BUILDING CODE OF AUSTRALIA PRELIMINARY REPORT

Proposed Goodman Fielder facility

Site E Lenore Drive Erskine Park

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EXECUTIVE SUMMARY

McKenzie Group Consulting was engaged by Hansen Yuncken to conduct a BCA assessment of the proposed Industrial Facility located at Site E Lenore Drive Erskine Park.

This report nominates relevant BCA prescriptive or 'deemed to satisfy' compliance provisions and possible areas in which alternate performance based alternate design solutions can be adopted where compliance with the nominated prescriptive provisions may not be practically achievable.

The report also provides an overview of relevant provisions for health and amenity for occupants including sanitary facilities for both able bodied occupants and occupants with disabilities as well as general access provisions.

The report highlights key compliance areas associated with the provision of appropriate access and facilities for occupants with disabilities for integration with a broader access strategy based on achieving compliance with both the BCA and Disability Discrimination Act.

The fire engineered solution may need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

Item for consideration by Relevant Authorities and Fire Safety Engineer

1. The egress travel distances within the facility area are in excess of the prescriptive travel distances and should be assessed against the relevant provisions of DP4 as follows:

    a. Travel distance to the single stair from the first floor office of approximately 27 metres in lieu of 20 metres (DP4),

    b. Travel distance with the warehouse production areas of approximately 70 metres in lieu of 40 metres,

    c. Distance between alternate exits within the warehouse production area of approximately 120 metres in lieu of 60 metres.

2. The smoke hazard management provisions within the facility shall be assessed as part of the fire safety engineering report to verify EP2.2 of the BCA.

1.0 INTRODUCTION

The proposed development includes the construction of industrial facility and associated on-grade parking located on site E Lenore Drive Erskine Park. This assessment has been undertaken on the basis of the proposed works being undertaken in accordance with the current provisions of the BCA 2007

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

Documents Reviewed

This report is based upon the Architectural drawing prepared by SPPACE Design Pty Ltd ref GF-EP-FS-018.

2.0 PRELIMINARIES

2.1 Building Assessment Data:

Summary of Construction Determination: -

Part of Project	
Classification	5, 7b, 8
Number of Storeys Contained	2
Rise In Storeys	2
Type of Construction	C
Effective Height (m)	<12 metres

Review of the proposals for redevelopment of the buildings has revealed that it has been divided into the following uses and classifications:

Part of Project	**BCA Classification**	**Approx. Floor Area (m^2)**	**Approx. Volume (m^3)**	**Assumed Population**
Ground Floor Office	5	600 m^2	1800 m^3	60
Firs Floor Office	5	600 m^2	1800 m^3	60
Warehouse processing	7b	12,880 m^2	128,800 m^3	*100
Total		**14,080m^2**	**132,400 m^3**	**220**

Notes:
1. The above populations have been base on the floor areas and calculations in accordance with Table D1.13 of the BCA for the office areas. *However the warehouse and processing areas have been reduced as the brief is for a reduced occupant number.
2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.
3. A building height of 8 metres has been allowed for in the warehouse/ processing facility thus the above table has allowed 10 metres for the purposes of this report.

2.1.1 Structural Provisions:

Any new structural works are to comply with the applicable requirements of AS/NZS1170.1.

Glazing is to comply with AS1288, and AS2047.

Prior to issue of the Construction Certificate structural certification is required to be provided.

2.1.2 Development Consent:

A Development Application is required for the development. A copy of the approval and associated endorsed drawings will be required prior to issuing the Construction certificate for that component of works. The endorsed drawings and all relevant conditions will need to be satisfied and accurately reflect the construction drawings.

FIRE PROTECTION

2.2 Fire Resistance:

The buildings should be constructed generally in accordance with Table 5 of specification C1.1 of the Building Code of Australia 2007.

The building has been assessed as a large isolated building in accordance with part C3.2 of the BCA. The proposed building shall be provided generally as follows:

1. Emergency Perimeter access,
2. Automatic sprinkler protection throughout,
3. Fire Hydrant Ring system to AS 2419.1-2005 incorporating a ring main.
4. Smoke hazard management would require a fire engineered solution to verify EP2.2 of the BCA.

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Lift motor rooms,
- Emergency power supply,
- Emergency generators,
- Electricity supply,
- Boilers or batteries,
- Hydrant Pump rooms,
- Sprinkler Pump Rooms,

To be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to specification C1.10 Building Code of Australia.

3.0 ACCESS AND EGRESS

3.1 Egress:

The egress provisions from the proposed building are provided via non-fire isolated stairways and external perimeter doorways. The egress travel distances from the facility are currently in excess of 40 metres and shall require verification as part of the fire safety engineering assessment to satisfy DP4 of the BCA. The items include:

1. Travel distance to the single stair from the first floor office of approximately 27 metres in lieu of 20 metres (DP4),
2. Travel distance with the warehouse production areas of approximately 70 metres in lieu of 40 metres,
3. Distance between alternate exits within the warehouse production area of approximately 120 metres in lieu of 60 metres.

The locations of the proposed exits indicate that the deemed to satisfy requirements in terms of egress widths may be satisfied.

Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction
- Discharge from the Fire Isolated Exits
- Details of the egress provisions to the Road.

3.2 Dimensions of Exits:

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657 in which case a 600mm clear width is required).

The current design documentation has adequate egress widths from all areas of the building with the fire isolated stairs being 1.0 metres clear in width.

Doorways are permitted to contain a clear opening width of 750mm with a height of 1980mm as part of the egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 800mm (i.e. minimum 870mm door). The details provided allow for the correct egress widths.

3.3 Balustrading & Handrail:

Balustrading to a height of 1000mm with a maximum opening of 125mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm.

Where it is possible to fall more then 4m to the finished floor or ground surface below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing.

Handrails should generally be provided at a minimum height of 865mm along side of all ramps and stairs.

The main public stairs or ramps should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair / ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

3.4 Access for Occupants with Disabilities:

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2001.

Where the main public entrance is via a ramp, tactile indicators shall be provided in accordance with AS 1428.4 at the top and bottom. Parking shall be provided for people with disabilities in accordance with in accordance with Clause D3.5 of the BCA. Facilities services and features of the building accessible to people with disabilities shall be identified by signage complying with Clause D3.6 of the BCA.

Access to be provided to and within the building pursuant to AS1428.1 as follows:

- Via the principle public entry and from designated car parking spaces for the use of disabled occupants.
- All areas used by the public.

Access for disabled is provided via the following:

Doorways

All doors are to be designed to ensure that the clear widths and circulation spaces are in accordance with AS1428.1 (generally 870mm minimum door and 470mm latch side clearance). Detailed information will need to be developed as part of the design.

Car parking**:**

Generally parking spaces complying with AS2890.1 and should be provided at a rate of 1 in 100 required spaces for persons with disabilities, in accordance with Table D3.5 of the BCA.

Signs:

As part of the detailed design package, specifications will need to be developed indicating:

- Sanitary Facility Identification Signs (note that they are to comply with BCA Specification D3.6 and include the use of Braille, tactile, etc and be placed on the wall on the latch side of the facility);
- "Disabled" sanitary facility sign in accordance with the universal standard (as detailed in AS1428.1);
- Directional and way finding signs to the lifts, sanitary facilities, etc.

4.0 SERVICES AND EQUIPMENT

4.1 Fire Services:

The following fire services are to be provided throughout the building:

- An automatic sprinkler system in accordance with the relevant provision of clause E1.5 of the BCA and AS 2118.1-1999 (Including Occupant Warning),
- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005,
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444-2001,
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA and AS/NZS 2293.1

A fire Control centre is not required for the buildings. However provisions for the co-ordination of fire brigade activities shall be provided.

Fire Hydrants

The building is required to be provided with a booster assembly as part of the fire hydrant requirements. The booster is currently located at the main entry.

The buildings should be served by fire hydrants located in order to provide coverage in accordance with AS 2419.1-2005.

Fire Hose Reels:

The facilities will need to be provided fire hose reels in accordance with BCA Clause E1.4 and AS2441-2005.

To be located within 4m of exits and provide coverage within the building based on a 36m hose length.

4.2 Smoke Hazard Management:

Smoke hazard management provisions are required as part of the Stage 1 works which shall part of the fire safety engineering assessment to verify EP2.2 of the BCA. However allowance should be made for smoke clearance facility as required by the NSW fire Brigades.

4.3 Exit Signs & Emergency Lighting:

Emergency Lighting and signs indicating exit location and paths of travel to exits to be provided in accordance with Part E4 of the BCA and AS2293. The design documentation currently provided emergency lighting and exit signage.

Note: The exit signs are to be the 'running man' symbol.

5.0 HEALTH AND AMENITY

5.1 Sanitary Facilities:

Persons with Disabilities

The sanitary facility for persons with a disability is to comply with the associated provisions of AS1428.1.

Bathroom Construction

Where bathrooms or rooms containing water closets have the WC within 1200mm of the doorway, the door shall be either sliding, open outwards, or be provided with removable hinges. The current details allow for the accessible sanitary facilities to have an outward swinging doorway.

The facility would require the following sanitary facilities should the area be fully occupied:

Building	Occupant Number		WC	Urinal	Basin
Office	Male	60	3	3	2
	Female	60	4	N/A	2
Warehouse/ Production	Male	50	3	3	2
	Female	50	4	N/A	2
	Unisex Wheel Chair Accessible		1	N/A	1
Total Required			**15**	**6**	**9**
Total Provided			**15**	**7**	**13**

5.2 Light and Ventilation:

Artificial lighting complying with AS/NZS1680.0 is to be incorporated with the final detailed design to be developed to confirm this.

Mechanical ventilation and artificial light is to be provided in accordance with Part F4 of the BCA.

7.0 ENERGY EFFICIENCY

7.1 Energy Efficiency:

The relevant part s of the building that shall be conditioned (i.e. any form of climate control) building is required to comply with the energy provisions of the BCA 07.

Options available are:

- Comply with either JV2 or JV3
  Or
- Comply with the deemed to satisfy provisions in relation to:
- Building Fabric
- External Glazing
- Building dealing
- Air movement
- Air conditioning and ventilation systems
- Artificial light and power
- Hot water supply

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved. T

Deemed to Satisfy Measures

The following deemed to satisfy energy measures would be applicable to the project.

Roof and Ceiling Construction:

Roofs and or ceilings are to be constructed to provide an R rating of 3.2.

External Walls:

External walls are to be constructed to provide an R rating of 1.8.

Floors:

Floors are to achieve an R rating of 1.0.

Glazing:

This section relates to the conductance and solar heat gain of the windows, taking into consideration of the type of window frame, orientation and whether there are overhangs / shadings.

A glazing calculator will be required to be undertaken and results provided for assessment.

Building Sealing:

A seal to restrict air infiltration must be fitted to each edge of the external doors and openable windows. The seals may be foam or compressible strip, fibrous seal or the like. The main entry doors must have either an airlock, or self closing doors, or a revolving door.

Miscellaneous exhaust fans must be fitted with a sealing device such as a self closing damper.

An evaporative cooler must be fitted with a self closing damper.

Air conditioning & Ventilation systems:

An air conditioning unit must be capable of being inactivated when the building is not in use, and where the system has motorized outside air and return dampers, close the dampers when the air conditioning unit or system is inactivated.

Where it is proposed to zone areas, thermostats for each area are to be provided.

When the air flow rate is greater the 1000 L/s the total motor shaft power of the fans in the system should not exceed 15 W/m^2.

Time Switch:

Power supply to an air conditioning system, or ventilation system or heating system by a timer.

Heating and chilling systems:

Systems that provide heating and chilling for air conditioning must have piping insulated.

An air cooled condenser fan motor, other than one that is part of a package system must not use more than 15W of motor shaft power for each kW of heat rejected.

The fan of a closed circuit cooler must not use more than:

- Propeller or axial – 500W of motor shaft power for each l/s of cooled fluid,
- Centrifugal – 670W of motor shaft power for each l/s of cooled fluid.

The fan of an evaporative condenser must not use more than:

- Propeller or axial – 18W of motor shaft power for each l/s of heat rejected,
- Centrifugal – 22W of motor shaft power for each l/s of heat rejected.

Interior Artificial Lighting:

The maximum design illumination load is not to exceed 10W/m^2.

Artificial lighting must be controlled by a time switch or occupant sensor.