



## LIGHTWEIGHT FIREPROOFING FOR DUCTS

### Fyrewrap Elite® 1.5 Duct Wrap Systems—Quick, clean and easy.

#### Introduction

Trafalgar and Unifrax have partnered in Australia to bring you Fyrewrap Elite® 1.5 duct fireproofing systems—a single layer flexible duct wrap solution for 2-hour fire-rated duct requirements. Simply put, this is the only way to go when it comes to providing passive fire protection for ductwork in commercial buildings.

Fyrewrap Elite comes ready to use as a foil finished roll to wrap around the ductwork of all configuration. It eliminates the need for messy spray applied materials, which are known to require hours of masking to avoid resulting overspray. Fyrewrap Elite results in fast, simple, cost effective and clean fireproofing while providing pleasing aesthetics.

Fyrewrap Elite is beneficial for project work and planning, as it allows for other trades to be working in close vicinity to the contractors doing the duct wrapping and with careful planning, large quantities of the duct fireproofing can be completed off-site.

Being up to **5 times lighter** than fire sprays, this is a new revolution in duct fireproofing so insist on Fyrewrap Elite lightweight fireproofing for your next project.

#### What is Fyrewrap Elite®?

Trafalgar Fyrewrap Elite® 1.5 consists of high temperature insulation made from calcia, magnesia and silica chemistry with a service limit exceeding 1000°C and is fully encapsulated in an fibreglass-reinforced aluminium foil, scrim covering that provides handling strength as well as protection from moisture absorption.

#### Product Description

Name	Trafalgar Fyrewrap Elite® 1.5 Duct Wrap.
Application	Single-layered and double-layered application around metal ducts.
Orientation	Horizontal and vertical systems.
Purpose	To achieve a fire-rate and provide a fire rating of up to 2 hours, for the following duct types: <ul style="list-style-type: none"> <li>• General ventilation ducts</li> <li>• Smoke spill/smoke exhaust ducts</li> <li>• Kitchen exhaust ducts</li> <li>• Carpark exhaust systems</li> <li>• Chemical/fume exhaust ducts</li> <li>• Zone pressurisation ducts</li> </ul>
Appearance	Reinforced aluminium foil with distinctive Fyrewrap Elite® 1.5 logos printed for ease of identification.
Key Benefits	<ul style="list-style-type: none"> <li>• Lightweight—up to 5 times lighter than fire spray</li> <li>• Clean and aesthetic appearance</li> <li>• Clean and easy installation—no meshing required.</li> <li>• Off-site installation assisting in effective project co-ordination</li> <li>• No masking required</li> <li>• Quick and efficient construction</li> <li>• Simple repair—Tape up or replace section</li> <li>• Tested for mould-resistance</li> <li>• Clear identification for fire certifying/auditing purposes</li> </ul>



#### Trafalgar Fyrewrap Elite® 1.5 Physical & Thermal Properties

Thickness	38 mm
Width	610 mm
Roll Length	7620 mm
Surface Area of Single Roll	4.65 m <sup>2</sup> (total area)
Material Density	96 kg/m <sup>3</sup>
Roll Weight (Net)	17 kg
Packaging for despatch	Cardboard carton
Microbial Resistance	GREENGUARD listed
Bio-soluble	Yes
Green Building Council/LEED accreditation	Approved
Volatile Organic Compounds (VOC)	No
R-Value (Thermal Resistance)	6.88 at 23.8°C
Acoustic Rating	STC 31 dB
Fire Rating	2 hours
Fire Resistance Level (FRL)	Up to 2 hours—Refer to FRL section for details.
Direction of Fire	Refer to FRL section for details.
Assessment of Approval	CSIRO
AS/NZS 1668.1—1998 (Ducts)	Complies
AS/NZS 1530.4—2005 (Fire Testing)	Complies
AS/NZS 1851 (Maintenance of Fire Systems)	Complies



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## Fire Resistance Level (FRL) Details

Direction of Fire Exposure	Number of Layers	Fire Resistance Level (FRL)
Internal Fire	1	120/120/120
External Fire	1	120/120/60
Internal Fire	2	120/120/120
External Fire	2	120/120/120

Nb. Based on additional testing, Defire 'Alternative solutions report' has assessed **1 layer to achieve 120/120/120 for most duct applications**. Contact Trafalgar technical department for further details.

## Installation overview

Fyrewrap Elite® 1.5 duct wrap is directly applied to the surface of the metal duct in a single layer. In crowded and cluttered environments, Fyrewrap Elite® 1.5 duct wrap may be installed with zero clearances between the wrap surface and surrounding combustibles at any location of the duct wrap—at material overlaps or otherwise.

To minimize waste, Fyrewrap Elite® 1.5 duct wrap should be measured accurately and applied tautly prior to application and fixture.

Where Fyrewrap Elite insulated ducts pass through fire-rated walls and floors, the penetration opening shall be fire-stopped appropriately as detailed in 'Fire-rated floor and wall penetrations' section.

## Guidelines

Coverage	Fyrewrap duct wrap must completely cover the duct and there must not be any exposed sections or gaps.
Overlap	A 75 mm (3") minimum overlap must be used on all joints. Only the three specified methods (telescope, checkerboard and butt splice methods) of overlap may be used when adjoining Fyrewrap duct wraps.
Cut edges	Cut edges must be completely sealed with the specified pressure-sensitive aluminium foil tape.
Temporary tapes	Fyrewrap duct wraps may be temporarily held in place with filament tape before correct fixing methods are applied.
Steel bands	Only specified and/or Trafalgar approved steel bands may be used.
Pins	Only specified and/or Trafalgar approved pre-welded pins or cup-head type of pins may be used.

## Fixing Method

Duct section (mm)	Steel banding only	Steel banding & pins (pins on bottom only)	Pins only (all sides of duct)
≤ 600 x 600	●	●	●
≤ 1200 x 1200		●	●
≥ 1200 x 1200			●



## Steel banding only

Temporarily secure Fyrewrap Elite® 1.5 duct wrap with filament tape before securing permanently with steel bands. Place carbon steel or stainless steel bands over material joints and 40 mm from sealed edges. Additional bands shall be placed between overlaps at 265 mm centres. Tighten bands adequately with steel crimp clips, as to restrict movement of Fyrewrap Elite® 1.5 duct wrap. Excessive tightening of bands may cut or damage fibreglass-reinforced aluminium foil and/or duct.

## Steel banding & pins (pins on bottom only)

In this application, pins are to be welded on the underside of horizontal runs or backsides (side of duct having largest dimension) for vertical runs. Steel pins are either pre-welded onto duct prior to application of Fyrewrap Elite® 1.5 (duct wrap to be impaled onto pins) OR, cup-head style pins are welded directly through temporarily secured duct wrap. In the event that pins are pre-welded, round and square galvanised steel speed clips (washers) are to be used. Self adhesive pins must not be used. Pins are to be spaced in a grid of maximum centres and exposed ends are to be cut off or turned down to eliminate safety issues. In conjunction with pins, steel or stainless steel bands are to be installed as previously detailed. This method can be used for all sectional sizes of duct not exceeding 1200 x 1200 mm.

## Pins only

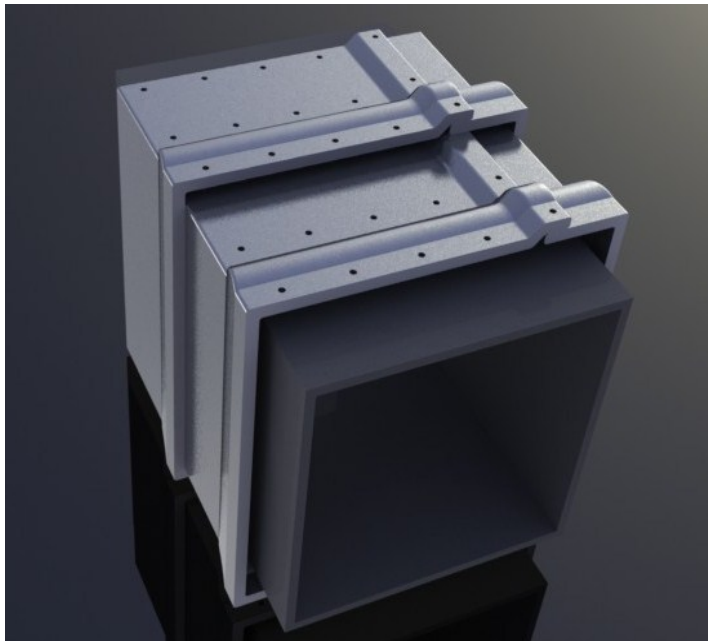
This method of using pins only can be applied to all sizes of duct. Steel pins are either pre-welded onto duct prior to application of Fyrewrap Elite® 1.5 (duct wrap to be impaled onto pins) OR, cup-head style pins are welded directly through temporarily secured duct wrap. In the event that pins are pre-welded, round and square galvanised steel speed clips (washers) are to be used. Self adhesive pins must not be used. Pins are to be spaced in a grid of maximum centres and exposed ends are to be cut off or turned down to eliminate safety issues.

## Accessories and Equipment

See table below for guidelines and allowable properties of all accessories required in the installation process.

Component	Type	Minimum Size	Centres (max)
Bands	Steel	12 mm (1/2") wide x 0.4 mm (0.015") thick	40 mm from edges over the overlap and one additional band between overlaps
Bands	Stainless steel	12 mm (1/2") wide x 0.4 mm (0.015") thick	40 mm from edges over the overlap and one additional band between overlaps
Band crimps	Steel	25 mm long	-
Pre-welded pins	Steel	Dia. 2.7mm (0.105") x length to suit	Grid of 200 mm centres
Speed clips (square)	Galvanised steel	60 mm (2.5")	-
Speed clips (round)	Galvanised steel	Dia. 36 mm (1.5")	-
Cup-head pins	Steel	Dia. 2.7 mm (0.105") x length to suit	Grid of 200 mm centres
Aluminium foil tape	Reinforced	-	-





### Specialty Equipment

Pin welding equipment commonly used in the heating, ventilation and air-conditioning industry (HVAC) must be used when installing Fyrewrap Elite® with pre-welded pins or cup-head style pins.

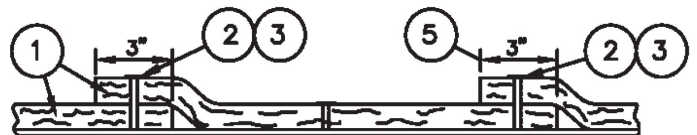
### Support Framework

Special considerations must be made for the additional weight that the Fyrewrap Elite® 1.5 duct wrap material will bear on the duct support systems.

Steel supports and components are not required to be fire-rated in this application.

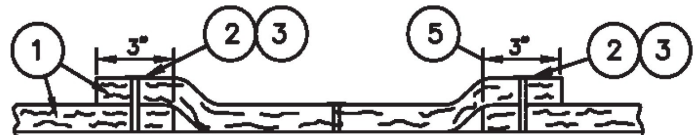
### Overlap details

The following three overlapping techniques may be used to install Fyrewrap Elite®. An overlap of 75mm (3") must be maintained regardless of overlapping technique.



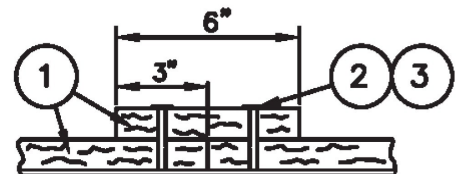
### Telescopic overlap (most common)

This method involves wrapping next segment of duct wrap over edge of previous segment.



### Checkerboard overlap

This method involves both edges of one segment overlapping their respective adjacent segments. The overlap joints in alternate layers of duct wrap will resemble a checkerboard pattern once complete. This method is ideal when repairs are to be made to segments.



### Butt-joint with cover strip

This methods involves having two adjacent duct wrap segments butt-jointed at their edges and a 150 mm wide cover strip centred at the butt-joint. This allows for a 75mm overlap over each edge. Cover strips are to be fabricated from same Fyrewrap Elite® material.







## Step-by-step installation instructions

This installation instruction details all major steps required to install Fyrewrap Elite® and should also be used as a basis for repairs.



1. Roll out and cut required length of Fyrewrap Elite®.



2. Seal all cut edges with aluminium foil tape.



3. Telescopic overlap (most common method) - Wrap the blanket around the perimeter of the duct. Place the next piece of material with a 75mm (3") overlap of the adjacent material (circumferential joint) and 75mm (3") overlap where blanket meets itself (longitudinal joint).

4. Blanket may be held in place with filament tape until bands are installed.



5. Fix material in place steel bands and/or pins where needed.



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