“The site is our greatest asset.”

Environmental Living and Learning Facilities

Schematic Design Report

West Dorm Renovation
Graduate Student Housing
Maintenance Building
Lake Superior Building

April 30, 2015
WOLF RIDGE ENVIRONMENTAL LEARNING CENTER

Schematic Design Report
# THE MAIN STORY

## 1.0 Introduction

1.1 Project Overview

1.2 The Needs: Why This?

1.3 The Urgency: Why Now?

1.4 Visioning the Future

1.5 Project Goals

1.6 Water Story

## 2.0 Sustainability & Living Building Challenge

2.1 Sustainability Goals

2.2 Living Building Challenge (LBC) Overview

## 3.0 Statement of Probable Cost

3.1 Overview

3.2 Target Cost Summary

## 4.0 Design Solution Campus View

4.1 Campus and Sites

## 5.0 Building Design Concepts

5.1 Lake Superior Building

5.2 West Dorm Renovation

5.3 Graduate Student Housing

5.4 Maintenance Building

## 6.0 Building Systems and Materials

6.1 Materials, Doors and Windows

6.2 Building Systems

## 7.0 Project Process and Analysis

7.1 Project Process and Set Log

7.2 Preliminary Energy Summary

7.3 Existing Building Observations

## 8.0 Phasing and Schedule

8.1 Phasing Options

8.2 Temporary Housing Narrative

---

## APPENDIX

A. Space Program Details

B. Sustainability and LBC Imperatives

C. Detailed Statement of Probable Costs

D. Code Analysis

E. Enlarged Floor Plans
Section 1  
Introduction

1.1 Project Overview

A Transformative Experience

This project at Wolf Ridge Environmental Learning Center (WRELC) is about more than buildings. It’s about connecting people with an experience so impactful they are deeply transformed. The Wolf Ridge legacy is to create a memory that changes people and their behavior, influencing home, school and community, extending to each coast and overseas; and even the next generation. Wolf Ridge draws upon the simple elegance of nature’s design as a powerful teacher. The new living-learning facilities will embody nature’s teaching power and create an inspiring “home away from home” living experience that is both physically and emotionally satisfying. The buildings will be an integral part of the environmental learning process with visible, interactive sustainability features that help change attitudes and behavior.
Project Scope
This project seeks to further advance WRELC as a world-class model of sustainable living. This project is urgently required to meet the expanding environmental living-learning program.

The existing West Dorm, built in 1988, does not meet today’s space, privacy and functional needs. Currently summer camp, school programs, graduate student housing and maintenance functions are all housed in the West Dorm. There is simply too little space for each of these functions. And, the West Dorm is not a good example of sustainability. So, to raise the standard for this building, it is registered with Living Building Challenge (LBC) version 2.1, a cutting edge sustainable building guide. This puts WRELC on the map of the best sustainable building in the world.

This report outlines the conceptual design of four living-learning buildings:

West Dorm Renovation:
The existing 20,000 square foot dorm will be renovated to improve the guest experience by providing better living space with private bathrooms in each room, better group spaces and interactive sustainability features. It will receive upgrades for energy efficiency, longevity and durability, seek LBC certification, embody resilience, and allow adaptability for group size, types of clients and future program changes.

Maintenance Building:
The maintenance staff occupy the crawl space in the West Dorm. The new building will provide adequate space and facilities for maintaining the buildings and equipment, making the work more efficient.

Lake Superior Building:
WRELC has made an agreement for use of property directly on the Lake Superior shoreline within hiking distance of the main campus, making WRELC the premier fresh water education center. The Lake Superior site adds to the freshwater streams and inland lakes on the main property. This unique setting makes WRELC truly world-class in water education. A classroom building and a few camp sites will be provided to expand the water education program and to be a gathering place on the shore of Lake Superior.

Graduate Student Housing:
WRELC partners with the University of Minnesota Duluth. This new building will be home for twenty-four graduate students completing their master’s degree in environmental education. Graduates of this program carry the Wolf Ridge influence to world-wide locations.
A user survey, interviews, user group meetings and an on site evaluation of the existing West Dorm found many needs. The images below and the chart on the next page summarize the needs.

**Overview of Space Needs**

The urgent needs for this project are represented by the comment of a graduate student who said “the room feels like a dungeon.” Peter Smerud, “we can do better.” A school administrator said, “the only good part of the West Dorm is the fireplace.”

The new design provides adequate space for this growing program and will mitigate the 18% loss of current capacity caused by changes in societal needs to manage housing for children. An overall increase in efficiency of use is anticipated from the design improvements.

This image shows heat loss through walls, windows and doors. The red and yellows show where heat is leaking through the building exterior. The brighter the color, the more heat is leaking.

This photo shows one of many situations where inadequate space hampers the program in the West Dorm. This situation is day of departure for a school. There is no space for luggage when departing so all the luggage is covering the group space making a chaotic situation. The group space is much too small to handle the group meetings that are needed. More storage and a larger group space will make the experience at WRELC West Dorm more functional.
<table>
<thead>
<tr>
<th>West Dorm Feature</th>
<th>Good</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Centrally located, convenient to other buildings</td>
<td></td>
</tr>
<tr>
<td>Fireplace</td>
<td>Good feature, keep it</td>
<td></td>
</tr>
<tr>
<td>Building as a teaching tool for sustainability</td>
<td>Not a good example, poor energy performance, no visible features for teaching</td>
<td></td>
</tr>
<tr>
<td>Space</td>
<td></td>
<td>Not enough for all the functions in the building</td>
</tr>
<tr>
<td>Group space</td>
<td></td>
<td>Too small, no space for multiple groups, does not accommodate larger groups, no space for arrival and departure</td>
</tr>
<tr>
<td>Entry</td>
<td></td>
<td>Inadequate for general traffic flow, arrival &amp; departure does not work at all</td>
</tr>
<tr>
<td>Camper room layout</td>
<td></td>
<td>Need more space &amp; bathroom, no room for gear</td>
</tr>
<tr>
<td>Separate bathrooms</td>
<td></td>
<td>Gang bathrooms lack needed privacy and result in delays due to waiting</td>
</tr>
<tr>
<td>Acoustics and noise problem</td>
<td></td>
<td>Can’t hear, too loud, noise cannot be contained</td>
</tr>
<tr>
<td>Temperature control</td>
<td></td>
<td>Poor, some hot some cold</td>
</tr>
<tr>
<td>Air quality</td>
<td></td>
<td>Bad odors</td>
</tr>
<tr>
<td>Grad student kitchen and common space</td>
<td></td>
<td>Very inadequate layout and size, cannot have all grad students together</td>
</tr>
<tr>
<td>Grad student rooms</td>
<td></td>
<td>“Feels like a dungeon”</td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Boot wash</td>
<td></td>
<td>None, resulting in tracking dirt, wet and snow into rooms</td>
</tr>
<tr>
<td>Lighting</td>
<td></td>
<td>Inadequate, many areas too dark</td>
</tr>
<tr>
<td>Daylight</td>
<td></td>
<td>Most areas have no daylight and are dark</td>
</tr>
<tr>
<td>Maintenance area</td>
<td></td>
<td>Occupies the crawl space, not enough space, lack of efficiency</td>
</tr>
</tbody>
</table>
## 1.3 The Urgency: Why Now?

### The Schedule

Two schedule options are shown below.

Option 1 shows everything is sequential and phased by wing and would likely take until end of 2019 to complete.

Option 2 shows what is believed to be the shortest schedule with construction taking place during mid 2016, approximately May/June to Oct./Nov. This schedule provides for the shortest disruption and makes the renovated and new facilities available much sooner to benefit the guests. It also helps mitigate risks due to upward pricing pressure in the future.

In the present market there are many factors affecting stability of prices. Since 2008 pricing in the construction market has been depressed. There has been pent up pricing pressure as the broader economy has been recovering which is now beginning to show up. The bottom line: There are many factors with potential upward pricing pressure creating substantial urgency to accelerate the financing and completion of this project. To reduce the potential of price escalation it is recommended that construction begin by spring of 2016. If construction does not begin then or is extended, upward pressure on prices may potentially impact this project.

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jul</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sequential Schedule - Longer disruption to operations, potential upward pricing pressure risk + $500K +/-

- Fundraising
- Design
- Const. Doc’s
- Contractor Selection & Pre Const.
- Construction
- Occupancy
- LBC Verification
- LBC 2.1
- Sunset date

### Concurrent Schedule - Reduced impact on operations, reduces risk of upward prices

- Fundraising
- Design
- Const. Doc’s
- Contractor Selection & Pre Const.
- Construction
- Occupancy
- LBC Verification
- LBC 2.1
- Submit

---

Emerging volatility for material prices: ie. glass, concrete (fly ash)

Labor competition: shortage of experience requiring travel costs for experienced workers

Midwest market has more work than contractor capacity: ND, MN

Market expanding after long downtime and slow construction recovery

Some trades from Duluth vs. North Shore

Level of experience needed for successful construction, avoid past problems

Residential/Light commercial construction type

Local contractors and northern market
1.4 Visioning the Future

This project began by thinking about mega-trends and driving forces of the future during the life span of this building.

The top ten trends and forces impacting Wolf Ridge during the life of these buildings are shown below. The design integrates each of these topics for a rich living-learning experience. These topics were used to establish project goals.

See page 58 for details about the visioning process.
1.5 Project Goals

The WRELC Project Team established the following goals:

1. Home Away from Home Experience
2. Building as a teaching tool for sustainability
3. Achieves Living Building Challenge certification
4. World-class facility
5. Transformative experience

See Sustainability section for more information.

What values will you spend for?

1. Make it visible and experiential – building as a teaching tool for sustainability
   a. Monitoring – See energy use
   b. Infrastructure for gathering data, simple displays in rooms, wings or common space
2. Indoor/outdoor connection – more glass
3. Simple solutions
   a. Point of use metering and display, ie automatic switches with data
4. Longer lasting materials
   a. Cement siding, ceramic tile vs vinyl tile
5. Low maintenance
6. Passive Survivability – no mechanical cooling,
   a. What if temps are higher, climate change impacts
   b. Night flush, thermal mass cooling
   c. Passive cooling, move cool air in below to 2nd floor
   d. Dehumidification needed more than cooling
7. Technology Balance
1.6 Water Story

WRELC now has property on the Lake Superior shoreline within hiking distance from the main campus. Fresh water education, awareness and conservation is a critical part of environmental education and a key issue for design of this project. It is a mega-trend for the future.

The West Dorm renovation will feature a second floor view to Lake Superior which has been described as “inspiring” by education staff when they are able to have program participants see the view. “It just does something to people when they can see that view,” said another.

WRELC is located at a “one of a kind” place for advancing a world-class fresh water awareness and education effort. Wolf Ridge is the only environmental learning program with property located on the Lake Superior shoreline and having inland lakes and streams on its property.

The buildings will conserve water by providing low flow fixtures and point of use monitoring so users can see what their behavior is doing to water use. Consideration is being given to an on site engineered wetland to make waste water treatment and the natural water cleaning process visible for participants. So, from visual connection to behavior change the buildings and natural environment at Wolf Ridge connect to create a strong emphasis on fresh water issues. While outdoors, participants will learn about fresh water at the streams and lakes on site, and now at the shores of Lake Superior. While indoors the lessons learned will be applied to water conservation behavior.

View from Superior Hiking Trail leading from WRELC main campus to Lake Superior building.
Students learning along the shore of Lake Superior. Part of the water education program.
View from WRELC showing Wolf Lake mid-ground with Lake Superior beyond.

Water education at a stream on WRELC property.
Section 2
Sustainability and Living Building Challenge

2.1 Sustainability Goals

Sustainability means more than doing less harm. It means making things better. This project charts a path to the future. Sustainability was fully integrated from the beginning of the project. Proper commissioning and operation is needed to realize potential for reduced operating costs, environmental improvements and improved human experience. This project is pursuing the Living Building Challenge by applying the principles called “Zero-Plus”. These principles are a new way of thinking and an inventive approach to high performance sustainable design. Zero-Plus principles fits well with the desire to do something unique and enhance the world-class reputation of Wolf Ridge Environmental Learning Center.

The heart of the Zero-Plus goals are three guiding principles: Human experience, target performance and financial value.

HUMAN EXPERIENCE: Means to design living experiences that improve human comfort, and the interactive learning culture of Wolf Ridge. The “home away from home” experience was the center of the design process. The design work began with a visioning exercise and a user experience survey. Achievement of the goal will be verified using a survey.

TARGET PERFORMANCE: A Five-Zero plan for energy, carbon, water, waste and materials aligns perfectly with Living Building Challenge.

BEST VALUE: First cost and life cycle value were considered together, including material durability and resource use reduction. The goal is to minimize total cost of ownership, while considering maintenance of operations, durability, flexibility, resilience and resource use.

Below are preliminary goals for the project to be supported by seeking Living Building Challenge Certification.

See Appendix for more information.
2.2 Living Building Challenge Overview

This project is registered for Living Building Challenge (LBC) 2.1. LBC is a third-party sustainability certification system that fits well with the world-class high aspirations of Wolf Ridge.

Living Building Challenge is a rapidly emerging cutting-edge system with projects around the world including other environmental learning centers. Plus, there are other traditional buildings even in Minnesota that are now pursuing Living Building Challenge certification. WRELC is on the map as an LBC project. LBC focuses on regenerative design rather than doing less bad and will help WRELC be truly sustainable.

LBC certification is important to the WRELC because:

- Enhances WRELC world-class reputation
- Demonstrates a leadership position
- Mission alignment with WRELC
- Pursuing LBC models responsible behaviors
- LBC focusses on performance verification
- LBC is a motivator for change
- LBC helps address climate change and resiliency
- Other foundations and ELCs are embracing LBC
- If WRELC does not show how to do it, who will?

Source: Living Futures Institute website.
Section 2
Sustainability and Living Building Challenge

Site

Potentially Achievable: Using Transect L1 the project is exempt from three of four site imperatives including: Limits to Growth, Urban Agriculture and Car-Free Living. Wolf Ridge does produce food on site and has excellent walkability. Habitat Exchange requires some documentation and potential cost.

Potentially Achievable: Using Transect L1 the project is exempt from three of four site imperatives including: Limits to Growth, Urban Agriculture and Car-Free Living. Wolf Ridge does produce food on site and has excellent walkability. Habitat Exchange requires some documentation and potential cost.

Water

Potentially Achievable: Potable water is supplied by on site wells with no chemical treatment. Gray water and black water is treated using a septic system. Natural water cycle is intact. Rain water is infiltrated into the natural water cycle. With scale jumping this petal is potentially achievable.

Potentially Achievable: Potable water is supplied by on site wells with no chemical treatment. Gray water and black water is treated using a septic system. Natural water cycle is intact. Rain water is infiltrated into the natural water cycle. With scale jumping this petal is potentially achievable.

Energy

Potentially Achievable: Solar photo voltaic panels are being considered as a central system for multiple buildings. Low energy use (EUI) is planned for the renovated or new buildings. Combustion at central plant is planned for offset using thermal solar.

Potentially Achievable: Solar photo voltaic panels are being considered as a central system for multiple buildings. Low energy use (EUI) is planned for the renovated or new buildings. Combustion at central plant is planned for offset using thermal solar.

Beauty

Potentially Achievable: The human experience is central to the design. A truly lasting building is one that is beloved by users. ‘Inspiration + Education’ aligns with the goal for ‘building as a learning tool’. Occupants will “take home” a transformative experience about the environment.

Potentially Achievable: The human experience is central to the design. A truly lasting building is one that is beloved by users. ‘Inspiration + Education’ aligns with the goal for ‘building as a learning tool’. Occupants will “take home” a transformative experience about the environment.

Health

Potentially Achievable: Each imperative indoor air quality, daylight and an aesthetic integration of natural systems are planned for with some work needed in next phases.

Potentially Achievable: Each imperative indoor air quality, daylight and an aesthetic integration of natural systems are planned for with some work needed in next phases.

Equity

Potentially Achievable: Design focus was on designing an approachable human-scaled project which expresses a feeling of “home-away-from-home”. ADA/ABA and consciousness of the building on its surrounding site.

Potentially Achievable: Design focus was on designing an approachable human-scaled project which expresses a feeling of “home-away-from-home”. ADA/ABA and consciousness of the building on its surrounding site.

Materials

Potentially Achievable: Careful materials analysis is needed as specific materials are selected. The design focus will be on the use of durable, toxin-free, local/regional materials, adding to the identity of Wolf Ridge.

Potentially Achievable: Careful materials analysis is needed as specific materials are selected. The design focus will be on the use of durable, toxin-free, local/regional materials, adding to the identity of Wolf Ridge.
Environmental education at WRELC occurs in many settings and throughout the year.
3.1 Overview

This project implemented Target Value Cost estimating; better known as “design to budget.” Target costs for each component of the project were established early giving the design team budget parameters to work within. Real-time estimates at the point of design decision-making helped keep the project on budget. The project team was organized into building component teams, each working toward established metrics. The decision making processes was facilitated by exploring multiple sets of options simultaneously. Four design sets were explored (See Project Process for more information). This replaces the traditional method of full building design, costing, value engineering and redesign. Below is a summary of the Target Value Cost for the design option selected for this project.

3.2 Target Cost Summary

The diagram below shows a summary of Option 3, which was selected using the Set Log process as the best value.

See Appendix for detailed estimate. The costs shown are considered preliminary potential costs and are not a guaranteed maximum price.

```
<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Renovate 20,000 sf</td>
<td>$242,000</td>
</tr>
<tr>
<td>West Additions 2150 sf</td>
<td>$15,000</td>
</tr>
<tr>
<td>Grad bldg 7800 sf</td>
<td>$332,000</td>
</tr>
<tr>
<td>Maint. 3200 sf</td>
<td>$630,000</td>
</tr>
<tr>
<td>L. Superior 3000 sf</td>
<td>$485,000</td>
</tr>
<tr>
<td>Comfort</td>
<td>$212,000</td>
</tr>
<tr>
<td>Water</td>
<td>$462,000</td>
</tr>
<tr>
<td>Power</td>
<td>$2.4 M</td>
</tr>
</tbody>
</table>

Estimate is based on concurrent schedule. See Schedule. If sequential schedule is selected, escalation for 2018 and 2019 potentially adds about $500K +/-. Amounts may vary and are not a guaranteed maximum price. Includes allowances for features to achieve goals for building as a teaching tool such as: renewable energy systems, water strategy, materials, other UBC items. Total includes owner costs not shown in this construction estimate such as fees, limited equipment/furniture and other owner project costs.
```

Escalation is difficult to estimate and results from an assessment of market conditions, which fluctuate, are volatile and inconsistent. Section 1.3 for more information.
Component teams working on system selection and cost considerations. Target cost summary chart in background guiding design decisions.

Component teams working on cost considerations of various potential building sites..
4.1 Campus and Sites

WRELC is about more than environmental learning: it is about community. The built environment at WRELC should enhance that experience by reinforcing a sense of community among the visitors and staff. It is paramount that the “home away from home” experience starts at the campus scale and continues to the individual space in the sleeping areas.

The campus is beautifully sited at the top of a ridge with buildings sited amongst the trees. Campers move amongst nature on their way to activities. The architecture of the buildings should also create a connection to the outdoors, as well as foster interaction among visitors and staff. Care has been taken to ensure there is ample natural light and views to the outdoors from the main public spaces. It is also important to remember the campers are away from home, so design at the scale of the room must be comfortable and safe, in order to provide the best possible experience for the occupants. After considering many locations for the Graduate Student Housing, the location on the east end of the campus was selected because it provides an optimum separation between the dormitories and the Graduate Student Housing to create a more tranquil setting. Sited on a slope with generous amounts of windows in the common spaces, the Graduate Student Housing will have open communal spaces connected visually to the surroundings.

The new Maintenance Building will complete a service “district” and centralize maintenance staff operations to serve the needs of WRELC efficiently.
Project Site Map

A  Office
B  Dining Hall
C  Energy Center
D  Storage
E  Maintenance Building (proposed)
F  Grad Housing (proposed)
G  East Dorm
H  Education Building
I  West Dorm (renovated)
J  Science Center
K  Temporary Housing Locations
West Dorm Renovation Site Map
Grad Student Housing and Maintenance Building Site Map
Section 5
Building Design Concepts

WOLF RIDGE ENVIRONMENTAL LEARNING CENTER
Schematic Design Report

5.1 Lake Superior Building

View looking at shoreline near Lake Superior building site.
View looking north from Lake Superior building site.
5.2 West Dorm Renovation

User input strongly favors the site of the existing West Dorm as an ideal location. An evaluation of the building found the existing structure is in good condition. A cost study and design work found the existing building can be enhanced through interior reconfigurations, exterior façade upgrades and additions. Two additions: a new entry vestibule and an extension to the north create a more welcoming central gathering space and improve circulation. The stone fireplace remains the focal point of the reconfigured central common space.

Circulation spaces within the first floor wings have been carved out to form small communal spaces with open stairwells to the second level that also act as shafts for the ventilation concept. Common spaces are included on the second level, including a new mezzanine that facilitates views of the valley. Typical sleeping room layouts have been updated to accommodate eight campers within a module that includes sinks, shower and toilets. Sliding doors may be used to partition the eight bed modules even further. The exterior wall assemblies will be stripped to the studs and improved with new high performance windows, upgraded wall assemblies and low maintenance cladding. Solar PV and Solar hot water offer the potential for net zero energy performance.
West Dorm Renovation Main Entry.
West Dorm renovated and expanded group gathering space.

“The fireplace is a great feature.”
Section 5
Building Design Concepts

Typical 8 Person Room

WEST DORMITORY
8 PERSON ROOM MODULE
WITH SLIDING DOORS

WEST DORMITORY
8 PERSON ROOM MODULE
WITHOUT SLIDING DOORS
AND SHORTER DIVIDER WALL

WEST DORMITORY
8 PERSON ROOM MODULE
ACCESSIBLE
FIRST LEVEL
(14) 8 PERSON ROOMS
(1) 6 PERSON ROOM
118 BEDS ON FIRST LEVEL

SECOND LEVEL
(6) 8 PERSON ROOMS
(3) 6 PERSON ROOMS
(1) 4 PERSON ROOM
70 BEDS ON SECOND LEVEL

188 BEDS TOTAL (FIRST AND SECOND LEVEL)
See Appendix E for Enlarged Plans

FIRST LEVEL
(14) 8 PERSON ROOMS
(1) 6 PERSON ROOM
118 BEDS ON FIRST LEVEL

SECOND LEVEL
(6) 8 PERSON ROOMS
(3) 6 PERSON ROOMS
(1) 4 PERSON ROOM
70 BEDS ON SECOND LEVEL

188 BEDS TOTAL (FIRST AND SECOND LEVEL)
5.3 Graduate Student Housing

The proposed Graduate Student Housing is a new two story building on the east side of the campus that will allow campers to occupy the entire West Dorm housing space. It will accommodate 24 individual rooms and is designed to foster community, while providing privacy. The common space includes areas for eating, gathering, relaxing and working. A south facing wall of glass will provide natural light to both levels and views to Lake Superior beyond. Service spaces and sleeping rooms are located in two wings adjacent to the Commons on each floor. This visual connection to the outdoors is reinforced by a deck. The basement will provide additional space for storage and building systems. This design has the ability to be expanded in the future to accommodate additional sleeping rooms. (See Code Analysis for allowable square feet and corridor loading.)
Section 5
Building Design Concepts

WOLF RIDGE ENVIRONMENTAL LEARNING CENTER
Schematic Design Report
Section 5
Building Design Concepts

See Appendix E for Enlarged Plans
5.4 Maintenance Building

A new Maintenance Building allows the maintenance services to vacate the basement of the West Dorm. With a 16-foot-high space and 14-foot-high garage door, the proposed building can accommodate large equipment such as Wolf Ridge’s snow plow. By locating the new Maintenance Building near the existing Facilities Management and Utility buildings, an efficient centralized cluster of service buildings is formed.