

3 EXTENT OF WORK

COVERED OUTDOOR LEARNING AREAS (COLAs)

1 GENERAL REQUIREMENTS

1.1 SCOPE OF WORK

1.1.1	Design and construct a Covered Outdoor Learning Area (COLA) approximately 19 metres wide 40 metres long, with a minimum of 3.6 metres high at the column (clear) and minimum of 6.0 metres at the gable. The corner columns are to be installed to clear of the outside yellow basket ball line markers by 2 metres in both directions Contractor to verify dimensions on site
1.1.2	Supply and install 6 full length roof lighting strips to each side of roof, evenly spaced. Lighting strips as per 2.5 of the Technical Specifications
1.1.3	Install 150mm downpipes one to each corner of the COLA connect to 150mm storm water pipe installed to new and existing pits, as per the attached drawing. Existing pit located on the North West corner of the court area
1.1.4	Straight cut existing concrete paving to allow for the installation of a storm water from both sides of the COLA Reinstate the concrete paving to finish flush with existing paving, install as per the technical specification - concrete in-situ

1.1 CROSS REFERENCE

Section 4 – Technical Standards.

1.2 PROJECT APPROVALS

The Principal will be responsible for project approvals under SEPP Infrastructure 2007 prior to the award of the work.

1.3 SCOPE OF WORK - GENERALLY

Design, document and construct galvanised steel framed COLA (Covered Outdoor Learning Area) complete with guttering/downpipes and the connection details to school stormwater system.

COLA must be supported using equally spaced steel columns complete with coordinated fixings and Colorbond roof and wall cladding (if applicable) to be erected on engineer designed concrete foundations/footings to the Contractor's engineering design.

Deliverables under the contract will consist of:

1. The COLA structure inclusive of:

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- (a) Colorbond roof
- (b) Wall cladding (if applicable)
- (c) Foil backed roof insulation
- (d) Roof safety mesh system
- (e) Support columns
- (f) Guttering and downpipe system and connection to stormwater school system
- (g) Trims and flashings
- (h) Engineer designed concrete foundations/footings

2. Design certification for:

- (a) COLA structure
- (b) Concrete foundations/footings
- (c) Roof drainage system (guttering, downpipes and stormwater pipework)

3. Work as Executed (WAE) drawings of the finished works.

Additional minor works to complement the COLA construction works at a particular site may be negotiated with the Contractor.

1.4 GENERAL REQUIREMENTS

This contract comprises of Design, Documentation and Construction of all the works with the provision of all labour, plant, equipment and materials necessary to complete all works.

This Tender Document comprises of:

- Specification
- Extent of Work
- Technical Specification
- Drawings

A Drawing of the proposed size and location of COLA will be provided by the Principal.

Drawings are not to scale and are supplied as a guide only to assist the Contractor in developing the detailed design. The Contractor must inspect the site prior to submitting a tender.

The Contractor is to make all necessary site measurements and investigations, develop the design and construct the works to ensure full functional performance and compliance.

The works are to be completed in accordance with the requirements of the following –

- The Tender Document
- All applicable Australian Standards
- the Building Code of Australia
- all relevant Local Government requirements
- the Occupational Health and Safety Act 2000
- the Occupational Health and Safety Regulations 2001

Prior to being awarded Completion of the Works, the Contractor must provide:

- All warranties, guarantees or user manuals offered by manufacturers or suppliers, and
- Works as executed drawings of all works.

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2.1 COLA

The entire COLA system must be designed and certified by Registered Practising structural and geotechnical engineer/s.

The fabricated structure should take into account design needs to prevent the nesting of birds on top of the structural members.

All fabricated structural steelwork such as columns and beams must be hot dipped galvanised after fabrication. (Except where nominated otherwise) All steel work must be present on completion free from marks, blemishes and galvanising imperfections

All non-fabricated steel sections must have a certified factory applied galvanising system.

The COLA shall be designed to achieve a single span from side to side with NO internal posts or supports which would obstruct the flow of school occupants.

The roof pitch is to be a minimum of 10 degrees.

A minimum clearance of 2800 mm is to be provided below the COLA roof structure including fascias, guttering and side panel structures. Wind bracing is not to be installed below a height of 2100 mm.

“C” or “Z” shaped purlins, knee braces, girts, non proprietary hollow sections or open web trusses will not be accepted. “I” or “C” shaped sections will not be accepted where utilised as structural support columns.

Supply and install minimum 0.48mm Colorbond corrugated metal roof sheeting complete with Colorbond gutters, downpipes and flashings as required to match and indicated on drawings. The bottom 2000 mm of the downpipe must be covered by hot dipped galvanised downpipes guards.

- Colour to be selected by School Principal from standard “Colorbond” colour palate.

Supply and install roof safety mesh to the entire extent of the roof. The mesh must be fixed tightly across roof batten in accordance with Workcover and AS2423 requirements.

Supply and install foil backed insulation minimum R1.5-value for acoustic absorption to entire extent of roof. Insulation to be fitted tight to the underside of roof sheeting. Insulation is to be sealed on all open sides of the COLA to minimise the release of internal insulation fibres. All tears to be sealed and all cut ends / exposed joints (showing fibres) to be tape sealed.

Roof sheeting, flashings and insulation are to be installed to prevent the entry and nesting of birds and other vermin.

Supply and install new suitably sized Colorbond downpipes with hot dipped galvanised section 2000mm high from the base to form a downpipe guard with a wall thickness of not less than 2.5mm (refer to Drawing SD611/3).

Supply and install half round gutter (Strammit or equivalent) to extent of COLA in accordance with the roof drainage design.

Supply and install all necessary folded metal capping and flashings as required to ensure COLA is waterproof. The finish must match the roof cladding colour.

The Contractor must reinstate any and all existing areas disturbed as part of these works to a standard equal to the original surface conditions present prior to construction. Any damaged surfaces must be repaired or replaced at the Contractor’s cost to the satisfaction of the Principal’s Representative.

2.2 FOOTINGS

The footings for the columns are to be designed based on the geotech results obtained by the successful Contractor.

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Holding down bolts are to be fabricated and placed in the concrete footings. Masonry anchors used for fixing following the erection of the structure will not be accepted.

The existing paving is to be neatly cut to enable the footings to be placed. The top of the footings are to finish 100mm below the finished paving level which is to be topped upon completion with matching paving, complete with tooled joints. This section of concrete topping is to include sufficient fall (maximum 1 in 14) so as to prevent water pooling at the base of the columns.

2.3 STORMWATER SYSTEM

The Contractor is responsible for the design of the guttering, downpipes and stormwater pipework associated with the COLA structure.

It is the responsibility of the Contractor to inspect the site prior to tendering to determine where the stormwater pipework may best discharge into the schools existing stormwater network where possible or an alternative discharge point that is acceptable to the Authorised Person.

Any connection must not effect the performance of the existing pipework system.

All associated works relating to the installation of the stormwater pipework and restoration of existing surfaces are deemed to be included in the Contract.

3 DESIGN

3.1 DESIGN DEVELOPMENT AND CONSTRUCTION OBLIGATIONS

The Tender Documents provided by the Principal are not complete. The Contractor must complete the incomplete design, document and construct the work under the Contract.

The Principal is relying upon the Contractor to complete the work so that when completed, the structures meet the requirements of the Contract Document, Building Code of Australia, Australian Standards and fit for purpose.

The design must be completed to the highest standard of professionalism.

3.2 SUITABILITY FOR PURPOSE

The Contractor must take the responsibility of suitability for purpose of the works. The Contractor's design and documentation must ensure that the Works will perform as required and are suitable for the purposes expressly stated or which can reasonably be inferred from the Tender Documents.

The Principal is relying on the Contractor's knowledge, skill and judgement in carrying out this responsibility.

The works must in no way be inferior to existing structures at the site and must be carried out in a workmanship like manner.

3.3 SUBMISSION OF DESIGN DOCUMENTS

Upon completion of the design, the Contractor shall submit to the Authorised Person working drawings and specifications of the design not less than 3 working days prior to commencement of construction. The Contractor's designing engineers are to review and certify the working drawings prior to submission to the Authorised Person.

3.4 CONSTRUCTION DOCUMENTS

Construction documents must ensure appropriate fitness for the purpose and specify the workmanship and materials described in the Contract or where not so described, first class

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workmanship and materials suitable for purpose. In addition, the construction documents must indicate the form, nature and character of the Works to be constructed in a fully co-ordinated manner.

3.5 CORRECTIONS

If any of the documents supplied by the Contractor to the Authorised Person contain errors, the Contractor must supply to the Principal corrected documents prior to commencing construction.

4 CONSTRUCTION

4.1 CONSTRUCTION

The Contractor must construct the Works in accordance with the Contractor's construction documents. Without limiting the generality of that obligation, construction must satisfy the requirements of the Contract and in addition be of the highest standard.

4.2 SITE AVAILABILITY

The Contractor is to liaise with the Authorised Person and School Principal regarding access and availability of the area scheduled for the work. The Contractor is to give a minimum 24 hours notice to the school regarding the Contractor's intended planned outages of any services.

4.3 OCCUPIED SITE

The school site will be occupied during all or part of the contract period. The Contractor is to take all necessary steps to ensure the safety of those persons occupying the site at the time and program their works in order to minimise disruptions to school operations.

The entire construction area must be barricaded off using a 2 metre high man-proof temporary construction fence which must be erected around the external perimeter of the work area, including Contractor waste bins and site facilities. The fence must display construction safety signage.

The Contractor must erect a 2 metre man-proof fence or employ appropriately qualified traffic control operators, to all areas of the school site, including those areas outside of the designated construction zone, where the safety of school site occupiers may be compromised by vehicle movements, in particular delivery of materials onto the site.

The Contractor's compound, site sheds and amenities must be located within the construction area.

Delivery by heavy vehicles is not to be made between the hours of 8.00 am – 9.30 am & 2.30 pm – 4.00 pm or during the school's recess or lunch time. The Contractor is to liaise with the School Principal to establish recess and lunch times.

The Contractor is to provide an electrical power board (RCD protected) within the compound. Leads plugged into existing buildings power supply will not be tolerated. Electrical leads run out on the ground will not be tolerated.

Welding on site is prohibited.

4.4 EXISTING SERVICES

Identify the location of all services within the area of the works prior to commencing. Undertake electronic detection for water, gas, fire, power, communication services etc. The Contractor is liable for any repair costs to any lines damaged during this contract. Also refer to Section 2 Preliminaries.

4.5 CONTRACTOR'S AMENITIES

The Contractor is not permitted to use school amenities without prior approval and therefore may be required to provide its own on site toilet facilities which are to be maintained in a clean and sanitary state at all times for the duration of the works.

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4.6 RESTORATION

The Contractor must restore any surfaces disturbed during the works required under this contract. This includes, but is not limited to, paved or grassed areas

4.7 COMPLETION

Upon completion of the works, remove all debris, rubbish, excess plant, materials and equipment from the site leaving the entire work area in a safe condition.

Remove all safety fencing, barricades and construction signage.

All debris is to be disposed of at a recognised waste disposal facility in accordance with Local Council regulations and environmental requirements.

Prior to handover to the school, all internal and external areas are to be left in a safe, clean, dust free and tidy state ready for immediate occupation by the school.

3 EXTENT OF WORK

END OF SECTION 3 EXTENT OF WORK

4 TECHNICAL SPECIFICATION

NOTE:

SECTION 4 NOMINATES STANDARDS OF CONSTRUCTION AND ITEMS TYPICALLY USED IN UNDERTAKING THE WORKS.

THIS SECTION SHALL BE READ IN CONJUNCTION WITH SECTION 3 AND THE DRAWINGS WHICH NOMINATE THE ACTUAL EXTENT OF THE WORKS.

ITEMS APPEARING IN SECTION 4 ARE ONLY REQUIRED WHEN NOMINATED WITHIN SECTION 3 OR THE DRAWINGS.

CONCRETE IN-SITU

1 GENERAL

Refer Section 3: Extent of Work and the Drawings.

Design all concrete work to the requirements of AS 3600 *Concrete Structures* and other relevant codes.

All abutting concrete to concrete edges must be dowelled at a maximum spacing of 400mm utilising a 12mm deformed bar epoxy secured a minimum of 150mm into the original concrete surface. This applies unless otherwise noted within the engineer's drawings or notes.

All existing concrete surfaces are to be mechanically cut where they are effected or removed.

2 Documents

Prepare drawings for all works, showing layout plans, sections and working details. Show clearly on the drawings all bored pier sizes to suit support of the COLA structure, concrete slab details (if applicable) reinforcements, concrete quality and cover.

3 MATERIALS

3.1 CONCRETE MATERIALS

Cement

Cement type: Portland cement to AS 3972 and the N.S.W. Government Quality Assurance Scheme, unless otherwise specified.

Coarse aggregate

Types: Washed crushed river gravel, fine grained basalt, or other materials approved by the Superintendent. State the source of the aggregate on delivery dockets. Obtain approval before changing the source of the aggregate.

Metallurgical furnace slag aggregate: To AS 2758.1 Clause 16, except that non-ferrous slags must not be used.

END OF SECTION – IN-SITU CONCRETE

STRUCTURAL ENGINEERING

1 GENERAL

Refer Section 3: Extent of Work and the Drawings.

1.1 DESIGN

Due consideration must be given in the design to durability, serviceability, strength and quality of the structures to produce a finished product that is fit for its intended purpose.

Throughout this Section the word “design” must be taken to include the words “construct” and “construction”.

Note: 1. It is the responsibility of the Contractor to engage the Designing Structural Engineer to determine the site classification, the areas wind classification for the specific site and exposure and any other information required to determine the design requirements, prior to commencing the design.

2. The Contractor is to allow for the Designing Structural Engineer to review and approve the Working Drawings and Workshop Drawings prior to construction commencing. A Hold Point is to be included in the Contractor’s Quality Assurance System to ensure that this occurs.

This approval is also to be forwarded to the Principal prior to construction.

3. The same Designing Structural Engineer must on completion of construction certify that the works have been constructed in accordance with the design and workshop drawings.

1.2 CERTIFICATES

Supply certificates obtained from the Structural Engineer stating that the engineering works designed by them, including items supplied by manufacturers on their behalf eg., trusses, slab, etc., comply with all the requirements of the Contract and that the works have been constructed as shown on the “work-as-executed” drawings.

Obtaining of such a compliance certificate will not relieve the Contractor of any obligations or liabilities under the Contract.

1.3 DOCUMENTATION

The Structural Engineer’s drawings must cover all elements of the COLA – supports, roof etc. Should the works include propriety items or elements designed by another sub-consultant, full details of all such works must be provided on the drawings duly certified by the Structural Engineer that they have co-ordinated all the works.

Show on the drawings all design loads, member sizing and criteria used in designing the works.

1.4 DESIGN LOADS

Design loads must be in accordance with the various parts of AS1170 SAA Loading Code, unless specified hereinafter.

State clearly on the drawings the values of the design loads.

1.5 WIND LOADS

Design for a basic design wind velocity based on the Structure Importance Multiplier (Mi) or 1.0. In determining the velocities, give particular reference to Clause 3.2 and Appendix E of AS1170 Part 2 Wind loads.

Determine the appropriate Terrain Category for the site. State clearly on the drawings the design wind velocity and terrain category.

1.6 EARTHQUAKE DESIGN

Design all structures to AS1170.4 - Earthquake Loads. State on the drawings the values adopted for the acceleration coefficient, the site factor and the importance factor and the earthquake design category.

Provide adequate separation between structural frames and non-ductile (brittle) elements so that in case of movement during an earthquake, the latter do not attract shear loads unless specifically designed to do so.

1.7 BUILDING CODE OF AUSTRALIA

All building design must comply with the Building Code of Australia.

1.8 STRUCTURAL DEFLECTIONS

For the design life of the structure ensure that the maximum deflections of structural members comply with the serviceability requirements of the structure. In the case of visual elements like fascias, adopt stringent deflection criteria, taking into account the high visibility of such elements.

TABLE A
DEFLECTION CRITERIA – SPECIFIC REQUIREMENTS

ITEM	STRUCTURAL ELEMENT	MAXIMUM DEFLECTION
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(i)	Roof members under:	
	a) Dead Load	Span/360
	b) Live Load	Span/240
	c) Wind Load	Span/150
(ii)	Relative horizontal deflection between adjacent frames at eaves level	less than the smaller of floor to eaves height/250 and frame spacing/200

1.9 FASCIAS, EAVES, OUTRIGGERS

Keep all visible members such as fascias, eaves and outriggers etc., the same size and appearance.

END OF SECTION – STRUCTURAL ENGINEERING

STRUCTURAL STEELWORK

1 GENERAL

Refer Section 3: Extent of Work and the Drawings.

1.1 STANDARDS

Design all structural steelwork to the requirements of AS4100 SAA *Steel Structures* and other relevant Codes.

1.2 DOCUMENTS

Prepare drawings for all works, showing layout plans, framing elevations, sections and working details, so that normal Structural Steelwork shop drawings can be prepared and approved by the Contractor and their Consulting Engineer. Submit two copies of the Engineer approved and stamped drawings to the Authorised Person

1.3 BOLTS

All bolts (except for purlins) must be minimum M16-8.8/S. Use larger diameter bolts as the design requires. All bolts, nuts and washers, including holding down bolts, shall be hot dipped galvanised.

Unless the design dictates otherwise all bolt holes must be 2mm larger in diameter than the bolt for a bolt not exceeding 24mm in diameter, and not more than 3mm larger for a bolt of greater diameter.

1.4 PURLINS

Attention is drawn to Clause 4.3 of AS4600 Cold-formed steel structures to the requirements of bracing and/or bridging. Bolt fixings must be in accordance with manufacturer's details.

Purlins shall be galvanised steel with a factory applied zinc coating of weight of 350 g/m².

All purlins are to be single piece hollow sections or extruded seamless hollow sections same as or equal to "Lysaght Firmlok". All purlins are to be installed between portal frames and support beams are not to be fixed to the top of same. Exceptions to these requirements may be considered in instances where the structural integrity of the component requires the use of non-conforming sections. In these instances alternatives must be approved by the Authorised Person prior to submission of tender.

1.5 WELDS

All welds shall be shop welds. Site welding must not be used, unless approved by the Authorised Person.

1.6 DEFLECTION CONTROL

Design all steelwork, especially beams and purlins, to ensure deflections are within acceptable limits.

Pay particular attention to:

- Dead load and wind deflections of purlins and girts.

1.7 EXPOSED STEELWORK

If applicable, maintain the design intent shown on the Tender Documents, with particular regard to the aesthetics of connections. All exposed components are to be fully enclosed with no openings for possible bird infestation.

1.8 CORROSION PROTECTION

Comply with Australian Standard AS4680 – *Hot-Dipped Galvanised (zinc) Coatings On Fabricated Ferrous Articles* and AS1214 *Hot Dipped Galvanised Coatings On Threaded*

Fasteners. Select member sizes and fabrication details which safeguard against warpage and distortion.

Notwithstanding any other requirements, all cold-formed steel shall be zinc coated with a minimum coating mass of 350g/sq.m in accordance with AS 1397 *Steel Sheet And Strip-Hot-Dipped Zinc-Coated Or Aluminium/Zinc Coated*. Provide additional protection as the design requires.

END OF SECTION – STRUCTURAL STEELWORK

ROOFING

1 GENERAL

Refer Section 3: Extent of Work and the Drawings.

2 PRODUCTS

2.1 SHEET METAL ROOFING AND TRIMS

Corrugated metal roofing

General: Preformed continuous corrugated metal sheet roofing system complete with all necessary fasteners, accessories, trims, flashings and pre-cut notched birdproofing where necessary all in accordance with AS 1562.1, AS 2180 & AS 3566.

Material:

Number of Ribs: 1 underlap, 1 overlap, 10 internal (nominal)

Rib Height (minimum): 16 mm to AS 1445

Anti-Capillary Feature: Overlapping rib over-formed so as to create a crescent-shaped gap between it and the overlapping rib

Cover Width: 762 mm +/-4 mm (nominal)

Base Metal Thickness (BMT): 0.48 mm (The thickness of steel before the zinc/aluminium coating is added)

Total Coated Thickness (TCT): 0.53 mm approximately

Steel Base Description: AS 1397-G550 (550 MPA minimum yield strength)

Metallic Coating Description: AS 1397-AZ 150 (150 g/m² minimum coating mass)

Finish: To AS 2728

Primer: Nominal film thickness 5 microns each side (0.005 mm) each side.

Finish Coat: Nominal film thickness 20 microns (0.020 mm).

Backing Coat: Shadow Grey wash coat. Nominal film thickness 5 microns (0.005 mm).

Colour: To be determined by the school

Screws and Fasteners - Standard Colorbond® grade roof sheeting: Self-drilling and tapping screws to AS 3566 class 3 and are to be of the types and sizes indicated in the roof manufactures printed technical data sheets.

Screws and Fasteners - Ultra® Colorbond® grade steel roof sheeting: Self-drilling and tapping screws to AS 3566 class 4 and are to be of the types and sizes indicated in the roof manufactures printed technical data sheets.

NOTE: Ensure all surfaces thoroughly cleaned down at the end of each day's work activities to ensure no damage is created by rusting swarf, etc.

2.2 SAFETY MESH (Mandatory)

Location

All roofs

Requirement

Permanently fix safety mesh to all roofs.

Safety mesh must be permanently fixed over the entire area to be roofed (includes eaves).

Safety mesh must remain in place after completion of building.

Standards

General: To AS/NZS 4389

Code of Practice: Must be in accordance with WorkCover's – Code of practice for Safe Work of Roofs – Part 1 Commercial and Industrial buildings Cl. 3.2 Safety mesh

- Other available methods as an alternative to safety mesh must not be used.

2.3 SHEET METAL ROOFING AND CLADDING

Roof sheet installation

As specified in the Extent of Works

Metal separation

Provide all necessary protection for dissimilar metal junctions.

Corrugated metal roofing

Installation

- To HB 39 Code of Common Practice for Steel Roofing.
- ASTM D200 Classification System for Rubber Products in Automotive Products.
- Manufacturers Roofing and Walling Installation Manual/s.

Workmanship: Care, storage, handling, cutting and installation all in accordance with the relevant Australian Standards and the roof manufacturers printed technical data sheets.

Completion: On completion of roof installation obtain certification from the roof manufacturer stating that the material and installation is in accordance with the printed technical data sheets provided by the manufacturer and the specification. Hand the certification to the Person with Full Authority/Superintendent.

2.4 ROOF INSULATION

General

Note: If any part of the site is located within a designated Bush Fire Area check the requirements of the NSW *Rural Fires Act 1997* in order to ascertain if the installation of foil backed glass fibre insulation is permissible.

As specified in the Extent of Works.

Location/s

All metal roofed buildings (including COLA, school entrance canopy, and re-entrants under main building roof) including eaves.

Materials

Type: Bulk Insulation Material (foil backed blanket).

Polyester or Mineral wool blankets to AS 3742. Minimum 1.5 R-value. Refer SFS Specification Standard, SS471 INSULATION AND VAPOR BARRIERS.

Arrangement:

One (1) layer of blanket directly below roof sheeting laid over purlins and safety mesh. Lay reflective foil down as per manufacturer's specification.

Standards to AS 1903 and AS 1904.

- Class: A

- Grade: A
- Type: A

Mesh support to roof insulation:

- Galvanised steel wire safety mesh support to roof insulation to AS 2423.
- Safety mesh under roof cladding can also be used to support roof insulation.
- Specification reference: ROOFING – SAFETY MESH

2.5 LIGHTING STRIPS (WHERE NOMINATED)

Note: If any part of the site is located within a designated Bush Fire Area check the requirements of the NSW *Rural Fires Act* 1997 in order to ascertain if the installation of industrial glass fibre reinforced polyester (GRP) fire retardant roof sheeting is permissible.

Description

Industrial glass fibre reinforced polyester (GRP) fire retardant roof sheeting spaced equally along each side of the roof. Each light strip is to a minimum of one full sheet width minus required lapping.

Roof Material

Fire retardant solar controlled laminated glass fibre reinforced polyester (GRP) roof sheeting.

Profile: Corrugated, profile to match adjacent roof sheeting.

Weight:

- 3660 g/m².

Colour: Pearl

Light Transmission (nominal):

- 3660 g/m². 36%.

Fire retardant resin system: Proprietary fire retardant resin incorporated into the roof sheeting during manufacture.

- Identification: Coloured thread embedded along the entire side rib of each sheet to identify that it complies with the following fire hazard indices.

Fire resistance – Fire hazard properties – School buildings: To be in full compliance with BCA requirements for the applicable location.

Sheet Dimensions: To AS/NZS 4256.3 and manufacturer's standards.

- Roof sheeting to be cut to width by the manufacturer during production. The sheeting to be cut within the following tolerances:
 - Overall width: +/- 5.0mm per sheet length
 - Cover Width: +/- 5.0mm per sheet length
 - Nominated length: +/-10,-0mm
 - Squareness (over sheet ends): -5mm per metre width
- Site cutting: Longitudinal cutting (sheet width) must not be undertaken on the site.

Compliance: Provide a manufacturer's certified Certificate of Compliance for the following:

- Fire

- Resin Supplier
- Resin batch number
- Product
 - GRP description
 - GRP code
 - Date of manufacture

2.6 ROOF VENTILATORS (WHERE NOMINATED)

Rotary Roof Ventilators

Location

Refer drawings.

Classification

Classification: Type 4 to AS/NZS 4740 (Cl. 1.5)

Description

Rotating wind-driven roof mounted ventilator/s including fixings, trim and flashings. Finish to match adjacent roofing.

Bearings: Precision roller bearing type. The bearings to be located in the ventilator so that the inner case and the outer case remain parallel at all time.

- Fully isolated from the environment
- Steel or stainless steel
- Minimum two races of roller bearings
- Permanently lubricated
- Shaft: Aluminium machine grade 2011 T3 or stainless steel grade 316

Base: Tapered square to round (base/throat) construction to match roof profile and pitch.

Construction, Type: Spot-welded or mechanically fastened at all points of connection.

Number and size

Throat: Minimum size 400 mm.

Performance classification

Standard: To AS/NZS 4740 (Table 1.2)

Performance levels

- Rain resistance: Class A
- Flow coefficient: Class 1
- Wind loading: Level 1

Flashing

In accordance with manufacturers printed instructions.

Guarantee (mandatory)

Minimum 10 year written guarantee on replacement of rotary roof ventilator if defective. The guarantee must cover the following ventilator failures:

- Base

- Bearing/s
- Domed top (if applicable)
- Sufficient rotation to repel water
- Water/moisture penetration
- Surface finish.

Distribution: Hand one copy to the Person with full authority.

Information and marking

Standard: To AS/NZS 4740 Section 4

Certification

Provide test reports confirming compliance with the required specified performance classification requirements.

Hand one copy to the Person with full authority.

END OF SECTION – ROOFING

PROVISION FOR SAFE WORKING ON ROOFS

3 GENERAL

Refer Section 3: Extent of Work and the Drawings.

Provision for safe working on roofs (Where Specified)

General: Provide a proprietary anchorage points system to AS/NZS 1891.4 and in accordance with WorkCover's Code of Practice for Safe Work on Roofs (Part 1 Commercial and Industrial Buildings) for the attachment of individual fall arrest devices/restraints. Anchorage points are also to be provided to prevent "pendulum effect" in corners of buildings.

Installation: A "competent person" (AS/NZS 1891.4-1.4.1) must install all anchorage points at appropriate intervals and in the most suitable position to make safe access to all areas of the roof and sufficient distance from the roof end to prevent a "pendulum effect".

Anchorage System: The complete height protection system including all installed anchorage points must be certified by an "engineer" that it is in full compliance with Workcover requirements load rating of 22kn (minimum). **NOTE: - Only to be installed if roof ventilators or other equipment is to be installed on the roof.**

Building Structure: Prior to the installation of the height protection system an "engineer" (AS/NZS 1891.4-1.4.2) must certify the building structure and that the elements including connections supporting the height protection system can safely carry the loads.

Flashing: Where the anchorage points penetrate the roof, provide a proprietary flexible roof flashing especially designed to fit narrow diameter penetrations.

Compatibility: All metal fittings must be non-corrosive and compatible or is isolated by inert elements between dissimilar metals.

Ladder Fixing Points (Where Specified)

Generally: Provide an integral system of safe access by ladder for a single and 2 storey building for provision for future roof maintenance. The complete system is to be in accordance with WorkCover requirements.

Location: Ladder fixing points are to be located in a safe position to minimise visual impact. Locate the fixing points so they are unobtrusive as possible and avoid installing them on the face of a major visual building element.

Number: One ladder fixing point/s per roof at a location that is safely accessible with a ladder.

Materials: Construct the ladder fixing points out of non corrosive steel complete with all washer gaskets necessary to prevent roof leakage and corrosion. All metals and metal finishes and must be compatible with each other.

Access: Provide a safe system of access from the ladder fixing point to the main anchorage system. This anchorage system must provide safe access to all parts of the roof.

Certification (mandatory)

Certification: The complete height protection system including all associated building works and anchorage points must be certified by an "engineer" that it is in full compliance with the specification.

The certification must clearly identify that each anchor and its support structure where it is attached complies with WorkCover requirements load rating of 22kn (minimum).

- One copy of the certification must be handed to the Person with full authority.

Independent Testing Authority

Provide a copy of a NATA registered Testing Authorities report of the ultimate load testing of the roof harness anchor.

- Specification Reference: Preliminaries - Independent Testing Authority.
- One copy of the test report must be handed to the Person with full authority.

Equipment Data and Maintenance Records

Provide a log for Equipment Data and Maintenance Records to AS/NZS1891.4. Hand the log to the Person with full authority/Principal.

END OF SECTION – SAFE WORKING ON ROOFS

HYDRAULICS

1 GENERAL

Refer Section 3: Extent of Work and the Drawings.

1.1 EXISTING INFRASTRUCTURE

Locate all existing infrastructure and services in the vicinity of the site prior to commencement of work.

1.2 ROOF DRAINAGE

Base the roof drainage calculation on SAA/SNZ114 and AS3500.

Allow for recurrence internals of not less than 20 years for eaves gutters.

Provide gutter and downpipes to collect all roof water.

Locate downpipes evenly along façade on column faces.

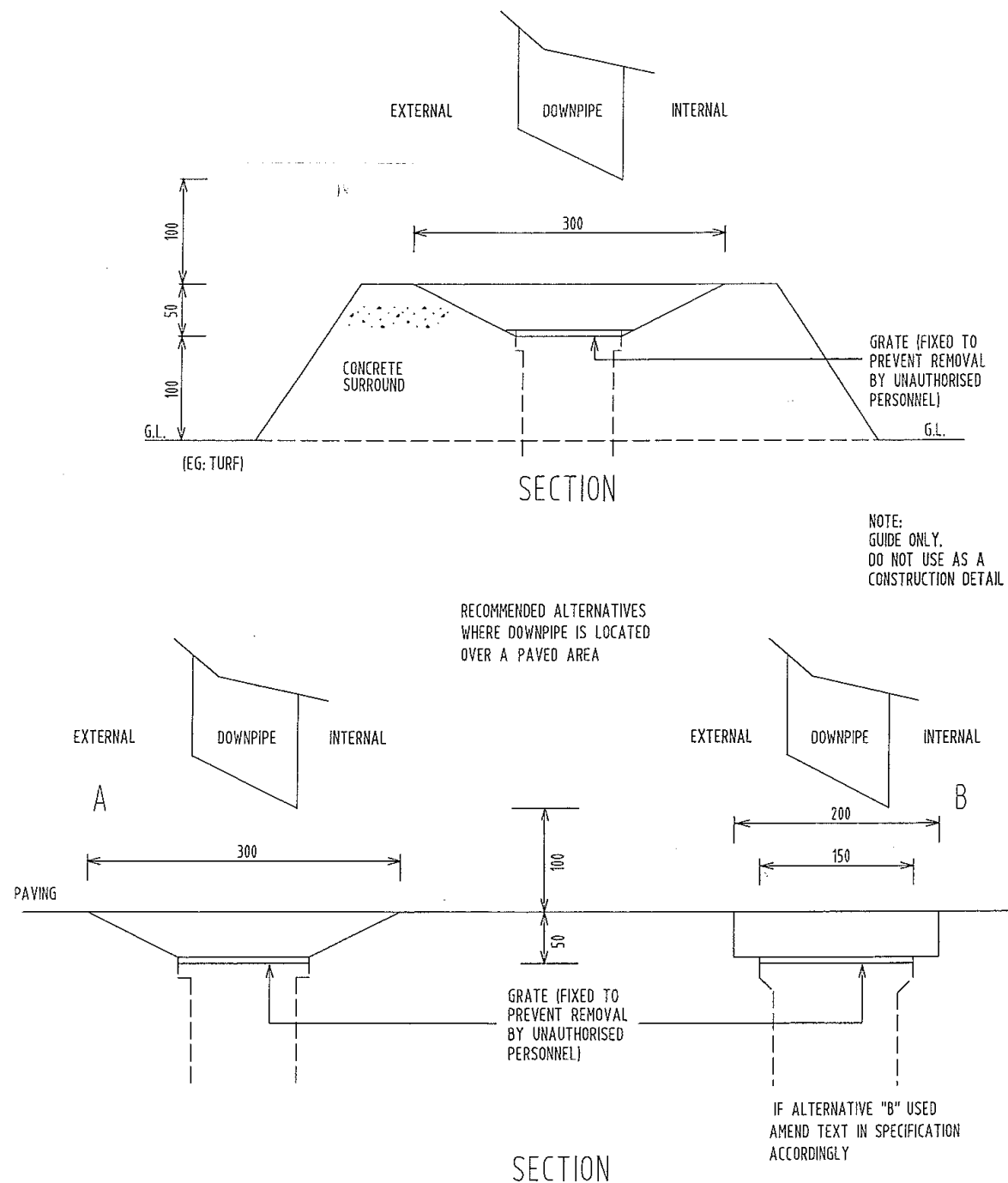
Cut the bottom of the downpipe at 30 degrees and stop 80mm above the top of the grate (level to be provided by the Principal).

Allow for the discharge system from the COLA into the stormwater drainage system with pipe work as designed. Details to be nominated by the Contractor.

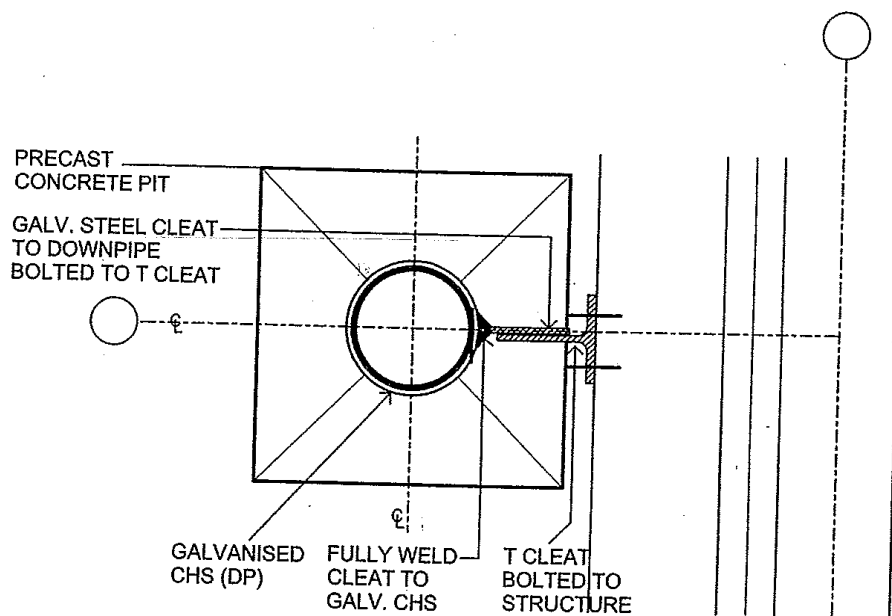
Should the location of the downpipes discharge directly onto the concrete pier supporting the COLA structure provide within the pier design for the installation or provision of stormwater pits which will be accessible on one side for the installation of a stormwater pipe system

END OF SECTION - HYDRAULICS

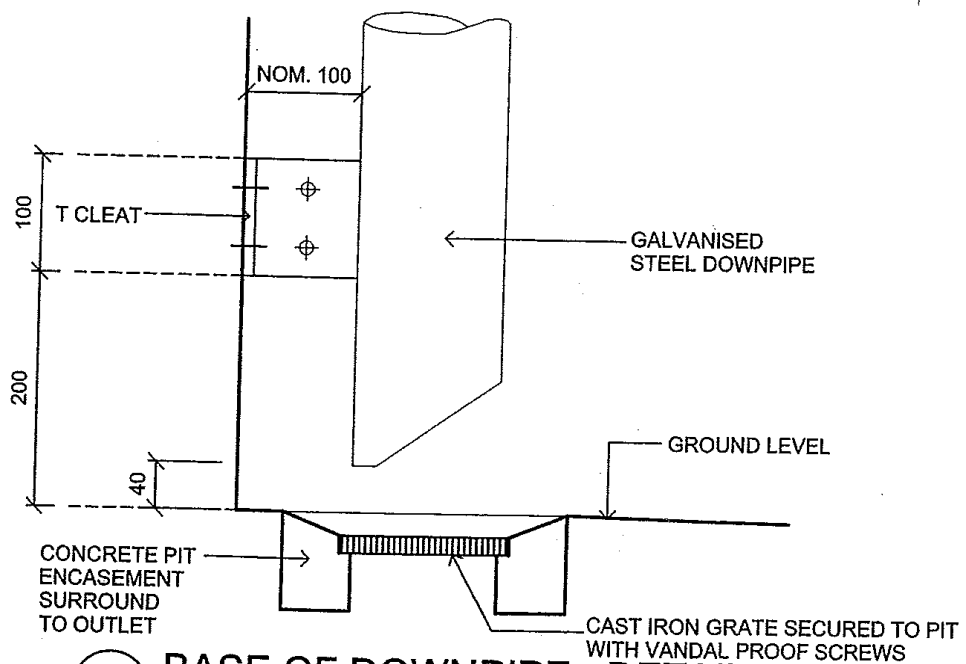
DRAWINGS



EDUCATION FACILITIES RESEARCH GROUP SPECIFICATION STANDARD DRAWINGS COMPUTER DRAWING NUMBER SD6113.DGN REFERENCE FILE SFSFPS - FPSS DRAWING DATE 10/01/2000	PRIMARY SCHOOL FACILITIES STANDARD 970 - SERVICES	SCALE N.T.S.	DRAWING No. SD611/3
SPECIFICATION REFERENCE: STORMWATER	SECONDARY SCHOOL FACILITIES STANDARD 611 - SERVICES - STORMWATER DRAINS DOWNPIPE CONNECTIONS	ISSUE No. 4	ISSUE DATE 01/03/2000
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TYPICAL DOWNPIPE SUMP DETAIL
1:5



BASE OF DOWNPIPE - DETAIL
1:5

