DAILY JOURNAL OF COMMERCE
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March 23, 2017

Eco-friendly transfer station adds playground to be a good neighbor

• ***Seattle's new North Transfer Station goes to great lengths to reduce noise, odors and visual impacts.***

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Mahlum

The design of Seattle's new North Transfer Station radically departs from what people typically associate with solid waste sorting facilities.

Leafy pedestrian pathways, a sport court and natural play areas compose a gentle, friendly expression for the facility. Within, recycling and trash processes are choreographed to maximize efficiency and encourage Seattleites to recycle ever more stuff.

The air is clean and the facility is relatively quiet for all the activity it contains. It is at once friendly to the community and friendly to the environment — a comprehensive model of sustainable design.

This remarkable achievement reflects the commitment of Seattle Public Utilities and the design team to create a robust community asset from a former blight. Set in the thriving Wallingford-Fremont neighborhood on the site of the previous transfer station, the new facility is now a better match to the single-family homes, small multifamily complexes and commercial buildings that surround it.

"The new North Transfer Station is a big investment in the future of Seattle," said Mami Hara, CEO and general manager for Seattle Public Utilities. "This facility allows us to have less of an impact on the environment, while safely and sustainably handling the increasing waste demands of our growing city."

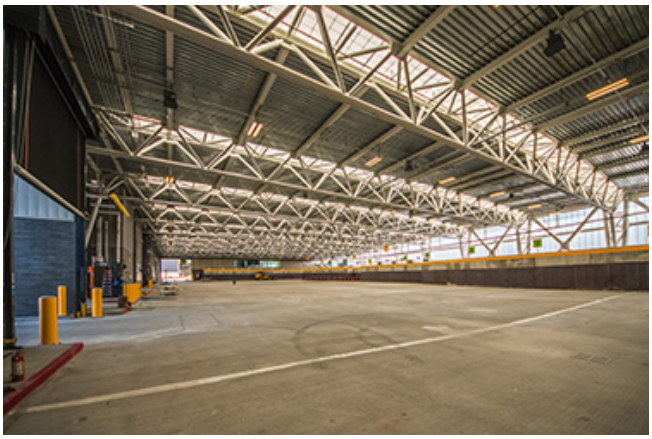

Photo by Integrated Design Engineers

Skylights help spread daylight evenly across the space. LED fixtures are automatically controlled by daylight and occupancy sensors.

Photo by Tim Rice Architectural Photography

Translucent wall panels allow diffused light, adding brightness without shadows. The panels also help avoid heating the trash, which limits its off-gassing.

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The sidewalks and sport court are composed of pervious concrete, allowing water to seep directly into the ground.

Photo by Integrated Design Engineers

Artist Jean Shin created an installation called “Reclaimed” composed of reclaimed rebar from the site.

Ample natural light

From the outset, Seattle Public Utilities partnered with neighbors to find solutions that met both of their needs. A primary requirement of the community was that the new facility would not be any taller than the old building. This limitation significantly influenced how the project team shaped and organized of the facility.

Tri-chorded steel trusses were used to meet the height requirement and create the 200-foot clear spans necessary for the 57,000-square-foot tipping floor. Skylights are embedded along the top of each 6-foot-wide truss, distributing daylight evenly across the space.

A wall of translucent Kalwall panels along the south facade, above trash compactors and exhaust equipment, supplements the skylights. The panels introduce diffused light, which adds brightness without shadows to enhance safety. The panels also help avoid heating the trash, which limits its off-gassing.

Together, these strategies provide ample natural light while significantly reducing the need for electric light. Adequate lighting is important in waste management work, which consistently ranks among the top 10 most dangerous jobs in the United States.

When electric lighting is needed, daylight and occupancy sensors automatically control LED fixtures. As a result, the facility achieves a very low energy usage of 32.6 kilowatts per square foot despite intensive equipment use.

Reducing impacts

The North Transfer Station's primary purpose — processing trash and recyclables for future disposal — can impose many negative environmental impacts on its neighbors. Odor, dust, noise and vermin are natural byproducts of a typical facility.

With extensive input from the community, the design team addressed these vectors holistically to minimize their impacts. To buffer internal activities from adjacent properties and reduce noise pollution, the new facility is set down into the site and a concrete retaining wall placed along northern border acts as a sound wall.

All garage doors are ultra-quiet and operate at high speeds for each vehicle accessing the tipping and recycling buildings. The powerful mechanical system thrusts exhaust air high into the atmosphere to decrease odor pollution. A low-flow misting system above the tipping floor limits dust.

Every surface of the site is employed to improve environmental conditions. Above the tipping building, an array of photovoltaic panels generates 150 kW power, enough to supply 10-12 homes on an annual basis. Above the 10,000-square-foot administration building and 10,000-square-foot recycling building, green roofs filter stormwater, decrease runoff and reduce the site's heat island effect.

In the public park areas, sidewalks and the sport court are composed of pervious concrete, which allows water to penetrate directly into the ground. An onsite catchment system is integrated into the landscaping to filter discharge from trash and recycling materials. The catchment system discharges the cleaned gray water directly into Lake Union, reducing the volume of water sent to the wastewater treatment plant.

Sharing the significant impacts of trash and recycling with the community are additional purposes of the North Transfer Station. The design strives to connect the community to the important functions of the station by putting trash/recycling processes on display in a positive, sanitary way.

Along the south side of the site, which faces the busy Burke-Gillman Trail, windows have been punched into the wall to allow public views down into the underbelly of the tipping floor. A viewing room above the tipping floor in the administrative building is open to the public when the building is open.

Reclaimed

Existing materials and equipment from the old facility were reclaimed for use in the new station. Two 90-ton compactors were salvaged and rehabilitated for continued use.

The art installation “Reclaimed” by Jean Shin is composed of reclaimed rebar from the site. The artwork is shaped into organic, linear contours that reference the topography of the site prior to white settlement. It highlights the full potential of waste material to be reborn within the community and upholds the ethos of sustainability.

To divert as much material as possible from the waste stream and back into productive uses, the facility separates trash and recycling processing. The recycling area is the first option presented to vehicles entering the site and is free to the public. This easy access further encourages waste to be diverted from the landfill.

The driving mission of the station is optimized in the new facility and inspired the design of the entire site. It is certified LEED gold.