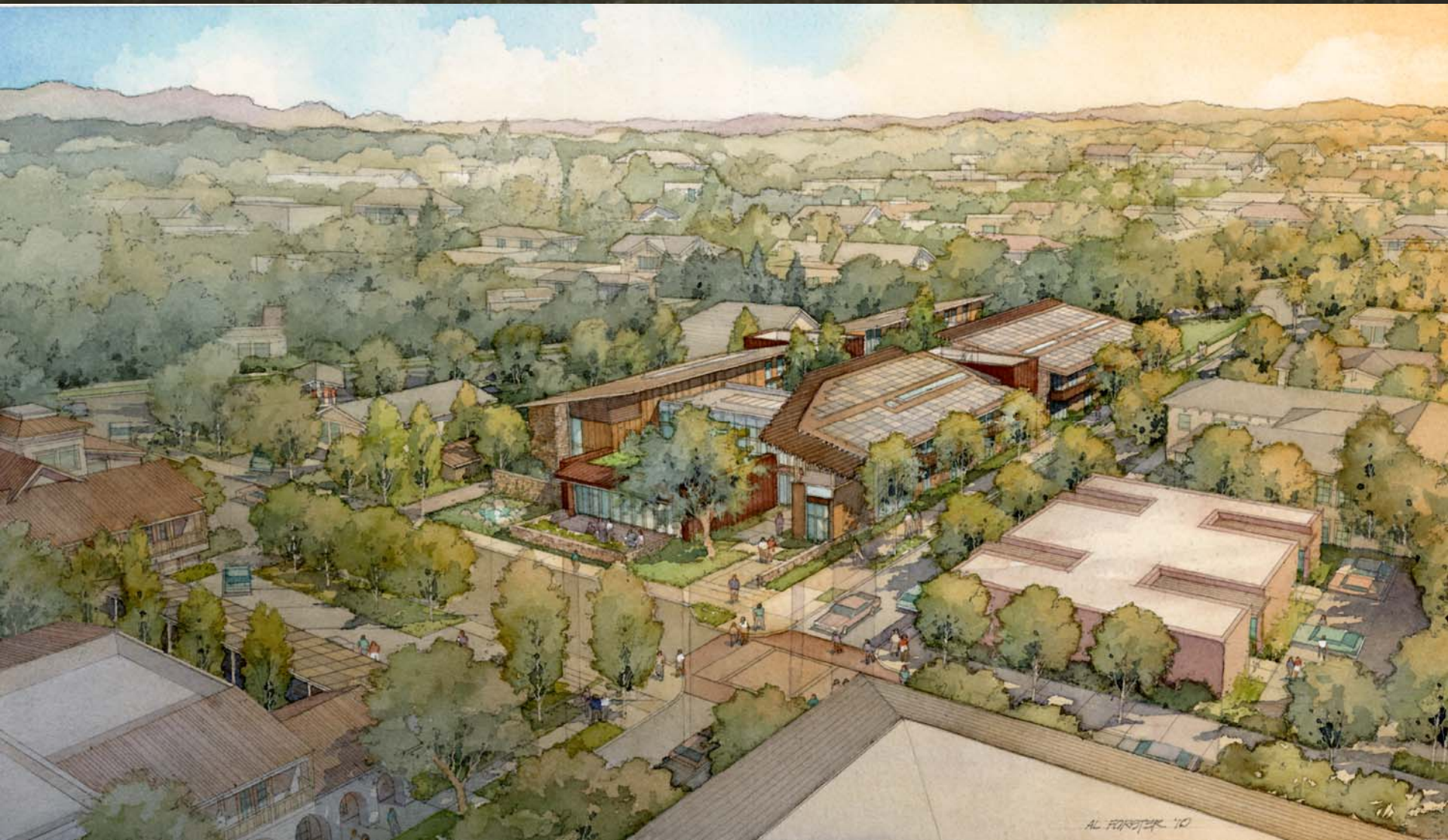


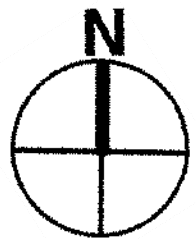
# GREEN STREETS CASE STUDY

**David & Lucile Packard Foundation  
Los Altos, CA**

Presented by:  
Shauna Dunton  
Sherwood Design Engineers  
SCVURPPP Annual C.3 Workshop  
June 2, 2011



AL FROST '10



# Sustainability Strategies



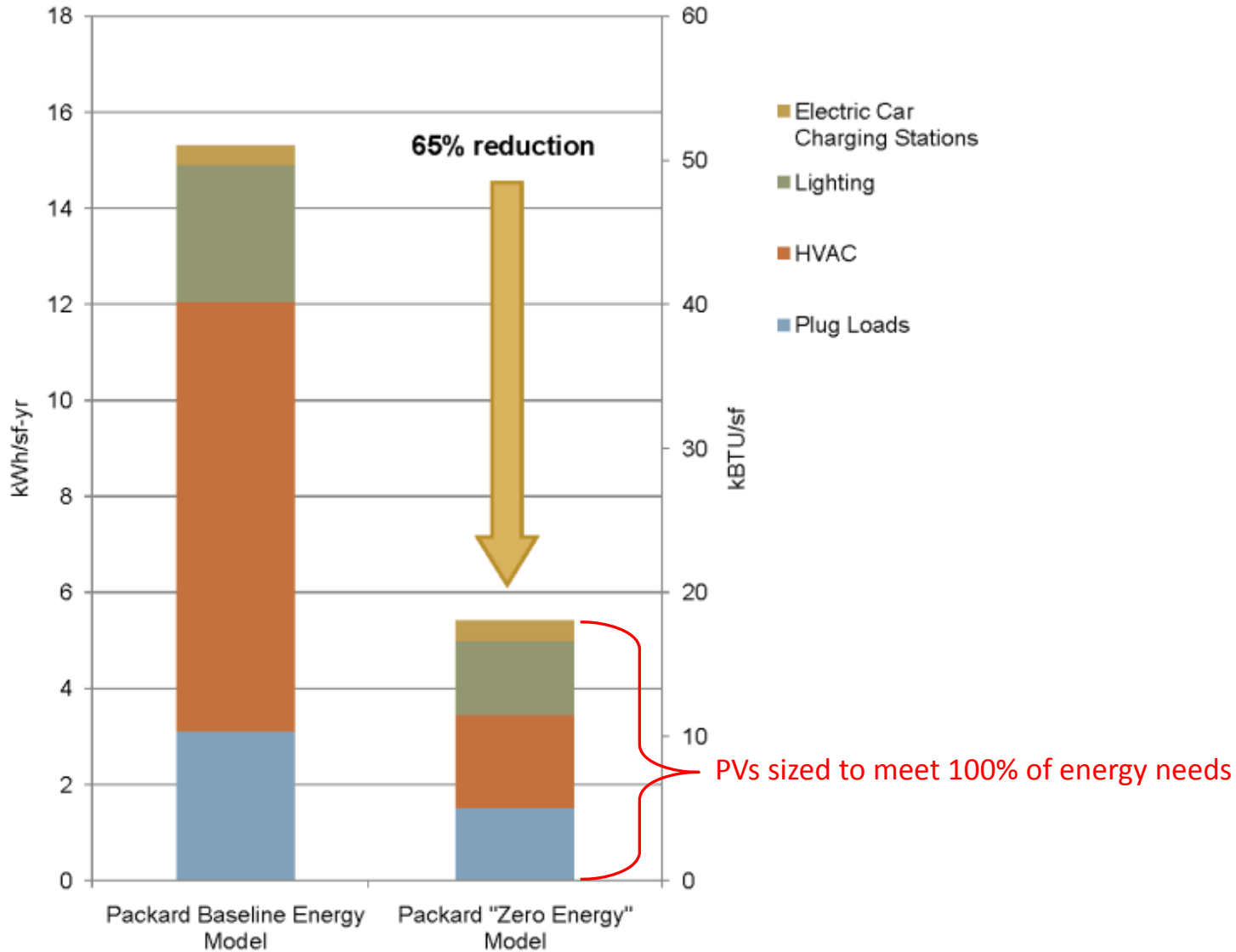
- 1 PV panels supply 100% of energy
- 2 Solar hot water panels
- 3 100% of rainwater captured for reuse
- 4 40' width maximizes daylighting and natural ventilation
- 5 Dynamic exterior blinds lower with direct sun

- 6 Layered shading strategies
- 7 Triple-glazed, highly insulating windows
- 8 Exposed FSC certified wood structure
- 9 Chilled beams with 100% fresh air
- 10 "Green Street" strategies to capture and filter stormwater



Images compliments of EHDD

# A Net Zero Energy Building

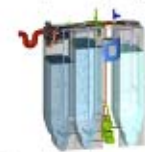


## Gray Water

Simple Gray water Collection for Subsurface Irrigation



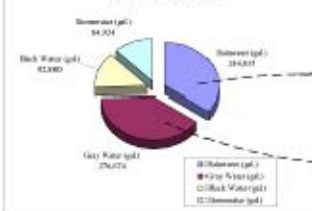
Gray water Treatment for Gray Water Reuse Within Building and Surface Irrigation



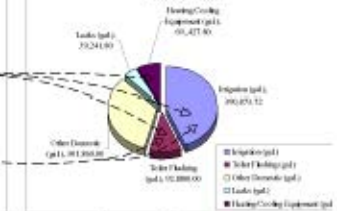
Ponos AquaCycle  
<http://www.ponos-aquacycle.com/>  
 A fully automatic biological-mechanical four-stage treatment.

- Gray water available year-round
- Minimizes waste water to be reintroduced to municipal sewer system.
- Reduces irrigation demand on municipal potable system.

Water Available Onsite



Water Demands



## Rain Water

Living Wall



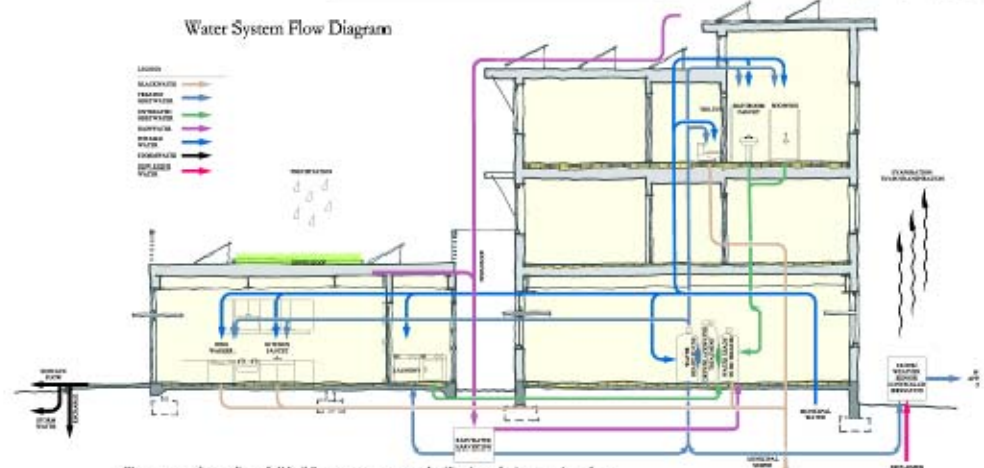
- Reduces heat island effect.
- Integrated with ventilation system improves interior air quality.
- Gray water can also be used to help meet irrigation demands of living wall.
- Fits into surroundings as there are ivy-covered walls at southwest corner of Whitney St/2nd St. Intersection.

Rainwater Cistern



- Offsets municipal water uses
- Can be used for toilet flushing
- Can be used for mechanical cooling water
- Can be used for drinking water with advanced treatment
- Visual educational showcase of sustainability

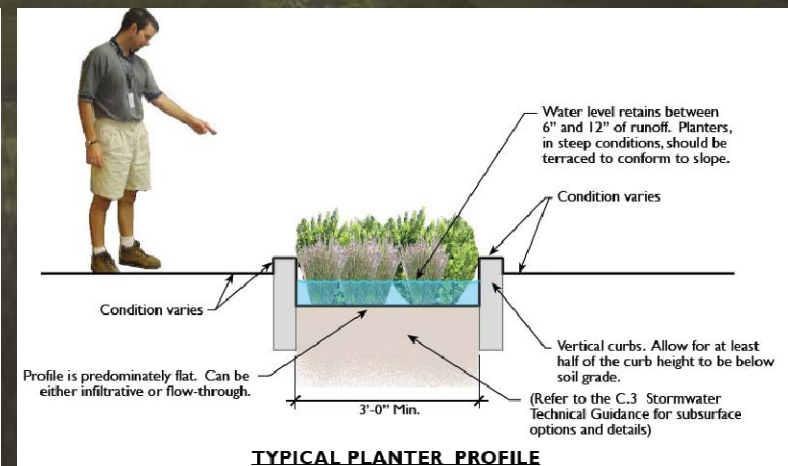
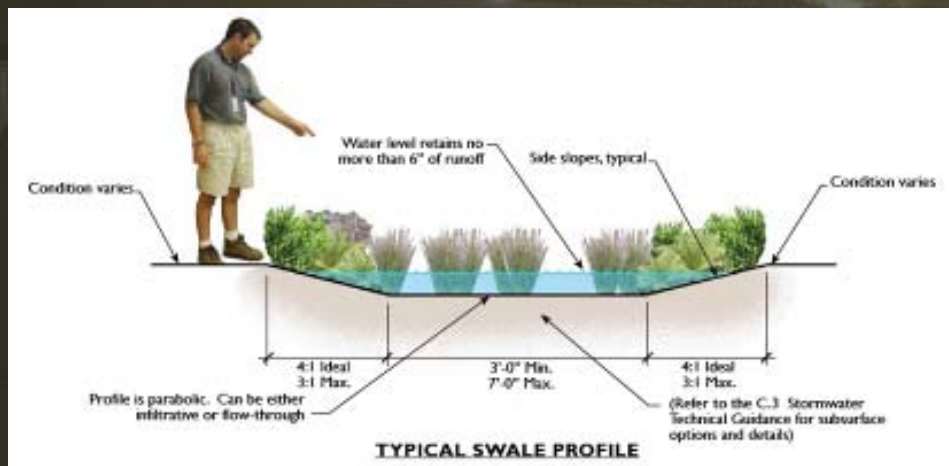
Water System Flow Diagram



Treatment and recycling of all building waste streams and utilization of rain water in order to completely bypass municipal drinking water streams

# Low-Impact Development as a Solution

- Capture
- Slow
- Filter
- Potentially infiltrate stormwater runoff
- LID treated streets and parking lots provide stormwater reduction and water quality benefits to runoff before discharging to local creeks.



# Low-Impact Development as a Solution

Functioning  
Landscapes



Residential and Institutional



Streets

Parking Lots

# Low Impact Development as a Solution

## Streets



# Implementation

## CONSTRAINTS



- No available storm drain connections
- Preservation of existing street trees
- Existing infrastructure to be left intact as much as possible
- Pedestrian safety and circulation
- Costs

# Implementation

## DESIGN STRATEGIES

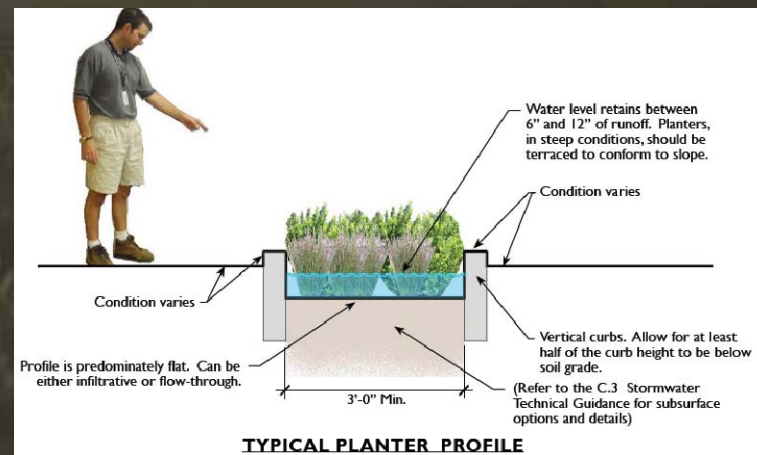


## Infiltration and flow through Planters

- Contained landscape areas
- Designed to capture and retain

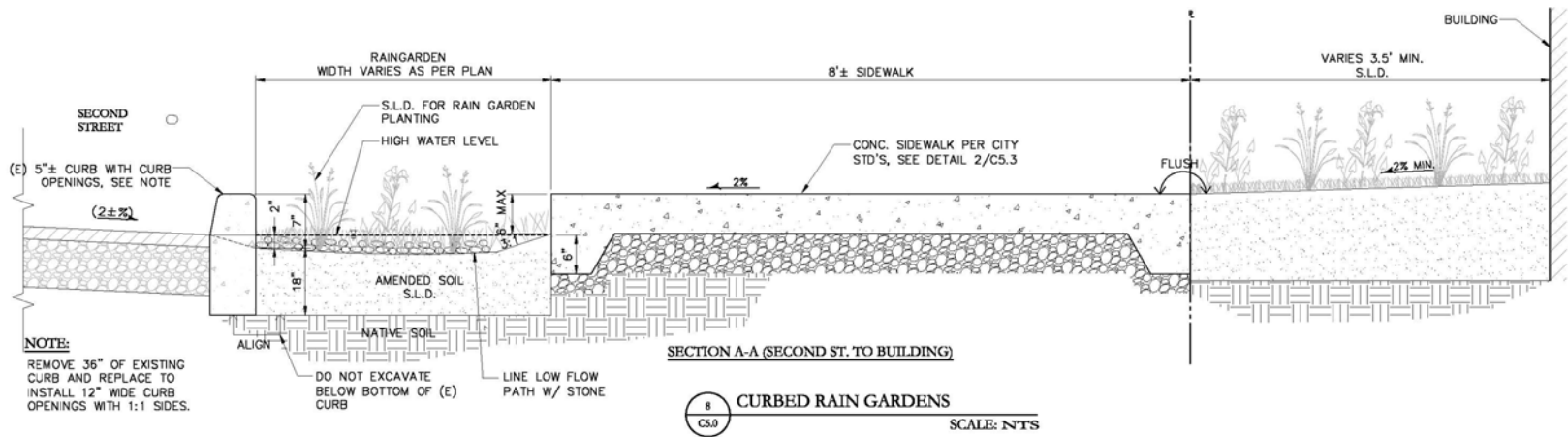
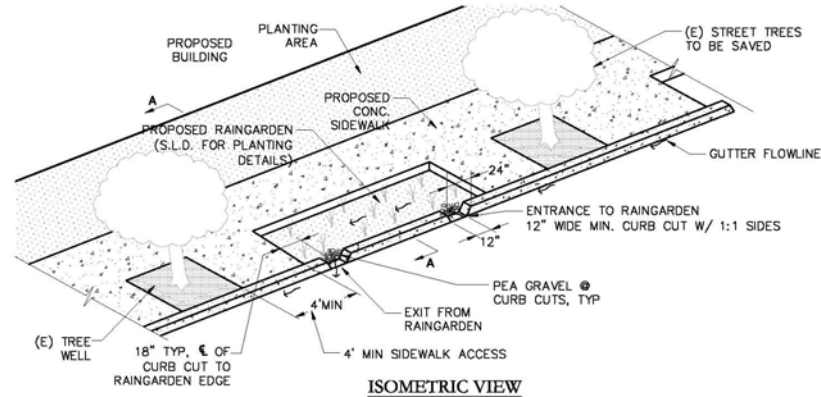
## Benefits

- Best fit for ultra urban conditions
- Can be used with onstreet parking
- Highly versatile in shape and size
- Good for retrofit projects
- Provide volume and flow benefits



# Implementation

## CONSTRUCTION DRAWINGS & PERMIT



# Site Plan





**Any Questions?**