

PENRITH REGIONAL GALLERY

88 RIVER RD., EMU PLAINS

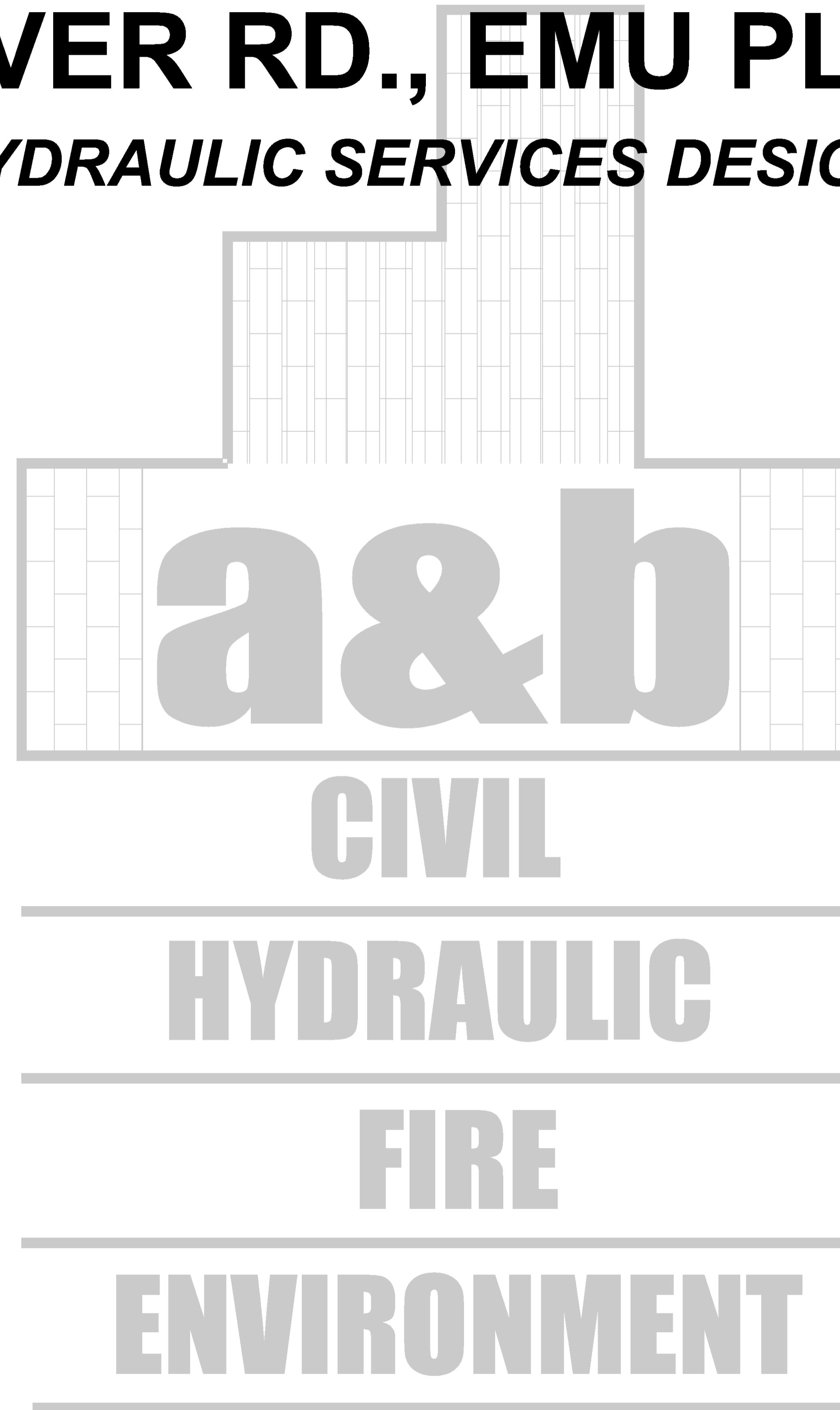
HYDRAULIC SERVICES DESIGN

GENERAL HYDRAULIC SERVICES NOTES

- a. **IF IN DOUBT, ASK.** REFER ANY QUESTIONS OR CLARIFICATIONS YOU HAVE PRIOR TO THE CLOSE OF TENDER TO THE HYDRAULIC ENGINEER, ARCHITECT, OR OTHER RELEVANT PARTY. FAILURE TO DO SO DOES NOT ABSOLVE THE CONTRACTOR OF THEIR RESPONSIBILITIES UNDER THE CONTRACT DOCUMENTS.
- b. THE CONTRACTOR SHALL READ AND FULLY FAMILIARISE THEMSELVES WITH THE HYDRAULIC PLANS, HYDRAULIC SPECIFICATION DOCUMENTS, AUSTRALIAN STANDARDS, AND AUTHORITY REQUIREMENTS APPLICABLE TO THE WORKS. CLAIMS DUE TO IGNORANCE OF THE CONTENTS OF HYDRAULIC SERVICES DOCUMENTS AND / OR REQUIREMENTS OF AUSTRALIAN STANDARDS / AUTHORITY REQUIREMENTS WILL NOT BE ENTERED INTO.
- c. THE CONTRACTOR IS REQUIRED TO VISIT AND INSPECT EXISTING SITE STRUCTURES, SERVICES AND CONDITIONS OF THE SITE PRIOR TO SUBMITTING THEIR TENDER AND FAMILIARISE THEMSELVES WITH THE VISIBLE NATURE AND CONDITIONS OF THE SITE RELATIVE TO THE WORKS TO BE CARRIED OUT. CLAIMS DUE TO IGNORANCE OF EXISTING SITE CONDITIONS WILL NOT BE ENTERED INTO.
- d. THE HYDRAULIC SERVICES DRAWINGS AND SPECIFICATION SET OUT THE PROJECT REQUIREMENTS TO BE MET OVER AND ABOVE THE MINIMUM STANDARDS AS SET OUT BY THE RELEVANT AUSTRALIAN STANDARD APPLICABLE TO THAT SERVICE. THE CONTRACTOR SHALL MAKE DUE ALLOWANCE IN THEIR TENDER, AND WARRANTIES THAT THEY HAVE MADE DUE ALLOWANCE FOR ALL REQUIREMENTS NECESSARY FOR THE EXECUTION OF THE WORKS IN ACCORDANCE WITH THE STANDARDS AS SET OUT BY THE RELEVANT AUSTRALIAN STANDARD APPLICABLE TO THAT SERVICE, THE RELEVANT LOCAL AUTHORITY REQUIREMENTS AND FOR THOSE REQUIREMENTS AS SET OUT IN THE HYDRAULIC SERVICES DRAWINGS AND THE ACCOMPANYING SPECIFICATION.
- e. HYDRAULIC SERVICES DRAWINGS ARE TO BE READ IN CONJUNCTION WITH HYDRAULIC SERVICES SPECIFICATION AND DRAWINGS OF ALL OTHER DISCIPLINES FOR THIS PROJECT. IGNORANCE OF THE CONTENTS OF ANY DOCUMENT RELATIVE TO THE PROJECT SHALL NOT PROVIDE A BASIS FOR ANY VARIATION TO THE CONTRACT.
- f. ALLOW TO OBTAIN ALL APPROVALS AND PAY ALL FEES AND CHARGES TO ALL AUTHORITIES IN RELATION TO THE PROPOSED SERVICE INSTALLATIONS INDICATED ON THE DRAWINGS.
- g. ALLOW TO DISCONNECT & SEAL ALL REDUNDANT HYDRAULIC SERVICES RELATED TO THE INSTALLATION OF THE PROPOSED WORKS TO THE REQUIREMENTS OF THE RELEVANT AUTHORITY.
- h. ALL WORK BE CARRIED OUT IN ACCORDANCE WITH WATER & SEWER AUTHORITY REGULATIONS, SUPERINTENDENTS APPROVAL & HYDRAULIC SPECIFICATION.
- i. DRAINS TO BE SUPPORTED ON OR FROM SOLID GROUND. LOCATION & DEPTH / INVERT LEVEL OF BRANCH SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORK.
- j. REUSED DRAINS UNDER BUILDINGS SHALL BE RETESTED WHERE DIRECTED BY SUPERINTENDENT.
- k. INSPECTION OPENINGS SHALL BE PROVIDED AT:
 - l. THE PROPERTY BOUNDARY
 - m. ON EACH WC OR BRANCH
 - n. AT MAX. 30m INTERVALS SPREAD EQUIDISTANT WHERE POSSIBLE
 - o. IMMEDIATELY UPSTREAM & DOWNSTREAM OF ALL JUMP-UPS
 - p. AS REQUIRED BY THE AUTHORITY FOR INSPECTION & MAINTENANCE
- q. ALL SERVICES THAT CROSS PAVEMENTS, FOOTING ETC SHALL BE BACKFILLED WITH GRANULAR MATERIAL TO SUBGRADE LEVEL & COMPACTED TO 95% M.M.D.D.
- r. PROVIDE 80mm COMPRESSIBLE MATERIAL OVER PIPEWORK WHERE CLEARANCE TO UNDERSIDE OF FOOTING IS LESS THAN 150mm UNLESS NOTED OTHERWISE.
- s. ON COMPLETION OF PIPE INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION INCLUDING: KERBS, FOOTPATH, CONCRETE AREAS, GRAVEL AREAS & ROAD PAVEMENTS.
- t. CARE SHALL BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATION SHALL BE MADE OVER AUTHORITY SERVICES, TELSTRA OR ELECTRICAL SERVICES. EXCAVATE BY HAND IN THESE AREAS.
- u. THE PLUMBING CONTRACTOR SHALL OBTAIN ALL AUTHORITY APPROVALS & PAY ALL FEES.
- v. INVERT LEVELS SHOWN ARE INDICATIVE ONLY. CONFIRM ALL LEVELS ON SITE BEFORE COMMENCING INSTALLATION WORK.
- w. ACCESS PANEL ARE TO BE INSTALLED WHERE REQUIRED TO ACCESS CONTROL VALVES IN WATER LINES AS REQUIRED & INSPECTION OPENINGS ON STORMWATER & SEWER RISERS. ACCESS PANELS SHALL MATCH PROPOSED FINISH. REFER TO ARCHITECTURAL DRAWING FOR FINISHES.

EXISTING SERVICES NOTES

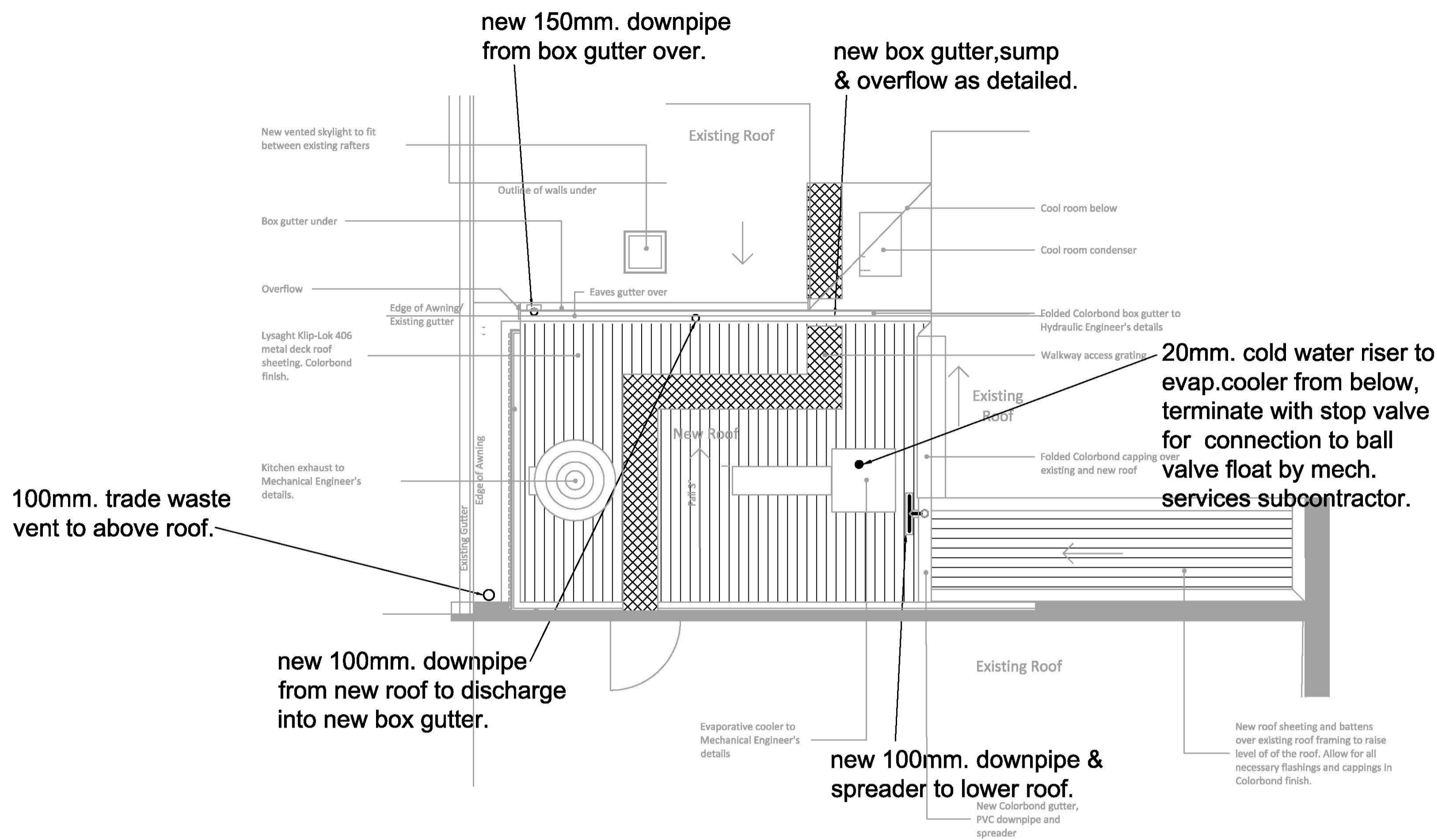
1. SERVICES SHOWN ON HYDRAULIC PLANS HAVE BEEN PLOTTED FROM PLANS AND BY FIELD INSPECTION. THESE SERVICES AND OTHERS MAY NOT BE SITUATED WITHIN REGISTERED EASEMENTS OR WITHIN STANDARD FOOTPATH ALLOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY THE LOCATIONS OF ALL SERVICES PRIOR TO CONSTRUCTION WORKS AND TO AVOID DISTURBANCE OF THESE SERVICES. THE CONTRACTOR IS ADVISED TO CONTACT THE 'DIAL BEFORE YOU DIG' SERVICE TO ASCERTAIN THE LOCATIONS OF ANY EXISTING AUTHORITY SERVICES.
2. THE HYDRAULIC SUBCONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF THEIR PROGRAMME FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
3. HYDRAULIC SUBCONTRACTOR SHALL ALLOW TO CONSTRUCT NECESSARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDINGS REQUIRED TO REMAIN IN OPERATION TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL ALLOW TO REMOVE ALL TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
4. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF SUPERINTENDENT FOR TIME OF INTERRUPTION.



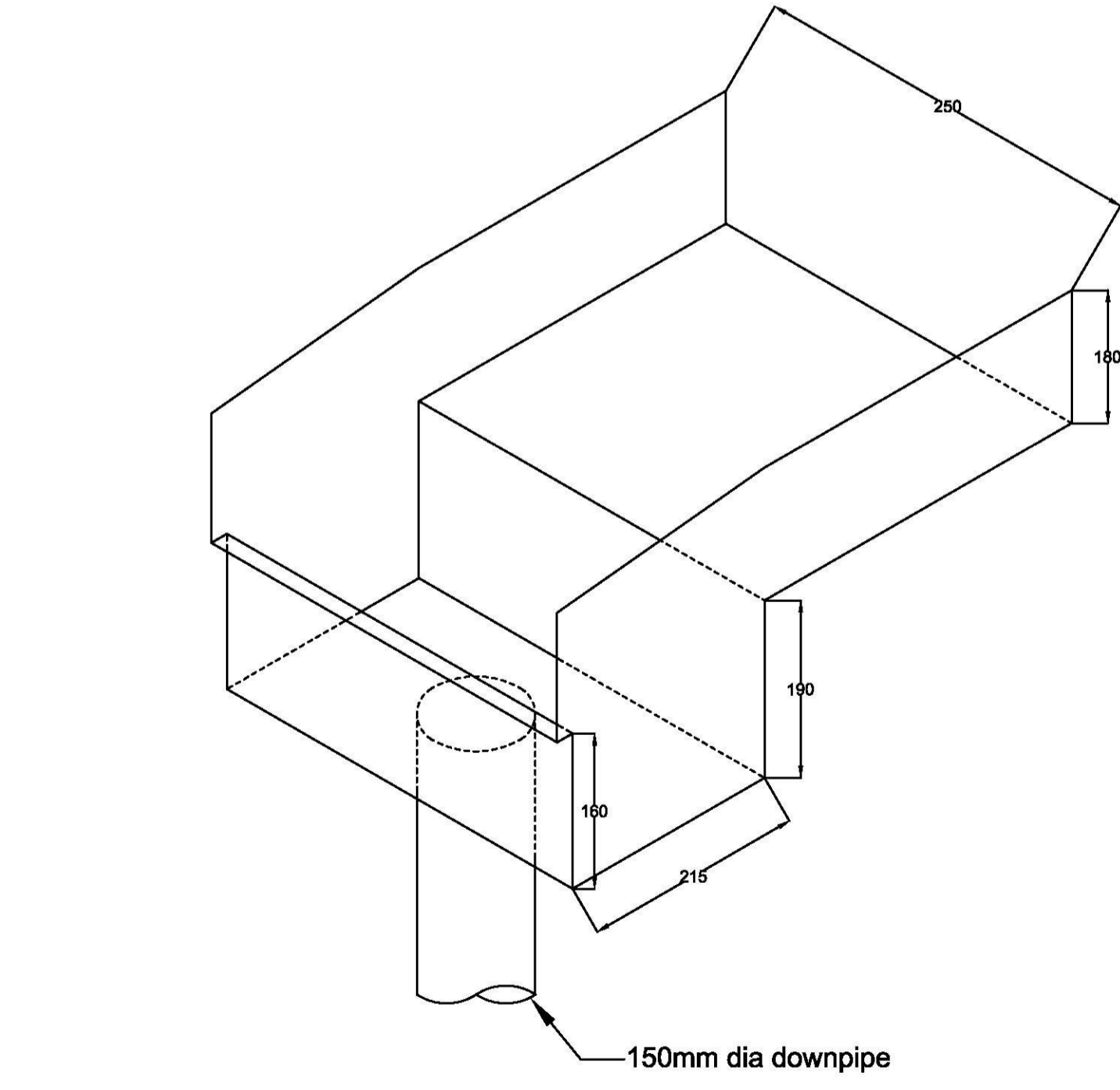
LEGEND

- Sewer Drainage
- Sediment Control Fence
- Gas Service
- Hot Water Service
- Cold Water Service
- btfw — Bucket trap floor waste
- hwh — Hot water heater
- tpv — Trap priming valve
- gr — Gas range
- g — Griddle
- f — Fryer
- dw — Dishwasher
- bp — Bratt pan
- bwu — Boiling water unit
- sk — Sink
- tv. — Tempering valve
- cm — Coffee machine
- bsn — Basin

PROJECT ARCHITECT ALLEANZA ARCHITECTURE LEVEL 4 686-688 GEORGE STREET HAYMARKET NSW 2000		PROJECT ENGINEER ABEL & BROWN PTY. LTD. 23 WARUNG STREET, YAGOONA, NSW 2199 T: 9708-5705 FAX: 9796-2272 E: mail@abelandbrown.com.au W: www.abelandbrown.com.au		CLIENT: PENRITH CITY COUNCIL		PROJECT: PENRITH REGIONAL GALLERY CAFE KITCHEN at 88 RIVER RD., EMU PLAINS		TITLE: HYDRAULIC SERVICES LEGEND & NOTES		STATUS: FOR TENDER	
B MAY 18 FOR TENDER A MAR 18 COORDINATION REV DATE NOTATION/AMENDMENT DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.		DATE: MAR 18 SCALE: NTS@A1 NO IN SET: 4 DRAWN: SB CHECKED: RB APPROVED: NB		PROJECT: 2836 SHEET: H-01 REV: B		FILE:		PLOTTED:		APPROVED: NB REV: B	



ROOF PLAN
SCALE 1:50



NOTE: ALL PIPING SHOWN THUS FOR CLARITY ONLY. ALLOW TO CO-ORDINATE FINAL LOCATION OF ALL PIPING ON SITE

NOTE FOR EXACT LOCATION OF FIXTURES AND SERVICE CONNECTION POINTS REFER TO ARCHITECT & KITCHEN CONSULTANT DRAWINGS

NOTE
ALL GAS PIPING TO BE COPPER TUBE WITH SILVER SOLDERED JOINTS.
ALL APPLIANCES TO HAVE STAINLESS STEEL BALL VALVE FOR CONTROL & MAINTENANCE.

NOTE
ALL HOT WATER PIPING TO BE COPPER TUBE WITH SILVER SOLDERED JOINTS.

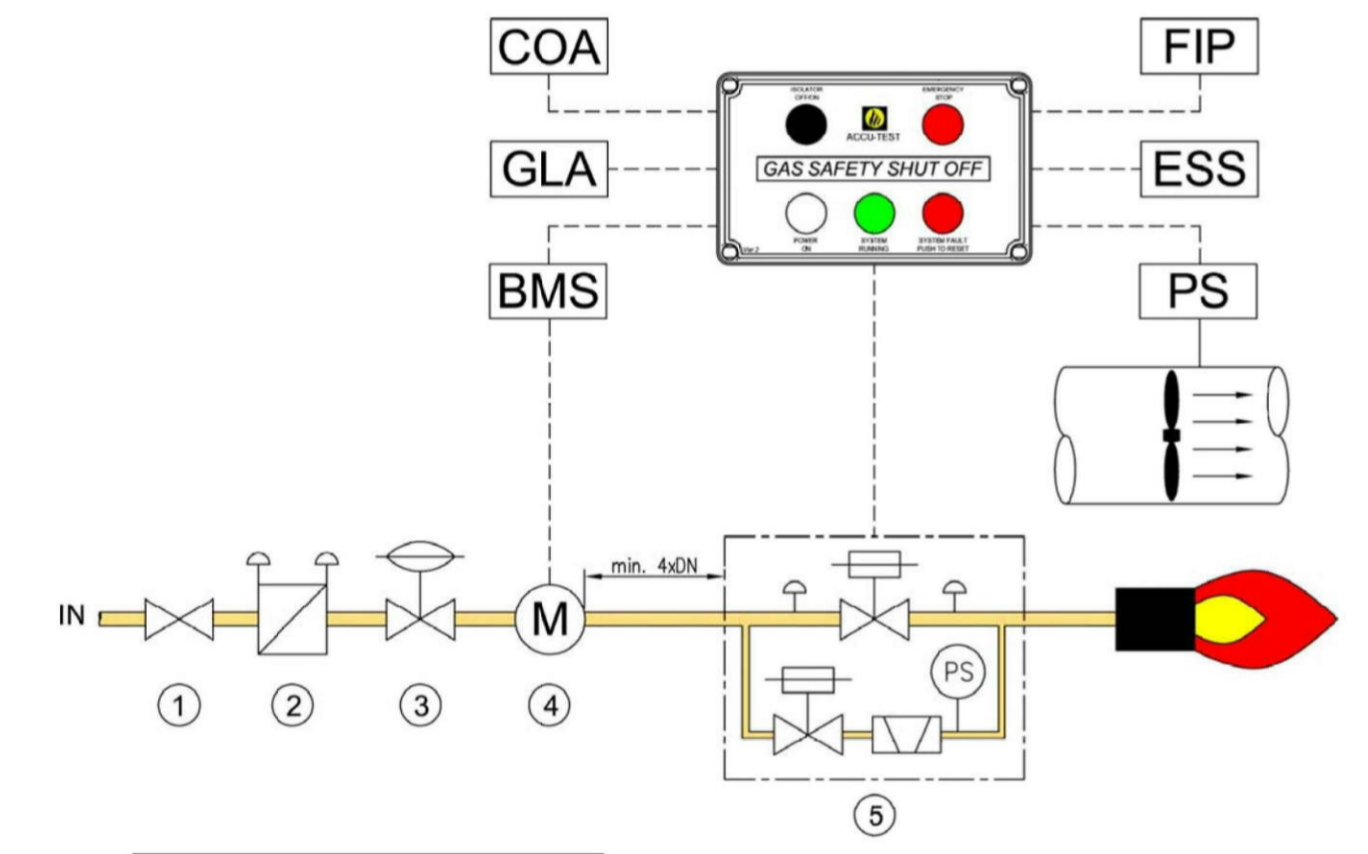
NOTE
ALL COLD WATER PIPING TO BE COPPER TUBE WITH SILVER SOLDERED JOINTS.

DESIGN CRITERIA - MAIN TO METER	
PRESSURE AVAILABLE IN MAIN	- 210 KPA
PRESSURE DROP	- 10 KPA
INDEX LENGTH	- 5 M.
GAS LOAD	- 354 MJ
PIPING MATERIAL	- COPPER TUBE

DESIGN CRITERIA - METER TO APPLIANCES	
PRESSURE AVAILABLE IN MAIN	- 210 KPA
PRESSURE DROP	- 1.5 KPA
INDEX LENGTH	- 70 M.
GAS LOAD	- 354 MJ
METERING PRESSURE	- 2.75 KPA
PIPING MATERIAL	- COPPER TUBE

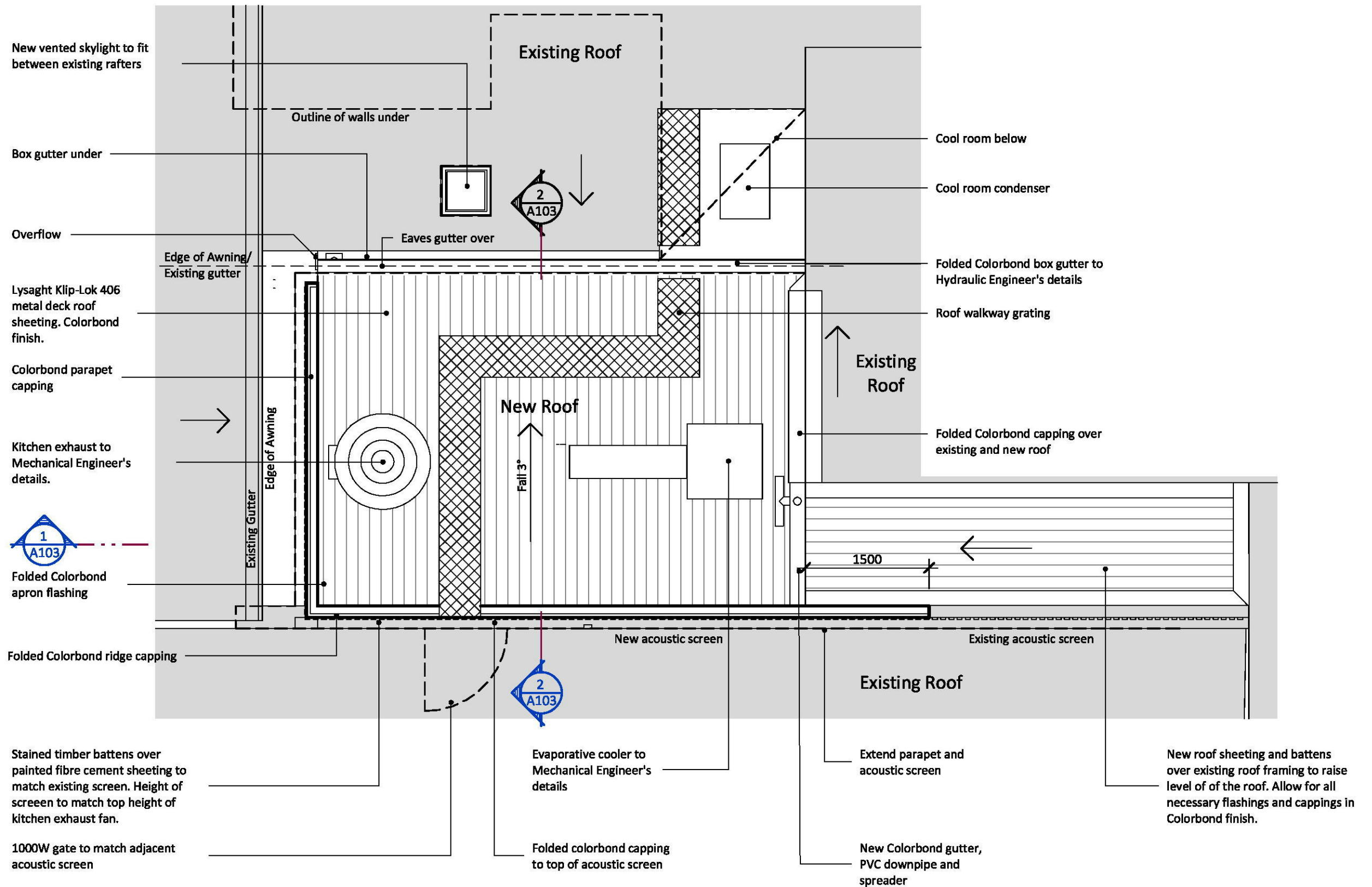
INSTALLATION

ACCU-TEST System can be integrated with multiple safety interlocks such as emergency stop stations, gas detectors, fire alarm or sprinkler systems, ventilation pressure switch.

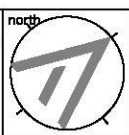


- Legend:**
- 1) - Isolation Valve
 - 2) - Gas Filter
 - 3) - Gas Pressure Regulator
 - 4) - Gas Meter with pulse output
 - 5) - ACCU-TEST System
 - BMS - Building Management System
 - GLA - Gas Leak Alarm (NG or LPG)
 - COA - Carbon Monoxide Alarm
 - FIP - Fire Indication Panel
 - PS - Pressure Switch (ventilation system)
 - ESS - Emergency Stop Station

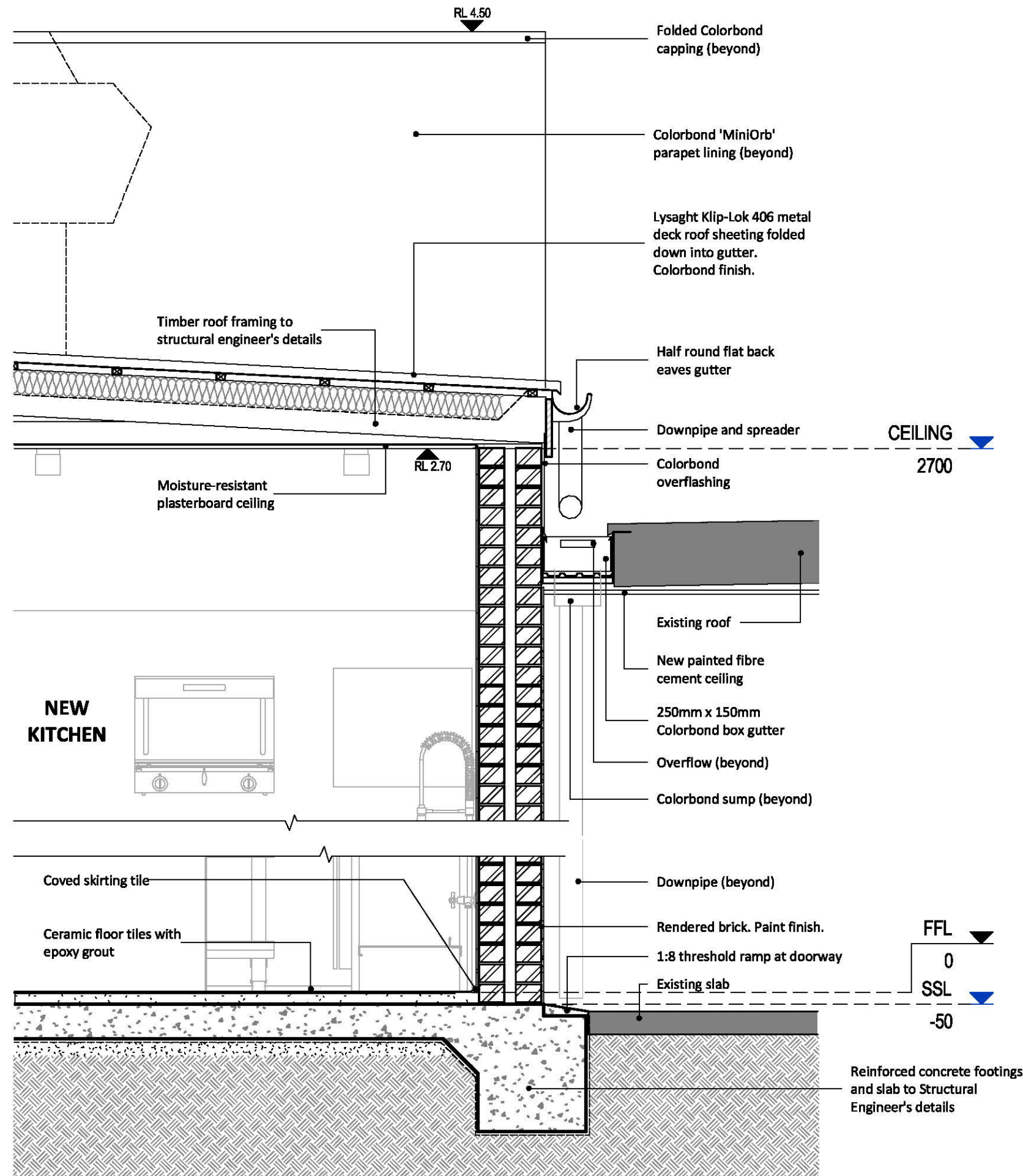
ACCUTEST GAS SAFETY SHUT-OFF VALVE



TENDER ISSUE

<p>architect</p> <p>ALLEANZA ARCHITECTURE</p>	<p>client</p> <p>PENRITH CITY COUNCIL</p>	<p>project</p> <p>PENRTH REGIONAL ART GALLERY - CAFE KITCHEN</p> <p>address</p> <p>88 RIVER ROAD, EMU PLAINS</p>	<p>project number</p> <p>17140</p>	<p>rev. no. revision description</p> <p>A Tender Issue</p>	<p>rev. date</p> <p>14.05.2018</p>	<p>north</p> 	<p>date</p> <p>NOV 17</p> <p>drawn</p> <p>LB</p> <p>checked</p> <p>LB</p>	<p>sheet number</p> <p>A102</p> <p>scale @ A3</p> <p>1 : 50</p> <p>revision</p> <p>A</p>	<p>sheet</p> <p>ROOF PLAN</p>
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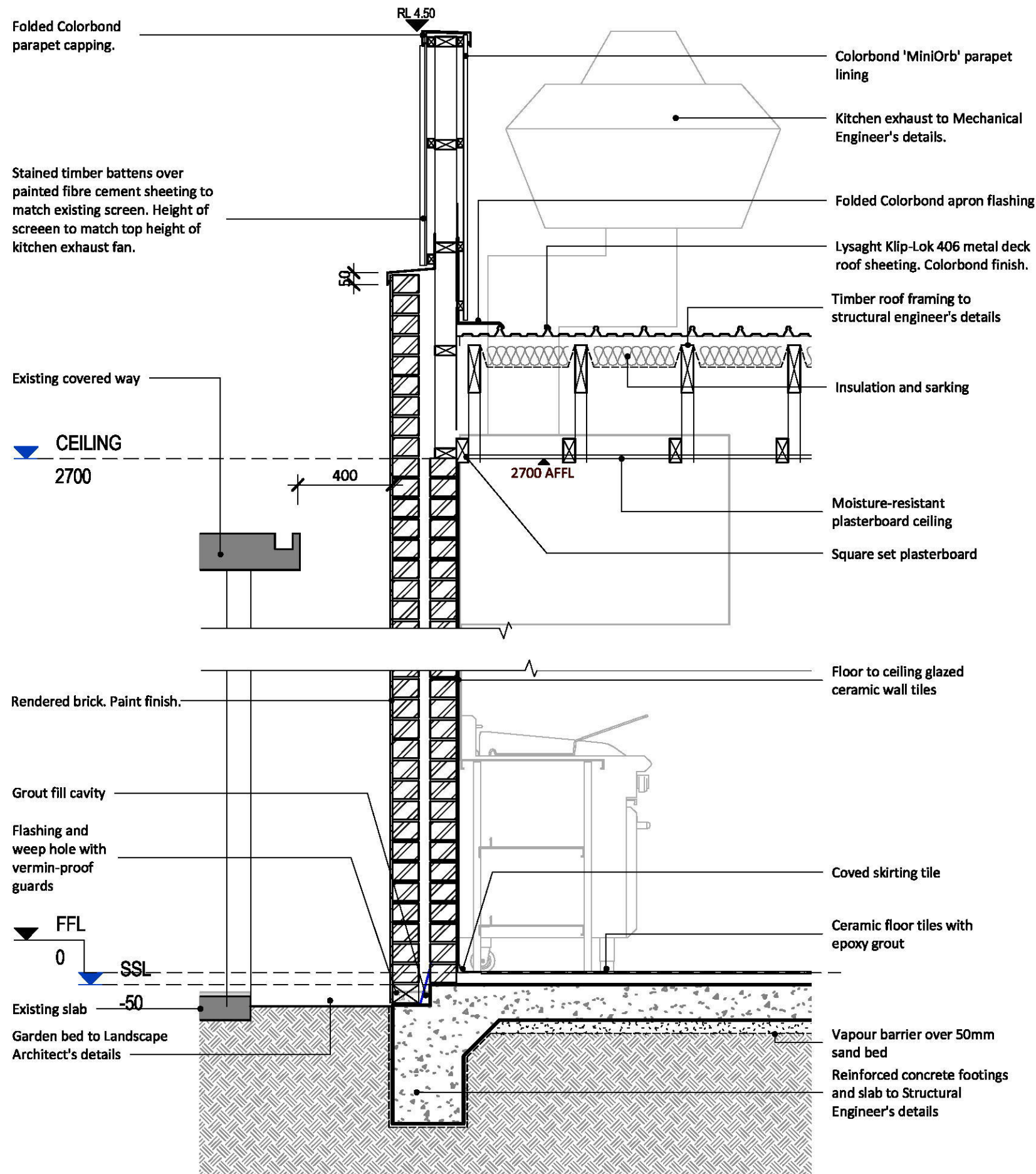
Note:
Fitout to comply with AS4674-2004
Design, Construction and Fit-out of
Food Premises.



WALL DETAIL 01
1 : 20

TENDER ISSUE

architect ALLEANZA ARCHITECTURE	client PENRITH CITY COUNCIL	project PENRTH REGIONAL ART GALLERY - CAFE KITCHEN address 88 RIVER ROAD, EMU PLAINS	project number 17140	rev. no. revision description A Tender Issue	rev. date 14.05.2018	north	date NOV 17 drawn LB checked LB	sheet number A104 scale @ A3 1 : 20 revision A	sheet WALL DETAIL 01
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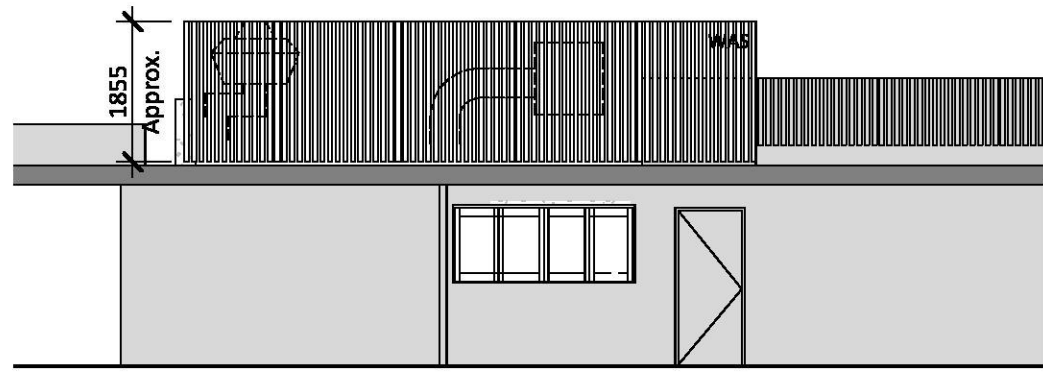


Note:
Fitout to comply with AS4674-2004
Design, Construction and Fit-out of
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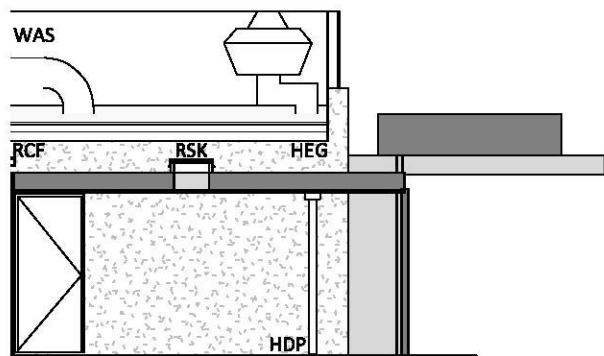
WALL DETAIL 02
1 : 20

TENDER ISSUE

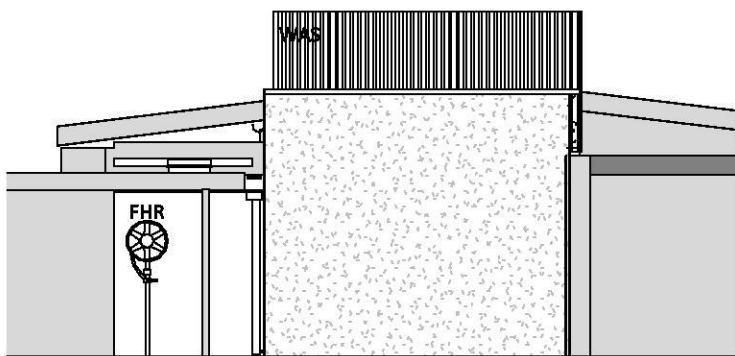
architect ALLEANZA ARCHITECTURE	client PENRITH CITY COUNCIL	project PENRTH REGIONAL ART GALLERY - CAFE KITCHEN address 88 RIVER ROAD, EMU PLAINS	project number 17140	rev. no. revision description A Tender Issue	rev. date 14.05.2018	north	date NOV 17 drawn LB checked LB	sheet number A105 scale @ A3 1 : 20 revision A	sheet WALL DETAIL 02
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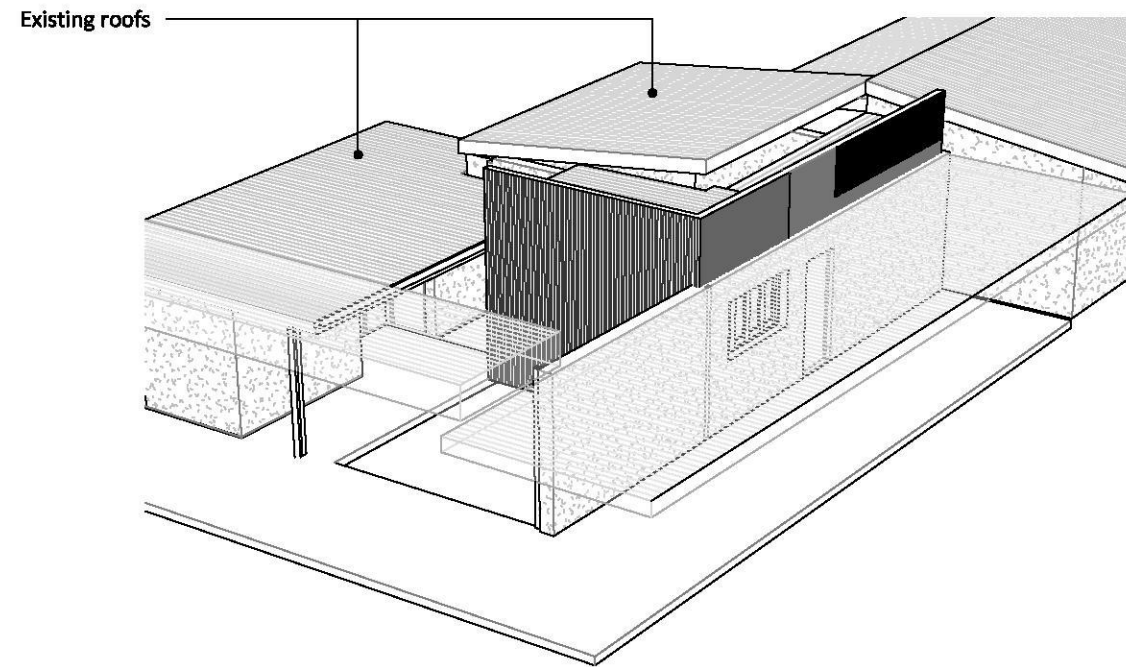
SOUTH WEST ELEVATION
1 : 100



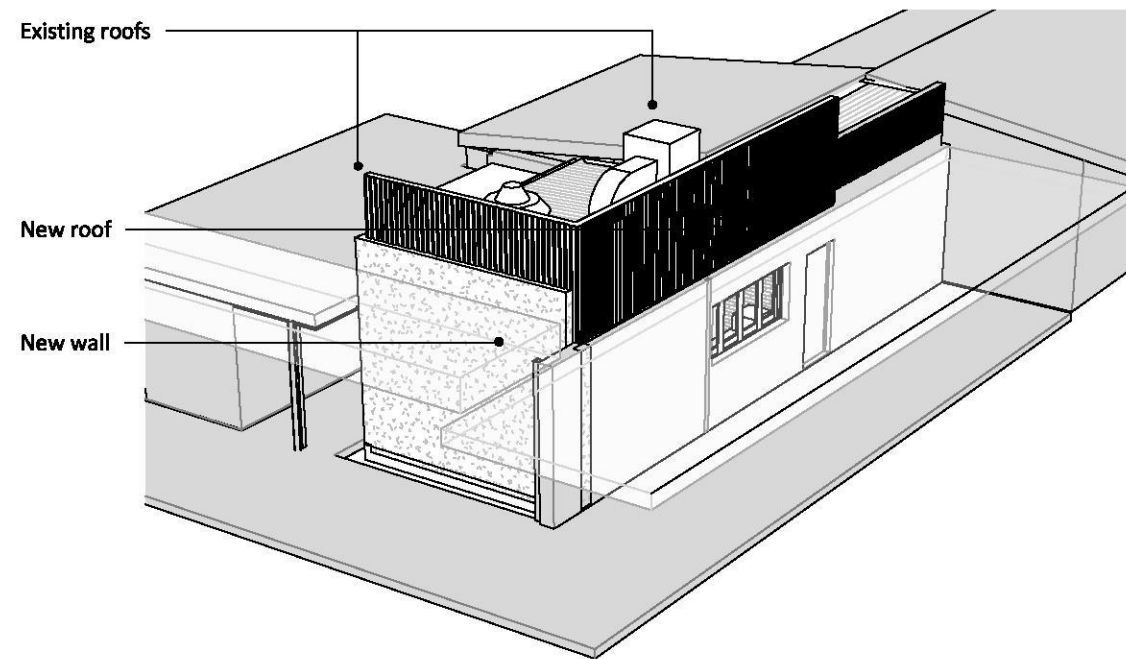
NORTH EAST ELEVATION
1 : 100



NORTH WEST ELEVATION
1 : 100



3D VIEW - EXISTING



3D VIEW - PROPOSED

Legend

- FHR Fire hose reel
- HDP Downpipe
- HEG Colorbond eaves gutter
- RCF Colorbond fascia
- RSK Ventilated skylight
- WAS Fibre cement acoustic screen with timber battens
- WBR Rendered brickwork
- WMS Prefinished sheet metal

TENDER ISSUE

architect ALLEANZA ARCHITECTURE	client PENRITH CITY COUNCIL	project PENRTH REGIONAL ART GALLERY - CAFE KITCHEN address 88 RIVER ROAD, EMU PLAINS	project number 17140	rev. no. revision description A Tender Issue	rev. date 14.05.2018	north	date NOV 17 drawn LB checked LB	sheet number A200 scale @ A3 1 : 100 revision A	sheet EXTERNAL ELEVATIONS
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NOTES AND SPECIFICATION

- ALL INFORMATION OF EXISTING SERVICES HAVE BEEN BASED ON INPUT FROM THE MECHANICAL CONTRACTOR. THE CONTRACTOR MUST SITE THAT ALL NOMINATE INFORMATION ARE ACCURATE AND SITE MEASURE TO ENSURE ADEQUATE FIT.
- THE CONTRACTOR MUST CHECK AND ENSURE THAT ALL EXISTING SERVICES THAT WILL BE REUSED ARE FULLY COMPLIANT WITH AS/NZS1668.1-2015, AS1668.2-2012 AND AS4254.1 & 2-2012. IF NOT COMPLIANT THE CONTRACTOR IS TO REMOVE AND REPLACE WITH COMPLIANT SERVICES.
- KE DISCHARGE WHICH MUST BE COMPLIANT WITH AS1668.2-2012, NOISE REQUIREMENTS AS PER COUNCIL REQUIREMENTS AND AS2107, VSDs FOR THE KITCHEN EXHAUST FAN AND KITCHEN SUPPLY FAN, AIR FILTERS FOR THE SUPPLY AIR, ADEQUATE AND SAFE ACCESS TO ALL ROOF MOUNTED PLANT, EQUIPMENT AND DUCTWORK.
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE FULL SET OF DRAWINGS AND SPECIFICATION
- THIS DRAWING IS FOR SHOWING DESIGN INTENT. IT SHOULD NOT BE USED FOR THE PURPOSE OF ORDERING EQUIPMENT AND DUCTWORK. WORKSHOP DRAWINGS MUST BE PREPARED BEFORE ORDERING/WORKS BEGIN AND WITH FULL COORDINATION WITH NEW AND EXISTING STRUCTURE ARCHITECTURE AND SERVICES.
- IT IS THE MECHANICAL CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE FINAL DESIGN IS FULLY COMPLIANT WITH THE EP & A ACT 1979 AND REGULATIONS 2000, BUILDING CODE OF AUSTRALIA (BCA), LOCAL GOVERNMENT REGULATIONS, RELEVANT AUSTRALIAN STANDARDS INCLUDING AS/NZS1668.1-2015 AND AS1668.2, THE DEVELOPMENT CONSENT, ACOUSTIC REQUIREMENTS, THE FIRE BRIGADE REQUIREMENTS, LEASING REQUIREMENTS, STRATA APPROVAL, AND OCCUPATIONAL HEALTH AND SAFETY REGULATIONS. DO NOT SCALE DRAWING
- DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE
- ALL DUCT SIZES ARE CLEAR INTERNAL DIMENSIONS AND DO NOT ALLOW FOR INSULATION THICKNESS
- MECHANICAL CONTRACTOR MUST ALLOW FOR ANY ANCILLARIES REQUIRED TO ACHIEVE COMPLETE AND PROPER SYSTEM EVEN IF NOT EXCLUSIVELY STATED ON THE DESIGN DOCUMENTS
- THE MECHANICAL CONTRACTOR MUST VISIT SITE, SITE MEASURE DUCTWORK TO ENSURE PROPER FIT AND COORDINATE WITH BUILDING STRUCTURE ARCHITECTURE, RCP AND OTHER SERVICES BEFORE FABRICATION BEGINS.
- ALL VIBRATING EQUIPMENT TO BE MOUNTED ON ADEQUATE ANTI VIBRATION MOUNTS (AVMs) TO STOP VIBRATION TRANSFER TO STRUCTURE
- ALL IN-LINE FAN SYSTEMS AND PACs TO HAVE FLEXIBLE CONNECTIONS ON BOTH INTAKE AND DISCHARGE/RETURN SIDE UNO. FLEXIBLE CONNECTION TO BE MINIMUM 150MM, INSTALLED LEVEL WITH EQUIPMENT CONNECTION SIZE WITHOUT CREASING. ALLOW FOR ADEQUATE HOOD OVER EXTERNAL FLEX. CONNECTION TO PREVENT RAIN WATER PONDING.
- DUCTWORK TO BE CONSTRUCTED TO AS4254 OR S.M.A.C.N.A.
- ALL KITCHEN EXHAUST ATTENUATORS TO HAVE ADEQUATE IMPERVIOUS LINING SUITABLE FOR KITCHEN EXHAUST
- ALL DIFFUSERS/GRILLES TO HAVE MIN. 25MM INT. LINED 'BRADFORD ULTRAPHONE' OR EQUIVALENT CUSHION BOX/PLENUM IN BLACK FINISH. USE OVAL DUCT BUTTERFLY SPIGOTS WHERE SPIGOT DIAMETER > DUCT HEIGHT.
- SAMPLE OF ALL GRILLE/DIFFUSER TYPES TO SUBMITTED TO THE ENGINEER/ARCHITECT/PROJECT MANAGER FOR APPROVAL. COORDINATE REQUIRED COLOUR WITH ARCHITECT
- MECHANICAL CONTRACTOR TO ALLOW FOR FULL AND COMPLETE PIPEWORK INCLUDING HYDRONICALLY RATED PVC PIPES C/W ADEQUATE TRAP AND FALL TO TUNDISH FOR DRAINING PIPEWORK.
- MECHANICAL CONTRACTOR TO ALLOW FOR FULL AND COMPLETE POWER AND CONTROL SYSTEMS INCLUDING SWITCHBOARD, SWITCHGEAR, DN-AUTO-OFF AND LIGHT INDICATION ON THE FACE OF THE SWITCHBOARD FOR ALL EQUIPMENT. INCLUDE TIMESWITCHES FOR ALL EQUIPMENT IN COMPLIANCE WITH PART J5 OF THE BCA.
- ALLOW ACCESS FOR ALL EQUIPMENT AS PER MANUFACTURER RECOMMENDATIONS.
- BUILDER TO PROVIDE ALL PENETRATIONS IN DOORS, PANELS, WALLS, SLABS AND ROOFS, FIRE RATED SHAFTS AND ENCLOSURES AND AIRTIGHT PLENUMS AS REQUIRED.
- BUILDER TO PROVIDE ADEQUATE AND SAFE ACCESS TO ALL PLANT AND EQUIPMENT
- ALL FIXINGS, COVERING AND MATERIALS SHALL BE FIRST CLASS CORROSION RESISTANT TYPES AND WHERE DISSIMILAR METALS ARE USED, THEY SHALL BE SEPARATED BY WEATHERPROOF MEMBRANE TO MINIMISE CORROSION
- MECHANICAL CONTRACTOR TO CHECK AND VERIFY ADEQUATE POWER AVAILABILITY BEFORE COMMENCEMENT OF WORK
- MECHANICAL CONTRACTOR TO BALANCE AND COMMISSION THE SYSTEM AND PROVIDE TYPED REPORT WITH FULL DETAILS. BALANCE TO NOMINATED AIRFLOWS -0% +10%. ALL INSTRUMENTS USED FOR BALANCING MUST HAVE CURRENT CALIBRATION CERTIFICATES
- MECHANICAL CONTRACTOR TO ALLOW FOR DIAL CONTROL FOR FANS SPEED/AIRFLOW MOUNTED ADJACENT TO THE HOOD.
- KITCHEN EXHAUST DUCT:
 - SHALL BE MANUFACTURED FROM NOT LESS THAN 1.2mm THICK SHEETMETAL
 - SHALL HAVE WEATHERPROOF, SEALED CROSS AND LONGITUDINAL JOINTS WITH GREASE AND FIRE RESISTANT SEALANT.
 - DUCT INSTALLED HORIZONTALLY SHALL BE GRADED (1:200) IN DIRECTION OF AIR FLOW AND DRAINED BACK TO KITCHEN EXHAUST HOOD. #25 DRAIN PLUG & SOCKET SHALL BE PROVIDED AT THE BOTTOM OF VERTICAL RISER.
 - MOUNT ACCESS PANELS ON SIDE OF DUCTS AND AT SPRINKLER HEAD LOCATIONS, MAX. 3m APART AND AT EVERY CHANGE OF DUCTWORK DIRECTION.
 - DUCT INTERNALLY INSULATED SHALL HAVE A TEMPERATURE OF FUSION NOT LESS THAN 500°C
 - FLEXIBLE CONNECTIONS SHALL BE FIRE RATED & SHALL HAVE A TEMPERATURE OF FUSION NOT LESS THAN 500°C
 - INTERNAL INSULATION MUST BE LINED WITH AN IMPERVIOUS MEMBRANE OF 23 MICRON THICKNESS MELINEX, AND PERFORATED METAL MESH LINING TO PROTECT THE MEMBRANE DURING CLEANING

FANS SCHEDULE									
Ref.	AREA/SYSTEM SERVED	No OFF	Air Flow L/s	Nominal Static Pressure (Pa)	Make / MODEL	Minimum Motor (kW/Phase)	MAX. dBA @ 3M	Remarks	Switchboard
KEF-R.1	KE HOOD (HOOD 1)	1	1650	175	FANTECH/CHD718	1.1/3#	49	COMPLETE WITH FREQUENCY DRIVE VSD AND REMOTE SPEED CONTROL ADJACENT TO THE OPERATOR AS DETAILED. ALLOW FOR A FULLY BCA COMPLIANT PROGRAMMABLE TIMESWITCH.	MSB

FANS SCHEDULE NOTES:

- ESTIMATED STATIC IS NOMINAL ONLY AND MUST BE CHECKED BY THE MECHANICAL CONTRACTOR, TO ACHIEVE THE DUTY FLOWS AT THE INSTALLED RESISTANCE
- SELECT FANS TO COMPLY WITH BCA SECTION J5
- ALL FANS TO BE CONTROLLED VIA BCA COMPLIANT 2# PROGRAMABLE TIMESWITCH
- IF KEFS ARE OPERATING DURING A FIRE ALARM, THEY ARE TO KEEP OPERATING. ENSURE PERMANENT LABEL ADJACENT TO FAN SWITCH AS PER AS/NZS1668.1-2015 REQUIREMENTS
- ALL FANS TO BE MOUNTED ON ADEQUATE ANTI VIBRATION MOUNTS
- ALLOW FOR A BCA COMPLIANT TIME SWITCH TO DE-ACTIVATE FANS > 1000 L/s WHEN PLANT IS NOT OCCUPIED.
- FAN STATIC PRESSURE IS NOMINAL ONLY. CONTRACTOR TO DETERMINE ACTUAL STATIC BASED ON AS INSTALLED DUCT CONFIGURATION
- ALL ROOF MOUNTED FANS EXPOSED TO THE WEATHER TO BE WEATHERPROOF
- ALL FANS TO HAVE ADEQUATE RATED LOCAL ELECTRICAL ISOLATOR SWITCH INCLUDING WEATHERPROOFING WHERE EXPOSED

EVAPORATIVE COOLER SCHEDULE							
Label	LOCATION/AREA SERVED	MAKE/MODEL	Nominal SA L/s	Nominal Static Pa	Nominal Input Power (kW/Phase)	WEIGHT (Kg)	REMARKS
EC-R.1	EXISTING GROUND FLOOR DINING AREA	BRAEMER RPC250	1900/850 (VARIABLE SPEED)	50	0.56/1	80	ALLOW FOR PROPRIETARY VARIABLE SPEED WALL MOUNTED CONTROL AND INDICATION PANEL ALLOW FOR DRAIN KIT ALLOW FOR CONDUCTIVITY SENSORS TO CONTROL BLEED. SET-POINT SHOULD BE TO MANUFACTURER'S RECOMMENDATIONS

EVAPORATIVE COOLER SCHEDULE NOTES:

- ESTIMATED STATIC IS NOMINAL ONLY AND MUST BE CHECKED BY THE MECHANICAL CONTRACTOR, TO ACHIEVE THE DUTY FLOWS AT THE INSTALLED RESISTANCE
- SELECT EVAPORATIVE COOLER TO COMPLY WITH BCA SECTION J5
- CONTRACTOR TO PROVIDE A BCA COMPLIANT 2# PROGRAMABLE TIMESWITCH
- ALL EVAPORATIVE COOLERS TO BE MOUNTED ON ADEQUATE ANTI VIBRATION MOUNTS
- ALLOW FOR A BCA COMPLIANT TIME SWITCH TO DE-ACTIVATE FANS > 1000 L/s WHEN PLANT IS NOT OCCUPIED.
- FAN STATIC PRESSURE IS NOMINAL ONLY. CONTRACTOR TO DETERMINE ACTUAL STATIC BASED ON AS INSTALLED DUCT CONFIGURATION
- ALL ROOF MOUNTED EVAPORATIVE COOLERS EXPOSED TO THE WEATHER TO BE WEATHERPROOF
- ALL EVAPORATIVE COLLERS TO HAVE ADEQUATE RATED LOCAL ELECTRICAL ISOLATOR SWITCH INCLUDING WEATHERPROOFING WHERE EXPOSED
- ALLOW FOR A SOLENOID VALVE TO DRAIN THE TANK/TRAY IF UNIT STOPS FOR A LONG PERIOD INCLUDING DURING THE COLD SEASON TO PREVENT BACTERIAL FORMATION IN THE WATER
- CONTRACTOR TO ALLOW FOR AUTOMATIC SYSTEMS THAT USE CONDUCTIVITY SENSORS TO CONTROL BLEED OR DUMP VOLUMES TO PROVIDE THE BEST WATER EFFICIENCY. SET-POINT SHOULD BE TO MANUFACTURER'S RECOMMENDATION

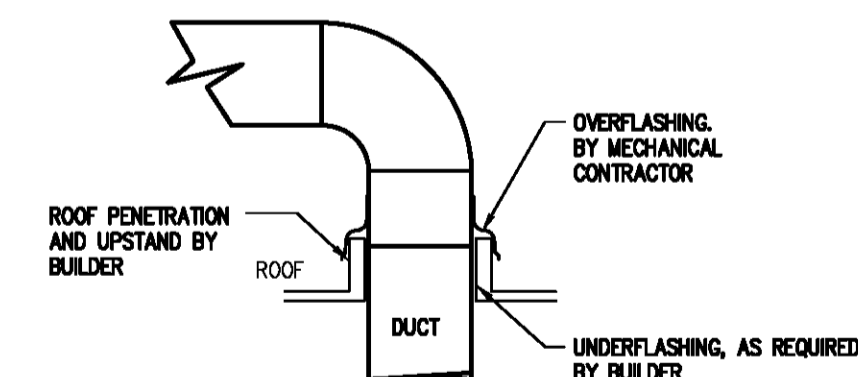
DRAWINGS LIST	
DRAWING No	TITLE
M-01	LEGEND, NOTES, DETAILS AND SCHEDULES
M-02	LAYOUT
M-03	SPECIFICATION SHEET 1 OF 2
M-04	SPECIFICATION SHEET 2 OF 2

LEGEND

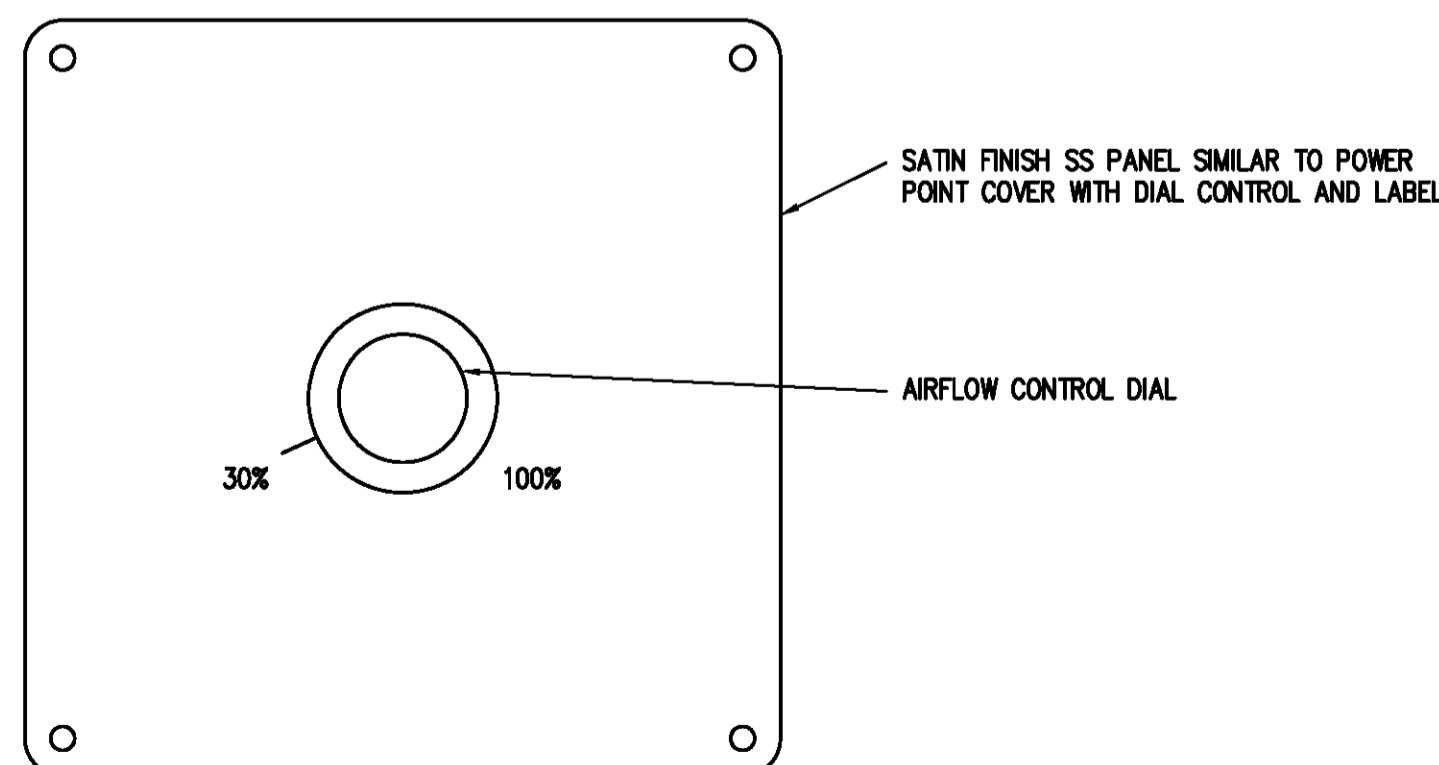
- CIRCULAR DUCT
- UNINSULATED SHEETMETAL DUCT
- INDICATES SHEETMETAL DUCT LINED WITH 50mm INTERNAL INSULATION 'BRADFORD ULTRAPHONE' OR EQUIVALENT. ALL KE DUCTS MUST HAVE MELINEX LINING C/W PERFORATED GAL SHEETS ON INTERNAL SURFACES
- INDICATES SHEETMETAL DUCT LINED WITH 38mm INTERNAL INSULATION 'BRADFORD ULTRAPHONE' OR EQUIVALENT. ALL KE DUCTS MUST HAVE MELINEX LINING C/W PERFORATED GAL SHEETS ON INTERNAL SURFACES
- EXISTING DUCTWORK/HOOD
- 150 FLEXIBLE DUCT CONNECTION
- TAKEOFF BOOT
- SQUARE BEND C/W TURNING (TV) VANES. SQUARE BENDS TO HAVE 17# EXCEPT KITCHEN EXHAUST DUCTS
- CEILING ACCESS PANEL. SIZE AS DRAWN
- ACCESS PANEL - DUCT MOUNTED (SIDE)
- MECHANICAL SWITCHBOARD. CONFIRM LOCATION WITH PRINCIPAL

NOMENCLATURE

- AF AIR FILTER
- AP ACCESS PANEL
- C/W COMPLETE WITH
- EA EACH
- ES EGGRATE GRILLE
- F/A T/A FROM ABOVE, TO ABOVE
- F/B, T/B FROM BELOW, TO BELOW
- H/L, L/L HIGH LEVEL, LOW LEVEL
- KE KITCHEN EXHAUST
- KET KITCHEN EXHAUST FAN
- KSF KITCHEN SUPPLY FAN
- NS NOT TO SCALE
- OA OUTSIDE AIR
- OED OPPOSED BLADE DAMPER
- RA RETURN AIR
- SA SUPPLY AIR
- SU SET UP
- SD SET DOWN
- TBC TO BE CONFIRMED
- VSD VARIABLE SPEED DRIVE (VARIABLE FREQUENCY DRIVE)
- W/PROOF WEATHER PROOF



TYPICAL DETAIL OF SHEETMETAL DUCT PENETRATION THROUGH ROOF
N.T.S.



KE HOOD VENTILATION CONTROL
NTS

- SPEED CONTROL DIAL CONTROL IN SATIN SS FINISH TO BE MOUNTED ADJACENT TO THE ASSOCIATED HOODS (2-OFF, ONE FOR EACH FAN) TO PROVIDE ADEQUATE CONTROL FOR OPERATOR WORKING THE COOKLINE. THE DIAL CONTROLS THE KEF SPEED.
- INTERNAL 'KE HOOD VENTILATION CONTROL' IN MIN. 10MM CAPITAL LETTERING PERMANENTLY FIXED AT THE BOTTOM OF THE PANEL

DESIGN PARAMETERS:

- THE CONTRACTOR MUST CHECK AND SITE MEASURE FOR ADEQUATE FIT AND COORDINATE WITH STRUCTURE AND SERVICES.
- CONTRACTOR AND CLIENT TO CONFIRM THAT ELECTRIC POWER SUPPLY IS ADEQUATE.
- CONTRACTOR TO ENSURE FULL COMPLIANCE OF VENTILATION SYSTEMS + BCA + DA CONSENT + AS/NZS1668.2-2012, AS/NZS4254-2012, AS/NZS1668.1-2015.
- KE DISCHARGE TO BE VERTICAL MIN. 6.0 M FROM ALL OPENINGS/INTAKES AND BOUNDARIES.

DRAWINGS REFERENCE TABLE

DGN No/FILE NAME	REV	TITLE/FILE NAME	RECEIVED
20.05.18	C	REVISED AND ISSUED FOR CONSTRUCTION REVISED TO SUIT REVISED ARCH DRAWINGS	MS
26.03.18	B	ISSUED FOR CONSTRUCTION	MS
12.03.18	A	ISSUED FOR COORDINATION	MS

CONSULTANT

TWO MS
ABN 53 693 601 799

- HVAC
- ESD
- BIM
- Energy Audit
- BCA Section J
- ABQR/NABERS Rating
- Fire Safety Certification

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DO NOT SCALE DRAWING	A1	DRAWN TWO MS	SCALE NTS, UNO
CAD FILE No		ENGINEER M. Sarkis	DATE DEC 2017
PROJECT	PENRITH REGIONAL ART GALLERY CAFE KITCHEN		PROJECT No 1502
TITLE	MECHANICAL SERVICES NOTES, LEGEND, DETAILS AND SCHEDULES		DRG No M-01

GENERAL CONDITIONS AND SPECIAL NOTES

- It is the Mechanical Contractors responsibility to ensure that the final design is fully compliant with the Design Brief, EP & A Act 1979 and Regulations 2000, applicable BCA–2016 NCC, local government regulations, relevant Australian Standards including AS1668.1 and 2, the development consent, BASIX/SECTION J, Acoustic report, Fire Engineer Report, fire brigade requirements to achieve a fully coordinated interface and occupational health and safety regulations.
- The Contract is between the Principal and the Contractor. Full contract conditions and details are provided directly by the Principal's Representative. Where no other contract conditions are provided, the general conditions of contract as per AS 4000 shall apply to the Contract.
- The Contractor is to construct the mechanical services in accordance with the mechanical services design documents, drawings and specification
- It is the full responsibility of the Contractor to provide a workable solution to meet the specified requirements.
- The Contractor can provide alternative design concepts if they meet full design requirements for approval by the Principal
- The contractor must establish the extent of any work involved and the nature and extent of all work to be carried out. No variations will be allowed for necessary work unforeseen by the Contractor through not having taken this precaution.
- Unless specified otherwise all equipment and materials installed under this Contract shall be new.
- Allowance must be made for all systems shown on the drawings even if not explicitly included in the Scope of Work. Any missed areas and/or system must be provided fully at contractor's cost
- It is the Contractor's responsibility to ensure that their program of equipment ordering and work scheduling complies with the program of work on site. Failure to perform, allows the Principal to engage another Contractor to carry out the work at the Contractor's cost.
- complete detailed design and workshop documents must be prepared and submitted to the builder for approval in timely fashion for review and approval. Allow a minimum 14 days for the review process.
- Alternative to nominated Brands are acceptable subject to being similar or better quality and value. All equipment must be submitted for approval
- Mechanical contractor must check and use the latest architectural, structural and other services documents and drawings, adjust the design to suit and undertake full coordination
- Coordinate with other trades including builder, Electrical contractor, Fire contractor and hydraulic contractor all works requiring interface with the Mechanical Services including but not limited to penetrations, access, power supply, Fire Fan Control Panel and fire alarm signals, tundishes/floor wastes.
- All outdoor intake and discharge louvers and grilles to be weatherproof and to have adequate vermin proof mesh
- Exposed equipment, Diffusers and Grilles colour(s) to be as required by the client. Contractor must confirm and submit samples for approval
- Any conflict in the design and referenced documents must be brought to the attention of the design engineer for clarification/amendment
- Contractor to allow for adequate condensate/water drain pipes to nearest floor waste complete with adequate fall and trap

SCOPE OF WORK

Design and workshop Documentation, Coordination, Supply, installation, testing, commissioning certification and 12 months warranty of complete New mechanical services systems for Hospitality upgrade Ground floor to Roof as per the design intent. Systems include:

- New Commercial Kitchen ventilation systems including Hoods, Ductwork, Fans, VSDs, insulation, Electrical and controls and all miscellaneous to provide a full and complete ventilation systems, as detailed on the mechanical services drawings and specification.
- Weatherproof louvers complete with vermin mesh as shown on the Mechanical Services design drawings
- New Evaporative cooling system, as detailed on the mechanical services drawings and specification
- Full and complete supply and installation of all ductwork systems complete with all ancillaries required to achieve the design intent.
- All sheetmetal and flexible ductwork for ventilation systems including all fittings such as grilles, diffusers, fire dampers, cows, air filter, volume control dampers, access panels, flexible connections, drip trays, vibration isolation mounts, flashings, gaskets, vermin mesh, supports, framing, fixings and all other ancillaries to form a complete air distribution system.
- Full and complete supply and installation of all pipework and insulation (all exposed pipework to be fully and adequately enclosed in painted gal sheetmetal boxes or colorbond trunking – colour to architect requirements), complete with all ancillaries required to achieve the design intent. Allow for trunking/covering of all exposed pipework via adequate colorbond or powder coated galvanised sheetmetal housings (colour to suit architect's requirements)
- All acoustic and thermal insulation as shown on the drawings and to comply with acoustic requirements including council, acoustic report, NCC section J5 and the acoustic consultant recommendations
- All other areas and systems even if not explicitly specified in the design drawings and documents, but is required to achieve compliance with all relevant criteria nominated in this specification
- Full and complete power and control wiring to AS3000 and manufacturer's guidelines for all systems and as per this specification.
- Non-essential, Form 1 switchboard for all common services. Switchboard. Final location of the switchboard to be coordinated with the principal
- Local electrical isolating switches for all mechanical equipment. All exposed equipment to have adequate weatherproof isolators
- Wiring between Fire Fan Control Panel and mechanical switchboard(s)
- All lifting, cranoage, handling and associated scaffolding for all equipment and systems covered under the Scope of works
- Coordination of all Mechanical Services work with the structure, RCP, and other trades and services
- commissioning and tests including complete airflow tests, Equipment operation, system operation (including fire and non-fire modes) and electrical tests as required
- Painting and labeling
- Sealing of penetrations
- workshop (including electrical and control schematics) and as installed drawings
- Operation and maintenance manuals
- Certification of as installed work for the occupation certificate
- Adequate training of facility manager of all common plant and systems operation including emergency procedures
- 12 months Maintenance and defects rectification from practical completion date. Maintenance of all essential fire services must be in full compliance with AS1851 and the requirements of the Fire Engineer Report and the mechanical Specification. Should the contractor find any unclear or mismatching information, they must contact the engineer for clarification in timely fashion

Work By Others

Building Works

- Provision of trimmed openings/penetrations in walls, slabs and roofs for ducts and pipes, complete with upstands and underflashings as required. The Mechanical contractor to provide details of all required penetrations, plinths and upstands
- Provision of openings and access panels in walls and ceilings for the mechanical services including permanent and temporary
- Provision of adequate and safe access to mechanical equipment. Access to comply with BCA and OH & S
- Undercutting of doors as specified on the drawings
- Provision of bulkheads and fire rated enclosures
- provision of fire rated and airtight shafts as required
- Screening of any mechanical plants as required

Electrical

- Provision of temporary power (15A single phase and 30A three phase)
- Provision of 415V/3/50Hz non-essential power mains to the mechanical switchboard(s)

Hydraulic

- Floor waste and/or tundish as nominated on the drawings

Fire

- All smoke/heat detectors as required by the BCA
- All sprinklers as required by the BCA
- Fire mode signal to voltage free contacts in mechanical services switchboards. Fire trip will be auto reset via building FIP which will be manually reset following fire alarm.
- Fire Indicator Panel (FIP) and Fire Fan Control Panel (FFCP) as per AS/NZS1668.1–2015

Regulations, Authorities & Inspections

All work related to this project must be in compliance with EP & A Act and regulations, BCA, local government regulations, relevant Australian Standards, the Development consent, Fire Brigade Requirements and O H & S regulations.

Applicable standards include:

- AS 4254 Ductwork for Air Handling Systems in Buildings
- AS 1324 Air filters for use in general ventilation and air-conditioning
- AS 1668.1 & 2 Mechanical Ventilation and Air Conditioning Code
- AS 1677 Refrigeration Systems
- AS 1851 Maintenance of fire protection equipment Part 6 Management procedures for maintaining the fire precaution features of air handling systems
- AS 2107 Acoustics – Recommended design sound levels and reverberation times for building
- AS 3000 SAA Wiring Rules
- AS 1674 Cutting and Welding Code
- AS 3666 Air Handling and Water Systems of Buildings – Microbial Control
- AS 5601 Gas Installations (for Gas meter cupboard ventilation systems)
- SAA National Plumbing and Drainage Code AS 3500

Workmanship should be of first class quality.

The Proprietor shall have the right to inspect the work in progress and all materials the Contractor proposes to use and in the event of any dispute in this connection, the Proprietors decision will be binding and final.

Design Criteria and Performance Requirements

Ambient Temperature Design Conditions

Summer: 34.6°C Dry bulb, 23.9°C Wet bulb
Winter: 5.8°C Dry bulb

General Internal Space Conditions for airconditioned spaces

Evaporative cooler is expected to provide heat relief in the order of 9 deg C at design conditions based on 80% efficiency.

Outside Air and Exhaust Air Ventilation

AS/NZS1668.1–2015 and AS1668.2–2012

Smoke Hazard Management

NCC and AS/NZS1668.1–2015

Acoustic

External noise limits for mechanical plant and equipment shall meet the requirements set by the DA, CC and Council.

Comply with Acoustic Report

Internal noise levels due to noise from all mechanical plant and equipment to comply with AS2107 as a minimum, not withstanding DA, CC and Council requirements.

Performance

Maintaining comfort conditions inside the space is based on:

- All doors and windows being closed at all times
- Opaque Blinds must be drawn over sunlit glass.
- All structural gaps must be sealed to stop infiltration or/and loss of conditioned air.
- The absence of unaccounted significant heat source(s)

If the above conditions are not satisfied, it may compromise system performance and comfort conditions.

The final design and instalation must be fully compliant with the EP & A Act and Regulations, NCC, BASIX, BCA Report, Acoustic Report, local government regulations, relevant Australian Atandards including AS1668.1 and 2, the development consent, fire brigade requirements and occupational health and safety regulations.

Drawings

Workshop Drawings

After full and successful coordination with the structure, the architect and other services, complete and issue in both hard copy and electronically, for approval, workshop drawings before commencement of work. The Drawings shall include:

- penetrations details
- full ductwork and pipework details for manufacturing and installation
- reflected ceiling plans with all air outlets, sizes, air quantities etc.
- Structural aspects including beams and slabs and their associated heights
- plant details
- electrical schematics and switchboards.
- reference to all Builders work and work required by other trades, such as plinth dimensions, drain positions, penetrations, electrical termination

Detail drawings should be prepared on a Min. scale of 1:50.

Submit drawings within sufficient time to permit modifications to be made without delaying the works

As Built Drawings

Supply three (3) hard copies and three (3) CDs containing both DWG and PDF files of a complete set of As Built drawings. The drawings must be accurate and reflects the full and exact system details. Drawings must include:

- Ducting layout showing the actual sizes (external sheet metal sizes) and locations of all ducts, dampers, supply outlets, return inlets, fresh air intakes, etc. and the final measured air flow rates for all outlets. All ductwork must be drawn to scale
- Piping layout, showing the actual sizes and locations of all associated pipework
- Equipment schedules

Samples

Samples of key components are required from the contractor to be made available before the installation on site commences. This includes:

- Ductwork construction including each type of joint proposed and each type of insulation method.
- Typical Apartment AC system indoor unit
- One diffuser and grille of each type.
- Supports for equipment, ductwork and pipework

Installation Manual

On completion of performance tests provide copies of installation manuals. The manual shall include a full description of the installation and functioning of the systems and instructions for efficient operation and maintenance. The manual shall be bound in a vinyl hard-back folder with stamped lettering on the front.

The manual should include the following sections:

Section 1	Index
Section 2	Description of Installation
Section 3	Installation Drawings Register
Section 4	Equipment Schedules & Suppliers Directory
Section 5	Installation & Operation
Section 6	Control System & Operation
Section 7	Maintenance of Equipment & Systems
Section 8	Commissioning Test Results
Section 9	Manufacturers Publications
Section 10	Certifications

Testing, Commissioning, Acceptance and Certification

Carry out a complete series of commissioning and acceptance tests for all equipment and systems installed in timely fashion. Certified calibrated measuring equipment shall be used for all tests.

The contractor shall give minimum five days notice to the Engineer to enable him to be present at required tests. All necessary labour, maker's representatives, instruments, manufacturer's literature and fuel shall be made available by the contractor. Record manufacturer's name and model number of each instrument used in all tests and last date of calibration.

Submit two typed-up hard copies on A4 to the engineer within two weeks of test completion for approval. The approved test will then be submitted as a formal record.

Air Balancing

The balancing tolerances of the supply and exhaust air quantities shall be +10%, –0% of the quantities shown on the drawings. After the system has been balanced, all balancing dampers shall be fixed and marked.
Submit test sheets of airflow for all grilles accompanied by calibration factors.

Refrigerant System Pressure Testing

Refrigerant systems should be pressure tested as per manufacturer instruction and in accordance with AS 1677. Systems should be shown to be free of leaks by using a compatible test method suitable for the refrigerant in the system. Acceptable leak methods used must satisfy requirements of AS 1677.

Lines should be completely cleared of test gas on satisfactory completion of the pressure tests by blowing through with a suitable inert gas.

On completion of the pressure tests and before lines are connected to system components such as evaporator, condenser or compressor, they should be evacuated using dry nitrogen as a moisture absorber using 'Deep Vacuum Method' or 'Triple Evacuation Method'. Confirm and follow manufacturer instructions

Should air be found in the system, find and repair leak(s), then pressure test in accordance with the above procedure and repeat the evacuation process.

All Vacuum gauges used should be calibrated and certified prior to de-hydration of the system.

GENERAL NOTES

- THIS DRAWING MUST BE READ WITH THE FULL SET OF MECHANICAL SERVICES DRAWINGS AND SPECIFICATIONS AND ALL OTHER RELEVANT DOCUMENTATIONS

Performance Guarantees

Performance guarantees by the contractor shall be as follows:

- That all components will have adequate size, capacity and performance, the test of this being the ability or otherwise of the installation to produce, on the average within each air conditioned area, the specified design internal conditions when operating under specified design outside ambient conditions and specified design internal loads.
- That all fans will deliver design flow rate against actual system resistance as installed.
- That the control systems will have adequate performance and the remainder of the installation will be sufficiently well set up and balanced

Should noise levels exceed the recommended limits, any alterations necessary to remedy the condition will be made at no cost under the Contract

System Handover, Maintenance, Service & Warranty

At practical completion, operate the systems and adequately instruct the owner's delegate in the operation and maintenance of the installed services and in the use of the Instruction Manual.

Allow for 12 months operational maintenance and defects liability periods commencing from the date of practical completion and comply with AS3666.

Maintenance, in addition to rectification of faults shall also include fine tuning as necessary and to ensure the system is operating efficiently.

All services records to be provided to the client and maintained in the site log book.

Any defects must be rectified prior to the end of the defects liability period.

All equipment warranties must cover as a minimum the defects liability period.

Warrant the complete works against defective workmanship and materials and against non compliance of equipment or systems with specified performance of operation as outlined in the design documentation including this specification and associated design drawings.

Acoustics

External noise limits for mechanical plant and equipment shall meet the requirements set by the DA, CC and Council.

Internal noise levels due to noise from all mechanical plant and equipment to comply with AS2107 as a minimum, not withstanding project Brief, DA, CC and Council requirements.

FOR CONTINUATION REFER TO DRAWING M–04

DRAWINGS REFERENCE TABLE

DGN No./FILE NAME	REV	TITLE/FILE NAME	RECEIVED

26.03.18	A	ISSUED FOR CONSTRUCTION	MS
DATE	REV	DESCRIPTION	BY

CONSULTANT			
TWO MS			
ABN 53 693 601 799			
. HVAC			
. ESD			
. BIM			
. Building Energy Consultants			
. Energy Audit			
. BCA Section J			
. ABQR/NABERS Rating			
. Fire Safety Certification			
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DO NOT SCALE DRAWING	A1	DRAWN TWO MS	SCALE NTS, UNO
CAD FILE No		ENGINEER M. Sarkis	DATE DEC 2017
PROJECT	PENRITH REGIONAL ART GALLERY CAFE KITCHEN		PROJECT No 1502
TITLE	MECHANICAL SERVICES		DRG No A
MECHANICAL SPECIFICATION SHEET 1 OF 2			M–03

FOR CONTINUATION REFER TO DRAWING M-03

Technical Requirements

General

All equipment offered in the tender must comply with the requirements of the Specification and drawings. If equipment is offered as complying and this is incorrect then the particular item of equipment will be rejected and replaced with complying equipment at no additional costs. Non complying equipment shall be offered only as an alternative.

Equipment capacities shall be not less than those specified.

Vibration Isolation

Excessive transmission of vibration from plant to the building structure shall be eliminated by isolating all moving equipment using adequate vibration isolation mounts.

Flexible Connections

All moving/vibrating plant (fans, FCUs, CUs etc.) shall be isolated from ductwork using flexible connections. Flexible connections shall be located as close to the plant as is possible and should be selected to accommodate all equipment, duct deflections in all directions. They should be selected to accommodate the maximum fluid pressures and temperatures within the ducts over the lifetime of the plant operation.

Refrigeration

The refrigerant used in the air conditioning system shall be as specified by the manufacturer and must comply with relevant authority requirements.

All refrigeration piping shall be silver/alloy brazed and pressure tested to AS 1677. All exposed refrigerant piping shall be coated to prevent corrosion.

The refrigerant charge in the system must comply with the 'practical limit' of AS1677.

Piping

Refrigeration piping: copper to AS 1432.

Pipework Insulation

Insulate all refrigerant piping with self extinguishing inhibited expanded styrene with properties in accordance with AS1366.4 for nominal density of 20 kg/m3. Use Armaflex or equivalent. Allow for gal. steel covering of all exposed insulated pipework, colour to suit architect requirement.

Ductwork

Unless otherwise indicated, all sheet steel used in the works shall be galvanised sheet steel and the ducting and duct elements shall be constructed in accordance with AS 4254.

Where indicated as oval/round, the ductwork shall be lockseam Raladuct or equal.

- Flexible Ducting

All Flexible ducting runs shall be acoustic and thermal type for supply and return air, and be as short as possible and as straight as possible with long radius bends, (R/D at least 1.5), to minimise pressure loss.

The ducting shall be fabricated from a continuous spring steel wire helix fused to and supporting a continuous layer of aluminium foil laminate. The ducting shall be insulated with fibreglass and jacketed by a continuous layer of aluminium foil laminate.

The linings (in accordance with AS1530), shall have:

- a) A spread of flame index not greater than 0.
- b) A smoke developed index not greater than 3.

-Fire Dampers

All fire dampers shall comply with the requirements of AS 1682 and AS 1668.1

Ductwork Thermal & Acoustic Insulation

General

All air conditioning supply air ducts and other ducts where noted shall be insulated. Insulation shall be external for all supply and return air ducts where not internally insulated or running in the conditioned space.

The insulation installation shall conform to AS 1668, Part 1, AS 4254, BCA Specification J5.2, and meet the requirements of the NSW Fire Brigades.

-Insulation Materials

All insulation materials shall be non-hygroscopic, resistant to bacteria, algae, vermin and growth of moulds or fungi.

The thermal conductivity of the insulation shall be not more than 0.0357 W/mK at a mean temperature of 20°C.

Internal Duct Insulation

Must comply with BCA Specification J5.2.

Ducts internally insulated shall be lined with perforated (10%) perforated aluminium foil faced polyester insulation of density not less than 48 kg/m³.

Air Terminals (Diffusers and Grilles) Equipment

General

Submit samples of each grille/diffuser type for approval.

Opposed Blade dampers (OBDs) shall be provided for diffusers, registers and grilles where required for balancing purposes. All volume controls where mounted behind grilles, registers, etc., shall be finished in matt black paint. Avoid using OBDs behind grilles where there is possibility of noise due to high air velocity, instead use VCD min 1m away from grille.

-Diffusers

Diffusers shall generally be of powder coated steel construction with square face type suitable for the ceiling grid. The diffusers shall have a louvred face with a removable core. Use 'Airgrilles', 'Holyoake' or equal.

Diffusers shall be supplied with a paint finish in a selected colour. Consult Architect prior to ordering.

-Registers

All supply air registers shall be of the universal type with two (2) sets of vanes adjustable in the horizontal and vertical planes, and shall be designed to give a distribution of air without the introduction of noise. The front set of vanes shall be horizontal. Registers in the exposed ductwork shall be suitable for mounting flush to the ductwork. Use 'Airgrilles', 'Holyoake' or equal.

The registers shall be provided in paint finish in a selected colour. Consult Architect prior to ordering.

-Toilet Exhaust Air Grilles

Shall be of the circular cone adjustable type.

They shall be supplied in a paint finish in a selected colour to suite the client/architect. Submit sample for approval prior to ordering

- Exhaust/Return Air and Transfer Grilles

Eggcrate grilles of Powder coated Aluminium construction Holyoake or equivalent suitable for the ceiling grid. Grilles shall be supplied with a paint finish in a selected colour and as per client/Architect requirements. Consult before ordering and submit sample for approval.

-External Discharge/Intake Louvres/Grilles

All external Discharge/Intake Louvres and grilles to be weatherproof powder coated Aluminium construction complete with vermin/bird mesh. Consult Architect for colour prior to ordering

Electrical Work & Controls

General

The electricity supply required is 3 phase, 415/240 volt and 50 Hz including neutral and earth.

Provide a complete electrical installation as required for proper satisfactory operation, control, maintenance and safety of the system equipment.

The works to be provided shall include, but not be limited to the following:

- Control switchboards. Location should be finalised with the client/architect. Switchboard enclosure to be minimum IP54 rated where located internally. Switchboard to be fully weatherproof where mounted on the outside with minimum IP56 enclosure
 - Motor starters, timeswitch, switchgear and controls, complete with all necessary accessories for all electrically operated equipment.
 - All final power circuits between, the control switchboard and the various equipment, including the connections to the switchboard, control system and equipment.
 - All control wiring and connections to the switchboard, control system and equipment.
- Local isolator (isolator to be fully weather proof where mounted outside) for all mechanical equipment.

Before proceeding with the installation prepare fully detailed drawings showing the proposed electrical installation.

The drawings shall include the following:

1. Control Diagram and Power Wiring Diagram
2. Switchboard Layout Drawings and Electrical Components List.

Control switchboard shall be Form 1 and comprise a sheet metal enclosure (minimum IP54 and if exposed to weather minimum IP56) containing the following equipment:

1. Main control which isolates all incoming supplies to the board including control circuits.
2. Means of isolation and protection for each motor circuit.
3. Contactors or starters for each motor circuit including the necessary protection equipment.
4. Pilot/indication/status lights.
5. A test switch having 'OFF', 'TEST' and 'AUTO' positions for each motor drive.

Provide a minimum of 20% spare space for possible future circuits. Space shall include spare fuse ways, contactor and relay panel space, provision for mounting of control equipment on the door and spare terminal ways.

Labels

All components on the switch panel shall be clearly labeled with white traffalyte labels machine engraved with black lettering. Labels shall be fixed with screws. Minimum letter size shall be 3mm. Component labels shall be mounted, so that labels are in front of equipment wiring and clearly visible. Labels shall not be fixed to removable cable duct covers etc.

Cables Exposed to Weather

Single insulated PVC cables enclosed in screwed galvanised conduit with all threads, junction box lids and fittings sealed with a non-setting silicon compound. Wherever the galvanised coating is broken eg. on threaded ends conduits shall be painted with a cold galvanised compound.

Alternatively, where the conduits are not subject to damage, conduits may be heavy duty rigid PVC with all joints sealed as specified above. PVC conduits exposed to sunlight shall be resistant to ultra violet light or protected in accordance with the manufacturer's recommendations.

Painting

Paint all machinery, equipment, ductwork, pipework and ancillaries including Switchboards, platforms, support structures, brackets and hangers, which are exposed to view from floor level, exterior areas and similar locations, and where exposed to view in occupied interior areas.

All protective coatings and paint shall be of approved quality and applied by experienced tradesmen. Coats of paint on any one item shall be of the same type and manufacture and shall be applied as recommended by the manufacturer.

Protective coatings and paint brought for site application shall be in the manufacturer's sealed containers.

CORROSION PROTECTION

Corrosion protection measures shall be applied to all metallic surfaces. Metal surfaces in contact shall be cleaned and corrosion protection applied prior to assembly. Inaccessible surfaces shall be treated prior to installation.

Corrosion Protection Treatment for Ferrous Metallic Surfaces
Use one coat of organic zinc primer min. 75 micron thick, and one coat polyurethane finish coat min.100 micron thick. Or factory applied zinc primer and thermoset powder coated finish.

Non Ferrous Metallic Surfaces

Use one coat of non-inhibitive epoxy primer min. 40 – 50micron thick and one coat polyurethane finish coat Min. 100 micron thick. Or factory applied zinc primer and thermoset powder coated finish

SWITCHBOARDS AND CONTROL PANELS

Prepare surfaces for, and apply Thermoset powder coatings. Rough surfaces shall be filled and rubbed smooth. Finish colours shall be as scheduled for the exterior and for the interior, internal mounting, brackets and gear trays. Minimum thickness of the coating shall be 0.07 mm.

Use Orange colour for Electrical Switchboard exterior and Off White for Electrical Switchboard interior

CONTROLS

1. The Evaporative cooler to have proprietary wall mounted Varial Speed Wall controller and indication lights. Controller to have full functions including ON/OFF, fan speed variable control and indication. Total Dissolved Solids (TDS) to be automatically controlled via automatic sensing of water conductivity of the water in the reservoir to the TDS of make-up water. Adjustable Automatic Bleed must be allowed to maintain set-point.
2. Kitchen hoods exhaust ventilation fan for the CAFE Tenancy to have MANUAL/OFF/AUTO switch control with indication lights from the Mechanical switchboard and to have VSDs (each) as detailed in the design. The mechanical contractor must allow for an operator mounted exhaust fan speed controllers as detailed in the design (mounted adjacent to the corresponding hood). All Kitchen exhaust fans to have adequate label and to stay in operation in fire mode as required by AS/NZS1668.1-2015
3. Fire mode operation to be in full compliance with AS1668.1-2015.

GENERAL NOTES

1. THIS DRAWING MUST BE READ WITH THE FULL SET OF MECHANICAL SERVICES DRAWINGS AND SPECIFICATIONS AND ALL OTHER RELEVANT DOCUMENTATIONS

Labeling

All items of equipment shall be labeled in accordance with the symbolism and equipment name and number used throughout this specification and drawings.

All contactors, circuit breakers, switches, starters, relays and cable terminals on switchboards, etc. installed as part of the Works, shall be clearly labeled and identified with the correct associated function. Lettering, except where otherwise indicated, shall not be less than 12mm high.

Labels, except where otherwise indicated, shall be of laminated plastic with neatly engraved upper case black letters on a white background.

SITE SAFETY

The mechanical services contractor shall ensure that all hoists, lifting tackle, scaffold, ladders, electrical leads and tools and other equipment used in conjunction with this contract, conform to Workcover requirements and good practice. The mechanical services contractor shall ensure that all his employees engaged on this project, take precautions to protect themselves, the client and the public.

SITE

Shall be left clean of all rubbish and debris

INSURANCES

The contractor shall demonstrate to the satisfaction of the client, that adequate insurance policies exist to cover the client against loss or injury arising out of or attributable to the contract. Insurance policies shall include, but not be limited to

- public liability
- workers compensation

DRAWINGS REFERENCE TABLE

DGN No./FILE NAME	REV	TITLE/FILE NAME	RECEIVED

DATE	REV	DESCRIPTION	BY
26.03.18	A	ISSUED FOR CONSTRUCTION	MS

CONSULTANT

TWO MS

ABN 53 693 601 799

Mechanical Services Consultants
Building Energy Consultants

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. HVAC
. ESD
. BIM
. Energy Audit
. BCA Section J
. ABQR/NABERS Rating
. Fire Safety Certification

DO NOT SCALE DRAWING	A1	DRAWN TWO MS	SCALE NTS, UNO
CAD FILE No		ENGINEER M. Sarkis	DATE DEC 2017
PROJECT	PENRITH REGIONAL ART GALLERY CAFE KITCHEN		PROJECT No 1502
TITLE	MECHANICAL SERVICES		DRG No A
MECHANICAL SPECIFICATION SHEET 2 OF 2			M-04

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This drawing is copyright to "TWO MS". Unauthorised use of this drawing is prohibited.

CONSTRUCTION NOTES

GENERAL

- G1. These drawings shall be read in conjunction with all architectural and other consultants' drawings and specifications and with such other written instructions as may be issued during the course of the contract. Any discrepancy shall be referred to the Engineer before proceeding with the work.
- G2. All materials and workmanship shall be in accordance with the relevant and current SAA codes and with the By-Laws and Ordinances of the relevant building authorities except where varied by the project specification.
- G3. All dimensions shown shall be verified by the builder on site. Engineer's drawings shall not be scaled for dimensions.
- G4. During construction the structure shall be maintained in a stable condition and no part shall be overstressed. Temporary bracing and propping shall be provided by the builder to keep the works and excavations stable at all times.

FOUNDATIONS

01. Strip Footings and pad footings have been designed for an allowable bearing pressure intensity of 200kPa bearing in NATURAL GROUND U.N.O.
02. The contractor shall obtain approval from the Superintendent of the foundation material before placing reinforcement or concrete.
03. Footings shall be located centrally under walls and columns unless noted otherwise.
04. Footings shall be constructed and backfilled as soon as possible following excavation to avoid softening or drying out of the foundation material.
05. The Contractor shall arrange for a representative from the Geotechnical Engineers to be present at the time of drilling all of the bored piers and at the time of excavating the pad footings to determine the actual founding levels.

MASONRY WALLS

01. All workmanship and materials shall be in accordance with AS 3700.
02. Walls shown on structural drawings are load-bearing walls, unless noted otherwise. Non-loadbearing walls shall be separated from the concrete structure above them with a minimum 20mm thick approved compressible isolation material.
03. No masonry walls which are supported by the concrete structure shall be erected until the formwork has been removed.
04. Masonry walls supporting concrete slabs and beams shall be trowelled smooth and separated at the bearing surfaces with the slip material specified in the concrete notes.
05. The minimum compressive strength of clay masonry bricks shall be 27 MPa. Clay masonry bricks shall have a Characteristic Expansion value not exceeding 0.8 mm/m

STRUCTURAL STEEL

01. All workmanship and materials shall be in accordance with AS 4100 and AS 1554, except where varied by the contract documents.
02. Structural steel members shall be of the following grades unless noted otherwise on the drawings :
 WB, WC, UB, UC, PFC - Grade BHP-300PLUS
 RHS, SHS - Grade C350
 CHS with outside diameter equal to or exceeding 76mm - Grade C350
 CHS with diameter less than 76mm - Grade C250
 All other members - Grade 250
03. The contractor shall prepare workshop drawings and shall submit three copies of each drawing for review. Fabrication shall not commence until permission to use the relevant workshop drawings has been received. The contractor shall allow ten clear working days for this review of the workshop drawings.
04. Bolt Designation:
 4.6/S Denotes commercial bolts of grade 4.6 to AS 1111, snug tightened.
 8.8/S Denotes high strength structural bolts of grade 8.8 to AS 1252, snug tightened.
 8.8/TB Denotes high strength structural bolts of grade 8.8 to AS 1252, fully tensioned to AS 4100 as a bearing joint.
 8.8/TF Denotes high strength structural bolts of grade 8.8 to AS 1252 fully tensioned to AS 4100 as a friction joint with facing surfaces left uncoated.
05. Unless noted otherwise all bolts shall be M16 Grade 8.8/S. No connection shall have less than 2 bolts. All bolts, nuts and washers shall be hot dip galvanized.
06. TB and TF bolts shall be installed using approved load indicating washers.
07. Unless noted otherwise all welds shall be 6mm continuous fillet welds category SP in accordance with AS 1554 using E41XX electrodes. All butt welds shall be complete penetration butt welds in accordance with AS 1554. All exposed welds shall be ground smooth.
08. Unless noted otherwise all cleat plates shall be 10mm thick.
09. Provide seal plates to hollow sections, with "breather" holes if members are to be hot dip galvanized.
10. All steelwork shall be securely temporarily braced as necessary to stabilise the structure during erection.
11. The contractor shall provide all cleats and drill all holes necessary for fixing steel to steel and other elements to steel whether or not detailed on the drawings.
12. Concrete encased steelwork shall be wrapped with F41 mesh and shall have a minimum of 50mm cover, unless noted otherwise.
13. Structural steelwork shall have surfaces cleaned and treated in accordance with the Specification below :-
 All steelwork shall be abrasive blast cleaned to a Class 3 finish in accordance with AS 1627 Part 4 or pre-cleaned in accordance with AS 1627 part 1, followed by acid pickling in accordance with AS 1627 part 5
 All steelwork shall be hot dip galvanized in accordance with AS 1650.

CONCRETE

- C1. All workmanship and materials shall be in accordance with AS 3600 current edition with amendments, except where varied by the contract documents.

C2. Concrete Quality:

Element	f'c MPa (28 days)	Slump	Max. agg size	Cement type
ALL CONCRETE U.N.O.	32	80	20	GP

Plant control testing shall be carried out in accordance with AS 3600.

- C3. No admixture shall be used in concrete unless approved in writing.

- C4. Clear concrete cover in mm to all reinforcement shall be as follows unless shown otherwise.

Exposure classification to AS 3600	Cast against formwork			Cast against ground	
	Interior	Exterior	In contact with ground	Protected by membrane	No membrane
A1	25			30	
A2		30	30		50
B1		40			
B2		45			

Exposure classification for exterior concrete - B1

All reinforcement shall be firmly supported on mild steel plastic tipped chairs, plastic chairs or concrete chairs at not greater than 1 metre centres both ways. Bars shall be tied at alternate intersections. In exposure conditions greater than B1 use only plastic chairs.

- C5. Concrete sizes shown do not include thicknesses of applied finishes.

- C6. Depths of beams are given first and include slab thickness.

- C7. For chamfers, drip grooves, reglets, etc., refer to Architects details, maintain cover to reinforcement at these details.

- C8. No holes, chases or embedment of pipes other than those shown on the structural drawings shall be made in concrete members without the prior written approval of the Engineer.

- C9. Construction joints where not shown shall be located to the approval of the Engineer.

- C10. The finished concrete shall be a dense homogeneous mass, completely filling the formwork thoroughly embedding the reinforcement and free of stone pockets. All concrete including slabs on ground and footings shall be compacted with mechanical vibrators.

- C11. Curing of all concrete is to be achieved by keeping surfaces continuously wet for a period of 3 days, and prevention of loss of moisture for a total of 7 days followed by a gradual drying out. Approved sprayed on curing compounds may be used where no floor finishes are proposed. Polythene sheeting or wet hessian may be used if protected from wind and traffic.

- C12. Construction support propping is to be left in place where needed to avoid overstressing the structure due to construction loading. No masonry or partition walls are to be constructed on suspended levels until all propping is removed and the member has absorbed its dead load deflection.

- C13. The Engineer shall be given 48 hours notice for reinforcement inspection and concrete shall not be delivered until final approval obtained.

- C14. Conduits, pipes etc., shall only be located in the middle one third of slab depth and spaced at not less than 3 diameters.

- C15. Reinforcement symbols:
 S Denotes Grade 230 S Hot Rolled Deformed Bars to AS 1302
 N Denotes Grade 500 N Deformed Bars to AS 4671
 R Denotes Grade 230 R Hot Rolled Plain Bars to AS 1302
 SL, RL Denotes Grade 500 L Deformed Ribbed Welded Mesh to AS 4671
 The figures following the symbol are the number of millimetres in the bar diameter. The figures following the fabric symbol L is the reference number for fabric to AS 4671.

- C16. Reinforcement is represented diagrammatically and not necessarily in true projection.

- C17. Splices in reinforcement shall be made only in positions shown or otherwise approved in writing by the Engineer. Laps shall be in accordance with AS 3600 and not less than the development length for each bar.

- C18. Fabric reinforcement shall have splices made so that the overlap, measured between the outermost transverse wires of each sheet of fabric, is not less than the spacing of those wires plus 50mm.

- C19. Welding of reinforcement shall not be permitted unless shown on the structural drawings or approved by the Engineer.

- C20. Joggles to bars shall be 1 bar diameter over a length of 12 bar diameters.

- C21. Bundled bars shall be tied together at 30 bar diameter centres with three wraps of tie wire.

- C22. Where transverse tie bars are not shown provide N12 at 400mm spliced where necessary and lap with main bars 400mm U.N.O.

- C23. Sliding bearing strips supporting concrete slabs shall be composed of "HERCULES HSC/1/100/10" Unless noted otherwise. The strips shall be the same width as the bearing surface.

TIMBER FRAMING

- T1. All timber materials and workmanship shall be in strict accordance with AS 1720 SAA Timber Structures Code (1997) and AS 1684 SAA National Timber Framing Code (2010).

- T2. All timber framing shall be capable of resisting a design gust wind speed (for the permissible stress method in accordance with AS 1170.2) of 41 m/s in accordance with AS 1684.

- T3. All timber framed walls shall be braced in accordance with AS 1684 using 20 x 18 x 1.2 "Teco Angle Brace" steel angles or "Teco Speed Brace" steel straps or Structural Plywood bracing installed in strict accordance with AS 1684 and the manufacturers recommendations.

- T4. External timber members shall be Durability Class 1 as per Australian Standard AS 1720.2.

ISSUE	DESCRIPTION	APPROVED	DATE
A	DRAWING COMPLETE		1.3.19

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PROJECT

PENRITH REGIONAL ART GALLERY
CAFE KITCHEN

TITLE

CONSTRUCTION NOTES

DRAWN AT A3

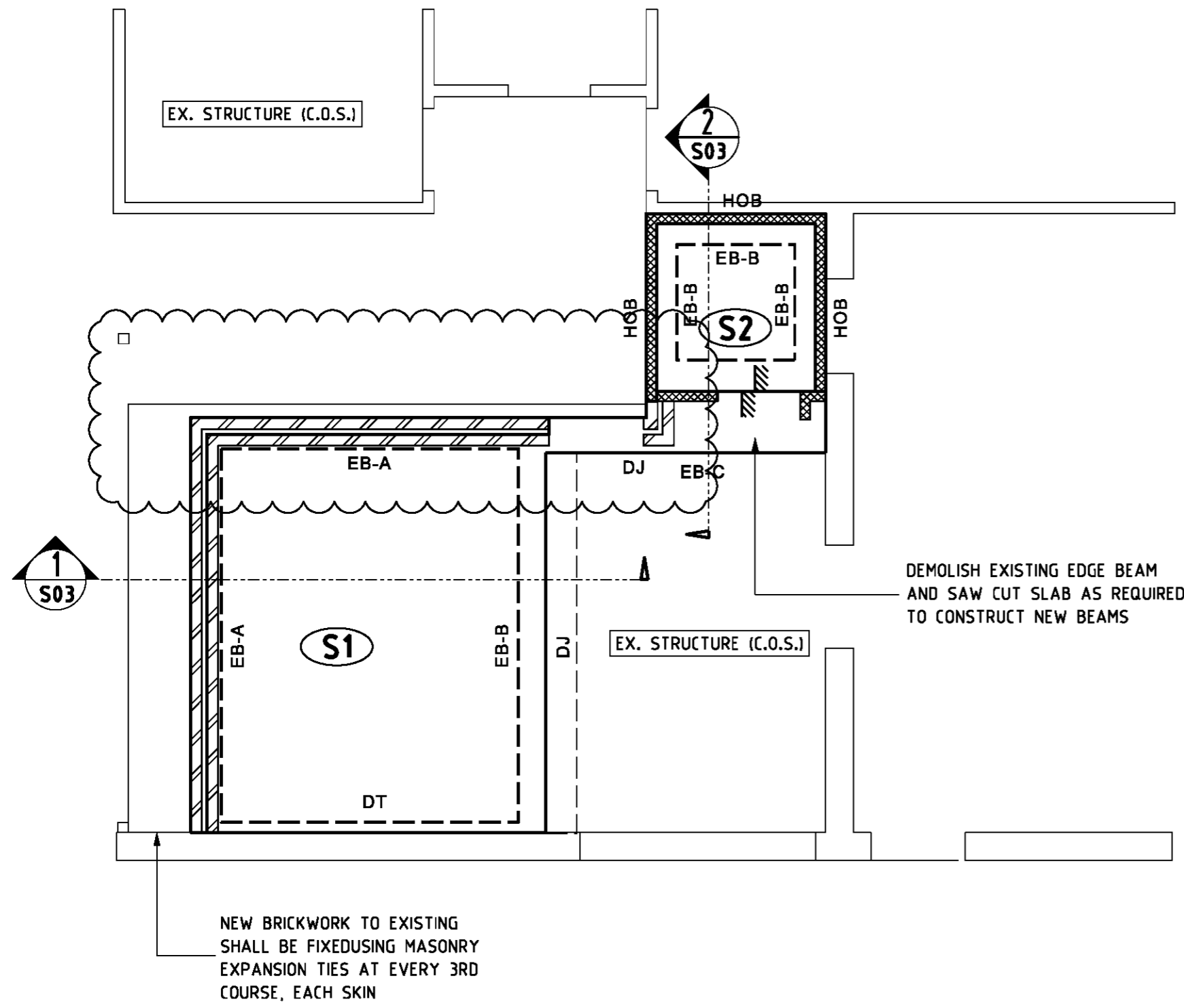
SCALES AS NOTED DATE DEC 2017

DRAWN ab DESIGN PG VERIFIED APPROVED

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ISSUE PROJECT No. DRAWING No.

A 7174 S.01



GROUND SLAB PLAN
SCALE 1:50

MEMBER SCHEDULE

ELEMENT	TAG	DESCRIPTION	COMMENTS
EDGE BEAMS	EB-A	500 DEEP x 300 WIDE	
	EB-B	500 DEEP x 300 WIDE	
	EB-C	500 DEEP x 725 WIDE	
	EB-D	500 DEEP x 500 WIDE	
	DT	DOWNTURN	
MISCELLANEOUS	HOB	150 HIGH	
	DJ	DOWELLED JOINT	

SLAB SCHEDULE

- (S1)** 120 THICK SLAB ON GROUND
SL92 MESH TOP
- (S2)** 150 THICK SLAB ON GROUND
SL92 MESH TOP & BOTTOM

ISSUE	DESCRIPTION	APPROVED	DATE
B	ARCHITECTS REVISION		8.5.18
A	DRAWING COMPLETE		1.3.18

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PROJECT

**PENRITH REGIONAL ART GALLERY
CAFE KITCHEN**

TITLE

GROUND SLAB PLAN

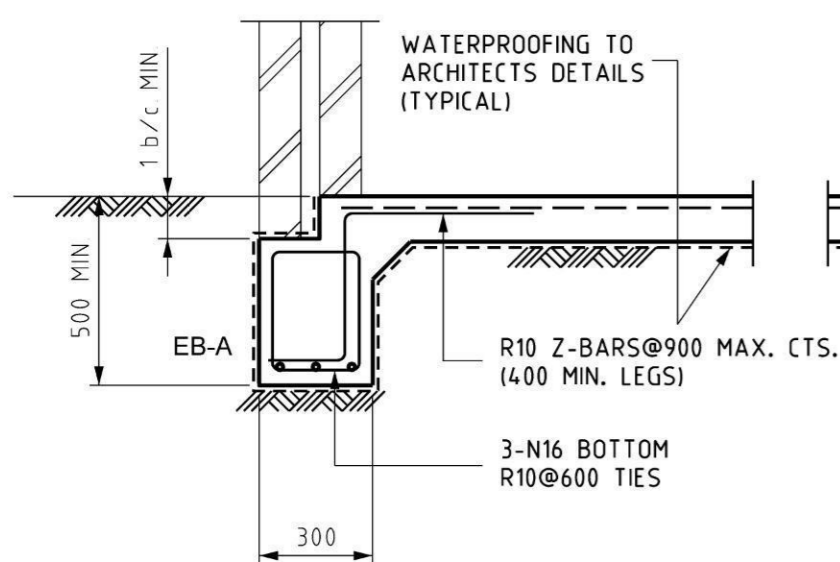
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SCALES **AS NOTED** DATE **DEC 2017**

DRAWN **ab** DESIGN **PG** VERIFIED APPROVED

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ISSUE **B** PROJECT No. **7174** DRAWING No. **S.02**

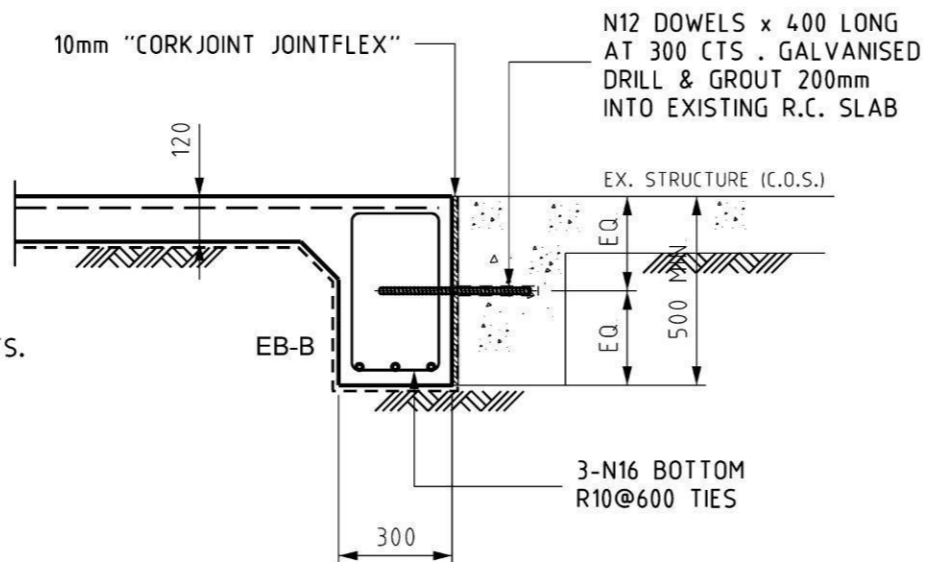


EB-A DETAIL

SECTION

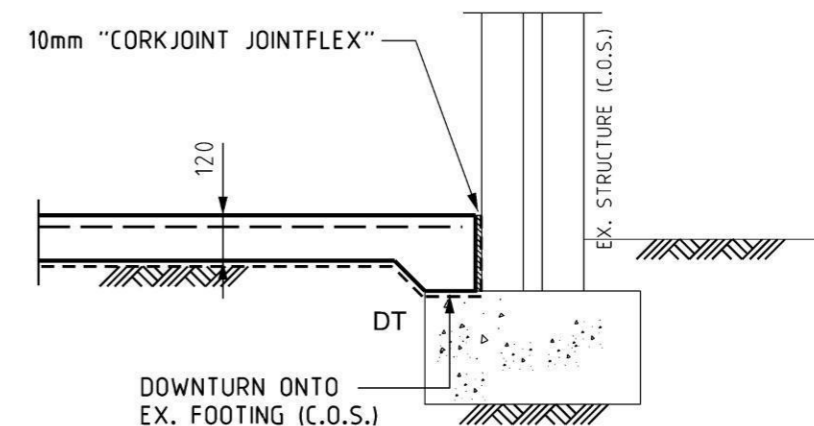
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S02

SCALE 120

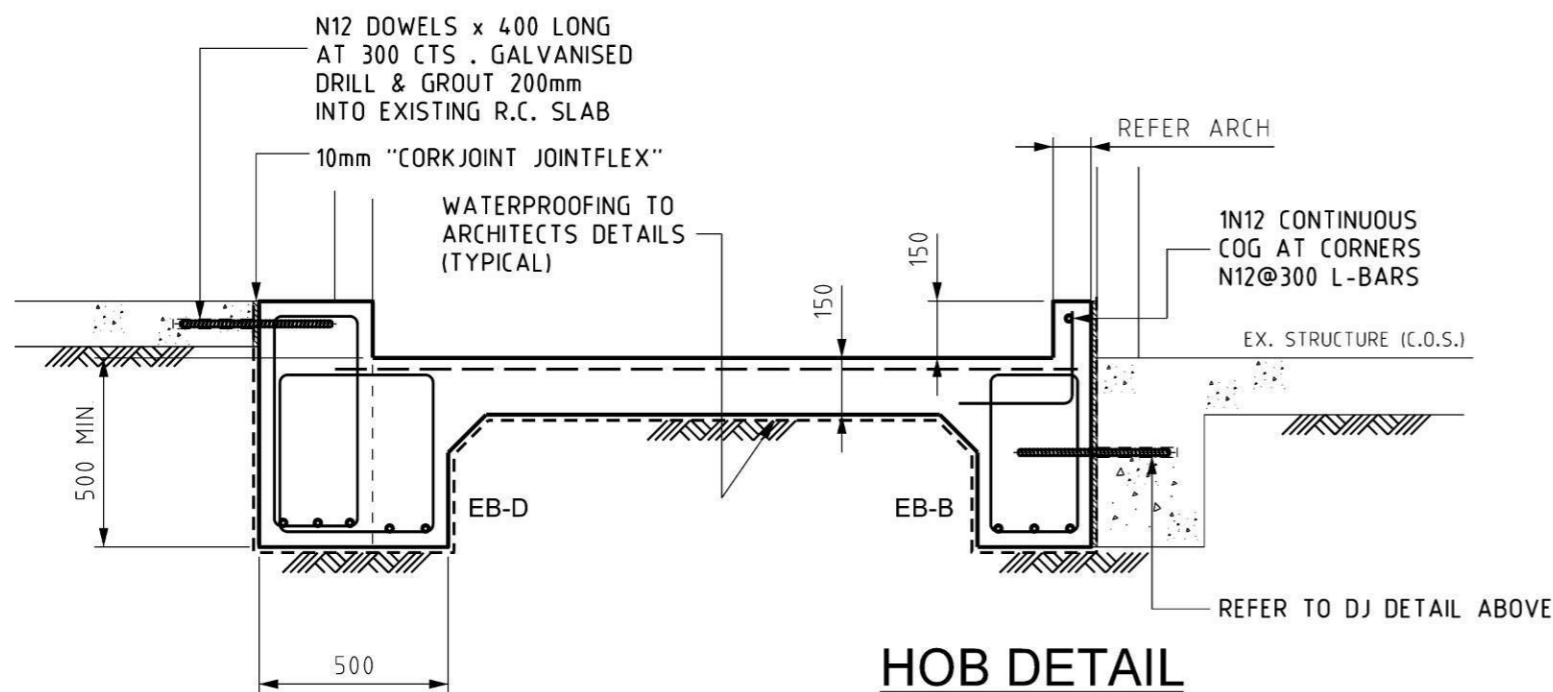


EB-B DETAIL

DJ DETAIL



DT DETAIL



EB-C DETAIL

SECTION

2
S02

SCALE 120

ISSUE	DESCRIPTION	APPROVED	DATE
A	DRAWING COMPLETE		1.3.19

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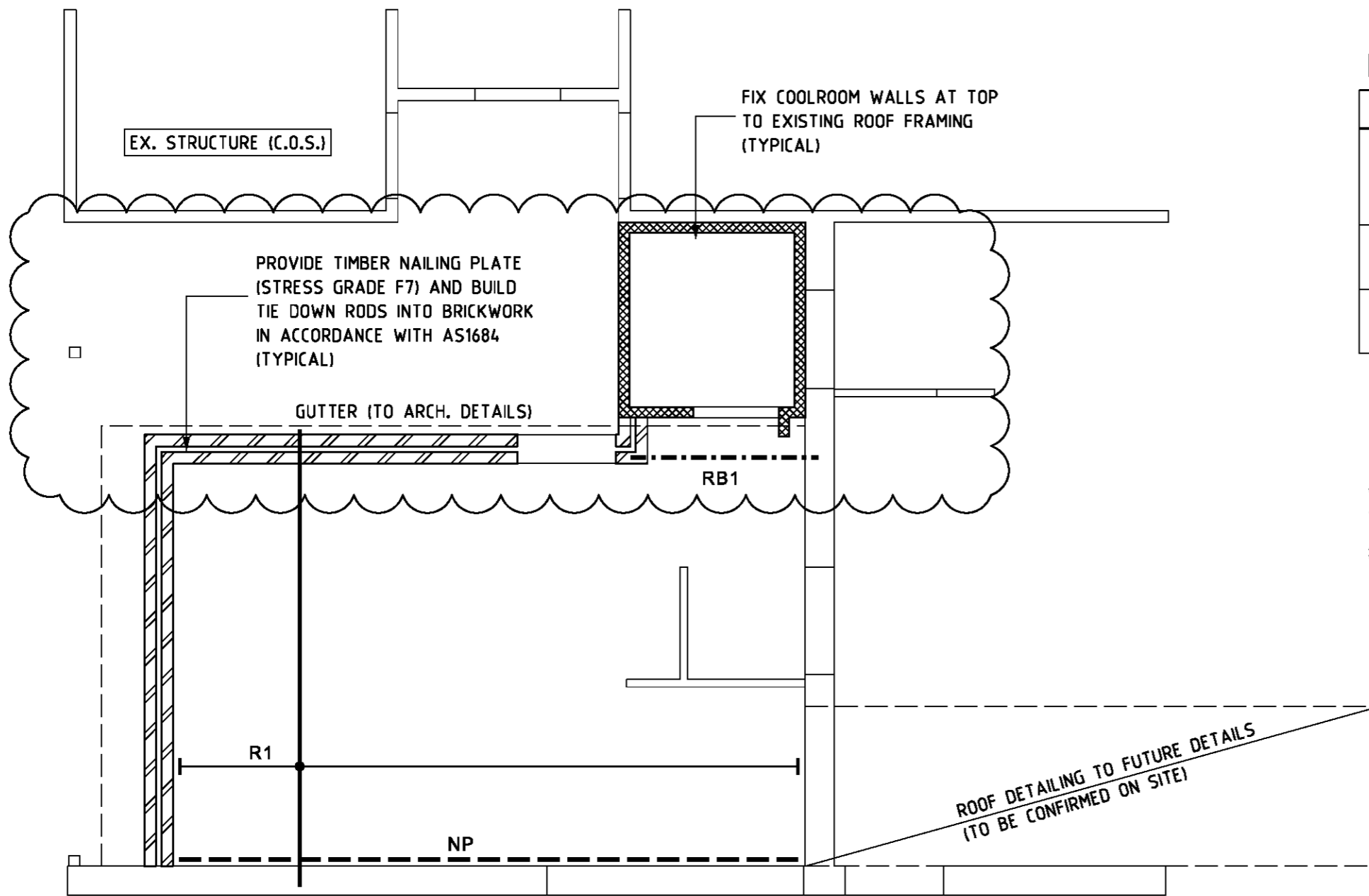
PROJECT

PENRITH REGIONAL ART GALLERY
CAFE KITCHEN

TITLE

CONCRETE SECTIONS

DRAWN AT A3		DATE	
SCALES	AS NOTED	DEC 2017	
DRAWN	DESIGN	VERIFIED	APPROVED
ab	PG		
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ISSUE	PROJECT No.	DRAWING No.	
A	7174	S.03	



MEMBER SCHEDULE

ELEMENT	TAG	DESCRIPTION
RAFTERS	R1	OPTION A 140 x 45 F7@600MAX. CTS.
		OPTION B 190 x 45 F7@1200MAX. CTS.
NAILING PLATE	NP	NAILING PLATE WITH TIE DOWN STRAPS FIXED INTO EXISTING BRICKWORK TO FUTURE DETAIL
ROOF BEAMS	RB1	190 x 45 F7 PROVIDE TIE DOWN STRAPS EACH END

DRAWING NOTES :

PRIMARY STRUCTURAL FRAMING MEMBERS SHOWN ONLY.

REFER TO RELEVANT ARCHITECTURAL DRAWINGS FOR ANY SECONDARY STEEL FRAMING MEMBERS WHICH MAY BE REQUIRED.
(ie. gutters, sun hoods, sun screens, window framing, louvres, ETC)

ALL TIMBER FRAMING IS TO BE IN STRICT ACCORDANCE WITH AS1684 & AS1720 NATIONAL TIMBER FRAMING CODE.

(FOR 110 BRICKWORK)

STEEL LINTEL SCHEDULE

SPAN	DESCRIPTION
UP TO 900	75 x 10 PLATE
900 - 1200	90 x 10 PLATE
1200 - 1800	90 x 90 x 6.0 E.A
1800 - 2400	90 x 90 x 10 E.A
2400 - 3000	150 x 90 x 8.0 U.A

ROOF FRAMING PLAN

SCALE 1:50

ISSUE	DESCRIPTION	APPROVED	DATE
B	ARCHITECTS REVISION		10.5.18
A	DRAWING COMPLETE		1.3.18

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PROJECT

**PENRITH REGIONAL ART GALLERY
CAFE KITCHEN**

TITLE

ROOF FRAMING PLAN

DRAWN AT A3

SCALES **AS NOTED** DATE **DEC 2017**

DRAWN **ab** DESIGN **PG** VERIFIED APPROVED

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ISSUE **B** PROJECT No. **7174** DRAWING No. **S.04**