

**CORE
ENGINEERING**
CONSULTANT
ADVICE

Fire Safety Strategy
SGCH – 11 Gibbons St, Redfern
29 August 2018



Core Engineering Group
Safety • Integrity • Trust

Fire • Risk • Emergency Management

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The Development

Summary of use

- Site bounded by Gibbons St, Marian St and William Ln
- New residential tower –
 - Retail / commercial on ground floor
 - Residential units level 1 to 17
 - Community spaces within the building on levels 3, 4, 17 and at roof level



The Development

BCA Characteristics

- Class 2 residential, Class 6 retail/commercial and class 5 office
 - RIS of 18
 - Effective height >50m
- Type A construction
- ~1250m² per floor



Summary of Performance Solutions

#	DtS	Title	Non Compliance(s)	Proposed Measures / Performance Solution
1	C1.1	Residential Communal Spaces	<ul style="list-style-type: none"> Glazed openings in fire walls bounding the public corridors will not achieve the requisite -/60/60 FRL 	<ul style="list-style-type: none"> Fixed Glazed windows will be drencher protected to mitigate fire spread from the communal areas to the corridors.
2	D1.4 and D1.5	Residential Levels Travel Distances	<ul style="list-style-type: none"> Residential levels have extended travel distances to appoint of choice and to the nearest exit Distances between alternative exists less than required 	<ul style="list-style-type: none"> Medium temperature smoke and intumescent seals to all SOU doors leading into affected corridors. Limited fire load within the residential corridors Fast Response Sprinklers in Lv3/4 communal open space area. Radiant heat exposure of a fire occurring in the vicinity of one exit will not affect the other
3	E1.3	Hydrant Booster - Radiant Heat Shields	<ul style="list-style-type: none"> Hydrant booster proposed to be installed within 10m of building façade and will not be afforded a full height 90/90/90 FRL radiant heat shield 3 m above ground level and 2 m either side of hydrant connection points 	<ul style="list-style-type: none"> The non-gazetted standard of AS2419.1:2017 stipulates that - "Where a sprinkler system is installed throughout a building in accordance with the requirements of AS 2118.1, AS 2118.4 or AS 2118.6, the external fire hydrant(s) located within 10 m of the building need not be protected in accordance with the requirements of Clause 3.5.5.1."



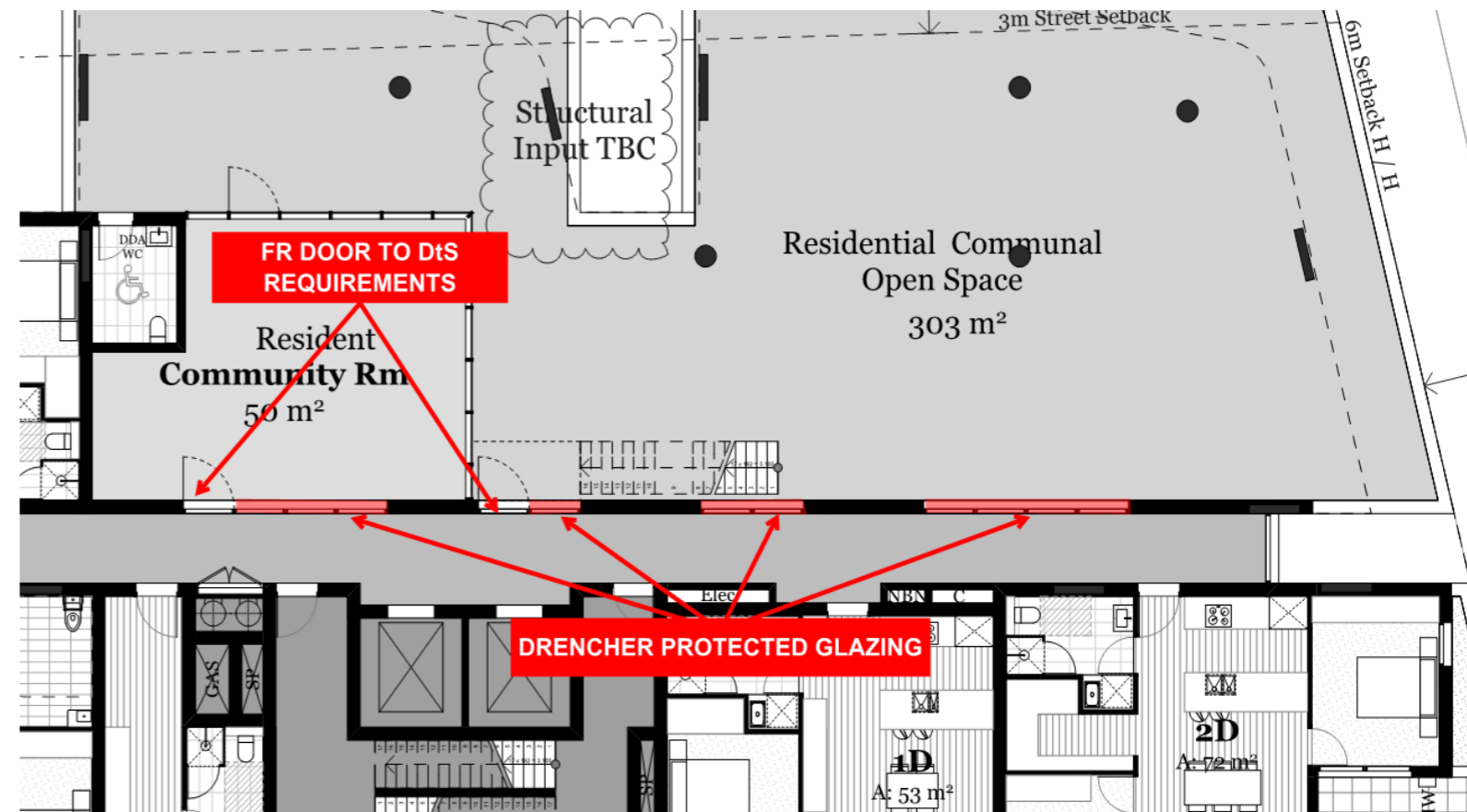
Fire Rated Construction – Communal Spaces

DtS Provisions

- Specification C1.1 – a non-load bearing wall bounding a public corridor in building of Type A construction is to achieve an FRL of -/60/60
- Non Compliance
 - Glazed openings in fire walls of the communal spaces bounding the public corridors will not achieve the requisite -/60/60 FRL

Proposed Requirements

- Drencher Protection to fixed glazing
- Fire Doors to DtS requirements



Typical Lv3 and Lv4

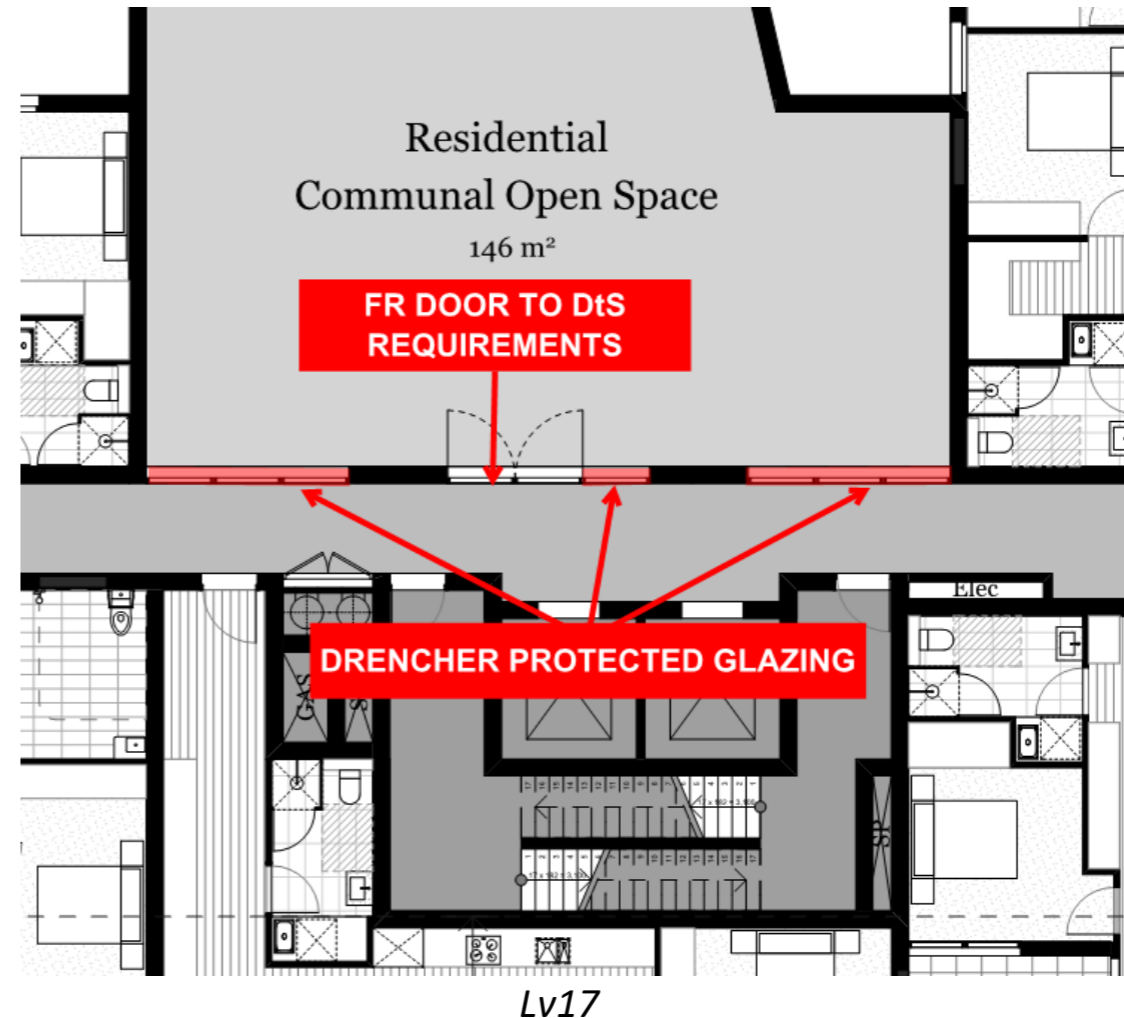
Fire Rated Construction – Communal Spaces

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- Specification C1.1 – a non-load bearing wall bounding a public corridor in building of Type A construction is to achieve an FRL of -/60/60
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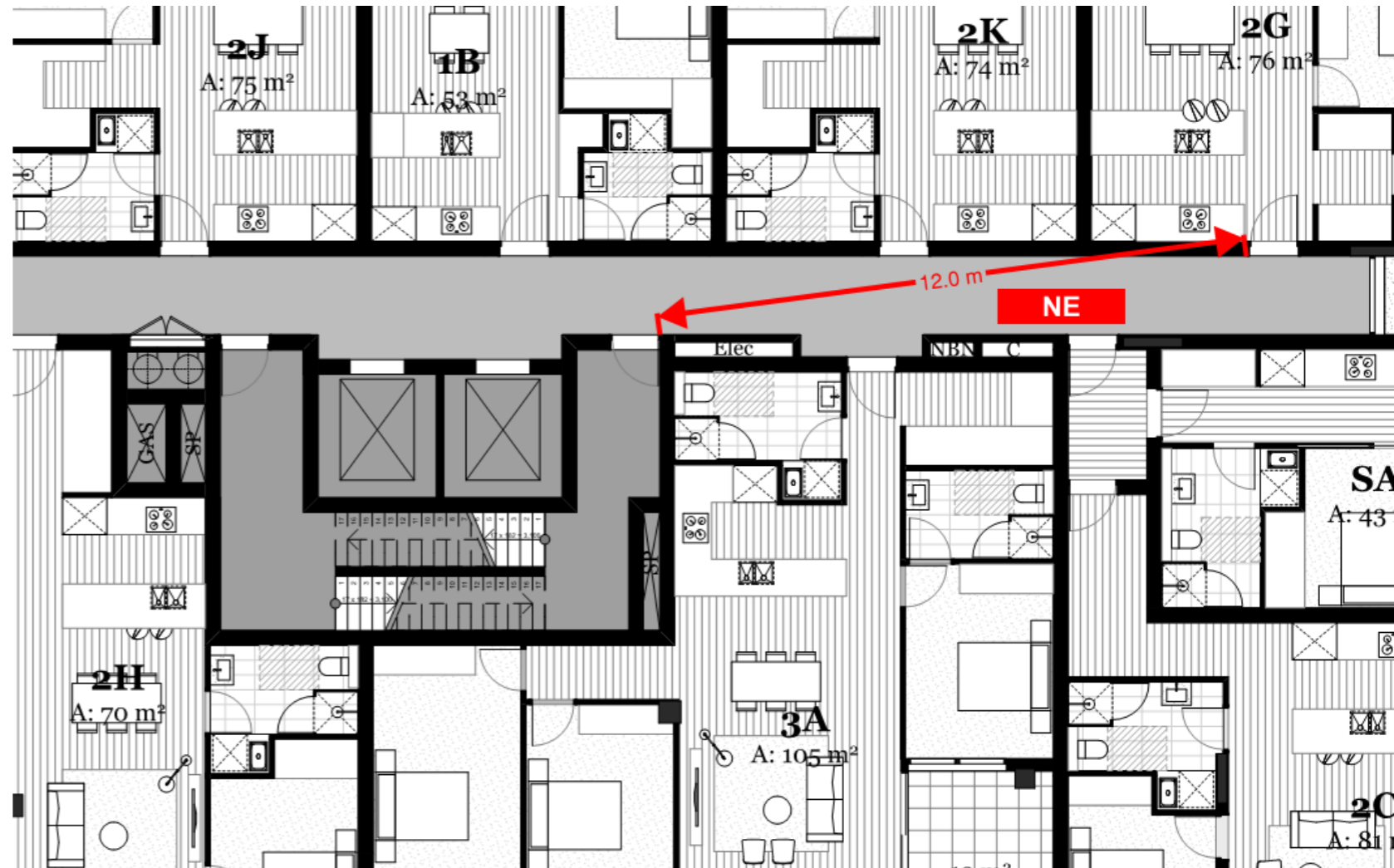
Extended Travel Distance

DtS Provisions

- D1.4 – 6m from an exit or from a point from which travel in different directions to 2 exits is available
- Non Compliance
 - POC/NE up to 12m

Proposed Requirements

- Sprinkler System throughout
- Smoke Detection system in corridor
- Medium temperature smoke and intumescent seals to all SOU doors leading into affected corridors.



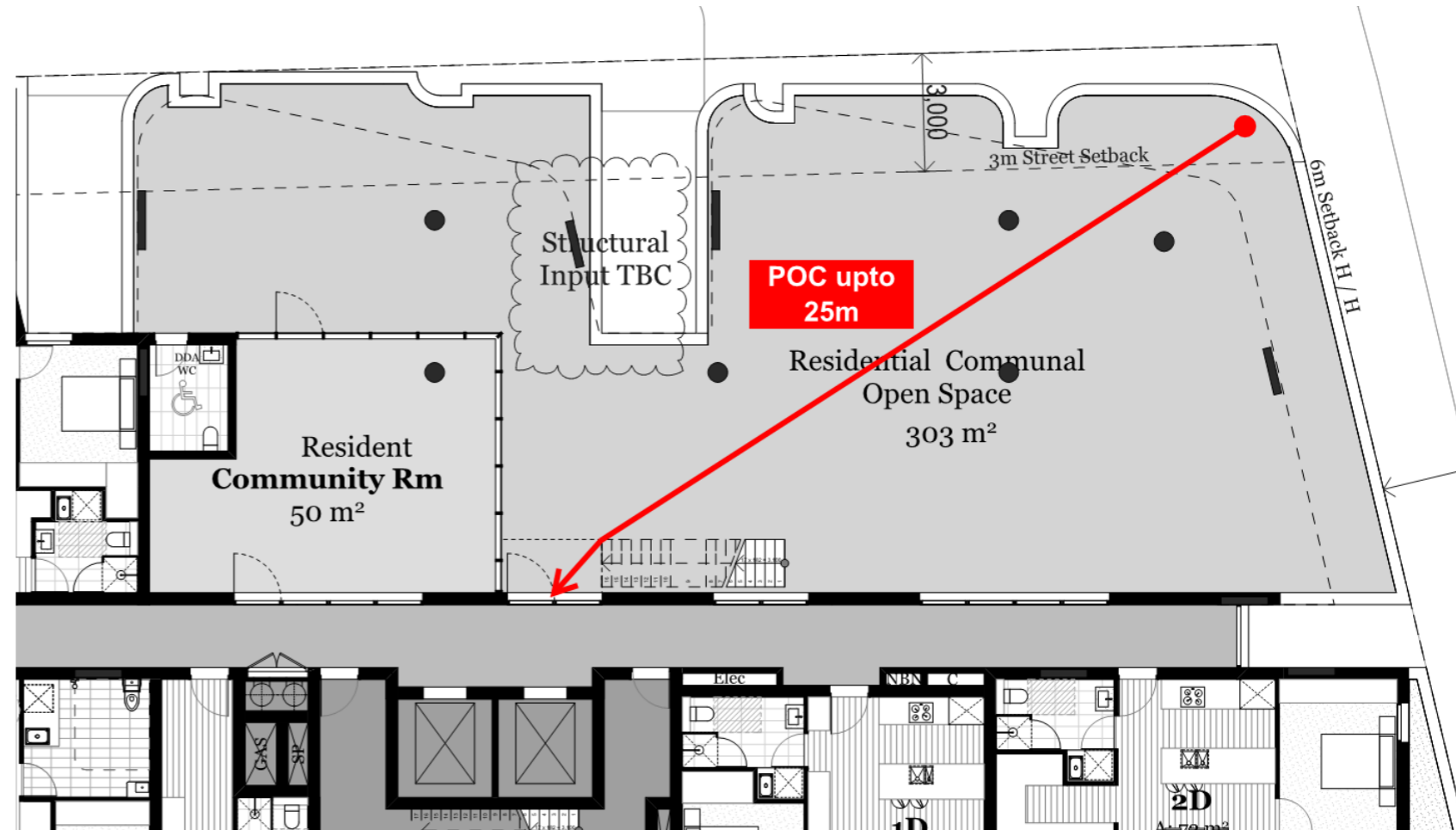
Extended Travel Distance

DtS Provisions

- D1.4 – 20m from an exit or from a point from which travel in different directions to 2 exits is available
- Non Compliance
 - POC up to 25m

Proposed Requirements

- Fast response sprinkler heads throughout Lv3/4 communal space
- Smoke Detection system in corridor



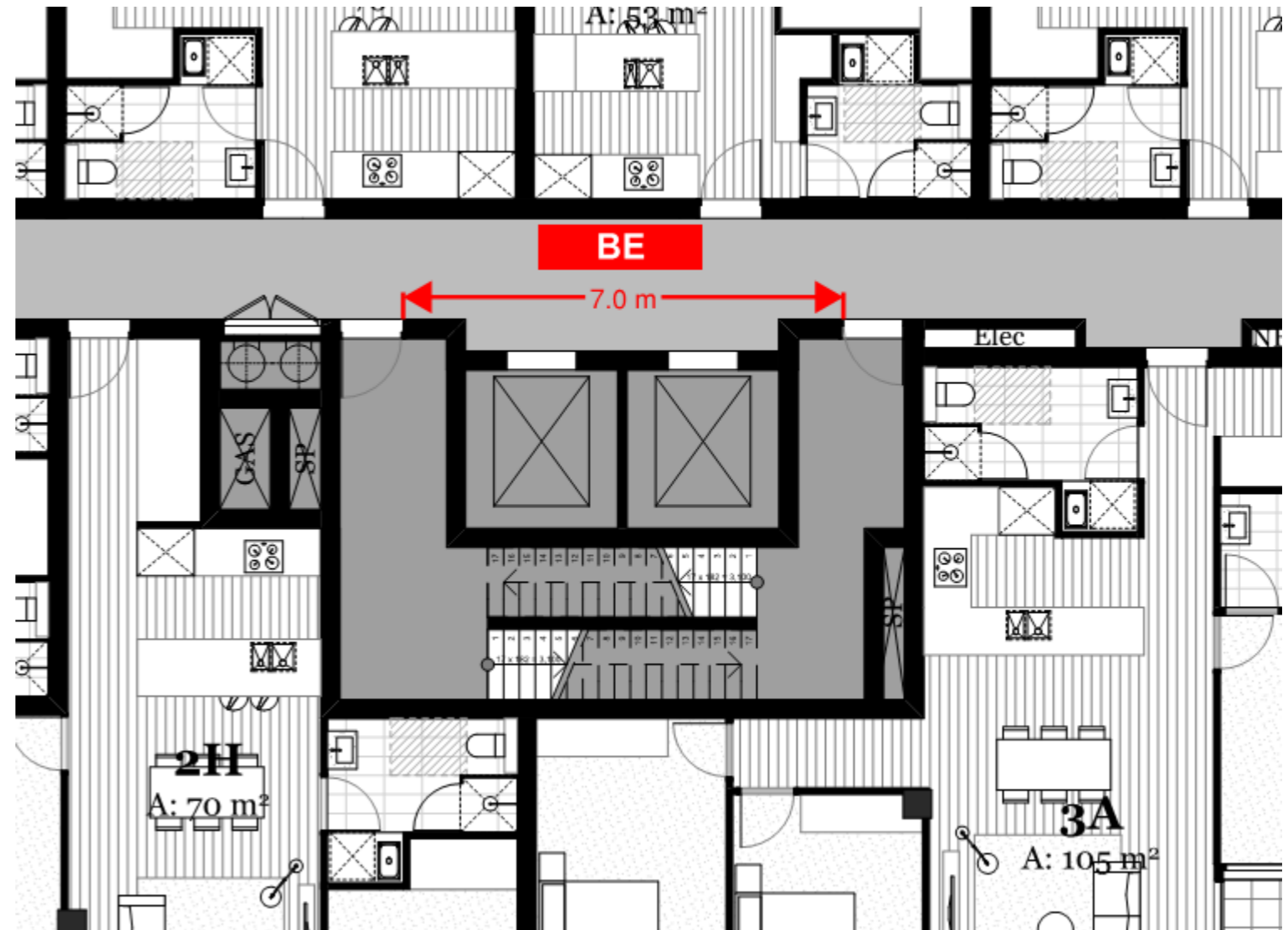
Extended Travel Distance

DtS Provisions

- D1.5 – Exits that are required as alternative means of egress must be not less than 9 m apart
- Non Compliance
 - BE = 7m

Proposed Requirements

- Sprinkler System throughout
- Smoke Detection system in corridor
- Medium temperature smoke and intumescent seals to all SOU doors leading into affected corridors.



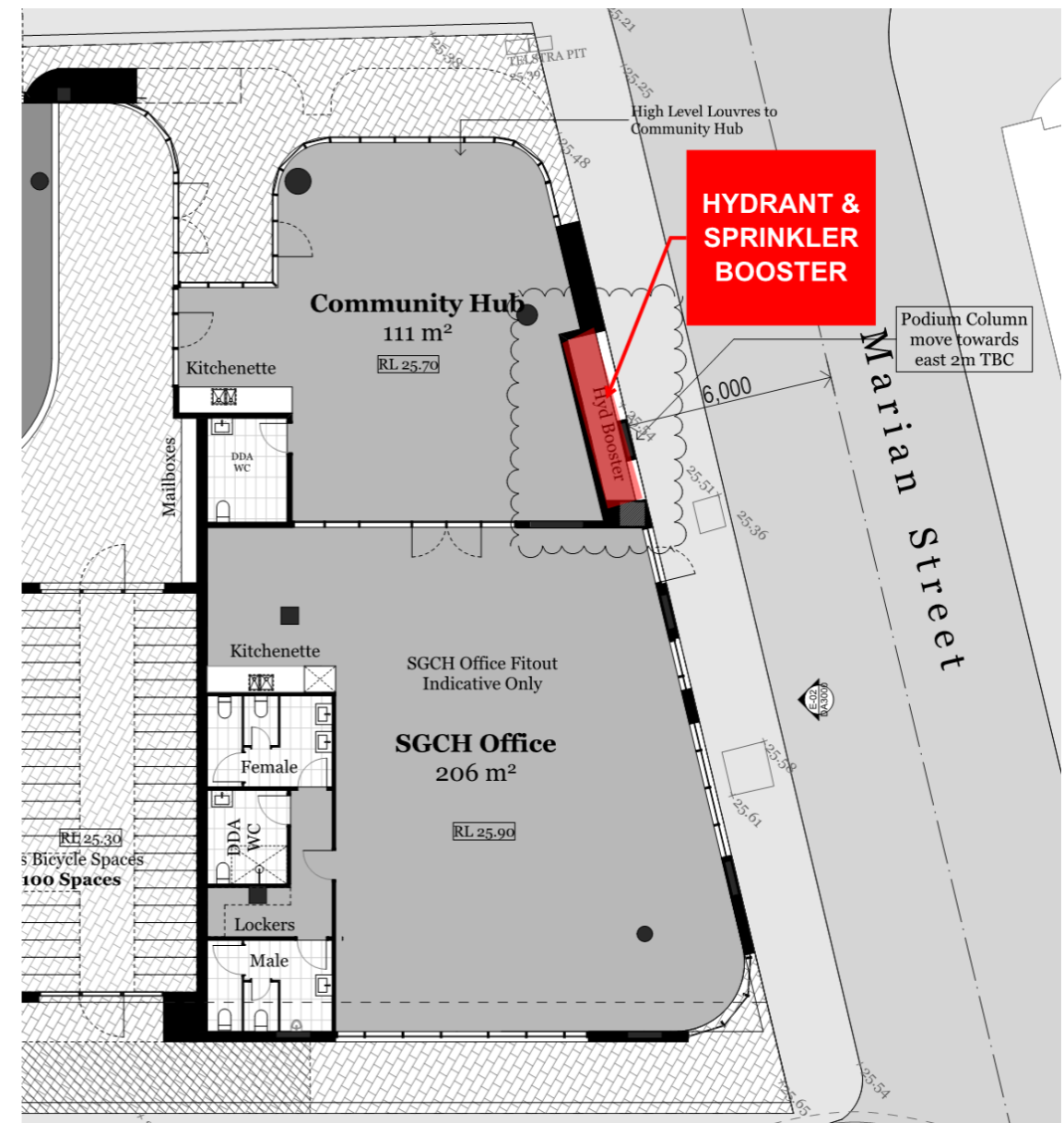
Hydrant Booster – Radiant Heat Shield

DtS Provisions

- E1.3 – Installed in accordance with AS2419.1
 - >10m away from the building
- OR
- Protected by 90/90/90 FRL construction
- Non Compliance
 - Hydrant booster proposed to be installed adjacent façade and will not be afforded protection of a radiant heat shield

Proposed Requirements

- Sprinkler protected building
- Non-gazetted Standard of AS2419 being AS2419:2017 omits the requirement of a radiant heat shield for a sprinkler protected building.



Fire Safety Systems Relied On

FIRE SAFETY MEASURE	DtS REQUIREMENT	PROPOSED DESIGN / PERFORMANCE SOLUTION
Fire hydrants	E1.3, AS2419.1:2005	As per DtS (other than booster location)
Fire hose reels	E1.4, AS2441:2005	As per DtS
Sprinklers	Specification E1.5, AS2118.1:2017	As per DtS, fast response sprinkler heads to Lv3/4 communal space
Portable fire extinguishers	E1.6, AS2444:2001	As per DtS
Fire Control Room	Specification E1.8, AS1670.1:2015	As per DtS
Smoke detection	Specification E2.2a, AS1670.1:2015	As per DtS
Smoke and Intumescent seals to all SOU Entrance Doors	Specification C3.4	AS6905:2007, AS1530.7:2007, AS1530.4:2014, AS1905.1:2005
Building occupant warning system	Specification E2.2a, AS1670.1:2015	As per DtS
Stair Pressurisation	E2.2, AS1668.1:2015	As per DtS
Exit signage	E4.5, AS2293.1:2005	As per DtS
Emergency lighting	E4.2 AS2293.1:2005	As per DtS



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