

NSW Department of Commerce
RIVERINA/WESTERN REGION – WAGGA WAGGA OFFICE

EXTENT OF WORK

1.1 PROJECT DETAILS

Location: Wagga Wagga High School

Description of the Works: Air-Cooling to Multi Purpose Hall

1.2 TRADE QUALIFICATIONS

The Contract must only use qualified tradespersons who hold a current trade licence for any trade works carried out under this Contract.

The Principals Representative must approve any exception to this requirement.

1.3 CONTRACT DOCUMENTS

The Contractor must notify the Contact Officer before the tender closing date and time if any discrepancy, error or omission is found in the documents.

1.4 CLEAN UP SITE

The Contractor must keep the site clean and tidy and dispose of all rubbish and surplus materials promptly.

1.5 PROJECT DESCRIPTION

1.6 Room HR0008

To the roof area over the Hall install four (4) side discharge evaporative coolers, mounted on "Duragal support stands with acoustic bends to penetrate four of the existing roof air relief grilles. Install solid duct to each to extend from the ceiling to an 8 way blow Plenum Diffusers to positions as indicated on the drawings.

To the roof area over the stage, install two (2) side discharge evaporative coolers mounted on "Duragal support stands complete with acoustic bends to penetrate the roof and extend down the wall and terminate at high level. Install 900 x 800 supply air register to the stage area as per the drawing.

Install to positions as indicated on the drawing eight (8) new roof mounted air relief grilles complete with weatherproof roof cowls, as per the design brief

Decommission the electric fans to the existing roof mounted air relief grilles, leaving the fan & cowls in place.

Remove the fixed glass from the existing side lights to each of the two stage exit doors, infill the whole section of each with weatherproof aluminium relief louvers, as per the design brief.

Install water & electrical services to the six (6) coolers and extend drains from each unit to the adjacent gutter.

Paint all internal exposed ductwork, colour to be decided by the School.

Ensure all new and existing disturbed roof penetrations are weatherproof.

To the roof area at the front of the single story section, install a fixed ladder to the brick wall to allow for safe access from the lower roof area to the main roof area.

NSW DEPARTMENT OF COMMERCE

WAGGA HIGH SCHOOL
COLEMAN STREET, WAGGA WAGGA NSW 2650

AIR CONDITIONING UPGRADE

MECHANICAL SERVICES BRIEF

Document: 2900-W-B01
"TENDER ISSUE"

Dated: 15th December 2008

ADADRA

Building Services Group
BN98010226

558 Hume Street Albury NSW 2640
P.O. Box 809 Lavington NSW 2641
Phone: +61 2 6023 5490

Facsimile: +61 2 6023 5489

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Email: mail@drapro.com

01 - SCOPE OF WORK - MECHANICAL SERVICES GENERALLY

This section of the brief covers the installation, testing, commissioning and maintenance of Mechanical Services proposed for the air conditioning upgrade of Auditorium Area located at "Wagga Wagga High School" located in Coleman Street, Wagga Wagga NSW 2650.

SCOPE OF WORK "SUMMARY".

The work associated with this project is located at high level on the roof of Building H.

Building H consists of a large Auditorium with adjoining Stage. The Stage shall be served by Evaporative Coolers "EC-01 & EC-02". The Auditorium has an exposed high level web truss and shall be served via Evaporative Coolers "EC-03, 04, 05 & EC-06".

Evaporative Cooler EC-01 & 02 shall be mounted on the lower level roof top above the area being served. Supply air duct shall penetrate the roof and supply air via a duct mounted register at high level. Evaporative Coolers EC-03, 04, 05 & 06 shall penetrate the roof and supply air via four way blow plenum diffusers. The mechanical contractor shall note there are a number of existing exhaust fans that shall be decommissioned.

The evaporative coolers where possible shall be located a minimum of 3 meters from the edge of the roof.

02 - EXTENT OF WORK - MECHANICAL SERVICES GENERALLY

New Equipment & Systems.

- Supply & Installation of Two (2) off Side Discharge Evaporative Coolers "EC-01 & 02" serving Stage, as shown on the tender drawing.
- Supply & Installation of Four (4) off Side Discharge Evaporative Coolers "EC-03, 04, 05 & 06" serving Auditorium, as shown on the tender drawing.
- Supply & Installation of Eight (8) off Roof Mounted Relief Air Cows "RC-01, 02, 03, 04, 05, 06, 07 & 08" serving Auditorium, as shown on the tender drawing.

Associated Miscellaneous Items.

- Air diffusion equipment (Diffusers, Registers, & Louvres) as shown on the tender drawing.
- Supply & Installation of volume control dampers for balancing as required.
- Support bracing & hangers for ductwork, straddle purlins where applicable.
- Supply & Installation of Support Stands "Duragal" for all plant, as shown on the tender drawings.

02 - EXTENT OF WORK *(Continued)*.

- Supply & Installation of "Duragal" type access ladder giving access from lower to upper level roofing as shown on the tender drawings.
- Supply & Installation Ladder hitching brackets & harness hitching points as nominated on tender drawings.
- Supply, Installation & Connection of water supply from suitable points adjacent each evaporative cooler complete with isolating valves. Contractor to visit site to determine suitable connection locations. All cold water pipes shall be insulated where exposed to weather.
- Supply & Installation of hose cocks adjacent evaporative coolers for servicing as required.
- Supply of overflow drains from Eight (6) off Evaporative Coolers to down pipes or suitable drainage points adjacent each unit.
- Supply & Installation of Electrical Supply from EDB within the building being served, complete with isolators for each unit as shown on the tender drawings. The contractor shall confirm appropriate electrical supply is available from within the board prior to commencement of any contractual works.
- Supply & installation of control wiring between all equipment and their associated control panels as required. IE: All control & instrumentation. Locations shown on tender drawing are approximate only the contractor shall liaise with end user for final suitable locations.
- Provide all over flashings to all major roof & wall penetrations. Also provide deck-tights for minor pipe work penetrations.
- The contractor must allow for all associated works that "MAKE GOOD" the installation, including any other associated works, such as plumbing, electrical, structural & cosmetic works etc... completing the installation.
- Provide Painting to interior ductwork, colours to be confirmed by the client prior to application. The contractor shall ensure that all ductwork is adequately cleaned via washing down with "sugar soap", applying one coat of Galvanised Iron Primer, then two coats of Exterior Acrylic equal to "Dulux Weather Shield".
- No shop drawings shall be required BUT the design drawings are general, the contractor shall allow to visit the site and adjust the design to suit the practical needs gathered during the site investigation.

02 - EXTENT OF WORK *(Continued)*

- Air balancing and commissioning of plant.
- Preparation of operating & maintenance manuals.
- Warranty and maintenance during the 12 month defects liability period, commencing at practical completion shall be the responsibility of the contractor. The yearly startup and shut down shall be the responsibility of the school maintenance department.

In General any non fault work shall be completed by the school maintenance department.

- If and where relevant all mechanical services components nominated herein shall be installed in accordance with all relevant Authorities having jurisdiction over the site. The contractor shall comply with the Building Codes of Australia "BCA", Australian Standards / guidelines **AS-1668 Part II** and all other relevant guidelines.

03 - EQUIPMENT DUTY SPECIFICATIONS

| ITEM | DUTY | ACCESSORIES |
|------|------|-------------|
|------|------|-------------|

| | | |
|--|---|---|
| EC-01 - 02 Evaporative Cooler. Side Discharge Stage Area | Cooling Air Volume – 1560 L/s System Resistance – 100 Pa. (Estimate) Centrifugal Fan. | Off / Vent / Cool High / Low Fan Speed |
|--|---|---|

Bonaire B14 (or similar) 2 off

| | | |
|---|--|---|
| EC-03 to 06 Evaporative Cooler. Side Discharge Auditorium | Cooling Air Volume – 3,500 L/s System Resistance – 120 Pa. (Estimate) Centrifugal Fan. | Off / Vent / Cool High / Low Fan Speed |
|---|--|---|

Bonaire B36 (or similar) 4 off

| | | |
|---|-------------------------------|--|
| RC-01 to 08 Relief Air Cowl Roof Mounted Auditorium | Cooling Air Volume – 1400 L/s | |
|---|-------------------------------|--|

Fantech RV4 (or similar) 8 off

IMPORTANT NOTE:

The above Makes & Model numbers have been noted for a guide only, it shall be the responsibility of the successful tenderer to ensure that the makes and models selected, suit the intent of the design. Eg ensure that the resistances and airflow etc. are achievable. If the contractor finds that the Makes & Models do not match that of the duties nominated, the contractor shall have duties clarified or allow the more expensive option.

04 - DUCTWORK

INSULATION (Aluminium foil laminated type), (Mineral Wool & Glasswool).

Physical Properties to SMACNA Fibrous Class Duct Construction Standard.

Standard: To AS 3742

Maximum Thermal conductivity: 0.036 W/m²K at 20deg.C.

SHEET METAL

Material

Zinc-coated steel, coating class G2/Z275

05 - AIR GRILLES

GENERAL: Manufacture: Provide proprietary grilles.

EVAPORATIVE SUPPLY AIR GRILLES:

Duct Mounted Registers.

- Double deflection "Air Grilles Model SH2" or similar 32mm Blades.
- Size as nominated on tender drawings.
- Painting Powder Coating. (Colour to be advised prior to ordering).

Weather Proof Relief Air Louvres.

- Weather Louvres "Air Grilles Model OAL-75" or similar.
- Size as nominated on tender drawings.
- Painting Powder Coating. (Colour to be advised prior to ordering).

Supply Air Plenum Diffusers

- "Braemar Model CPD2" (or equivalent).
- Size to suit air volume.
- Painting Powder Coating. (Colour to be advised prior to ordering).

Dampers

- "Motorised Volume Control Damper" Bradflo MVCD (or equivalent).

Note: Make & Model Numbers for diffusers etc. have been nominated for a guide only, the Mechanical Services Contractor shall confirm mounting details of all air diffusion equipment prior to final selection & ordering.

06 - EXTENT OF ASSOCIATED WORK BY OTHER TRADES:

REQUIREMENT:

The contractor must be aware that there are no other contractors associated with the works described herein.

The contractor must allow for all associated works that "MAKE GOOD" the installation including any other associated works, such as plumbing, electrical, structural & cosmetic works.

07 – GENERAL

Generally this document is a "Brief" allowing Mechanical Services Contractor to price a "Scope of Works" for this project, NOT TO BE USED FOR CONSTRUCTION PURPOSES". A further review of both this Brief & the associated tender drawings shall be performed prior to the ordering of plant & or the commencement of shop detail drawings.

08- PERFORMANCE - MECHANICAL SERVICES GENERALLY

EQUIPMENT CONTROL:

1. The primary control of all plant shall be via proprietary type wall mounted Off / Vent / Cool, High / Low fan speed controllers located within each area being served. The mechanical contractor must coordinate the final location of the control points with the end user prior to installation.

09 - WIRING - MECHANICAL SERVICES GENERALLY

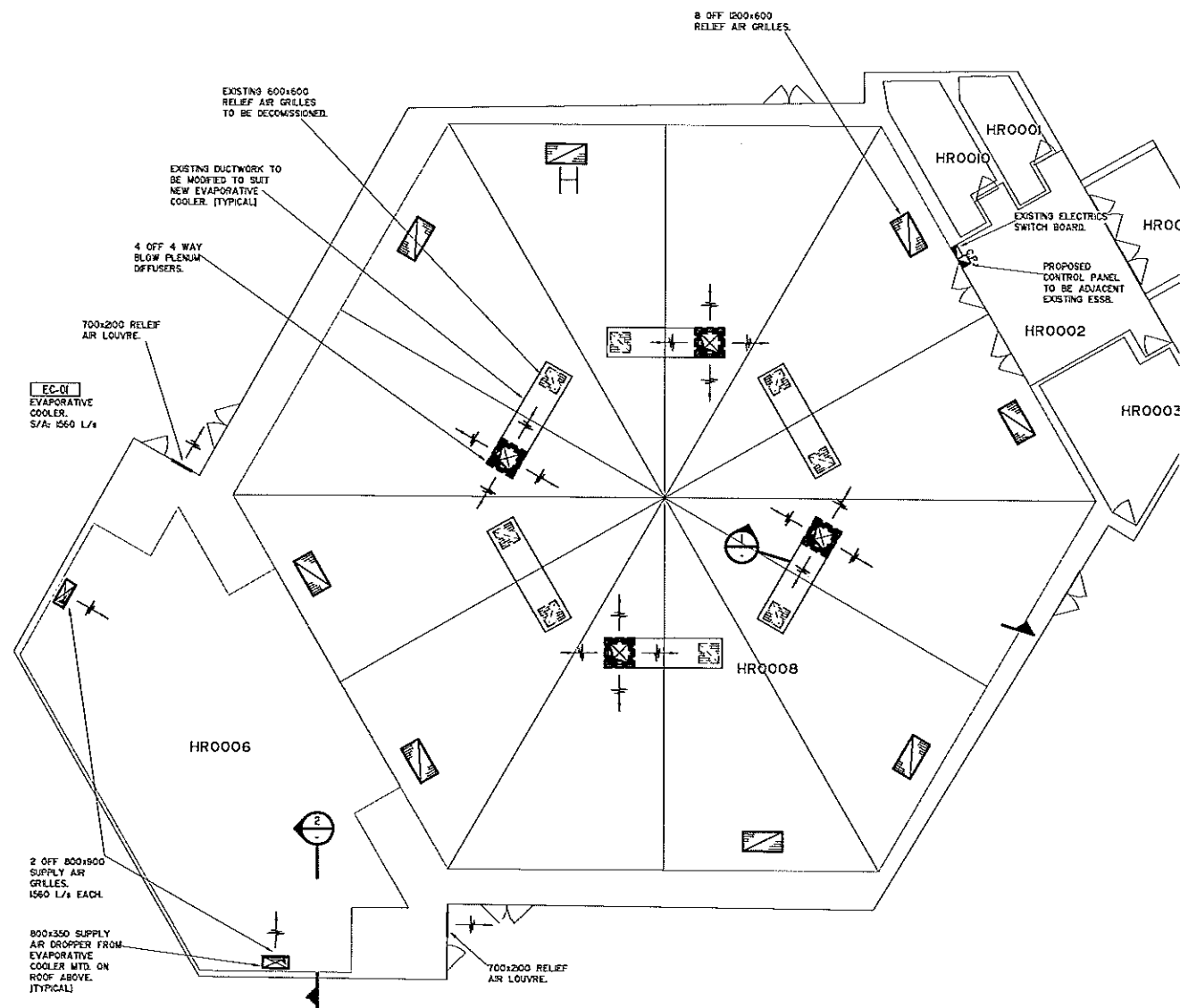
ELECTRICAL WIRING:
To AS 3000 and AS 1668.1 Clause 4.10.2

REQUIREMENT:

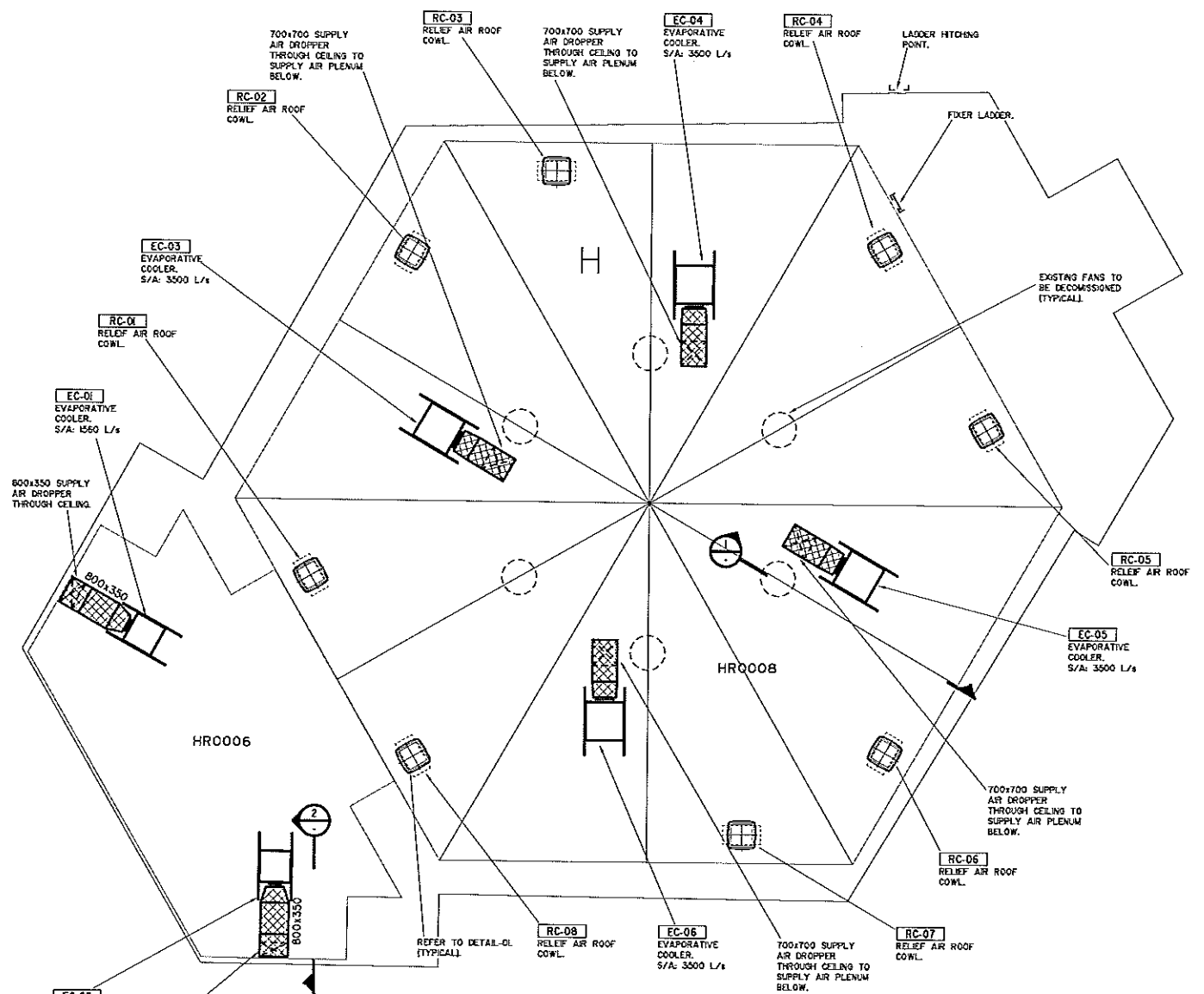
- Connect power supply & control wiring to Six (6) off Evaporative Coolers from Electrical Distribution Boards located within the building being served.
- Power Isolators shall be fitted in close proximity to all Coolers.
- All other equipment as described with the tender specification & drawings.
- Power supply for each item of plant shall be provided from the distribution board within each area being served. A separate circuit shall supply all new circuit-breakers and where fitted to existing distribution boards, be selected to match existing equipment.

| Item | 240v / 415v | Amps | Quantity |
|------------|-------------|------|----------|
| EC-01 - 02 | 240v | 3 | 2 |
| EC-03 - 06 | 415v | 4.4 | 4 |

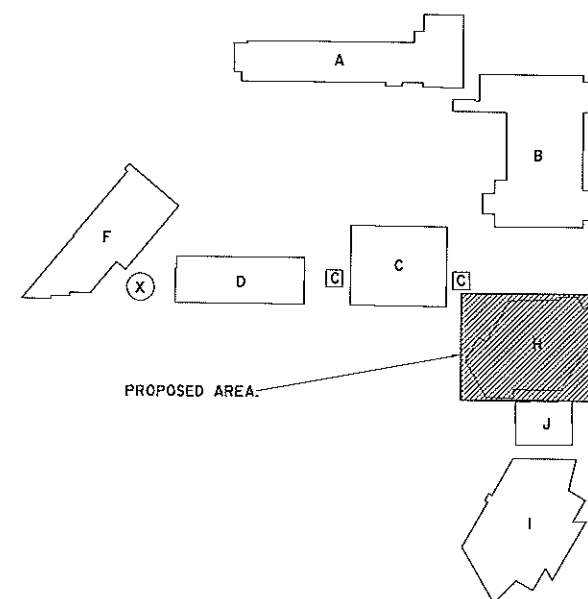
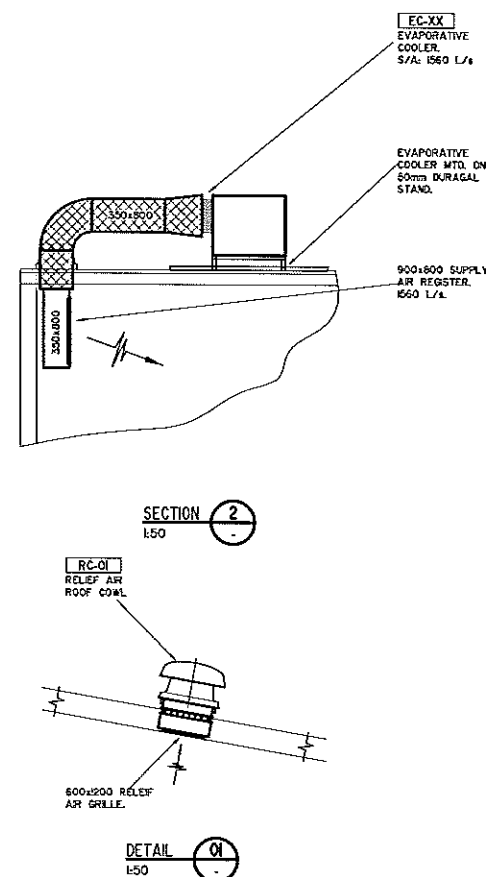
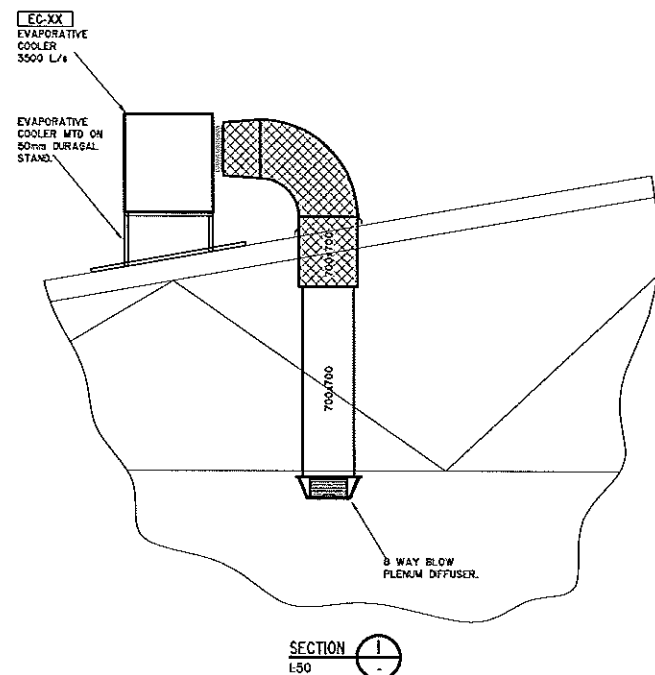
Note:
The above electrical loads are approximate only and do not include minimal loadings such as motorised louvres. The successful tender shall verify and confirm electrical loads prior to installation.



FLOOR PLAN.
SCALE 1:100



ROOF PLAN.
SCALE 1:100



LEGEND

- DENOTES 50mm INTERNALLY LINED DUCTWORK LINED WITH 450 PERFORATED SISALATION.
- DENOTES UNINSULATED DUCTWORK.
- DENOTES CONTROL PANEL.
- DENOTES DOOR GRILLE.
- 1000x400 DENOTES INTERNAL AIR WAY SIZE. I.E. WIDTH x DEPTH.
- EC-01 DENOTES EQUIPMENT REFERENCE. EC - (EVAPORATIVE COOLER).

GENERAL NOTES

- ALL DUCT SIZES NOTED ARE INTERNAL AIR SIZES, FIRST SIZE NOTED DENOTES SIDE OF DUCT IN VIEW.
- REFER TO DRAWING LAYOUT FOR MISCELLANEOUS NOTATION OF EQUIPMENT.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE PROJECT BRIEF.

| A | TENDER ISSUE | 6-2-2009 | J.R.R. |
|--|---|----------|---------------|
| REV | REVISION DESCRIPTION | DATE | CHANGE NOTE |
| 1 | ADADRA Building Services Group 558 Hume St. Albury NSW 2640 P.O. Box 809 Lavington NSW 2641. Ph: (02) 6021 4560 Fax: (02) 6023 5469 | | |
| BUILDING SERVICES CONSULTING ENGINEERING GROUP | | | |
| Client: NSW DEPARTMENT OF COMMERCE | | | |
| Project: WAGGA HIGH SCHOOL WAGGA WAGGA, NSW 2641 | | | |
| Title: MECHANICAL SERVICES DUCTWORK & EQUIPMENT LAYOUT BUILDING H - FLOOR PLAN | | | |
| Drawn J.R.R. | Date 18-1-2008 | Approved | Date |
| Scale 1:100 @ A1 | Plotted Date 15-12-2008 | | |
| Drawing Number 2900-W-MS-01 | | | Revision A |