

INTERIM
SPECIFICATIONS FOR FIELD LABORATORIES

180. 1. SCOPE

These Specifications govern all requirements for supplying and maintaining a field laboratory for the exclusive use of the Engineer.

2. SUPPLY

The Contractor shall supply one laboratory, blocked and level, ready for use before work commences for:

- ~~.....a).....~~ Each grading project.
- ~~.....b).....~~ Each base course laying project.
- ~~.....c).....~~ Each crushing operation.
- ~~.....d).....~~ Each screening operation.
- ~~.....e).....~~ Each bituminous plant operation.
- ~~.....f).....~~ Each concrete plant operation.

The laboratory shall remain on the project until completion of the work unless released earlier by the Engineer.

The Contractor shall have the option to supply an approved microwave oven, related accessories and a suitable facility for density dry backs, in lieu of supplying a density field laboratory.

3. LOCATION

Laboratories shall be located on approved sites independent of all other buildings. **The Engineer and Contractor shall agree on the location of the field labs.** For grading and base course laying operations the laboratory shall be located convenient to the construction site. For operations where aggregate is being produced or processed the laboratory shall be located so that it affords a clear unobstructed view of the work being performed.

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4. CODES AND STANDARDS

Field laboratories must conform to the National Building Code [NBC] (in particular Part 9 Section 9.10.21 Fire Protection for Construction Camps, and Part 9 Section 9.10.22 Fire Protection for Gas, Propane and Electric Cook tops and Ovens), the Manitoba Building Code [MBC], the Manitoba Fire Code [MFC], and all other applicable Federal, Provincial, and Municipal Codes, Bylaws, and Regulations and CSA standard A394-M1984 "Guide to Requirements for Relocatable Industrial Accommodation" or latest edition.

All equipment must comply with the requirements of all applicable federal and provincial building codes and regulations.

Materials, workmanship, and design must meet or exceed applicable requirements of Canadian General Standards Board [CGSB], Canadian Standards Association [CSA], Canadian Sheet Steel Buildings Institute [CSSBI], American Society for Testing and Materials [ASTM], Underwriters Laboratory of Canada [ULC], Canadian Gas Association [CGA], Canadian Electrical Manufacturers Association [CEMA] or other referenced organizations.

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All plumbing fixtures and fittings, mechanical equipment, electrical devices, fixtures and equipment must be approved for use intended by C.S.A. and/or U.L.C.

180. 4. CODES AND STANDARDS

Compliance shall be with latest edition of the applicable code or standard. It is the Contractor's responsibility to ensure compliance.

5. PHYSICAL REQUIREMENTS

Laboratories shall be ~~well constructed,~~ insulated weatherproof structures having the following physical requirements:

- A minimum inside floor area of ~~9.3 m²~~ **3m²** covered with a washable floor covering.

~~2) Painted or panelled interior walls at least 2.1 m high.~~

- ~~3) Two windows equipped with screens. Windows shall be on opposite walls, each with an opening of at least 0.56 m~~ **56m²**. All or one-half of each window shall be capable of being opened, closed and latched.
- ~~4) One combination door or a solid door and screen door. The door shall be tight fitting and~~ **solid door** equipped with a lock. Two keys shall be provided to the Engineer. ~~Doorsteps~~ **Doorstep** shall be provided **where required as per code**.

~~180.~~ 4. ~~PHYSICAL REQUIREMENTS (Cont'd)~~

- ~~5)~~ A solid, level workbench at least 1.8 m ~~8m~~ long, ~~750 mm~~ **750mm** wide and ~~900 mm~~ **900mm** above the floor having a smooth heat resistant surface, ~~such as arborite.~~
- ~~6)~~ A fume cabinet with dimensions as shown on the plan of ~~the typical field laboratory.~~ The sides of the cabinet and a removable divider shall be of a non-flammable material. ~~A corrosion resistant drain tube located within the fume cabinet shall extend through the floor as shown on the plan.~~
- ~~7)~~ A corrosion resistant variable speed **exhaust fan, CANARM AX12-3 or equivalent,** capable of drawing at least ~~34 m~~ **34m³** per minute, shall be installed to expel heat and fumes from within the hood to the outside.
- ~~8)~~ A stainless steel sink, at least ~~450 mm~~ **450mm** square and ~~175 mm~~ **175mm** deep shall be ~~built into the workbench,~~ complete with a drain to the outside.

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6. UTILITIES

- 1) **The Contractor shall supply electricity.** Laboratories shall be wired for 60 amp electric service. Wiring, receptacles and overhead lights shall be installed to current ~~building~~ standards.
- 2) ~~The Contractor shall supply electricity. The source shall be capable of providing 110 volt A.C. and at least 5 kilowatts at peak load. Laboratories shall be grounded.~~
- ~~3)~~ An approved heating **unit and/or cooling system** with controls shall be provided ~~which will~~ to maintain a room temperature of ~~at least~~ **18 to 25°C.**

~~6~~
7. MISCELLANEOUS

The following items shall be provided with each laboratory;

- ~~1)~~ An approved permanent propane service line including connections and regulator from outside of the laboratory to the fume cabinet:
 - ~~2)~~
 - Clean Water, for use in testing samples as required.
 - ~~3)~~ A desk at least 1.25 m **25m** long and ~~750 mm~~ **750mm** wide, two chairs and one stool.
 - ~~4)~~ A floor mop, pail, broom and dustpan.
 - ~~5)~~ A fully charged fire extinguisher with a minimum size of 2.3 kg **3kg**, rated ABC, shall be conveniently located on the wall.
 - ~~7)~~ **A propane and carbon monoxide detector.**

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- Washroom facilities for the exclusive use of Department staff. The washrooms shall be the self-contained chemical type which are cleaned and serviced a minimum of once a week.

180. 7. MISCELLANEOUS

- An approved eyewash station capable of delivering flushing fluid to both eyes of no less than 1.5L per minute or 0.4gal per minute for 15 minutes.

8. GENERAL

The Contractor shall supply propane for use in test procedures **unless an electric stove or hotplate is provided by the Department.**

The laboratory shall have enough space available so that any furniture and equipment can be arranged in a manner that does not pose an obstacle to (or interfere with) the safe performance of any testing procedures.

During the use of the laboratory by the Department, the Engineer will be responsible for its general upkeep. When delivered to the project, the laboratory shall be clean ~~and~~. **The lab shall also be** free of chemical and petroleum stains. The Engineer and the Contractor shall take notes on the condition of the laboratory before and after its use by the Department. Damages caused by the Engineering staff during its use will be repaired by the Department.

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~~180. 8~~

9. IGNITION OVENS

For bituminous projects, the Department will supply install, maintain and remove an ignition oven for determining the gradation and asphalt content of bituminous samples.

The Contractor shall provide the following to support the operation of the ignition oven:

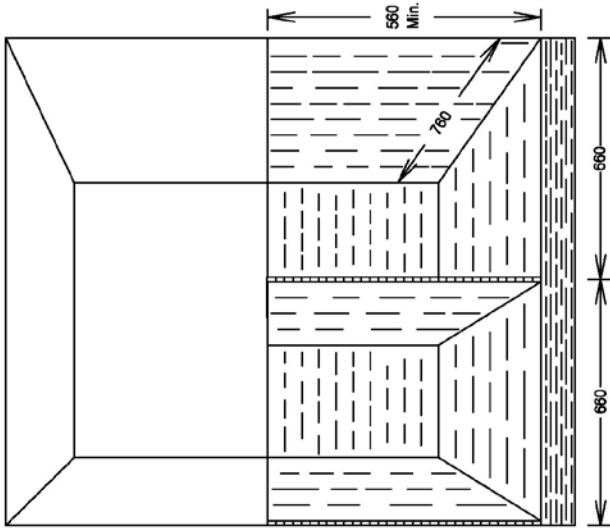
- ~~an uninterrupted supply of~~ a dedicated 20 amp circuit providing single phase 220/240 volt, ~~4800 watt, 20 amp, surge protected~~ AC power. Power shall be available at least 2 hour prior to production ~~startup~~start-up;
- ~~an approved heating and/or cooling unit with controls to maintain a room temperature of 18°-25°C;~~
- supply and installation of a 76.2 ~~mm~~2mm diameter galvanized seamless vent pipe with rain cover for the ignition oven (as shown on the attached "Plan B Typical Layout Sketch Sheet"). The vent pipe shall extend into the laboratory a sufficient distance to allow the Department employees to connect a flexible exhaust tubing (supplied by the Department) from the ignition oven to the vent pipe. The Contractor shall ensure the placement of the vent pipe through the roof conforms to all current fire and safety codes;
- a work surface layout conforming to the attached Plan B Layout Sketch or acceptable alternative. The work surface shall be capable of supporting an ignition oven with a minimum weight of ~~130 kg~~130kg.

No additional payment will be made for providing the items listed above, as this will be considered as incidental to the Contract.

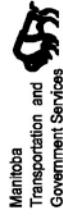
~~9~~

10. BASIS OF PAYMENT

No direct payment will be made for providing laboratories, heating fuel, water and electricity and providing items necessary or incidental thereto, as herein described, all of which will be considered incidental to the operations being performed.

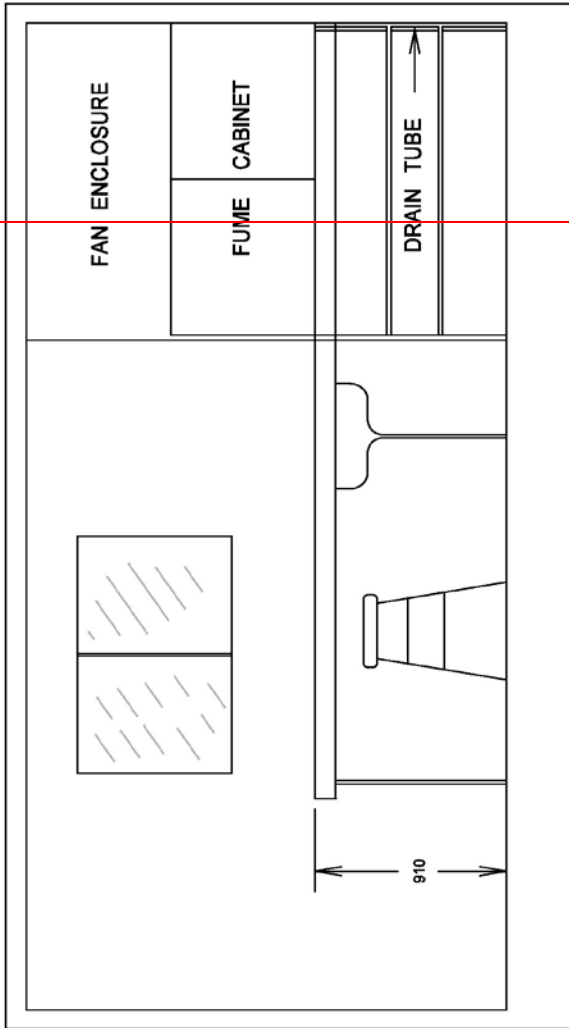


THREE DIMENSIONAL VIEW AND ENLARGEMENT OF FUME CABINET

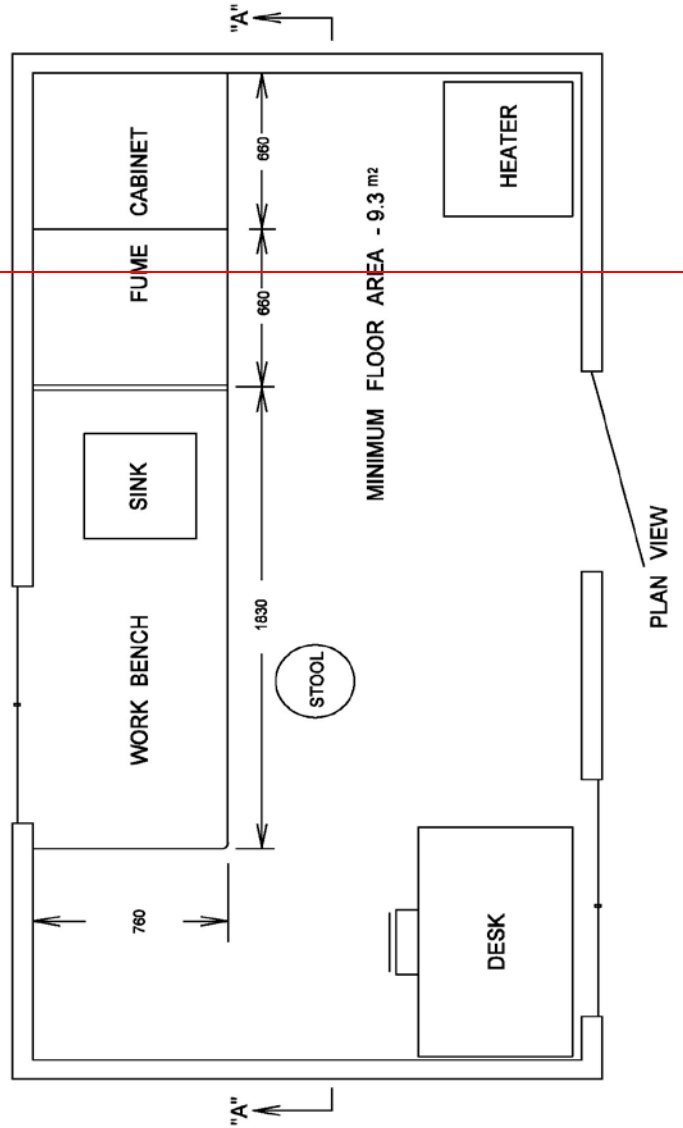


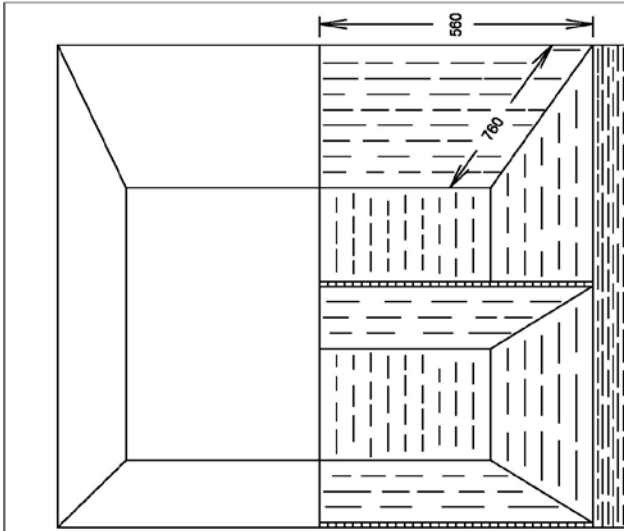
THE DRAIN TUBE SHALL BE LOCATED IN THE CORNER APPROXIMATELY 100 mm FROM THE WALLS.
ALL DRAWINGS SHOWN ARE SKETCHES ONLY AND ARE NOT TO SCALE. DIMENSIONS ARE IN mm.
ALTERNATIVE LAYOUTS WHICH WILL COMPLY WITH THE SPECIFICATIONS WILL BE PERMISSIBLE.

TYPICAL LAYOUT FOR FIELD LABORATORY

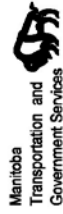


ELEVATION THROUGH "A-A"



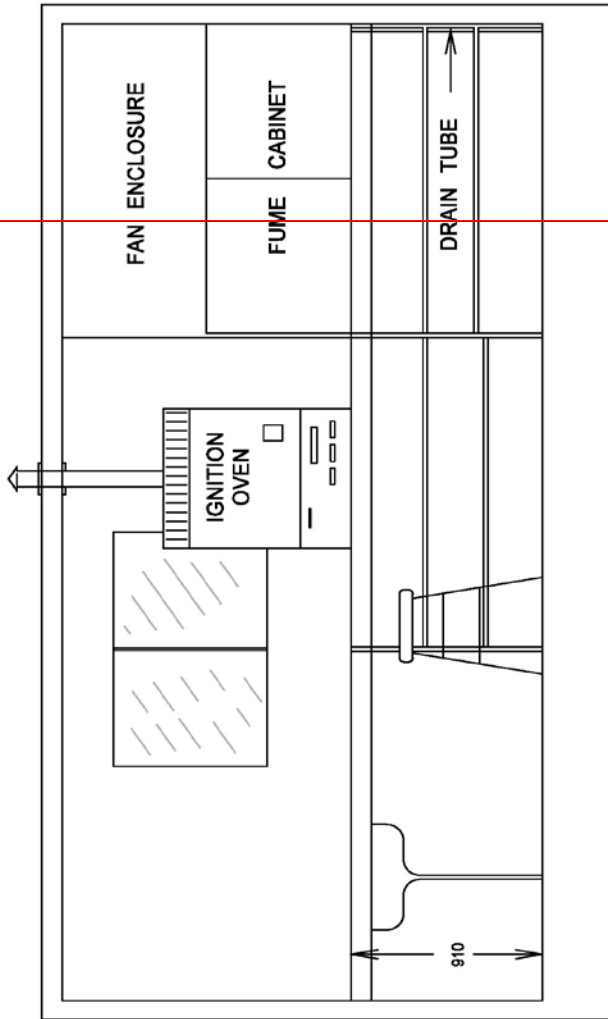


THREE DIMENSIONAL VIEW AND ENLARGEMENT OF FUME CABINET

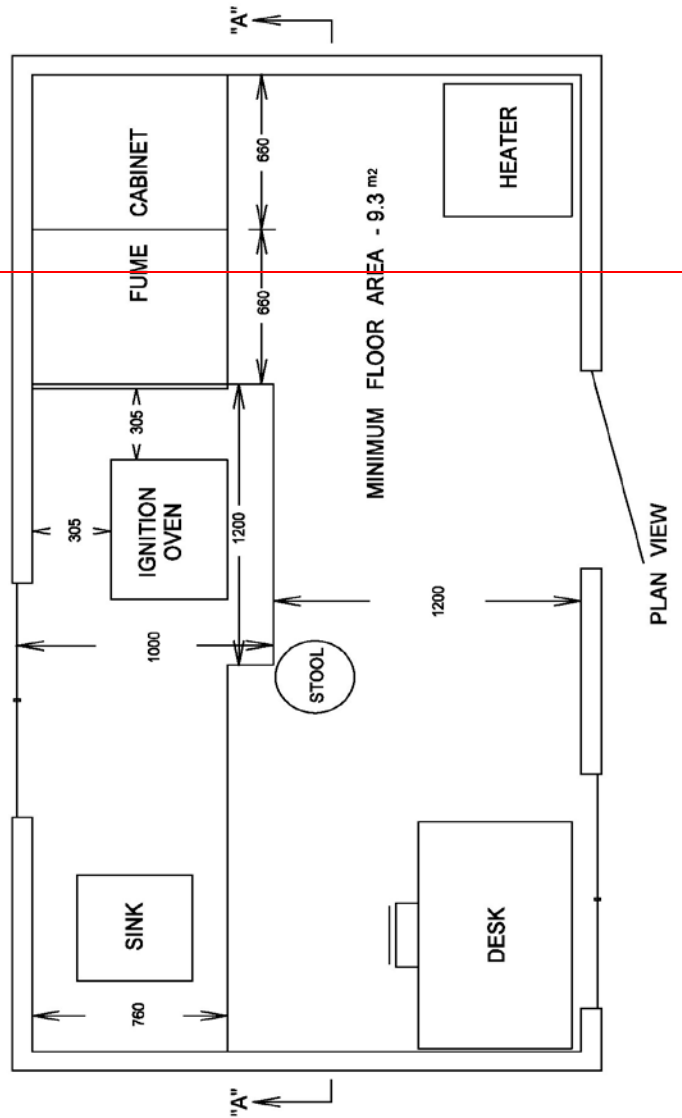


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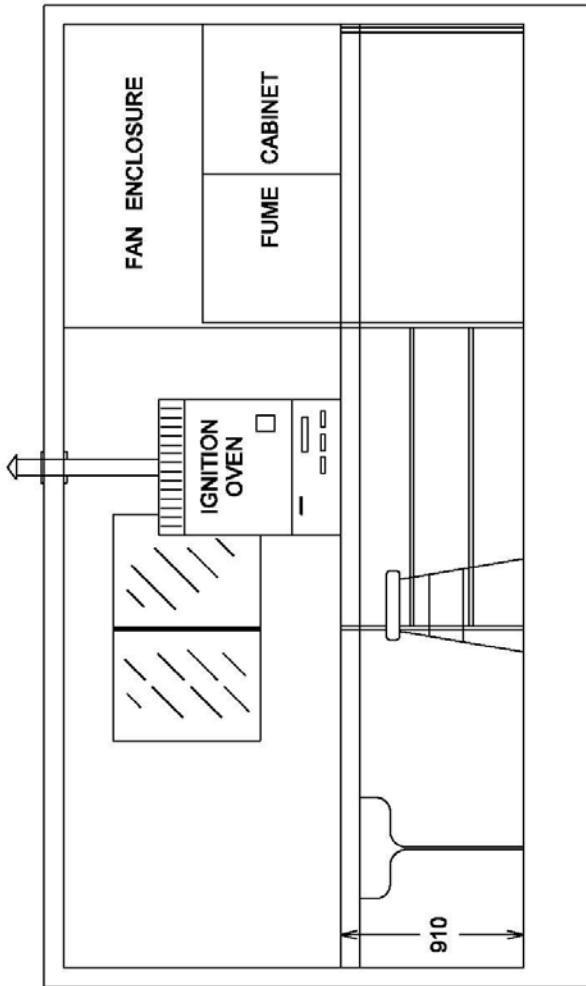
PLAN B
 TYPICAL LAYOUT
 FOR
 FIELD LABORATORY ON
 BITUMINOUS PROJECTS



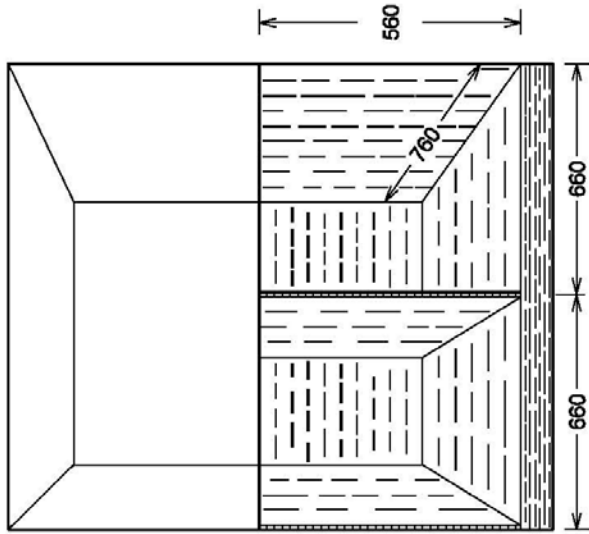
ELEVATION THROUGH "A-A"



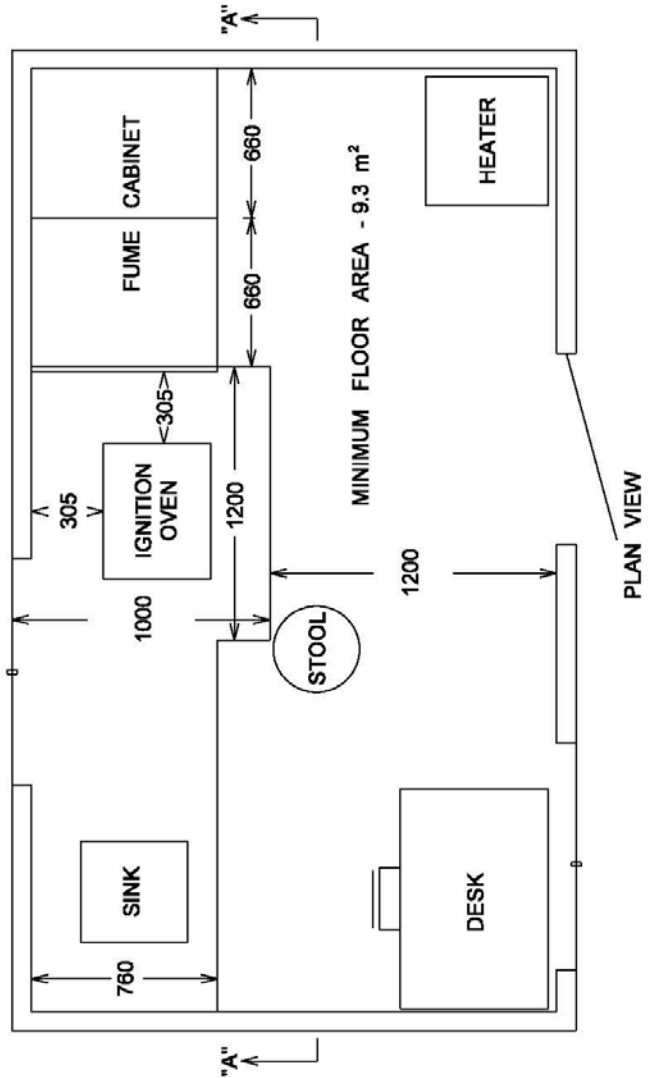
PLAN VIEW



ELEVATION THROUGH "A-A"



THREE DIMENSIONAL VIEW AND ENLARGEMENT OF FUME CABINET

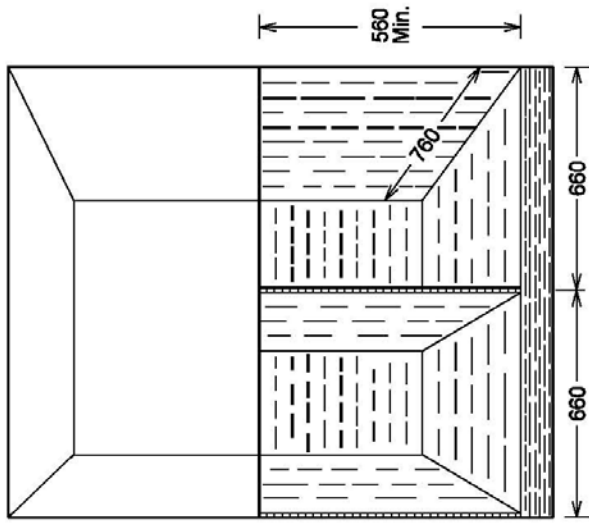


PLAN VIEW



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PLAN B
TYPICAL LAYOUT
FOR
FIELD LABORATORY ON
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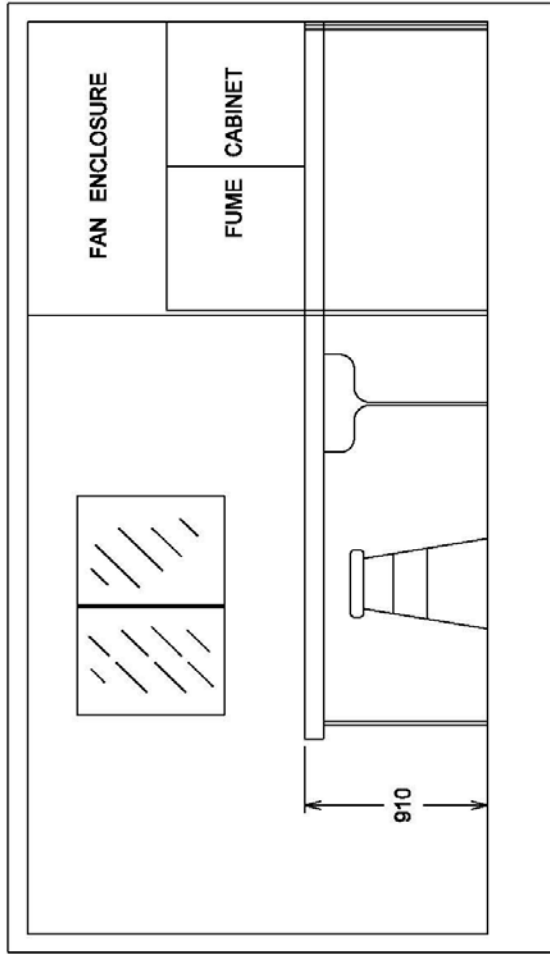
THREE DIMENSIONAL VIEW AND ENLARGEMENT OF FUME CABINET

Manitoba
Infrastructure and Transportation

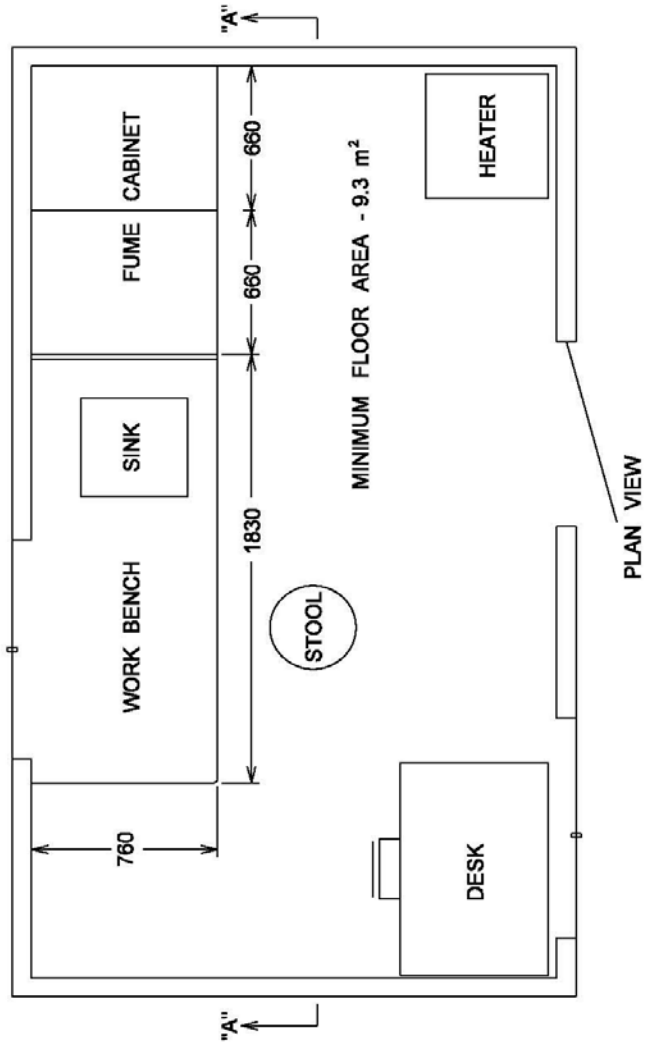
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TYPICAL LAYOUT FOR FIELD LABORATORY



ELEVATION THROUGH "A-A"



PLAN VIEW