Design of a spawn laboratory

The layout plan of a spawn laboratory should have a total built up area of 19x8x3.6 m (LxBxH). This area will be divided into different work areas like cooking/autoclaving room, inoculation room, and incubation room, washing area, store, office and one cold storage. Cold storage room of 3x3 x3.6 m (LxBxH) is enough to store the spawn at 4-5°C. The walls, roof floor as well as door is provided with heavy insulation (7.5-10 cm thickness) and two air conditioner (each of 1.5 tonnes capacity) are required to maintain the temperature inside the room. Incubation room 2 (3x6.0x3.6 m, LxBxH) with entire surface area (wall, floor, ceiling, doors) insulated with 5-7.5 cm thick insulation is required. Two air conditioners (each 1.5 tonnes capacity) are required for maintenance of temperature (25°C) in the incubation room.

Equipments required

The equipments required in a spawn laboratory are:

1. Boiling pans/boiling kettle (vessel) are required for boiling the grains. Kettle can also be used if baby boiler is available otherwise kettles working on electricity, Kerosene or gas can be installed. Pans for preparation of medium are also required.

2. Gas stove, kerosene or electric stove for boiling of wheat grains and preparation of medium.

3. pH meter to check the pH of the medium.
4. Autoclave and oven are needed for sterilization of spawn, medium and glassware, respectively. Two electricity operated autoclaves with 100-145 bottle capacity having a dia. of 2 1/2' and 3 1/4' height are sufficient. If boiler is available steam operated autoclaves can be used for better efficiency. A small clinical autoclave can also be kept for medium sterilization. Oven will be required to sterilize glassware’s.

5. BOD incubator is needed to incubate cultures and master cultures.

6. Laminar flow cabinet (normally 4 ft. horizontal) is needed for isolation and multiplication of cultures and spawn inoculation.

7. Refrigerator is needed for short term preservation of mycelial cultures.

8. Other items like glassware, chemicals for medium preparation, non-absorbent cotton, polypropylene bags (or bottles), disinfectant (formaldehyde), calcium carbonate, calcium sulphate are also required.

9. Steel racks in incubation room and cold storage for keeping bags/bottles, exhaust fans, filters, office table, working tables, troughs, sieves, inoculating needles, scalpels, test tubes, petri plates etc. are also required in a spawn laboratory.