

FIRE SAFETY REQUIREMENTS FOR TEMPORARY WORKERS' QUARTERS IN UNCOMPLETED PERMANENT BUILDINGS AT CONSTRUCTION SITES

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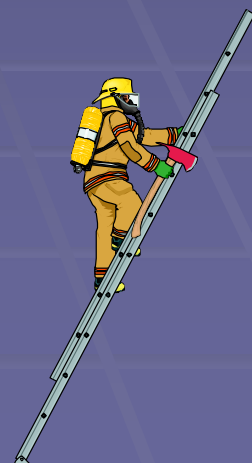
Introduction

- PROBLEMS FACED
  - Increasing demand for workers' quarters on site
    - high demand for foreign workers
    - shortage of foreign workers dormitories
  - Erection of worker's quarters on site may be difficult due to site constraint



- COMMON PRACTICE
  - Provide workers quarters in uncompleted permanent building/s at construction sites



Action taken

- BCA (Building and Construction Authority)
  - Building Control Regulations(Use of Buildings under Construction as Worker's Quarters)
    - gazetted 16th Dec 2008
- SCAL (Singapore Contractors Association Limited
  - SS/CP 102 - Code of Practice for Temporary housing quarters at construction sites
  - Approved by BCSC (Building and Construction Standards Committee)
  - SCDF is a member of the workgroup

Formulation of Fire Safety Requirements

- SCDF formulated “Fire Safety Requirements for Temporary Workers’ Quarters in Uncompleted Permanent Buildings at Construction Sites”
- Issued on 15th Dec 2008.
- SCDF circular dated 15th December 2008 is available for downloading and viewing on Corenet e-information system
- http://www.corenet.gov.sg/einfo/

Walkthrough of Fire Safety Requirements

1. Scope
2. General
3. Submission of Fire Safety Plans
4. Fire Safety Provisions
5. Fire Fighting Provisions
6. Secondary source of power supply
7. Storage & installation of hazardous materials
8. Housekeeping

Section 1
SCOPE

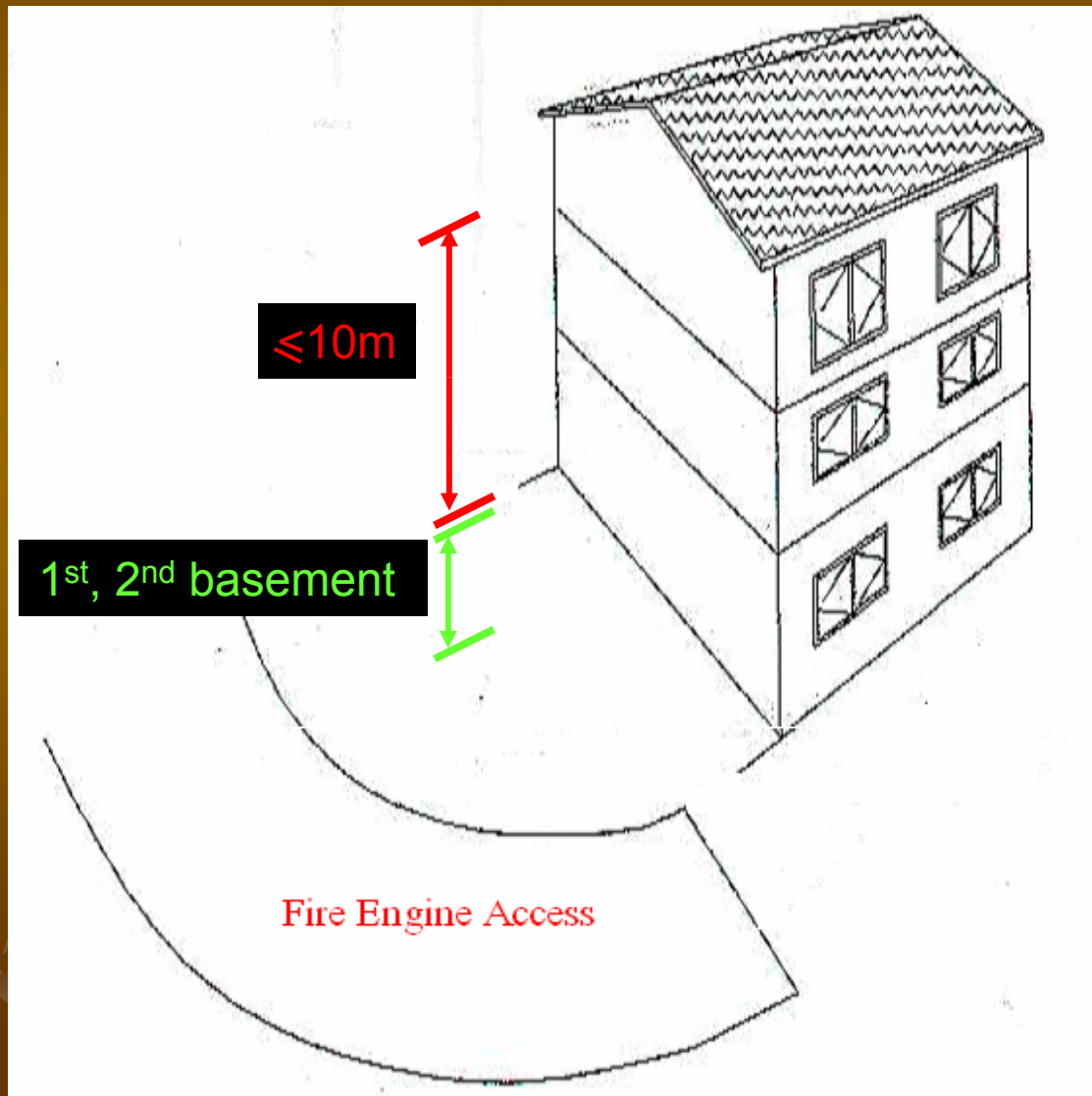
- Design, construction, installation and maintenance of temporary workers' quarters in uncompleted buildings at construction sites
- Fire safety plans submission procedures
- NOT applicable if total number of workers are 40 or less

Section 2
GENERAL

- Within boundary of construction site
- Only for workers working within the construction site
- Accommodation period allowed up to time before TOP (Temporary Occupational Permit) is obtained

Section 2
GENERAL

- Above ground: Not more than 10m high
- Not lower than 2nd basement



Section 3
Submission of Fire Safety Plans

- Engage QP (Qualified Person)
- Submit Fire Safety Plans
- Conduct fire safety inspection and issue Certificate of Supervision
- RI inspection and TFP/FSC application NOT required

Section 4
Fire Safety Provisions

4.1 Occupant Load and Exit Provisions

4.2 Compartmentation

4.3 Exit Staircase

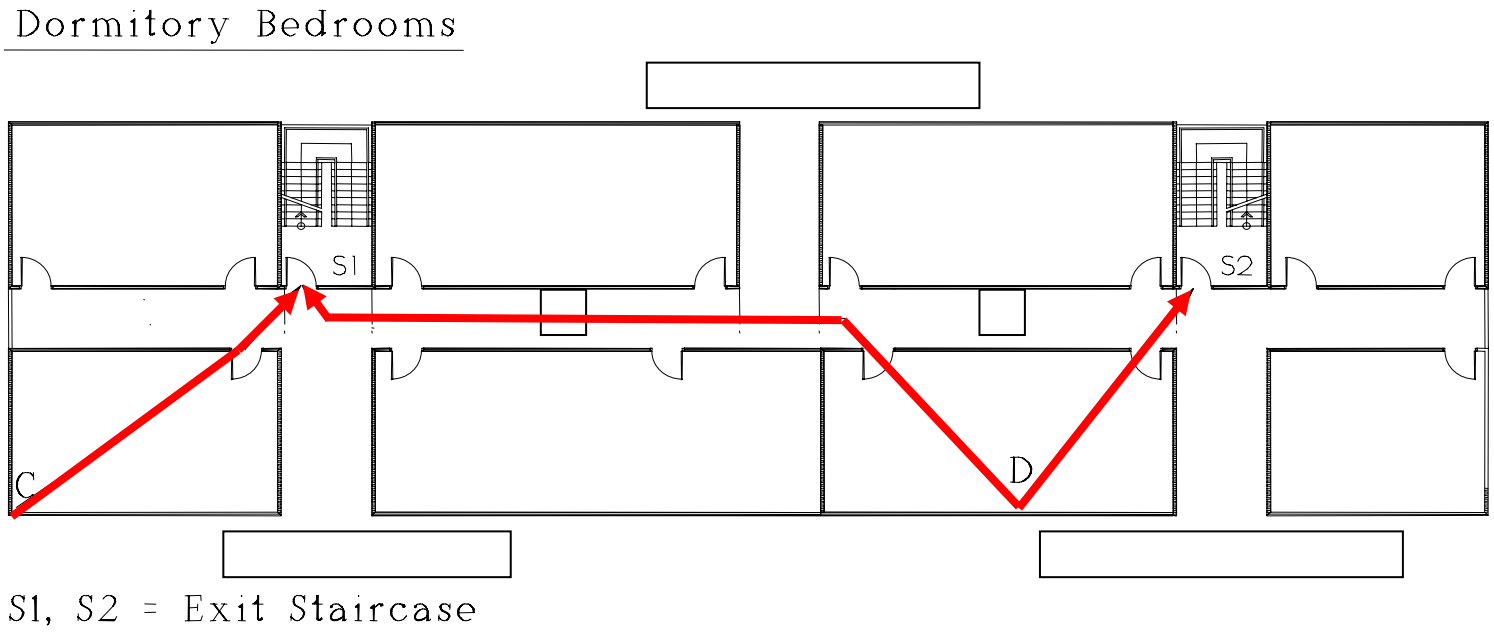
4.4 Emergency Lightings and Exit Signs

Section 4
Fire Safety Provisions

4.1 Occupant Load and Exit Provisions

- Occupant Load of 3m2/person





One-way escape to nearest exit staircase

= 15m non-sprinklered

= 30m sprinklered

Two-way escape to nearest exit staircase

= 45m non-sprinklered

= 75m sprinklered

Section 4
Fire Safety Provisions

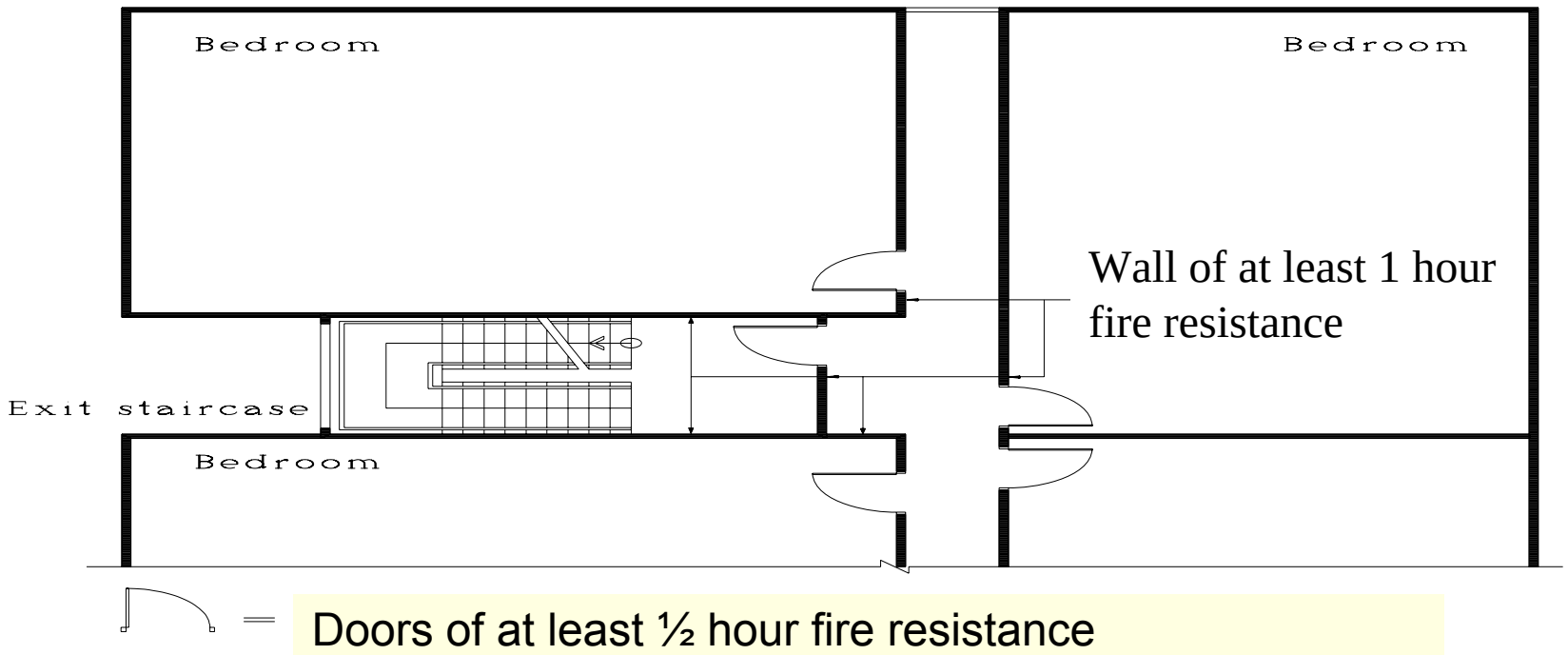
4.2 Compartmentation

- Non-combustible materials
- Compartments of 120m^2 and below, of at least one hr fire rating

Section 4
Fire Safety Provisions

4.2 Compartmentation

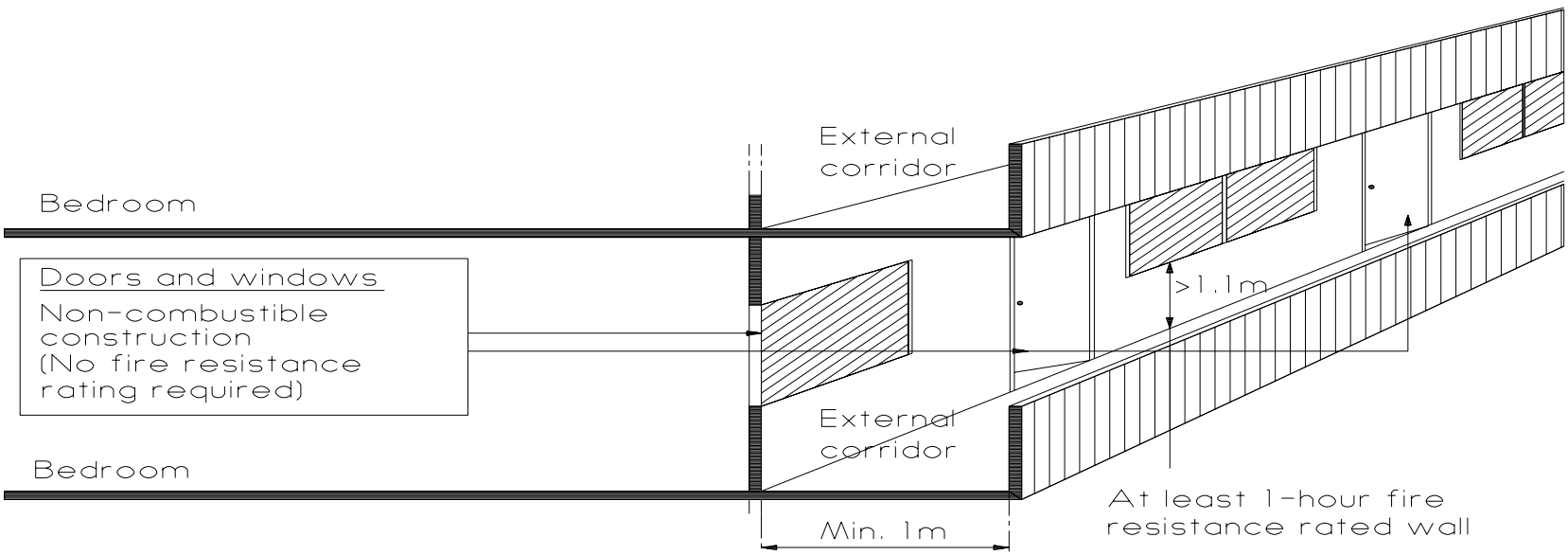
- Internal corridor arrangement
  - Wall of fire resistance rating of at least one hour
  - Doors of at least half an hour rating



Section 4
Fire Safety Provisions

4.2 Compartmentation

- External corridor arrangement
  - ventilation openings allowed at 1.1m above finished floor level of corridor. Doors need not be fire rated.



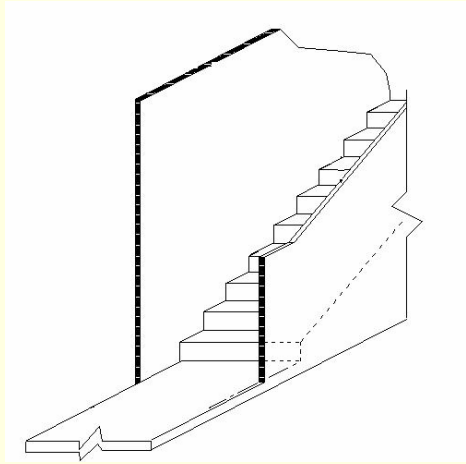
Section 4
Fire Safety Provisions

4.2 Compartmentation

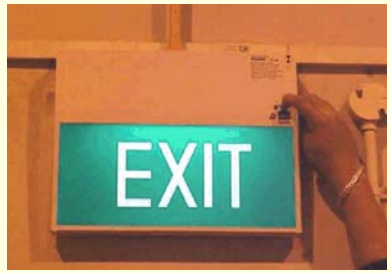
- Cooking at designated kitchen area
  - Minimum 1 hour fire-rated wall / ½ hour fire-rated door
- Office and storage allowed in basement(s)
  - Minimum 1 hour fire-rated wall / ½ hour fire-rated door
- Hot works not allowed in basement(s) where workers quarters are located

Section 4
Fire Safety Provisions

- 4.3 Exit staircase
  - Above ground levels
    - One exit staircase allowed
      - To comply 1-way travel distance
  - Basement levels.
    - Two independent exit staircases



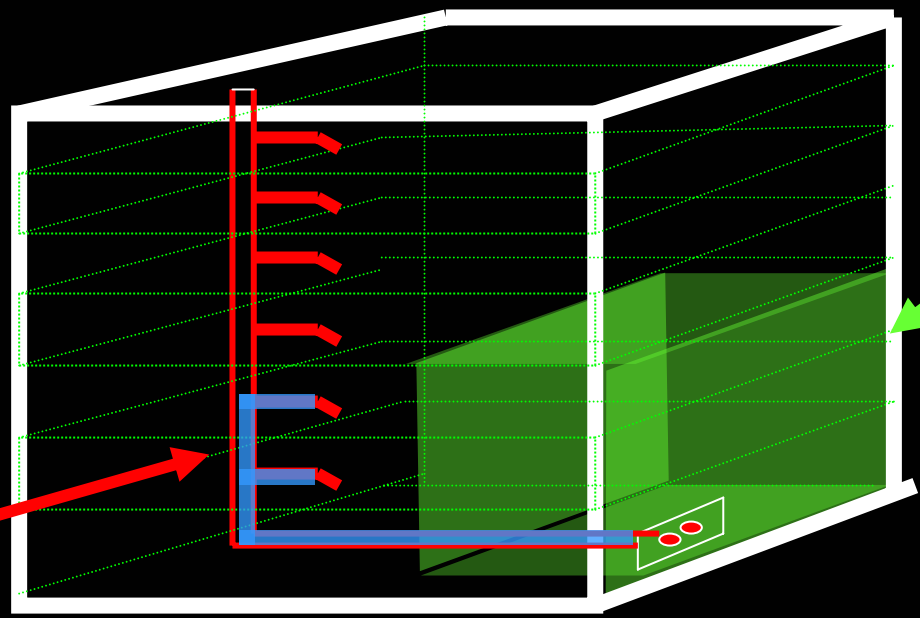
- 4.4 Emergency Lightings and Exit Signs
  - To comply with Fire Code



Section 5
Fire Fighting Provisions

5.1 Dry/Wet Riser System

Rising Main where required of the main development



EXAMPLE
Workers Quarters on 1st - 3rd storey

To be operable from 1st to 3rd storey

Wet Riser system not necessary during accommodation period

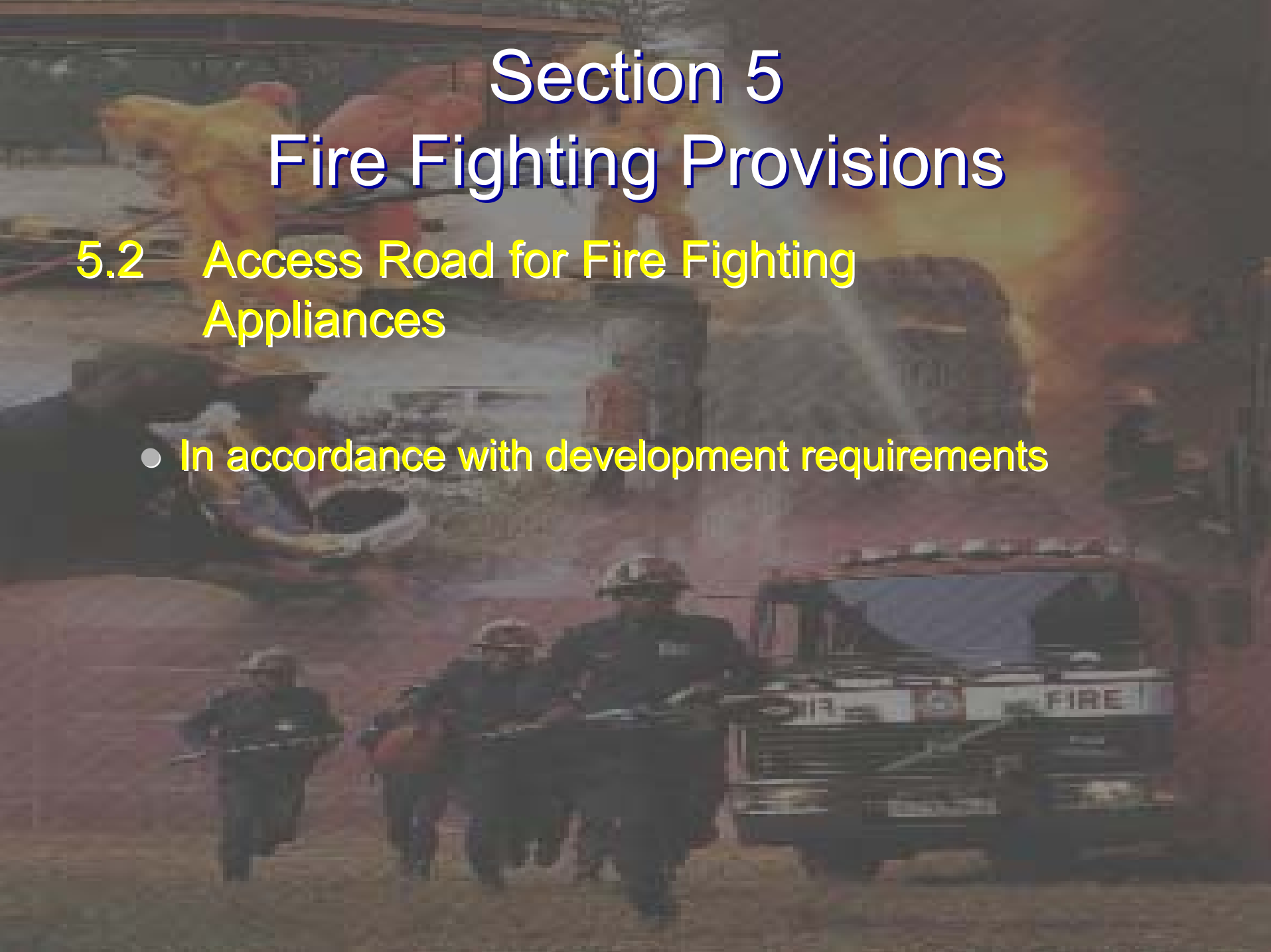
Standby fire hoses can be installed in lieu of dry riser system

- Adequate hosereel coverage

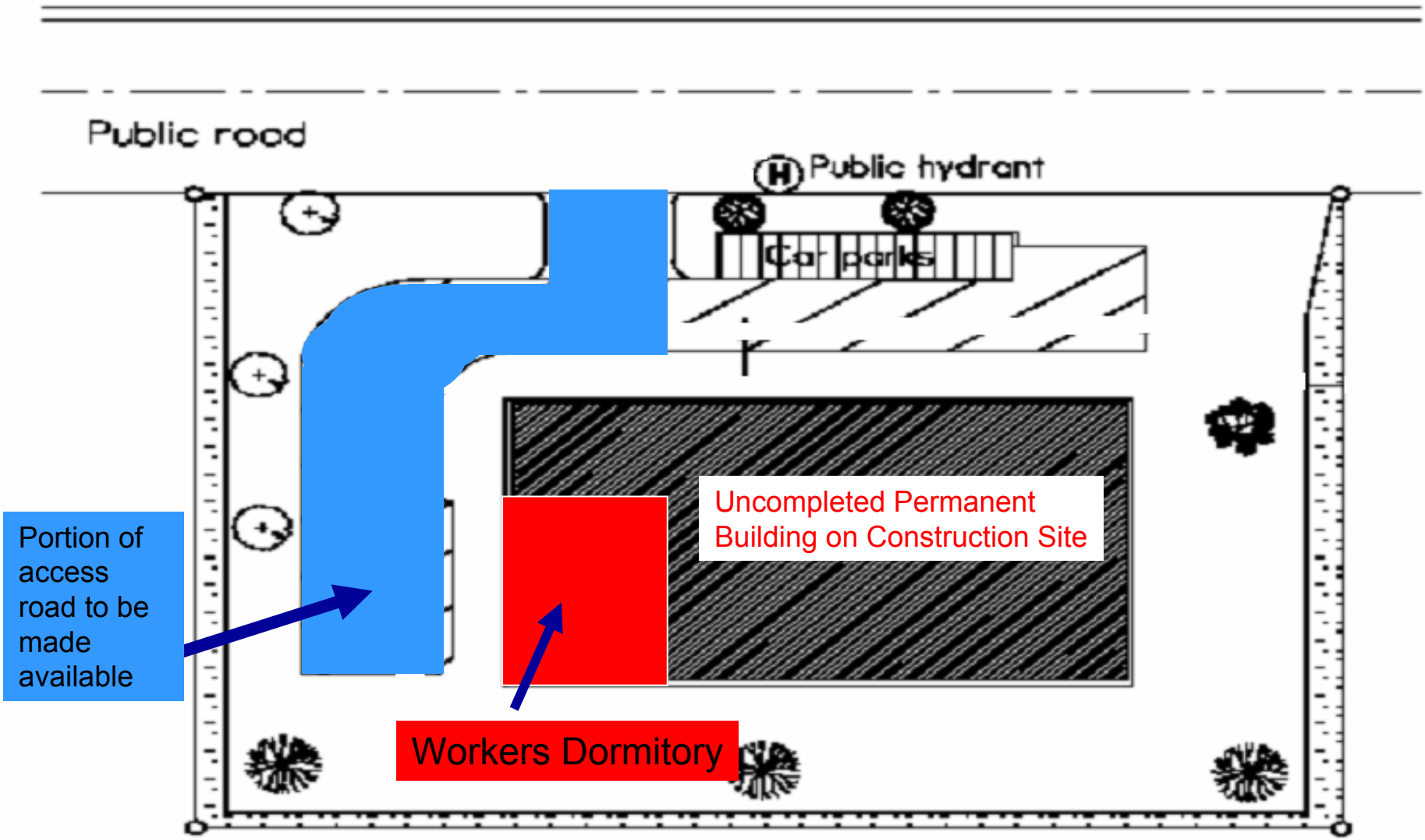
Section 5
Fire Fighting Provisions

5.2 Access Road for Fire Fighting Appliances

- In accordance with development requirements

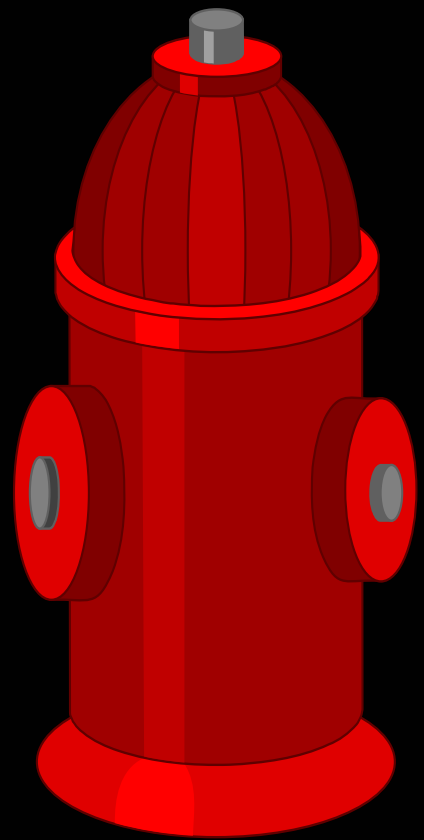


Section 5
Fire Fighting Provisions

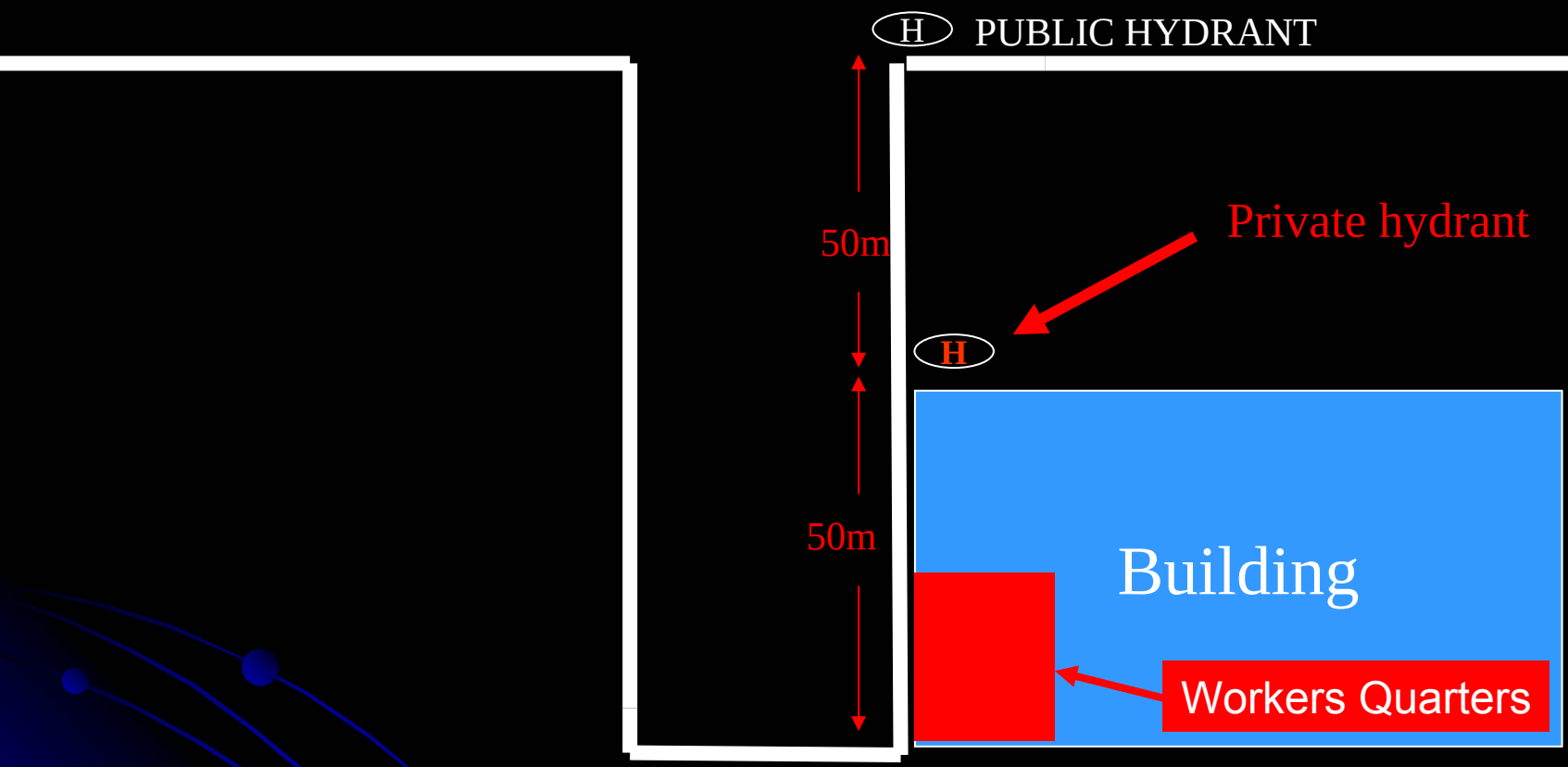


Section 5
Fire Fighting Provisions

5.3 Fire Hydrant Provision

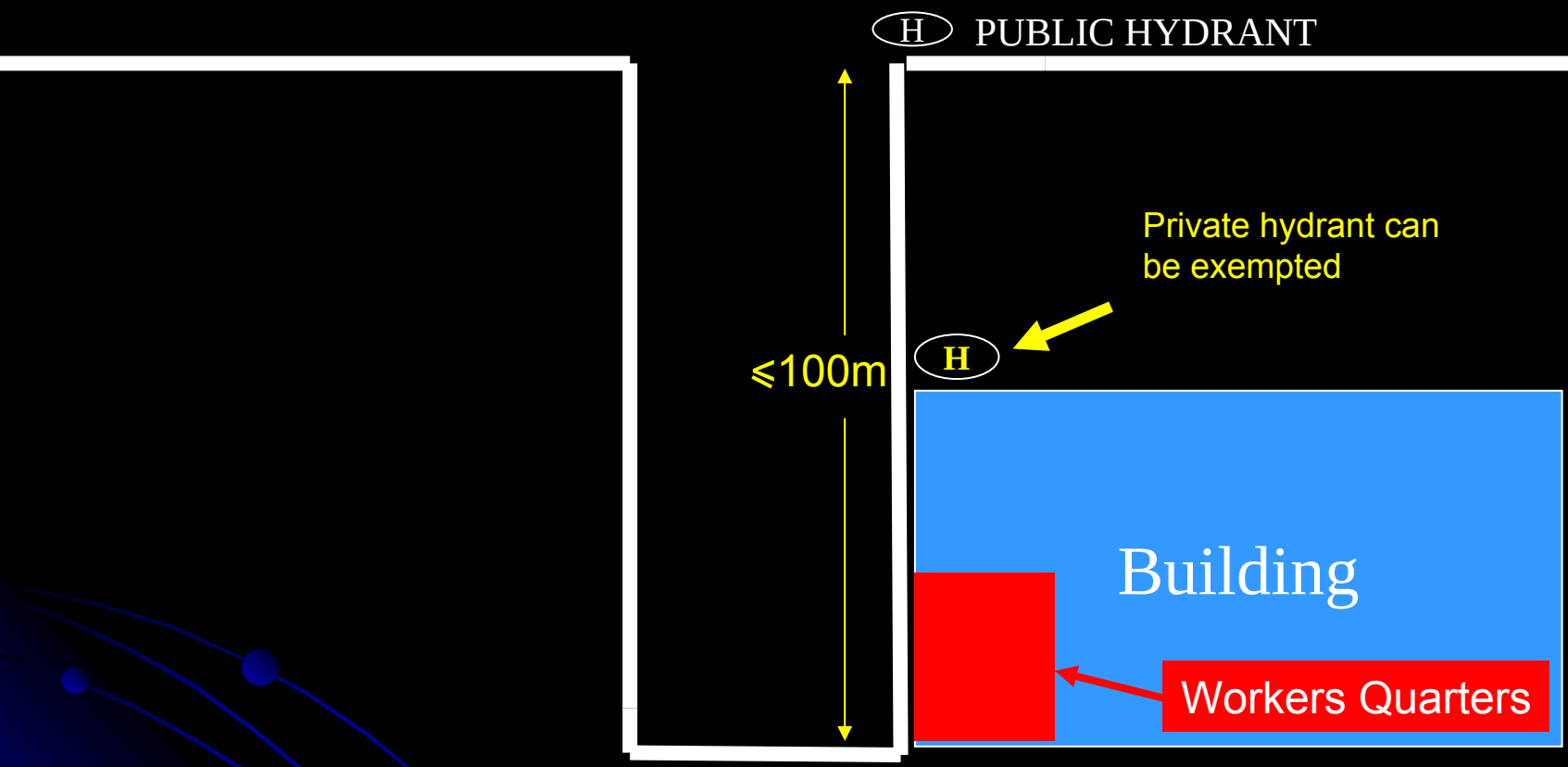


5.3 Fire Hydrant Provision



Fire engine access road within 50m from nearest hydrant.

5.3 Fire Hydrant Provision



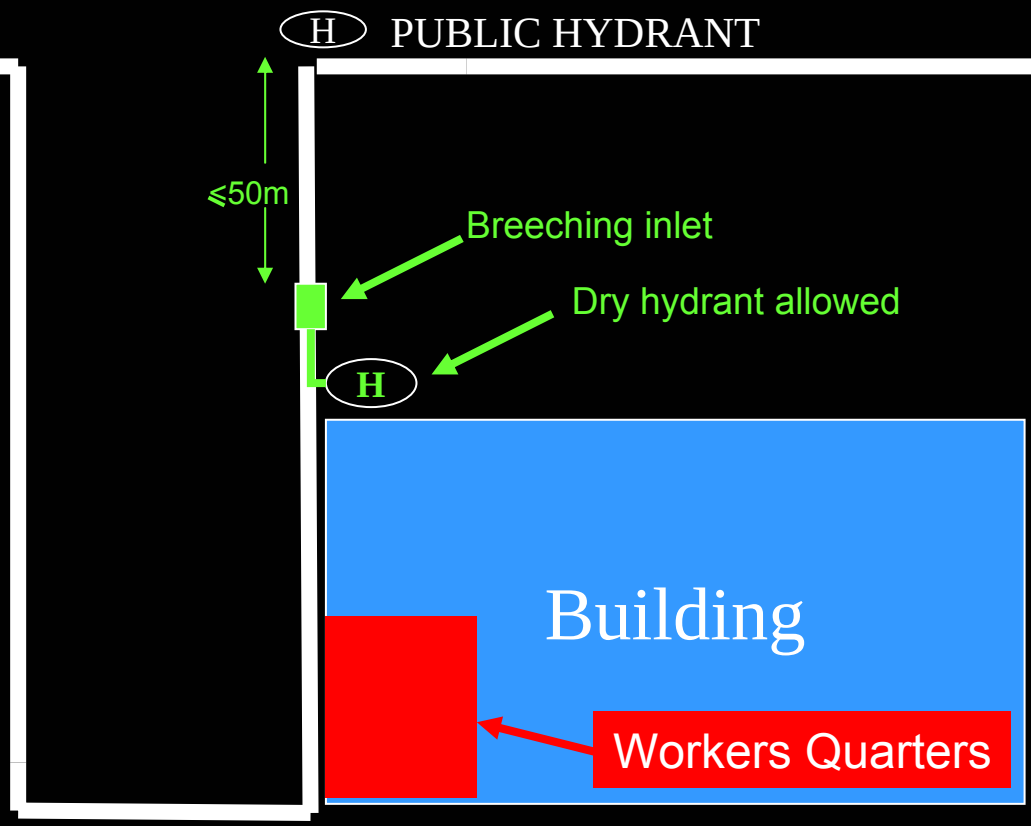
Where remotest temporary workers' quarters is located less than 100m away from the site entrance, provision of private fire hydrant is exempted.

5.3 Fire Hydrant Provision

Temporary dry hydrant allowed

connected through 150mm diameter pipe to 4-way breeching inlet

Breeching inlet within 18m from engine access road and within 50m from hydrant



Section 5
Fire Fighting Provisions

5.4 Fire Extinguisher/Fire Hose Reel

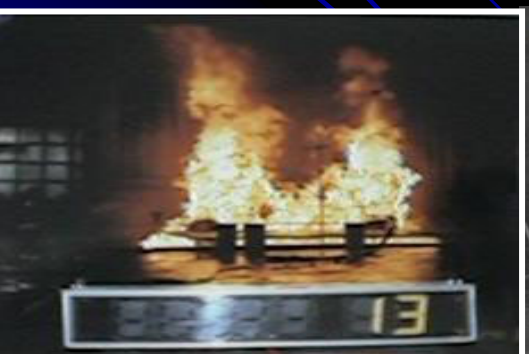
- Comply with Fire Code requirements



Section 5
Fire Fighting Provisions

- Fire protection systems for **basement**
  - Sprinkler System & Engineered Smoke Control System
  - EXEMPTION IF
    - Basement effectively cross ventilated
    - Openings at least 20% of basement area
    - Automatic fire alarm system provided. Connection to DECAM system not required.

    OR
    - Occupant load is based on $6m^2$ instead of $3m^2$ per person.
    - Automatic fire alarm system provided. Connection to DECAM system not required.






Section 5
Fire Fighting Provisions

- Above ground levels
  - Manual alarm system required





Section 6
Secondary source of power supply

- For all fire fighting systems serving the workers quarters
- Comply with Fire Code requirements and relevant Codes of Practice

Section 7
Storage & installation of hazardous materials

- Sited in open space
  - Minimum 5m setback from the building
- LPG installations to comply with Fire Code requirements

Section 8
Housekeeping

- To maintain in good condition
- No unauthorised extensions/overcrowding
- All exits, escape routes and passageways free of obstruction






Conclusion

- Formulated for allowing such temporary workers' quarters in uncompleted permanent buildings on construction sites
- Alleviate problems of shortage
- Provide alternative means of accommodation


Thank You