



Emergency Planning Meter

Positive Performance Assessment of Emergency Planning & Emergency Preparedness on a Commercial Construction Project

Emergency Planning Meter

1.0 Introduction:

The purpose of the Emergency Planning Meter is to provide a positive performance assessment tool to enable visual assessment and verification of emergency planning and preparedness on a commercial construction project. The Emergency Planning Meter records correct and not correct observations during a visual inspection of a construction project enabling an assessment score out of 100 percent to be achieved.

2.0 How to complete an assessment:

The person (or group) that undertakes the Emergency Planning Meter (EPM) assessment is required to walk around a construction site and observe those items outlined in the eight measurement criteria, attached to the assessment score sheet. If new measurement categories are added, then the criteria by which each is measured (i.e. correct or not correct) must also be determined.

Correct and not correct items are recorded under the eight measurement criteria on the score sheet by adding a single stroke for each item observed during the walk around the construction site. Incorrect items observed require additional information to be added to the *EPM Corrective Actions Tracking Sheet*.

The person or group conducting the EPM assessment should start the walk at an agreed point (e.g. roof level) and proceed in a logical sequence floor by floor including basement areas. The assessment is conducted by dividing a construction site into areas or grids, then walking around the site and observing emergency planning and preparedness based on the eight measurement criteria, including information such as signage, equipment, exit routes, exit points, management of hot works or other work areas of the assessment. On a high rise construction project, this should be floor by floor but on a site, that is dispersed over a wide area, e.g. civil, assessment squares or grids could be defined by visible boundaries.

To measure an area, each emergency planning or preparedness item outlined in the measurement criteria and further expanded below is scored as 'correct' if it meets the requirements of the criteria; otherwise the item is scored as 'not correct'. If a person conducting the assessment is not sure how to score an item, then it is not scored at all.

A sample complied score sheet is provided as *Appendix A*. To gain an accurate overall assessment of the emergency response capability of a construction project, i.e. a statistically representative sample size, the number of observed items should be around one hundred or more.

2.1 Fire hydrant risers (landing valves) & fire hose reels:

For each building under construction with an effective height of 12m or more, each fire hydrant and fire hose reel must be operational for every storey that is covered by the roof, except the 2 uppermost storeys. The pressure gauges are located at the closest flow switch assembly which will determine whether they are operational. They can also be checked at the control assembly in the pump rooms.

- One correct acknowledgement (stroke) is marked on the assessment score sheet for each riser fire hydrant that is observed as operational (pressurised) and displays a compliance tag identifying its inspection and testing within the past 6 months.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each

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riser fire hose reel that is observed as operational and displays a compliance tag identifying its inspection and testing within the past 6 months.

- One correct acknowledgement (stroke) is marked on the score sheet for each required fire booster valve installed and operational.
- One correct acknowledgement (stroke) is marked on the score sheet for each required fire booster valve installed and operational in the street and clear of obstruction in the event of a fire brigade appliance requiring connection in the event of an emergency.
- *Where the assessment criteria are not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.2 Fire Extinguishers:

- One correct acknowledgement (stroke) is marked on the assessment score sheet for each fire extinguisher observed that suits class A, B & C fires and electrical fires.
- One additional correct acknowledgement (stroke) is marked on the assessment score sheet for each fire extinguisher observed that displays i) a compliance tag confirming that it has been inspected and tested within the past 6 months; ii) that displays its extinguisher type and clear instructional signage on its use; and iii) access to the extinguisher in clear and free of obstructions.
- One additional correct acknowledgement (stroke) is marked on the assessment score sheet for each additional fire extinguisher provided where the floor area exceeds 500m².
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.3 Emergency Exit Points:

- One correct acknowledgement (stroke) is marked on the assessment score sheet for each emergency exit point provided on each floor.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for other enclosed areas that have two emergency exit points, e.g. Jump Form, basement, excavation.
- One additional correct acknowledgement (stroke) is marked on the assessment score sheet for each emergency exit point/doorway that i) is easily identified with signs or other markings on each floor, e.g. green universal running person sign or green tape or green barrier mesh; and ii) is clear of obstructions.
- One additional correct acknowledgement (stroke) is marked on the assessment score sheet for each emergency exit route observed that displays directional signs or other markings to show the direction to the emergency exit point.
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.4 Access paths/emergency exit routes/assembly area:

- One correct acknowledgement (stroke) is marked on the assessment score sheet for each access path that is clear of debris, stored materials or other obstructions.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where emergency exit back up lighting is installed on each floor and is operational.

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- One correct acknowledgement (stroke) is marked on the assessment score sheet for each Evacuation Diagram that is observed as displayed in prominent consistent locations on each floor, e.g. adjacent to the lift/hoist. Min. A4; 1.2 to 1.6m above the floor; correct orientation – You Are Here; date issued; date valid to; location of fire fighting equipment; exit point locations, manual call points, e.g. nurse call and emergency assembly area location.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where the emergency evacuation assembly area(s) is signposted.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where the path of egress to the evacuation assembly area eliminates the need to cross roads or other vehicle thoroughfares where practicable (leading practice).
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.5 Storage of hazardous/flammable materials and dangerous goods:

- One correct acknowledgement (stroke) is marked on the assessment score sheet for each hazardous materials storage area observed, e.g. flammable or dangerous goods, which is stored in a well ventilated area and positioned away from emergency exit points.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each hazardous substance storage area, e.g. chemicals, fuels, oils, that has an impervious base and a minimum bund capacity of 110% of the largest container in the store, e.g. 200 litre drum has a minimum bund capacity of 220 litres.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each hazardous/ toxic/ flammable substance storage area that displays warning signs.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each Dangerous Goods storage area that is;
 - separated at least 3m apart in locked cages to prevent mixed gases unless classified as minor storage quantities, i.e. less than 2000L in total volume in the store;
 - displays warning signs; and
 - gas cylinders are restrained to prevent toppling.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each hazardous substances /flammable goods/toxic substances storage area that does not exceed minor storage limits, i.e. Packing Group (PGI) or PGII max. 500L and PGIII max. 5000L.
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.6 Hot works:

- One correct acknowledgement (stroke) is marked on the assessment score sheet where combustible or flammable materials/goods storage is located at least 15m away from the hot works.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where an additional fire extinguisher is located next to any hot works in progress and has been inspected and tested within the last 6 months.

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- One correct acknowledgement (stroke) is marked on the assessment score sheet where a Permit to Work or other authorised safe system of work is available at the hot works location and control measures are implemented to this system of work requirements, e.g. fire blanket, spark arrester, water hose, fire watch.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where flash back arresters are fitted to oxygen and to acetylene hoses (min. at the cylinder end) and have been inspected in the last 12 months.
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.7 Medical or other Emergency:

- One correct acknowledgement (stroke) is marked on the assessment score sheet where an emergency warning information system (EWIS), e.g. radio, nurse call or other is in place on each level of a multistorey construction project.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where the EWIS can be demonstrated as tested at monthly intervals and where relevant after any shed/amenities relocation.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where a first aid kit(s) is readily available consistent with the number of workers on the site.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where a first aid kit is observed as well stocked and content expiry dates have not passed.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where a Defibrillator is readily available at the site for medical emergencies and the device is within service.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where a Oxy Viva is readily available at the site for medical emergencies and the device is within service.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each person trained in first aid is located at the site and displays their current competency certificate.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where a spill kit(s) is readily available and well stocked consistent with the type of activities and potential spills on the site.
- One correct acknowledgement (stroke) is marked on the assessment score sheet for each person(s) trained in spill response located at the site.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where the site emergency response contact details are prominently displayed on the site.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where a scenario based emergency response drill has been carried out at intervals not exceeding 12 months and an additional correct acknowledgement (stroke) is marked where the response drill is at intervals not exceeding six months.
- One correct acknowledgement (stroke) is marked on the assessment score sheet where emergency response drills are evaluated to identify improvement opportunities.
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet.*

2.8 Worker emergency signal/evacuation knowledge:

- One correct acknowledgement (stroke) is marked on the assessment score for each

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randomly selected worker that can demonstrate they are aware of the emergency signal, emergency exit route and emergency evacuation assembly area.

- One correct acknowledgement (stroke) is marked on the assessment score for each randomly selected worker that can demonstrate they are aware of the medical or other emergency signal system and how to activate it.
- *Where the assessment criteria is not met for any of the above items one not correct acknowledgement (stroke) is marked on the assessment score sheet for each item observed that is not correct and recorded on the EPM Corrective Actions Tracking Sheet*

Appendix A: Completed Assessment Score sheet Example

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Emergency Planning Meter Assessment Score Sheet					
Project/Workplace:		Date:			
Assessment Category	Correct	Total	Not correct	Total	%
Fire hydrant risers (landing valves) & fire hose reels					
Fire Extinguishers					
Access paths/emergency exit routes/assembly area					
Evacuation Signage / Diagrams					
Storage of Hazardous /flammable Materials and Dangerous Goods					
Hot works					
Medical or other emergency alert					
Worker emergency signal/evacuation knowledge					
	Total Correct Observations		Total Not Correct Observations		
EPM Total Score	Total Correct divided by (Total Correct + Total Not Correct) multiplied by 100		_____ %		

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Emergency Planning Meter Measurement Criteria

1 Fire hydrant risers (landing valves) & Fire Hose Reels

As per BCA E1.9 – 2016 (reference)

- Building under construction with an effective height of 12m, fire hydrants and fire hose reels are operational for every storey that is covered by the roof, except 2 upper storeys.
- Required fire booster valves installed and operational.
- Required fire booster valve has clear access for brigade appliance.

2 Fire Extinguishers

As per BCA E1.9 – 2016 (reference)

- At least one fire extinguisher to suit class A, B & C fire and electrical fires is provided on each storey adjacent to each required exit or temporary stairway.
- Are clearly signposted and display clear instructions on correct use.
- Are inspected and tested at maximum 6 month intervals (observe yellow compliance tag).
- Where the floor area exceeds 500 m² the above requirement is repeated for every additional floor area greater than 500 m² (leading practice).

3 Emergency Exit Points

As per Australian Standard S3745 (reference)

- Provided on each floor.
- Enclosed areas have two emergency exit points, e.g. Jump Form, basement, excavation.
- Emergency exit routes display signs or other markings so they are easily identifiable.
- Direction signs/other markings displayed to show the direction to an emergency exit point.
- Emergency exit points on each floor display signs or other markings so they are easily identifiable in the approved colours, e.g. green universal running person sign or green tape or green barrier mesh.

4 Access paths/emergency exit routes/assembly area

WHS Regulation 40

- Are clear of debris, stored materials or other obstructions.
- Emergency exit back up lighting is installed and operational.
- Evacuation diagrams displayed in prominent consistent locations on each floor, e.g. adjacent to the lift/hoist. Min. A4; 1.2 to 1.6m above the floor; correct orientation – You Are Here; date issued; date valid to; location of firefighting equipment; exit point locations, manual call points, e.g. nurse call and assembly point location
- Emergency evacuation assembly area(s) is signposted.
- Path of egress to the evacuation assembly area eliminate are clear and unobstructed.
- Jump forms or other enclosed areas have two emergency egress points.
- Path of egress to the evacuation assembly area eliminate the need to cross roads or other vehicle thoroughfares where practicable (leading practice).

5 Storage of hazardous/flammable materials and dangerous goods

As per AS1940, AS4332

- All hazardous materials storage areas, e.g. flammable or dangerous goods, are stored in a well ventilated areas away from emergency exit points and hot works.
- Storage locations for hazardous substances, e.g. chemicals, fuels, oils, have an impervious base and have minimum bund capacity of 110% of the largest container in the store, e.g. 200 litre drum has a minimum bund capacity of 220 litres.
- Storage locations for hazardous/toxic/flammable substances display warning signs.
- Dangerous goods, i.e. mixed gases, are separated at least 3m apart in locked cages unless classified as minor storage quantities, i.e. less than 2000L in total volume.
- Hazardous substances/flammable goods/toxic substances do not exceed minor storage limits, i.e. Packing Group (PGI) or PGII max. 500L and PGIII max. 5000L.
- Dangerous goods are stored in locked cages and display warning signs.
- Gas cylinders are restrained to prevent toppling.

6 Hot works

AS1674.1

- Combustible or flammable materials/goods storage is located at least 15m away from hot works.
- Additional fire extinguisher is located next to any hot works in progress and has been inspected and tested within the last 6 months (leading practice)
- A Permit to Work or other authorised safe system of work is available at the hot works location and control measures are implemented, e.g. fire blanket, spark arrester, water hose, and fire watch.
- Flash back arresters are fitted to oxygen and acetylene hoses (min. at the cylinder end).

7 Medical or other Emergency

- A signal system, e.g. radio, nurse call or other is in place for multistorey construction projects.
- The signal system is tested at monthly intervals and after shed relocation.
- A first aid kit(s) is readily available consistent with the number of workers on the site.
- The first aid kit is well stocked and content expiry dates have not passed.
- A person(s) trained in first aid is located at the site consistent with the number of workers on the site.
- A spill kit(s) is readily available consistent with the type of activities and potential spills on the site.
- A person(s) trained in spill response is located at the site.
- Emergency response contact details are prominently displayed on the site.
- A scenario based emergency response drill has been carried out at intervals not exceeding 12 months (leading practice is 6 months)
- Emergency response drills are evaluated to identify improvement opportunities.

8 Worker emergency signal/evacuation knowledge

- Randomly selected workers are aware of the emergency signal, emergency exit route and emergency assembly area.
- Randomly selected workers are aware of the medical or other emergency signal system.

