Scottish House Builders
Health & Safety Forum

Structural Timber Association Fire Guidance

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Stewart Milne Group

- Stewart Milne Group is one of the UK's leading independent offsite manufacturers and house builders.
- Two significant trading arms: Stewart Milne Homes and Stewart Milne Timber Systems.
- Originally established in 1975, with just 6 employees, today the Stewart Milne Group employs over 900.
- Our group has grown to a turnover in excess of £200m.

Stewart Milne Group

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Structural Timber Association

The Association is run by an operations team and a board of directors made up of representatives from some of the UK's leading structural timber manufacturers and supply chain companies.

To share knowledge and expertise and ensure that the STA represent best practice and technical excellence.

STA members, their customers and the wider construction industry benefit greatly from their work.

STRUCTURAL TIMBER ASSOCIATION

Building offsite solutions in timber

Structural Timber Association - Committees

Stewart Milne Group Representation

- Alex Goodfellow – Chair
- John Smith - Commercial
- Garry Willis – H&S Committee
- David Nimmo – H&S Committee
- John Simpson – Technical
- Stewart Dalgarno – Technical

STRUCTURAL TIMBER ASSOCIATION

Building offsite solutions in timber

STA Fire Guidance – 16 Steps to Fire Safety

Endorsed as “Best Practice” when managing fire risk during timber frame construction by;

- Health and Safety Executive
- The Construction Risk Engineers Group (CIREG)

Summary guidance for the preparation of Risk Assessment on new build developments by STA members.

Implementation is mandatory for members.

How to use 16 Steps to Fire Safety

Fire risk assessment development stages

Phase	Responsibility	Actions	Example
Design phase	Principal Designer and Design team	Consider the fire risk in the choice of building location, materials and process of build. ***Action STA 16 Steps (numbers 1,2,3)***	Adjust location of the building; adopt fire robust timber solutions on sensitive sites. Undertake / commission a concept or full off the site fire risk assessment.
Tender phase	Principal Designer and Design team	Include the risk mitigation concepts for the constructor to fulfill. ***Action and communicate STA 16 Steps (numbers 1,2,3)***	Provide a concept or full off the site risk mitigation risk assessment report. STA site safe policy actions. STA 16 Steps compliance for the construction phase.
Construction phase: pre-site start	Principal Contractors and subcontractors	***Action STA 16 Steps (numbers 4-7)*** Check that Steps 1 to 3 have been completed and follow or commission additional detailed fire risk assessment	Appoint fire safety coordinator and create fire safety plan. Appoint STA site safe companies.
Construction phase: during construction	Principal Contractors and subcontractors	***Action STA 16 Steps (numbers 8-16)*** Plus Review Steps 4 to 7 for compliance	Fire hazard and warning procedures implemented. STA site safe checks.
Practical completion	End of construction fire prevention		

How to use 16 Steps to Fire Safety

Design & Tender Phase

- Step 1 – **Legal & Insurance requirements** - Principal Designer requirement to have considered fire spread outwith the project boundary,
- Step 2 – **Designing out fire risk** - Aware of a choice of layout, materials, or approach that may give rise to fire spread,
- Step 3 **Consideration of fire risk during construction** – Building in fire protection as part of the build process,

How to use 16 Steps to Fire Safety

Construction Phase Pre- Start

- **Step 4 - Legal Requirement –** Site management aware of legal duties for fire risks, CDM, fire safety legislation.
- **Step 5 – Fire Safety Coordinator –** A responsible person to take ownership of fire management and the process.
- **Step 6 – The site fire safety plan –** The plan sets out everything to be done on the project to minimise the risk of fire.
- **Step 7 – Communication & Liaison** – Effective and regular communication with other parties such as emergency services and security personnel.

How to use 16 Steps to Fire Safety

Construction Phase: During Construction

- **Step 8 - Promoting a "fire safe" working environment**. Fire safety processes and precautions for the site are to be fully maintained throughout the entire construction period.
- **Step 9** – **Fire detection and Warning**. Detectors and alarm systems are to be proportionate to the scale of the project and risk of fire spread to surrounding neighbours, and vulnerability of neighbours, outside the site boundary.
- **Step 10** – **Emergency Escape Routes.** Continually reviewed during the changing construction works.

How to use 16 Steps to Fire Safety

Construction Phase: During Construction

- **Step 11 – Site Security.** All sites should be enclosed and made secure with appropriate security measures put in place. The security measures may expand to include CCTV and watchmen depending on the scale of the project.
- **Step 12 - Fire safe site facilities.** During construction consider as a hazard. All sites should have appropriately fire safe facilities
- **Step 13 - Plant, equipment and vehicles.** Plant that has combustible fuel can present a fire risk and should be isolate in the open air ideally away from the site boundary and new building. Vehicles should not be allowed to park within 10m of the new build unless it is for unloading.

How to use 16 Steps to Fire Safety

Construction Phase: During Construction

- **Step 14 - Site organisation and tidiness.** Combustible waste materials to be collected and stored in fire resistant bins and checks on site to avoid waste becoming a fire hazard.
- **Step 15 - Checks, inspections and tests throughout construction phase.** Responsible person to co-ordinate site fire safety, establish and review throughout the build programme the fire safety plan. Checking is feedback into this review.
- **Step 16 - Permits to work.** It is advisable to use work permits where proposed works or methods may cause of fire or create a weakness in fire robustness.

Site Safe

Site Safe is a mandatory requirement for all STA members, and includes:

- 16 steps
- STA site induction pack
- Site Safe poster
- Design guide to separating distances
- Advice notes:
  - 7.5 – Escape routes
  - 8 – Security
  - 15.1 – Legal responsibility
  - 15.2 – Inputs for fire safety plan

Site Safe

Site safe applies to three key stages:

- Tender and Pre-construction:
  - Information on fire should be considered in tenders
  - Site registration with CFOA
- Construction Phase:
  - Monitoring of works during construction
  - Different responsibilities on supply-only
- Completion of timber frame construction:
  - Responsibility of the PC to maintain fire safety of the building
  - Handover fire integrity elements

Form of Contract		
Supply only	**Supply and erect**	**Erect only**
Phase 1	Phase 1	Phase 1 (see Note 1)
Omit Phase 2	Phase 2	Phase 2
Phase 3	Phase 3	Phase 3

NOTE 1:

For erect only contracts the process in Phase 1 may have already been carried out and the erector company can make reference to this in their records. Where the erector is constructing the structure from component parts (e.g. prefabricated panels by others) then the erector may need to follow the full scope of Phase1 as relevant to their contract duties.

Site Safe

All projects with total floor area in excess of 600m2 (generally sites with 6 or more houses) registered with CFOA (Chief Fire Officers Association).

- Alerts local fire authority of the project
- Alerts national HSE manager

Smaller projects, typically below 600m2 still need a fire risk assessment proportionate to the risks posed by the site location…..refer to 16 steps.

Site Safe policy

Version 7.1 August 2017

Design Guide to separating distances

- Reference to "*for buildings above 600m2*" removed
- Focuses on the impact of a fire during construction on neighbouring buildings, beyond the construction site boundary.
- Three generic categories of timber frame:
  - Increasing resistance to fire spread
  - Suitable for "typical" neighbouring buildings (domestic, hotel, accommodation).
  - Fire engineer input for other types of buildings (petrol station, chemical store).

STRUCTURAL TIMBER ASSOCIATION
Building offsite solutions in timber

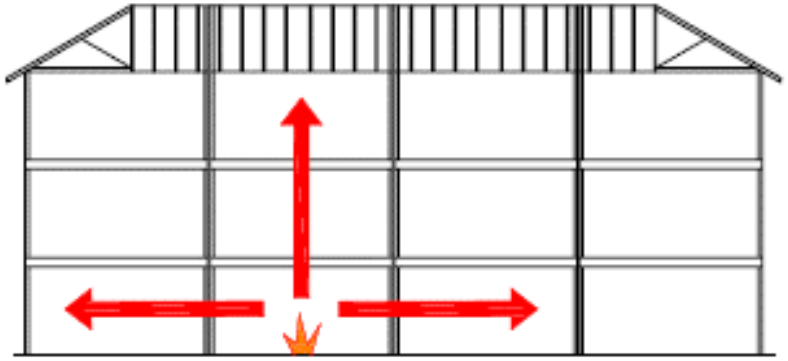
Design guide to separating distances during construction

For timber frame buildings
Version 3.2 July 2017

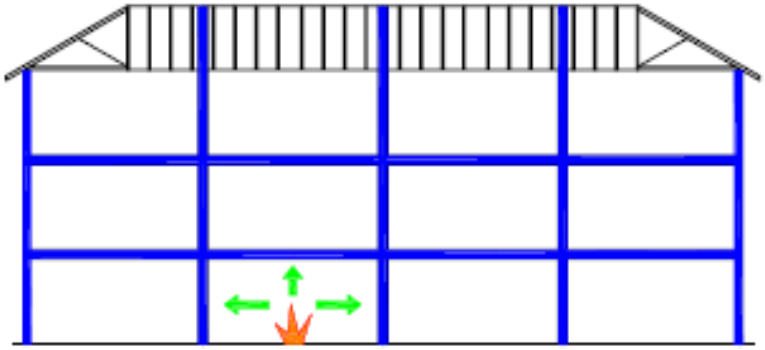
Design Guide to separating distances

Three specifications of timber frame

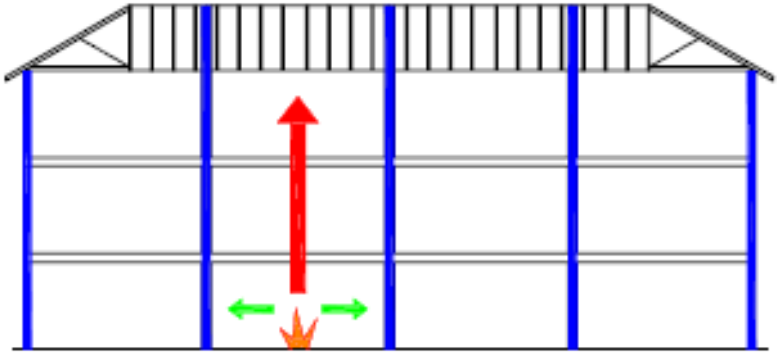
- Cat A : Un-treated “standard” timber frame
- Cat B : Limited combustibility
- Cat C : Non-combustible



Category A



Category C



Category B

Design Guide to separating distances

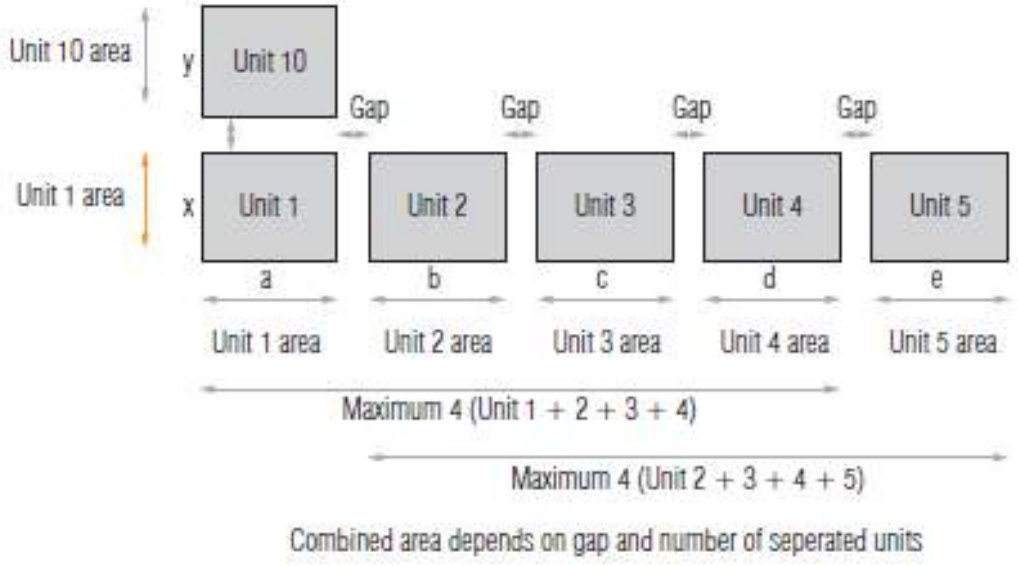
Separating distances applicable to buildings with floor area over 250m2

The position of the site boundary needs to be considered, as this will move as earlier plots are occupied

Separating distances for buildings <250m2

For buildings below 250m2 (and over 40m2), product paper 5 can be utilised to assess the risk

- If plots are >2M apart, then consider each plot individually
- If plots are between 1M and 2M apart, then consider up to 2 units
- If plots are <1M apart, then consider up to 4 units



Separating distances for buildings <250m2

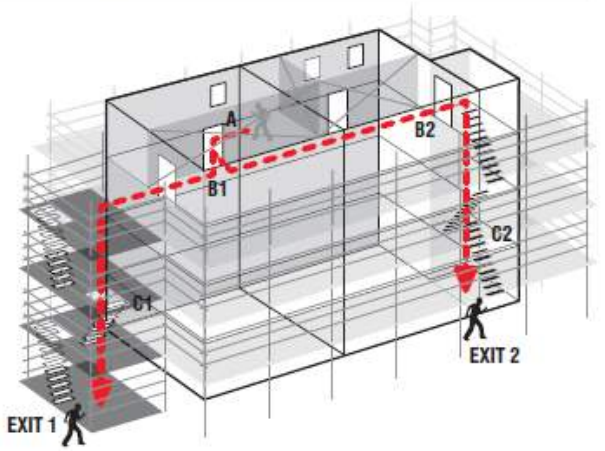
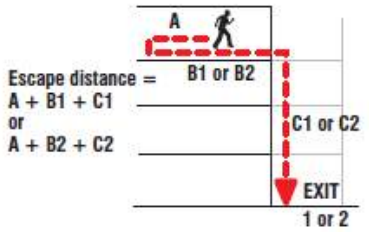
There are a number of ways to reduce the safe distance between new build timber frame and neighbouring occupied plots

- Masonry cladding completed on one plot, prior to erecting timber frame on the second plot.
- Gable walls to both timber frame plots to be “FR Build”
- Replace the gable wall OSB on both timber frame plots with Non-Combustible sheathing board

Advice notes

Advice Note 7, Part 5:
Design of escape routes

- Compliments Step 8 of 16 Steps guidance
- Guidance for principle contractors, planners, timber frame site contractor
- Maximum travel distance from furthest place of work to a place of safety (ground level or protected area).

Reference	Situation and description	Diagramatic picture
Internal escape 1	**External scaffold exits and internal stair cores for persons from within the building** Category A standard structural timber frame with combustible ceilings and walls through the building route (dimensions A and B) Exit routes with full 16 Steps and STA membership guidance can be: A+B1+C1 or A+B2+C2 <= 35m Otherwise 25m A < 12m (dead end distance) A dead end is the room in which the worker is in and the distance to the point of alternative routes ***NOTE:*** *Distance C1 and C2 assumes that stair flights occur in the same tower / zone and there is no more than 3m horizontal distance between flights. If this is not the case the distance between flights shall be added to the calculation for travel distances stairs*	  Escape from unprotected building / scaffold routes

Advice notes

Advice Note 15, Part 1: Legal Responsibilities

- Compliments Step 1 of 16 Steps guidance
- Clarifies the legal requirements for the Principle Designer and Principle Contractor to manage the risk of fires during the construction phase of a project.
- Guidance on different types on contract, as well as the requirements of the structural timber building system supplier


STA Advice Note 15

Fire safety guidance

STRUCTURAL TIMBER ASSOCIATION

Part 1 - Legal responsibilities for fire safety on construction sites

Who should read this advice note?

The Construction (Design and Management) Regulations - 2015

Health and Safety at Work Act 1974

Fire safety legislation

Advice notes

Advice Note 15, Part 2:

Understanding the inputs for a fire safety plan

- Guidance for Principle Designers' obligations to consider off-site fire risk
- Guidance for Principle Contractors' role to manage both on-site and off-site risks during the construction phase.
- Typical examples for the level of risk assessment required for a project.

ON SITE	Site Location				
	Remote site	Remote site but high arson risk	Some surrounding buildings	Land locked neighbouring occupied properties	Land locked neighbouring occupied properties with vulnerable persons
Project Size					
<250m²	Low level review and audit use of 16 Steps proportionate to the site	Moderate level of security and insurance review	Moderate to low level to provide an overview of key points relative to the scale of the site		
Greater than 250m² but <600m²			Relatively high level use of 16 Steps actions to site conditions		
>600m²			Full 16 Steps in depth review		

Table 1: Typical examples of scale and depth of on site fire risk assessment

OFF THE SITE	Site Location				
	No property within a separation distance	No property within a safe separation distance, but known area for arson	Buildings within the safe separation distance	Land locked neighbouring occupied properties	Land locked neighbouring occupied properties with vulnerable persons
Project Size					
<250m²	No risk		Some risk mitigation	Full risk mitigation required	
Greater than 250m² but <600m²			Full risk mitigation required		
>600m²					

Table 2: Typical examples of off the site fire risk assessment and outcomes

Further information

All the documents referred to are available to download from the Structural Timber Association website:

www.structuraltimber.co.uk

or from your structural timber building system supplier