

SAN MATEO COUNTY
COMMUNITY COLLEGE DISTRICT

CMAA OWNER'S FORUM CONFERENCE

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Campus Sustainability

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San Mateo County Community College District

- Three Campuses (1.4M GSF / 346 Acres)
 - Cañada College – Redwood City - 1968
 - Skyline College – San Bruno - 1969
 - College of San Mateo – San Mateo – 1963
 - District Office – San Mateo - 1978
- 25,000 Students / 1,000 Staff / Adjuncts
- Capital Improvement Program
 - Multiple Funding Sources
 - **Measure C \$207 Million (2001)**
 - **Measure A \$468 Million (2006)**
 - **State / Local Resources \$85 Million***
 - **Potential Bond 2011**

*** \$20M Lehman Brothers / \$54M State**



District/College Wide Sustainability Planning

"The Plan is Nothing and Planning is Everything." Who is involved?

- Board of Trustees
 - **Is it Legal?**
- Chancellor/College President
 - **Where is the Common Sense?**
- Budget Officers (First time vs. On-going)
 - **We Don't have the \$\$**
- Facility Managers (Life Cycle Cost)
 - **We Don't have the time**
- Design Team
 - **It's per Code and Not Best Practice**
- Contractors
 - **It will kill our schedule**
- Users (Faculty, Staff, Students & Community)
 - **We've never done it that way**



District/College Wide Sustainability Planning

"The Organization that Fails to Plan, Plans to Fail."

Affecting Factors & Challenges

- Funding Pressures
- Aging Facilities and Infrastructure
- Year Round Operation
- Environmental Laws
- Changing Roles of Utility & Energy Management
- New Digital Systems
- Changing Role of Trustees
- Internet and use of other technologies



District/College Wide Sustainability Planning

Whole Facility Infrastructure Approach: Out of Sight – Out of Mind

- **Water**
 - Potable Water
 - Non-Potable Water
 - Irrigation
 - Fire Protection
- **Drainage**
 - Sanitary Sewer
 - Storm Drain
 - Rain Water Collection
- **Electrical**
 - Electrical Distribution
 - Emergency Power
 - Exterior Lighting
- **HVAC**
 - Chilled Water
 - Steam
 - High Temperature Hot Water
 - Natural Gas
 - Instrument or Control Air
- **Information**
 - Telephone
 - Fire Alarm
 - Security
 - Cable/Satellite TV
 - Video
 - LAN

District/College Wide Sustainability Planning

Why Sustainability?

- Board of Trustees Goal
 - Exceed Title 24 Energy Requirements
 - LEED Certification
 - PG&E Savings by Design
 - Renewable Energy Sources
 - Recovery of Waste Heat
 - Re-Use and Diversion of Construction Materials
- Guiding Principle in the 2006 Facilities Master Plan
- Sustainable San Mateo County
- Economic & Financial Benefits
- IT'S THE RIGHT THING TO DO!

District/College Wide Sustainability Planning Strategies

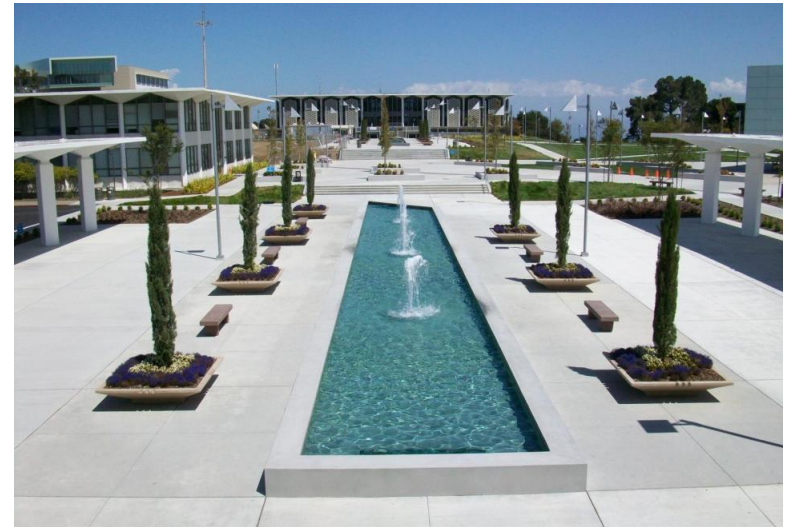
- Energy Management
- Waste Reduction
- Water Conservation
- Indoor Air Quality (IAQ) Management Program
- Use of Green Construction Materials
- Renewables (Solar, Wind, Geo-Thermal)
- Recovery of Waste Heat
- Re-Use and Diversion of Construction Materials
- Building Design



District/College Wide Sustainability Planning

Energy & Utilities: Poor Job of Telling the Story

- Usage Trends & Consumption (Gas, Electrical, Water, Waste)
- Aging Facilities & Physical Plant
- Chilled Water Systems (Closed Loop)
- HHW System (Closed Loop)
- Commissioning
- New Systems (Relatively)
 - **Geothermal Storage**
 - **Evaporative Cooling**
 - **Photovoltaic**
 - **Co-Generation**
 - **Micro Wind Turbines**
 - **Ice Storage**
- Automation/ Building Management System (BMS)



Energy Efficiency & Sustainability

Design Considerations

Facility Managers/M&O Staff - Need to be engaged

- Programming
- Plan Reviews
- Building Systems
 - **HVAC**
 - **Electrical**
 - **Plumbing**
 - **Flooring**
 - **ITS**
- Submittal Reviews
- Systems Life Cycle Cost Analysis
- New Technologies



Energy Efficiency & Sustainability Overall Campus Improvements

- Campus Building Management System (BMS)
- Campus Heating / Hot Water Loop
- 9000 Lighting Fixture Retrofits
- 960 Air Handlers Retrofit
- Nine Boiler Retubing
- CO2 Sensors
- Co-Generation
 - 560 KW (CSM)
 - 375 KW (SKY)
- Reflective Roofing



Energy Efficiency & Sustainability

% Above Title 24 Requirements

| Building | GSF | % |
|---|---------|-------|
| Cañada Building 9 | 75,917 | 30.0% |
| Cañada Facilities Maintenance Center (FMC) | 17,292 | 15.9% |
| College of San Mateo Building 5 | 89,086 | 36.0% |
| College of San Mateo Building 10 | 140,149 | 21.5% |
| College of San Mateo Building 36 | 60,904 | 42.0% |
| Skyline Facilities Maintenance Center (FMC) | 8,307 | 18.2% |
| Skyline Building 4 | 70,310 | 21.3% |
| Skyline Building 6 | 38,828 | 28.0% |
| Skyline Building 7A | 28,965 | 28.0% |
| Skyline Building 11 | 8,800 | 1.8% |

Energy Efficiency & Sustainability Rebate Breakdown

- **PG&E Energy Efficiency**

- CAN Air Handler Retrofits: Jan 2002 - \$27,000
- DW High Efficiency Lighting Systems: July 2002 - \$102,600
- CSM & SKY Co-Generation: November 2004 - \$878,557

- **Savings by Design**

- Cañada 9: March 2008 - \$24,927
- Cañada Facilities Maintenance Center (FMC): Summer 2010 - \$3,347
- College of San Mateo 5 Health & Wellness: May 2010 - \$228,968
- College of San Mateo 10: May 2011 - \$138,183
- College of San Mateo 35: Summer 2006 - \$2,775
- College of San Mateo 36: November 2006 - \$56,117
- Skyline B6/7A: May 2007 - \$38,546
- Skyline Facilities Maintenance Center (FMC): Summer 2010 - \$1,284

Energy Efficiency & Sustainability Rebate Breakdown

Energy Efficiency

- **CCC/IOU Partnership**

- **Rebates Received**

- Cañada 8: Summer 2010 - \$7,990
- Cañada 16/18 DDC Controls Retrofit: April 2009 - \$11,067
- College of San Mateo DDC Controls Retrofit: April 2009 - \$52,459
- College of San Mateo 8 VAV Retrofit: May 2007 - \$7,594
- Skyline 3 VAV Retrofit: May 2007 - \$39,686
- Skyline 5 Library Lighting: April 2009 - \$15,203
- Skyline 7 DDC Controls Retrofit: April 2009 - \$9,011
- District Wide Parking Lot Lighting: April 2009 - \$1,914

- **Rebates Forthcoming**

- Cañada 5/6: Estimated \$30,288
- College of San Mateo 2/4: PG&E Final Review
- College of San Mateo 5 Aquatic Center: In Process
- College of San Mateo 9 Library Chiller: In Process
- College of San Mateo 14/16: PG&E Final Review
- College of San Mateo North Gateway: In Process
- College of San Mateo Site Work Lighting: In Process
- Skyline 4: In Process

Energy Efficiency & Sustainability Savings Summary

- Operational Savings \$1.7M
- PG&E Energy Efficiency: \$1,008,157
- Savings by Design: \$494,147
- CCC/IOU Partnership: \$144,924



Question & Answer

www.smccd.edu/facilities

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