

SECTION 7

BUILDING ENVELOPE

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Version	Date	Authors	Summary of Changes
1	19/8/14		Issue to web

7.0 BUILDING ENVELOPE

7.1 General

The Building Envelope is to:

- respect JCU Planning Controls.
- incorporate ESD principles.
- incorporate CPTED principles.
- be of low maintenance, self finished materials selected on a life-cycle cost basis.
- deal with vapour pressure, condensation, corrosion and thermal movement.
- remain intact and waterproof under local climatic conditions.

7.2 Materials

The exterior of the building is to be made up of low maintenance, self finished materials as part of a proprietary construction system with appropriate warranties. Systems may include masonry, concrete, lightweight cladding or glazing.

Submit proposals for approval by JCU at Schematic Design Phase.

7.3 Finishes

As-constructed finishes that minimize future maintenance shall be the highest priority.

The minimum quality of visible concrete finish shall be equal to or better than Class 2 Formwork, Type B colour control.

Applied finish shall be a full system such as that manufactured by 'Rockcote' or 'Granosite Coating Systems', and shall have a minimum ten (10) year unconditional guarantee.

Paint finishes to external walls may be acceptable but ease of maintenance, particularly ease of access, must be thoroughly considered and require approval by JCU before paint to external walls may be used. All materials shall be selected for their likely availability and colour consistency over a 15-year period.

Submit proposals for approval by JCU at Schematic Design Phase.

For Steelwork see Section on Security and Section on Structural Design requirements for corrosion protection requirements.

7.4 Colours

In certain areas it may be useful to introduce specific colour schemes to highlight features such as School entrances or roof mounted equipment. All colour schemes are to be approved by JCU.

7.5 Construction and Design

Control Joints

External walls to buildings shall be designed with particular care and consideration given to the possible future effects of shrinkage, cracking and thermal movement, with appropriately sealed control joints that suit the construction materials.

Facade Staining and Brick Jointing

Facade staining (efflorescence, mould, mildew) shall be avoided by careful design and detailing to shed water clear off the building, clear of lower projections and clear of pathways. Wall/ parapet capping shall be designed to ensure facade staining is avoided, by including protection such as flashings or capping to the top surface to eliminate water entering walls and cavities at this point and having the surface angled to allow run-off.

Mortar joints to face brick shall be ironed to a half round radius, struck flush or other joint profile which will not collect surface debris. For similar reasons, raked joints and level sill surfaces are not permitted.

Signage

Allowance should be made in the design of the external entry facade of the building for the installation of the building identification. Refer Section 17 Signage.

7.6 Eaves Linings

Eaves linings (external soffits) shall be of pre-finished material adequately fixed and sealed against the ingress of moisture, dust and the like which may lead to corrosion. For buildings of low-rise construction, fibre cement such as DECORVENT sheeting may be used.

7.7 Windows

The amount of glazing in the building facade shall be determined to satisfy aesthetic and functional needs but shall also take into consideration all of the factors which impact on the total life cycle of the proposed building including capital cost of building elements, services and operating costs, the cost of glare reduction, maintenance, cleaning and energy.

Open able Window Design

Open ability is to be provided for ventilation purposes in non-air-conditioned spaces. Pivot hinge windows should generally open outwards. Outward opening pivot windows should not be used in locations in proximity to pedestrian circulation areas. Louvre windows shall not be used in air-conditioned spaces.

Not less than 30% of windows shall be open able to achieve ventilation in cases of air-conditioning failures, and ventilating smoke/hazardous fumes. Every room and every bay of windows on the perimeter must have at least one open able window.

Construction

For purposes of design, Terrain Category 2.5 shall be used as a minimum. All open able windows, irrespective of level, shall be factory fitted with window locks which comply with the requirements of Section 14 Doors.

The design of the walls at windows and doors shall ensure that the cavities between the inner and outer walls are suitably flashed and the cavities are closed with the wall material and not aluminium angles.

Windows to toilet areas shall be provided with obscure glass or film.

Finishes

All aluminium shall be either anodised or powder coated.

Anodising: The minimum thickness of anodising shall be not less than 20 microns.

Powder coating: Powder coat shall be of a quality commensurate with the application and shall be

equivalent to Duratec X15, Super Durable Polyester or better.

Warranty: to achieve a manufacturer's warranty for film integrity and for colour of a minimum of ten years. (Where bright colours are used, FLUOROSSET FP may be required to achieve warranty requirements.)

All exposed screw fixings, rivets, cut edges and the like, shall be of stainless steel or other non-corrosive material compatible with the frames and coloured to match

Solar Control

A high level of sun shading and screening shall be included in the building design and provided by features such as slab projections, overhangs, fins and blades.

The use of high performance solar or coloured glass is acceptable in areas where heat and glare may be a problem. Applied reflective film to glass and highly reflective glasses shall not be used.

Windows on western and eastern facing facades are generally to be minimised or sufficient shading provided to control radiated heat. Northern glass shall be adequately shaded for summer sun. All external doorways, entrances and porches shall have protection from weather. Sun control devices should not hinder window cleaning or cause a wind noise problem. Where appropriate, advantage should be taken of sun control devices for the provision of window cleaning facilities.

Particular care shall be taken to avoid glare through windows as a result of direct or indirect sunlight and reflections from paving, roads, roofs or adjacent buildings. The use of internal louvered blinds or curtains should not be a substitute for adequate external solar control devices.

Window Cleaning

All external surfaces of glass must be easily accessible for cleaning from pedestrian areas, by Elevating Work Platform, fixed maintenance access ways or twin rope access. Details shall be submitted for approval to JCU.

Sealants

Sealants shall be selected to be appropriate for their application and shall be colour matched to the finished surface. Install sealant systems in accordance with manufacturer's instructions including the use of primers and suitably-sized backing rods where required.

7.8 External Corner Protection

Provide approved and appropriate bollard protection to all external areas of buildings liable to vehicular damage.

7.9 Termite Control

Protection from subterranean termites shall be provided to all new buildings. All workmanship and materials shall conform to the requirements of AS 3660 Part 1: New Building Work. All tree stumps and root boles which have been exposed during excavation, together with any dead logs and other timber debris, shall be removed from the building site.

Stainless steel mesh barriers which comply with the requirements of Section 6 of AS 3660.1, are to be used to provide protection against termite entry. Stainless steel mesh barriers shall also be used between the slab edge and the wall, and across wall cavities in masonry wall structures. The use of chemically impregnated barrier systems shall not be used without the specific approval of the Superintendent.

Termite caps or strip shielding complying with the requirements of Section 5 of AS 3660.1 shall be installed on all foundation walls, piers, stumps and other substructures in such a manner that the structure is isolated by the barriers from the substructure.

The Contractor shall provide the Superintendent with a Certificate of Installation in accordance with AS 3660.1 Appendix A, from the installer of the termite management system.

Warranty Period

Building Façade Systems: 10 years min

- 10 years for workmanship and watertight installation covering all roofing and walling products.
 - 15 years from material manufacturer for corrosion.
 - 12 years from material manufacturer for the Colorbond finish.
 - 10 years from the roof access safety system manufacturer / installer.
 - 10 years for other products.
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