

Drain Requirement (mm)
Cold Water Usage (Litres per cycle)
Hot Water Usage (Litres per cycle)
Country of Origin
Deviation from the Specification (State Briefly)

1.6 Serving**Industrial Hydro Extractor**

Type
Quantity
Manufacture
Model Number
Dimensions (Depth x Width x Height)
Load Capacity (kg)
Drum Depth (mm)
Drum Volume (dm³)
Net Weight (kg)
Crated Weight (kg)
Door Opening (mm)
Floor to Door Height (mm)
Power Requirements

One (1)

Phase / Voltage

Power

Amperage

Electric Heating Capacity

Washing Speed (RPM)

Distribution Speed (RPM)

Spin Speed (RPM)

“G” Force

Drain Requirement (mm)
Cold Water Usage (Litres per cycle)
Hot Water Usage (Litres per cycle)
Country of Origin
Deviation from the Specification (State Briefly)

1.7 Serving**Table Model Laundry Press**

Type
Quantity
Manufacture
Model Number
Dimensions (Depth x Width x Height)
Worktop Dimensions (Length x Width)
Net Weight (kg)
Crated Weight (kg)
Power Requirements

Two (2)

Phase / Voltage

Power

Amperage

Temperature Control (0-220°C)

Electric Heating Time (min 0-99/sec)

Pressure (0-250 gr/cm)

Name

Signature

Date

Country of Origin	_____
Deviation from the Specification (State Briefly)	_____
1.8 Serving	Industrial Roller Iron
Type	_____
Quantity	One (1)
Manufacture	_____
Model Number	_____
Dimensions (Depth x Width x Height)	_____
Roller Length (mm)	_____
Safety Guard (Hand Protection)	_____
Net Weight (kg)	_____
Crated Weight (kg)	_____
Power Requirements	_____
	Phase / Voltage _____
	Power _____
	Amperage _____
	Temperature Control (°C) _____
	Electric Heating Time (min) _____
Pressure (gr/cm)	_____
Safety Thermostat	_____
Country of Origin	_____
Deviation from the Specification (State Briefly)	_____
1.9 Serving	Mini-Vapour Steam Iron
Type	_____
Quantity	One (1)
Manufacture	_____
Model Number	_____
Dimensions (Depth x Width x Height)	_____
Net Weight (kg)	_____
Crated Weight (kg)	_____
Tank Capacity (Litres)	_____
Power Requirements	_____
	Phase / Voltage _____
	Power _____
	Amperage _____
	Boiler Heating Element (kW) _____
	Temperature Control (°C) _____
	Electric Heating Time (min) _____
Country of Origin	_____
Deviation from the Specification (State Briefly)	_____
1.10 Serving	Hand Held Steam Iron
Type	_____
Quantity	Six (6)
Manufacture	_____
Model Number	_____
Dimensions (Depth x Width x Height)	_____

Name

Signature

Date

Net Weight (kg) _____
 Crated Weight (kg) _____
 Bottle Capacity (Litres) _____
 Power Requirements _____
 Phase / Voltage _____
 Power _____
 Amperage _____
 Heating Element (kW) _____
 Temperature Control (°C) _____
 Electric Heating Time (min) _____
 Country of Origin _____
 Deviation from the Specification (State Briefly) _____

2 General

2.1 Installation, Testing, Commissioning

Name and qualification of Technician /
 Responsible Person who will undertake the
 "installation, testing and commissioning"
 exercise _____

2.2 Guarantee

Guarantee Period (Months) _____
 State conditions of guarantee _____

2.3 Maintenance / Servicing

Details of general maintenance _____

Service Intervals _____

State conditions of "Maintenance and
 Service" agreement _____

Approximate value of spares carried in stock _____

Where are these spares held in stock _____

What facilities exist for the servicing of the
 equipment offered _____

Where are these facilities available _____

2.4 Delivery Information

Delivery Period (from date of official order) _____

Name

Signature

Date

PART II**SCHEDULE OF STAFF AVAILABLE**

**Project Name : Ntsonkotha Senior Secondary School in Lady Frere
Mechanical Engineering Services (Laundry Equipment Installation)**

The Tenderer shall provide a list of all staff (from senior personnel to labourers) that will be made available to perform any duties for and on behalf of the Tenderer on this project. The Tenderer may attach a company organigram for information purposes.

Name	Position / Designation	Years of Relevant Experience	Qualification	Registration Number*

* These numbers shall be the those appearing on the certificates as required in terms of the Occupational Health and Safety Act No 85 of 1993

 Name

 Signature

 Date

PART 1J**AGREEMENT RELATING TO OCCUPATIONAL HEALTH & SAFETY ACT**

**Project Name : Ntsonkotha Senior Secondary School in Lady Frere
Mechanical Engineering Services (Laundry Equipment Installation)**

Agreement between the Principal Contractor and the Mandatory (hereinafter referred to as the Laundry Equipment Sub-contractor) as envisaged in Section 37 (2) of the Occupational Health and Safety Act No 85 of 1993 as amended.

Background Information :

1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all unrepealed Regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended as well as any other Regulations which may be promulgated from time to time in terms of the new Act.
2. The Mandatory as defined in the Act may be an Agent, a Contractor or a Sub-contractor. This shall not derogate from the Laundry Equipment Sub-contractor's status as being the responsible employer on this particular sub-contract.
3. Section 37 of the Occupational Health and Safety Act has the potential of punishing Clients (Principals) for the unlawful acts or omissions of Contractors (and Sub-contractors) save where a written agreement has been concluded between the parties containing arrangements and procedures to ensure compliance with the said Act by the Laundry Equipment Sub-contractor. This Agreement constitutes such a written agreement.
4. This document forms an integral part of the Sub-contract Agreement.
5. To be able to perform in terms of the Sub-contract Agreement, Sub-contractors must be familiar with the relevant provisions of the Act.
6. The liability of the Laundry Equipment Sub-contractor under this agreement will commence on the day the site is handed over to the Laundry Equipment Sub-contractor and terminate when the site is handed back to the Client.
7. If intended, the Laundry Equipment Sub-contractor is advised to conclude a similar agreement with any appointed Sub-contractors.

I
representing (the Laundry Equipment Sub-contractor)

hereby acknowledge that the Laundry Equipment Sub-contractor is an employer in his own right with duties as prescribed in the Occupational Health and Safety Act No 85 of 1993 as amended. The Laundry Equipment Sub-contractor undertakes to ensure that all work will be performed, and machinery and plant used, in accordance with the provisions of the said Act. The Laundry Equipment Sub-contractor furthermore agrees to comply with the requirements of the Client as contained in the Sub-contract and Principal Contract documents and to liaise with the Client should he, for whatever reason, be unable to perform his duties in terms of this agreement.

Signed at (place) on (date / month / year)

Signature on behalf of the Laundry Equipment Sub-contractor (the Mandatory)

Signature on behalf of Independent Development Trust (the Client)

PART 1K

CERTIFICATES REQUIRED

**Project Name : Ntsonkotha Senior Secondary School in Lady Frere
Mechanical Engineering Services (Laundry Equipment Installation)**

The Tenderer shall submit proof of the following, namely :

Compulsory Documentation

1. Notice of Registered Office and Postal Address of Company, in terms of the Companies Act, 1973, including the Company Registration Document accompanied by Share Certificates, where applicable i.e. Cipro Certificate
2. Copies of the Identity Documents, for each of the respective Directors / Members / Partners / Shareholders/ Trustees, etc.
3. Tax Clearance Certificate, as issued by the South African Revenue Services
4. Accredited Valid Original or Certified B-BBEE Certificate
5. Declaration of Insurances : Workmen's Compensation Assurance
: Unemployment Insurance Fund
: Contractor's All Risks Insurance
6. Original Bank Stamped Letter or Cancelled Cheque as Proof of Bank Account
7. Licence of the Accredited Person registered as an Installation Electrician who will be responsible for the Works and the on-site supervision thereof (*where applicable*)
8. Licence of the Accredited Person registered as a Master Installation Electrician who will be responsible for the relevant portion of the Works and the on-site supervision thereof (*where applicable*)
9. Proof of registration of Company, and where applicable, the relevant persons, with the Private Security Industry Regulatory Authority (PSIRA) (*where applicable*)
10. Proof of registration of all persons who will be involved in this project with the South African Qualification & Certification Committee (SAQCC) for the Fire Industry (*where applicable*)
11. Proof of registration of Company with the Fire Detection Installers Association (FDIA) (*where applicable*)
12. Proof of registration as a "Gas Installer", in terms of the Government Gazette, number 32395, dated 15 July 2009, as amended (*where applicable*)
13. Proof of registration of Company with the Automatic Sprinkler Inspection Bureau (Pty) Ltd (ASIB) (*where applicable*)

Supplementary Documentation

14. Company Profile (Abridged Version)
15. Proof of Location of Office
16. Electrical Sub-contractors Association (ECA) Registration Certificate (for the associated electrical Works)
17. Proof of Central Supplier Database Registration

Name

Signature

Date

PART 1L**FORM OF RESOLUTION**

**Project Name : Ntsonkotha Senior Secondary School in Lady Frere
Mechanical Engineering Services (Laundry Equipment Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

At a meeting held by the Directors / Members / Partners / Trustees of

_____ (Tenderer's Name)

at _____ (Place)

on the _____ (Day / Month / Year)

it was resolved

that _____

in his / her capacity as their _____

is hereby authorised and empowered to sign the Tender and / or Contract Documents for the project known as the

**“Ntsonkotha Senior Secondary School in Lady Frere
Mechanical Engineering Services (Laundry Equipment System)”**

for and on behalf of the Tenderer.

Signed : _____ Signed : _____

Capacity : _____ Capacity : _____

PART 1M

SITE INSPECTION CERTIFICATE

**Project Name : Ntsonkotha Senior Secondary School in Lady Frere
Mechanical Engineering Services (Laundry Equipment Installation)**

This form is to be completed in full by the Tenderer. Failure to do so may invalidate the Tender.

This is to certify that I / we _____
the representative (s) of _____ (Tenderer's Name)
_____ (address)
_____ telephone number
_____ facsimile number

certify that I / we have examined the site, drawings and tender documents and have made myself / ourselves fully conversant with all conditions and circumstances likely to influence the rates tendered.

Name of Tenderer's Representative _____

Signature of Tenderer's Representative _____

Name of Consulting Mechanical Engineers' Representative _____

Signature of Consulting Mechanical Engineers' Representative _____

PART 2

PROJECT SPECIFICATION

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PART 2

PROJECT SPECIFICATION

Any requirement or statement made in this Project Specification section of the specification shall override the requirements of Part 3 : Standard Specifications and the Drawings.

2.1 GENERAL

This specification covers all Works necessary for the mechanical engineering services (laundry equipment) installation of the project known as the “Ntsonkotha Senior Secondary School in Lady Frere”.

The project generally comprises the following Works, namely :

- ❑ the construction of a Laundry and Kitchen Facility (Section 1)
- ❑ the construction of a Girls Hostel Building (Section 2)
- ❑ the construction of a Boys Hostel Building (Section 3)
- ❑ The above building Works generally includes brick / dry walls, concrete slabs and floors, sheet vinyl / carpet / porcelain tile flooring, painted / tiled surfaces, suspended exposed “T” / flush plastered ceilings, etc.

This sequencing of the Works and the “unofficial” sectional completion requirements will be negotiated by the Client, Professional Team, Principal Contractor and the successful Tenderer.

The proposed sequencing of the project shall be as follows:

- ❑ Phase 1 of the Construction - the construction of a Laundry and Kitchen Facility (Section 1) and the construction of a Girls Hostel Building (Section 2)
- ❑ Phase 2 of the Construction - the construction of a Boys Hostel Building (Section 3)

The Tenderer’s attention is specifically drawn to the fact that at Practical Completion the completion of specific sections must be such that the Client can actually move into the premises and commence conventional operational School / Hostel-related activities.

Thus, programming for the Works must allow for the systematic clearance of all outstanding work and defects (save only latent defects) prior to the “Sectional” and “Practical” Completion circumstances required. The Works to be cleared are to include all electrical and mechanical installations including commissioning procedure and certificates of compliance etc., in addition to the building works.

Any works to the exterior of the building which do not impact on the conventional operational School / Hostel-related activities could be exempted from this requirement regarding “Sectional” and “Practical” Completion.

2.2 SCOPE OF WORK

2.2.1 Principle Items of Work

The principle items of Work covered by this Sub-contract comprises the supply, delivery, installation, testing, commissioning and twelve (12) months guarantee (with free maintenance during the guarantee period) of the complete Works involved in the laundry equipment services, as further detailed below, namely :

- ❑ Preliminary & General Items
- ❑ Manufacturing of the specified equipment
- ❑ Supply, installation, testing and commissioning of all equipment
- ❑ Demonstration of complete operation of equipment to Client’s personnel
- ❑ Provisional Sums as detailed in the Schedule of Quantities
- ❑ Provision of Record Drawings and Operating and Maintenance manuals
- ❑ Provision of Certificates of Compliance for complete installation covered in this specification
- ❑ All other materials, equipment, labour and services necessary for the complete, safe and efficient operation of the Works in full accordance with the specifications as detailed in the “Project Specification”

- Free maintenance and warranty of all equipment and workmanship, and periodic servicing, for the full duration of the twelve (12) months defects liability period and if, during the defects liability period, any of the equipment is not in working order for any reason for which the Laundry Equipment Sub-contractor is responsible, or if the installation develops any defects, the Laundry Equipment Sub-contractor shall immediately upon being notified thereof take steps to remedy the defects

We confirm that the following items of Work shall be undertaken by others, namely:

- Construction of suitable concrete plinths (where applicable) (by the appointed Principal Contractor)
- Electrical circuitry to accommodate the proposed laundry equipment (*by the appointed Electrical Sub-contractor*)

2.2.2 Works to be Carried out by Others

The Principal Contractor, who is yet to be appointed, shall be appointed for the building Works, as briefly explained in Clause 2.1.

The successful Laundry Equipment Sub-contractor shall be appointed as a Selected Sub-contractor to the appointed Principal Contractor. The successful Laundry Equipment Sub-contractor may not sub-contract any portion of the Works to other parties.

The Laundry Equipment Sub-contractor will be responsible for ensuring that the Selected Sub-contract is completed in accordance with Principal Contract, with the necessary co-ordination between the parties.

The Principal Contractor shall, under separate contracts, employ various other parties for the supply, installation, testing and commissioning of various specialist equipment installations i.e. but not limited to, the following :

- Supply and installation of access control (including intercom and door security) installation, which shall be carried out by the Access Control Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of air-conditioning and ventilation services installation, which shall be carried out by the Air-conditioning and Ventilation Services, Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of closed-circuit television installation, which shall be carried out by the Closed Circuit Television Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of early warning detection and alarm installation, which shall be carried out by the Early Warning Detection and Alarm Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of the electrical installation, which shall be carried out by an Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of elevators, escalators and goods hoists, (where applicable) which shall be carried out by the relevant Specialist Sub-contractors, appointed as Domestic, Nominated or Selected Sub-contractors to the Principal Contractor (conduits, wireways, power supplies, etc. by Electrical Sub-contractor)
- Supply and installation of fire protection services installation, which shall be carried out a Fire Protection Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of generator installation, which shall be carried out a Generator Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of hot and cold-water services installation, which shall be carried out by the Plumbing Sub-contractor, appointed as a Domestic Sub-contractor to the Principal Contractor
- Supply and installation of information and communications technology (comprising telephone and data) installation, which shall be carried out by the Information and Communications Technology Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of public address installation, which shall be carried out by the Public Address Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- Supply and installation of smoke extraction services installation (where applicable), which shall be carried out by the Smoke Extraction Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor

- ❑ Supply and installation of television (and television aerial distribution) installation, which shall be carried out by the Television Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor
- ❑ Supply and installation of specialist equipment, furniture, fittings and appliances, appointed either as Domestic, Nominated or Selected Sub-contractors to the Principal Contractor

The Laundry Equipment Sub-contractor shall work in close liaison with the appointed Contracting Parties.

2.3 INSPECTION OF SITE

The Consulting Mechanical Engineers will not hold a compulsory site inspection meeting.

The prospective Tenderers are advised to thoroughly acquaint themselves with the nature and extent of Work to be done and to make allowance for items obviously intended and necessary for the proper completion of the Works, although not specified.

By submitting a Tender it is accepted that the Tenderer is fully aware of all site conditions as well as the access to it, and has allowed for this in their Tender Price. Claims due to lack of knowledge will not be entertained.

2.4 COMPLIANCE WITH REGULATIONS, STANDARDS AND CODES

The entire installation shall be in full conformity with the current versions of the following :

- ❑ South African National Standard : SANS 10400 - 2010 - Code of Practice for "The Application of the National Building Regulations" i.e. those included in the "National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)", as published in the Government Gazette, number 31084, dated 30 May 2008, which became effective as of 01 October 2008
- ❑ South African National Standard : SANS 10142-1: 2003 - The Wiring of Premises : Part 1 - Low-voltage Installations
- ❑ Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- ❑ Any other relevant by-laws of the Local Authorities

Further, the Laundry Equipment Sub-contractor shall adhere to all the relevant regulations, standards and codes specified in Part 3 of this Tender Document.

All apparatus, components, parts, fittings and materials supplied and / or installed, whether specifically specified herein or not, shall conform in respect of quality, manufacture, tests and performance with the requirements of the appropriate current South African (SABS) or British Standard Specifications (BS) and Addenda thereto, except where otherwise required by this specification or permitted by approval of the Consulting Mechanical Engineers, in writing.

All materials and workmanship, which may, in the opinion of the Consulting Mechanical Engineers, be inferior to that specified for the Work, will be condemned. All condemned material and workmanship must be replaced or rectified as the case may be, to the satisfaction of the Consulting Mechanical Engineers.

Any fitting or item of equipment not specifically mentioned but obviously necessary for the successful completion of the installation is to be included so as to form a complete working installation.

2.5 SUPERVISION

The Work shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Laundry Equipment Sub-contractor, who should also be an Accredited Person registered in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

The representative of the Laundry Equipment Sub-contractor shall be able and authorised to receive and carry out instructions on behalf of the Laundry Equipment Sub-contractor.

Furthermore, the associated electrical Works shall at all times, for the duration of the contract, be carried out under the supervision of a competent representative of the Laundry Equipment Sub-contractor, who should also be an

Accredited Person registered as an Installation Electrician in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.

2.6 PROGRAMME

The Principal Contractor shall prepare a Contract Construction Programme and all Sub-contractors shall be required to complete their respective Sub-contract Works in accordance with the programme.

The Laundry Equipment Sub-contractor shall submit a programme for the Sub-contract Works, in accordance with the Principal Contractor's Contract Programme, within 7 days of receipt of the Principal Contractor's Contract Programme.

Tenderers shall note the following :

- | | | |
|---|---|--------------------|
| <input type="checkbox"/> Handover of Site | : | To be confirmed |
| <input type="checkbox"/> Commencement of Contract | : | To be confirmed |
| <input type="checkbox"/> Contract Period | : | Thirty (30) Months |
| <input type="checkbox"/> Contract Completion | : | To be confirmed |

The cost of overtime, additional labour and plant necessary for the completion of the Works in accordance with the Principal Contractor's Contract Programme shall be included in the Tender Price.

2.7 SAMPLES AND ALTERNATIVES

The preferred manufacturer / makers of equipment and / or material are as described in either the Project Specification, the Standard Technical Specifications or as listed in the Schedule of Quantities.

The Client reserves the right to specify the equipment and / or materials utilised in the Works. No alternatives to equipment and / or materials are to be used unless written approval is obtained from the Client, or his Representative and / or the Consulting Mechanical Engineers.

2.8 DEFINITIONS

- | | | |
|---|---|--|
| <input type="checkbox"/> Supply | : | To purchase, procure and deliver complete with all related specified accessories |
| <input type="checkbox"/> Erect | : | To place or mount and fix in position |
| <input type="checkbox"/> Install | : | To erect, connect up and commission, complete with related accessories |
| <input type="checkbox"/> Indicated shown, Noted | : | As indicated or shown on drawings |
| <input type="checkbox"/> Approved, Alternative | : | Approved in writing by the Consulting Mechanical Engineers |
| <input type="checkbox"/> Similar, Equal | : | Equal or better in efficiency of performance and compatibility |

2.9 CONFLICT BETWEEN SPECIFICATIONS, SCHEDULE OF QUANTITIES AND DRAWINGS

Should there be conflict between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, the sections shall be considered in the following order of priority :

- ☐ Project Specifications
- ☐ Schedule of Quantities
- ☐ Drawings
- ☐ Standard Technical Specifications

Should the Laundry Equipment Sub-contractor note an inconsistency between the Project Specifications, Schedule of Quantities, Drawings and / or Standard Technical Specifications, he shall notify the Consulting Mechanical Engineers immediately and obtain clarification or instructions prior to ordering or installing equipment.

2.10 DEVIATIONS FROM TENDER DOCUMENTS

No deviations or alterations from that of the specification, schedules or drawings shall be made without first obtaining the written approval of the Department.

2.11 DRAWINGS

Refer to the Drawing Schedule for the list of drawings relating to this Tender Document.

At no time is the Laundry Equipment Sub-contractor to scale drawings or to make any assumptions regarding measurements / dimensions. If in doubt, the Laundry Equipment Sub-contractor is to obtain clarification from the Consulting Mechanical Engineers.

2.12 MOVING OF EQUIPMENT

The Laundry Equipment Sub-contractor shall investigate each space through which equipment must be moved. Where necessary, equipment shall be transported in sections of size suitable for moving through spaces available.

2.13 MISCELLANEOUS

2.13.1 Labels

Labels shall be installed as required in terms of the relevant codes of practice and as further specified in this Tender Document.

All labels shall be in English with capital letters, in black and on a white background, and a minimum of 4 mm in height. All labels shall be of ivorine or plastic construction and riveted / screwed in place.

2.13.2 Safety Signage

The Laundry Equipment Sub-contractor shall supply and install all danger, sub-station and safety notices and signs in terms of the relevant regulations.

All safety signage installed shall be in accordance with SABS 1186.

2.14 INSTALLATION DRAWINGS

Drawings shall be submitted in triplicate as soon as possible after the signing of the Sub-contract Agreement, but in ample time to allow the Consulting Mechanical Engineers to examine and approve before equipment manufacture is started, or material delivered to site.

Should the Consulting Mechanical Engineers require that any drawing be amended, the Laundry Equipment Sub-contractor shall make the necessary alterations and re-submit the drawing within two weeks.

The Laundry Equipment Sub-contractor shall provide the Principal Contractor and the Consulting Mechanical Engineers with complete layout, installation and shop drawings, together with any necessary descriptions and specifications. Sufficient details shall be given to permit a full appraisal of all parts of the installation and their relation to the building structure.

Drawings shall give full details of all foundations, ducts, chases, pits and openings and shall set out all lines and levels for the work.

Delays caused by the submission of drawings or by an error, omission or inadequacy in these drawings, shall not be considered a reason for an extension of the Sub-contract time.

2.15 PAYMENT VALUATIONS

The Laundry Equipment Sub-contractor shall be entitled to submit monthly payment claims to the Principal Contractor. The payment claims are to be submitted to the Consulting Mechanical Engineers for approval and recommendation, prior to submission to the Principal Contractor.

The payment claim shall be in the form of a copy of the Schedule of Quantities, indicating the tendered, claimed (supplied, installed and materials on / off site) and anticipated completion quantities, rates and values.

2.16 VARIATION ORDERS

Variations orders shall be ordered and processed either by the issue of a revised drawing or by issue of a site instruction, by a duly authorised person.

The Laundry Equipment Sub-contractor shall ensure that the above procedures have been followed prior to carrying out any work. Failure to comply may invalidate any claim for work done.

Unless otherwise agreed with the Consulting Mechanical Engineers, all claims for variation orders shall be approved prior to proceeding with the relevant Works. The Laundry Equipment Sub-contractor shall submit variation order claims to the Consulting Mechanical Engineers for approval with the preceding monthly payment claim.

However, the Laundry Equipment Sub-contractor shall only include the value of approved variation orders in any payment claim or invoice, once approved in writing by the Consulting Mechanical Engineers. Variation order claims, which have not been approved, but are included in the monthly payment claim, will be deducted from the payment claim in question.

2.17 ACCEPTANCE, TESTING AND COMMISSIONING

The Laundry Equipment Sub-contractor shall carry out all tests required in terms of the relevant Acts, SABS Codes of Practice and Local Authority requirements. The Laundry Equipment Sub-contractor shall provide all the equipment and apparatus required for the purpose of carrying out all necessary tests.

The Laundry Equipment Sub-contractor is responsible for carrying out all necessary tests and obtaining all necessary certificates for the installation and operation of the plant.

If any part of the Works fails the test, the Laundry Equipment Sub-contractor shall be responsible for rectifying, at his own cost, the defective Works and the re-testing thereof to ensure compliance. If in consequence, the Consulting Mechanical Engineers are obliged to attend the further acceptance tests the additional costs incurred by the Engineers shall be payable by the Laundry Equipment Sub-contractor.

The Works shall be deemed to be practically complete only when the Consulting Mechanical Engineers has approved all tests and inspections, and a Completion Advice Notice or other relevant completion notice is issued.

2.18 COMPULSORY FORMS AND CERTIFICATES

The Laundry Equipment Sub-contractor shall submit the necessary commencement, compliance and completion forms for the installation as required in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended, the relevant SABS Specifications and the requirements of the relevant Supply Authorities.

2.19 OPERATING INSTRUCTIONS, MAINTENANCE MANUALS AND RECORD DRAWINGS

The Laundry Equipment Sub-contractor shall supply, after approval by the Consulting Mechanical Engineers, three (3) bound sets of operating instructions, maintenance manuals and record drawings for the complete Laundry Equipment Installation.

2.19.1 Operating Instructions and Maintenance Manual

Failure to submit these manuals will result in the delay of the final inspection and acceptance of the Works by the Employer.

The manuals shall be prepared within the Contract, and shall be particular to the project. All charges that may be required by manufacturers' suppliers for the provision of information and literature shall be included in the contract price.

The manual shall be arranged with an index and referencing system and a matching flysheet giving the names and address of principals involved on the project.

The covers shall be hardbound with a four-post loose-leaf system. The Contract details shall be embossed on the front cover. Numbered card dividers shall be inserted between the sections.

The format of the manual shall be in accordance with the following sections, after a preface and index. Any other data considered by the Employer to be pertinent shall also be included.

Section 1

This shall comprise the introduction, abbreviations, and any warnings that may be required by the Machinery and Occupational Safety Act, Local Authorities, and other bodies.

Section 2

A full description of each system, together with the main plant components and locations, plus the mode of operation of automatic control systems associated with such system shall be reflected in this section.

Section 3

This shall comprise the complete plant technical data of each item of control equipment (e.g. manufacturer's name and address, type of unit, serial number. This information shall be derived from a site inspection of identification plates together with information obtained from manufacturers.

Section 4

This section shall describe in detail the operating procedures necessary for starting up, running, and shutting down each individual system. This shall include the control panel starter and selection facilities together with any alarm and safety interlocks as identified on the control panel.

Section 5

This shall comprise the maintenance operations on a daily, weekly, monthly etc. basis for each item of plant. The preparation of this section shall be carried out by obtaining from the manufacturer his advice and recommendations for lubrication, adjustment and routine maintenance.

Section 6

This section shall comprise the emergency procedures to be adopted by personnel engaged on the operation and maintenance of the mechanical and Mechanical services with regard to fire, first aid, general failures, and call-out procedures during working hours and out of working hours.

Section 7

A recommended action on plant malfunction shall be detailed in this section. This is to assist both the user and maintenance engineer in the event of a fault developing in a system by indicating the nature of the fault and the recommended action.

Section 8

This shall comprise a list of recommended spares. The preparation of this section shall be carried out by obtaining the manufacturer's recommendations and also incorporate the Client's requirements regarding spares.

Section 9

A schedule of the record drawings or 'as-built' drawings for the new control systems shall be inserted in numerical order in this section. The drawings shall be bound into the manual.

Section 10

This section shall comprise test certificates and commissioning reports. It shall include reset schedules and temperature and pressure set points clearly for each item of control equipment.

Section 11

This shall comprise the manufacturers' literature, arranged in alphabetical order to match the list of manufacturers. The names of the manufacturers (or their local representatives), addresses, and telephone numbers shall also be given.

2.19.2 Record Drawings

A complete set of floor plans, in hard copy format, will be issued to the Laundry Equipment Sub-contractor, for preparation of Record Drawings.

The Laundry Equipment Sub-contractor shall prepare Record Drawings of the complete Mechanical Engineering Services (Laundry Equipment Installation) and return same to Consulting Mechanical Engineers.

2.20 DEFECTS LIABILITY PERIOD

The defects liability period shall be twelve months, which shall commence with the issue of the Works Completion Certificate (or Completion Advice Notice) in respect of the fully commissioned Works, by the Consulting Mechanical Engineers.

With effect from the date of the Works Completion Certificate (or Completion Advice Notice), and for the duration of the defects liability period, the Laundry Equipment Sub-contractor shall be responsible for all routine inspections, services and maintenance-related tasks that are specified for each component of the installation by the relevant Manufacturer / Supplier.

Furthermore, the Laundry Equipment Sub-contractor shall be responsible for the carrying out of the following inspections, services and maintenance-related tasks, namely :

Three month interval :

- ☐ check system functions for normal operations
- ☐ check water filters and change if dirty
- ☐ check temperature settings and operating settings
- ☐ check all pumps and service / clean if required
- ☐ check that electrical loads drawn are within normal parameters
- ☐ inspect all fuses and electrical devices
- ☐ check the drain pipes for blockages

Six month interval :

- ☐ all items listed above
- ☐ check motors and belts etc.
- ☐ ensure display panel lights and/or controls are functioning correctly

Nine month interval :

- ☐ all items listed in the Three-month interval above

Twelve month interval :

- ☐ all items listed above
- ☐ check mains voltage
- ☐ check the surface temperature of the working parts

The Laundry Equipment Sub-contractor shall ensure that the inspections, services and maintenance-related tasks are undertaken at intervals not greater than three months.

The Laundry Equipment Sub-contractor shall ensure that each inspection, service and / or maintenance-related task is undertaken in the presence of a representative of either the Consulting Mechanical Engineers or the Client.

The Laundry Equipment Sub-contractor shall ensure that the necessary documentation is completed and submitted to the Consulting Mechanical Engineers confirming the completion of the relevant tasks after each inspection, service and / or maintenance-related task milestone.

The Laundry Equipment Sub-contractor shall also timeously attend to any defects, which may occur through the normal operation of the Works.

If, during the defect's liability period, the installation is not in working order for any reason for which the Laundry Equipment Sub-contractor is responsible, or if the respective installation develops a defect, the Laundry

Equipment Sub-contractor shall, immediately upon being notified thereof, take steps to remedy the defects and make any necessary adjustments.

Should such stoppages, however be so frequent as to become troublesome, or should the installation otherwise prove unsatisfactory during the said period the Laundry Equipment Sub-contractor shall, if called upon by the Consulting Mechanical Engineers, at his own expense replace the whole of the installation, or such parts thereof, as the Consulting Mechanical Engineers may deem necessary with equipment specified by the Consulting Mechanical Engineers.

Upon completion of the defect's liability period, the Consulting Mechanical Engineers shall undertake the final inspection, service and / or maintenance-related task, as explained above and ensure that the necessary documentation is completed and submitted to the Consulting Mechanical Engineers on behalf of the Client.

2.21 DETAILED SCHEDULE OF WORK

All parts of this installation shall require all equipment to be extensively cleaned for a hygienic system of operation.

2.21.1 Laundry Installation

2.21.1.1 Industrial Washing Machine

The above washing machine shall be a 57 Kg heavy duty washing machine with an industrial medium speed microprocessor (Logi-Controlled) self-heating washer extractor, a drum volume of 569 dm³, dimensions of 1570 mm (w) x 1493 mm (d) x 1925 mm (h) and a nett weight of 1932 kg. The washing machine shall be complete with a high-quality stainless steel drum with ozone-resistant Viton gasket seal, Large-diameter loading door (200° opening angle) and easy to clean 4-compartment dispenser box.

The above shall be complete with all fittings, wireways, valves and connectors for a complete working system.

2.21.1.2 Industrial Washing Machine

The above washing machine shall be a 40 Kg heavy duty washing machine with an industrial medium speed microprocessor (Logi-Controlled) self-heating washer extractor, a drum volume of 395 dm³, dimensions of 1390 mm (w) x 1455 mm (d) x 1798 mm (h) and a nett weight of 1409 kg. The washing machine shall be complete with a high-quality stainless steel drum with ozone-resistant Viton gasket seal, Large-diameter loading door (200° opening angle) and easy to clean 4-compartment dispenser box.

The above shall be complete with all fittings, wireways, valves and connectors for a complete working system.

2.21.1.3 Industrial Washing Machine

The above washing machine shall be a 23 Kg heavy duty washing machine with an industrial medium speed microprocessor (Logi-Controlled) self-heating washer extractor, a drum volume of 226 dm³, a spin speed of 141G, dimensions of 868 mm (w) x 1098 mm (d) x 1404 mm (h) and a nett weight of 364 kg. The washing machine shall be complete with a high-quality stainless steel drum with ozone-resistant Viton gasket seal, Large-diameter loading door (200° opening angle) and easy to clean 4-compartment dispenser box.

The above shall be complete with all fittings, wireways, valves and connectors for a complete working system.

2.21.1.4 Hydro Extractor

The above unit shall be a 50 kg top loading Hydro Extractor with a self-balancing direct drive, specially designed motor and DC injection brake. The Hydro Extractor shall include a stainless steel inner basket and outer drum, and automatic features like; auto timed, auto stop, complete with specially designed electrical motor and panel.

The Hydro Extractor shall have dimensions of 1300 mm (w) x 1600 mm (d) x 1190mm (h) and nett weight of 830 kg with an extract speed of 800 RPM.

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.1.5 Industrial Tumble Drier

The above unit shall be a 23 kg heavy duty, industrial Micro-master 2 microprocessor controlled, tumble dryer with galvanised steel drum material (including nine 'pre-treat' stages to increase corrosion resistance on embossed steel), over-dry protection technology, self-heating washer extractor, superior energy efficiency of 354 cubic litres of airflow per second, control of energy input, airflow and cabinet design combine to produce minimum dry times and maximise linen life. The unit is to be all-belt driven for noise reduction, with a drum depth of 762 mm, and dimensions of 981 mm (w) x 1194 mm (d) x 1946 mm (h) and a nett weight of 247 kg.

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.1.6 Industrial Tumble Drier

The above unit shall be a 34 kg heavy duty, industrial Micro-master 2 microprocessor controlled, tumble dryer with galvanised steel drum material (including nine 'pre-treat' stages to increase corrosion resistance on embossed steel), over-dry protection technology, self-heating washer extractor, superior energy efficiency of 354 cubic litres of airflow per second, control of energy input, airflow and cabinet design combine to produce minimum dry times and maximise linen life. The unit is to be all-belt driven for noise reduction, with a drum depth of 914 mm, and dimensions of 981 mm (w) x 1378 mm (d) x 1946 mm (h) and nett weight of 247 kg.

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.1.7 Roller Iron

The above unit shall be a Cylindrical Ironer with outer casing of varnished steel, white in colour, complete with the roller covered in Nomex, heating from the cylinder, pedal operated, frontal loading and unloading, humidation 15%, safety protector panel, microprocessor controlled, temperature control by thermostat, electric heating system. The roller length shall be 1400 mm with a production of 40 kg/h and overall dimensions of 1800 mm (l) x 405 mm (d) x 1005 mm (h).

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.1.8 Table Model Laundry Press

The above Table Model Laundry Press shall have a worktop dimensioned of 1150 mm (w) x 400 mm (d), a temperature range from 0 - 220°C, time of 0" - 99"/sec, operating pressure from 0 - 250 gr/cm, 3kW power rating, and of overall dimensions 1150 mm (l) x 700 (d) x 600 mm (h) with a nett weight of 75 kg.

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.1.9 Mini-Vapour Iron

The above unit shall be an iron with electric steam generator and manual water filling system, a 1,8 L tank capacity, boiler heating element of 1 kW, dimensions of 230 mm (l) x 420 mm (d) x 320mm (w) and a nett weight of 7.5 kg.

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.1.10 Hand Held Steam Iron

The above unit shall be a hand-held steam bottle iron with demineraliser tank complete with a 2.5 L tank capacity, a 1kW element, dimensions of 320 mm (h) x 115 mm (d) x 205mm (w) and a nett weight of 2.1 kg.

The above shall be complete with all fittings, wireways and connectors for a complete working system.

2.21.2 Drains

Provision shall be made for drainage from washing machines to the nearest drain point provided.

Any drains run internally shall be chased into the wall and cast into the slabs or alternatives must be agreed with the Consulting Mechanical Engineer before the walls are plastered.

2.21.3 Electrical Services

An Electrical Sub-contractor, appointed as a Selected Sub-contractor to the Principal Contractor, will undertake the electrical services installation.

The Electrical Sub-contractor shall be responsible for the installation of all conduits, drawboxes, drawwires, distribution boards and / or power supplies, required for the laundry equipment services as indicated on the construction drawings.

The sizes of all conduits are indicated on the drawings. 2 mm² polyester draw tape shall be installed in all conduits.

The Laundry Equipment Sub-contractor shall be responsible for the electrical works from the isolator (provided by the Electrical Sub-contractor) to and from the respective laundry equipment, i.e.:

- ☐ From the provided isolator to the laundry equipment units respectively
- ☐ From the provided isolator to the Irons
- ☐ From the provided isolator to the respective MCC Panel and electrical works between the MCC Panel and respective laundry equipment

The Electrical Sub-contractor shall generally assist the Laundry Equipment Sub-contractor.

2.22 STAFF TRAINING

The Laundry Equipment Sub-contractor shall provide comprehensive training of male and female operational staff and nominated maintenance personnel, to the approval of the Consulting Mechanical Engineers.

Training shall be comprehensive, covering all aspects of systems installed as part of these Works.

The Laundry Equipment Sub-contractor shall provide a detailed training programme and a copy of the training documentation to the Consulting Mechanical Engineer, for comment and review, no less than 12 weeks prior to the commencement of training.

No training will commence on site prior to the written approval of the Consulting Mechanical Engineers. Should the Consulting Mechanical Engineers not approve the training programme and documentation, the training programme and documentation will be referred back to the Laundry Equipment Sub-contractor for re-evaluation and re-submission to the Consulting Mechanical Engineers.

The number of staff to be trained is to the full discretion of the Client. However, the Laundry Equipment Sub-contractor shall allow for 2 groups, each of up to 4 personnel. Each group shall receive a minimum of two 2-hour training sessions. One of these sessions shall be held prior to the commissioning of the mechanical engineering services installation, and the other of these sessions, upon expiry of the defects liability period.

Training shall be adequate to ensure that the groups trained are :

- ☐ competent in the operation of systems
- ☐ adequately trained to carry out on-going training
- ☐ fully aware of the location of all equipment installed as part of this Sub-contract within their area of responsibility

The names of personnel attending the training shall be recorded and submitted to the Consulting Mechanical Engineers at the conclusion of training.

Maintenance staff shall demonstrate a complete understanding of the location and connectivity of the various elements of the electrical engineering services installation.

All training aids and course notes necessary to conduct effective operational and maintenance training shall be supplied by the Laundry Equipment Sub-contractor.

The training venue will be made available on site by the Client.

PART 3

STANDARD TECHNICAL SPECIFICATIONS

CONTENTS

ITEM	DESCRIPTION	PAGE
	SECTION A GENERAL SPECIFICATIONS	
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A 2	General	A 2.1
A 3	Painting and Colour Coding	A 3.1 - A 3.5
A 4	Operating and Maintenance Manuals	A 4.1 - A 4.2

(The afore-mentioned documentation has not been included in the Enquiry Document, but may be obtained from the offices of the Consulting Mechanical Engineers.)

PART 4

SCHEDULE OF QUANTITIES

CONTENTS

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2	Alterations	4.1
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PART 4

SCHEDULES OF QUANTITIES

GENERAL NOTES

1 Specifications

The Schedule of Quantities form part of the Tender Document and must be read in conjunction with the other parts forming the Tender Document in order to gain the full meanings of the descriptions of the work to be done and materials and equipment to be used.

2 Alterations

No alterations, erasure or addition is to be made in the text of the Schedule of Quantities. Should any alteration, erasure or addition be made, it will not be recognised but the original wording of the Schedule of Quantities will be adhered to.

3 Issue of Schedule of Quantities in Electronic Format

The Consulting Mechanical Engineers will make the Schedule of Quantities available to Tenderers in electronic (Microsoft Excel Workbook) format, upon request.

If utilised for tender submission, the Tenderer will be responsible for ensuring the correctness of all calculations. The Consulting Mechanical Engineers cannot be held responsible for any arithmetic inaccuracies in the electronic Schedule of Quantities.

4 Pages

Before submitting his Tender, the tenderer must check to ensure all pages have been included and are distinct. Should any obvious errors be found the Consulting Mechanical Engineers is to be notified immediately to have them corrected as no liability whatsoever will be admitted by the Consulting Mechanical Engineers in respect of errors in the Tender due to the foregoing.

5 Responsibility

The responsibility for the accuracy of the quantities written into the Schedule of Quantities remains with the person who prepared the Schedule of Quantities. The Tenderer shall be relieved of the responsibility of measuring quantities at the Tender stage, and the Tender Price submitted shall be in respect of the quantities set out in the Schedule of Quantities.

The Tenderer will be required to make his assessment of items such as brackets, fixings, etc., from details stated in the Schedule of Quantities and shall make allowances therefore within the rates tendered.

Tenderers shall make due allowance in their rates for any item of incidental or contingent work, labour and materials not contained in the Schedule of Quantities, but deemed necessary for the successful completion of the Works.

6 Unit Rates

Unless a separate rate for the supply and the installation of any item is specifically called for, the supply and installation costs of any items shall be fully included in the unit price.

The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hoisting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates plant, temporary works, return of water establishment charges, profit and all other obligations arising out of the Conditions of Contract.

7 Variations

Variations in the scope and extent of the work included in the Schedule of Quantities shall be allowed in order to meet the Employer's requirements and shall be measured and costed at the rates entered in the Schedule of Quantities, where appropriate, forming an addition to or deduction from the total of the Schedule of Quantities. Any items or variations for which rates have not been added in the Schedule of Quantities shall be agreed and priced as non-scheduled items in accordance with the provisions of the contract.

The rules governing the extent and costing of the variations shall be those provided for in the Conditions of Contract and Variations to Sub-contract.

Variations to the planning before the work has been executed shall be priced as above. Alterations to work already executed cannot necessarily be priced as above and must be reviewed on its merits.

The appropriate portions of the Preliminary & General Costs are to be adjusted proportionately to the nett additions or omissions of the variations to the contract

8 Preliminary and General

Tenderers shall price the Preliminary & General under any or all of these groups, viz.:

- a) A fixed amount
- b) An amount varied in proportion to the final contract value as compared to the Tender Price
- c) An amount varied in proportion to the final contract period as compared to the originally specified contract period

The allocation of prices to the three categories listed above must be realistic and the Mechanical Sub-contractor may be required to justify the allocation of the prices. Should no Preliminary & General Costs be entered against the variable items b) or c) above, no adjustment thereof shall be considered.

9 Provisional Sums

All Provisional Sums shall be expended only as directed by the Consulting Mechanical Engineers and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineer.

All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.

10 Contingency Sums

All Contingency Sums shall be expended only as directed by the Consulting Mechanical Engineers. No work for which Contingency Sums are provided shall be commenced without written instructions from the Engineer.

All Contingency Sums may be utilised in full or in part. These Contingency Sums may be deleted in full or in part if not required.

11 Dayworks

The rates included for daywork shall not form part of the Tender Price, but Tenderers shall note that this item must be regarded as provisional and will only be payable to the Laundry Equipment Sub-contractor if and when a written order to this effect has been issued.

12 Value Added Tax

This Schedule of Quantities shall be priced nett, excluding VAT. VAT shall be added at the summary at the end of the Schedule of Quantities. The final price entered into the Tender Form shall be inclusive of VAT.

13 Adjustment

The Employer reserves the right to adjust arithmetical errors in the extension of rates and totals in the Tender, and the Tenderer will be informed of the effect of any corrections on his Tender Sum prior to the award of the Contract. In no case will tendered rates be adjusted when correcting such errors.

In the event of there being tendered rates or prices which are declared by the Employer to be unacceptable to him, because they are either excessively low or high or not in proper balance with other rates, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or prices objected to. If after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or prices objected to, he may request the Tenderer to amend these rates and prices along the lines indicated by him.

The Tenderer may or may not thereupon alter and amend the rates and prices objected to and such other related prices as are agreed to by the Employer. Should the Tenderer fail to amend his Tender in a manner acceptable to the Employer, or at all, it may prejudice his Tender.

In the case of Tenders with Schedule of Quantities, the total corrected Tender Price in the Tender Form shall constitute the Sub-contract Sum. Tenderers are advised to check their extensions and additions. In the case of a Lump Sum Tender, the original uncorrected Tender Price shall be considered. The Consulting Mechanical Engineers shall negotiate adjustments to the rates tendered in order to correct the arithmetical extension or addition, whilst the Tender Price as submitted, remains unaltered.

In either case, the Tenderer shall be notified of any arithmetical error in his Tender, and shall be given the opportunity to withdraw the Tender at this stage.

14 Quantification

The successful Tenderer and the Employer or his Agent may agree that the total of any Schedule, including any variations by way of additions thereto or deductions there from, represents a fair and accurate quantification of the items set out in the Schedule of Quantities and the parties may agree final payment on that basis. In the event of any dispute as to the quantities, the disputed item or items shall be adjusted where necessary.

15 Ordering

The quantities in this Schedule of Quantities shall not be used for ordering materials. The onus is on the successful Tenderer to order the correct quantities of materials as per the drawings.

16 Payment

The measurement and payment of Work done shall be made in accordance with the unit price rates, and rates of pay listed in the Schedule of Quantities. No payment will be made for any item of associated work not specifically detailed in the Schedule of Quantities.

Schedule 1 : Preliminary & General Items

Schedule 1 : Preliminary & General Items			Preliminary & General Items			
Item	Description	Unit	Qty	Rates		Nett Amount
				Supply	Install	
1	Preliminary & General Items					
1.1	Contractual Items					
1.1.1	Provision of a Sub-contract Construction Guarantee, in terms of the Nominated / Selected Sub-contract Agreement	sum	1,00			
1.1.2	Provision of an Advanced Payment Guarantee, in the amount as is required for the procurement of any materials and / or equipment, so as to facilitate the successful and timeous completion of the sub-contract Works	sum	1,00			
1.1.3	Provision of the Insurances e.g. Contract Works Insurance, Special Insurances, Supplementary Insurance, Public Liability Insurance, etc., as is deemed necessary for the sub-contract Works	sum	1,00			
1.1.4	Allowance for the Compliance with the Construction Regulations, w.r.t. the Occupational Health and Safety Specification prepared by the Employer and / or their designated Agent, and the Principal Contractor and / or their designated Agent, and as further detailed in the Occupational Health & Safety Act, Act 85 of 1993	sum	1,00			
1.1.5	Allowance for the Compliance with the Construction Regulations, w.r.t. the Construction Environment Management Plan prepared by the Employer and / or their designated Agent, and the Principal Contractor and / or their designated Agent, and as further detailed in the Occupational Health & Safety Act, Act 85 of 1993	sum	1,00			
1.1.6	Allow for the warranty of the Sub-contract Works for the duration of the stipulated defects liability	sum	1,00			
1.1.7	Allow for the servicing and routine maintenance of the Sub-contract Works for the duration of the stipulated defects liability period	sum	1,00			
1.1.8	Allow for the provision of all applicable Test Certificates and / or Compliance Certificates	sum	1,00			
1.1.9	Other contractual items not detailed above	sum	1,00			
1.2	Fixed Cost Items					
1.2.1	Establishment of Offices on Site	sum	1,00			
1.2.2	Establishment of Storage Facilities on Site	sum	1,00			
1.2.3	Establishment of Ablution Facilities on Site	sum	1,00			
1.2.4	Maintenance of Offices, Storage Facilities & Ablutions	sum	1,00			
1.2.5	Removal of all facilities upon Completion of the Sub-contract Works	sum	1,00			
1.2.6	Other fixed cost items not detailed above	sum	1,00			
Total for Schedule carried forward					R	

Schedule 1 : Preliminary & General Items

Schedule 1 : Preliminary & General Items				Preliminary & General Items			
Item	Description	Unit	Qty	Rates		Nett Amount	
				Supply	Install		
1	Preliminary & General Items	Amount Brought Forward				Rate Only	
1.3	Time Related Items						
1.3.1	Project Supervision	mths	30,00				
1.3.2	Project Administration	mths	30,00				
1.3.3	Other Overheads (travel, accommodation)	mths	30,00				
1.3.4	Other time related items not detailed above	mths	30,00				
	<i>Note : The Work shall at all times, for the duration of the sub-contract, be carried out under the supervision of a competent representative of the Laundry Equipment Sub-contractor in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended.</i>						
1.4	General Items						
1.4.1	Provision of a Programme for the Sub-contract Works, considered and prepared in accordance with the approved Principal Contractor's Construction Programme	sum	1,00				
1.4.2	Completion of necessary commencement, compliance and completion forms for the installation as required in terms of the Occupational Health and Safety Act No. 85 of 1993, as amended, the relevant SABS Specifications and the requirements of the relevant Supply Authorities	sum	1,00				
1.4.3	Inspect site, prior to submission of tender	sum	1,00				
1.4.4	Providing a "Master Installation Electrician" for overseeing the electrical installations within the hazardous locations (if and where applicable)	sum	0,00				
1.4.5	Provision of all necessary forms of access i.e. scaffolding, cherry pickers, etc., in complete and strict accordance with the relevant Construction Regulations (refer to Clause 1.1.6), so as to facilitate the successful and timeous completion of the sub-contract Works	sum	1,00				
1.4.6	Carrying out of all testing of the complete sub-contract Works and the commissioning thereof, so as to facilitate the handover of the complete sub-contract Works to the Employer complete with all applicable Test Certificates and / or Compliance Certificates (refer to clause 1.1.8)	sum	1,00				
1.4.7	Training of Client's representative (s) at "practical completion"	sum	1,00				
1.4.8	Training of Client's representative (s) at "end of defects liability period"	sum	1,00				
1.4.9	Provision of Record Drawings	sum	1,00				
1.4.10	Provision of Operating and Maintenance manuals	sum	1,00				
Total for Schedule carried forward to Summary							R

Rate Only

Schedule 2 : Laundry Equipment

Item	Description	Unit	Qty	Rates		Nett Amount
				Supply	Install	
2	Laundry Equipment <i>The schedule shall be read with the project specifications of the tender document. The price submitted in this schedule will deem all installations to be priced for completed and operational installations</i>					
2,1	Industrial Washing Machine					
2.1.1	Indrusial Washing machine with High-quality stainless steel drum with ozone-resistant Viton gasket seal, Large-diameter loading door and 200° opening angle, easy to clean 4-compartment dispenser box, 57 Kg Heavy duty Industrial medium speed microprocessor (logi Controlled) self heating Washer extractor with Drum volume 569 dm3 and dimensions 1570 mm (w) x 1493 mm (d) x 1939 mm (h) and nett weight of 1932 kg.	sum	2,00			
2.1.2	Indrusial Washing machine with High-quality stainless steel drum with ozone-resistant Viton gasket seal, Large-diameter loading door and 200° opening angle, easy to clean 4-compartment dispenser box, 40 Kg Heavy duty Industrial medium speed microprocessor (logi Controlled) self heating Washer extractor with Drum volume 395 dm3 and dimensions 1390 mm (w) x 1455 mm (d) x 1798 mm (h) and nett weight of 1409 kg.	sum	1,00			
2.1.3	Indrusial Washing machine with High-quality stainless steel drum with ozone-resistant Viton gasket seal, Large-diameter loading door and 200° opening angle, easy to clean 4-compartment dispenser box, 23 Kg Heavy duty Industrial medium speed microprocessor (logi Controlled) self heating Washer extractor with Drum volume 226 dm3 and Spin speed of 141G, of dimensions 868 mm (w) x 1098 mm (d) x 1404 mm (h) and nett weight of 364 kg.	sum	8,00			
Total for Schedule carried forward					R	

Schedule 2 : Laundry Equipment

Item	Description	Unit	Qty	Rates		Nett Amount
				Supply	Install	
2	Laundry Equipment (continued)			Amount Brought Forward		
2.2	Hydro Extractor					
2.2.1	50 kg Hydro Extractor, top loading type, self balancing direct drive with specially designed motor and DC injection brake. Stainless Steel inner basket and outer drum. Automatic features like; auto timed, auto stop, complete with specially designed electrical motor and panel. Extract speed 800rpm of dimensions 1300 mm (w) x 1600 mm (d) x 1190mm (h) and nett weight of 830 kg.	sum	1,00			
2.3	Industrial Tumble Dryer					
2.3.1	23 Kg Heavy duty Industrial Micromaster 2 microprocessor controlled Tumble Dryer with Galvanised Steel Drum Material, Nine 'pre-treat' stages to increase corrosion resistance on embossed steel, overdry protection technology self heating Washer extractor, Superior energy efficiency of 354 cubic litres of airflow per second, Control of energy input, airflow and cabinet design combine to produce minimum dry times and maximise linen life, All-belt drive for noise reduction, with drum depth of 762 mm, of dimensions 981 mm (w) x 1194 mm (d) x 1946 mm (h) and nett weight of 247 kg.	sum	8,00			
2.3.2	34 Kg Heavy duty Industrial Micromaster 2 microprocessor controlled Tumble Dryer with Galvanised Steel Drum Material, Nine 'pre-treat' stages to increase corrosion resistance on embossed steel, overdry protection technology self heating Washer extractor, Superior energy efficiency of 354 cubic litres of airflow per second, Control of energy input, airflow and cabinet design combine to produce minimum dry times and maximise linen life, All-belt drive for noise reduction, with drum depth of 914 mm, of dimensions 981 mm (w) x 1378 mm (d) x 1946 mm (h) and nett weight of 247 kg.	sum	2,00			
Total for Schedule carried forward					R	

Schedule 2 : Laundry Equipment

Item	Description	Unit	Qty	Rates		Nett Amount
				Supply	Install	
2	Laundry Equipment (continued)			Amount Brought Forward		
2,4	Roller Ironer					
2.4.1	Cylindrical Ironer with outer casing of varnished steel, white colour, Roller covered in Nomex, Heating from cylinder, Pedal operated, Frontal loading and unloading, Humidation 15%, Safety protector panel, Microprocessor controlled, Temperature control by thermostat, Electric heating system, Roller length of 1400 mm, production of 40 kg/h, of dimensions 1800 mm (l) × 405 (d) × 1005 mm (h).	sum	1,00			
2,5	Table Model Laundry Press					
2.5.1	Table Model Laundry Press with worktop dimension of 1150 mm (w) x 400 mm (d), Temperature range from 0 - 220°, Time of 0" - 99"/sec, Pressure from 0 - 250 gr/cm, 3kW power rating, of dimensions 1150 mm (l) × 700 (d) × 600 mm (h) and nett weight of 75 kg.	sum	2,00			
2,6	Mini-Vapour Iron					
2.6.1	Iron With Electric Steam Generator and Manual Water Filling system with a 1,8L tank capacity, Boiler Heating Element 1 kW, of dimensions 230 mm (l) x 420 mm (d) x 320mm (w) and nett weight of 7.5 kg.	sum	1,00			
2,7	Hand Held Steam Iron					
2.7.1	Hand Held Steam Bottle Iron with Demineraliser Tank, with a 2.5L tank capacity, with a 1kW element, of dimensions 320 mm (h) x 115 mm (d) x 205mm (w) and nett weight of 2.1 kg.	sum	6,00			
Total for Schedule carried forward to Summary						R

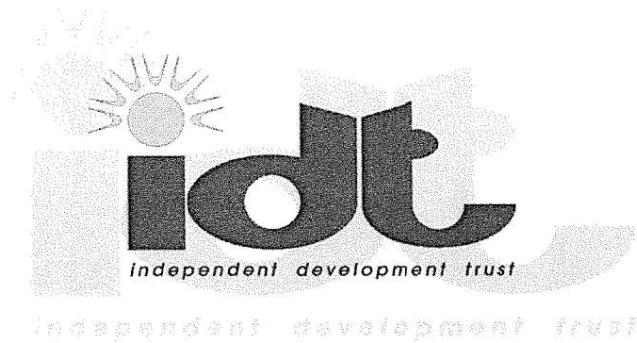
Schedule 3 : Provisional Sums and Contingency Sums

Item	Description	Unit	Qty	Rates		Nett Amount
				Supply	Install	
3	Provisional Sums and Contingency Sums					
3,1	Provisional Sums These provisional sums may be utilised in full or in part. No expenditure will be allowed without the authority of the Consulting Mechanical Engineers, in writing. These sums may be deleted in full or in part.					
3.1.1 Allow a provisional sum for	sum	0,00			Rate Only
3,2	Contingency These contingency sums may be utilised in full or in part. No expenditure will be allowed without the authority of the Consulting Mechanical Engineers, in writing. These sums may be deleted in full or in part.					
3.2.1	Contingency					
3.2.1.1	Allow a contingency sum for unforeseen circumstances	sum	1,00	25 000,00		
Total for Schedule carried forward to Summary						R

Summary Page

Item	Description	Summary
1	Preliminary & General Items	
2	Laundry Equipment	
3	Provisional Sums and Contingency Sums	
Sub-total (carried forward to Summary)		

Description of Services	Sub-totals
Early Warning Detection and Alarm System	
Sub-total carried forward from Preliminary & General Items	
Sub-total carried forward from Laundry Equipment	
Sub-total carried forward from Provisional and Contingency Sums	
Sub-total (carried forward to Part C of Tender Prices)	



**NTSONKOTHA SENIOR SECONDARY SCHOOL
IN LADY FRERE
BY INDEPENDENT DEVELOPMENT TRUST
SUMMARY OF TENDER PRICES
(MECHANICAL INSTALLATION)**

Volume 2 : Part C (Mechanical Installation)

September 2021

Issued by :
Independent Development Trust

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MXN Electrocon Projects

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Email Address : mxny101@hotmail.com
mxn@mxnep.com

Contact Person : Mr. M Nyikana

NAME OF TENDERER :
.....

Our File : Public/Engineering/Projects/2016/2016-272/Tender
Our Reference : Summary of Tender Prices (Part C)

Additions and Alterations to Ntsonkotha SSS in Lady Frere



Part C : Mechanical Installation

Summary of Tender Prices

Item	Description	Tender Prices
1	Air-conditioning and Ventilation Installation	
2	Early Warning Detection and Alarm System	
3	Hot Water Generation	
4	Laundry Equipment	
Sub-total carried forward to C.2.2. Bills of Quantities Final Summary (Part C)		

NOTES:

1. Where specified, all electrical, electronic, and mechanical equipment shall be installed in accordance with the relevant standards and specifications. All equipment shall be installed in a secure and accessible location, and shall be protected from damage and theft. All equipment shall be installed in a secure and accessible location, and shall be protected from damage and theft.
2. The electrical installation shall be designed and installed in accordance with the relevant standards and specifications. The electrical installation shall be designed and installed in accordance with the relevant standards and specifications.
3. The mechanical installation shall be designed and installed in accordance with the relevant standards and specifications. The mechanical installation shall be designed and installed in accordance with the relevant standards and specifications.
4. The ventilation installation shall be designed and installed in accordance with the relevant standards and specifications. The ventilation installation shall be designed and installed in accordance with the relevant standards and specifications.

NO.	REVISION	DATE	APPROVED
1	ISSUED FOR TENDER	21.11.2016	
2	REVISED	21.11.2016	
3	REVISED	21.11.2016	
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Tel: 031 722 0115
Fax: 031 722 0116
Email: info@mxn.co.za
www.mxn.co.za

NGONYAMA OKPANUM & ASSOCIATES



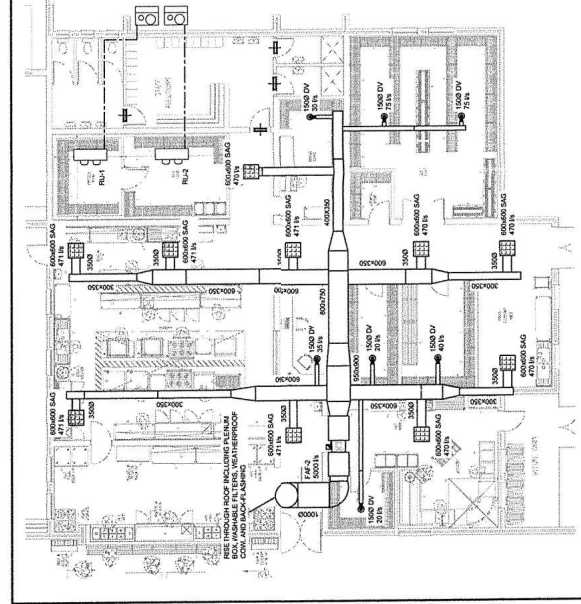
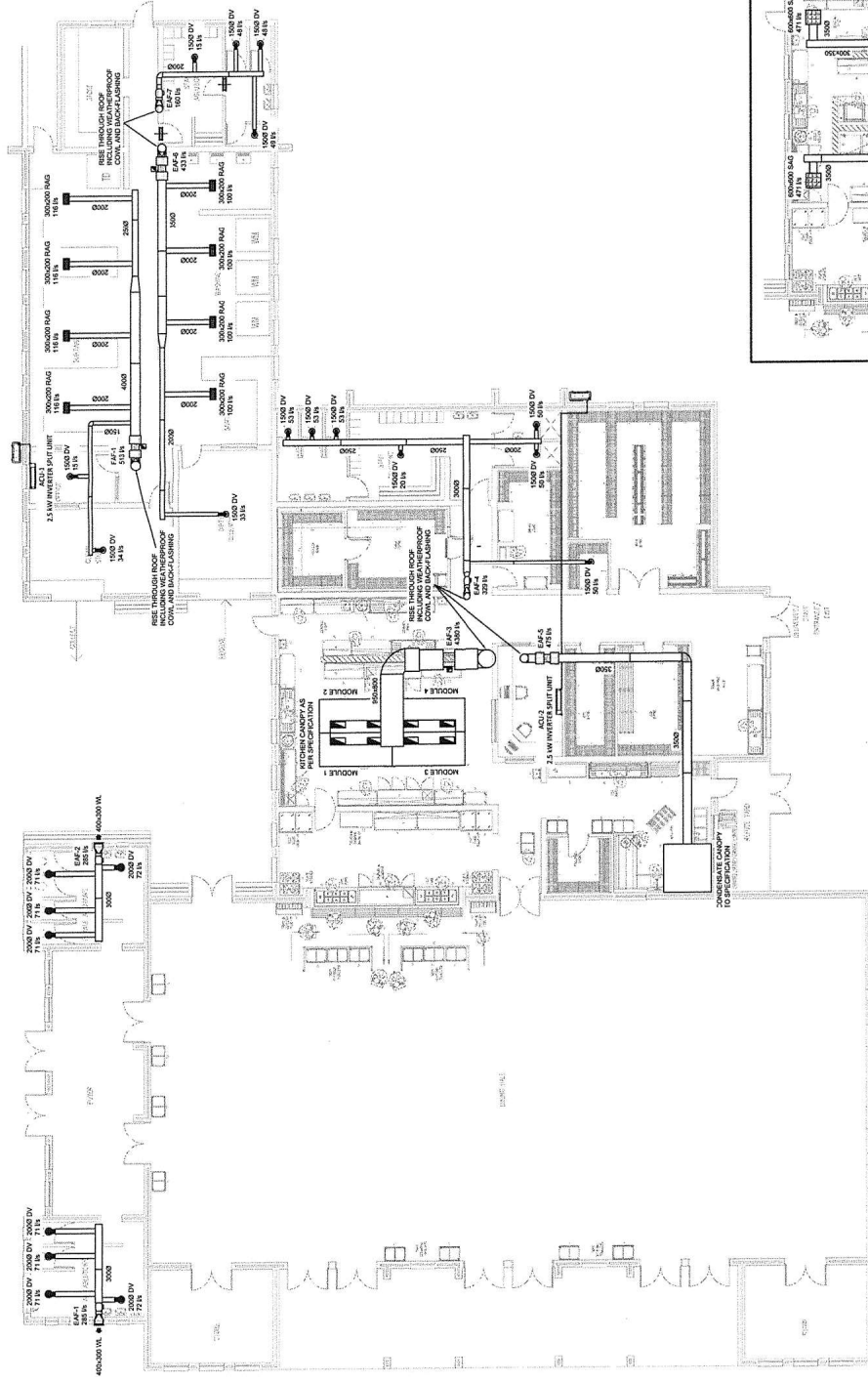
NTSONKOTHA SENIOR
SECONDARY SCHOOL

MECHANICAL ENGINEERING SERVICES
DINING HALL AND LAUNDRY
AIR-CONDITIONING AND VENTILATION
INSTALLATION

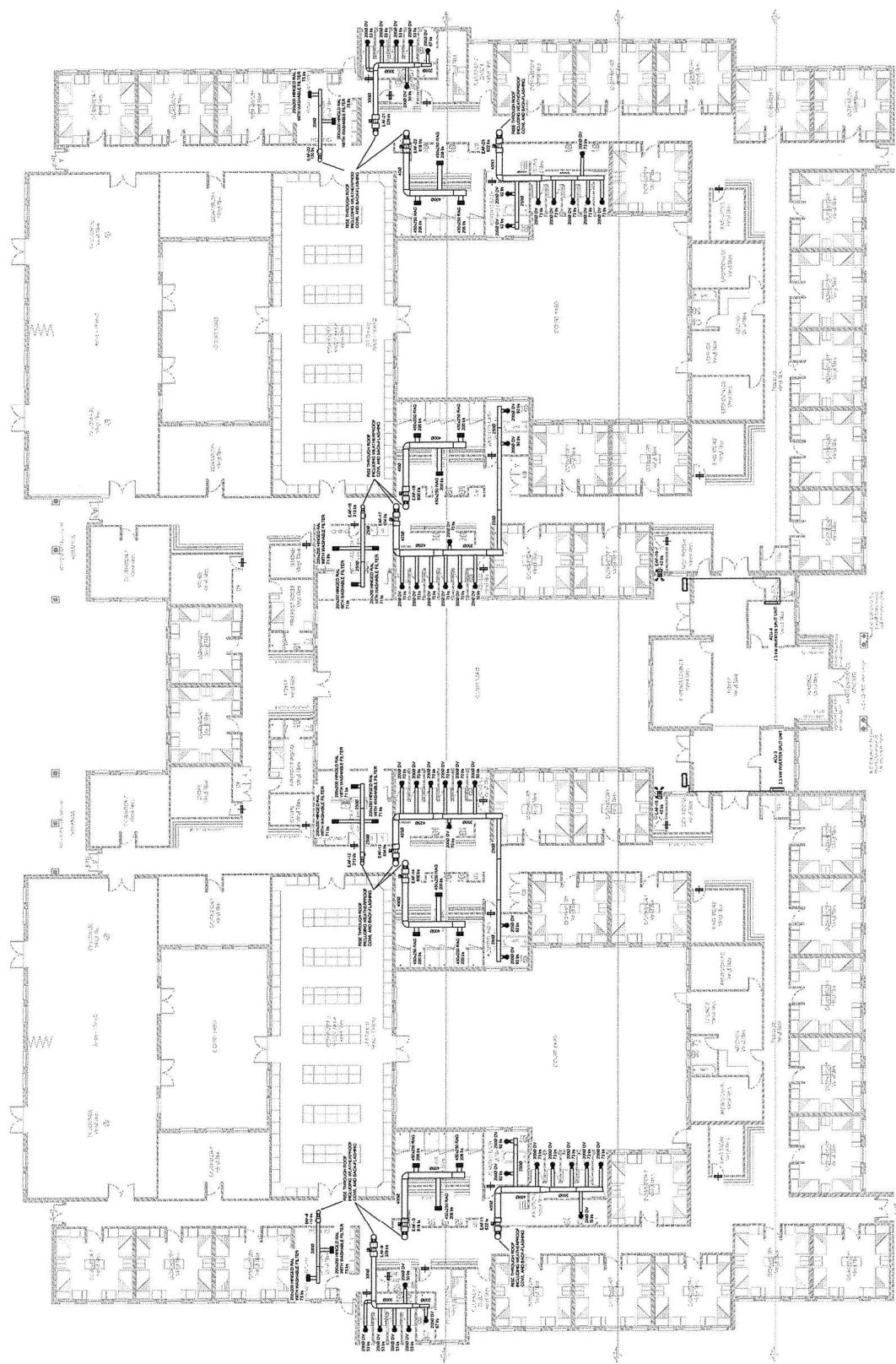
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DATE
2016-272/11-000

REVISION
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- NOTES:**
1. Where applicable, for all buildings, the minimum fire rating for all walls, floors, ceilings, doors, windows, and other building components shall be in accordance with the applicable fire code.
 2. The building shall be designed to meet the minimum fire rating for all walls, floors, ceilings, doors, windows, and other building components.
 3. The building shall be designed to meet the minimum fire rating for all walls, floors, ceilings, doors, windows, and other building components.
 4. The building shall be designed to meet the minimum fire rating for all walls, floors, ceilings, doors, windows, and other building components.
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 10. The building shall be designed to meet the minimum fire rating for all walls, floors, ceilings, doors, windows, and other building components.



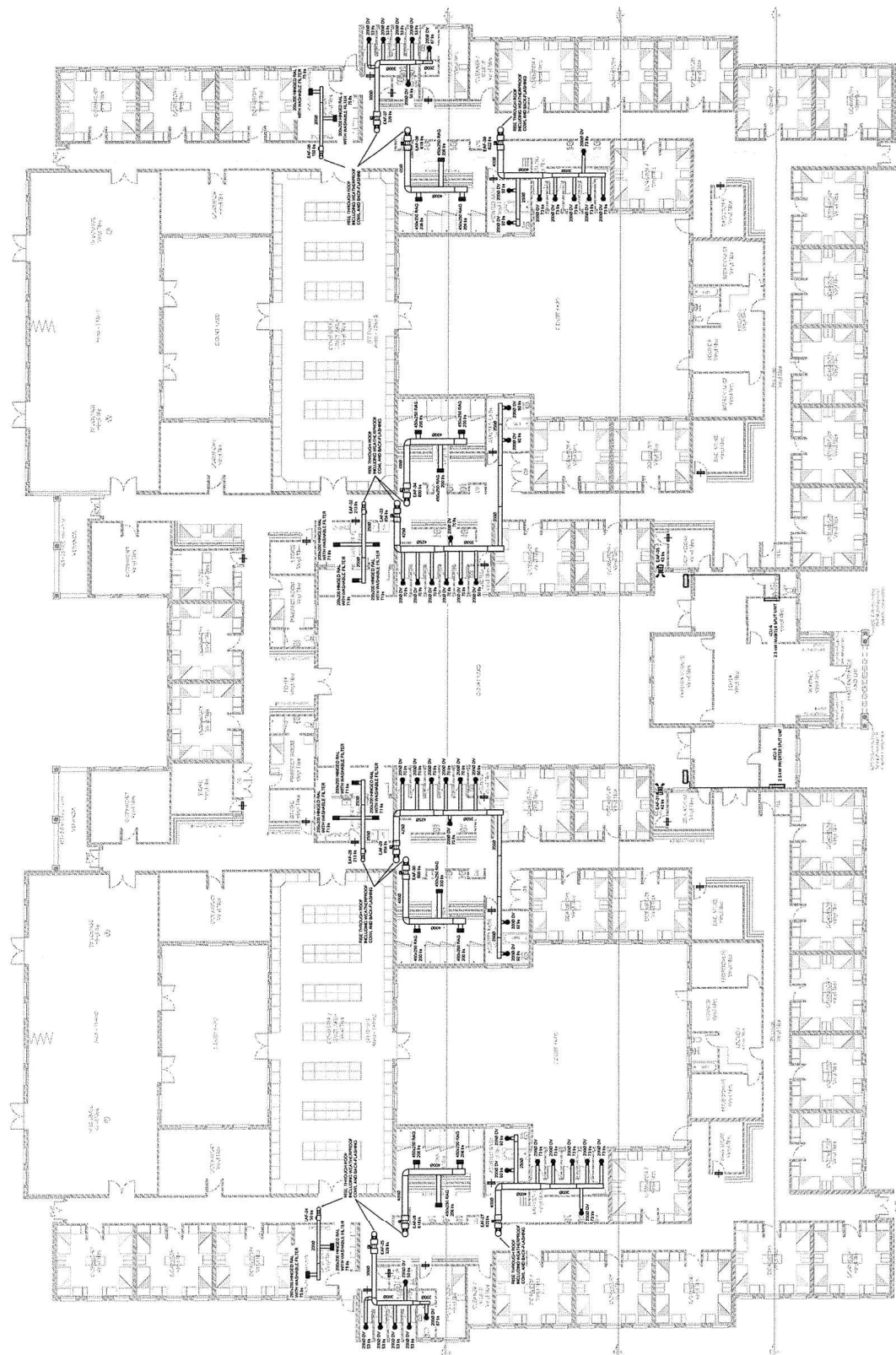
GROUND FLOOR PLAN

MXN MECHANICAL ENGINEERING SERVICES 1000 14th Street, Suite 100 Cape Town, 7700 Tel: 021 461 1111 Fax: 021 461 1112 Email: info@mxn.co.za Website: www.mxn.co.za		idL INTERIOR DESIGN 1000 14th Street, Suite 100 Cape Town, 7700 Tel: 021 461 1111 Fax: 021 461 1112 Email: info@idl.co.za Website: www.idl.co.za
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PROJECT: NTSOKOTHA SENIOR SECONDARY SCHOOL
 DRAWING: MECHANICAL ENGINEERING SERVICES
 CLIENT: GIRLS DORMITORY
 PROJECT: AIR-CONDITIONING AND VENTILATION
 SCALE: 1:100
 DATE: 2017-22/11-2017

NOTES:

1. Where indicated, all air conditioning equipment is to be installed in the mechanical rooms shown on this plan. All equipment is to be installed in accordance with the manufacturer's instructions and the applicable codes. The equipment is to be installed in a location that is accessible for maintenance and repair. The equipment is to be installed in a location that is protected from weather and vandalism. The equipment is to be installed in a location that is protected from fire and explosion. The equipment is to be installed in a location that is protected from flood damage. The equipment is to be installed in a location that is protected from seismic damage. The equipment is to be installed in a location that is protected from lightning damage. The equipment is to be installed in a location that is protected from electromagnetic interference. The equipment is to be installed in a location that is protected from radio frequency interference. The equipment is to be installed in a location that is protected from power line interference. The equipment is to be installed in a location that is protected from ground potential rise. The equipment is to be installed in a location that is protected from static electricity. The equipment is to be installed in a location that is protected from dust and dirt. The equipment is to be installed in a location that is protected from moisture and humidity. The equipment is to be installed in a location that is protected from salt and corrosion. The equipment is to be installed in a location that is protected from acid and alkali. The equipment is to be installed in a location that is protected from oil and grease. The equipment is to be installed in a location that is protected from paint and varnish. The equipment is to be installed in a location that is protected from glue and adhesive. The equipment is to be installed in a location that is protected from solder and flux. The equipment is to be installed in a location that is protected from welding and cutting. The equipment is to be installed in a location that is protected from grinding and buffing. The equipment is to be installed in a location that is protected from sanding and polishing. The equipment is to be installed in a location that is protected from painting and staining. The equipment is to be installed in a location that is protected from cleaning and disinfecting. The equipment is to be installed in a location that is protected from pest control. The equipment is to be installed in a location that is protected from fire and explosion. The equipment is to be installed in a location that is protected from flood damage. The equipment is to be installed in a location that is protected from seismic damage. The equipment is to be installed in a location that is protected from lightning damage. The equipment is to be installed in a location that is protected from electromagnetic interference. The equipment is to be installed in a location that is protected from radio frequency interference. The equipment is to be installed in a location that is protected from power line interference. The equipment is to be installed in a location that is protected from ground potential rise. The equipment is to be installed in a location that is protected from static electricity. The equipment is to be installed in a location that is protected from dust and dirt. The equipment is to be installed in a location that is protected from moisture and humidity. The equipment is to be installed in a location that is protected from salt and corrosion. The equipment is to be installed in a location that is protected from acid and alkali. The equipment is to be installed in a location that is protected from oil and grease. The equipment is to be installed in a location that is protected from paint and varnish. The equipment is to be installed in a location that is protected from glue and adhesive. The equipment is to be installed in a location that is protected from solder and flux. The equipment is to be installed in a location that is protected from welding and cutting. The equipment is to be installed in a location that is protected from grinding and buffing. The equipment is to be installed in a location that is protected from sanding and polishing. The equipment is to be installed in a location that is protected from painting and staining. The equipment is to be installed in a location that is protected from cleaning and disinfecting. The equipment is to be installed in a location that is protected from pest control.



GROUND FLOOR PLAN

PROJECT		MECHANICAL ENGINEERING SERVICES	
INTERNATIONAL SENIOR SECONDARY SCHOOL		BOYS DORMITORY	
AIR-CONDITIONING AND VENTILATION INSTALLATION		INSTALLATION	
DATE		1:100	
2016-272/11-002		0	

MXN

MECHANICAL ENGINEERING SERVICES

10000 100th Ave. S.E. Suite 100

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idc

INTERNATIONAL DESIGN CENTER

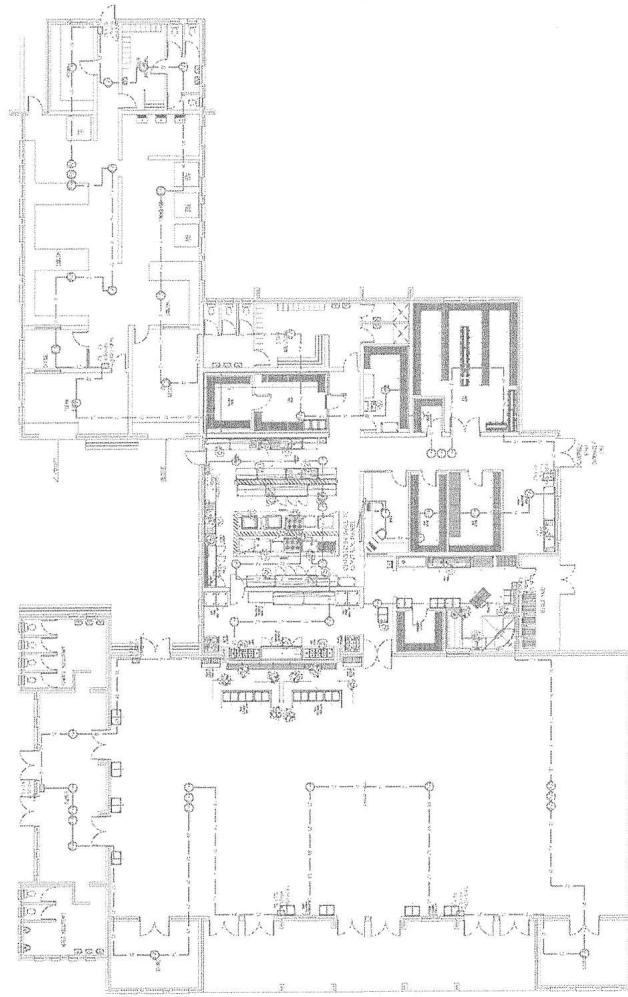
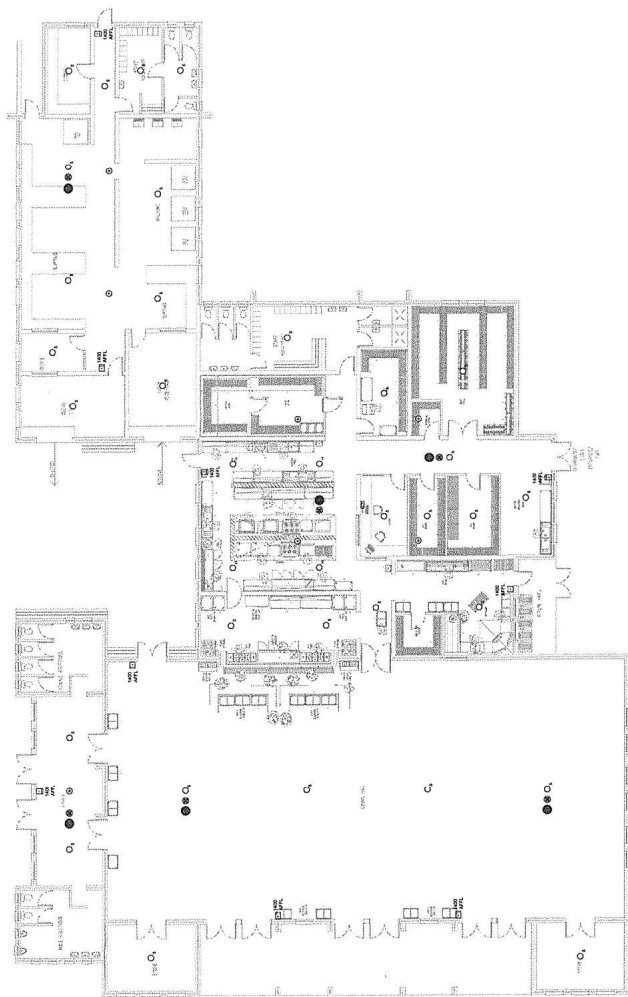
10000 100th Ave. S.E. Suite 100

Bellevue, WA 98006

Phone: (206) 468-1000

Fax: (206) 468-1001

Website: www.idc.com

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NOTES:

2.1 FIRE ALARM CONDUITS SHALL BE EITHER GALVANIZED STEEL OR POLYETHYLENE GLYCOL (PE) COATED STEEL. ALL CONDUITS SHALL BE IDENTIFIED BY THE MANUFACTURER'S MARKING. CONDUITS SHALL BE POSITIONED 300 mm (12 IN) ABOVE THE FLOOR OR CEILING UNLESS OTHERWISE SHOWN. ALL FLOOR-OUT BOXES ARE STANDARD ROUND BOXES (50 mm Ø TO 150 mm Ø). 75 X 75 BOXES SHALL BE STANDARD BIRSTEIN TYPE 152.

2.2 10 X 10 BOXES SHALL BE 30 mm DEEP UNLESS OTHERWISE SHOWN.

2.3 15 X 15 BOXES SHALL BE 30 mm DEEP UNLESS OTHERWISE SHOWN.

2.4 ALL CONDUITS ARE 20 mm UNLESS OTHERWISE SHOWN.

2.5 ELECTRICAL INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH THE STANDARD, THE WORDS OF WHICH SHALL BE CONSIDERED TO BE THE FINAL AUTHORITY. DIFFERENCES IN THE VOLTAGE, INSTALLATION METHODS,

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NGONYAMA ORGANIM & ASSOCIATES

NTSONKOTHA SENIOR
SECONDARY SCHOOL.

MECHANICAL ENGINEERING SERVICES

DINING HALL AND LAUNDRY

**EARLY WARNING DETECTION AND
ALARM INSTALLATION**

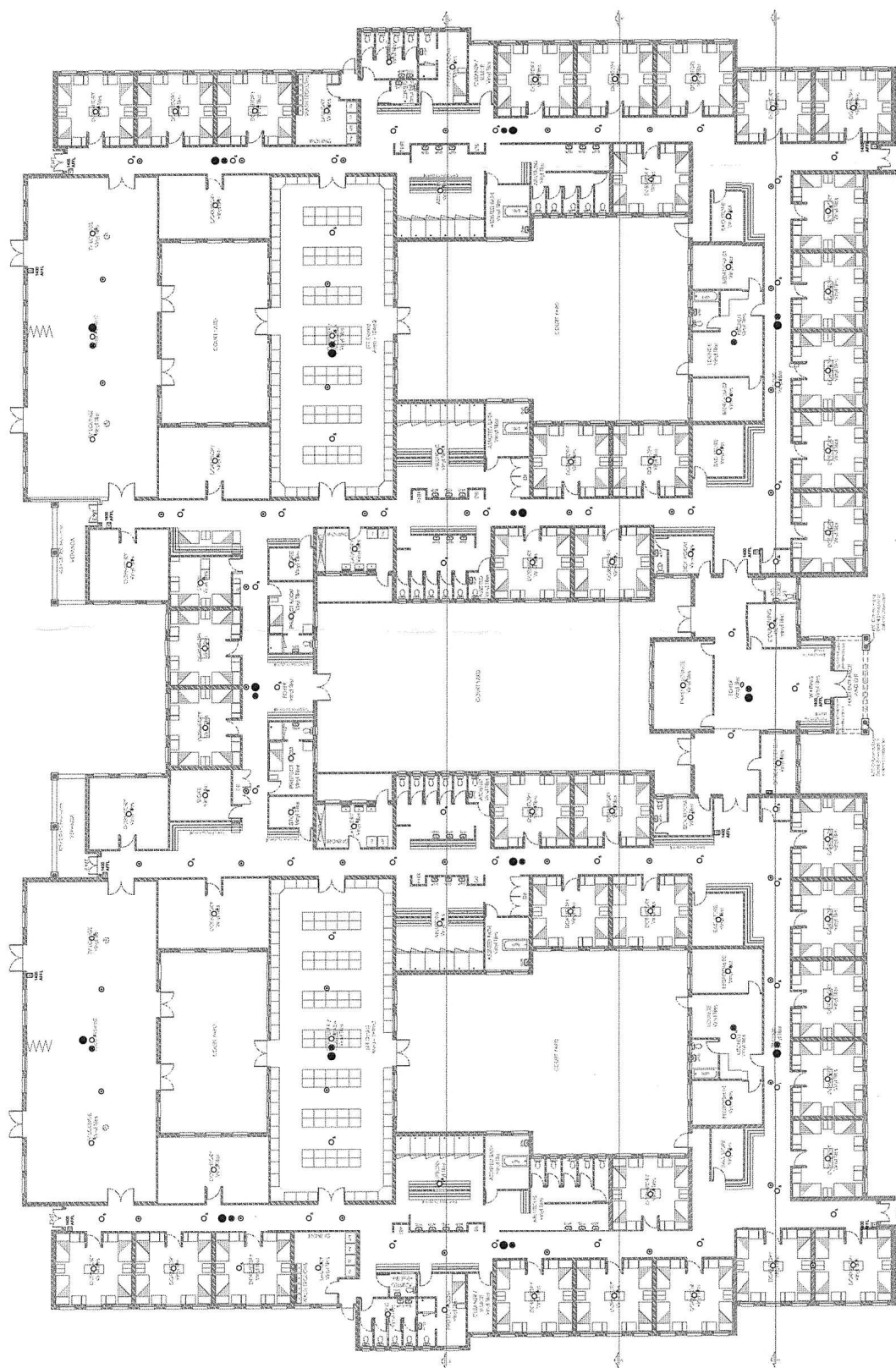
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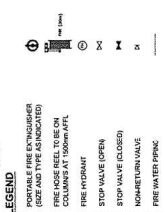
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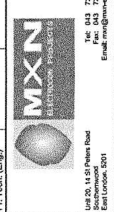
DEVICE LAYOUT

GROUND FLOOR PLAN



- ## NOTES
1. FIRE MAINS BELOW GROUND SHALL BE LUPIC (CLASS 18) PIPE TO RELEVANT SWS STANDARDS
 2. TO RELEVANT SWS STANDARDS
 3. EXTERNAL EXPOSED FIRE MAINS ABOVE GROUND SHALL BE GALVANIZED STEEL TO RELEVANT SWS STANDARDS
 4. INTERNAL EXPOSED FIRE MAINS ABOVE GROUND SHALL BE GALVANIZED STEEL TO RELEVANT SWS STANDARDS
 5. PIPES SUPPLYING FIRE HOSE REELS TO BE 625 MM BLACK STEEL
 6. EACH FIRE HYDRANT SHALL HAVE A 30 mm CANVAS FIRE HOSE INCLUDING ALL CONNECTION FITTINGS, COUPLINGS, 18 mm HOSE AND 10 mm FIRE HOSE. THE FIRE HOSE SHALL BE FITTED NEXT TO THE FIRE HYDRANT, OR OTHERWISE INDICATED
 7. ALL PLUMBING WORK CARRIED OUT TO BE TO STANDS 10254 ALL FIRE WATER PIPING SHALL BE CLEANED, PRIMED AND PAINTED WITH RED OXIDE AND SQUAL RED ENAMEL PAINT. COMPLETION OF INSTALLATION

Sl	DATE	Issued by / Issued to	DESIGNED	DATE
1	25.11.2015	Issued by / Issued to	DESIGNED	DATE
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ARCHITECT
NGONYAMA OKPANUM & ASSOCIATES

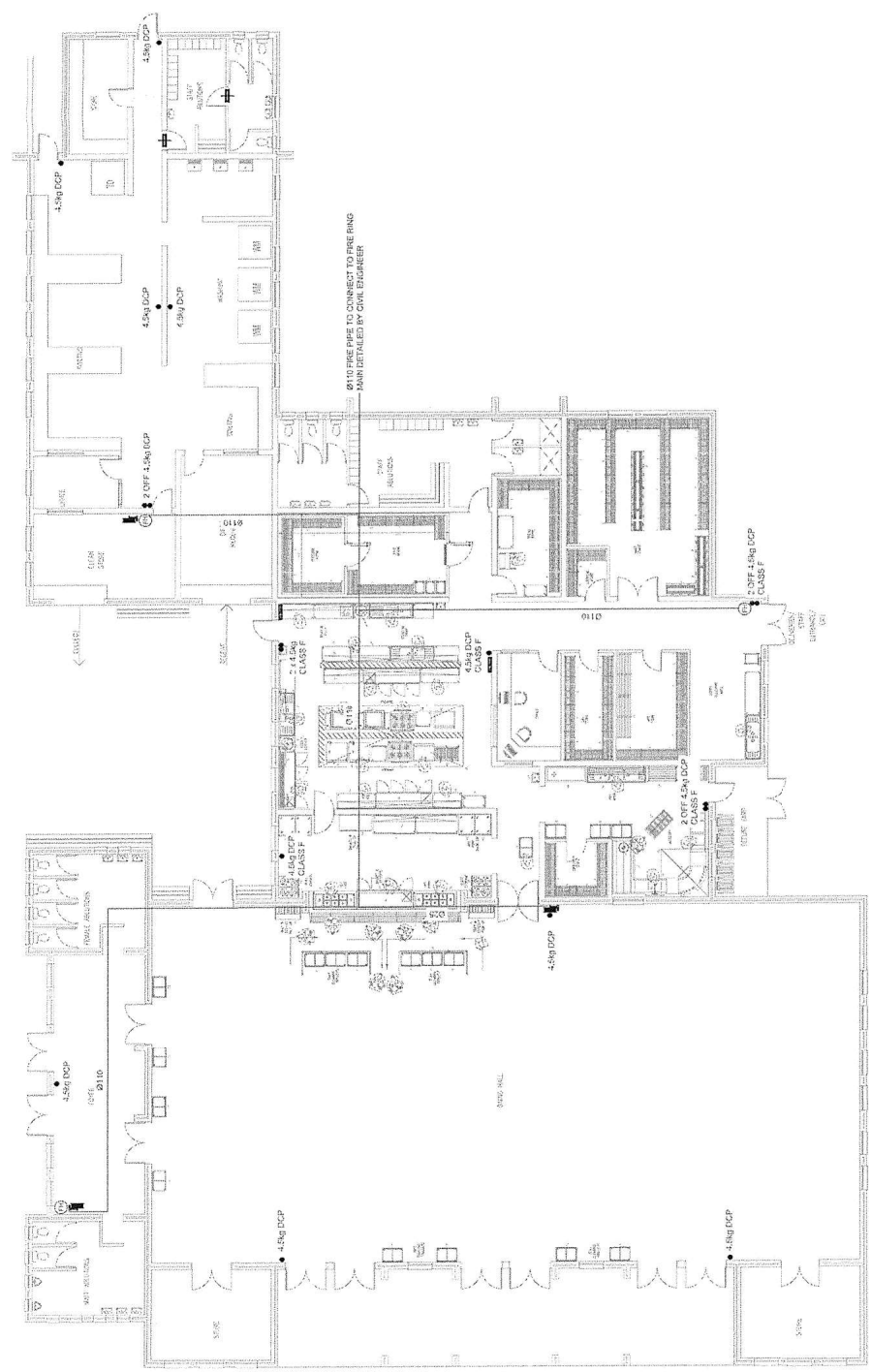


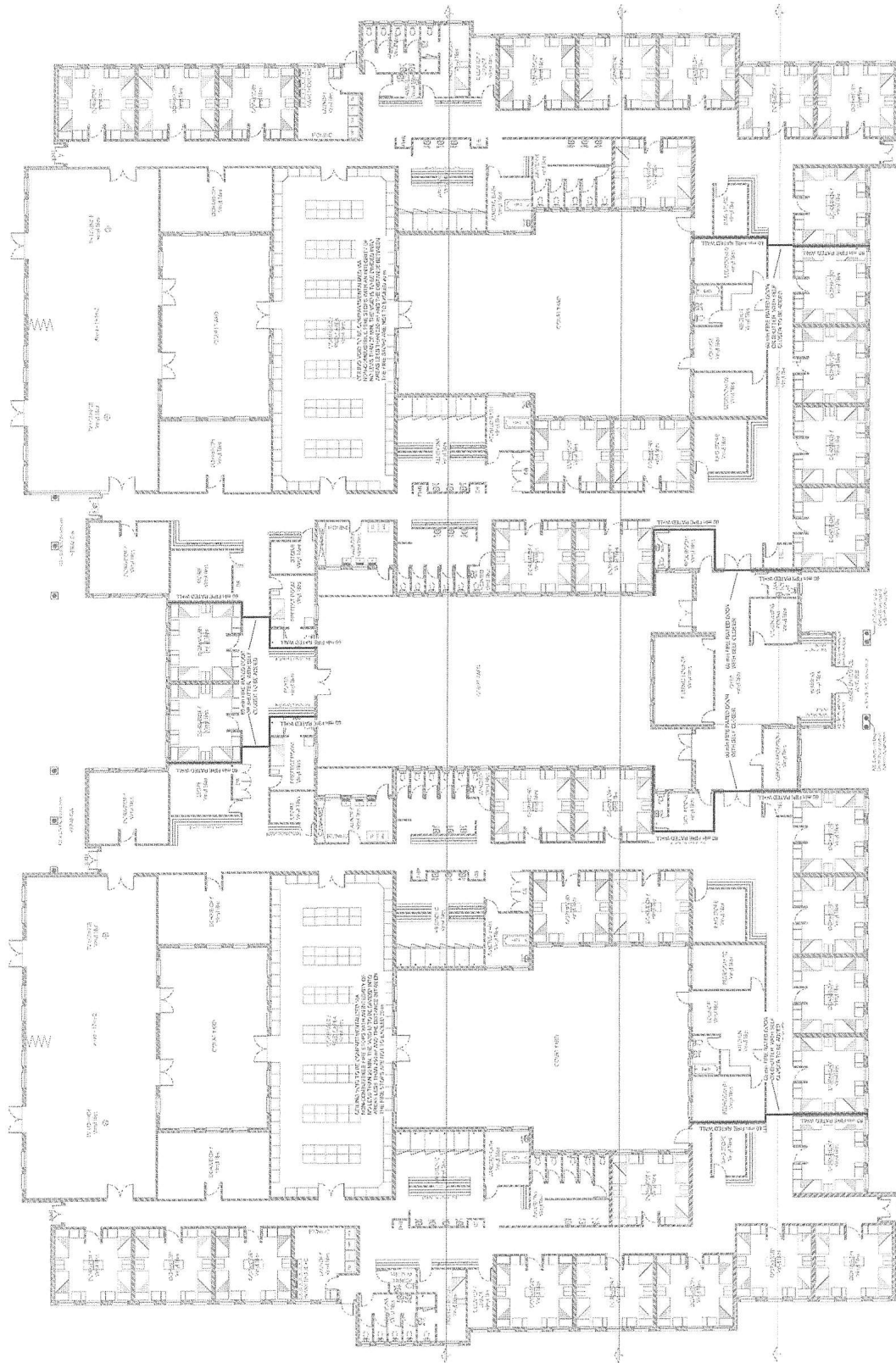
NTSONKOTHA SENIOR
SECONDARY SCHOOL

DRAWING TITLE
MECHANICAL ENGINEERING SERVICE

SCALE

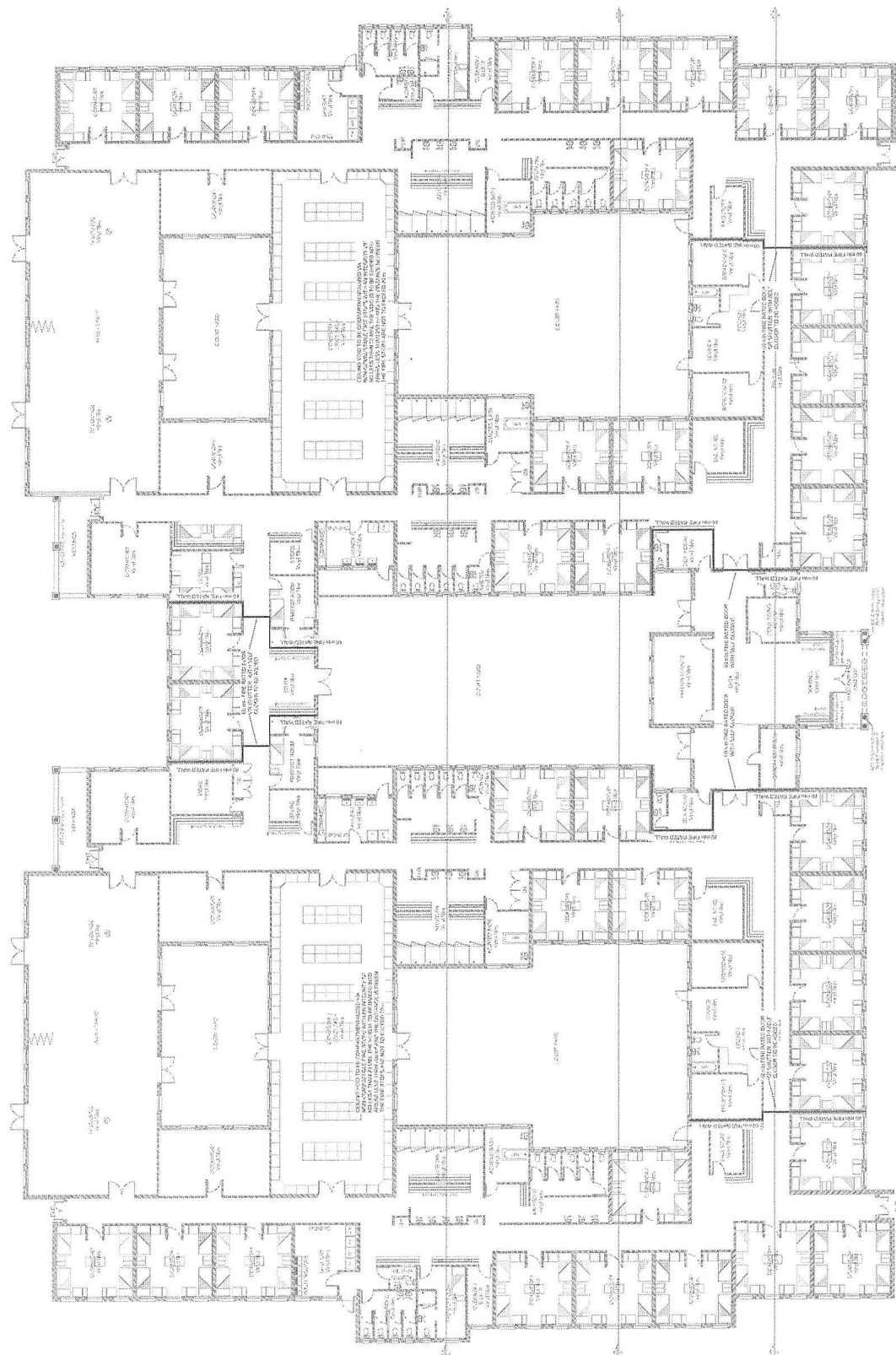
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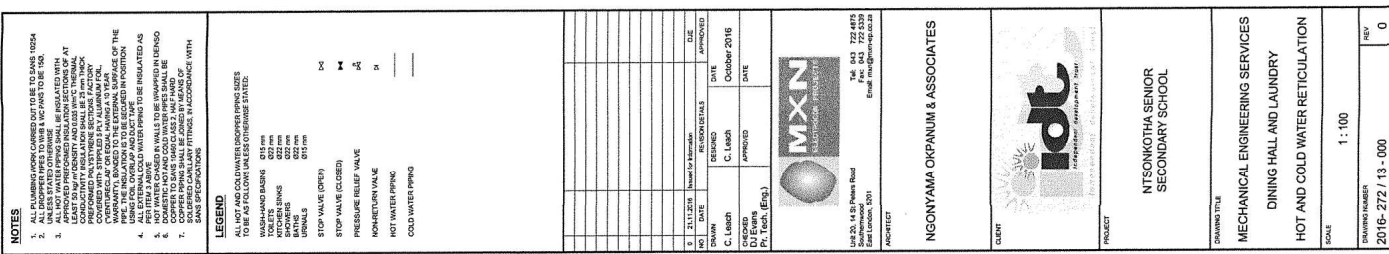
GROUND FLOOR PLAN

<p>MXN MECHANICAL ENGINEERING SERVICES</p>		<p>idt INTERKNOTIA SENIOR SECONDARY SCHOOL</p>	
<p>MECHANICAL ENGINEERING SERVICES GIRLS DORMITORY FIRE PROTECTION SERVICES FIRE WALLS AND FIRE STOPS</p>		<p>MECHANICAL ENGINEERING SERVICES GIRLS DORMITORY FIRE PROTECTION SERVICES FIRE WALLS AND FIRE STOPS</p>	
<p>Scale: 1:100 Date: 2016-11-15-004</p>		<p>Scale: 1:100 Date: 2016-11-15-004</p>	









GROUND FLOOR PLAN

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1. ALL PLUMBING WORK CARRIED OUT TO BE TO SANS 10254
2. ALL DROPPER PIPES TO HAVE A WC PANS TO BE 150.
3. ALL NEW STATED ORIGINALS SHALL BE INSULATED WITH APPROVED PERFORMED INSULATION SECTIONS OF AT LEAST 50 kg/m³ DENSITY AND 0.035 W/m²K THERMAL CONDUCTIVITY.
4. ALL EXISTING PLUMBING SECTIONS FACTORY COVERED WITH STEPPED 2x1 ALUMINUM FOIL.
5. CUPVENTILATOR/ HOT AND COLD WATER 3 YEAR
6. THE INSULATION TO BE SECURED IN POSITION USING FOIL OVERLAP AND DUCT TAPE
7. ALL EXTERNAL COLD WATER PIPING TO BE INSULATED AS HOT WATER CHASED IN WALLS TO BE INSULATED IN DENSIO DOMESTIC HOT AND COLD WATER PIPES SHALL BE COPPER TO SANS 16612 CLASS 2.7
8. ALL PLUMBING TO BE SECURED BY MEANS OF SOLDERED CAPILARY FITTINGS IN ACCORDANCE WITH SANS SPECIFICATIONS

ALL HOT AND COLD WATER DROPPER PIPING SIZES TO BE AS FOLLOWS UNLESS OTHERWISE STATED:

- | | | | |
|------------------|--------|---|-----------------------|
| WASH-HAND BASINS | 015 mm |  | STOP VALVE (OPEN) |
| TOILETS | 022 mm |  | STOP VALVE (CLOSED) |
| POT-URIN SINKS | 022 mm |  | PRESSURE RELIEF VALVE |
| WASH-BASINS | 022 mm |  | NON-RETURN VALVE |
| BATHS | 022 mm |  | HOT WATER PIPING |
| URINALS | 015 mm |  | COLD WATER PIPING |

100

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Unit 20, 14 St Peters Road
Surreywood
East London, E20 1

10

NGONYAMA OKPANUM & ASSOCIATES



PROJECT

NTSONKOTHA SENIOR
SECONDARY SCHOOL

DRAWING TITLE

MECHANICAL ENGINEERING SERVICES
DINING HALL AND LAUNDRY

HOT AND COLD WATER RETICULATION

SCALE
1:100

DRAWING NUMBER	REV
2016-272 / 13 - 000	0

NOTE

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. THE ARCHITECT HAS CONDUCTED VISUAL VERIFICATION OF THE EXISTING CONDITIONS AND HAS FOUND THEM TO BE AS SHOWN ON THE DRAWINGS.
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LEGEND

THE FOLLOWING ARE THE SYMBOLS USED ON THE DRAWINGS:

- 1. WALL
- 2. DOOR
- 3. WINDOW
- 4. STAIR
- 5. ELEVATOR
- 6. ROOF
- 7. FLOOR
- 8. CEILING
- 9. LIGHT
- 10. VENT
- 11. RAILING
- 12. SIGN
- 13. FURNITURE
- 14. EQUIPMENT
- 15. OTHER

TOP VIEW

1. WALL

2. DOOR

3. WINDOW

4. STAIR

5. ELEVATOR

6. ROOF

7. FLOOR

8. CEILING

9. LIGHT

10. VENT

11. RAILING

12. SIGN

13. FURNITURE

14. EQUIPMENT

15. OTHER

MECHANICAL ENGINEERING SERVICES

BOYS DORMITORY

HARVESTED COLD WATER

RETENTION FOR TOILETS

SCALE: 1:100

DATE: 11/11/2016

PROJECT: 2016-272 / 11.006

MECHANICAL ENGINEERING SERVICES

BOYS DORMITORY

HARVESTED COLD WATER

RETENTION FOR TOILETS

SCALE: 1:100

DATE: 11/11/2016

PROJECT: 2016-272 / 11.006

MECHANICAL ENGINEERING SERVICES

BOYS DORMITORY

HARVESTED COLD WATER

RETENTION FOR TOILETS

SCALE: 1:100

DATE: 11/11/2016

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MECHANICAL ENGINEERING SERVICES

BOYS DORMITORY

HARVESTED COLD WATER

RETENTION FOR TOILETS

SCALE: 1:100

DATE: 11/11/2016

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MECHANICAL ENGINEERING SERVICES

BOYS DORMITORY

HARVESTED COLD WATER

RETENTION FOR TOILETS

SCALE: 1:100

DATE: 11/11/2016

PROJECT: 2016-272 / 11.006

MECHANICAL ENGINEERING SERVICES

BOYS DORMITORY

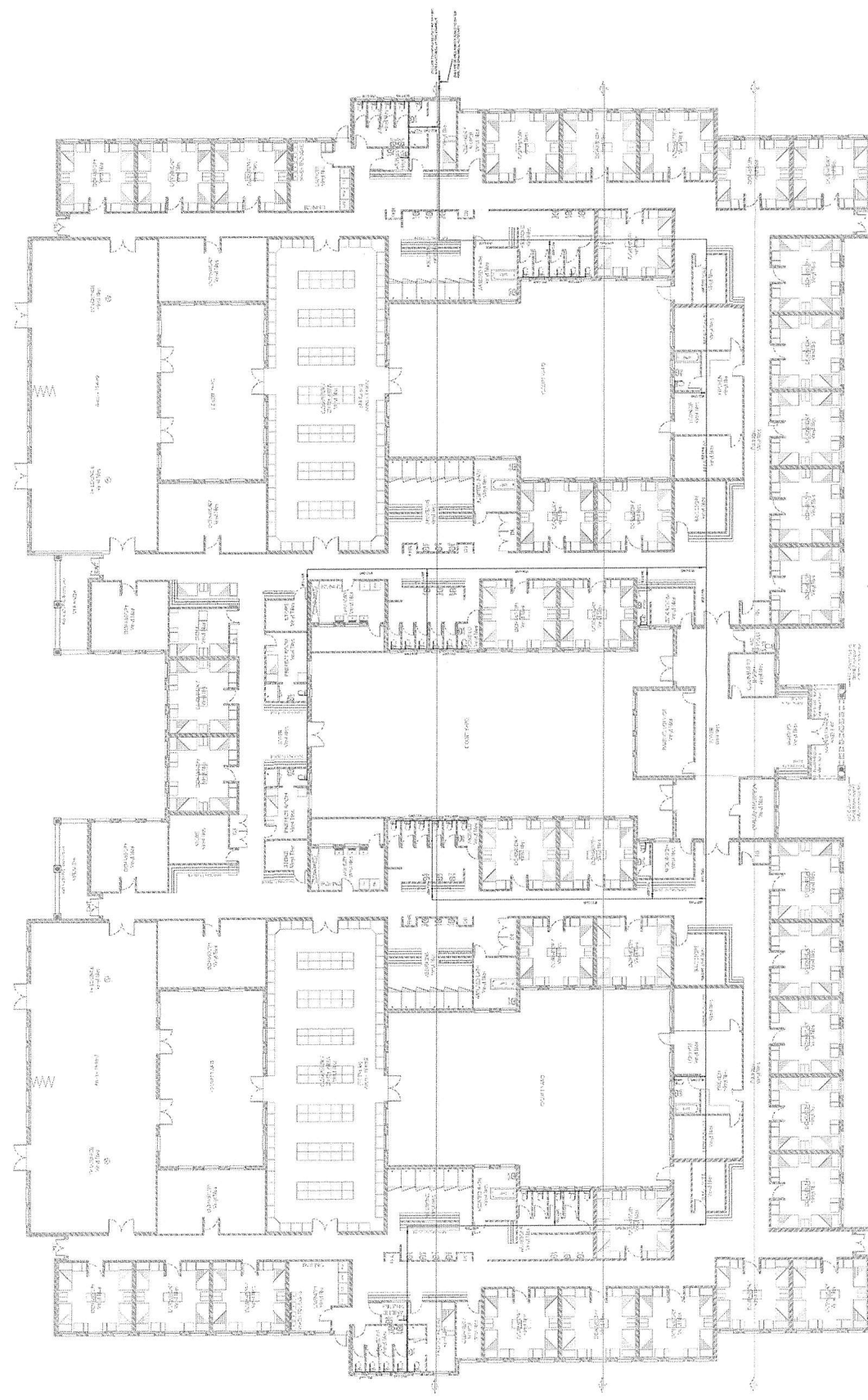
HARVESTED COLD WATER

RETENTION FOR TOILETS

SCALE: 1:100

DATE: 11/11/2016

PROJECT: 2016-272 / 11.006



GROUND FLOOR PLAN

NOTES

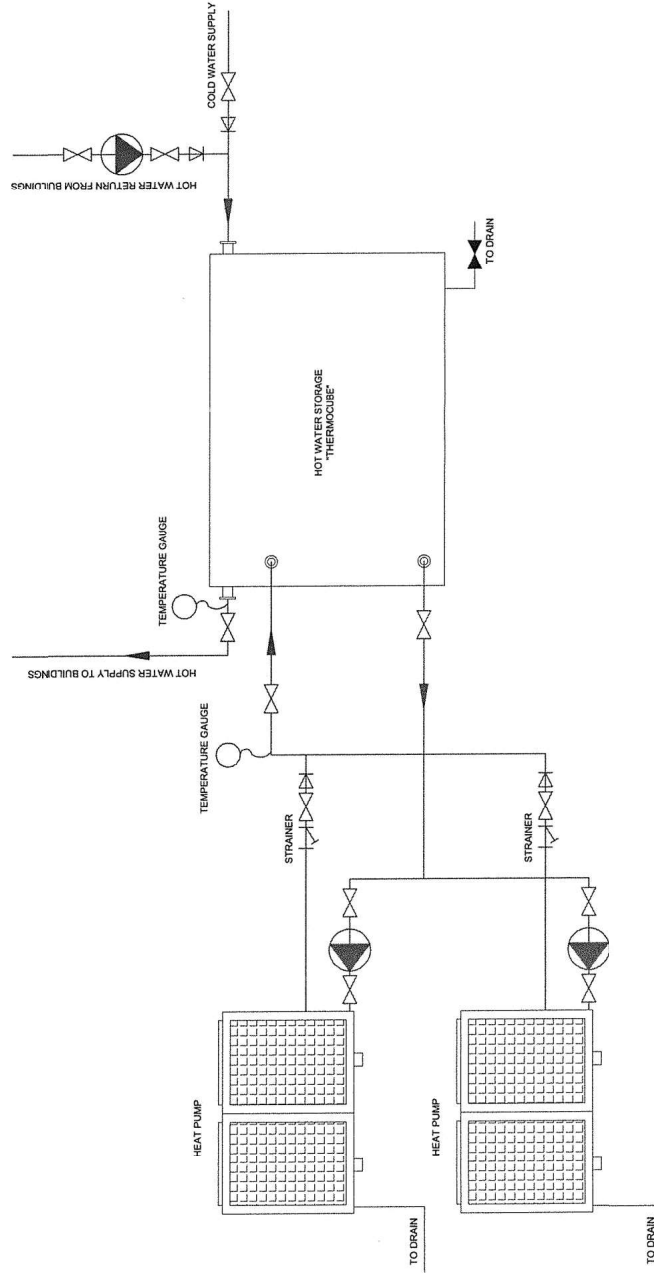
1. ALL PLUMBING WORK CARRIED OUT TO BE TO SANS 10254
2. ALL PIPES TO BE INSULATED TO WIRE & WC PANS TO BE 150.
3. ALL HOT WATER PIPING SHALL BE INSULATED WITH APPROVED PREFORMED INSULATION SECTIONS OF AT LEAST 25mm THICK POLYSTYRENE INSULATION. INSULATION SHALL BE 25mm THICK PREFORMED POLYSTYRENE SECTIONS. FACTORY COVERED WITH STIPPLED 5 PLY ALUMINUM FOIL. INSULATION SHALL BE SECURED TO THE EXTERNAL SURFACE OF THE PIPE. THE INSULATION IS TO BE SECURED IN POSITION USING FOIL OVERLAP AND DUCT TAPE.
4. PER ITEM 3 ABOVE
5. HOT WATER CHASED IN WALLS TO BE WRAPPED IN DENSE INSULATION. INSULATION TO BE SECURED IN POSITION USING FOIL OVERLAP AND DUCT TAPE.
6. COPPER TO SANS 1040 CLASS 2 HALF HARD
7. COPPER PIPING SHALL BE JOINED BY MEANS OF SOLDERED CAPILLARY FITTINGS. IN ACCORDANCE WITH SANS SPECIFICATIONS

LEGEND

ALL HOT AND COLD WATER DROPPER PIPING SIZES TO BE AS FOLLOWS UNLESS OTHERWISE STATED:

WASH-HAND BASINS Ø15 mm
TOILETS Ø22 mm
KITCHEN SINKS Ø22 mm
SHOWERS Ø22 mm
BATHS Ø22 mm
URINALS Ø15 mm

STOP VALVE (OPEN) 
STOP VALVE (CLOSED) 
PRESSURE RELIEF VALVE 
NON-RETURN VALVE 
HOT WATER PIPING 
COLD WATER PIPING 



No.	DATE	DESCRIPTION	DESIGNED	DATE	APPROVED
0	21.11.2016	Issued for information	C. Leach	00 MAY 2012	
DRAWN			C. Leach		
CHECKED			DJ Ebers		
Pr. Tech. (Eng.)					



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CLIENT

INDEPENDENT DEVELOPMENT TRUST

PROJECT

NTSONKOTHA SENIOR
SECONDARY SCHOOL

DRAWING TITLE

HOT WATER PLANT ROOM DETAIL

SCALE

N/A

DRAWING No.

2016-272 / 13 - 006

Rev.

0