

## 2.0 BUILDING DESIGN BACKGROUND

The Milton Hershey School New Supply Center is a single story 110,000 square foot building with four elevated mechanical mezzanine rooms and contains a variety of spaces. The north and northwest sections of the building consists of general office spaces and conference rooms. Located in the center of the building is the food distribution center for the Milton Hershey School. This area contains large freezers, refrigerators, and temperature controlled storage areas, fifteen in all, totaling to 13,600 square feet to go along with its central food preparation spaces.

Aside from the food production section of the building, the New Supply Center also includes a central mail distribution center for the school and a clothing store with an alterations work area. Complementing the four mechanical mezzanine rooms that house the air handling units, a boiler and chiller plant is located on the north side of the building. The east side is mostly loading docks for deliveries, and the south side accommodates a variety of storage space. There are also two data rooms located in the center of the floor plan. Figure one, shown below, gives a breakdown of the space's location in the building as well as the portion of area each occupancy type consumes.

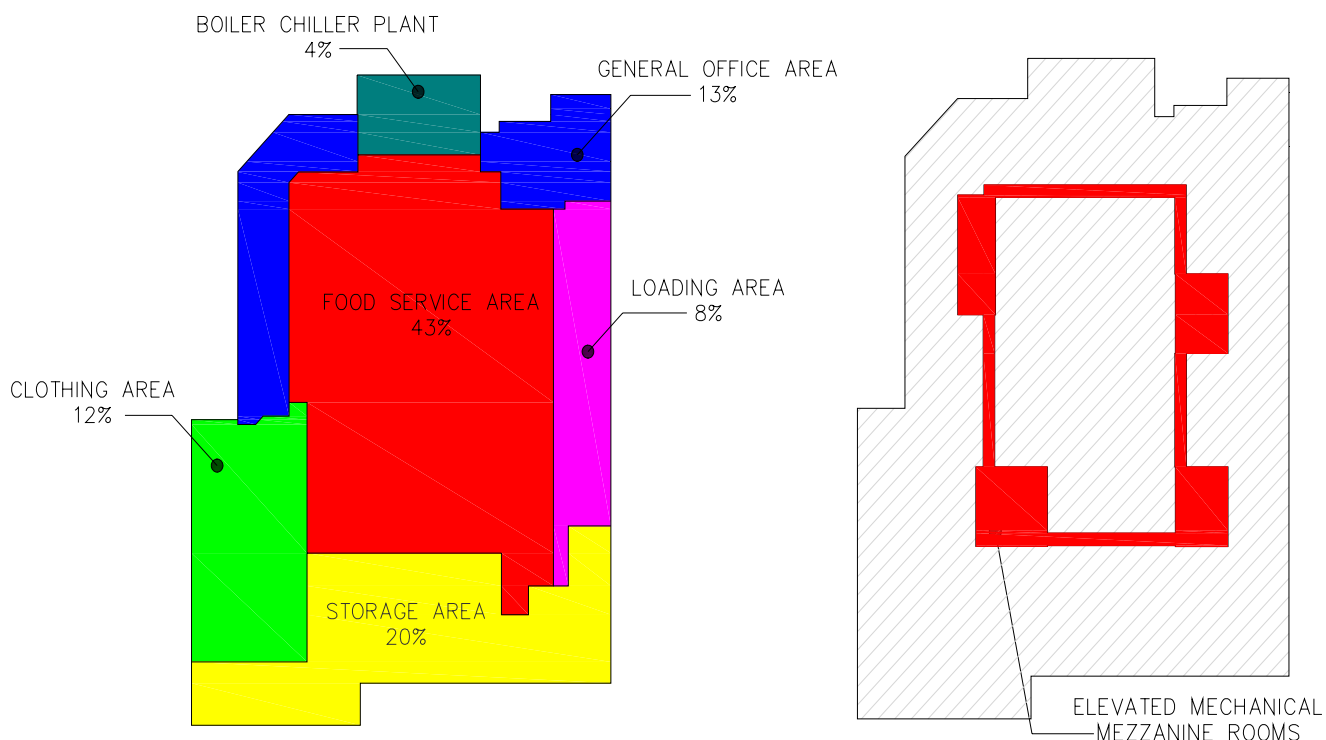


Figure 2-1 Space relationship and area breakdown

## **2.1 ELECTRICAL AND LIGHTING SYSTEM BACKGROUND**

The Milton Hershey Supply Center electric service is distributed from a 480/277V three phase switchboard. The main distribution panel is rated at 2000 amps. The electrical service is installed in the main electrical room. Power is supplied from this room to five 480V panels located throughout the building, four of which are located in the elevated mechanical mezzanine rooms. The other 480V panel is the life safety distribution panel. Each distribution panel includes a 480 to 208/120V step-down transformer. 480/277V panels serve main mechanical equipment and 120V or 277V panels serve the building lighting and basic power loads.

For emergency power, a 750 kW diesel fueled emergency generator serves the emergency/life safety demand on the building. The generator serves equipment such as emergency egress lighting, fire alarm panels, and essential heating and cooling equipment.

A variety of lighting fixtures are used in the Supply Center. The offices, work areas, kitchen, mail room, and locker rooms use 277V fluorescent lighting fixtures with one to four 32 watt T-8 lamps. The lighting fixtures are 2x4 recessed troffers. The clothing section of the building uses 2x2 recessed troffers with two 31 watt T-8 U lamps.

In the freezers and refrigerators, fully gasketed, totally enclosed 1x4 surface mounted fixtures are used with 2 T-8 lamps. These lighting fixtures also require cold weather ballast.

The storage and receiving rooms in the Supply Center use pendent fixtures with two 32 watt T-8 lamps. The exterior lighting for the building consists of ground mounted or wall mounted fixtures with metal halide lamps of either 39 or 70 watts.

## **2.2 STRUCTURAL SYSTEM BACKGROUND**

The structural system for the New Supply Center consists of steel columns, beams, and girders supporting the roofing system. Steel floor beams support the concrete floor of the elevated mechanical mezzanine rooms. There are interior load bearing masonry walls as well that help support portions of the mezzanine rooms. These beams carry the load to the girders which connect to the steel columns.

The Supply Center flooring is 5" concrete slab on grade. The floor slabs are 4000 psi concrete while other concrete used on the project are rated at 3000 psi.

The roofing system consists of K-series steel joist supporting the metal roof deck. These joist tie into steel roof beams and girders which transfer the roof load to the steel columns.

### **2.3 FIRE PROTECTION AND TELECOMMUNICATION SYSTEMS BACKGROUND**

The Supply Center will be fully protected from fire with a sprinkler system. The freezer and refrigerator areas contain a dry pipe or double interlock pre-action sprinkler system to prevent freezing. The loading dock and trash disposal areas have a dry pipe sprinkler system. All other areas such as the mechanical and electrical areas, the kitchen, and the bakery have a wet pipe sprinkler system for fire protection. Areas of the building with ceilings use fully concealed pendant type sprinkler heads. Areas without ceilings use upright sprinkler heads with a protective cage guard.

Telecommunications systems for the Supply Center include an intercom system, an analog phone system connected to the rest of the Milton Hershey School, cable television for the employee break rooms and training rooms, and wireless internet.

The fiber optic cables handling the telecommunication services will branch from an existing telecom manhole and be fed to the building through new a new duct bank. The main cables will run above the ceilings in runways until finally terminating in the main data room located in approximately the center of the building.