nbbj

Kaiser Oakland Medical Center Replacement Project
Broadway Medical Office Building & Garage
Sustainable Design Elements

The following features have been designed into the Broadway MOB & Garage in response to Kaiser's intended purpose to make the building conform to sustainable building best practices:

Integrated Design

1. Green strategies have been discussed from the start of this project. Workshops have been held with the Architect, MEP design team, General Contractor, MEP Design Assist Subcontractors and Pacific Gas and Electric to integrate green elements into the project.
2. The Architect, NBBJ, has three LEED Accredited Design team members.

Site Design

1. Avoided an environmentally sensitive site by purchasing property adjacent to the existing medical center for this expansion.
2. Minimized building footprint by building a taller building.
3. Minimized paving by stacking parking in a six level garage.
4. Oriented the building on an north-south axis to limit sun control problems.
5. Planted shade trees on the south and west facades.
6. Storm water volume, and surge, is reduced by filtering water through the south and west gardens prior to being released into the city system.
7. Specified native trees and plants throughout the project.
8. Design restores the Glen Echo Creek by regarding and planting native trees and shrubs bank to a naturally sustainable slope.
9. Restored the natural grade in the Manila lot to reflect previous topography.
10. Expanded existing transportation demand management program to increase alternative modes of transportation to the Building and campus.
11. Provided drop off space for BART shuttle adjacent to main entrance to MOB.
12. Installed bicycle parking in garage convenient to MOB main door.

Water:

1. Specified low-water use planting and specified natural landscaping.
2. Specified pervious paving in serenity garden for maintenance truck access to reduce runoff from existing conditions
3. Created bio-swales in south garden to filter runoff and reduce impact of peak storm water flows.
4. Specified water saving toilets with 1.6 gallon per flush valves.
5. Specified water saving urinals; 1 gallon/flush
6. Specified water saving faucets; 0.4 gpm
7. Developed serenity garden to use natural field grasses that require little water.

Energy:

1. Energy efficient mechanical and electrical systems.
2. This building is located in a moderate climate and this drove the decisions on appropriate energy solutions for this project. The building uses 10% less energy than the amount allowed by California Title 24 Energy Standards.
3. An effort was made to balance the advantages of more morning sun and less afternoon sun by controlling the sun's access into the building. The east elevation has a large expanse of

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glass to capture the sun, while the south and west elevations have less glass to lower heat gain.
4. Exterior sun shades on south and west elevations.
5. Specified mini-blinds to control sun and avoid excessive heat gain into the building.
6. Held building width to less than 150' depth (actual is 126') to allow greater penetration of sun into the building for day lighting.
7. Specified fluorescent light fixtures with electronic ballasts throughout.
8. Designed electrical system to utilize a low .75 watts/square foot. This exceeds current Title 24 allowances
9. Specified occupancy sensors to automatically turn off lights in non-occupied rooms. Also utilized a low voltage lighting control system to sweep off lights in spaces where an occupancy sensor is not practical.
10. Specified a reflective, "cool roof".
11. The mechanical system capitalizes on the mild climate through the use of an air economizer. The air economizer uses outdoor air to provide all or part of the cooling requirements 93% of the operating hours.
12. During periods of large cooling loads, the efficient, 400 ton evaporative chiller is used. Evaporative chilling during large loads results in an electrical demand 32% lower than air cooled chilling. The 400 ton chiller consists of two, 200 ton chillers and related pumps and fans to allow operation of only one 200 ton system whenever loads permit, thus reducing energy consumption.
13. During periods of very small loads, such as after hours cooling of the IT server room, the 400 ton system is shut down and the 70 ton air cooled chiller is used. Operating the package 70 ton chiller is more efficient than operating the 400 ton chiller system due to the associated pumps and fans.
14. Specified green refrigerants: R134a for the 400 ton chiller and 410a for the 70 ton chiller.
15. Specified variable frequency drives for garage exhaust system. Automatic controls limit the operation of the garage exhaust to when CO levels exceed limits.
16. Supply duct pressure has been optimized thereby operating the fans at the minimum speed to achieve the required air flows.
17. Specified high-efficiency motors.
18. The high efficiency light fixtures pass return air from the room through the lights thereby reducing the heat to the room from the lights. Reduced lighting heat to the room results in lower fan and cooling energy.
19. The energy consumption of the heating, ventilating and air conditioning system is optimized by the use of a direct digital control (ddc) system. The ddc system monitors key system operation values and adjusts system control points to minimize energy consumption.
20. Optimize daylighting by locating public corridors on east exterior wall. Windows provided where appropriate in doctor's offices, office areas and break rooms.
21. Specified automatic entrance doors.
22. All mechanical air intakes have been located on the roof to improve inside air quality. Building exhausts are located downwind of the air intakes, by at least 25 feet, to minimize recirculation back into the building.
23. Windows have been designed into the south stair tower to encourage its use by members and employees.
24. Specified high-efficiency "Solorban 60" glass.

Materials and Products:
1. Specified "Stratica" and Nora rubber flooring eliminating need for maintenance chemicals.
2. Specified Collins and Aikman non-PVC backed carpet.

3. 35% fly ash is specified in concrete mix design.
4. Upholstery fabrics specified have been selected for high durability of 60,000 double rubs.
5. Paint specification requires low VOC to reduce emissions.
6. Chair arms use wood-capped or synthetic materials that resist wear.
7. Upholstery fabrics specified are 51% post-industrial recycled polyester or 100% recycled polyester
8. Recycled cotton building insulation is specified.
9. Extensive use of “Green screens” at Garage and MOB has multiple benefits: helps to filter light and noise from the Garage, reduces heat gain, etc.

Construction Practices:

1. Surveyed for hazardous materials and required Chevron to clean up their former gas station site of site contaminates.
2. Identified and developed a plan to clean up asbestos products found in existing buildings.
3. Will implement a waste management plan to include recycling and proper disposition of residual materials.
4. Implement a storm water pollution prevention to minimize erosion and sedimentation runoff.

Old Fabiola Building Demolition:

1. During the demolition of the Old Fabiola Building in 2005, 3,000 tons of concrete (100%) were recycled. Also, 200 tons of scrap metal (100%) were recycled. In addition, 240 tons of mixed debris (50%) were recycled. The total recycled amount was 91%, and exceeded City of Oakland recycling requirements (50%). We can expect a similar level of recycling on the upcoming Broadway building demolitions.

Maintenance:

1. Specified materials that require mild soap and water cleaning.