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Mumbai's largest single-location hotel with 547 rooms, 147 serviced apartments, 2800 m² of conference facilities and a 1080m² pillarless ballroom also boasts of 20 cold rooms for the kitchens and restaurants, more than most other city hotels.

**Table 1** gives a list of the various cold rooms and deepfreeze rooms, the product stored, the temperatures maintained, the size of the room, and the capacity of the refrigeration system provided. Since the cold rooms are spread out in various kitchens, with long distances between them, each rooms has a single dedicated refrigeration system, with it's condensing unit installed nearby. The only exception is room No. 20, a low temperature –18°C deep-freeze room, which has two refrigeration systems each of 50%

capacity. No standby systems are provided and equipment selected is robust and dependable.

| Sr. No | Location | Room Temp. | Dimensions L x W x H | Cooling TR |
|---|---|---|---|---|
| R-1 | Garbage Chiller | 12°C | 5.4 × 3.6 × 2.5 | 1.2 |
| R-2 | Flower Chiller | 12°C | 2.8 × 4.3 × 2.5 | 1.0 |
| R-3 | Vegetable Chiller | 6°C | 3.2 × 3.2 × 2.5 | 0.9 |
| R-4 | Fruits Chiller | 10°C | 4.0 × 2.8 × 2.5 | 1.0 |
| R-5 | Meat Chiller | 0°C | 4.0 × 2.8 × 2.5 | 1.0 |
| R-6 | Meat Freezer | – 18°C | 4.0 × 2.2 × 2.5 | 1.4 |
| R-7 | Fish Chiller | 0°C | 2.2 × 2.3 × 2.5 | 0.9 |
| R-8 | Dairy Chiller | 2°C | 2.9 × 4.4 × 2.5 | 1.0 |
| R-9 | Holding Pastry chiller | 2°C | 3.6 × 3.6 × 2.6 | 1.0 |
| R-10 | Bakery Chiller | 2°C | 2.8 × 3.4 × 2.7 | 1.0 |
| R-11 | Bakery Freezer | – 18°C | 2.8 × 2.5 × 2.5 | 1.4 |
| R-12 | Beverage Chiller | 2°C | 2.7 × 4.2 × 2.5 | 1.0 |
| R-13 | Beverage Chiller | 10°C | 3.1 × 3.5 × 2.5 | 1.0 |
| R-14 | Holding Chiller | 2°C | 3.0 × 3.0 × 2.5 | 1.0 |
| R-15 | Cold kitchen Chiller | 2°C | 2.8 × 2.7 × 2.5 | 0.9 |
| R-16 | Hot holding Chiller | 2°C | 2.8 × 2.8 × 2.5 | 0.9 |
| R-17 | Kitchen Chiller | 2°C | 2.7 × 3.5 × 2.5 | 1.0 |
| R-18 | Indian beverage Chiller | 10°C | 2.4 × 2.3 × 2.5 | 0.9 |
| R-19 | Kitchen Chiller | 2°C | 2.6 × 2.4 × | 1.0 |

| | | | | |
|---|---|---|---|---|
| | | | 2.5 | |
| R-20 | Meat Freezer - A | – 18°C | 2.8 × 3.8 × 5.2 | 1.2 |

## Refrigeration Equipment

All refrigeration systems operate with R-22 refrigerant. Condensing units are from *Bitzer*, Germany with semi-hermatic reciprocating compressors and watercooled shell-and-tube condensers. Unit coolers are *guntner*, Germany air defrost type for coolers and electric defrost for freezers.

Cooling water for the condensers is supplied from the cooling tower. Make-up water to the cooling tower comes from the central sewage treatment plant (STP) which helps to treat and recycle all municipal water that is used for the guest rooms and the rest of the hotel.

## Construction of Cold Rooms and Deep-freeze Rooms

Pre-insulated polyurethane foam (PUF) panels, 100 mm thick for both coolers and freezers with pre-painted galvanized steel on both sides of the panel are used throughout. The floor panel, which is sunk into the floor slab, is flush with the outside floor, making it easier to move products in and out of the cold rooms. The floor panel is fitted with heavy-gauge aluminum checker plates. All panels and doors are supplied by *TSSC*, Dubai.

## Floor Drains

Outside each cold room door, sunk into the concrete sub-floor is a rectangular drain pit approximately 1m long × 0.1m wide covered with a galvanized egg-crate grating and flush with the floor of the cold room. Water used for washing the main floors as well as the cold room floor is swept into these drains. See photo above.

## Accessories for all Cold Rooms and Deepfreeze Rooms

**Shelving.** All shelving is light weight, robustly constructed of stainless steel and easy to clean.

**Pressure relief valves.** Every cold room and deep-freeze room is provided with a pressure relief which helps to equalize the room internal and external air pressure which can get upset with rapid temperature pull down or during defrost periods.

**Self closing door hinges.** Heavy duty self closing door hinges allow doors to close automatically.

**Hydraulic door closer.** This assists the automatic closing of the doors and ensures that the door shuts tightly.

**Door latch.** The door latch is equipped with a cylinder lock which can be unlocked from inside through the safety release handle.

Hydraulic door closer ensures total closure of the cold room door, thereby avoiding cold air from escaping, and saving energy.

Spring action self closing door hinges serve as an important feature in preventing the door from remaining open.

**Safety release handle.** The safety release is photo luminescent, glows in the dark and provides an indication of the lever's position in case a person is accidentally trapped inside a cold room.

**Vapor proof interior light.** For illumination inside a cold room a vapor proof light is provided in each room.

**Microprocessor controller.** This provides smooth and continuous operation as well as a timer activated defrost cycle in the deep-freeze rooms.

**Digital display of room temperature.** Every room has a digital display, adjacent to the door to indicate the room temperature and alert the operating staff in case of equipment problems.

Safety release inside cold room which is photo luminescent, glows in the dark and provides an indication for the door opening lever.

Door latch with keyed cylinder lock. Stainless steel heavy duty door handle with cylindrical lock for easy usage and locking system.


Microprocessor controller provides smooth and continous operation by timer-activated defrost cycles.

Vapour proof interior light to illuminate the cold room.

## Operating Performance

The hotel has been fully functional for the past 15 months and the cold rooms with refrigeration systems have performed well without any major breakdown. A few problems have surfaced in the floor finish of the rooms and tendency of water used for cleaning the cold room floors to partly accumulate inside the rooms, near the door.