



SCHOOL GREEN

AN EW COLOR FOR AN EW WORLD



I PRO 328



OBJECTIVES

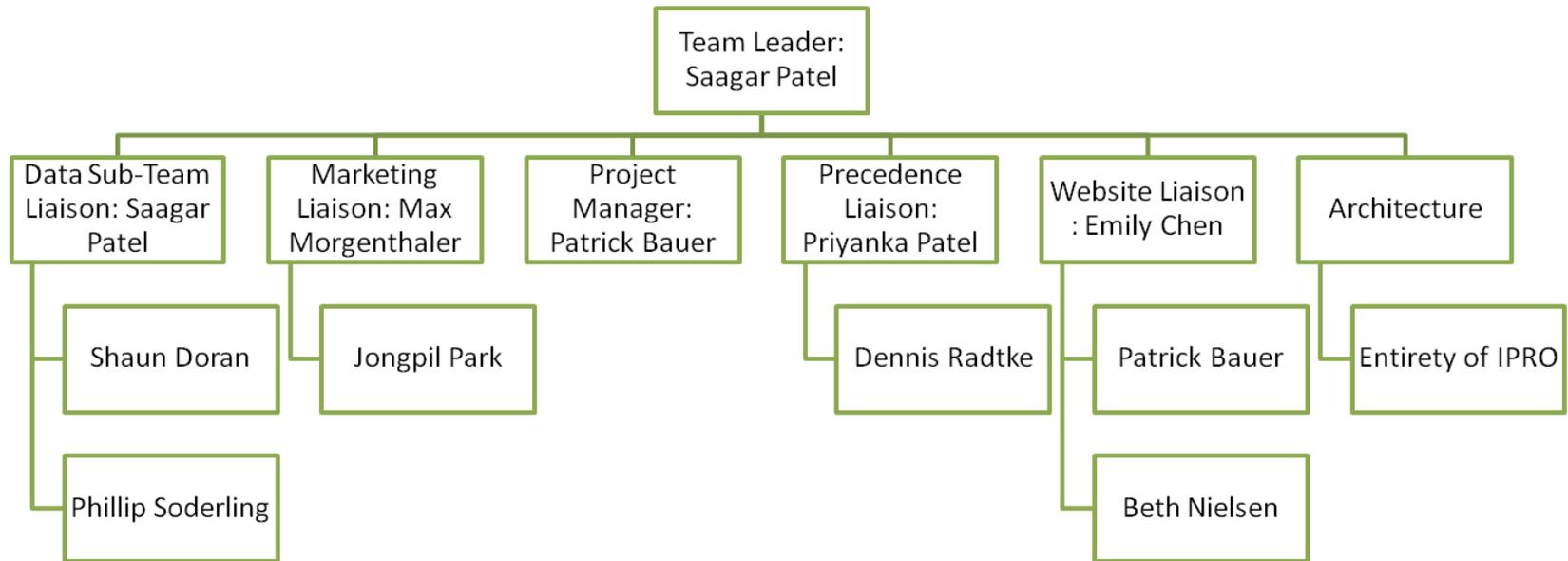
Determine energy usage through the use of a monitoring system.

Research funding opportunities for projects.

Research past projects, learning from them their successes and failures.

Design a functional website that has a user-friendly interface.

Create architectural cad models for energy analysis and program simulations.



IPRO 328

PROGRESS

DATA

ACQUIRED PAST ELECTRICAL AND GAS DATA

MARKET

PRECEDENT

FORMAT OF THE DATA TO BE COLLECTED IS KNOWN

WEBSITE

ARCHITECTURE

EQUIPMENT USED IN DATA COLLECTION ALSO KNOWN

PROGRESS

DATA

BROCHURE CREATED FOR FUNDING OPTIONS

MARKET

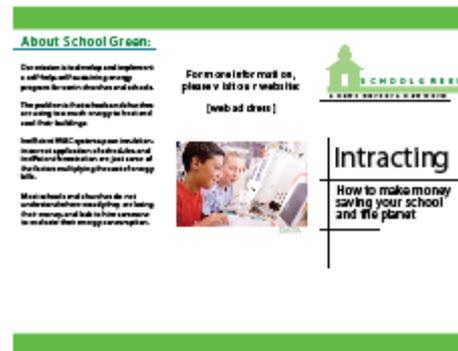
LOOKING INTO STATE RESOURCES FOR ADDITIONAL FUNDS

PRECEDENT

WEBSITE

FOUND POSSIBLE FUTURE CANDIDATES

ARCHITECTURE



PROGRESS

DATA

FOUND EXAMPLES OF ENERGY EFFICIENT SCHOOLS

MARKET

PRECEDENT

RESEARCHED METHODS BEING USED

WEBSITE

ARCHITECTURE

The Gates Middle School, The Dalles, OR

Project Description:

- LEED Platinum
- USGBC Certified (LEED)
- Technologies Used (groundsource heat pumps, water from landscape de-watering zone, daylighting)
- 75 Fluorescent lamps and occupancy sensors; bright average lighting power density for 1000 students
- 100 large air-handling units for greenhouse and common areas are large zone VAV systems
- Natural ventilation: Operable windows and wind-driven adjustable ventilation stacks; indicator light system tells teachers when to open windows
- High-value (cool) materials
- After-school window analysis: trying to balance natural light, light shades and landscape to reduce daylight while shading lower portions; sunshades on west-facing windows to shade full after noon
- Night cooling (taking use of cool heat sink effect)
- Water-conserving fixtures
- Ground irrigated with reclaimed groundwater
- Locally produced recycled material materials
- Water-busy fixtures

Benefits:

- Energy Savings: 40% more efficient than a similar school built to ASHRAE code → annual cost reduced by \$100,000/year
- First Cost Savings: Energy performance improved by use of groundwater heating and cooling and daylighting (lower density, wider distributed LED and VAV systems) → total cost reduced by \$200,000
- Environmental Savings (Greenhouse): Abundance of light and natural ventilation results in comfortable high-quality learning environment → students perform better
- Streamlined Maintenance: Direct digital controls monitor building air-use decrease level. Also convenient for maintenance staff to monitor issues
- Connections to the Environment: daylighting, unobstructed views, spacious common areas and water features

Financial Analysis:

- Total Project Cost: \$22.5 million (\$22.5M)
- Incremental Cost: \$2.5M (\$2.5M) less than conventional school building
- Annual Energy Savings: \$40,000



PROGRESS

DATA

FUNCTIONING HOMEPAGE COMPLETED

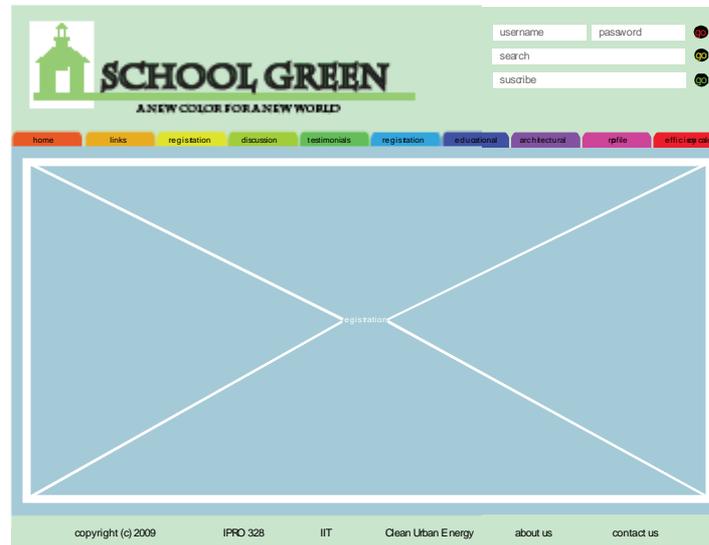
MARKET

PAGE LAYOUT DEVELOPED

PRECEDENT

WEBSITE

ARCHITECTURE



PROGRESS

DATA

AUTOCAD PLAN RECEIVED

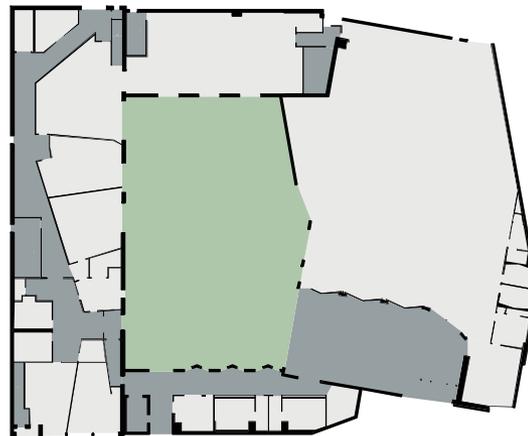
MARKET

INFORMATION HAS BEEN DIAGRAMMED

PRECEDENT

WEBSITE

ARCHITECTURE



-  CIRCULATION
-  OCCUPIABLE SPACE
-  COURTYARD

OBSTACLES

DATA

WAITING FOR METERS

MARKET

PRECEDENT

WEBSITE

ARCHITECTURE



OBSTACLES

DATA

COLLECTING INFORMATION ON FUNDING

MARKET

PRECEDENT

WEBSITE

ARCHITECTURE



OBSTACLES

DATA

FINDING QUANTITATIVE INFORMATION
ON OTHER SCHOOLS AND CHURCHES

MARKET

PRECEDENT

WEBSITE

ARCHITECTURE

ANTICIPATED CHALLENGES

DATA

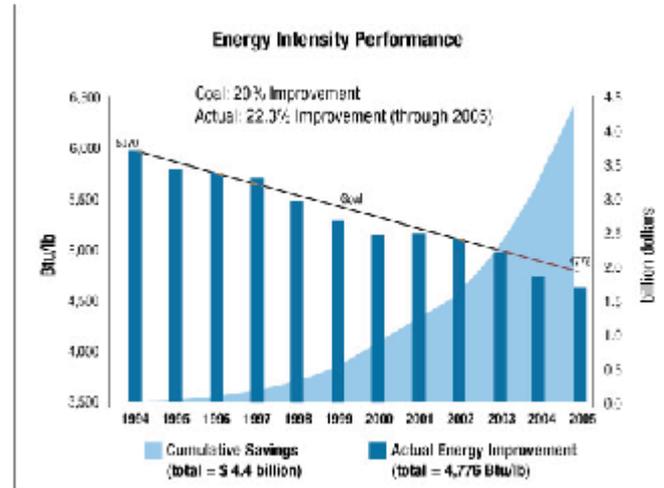
ACCURATE TRANSLATION OF DATA

MARKET

PRECEDENT

WEBSITE

ARCHITECTURE



ANTICIPATED CHALLENGES

DATA

KNOWING YOUR CLIENTAL

MARKET

DEVELOPING CONVINCING MATERIAL TO
SECURE SUPPORT

PRECEDENT

WEBSITE

ARCHITECTURE



ANTICIPATED CHALLENGES

DATA

CONVERSION OF INFORMATION

MARKET

PRECEDENT

WEBSITE

ARCHITECTURE

1 = 1 ?

ANTICIPATED CHALLENGES

DATA

PUBLIC VS. PRIVATE ACCESS

MARKET

FORMATTING

PRECEDENT

WEBSITE

WEBSITE

ARCHITECTURE



ANTICIPATED CHALLENGES

DATA

DESIGN ISSUES

MARKET

PROGRAM ISSUES

PRECEDENT

DEVELOPING A COMPREHENSIVE FINAL
PRESENTATION

WEBSITE

ARCHITECTURE





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AN EW COLOR FOR AN EW WORLD



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