

Modular Server Rooms



Secure modular construction systems are the quick, clean and cost-effective solution to provide certified levels of protection for IT hardware and media. Modular rooms can be built to any size, inside an existing building or outside with a weatherproof roof. And, modularity allows future expansion or relocation.

Perfect solution

Modular rooms are the perfect solution for the construction of:

- Modular Data Centres
- Modular Computer Rooms
- Server/Comms/Plant Rooms
- Data/Document Storage
- Control Rooms

Why use modular construction?

The ModuSec Modular system uses lightweight, high strength, steel faced wall and ceiling panels with a 'Pyrofoam' core that provides a high performance thermal barrier. Panels simply lock together to form a protective enclosure that is quick and clean to build to any size. The pre-finished panels require no decoration or maintenance. The system is independent of the existing structure and can be easily extended or relocated at any time. Each panel is individually made to the required length with mechanical camlocks to increase joint strength and integrity. They can include internal steel sections for extra strength and to hang heavy loads, cable conduits, steel mesh for higher attack security and blast protection.

ModuSec has been specifically designed to provide the correct levels of protection for computer hardware and media from external threats such as fire, water, smoke, dust, theft, vandalism and sabotage. High insulation properties effectively eliminate solar gain, saving energy and providing a stable environment for cooling systems.

Single source design, manufacture and installation ensures a high integrity solution.

Construction Options

ModuSec Pyrofoam panels are light (20Kg/sq.m) but incredibly strong. Walls can support the ceiling panels and require no structural framework. Ceilings can span up to 6m before requiring any additional support – exceeding BS6399 (load drop test) – the requirement for ‘walk on’ strength. Integrity tests for fire suppression systems normally last 2 hours or more (10 minutes only required) – proving the level of sealing our system provides. FM200 gas release tests on a room with 6m ceiling spans and intermediate ‘top hat’ supports proved the strength of panels and joints under pressure (up to \pm 500 Pascals). Insulated pressure relief units are available for gases at higher pressures (e.g. Inergen).

Build combinations include:

- Walls and ceiling
- Walls, ceiling and base
- Add a roof for an outside construction
- Build on a raised frame
- Double storey – inside or outside construction
- Standard or high security Class 2 or 3 construction
- Walls only or ceiling only, provided that there are suitable surfaces to fix to*

*(NOTE: this will not provide the same level of integrity and protection as a ‘whole room’ construction.)

A modular build for Rushmoor Borough Council



The server room in the offices of Rushmoor Borough Council in Farnborough, Hampshire, is located directly below a staff canteen facility and has, in the past, been subject to water ingress from above. The server room could not be moved as there was no other suitable location. It had to be made watertight and protected from the identified water hazard.

A new, modular comms room was specified and built – in a live environment – within the existing space using the ‘Modusec’ modular room panelling system with a waterproof layer over the top of the whole structure.

All equipment was moved out, moved back and, in some cases, upgraded. New walls – water proof and

90 minutes fire rated (60 minutes approved) – were fitted and lined and sealed with a made-to-measure butyl liner laid over a felt. All wall panels were resin sealed to the concrete floor.

The new build also included a secure door to the office, a raised floor, new server cabinets, air conditioning, environmental monitoring, uninterruptable power supply, green fire suppression solution and shutdown and callout system.

“The modular room concept provides the Council with a really secure and environmentally friendly future proof solution.”

Nick Harding, Head of IT, Rushmoor Borough Council



Excellence in manufacture

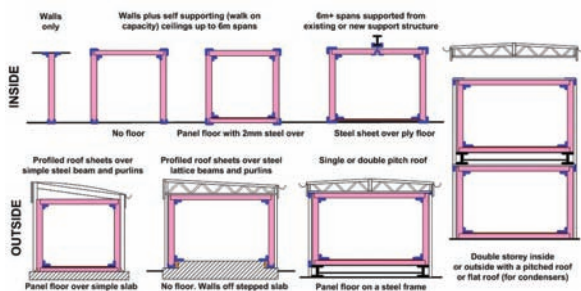
The Modusec construction system uses a unique phenolic foam formulation to produce the Pyrofoam core material. This is injected under very high pressure into a mould that contains the steel panel skins, camlock locking mechanisms and side rails that produce the tongue and groove shaped edges. The foam fills up every corner of the mould and bonds to the steel skins to produce a very strong composite panel. The panels reach around 80% of their structural strength in a few hours and continue to full strength within days.

Quality control is of prime importance. The process is rigorously monitored to ensure consistent density and quality of the finished panels – with each panel being hand finished.

Generally, panels are 1140mm wide. However, the steel skins can be cut to any size and panels can be formed to any required size up to 1140mm wide x 6m long. In addition panels can be made with preformed corners and can include cable conduits, reinforcement channels and steel mesh as required.

Doors, specifically developed to fit the ModuSec system, are also available. The components for these and other steel trims, angles, channels, etc., are produced using the latest CNC technology and CAD/CAM software – to ensure that each item can be reproduced exactly if required.

Steelwork can also be fabricated for roof constructions, ceiling support steelwork, ramps, steps, etc. This maintains the highest levels of quality control and ensures that the right piece of steel is made to the right size at the right time.



Service excellence

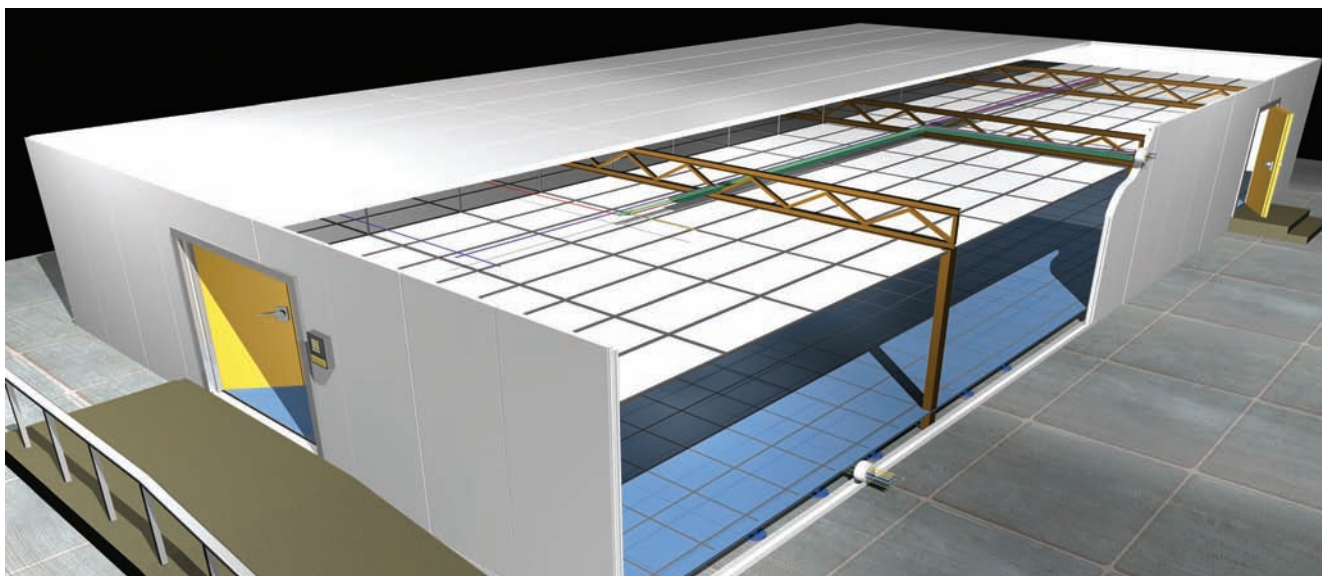
Comms Room Services can provide a complete solution to include:

- Full site surveys, environmental reviews
- Advice, planning and design
- Supply and installation of the modular build and related infrastructure – UPS systems, air conditioning, fire suppression, raised floors and cabling
- Refurbishment and relocation
- Project management
- Documentation and training
- Ongoing maintenance and support



Testing and Certification

ModuSec's Pyrofoam core steel faced panel system and doors have been extensively and independently tested:



BS476 Pt22: 90 minute insulation and integrity rating (achieving EN1047-2 recommended limit temperature rise for computer room construction for 73 minutes measured at the protected face). Note that F90 rating can be increased if required with additional layers of fire rated materials.

IMO A60: Marine and offshore 60 minute fire rating by Lloyds register of shipping. Note that this is a European test and is regarded as a far more onerous fire test than the BS476 Pt22 equivalent.

IMO Smoke & Toxicity Test: Achieved required smoke and toxicity levels for marine use in bulkheads and wall/ceiling linings. Note that Pyrofoam does not produce the smoke and toxic fumes given off by other foamed materials. IMO Resolution A.754 (18): Penetration fire test. 19 penetrations for various sizes of pipe and cable entries were tested in 3 panels using the RCS system. This forms the basis of our penetration protection system for computer rooms.

LPS 1181-2 enhanced: Pyrofoam panels were independently tested under the LPS 1181-2 'reaction to fire' procedure by the Building Research Establishment. We opted to carry out the test totally unsupported by the test rig – i.e. the ceiling panels were fully supported

by the wall panels alone. The test was carried out on a 4.5m x 10m x 3m room with a 1 mega watt gas burning crib in 1 corner – providing maximum heat load to the inside ceiling/wall joints (i.e. the critical area supporting the ceilings). The system met the criteria of the test procedure and no 'flashover' was created. From the results of this test, we deem that our rooms can be constructed with ceiling panels supported on the wall panels without the need of a steel ring beam or support from above. Note that it is generally recommended that for mineral wool panel construction, ceiling panels should NOT be supported by wall panels as they are not tested in this condition. Hence additional support from above or a ring beam is generally required.

ISO 9705: Full room fire test, also tested unsupported.

EN 13501-1:2007: Reaction to fire test (carried out with and without steel skins). Both cases achieved B – S1, d0

BS6399: Service access load standard for 'walk on ceilings'. Achieved up to 5 times the required standard.

High Security Options: Independently tested. Details on application to approved users.