

4.0 Existing Conditions

4.1 Architecture

The Straumann USA is a facility designed to support the manufacturing, training, and administrative needs of the company. The building is comprised of several spatial components. Straumann USA includes an 80,000 square foot manufacturing area to produce its dental implants, a 35,000 square foot training area which includes a dental operating suite, simulation lab, and dental lab. The building also provides spaces for the research and development of existing and new products, as well as a sizeable office area for administrative tasks. An architectural accent wall filled with glass panels similar to those used on the exterior of the building is located on the southern side of the building. This presents a clearly defined main entrance. Another unique feature of the building is an exterior courtyard located in the center of the building. This courtyard along with several skylights allow daylight into many spaces which are not located on the perimeter of the building.

4.2 Building Envelope

The exterior wall is comprised of two different systems. A portion of the exterior wall consists of 2" thick aluminum panels attached to 6" insulated steel stud framing. A high performance factory painted finish covers the aluminum panels. The rest of the exterior wall is comprised of a curtain wall with insulated windows and spandrel glass infills. The roof is a single ply mechanically fastened EPDM rubber roof membrane over a rigid insulation on steel deck supported by steel beams and bar joists.

4.3 Electrical

Straumann USA is served by two separate 35kVA services. Two 35kV to 480V utility owned pad-mounted transformers are served by both power services. The services are switched by the utility during electrical outages or planned maintenance. Two main distribution switchgear are served by each of the transformers. Only one power service, transformer, and switchgear are necessary, however additional provisions were made for redundancy in the building. Power to all 480V equipment is supplied directly from the main distribution switchgear. In order to provide 208V/120V services, a 150kVA transformer is located on both the first and mezzanine levels to reduce the 480V power supplied by the main distribution switchgear.

4.4 Lighting

The predominant fixtures of the building are 2 and 3 lamp 2 x 4 recessed parabolic fixtures, and indirect pendant strip fixtures. These fixtures utilize T5 lamps with energy efficient electronic ballasts. Decorative lighting is also provided in several spaces which

includes up lighting, down lighting, and accent fixtures. Each space was designed to receive approximately 40 foot candles of light.

4.5 Structural

The foundation of Straumann USA consists of a continuous poured concrete footing around the perimeter of the building. Individual column supports are made up of spread footings that vary in size from 3' x 3' to 10' x 10' and range from 1' – 2' in depth. The first floor is a 6" slab on grade, while the mezzanine level is a 5" poured concrete slab over metal decking. The framing for the building is predominately wide flange columns. The roof of the building is composed of a single ply mechanically fastened EPDM rubber roof membrane over rigid insulation on a steel deck, and is supported by open web steel joists.

4.6 Fire Protection

Four different fire protection systems were used in Straumann USA depending on the space classification. A wet-pipe system is utilized in most of the spaces of Straumann USA including, open office areas, parties, toilet rooms, storage, operatories, labs, mechanical areas, electrical areas, manufacturing and shop areas. A deluge low flow foam system is utilized in the oil storage areas. The server areas are served by a combination of preaction, and FM-200 sprinkler systems both above and below the raised flooring.

4.7 Mechanical

Straumann USA is served by 10 rooftop air handling units. Nine of the units are variable air volume ranging from 21,000 cfm to 33,000 cfm at design conditions and the tenth unit that serves the auditorium area is a 6,400 cfm constant air volume unit. All 10 of the units condition air with a chilled water cooling coil and a steam heating coil. Table 4.7-1 breaks down the type of areas each rooftop unit serves and lists the size of each unit. Figure 4.7-1 displays the location of each zone within the building.

The central plant produces building chilled water and steam for the entire building, not just the Straumann USA facility. The central plant includes three water-cooled electric centrifugal chillers of 750, 500, and 350 tons. Heat is rejected from the condenser water system with two cooling towers of 680 and 750 tons. The system is equipped with a waterside free cooling mode that directly rejects heat from the chilled water loop to the condenser water loop by using a plate heat exchanger. High pressure steam is produced for the building by two 11.7MBH fuel oil or natural gas fired boilers. Steam is then reduced to a lower pressure (15psi) and routed to the heating coils in the rooftop units. A shell and tube heat exchanger uses the steam to heat the building hot water used by the fin tube radiators at the perimeter of the building.

VAV Rooftop Unit Summary			
	Max CFM	Square Feet Served	Areas Served
RTU-1	33,000	27,139	First floor manufacturing support areas and mezzanine level server room
RTU-2	33,000	19,968	First floor office and dental operatory areas
RTU-3	6,400	3,303	First floor auditorium
RTU-4	33,000	20,602	First floor and mezzanine office areas
RTU-5	21,000	11,126	First floor manufacturing support areas
RTU-6	21,000	17,326	Mezzanine office areas
RTU-7	33,000	5,850	Manufacturing area
RTU-8	33,000	5,850	Manufacturing area
RTU-9	33,000	5,850	Manufacturing area
RTU-10	33,000	5,850	Manufacturing area

Table 4.7-1: Spaces Served by Each VAV Rooftop Air Handling Unit

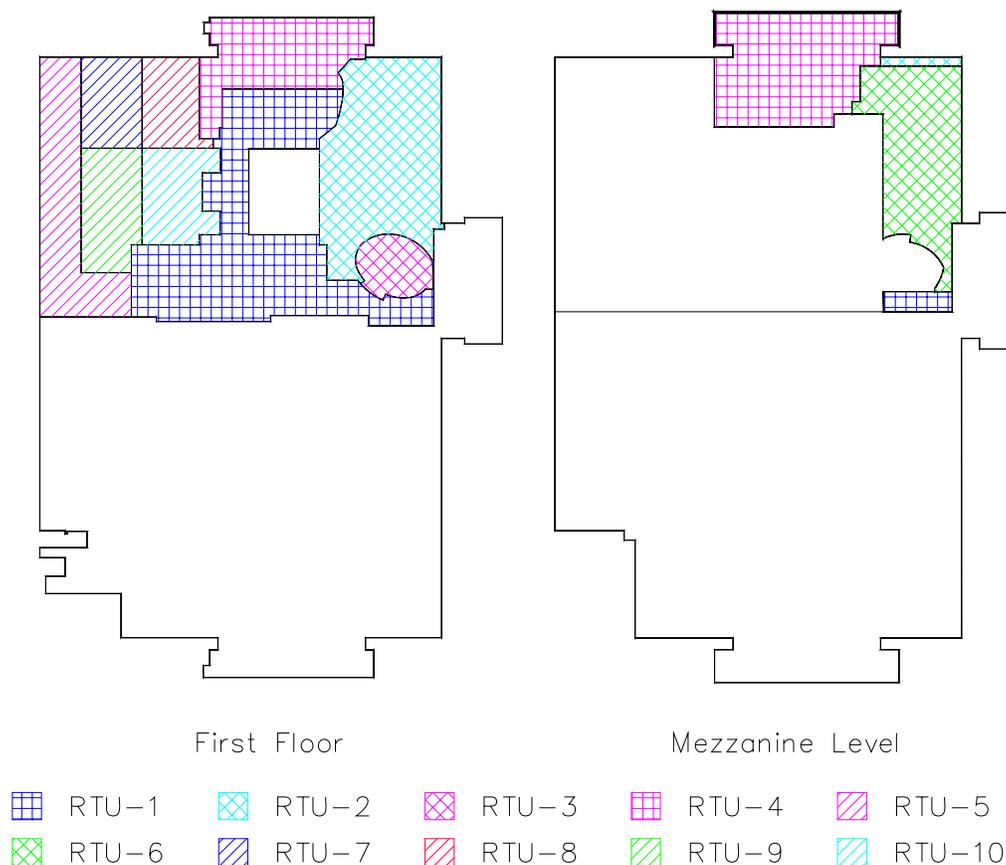


Figure 4.7-1: VAV Rooftop Air-Handling Unit Zones