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Department of Finance and
Administrative Services /
Capital Development and
Construction Management
Division

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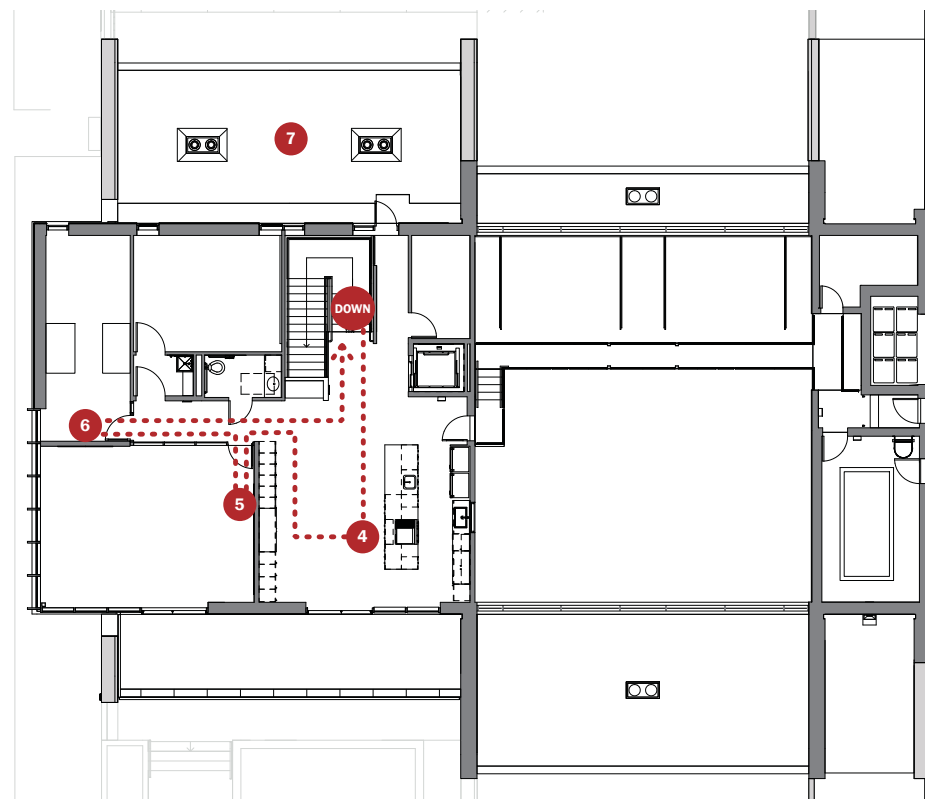
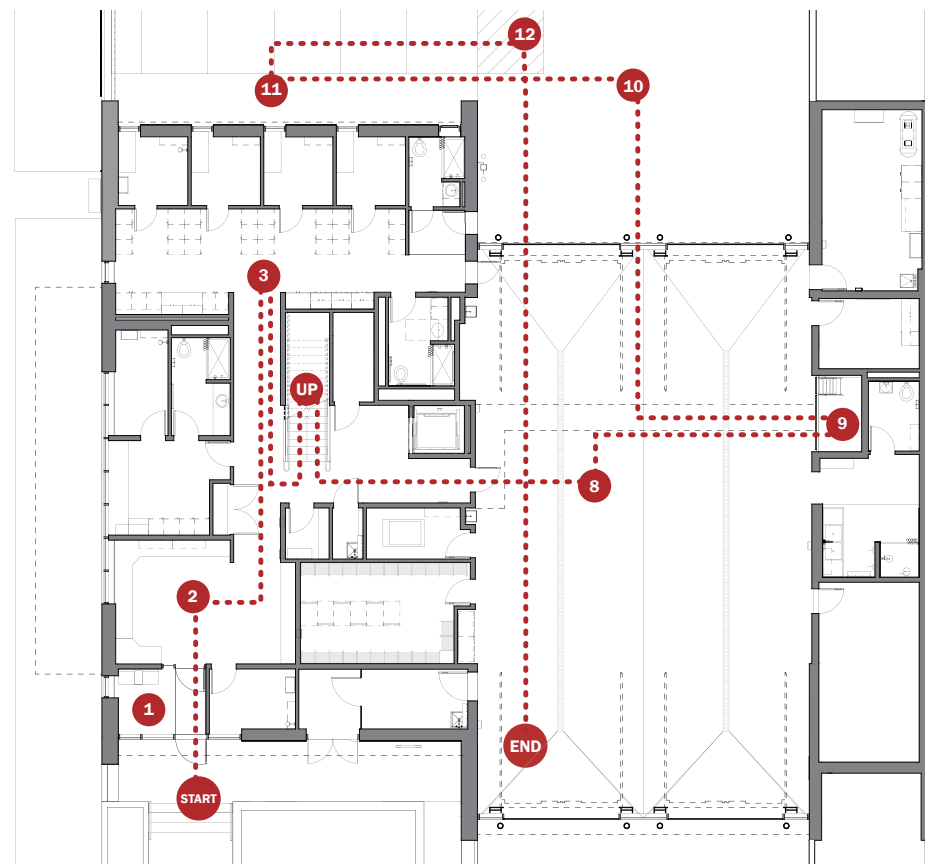
COST ESTIMATING
The Robinson Company

SUSTAINABILITY STRATEGY
O'Brien & Company

GEOTECHNICAL CONSULTANTS
GEO Design, Inc.

SPECIFICATIONS
Specifications Northwest

WATERPROOFING
Wetherholt and Associates



Points of Interest

- | | | | |
|---|------------------------|----|------------------------------------|
| 1 | Lobby | 7 | Green Roof |
| 2 | Station Office | 8 | Apparatus Bay |
| 3 | Bunk Room | 9 | Hose Tower |
| 4 | Beanery | 10 | Geothermal Wells |
| 5 | Physical Training Room | 11 | Electric Vehicle Charging Station |
| 6 | Day Room | 12 | Native, Drought-tolerant Landscape |

Fire Station 20

City of Seattle



Fire Station 20 is designed to create a civic presence in the Interbay neighborhood and serve as a model of sustainable design. The City challenged the design team to create a building that not only meets the criteria for LEED Platinum certification, but also follows the guidelines set in the Architecture 2030 Challenge, designed to significantly reduce carbon emissions and fossil fuel consumption.

The City and design team have taken this opportunity to engage and inform the community on how this project gives back to the environment and how modern buildings can employ these strategies without sacrificing program space.

The design team took an aggressive approach to energy conservation and implemented a variety of strategies to achieve its goals. Initial energy models show a 70% energy savings over a typical building, which meets the 2015 target for the Architecture 2030 challenge.

A 35KV photovoltaic array on the roof of the station compliments the green site terraces and relates to the multi-story apartment buildings that look down on it from Queen

Anne. The rooftop PV array provides approximately 27% of the energy used by the station.

Ground-source heat pumps take advantage of the moderate temperatures deep underground to boost efficiency and reduce the operational costs of the heating and cooling system. The system circulates water through tubes drilled into the ground, providing winter heating by extracting heat from the earth and transferring it into the building. In the Apparatus Bay, a radiant heating system, combined with the thermal mass of the concrete walls and floor, helps keep the firefighters warm.


Two green roofs were designed to carry the landscaped aesthetic of the site on the building as well as to reduce stormwater runoff and provide initial filtration before it enters the municipal system. The green roofs also provide additional softscape that helps cool the site through evapotranspiration.


Stormwater runoff from the site will eventually end up in the Lake Washington Ship Canal, so a variety of systems are used to treat and filter the water. Stormwater from


an upper roof is directed through a runnel to an bio-retention planter where wastewater is filtered by a series of plants, soil, and gravel before heading to the storm water system.


The industry-leading heating and cooling mechanical equipment in the building employs a heat-recovery unit that recovers approximately 75% of the heat exhausted out the building. This entire system is controlled by an Energy Management and Control System, which monitors and controls the energy, water, and gas use in the building to optimize efficiency, in addition to providing necessary data to improve future City projects.

A flip-dot electronic signboard connected to the building's control system is on the street-side of the building, adjacent to a new Rapid Ride Metro bus stop. This display provides pedestrians and vehicle passengers' with real-time information on energy, water and carbon savings along with statistics on solar energy generation.


 70% reduction
in energy use

 43% reduction
in water use

 33% recycled
materials

 35kV+ photovoltaic
array

 14 geothermal
wells

 Native, drought-
tolerant landscape



Sustainable Features

- | | | |
|--|----------------------------------|------------------------------------|
| 1 Native trees, shrubs, and vegetable garden | 5 Geothermal wells | 10 Generous access to daylight |
| 2 Electric vehicle charging station | 6 Triple-glazed windows | 11 Natural, recyclable zinc siding |
| 3 Green roof | 7 35kV+ photovoltaic array | 12 Stormwater infiltration garden |
| 4 FCS-certified wood used for casework | 8 Recycled and low-VOC materials | 13 Interpretive displays |
| | 9 Radiant floor heating | 14 Bio-retention planter |