



UNIVERSITY OF WISCONSIN
WHITEWATER

Goodhue Hall Facility Assessment (Third Floor)

University of Wisconsin-Whitewater

DFD Project No. 14F2R

12/31/2014



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2. Executive Summary

Introduction

The Division of Facilities Development (DFD) and UW-Whitewater (UW-W) requested KEE Architecture to evaluate the third floor of Goodhue Hall on the UW-Whitewater campus, which was until recently occupied by the offices of the campus Military Sciences and Leadership/ROTC program. UW-Whitewater Residence Life intends to return the third floor to residential dormitory use, including student rooms, a suite and a staff apartment.

Assessment tasks performed by KEE Architecture and its consultants included:

- Tour and assess the project area and adjacent spaces within Goodhue Hall
- Review extant building plans
- Document current third floor layout and utilization, including status of partially complete work
- Investigate applicable building code issues
- Develop conceptual plans for conversion of third floor from office to residential use
- Develop project budget and schedule, based on assessment and planning
- Meet with DFD and UW-Whitewater to review assessment

Building Description

History, Construction and Layout

Goodhue Hall (originally known as “South Hall”) was built in 1963 along with Fischer Hall (an identical adjacent dormitory originally known as “North Hall”). The building is a five-level cast-in-place concrete structure, with a footprint of approximately 200’ x 39’ (7,800 gross square feet per floor). Exterior walls are masonry (block and face brick). Original finishes were simple and were generally attached directly to the concrete & masonry structure.

Originally, floors 2-4 each contained 28 double-occupancy student rooms, located on each side of a center corridor. The first floor had 23 double rooms and one apartment, in addition to dormitory offices. Total occupancy was 215. Basement level included mechanical, storage and community spaces.

In 1991, a hydraulic elevator was added to the southwest corner of the building, providing access to all five levels and the mid-level building entry.

Current Uses (All Levels)

Since built, Goodhue Hall has undergone numerous upgrades and alterations, including on the third floor – the subject of this assessment report.

Current primary uses in the building include:

Basement: Residence Life offices and meeting rooms.

First Floor: Campus police and Residence Life offices.

Second Floor: Residence Life offices.

Third Floor: Currently vacant. (Formerly Military Sciences and Leadership/ROTC program offices.)

Fourth Floor: Guest Housing and Student Overflow housing.

It should be noted that, by definition, this is a *mixed-use* building and must be treated as such.

Existing Building Condition Assessment

In general, Goodhue Hall is in very good condition and has been well maintained, including structure and exterior skin. Renovations and changes in use as well as technology updates have allowed the building to continue to serve effectively since its construction over fifty years ago.

Existing Third Floor

Once vacated by Military Sciences and Leadership/ROTC program offices, the staff of Residence Life did limited demolition work on the third floor, including removal of all furniture, as well as most plumbing fixtures, interior doors, and finishes. New construction includes rated hollow metal door frames at each student room, some interior metal stud walls and limited plumbing work.

Mechanical/Electrical Systems

In general, mechanical/electrical systems in the building are in good condition. Third floor plumbing fixtures and electrical systems have been removed and will be replaced as part of the proposed project. HVAC convectors and wall fin will remain. Local exhaust in toilet and shower rooms as well as at cooking areas in the lounge and apartment will be replaced.

Building Code Analysis

1. Requirements of the *Wisconsin Commercial Building Code*, the *International Existing Building (IEBC)* and all referenced codes apply to this project.
2. As proposed, the third floor project includes a change of occupancy (from office to residential) and is considered a *mixed-use* facility.
3. Change of occupancy requires the installation of a fire sprinkler system to the third floor.
4. The status of review and approvals for prior alterations and changes in use is unknown at this time, and could have impact on the proposed third floor project.
5. The project must meet the applicable requirements of Repairs as well as Level 1, Level 2 and Level 3 Alterations.
6. Current means of egress (corridors and stairwells) will meet code requirements, with some modifications to lighting and exit signs.
7. New dwelling room doors must be solid core wood and include self-closing devices.
8. Altered and new elements must meet new construction accessibility requirements, except where technically infeasible. At least (2) fully-accessible dwelling units must be provided somewhere in the building.
9. UW-Whitewater accessibility requirements may apply, in addition to code requirements.
10. Non-compliant dead-end corridor conditions exist, which can become compliant when a fire sprinkler system is installed.
11. In order to avoid building-wide improvements, fire-rated separation must be maintained between residential uses (on Levels 3 and 4) and office uses (on lower floors).

Conceptual Design (Third Floor)

As envisioned by UW-Whitewater, the third floor of Goodhue Hall will be returned to residential use, similar to its original function.

The floor will include (16) guest housing rooms (double-occupancy), one suite (with private bathroom) and one apartment (with kitchenette and private bathroom). Maximum occupancy on the floor is anticipated to be 34-36 people.

In addition, common spaces will be provided in two toilet/shower rooms, a laundry and two lounges. Storage will be maintained in (3) rooms at the north end of the building.

General construction work includes the following:

- Interior partitions (masonry and drywall)
- Interior doors and frames
- Toilet and shower fixtures and services
- Kitchenettes (cabinets and appliances)
- Laundry equipment
- Interior finishes (floors, walls and ceilings)
- Glazed storefront (at south lounge)
- Window replacement
- Required accessibility upgrades beyond 3rd floor

M/E/P System Recommendations

Plumbing and Fire Protection recommendations include:

- Replace water softener system
- Replace sanitary waste stacks (3rd floor)
- Replace domestic water pipe and fittings
- Install new plumbing fixtures & piping
- Install fire sprinkler system (3rd floor)

HVAC recommendations include:

- Install new exhaust fans in toilet rooms
- Replace exhaust grilles
- Vent all cooking stoves

Electrical recommendations include:

- Replace original electrical panels
- Provide new lighting, controls and receptacles (3rd floor)
- Provide dedicated circuits at equipment, including washers, dryers and stoves
- Install new exit lights
- Install new telecommunications/data wiring

Project Budget

Based on existing conditions, program requirements from UW-Whitewater and DFD design guidelines, the following is a conceptual budget estimate:

Construction:	\$ 590,019
Fees, Contingency, Equipment, etc.:	<u>159,815</u>
TOTAL Project:	\$ 749,834

Project Schedule

Based on established DFD guidelines, the total project schedule is anticipated to be approximately 22 months from A/E selection through completion of construction.

Summary

As proposed, the Goodhue Hall Third Floor project will provide up to date residential dormitory facilities consistent with other dormitories on the UW-Whitewater campus.

Because of the change in use (from office to residential), a fire sprinkler system is required on the third floor and separation between adjacent uses must be maintained.

As final construction documents are developed, a detailed analysis of the entire facility is recommended. Documents must be submitted to the state Department of Safety and Professional Services, which provides plan review for commercial buildings and structures in the state.

3. Acknowledgements

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4. Introduction

The Division of Facilities Development (DFD) and UW-Whitewater (UW-W) requested KEE Architecture to evaluate the third floor of Goodhue Hall on the UW-Whitewater campus, which was until recently occupied by the offices of the campus Military Sciences and Leadership/ROTC program. UW-Whitewater Residence Life intends to return the third floor to dormitory use, including student rooms, a suite and a staff apartment.

Assessment tasks performed by KEE Architecture and its consultants included:

- Tour and assess the project area and adjacent spaces within Goodhue Hall
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In 1991, a hydraulic elevator was added to the southwest corner of the building, providing access to all five levels and the mid-level building entry.

Current Uses (All Levels)

Since built, Goodhue Hall has undergone numerous upgrades and alterations, including on the third floor – the subject of this assessment report.

The status of review and approvals for prior alterations and changes in use in the building is unknown at this time, and could have impact on the proposed third floor project.

Current uses in the building include:

Basement: Residence Life offices and meeting rooms. Mechanical and support spaces. Toilet rooms.

First Floor: Campus police offices. Residence Life reception and model room. Toilet and shower facilities.

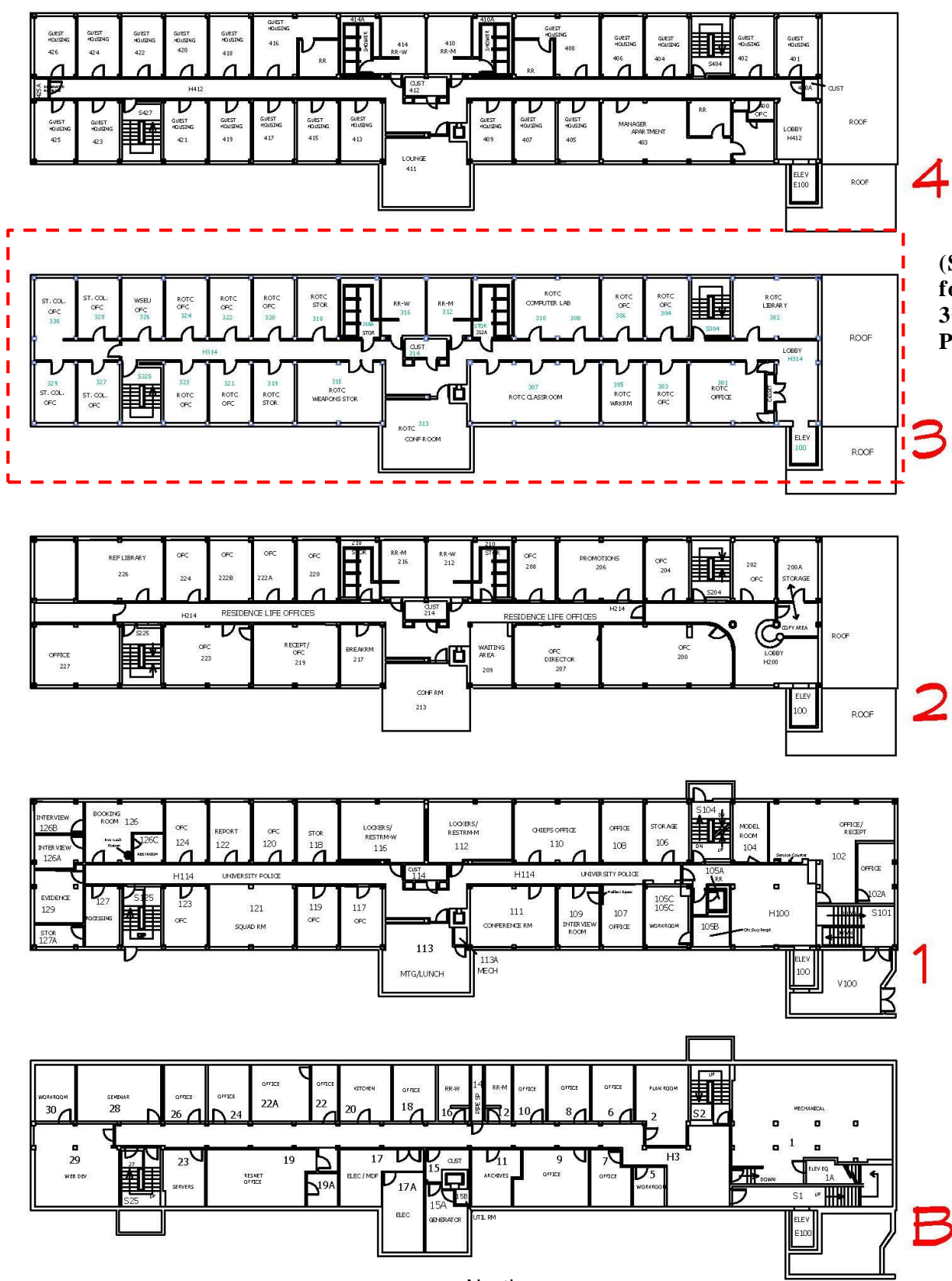
Second Floor: Residence Life offices. Toilet facilities.

Third Floor: Currently vacant. (Formerly Military Sciences and Leadership/ROTC program offices.)

Fourth Floor: Guest Housing and Student Overflow housing. Toilet and shower facilities.

(See *Existing Floor Plans*, page 10.)

It should be noted that, by definition, this is a *mixed-use* building and must be treated as such. (See *Building Code Analysis*, page 14.)



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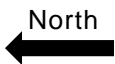
(See Page 13
for Existing
3rd Floor
Plan

3

2

1

B



EXISTING FLOOR PLANS
(Not to Scale)

6. Existing Condition Assessment (Third Floor)

General

In general, Goodhue Hall is in very good condition and has been well maintained. Renovations and changes in use as well as technology updates have allowed the building to continue to serve effectively since its construction over fifty years ago.

The concrete structure appears sound and shows no signs of stress. (A complete structural analysis is recommended prior to undertaking major renovation.)

The exterior skin of the building is in good condition. All windows in the building have been replaced except on the third floor. (See conceptual plans, below.)

(The roof was not assessed as part of this report.)

Once vacated by Military Sciences and Leadership/ROTC program offices, the staff of Residence Life did limited demolition work on the third floor, including removal of all furniture, as well as most plumbing fixtures, interior doors, and finishes. New construction includes rated hollow metal door frames at each student room, some interior metal stud walls and limited plumbing work.

See *Existing Third Floor Plan*, page 13.

Plumbing System

The 3rd floor of the building domestic water is fed from the main building water supply located in the basement. The existing water heating system is generated by a steam heat exchanger with a high efficiency gas fired water heater as backup. The existing gas fired water heater is used during steam system shut down, and in case of steam equipment failure. The existing ion exchange water softener is a Marlo system with two resin tanks and one salt brine tank. The resin tanks appear to be piped in series.

The existing sanitary waste and vent stacks are located in walls, mainly in the center toilet/shower core. The stacks appear to be cast iron and galvanized steel original to the building. The existing water piping for the toilet/shower core is also buried in the walls, and appeared to be galvanized and copper piping original to the building. In a couple instances there has been modifications to the existing piping to feed fixtures located on the residence floor above, and it is assumed that this piping shall remain.

The existing toilet/shower rooms have been partially demolished. A majority of the existing wall hung flush valve water closets and wall hung lavatories with manual faucets are still in place. The plumbing for these fixtures appears to be concealed in the block walls behind the fixtures. The existing showers were deactivated/abandoned in a previous project several years earlier. The showers had originally drained to a trough and collected down a single floor drain. These floor drains were abandoned during a past project, and appear to be filled with concrete. The existing walls behind the showers have been opened up and the existing water pipe branches have been demolished. The existing risers are located between the walls and are visible, but not fully exposed.

Sanitary waste, vent, and domestic water piping has been roughed in for new partially installed toilet rooms on 3rd floor. The pipe materials and installation appear to be installed per current DFD standards. New shower enclosures were on site but not fully installed.

The existing facility is not fire protected with any type of wet sprinkler system.

Fire Protection

The existing facility is not fire protected with any type of wet sprinkler system.

HVAC System

The 3rd floor of the building is heated by perimeter hot water convectors and wall fin radiation. The convectors and wall fin do not have thermostats or control valves and the convectors have manual dampers inside the cabinets to somewhat direct the heat output. The convectors and wall fin units are in fair condition.

Heating hot water is circulated throughout the building by two (2) base mounted hot water circulating pumps in the basement mechanical room. Both of the pumps were operating at the time of the site visit and they seem to be in good working condition. According to the existing temperature control shop drawings the 3 way control valve for the hot water system is no longer in service. It appears that whenever the OA temperature drops below a certain point (probably close to 50 deg F) then the hot water pumps are activated.

Outside air for the floor is introduced through operable windows and window air conditioning units. New windows are planned to be installed on the 3rd floor and the new window will continue to be operable.

The existing toilet rooms and showers are exhausted through two (2) central building exhaust fans. According to UW Whitewater personnel, the fans are operating and do not need to be replaced at this time. The exhaust grilles in the existing toilet and shower rooms are in poor condition and in need of replacement.

The existing lounge currently has a floor mounted unit ventilator that provides heat and outside air for the lounge area. The unit ventilator seems to be in fair condition. There is a pneumatic thermostat on the wall that controls the unit ventilator hot water heating valve.

Electrical System

The 3rd floor of the building is equipped with two (2) sets of electrical panels; one (1) set (Kinney) appears to be original to the building (1960's) while the other panel (Square D) appears to be part of a 1990's project. The two (2) 200A main lug only, 208/120V, 3-Phase, 4-Wire, 36-Circuit Kinney, original set of panels is outdated and it is unlikely that breakers are available for the panel. These Kinney panels are currently fed from the existing switchgear in the Basement main electrical room and are fed from the same circuit breaker as the 4th floor panels. The 225A main lug only, 208/120V, 3-Phase, 4-Wire, 30-Circuit Square D panel would have breakers readily available. This Square D panel is currently fed from a sub panel in the Basement level and is fed from the same circuit breaker as the 1st and 2nd floor panels that were added in the 1990's. An existing 120V circuit for life safety lighting in the Corridor appears to be fed from the existing life safety electrical panel in the Basement.

The electrical systems throughout the floor have been removed completely, with the exception of a few exit signs, fire alarm smoke detectors, and fire alarm A/V notification devices in the Corridor. The fire alarm devices appear to be in working order and appear to comply with current code requirements. The existing exit signs should be replaced. Some new electrical rough-ins for lighting and receptacles has been provided, however this work does not comply with current State of Wisconsin electrical standards and would need to be removed.

The existing fire alarm system control panel, a Simplex #4010 panel, also resides in the Basement main electrical room. The 4010 will accommodate 250 addressable points, so the capacity is there, and NAC panels for notification devices will be added as required.

Telecommunications in the building is achieved through both wired and wireless access. Currently all telecommunications devices are fed from the MDF in the Basement. CAT6 cabling to new wireless access points will need to be provided. No additional CAT6 cabling is anticipated as part of this project. Stairwell doors are currently equipped with card access. No further work is required with this system as part of this project.

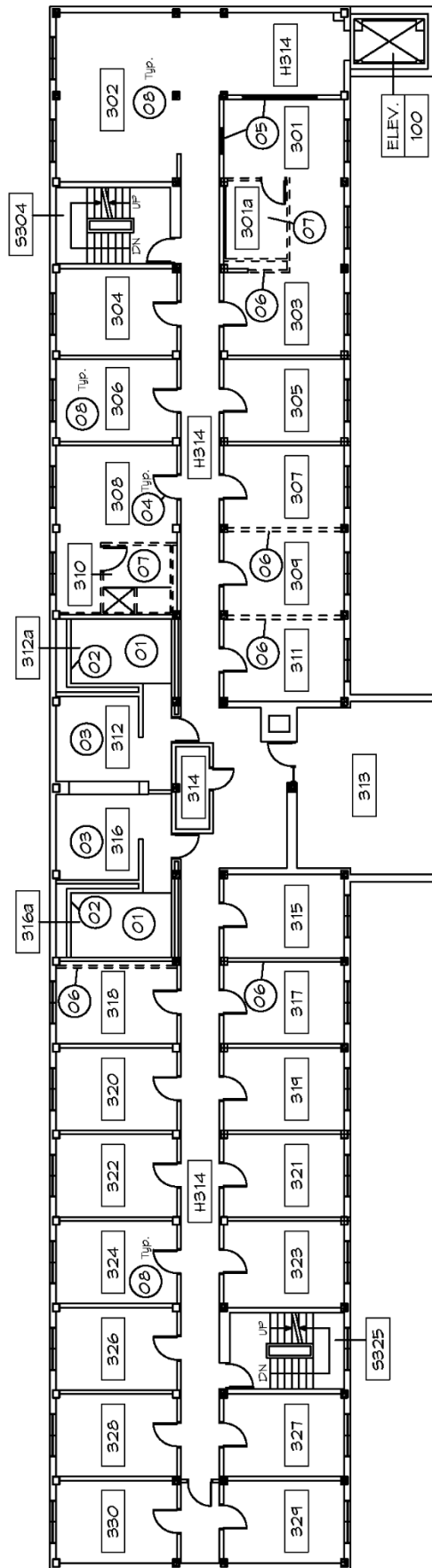
Goodhue Hall

Facility Assessment (Third Floor)



NOTES:

- 01 EXISTING TOILET & SHOWER ROOMS PARTIALLY DEMOLISHED. WILL REQUIRE WALL, FLOOR AND CEILING REPAIR; NEW FIXTURES; NEW FINISHES AND ACCESSORIES.
- 02 EXISTING MASONRY WALLS PARTIALLY DEMOLISHED.
- 03 EXISTING TOILET FIXTURES AND PARTITIONS REMOVED. REPLACE WITH NEW.
- 04 HOLLOW METAL DOOR FRAMES HAVE BEEN REPLACED. DOORS AND HARDWARE REQUIRED.
- 05 EXISTING MASONRY OPENINGS HAVE BEEN INFILLED WITH CMU. FINISHING REQUIRED.
- 06 EXISTING WALLS CONSIST OF BARE METAL STUDS. DRYWALL, INSULATION AND FINISHING REQUIRED.
- 07 TOILET ROOMS IN SUITE AND APARTMENT ARE PARTIALLY ROUGHED IN. FINAL PIPING, DRYWALL, INSULATION AND FINISHING REQUIRED.
- 08 INTERIORS OF ALL SPACES HAVE BEEN DEMOLISHED. FINISHES, ELECTRICAL, HVAC AND PLUMBING FIXTURES, DOORS, ETC. HAVE BEEN REMOVED.



Existing Third Floor Plan
(Not to Scale)

7. Building Code Analysis

Relevant Code Provisions

Requirements of the *State of Wisconsin Commercial Building Code* apply to this project.

Since it is in an existing building, the proposed Goodhue Hall project is governed by the *International Existing Building (IEBC) 2009* edition, which has been adopted by the State of Wisconsin.

By reference, the IEBC incorporates applicable provisions of other International Code Council codes, including:

- *International Building Code (IBC)*
- *International Fire Code (IFC)*
- *International Electrical Code (IEC)*
- *International Energy Conservation Code (IECC)*
- *International Fuel Gas Code (IFGC)*
- *International Mechanical Code (IMC)*
- *International Plumbing Code (IPC)*

Accessibility issues are addressed in *ICC Guidelines for Accessible and Usable Buildings and Facilities (ICC A117.1)*.

Prior to undertaking final design and documentation for the Goodhue Hall Third Floor Alteration project, a thorough review of all applicable code provisions should be done.

CHAPTER 1 – SCOPE AND ADMINISTRATION

IEBC 101.1 – Scope. The provisions of the International Existing Building Code apply to the repair, alteration, change of occupancy, addition and relocation of existing buildings. The Goodhue Hall project includes repair, alteration and change of occupancy.

IEBC 101.5 – Compliance methods. The IEBC provides options for compliance (prescriptive, work area and performance), to allow for compliance with the intent of the code in a variety of ways. Each should be evaluated as the Goodhue Hall project moves forward.

CHAPTER 4 – CLASSIFICATION OF WORK

IEBC 401.3 – Occupancy and use. To determine applicable code requirements, this section refers to Chapter 3 of the IBC for determination of the occupancy and use of buildings. Goodhue Hall is a mixed-use building with the following occupancies:

- R-2 Dormitory
- B Business (including university offices)

Each level of building repair and alteration have applicable code requirements, which get more restrictive as the level of work increases:

IEBC 402.1 – Repairs. Repair work includes patching or restoration of materials and elements for the purpose of maintaining them in good condition. In the Goodhue Hall Third Floor project, all repairs (including those involving means of egress, accessibility, structural elements and mechanical/electrical systems) must meet the requirements of IEBC Chapter 5.

IEBC 403.1 – Level 1 Alterations. Level 1 Alterations are the most basic level of building alterations such as a roof replacement. This would apply to the proposed Goodhue Hall project, since Level 2 alterations (below) include Level 1 compliance.

IEBC 404.1 – Level 2 Alterations. Level 2 Alterations are more involved than Level 1, and include work such as addition or elimination of any window or door, reconfiguration or extension of any system or installation of any additional equipment. This is the level of alteration that would apply to the proposed Goodhue Hall project, requiring compliance with provisions of Chapters 6 and 7 of the IEBC (see below).

IEBC 405.1 – Level 3 Alterations. Level 3 Alterations apply where the work area exceeds 50 percent of the aggregate area of the building. While the Goodhue Hall project directly affects only the third floor, it involves a change in occupancy, which triggers the requirements of Level 3 alterations to be applied in the work area. (See Change in Occupancy, below.)

IEBC 406.1 – Change of Occupancy. Changes in occupancy may change the level of inherent hazards that the code was intended to address, and are required to be addressed in Chapter 9 (see below).

CHAPTER 5 - REPAIRS

IEBC Section 502 – Building Elements and Materials. Materials already in use in a building in conformance with requirements in effect at the time of their installation may remain, unless determined to be unsafe by a code official. (The code is not retroactive.) Examples of unsafe materials include asbestos, lead paint and non-safety glazing in hazardous locations.

IEBC Sections 503, 504 and 505 - Repairs of fire protection systems, means of egress, and accessibility-related features shall be done in a manner that maintains the same or better level of protection and access.

IEBC Section 506 – Structural. Repairs for substantial structural damage require evaluation and rehabilitation complying with applicable provisions of the IBC and may include use of more stringent design criteria.

IEBC Sections 507, 508 and 509 - With some exceptions, electrical, mechanical and plumbing repairs may use original materials, although repairs may not make the building less conforming than before the repairs were undertaken. Plumbing repairs may not use materials that are prohibited in the current International Plumbing Code. And all water closet replacement must meet listed maximum consumption flow rates.

CHAPTER 6 – ALTERATIONS - LEVEL 1

IEBC 601.2 – Conformance. This chapter requires that an existing building may not be altered such that it becomes less safe than its existing condition.

IEBC Section 602 – Building Elements and Materials. All new installed finish materials on floors, walls and ceilings as well as trim, must meet applicable current code requirements, which may include updated materials and installation techniques.

IEBC Section 603 – Fire Protection. Current levels of fire protection must be maintained. Goodhue Hall is not currently sprinklered, although a change in use would trigger the installation of a fire sprinkler system (see IEBC 912.2.1 below). Other features that were originally installed cannot be removed without prior approval (for example, internal fire hoses).

IEBC Section 604 – Means of Egress. Current levels of protection at all means of egress must be maintained. The fire-rated Goodhue Hall stairwell doors must be kept in place or, if replaced, be provided at or above the same level of protection. (Original stairwell doors, indicated as B Label (1-1/2 hour) rated, remain on the third floor.)

IEBC Section 605 – Accessibility. All alterations must provide accessibility at the level required for new construction, unless it is technically infeasible. Third floor alterations at Goodhue Hall must include provisions for accessible building entrances, elevator, sleeping rooms, toilet and shower facilities, and other features in “primary function areas”. (While noted as part of the third floor scope of work, and detailed analysis of the path of travel and other functional spaces in the building is required prior to developing final construction documents.)

IEBC Section 607 – Energy Conservation. While entire building does not need to meet current energy requirements, the altered area must meet certain energy standards when systems are replaced. Since Goodhue Hall HVAC systems are not being replaced, conservation requirements are minimal.

CHAPTER 7 – ALTERATIONS - LEVEL 2

In addition to meeting the requirements of Chapter 6, Level 2 alterations must meet Chapter 7 requirements.

IEBC Section 703 – Building Elements and Materials. Vertical openings, shafts, floor openings and fire-resistance ratings within the work area must comply with the applicable IBC requirements. In the case of Goodhue Hall, compliance requirements may be met with conventional means consistent with existing construction:

Existing Vertical Openings (including shafts, floor openings and stairs): enclosed with not less than 1-hour fire resistance rated assembly. (See below for additional requirements.)

Interior Finishes (in corridors, exits walls and ceilings): must meet flame spread and smoke-developed classifications of IBC 803.9 or be fire-retardant treated.

IEBC Section 704 – Fire Protection.

IEBC 704.2.2 – In work areas in buildings with R-2 occupancies (dormitories) having corridors serving more than 30 occupants (including Goodhue Hall third floor), a supervised automatic sprinkler system must be installed, provided the building has sufficient municipal water supply available without the installation of a new fire pump.

IEBC 704.4 – Fire Alarm and Detection. An approved automatic fire detection system must be provided. In the case of Goodhue Hall, the existing previously approved fire alarm system can be used. Smoke alarms must be provided in individual sleeping rooms.

IEBC Section 705 – Means of Egress. Existing means of egress conforming to the requirements of the building code under which the building was constructed are considered compliant. Current third floor egress exits must be maintained in Goodhue Hall, including the location, quantity, fire rating and size of stairwell doors, which must have self-closing devices.

Sleeping room replacement doors at the corridor must be equipped with closers and must be equivalent to solid-core wood of a minimum of 1-3/4” thick. (Doors within units do not require closers.) Dead end corridors (such as proposed on the north end of the building) shall not exceed 35 feet in length.

705.6 – Dead-end Corridors. Dead-end corridors in work areas may not exceed 35 feet in length, except existing dead-end corridors up to 50 feet in length in buildings equipped throughout with an automatic fire alarm system. If a fire sprinkler system is provided, the maximum distance may be increased to 70 feet. The third floor corridor leading to the Goodhue Hall elevator is a dead-end condition and is \pm 48 feet long. Installation of a sprinkler system will bring this condition into compliance.

Chapter 8 – ALTERATIONS - LEVEL 3

Since the Goodhue Hall Third Floor project will change the occupancy of the third floor (as noted above), all work on the floor must meet applicable provisions of Chapter 8 (Level 3 Alterations) in addition to those of Chapter 6 (Level 1) and Chapter 7 (Level 2). With proper separation provided between uses and floor levels at Goodhue Hall, these additional requirements apply only to the work area on the third floor, not to the entire building.

IEBC 803.1 – Existing Shafts and Vertical Openings. In addition to the requirements of Section 7, existing stairways that are part of the means of egress shall be enclosed from the work area to, and including, the level of exit discharge and all floors below. Walls and doors in the two Goodhue Hall stairwells must be rated on levels 3, 2, 1 and B. All doors must be self-closing.

IEBC 804.2 – Fire Alarm and Detection Systems. This section requires a full fire alarm and detection systems to be provided throughout the building. Fire alarm and detection systems on the third floor of Goodhue Hall shall be maintained and/or upgraded to meet current code.

IEBC 805.2 – Means of Egress Lighting. In addition to exit lighting in the work area, this section requires lighting within the exit enclosure from the highest work area floor to the floor of exit discharge. At Goodhue Hall, both stairwells must be lit on levels 3, 2 and 1.

IEBC 805.3 – Exit Signs. In addition to exit signs in the work area, this section requires exit signs within the exit enclosure from the highest work area floor to the floor of exit discharge. At Goodhue Hall, both stairwells must be signed on levels 3, 2 and 1.

Chapter 9 – CHANGE OF OCCUPANCY

This chapter deals with the special situations involved in an existing building when a change of occupancy occurs. Particularly when the change in occupancy is from a lower to higher level of hazard (for example from office use to residential use as is the case at Goodhue Hall), more stringent requirements apply.

IEBC Section 912 - Change of Occupancy Classification. IEBC Chapter 9 deals with the special situations involved in an existing building when a change in occupancy occurs, including the change from offices to residential dorm rooms as proposed for the third floor of Goodhue Hall.

(While the entire building was originally a residential (R-2) occupancy, it is unclear what if any code-required modifications or other changes were made when the lower floors were converted to office (B) use.)

Specific requirements vary depending on the degree of separation between the new occupancy (3rd floor dorm rooms) and the remainder of the building (Basement, 1st and 2nd floor offices).

IEBC 912.1.1.2 notes that where a portion of an existing building is changed to occupancy classification and that portion is separated from the remainder of the building (per IBC Section 508 outlined below), required upgrades and modifications can be limited to the portion of the building.

IBC Table 508.4 requires a 2-hour fire-resistance rating for fire barrier walls and horizontal assemblies used to separate residential (R-2) and office (B) occupancies. Original Goodhue Hall building drawings indicate a concrete floor structure equivalent to a 2-hour rated assembly. Stair walls are solid masonry, equivalent to a 2-hour rated assembly. Stairwell doors are labeled on original drawings as “B Label”, equivalent to a 1-1/2 hour door, which meets the current rating requirement.

All other shafts and penetrations connecting the third and second floors must be 2-hour rated and sealed properly to provide the required fire separation.

IEBC 912.2.1 – Fire Sprinkler System. Where a change in occupancy classification occurs that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with IBC Chapter 9, such a system shall be provided throughout the area where the change of occupancy occurs.

IBC 903.2.8 requires sprinklers in any building that contains a Group R fire area, including dormitories. There are no minimum criteria and no exceptions.

Given the presence of a 2-hour separation, the Goodhue Hall project would require a fire sprinkler system on the third floor only.

IEBC 912.2.2 – Fire Alarm and Detection System. A manual fire alarm system and smoke alarms are required throughout the third floor of Goodhue Hall, based on the requirements of IBC 907.2.9

IEBC 912.4.1 – Means of Egress for Change to Higher Hazard Category. When a change in occupancy classification is made to higher hazard category (e.g. B - Office to R-2 – Dormitory in the case of Goodhue Hall), means of egress requirements are similar to new construction. With some exceptions, IBC Chapter 10 requirements apply to ceiling headroom, protruding objects, occupant load, exiting, egress width, doors & hardware, stairways, exit signs, handrails, exit access, exit travel distance, and corridors.

Accessibility Issues

As noted above, the IEBC requires all alterations to meet current accessibility requirements.

IEBC Section 706 – Accessibility. The IEBC approaches the application of accessibility provisions to a facility that is altered by requiring full accessibility to the extent possible. All building elements that have been constructed or altered to be accessible shall be maintained accessible. When a facility or element is altered, it must meet new code requirements.

In the case of the Goodhue Hall project, altered elements such as individual dwelling rooms, common areas, toilet & shower facilities and all fixtures, as well as some features beyond the third floor (exit stair handrails, for example) must comply with accessibility standards.

IEBC Section 706.3 – Accessible Sleeping Units. Where sleeping units are added, the requirements of IBC Section 1107 apply. Per IBC Section 1107.6.2.2 and Table 1107.6.1.1, since there are 26-50 units in Goodhue Hall, at least (2) units within the building shall be fully accessible (without roll-in showers). In addition, all added units must be built to Type B unit standards, which allow for lower levels of accessibility, but require some provisions for future alteration when needed. UW-Whitewater must confirm accessible sleeping unit quantities and locations as part of the final Goodhue Hall project design.

UW-Whitewater may have other accessibility guidelines and requirements that go beyond code requirements that should be incorporated in a Goodhue Hall alteration project as well.

Building Code Summary:

1. Requirements of the *Wisconsin Commercial Building Code*, the *International Existing Building (IEBC)* and all referenced codes apply to this project.
2. As proposed, the third floor project includes a change of occupancy (from office to residential) and is considered a *mixed-use* facility.
3. Change of occupancy requires the installation of a fire sprinkler system on the third floor.
4. The status of review and approvals for prior alterations and changes in use is unknown at this time.
5. The project must meet the applicable requirements of Repairs as well as Level 1, Level 2 and Level 3 Alterations.
6. Current means of egress (corridors and stairwells) will meet code requirements, with some modifications to lighting and exit signs.
7. New dwelling room doors must be solid core wood and include self-closing devices.
8. Altered and new elements must meet new construction accessibility requirements, except where technically infeasible. At least (2) fully-accessible dwelling units must be provided somewhere in the building.
9. UW-Whitewater accessibility requirements may apply, in addition to code requirements.
10. Non-compliant dead-end corridor conditions exist, which can become compliant when a fire sprinkler system is installed.
11. In order to avoid building-wide improvements, fire-rated separation must be maintained between residential uses (on Levels 3 and 4) and office uses (on lower floors).

8. Proposed Third Floor Alterations

Conceptual Design

As envisioned by UW-Whitewater, the third floor of Goodhue Hall will be returned to residential use, similar to its original function.

The floor will include (16) guest housing rooms (double-occupancy), one suite (with private bathroom) and one apartment (with kitchenette and private bathroom). Maximum occupancy on the floor is anticipated to be 34-36 people.

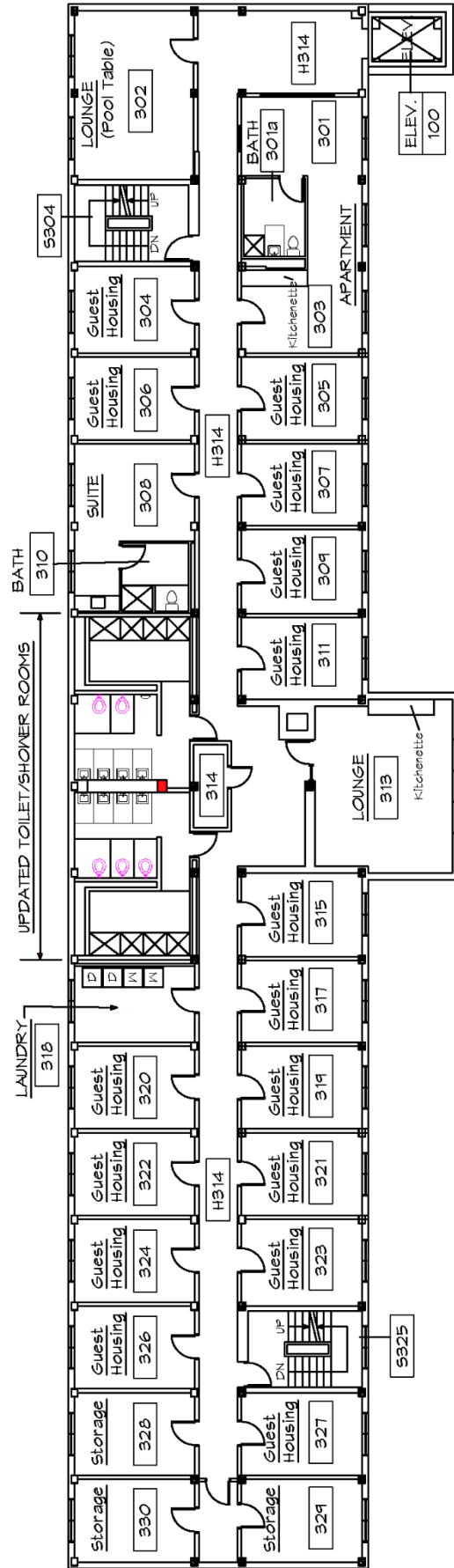
In addition, common spaces will be provided in two toilet/shower rooms, a laundry and two lounges. Storage will be maintained in (3) rooms at the north end of the building.

See *Proposed Third Floor Plan*, page 20.



NOTES:

1. NEW WINDOWS PROVIDED IN ALL SPACES ON THIRD FLOOR.
2. PROVIDE NEW SOLID-CORE WOOD DOORS WITH CLOSERS ON ALL ROOMS CONNECTED TO CORRIDOR.
3. STAIR DOORS TO REMAIN (OR REPLACE WITH RATED DOORS OF SAME SIZE).
4. NEW PLUMBING FIXTURES AND TOILET ACCESSORIES IN ALL TOILET & SHOWER ROOMS.
5. NEW POWER, LIGHTING, DATA AND CATV THROUGHOUT.
6. KITCHENETTES (IN LOUNGE AND APARTMENT) TO INCLUDE RESIDENTIAL STOVE AND REFRIGERATOR.
7. ALL SPACES EXCEPT TOILET/SHOWER ROOMS TO RECEIVE CARPET TILE AND PAINTED WALLS & CEILINGS.
8. TOILET & SHOWER ROOMS TO RECEIVE EPOXY FLOORS, SOLID SURFACE WALL PANELS AND PAINTED CEILINGS.



Proposed Third Floor Plan
(Not to Scale)

General construction work includes the following:

- Interior partitions (masonry and drywall)
- Interior doors and frames
- Toilet and shower fixtures and services
- Kitchenettes (cabinets and appliances)
- Laundry equipment
- Interior finishes (floors, walls and ceilings)
- Glazed storefront (at south lounge)
- Window replacement
- Required accessibility upgrades beyond 3rd floor

M/E/P System Recommendations

Plumbing

The existing domestic water service is adequately sized for the building domestic water load. However, the water service is not adequately sized for a new building sprinkler system. The existing domestic water service will need replacing with a new 6" combined domestic water and fire sprinkler water service. The new 6" water service will enter the basement in the same location as the current water service, and split to serve the existing domestic water system and the new building wet sprinkler system. Continuation of the sprinkler system will be by the fire protection contractor.

The existing steam water heater, storage, and gas fired water heater backup systems appear to be in good condition, and are adequately sized for the building hot water demand. The existing water softener system appears to be over 15 years old and the condition is poor. Replacement of the water softener system is recommended in this project or in the near future.

It is assumed that the existing sanitary waste stacks are nearing the expected life of the pipe and fittings. It is recommended that all sanitary waste pipe and fittings be replaced serving the third floor plumbing fixtures in this project. Waste and vent piping to be replaced is located on 3rd floor and in some instances in the 2nd floor ceiling below. This will require opening up the second floor ceiling in some locations.

It is assumed that the existing domestic cold, hot, and hot recirculation risers are nearing the expected life of the piping and fittings. It is recommended that all domestic water pipe and fittings be replaced serving this third floor project located on the 3rd floor.

The partially installed plumbing rough-ins for the new fixtures appear to be installed per DFD standards, and can be used to complete the new fixture installation. The existing domestic cold, hot, and hot recirculation pipe sizes need to be verified for the new fixture installation. It appears that the new water closets for the proposed guest room toilet rooms are intended to be tank type water closets due to the size of the water supply in a couple locations. Floor drains may need to be added for the two guest room toilet rooms.

The new toilet/shower rooms will require all new sanitary waste and vent and domestic water to serve the new showers, water closets, and lavatories. New sanitary waste and vent shall be installed and tie into the existing sanitary waste and vent stacks located in the existing walls/chases. New domestic water distribution will be installed to serve the new fixtures and connecting to the existing domestic water risers located in the existing walls/chases. New laundry room is proposed off of the existing women's shower room, which will require two residential type laundry connections and a floor drain in the room. All pipe materials and installations shall meet DFD requirements.

Any fire sprinkler system work (as noted above) shall meet current NFPA requirements and DFD standards.

Fire Protection

In order to provide an automatic wet sprinkler fire suppression system to the building, an upgrade to the building water service is required. The existing water service will require replacement with a new 6" combined domestic water and fire sprinkler water service. The water service will be brought into the building by the plumbing contractor. A code approved double check valve will be required on the sprinkler service to prevent cross contamination with the domestic water service. A fire department connection will be required to be added on the face of the building where fire truck access has been determined. The fire department connection piping will need to tie into the sprinkler water service after the double check valve location.

A sprinkler riser will be added to serve all floors in the building. The third floor will be provided with a valve and tamper switch, and a flow switch for this project. All the over floors will be provided with a cap for future valve and switches. The intent is to provide sprinkler zone valves and monitoring at each floor level.

The third floor will be fully sprinkled with an automatic wet sprinkler system by means of exposed upright heads in areas with no ceilings, and semi-recessed or concealed heads in areas with ceilings. Due to floor to ceilings heights, it is recommended to provide fully concealed sprinkler heads in areas with ceilings. The living areas are considered "Light Hazard" classification, and all storage and mechanical spaces are considered "Ordinary Group I" classification. It is assumed that no condensed storage of flammable material will take place on the third floor.

HVAC

All of the convectors and wall fin heating units will remain as is with no need to remove or replace them to accommodate the remodel.

The two areas where suites will be created, will need to have new ceiling mounted exhaust fans installed for the toilet rooms. The exhaust fans would be ducted directly out the adjacent exterior walls. Control for the bathroom exhaust fans would be by local switch or interlocked with an occupancy sensor.

The existing 14"x12" exhaust grilles in the existing central toilet and shower rooms will need to be replaced with new. Since the existing exhaust grilles do not appear to have balancing dampers and it would be difficult to install new balancing dampers in the duct shafts, the new grilles will need to have dampers installed directly behind the face of the grilles for air balancing purposes. It appears some grilles were partially blanked off for balancing purposes.

The existing lounge is going to have a residential type stove installed that will only be used for warming and light cooking. The new stove can be vented directly outdoors through the adjacent outside wall or potentially a recirculating hood could be used.

Electrical

The two (2) 200A main lug only, 208/120V, 3-Phase, 4-Wire, 36-Circuit Kinney, original set of panels should be replaced. A new 200A main circuit breaker, 208/120V, 3-Phase, 4-Wire, 42-Circuit panel should be provided in place of these panels and should be fed from the existing feeder to the floor. The 225A main lug only, 208/120V, 3-Phase, 4-Wire, 30-Circuit Square D panel should remain.

New lighting, lighting controls and receptacles will need to be provided throughout the floor, including all Guest Rooms, Storage Rooms, Laundry Room, Toilet Rooms, Suites, and

Goodhue Hall

Facility Assessment (Third Floor)

Lounges. Each Guest Room will be provided with lighting, lighting control, receptacles, smoke alarms, and CATV per the model room. In addition, other equipment requiring dedicated circuitry will be provided in the Lounges, Suites, and Laundry Rooms, such as electric dryers and ranges.

Corridors will be provided with new lighting and exit signs, which will be fed from the existing 120V life safety circuit on the floor. Existing fire alarm detection and notification throughout the Corridors will remain.

Telecommunications in the building is achieved through wired and wireless network access. Ten (10) wireless access points will need to be added to the floor. Each room shall have two (2) data jacks for future use. Additional data cable will be required for the laundry facility, lounge and digital signage. These locations will be fed via a hallway raceway to a closet established on the 3rd floor outside of the lounge. Owner will run a fiber from the 3rd floor to the MDF in the basement. Equipment to be provided by owner. CATV will also terminate in new closet with a building CATV trunk line going to basement. Stairwell doors are currently equipped with card access. No further work is required with the card access system as part of this project.

All new electrical work will be provided on existing block walls/ceilings using surface mounted raceways. Conduit and wire will be concealed in any/all new walls/ceilings and wherever possible.

9. Project Budget

Based on existing conditions, program requirements from UW-Whitewater and DFD design guidelines, the following is a conceptual budget estimate:

General Construction:	\$ 216,600	
Plumbing:	106,440	
Fire Protection:	67,080	<i>(Assumes sprinkler on 3rd floor only)</i>
HVAC:	6,960	
Electrical:	<u>115,980</u>	
Subtotal:	\$ 513,060	
Estimating Contingency (15%):	<u>76,959</u>	
Construction TOTAL:	\$ 590,019	
A/E Design Fees:	67,852	<i>(11.5% of Construction)</i>
Contingency:	59,002	<i>(10% of Construction)</i>
DFD Fee:	25,961	<i>(4% of Construction + Contingency)</i>
Equipment:	5,000	<i>(Appliance Allowance)</i>
Furnishings:	0	<i>(By Owner)</i>
Other (Printing, Permits, etc.):	<u>2,000</u>	<i>(Allowance)</i>
Project TOTAL:	\$ 749,834	

** The above Project Budget is in 2015 dollars.

10. Project Schedule

Based on established DFD guidelines, the following is the anticipated project schedule:

Advertise/Contract for A/E Services:	3 months
Develop/Review Budget*:	2 months
Develop Preliminary Plans*:	2 months
Complete/Review Design Report:	1 month
Complete Bid Documents:	3 months
Review Bid Documents (DFD):	1 month
Bidding & Contracting:	4 months
Complete Construction*:	<u>6 months</u>
Total Time:	22 months

* Adjustments to some elements may result in shorter overall schedule.

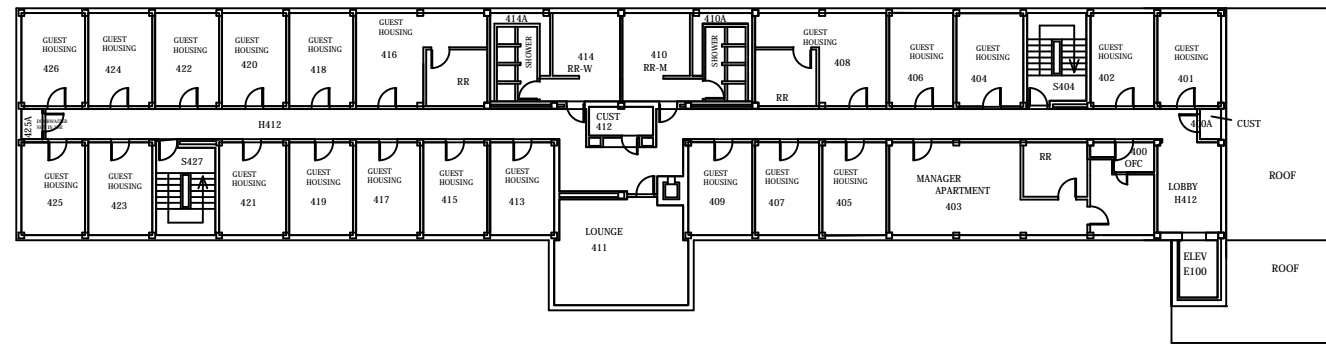
11. Appendices

- Floor Plans
- Estimates of Probable Cost
- Photographs

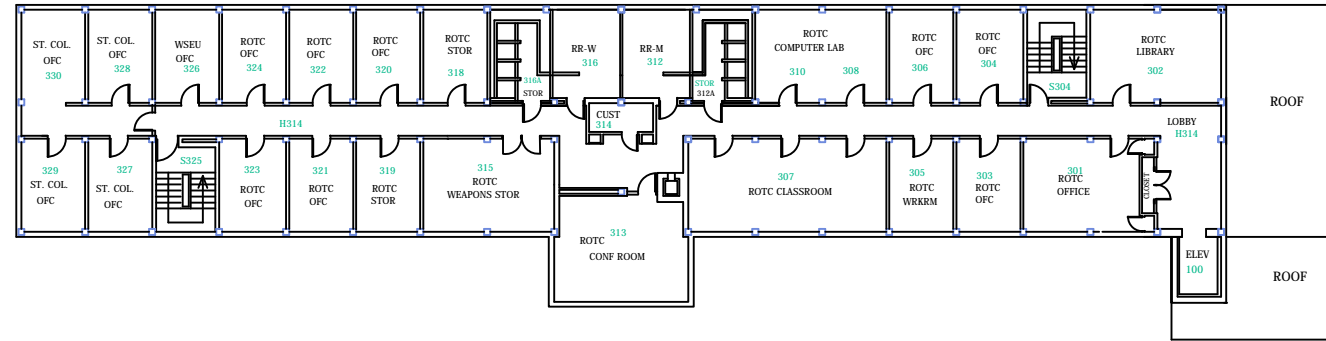


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Floor Plans

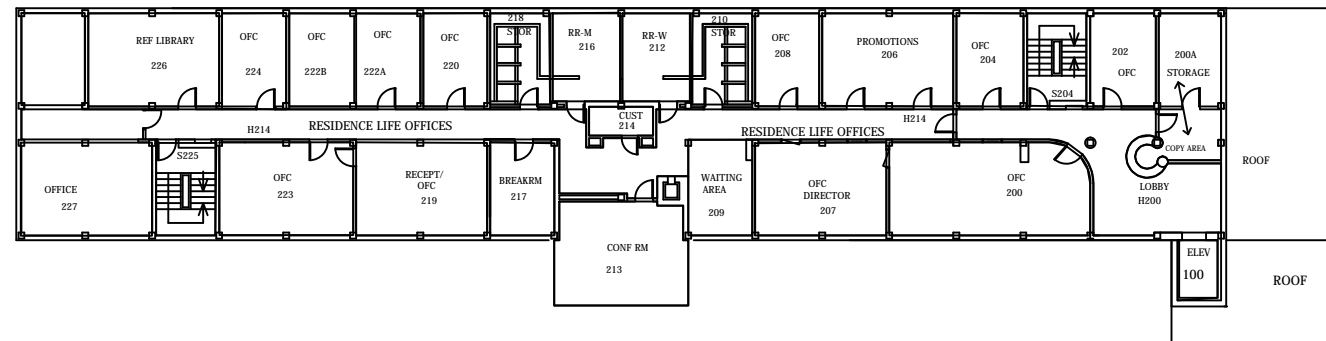


4th Floor

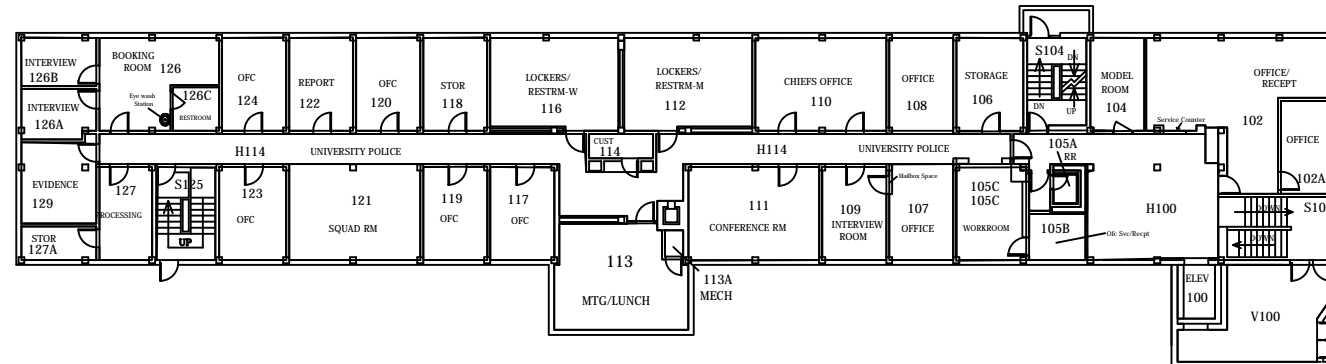


3rd Floor

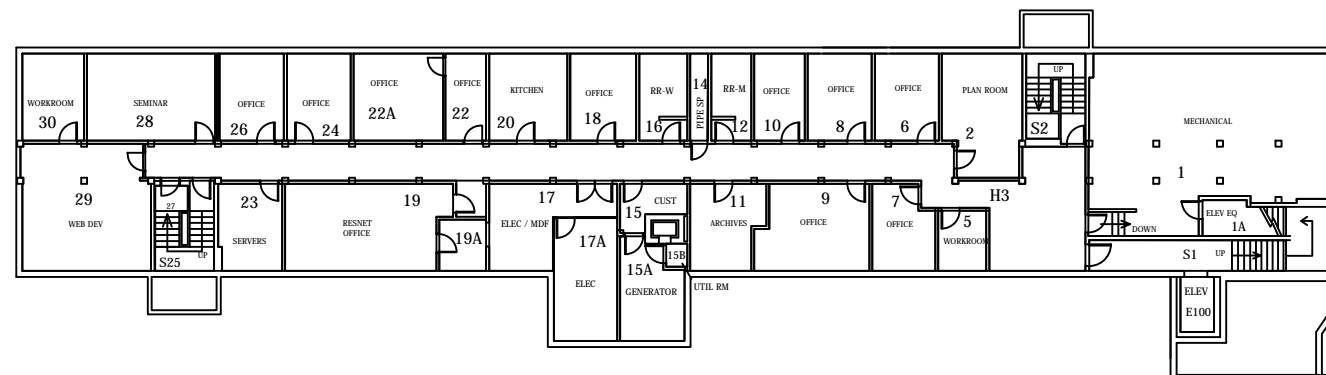
(PRIOR TO DEMOLITION BY UW-W)



2nd Floor



1st Floor



Basement



Existing Floor Plans
(Not to Scale)



State of Wisconsin
Department of Administration
Division of State Facilities



Facility Assessment (Third Floor)
Goodhue Hall
UW-Whitewater
Whitewater, Wisconsin
Sheet Title:
Existing Floor Plans

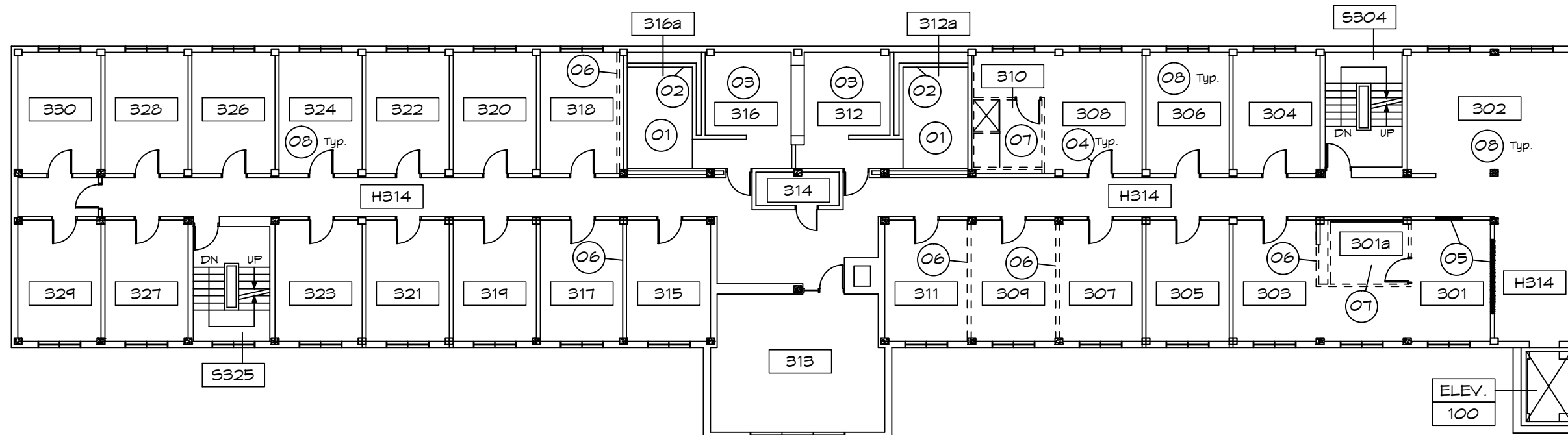
Revisions:		
No.	Date:	Description:

DSF Number	14F2R
Set Type	Assessment
Date Issued	11/18/2014
Sheet Number	A-100



NOTES:

- 01 EXISTING TOILET & SHOWER ROOMS PARTIALLY DEMOLISHED. WILL REQUIRE WALL, FLOOR AND CEILING REPAIR; NEW FIXTURES; NEW FINISHES AND ACCESSORIES.
- 02 EXISTING MASONRY WALLS PARTIALLY DEMOLISHED.
- 03 EXISTING TOILET FIXTURES AND PARTITIONS REMOVED. REPLACE WITH NEW.
- 04 HOLLOW METAL DOOR FRAMES HAVE BEEN REPLACED. DOORS AND HARDWARE REQUIRED.
- 05 EXISTING MASONRY OPENINGS HAVE BEEN INFILLED WITH CMU. FINISHING REQUIRED.
- 06 EXISTING WALLS CONSIST OF BARE METAL STUDS. DRYWALL, INSULATION AND FINISHING REQUIRED.
- 07 TOILET ROOMS IN SUITE AND APARTMENT ARE PARTIALLY ROUGHED IN. FINAL PIPING, DRYWALL, INSULATION AND FINISHING REQUIRED.
- 08 INTERIORS OF ALL SPACES HAVE BEEN DEMOLISHED. FINISHES, ELECTRICAL, HVAC AND PLUMBING FIXTURES, DOORS, ETC. HAVE BEEN REMOVED.



Existing Third Floor Plan
(Not to Scale)

Revisions:

No.	Date:	Description:

DSF Number	14F2R
Set Type	Assessment
Date Issued	11/18/2014
Sheet Number	A-101

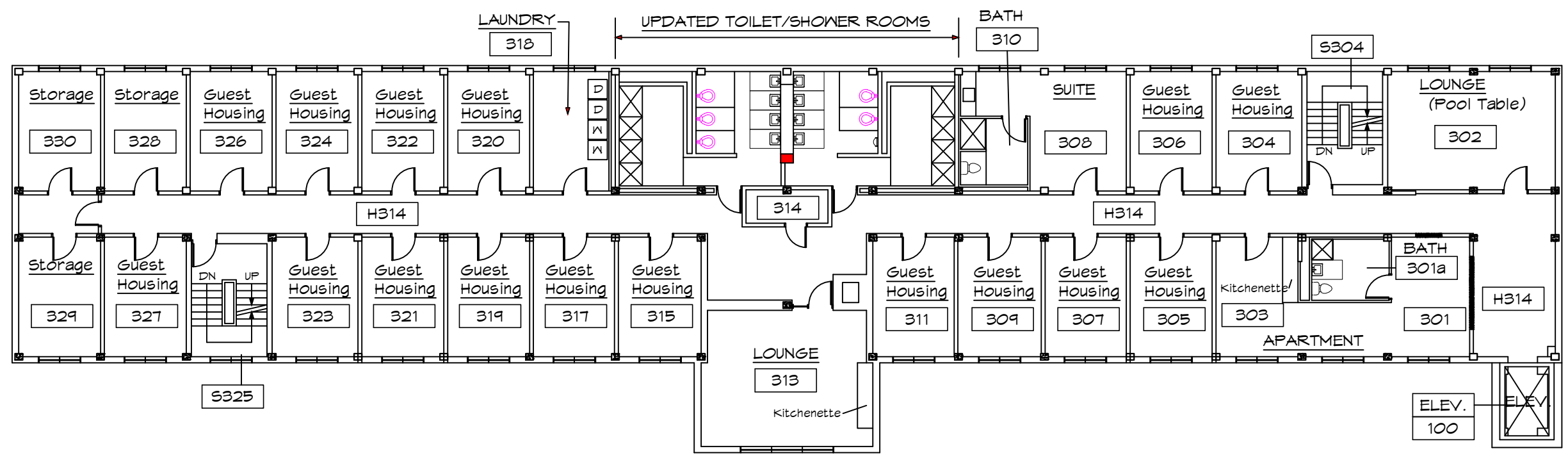


Revisions:		
No.	Date	Description

DSF Number	14F2R
Set Type	Assessment
Date Issued	11/18/2014
Sheet Number	A-102

NOTES:

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Proposed Third Floor Plan
(Not to Scale)



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Estimates of Probable Cost

Goodhue Hall Facility Assessment (Third Floor)
(DFD Project No. 14F2R)

PROBABLE CONSTRUCTION COST

December 31, 2014

By: JDR Engineering, Inc.

PROJECT: Goodhue Hall Facility Assessment (Third Floor)
DFD Project No.: 14F2RLOCATION: Whitewater, WI
Discipline: **PLUMBING**

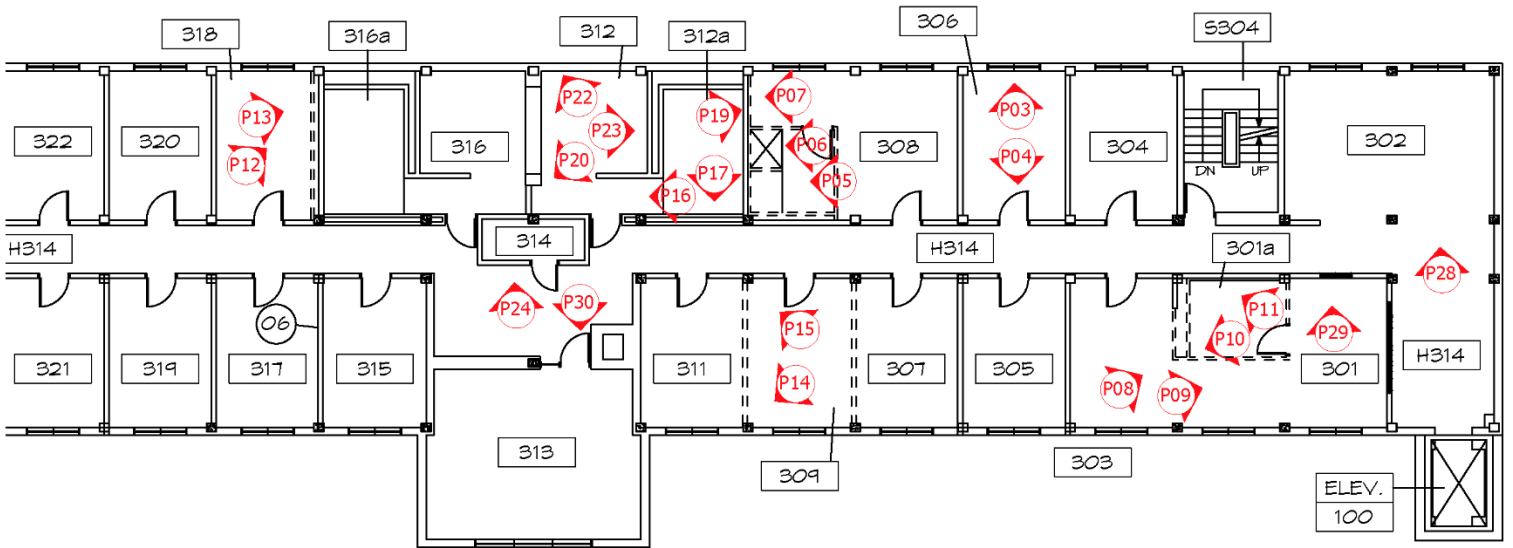
ITEM	QTY	UNITS	UNIT COST	TOTAL COST
DEMOLITION				
Plumbing Demolition Work	1	Lump	\$ 2,500	\$ 2,500
Existing Water Service	1	Lump	5,000	5,000
NEW CONSTRUCTION				
Upgrade Water Service to 6"	1	Lump	25,000	25,000
Domestic Cold Water Pipe and Insulation	250	LF	25	6,250
Dom Hot Water Supply/Return Pipe and Insulation	400	LF	20	8,000
Waste and Vent (above floor)	125	LF	18	2,250
Valves	15	Each	100	1,500
FIXTURES:				
Lavatory Faucet	10	Each	1,000	10,000
Shower and Trim	8	Each	1,200	9,600
Wall Hung Water Closet (Flush Valve)	4	Each	1,200	4,800
Floor Water Closet (Flush Tank)	2	Each	750	1,500
Hose Bibb (Cold water)	2	Each	150	300
Shower (Partially Installed)	2	Each	250	500
Laundry Connection	2	Each	500	1,000
Floor Drains	5	Each	500	2,500
EQUIPMENT:				
Water Softener (Optional)	1	Each	8,000	8,000
SUBTOTAL				\$ 88,700
Small project markup	5%			4,435
Design Contingency	5%			4,435
General Conditions + OH&P	10%			8,870
PLUMBING TOTAL				\$ 106,440

12/31/14



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Photographs



P01

P02

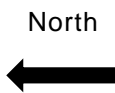


PHOTO KEY PLAN
(Not to Scale)



Building Exterior

Photo P01



Building Exterior

Photo P02



**Typical Guest Housing Room
(Exterior Wall)**

Photo P03



**Typical Guest Housing Room
(Interior Wall)**

Photo P04



Bathroom (310)

Photo P05



Bathroom (310)

Photo P06



Bathroom (310)

Photo P07



Bathroom (301a)

Photo P08



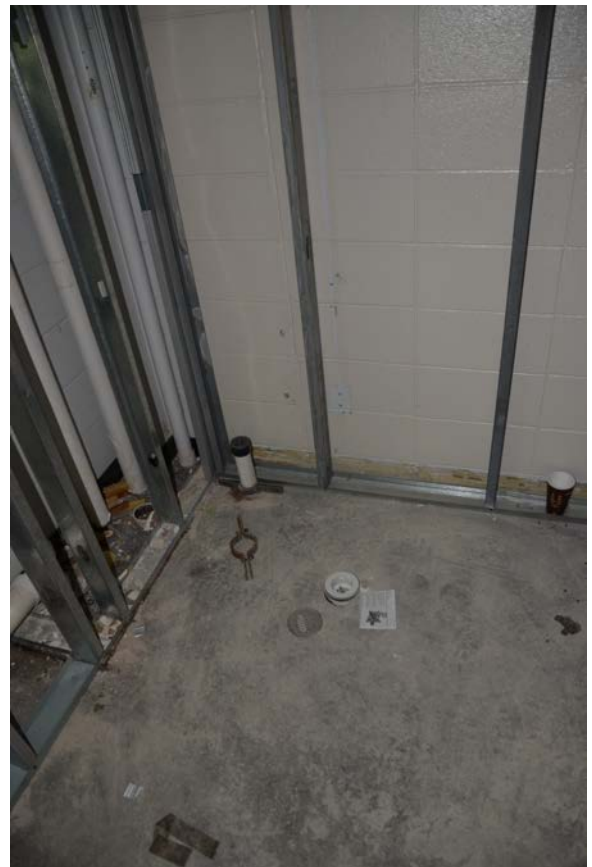
Bathroom (301a)

Photo P09



Bathroom (301a)

Photo P10



Bathroom (301a)

Photo P11



Laundry (318)

Photo P12



Laundry (318)

Photo P13



Guest Housing Room (309)

Photo P14



Guest Housing Room (309)

Photo P15



Toilet/Shower (312)

Photo P16



Toilet/Shower (312)

Photo P17



Toilet/Shower (312)

Photo P18



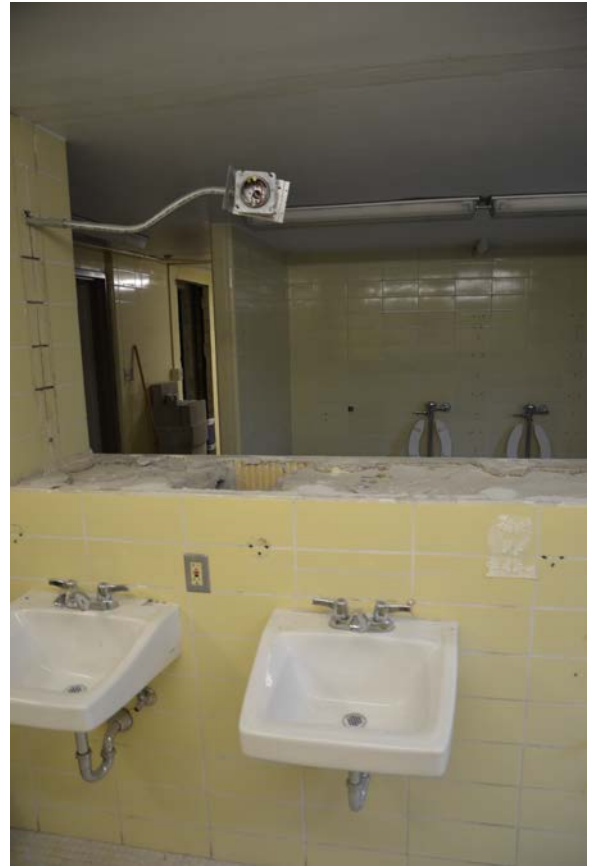
Toilet/Shower (312)

Photo P19



Toilet/Shower (312)

Photo P20



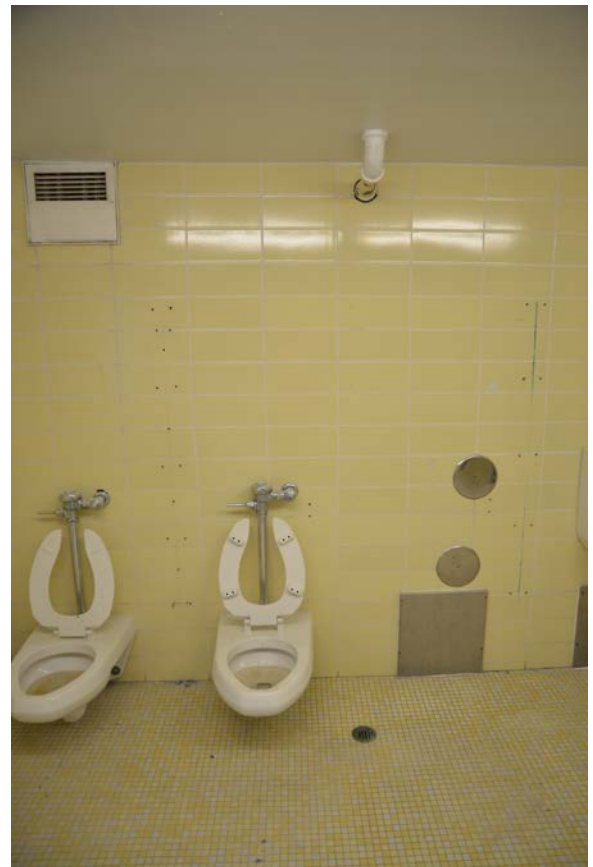
Toilet/Shower (312)

Photo P21



Toilet/Shower (312)

Photo P22



Toilet/Shower (312)

Photo 23



Janitor Closet (314)

Photo P24



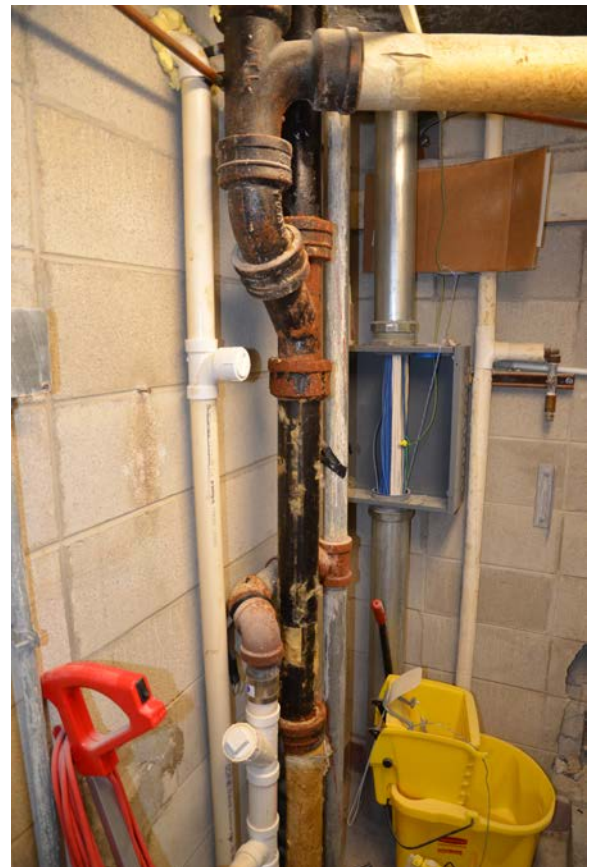
Janitor Closet (314)

Photo P25



Janitor Closet (314)

Photo P26



Janitor Closet (314)

Photo P27



Lounge (302)

Photo P28



Apartment (301)

Photo P29



Lounge (313)

Photo P30