

STA Advice Note 15

Fire safety guidance



No. 15 - Part 3, June 2017

Part 3 - Detailed explanation of the '16 Steps to Fire Safety' strategy

Who should read this advice note?

The STA has a guidance document called 16 Steps to Fire Safety. Version 4 of the 16 Steps published May 2017 is a rewrite of the previous editions and contains fewer explanations and more succinct steps than previously provided.

This advice notes provides the more in depth explanations should users of the 16 Steps wish to research more about the steps and gain a deeper understanding.

Terminology used in this advice note

Dutyholders

The term for clients, Designers, Principal Contractors Principal Designers Contractors and Workers

Clients

A 'client' is anyone having construction or building work carried out as part of their business. This could be an individual, partnership or company and includes property developers or management companies for domestic properties.

Designers

The term 'designer' has a broad meaning and relates to the function performed, rather than the profession or job title. Designers are those who, as part of their work, prepare design drawings, specifications, bills of quantities and the specification of articles and substances. This could include architects, engineers and quantity surveyors. A person can become a designer in the legal context if as a contractor a design is modified for example materials are submitted or changed.

Principal Contractors (PC)

Refereed to in the CDM 2015 regulations. The principal contractor's role is to plan, manage and monitor health and safety while construction work is being undertaken. The principal contractor is usually the main or managing contractor for the work. This can be found [HERE](#) or on the HSE website at <http://www.hse.gov.uk/construction/cdm/2015>

Principal Designers (PD)

Referred to in CDM 2015. The Principal Designer is an organisation or individual (on smaller projects) appointed by the client to take control of the design and pre-construction phase of a project. This can be found [HERE](#) or on the HSE website at <http://www.hse.gov.uk/construction/cdm/2015>

Contractors

A 'contractor' is a business who is involved in construction work.





Workers

A 'worker' is anyone who carries out work during the construction.

FPA Joint Code of Practice

The Fire Protection Association have a publication called 'Fire Prevention on Construction Sites', commonly called the joint code of practice. Link to additional info [HERE](#)

Construction fire compartmentation

In the context of the building during construction the term fire compartmentation is used for vertical (walls) or horizontal floors installed as the building is erected and/or constructed so that they act as a temporary stop to the spread of fire.

In Category A (standard timber frame) construction compartmentation is used to provide sufficient time for operatives to escape the building. While a construction fire compartmentation in a Category A frame may stop fire spread from one side to the other it cannot be assumed to stop fire spreading around and over the wall. For this reason it is not relevant to have a fire resistance time for a construction fire compartmentation as even the minimum building regulation duration of 30mins would be unlikely to stop a fire spreading around the compartment. For Category B, C and CLT frames vertical fire compartmentation may be required in an off the site fire risk assessment which in turn provides the on the site fire spread resistance to limit the spread of fire across the building.

Timber frame category

Category A - standard open panel timber frame

Category B - reduced fire spread timber frame

Category C - fire spread resistant timber frame

Category CLT - solid wood panels, walls floors and roofs

Documents referenced in 16 Steps

STA guidance for 'Design guide for separating distances'

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

Part 4 - CLT framed build methods to reduce the separating distances (category CLT buildings)

STA Advice Note 7, Part 5 - Design of escape distances during the construction process.



STA Site Safe policy and audit process

(Design phase)

Step 1 - Legal requirements

Action

Understand the CDM legal duties of all decision makers in any part of the design process to assess the risks of the proposed works.

Carry out an off the site fire risk assessment, design out risks (see step 2) and tender only to STA Site Safe policy companies.

Explanation

Compliance with the Construction (Design and Management) Regulations 2015 is a legal requirement for all parties involved in construction work. The project fire risk review starts at the design phase.

Designer throughout all stages of the project including construction period will have the responsibility to specify the material type and how it is included in the building. It is this reason that the Principal Designer is responsible for the off the site fire risk assessment.

Different persons in a construction project carry out different duties at different times in the process. At each stage those with legal duties, who are commonly known as dutyholders' which includes Principal Designers and Designers, Principal Contractors and Contractors, are required to assess the risks associated with the works they instigate or undertake/ask persons to undertake.

Dutyholders include all persons making a decision of material choice, design solution, manufacture, assembly process and construction technique. The dutyholder should take all reasonably practicable measures to design out risks and for any which remain provide information to others who need it and consider means of mitigating those residual risks. All relevant risks should be considered at the design stage, including the risk of fire during construction. Managing the risk of fire during the construction process requires dutyholders, at an early stage in the design process, to assess risks to persons both on and off the site.

Further reading

For off the site fire risks the available separation distances between the new and existing buildings should be considered and an appropriate category of build chosen to provide the required level of protection (refer to the STA document 'Design guide to separating distances during construction' on the STA website www.structuraltimber.co.uk)

For information on the Construction (Design & Management) Regulations 2015 can be found [HERE](#) or on the HSE website at www.hse.gov.uk/pubns/books/l153.htm



(Design phase)

Step 2 - Designing out fire risk

Action

To consider in the design of the building elements that can start fires, and if necessary, specify in the tender specific site concerns so that the Principal Contractor is made aware and can manage the risk.

In addition to consider the build process where fire separation is built in and how fire stopping is achieved during the construction process where needed.

Explanation

In many cases it is possible to design-out the need for elements that can start fires. For example hot works (such as work using blow-torches). For fire stopping works during the construction process the tender documents are to ensure that the contractors are aware of the during construction fire barrier works.

Where this is not possible, all site workers must pay particular heed to documents such as the FPA Joint Code of Practice guidance and HSG 168 avoiding fires on construction sites.

In the example of hot works, the use of a site work permit to work procedure is required and any area of hot work must be actively monitored for at least one hour after completion and the area re-visited two hours later. Clearly this will mean that any such work must not be carried out towards the end of the day or within at least two hours of the site being vacated.

Further reading

The FPA Joint Code of Practice

STA Design guide to separation distances on the STA website

STA Product Paper 4 and 5 on the STA website. Gives material options for risk mitigation and separation distance for buildings below 250m² (available to members only)

(Design phase)

Step 3 - Fire risk during the build process considered

Action

Include in the design, where applicable, vertical and horizontal fire breaks to the STA guidelines or fire engineer's recommendations.

Also include the fire risk mitigation recommendations. Refer to Appendix B for a flow chart for vertical fire breaks (subdivision) and security measures.

Reference to the off the site fire risk assessment may also lead to design of fire breaks as part of the off the site risk mitigation.

On large projects, design planning shall also include specific discussion with the fire service to verify firefighting hydrant locations. This provision of firefighting water is required in the tender documents for the Principal Contractor and the tender shall reflect the strategy in this regard. It is noted that this also applies to the in use building fire strategy.

Explanation

All buildings should have appropriate fire protection designed and built in as early as possible and maintained throughout the entire construction phase so the designer is to consider how elements of the design interact with the fire breaks eg inclusion of services.

The subdivision of buildings under construction is to achieve the following objectives:

- To provide a reduction in the spread of fire, should it occur, to allow the fire service an opportunity to intervene if appropriate.
- To provide additional measures to safeguard the onsite workforce should a fire occur, for example, the design may include protected stairwells or fire breaks and compartmentation.



The design process may occur during the pre-construction phase and any design decision is to be checked with the full design team.

As part of the fire risk assessment strategy for reducing the off-the-site fire risks, which is covered by the STA design guidance on separation distances during construction; in which case for Category B, C and CLT structures the subdivision may well be included as part of the off the site risk assessment.

Other reference documents are The FPA Joint Code of Practice that gives advice on vertical fire breaks or subdivision (which FPA refer to as fire compartmentation) within buildings under construction and other fire protection measures including arrangements to reduce the spread of fire and smoke up a building through unstopped shafts and ducts, see Figure 4.

Reference to the STA Product Paper 4 will provide frame systems that provide inherent robustness to fire spread that may be suitable for the project.

The fire subdivision rules contained in Appendix B1 is focused on accommodation, classroom and office type frames - where the ceiling height will restrict the passage of smoke and fire spread may be significant.

It is noted that some projects, such as civic halls or swimming pool enclosures, may have room dimensions larger than the cellular arrangements assumed in Appendix B1. Appendix B2 has been provided to guide contractors on the need for vertical subdivision on open plan enclosures and long corridors.

An appropriate fire risk assessment is needed for structures that fall outside the building types presented in appendix B1 and B2.

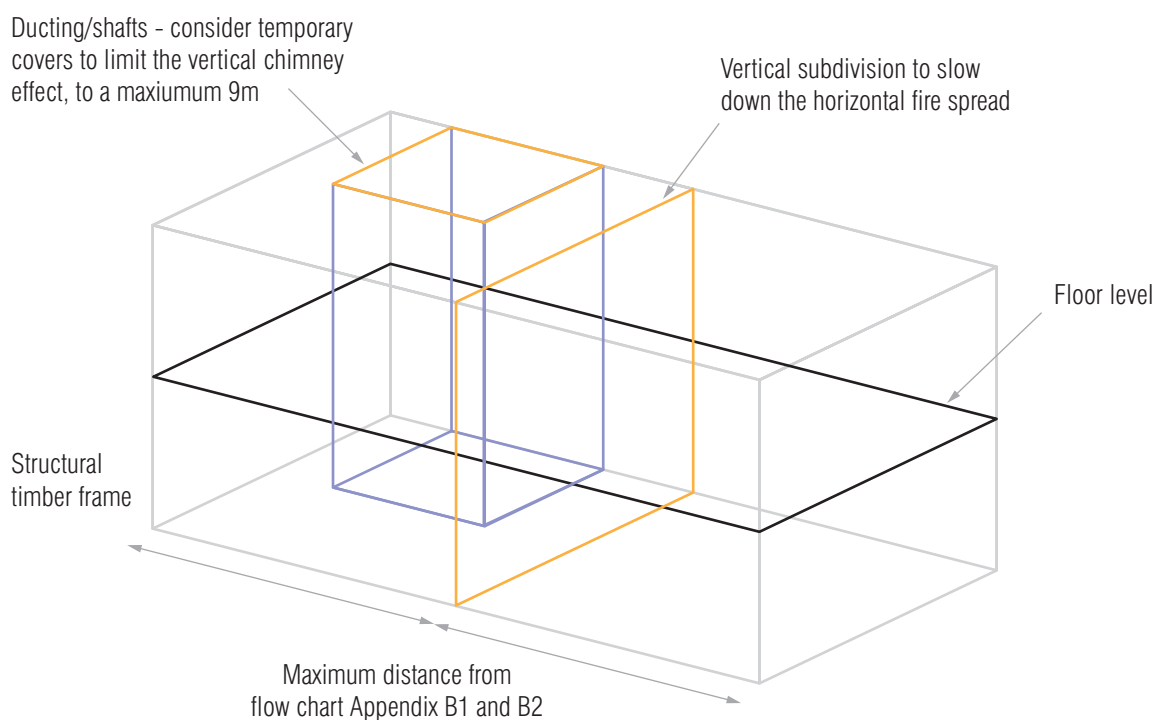


Figure for Step 3: Sub-division in buildings



CATEGORY OF TIMBER FRAME ²	MAXIMUM DISTANCE BETWEEN CONSTRUCTION PERIOD VERTICAL FIRE BREAKS (SUBDIVISION) FOR ON SITE SAFETY	CONSTRUCTION EXAMPLE ³
Category A Standard timber frame	Follow Appendix B1 and B2 NOTE: <i>The use of Category A frame assumes that the off the site fire risk assessment does not require alternative fire risk reduction using Category B or C frames</i>	Party wall system to Product Paper 4 e.g. non-combustible sheathing board on untreated studs
Category B and C Standard timber frames	The use of the STA guidance on fire separation limits subdivision to maximum 20m centres which are for fire spread reduction purposes for off the site fire risk. An increase in these dimensions can occur by specific fire engineering calculations for the project, as at maximum centers it is recommended to follow Appendix B1 and B2	or FR build treated frame with mineral wool insulation
CLT ¹ (Cross laminated timbers and other STA accepted solid wood assemblies). See STA Design guide to separating distances during construction	CLT panels of a minimum thickness of 60mm themselves without openings can be considered to provide construction period vertical and horizontal fire breaks (subdivision). Where openings exist then these can be closed off (fire doors or temporary CLT panels or Euro class A1/A2 boarding) to create required fire subdivision, as at maximum centers it is recommended to follow Appendix B1 and B2	

- 1 CLT is short for Cross Laminated Timber. There are other forms of solid wood construction which the category referred to as CLT also covers.
- 2 See STA design guidance on separation distances during construction and Product Paper 4
- 3 There are a wide range of options available to designers and principal contractors, and the choice of compartmentation will depend entirely upon the specific characteristics of the site. There may also be alternative means of fire suppression which could influence the degree and nature of subdivision required in the building for which a fire risk assessment by a competent person should be undertaken.

Further reading

The FPA Joint Code of Practice

STA design guidance on separation distances during construction and Product Paper 4 and 5.

(Design phase)

Step 4 - Legal requirements

Action

Understand the CDM legal duties of all decision makers in any part of the construction process to assess the risks of the proposed works.

Carry out works fire risk assessment with a responsible person taking owner ship of the management of the risk. See Step 5 & 6.

England and Wales - Regulatory Reform (Fire Safety) order 2005, Scotland Fire Safety Act 2005

Explanation

Compliance with the Construction (Design and Management) Regulations 2015 is a legal requirement for all parties involved in construction work. The project fire risk review starts at the design phase.



Different personnel on a construction site carry out different duties at different times in the construction process. At each stage those with legal duties, who are commonly known as 'dutyholders' which includes Principal Designers and Designers, Principal contractors and contractors, who are required to assess the risks associated with the works they instigate or undertake/ask persons to undertake. Dutyholders include all persons making a decision of material choice, design solution, manufacture, assembly process and construction technique. The dutyholder should take all reasonably practicable measures to design out risks and for any which remain provide information to others who need it and consider means of mitigating those residual risks. All relevant risks should be considered at the design stage, including the risk of fire during construction.

Note that where a design decision is made such as choice of materials this is to be considered in Step 1. Where the contractor is designing an approach to the build then this is considered in Step 4.

Compliance with the RRO and FSA links to step 5 and 6 in that a responsible person shall be appointed to manage fire risk on the site.

This legislation is enforced by HSE inspectors on construction sites that are separate premises. As a general rule, when a construction site is physically separated from other existing structures by space or fire resisting walls it should be treated as separate premises. In these cases, HSE will be the enforcing authority and construction inspectors will be responsible for enforcing general fire precautions.

Within the RRO /FSA there are general fire precautions which is a term used to mean the measures in places of work to reduce the risk of fire and its spread on a premises, and include:

- providing means of escape from the works /site (act will say premises)
- ensuring that the means of escape can be safely and effectively used
- providing the means for fighting fires on the premises
- providing the means for detecting and giving warning in the case of fire on the works /site (act will say premises)
- providing arrangements for action to be taken in the event of a fire on the works /site (act will say premises); including:
 - the instruction and training of site persons (act says employees) and
 - the measures to mitigate the effects of the fire.

Further reading

For off the site fire risks the available separation distances between the new and existing buildings should be considered and an appropriate category of build chosen to provide the required level of protection (refer to the STA document 'Design guide to separating distances during construction' on the STA website www.structuraltimber.co.uk)

For information on the Construction (Design & Management) Regulations 2015 can be found [HERE](#) or on the HSE website at www.hse.gov.uk/pubns/books/l153.htm

(Design phase)

Step 5 - The fire safety coordinator

Action

Appoint a responsible person to coordinate site fire safety.

Explanation

Construction sites with five or more persons are required to have an appointed responsible person to ensure that on the site and off the site fire risks have been assessed and relevant action undertaken, this person can be called the Fire Safety Coordinator. On large projects there should also be a Fire Marshall(s) and Deputy Fire Marshall(s) to provide support. Principal contractors are recommended to refer to the detailed guidance in the FPA Joint Code of Practice.

It should be recognised that the fire risks may change as the build process progresses. The fire risk assessment process requires continuous reviews and the Fire Safety Coordinator shall review and update as appropriate the Site Fire Safety Plan (see Step 6) as required, informing the site of the changes.

NOTE:

Under the Fire Safety Order the 'responsible person' can be a corporate body or a person that has control of a site. The 'responsible person' cannot delegate or transfer their duties and therefore has overall control and responsibility. However, some of the duties under the Order may be shared between other contractors who have any control of the site or work being undertaken (up to the limit of their control).



(Pre-start construction phase)

Step 6 - The site fire safety plan

Action

Write a site fire safety plan and review as construction progresses.

Explanation

The site fire safety plan is the written plan that sets out everything that will be done on that particular project to minimise the risk of fire, to protect the people working on the site and to consider the risk of fire spread to persons outside the site boundary.

Once the plan is created, it must be updated at regular intervals as construction progresses and whenever significant project changes occur including design alterations.

During construction of the site, the principal contractor must ensure that all the procedures, precautionary measures and safety standards as laid down in the site fire safety plan are clearly understood and complied with by everyone working on that project. The principal contractor is the person who has overall responsibility for the site and may discharge the duties to responsible persons such as a Fire Safety Coordinator. Principal Contractors should consult and cross reference for insurance requirements the Joint Code of Practice (Section 6.2, Construction Phase - Fire Safety Plan).

Fire points to be located with appropriate information according to the fire safety plan.

Further reading

The HSE guidance Fire safety in construction (HSG 168) provides clear guidance on the requirements for escape routes.

The FPA Joint Code of Practice provides excellent advice on emergency procedures that are relevant to all construction sites.

STA site induction pack on the STA website (available to members only).

(Pre-start construction phase)

Step 7 - Communication and liaison

Action

Before construction works start inform the fire service and for large sites the police that a project is being undertaken.

Explanation

Effective communication and regular liaison with other parties such as the emergency services and security personnel is extremely important in helping to assess and manage the potential risks during construction.

As indicated within the FPA Joint Code of Practice, the principal contractor (or via the Fire Safety Coordinator) on any construction site should liaise with the local fire service at an early stage and invite them to undertake site inspections and familiarisation tours. For off the site risk reviews, liaison with the neighbouring occupants may be necessary and an important part of the of the site risk assessment.

On large projects, communications must also include specific discussion with the fire service to verify and maintain the source and capacity of water for firefighting. This provision of firefighting water is a fundamental requirement in the fire safety plan.



(Construction phase)

Step 8 - Promoting a 'fire safe' working environment

Action

Provide all workers with fire safe guidance and install portable fire extinguisher locations, keeping in mind that English may not be the first language of the workers. Provide safe smoking areas.

Explanation

The Principal Contractor (or via the Fire Safety Coordinator) must always ensure that the fire safety processes and precautions for the site are fully maintained throughout the entire construction period, and must promote a 'fire safe' working environment, working in close partnership with the site management and sub-contractors. Fire drills and tool box talks are required on larger sites to ensure all parties in the build process are aware of the risk of fire and how to avoid it including premises safety to stop arsonists.

For example, once the structure has been erected and handed over by the structural building systems supplier, the principal contractor must ensure sub-division fire walls are not compromised by any subsequent work (such as the installation of services). The STA advice notes on fire compartmentation should be consulted for guidance on work permits and installation of temporary fire stopping.

Portable fire extinguishers at defined fire points must be provided at each floor level and at intervals so that each fire point can cover an area no greater than 200m² per extinguisher type. Fire points to be located with appropriate information according to the fire safety plan.

Zero tolerance of smoking in the building or anywhere but the smoking designated area should be implemented including electronic cigarettes.

Guidance on managing fire drills, fire alarms on site and other important topics are contained within the FPA Joint Code of Practice.

Training of staff in emergency procedures and provision of site information and tool box talks is part of the promotion of a safe site.

(Construction phase)

Step 9 - Construction phase fire detection and warning

Action

Install appropriate quality tested electrically operated fire warning devices.

Explanation

If a construction fire occurs the primary aim is not to save the building, but to make sure everyone on site reaches safety as soon as possible. In addition for some sites the warning is to alert those off the site in accordance with the fire risk assessment. Therefore the purpose of the detection and warning system is to allow the safe evacuation of the building and the site but also to give warning to the neighbouring persons outside the site boundary.

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.

Early detection of a fire and established routes for evacuation in the event of a fire with clear responsibilities allocated to call the fire service shall be established by the principal contractor.

An appropriately designed, installed and maintained automatic fire detection alarm system can reasonably ensure that site operatives will be aware of a fire before it can become large enough to compromise their escape route.



It is expected on the majority of sites that an interconnecting (could be wired-in or wireless) system of call points and sounders will be required to provide an effective fire warning system. Handbells, whistles and similar fire alarm devices are not going to be loud enough or heard easily by site operatives on any site above a single dwelling. Quality tested electrically operated fire warning devices must always be used in structural timber projects unless it can be clearly demonstrated that other systems are effective.

All alarm devices should be linked to detection devices strategically placed around the structure to provide the earliest possible detection of fire.

Further reading

FPA Joint Code of Practice

STA guidance on alarms (available for members on the STA website)

(Construction phase)

Step 10 - Emergency escape routes

Action

Provide where possible at all times a minimum of two escape routes, clearly marked and accessible and which comply with the appropriate travel distances for site workmen and visitors.

Explanation

Unobstructed escape routes shall be maintained at all times for workers in all areas of the building, externally on the scaffold or from the roof and internally for them to use in the event of a fire alarm requiring site evacuation procedures to be initiated.

STA have detailed guidance on escape route compliance (STA Advice Note 7, Part 5). The key requirements are presented in the list below:

1. Where possible two means of escape in case of fire so that there is an alternative escape route should one become blocked by fire or smoke.
2. Escape routes are to be for all on site (workers and visitors) and are to be clearly marked, maintained and kept clear at all times.
3. Escape routes will evolve as the building is constructed which in turn means review of escape strategy to ensure it is current and appropriate.
4. It is noted that at certain stages of the erecting process, levels of construction may not be complete to provide the appropriate escape route in which case the scaffold access shall provide temporary routes provided.
5. Ladders, appropriately secured, may be acceptable as escape routes for the initial storey lift, but in general ladders are not an accepted escape route method unless it can be demonstrated that for minor areas it is acceptable.
6. If a protected route is adopted this shall be an escape stairway and route to the outside of the building.
7. Escape distance is taken from the point of any work area to either a protected route or outside ground level. It is not taken to be distance between alternative protected routes or access to outside ground levels.
8. There shall be a defined maximum travel distance to get safely out of the building (to the ground level point), or to a protected route out of the premises. The standard maximum distances for structural timber buildings is 25m in HSG 168 (one travel way, referred to as a dead end, distance limit of 12m). For Category A frames this can be extended to 35m (dead end 15m) where enhanced fire safe strategies are put in place such as STA Site Safe strategy and inclusion of the recommended STA guidance on fire alarm systems have been installed. (STA alarms include strategically placed automatic fire detection or other equally effective measures to give the earliest warning of fire to occupants). For Category B, C and CLT frames STA Advice Note 7, Part 5 should be referenced for increased travel distances.
9. The maximum distances include the combination of both horizontal and direct vertical distances.



10. The position and number of escape stairs is determined on a site specific basis dependent upon the building size, shape, layout and stair protection.
11. For lighting and signage of escape routes refer to FPA Joint Code of Practice and HSG 168 - clause 214 onwards.

Further reading

The HSE guidance Fire safety in construction (HSG 168) provides clear guidance on the requirements for escape routes.

The FPA Joint Code of Practice provides excellent advice on emergency procedures that are relevant to all construction sites.

STA Advice Note 7 Part 5 for advice on escape route on the STA website.

(Construction phase)

Step 11 - Site security

Action

All sites should be enclosed and made secure with appropriate security measures put in place. See Appendix B3 for recommended security packages.

Explanation

Construction site fires are known to be commonly the result of deliberate and determined malicious damage. It would be prudent to carry out a check with the local police and fire and rescue service as to the history of deliberate fire setting or incidence of vandalism or other anti-social behaviours in the area. This information could influence the design for site security.

The design for site security, part of the on the site fire risk assessment, shall include in its review the site location and proximity to well-known problem areas, time and speed of build. By using this risk assessment approach, recommendations can then be given on a range of security solutions, from the safe storage of materials and site staff training, to CCTV and overnight lighting. STA have guidance for members on thermal imaging and security available on the website.

To help assess what security features are most appropriate for a timber frame site, please refer to Appendix B3.

All sites should be enclosed and made secure out of working hours against unauthorised entry. This may be achieved by erecting a suitable hoarding around the perimeter of the site. Care should be taken that there are no features, including overhanging branches of trees, which provide climbing access to the site. Doors should be fitted to the lower floor at the earliest opportunity. Where this is not practicable openings including those for windows should be made secure or be boarded. Intruders should be denied access to ladders and other means of accessing upper floors.

Automatic fire detection should be installed at the earliest possible stage. The system should be linked to an alarm receiving centre unless there is a 24 hour security presence on site.

The arson risk assessment should consider a wide range of security measures which may have application during the construction process. The appropriate storage of materials - both from a fire safety and security point of view - and effective staff training are issues which will be applicable at all stages, while the possible need for security patrols and CCTV installations may be more appropriate at more advanced stages of the project.

Further information is available from:

- The Arson Prevention Forum www.stoparsonuk.org
- Structural Timber Association advice notes on the STA website
- RISC Authority RC48 Arson Prevention - the protection of premises from deliberate fire raising
- FPA Fire Protection Authority - The Prevention and Control of Arson 3rd Edition



(Construction phase)

Step 12 - Fire Safe Site facilities

Action

Consider as a hazard. All sites should have appropriately fire safe facilities. Consider fire-rated temporary buildings and site storage facilities. Clear signposted and communicated muster points noted in the fire plan. Appropriate firefighting provision proportionate to the scale of the project.

Site cabins explanation

The FPA Joint Code of Practice (JCOP) provides extensive advice on how to protect temporary buildings and accommodation such as site huts, offices and material stores, and how to ensure such buildings do not create an additional fire risk on site. Such buildings on standard (Category A) timber frame sites should be separated from the building under construction by a distance of 20m. A reduction in the distance can be considered under the risk review when using Category B, C and CLT frames.

Fire resistant site cabins are rated for both fire from within and are typically metal faced walls and roof. The base of fire rated cabins should be protected from debris, storage and access to initiate a fire.

Reference for further reading: JCOP Section 13 - temporary buildings and temporary accommodation.

Muster point locations explanation

Fire safety points and emergency exist and assembly locations are to be clearly noted and explained clearly in the fire safety plan - see Step 6.

Firefighting provision explanation

The workers are to have readily accessible firefighting equipment at 'fire points' suitable for the project and materials being constructed. The 'fire points' shall inform who are eligible and trained to operate the firefighting equipment.

Safe storage of materials (including flammable liquids and LPG) explanation

Safeguards must be put in place for the safe storage of all combustible materials, as well as flammable liquids and LPG cylinders which are often found on building sites. The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) will also need to be complied with for relevant materials.

Highly combustible materials must not be stored in the building under construction and must be stored in secure locations.

On all timber frame sites, storage areas must be at least 20 metres from any building (not just from the timber frame building), and containers and drums must not be stored within 10 metres of any building or boundary fence unless the boundary is a wall assembly has at least 30 minutes' fire resistance.

If 'soft-landing systems' are being used to mitigate falls from height, such systems must have flame retardant covers and must be removed from the frame at the point when they are no longer needed.

The FPA Joint Code of Practice gives details of how and where to store these materials, appropriate signage etc.



(Construction phase)

Step 13 - Dealing with plant and equipment

Action

Avoid equipment which requires flammable fuels. Where electrical plant is used ensure there are appropriate checks on charging points and that there is a policy for recharging equipment.

Explanation

Most construction sites will have stationary plant such as compressors and generators, as well as petrol/diesel powered vehicles nearby.

Petrol/diesel powered plant should not be used at all inside a timber frame building under construction unless absolutely necessary. If this cannot be avoided, strict controls on fuel storage and refuelling must be observed. Any spillages must be cleaned up and removed from the building at once. In addition, it is recommended that a timber frame building must be protected from any heat generated by working plant.

For additional reference and more guidance on how to reduce this risk see the FPA Joint Code of Practice Plant & Vehicles.

Electrical plant is likely to include battery powered equipment. Charging of the batteries requires a safe area where this can occur. Regular inspections of the charging stations and checks to ensure that battery overheating, if it occurs, does not present a fire risk. Overnight charging points should be in a secure and fire resistant enclosure with suitable fire alarms.

(Construction phase)

Step 14 - Keeping a tidy site

Action

Combustible waste materials to be collected and stored in fire resistant bins and checks on site to avoid waste becoming a fire hazard.

Explanation

Good housekeeping is essential on all construction projects - untidy sites are usually unsafe sites. Sites to be kept tidy and construction rubbish and off cuts to be cleared throughout the day. Structural timber does not catch fire easily, but it does become a lot more vulnerable if waste materials such as timber shavings, paper and flammable materials are left lying around. Regular clearance of rubbish from the active areas of construction will help to thwart the opportunistic fire setter. In addition note that combustible materials such as oily rags and the like be disposed of in separate metal bins with close fitting lids

On timber frame developments it is the responsibility of the principal contractor to ensure all areas are cleared of rubbish daily into skips.

Open-topped skips should not be placed within 10 meters of a timber frame building under construction. Skips should have a fire resistant cover if near to the new building or site boundary.

Further reading

FPA Joint Code of Practice.



(Construction phase)

Step 15 - Checks, inspections and tests throughout construction

Action

Record and undertake fire drills, security and firefighting equipment checks. The larger the project the more structured the check procedure is with written documented evidence required.

Explanation

During the construction of the project, the principal contractor (or via the Fire Safety Coordinator for high risk sites) is responsible for a series of checks, inspections and tests throughout the construction of the site.

These actions include the checking of: fire drills, alarms, security measures, firefighting equipment, emergency lighting, escape routes, lines of communication between all parties including the fire service and relevant neighbouring occupants.

In any checking procedure the person shall consider at all time the conditions and risk of fire occurring, consideration of deliberate acts of ignition and accidental causes is required.

CAUSE OF IGNITION	ARSON	ACCIDENT
Ignition source	Imported fire source	Hot works Electrical faults Chemical reactions / heat exposure Flame such as discarded match/cigarette
Advice relates to	Combustible construction materials - rubbish piles which may include paper, small timber off cuts and shavings Flammable products (paints, insulation, LPG, fuel for construction plant)	

Figure for Step 15: Cause of ignition

Different items need checks at either monthly, weekly, daily or at the end of shifts depending on the site fire safety plan assessment. Where 24 hour security is provided, fire checks should be done throughout the night, during holiday periods and weekends as these are the times when sites are most vulnerable to arson.

Written records must also be maintained on training, fire drills and other procedures. In addition fire management of potential fire sources such as electrical equipment shall be checked. Principal Contractors are recommended to refer to the detailed guidance in FPA Joint Code of Practice.



(Construction phase)

Step 16 - Permits to work procedures

Action

Detail within the fire risk assessment where permits to work are required for the project.

Explanation

During the construction of the project there will be certain activities that may cause a weakness the fire risk mitigation considered in the fire safety plan - see Step 6, for example holes in fire protection, means of escape blocked, fire warning disabled, hot work activities, refueling of plant, site burning and other actions that can be considered to create a temporary hazard or weakness. It is advisable to have a work process where permits to work are needed to undertake works that may be the cause of fire or create a weakness in fire robustness.

For example

Hot works permit: In many cases it is possible to design-out the need for hot work (such as work using blowtorches), and this should be the aim of all designers and trades. Where this is not possible, all site workers must pay particular heed to the 'Joint Code of Practice' guidance on hot work. Where hot works are used then a site permit to work and method statement is required and any area of hot work must be actively monitored for at least one hour after completion and the area re-visited two hours later. Clearly this will mean that any such work must not be carried out towards the end of the working day.

Further reading

The HSE guidance Fire safety in construction (HSG 168)

The FPA Joint Code of Practice

STA site induction pack on the STA website (available to members only)