PART F INCIDENTAL CONSTRUCTION

SECTION 600 FIELD LABORATORY

600.1 DESCRIPTION

This work consists of furnishing, placing and maintaining field laboratories.

600.2 MATERIALS

Field laboratories shall be Type I or Type II as specified. All field laboratories shall conform to the following general requirements and to the specific requirements for each laboratory type which are defined below. The Engineer may permit minor deviations provided they do not impair the usefulness of the laboratory.

A. **General Requirements:** The field laboratory shall consist of a suitable wood, metal covered wood, or steel structure, which has been modified or originally constructed to meet these specifications.

The field laboratory shall be neat, clean, in good repair, and shall be placed at a location satisfactory to the Engineer. The laboratory shall be situated in such a manner that the floor of the laboratory is a maximum of three feet (one meter) above the ground. The laboratory shall be leveled and rigidly supported to eliminate floor and work bench vibrations to allow for accurate weighing on a bench supported scale.

A set of steps shall be provided at each of the exterior doors. If the floor of the laboratory is 18 inches (450 mm) or more above the ground, a landing shall be constructed at one of the exterior doors. The minimum dimensions for the landing shall be 3 foot by 5 foot (900 mm by 1500 mm). The top of the landing shall be a maximum of 7 inches (175 mm) below the floor elevation.

Each field laboratory shall be equipped with a pressure water system or a gravity fed water system with at least a 100 gallon (375 Liter) capacity.

Each field laboratory shall be equipped with a central heating system with a rated output of at least 45,000 BTU per hour (13.2 kilowatts).

Fuel for the heating system and range, water, and electrical power shall be furnished by the Contractor. All electrical outlets shall be ground fault protected. The electrical system shall include one exterior wall outlet with protective cover and one fuse or circuit breaker box. Each laboratory shall have an outside power disconnect.

Each laboratory shall be floored and have a transverse center partition with a 32 inch (800 mm) wide door dividing the laboratory into two sections of equal floor space.

Each laboratory shall contain at least two opening type clear glass windows with screens in each side wall and one in each exterior end wall to provide equal and adequate light and ventilation for each room. There shall be two exterior doors, one in

each room, along one side of the unit, one of which shall be at least 32 inches (800 mm) wide. Exterior doors and windows shall be provided with locks. The structure shall be dust and water tight and have satisfactory heating and air conditioning equipment.

B. TYPE I FIELD LABORATORY:

1. Size: The interior shall have minimum dimensions of 24 feet (7.3 meters) long, 7.3 feet (2.2 meters) wide, and 7.0 feet (2.1 meters) high, or 19 feet (5.7 meters) long, 9.3 feet (2.8 meters) wide, and 7.0 feet (2.1 meters) high.

2. Sieving Room: The sieving room shall contain the following:

a. A minimum 1/6 HP (124.3 Watt) multiple speed, exhaust fan with a 18 inch (450 mm) diameter blade. The fan shall be capable of operating at a rated speed of up to 1750 RPM, and shall be equipped with a safety screen. The fan shall be mounted 36 inches (900 mm) from the floor in the wall opposite the exterior door and five feet (1500 mm) from the partition wall.

b. One sturdy movable work table 29 inches (725 mm) high with surface dimensions of 24 inches by 42 inches (600 mm by 1050 mm).

c. One sturdy movable work table 37 inches (925 mm) high with surface dimensions of 24 inches by 42 inches (600 mm by 1050 mm).

d. One electric ceiling light.

e. One double electrical wall outlet on each wall.

f. One stool 27 inches (675 mm) high.

g. One 29 inches (725 mm) gas or electric range with four burners and an oven.

3. Washing Room: The washing room shall contain the following:

a. One air conditioner mounted in end window or roof with a minimum of 6,000 BTU/hr (1.8 kilowatt) capacity.

b. One work table 37 inches (925 mm) high, 8.5 feet (2.5 meters) long and 34 inches (850 mm) wide shall be attached to the wall opposite the exterior door with one end adjacent to the exterior end wall. A sink, 16 inches by 21 inches (400 mm by 525 mm), shall be installed in the left end of the long work table as viewed by the operator. A water service tap shall be provided over the sink so elevated that the faucet is 12 inches (300 mm) above the sink top. The faucet shall be threaded to accept a garden hose

connection. A drain from the sink to the exterior of the laboratory shall be furnished.

c. On projects requiring concrete test specimens, a metal tank 7.0 feet (2.1 meters) long, 29 inches (725 mm) wide and two feet (600 mm) deep shall be installed beneath the work table. The surface of the work table above the tank shall be hinged to allow the table top and support to be lifted out of the way to provide access to the tank. A gate valve shall be installed to drain the tank. When heating is required, the tank shall be equipped with a thermostatically controlled water heater to maintain the water temperature between 70EF and 77EF (21EC and 25EC).

d. One movable desk 44 inches (1100 mm) wide, 33 inches (825 mm) deep and 29 inches (725 mm) high with one center drawer and one box and one letter size file drawer.

e. One electric ceiling light and two wall mounted electric lights, one located approximately 36 inches (900 mm) above sink and the other approximately 36 inches (900 mm) above the desk.

f. One double electrical wall outlet on each wall.

g. One attached enclosed storage cabinet 18 inches (450 mm) deep and 7.0 feet (2.1 meters) high with a 32 inch (800 mm) wide door. The cabinet shall include shelves and garment storage space.

h. One stool 27 inches (675 mm) high.

i. One straight back chair.

j. One fire extinguisher rated 20B-C or greater mounted in a prominent location.

C. TYPE II FIELD LABORATORY

1. **Size:** The interior shall have minimum width of 7.3 feet (2.2 meters), a minimum height of 7.0 feet (2.1 meters), and shall contain at least 279 square feet (25.9 square meters) of total floor space. The laboratory shall be floored and shall have a transverse center partition with a 32 inch (800 mm) width door. The partition shall divide the laboratory into two sections with each section having at least 139 square feet (12.9 square meters) of floor space.

2. **Sieving Room:** The sieving room shall contain the following:

a. A minimum 1/6 HP (124.3 Watt) multiple speed, exhaust fan with a 18 inch (450 mm) diameter blade capable of operating at a rated speed of up to

1750 RPM, and shall be equipped with a safety screen. The fan shall be mounted 36 inches (900 mm) from the floor in the wall opposite the exterior door and five feet (1500 mm) from the partition wall.

b. One work table 37 inches (925 mm) high, 52 inches (1300 mm) long and 29 inches (725 mm) wide shall be attached to the wall opposite the exterior door with one end adjacent to the partition wall. A sink, 16 inches by 21 inches (400 mm by 525 mm), shall be installed in the center of the work table. A water service tap shall be provided over the sink so elevated that the faucet is 12 inches (300 mm) above the sink top. The faucet shall be threaded to accept a garden hose connection. A drain from the sink to the exterior of the laboratory shall be furnished.

c. One sturdy movable work table 29 inches (725 mm) high with surface dimensions of 24 inches by 54 inches (600 mm by 1350 mm).

d. One sturdy movable work table 37 inches (925 mm) high with surface dimensions of 24 inches by 54 inches (600 mm by 1350 mm).

e. Two electric ceiling lights consisting of two 40 watt fluorescent tubes each.

f. One double electrical wall outlet on each wall. The outlet by the sink shall be ground fault protected.

g. One 30 inch (750 mm) gas or electric range with four burners and a thermostatically controlled oven.

h. One storage closet a minimum of 24 inches (600 mm) deep, 40 inches (1000 mm) wide and 7.0 feet (2.1 meters) high with a 32 inch (800 mm) wide door. The closet shall include shelves and garment storage space.

i. One fire extinguisher rated 20B-C or greater mounted in a prominent location.

3. Laboratory/Office Room: The laboratory/office room shall contain the following:

a. One roof mounted air conditioner with a minimum of 10,000 BTU/hr (2.9 kilowatt) capacity.

b. One work table 37 inches (925 mm) high, full length of the room and 33 inches (825 mm) wide shall be attached to the wall opposite the exterior door.

c. Cupboards one 32 inches (800 mm) long, 12 inches (300 mm) deep and two feet (600 mm) high shall be mounted on the wall above the work

bench with one end adjacent to the partition. The cupboards shall be a minimum of 18 inches (450 mm) above the top of the work table.

d. On projects requiring concrete test specimens, a metal tank 7.0 feet (2.1 meters) long, 29 inches (725 mm) wide and two feet (600 mm) deep shall be installed beneath the work table. The surface of the work table above the tank shall be hinged to allow the table top and support to be lifted out of the way to provide access to the tank. A gate valve shall be installed to drain the tank. When heating is required, the tank shall be equipped with a thermostatically controlled water heater to maintain the water temperature between 70EF and 77EF (21EC and 25EC).

e. Two movable desks 44 inches (1100 mm) wide, 33 inches (825 mm) deep and 29 inches (725 mm) high with one center drawer, one box drawer and one letter size file drawer.

f. Four electric ceiling lights consisting of two 40 watt fluorescent tubes each.

g. One double electrical wall outlet on each wall. In addition there will be two double outlets above the work table.

h. Two stools 27 inches (675 mm) high.

i. Two straight back chairs.

j. One fire extinguisher rated 20B-C or greater mounted in a prominent location.

600.3 CONSTRUCTION REQUIREMENTS

The field laboratory shall be for the exclusive use of the Engineer. The location of the laboratory will be as directed by the Engineer and shall be relocated by the Contractor as the work progresses. The laboratory shall be solidly supported to eliminate rocking movement.

600.4 METHOD OF MEASUREMENT

Field laboratories will be measured on a per each basis.

600.5 BASIS OF PAYMENT

The accepted quantity of field laboratories will be paid for at the contract unit price per each. The contract unit price will be full compensation for furnishing the laboratory and specified equipment and for necessary services until the building is released by the Engineer.

The field laboratory will remain the property of the Contractor.

The item of Field Laboratory will not be subject to unit price negotiation regardless of any underrun or overrun of the contract quantity, nor will the provisions of Section 9.6, relative

to reimbursement, apply in the event the entire item is eliminated.

This item will not be subject to the provisions of Section 8.1.

Upon placement of an acceptable field laboratory on the project, 75 percent of the contract unit price will be paid. Upon release by the Engineer, the remaining 25 percent of the contract unit price will be paid.