



A versatile, robust modular containment system with few technical or safety limitations.



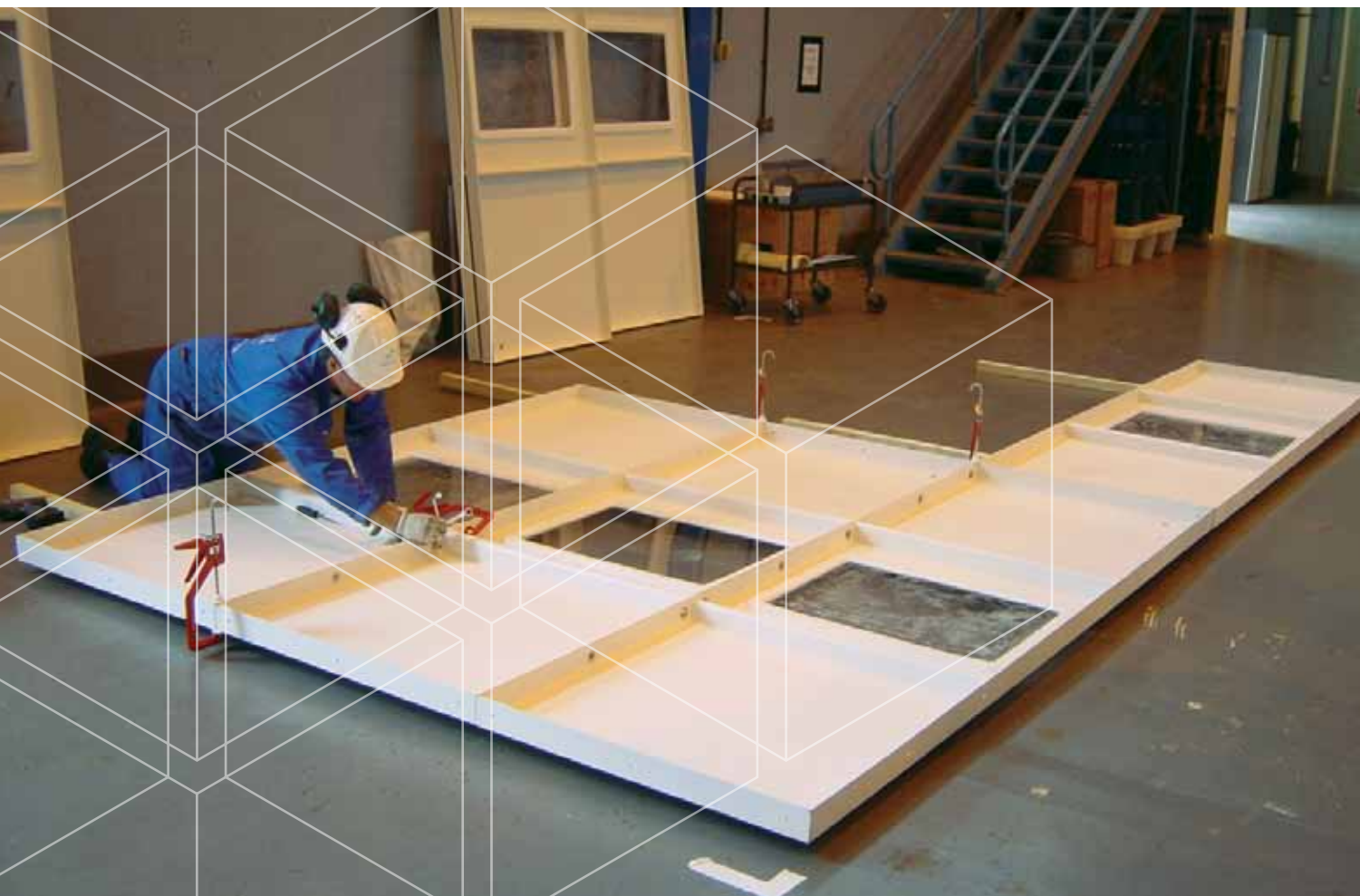
ModuCon® Modular Containment System

The problems associated with temporary containment such as integrity and secondary waste arisings are largely overcome with the ModuCon® system. The modular concept offers a versatile, robust containment with few technical or safety limitations.

Originally developed at the Winfrith Technology Centre, ModuCon® has been employed for over 20 years in maintenance and decommissioning operations involving plutonium and other radioactive/toxic materials. During this time ModuCon® has established an enviable track record.

In all cases the installations have proved an invaluable asset to the diverse tasks associated with decommissioning by providing a practical professional solution to each temporary containment problem. Many panels in use today are several years old and stand testimony not only to the durability and flexibility of the components but also to the concept of the re-usable system.

Integrated units for HEPA ventilation, waste ports, air locks, boot barriers and access, provide a complete system for contamination control and facilitate safe and productive working.



Assembly is simple and quick using bolts through the flanged panels.

In preparation for radioactive or toxic operations the containment is sealed and protected by application of a pliable coherent coating (tie down coating) which can be easily removed later by physical stripping. The coating is applied by airless spray, for speed and efficiency, but it may also be applied by brush or roller in smaller units.

Air extraction is desirable and often mandatory to ensure controls are adequate to contain the hazardous material. Existing building extract systems can only occasionally be utilised and so mobile ventilation units are incorporated in the design to ensure that correct depression and flows are maintained. The extract systems vary in size and sophistication to suit the task in hand; for example a small containment handling wet, low toxicity wastes could use a considerably simpler extract plant than decommissioning glove boxes containing dry plutonium oxide.

For the control of wastes the ModuCon® system incorporates purpose built waste ports to allow direct packing into drums outside the containment. This avoids repeated handling and contamination of the drum.

Operations within ModuCon®

Safety cases have been prepared to permit a wide range of operations within ModuCon®. For example, plasma arc and other size reduction cutting methods are used in decommissioning work and ultra high pressure water jetting is currently deployed in descaling and other decontamination tasks. During work, entry and exit procedures must be strictly followed to prevent spread of toxic material. Often, a supplementary unit is attached to allow for change of personal protective equipment (PPE), washing or showering as the hazards dictate. A purpose built shower tunnel or air lock is necessary for highly toxic materials, but often a simple containment is adequate.

During dusty operations involving particularly toxic materials such as plutonium, asbestos or beryllium, successive tie down coatings may be applied to fix dusts and reduce airborne risks and recontamination. This is now routine housekeeping practice at many establishments and not only reduces risks but can reduce the PPE requirements as the job progresses, from full air suits to free breathing.



Dismantling and Re-Use

On completion of the work a final tie down coating is applied to the inside of the containment. This sandwiches contamination between layers. This is then removed by physically stripping the coating for safe disposal and producing minimal secondary waste. The panels are left clean and can be handled and transported without any special precautions. ModuCon® panels have been re-used many times in different configurations and on different sites or facilities.



Construction, Operation and Dismantling

Erection of the designed containment may be carried out by a Nuvia team or by customer staff; a combined team is often the best. First the floor is prepared, and the requirements for this vary. Existing substrates may be utilised or covered with a heavy duty strippable coating. However, a false plywood floor is often laid to provide a firm platform and working base. The false floor is overlaid with tough PVC and protective coatings. When wet operations are to be carried out an integrated steel banded base can be provided.



A Complete Service From Start To Finish

The Modular Containment System has been used by Nuvia and its clients for many years. It was originally developed for the decommissioning of plant contaminated by plutonium. The system has an impressive track record of over 20 years reliable routine use with highly toxic and radioactive materials. It is now widely used in the nuclear industry for maintenance, decommissioning and waste handling purposes.



Our experience of users' problems has shown that the system often provides the only solution that offers an acceptable combination of safety and economy.

The ModuCon® system is tailored to suit the requirements of each user, and the enclosure can be as large or small, simple or complex as the job demands. The standard panels (900 mm wide) are easily handled and assembled. Non-standard panels are readily available and the enclosure may incorporate any of the following options:

- Entry/exit area with (optional) shower or wet swabbing area
- Ports for material "posting" and services
- Windows for viewing and lighting
- Mobile ventilation and filtration plant
- Lifting equipment

Support Services

Other services that can be supplied with ModuCon® include:

- Consultancy and advice on potential applications of ModuCon® design from experienced users.
- An efficient installation service.
- Training or advice in:
 - Planning and estimating tasks employing ModuCon®
 - ModuCon® working methods
 - Pressurised suit working
 - Use of associated equipment and decommissioning tools

ModuCon® customers profit from Nuvia's extensive experience in handling hazardous materials, and may contract with Nuvia for a complete decommissioning, decontamination and waste disposal service.

Nuvia is the UK's largest independent provider of radiation safety services. A full Health Physics service can be provided if the tasks involve working with ionising radiation.

Nuvia can provide:

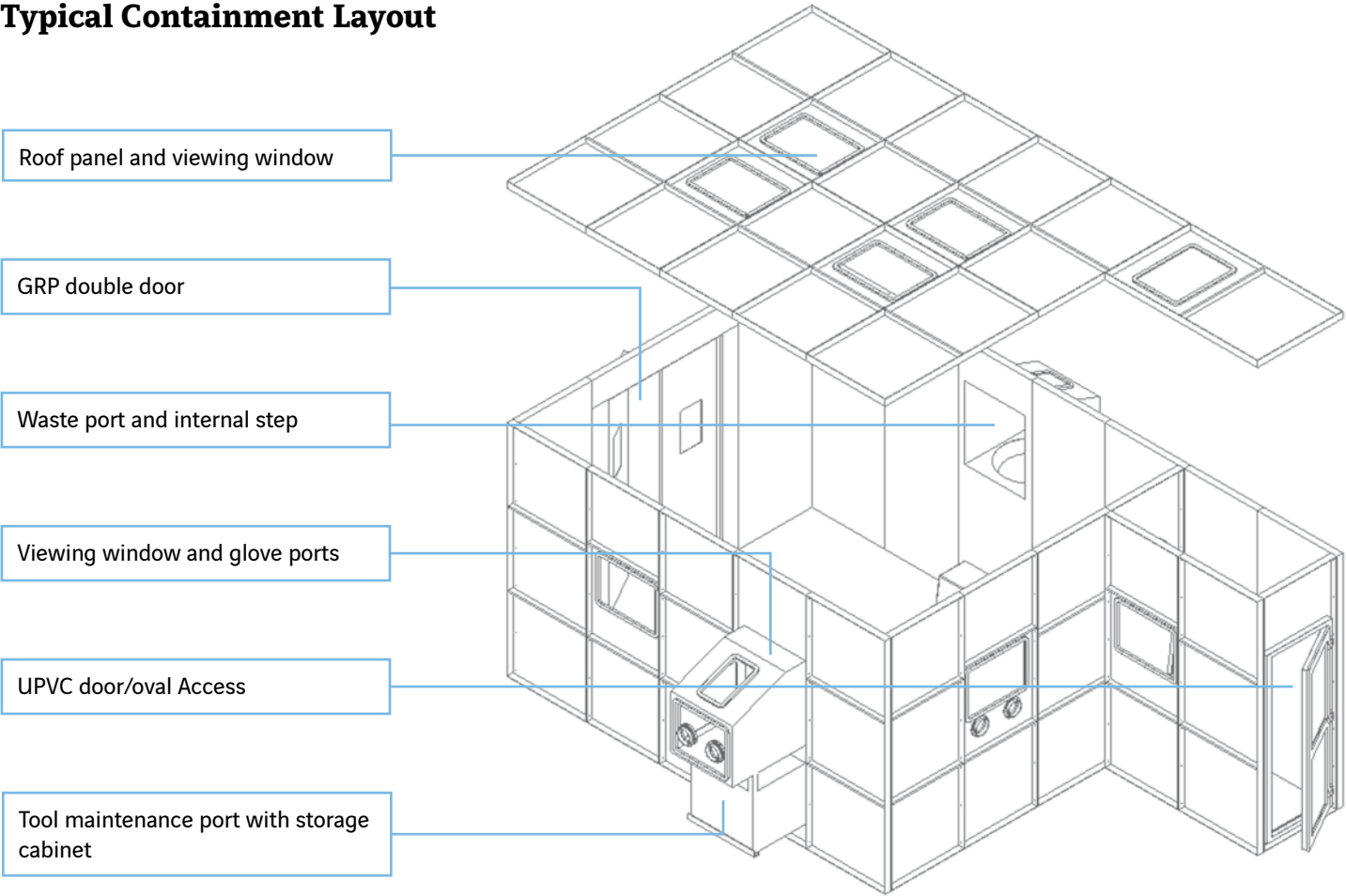
- Initial consultancy
- Operational advice
- Workplace monitoring and instrumentation
- Routine and emergency dosimetry & record keeping
- Radiation protection advice and safety training
- Reactor outage support to the nuclear industry
- 24 hr, 365 day availability
- Nuvia also has a training ModuCon® and can provide 'Certificated Training Courses' in the use of PPE and operational procedures within a ModuCon®/PSA.

Benefits

- Resources of a highly qualified and experienced team of professionals and technicians.
- Economic and efficient services to businesses.
- Assurance that:
 - Workforce and public are adequately protected
 - Statutory requirements are being met

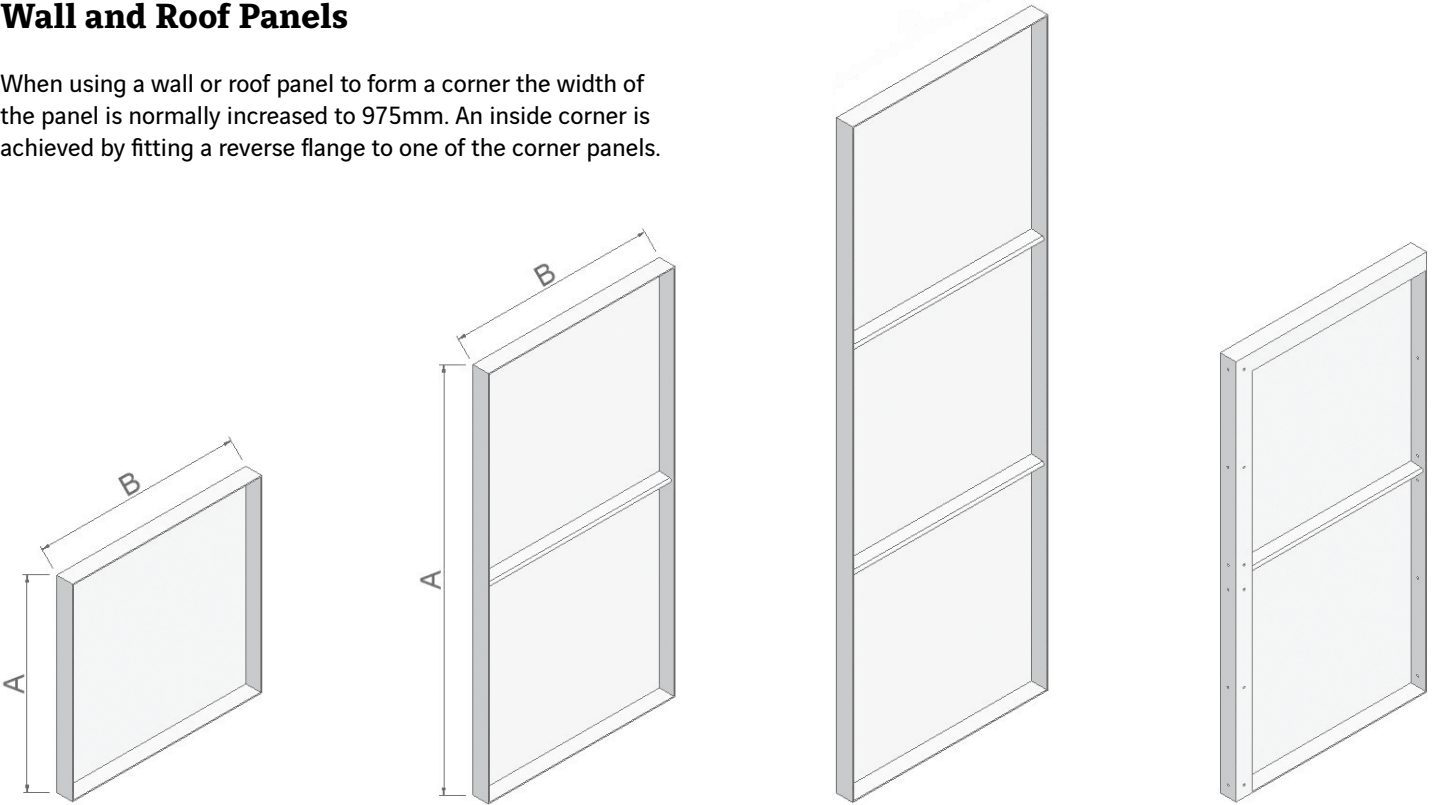
We have Radiation Safety teams based at our sites throughout the country.

Typical Containment Layout



Wall and Roof Panels

When using a wall or roof panel to form a corner the width of the panel is normally increased to 975mm. An inside corner is achieved by fitting a reverse flange to one of the corner panels.

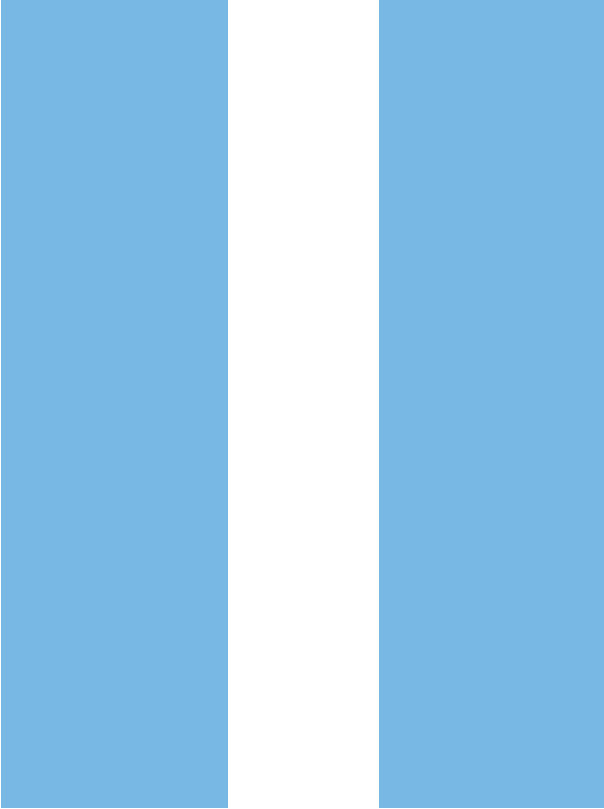


Window Options

Designed for easy cleaning, window panels can be fitted into both the wall and roof. Features of standard windows:

- Glazing material - Standard fitting clear polycarbonate sheet
- Optional reinforced glass
- Glazed area - 700mm wide x 500mm high (or to customer requirements)
- Position in wall panel (W24, W27) - 1550mm from floor to window centre line
- Position in roof panel (R9, R27) - Central
- Position in roof panel (R18) - Off set to one end

- Add /VW to panel code and specify any non-standard features.
- Multiple windows can be provided in a roof or wall panel to customer requirement.
- Polycarbonate windows can be provided when impact protection is required.
- Reinforced glass can be provided when using ModuCon® for processing pyrophoric materials.



Access Port Options

The tool port allows work to be performed on equipment from the clean side of the containment. A cabinet with storage shelves is provided.





Cleaning & Decontamination

During manufacture, particular attention is paid to the internal faces of the ModuCon® panels to ensure that they are smooth and unblemished in order to facilitate decontamination. The method of decontamination depends on the nature and extent of the contamination. For mild contamination, simple methods such as wiping with a damp swab will suffice.

Where more severe contamination is anticipated the following technique employing strippable coating has proven highly successful:

- After assembling the ModuCon®, seal the panel joints with self-adhesive PVC tape.
- Apply one or two layers of strippable coating (by brush, roller or spray) to the interior.
- Carry out the planned work within the containment.
- Apply a further layer of strippable coating to trap the contamination in a sandwich.
- Peel off the strippable coating
- Check no contamination remains
- Dismantle the ModuCon®

The strippable coating compresses to a small volume of waste and the ModuCon® is left completely clean, ready for re-use. Nuvia can supply the strippable coating in 25 litre containers.

How To Order

An order for panels and panel options can be drawn up from the following panel code tables. To assist with ordering, please discuss your requirements with a member of the ModuCon® Team first. A simple concept design can be produced from which a panel specification and ModuCon® costing is more easily developed.

Contact the ModuCon team via:

E: ModuCon@nuvia.co.uk
T: 01305 755264
M: 07850 200010

Or write to:

Jerry Nash - ModuCon Product Manager
Nuvia Limited
Units 28/29, Enterprise Park
Piddlehinton, Dorchester, Dorset
DT2 7UA

Standard Wall Panels	Dimension A (mm)	Dimension B (mm)	Panel Code
Wall Panel - Basic 900	900	900	W9
Wall Panel - Corner Fixing	900	975	W9C (L) or (R)
Wall Panel - 2 Corner Fixing	900	1050	W9CC
Wall Panel - Inside Corner	900	900	W9I
Wall Panel - Basic 1800	1800	900	W18
Wall Panel - Corner Fixing	1800	975	W18C (L) or (R)
Wall Panel - 2 Corner Fixing	1800	1050	W18CC
Wall Panel - Inside Corner	1800	900	W18I
Wall Panel - Basic 2400	2400	900	W24
Wall Panel - Corner Fixing	2400	975	W24C (L) or (R)
Wall Panel - 2 Corner Fixing	2400	1050	W24CC
Wall Panel - Inside Corner	2400	900	W24I
Wall Panel - Basic 2700	2700	900	W27
Wall Panel - Corner Fixing	2700	975	W27C (L) or (R)
Wall Panel - 2 Corner Fixing	2700	1050	W27CC
Wall Panel - Inside Corner	2700	900	W27IC