

WISCONSIN DEPARTMENT OF VETERANS AFFAIRS



Request for Architectural and Engineering Services

Gates Hall – Redesign as Skilled Nursing Facility Wisconsin Veterans Home – Union Grove

May 2011

DSF Project No. 11C2X

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Project Background and Purpose

Gates Hall is currently a 42-bed, 30,553 square foot assisted living facility licensed as an RCAC (Residential Care Apartment Complex) at the Wisconsin Veterans Home – Union Grove (WVH-UG) campus on the site of the Southern Wisconsin Center for the Developmentally Disabled. The new building was completed in 2003 to complement the 86 beds of Community Based Residential Facility assisted living on the Veterans Home – Union Grove campus for a total of 128 assisted living (AL) beds. In the last quarter of 2006 Boland Hall, a 120-bed skilled nursing facility (SNF) was completed at the WVH-UG.

The demand for assisted living beds has declined over the past 2 years and hovers at approximately 66% or the equivalent in occupancy of two AL buildings. At the same time the demand for skilled nursing beds at WVH-UG exceeds the capacity of Boland Hall with a waiting list of 15 or more veterans and eligible dependents consistently. The Wisconsin Department of Veterans Affairs has determined that renovation of Gates Hall to a skilled nursing facility will help meet the needs of aging and disabled veterans in southeastern Wisconsin.

Project Description

This project will redesign and renovate Gates Hall from a 42-bed RCAC into a 38-bed skilled nursing facility ensuring compliance with all applicable state and federal statutes and codes. The existing double rooms will each accommodate a single bariatric member. The majority of the work in Gates Hall is architectural and mechanical. The schedule for design and construction is aggressive in order to get this facility back on line to meet the needs of our veterans.

The project will examine the feasibility of designing and constructing an enclosed connector between Gates and Maurer Halls intersecting Gates Hall at the courtyard yard between Suites A and B. The connector and atrium will be used by members, staff and guests to access Maurer and Boland Halls for activities, chapel and memorial services, therapy, and transportation of meals and supplies. The connector design will match the connector design between Boland and Maurer Halls, and blend with Maurer and Gates Halls.

Many members travel by way of mobility devices including wheelchairs, scooters or walkers. The main walkway surfaces should be smooth to reduce noise and vibration of equipment. Design will include a water tight interface with the existing building walls, roof, and other existing features, a drainage system and lighting, and possible relocation of an air intake. The atrium will be weatherproof, tempered to a yet undetermined temperature, plantings, lighting, possible minor gardening (no water features), and include seating or places for existing furniture patio furniture.

During design, the consulting team will determine the appropriate sustainability features to be incorporated in the architectural renovations, mechanical system upgrades, and the

connector/atrium. Design and construction will meet or exceed all DSF sustainability standards]

A study of Gates Hall was completed by GO/A Architects, Inc., *Gates Hall Skilled Nursing Study*, January 24, 2011 can be found in Appendix A.

Scope of Services

The consulting team will design a renovation of Gates Hall for use as a skilled nursing facility.

Designs, cost estimates, options, construction documents and construction oversight shall be undertaken utilizing all applicable and current editions of state and federal codes and statutes pertinent to the use of Gates Hall as a skilled nursing facility. DSF's "[POLICY AND PROCEDURE MANUAL FOR ARCHITECTS/ENGINEERS & CONSULTANTS](#)" (Revision dated November 1, 2010) shall be the reference for the all work.

Deliverables:

Program Statement – Initially, the consulting team will develop a Program Statement to include:

- Identification of state and federal codes and statutes to which the facility will be subject.
- A design feasibility complete with preliminary design(s), detailed cost estimate(s) and identified options based on the design team's analysis of the existing structure and systems, and operational considerations.
- A design feasibility study for the incorporation of a tempered atrium between Gates Hall Suites A and B as the receptor for the connector between Gates and Maurer Halls.

Sustainable Facility Checklist

- The consulting team shall prepare and submit for review, the DSF Sustainable Facility Checklist for this project.

Design and Construction Documents

- Develop construction drawings and specifications for review at 35% and 100% design. Copies of each review set will be provided concurrently to DSF, WDVA and sent by the consulting team during design to the United State Department of Veterans Affairs for their review and approval.

Construction Oversight

- The consulting team shall provide construction oversight and administration services for the project..

Redesign of Gates Hall as a skilled nursing facility, as detailed, but not limited to the study, in Appendix A, will require design work in these areas:

Architectural

- Member Rooms (38) – Redesign the entry and adjacent closet to ADA (Americans with Disabilities Act) specifications. Design demolition of kitchenettes, supporting wall and restoration of contiguous surfaces.
- Member Bathrooms – Enlarge bathrooms to more easily accommodate ADA or medical lift equipment.
- Double Member Rooms (4) – These rooms will become single occupancy member rooms to accommodate bariatric members. Ceiling lifts will be installed in bariatric member sleeping rooms and bathrooms.
- Work with WDVA staff to identify interior spaces to be redesigned to meet applicable codes/statutes and better meet the operational needs of staff and members in a skilled nursing setting facility.
- Work with WDVA staff to design a visual solution to the high dining room ceilings, in a more human scale and complete with energy efficient lighting redesign.
- Provide solutions to water leaks in the slab and roof.

Fire Protection

- Confirm proper sprinkler heads are installed and installation meets code for new building use. Review sprinkler system as-built drawings.

Plumbing

- Provide recommendations to the design of a Legionella protection system.
- Specify water hot and cold water shut off valves for all member bathrooms. Verify that all plumbing fixtures are low-flow ADA fixtures.
- Identify and propose energy saving modifications to the structure and its exterior, including the potential for the use of ground mounted hot water solar panels.

HVAC System

- Resident Room Comfort – Evaluate the entire HVAC system and verify/identify deficiencies. Redesign the building system to meet all applicable codes, including individual comfort control. Evaluate the feasibility of connecting to the existing central chilled water distribution system.
- Increase Airflow to Meet Code Requirements – Verify room air exchange rates in all rooms, including member bathrooms, housekeeping rooms and the barber and beauty shop. Specify new equipment to meet requirements of AIA 2006 Table 4.1-2.
- Design a vestibule inside the exterior double doors of the multi-purpose room to control outside air flow.

Kitchen and Laundry

- Reconfigure existing kitchen and laundry to accommodate operational requirements, energy savings, and new work flow.

Electrical

- Design replacement of Romex cabling in conduit and corresponding fire-stopping with cabling to meet code requirements.
- Design an emergency generator system to serve life safety equipment and mechanical systems, separately.
- Design electrical connections and venting for two 20 tray retherm units.
- Design an electrical charging room for wheel chairs and scooters.

Lighting

- Specify new energy efficient lighting, including but not limited to areas where ceiling or walls are being renovated. Evaluate lighting controls and specify new, as needed.
- Design a new lighting plan for the dining rooms with energy efficient fixtures at heights which will no longer require a hydraulic lift to change bulbs and perform other maintenance. See Architectural.
- Perform a Lighting Protection Risk Analysis (LPRA). Design a lighting protection system based on the outcome of the LPRA.

Life Safety

- Egress Lighting – Verify egress lighting levels and specify new work, as needed, to meet code.
- Existing Fire Alarm System – Test the audible system to verify adequate sound levels in all parts of the building. Identify smoke detectors not meeting installation requirements for distance from door opener.

Data - Nurse Call, Charting Systems and Door Security

- Design an electronic charting system and a nurse call system compatible with the systems in Boland Hall. A wandering member system will not be required.
- Design an electronic building entry system for staff.
- Redesign the telecommunications room to accommodate new systems.

Connector and Atrium

- Design an enclosed walkway – connector – between the Maurer Hall administration wing and the courtyard between Suites A and B of Gates Hall.
- Design a tempered atrium to enclose the Gates Hall courtyard and connect to the Maurer Hall-Gates Hall “connector” which will provide a water tight interface with the existing building walls and roof, a roof and surface water drainage system, lighting, and possible relocation of an air intake. The atrium will be weatherproof, tempered to a yet undetermined temperature, plantings and possible minor gardening, no water features, and include seating or places for the existing furniture.

Fairchild-Maurer Hall Sidewalk

Redesign the sidewalk between Fairchild and Maurer Halls to an 8’ width, ADA compliant and its intersection with the “connector”. Continue 8’ width to the gazebo east of Maurer Hall.

Consultant Qualifications

The consulting team should have experience within the last 5 years of designing and renovating a skilled nursing facility or long-term care facility which met the requirements for licensure of a skilled nursing or long-term care facility including the conditions for participation of the Medicaid and Medicare certification in the State of Wisconsin, and including expertise with the various data systems described herein. A/E’s should clarify this experience in their letter of interest by describing the project scope, size, construction value, date completed. A/E’s should also indicate, where possible, Prime and sub-consultant team members, and the experience of sub-consultants with similar projects.

Proposed Project Schedule

AE Selection	April 2011
Design Report to State Building Commission	July/August 2011
Final Construction Documents Complete	October 2011
Bid Opening	November 2011
Start Construction	January 2012
Substantial Completion	May 2012
Licensing	July 2012

Preliminary Project Budget

Construction		\$2,204,950
Contingency	8%	176,400
AE	12%	223,850
DSF Fee	4%	95,255
Commissioning		10,000
Equipment	10%	220,495
Total Preliminary Project Budget		<u>\$2,930,950</u>

Contact: Susan Mattix, 608-264-6093, susan.mattix@dva.state.wi.us

Appendix A

**Wisconsin Department of Veterans Affairs
Office of Policy, Planning & Budget
Madison, WI**

GATES HALL SKILLED NURSING STUDY

**WISCONSIN VETERANS HOME
UNION GROVE, WI**

**DSF Project No 10L1E-A
January 24, 2011**



**By;
GO/A Architects, Inc.
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Middleton, WI 53562
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January 24, 2011

Ms. Susan Mattix
Budget & Policy Analyst - Advanced
STATE OF WISCONSIN
WI Department of Veterans Affairs
Office of Policy, Planning & Budget
30 W. Mifflin, Rm. 908
Madison, WI 53703

RE: Gates Hall Skilled Nursing Study

Dear Ms. Mattix,

We have completed our analysis of the Gates Hall Facility for the Wisconsin Department of Veterans Affairs (WDVA). The goal of this study was to evaluate the requirements for converting Gates Hall from an RCAC facility to a Skilled Nursing facility with federal Medicare/Medicaid requirements. The work consists of a study that included a field survey, an analysis of code requirements, sketches of any plan changes, reports recommending the required retrofit work and a proposed construction budget for any corrective measures required to the site, building, utilities and/or infrastructure.

This study includes Architectural, Fire Protection, Plumbing, HVAC & Electrical analysis with reports noted in sections 1 thru 9. From these reports we were able to generate a list of possible building changes and improvements/upgrades for WDVA consideration.

The consultant for Fire Protection, Plumbing, HVAC & Electrical engineering work is Grumman/Butkus Associates – Att; Laurence Steiner.

The existing facility was previously approved as a Type 7 - protected construction (which is similar to a type 5A construction in the current codes) as noted on the attached Conditional Approval letter, dated 6/13/02. It is a one story, with basement, facility, completely sprinklered per NFPA 13, totaling 31,457 sq. ft. The IBC allows type 5A construction and 38,000 sq. ft. for a facility of this use and sprinkler type. It has a central core of common uses/functions and four wings that includes sleeping rooms, separated from the common uses by a two hour fire rated wall at each wing. The wings are 4,585 to 4,882 sq. ft. in area and can be defined as suites per NFPA 18.2.5.

The existing plans used to analyze and complete this study were prepared by Plunkett Raysich Architects, dated 6/12/2002. This study is dependent on the existing building constructed according to these plans and specs.

The state code we used is the International Existing Building Code w/ Wisconsin modifications (IEBC), Alterations- Level 3 and Change of Occupancy chapters, for Institutional Group I-2 use and NFPA 1. Since the state will soon be updating their codes we used the anticipated 2009 editions.

The state health code we used is the DHS Chapter 132- Nursing Homes, Period C facility.

The federal government and Medicare/Medicaid codes we used are the National Fire Protection Association (NFPA) model fire codes (Typically the 2000 edition).

The accessibility code we used is the American National Standard (ICC/ANSI A117.1, 2003 edition).

Certain required staff functions and rooms are located in the common central core area. Although this would require staff to leave the member sleeping room areas they are still on the same floor level and within a reasonable distance to travel, so we are assuming that this will be acceptable to the DHS surveyor and people reviewing the licensing.

Based on this work, Sections 1-9 identify issues which, per applicable codes, would need to be addressed to reclassify Gates Hall from an RCAC to a Skilled Nursing Facility. Costs do not include other changes or improvements (i.e. upgrades of finishes or changes to kitchen equipment) which may be desired by the owner but would not be identified until detailed design. While major issues are not expected, as with any retrofit project, there may be additional deficiencies in the existing construction which were not apparent during our field work.

We trust the following information is satisfactory and meets your needs. If there is additional information needed, please let us know.

Sincerely,

GO/A Architects, Inc.

Mr. Gary Oien, President
and Principal Point of Contact



Scott McCallum, Governor
 Philip Edw. Albert, Secretary

June 13, 2002
 CUST ID No.641027

ATTN: Buildings & Structures Inspector

RONALD H LAMBERT JR
 PLUNKETT RAYSICH ARCHITECTS
 10850 W PARK PL STE 300
 MILWAUKEE WI 53224

MUNICIPAL CLERK
 TOWN OF DOVER
 PO BOX 670
 KANSASVILLE WI 53139-0670

CONDITIONAL APPROVAL
PLAN APPROVAL EXPIRES: 06/13/2004

SITE:

Southern Wisconsin Center
 21425 Spring St
 Town of Dover, 53182 Racine County
 Facility: Gates Hall 21425C Spring St, Union Grove 53182

Identification Numbers
Transaction ID No. 754844
Site ID No. 11604
Please refer to both identification numbers, above, in all correspondence with the agency.

FOR:

Object Type: Building Regulated Object ID No.: 854311 Class of Construction: 7 Wood Frame-Protected;
 New Plan; 31,457 Project Sq Ft; 1 Story Bldg; Completely Sprinklered; Occupancy: Residential;
 Sprinkler Design: Nfpa-13 Sprinkler
 Object Type: HVAC System Regulated Object ID No.: 854312 Grease Hood Included

The submittal described above has been reviewed for conformance with applicable Wisconsin Administrative Codes and Wisconsin Statutes. The submittal has been **CONDITIONALLY APPROVED**. The owner, as defined in chapter 101.01(10), Wisconsin Statutes, is responsible for compliance with all code requirements.

The following conditions shall be met during construction or installation and prior to occupancy or use:

Key Item(s)

- COMM 51.043(1)(a) The design numbers U301 and U305 for fire-resistive assemblies are shown on the plans.
- COMM 51.047 (1)(b) 1 and 2 hr rated wall assemblies require protection by C and B label fire door assemblies.
- COMM 64.05(2) Provide ventilation of 75 cfm / toilet fixture and outside air of 7.5 cfm / person Table 64.05.
- COMM 64.53(1) HVAC system balancing report shall be made available to the department upon request.
- COMM 64.67(2)(b) Provide a kitchen exhaust hood over cooking equipment which produces grease vapors.

Submit

- Submit truss plans and \$100 submittal fee to Safety & Buildings, P.O. Box 7162, Madison WI 53707-7162.

A copy of the approved plans, specifications and this letter shall be on-site during construction and open to inspection by authorized representatives of the Department, which may include local inspectors. All permits required by the state or the local municipality shall be obtained prior to commencement of construction/installation.

In granting this approval the Division of Safety & Buildings reserves the right to require changes or additions should conditions arise making them necessary for code compliance. As per state stats 101.12(2), nothing in this review shall relieve the designer of the responsibility for designing a safe building, structure, or component.

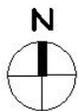
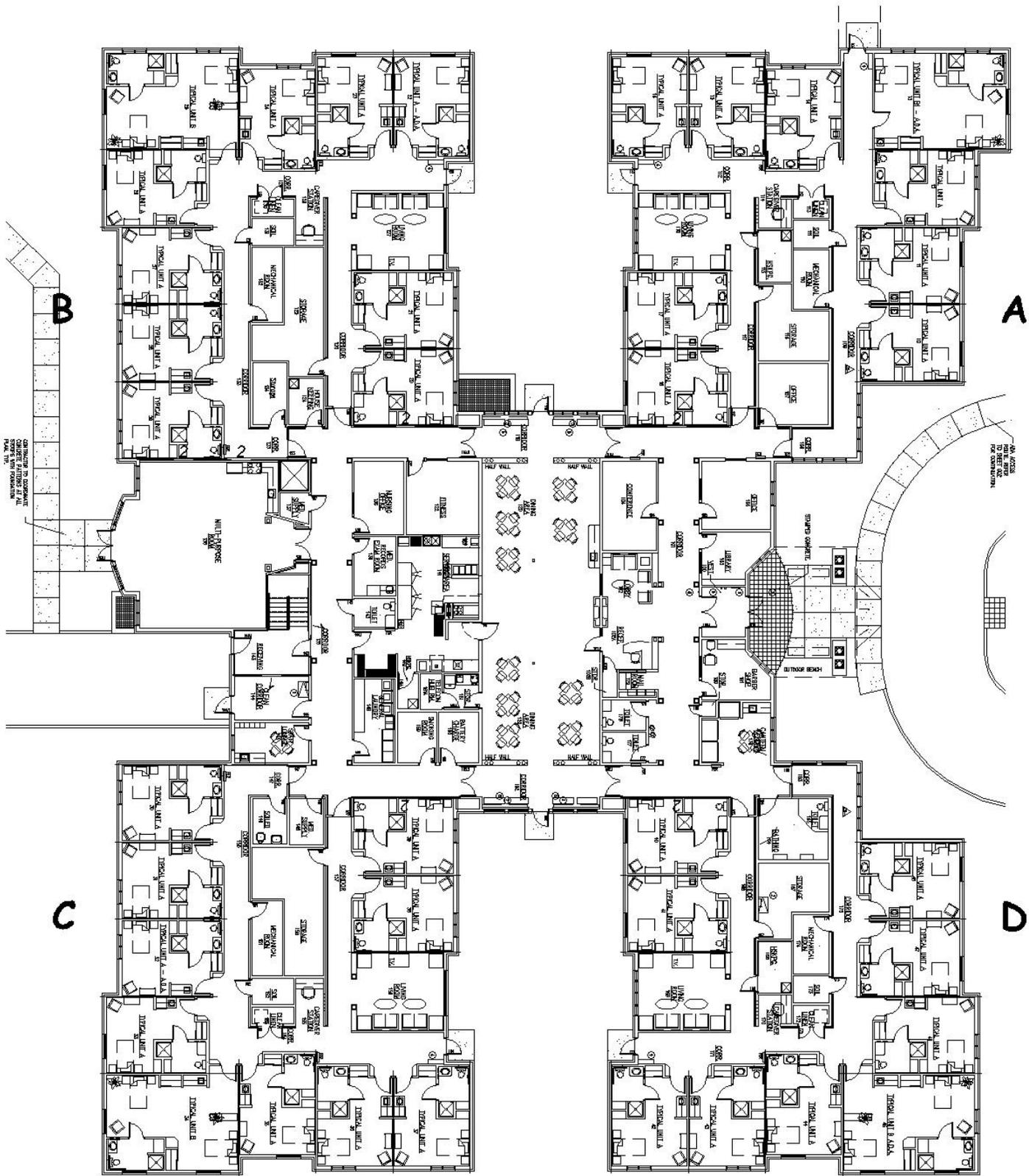
Inquiries concerning this correspondence may be made to me at (262)548-8603, or at the address on this letterhead.

Sincerely,

David Wallace
 Eng. Cons. Building Systems , Integrated Services
 (262)548-8603 , 7:45-4:30
 dwallace@commerce.state.wi.us

Fee Required \$	2,430.00
Fee Received \$	2,430.00
Balance Due \$	0.00
WiSMART code: 7648	

cc: Lawrence Weede , Building Inspector, (262) 949-4300 , Mon--Thurs, 6:45 A.M. - 5:30 P.M.
 Rex Loker, Wisconsin Division of Facilities Dev



EXISTING FIRST FLOOR PLAN

NOT TO SCALE

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Codes & Standards Impacting This Study;

International Existing Building Code with Wisconsin modifications (IEBC, 2009 edition), Alterations- Level 3 and Change of Occupancy chapters, for Institutional Group I-2 use.

NFPA 1 (2009 edition).

Standards for Health Care Facilities (NFPA 99, 1999 edition).

Life Safety Code (NFPA 101, 2000 edition), chapters 1-10 and 18.

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition).

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes, Period C facility.

Aisles and Corridors Width;

IBC 1017.2, exception 6 – Corridors need to be 96” wide in areas where required for bed movement.

NFPA 18.2.3.3, exception 2 – 96” Corridors are not required within a suite of rooms.

Each wing is separated from the rest of the building with 2 hour rated construction, is less than 5,000 s.f. and has two exits, therefore per NFPA 18.2.5 each wing is defined as a suite of rooms. If the suites have no bed movement the existing 60” wide corridors are acceptable in each wing.

Employee Work Areas and Multi-Purpose Room Kitchen Area

IBC 1103.2.3 and 1104.3.1- Employee work areas. Employee work areas only have to comply with accessible routes to the extent that individuals can approach, enter and exit the work areas.

If the kitchen area in the multi-purpose room is used by employees and staff only it may be an employee work area, otherwise it will have to comply with all ADA requirements.

Medicine Prep Room

DHS 132.84(3)©- A secure medicine prep, storage and handling room available to each staff work station is required that includes a sink, work counter, refrigerator, storage and space for drug carts.

The existing med room next to the nurses office meets this requirement. Although this would require staff to leave the member room areas it is still on the same floor level and within a reasonable distance to travel, so we are assuming that this will be acceptable to the DHS surveyor and people reviewing the licensing.

Proposed Architectural Project 1 - Entry Doors to Sleeping Rooms;

NFPA 101 18.2.3.5(1)- The minimum clear width for egress doors at sleeping rooms, treatment areas and physical therapy is 41.5”.

The existing 36” doors in these areas shall be replaced with a 44” door, with lever hardware and a closure. The adjacent closets, ceilings, floors and walls will be modified to accommodate this change.

Estimated cost of this project is \$282,024.

Proposed Architectural Project 2 - Doors to Therapy, Exam and Corridor;

NFPA 101 18.2.3.5(1)- The minimum clear width for egress doors at sleeping rooms, treatment areas and physical therapy is 41.5”. Any corridor door in the path of travel between these rooms must also comply.

The existing 36” doors in these areas shall be replaced with a 44” door, with lever hardware and a closure. The adjacent ceilings, floors and walls will be modified to accommodate this change.

Estimated cost of this project is \$14,714.

Proposed Architectural Project 3 – Kitchenette Areas in Sleeping Rooms;

WDVA requests that the kitchenettes within the sleeping rooms be eliminated, along with the supporting/dividing wall.

Estimated cost of this project is \$34,272.

Proposed Architectural Project 4 - Cubicle Curtains in Double Sleeping Rooms;

DHS 132.84(1)(i)(2) - Flameproof cubicle curtains are required to enclose each bed, in multiple-bed rooms, to assure privacy.

Add flameproof cubicle curtains around each bed in double rooms to assure privacy.

Estimated cost of this project is \$25,979.

Proposed Architectural Project 5 - Bathroom Doors in Sleeping Rooms;

ICC A117.1 404.2.3- A front approach door clearance must have 18” clear on the latch side.

There is only 16.5”-17” clearance on the latch & pull side of most bathroom doors within the sleeping rooms. New doors must replace the existing so they swing out from the bathroom and away from the closets.

Estimated cost of this project is \$30,328.

Proposed Architectural Project 6 - Medicine Cabinets in Toilets & Sleeping Room Bathrooms;

ICC A117.1 308- Reach ranges must meet the forward and side reach ranges.

Some medicine cabinets are mounted 55" or more AFF. The medicine cabinets must be lowered or relocated so the middle shelf is within 48" AFF.

Estimated cost of this project is \$7,956.

Proposed Architectural Project 7 - Exposed Plumbing Pipes in Toilets & Sleeping Room Bathrooms;

Some hot water and waste piping below the toilet & bathroom lavatories are not wrapped/insulated.

Wrap/insulate the existing exposed lavatories hot water and waste piping.

Estimated cost of this project is \$1,100.

Proposed Architectural Project 8 - Grab Bars in Toilets & Sleeping Room Bathrooms;

ICC A117.1 604.5.1- A vertical grab bar, 18" long, is required to be mounted on the side wall adjacent to a water closet.

A vertical grab bar, 18" long, shall be mounted on the side wall adjacent to a water closet at each public and staff toilet and sleeping room bathroom.

Estimated cost of this project is \$4,100.

Proposed Architectural Project 9 - Handrails in Corridors;

Medicare/Medicaid State Operations Manual 483.70(h)(3)- Corridors must have handrails on each side.

Existing handrails are located on one side only. Add additional handrails to the other side of all corridor walls.

Estimated cost of this project is \$10,698.

Proposed Architectural Project 10 - Clean Utility/Linen Rooms;

DHS 132.84(3)(e) – Clean utility/linen rooms shall have a sink, appropriate cabinets and counter space.

The clean utility/linen rooms are too small for the additional sink and cabinets. The dividing partition between the existing soiled and clean utility/linen rooms shall be removed and the two rooms combined in each wing. The room shall have 6 l.f. of new cabinets/countertop and mechanical fixtures.

Estimated cost of this project is \$39,119.

Proposed Architectural Project 11 - Soiled Utility/Linen Rooms;

DHS 132.84(3)(d) – Soiled utility/linen rooms shall have a service sink, sanitizing equipment, a sink, appropriate cabinets and counter space.

The existing soiled utility/linen rooms are too small for the additional sinks and cabinets. A new +80 sq. ft. soiled utility/linen room shall be created in each wing from an existing storage area. The room shall be 1 hour fire rated have a new ¾ hour rated door assembly, 6 l.f. of new cabinets/countertop and mechanical fixtures.

Estimated cost of this project is \$63,102.

Proposed Architectural Project 12 - Hazardous Areas Protection;

NFPA 18.3.2 – Laundries and storage rooms larger than 100 s.f. shall have a 1 hour fire rated construction/separation.

The plans show the existing walls around these rooms to be 1 hour rated, but the door assemblies are not rated. All doors into these rooms must be replaced with ¾ hour fire rated assemblies.

Estimated cost of this project is \$15,768.

Proposed Architectural Project 13 - Corridor Floor and Ceiling in Wings

Due to the extent of remodeling to the member entry doors and the underground plumbing needed for the clean/soiled rooms the entire corridor flooring and acoustical ceiling will need to be replaced in each wing.

Estimated cost of this project is \$106,000.

SECTION 2

FIRE PROTECTION REPORT

Codes & Standards Impacting This Study:

Fire Code (NFPA 1, 2009 edition).

International Fire Code (2009 edition).

Installation of Sprinkler Systems (NFPA 13, 2007 edition).

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 14, Fire Prevention

Existing Systems

The building was approved as a fully sprinklered building, with a dry pipe system serving the attic space. Based on the plans and specifications the sprinkler heads are the required quick response heads.

Based on a spot inspection of attic areas, the attic sprinklers were installed differently than as shown on the plans, this may reflect changes made after design during detailed design by the sprinkler contractor.

G/BA did not have sprinkler as-built drawings available at this time, but they have requested from Union Grove. It is believed per the plans that these were installed per NFPA 13, but G/BA can review the as built drawings and calculations if available to confirm.

Finally, some CPVC piping was observed in the ceiling spaces over corridor areas, in addition to black steel on the first floor, and galvanized steel in the attic space dry pipe system. There are some limitations to the installation of this, what was observed was not out of compliance, but we were not able to confirm this throughout the facility during our survey as much of the piping is concealed. As above, this is not anticipated to be a problem but should be confirmed by reviewing the sprinkler as-builts if available.

SECTION 3

PLUMBING REPORT

Codes & Standards Impacting This Study:

AIA Guidelines for Design and Construction of Health Care Facilities (2006 edition).

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition).

Minimizing the Risk of Legionellosis Associated with Building Water Systems (ASHRAE Guideline 12-2000)

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 82, Design, Construction, Installation, Supervision, Maintenance and Inspection of Plumbing.

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes.

Existing Systems

The building was built in 2003, and the plumbing systems and fixtures were observed to be in good condition, and generally appeared suitable for the Skilled Nursing application. The waste is served by a 6" main waste line, a clear water system, and a grease waste system for the kitchen. A 6" water service enters from the west side of the building to serve the fire protection system and domestic water needs of the building.

In the basement a water softener serves a pair of steam water heaters. The hot water system incorporated a 140F hot water heater, recirculation pump. After the heater the hot water is mixed down to approximately 120F and distributed through the building.

The drawings show hot water circulation lines for every branch 25 feet or over which matches the requirements (AIA & Comm 82). Note that it was impossible to verify these were installed in all cases as the piping is concealed.

The building currently does not have piped medical gas system. Costs to add these systems have not been included but can be estimated if desired.

Providing Additional Sinks

To convert to a skilled nursing facility additional fixtures will have to be added to meet DHS 132. Each resident wing has a clean and soiled storage area but does not have the plumbing fixtures required for the new occupancy. DHS132.84(3)d requires a clinical service sink and a second sink for cleaning and sanitizing various patient items. DHS132.84(3)e requires that the clean utility room be equipped with a sink. Both of these issues will be addressed with architectural projects listed above.

Proposed Plumbing Project 1 – Legionella Protection

Legionella prevention is always a concern. Even though the water is stored at 140F it is still distributed at 120F and returned at approximately 110F. ASHRAE 12 recommends that if hot water cannot be distributed at 140F and returned at 124F (temperatures which present a scalding hazard) that a Legionella protection system be installed.

There are a number of options for Legionella protection systems including copper/silver, chlorine dioxide gas injection, ultraviolet radiation, and ozone. Each has its own advantages and disadvantages which should be evaluated during detailed design.

In this project we propose installing a new legionella control system and decontaminating the system before use.

Estimated cost of this project is \$40,000-\$50,000.

Proposed Plumbing Project 2 – Replacing Resident Toilet Seats

DHS132 requires that all patient toilet seats be open front instead of closed. In this project we propose replacing the resident toilet seats with open front with no lids.

Estimated cost of this project is \$4,000-\$5,000.

Codes & Standards Impacting This Study:

AIA Guidelines for Design and Construction of Health Care Facilities (2006 edition).

International Energy Conservation Code (2006 edition).

International Mechanical Code (2006 edition).

Standard for the Installation of Air-Conditioning and Ventilating Systems (NFPA 90A, 2009 edition)

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 63, Energy Conservation.

Wisconsin Department of Commerce (2/2008 edition), Chapter Comm 64, Heating, Ventilation and Air Conditioning.

Existing Systems

Currently Gates Hall is served by one central air handling unit (which serves the central areas) and twelve fan coil units which serve the patient sleeping wings. The central air handling unit serves 26 zones with each zone having a hot water booster coils and thermostat. The central unit uses an outdoor condensing unit with R-22 refrigerant for cooling, a steam heating coil, and a steam humidifier.

The fan coil units (FCU) are located in small mechanical rooms in each wing. Each FCU serves multiple resident rooms and are controlled by average return air temperature. Each fan coil unit has a single booster coil. This allows only a single zone of control for a group of resident rooms. Per Union Grove staff, this has led to complaints from residents when a single temperature cannot satisfy all of the resident rooms on a zone. Additionally, the rooms do not have individual thermostatic setpoint adjustment, temperature changes must be made by facility staff. Each unit has an unfiltered outside air duct directly connected to the return duct of the unit. In the basement mechanical room, central plant steam heats the heating hot water through a heat exchanger. The hot water serves heating devices and booster coils. Finally, supply and return ductwork appeared to be internally lined.

Based on our review a number of changes are necessary to meet the requirements of a skilled nursing facility.

Proposed Mechanical Project 1 – New Barber Exhaust Fan

The barber shop air flows require some modifications to meet the requirements of AIA 2006 Table 4.1-2. The barber shop is currently being served by return and exhaust air and should be fully exhausted to the outdoors. Also, the room requires 20 air changes per hour and is currently significantly below that quantity.

This project proposes to install a new exhaust fan since the current fan and ductwork serving the room appears not to have the capacity to handle the increase. Based on the plans, the existing supply ductwork and coil should be sufficient to handle the increase in supply air.

Estimated cost of this project is \$8,000-\$9,000.

Proposed Mechanical Project 2 – Increasing Airflows to Meet Code Requirements

Based on the plans, the patient bathrooms and housekeeping areas do not meet the overall air change rate requirements of AIA 2006 Table 4.1-2. The bathrooms are currently 75 cfm and should be 80 cfm. The housekeeping areas also should be increased from 70 cfm to 100 cfm.

Each resident wing has a dedicated bathroom exhaust fan. Though access to the existing nameplate was not available, based on the existing plans the 5% increase in airflow expected, the fan should be able to handle the increase. The possibility of a motor replacement has been included in the cost estimate.

The housekeeping areas are served from EF-5. Though access to the existing nameplate was not available, based on the existing plans a 3% increase in airflow is expected. The existing fan should be able to handle the increase. The possibility of a motor replacement has been included in the cost estimate.

Estimated cost of this project is \$15,000-\$16,000.

Proposed Mechanical Project 3 – Improving Resident Comfort and Outside Air Issues

Currently one temperature control zone (fan coil with DX cooling and a single reheat coil) serves multiple resident rooms. In discussion with DHS, they agreed that there is not a specific requirement in the code for each room to have an individual zone and thermostat. However, they did clarify that the facility would be responsible for satisfying user requests for temperatures within the required range. Additionally the code (AIA guidelines) require an adjustable temperature range to accommodate resident conditions. It is highly likely the current multiple room per zone configuration will prove unsatisfactory, as per facility staff, there have been a number of complaints with the current operation. Finally VA guidelines for nursing home construction and good engineering practice would require individual zones in new construction. Based on this G/BA has recommended work to provide additional zones of control.

A secondary issue found was that the outside air supply for the resident wings has several deficiencies. First, per the International Mechanical Code (2006), section 401.4.1, and dimensions taken off the building plans, the outside air intakes for the fan coil units do not meet the minimum 10 foot distance from plumbing vents and exhaust outlets. Based on the existing plans, there are 3 plumbing vents at each of the four fan coil intakes that are within the 10 foot minimum.

Next, though the central air handling unit and fan coil units meet the AIA standards for air filtration, the fan coil units do not. Section 4.1-10.2.1(2)(b) in conjunction with Table 4.1-2 which requires that the outdoor air requirements as two filters (one MERV 7 and the 2nd MERV 13). The final item was AIA's outside air requirement for nursing rooms. In Table 4.1-1 (which lists ventilation requirements for nursing home areas) it requires a resident room be provided with 2 air changes of outside air per hour. Currently the rooms are receiving significantly less than that amount. Note that the resident room/bathroom suites currently are not balanced and are somewhat negative to the corridor, another issue which is addressed in the recommendations below.

Finally, the small fan coils currently installed are small enough that economizer sections were not required. The energy code will make it challenging to provide the additional zones of control without adding variable volume controls and economizers.

To address all of these issues, this project proposes that installation of a new variable volume air handling unit in each wing with new VAV devices and ductwork. This will provide individual control for each resident room. Location of these small air handling units within existing mechanical rooms will be challenging and may require use of custom AHU's, addition of larger (double) doors to the mechanical room, or slight expansion of the rooms into the adjacent storage areas. A relief fan configuration may help with this packaging issue.

New relief and outside air intakes will be required. G/BA recommends a rooftop penthouse configuration. If implemented on each wing these will be relatively small. Due to the open attic construction, other architectural configurations may be suitable as well.

Additionally, due to the increased load and need to modulate airflow, the existing small DX condensing units are not anticipated to be suitable for continued use. This project incorporates costs to connect the building to campus chilled water. A packaged air cooled chiller may be a feasible alternative. Finally, water or ground source heat pumps could be implemented as well, but these are not recommended unless there is a strong preference for this system type, which is not anticipated.

This project would demolish the existing fan coil units and refrigerant cooling, would install chilled water in the building, and VAV air handlers in each patient wing.

There are two options for providing chilled water. First, there is a future 4" tap near the Shemanske Hall that could be connected to. System capacity would have to be examined more thoroughly during detailed design.

Estimated cost of this project option is \$750,000-\$800,000.

Instead of connecting to the existing campus chilled water a new chiller could be installed, but this is not recommended unless the campus prefers not to connect to the chilled water system.

Codes & Standards Impacting This Study:

National Electric Code (2008)

International Energy Conservation Code (2006)

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 63, Energy Conservation

AIA Guidelines for Design and Construction of Health Care Facilities (2006)

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition)

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes

Standard for Emergency and Standby Power Systems (NFPA 110, 2005 edition)

Life Safety Code (NFPA 101, 2009 edition)

Existing Electrical System

The existing electrical service at Gates Hall is powered by a 4160V primary, 300kVA oil-filled, pad-mounted transformer located outside the building. The transformer feeds a 1200A, 208/120V main switchboard in the basement. The main switchboard contains breakers for panels that are located in each wing, as well as the central and kitchen areas. A double-tub panel is located in the large storage room of each wing, and serves all of the resident rooms and support spaces for the wing. The mechanical equipment for each wing is also fed from the corresponding wing's panel.

There is an existing 400A manual transfer switch and 100A portable generator connection for emergency power. However, a portable generator is not currently on-site.

Proposed Electrical Project 1 – Updating Building Wiring

The existing wiring of the building is all "Romex," or Nonmetallic-sheathed cabling. This cabling is typically installed in residential settings, and generally is not installed in conduit. The National Electric Code, NEC, Articles 334.10 and 334.12 only allow for this cabling to be installed in this type of building when it will be entirely concealed within walls. The NEC, Article 334.12 does not allow it to be installed above dropped or suspended ceilings. To meet the NEC requirements, all of the wiring above the ceilings must be replaced. The Department of Veterans Affairs Design Manual, Section 2.1 also recommends that all wiring be in conduit. Also, all penetrations in walls should be firestopped. We recommend demolishing all wiring above the ceiling and installing new wiring in conduit. All walls should be fully inspected for firestopping, and firestopping should be provided for existing penetrations as required.

Estimated cost of this project is \$120,000-130,000.

Proposed Electrical Project 2 – Emergency Generator

The existing egress lighting, exit signs, and fire alarm system all have battery backup in case of a loss of power. A generator is not currently installed at the building. The NEC, Article 517.40, requires that emergency power be provided for egress lighting, exit signs, and the fire alarm. Batteries are acceptable as long as the facility does not admit any residents who require electrical life-support equipment. Chapter 132.83 of the DHS code requires four hours of battery backup if batteries are used. After reviewing the plans, it appears that the existing batteries provide an hour and a half of backup. Additional batteries or a generator would need to be installed to meet the four hour requirement.

The NEC, Article 517.41 also requires an automatic transfer from normal to emergency power with ten seconds. If a new generator is installed to provide emergency power, the existing manual transfer switch should be replaced with an automatic transfer switch.

If any heating and cooling equipment for resident rooms will have emergency power, additional batteries or a generator need to be installed. Using batteries as the source of backup power in this case is probably not feasible, and we would recommend installing a generator. If a new generator is installed, the NEC, Article 517.41 requires an additional transfer switch to keep the mechanical equipment and the life safety equipment separated.

The option reflected in the cost of this project reflects installed a new emergency generator with enough capacity to serve the life safety (egress and exit lights and fire alarm) and the heating and cooling equipment for the resident rooms. Also included is the cost of two transfer switches and two emergency distribution panels.

Estimated cost of this project is \$75,000-\$85,000.

Codes & Standards Impacting This Study:

National Electric Code (2008)

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition)

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes

Existing Voice and Data Systems

The existing voice and data system at the building are fed from the Garner Hall basement. The data system is fed with 12 multimode fibers and the voice system is fed with 200-pair both terminated in the basement of this building. Based on the existing plans, only 6 fibers for data and 100-pair for voice have been distributed to the first floor telecommunications room. The remaining 50 percent of the voice and data infrastructure is spare capacity.

Codes & Standards Impacting This Study:

National Electric Code (2008)

International Energy Conservation Code (2006)

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 63, Energy Conservation

AIA Guidelines for Design and Construction of Health Care Facilities (2006)

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition)

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes

Standard for Emergency and Standby Power Systems (NFPA 110, 2005 edition)

Life Safety Code (NFPA 101, 2009 edition)

Illuminating Engineering Society of North America (IESNA) Lighting Handbook (2000 Edition)

Existing Lighting System

The lighting for each wing of the building is powered by the panel located in the storage room of each wing. Some typical room types were reviewed based on the existing plans for compliance with the power densities allowed by the IECC. In general, the lighting in the typical resident rooms was compliant, but most other areas were not compliant. Lighting controls were reviewed as well, and were compliant with the IECC requirements.

Proposed Lighting Project 1 – Lighting in New Ceiling Areas

Based on the proposed architectural changes in this report, we would recommend renovating the lighting in all areas where the ceilings or walls are being renovated. Some of the lighting controls were in poor condition, and we would recommend that in areas where the lighting is renovated that the lighting controls be evaluated and renovated as necessary.

Estimated cost of this project is \$25,000-\$35,000.

Codes & Standards Impacting This Study:

National Electric Code (2008)

International Existing Building Code with Wisconsin modifications (IEBC, 2009 edition)

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 63, Energy Conservation

AIA Guidelines for Design and Construction of Health Care Facilities (2006)

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition)

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes

National Fire Alarm Code (NFPA 72, 2007 edition)

Life Safety Code (NFPA 101, 2009 edition)

International Fire Code (2009)

Standard for the Installation of Lightning Protection Systems (NFPA 780, 2008 Edition)

Existing Egress and Exit Lighting Systems

The egress and exit lighting of the building are installed in the corridors and along paths of egress and have battery backup installed. The exit lights are LED type. The Life Safety Code, Section 7.9.2.1 requires an average of one footcandle along the path of egress. This could not be verified during the inspection.

Proposed Egress and Exit Lighting Project 1 – Egress Lighting in New Ceiling Areas

Verify egress lighting levels and renovate the lighting as necessary to meet code when the ceiling and corresponding lighting in the corridors is renovated.

Estimated cost of this project is \$15,000-\$20,000

Existing Fire Alarm System

The existing fire alarm has an Edwards Systems Technology Control Panel. Smoke detectors, visible, and audible devices are currently installed in the corridors. Smoke detectors and a combination sounder and strobe are installed in each resident room. Audible devices are not installed in storage and mechanical rooms. An audible test was not conducted during our inspection, and is recommended to verify that adequate sound levels for fire alarm exist in all locations of the building.

Door holders are installed on the fire doors in the corridors. Dedicated smoke detectors are required by NFPA 101, Section 5.16.6.5 to be installed with five feet of the door opener. In

many locations there are smoke detectors installed near the door opener, but not within five feet.

Proposed Fire Alarm Project 1 – Audible Device Testing

Conduct a test on the audible devices of the fire alarm system to verify that adequate sound levels exist in all locations of the building. Provide additional devices as necessary based on results of testing.

Estimated cost of this project is \$7,000-\$10,000

Proposed Fire Alarm Project 2– Fire Door Smoke Detectors

Provide dedicated smoke detectors within five feet of fire doors to control fire door release.

Estimated cost of this project is \$12,000-\$18,000

Lightning Protection System

The building does not currently have a lightning protection system installed. The Department of Veterans Affairs Design Manual, Section 2.3 recommends a risk analysis be performed per NFPA 780, Annex L, and a lightning protection system be installed on the building per the assessment outcome.

Proposed Lightning Project 1 – Lightning Protection Risk Analysis

Perform a Lightning Protection Risk Analysis per NFPA 780, Annex L.

Estimated cost of this project is \$3,500-\$4,500

Codes & Standards Impacting This Study:

National Electric Code (2008).

International Energy Conservation Code (2006).

Wisconsin Department of Commerce (12/2010 edition), Chapter Comm 63, Energy Conservation.

AIA Guidelines for Design and Construction of Health Care Facilities (2006).

American with Disabilities Act (ICC/ANSI A117.1, 2003 edition).

WI Dept. of Health Services (DHS, 1/2009 edition), Chapter 132, Nursing Homes.

Existing Alarm System

The existing alarm system consists of a push button alert system at the entrances/exits that pages the staff when pushed. There is no existing nurse call system installed inside the resident rooms, bathrooms, or activity areas. The phones are used as means of communication between resident rooms and nurse areas. The DHS, Chapter 132.84, requires a system that allows the residents to activate the system from each resident room, toilet area, bathing area, and activity area. When the system has been activated, it is required to be visible from the corridor or access aisle and an audible sounder shall activate if the staff fail to respond. The devices located in toilet and bathing areas must send a call that is distinct from the general nurse call.

Proposed Nurse Call Project 1– New Nurse Call System

Provide a new nurse call system with devices in all resident rooms, toilet, bathing, and activity areas.

Estimated cost of this project is \$60,000-\$70,000

SECTION 10

COST ESTIMATES

Proposed Architectural Project 1 - Entry Doors to Sleeping Rooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo wood doors & stud walls	A	38	311	\$11,818
New 44" wood entry door, frame, trim & hardware	A	38	2068	\$78,584
New 30" wood closet door, frame, trim & hardware	A	34	812	\$27,608
New gyp. bd./ wood stud walls	A	34	450	\$15,300
Paint walls/ ceiling	A	34	180	\$6,120
Reinstall purse shelf & closet pole/shelf	A	38	90	\$3,420
Modify laminate floor & base	A	34	120	\$4,080
Relocating sprinkler head in closet	FP	34	125	\$4,250
Remove and replace grille over door	M	38	250	\$9,500
Demo sink & piping at counter	P	34	120	\$4,080
Remove and replace grille over door	M	38	250	\$9,500
Demo lighting wiring	E	2160	11	\$27,475
Demo light switch	E	108	7	\$854
Demo GFCI receptacle	E	108	7	\$854
Demo receptacle wiring	E	1800	7	\$14,234
Demo undercabinet light	E	36	22	\$950
Demo hallway light	E	36	27	\$1,145
New Lighting Wiring	E	270	67	\$21,708
Lighting conduit	E	2160	4	\$10,653
Lighting boxes	E	72	38	\$3,240
New light switch	E	72	40	\$3,417
New GFCI receptacle	E	36	74	\$3,177
New GFCI receptacle conduit	E	900	4	\$4,439
New GFCI receptacle wiring	E	90	67	\$7,236
New hallway light	E	36	194	\$8,381
				\$282,024

Proposed Architectural Project 2 - Doors to Therapy, Exam & Corridors

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo wood doors & stud walls	A	6	311	\$1,866
Relocate sidelight	A	1	280	\$280
New 44" wood entry door, frame, trim & hardware	A	6	2068	\$12,408
Remove and replace light switch	E	2	80	\$160
				\$14,714

Proposed Architectural Project 3 - Kitchenette Areas in Sleeping Rooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo wood cabinets, PL countertop & stud wall	A	34	236	\$8,024
Modify laminate floor & base	A	34	340	\$11,560
Patch/ paint walls	A	34	312	\$10,608
Demo sink & piping at counter	P	34	120	\$4,080
				\$34,272

Proposed Architectural Project 4 - Cubicle Curtains in Double Sleeping Rooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
New flameproof cubicle privacy curtains	A	8	2342	\$18,736
Add sprinkler heads	FP	8	250	\$2,000
Remove and relocate diffuser	M	8	350	\$2,800
Remove and reinstall smoke detector	E	4	109	\$523
Remove and relocate outlets	E	8	200	\$1,920
				\$25,979

Proposed Architectural Project 5 - Bathroom Doors in Sleeping Rooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo doors	A	34	80	\$2,720
New 36" wood doors w/ hardware & casing	A	34	812	\$27,608
				\$30,328

Proposed Architectural Project 6 - Medicine Cabinets in Toilets & Sleeping Room Bathrooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Remove and reinstall medicine cabinets	A	26	80	\$2,080
Patch/ paint walls	A	26	226	\$5,876
				\$7,956

Proposed Architectural Project 7 - Exposed Plumbing Pipes in Toilets & Sleeping Room Bathrooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Install wrap/insulation to hot water & waste piping	A	20	55	\$1,100
				\$1,100

Proposed Architectural Project 8 - Grab Bars in Toilets & Sleeping Room Bathrooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Install 18" vertical grab bar	A	41	100	\$4,100
				\$4,100

Proposed Architectural Project 9 - Handrails in Corridors

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Install wood handrails in common areas	A	1	4290	\$4,290
Install wood handrails in wings	A	4	1602	\$6,408
				\$10,698

Proposed Architectural Project 10 - Clean Utility/Linen Rooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo common wall	A	4	1	\$4
Patch/ paint walls & ceiling	A	4	1	\$4
New VCT flooring & base	A	4	584	\$2,336
New wood cabinets & PL countertops	A	4	2550	\$10,200
Trenching for underground pipe, under 1 wall	P	4	1500	\$6,000
New Sink	P	4	1350	\$5,400
2" Waste Pipe	P	4	405	\$1,620
3/4" CW Pipe	P	4	356	\$1,424
3/4" HW Pipe	P	4	361	\$1,445
2" Vent Pipe	P	4	405	\$1,620
Modify FP	FP	4	500	\$2,000
Modify HVAC	M	4	1000	\$4,000
Modify Lighting wiring - demo	E	2	11	\$25
Demo light switch	E	4	7	\$26
Demo Occupancy sensor	E	4	7	\$26
Remove and reinstall smoke detector	E	4	109	\$523
Modify lighting wiring - new	E	2	67	\$161
Lighting conduit	E	200	4	\$986
Lighting boxes	E	4	38	\$180
New light switch	E	4	40	\$158
New Occupancy sensor	E	4	204	\$979
				\$39,119

Proposed Architectural Project 11 - Soiled Utility/Linen Rooms

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo stud walls	A	4	80	\$320
New 36" wood rated door, frame, trim & hardware	A	4	1821	\$7,284
New wood cabinets & PL countertops	A	4	2550	\$10,200
New gyp. bd./ wood stud walls	A	4	705	\$2,820
Paint gyp. bd. walls & ceiling	A	4	450	\$1,800
New VCT flooring & base	A	4	584	\$2,336
Trenching for underground pipe, under 1 wall	P	4	1500	\$6,000
New CS Sink	P	4	2050	\$8,200

New Sink	P	4	1350	\$5,400
4" Waste Pipe	P	4	594	\$2,376
1-1/2" CW Pipe	P	4	597	\$2,387
3/4" HW Pipe	P	4	361	\$1,445
2" Vent Pipe	P	4	405	\$1,620
Modify FP	FP	4	500	\$2,000
Modify HVAC	M	4	1000	\$4,000
Modify Lighting wiring - demo	E	2	11	\$25
Demo light switch & occupancy sensor	E	4	14	\$52
Demo GFCI receptacle	E	4	7	\$26
Remove and reinstall smoke detector	E	4	109	\$523
Modify lighting wiring - new	E	2	67	\$161
Lighting conduit	E	200	4	\$986
Lighting boxes	E	4	38	\$180
New light switch	E	4	40	\$158
New Occupancy sensor	E	4	204	\$979
New GFCI receptacle	E	4	74	\$353
New GFCI receptacle conduit	E	200	4	\$986
New GFCI receptacle wiring	E	6	67	\$482
				<hr/>
				\$63,102

Proposed Architectural Project 12 - Hazardous Areas Protection

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo doors/ hardware	A	8	150	\$1,200
New 36" wood rated door, frame & hardware	A	8	1821	\$14,568
				<hr/>
				\$15,768

Proposed Architectural Project 13 - Corridor Floor & Ceiling in Wings

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo flooring & base	A	4	537	\$2,148
Demo acoustical ceiling	A	4	906	\$3,624
New flooring & base	A	4	7643	\$30,572
New acoustical ceiling	A	4	6193	\$24,772
Remove and reinstall sprinkler heads	FP	80	125	\$10,000
Remove and reinstall diffusers	M	30	250	\$7,500
Remove and reinstall cabinet heaters	M	5	350	\$1,750
Readjust floor cleanouts for new flooring	P	8	100	\$800
Remove and reinstall lights	E	80	157	\$15,072
Remove and reinstall smoke detector	E	40	109	\$5,232
Remove and reinstall exit signs	E	30	98	\$3,528
Disconnect and reconnect cabinet heaters	E	10	84	\$1,002
				<hr/>
				\$106,000

Proposed Mechanical Project 1 - New Barber Exhaust Fan

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Exhaust Fan	M	1	1608	\$1,608
Ductwork & new exhaust grille	M	1	5000	\$5,000
Demo of existing exhaust	M	1	500	\$500
Motor connection to Exhaust Fan (1/2 hp)	E	1	84	\$100
New Breaker - 20A	E	1	76	\$91
New Disconnect for Exhaust Fan - 30A	E	1	283	\$340
New Conduit for Exhaust Fan 1/2"	E	60	4	\$296
New Wiring for Exhaust Fan #12AWG	E	1.8	67	\$145
New boxes for Exhaust Fan	E	2	38	\$90
				\$8,170

Proposed Mechanical Project 2 - Increasing Exhaust to Meet AIA

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Transfer ducts/grilles for one JC without	M	1	300	\$300
Increase exhaust for janitor's closets	M	3	159	\$477
Increase exhaust for resident bathrooms	M	38	159	\$6,042
Motor replacement for JC exhaust fan	M	1	1550	\$1,550
Disconnect and reconnect motor	E	2	84	\$200
Motor replacement for bathroom exhaust fan	M	4	1050	\$4,200
Disconnect and reconnect motor	E	8	84	\$802
Demo wiring for bathroom fan	E	2	11	\$25
New conduit for bathroom fan	E	200	4	\$986
New wiring for bathroom fan	E	6	67	\$482
New boxes for bathroom fan	E	4	38	\$180
				\$15,245

Proposed Mechanical Project 3 - Temperature Control Improvement

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
New chilled water pipe to building	M	500	97	\$48,653
Trench, backfill, grass repair	GC	450	50	\$22,500
Replacing part of driveway for trench	GC	30	223	\$6,683
Chilled water piping in building	M	1	42188	\$42,188
Replacing DX Coil in AHU with CHW Coil	M	1	7388	\$7,388
Demo ACCU, AHU DX Coil, Piping	M	1	6668	\$6,668
Demo of existing FCU, ACCU, Ductwork	M	12	2706	\$32,472
New air handling units for resident wings, custom	M	4	18050	\$72,200
New ductwork	M	4	60000	\$240,000
New HW Mains	M	1	24594	\$24,594
New HW piping to VAV's	M	40	741	\$29,628
New VAV's with coil & thermostat	M	40	1269	\$50,760

Controls	M	64	1500	\$96,000
Relocating plumbing vents for OA intakes	P	12	1310	\$15,720
Penthouse for relief and outdoor intake	A	4	7000	\$28,000
Demo ACCU connection	E	12	84	\$1,202
Demo ACCU & FCU wiring	E	2.4	11	\$30
Demo FCU connection	E	12	84	\$1,202
Demo AHU disconnect	E	12	48	\$684
Demo FCU disconnect	E	12	48	\$684
New Exhaust Fan Connection - 5hp	E	1	156	\$187
New AHU Connection - 5hp	E	4	156	\$749
New Exhaust Fan conduit	E	150	4	\$740
New Exhaust Fan wiring	E	4.5	80	\$429
New Exhaust Fan boxes	E	3	38	\$135
New AHU conduit	E	1000	4	\$4,932
New AHU wiring	E	30	80	\$2,862
New AHU boxes	E	15	38	\$675
New Exhaust Fan disconnect	E	1	283	\$340
New AHU Disconnect	E	4	283	\$1,358
				\$739,662

Proposed Plumbing Project 1 - Adding Legionella Protection

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Copper/silver ionization	P	1	25000	\$25,000
Piping modifications, accessories	P	1	4841	\$4,841
Decontaminating HW System	P	1	6000	\$6,000
				\$35,841

Proposed Plumbing Project 2 - Replacing Resident Toilet Seats

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Replacing closed front with open front	P	38	100	\$3,800
				\$3,800

Proposed Electrical Project 1 - Updating Building Wiring

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo Existing Wiring	E	10000	1	\$11,160
New conduit - 2-1/2"	E	400	22	\$10,560
New wiring - 250	E	16	835	\$16,032
New conduit - 3/4"	E	3500	6	\$23,310
New wiring - #12	E	150	66	\$11,880
Firestopping Penetrations	E	500	46	\$27,300
Patching	E	1000	17	\$20,400
				\$120,642

Proposed Electrical Project 2 - Emergency Generator

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
New Diesel 60kw generator and ATS	E	1	33700	\$40,440
ATS-225A	E	1	5000	\$6,000
Emergency Panels-225A	E	2	4500	\$10,800
Wiring from Generator to Emerg panels	E	4.5	835	\$4,509
Conduit from Generator to Emerg Panels	E	150	22	\$3,960
Boxes	E	5	38	\$225
Fence	E	100	6	\$756
Landscaping	E	1	5000	\$6,000
				\$72,690

Proposed Lighting Project 1 - Lighting in New Ceiling Areas

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo Lighting Fixtures	E	80	27	\$2,544
Demo Wiring	E	1500	1	\$1,674
New Fixtures	E	80	194	\$18,624
New Wiring	E	12	66	\$950
New Conduit	E	400	6	\$2,664
New Boxes	E	8	38	\$360
				\$26,816

Proposed Egress and Exit Lighting Project 1 - Egress Lighting in New Ceiling Areas

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Demo Lighting Fixtures	E	40	27	\$1,272
Demo Wiring	E	1500	1	\$1,674
New Fixtures	E	40	194	\$9,312
New Wiring	E	12	66	\$950
New Conduit	E	400	6	\$2,664
New Boxes	E	4	38	\$180
				\$16,052

Proposed Fire Alarm Project 1 - Audible Device Testing

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Audible Device Testing	E	2	3112	\$7,470
				\$7,470

Proposed Fire Alarm Project 2 - Fire Door Smoke Detectors

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Smoke Detectors	E	24	233	\$6,710
Door Holders	E	8	255	\$2,448
New Wiring	E	12	66	\$950
New Conduit	E	400	6	\$2,664
New Boxes	E	4	38	\$180
				\$12,953

Proposed Lightning Protection Project 1 - Lightning Protection Risk Analysis

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Engineering time - project engr - low end		12	120	\$1,440
Engineering time - engineer		16	110	\$1,760
				\$3,200

Proposed Nurse Call Project 1 - New Nurse Call System

<u>Item</u>	<u>Trade</u>	<u>Qty</u>	<u>Cost/Unit</u>	<u>Total</u>
Master Control Station for 20 Stations	E	4	6125	\$29,400
Single Call Station	E	40	320	\$15,360
Emergency Call Station	E	40	198	\$9,504
Corridor Light	E	44	140	\$7,392
				\$61,656

TOTAL PROJECT CONSTRUCTION COST				\$1,759,358
CONTINGENCY			10.00%	\$175,936
HVAC BALANCING				\$9,880
A/E FEES			8.50%	\$164,500
DSF FEES			4.00%	\$77,412
TOTAL PROJECT COST				\$2,187,085