

# Roseville City Council Fire Station Design Presentation

November 14, 2011

## Presentaton Topics:

- Introduction to Design Team
- Comparison of Sustainability Certification Programs
- Potential Sustainable Project Features
- Program of Space Needs
- Preliminary Site Plan



Roseville Fire Station



# Design Team

## Architect of Record

CNH Architects, Inc.

Principal Architect: **Quinn Hutson, AIA, LEED AP**

Sustainability: **Wayne Hilbert, AIA, LEED AP, Green Globe Prof.**

## Public Safety Design

The Stony Brooke Design Studio

Design Architect: **David Acomb, AIA, LEED AP**

## Mechanical & Electrical Engineers

Engineering Design Initiative

Principal Mechanical Engineer: **Larry Svitak, PE**

Principal Electrical Engineer: **Jay Hruby, PE**

## Civil & Structural Engineers

Van Sickle, Allen & Associates

Principal Civil Engineer: **Jeffrey Schrock, PE, LEED AP**

Senior Structural Engineer: **Gary Nagel, PE**

## Landscape Architects

Damon Farber Associates

Principal Landscape Architect: **Thomas Whitlock, ASLA**

## Fire Protection Design

Summit Fire Consulting

Principal Engineer: **Ryan Bierwerth, PE, CFPS**



Roseville Fire Station



# Sustainable Design - Approaches



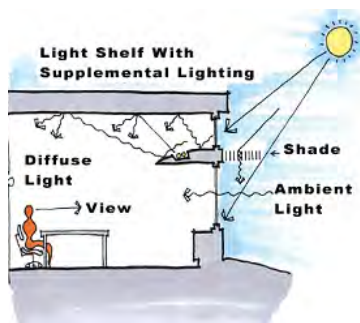
## LEED Certification

- + Widely recognized national 3rd-party certification
- + Systematic approach and point system
- Significant registration cost
- Energy modeling & commissioning required
- Complex design process adds cost
- Extensive contractor documentation submittals adds cost



## Green Globes Certification

- + Growing national 3rd-party certification
- + Systematic approach and point system
- + Less complex design process
- + Minimal contractor documentation submittals
- + Second GG fire station in Minnesota (Eagan)
- Moderate registration cost
- Energy modeling & commissioning required
- Less widely known certification



## Sustainable Design - No Certification

- + Systematic approach still used
- + Less complex design process, no added cost
- + Minimal contractor documentation submittals
- + Energy modeling & commissioning not required (still recommend for best energy performance)
- + No registration cost
- No 3rd-party certification or project review
- No minimum level of sustainability required



Roseville Fire Station



# Sustainable Design - Potential Features

The following are areas that the project team has identified as sustainable design features that are being considered for the Fires Station project. Items in “green” are required if project is to be certified by LEED or Green Globes. Items in “black” are very likely to be included while items in “blue” are features that will be considered as possible components as the design progresses.

## Sustainable Sites

- Construction Activity Pollution Prevention
- Public Transportation Access
- Bicycle Storage and Changing Rooms
- Alternative Fuel Stations
- Stormwater - reduction in rate and quantity
- Stormwater - treatment
- Reduce Heat Islands - roof
- Light Pollution
- Site Selection
- Parking Capacity
- Site - protect or restore open space
- Site - development footprint 25% open space

## Water Efficiency

- Efficient Landscaping - 50% reduction water
- 20% Reduction in facility water usage
- 30% Reduction in facility water usage
- Innovative Wastewater Technologies

## Energy and Atmosphere

- Fundamental Commissioning
- Minimum Energy Performance
- Fundamental Refrigerant Management
- Optimize energy usage - 30% better than code
- Renewable energy usage - 2.5%
- Enhanced Refrigerant Management
- Optimize energy usage - up to 60% better than code
- Additional Commissioning



# Sustainable Design - Potential Features

## Materials and Resources

### Storage and Collection of Recyclables

50% Divert Construction Waste

75% Divert Construction Waste

10% Recycled Content (post consumer + 1/2 pre-consumer)

10% Regional Materials

Certified Wood

5% Resource Reuse

10% Resource Reuse

20% Recycled Content (post consumer + 1/2 pre-consumer)

20% Regional Materials

Rapidly Renewable Materials

## Indoor Environmental Quality

### Minimum Indoor Air Quality

### Tobacco Control

CO2 Monitoring

Construction Indoor Air Quality - during construction

Construction Indoor Air Quality - before occupancy

Adhesives and Sealants - low VOC content

Paints & Coatings - low VOC content

Carpet

Composite Woods & Agrifiber Products

Controllability Systems - Lighting

Thermal Comfort - Design

75% Daylighting of Occupied Space

Increase Ventilation Effectiveness

Indoor Pollutant Source Control

Thermal Comfort - Verification

Controllability Systems - Thermal Comfort

90% of Occupied Space with Outside Views

## Innovation and Design Process

LEED Accredited Professionals

Innovation in Design - unique sustainable features





# Program of Space Needs

## Conceptual Facility Space Needs Analysis

November 8, 2011

11/8/2011

Programmed space	Program Area	Approx. room size		
<b>Administration</b>				
Vestibule	80	11	x	7
Lobby	100	10	x	10
Chiefs Office	240	19	x	12
Ass't. Chief	240	20	x	12
Captain 2 / Battalion Commander office	253	20	x	13
Fire Prevention office	180	17	x	11
Future Office	180	17	x	11
Station Office/Alarm Room	280	20	x	14
Training room (50 chairs at conference tables) w/ library	1100	41	x	27
Training storage	200	10	x	20
Work/ File room (Printer/ Copier/ Fax/ Mailboxes/ File Cabinets)	150	15	x	10
Library / Study	120	14	x	0
Storage	60	10	x	6
Exam -EMS Room	120	10	x	12
Administration Restroom	64	10	x	6
Public Restroom	240	19	x	12
<b>Subtotal</b>	<b>3607</b>			
<b>Living Spaces</b>				
Fitness	400	25	x	16
Kitchen / Dining / Pantries	320	22	x	14
Dining	252	20	x	13
Dayroom with 8 recliners	800	35	x	23
Sleeping Quarters (11dorms)	1200	43	x	28
Duty Officer Bunkroom & Office	240	19	x	12
Individual Toilet/Shower Rooms ( 5 at 80sf ea.)	240	19	x	12
Locker Space	600			
Domestic Laundry/ Linen Storage	60	10	x	6
Janitor's Closet	25	6	x	4
<b>Subtotal</b>	<b>4137</b>			



Roseville Fire Station



# Program of Space Needs

## Support

Turn-Out-Gear Room (70 TOG lockers)	624	31	x	20
PPE Gear Cleanup / Equipment Decontamination Room	322	22	x	14
EMS Storage	100	10	x	10
General Storage	100	10	x	10
Hose Storage	80	11	x	7
Shop / Tool Room	120	14	x	9
SCBA room	185	17	x	11
Apparatus Bay Mezzanine (training, storage and mechanical space)	1120	80	x	14
Training Tower (4 story)	304 912	3 14	x	14
Bay storage	243	19	x	12
Training Maze	1460			
Maze Storage	94			
Training Control	68			
Restroom	92	12	x	8
<b>Subtotal</b>	<b>5520</b>			

## Operations

Apparatus Bays		Qty.		
Apparatus Bays	9949	16	x	80
Command Vehicle garage	1000	18	x	80
<b>Subtotal</b>	<b>10949</b>			

## Summary

Administration	3607	
Dormitory	4137	
Support	5520	
Operations	10949	
<b>Total SF</b>	<b>24213</b>	
Infrastructure @15%	3632	
Building Circulation @15%	3632	
<b>Grand Total SF</b>	<b>31477</b>	SF



# Preliminary Site Plan Sketch



### Site Plan Features

- 6 bays direct exit to Lexington
- Return flow from Woodhill
- Fire station as north entrance to City Campus
- Building entrance facing City Hall
- Maximizes east / west exposure - daylighting
- Rear training area screened

