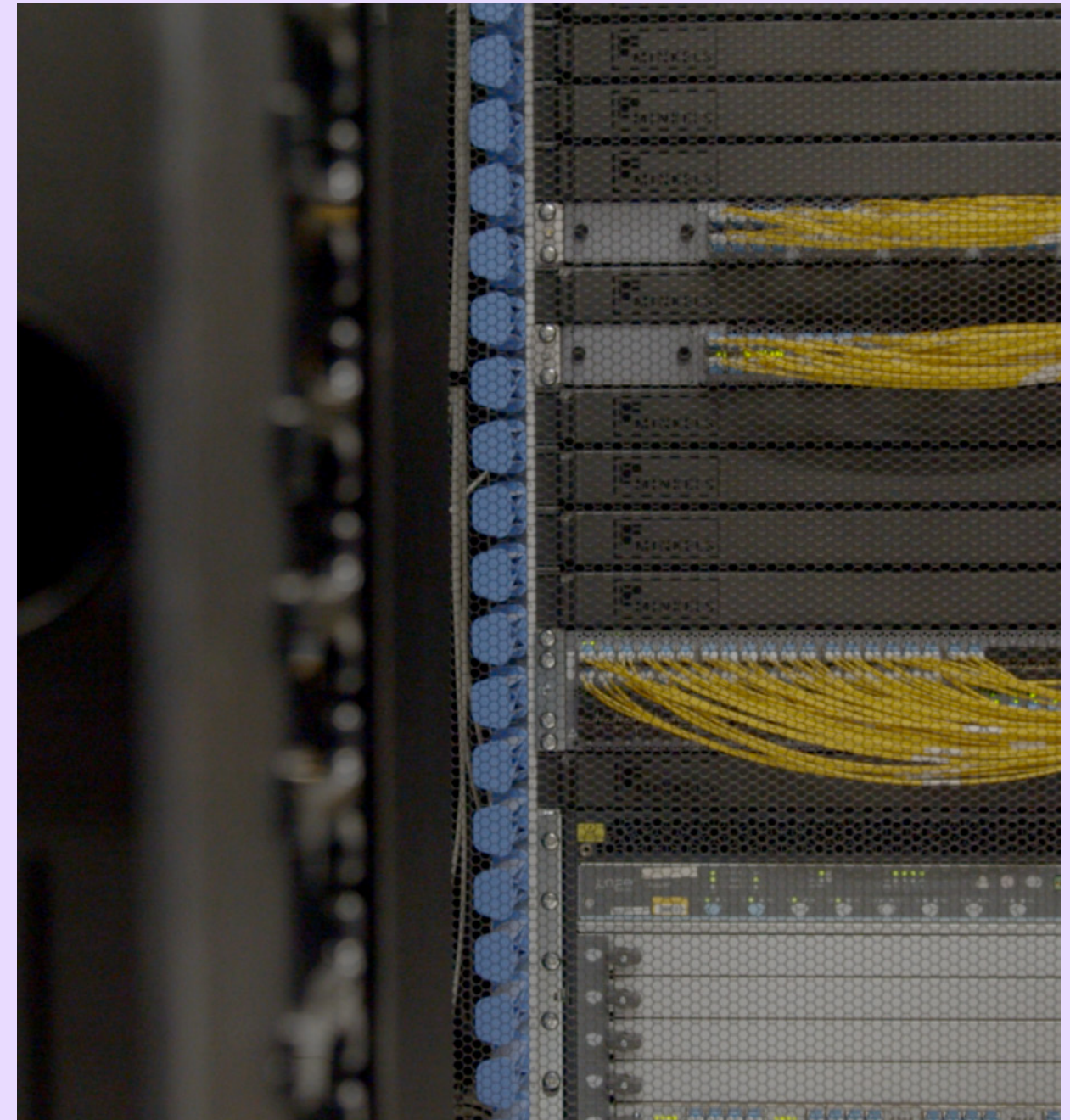
Sustainability

To reduce energy consumption of the data center, Equinix is gradually increasing data hall temperatures, targeting up to 27°C (80°F) in the cold aisles.

In order to reach these targets, it is essential we jointly implement effective airflow management measures to mitigate any possible risk to your equipment.

Policy requirement

Air leakages between the cold and hot aisles must be prevented. The cold aisle side of the cabinet shall be fully sealed with suitable accessories.



Aisle containment requirements

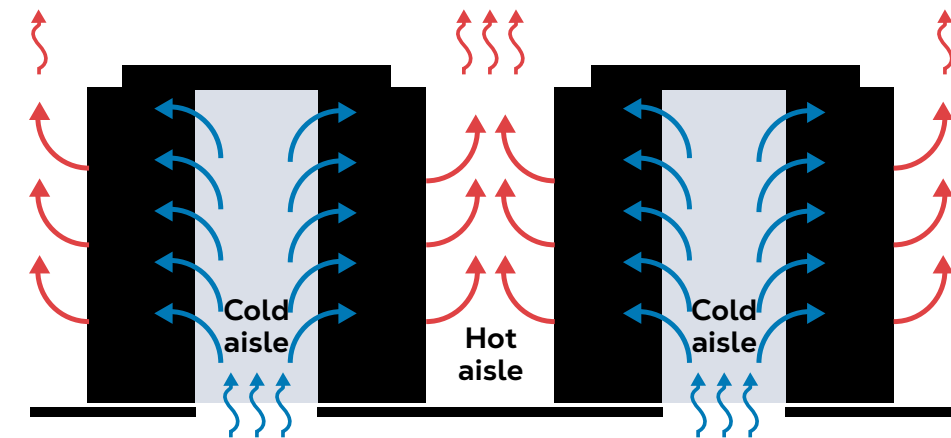
All new customer deployments must include hot or cold aisle containment systems as part of the day 1 cage deployment.

At a minimum:

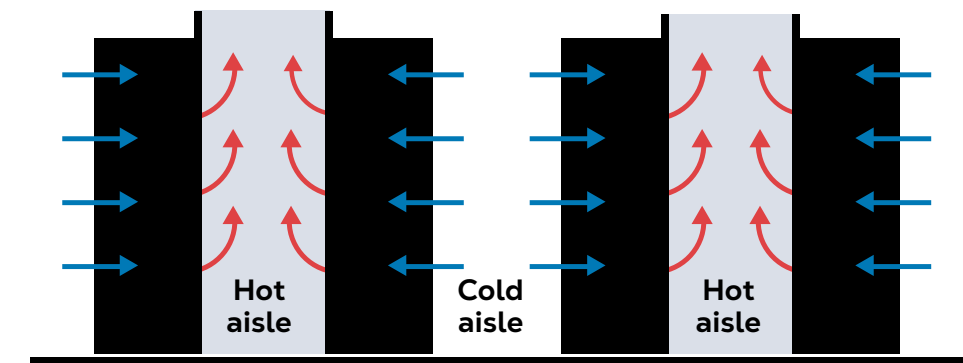
- All aisles shall be enclosed up to cabinet height by using self-closing doors, blocked-up cage walls, full-height cabinet infill panels and blanking panels in place.
- Cold aisles must feature drop-out ceilings where local regulations permit their installation without modification of the fire suppression system.
- All containment installations will meet Equinix's global design standards (EAS-3 Air Containment Systems—internal document).

! Equinix will retrofit containment systems on existing deployments where possible. Retrofit costs are covered by Equinix.

Customers may be liable for costs arising from significant changes to containment systems due to resizing of their cage or cabinet deployments when associated with a sales order.



Cold Aisle Containment (CAC)



Hot Aisle Containment (HAC)

Figure 3. Hot Aisle and Cold Aisle Containment

Cabinet infill panels

Where entire cabinets are missing or removed from a row or aisle, full-height cabinet infill panels shall be installed. The cabinet infill panels block the gap which the cabinet would have otherwise occupied.

❗ Contact us via the [Equinix Customer Portal](#) when removing cabinets to schedule a temporary cabinet infill panel installation for the time of removal.

When reinstalling cabinets, please notify Equinix to collect and store the panel.

Equinix provides temporary cabinet infill panels free of charge, installed under non-billable Smart Hands® tickets.

Cabinets removed for more than three months will require permanent infill panels, and Equinix will install these free of charge.

Day 1 deployments will charge for these panels within the Sales Order.

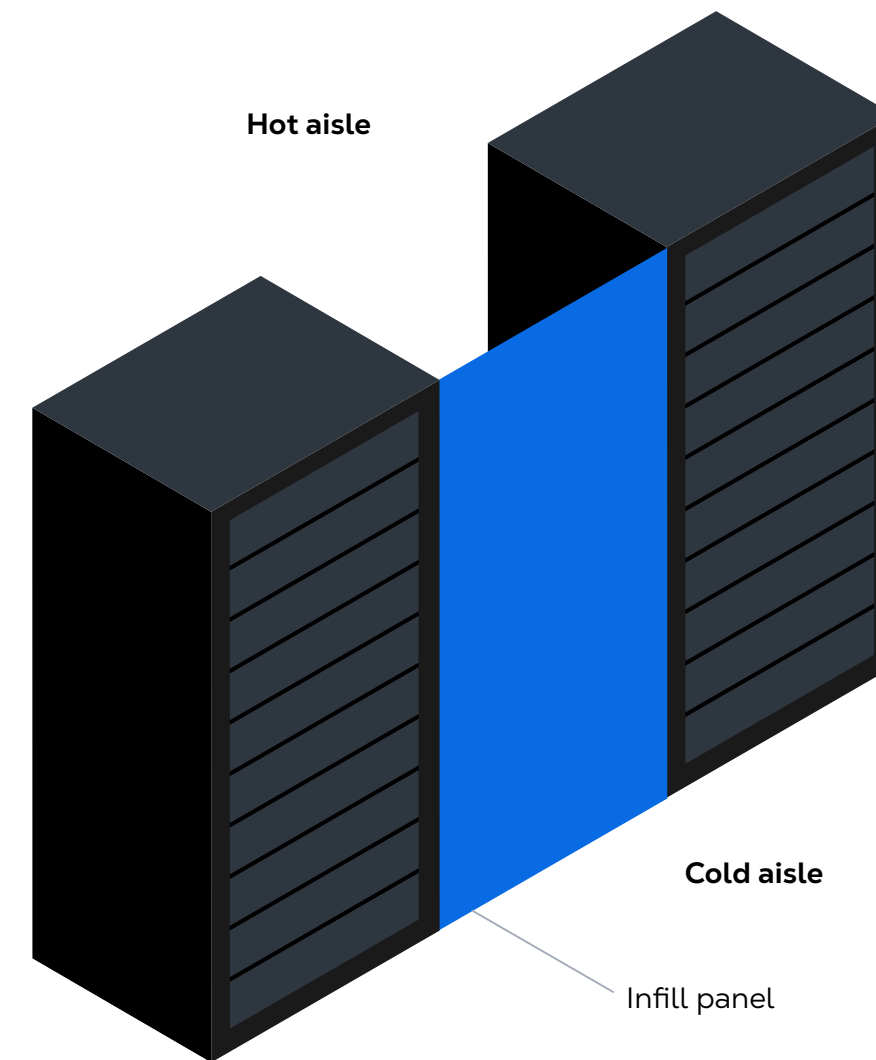


Figure 4. Cabinet Infill Panel

Equipment airflow direction

Equinix uses a hot aisle and a cold aisle configuration, where each cabinet has a specific cold and hot side.

Only install equipment in line with the conditioned airflow, with the air inlet at the cold side and the outlet at the hot side of the cabinet.

This setup ensures uniform intake air temperatures and prevents recirculation of hot air.

! Equinix maintains temperature and humidity SLA within the cold aisle only.

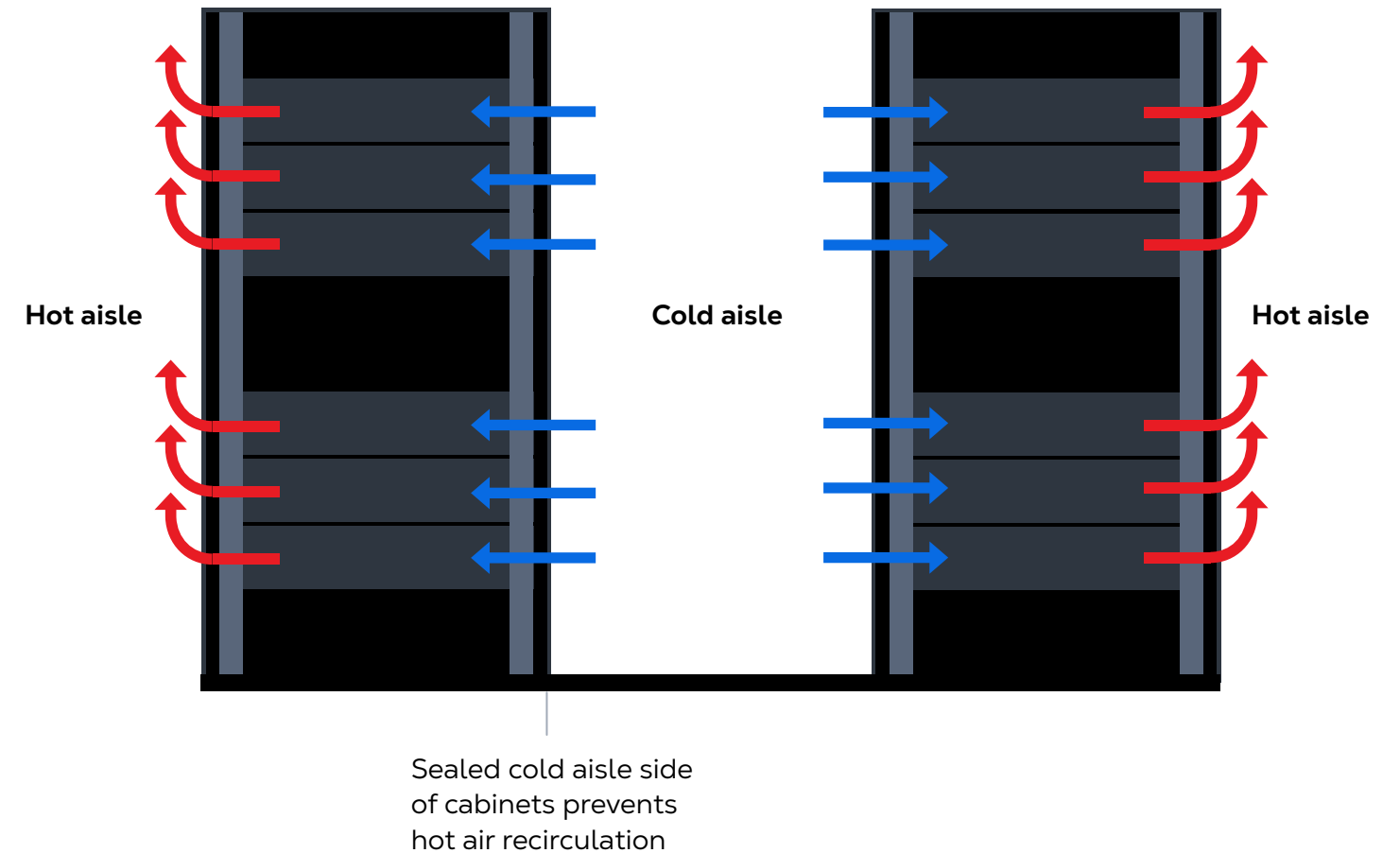


Figure 5. Correct Equipment Airflow Direction

Incorrect airflow direction

Incorrect airflow direction may lead to cooling problems or equipment malfunction, which could impact our Service Level Agreement.

Existing instances of incorrect airflow direction should be remedied as soon as possible.

Equinix will notify you where we find instances of these issues.

- ❗ Do not purchase equipment that causes inverted airflow issues.
This equipment would be permanently at risk due to high inlet air temperatures and would cause unnecessary wasted energy.
- ❗ Side air entry and exhaust equipment must be paired with suitable duct accessories to comply.

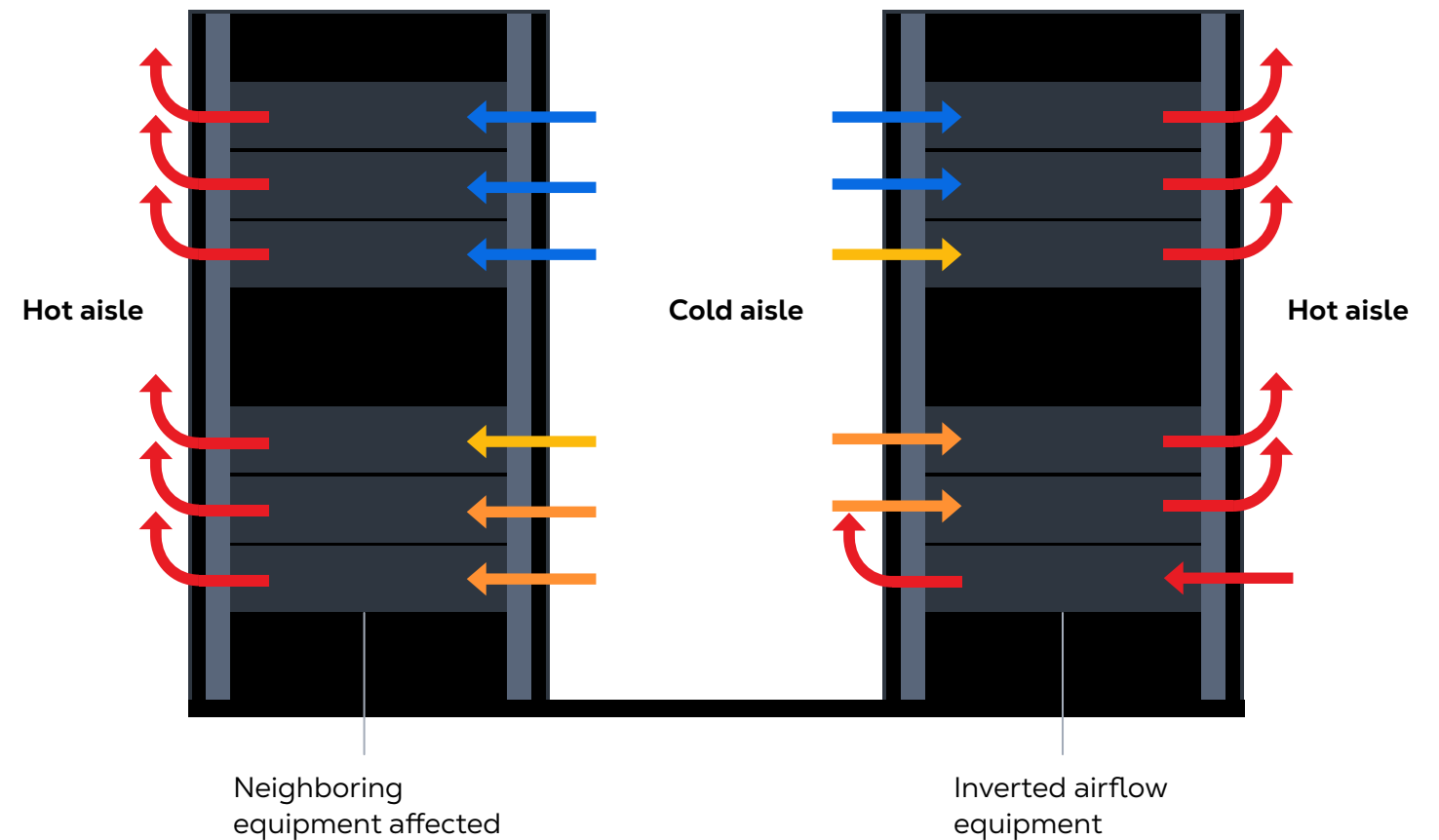


Figure 6. Customer-Caused SLA Breach

Cabinet air containment

Blanking panels

All open U-slots must be covered using blanking panels.

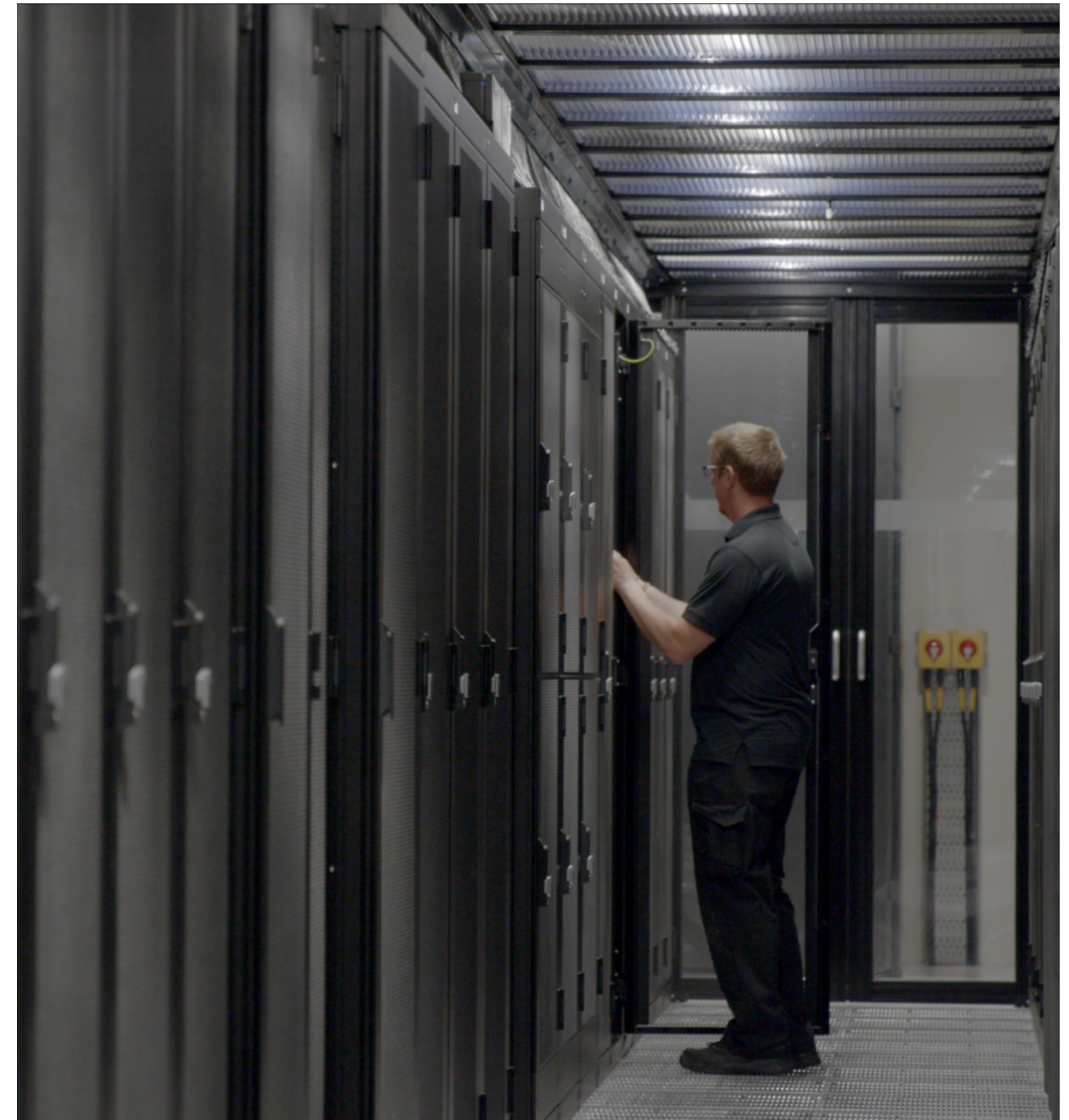
Equinix provides 19 in, 21 in or 23 in standard blanking panels free of charge and made available throughout the IBX.

Where standard blanking panels do not fit, the customer will provide or cover the cost of alternative products.

Please return unused panels to the baskets provided.

Remove and return Equinix panels before removing cabinets from the data hall.

- ❗ Missing blanking panels cause hot spots and wasted energy.



Cabinet air containment

Brush strips

Where you cannot use blanking panels to seal open U-slots due to cables passing through, use brush strips to seal the opening. Mount brush strips to the cabinet rails using suitable fixings. Equinix recommend using [EZIBRUSH](#) or an equivalent brush strip.

Foam strips

Remaining air gaps such as cable ways, rail and side panel gaps, and the top and bottom of the cabinet should be filled using fire-retardant foam strips. Equinix approves [RackSEAL](#) Air Barrier or an equivalent foam strip.

Materials

Customers must purchase or provide brush and/or foam strips at their own cost. We recommend including an allowance for these accessories within the initial deployment budget.

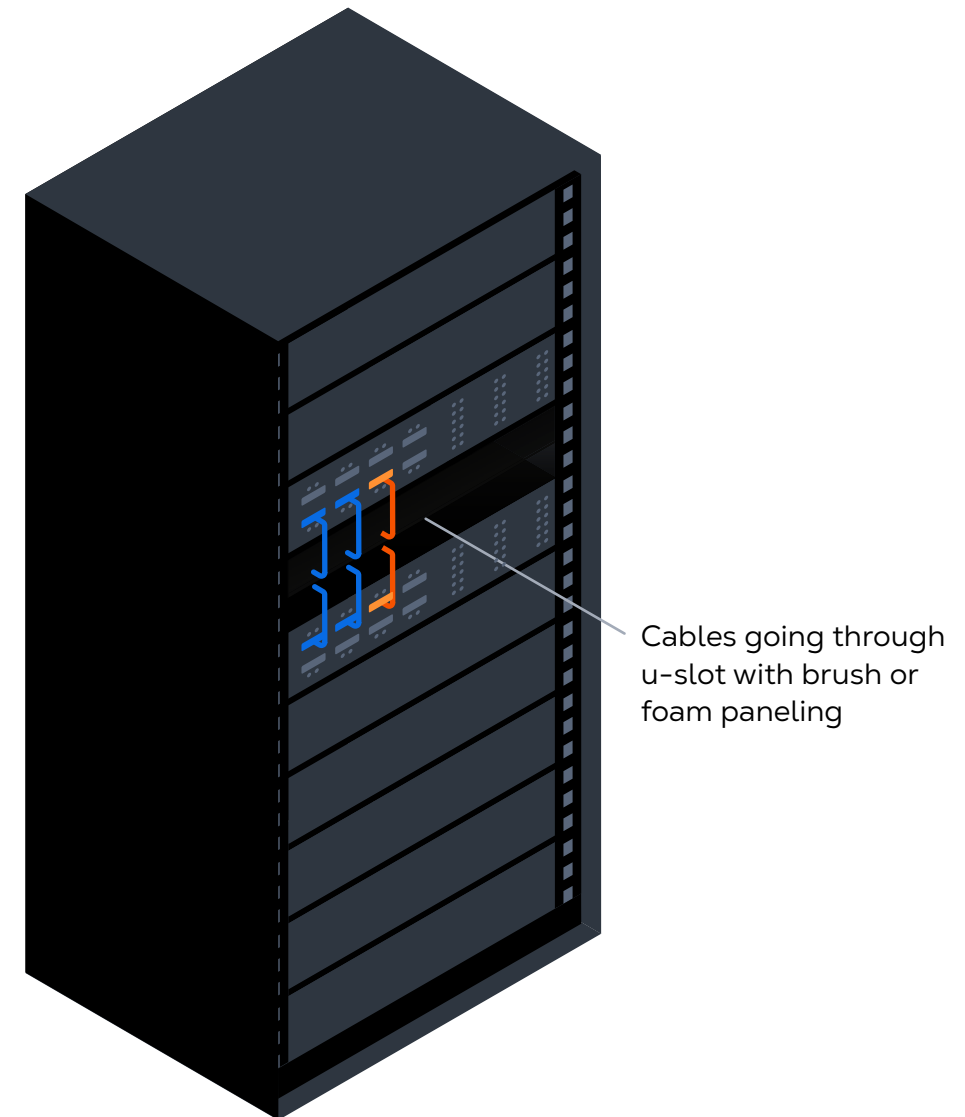


Figure 7. Cables Going Through U-Slot With Brush or Foam

Cabinet air containment

Air ducts

Any recessed IT equipment (i.e., not aligned with the front of the cabinet—typically network switches) must be installed with air duct accessories that ensure cold air is channeled directly to the equipment air intake. This prevents hot air recirculation and enables U-slots on either side to be blanked accordingly.

Fan-assisted airducts are not allowed.

Retrofit

Retrofitting existing deployments will be required if deployments cause hot spots or if more than one U-slot per switch have to remain open.

Materials

Customers must purchase or provide the required materials at their own cost. We recommend including an allowance for these items within the initial deployment budget.

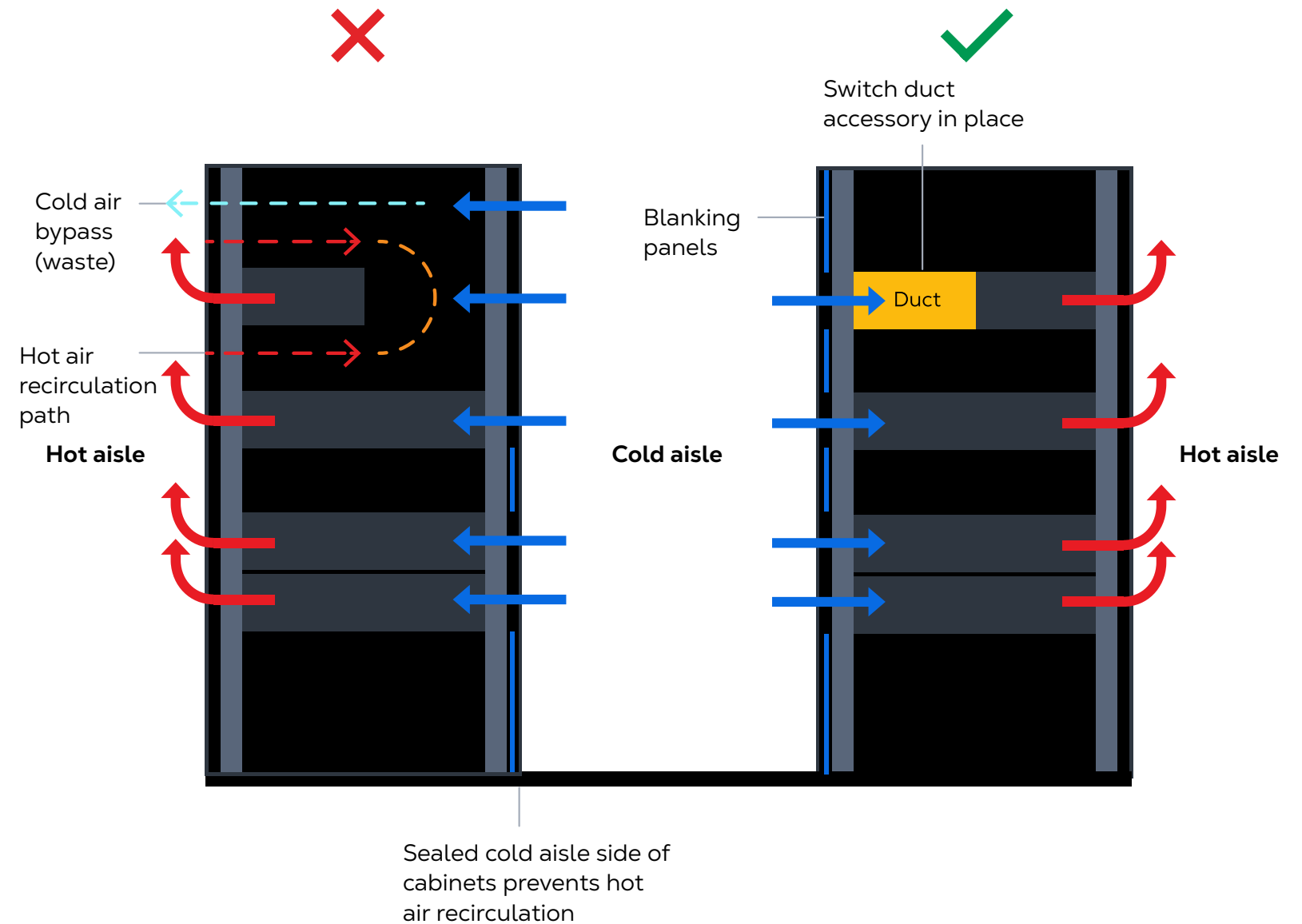


Figure 8. Incorrect and Correct Air Containment

Cabinet air containment

Side panels

Side panels are always required in the following situations:

- End-of-aisle cabinets (on the end-of-aisle side)
- Shared colocation areas

Side panels may be removed in other situations if the customer ensures any remaining gaps on the front (cold aisle side) are well sealed.

It is best practice to retain side panels in all situations, using dedicated cable pass-through openings to cable between cabinets.

Retrofit and remediation

Existing gaps created by missing side panels must be sealed with suitable accessories as covered in this document to effectively seal the cold aisle.

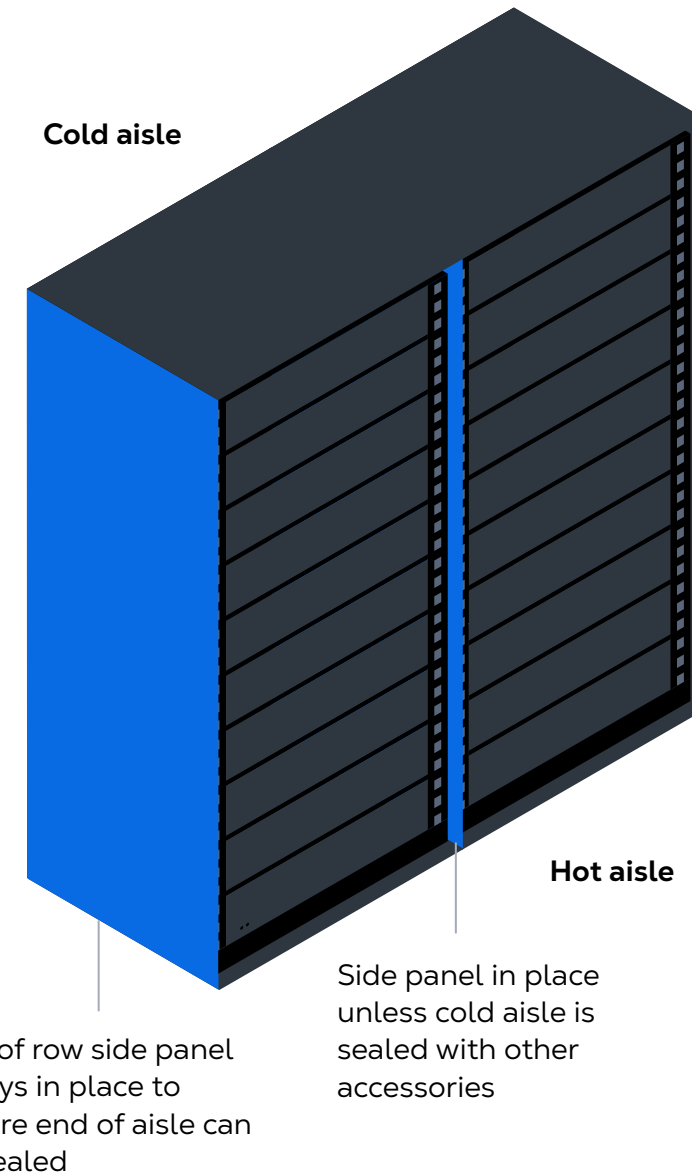


Figure 9. Side Panels for Cabinet Air Containment

Cabinet air containment

Side panel removal

Side panels have historically been removed to facilitate cabling between cabinets, often using cables which are too short to reach up to the provided cable trays and back down to the next cabinet. However, these practices create deployments that are difficult to manage from a cabling perspective.

In addition, removal of side panels also creates gaps that are difficult to seal between the mounting rails and the cabinet door frame. These gaps represent up to six U-slots' worth of missing blanking panels for each missing side panel and represent a major source of hot air recirculation and cold air bypass.

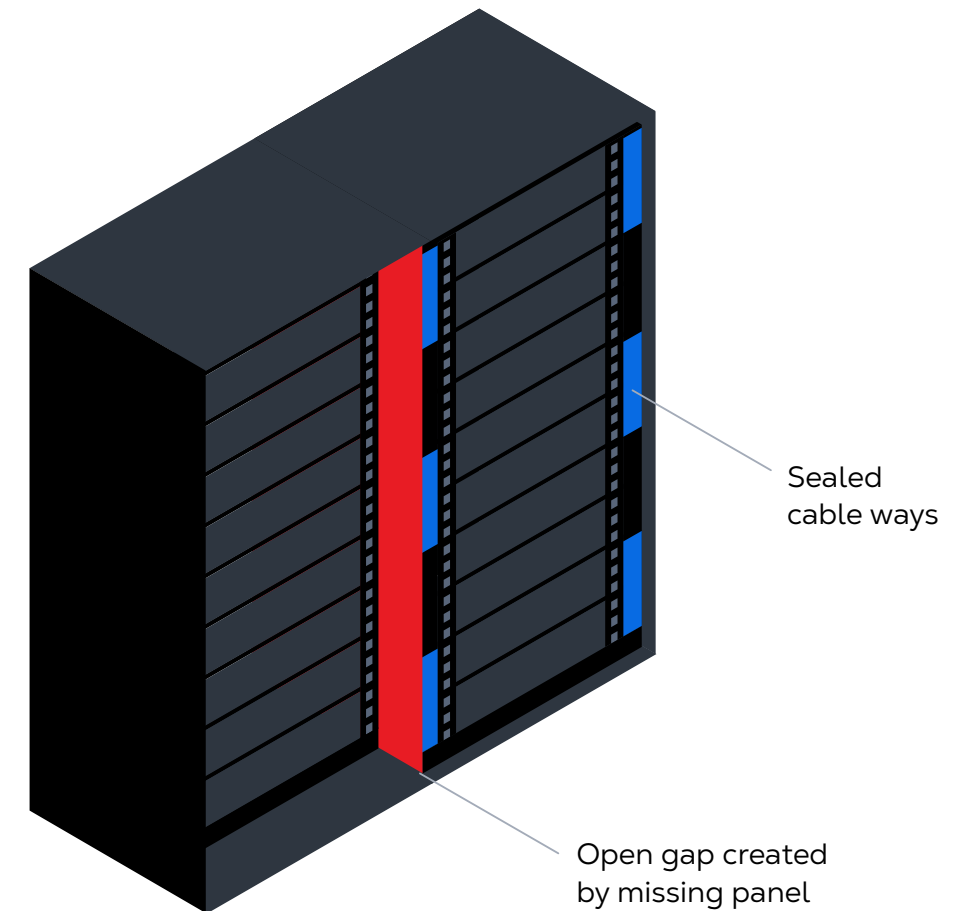


Figure 10. Side Panels for Cabinet Air Containment

Cable management

Implement adequate cable management so airflow is not obstructed when entering or exiting the servers. Failure to do so could overheat your IT equipment, which would be a customer-caused incident, impacting your claims under the Service Level Agreement.

Arrange cables using cable managers so they do not block the airflow to and from the equipment.

Data cabling

Interconnections between cabinets can be ordered via the [Equinix Customer Portal](#).

You can use the overhead infrastructure within a private cage for rack-to-rack connectivity within the cage.

Note: For cabinets in shared colocation space that do not have cable passthroughs within the side panels, the [Intra-Customer Cross Connect](#) product must be used.

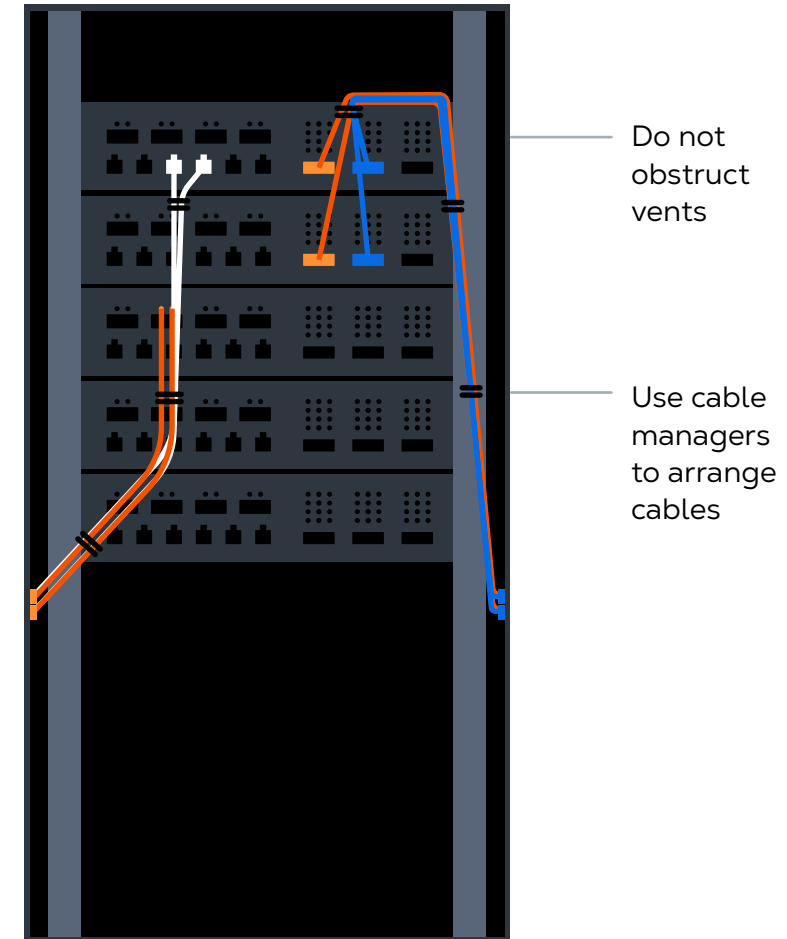


Figure 11. Adequate Cable Management

Raised floor sealing

Cable entries from the raised floor into the cabinet shall have brush seals or rubber grommets installed.

❗ If you notice missing seals, please contact us via the [Equinix Customer Portal](#).

Equinix provides raised floor sealing materials and installation free of charge to cover missing seals on existing deployments.

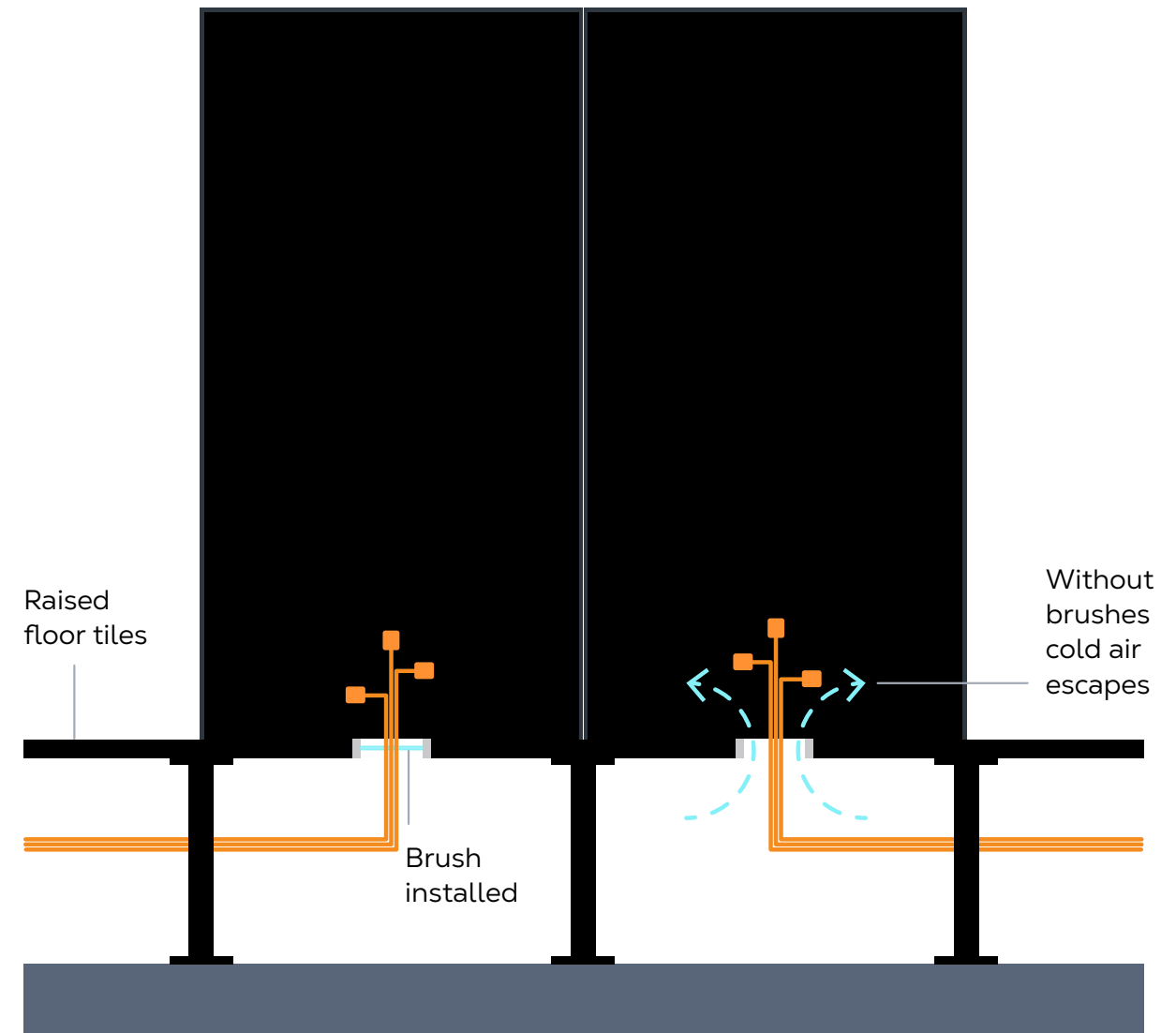


Figure 12. Raised Floor Sealing

Environmental sensors

Equinix uses wireless environmental temperature and humidity sensors to monitor the temperature and humidity in the cold aisles.*

These sensors are magnetically attached and located on the face of the cabinet or on the cold aisle containment ceiling.

Customers can access temperature and humidity reports through [Smart View](#)** or by requesting them through the [Equinix Customer Portal](#).

- ⚠ These sensors are property of Equinix and should not be removed from the data hall. Before removing a cabinet, remove the sensor and leave it in the cage.

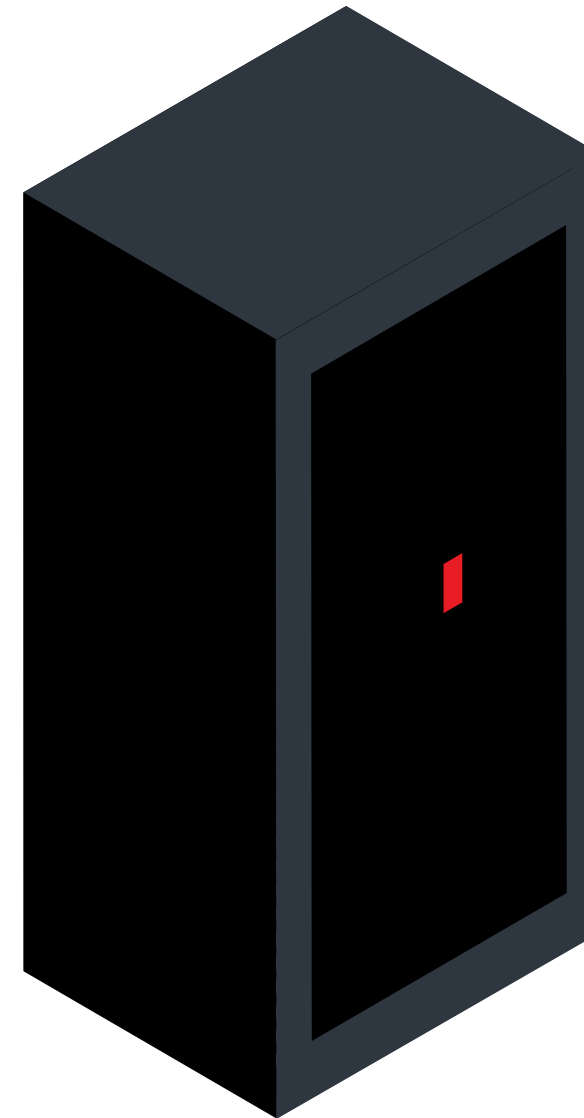


Figure 13. Cabinet Door With Environmental Sensor


Power and external cabling

Please request the Equinix Operations team to connect or disconnect the rack PDUs with the power sockets under the raised floor or above the cabinets.

With a 3-phase rack PDU installed, please make sure the connections to the hardware installed within that cabinet are balanced over each of the three phases. Correct balancing of the electrical load on the phases will optimize the electrical installation.

With a 1-phase rack installed, please make sure it is well balanced over the two 16A sections.

For electrical safety, no additional power extension cords within the data center are allowed. The overhead infrastructure in shared colocation areas cannot be used by the customer.

 If the rack installation is not installed according to Equinix guidelines, Equinix will request the customer change this. Equinix can perform this work based on a Smart Hands ticket, and this will be charged to the customer.

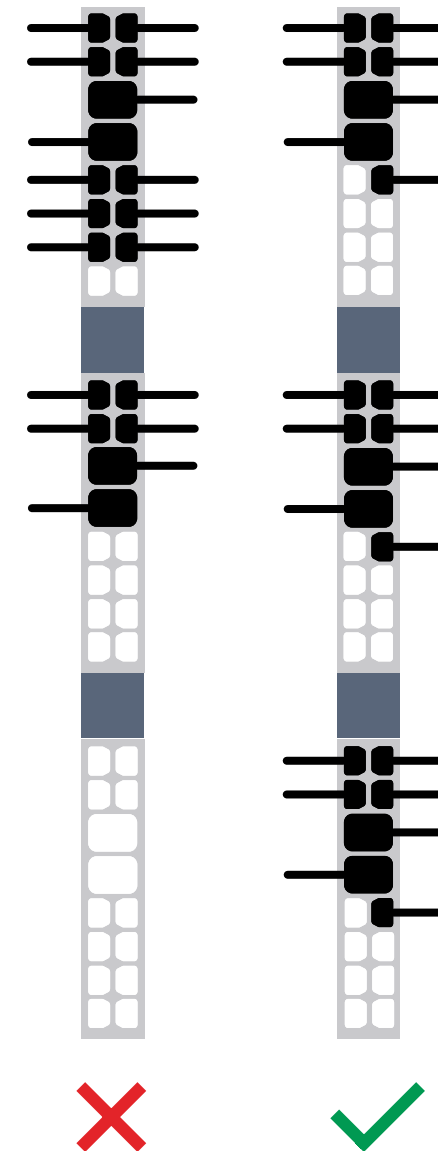



Figure 14. Unbalanced and Balanced 3-Phase PDU

Logistics and storage guidelines

Any combustible materials (e.g., cardboard) are prohibited on the whitespace. Equipment must be unpacked in the designated unpacking area.

All packing material must be disposed of in the waste management area.

Hardware should not block escape routes or access to the cabinets.

 Combustibles left in the cage or cabinet will be removed by Equinix and billed at standard Smart Hands rates.



Jiffy bags/
paper envelopes



Polystyrene



Pallets



Cardboard



Taping material

Working in the whitespace

Please make sure that the hot/cold aisle doors are immediately closed after use.

- ⚠ Do not block the ventilation tiles or the airflow at the cold and hot side of the cabinet.

Access under the raised floor is prohibited to non-Equinix employees.



Remediation and non-conformance

Remediation of non-conformances within existing customer deployments is necessary. However, the methodology is flexible in using the above components to meet the overall objective, which is to ensure the front face (cold aisle) side of the cabinet is airtight (fully sealed).

Where Equinix becomes aware of policy violations, we will notify you. IBX Master Admins will receive the notifications, unless other contact preferences are selected in the [Equinix Customer Portal](#) (ECP).



Help us to keep your equipment safe, resilient and energy-efficient by adhering to these guidelines and policies.

[Contact us](#)

About Equinix

Equinix is the world's digital infrastructure company*. Digital leaders harness our trusted platform to bring together and interconnect the foundational infrastructure that powers their success.

[Equinix.com](https://www.equinix.com)

