

# FIRE DOOR CORE®



## SAFETY & INSTALLATION MANUAL



This safety and installation manual is to ensure your FDC door is installed safely, in accordance with the Tested Specimens and in conjunction with AS1905.1. Following this manual will allow you to install your FDC fire door with confidence that it is done properly, will have a long life span and won't need extra care and maintenance throughout its life cycle.

## Safety

FDC doors are made with non-combustible refractory calcium silicate which when machined, can generate fine silica dust particles which can be harmful when inhaled or when in contact with the eyes and skin. Inhaling excessive amounts can cause silicosis, lung cancer, chronic obstructive pulmonary disease (COPD), and kidney disease. To minimise the risk of harm, FDC strongly recommend using appropriate safety equipment and procedures as outlined below;

### **1. Safety Equipment**

Dust extractors and dust minimising power tools must be used when working on FDC doors. Avoid cutting and machining indoors where possible.

### **2. PPE**

Personal protective equipment is crucial in preventing and reducing the risk of personal injury. Below PPE must be worn when handling and installing FDC doors;

- Goggles/Eye Protection
- Heavy Duty Gloves
- P2 grade or equivalent Respirators
- Protective Clothing
- Hearing Protection

### **3. Manual Handling**

Like most Fire Doors, FDC doors are heavy and require the correct manual handling techniques to be implemented. This may involve mechanical lifting, needing more than one person, and rotating work tasks to avoid repetition on muscle use.

Refer to Safe Work Australia Guidelines and Regulations. Always be aware of safe lifting and handling loads and never lift anything that is too heavy or hazardous.

### **4. Safe Work Space**

Ensure the workspace for you and others that may be indirectly at risk from your works is safe and risks are mitigated and reduced. For dust prevention and minimisation, in addition to above safety guidelines, ensure there is adequate ventilation. If needed, establish designated cutting areas that are sealed off to contain any excessive dust. Never dry sweep. Always use HEPA vacuum cleaners or appropriate wet suppression.

**If you need any further information on how to install your FDC Fire Door properly and safely, please contact your door Manufacturer and/or Supplier. If you require additional information about silica exposure levels, see [www.aioh.org.au](http://www.aioh.org.au)**



## Installation Options

There are two approaches for installing FDC doors;

1. The first approach, which is recommended, is to install **CNC Machined Doors** which are already sized with hardware cut-outs done at the factory before being installed / assembled on site. This is recommended to improve safety through reduced manual handling and less dust. It also expedites the site installation phase of the whole process.
2. The second approach is the **Traditional** process using 'Blank'/Uncut doors. This involves doing the entire installation on site, marking, measuring and trimming the door to suit the opening prior to cutting out for and installing the hinges and hardware

## Option 1. CNC FACTORY MACHINED FDC DOORS

### 1. Measure

Site Laser Measured and relayed back to the CNC machine for cutting. Corresponding hinge and hardware cut out sizes and positioning also done at this stage.

### 2. Storage & Handling

When FDC doors are delivered, ensure they are stored horizontally to prevent bowing and warping. The doors are a composite material and need to be treated with care and thought of as a finished product.

When manoeuvring the door around, take care to protect all edges. This will need to involve using padded / carpeted trolleys and handling equipment. If levering is needed to get the door into position, a soft / padded material such as carpet or underlay must provide a barrier between the door panel and the leverage tool / device. Do not turn or swivel the doors on their corners.

### 3. Trim to Suit Door Frame Opening

Below is all allowed for in the programming of the CNC machine

#### ***Clearances***

The maximum mean clearances in AS1905.1 are 3mm top and sides with 10mm bottom. There are some allowable alternatives with specific upgrade seals, fire tests and assessments. Check with your manufacturer and supplier for any further information

#### ***Edges***

- CNC programming should allow a standard 3 degree bevel on the top and sides to allow for smoke / acoustic / intumescent seals where required
- The non-combustible edge rails on the FDC door design are 3-5 times wider than conventional fire doors, allowing to trim to suit frames that are badly bowed, splayed and spread, whilst still maintaining the strength, structure and fire rating of the door panel.
- Edges to also have a small aris to reduce the chance of damage when knocked.

### 4. Hinges

#### ***Hinge Preparation***

- All hinge cut outs to be routed on the CNC Machine

#### ***Hinge Installation***

- Adequate diameter Pilot holes must be drilled to the equivalent length of the hinge length. Ensure loose material is removed from the pilot holes by removing the drill bit at least once at the half way point in depth. When removing, ensure the drill is still set to clockwise
- Only **Long thread screws** to be used for the hinges on FDC doors.
- Be sure not to overtighten the screws as it may result in the screws becoming loose and ultimately not being strong enough to sustain the weight and use of the door



- Screws should be screwed in once only. Not removed and reinstalled.
- When removing the door, pop the hinge pins rather than unscrewing the hinges. If the hinges must be unscrewed, unscrew them from the frame and not the door panel where possible.

#### **5. Adjustments**

After hanging the door, adjust the hinges where necessary to even the perimeter clearances. If the door is binding on the frame, the hinges may need to be repositioned or set back further. Additional trimming may also be required. Be sure to follow the safety guidelines previously mentioned. All screw fixings should only be screwed into the door leaf once to maintain the strength of the material.

#### **6. Locks**

Lock cut outs done on the CNC machine prior to site installation. Follow the specific lock installation instructions for lock assembly. Any screw fixings through the door panel must be pre-drilled. Use long thread screws for panel screw fixings where possible.

#### **7. Door Closers**

Follow the specific closer installation instructions for closer assembly and positioning. Any screw fixings through the door panel must be pre-drilled. Use long thread screws for panel screw fixings where possible.

#### **8. FDC Auxiliary Fire Bolts**

Fire bolts are required on all FDC fire rated doors. Fire bolt cut outs are done on the CNC machine prior to installation. The screw fixings must be pre-drilled. The door frame must also have a fire bolt penetration at the same positioning to allow for the bolt to extend into the hole. This hole should be at least 20mm deep with a 16-17mm diameter. A plastic plug may be fitted to the hole, which should be supplied with the fire bolt if not already allowed for in the door frame.

#### **9. Exposed Intumescent Seals**

Exposed Intumescents are required on all FDC fire rated doors. Seal preparation is done on the CNC machine. Installation requires the seal to be cut to lengths, adhesive tape removed and the seal installed to the top, and sides.

#### **10. Additional Hardware**

Before installing **ANY** item of hardware, make sure it is approved and compliant for use on FDC doorsets. For further information, contact your FDC door supplier / manufacturer. If non-compliant or non-approved hardware used, along with additional cut outs made, the FDC door will not be certifiable.

#### **11. Repairs and Maintenance**

Refer to the FDC Warranty and Maintenance manual. Ensure no combustible materials are used when patching or repairing minor damage.



## Option 2. BLANK / NON-MACHINED DOORS

### 1. Measure

Measure and mark the door for resizing, hinge and hardware positioning. This may take multiple attempts when resizing the door panel to fit the frame.

### 2. Storage & Handling

When FDC doors are delivered, ensure they are stored horizontally to prevent bowing and warping. The doors are a composite material and need to be treated with care and thought of as a finished product.

When manoeuvring the door around, take care to protect all edges. This will need to involve using padded / carpeted trolleys and handling equipment. If levering is needed to get the door into position, a soft / padded material such as carpet or underlay must provide a barrier between the door panel and the leverage tool / device. Do not turn or swivel the doors on their corners.

### 3. Trim to Suit Door Frame Opening

#### *Clearances*

The maximum mean clearances in AS1905.1 are 3mm top and sides with 10mm bottom. There are some allowable alternatives with specific upgrade seals, fire tests and assessments. Check with your manufacturer and supplier for any further information

#### *Edges*

- Trim the panel to allow a standard 3 degree bevel on the top and sides to allow for smoke / acoustic / intumescent seals where required
- The non-combustible edge rails on the FDC door design are 3-5 times wider than conventional fire doors, allowing to trim to suit frames that are badly bowed, splayed and spread, whilst still maintaining the strength, structure and fire rating of the door panel.
- Edges to also have a small aris to reduce the chance of damage when knocked.

### 4. Hinges

#### *Hinge Preparation*

- All hinge cut outs should be routered, then tidied up with a sharp chisel.

#### *Hinge Installation*

- Adequate diameter Pilot holes must be drilled to the equivalent length of the hinge length. Ensure loose material is removed from the pilot holes by removing the drill bit at least once at the half way point in depth. When removing, ensure the drill is still set to clockwise
- Only **Long thread screws** to be used for the hinges on FDC doors.
- Be sure not to overtighten the screws as it may result in the screws becoming loose and ultimately not being strong enough to sustain the weight and use of the door
- Screws should be screwed in once only. Not removed and reinstalled.
- When removing the door, pop the hinge pins rather than unscrewing the hinges. If the hinges must be unscrewed, unscrew them from the frame and not the door panel where possible.

### 5. Adjustments

After hanging the door, adjust the hinges where necessary to even the perimeter clearances. If the door is binding on the frame, the hinges may need to be repositioned or set back further. Additional trimming may also be required. Be sure to follow the safety guidelines previously mentioned. All screw fixings should only be screwed into the door leaf once to maintain the strength of the material.

**6. Locks**

Follow the specific lock installation instructions for lock cut outs and assembly. Any screw fixings through the door panel must be pre-drilled. Use long thread screws for panel screw fixings where possible.

**7. Door Closers**

Follow the specific closer installation instructions for closer assembly and positioning. Any screw fixings through the door panel must be pre-drilled. Use long thread screws for panel screw fixings where possible.

**8. FDC Auxiliary Fire Bolts**

Fire bolts are required on all FDC fire rated doors.

**Cut Outs**

- 25mm Diameter Hole
- 80mm Depth
- Face Plate 45mm x 25.6mm
- Positioning may vary, refer to FDC Door Manual or contact your manufacturer or supplier

**Installation**

The screw fixings must be pre-drilled. Use long thread screws where possible. The door frame must also have a fire bolt penetration at the same positioning to allow for the bolt to extend into the hole. This hole should be at least 20mm deep with a 16-17mm diameter. A plastic plug may be fitted to the hole, which should be supplied with the fire bolt if not already allowed for in the door frame.

**9. Exposed Intumescent Seals**

Exposed Intumescents are required on all FDC fire rated doors.

**Cut Outs**

Router out a central rebate along the top and sides of the door to allow for a 20mm wide x 4mm thick exposed intumescent seal

**Installation**

Installation requires the seal to be cut to lengths, adhesive tape removed and the seal installed to the top, and sides.

**10. Additional Hardware**

Before installing **ANY** item of hardware, make sure it is approved and compliant for use on FDC doorsets. For further information, contact your FDC door supplier / manufacturer. If non-compliant or non-approved hardware used, along with additional cut outs made, the FDC door will not be certifiable.

**11. Repairs and Maintenance**

Refer to the FDC Warranty and Maintenance manual. Ensure no combustible materials are used when patching or repairing minor damage.