

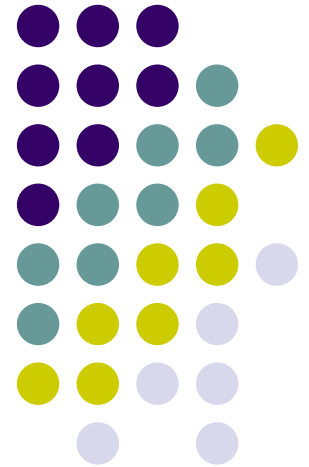
# Genzyme Center

A Model for Development in the  
21<sup>st</sup> Century



Photo Credit: Anton Grassl

Asma Syed  
ENST 634  
10.25.05



# Introduction

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- Cambridge, Mass.
- Biotechnology company headquarters
- 900 employees
- Construction timeline: 2000-2003
- Designed by award-winning German architecture firm, Behnisch, Behnisch, & Partner
- Two main design goals:
  - Create an exciting workspace for employees
  - Set a new environmental standard for green building
- LEED®-certified: Platinum-level



Photo Credit: Anton Grassl

# Green Design Features

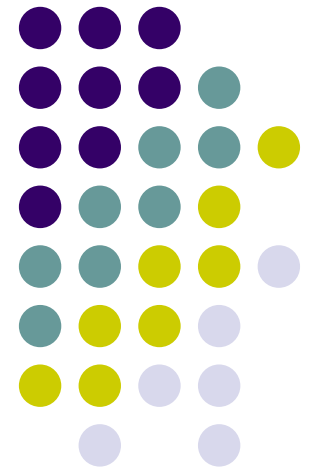
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1. Land-Use & Site Selection
2. Water Conservation
3. Energy Efficiency
4. Material Usage
5. Indoor Environmental Quality

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# Land Use & Site Selection



# Land-Use & Site Selection



- Built on a remediated brownfield site
  - Neighborhood revitalization
- Regional and local land-use planning framework
  - Mixed-use community
- Multi-modal transportation
  - Walking – showers /lockers
  - Bicycling – indoor storage
  - Transit – 5 minutes away
  - Auto – carpool spaces

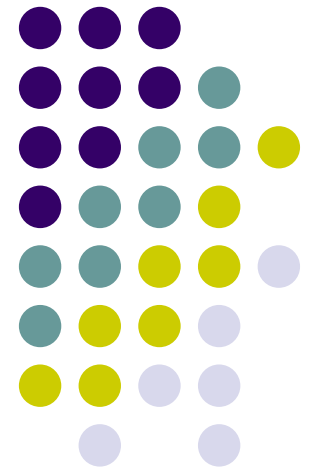


Photo Credit: Roland Halbe

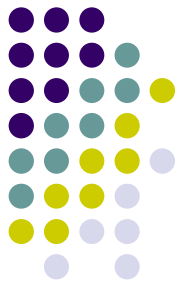
## Kendall Square

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# Water Conservation



# Water Conservation



- Reflective roof surface
  - Reduces heat absorption
- Vegetated roof
  - Reduces stormwater runoff
- Rainwater collection system
  - Cooling towers, roof irrigation
  - Filtered before discharged
- Building features
  - Automated & low-flow faucets
  - Water-less urinals
  - Dual-flush toilets

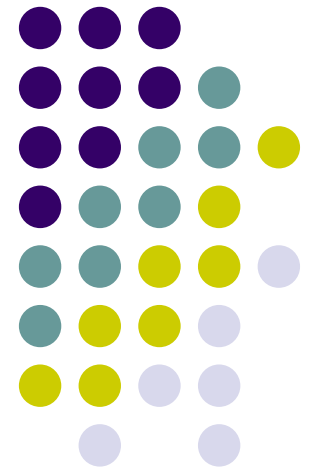
Photo Credit: Anton Grassl



- Stormwater runoff reduced by 25%
- Potable water usage reduced by 32%

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# Energy Efficiency



# Energy Efficiency

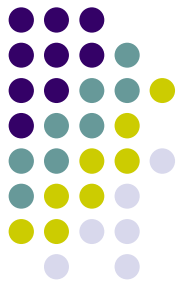


Photo Credit: Roland Halbe

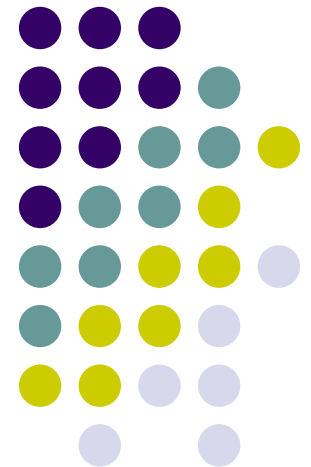
- Heating/Cooling system
    - Steam powered
    - Temperature monitors & controls
  - Lighting System
    - Roof-top mirrors
    - Reflective surfaces
    - Atrium chandelier
    - Daylight dimming system
  - Double Façade
  - Photovoltaic System (20kW)
- Overall energy costs reduced by 42%



Drawing Credit: Behnisch, Behnisch & Partner

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# Material Usage



# Material Usage



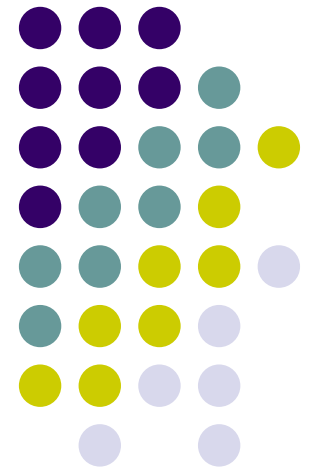
- Filigree slab concrete
    - Reduced reinforced steel
  - Foam fillers
    - Lowered overall weight
    - Lessened foundation materials
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- 386 fewer tons of steel reinforcements
  - 2,552 fewer cubic yards of concrete
  - 2,600 less sheets of plywood forms
  - 93% construction waste recycled



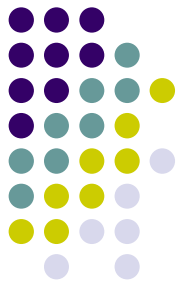
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# Indoor Environmental Quality

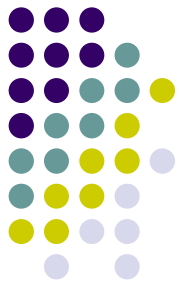


# Indoor Environmental Quality



- Air Quality Monitor System
  - Carbon Dioxide
  - Temperature
  - Humidity
- Indoor gardens & outdoor patios
- 75% of workspaces receive natural light
- 100% of workspaces have outdoor views

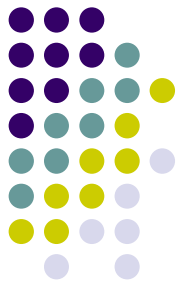
# Conclusion



- Green design makes good sense
- Employee-friendly & Environmentally-friendly
  - Enhances productivity, less absenteeism
- High potential for savings
  - Some estimates show \$1,040,000 savings average for Genzyme
- A model for innovative green design for the future

# References

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