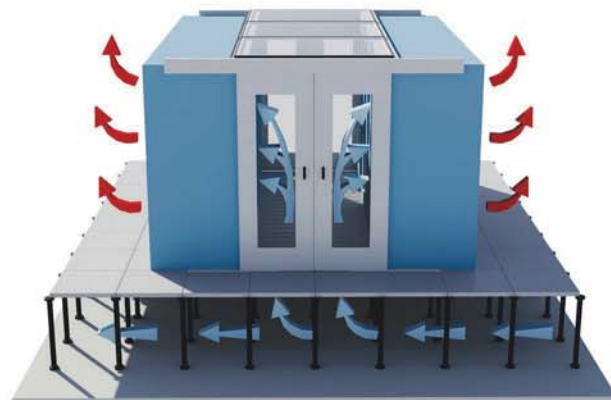


## What Is Cold Aisle Containment?

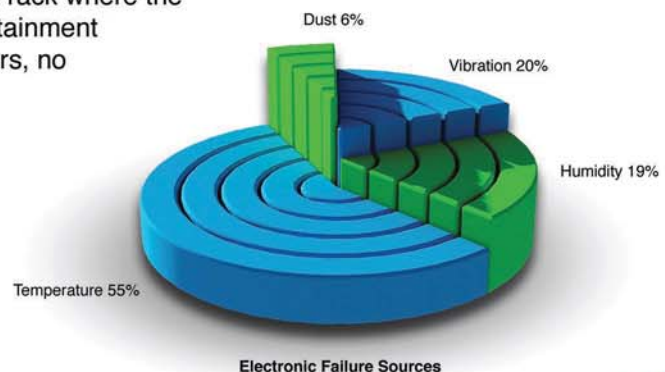
### The Solution:

Cold Aisle Containment is a non-intrusive bespoke retrofit to data centres, whereby the cold aisle is contained to maximise cooling efficiency. This enables five main key capabilities:



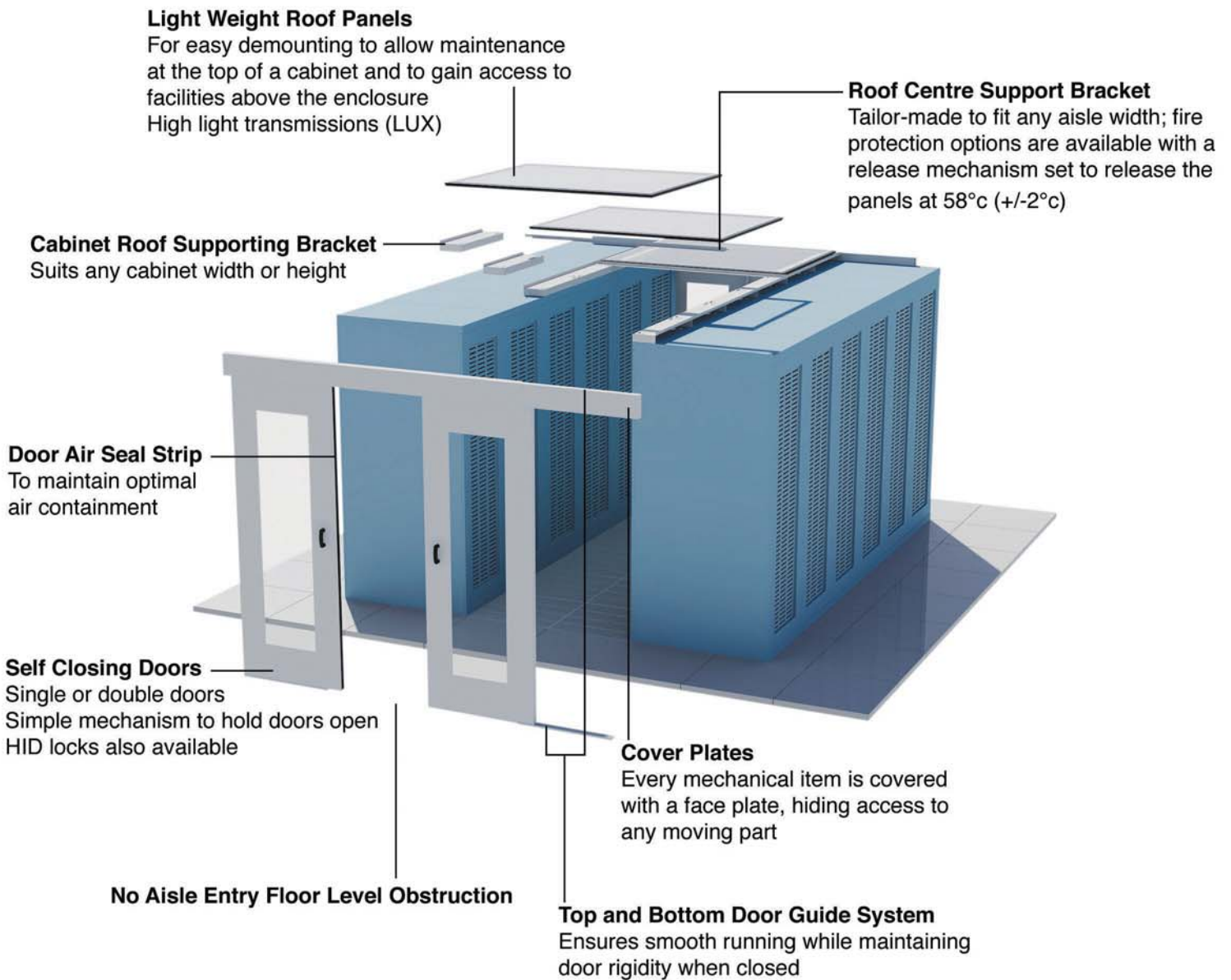
EDP Europe Cold Aisle Containment maximising cooling efficiency.

1. Preventing recirculation of air back to the computer room air-conditioning (CRAC) unit(s) significantly improves the efficiency of your building's cooling system and reduces your company's carbon footprint.
2. By creating a positive pressure in the cold aisle, air is directed straight into the servers. This makes them run more efficiently, reducing the risk of failure and extending their life span.
3. In the event of a total cooling shut down, Cold Aisle Containment stops a heating outage for 35 minutes, providing an extra 20 minutes to react.
4. Being able to regulate the air enables better control of the room's temperature. By increasing the temperature of the CRAC unit by 1°C, provides a typical saving in the region of 4% of cooling power bills. In addition, the chiller units will make greater use of natural air temperature (free cooling), further enhancing energy savings.
5. 74% of server failures occur in the top third of the rack where the temperature is traditionally hotter. Cold Aisle Containment provides temperature equilibrium across all servers, no matter where they are positioned in the rack.



## What is Cold Aisle Containment?

This illustration demonstrates a typical example of Cold Aisle Containment. The corridor is fully enclosed to maximise the efficient use of cold air.



## What Is Cold Aisle Containment?

### Eight Key Benefits:

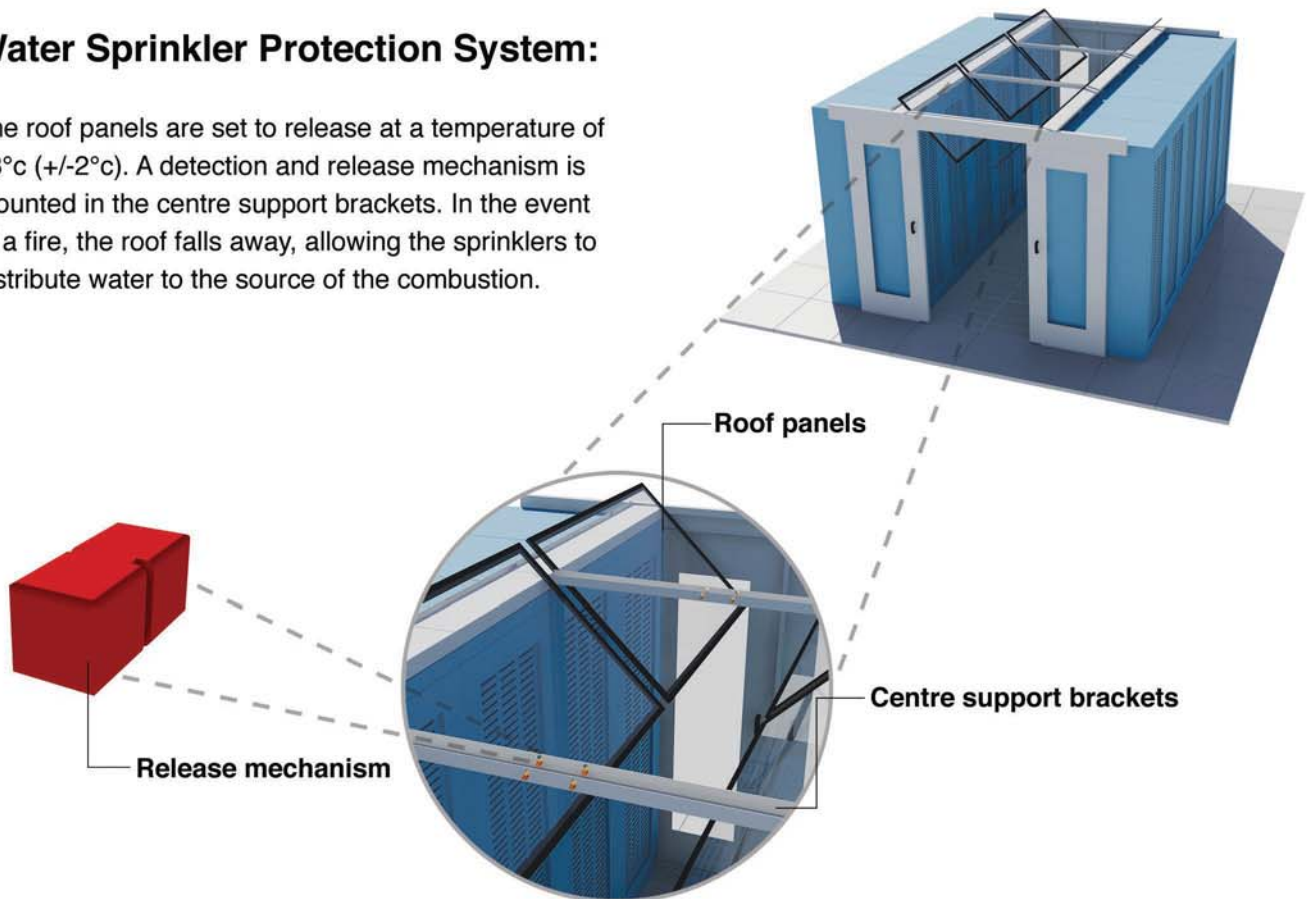
1. Cost savings of between 10% and 30% of current building cooling systems.
2. Power savings on room hardware (servers, switches, routers, etc).
3. Control of room temperatures and humidity.
4. Control of airflow and balancing.
5. Improved U-space utilisation.
6. Resiliency to a cooling system shutdown.
7. Redundancies to the building and room cooling systems, improving data centre tier status.
8. Reduces the building's carbon emissions, improving eco friendly status.



## Fire Protection Systems

### Water Sprinkler Protection System:

The roof panels are set to release at a temperature of 58°C (+/-2°C). A detection and release mechanism is mounted in the centre support brackets. In the event of a fire, the roof falls away, allowing the sprinklers to distribute water to the source of the combustion.



### Pre Cut Holes:

Should you wish to add to your existing fire protection systems, pre-cut holes can be made to the roof panels.

### Summary:

In summary, all of our installations provide the flexibility to save you any expense of moving or adding to your existing fire protection systems.

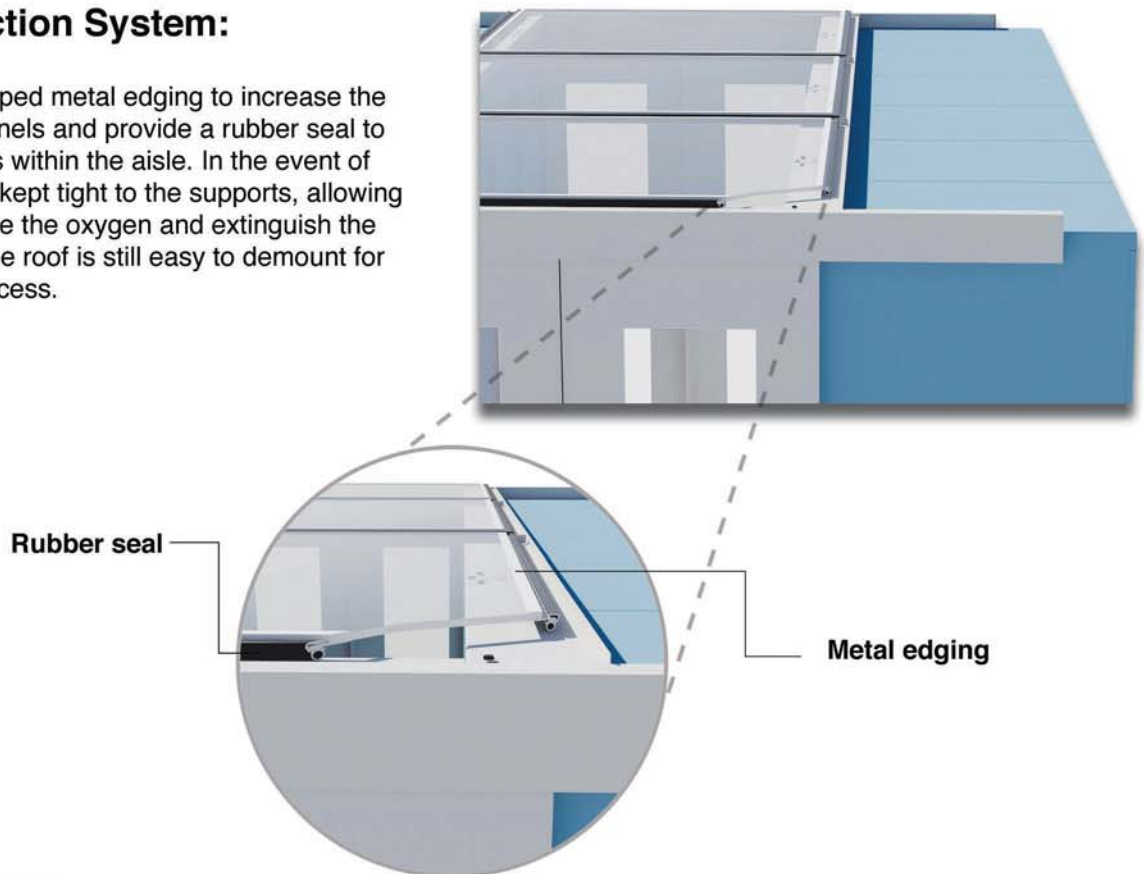


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## Fire Protection Systems

### Gas Protection System:

We have developed metal edging to increase the weight of the panels and provide a rubber seal to maintain the gas within the aisle. In the event of a fire the roof is kept tight to the supports, allowing the gas to reduce the oxygen and extinguish the fire. However, the roof is still easy to demount for maintenance access.



### Pre Cut Holes:

Should you wish to add to your existing fire protection systems, pre-cut holes can be made to the roof panels.

### Summary:

In summary, all of our installations provide the flexibility to save you any expense of moving or adding to your existing fire protection systems.



## Environmental Survey

### Site Survey:

1. Room assessment and layout plan.
2. Thermal imaging photos of each aisle.
3. Air velocity pressure survey (airflow through each 600x600 vented floor tile).
4. Temperature and humidity check at low, medium and high levels on each aisle.
5. In and Out temperature and humidity check on the Air Conditioning Units.

### Benefits:

Knowledge of where the air is being delivered in the data room to maximise the efficiency of future installations. Detailed information on the current airflow and its efficiency in cooling the active equipment already installed. Understanding how Cold Aisle Containment could improve the operational airflow saving you money and reducing your carbon footprint.

### Thermal Imaging Photos:

EDP Europe engineers are equipped with thermal imaging cameras. Many environments today are very high density; thermal imaging can spot problems as they happen.

### Air Velocity Pressure Survey:

We start our survey with a full airflow meter reading of each vented floor tile. EDP Europe can then determine the exact areas of air distribution in the data room.

### Temperature and Humidity Check at Low, Medium, and High Levels on Each Aisle:

EDP Europe follows up the air velocity pressure survey readings with a low, medium, and high height range of temperatures and humidities, low = 6U (267mm), medium = 30U (1,334mm) and high = 50U (2,250mm) through the middle and end of the aisles.

### In and Out Temperature and Humidity Check on the Air Condition Units:

This completes the survey by showing the temperature ranges coming back to the air conditioning units.



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## Environmental Survey

### Full Report on Data Rooms:

After all the surveys are complete, we make a detailed drawing of your data room illustrating the airflows, temperatures and humidity readings. In addition we provide thermal imaging photographs showing each aisle end and hot spots in the room. We can then give you a clear understanding of how Cold Aisle Containment could save you money and reduce your carbon footprint:

- How the air temperature in the cold and hot aisles is performing and where hot air is returning to the cold aisle.
- The balance of air pressures and velocities from the floor plenum can be assessed and observations drawn from these readings to show air starved areas.
- The thermal images show possible heating issues in the room. Hot spots are easily identifiable giving a clear indication of air starved areas.
- Recommendations can be made to improve the efficiency of existing active kit through relocation.
- Clear advice on the optimum location for the next generation of active kit (servers).

**A full report is delivered to you for consideration.**





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## Ongoing Service Agreement

### Six Monthly On-site Survey:

1. Aisle temperature and humidity readings (high aisle levels).
2. Vented tile floor airflow readings.
3. Thermal imaging readings.
4. Low density area recommendations for future equipment expansion.
5. Reduced response time for maintenance call-outs from five days to 48 hours.
6. Professional cleaning of roof panels and sliding doors.
7. Maintenance health check on installation.
8. Updates on TIA942 standard and carbon trust.
9. Technical support e-mail help line.
10. A full written and visual report.



Once your installation is complete, EDP Europe aims to provide the highest standard of aftercare. Our Service Agreement gives you peace of mind for the future.

Data rooms are regularly updated with new servers and active equipment. Engineers may not replace blanking panels or close doors properly, and these minor omissions can have a huge effect on your data room environment and costs.

Our written and visual report will detail the key measurements of the health and efficiency of your data centre cooling. Any additional recommendations to save you money and reduce your carbon footprint will be highlighted and discussed with you.



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## Frequently Asked Questions

### *Q: WHAT DOES CONTAINMENT DO?*

**A:** Cold Aisle Containment separates the supply and exhaust air between your hot and cold aisles, helping to manage your environment. After Containment is installed, the cold air is delivered directly to the servers and active equipment. This maximises the efficiency of your mechanical infrastructure, saving you money. It also gives guaranteed floor and aisle airflow balancing improvements.

### *Q: ARE THE SERVERS OR RACKS COMPROMISED IN ANY WAY?*

**A:** No, the installation of containment is non-intrusive and installed at your convenience. The bespoke manufacturing means we tailor the containment to fit any rack and aisle arrangement.

### *Q: HOW WILL IT SAVE ME MONEY?*

**A:** Power costs are increasing year on year and with an average of 50% of data centre power (average PUE of 2.0) needed for cooling infrastructure. The use of containment can provide a sensible return on investment and ongoing reduction in data centre operational expenditure. Using PUE as our 'measurement metric' we can illustrate cost savings with before and after assessments.

### *Q: WILL IT FIT MY EXISTING CABINETS?*

**A:** Yes, EDP Europe products retro-fit all manufacturers' cabinets. We customise our solutions to suit all size rooms and budgets.

### *Q: CAN I GAIN ACCESS FOR CLEANING AND SERVICING?*

**A:** Yes, all roof panels are translucent and made of a light weight material. This allows ease of access to overhead cabling for servicing and cleaning while optimising lighting lux levels.



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## Frequently Asked Questions



### *Q: WHO WILL DESIGN AND FIT MY CONTAINMENT SOLUTION*

**A:** EDP Europe designs your optimum containment solution, tailoring each part to fit your individual needs. All of our staff are experienced in working within a live environment and are trained in health and safety and best practices to TIA945/ASHRAY standards.

### *Q: WHAT ABOUT FUTURE EXPANSION?*

**A:** All products are made modular by design, making future expansions or modifications simple to achieve.

### *Q: CAN EACH CORRIDOR BE SECURED?*

**A:** Yes, extra aisle security is available with HID (swipe card) or keypads fitted to the end of aisle sliding doors. Both can be connected to your building management system. Simple twist locks and self closing doors are also available.

### *Q: DOES CAC AFFECT MY EXISTING FIRE PROTECTION SYSTEM?*

**A:** No, EDP Europe have engineered innovative solutions to combat the installation of containment around existing suppression systems. Whether your company uses a gaseous or water based system the roof panels used will be designed to work with it, adhering to the latest health and safety and insurance policy guidelines.