

THE BULLITT CENTER

Architect - **Miller Hull Partnership**

Date - **Opened April 22, 2013 (Earth Day)**

Location - **Seattle, Washington**

Climate - **Oceanic or Temperate Marine with cool, wet winters and mild, relatively dry summers**

Size - **52,000 square feet (six-story)**



ENERGY FLOWS & ENERGY FUTURE

HEATING/COOLING/FRESH AIR

- 26 (400-FOOT DEEP) CLOSED LOOP GEOTHERMAL WELLS
- DEDICATED HEAT RECOVERY VENTILATION
- CEILING FANS FOR THERMAL COMFORT
- RADIANT IN-FLOOR HEATING & COOLING

ENERGY PRODUCTION

- 244 KW PV ARRAY

HEATING/COOLING

- High performance glass
- High performance walls & low infiltration
- 100% effective heat recovery
- ground source heat pumps
- dedicated heat recovery ventilation
- variable air cooling
- radiant slab cooling
- reusable windows
- operable blinds

LIGHTING

- recessed daylighting
- daylight dimming
- lighting power

TENANT

- “flexible” floor-to-ceiling work area
- lower heating support
- lower cooling support
- plasma office cleaning
- 80% recycled, 20% bio-based, phorbond tiles
- low flow water fixtures

PV ROOF & FACADE

- 20,000 sq ft array
- supports 80,000 gal (with 50% safety)

92 ENERGY DENSITY
42 LIGHTING DENSITY
32 THERMAL DENSITY
16 + PV = **NET-ZERO ENERGY**

LIGHT & AIR

ENVELOPE

- OPERABLE WINDOWS FOR VENTILATION & COOLING
- TRIPLE-GLAZED HIGH PERFORMANCE WINDOWS
- OPERABLE BLINDS MINIMIZE HEAT AND GLARE

COOLING

- CEILING FANS FOR THERMAL COMFORT

DAYLIGHT
TYPICAL FLOOR 75% DAYLIT

15 A FUTURE SO BRIGHT

BIOCLIMATIC DESIGN

4 BUILDING NEUROLOGY

6 WASTE NOT

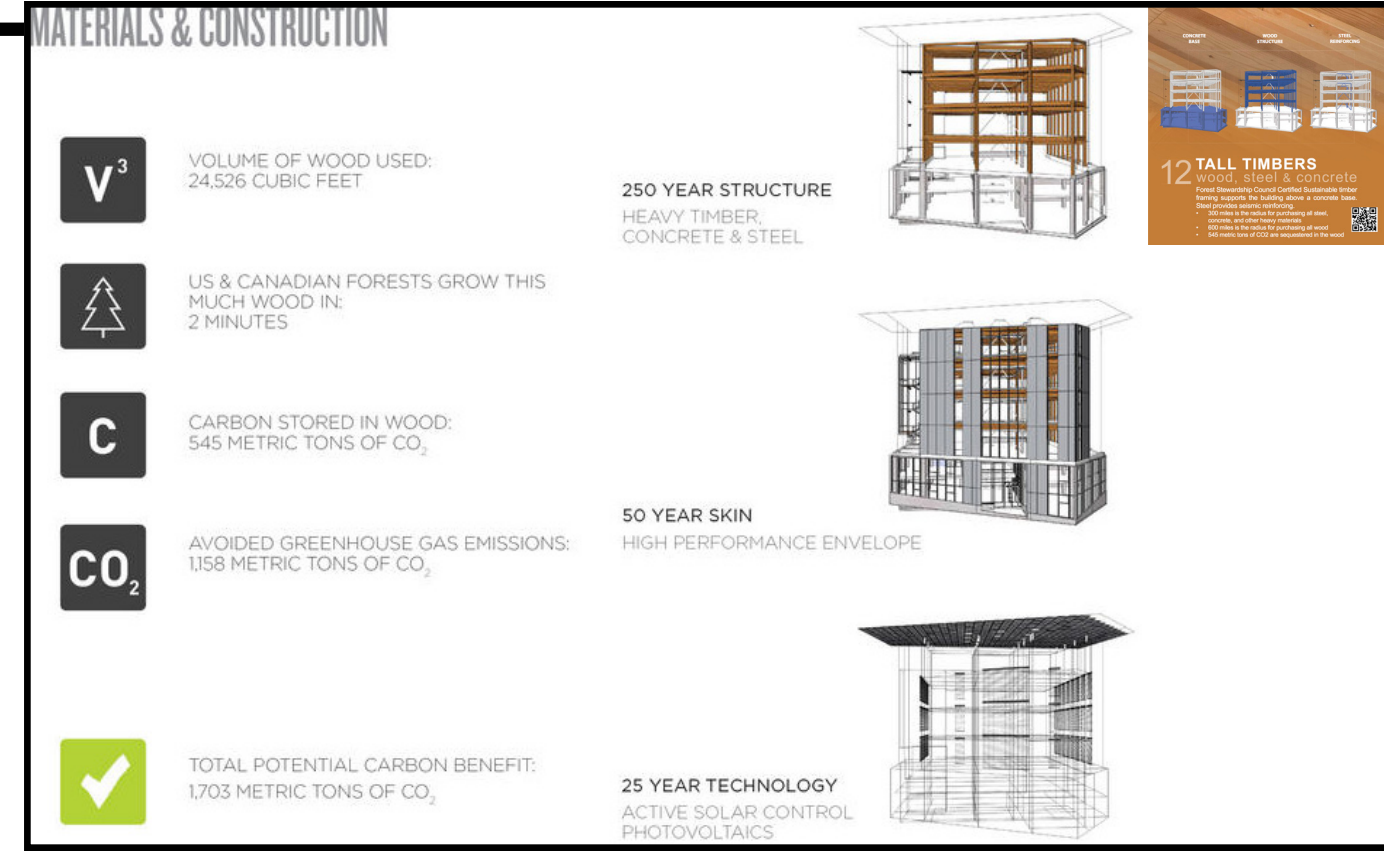
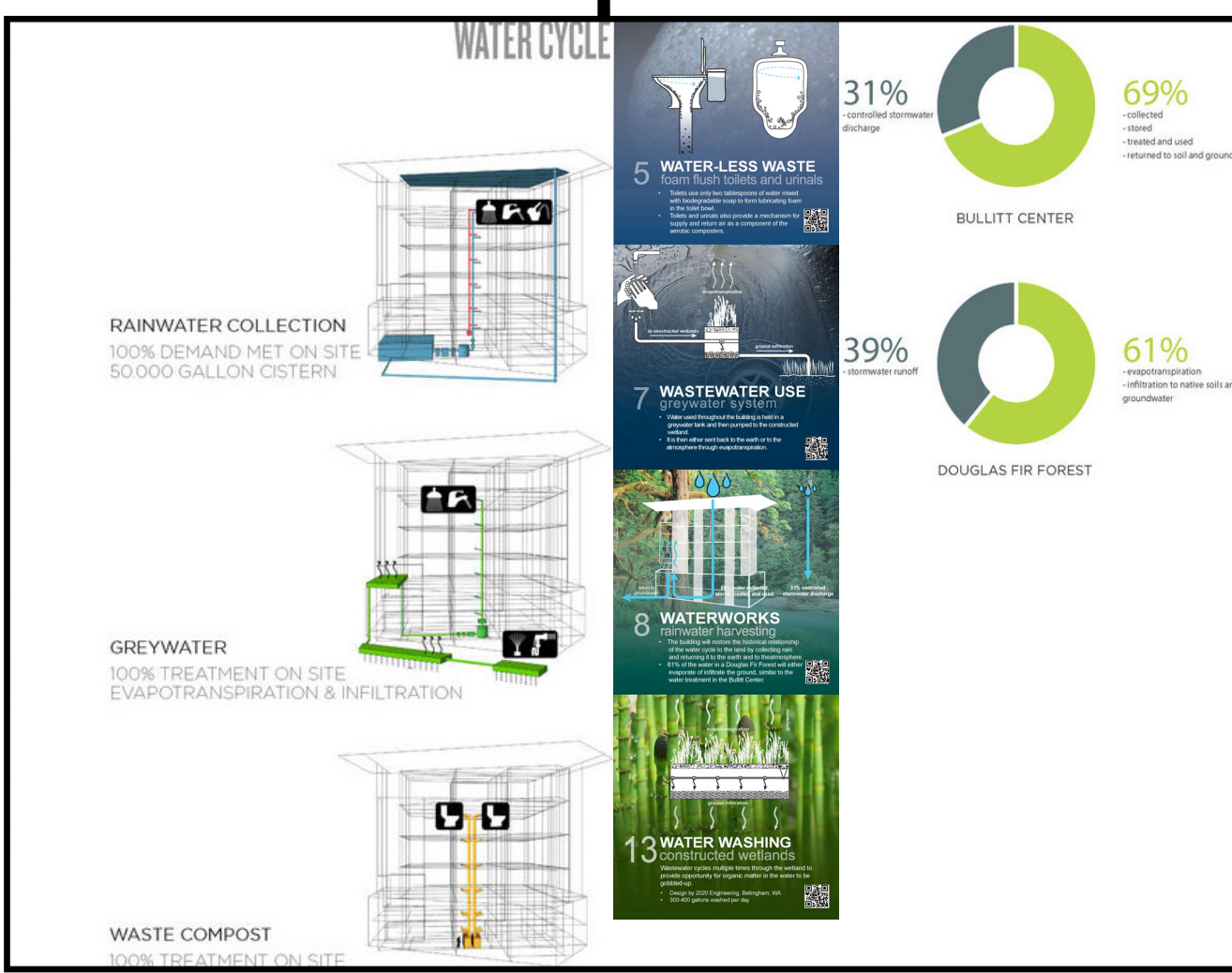
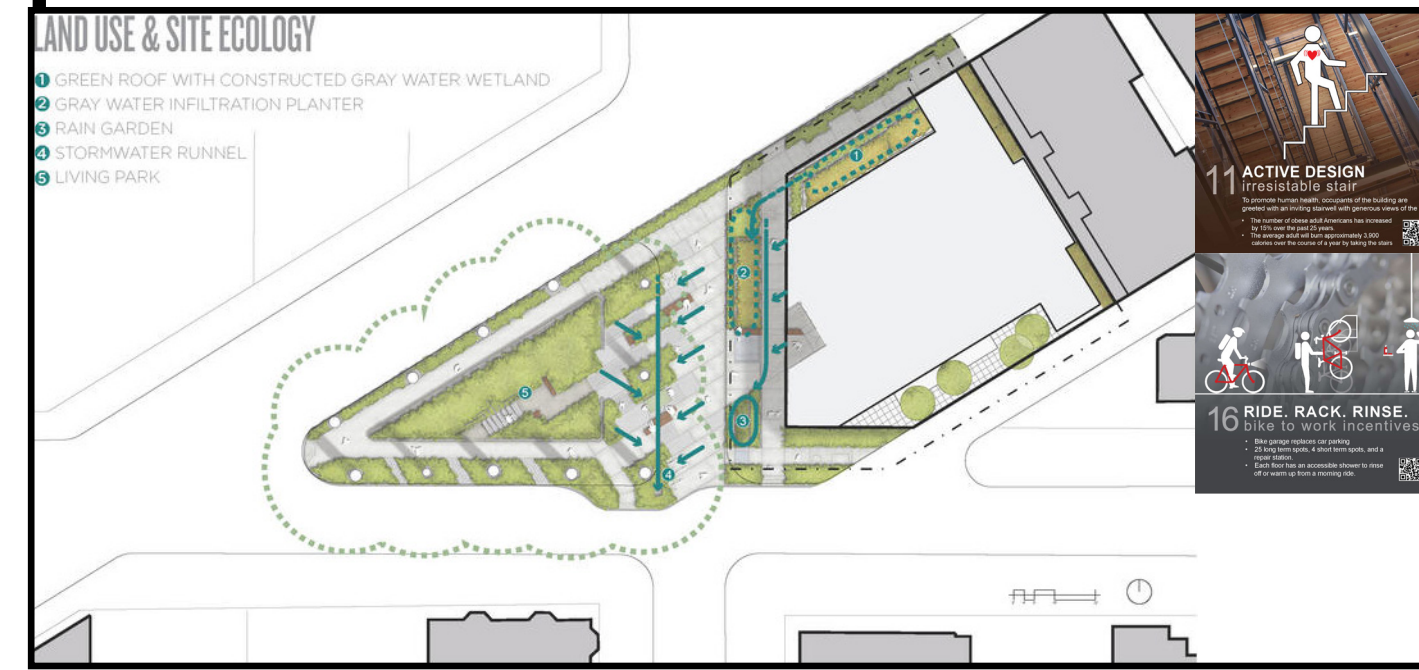
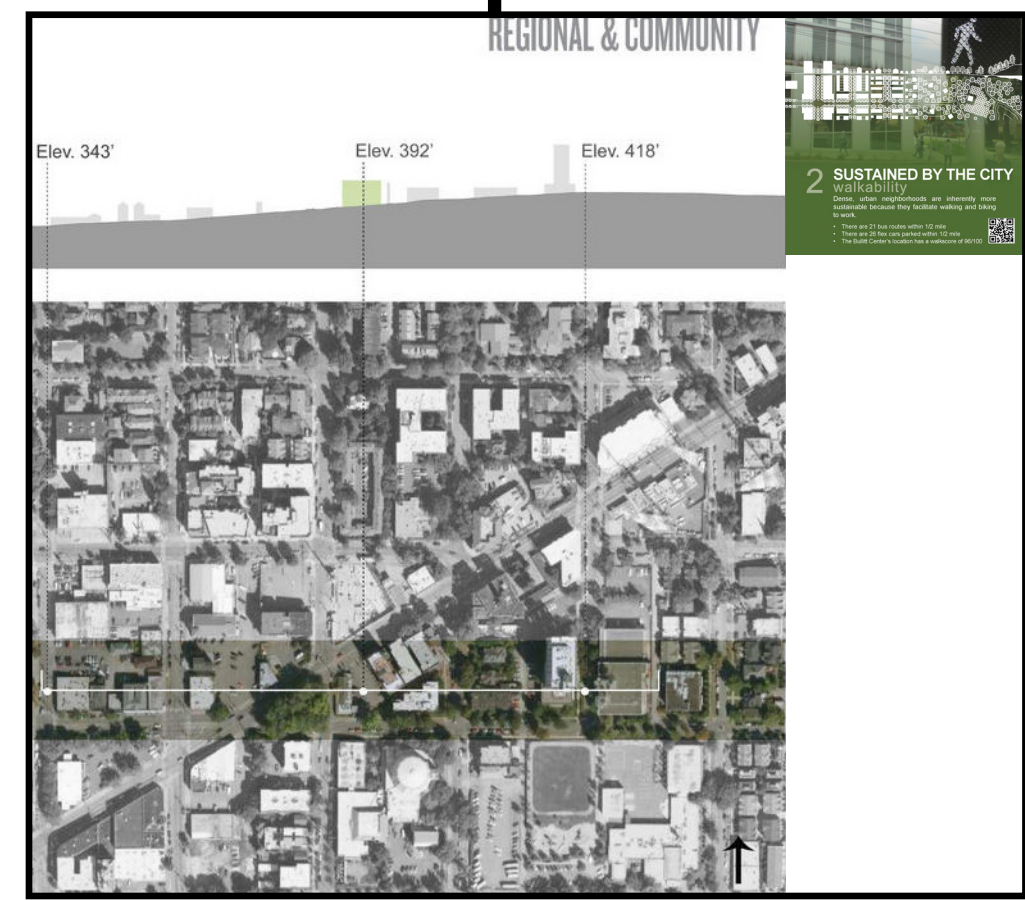
9 A POWERFUL PLUNGE

10 THE HEAT IS ON

NUMBER OF HOURS AT 5-DEGREE TEMPERATURE RANGES (full year 6AM-6PM)

AVERAGE PRECIPITATION (rainwater collection)

COMFORT





WATERWORKS

- Like a Douglas fir forest, the Bullitt Center returns water to the soil and atmosphere.
- The building will restore the historical relationship of water to the land by collecting rain, returning it to the earth and the atmosphere.
- 61% of the water in a Douglas fir forest evaporates or infiltrates into the ground, similar to the grey-water treatment in the Bullitt Center.

WATER PURIFICATION SKYSCRAPER, REZZA RAHDIAN IN JAKARTA, INDONESIA

- The Ciliwung Recovery Program (CRP) is a project that aims to collect the garbage of the riverbank and purify its water through an ingenious system of mega-filters that operate in three different phases.
- The first one separates the different types of garbage and utilizes the organic one to fertilize its soil.
- The second phase purifies the water by removing dangerous chemicals and adding important minerals to it.



HUALIEN RESORT & RESIDENCES, BIG ARCHITECTS IN CHINA

- Hualien Residences, a beach resort housing complex in Taiwan, will consist of green "landscape stripes" that resemble mountains themselves.
- The project, which incorporates walking paths, underground jogging paths, and an observation point, has already been recognized as a finalist in the 2014 MIPIM awards for its use of design to encourage healthy, active lifestyles for the complex's primarily older residents.

