

Construction Fire Safety Procedure

References:

- A. The Regulatory Reform (Fire Safety) Order 2005
- B. Construction (Design and Management) Regulations) 2015
- C. Fire Safety in Construction Work HSG 168
- D. Fire Prevention on Construction Sites FPA
- E. STA 16 Steps to Fire Safety
- F. STA Design Guide to Separating Distances During Construction
- G. STA Associated Advice Notes

Introduction

Proper planning for fire, safety and health must be an integral part of overall preparation and budgeting for the efficient running of construction projects. Clear procedures and standards must be laid down and adequate resources, in terms of time and money, must be committed to the prevention of fires, accident and ill-health by all concerned with the project.

Pre – Start Construction (Design Phase).

The CDM-C shall ensure that designers properly discharge their duties under CDM to ensure that the fire risk and potential for fire has been properly assessed and is kept to a minimum during construction. Refer to Appendices 1, 2 and 3 of this document when planning, and monitoring the use of Timber Frame product.

Liaison with fire service

Where necessary it will be appropriate to liaise with the local fire services in relation to the items detailed below before work starts especially on larger sites and as the work progress:

- There is a substantial risk to the public, e.g. the construction of timber-frame buildings creates a heightened risk of a fire spreading beyond the site to neighboring buildings. Persimmon Homes has adopted the approach for fire safety within timber frame units as outlined by the STA. Where timber frame units are intended to be erected on site the flow chart contained in Appendix 2 (attached) should be consulted to ensure compliance with STA best practice is adopted.
- All sites with apartment blocks.
- There are particular risks posed to fire fighters, e.g. the presence of large numbers of gas cylinders or highly flammable materials on site, timber frame structures, unusual construction techniques and basements or underground structures such as car parks.
- The fire service's access to the site may be limited, i.e. access roads are narrow and congested or there is no access available.
- Water supplies are limited or do not exist, e.g. large developments and green field sites.
- Work takes place above 18m (specialist access equipment may be required).
- New buildings are undergoing partial occupation before completion (especially where the partial occupation is for residential use).

NOTE: The list above is not exhaustive therefore please consult with your H & S Advisor.

Site Fire Safety Plan.

The following Fire Safety Plans is required and should form part of the 'Health and Safety Plan' PHG/HS/028b:

- A Fire Safety Plan (see Part A of PHG/HS/037) is required to cover the overall site including:
 - Site Office and welfare.
 - Compound and storage areas.
 - House types up to 3 storey's.
- A specific Fire Safety Plan (see part B of PHG/HS/037) is required for apartment blocks and/or run of 3 story+ town houses.

Fire Safety Plan

The site Fire Safety Plan should be completed by a competent person during the relevant Pre-Start meeting procedures and be included with in the construction 'Health & Safety Plan' (PHG/HS/028b).

The plan must detail as a minimum:

- The organisation and responsibilities for the fire safety on site. A site fire safety coordinator should be appointed who will take responsibility for the site fire safety plan and its implementation.
- The general site fire precautions are identified including as appropriate, fire extinguishers, fire detection and warning alarms, site security, storage of highly flammable liquids and LPG, etc.
- The requirement for a hot work permit regime.
- Site accommodation, including location, construction and maintenance.
- Fire escape and communications, including an evacuation plan, emergency lighting and procedures for calling the fire brigade.
- Fire brigade access, facilities and coordination including the provision of operational rising water mains where appropriate. Fire brigade access should be at least 3m wide and 4m high.
- Fire drills and training as appropriate.
- Effective security measures to minimise the risk of arson.
- A materials storage and waste control regime.
- Where Timber Frame is being used then:
 - What type of timber frame material to be used
 - Sequence of build
 - Timber Frame separation distances

Competency & Training

Fire Safety Plan Assessor

The competency and training of individuals who are required to complete Part's A & B of the Fire Safety Plan shall be established by Operating Businesses during the pre-start meeting process.

Training for individuals must ensure they are capable of assessing fire risk, identifying suitable controls and completing the Fire Safety Plan. Competency to plan fire safety on traditional/low level timber frame build projects can generally be established internally within Operating Businesses teams.

Note: Where necessary and dependent on the type and complexity of build it may be necessary to employ suitably qualified Fire Safety Engineers.

Fire Safety Coordinator

The person appointed as the Site Fire Safety Coordinator should have received appropriate training to be able to carry out his duties and ensure the controls identified in the Fire Safety Plan are correctly employed on site at all times. Where required they must:

- Ensure that all procedures, precautionary measures and safety standards, as laid down in the Site Fire Safety Plan, are clearly understood and complied with by all those on the project / sites.
- Ensure that a system using Hot Works Permits is established and check that it is followed.
- Carry out regular checks of fire fighting equipment and test all hard wired alarm and detection devices installed on site.
- Conduct weekly inspections of escape routes, the fire brigade access, fire fighting facilities and work areas and check that the requirements of the Site Fire Safety Plan are being followed, these inspections are to be recorded.
- Liaise with security personnel where they are employed.
- During an alarm, execute those duties required for the safe evacuation of the site, and ensure that all staff and visitors report to assembly points.
- Promote a fire safe working environment at all times
- Liaise closely with the Fire Safety Plan Assessor to ensure the “Plan” is current and reflects site requirements at all times.

Note: Operating Businesses must maintain a record of all employee training records.

Emergency Procedures.

- Written Emergency Arrangements shall be detailed in the ‘Health & Safety Plan’ (PHG/HS/028b), made available to all employees on site and must be displayed in prominent locations.
- Fire alarm warnings must be audible throughout the building and persons should be within 30metre earshot of all alarms.
- Handbells, klaxons, whistles or manually operated sounders may be practical, so long as they are clearly audible above background noises in all areas and can be readily identified as being a fire alarm. Complex multi-storey buildings are likely to require systems of call points and sounders which, like all electrical fire alarm systems, should meet the requirements of BS5839 and be the subject of regularly recorded testing.
- A fire exit sign/notice should be fitted to or above fire exit doors.
- Appropriate notices should be affixed along fire escape routes, which should be provided with emergency lighting.
- Corridors and stairways forming a means of escape should have a 30 minutes fire resistance, and should be built from non-combustible materials. Fire compartmentalisation will only need to be required if the travel distances are exceed as detailed in the table ‘Fire Safety Plan Requirements’ under the column headed ‘Fire brakes and travel distances’. Whilst this is not considered to be applicable for the majority of our projects when the specific design dictates, 30 minutes Fire Compartmentalisation can be achieved in number of ways for example:
 - 12.5mm Standard Plasterboard each sided of studwork.
 - 12.5mm Fire line board each side of studwork.

TEMPORARY COVERING MATERIALS

Where flexible protective covering materials are used these must conform to the requirements of Loss Prevention Standard LPS 1207 *Fire Requirements for Protective Materials*.

When flexible materials are used to clad scaffolding these materials must conform to the requirements of Loss Prevention Standard LPS 1215, *Flammability Requirements and Tests for LPCB approval of Scaffolding Materials*.

PORTABLE FIRE EXTINGUISHERS

Personnel must be sufficiently instructed to be able to use the portable fire fighting equipment provided on site.

Adequate numbers of suitable types of portable extinguishers must be made available throughout the site.

As work progresses the adequacy of portable fire fighting equipment must be reviewed.

Ride on mechanically-propelled plant should carry an appropriate fire extinguisher where reasonably practicable.

TEMPORARY BUILDINGS INCLUDING SITE OFFICES & WELFARE FACILITIES

Temporary buildings should be separated from the buildings under construction or refurbishment and other permanent buildings to provide a fire break, which should be at least 10 m where possible. Similarly, rows of Temporary buildings should also be separated to provide a reasonable fire break.

MONITORING

Please see Appendix 3, Site and Contract Manager Checklist.

The checklists should be used to confirm that

Site Manager Checklist

The following appendices should be read in conjunction with the STA guidance 'Design guide to separating distances during construction' and associated documents.

The fire safety risk assessment and plan should be completed as part of the pre-start meeting process and all relevant information must be included in the Fire Safety Plan.

The Fire Safety Plan must be regularly assessed and updated as the site progresses.

Appendix 1

	Pre Start 1
A	<i>Prepare a fire site plan showing separation distance (as per UKTFA guidance) and detail relevant control measures</i>
B	<i>Check site boundary and local building usage (and escape routes) are there any high fire risks? Are there any structures where an incendiary device could be thrown from: e.g. bridges, multi storey car parks?</i>
C	<i>Is there any history of poor relations with neighbours or history of vandalism and/or arson?</i>
D	<i>Are there any historic or current issues raised by fire officers or others relating to the existing buildings use e.g.?</i>
E	<i>Notification letter to local Fire Officer?</i>

	Pre Start 2
F	Review Pre Start 1 Minutes
G	Develop the fire site plan to identify the proposed phasing of construction and occupation of plots.
H	Detail the Catagory of Timber Frame materials to be used
I	Detail any temporary closure of openings, compartmentalisation - vertical and horizontal (include in PGHS037 B) and areas of frame types where appropriate –.
J	Review the use of off-site timber frame fabrication systems from walls, floors and roof cassettes to be considered as reduction in site storage and where site space is at a premium.
K	Prepare a preliminary site set up drawing showing the following: <ul style="list-style-type: none"> • Compound area: • Location for tower cranes (if required) - to be protected in case of fire. • Vehicular access from highway • Fire hydrant position (if the hydrant is distant from the site a separate plan may be required.) • Fire tender access and parking • Temporary rerouting of any existing footpaths or rights of way (formal and informal) across the site
L	Where the proposed development is on a site with existing buildings which are to remain in operation during the construction works, show the following: <ul style="list-style-type: none"> • Parking spaces available for the duration of the construction works • Temporary access routes • Temporary rerouting of existing means of escape both within and external to the buildings in operation • Fire assembly point.

Appendix 2

TIMBERFRAME SEPERATION DISTANCE FIRE SAFETY FLOWCHART

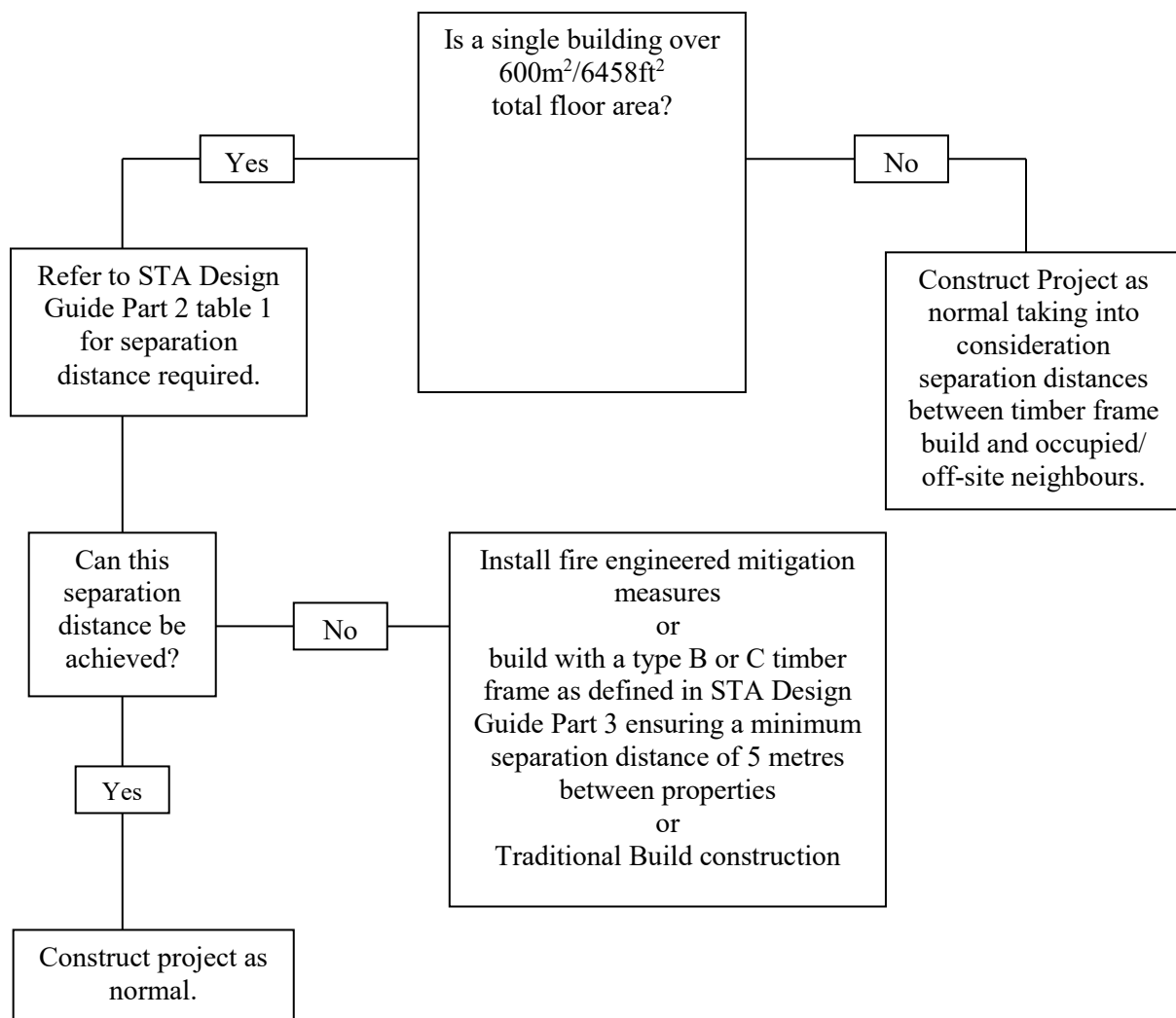
The flowchart identifies the specific actions including reference to the 3 Part '**Design guide to separating distances for buildings during construction**'. This technical data in this guide is based on a conservative calculation model backed by tests to determine the exposure of a neighbouring building to heat radiation during a site fire event. To keep the process straightforward there are a number of underlying assumptions and simplifications to the model used to calculate the separating distances.

The Guidance is in 3 Parts:

Part 1 - Background and introduction

Part 2 - Standard timber frame and construction process mitigation methods

Part 3 - Timber Frame build methods to reduce the separating distances



Note: As an alternative to this guidance, a more precise assessment by a competent fire engineer can be undertaken.

Appendix 3

Site Managers Timber Frame Safety Checklist Aide Memoir

	Y	N
Is existing fire safety management plan current		
Condition of existing fire breaks (particularly in the roof void)		
Adequate storage of combustible materials to minimise fire loading		
Adequate site hoarding /fencing to site		
Establish assembly point		
Control of hot work (permits)		
Suitable fire detection and alarm system on each floor		
Sufficient Emergency lighting		
Sufficient number (and location) of fire extinguishers		
Are all necessary directional signage within building		
Are all laminated building fire layout plans posted at each fire point		
Adequate number of escape routes (minimum of 2 required)		
Adequate non combustible stairs as means of escape		
Controls in place to prevent unauthorised entry after hours in areas		

PLEASE INDICATE ANY ISSUES ON THE SITE MANAGERS WEEKLY CHECKLIST AND WHERE NECESSARY:

- CONTACT YOUR CONTRACT MANAGER
- LIAISE WITH GROUP HEALTH AND SAFETY ADVISOR

Contracts Managers Timber Frame Safety Checklist Aide Memoir

	Y	N
Fire plan/log book - developed and maintained		
All operatives, visitors, etc inducted in fire safety		
Hot work permit system for residual hot works		
Fire alarms and that fire stations are in place and operational		
Suitable signage in place		
Fire drills undertaken and results recorded		
Safe storage of all flammable materials and LPG vessels		
Housekeeping - All working areas are clean and tidy		

PLEASE INDICATE ANY ISSUES ON THE CONTRACTS MANAGER MONTHLY CHECKLIST AND WHERE NECESSARY:

- LIAISE WITH GROUP HEALTH AND SAFETY ADVISOR
- LIAISE WITH LOCAL FIRE OFFICER AND EMERGENCY SERVICES IF NECESSARY