Loss Prevention Standards – Asset Classes

Temporary Buildings and Structures

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This guide looks at the property and liability considerations when using temporary buildings and structures.

AVIVA

Temporary Buildings and Structures

Introduction

Companies need to use temporary buildings and structures such as cabins, modular units, shipping style containers, marquees/tents etc. due to many reasons such as:

- The need for additional covered or secured floor area
- To replace condemned or damaged areas or after an incident (e.g. Reinforced Autoclaved Aerated Concrete (RAAC)), a fire or an escape of water
- Social distancing requirements during a pandemic
- Secure equipment or stock externally etc.

Companies need to use temporary structures such as cabins, shipping style containers, marquees/tents etc. as they can offer a cost-effective means of providing additional space quickly for a set period of time. Possible uses include offices, workshops, stores, school classrooms, welfare facilities and customer seating areas. Although these structures are generally not designed for long-term use, 'temporary' is not a term that is consistently applied in this context… and once in place, it is not uncommon for these structures to become more permanent fixtures.

Once proposed or in place, these structures and where they are located, how they are arranged and what they are used for can present increased risk factors, such as from fire, security, escape of water or personal injury. In many cases these exposures can be easily overlooked.

This document is intended to cover the principal risk factors to be considered when proposing, installing and using temporary structures, providing guidance and information to keep people and property safe.

This type of addition to a site should be considered as a change, even if temporary, and as such should be managed as part of a formal Change Management process. In addition, based on the value of the project and the exposure it creates, your Insurance Broker and Insurer should be also consulted. Further information can be found in Aviva's *Managing Change* Loss Prevention Standards.

Temporary vs Permanent

When someone says something is 'temporary' our mindset can often be totally different to something considered as 'permanent'. The perception may be that temporary does not warrant the same level of attention or focus as something that is considered permanent.

However, in terms of risk management and loss prevention, how long is a limited period of time, a day; a week; a month; 3 months; 1 year etc.? When these structures are installed, is there a definite end date confirmed for their use and is this date fixed? In many instances, insurers see these units starting as 'temporary' and then remaining in place for a number of years. So, the question is when does temporary become permanent?

The exposures posed by these structures, regardless of whether they are temporary or not, should be assessed based on risk rather than whether they are "temporary" or not.

The key to understanding the exposure is to treat it as if it is permanent, but for a 'limited period of time'. If it catches fire, causes structural damage, has an escape of water, causes a personal injury or security incident, the impact of such an event will probably not be temporary. There is no such thing as a 'temporary fire'!

This mindset is really important in the risk management approach to temporary structures… they are permanent… but for a short or limited period of time.

Risk Assessment

The content of any risk assessment should take into account the reasons for requiring a temporary structure such as a cabin or marquee, and its intended use, e.g. classroom, canteen, additional storage facility, extending customer seating to comply with social distancing rules, etc.

Risk assessments should also include the significant operational hazards, risks, and the control measures in place such as slip, trip and falls, access and egress, structural integrity, lighting and heating requirements, electrical safety, adverse weather and fire evacuation measures.

The fire risk assessment should also be amended to consider the additional risks presented by the installation and use of any temporary structures.

Design and Construction

The design and construction of the structure is critical to understanding the loading and combustibility of the unit, and both are important factors in considering the exposure posed to the surrounding area.

For larger and more complex structures, designs should be verified by a competent person, such as a qualified structural engineer. Calculations should include the maximum wind loading of the structure.

The structure should ideally be non-combustible in construction and have a known and approved degree of fire resistance, as the greater the fire resistance rating the less the exposure to nearby structures, stock, contents, etc.

Fire resistance rating is particularly important if they are to be located where they expose existing assets or they are stacked on top of each other. This rating should also be borne in mind when considering the occupancy and the impact on emergency evacuation.

After receipt of the unit there should be a formal inspection and rigorous checks to assure it:

- Meets the proposal intent
- Is fit for purpose
- Is damage free
- Has been erected correctly

Location

The location of the structure is important in relation to the existing layout of the site from fire, security, access and egress and escape of water exposure perspectives. A unit located in the middle of a yard area or large clear area (e.g. hotel/pub garden) is completely different to one within a building or close to, or on top of valuable assets.

Consider the implications of where the structure is to be located, such as:

- Inside an existing building
- On the roof of an existing building
  - If so, how will this be accessed?
  - What is the static and dynamic loading of this unit and this impact on the existing structure?
  - How is it secured from a wind uplift perspective?
- In the yard/grounds of an existing building
  - Is this hardstanding ground?
- Is it on top of critical services (e.g. a cable trench or tunnel) or above a basement area?
- How far away from any existing buildings/external storage areas is this?
  - Or important services or utilities?
- How far away from the site boundary or perimeter is this?
- What is vegetation growth like, etc.?
- Is there uneven ground present?

Ideally temporary structures should be located at least 10m away from existing structures, utilities and any combustible yard storage.

The quality of anchorage points should also be considered when siting a temporary structure and whether special anchorage points or the use of ballast weights are required. Anchorage should always be in accordance with the manufacturer's instructions and be enough to resist the maximum wind uplift force expected. Also, be aware of potential tripping hazards from the anchorage points, particularly near walkways or access/exit points.

Static and Dynamic Loading

Where a structure is proposed to be located:

- On the roof of an existing building, or
- In a yard area above critical service tunnels/trenches, or
- Above an existing basement area

An assessment, with accompanying calculations, should be made to ensure the addition of the structure will not adversely impact the area below and cause damage and in the worst case, collapse.

This should also include the dynamic loads created by movement, wind, etc.

Examination, Inspection and Testing

Any temporary structures should be thoroughly inspected prior to being handed over to the recipient. This should be completed by a competent person.

It should also be inspected at regular intervals as part of a company's own self-inspection regimes with any damage or defects repaired promptly.

Ongoing inspections and maintenance should always be in accordance with the manufacturer's instructions.

Fire Exposure

Consideration from the start should be with the hypothetical question – '*What if this new structure catches fire?*'

Once asked, the implications of this to life safety, property damage/business activities and any existing assets should be considered, from the following perspectives:

- Emergency evacuation and life safety
- Fire spread between existing assets
- Exposure to fire spread from this structure to existing assets
- Smoke entrainment from this structure into existing structures.

All existing fire risk management systems and risk assessments should be revised to include the new structure.

Consideration should be specifically given to the following:

- Managing ignition sources, e.g. arson; charging and electrical systems; smoking; hot work; heating appliances; electric vehicle charging etc.
- Combustible loadings should be maintained at a minimum
- Compromising any existing automatic fire detection and/or fire suppression systems
    - Or extending such systems into the structure?
    - How will the existing fire alarm be heard in the structure?
- The specific occupancy hazards, i.e. what is the structure is to be used for, maximum permissible occupancy?
- Any cooking related equipment
- The provision of additional firefighting equipment
- Additional fire marshal training that may be required
- Location in relation to vegetation, external storage, or waste compounds
    - This includes below the structure. A means of preventing combustible materials growing or accumulating below the unit should be provided, e.g. hardstanding, grilled skirts, etc.
    - Consider the time of year and prolonged dry periods

Security Exposure

All existing security risk management systems and risk assessments should be revised to include the additional structure.

Once a structure is proposed, consideration should be given to the:

- Security of the existing site
- Security of the structure itself – including the roof
- Potential of increased arson or malicious damage

Escape of Water Exposure

Where these structures have water piped into them, then all existing water risk management systems and risk assessments should be revised to include it. In particular, consideration needs to be given on how best to prevent impact damage or exposed water pipes freezing.

This may be less important where the unit is located in isolation in a yard area, but if it's to be located inside, next to or on top of an existing building, or where they are stacked, this may present a different and increased risk.

Also, depending on the weight or loading of the structure, its location in relation to any buried water mains should be considered. Such a structure could cause the ground around buried water services to move and cause a main fracture.

Ongoing Prevention Measures

All existing loss prevention, risk management, health & safety and environmental programmes, inspections, testing and maintenance procedures should incorporate this additional structure and its occupants.

Removal

Once no longer required or the life span of the unit is complete and it is due to be removed, the management of the removal process needs to be considered in detail, including all the risk factors discussed previously. Once again this should be considered a change, and like all changes, from a loss prevention perspective, a site is at its most vulnerable.

Checklist

A generic Temporary Buildings and Structures Checklist is presented in Appendix 1 which can be tailored to your own organisation.

Specialist Partner Solutions

Aviva Risk Management Solutions can offer access to a wide range of risk management products and services at preferential rates via our network of Specialist Partners.

For more information please visit:

Aviva Risk Management Solutions – Specialist Partners

Sources and Useful Links

- RC33: Recommendations for the selection and risk management of portable accommodation units – Fire Protection Association/RISCAuthority
- RC15: Recommendations for the use of portable heaters in the workplace – Fire Protection Association/RISCAuthority
- MUTA Best Practice Guide- Safe Use and Operation of Temporary Demountable Fabric Structures

Additional Information

Relevant Loss Prevention Standards include:

- Managing Change – Property
- Managing Change – Liability
- Timber Framed Buildings
- Managing Contractors
- Hot Work
- Electrical Installations – Inspection & Testing
- Arson
- Windstorm – Protection of Buildings
- Escape of Water
- Flood
- Weight of snow

To find out more, please visit Aviva Risk Management Solutions or speak to one of our advisors.

Email us at riskadvice@aviva.com or call 0345 366 6666.*

*The cost of calls to 03 prefixed numbers are charged at national call rates (charges may vary dependent on your network provider) and are usually included in inclusive minute plans from landlines and mobiles. For our joint protection telephone calls may be recorded and/or monitored.

Appendix 1 – Temporary Buildings and Structures Checklist

Location	
Date	
Completed by (name and signature)	

	Temporary Buildings and Structures	Y/N	Comments
1.	Have you discussed the proposals with your: • Insurance Broker? • Insurer?		
2.	Has a time frame for delivery of the temporary structure been confirmed?		
3.	Has the proposed length of time the temporary structure will be in situ for been confirmed? *A temporary unit is actually permanent, but for a specific or limited timeframe.*		
4.	Are any structures proposed to be stacked on top of each other? Has this exposure been included in all risk assessments and Emergency Plans?		
5.	Has the location of the structure been established? • Is this within an existing building? • Is this on the roof of an existing building? • Is this at least 10m from any existing building or structure? • Is this above any critical services, e.g. drains, water mains, etc.? • Is this above any basement areas?		

	Temporary Buildings and Structures Contd.	Y/N	Comments
6.	If it is to be located on the roof of an existing building or above critical services/basements in a yard area, has an assessment been completed with accompanying calculations to ensure the static and dynamic loading of the structure will not cause damage or collapse of the existing arrangements? Does this include wind uplift calculations?		
7.	Understanding these units are in most cases essentially combustible or have combustible occupancy, does this proposal provide continuity of combustible material between any assets or buildings that were otherwise separated by a clear space?		
8.	Is the proposed construction of the structure understood and its fire performance rating? • Is this at least 30-minutes fire resistance rating? • Is the rating acceptable based on the exposure, location, and occupancy, etc.?		
9.	Does the proposed location of any structure: • Compromise existing fire protection strategies or access to firefighting devices such as fire hydrants, hoses, etc.? • Expose any existing building air intakes, so if it caught fire, smoke, etc. could be entrained into the existing structure? • Expose or be exposed to existing waste storage or yard storage arrangements? • Be exposed to vehicular impact or similar?		
10.	Have all risk assessments been updated and revised to consider these structures, in respect of: • Fire • Security • Health & Safety • Business Impact (BI)? ○ Has the BI exposure been quantified? Do these consider different times of the year when environmental conditions are different?		
11.	Is emergency lighting required within or outside of the structure?		

	Temporary Buildings and Structures Contd.	Y/N	Comments
12.	Are there any exhausts proposed from the structure? Have the locations of these been considered in relation to existing assets, air intakes, fire exits, personnel routes, etc.?		
13.	Based on the exposure to life and property/business activities, are the following proposed within the structure: • Automatic fire detection? • Manual break glass alarms? • Automatic fire suppression?		
14.	Can the fire evacuation alarm be heard from within the structure?		
15.	Is the structure going to be located on hardstanding ground? Is vegetation cut back around the structure? Once the structure is in place, will this be monitored and maintained/cut back? Is the area underneath the structure secured with a caged skirt? Is all waste or yard storage located at least 10m away from the structure?		
16.	Have emergency events involving the structure been considered? Does the location of this structure impact existing emergency evacuation routes? Has the emergency response plan been revised?		

	Temporary Buildings and Structures Contd.	Y/N	Comments
17.	Are existing or proposed security arrangements appropriate for the risk of: • Malicious damage? • Intrusion? • Arson? Are the following needed: • Grilles over the windows? • Skirting around the bottom of the unit? • CCTV coverage? • Yard lighting? • Extension of any intrusion detection or access control systems? • Extension of perimeter fencing? Physical security presence?		
18.	Are there any specific occupancy hazards or risks that need to be risk assessed in more detail? • Sleeping quarters? • Specific to the occupancy or process?		

19.	Will the structure house any cooking facilities?
	• Have these been included in the risk assessments?
	• Is the exit point of any exhaust ducts considered?
	  ○ Has fire retardant material been provided around the exhaust duct as it passes through the structure wall?
	• Are appropriate fire detection and/or suppression measures proposed/in place?
	• Have these facilities been included in proposed cleaning schedules?
	  ○ Extract filter and ducts?
	  ○ Cooking equipment?
	• Have appropriate emergency manual isolations and interlocks been provided to shut down the cooking equipment or gas/power supply upon fire alarm?		

Temporary Buildings and Structures Contd.		Y/N	Comments
20.	Will heating be provided within the structure? • Is fixed heating provided? • Are indirect heating systems used as opposed to direct flame heating (torpedo heaters or fire pits, etc.) or electric heaters with exposed heating elements? • Are portable heaters prohibited? ○ If No, where portable heaters will be used will this be in accordance with the RISCAuthority guide - RC15: 'Recommendations for the use of portable heaters in the workplace'? • Are heaters used in accordance with the manufacturer's instructions? • Are heaters maintained regularly, in accordance with the manufacturer's instructions? • Are heaters sited in areas clear of combustible goods or other readily ignitable materials? Is a clear space of at least 1m on all sides maintained between a heater and combustible goods or combustible elements of the construction maintained?		
21.	Is the structure to house any sanitation or water-based facilities? • Have these been included in the risk assessments? • Can a leak of water expose any important assets? • Can the water piping/supply network freeze in cold weather?		
22.	Is the structure to house any gas supplies? • Hard piped? • Cylinders? Have appropriate emergency manual isolations or interlocks been provided to shut down any gas supply upon fire alarm? If possible, can the gas be shut down at the end of each shift? ○ Is this included in the end of shift checks?		

	Temporary Buildings and Structures Contd.	Y/N	Comments
23.	Are/will all gas cylinders be prohibited from being stored/housed within the structure? Are these located in a secured external area?		
24.	Is/will hot work be prohibited on, inside and within 10m of the structure?		
25.	Is/will smoking be prohibited on, inside and within 10m of the structure?		
26.	Upon delivery of the structure has a full assessment been completed to assure it: • Is per the design specification? • Is of sound construction? • Has been erected correctly?		
27.	Is the interior maintained: • With a minimum amount of combustible materials? • Clean and tidy? Is it included in regular waste removal, housekeeping and self inspection regimes? Is waste removed on a regular basis?		
28.	Are regular recorded checks completed to assure that: • All assumptions in the risk assessments are valid? • There have been no changes that impact the original design intent? • There is no damage or degradation? • The structure is clean and tidy? • There is no water pooling on the roof? • There is no waste accumulation below or within 10m? • Vegetation is not growing around the exterior? • Waste materials and/or yard storage are not located within 10m? There is no evidence of smoking within 10m of the structure?		

	Temporary Buildings and Structures Contd.	Y/N	Comments
29.	Is there a final security check at the end of the shift to assure: • The structure is locked up and secured? • Any gas or cylinder supplies are isolated and secured?		
30.	Are all site-wide risk management, loss prevention, health & safety and environmental management programmes/inspections/testing and maintenance schedules up to date?		
31.	Is the date the structure is due to be removed being tracked?		
32.	When the structure is due to be removed, is the process to be formally managed using the same rigor as with its receipt? With consideration for the risk factors presented above?		
33.	Additional comments:		

Please Note

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