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WPCL Responds at 5 Scales

- **City Scale.** Lab tests municipal water quality.
- **Neighborhood Scale.** Pond collects stormwater run-off.
- **Site Scale.** Parking lot run-off directed to bio-swales.
- **Building Scale.** Scuppers direct roof run-off to bio-swale
- **Component Scale.** Sculpture celebrates raindrop

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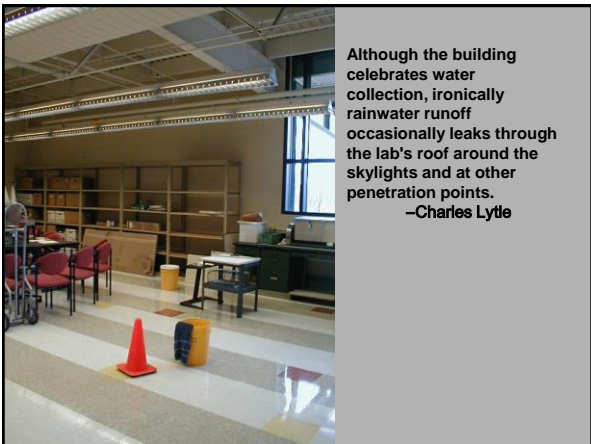


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Bring natural light into the lab area via skylights without interfering with lab equipment and activities.
—Architect's Intent

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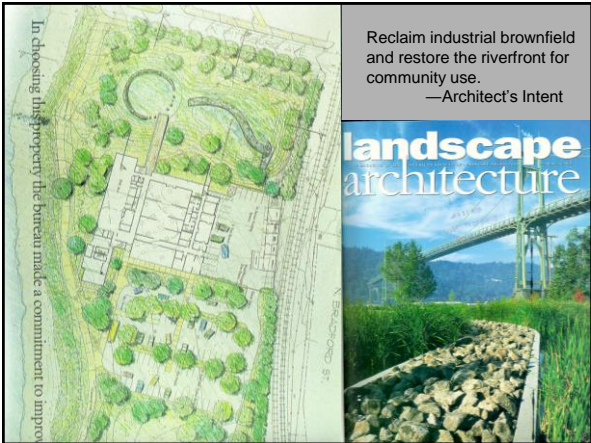


Although the building celebrates water collection, ironically rainwater runoff occasionally leaks through the lab's roof around the skylights and at other penetration points.
—Charles Lytle

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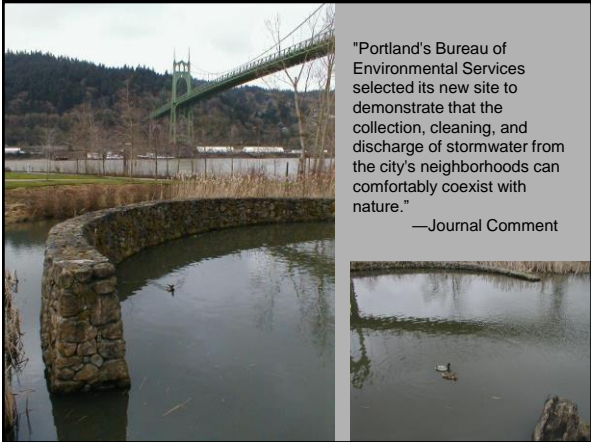
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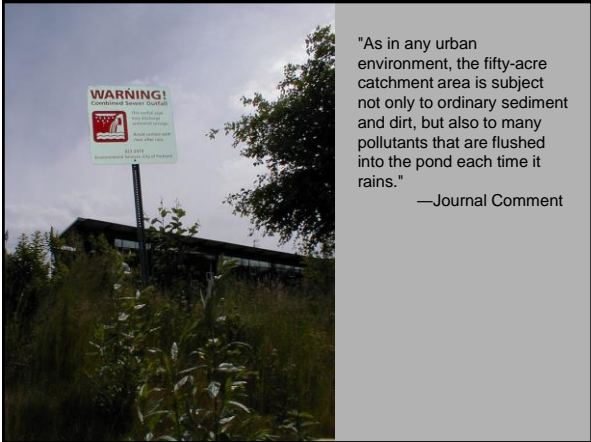
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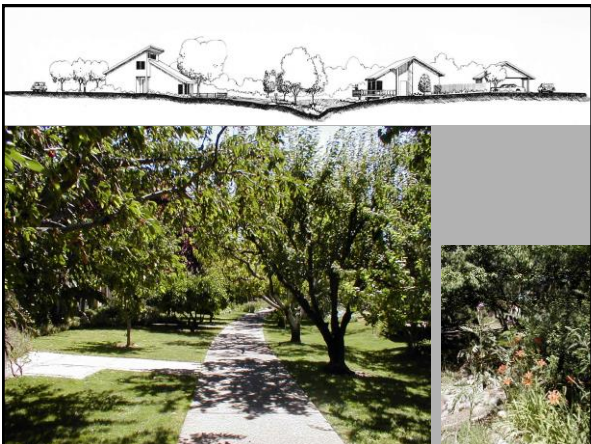


"As in any urban environment, the fifty-acre catchment area is subject not only to ordinary sediment and dirt, but also to many pollutants that are flushed into the pond each time it rains."
—Journal Comment

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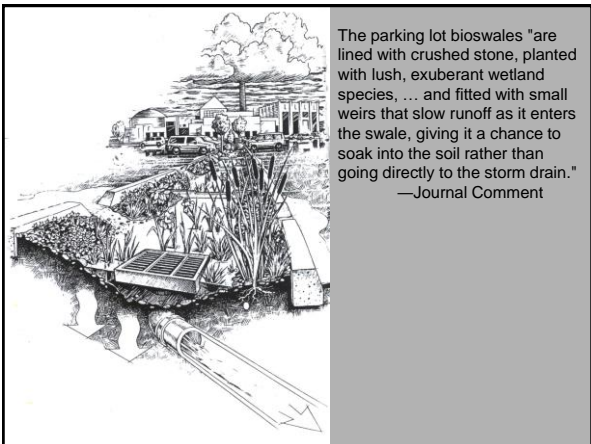
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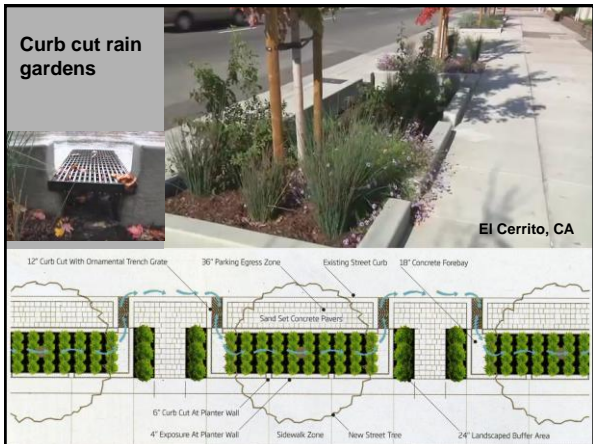
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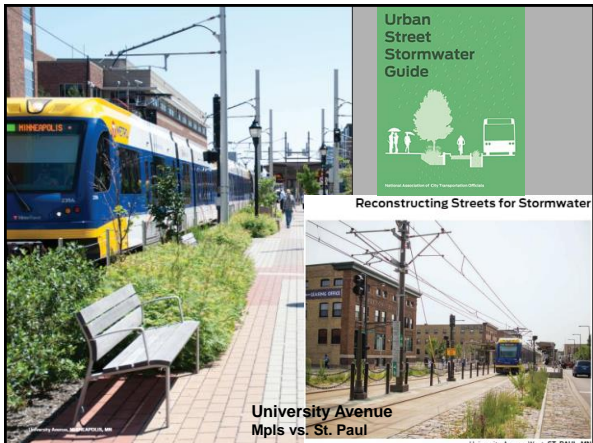
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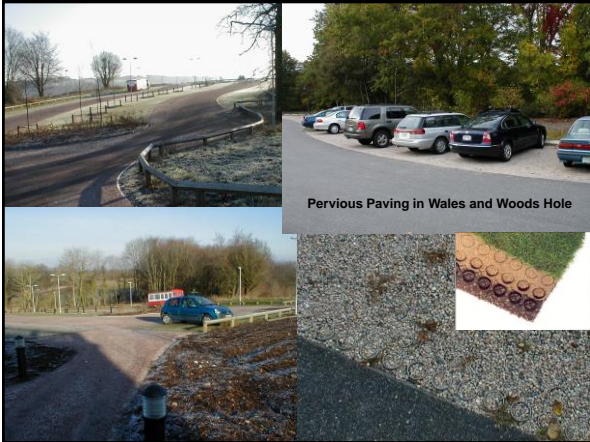
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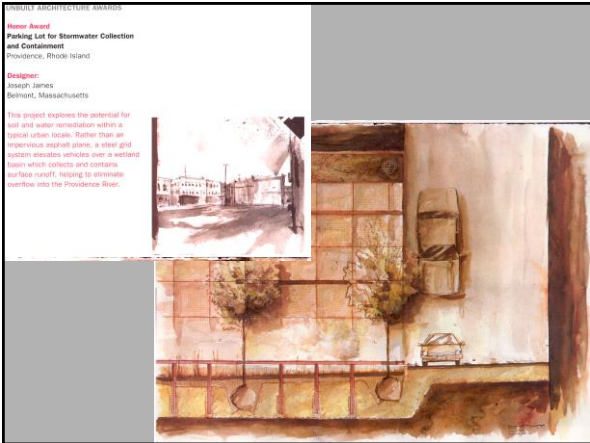
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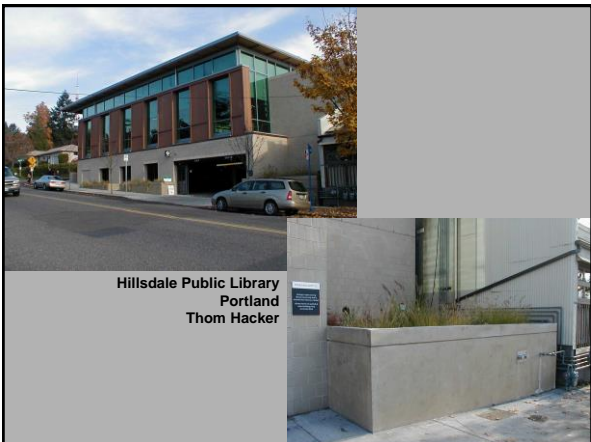
**Stormwater Management
for LEED Credit—Epler Hall, PSU**



31



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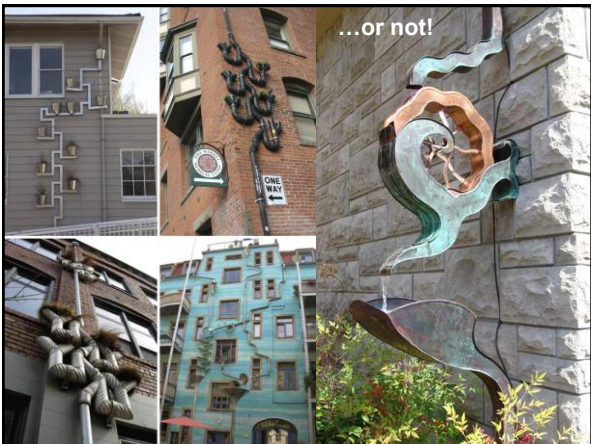


Growing Vine Street,
the art of stormwater
management

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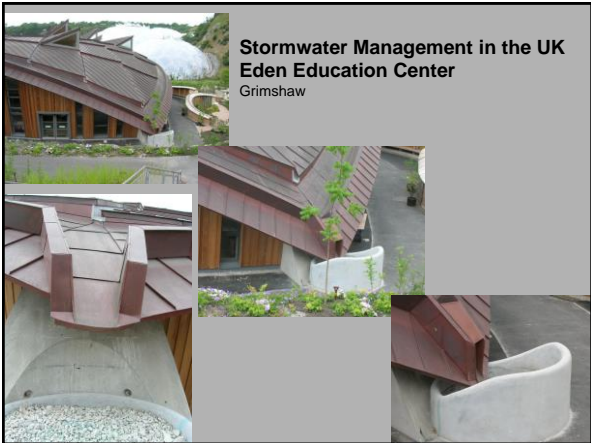


...or not!

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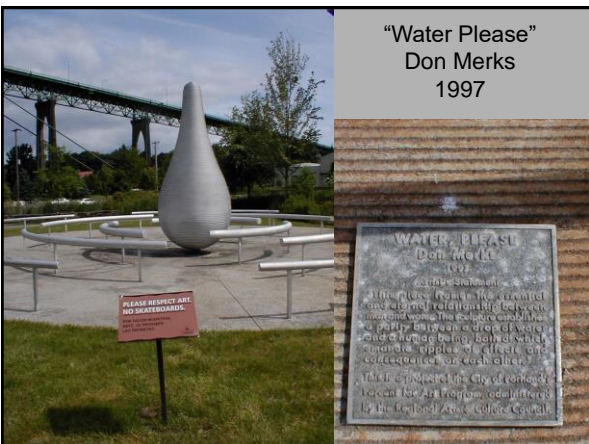
Component Scale



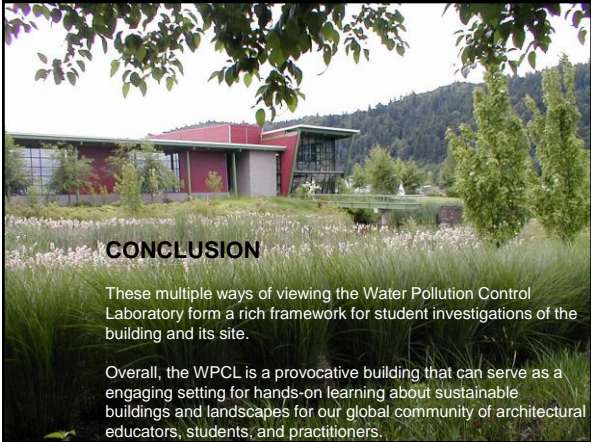
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CONCLUSION

These multiple ways of viewing the Water Pollution Control Laboratory form a rich framework for student investigations of the building and its site.

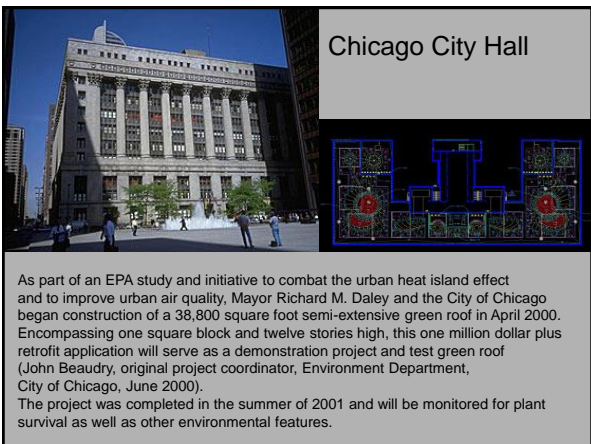
Overall, the WPCL is a provocative building that can serve as a engaging setting for hands-on learning about sustainable buildings and landscapes for our global community of architectural educators, students, and practitioners.

43



...but WPCL doesn't do it all...

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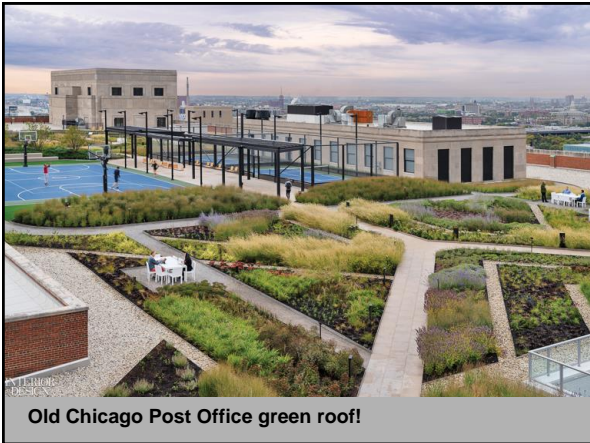
Chicago City Hall

As part of an EPA study and initiative to combat the urban heat island effect and to improve urban air quality, Mayor Richard M. Daley and the City of Chicago began construction of a 38,800 square foot semi-extensive green roof in April 2000. Encompassing one square block and twelve stories high, this one million dollar plus retrofit application will serve as a demonstration project and test green roof (John Beaudry, original project coordinator, Environment Department, City of Chicago, June 2000). The project was completed in the summer of 2001 and will be monitored for plant survival as well as other environmental features.

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47

Green Roof Advantages

- improve stormwater management
- prevent flooding
- reduce the volume of stormwater flowing into streams
- control of sediment transport and overall soil erosion
- absorb pollutants from rainwater
- mitigate urban heat island effect
- filter and bind dust particles and airborne toxins
- provide habitat for a diversity of wildlife
- embody both physically and culturally sustainable design

48

Typical Extensive Greenroof Material Section

Simple Plant Communities: Height: 2 – 3 inches

Light Weight Heavier Weight

A – "Optima-Kennkorper" Extensive Soil Substrate
 B – Insulation Layer
 C – Root Barrier Course
 D – Waterproof Membrane Protective Barrier

49

Typical Intensive Greenroof Material Section

Diverse plant communities useful for achieving architectural accents

Height: 36 inches – 15 feet

A – "Optima-Kennkorper" Intensive Soil Substrate
 B – Fleece Filter Fabric Screen
 C – "Optima Perlite" Drainage Layer
 D – Rainwater Retention Layer
 E – Insulation Layer
 F – Root Barrier Course
 G – Waterproof Membrane Protective Barrier

50

ARCHITECTURAL RECORD

Record Houses

2 of 8 Record Houses for 2002 have Greenroofs.
 Above right, Reeve Residence by James Cutler
 Right, Island House by Shim-Sutcliffe Architects

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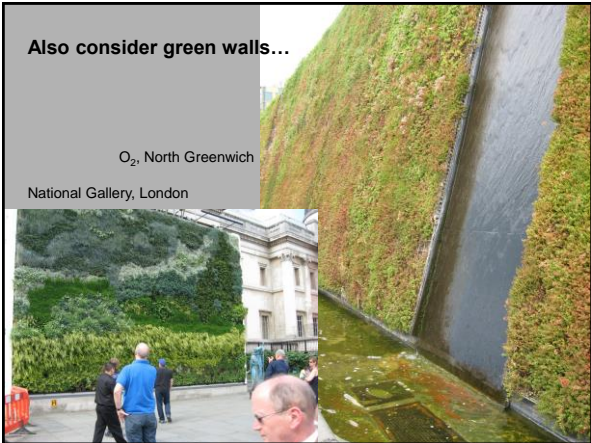
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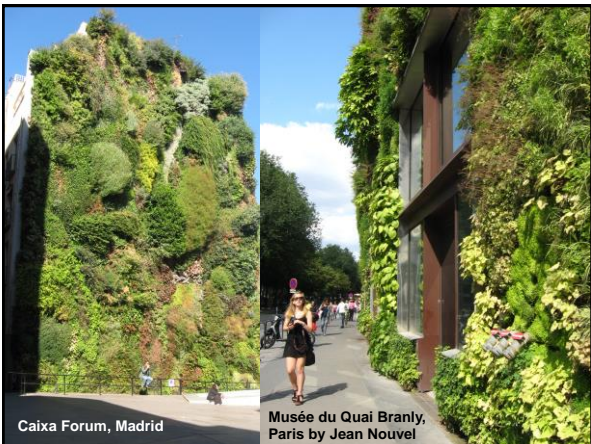
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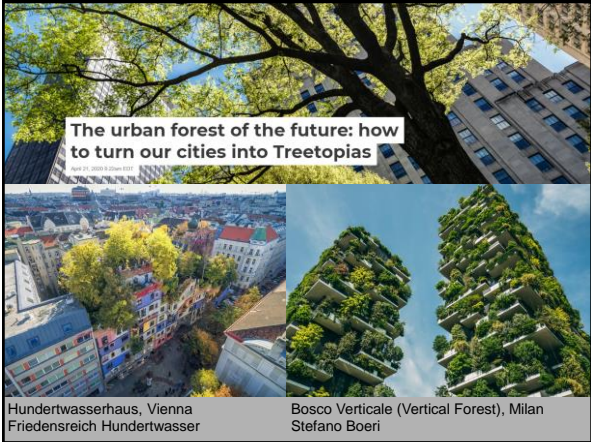
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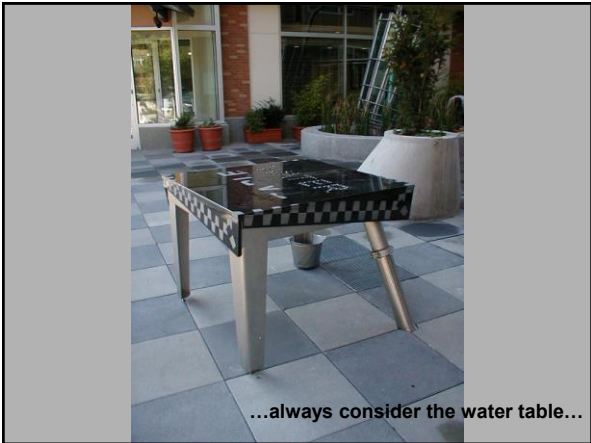
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