Adaptive Reuse Study for the

ANNA HEAD SCHOOL COMPLEX

University of California, Berkeley
Project No. 12323A

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Executive Summary

The Anna Head Complex comprises six buildings and linking structures. The buildings are described as follows:

Bldg No.	*Bldg Name*	*Original Function*	*Current Function*	*Proposed Function*
A	Alumnae Hall	Assembly & performance space	Child care center	Unknown
B	The Gables	Classrooms & Dormitory	University Offices	Undergraduate Residence Hall
C	Channing Hall	Classrooms, lounges, offices & dormitory	University Offices	Undergraduate Residence Hall
D	Study Hall	Study & detention hall	University offices / child care	Unknown
E	Cottage	Residence	University Offices	Faculty/Staff Apartment
F	Poolhouse	Indoor pool & assembly space	Lower: housewares "loaning library" Upper; vacant	Faculty/Staff Apartment

The complex is on the National Register of Historic Places and is located two blocks south of the main campus, directly across the street from People's Park.

The purpose of this study is two-fold: one, to evaluate all the buildings to determine their deficiencies, and develop recommendations for rehabilitating the buildings to extend their life and to improve their functionality and safety. Second, four of the building--Buildings B, C, E & F--will be evaluated for specific reuse scenarios as follows:

Buildings B and C: evaluate converting these building into an undergraduate residence hall, with sleeping rooms on the upper floors, and common rooms such as lounges, studies and recreational facilities on the first floor. Basements will contain storage and building services only. Note: previous modifications to buildings B and C have physically merged them together and our proposed improvements strengthen that connection. Therefore, in this report, B and C are addressed as a single building. The cost estimate summarizes them separately, however.

Buildings E and F: evaluate converting both buildings into stacked residential units, intended to house Resident Faculty and Resident Advisors for the student residence hall located in Buildings B / C, and possibly a new adjacent residence hall to be constructed in the parking lot to the west of the Anna Head Complex.

Also, while program uses for buildings A and D were not identified, this report still proposes scopes of work for their renovation, including structural, building system and code and accessibility upgrades under the assumption that they would house a public accommodations for the University.

CONCLUSIONS

All of the buildings are in some form of current use, but are clearly in need of major improvements to address deficiencies with structural systems, long deferred maintenance, accessibility, life safety, out-dated building systems, and functional deficiencies. For the buildings to efficiently serve the University for another fifty years, major capital improvements are required to address these problems. This is true even if the current uses of the buildings are not changed.

With the changes of use proposed for Buildings B / C, E and F, additional programmatic, functional and code-mandated improvements will be required. Building F requires substantial reconfiguration to transform the largely open floor plates that were originally small assembly spaces into residential units.

However, the other three buildings (B/C and E) are being converted to a new use that is very similar to their original function. Furthermore, their interior layout has remained substantially intact since their original construction, despite their current use as offices. Therefore, it is possible to accomplish this adaptive reuse with relatively minimal reconfiguration of interior layouts. As a result, the change of use to student and faculty housing represents a relatively small percentage of the overall project cost required to extend the buildings' useful life. It is also possible to accommodate one of the faculty apartments proposed for buildings E and F in the southern most portion of Building C, so the entire program could be housed in Building B/C if the University does not wish to incur the cost of renovating Buildings E or F. The ultimate feasibility of the entire project is dependent on comparative costs with new construction.

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Project Team

University of California, Berkeley
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Site & Building Description

Note: The information contained in this chapter has been gleaned virtually entirely from the Historic Structures Report prepared by Knapp Architects in 2008.

The Anna Head School complex comprises six shingle-style buildings, which were constructed over a period of 35 years. Originally developed by Anna Head as a private girls school, the complex is situated in the southern corner of the block bounded by Channing Way to the north, Bowditch Street to the east, Haste Street to the south, and Telegraph Avenue to the west. People's Park is located directly across Haste Street. The buildings are situated in such a way as to create two courtyards within the complex.

Clinton Day is credited with designing Channing Hall (Building C), but it was Soule Edgar Fisher who completed project in 1892. The three-and-a-half-story structure faces Channing Way, and the building is set back from the street to create an entry drive. Rectangular in form with a gambrel roof, Channing Hall is the largest building on the complex and provided the school with both classroom and dormitory rooms.

Between 1895 and 1923, the space to the east of Channing Hall along Bowditch Street was developed into The Gables (Building B). Constructed through a series of additions, The Gables was originally separate from Channing Hall. However, during the 1923 addition to the north building, architect Walter H. Ratcliff, Jr. connected the two buildings at the second and third floors. The Gables housed classroom and office space on the first floor with dormitory rooms above.

The Cottage (Building E), a two-and-a-half-story structure built on grade, was the third addition to the campus. Constructed in 1901 with an addition on the southern elevation in 1912, the structure is believed to have been used first as an infirmary, and later as a classroom space with head master's quarters above. Originally designed by John B. Sprague, the remodel and addition were designed by Walter H. Ratcliff, Jr. The Cottage is parallel to the Gables and forms the western end of the complex.

Just south of The Cottage, the Pool and Gymnasium (Building F) was constructed in 1911 and remodeled in 1916 by Walter H. Ratcliff, Jr. to add a pool on the first floor. A stage was added to the second floor of the building when it was remodeled in 1916 to provide the school with a small auditorium space.

Situated in the middle of the complex is the Study Hall (Building D). The central two-story portion was constructed in 1917. A one-story addition to the north was completed in 1920, and a two-story addition to the south followed in 1922. The building is connected to Channing Hall by an arbor that frames the north and eastern sides of the courtyard created by Channing Hall, The Gables and the Study Hall.

In 1927 Walter H. Ratcliff, Jr. designed Alumnae Hall, the final building constructed for the school. Alumnae Hall (Building A) fronts Haste Street and is perpendicular to the Study Hall building and houses the school's auditorium. The structure has a stage at the eastern end of the structure and balcony seating. The addition of Alumnae Hall created the second courtyard on the complex between the Cottage, Pool and Gymnasium, Alumnae Hall, and the Study Hall.

The university purchased the Anna Head complex in 1963 and added a utilitarian structure to house the boiler to the southeast of the Gables in 1965. The courtyard between Channing Hall, the Gables, and the Study Hall, as well as a large area of the front of Channing Way has been paved over for parking. The western half of the block is known as the Anna Head West parking lot. The buildings currently house a daycare center in Alumnae Hall and a variety of offices in the other buildings.

The complex was listed on the National Register of Historic Places in 1980. Knapp Architects of San Francisco prepared a historic structures report for the complex in June 2008. Both the National Register nomination and historic structures report noted the complex's historic significance comes from the school's association with the development of education and Anna Head. The complex's architectural significance is based on the design and construction of the buildings, as well as its high artistic value.

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Program Description

The project team identified potential adaptive reuse scenarios for four of the six Anna Head structures: B, C, E & F. These new uses were gleaned from an existing Program Document that was created for the new residence hall that is proposed for the parking lot directly to the west of the Anna Head complex. Portions of this larger program were a natural fit into buildings B, C and E because this "reuse" scenario was effectively returning them to their original use. Building F is another case, but its large open floors easily lent themselves to being subdivided into discrete rooms.

Site Requirements: The program calls for a courtyard arrangement for security and protected outdoor spaces. No on site parking is to be provided. The quadrangle arrangement of the Anna Head School Complex could easily be furnished with a secure perimeter at the open end facing People's Park, though this space is likely to remain as parking. If the parking were removed for common space, a parking replacement fee would be incurred on the overall project cost. A single secure point of entry oriented towards campus on the northeast portion of the site provides access.

Buildings: The Anna Head Student Residence Program comprises a combination of residence hall-type rooms and apartments for students, along with a variety of shared common rooms for recreation, casual assembly and studying, as well as utilitarian functions such as laundry, vending, mail and storage. There is no precise target for number of beds, but relies upon the project team to "maximize the number of beds that can responsibly be developed." Of this total count, approximately 65 to 70 percent will be apartments, and 30 to 35 percent will be residence hall rooms.

RESIDENCE HALL

In evaluating what could reasonably "fit" within the historic fabric of Anne Head School complex, the student residence hall uses were a natural choice for the upper floors of Buildings B and C. The student apartments did not work well with the existing fabric, and were not considered further. The large common rooms on the ground floor that currently have been partially partitioned into a warren of offices can be readily reconfigured--mostly opened up to their original size--to fulfill the program for shared spaces.

In summary, the following elements from this larger program for a new student residence complex were incorporated into the "program" for buildings B and C:

Space / Description	*Quan*	*Location*	*Remarks*
Sleeping Rooms: Singles	2	One per floor on second & third floor	For Resident Advisors
Sleeping Rooms: Doubles	16	Second and Third Floors	
Sleeping Rooms: Triples	7	Second and Third Floors	
Common Restrooms / shower rooms	5	Three on second floor; two on third floor	
Small Study	1	Second floor bldg C	
Lounge	1	First floor bldg C	
Study	1	First floor bldg C	
Computer Room	1	First floor bldg C	
Advising	1	First floor bldg C	
Office	1	First floor bldg C	
Game Room	1	First floor bldg C	
Laundry	1	First floor bldg C	Two washers / two dryers
Mail Room	1	First floor bldg C	Adjacent to elevator
Kitchenette	1	First floor bldg C	Adjacent to lounge
Restroom Single occupancy	1	First floor bldg C	
Vending	1	First floor bldg B	
Study / Small Lounge	1	First floor bldg B	
Security Station	1	Entry level at B/C link	Adjacent to elevator and controlled entrance
Passenger elevator	1	B/C link	Gurney sized, accessible
Large Common Room or Resident Director Apartment	1	First floor bldg B	
Data/telecom closets	3	One per floor building C	Vertically stacked
MDF data/telecom room	1	Basement bldg C	
Janitor/housekeeping closets with sinks	3	One per floor bldg C	
Mechanical Rooms	2	Basement--one each in bldg B & C	
Storage Rooms	2	Basement--one each in bldg B & C	
Electrical Room	1	Basement bldg C	

A total of 55 beds are illustrated in the attached plans. Although Building B / C proved to be quite adaptable to accommodate the number and quantity of public and private rooms, several of the qualitative goals set forth in the Anna Head Student Residence Program will prove more elusive, primarily due to the nature of the building's basic circulation pattern. Where the program discourages "long and narrow corridors" without natural light, to a large extent of the corridors in B / C are double loaded, narrow and circuitous. Access to natural light and views are primarily limited to sleeping rooms, with several notable exceptions, such as the Small Study on the second floor of Building D.

Of course these qualitative goals were intended to inform the design of a new building, and the appeal of the historic nature of these buildings may compensate for the lack of these "modern" amenities.

APARTMENTS FOR RESIDENT DIRECTOR & RESIDENT FACULTY

The Anna Head Student Residence Program required several apartments to house Resident Director and Resident Faculty members, who provide oversight to the student population. The requirements for both Director and Faculty apartments are the same: essentially a two-bedroom apartment with kitchen, one full bath, laundry and living room. Both Buildings E and F comfortably accommodate two stacked units. The lower unit would be fully accessible, and satisfy the DSA's requirements for accessibility. The upper unit would not be accessible, and the buildings would not require an elevator. It is also possible that one of these apartments could be housed in the southern portion of the lower floor of Building B, in lieu of additional common rooms for the students.

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Code/Life Safety/Accessibility Issues

GENERAL

Due to their age, construction type and proximity to one another, the buildings comprising the Anna Head School complex presents a variety of code and life safety challenges under the regular state building code. However, because of its National Register status, the complex is eligible to utilize the alternative code solutions under the California Historical Building Code. Many of the key alternatives available under the CHBC are contingent upon a building being fully protected with an automatic fire sprinkler system. The University installed such a fire protection system shortly after it assumed ownership of the complex. In the early 1990's, the University added a monitored fire alarm system as well.

The CHBC allows the following alternatives to the requirements of the regular code:

- California Historical Building Code (CHBC) allows unlimited floor area with sprinklers. (Section 8-302.4)
- CHBC allows occupancy separations to be omitted with sprinklers. (Section 8-302.3)
- CHBC allows for change of use or occupancy without having to conform to new construction requirements. (Section 8-302.2)
- CHBC allows maximum height or stories not to be limited because of construction type, provided it does not exceed that of its historical design. (Section 8-302.5)
- CHBC allows exterior walls and opening protection to be satisfied by sprinkler systems design for exposure protection, which are provided. (Section 8-402.1)
- CHBC allows one-hour fire-resistive construction and one-hour fire-resistive corridors to be omitted with sprinklers. (Section 8-402.2)
- CHBC allows existing door openings and corridor widths of less than dimensions required by regular code where there is sufficient width and height for the occupants to pass through the opening or exit. (Section 8-502.2)
- CHBC allows existing stairs having risers and treads or width at variance with regular code if determined by enforcing agency to not constitute a distinct hazard. (Section 8-502.3).
- CHBC requires every sleeping room below the fourth floor to have at least one operable window or door approved for emergency escape which shall open into a public street, yard or exit court; having a minimum clear area of 3.3 square feet and minimum height dimension of 18 inches, and operable from the inside. (Section 8-503)

Through the lens of the CHBC, the code challenges for both the existing uses, as well as the proposed uses in this study, become far less daunting. The design team consulted with the Campus Fire Marshal on the code analysis and the design proposals in this study, and together, have agreed that not all of the alternatives offered by the CHBC should be utilized, most notably in the student residence use proposed for Buildings B / C, due to the inherently more hazardous nature of that occupancy. Specific cases will be cited below with each building description.

Because the existing buildings do not have the required wall or opening protection or separation required by the regular code, one solution is to consider all six structures to be one building because there are no area restrictions on allowable area under the CHBC for sprinklered buildings. This means that all buildings, however, must have operable, compliant fire sprinkler systems, even if they are not part of the improvement project. In other words, a renovation to only building B/ C could trigger sprinkler upgrades to all the other buildings as well, if their current systems are not compliant with current codes.

The project team was unable to ascertain whether the circa-1970's sprinkler system meets current codes. However, because the system was installed so crudely and its fully exposed piping presents so many aesthetic problems and "attractive nuisances", the design proposal calls for wholesale replacement of the system with a new, compliant system with fully concealed piping.

The CHBC also offers substantial flexibility in the requirement for "escape" windows in sleeping room, by allowing much smaller windows with higher sill heights. Under this provision, buildings B / C, E and F are substantially compliant with the escape window requirement.

Building B/C "Gables/Channing":

These buildings were merged into one structure in a previous remodel, and effectively function as one building. It currently houses a B occupancy of University offices. The proposed adaptive reuse converts the building into R-2 group residence use on the upper floors with B occupancy on the ground floors. The Campus Fire Marshal noted that if the building were used for conferences in the summer recess, then he would consider it an R-1 "transient" residence occupancy due to the shorter stays of its conference tenants. R-1 occupancies require more thorough fire alarm systems than R-2 occupancies, but the cost difference between the two system types is insignificant. The new alarm system proposed under this study should be designed for the more rigorous occupancy classification.

If larger rooms are created on the ground floor so that their occupancy exceeds 50, then they will be classified as A-3. The required one-hour occupancy separation between B, A and R occupancy can be eliminated under the CHBC, and the project team elected to take advantage of this exemption.

Existing floor/ceiling construction, and wall construction of corridors do not match listed rated assemblies, but team elected to utilize the exemption under the CHBC to allow non-rated construction.

In consultation with the CFM, the team elected to NOT utilize the following alternative solutions under the CHBC:

- Existing non-rated doors at corridors are allowed to remain, but the team elected to replace with new rated doors with closers and smoke seals.
- Non-standard stair construction (width, tread / rise / handrails) is permitted, but the team elected to have all egress stairs upgraded or rebuilt to current regular code standards.
- Fire escapes are allowed as a means of egress, but the team elected to not utilize any fire escapes.

Building E "Cottage":

This residential-style building will be converted from an office use back to a R-3 residential use with two stacked flats. In general, R-3 is a fairly low-hazard occupancy, and does not present major

challenges to code compliance in this building, once the issues of allowable area and proximity have been addressed by treating all buildings on site as a single structure of unlimited area (see above). Each flat will have single, code compliant exits, and be fully sprinklered and alarmed. Exterior stairs will be modified to current code compliance.

Building F "Poolhouse":

This building will be converted from a B occupancy on the ground floor and a currently vacant assembly occupancy on the upper floor use back to a R-3 residential use with two stacked flats. In general, R-3 is a fairly low-hazard occupancy, and does not present major challenges to code compliance in this building, once the issues of allowable area and proximity have been addressed by treating all buildings on site as a single structure of unlimited area (see above). Each flat will have single, code compliant exits, and be fully sprinklered and alarmed. Exterior stairs will be rebuilt to current code compliance.

Building A "Alumnae Hall":

Though no new use has been identified for this building, it is likely that a new use would take advantage of its original design intent and return to an assembly occupancy. Under this assumption, the building's exiting system is largely adequate with multiple exits and required separation. As mentioned above, it will require a fully compliant alarm and sprinkler system, so some improvements to these systems may be required even if no other renovation or reuse is performed.

Building D "Study Hall":

No new use has been identified for this building, but due to its size and configuration, several assumptions are reasonable. As with all the buildings on site, it will require a fully compliant alarm and sprinkler system, so some improvements to these systems may be required even if no other renovation or reuse is performed. The second floor, due to its size, will almost certainly require a compliant second means of egress. The existing exterior stair that was added to fulfill this function is in disrepair, and requires removal and replacement.

ACCESSIBILITY

In general, the existing accessibility compliance at the Anna Head complex is very marginal, and consists of scattered discrete elements such as ramps or lifts that serve floors or buildings which then have very limited accessibility. A compliant path of travel through the site between the buildings will require substantial repaving to eliminate steps, provide compliant sloping paths or ramps and to create landings at door thresholds. Each building will require major improvements to remove internal barriers, provide vertical circulation and required features such as restrooms and work surfaces.

The project team met with DSA accessibility officials and confirmed in conceptual terms the scope of accessibility improvements for each building based upon the proposed uses, or in the case of buildings A and D, the assumed future uses.

Building B / C

This building will provide complete accessibility to all floors. A new accessible site entrance with parking on the northeast portion of the site will be adjacent to the new main entrance. This entrance will serve all students due to the requirement for a single security checkpoint. It will occur on grade at the juncture between buildings B and C, and use a five-stop passenger elevator to navigate the half story up from grade to the first floor. It will then connect the second and third floors as well.

Only one student room is required to be fully accessible, but it would be very easy to provide several more, and would seem cost effective to do so once the large expense of an elevator is incurred. Two additional rooms require accessibility for hearing impaired students. This is also a minor cost item, primarily affecting the fire alarm system, and can be scaled up without significant expense. Doors to student rooms will all be new, and achieve required clearances. Certain doors on the first floor may be reused, and swing-clear hinges used to achieve clearances. All door hardware will be replaced with lever hardware. All restrooms will be completely new and fully accessibly. Circulation paths door clearances will be provided throughout, and stairs retrofitted for compliant striping and handrails. Accessible signage will be provided throughout and alarm systems will provide audible and visual signals.

Buildings E and F

These two buildings will provide fully accessible units on the ground floor, but not on the upper floor. They will not require an elevator.

Building A

Minor changes of grade outside the building will require new ramps or sloping paths and compliant landings. Assuming a return to an assembly space with full use of the stage and the mezzanine, it is likely that an elevator or a lift will be required to provide access to all these levels. Fully accessible public restrooms will be required. Access to basement dressing rooms will be required, or alternate facilities provided.

Building D

Changes of grade outside the building will require new ramps or sloping paths and compliant landings. Although no use has been identified, any major upgrade to the building will trigger accessible upgrades to the entire building, including an elevator, new restrooms, and barrier removal throughout.

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Building A Scope of Work

SITE WORK

Site Utilities
- Provide new water service for fire sprinkler system
- Provide a new domestic water service from main in street
- Provide a new sewer lateral to main in the street
- Provide a new underground electrical service to distribution lines in public right of way.
- Provide a new underground natural gas service from main in street.

Site Accessibility
- Provide two new accessible parking spaces with required signage (one van accessible) adjacent to new main entrance on southeast corner of site.
- Provide new accessible concrete path from public sidewalk, and from new accessible parking space to new main entrance on south side of building.

Landscaping / Hardscaping
- Provide a adequate allowance for extensive hardscape, landscaping, and irrigation

STRUCTURE

Structural Narrative by WJE:

BUILDING A (ALUMNAE HALL)

Per Knapp (2008), Building A was constructed in 1927. Building A is a very tall one-story wood framed building with mezzanines at the east and north sides (and unfinished mezzanine at the south), and a partial basement at the west side. The exterior finish is wood shingle. The interior finish in most locations is highly decorated exposed wood decking, beams and siding, all of which appear to be in good condition.

- Roof sheathing: Straight roof sheathing is visible from the building interior, and is likely to have been the diaphragm sheathing provided in initial construction. It is not known whether plywood sheathing has been added during subsequent reroofing. Roof plywood sheathing needs to be added and detailed to connect to the shear walls at the building perimeter and at vertical steps in the roof. See Retrofit Descriptions.

- Roof framing: The roof framing system appears to be in good condition and performing adequately at this time. It is recommended, however, that the roof trusses be evaluated due to the span length and its unique truss system, and due to possible changes in required and allowable loads. Evaluation would be particularly critical if new ceiling and utility loads were to be supported by the existing roof system.

- Mezzanine sheathing: Mezzanine floor plywood sheathing should be added to the north and south mezzanine floors and tied into new shear walls at either end. This plywood will increase seismic and wind resistance of floor and walls.

- Mezzanine framing: The mezzanine framing currently appears to be supported by steel rods, suspended from the roof trusses. The mezzanine framing should be evaluated if it is anticipated that this will be accessible to building occupants. If so, it could be subject to high live loads, as might occur in assembly occupancy. The easiest approach would be to limit access.

- First floor framing: The first floor is understood to be wood framed and supported on continuous exterior foundations and interior pier foundations. During the 16 December walk through, access to the crawl space was not available. The condition of the existing floor framing should be checked, and decay or other damage corrected as necessary. The adequacy of ventilation should also be verified.

- Foundation: The foundation appears to be concrete in moderate condition. No significant cracking or foundation movement was seen in the limited portions of the foundation that were observed, however further observation of the foundation is recommended in order to verify the condition.

- Shear walls: Seismic retrofit of shear walls is needed. Most particularly, interior shear walls are needed at the east and west ends of the two-story space. These will involve adding sheathing and connections to the existing walls, as well as new foundations underneath. These locations are particularly important because they correspond to vertical offsets in the

roof plane. In addition, shear walls, connections, and foundations should be added at the north and south exterior walls. This would be best done from the building exterior in order to preserve interior wall finishes. See Retrofit Description for typical shear wall construction.

- Anchorage to foundation: Anchor bolts and steel plate washers (or retrofit anchor plates) need to be added at approximately four feet on center for the full building perimeter, and at 32 inches on center at shear walls. See Retrofit Description.

BUILDING ENVELOPE

Roof: Remove all layers of roofing (assume three layers) down to spaced sheathing. Install new 5/8-inch CDX plywood over entire roof. See Structural description above for nailing requirements. Install new fire resistant treated wood shingle roof system (including roofing felt) over new spaced sheathings.

Shingled Siding: Shingle siding is in reasonably serviceable condition. There are selected areas of more pronounced weathering, warping and wear, but in general, the siding is not at the end of its lifespan. Given the age of the building, we assume that the singles are not original.

We've observed the windows and doors are not provided with head flashings, and have been told that water intrusion is a major problem with these buildings. Therefore, there are two possible options to consider for the exterior siding;

> Option 1: Selectively repair shingles where damaged and provide a general allowance for caulking and sealing joints around windows and doors. Remove shingles required to install head flashings at windows, and reinstall to match existing. Provide allowance to steam clean all exterior siding.
>
> This option preserves existing fabric, but does not allow for exterior shear plywood installation, and does not allow a comprehensive and competent approach at exterior envelope waterproofing with new buildings felts and proper head flashings at openings.
>
> Option 2: Remove all shingle siding and accompanying wood trim such as water tables, horizontal bands, etc that are part of building skin. Salvage wood trim materials if possible for reuse. If not possible, replace in kind. Carefully survey and match existing shapes and sizes, including decorative shapes and borders and bands. Where required by structural recommendations above, remove existing straight sheathings and install new plywood shear plywood of matching thickness. See Structural for nailing, blocking requirements, etc. Install new cedar shingle siding system, including building felts, over new plywood and existing straight sheathing where it remains. New shingle siding to match existing size, shape, borders, banding and thickness, and existing corner treatments.
>
> This option allows for a comprehensive approach to building envelope waterproofing, and will give a new skin that could last thirty to fifty years. It also allows for easier installation of exterior shear plywood than installation on interior sides of walls. However, it removes shingle siding that has serviceable life remaining, some of which may be historic fabric.

See structural narrative and drawings for extent of shear walls.

Exterior Woodwork: (includes exposed rafter tails, soffit sheathing, fascias, barge rafters, horizontal and vertical trim, watertables, door and window casings, etc.)

Repairs small amounts of dry rot or decay in exterior woodwork with epoxy wood consolident. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, replace to match existing.
Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

Exterior Doors and Windows: Door Hardware: see description of door hardware under Interior Tenant Improvements below.

A detailed door and window survey has not been performed as part of this study, but the general conditions of exterior openings have been observed, and most openings will need remedial work. The performance specification for all windows and doors is as follows: Each window and door must operate smoothly, and latch and lock easily. Replace all broken sash chords.

Replace all cracked, broken or missing glass. Replace all cracked, damaged or missing glazing putty. Replica historical glass is NOT required.

Each opening must have a full complement of hardware, including hinges, sash lifts, locks, latches, stops and closers at doors. Hardware that has been added to reinforced the unit over time such as cover plates, corner angles, stitch plates, etc. shall all be removed. All hardware shall be free of paint. Repairs small amounts of dry rot or decay in sashes or doors with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, provide a replacement sash or door to match existing

Finishes: Paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

For the purposes of this cost estimate, assume an allowance of $500 per window and $750 per exterior door for refurbishment, repair, replacement, and new hardware.

Architectural Sheet Metal

Install new copper roof ventilators for attic ventilation.

As part of reroofing scope, install all new copper roof flashing and new gutters and downspouts. New gutters and downspouts to match existing shape and configuration.

Install new copper head flashings at all windows and exterior door openings, where doors are not protected by canopies or deep overhangs directly above. Selectively remove shingles as required to for installation. All head flashings to be Z-shaped with soldiered, closed corners, with vertical leg extending past window head four inches on each side.

INTERIOR MODIFICATIONS

Summary**:** Specific proposed use is not known, but is assumed herein as an assembly occupancy.

Existing wall and ceiling finishes to remain: Unless specifically noted for demolition and removal, assume wall and ceiling finishes to remain. However, assume a generous cut and patch and repair allowance, because new building systems will require removing portions of wall and ceiling finish throughout.

At all new and existing wall and ceiling finishes: patch, repair and prep for paint. Install one coat primer/sealer, two coats latex eggshell enamel. Allow for different colors on walls and ceilings.

Preserve stencil pattern at interior of great hall.

Interior woodwork: baseboard, window and door casing, miscellaneous running trim: match existing at all new construction. Allow for a generous patch, repair and prep allowance. Patch, repair and prep for finish. Install one coat alkyd primer, two coats alkyd semi-gloss enamel at painted surfaces. 2 coats clear matt sealer at clear finishes.

Bathrooms:
All existing bathrooms will be removed in this building. Provide two new gang restrooms and two single accommodation restroom backstage. Install new water resistant gypsum board on all walls, and regular drywall on ceilings.

Install new tiled floor over waterproof membrane over reinforced mortar bed. At upper unit, provide tiled walls at tub/shower. All wall tile set over reinforced mortar bed over waterproof membrane over gypsum board. Tile allowance (material only): $10 per square foot. Slope floor to floor drains.

Provide solid plastic toilet partitions at toilet stalls

Provide accessible toilet accessories including seat cover dispensers, toilet paper dispensers, paper towel dispensers, trash receptacles and grab bars and coat hooks.

Provide solid surface counter top with undermount sinks at vanity. Provide continue mirror with stainless steel frame for full width above.

See Plumbing description for fixtures. See Mechanical description for ventilation system.

Interior doors: At all existing doors to remain, provide patch / repair allowance of $500 per door.

Door hardware
All door latch or locksets must have accessible lever hardware, and be compatible with the University's keying standards. Assume all existing door latchsets / locksets to be replaced.

Floor finish: provide low profile accessible carpet tile throughout. Assume $35 dollar per yard material cost only.

–

VERTICAL CIRCULATION

Provide a new gurney-sized accessible three-stop hydraulic elevator in new shaft

At all stairs, provide compliant striping and handrails.

BUILDING SYSTEMS

Mechanical – Install new hydronic baseboard heating systems in entire building--place convectors on exterior walls, below windows whenever possible. Install boilers in rated rooms in basement with flues up through rated shafts up to roof. Provide required combustion air intakes. Assume two boilers.

Provide new mechanical ventilation system (no mechanical cooling) for Main Hall.

Install new exhaust fans in restroom. All exhaust fans terminated through roof

Electrical – Install new electrical service, and rewire entire building. Provide new convenience outlets per current code and new fluorescent lighting per current code in each room. Conceal all work. Provide adequate power for theatrical lighting.

Plumbing: install new hot and cold domestic water distribution piping. Install new insulated recirculating water heater system with water heaters in basement mechanical rooms. Install new high efficiency low flow lavatory faucets, and dual flush toilets.

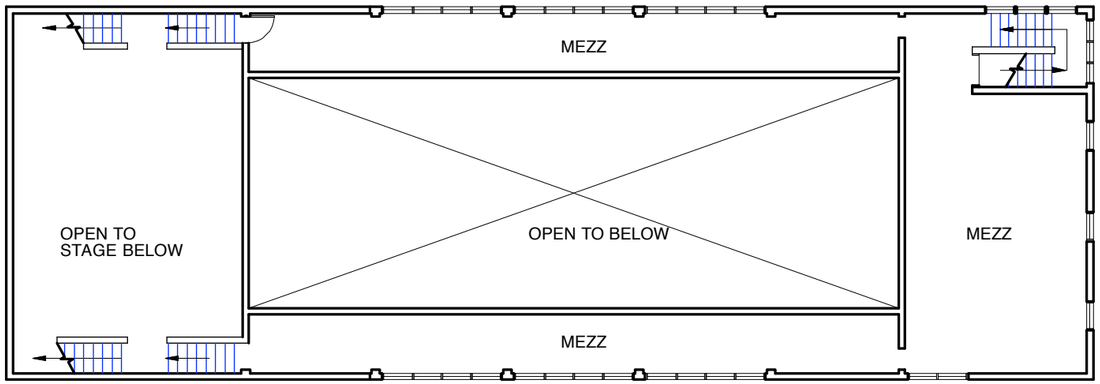
Install new cast iron drain waste vent system throughout. Provide floor drains with trap primers in all bathrooms.

Remove existing fire sprinkler system and install new system with concealed piping throughout.

Install new fire alarm system.

Communications: Install new data / telecommunication system with data / phone /CTV jacks in all major common rooms. Terminate to MDF in basement

Security / Access: Provide access control system to each exterior door with electric strike and monitoring capability for "prop open" alert. New main access door to have proximity card reader control.



BUILDING A: (E) SECOND FLOOR PLAN

3

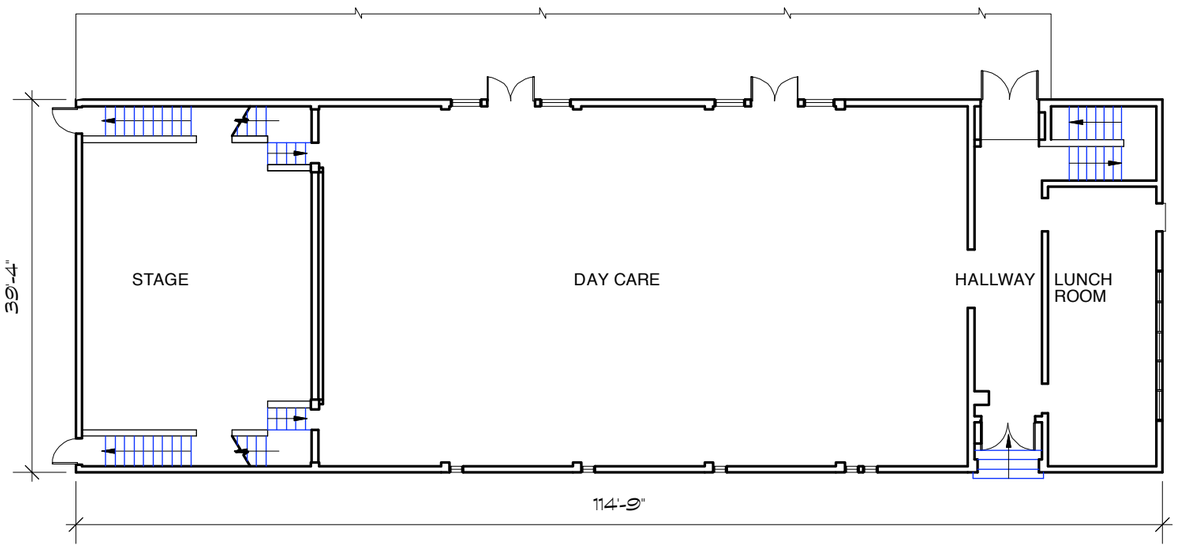
SCALE: 1/16" = 1'-0"

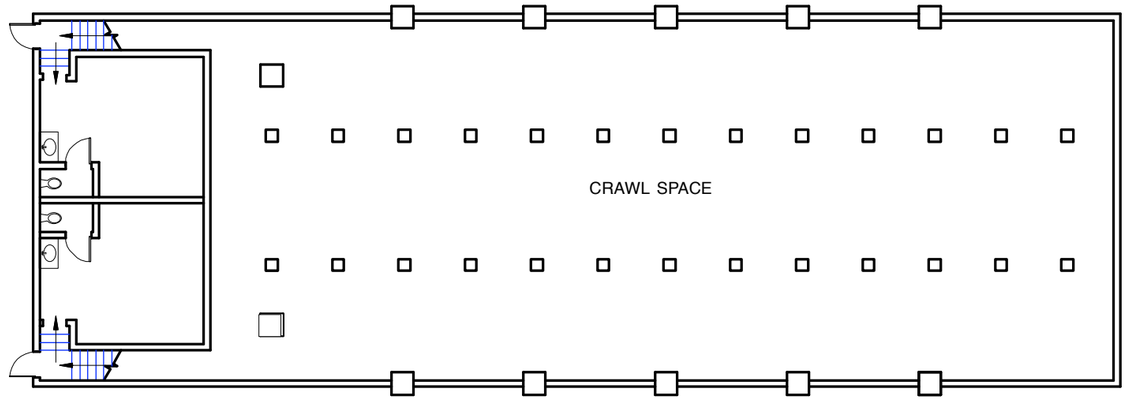
LEGEND

EXISTING WALL

FLOOR AREA

BASEMENT	585 SF
FIRST FLOOR	4,267 SF
SECOND FLOOR	1,700 SF
TOTAL	6,552 SF





BUILDING A: (E) FIRST FLOOR PLAN

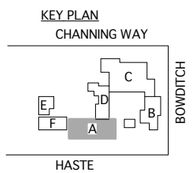
2

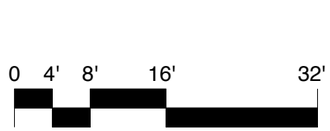
SCALE: 1/16" = 1'-0"

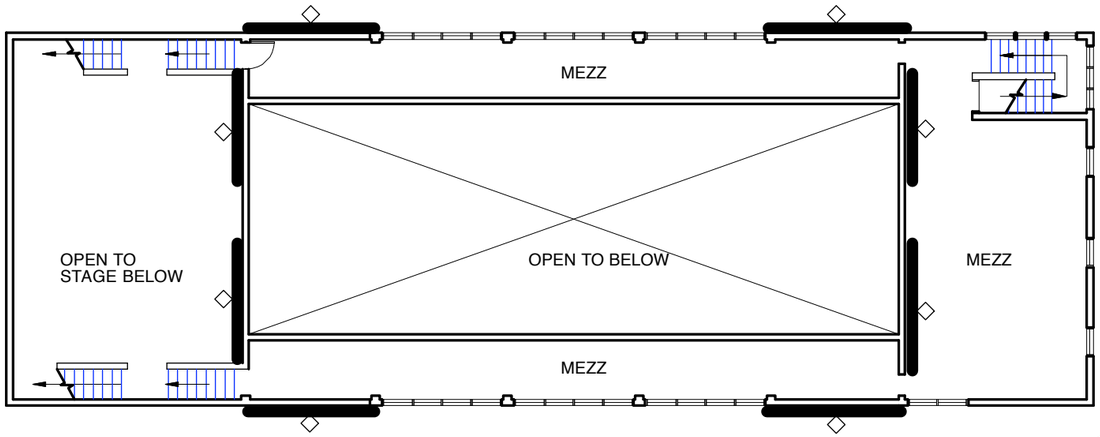
BUILDING A: (E) BASEMENT FLOOR PLAN

1

SCALE: 1/16" = 1'-0"







BUILDING A: STRUCTURAL SECOND FLOOR PLAN

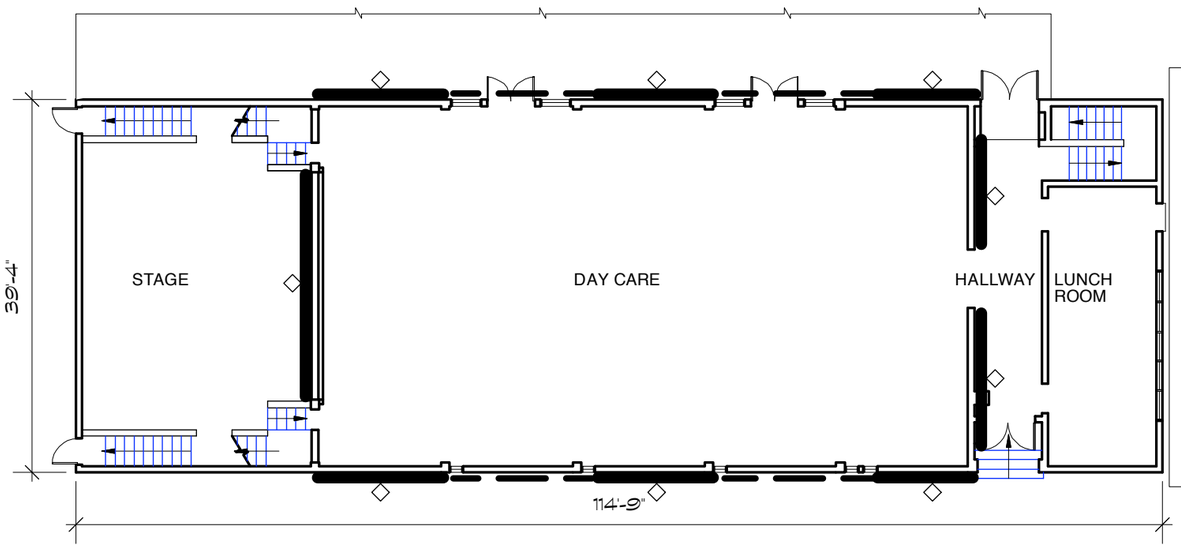
3

SCALE: 1/16" = 1'-0"

LEGEND

PLYWOOD SHEAR WALL

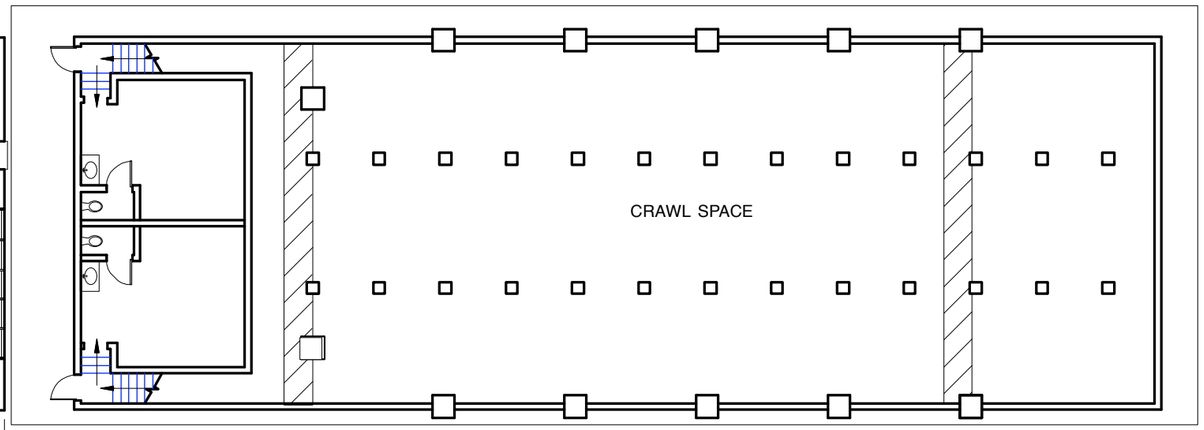
NEW CONCRETE FOUNDATION



BUILDING A: STRUCTURAL FIRST FLOOR PLAN

2

SCALE: 1/16" = 1'-0"

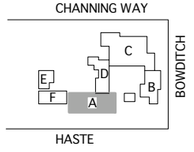


BUILDING A: STRUCTURAL BASEMENT FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN



7

Buildings B/C Scope of Work

SITE WORK

Site Utilities
- Provide new water service for fire sprinkler system
- Provide a new domestic water service from main in street
- Provide a new sewer lateral to main in the street
- Provide a new underground electrical service to distribution lines in public right of way.
- Provide a new underground natural gas service from main in street.

Site Accessibility
- Provide two new accessible parking spaces with required signage (one van accessible) adjacent to new main entrance on northeast corner of building.
- Provide new accessible concrete path from public sidewalk, and from new accessible parking space to new main entrance on northeast side of building.

Landscaping / Hardscaping
- Provide a $150,000 allowance for landscaping / irrigation

STRUCTURE

Structural Narrative by WJE:

BUILDING B (THE GABLES)

Per Knapp (2008), Building B was constructed in three phases: the south wing in 1895, the center in 1901 and the north wing in 1927. Building B is a two-story wood frame building with a partial basement at the south end. The building was originally constructed for classroom and dormitory use. The north end of Building B is connected to Building C at the first and second stories.

- Roof sheathing: The current roof sheathing is not known, but could be spaced sheathing based on other construction in the complex. Provide plywood roof sheathing.

- Roof framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- Second floor sheathing: Plywood floor sheathing is needed, applied on a room by room basis on the top of the second floor framing, or applied as a ceiling soffit in the exercise and study rooms below.

- Second floor framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired. See first floor plan for new beams at the underside of existing walls. Add an allowance for 60 feet of beams under shear walls in addition to the beams shown. An allowance for six posts supporting the beams should also be included.

- First floor framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- Foundation: The south and center wings of Building B appear to have brick foundations, covered with parging in some locations and not in others. The north wing appears to have a concrete foundation. The foundation type for the basement and the single story "shed" structure at the south end is not known. A new concrete foundation inside the existing is proposed for the entire building perimeter. New interior foundations are proposed as shown on the basement plan.

- Shear walls: New plywood shear walls are needed as shown on the plans. See Retrofit Descriptions for description of typical construction.

- Cripple walls: Based on the exterior configuration, it is anticipated that Building B has cripple walls under the first floor in all areas except for the basement. These cripple walls appear to range in height from approximately three feet at the street front to approximately eight feet at the interior courtyard. Plywood sheathed cripple walls are needed in the crawlspace at all existing and new foundation lines. Sheathing is anticipated to be continuous for the full foundation length except at ventilation and access openings.

- Anchorage to foundation: Provide anchor bolts at all new and existing foundation lines as described in Retrofit Descriptions.

- Steel straps: Steel straps such as the MSTI48 are needed between different sections of Building B and between Building C. Include an allowance for 20 straps to be installed horizontally at the roof and floor levels.

- Front porch: The front porch appears to be in moderate condition - some decay should be anticipated. Condition should be checked and any decay or other damage repaired.

- Single story shed-roof portion at the south end: Each rafter or ceiling joist needs to be attached to the common wall with building B using a sheet metal strap. Provide plywood sheathing on all existing walls, provide anchorage to the foundation. Lower exterior grade as required to provide six inches between grade and wood siding and framing.

BUILDING C (CHANNING HOUSE)

Per Knapp (2008), Building C was constructed in 1892. Building C is a three-story wood frame building with a partial basement at the west end. Building C was originally constructed for classroom and dormitory use.

- Roof sheathing: The current roof sheathing is not known, but could be spaced sheathing based on other construction in the complex. Provide plywood roof sheathing.

- Roof framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- Third floor sheathing: Provide plywood floor sheathing on a room-by-room basis. See Retrofit Descriptions.

- Third floor framing: Provide allowance for 100 feet of beam to be installed at the underside of the third floor to support walls above and 10 posts to support added beams.

- Second floor sheathing: Provide plywood floor sheathing on a room-by-room basis. See Retrofit Descriptions.

- Second floor framing: Provide allowance for 100 feet of beam to be installed at the underside of the third floor to support walls above and 10 posts to support added beams. The second floor cantilevers at the northeast corner and east face of Building C should be investigated to determine if they are structurally adequate to support code-required loads. The second floor cantilever at the east face has what appears to be temporary shoring providing vertical support. It is anticipated that repair or reinforcement of framing in this area may be required.

- First floor framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired. Provide allowance for 40 feet of beam and 4 posts to be installed at the underside of the first floor framing in the basement area.

- Foundation: The foundation for building C appears to be of concrete, except at the west porch and north chimney, where stone appears to have been used. The material and quality should be verified, as concrete foundations would have been unusual for the noted date of construction. See plans for extent of new concrete foundation.

- Shear walls: New plywood shear walls are needed as shown on the plans. See Retrofit Descriptions for description of typical construction. New concrete shear walls are needed in the basement of Building C. See the basement plan and Retrofit Descriptions.

- Cripple walls: Plywood sheathed cripple walls are needed in the crawlspace at all existing and new foundation lines. Sheathing is anticipated to be continuous for the full foundation length except at ventilation and access openings. Exterior finishes and waterproofing detailing are needed for the added cripple wall between the under-floor area and the south porch.

- Anchorage to foundation: Provide anchorage at all existing and new foundation lines as per Retrofit Descriptions

- Main interior stair: The structural support and adequacy of the main interior wrap-around stair should be evaluated for current building code required loads. Steel reinforcing beams may be required.

- North stone chimney: The north chimney and fireplace are of unreinforced stone masonry (appearance suggests sandstone). They present a significant seismic hazard due to the chimney configuration and the significant deterioration of the stone and mortar. Adding to the concern is that the north exit stairs terminate at the base of the chimney, possibly creating a hazard to occupants exiting the building in the event of an earthquake. The unreinforced stone chimney is not permitted by current building codes, and is incompatible with the likely movement of the building during an earthquake. Two approaches are suggested. 1) The best solution would be to remove the chimney and fireplace and replace it with a wood light-frame chimney with stone cladding. 2) If the fireplace is not intended to be used, it would be possible to reduce the falling hazard posed by the chimney by filling the flue with reinforcing steel and concrete. This would not keep the chimney from being damaged in an earthquake, but should reduce the likelihood of large sections falling onto the building or to the ground. If this second approach is taken, stabilizing the deterioration of the stone should also be considered. Sealers to slow stone deterioration and repointing of the mortar might be included. Cleaning moss and plant growth off of the stone should also help slow deterioration.

- West stone porch: The west porch walls are constructed of the same type of stone as the north chimney, and the condition of the stone is similarly deteriorated. In addition there are substantial cracks in the west masonry wall, suggesting differential foundation settlement. In order to stabilize the masonry walls and foundation, new concrete/shotcrete walls are proposed at the inside face of the existing stone. New foundations will be needed under these walls. If the existing stone foundation is not deep enough, underpinning pits should be provided to extend the depth. Allow for drilled epoxy anchors between the existing stone and the new concrete, one anchor for each two square feet of wall or pilaster. The wood steps should be removed, and reconstructed and supported on the new concrete. Within the porch roof, each rafter or ceiling joist needs to be attached to the common wall with Building C using a sheet metal strap. At each group of wood columns on top of the stone pilasters, one of the four columns should be removed, replaced with a tube steel column,

bolted to the masonry below and wood above, and then the column placed back around, enclosing the steel column.

- South wood porch: The south wood porch and the adjacent portion of the arbor (covered walk) appear to be in fair to poor condition due to decay and weathering. Condition should be checked and any decay or other damage repaired.

- North wood entry stairs: The north wood entry stairs and handrails appear to be in fair to poor condition. The foundation appears to be of unreinforced rubble stone masonry that is deteriorated. This set of entry steps should be removed and reconstructed from the foundation up to meet current codes. If the stone chimney is to stay in place, it is suggested that the steps be reconfigured so as to not end at the base of the chimney.

BUILDING ENVELOPE

Roof: Remove all layers of roofing (assume three layers) down to spaced sheathing. Install new 5/8-inch CDX plywood over entire roof. See Structural description above for nailing requirements. Install new fire resistant treated wood shingle roof system (including roofing felt) over new spaced sheathings.

Balconies and roof decks: Remove existing waterproofing and walking surface down to framing. Provide positive drainage to through-wall scuppers (drain and overflow) and install new walkable waterproof membrane surface ("Dexo-tex" or equal).

Shingled Siding: Shingle siding is in reasonably serviceable condition. There are selected areas of more pronounced weathering, warping and wear, but in general, the siding is not at the end of its lifespan. Given the age of the building, we assume that the singles are not original.

We've observed the windows and doors are not provided with head flashings, and have been told that water intrusion is a major problem with these buildings. Therefore, there are two possible options to consider for the exterior siding;

> Option 1: Selectively repair shingles where damaged and provide a general allowance for caulking and sealing joints around windows and doors. Remove shingles required to install head flashings at windows, and reinstall to match existing. Provide allowance to steam clean all exterior siding.
>
> This option preserves existing fabric, but does not allow for exterior shear plywood installation, and does not allow a comprehensive and competent approach at exterior envelope waterproofing with new buildings felts and proper head flashings at openings.
>
> Option 2: Remove all shingle siding and accompanying wood trim such as water tables, horizontal bands, etc that are part of building skin. Salvage wood trim materials if possible for reuse. If not possible, replace in kind. Carefully survey and match existing shapes and sizes, including decorative shapes and borders and bands. Where required by structural recommendations above, remove existing straight sheathings and install new plywood shear plywood of matching thickness. See Structural for nailing, blocking requirements, etc. Install

new cedar shingle siding system, including building felts, over new plywood and existing straight sheathing where it remains. New shingle siding to match existing size, shape, borders, banding and thickness, and existing corner treatments.

This option allows for a comprehensive approach to building envelope waterproofing, and will give a new skin that could last thirty to fifty years. It also allows for easier installation of exterior shear plywood than installation on interior sides of walls. However, it removes shingle siding that has serviceable life remaining, some of which may be historic fabric.

See structural narrative and drawings for extent of shear walls.

Exterior Woodwork: (includes exposed rafter tails, soffit sheathing, fascias, barge rafters, horizontal and vertical trim, watertables, door and window casings, etc.)

Repairs small amounts of dry rot or decay in exterior woodwork with epoxy wood consolident. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, replace to match existing.
Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

Exterior Doors and Windows: Door Hardware: see description of door hardware under Interior Tenant Improvements below.

A detailed door and window survey has not been performed as part of this study, but the general conditions of exterior openings have been observed, and most openings will need remedial work. The performance specification for all windows and doors is as follows: Each window and door must operate smoothly, and latch and lock easily. Replace all broken sash chords.

Replace all cracked, broken or missing glass. Replace all cracked, damaged or missing glazing putty. Replica historical glass is NOT required.

Each opening must have a full complement of hardware, including hinges, sash lifts, locks, latches, stops and closers at doors. Hardware that has been added to reinforced the unit over time such as cover plates, corner angles, stitch plates, etc. shall all be removed. All hardware shall be free of paint. Repairs small amounts of dry rot or decay in sashes or doors with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, provide a replacement sash or door to match existing

Finishes: Paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

For the purposes of this cost estimate, assume an allowance of $500 per window and $750 per exterior door for refurbishment, repair, replacement, and new hardware.

Architectural Sheet Metal

Install new copper roof ventilators for attic ventilation.

As part of reroofing scope, install all new copper roof flashing and new gutters and downspouts. New gutters and downspouts to match existing shape and configuration.

Install new copper head flashings at all windows and exterior door openings, where doors are not protected by canopies or deep overhangs directly above. Selectively remove shingles as required to for installation. All head flashings to be Z-shaped with soldiered, closed corners, with vertical leg extending past window head four inches on each side.

INTERIOR MODIFICATIONS

Summary**:** Modifications will convert existing office use into a student residence hall use, with sleeping rooms on the second and third floors, common rooms on the first floor, and storage and building mechanical and electrical rooms in the basements.

See floor plans for interior reconfiguration including new walls and walls to be removed. Unless otherwise noted in structural description, all interior walls / partitions to be framed from wood or metal studs with one layer of 5/8 inch drywall on each side. All drywall attached with screws only and finished to a smooth Level 4 finish. All new partitions and walls to conform to one-hour rated construction. Existing walls will be considered "nominal" one-hour construction per the California Historical Building Code.

Existing wall and ceiling finishes to remain: Unless specifically noted for demolition and removal, assume wall and ceiling finishes to remain. However, assume a generous cut and patch and repair allowance, because new building systems will require removing portions of wall and ceiling finish throughout.

At all new and existing wall and ceiling finishes: patch, repair and prep for paint. Install one coat primer/sealer, two coats latex eggshell enamel. Allow for different colors on walls and ceilings.

Interior wood trim: baseboard, window and door casing, miscellaneous running trim: match existing at all new construction. Allow for a generous patch, repair and prep allowance. Patch, repair and prep for paint. Install one coat alkyd primer, two coats alkyd semi-gloss enamel. Allow for different color from wall and ceiling colors.

Insulation: Provide sound batt insulation in all interior walls separating bedrooms from adjacent rooms or spaces, and provide thermal batt insulation in any exterior wall cavity that is open or exposed during construction. Provide new sound batt insulation in all bathroom walls.

Common Rooms:
Kitchenette: provide new WIC Custom grade laminate-clad casework (uppers and lowers) with solid surface ("Corian" or equal) countertops. Flooring shall be sheet linoleum. Appliances shall be residential grade—provide a $2000 allowance for the following items: refrigerator (with automatic icemaker), microwave, and garbage disposal. Rough in of MEP connections, and hook up and installation are separate from this allowance. See summary under plumbing systems for balance of information.

Bathrooms:
All existing bathrooms will be removed in this building. Provide five new gang restrooms and one single accommodation restroom as shown on the drawings. Install new water resistant gypsum board on all walls, and regular drywall on ceilings.

Install new tiled floor over waterproof membrane over reinforced mortar bed. All wall tile set over reinforced mortar bed over waterproof membrane over gypsum board. Tile allowance (material only): $10 per square foot. Slope floor to floor drains.

Showers: install one roll-in tiled shower with fold down seat and hand shower at each gang restroom. Assume reframing floor in to depress as required at roll-in showers. Curbs are acceptable at non-accessible showers. Provide privacy curtains at each shower.

Provide solid plastic toilet partitions at toilet stalls

Provide solid plastic cubbies in each gang restroom (55 total)

Provide accessible toilet accessories including seat cover dispensers, toilet paper dispensers, paper towel dispensers, trash receptacles and grab bars and coat hooks.

Provide solid surface counter top with undermount sinks at vanity. Provide continue mirror with stainless steel frame for full width above.

See Plumbing description for fixtures. See Mechanical description for ventilation system.
Install grab bars at toilet and shower at lower unit accessible restroom.

Laundry room:
Provide laundry hookup for washer dryer. Assume laundry machines provided by owner. Provide linoleum floor in laundry room / closet. Provide plastic laminate clad shelving / countertops as shown on plans in laundry areas. Laundry room to have one hour fire separation from surrounding rooms / floors.

Interior doors: At all existing doors to remain, provide patch / repair allowance of $500 per door.

Install new 3/4-hour-rated doors and frames at each student room-to-corridor opening. These doors require smoke seal and closer. At all interior doors, prep for paint, install one coat alkyd primer, two coats alkyd semi-gloss enamel. Color to match base / trim.

Door hardware
All door latch or locksets must have accessible lever hardware, and be compatible with the University's keying standards. Assume all existing door latchsets / locksets to be replaced.

Floor finish other than kitchenette, bath and laundry: provide over low profile accessible pad carpeting throughout all other areas. Install using stretch-in method, not glue down. Assume $35 dollar per yard material cost only (pad and carpet).

At student rooms, provide the following. (assume student population at 55)

- Towel bar: one per student'
- Full length mirror: one per room
- Closet with door, shelf and pole: one per student
- One data / CTV /telephone jack (see Communications section below under building system below.

VERTICAL CIRCULATION

Provide a new gurney-sized accessible four-stop hydraulic elevator in new shaft as shown on drawings. Note custom door configuration on adjacent walls.

Remove and replace exterior wood stairs at west side of building of Building C.

Remove existing wood stair at west side of Building B and patch / repair openings in facade.

At northeast stair, complete rebuild between second and third floors, requiring new structural opening in floor. Between first and second floors, reconfigure top and bottom runs to eliminate the "winders" and create compliant landings.

At all stairs, provide compliant striping and handrails.

BUILDING SYSTEMS

Mechanical – Install new hydronic baseboard heating systems in entire building--place convectors on exterior walls, below windows whenever possible. Install boilers in rated rooms in basement with flues up through rated shafts up to roof. Provide required combustion air intakes. Assume one boiler each for Buildings B and C

Install new exhaust fans in restroom. All exhaust fans terminated through roof

Electrical – Install new electrical service, and rewire entire building. Provide new convenience outlets per current code and new fluorescent lighting per current code in each room. Conceal all work. Assume one 20 amp circuit per student room.

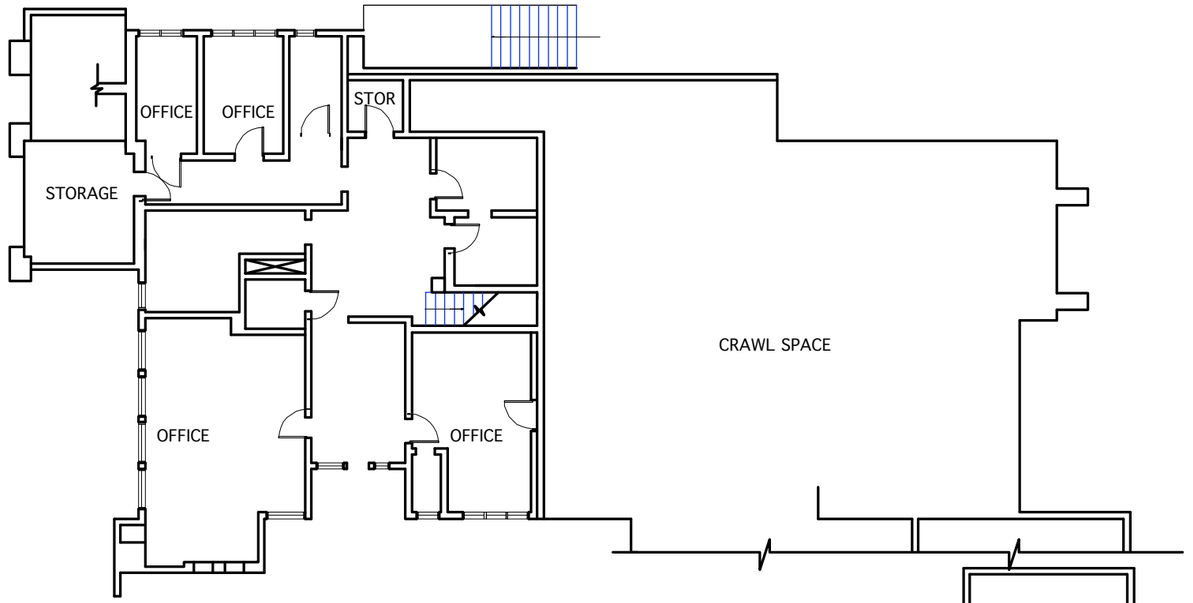
Plumbing: install new hot and cold domestic water distribution piping. Install new insulated recirculating water heater system with water heaters in basement mechanical rooms. Assume one system each for buildings B and C. Install new high efficiency low flow faucets (kitchen and lavatory), dual flush toilets, and shower valves.
Install new cast iron drain waste vent system throughout. Provide floor drains with trap primers in all bathrooms.

Remove existing fire sprinkler system and install new system with concealed piping throughout.

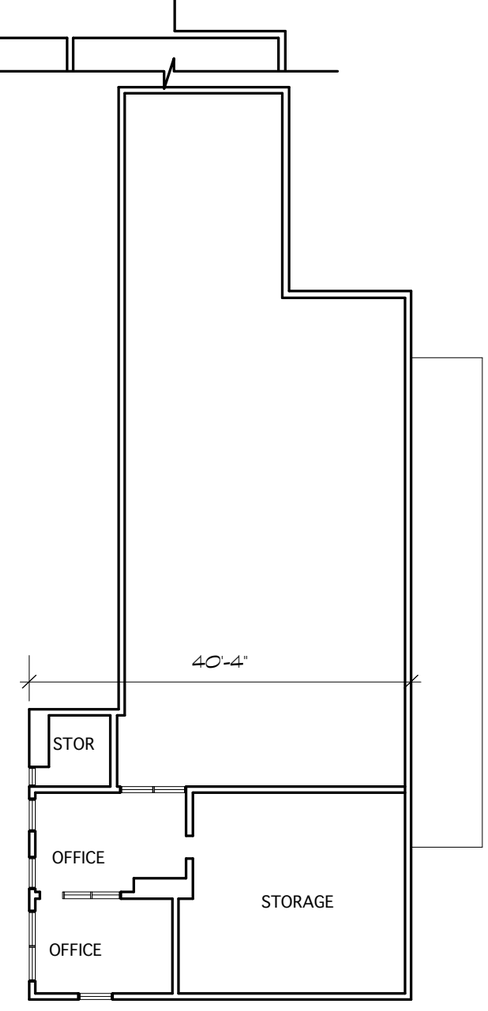
Install new fire alarm system.

Communications: Install new data / telecommunication system with data / phone /CTV jacks in all student rooms (one per student) and major common rooms. Terminate to data / phone closet on each floor, which in turn connect to MDF in basement

Security / Access: Provide access control system to each exterior door with electric strike and monitoring capability for "prop open" alert. New main access door to have proximity card reader control.



BUILDING C: BASEMENT



BUILDING B: BASEMENT

LEGEND

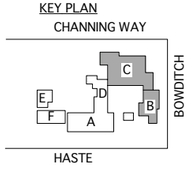
EXISTING WALL

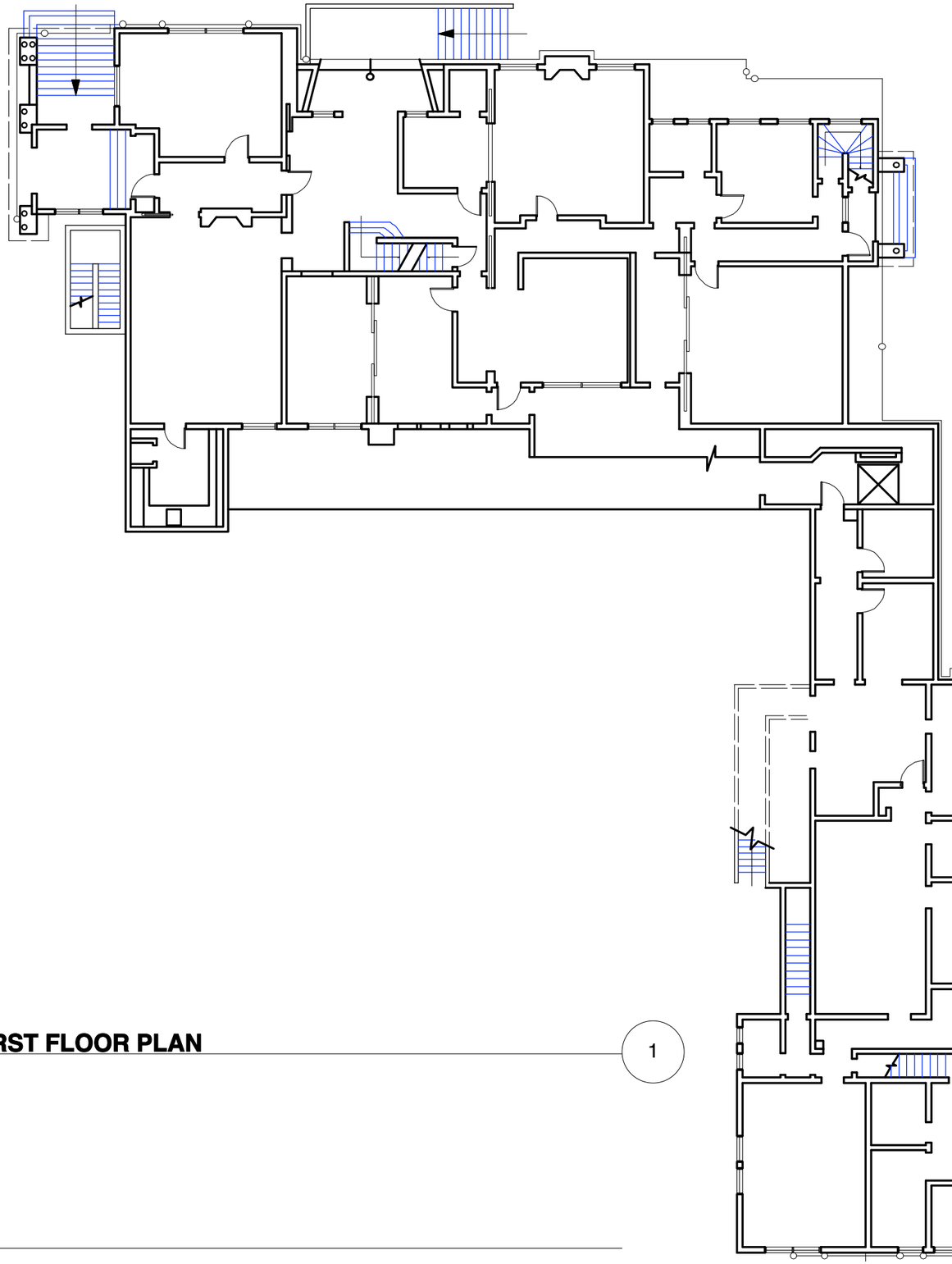
BUILDING B & C: (E) BASEMENT FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN





LEGEND

EXISTING WALL

N TRUE NORTH

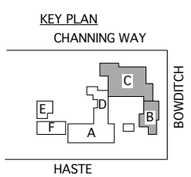
0 4' 8' 16' 32'

BUILDING B & C: (E) FIRST FLOOR PLAN

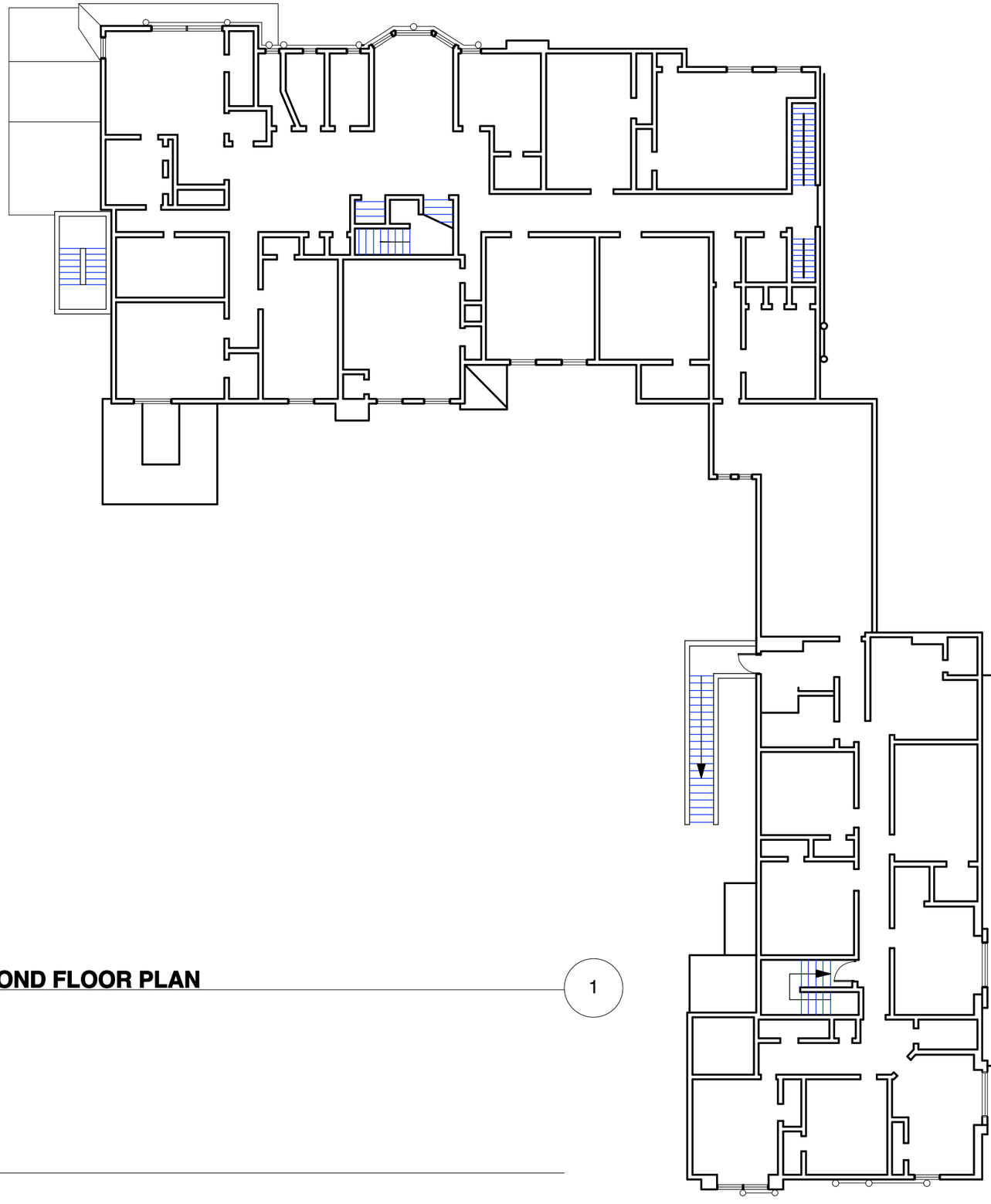
1

SCALE: 1/16" = 1'-0"

KEY PLAN



Anna Head Complex Adaptive Reuse Study
University of California, Berkeley
March 6, 2009



LEGEND

EXISTING WALL

N TRUE NORTH

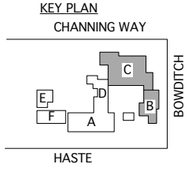
0 4' 8' 16' 32'

BUILDING B & C: (E) SECOND FLOOR PLAN

SCALE: 1/16" = 1'-0"

1

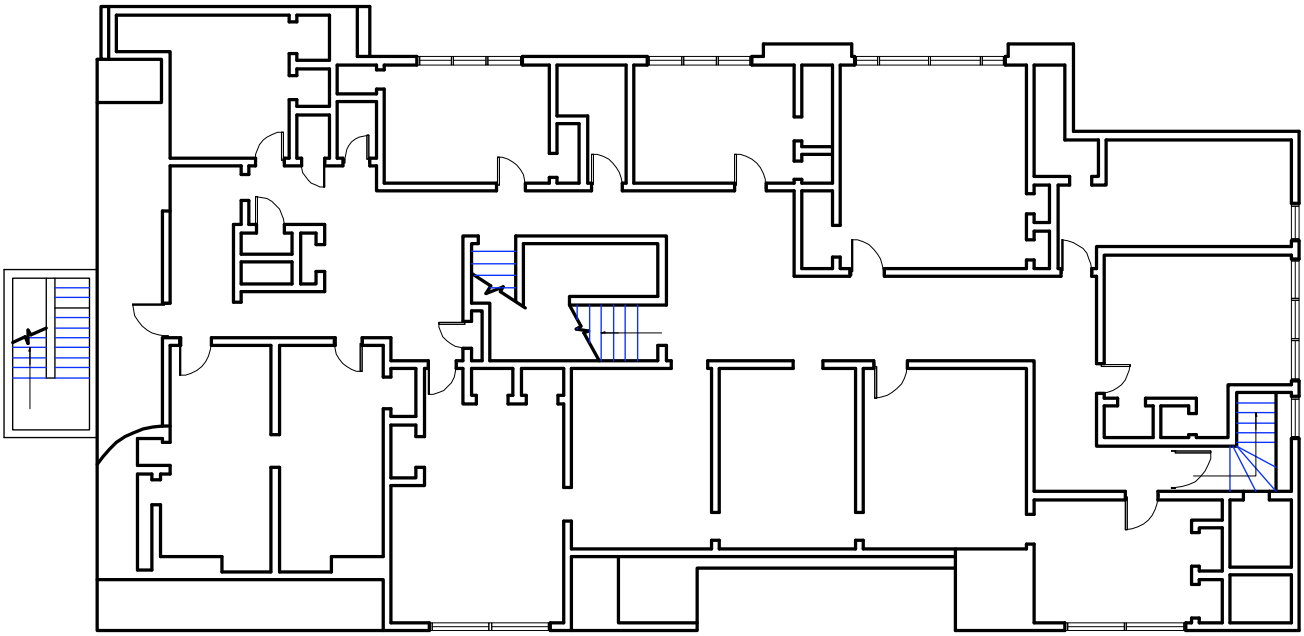
KEY PLAN



CODY ANDERSON WASNEY ARCHITECTS

LEGEND

EXISTING WALL

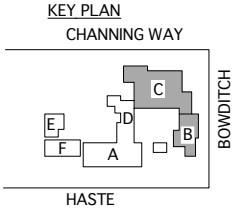


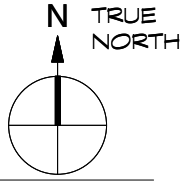
BUILDING C: (E) THIRD FLOOR PLAN

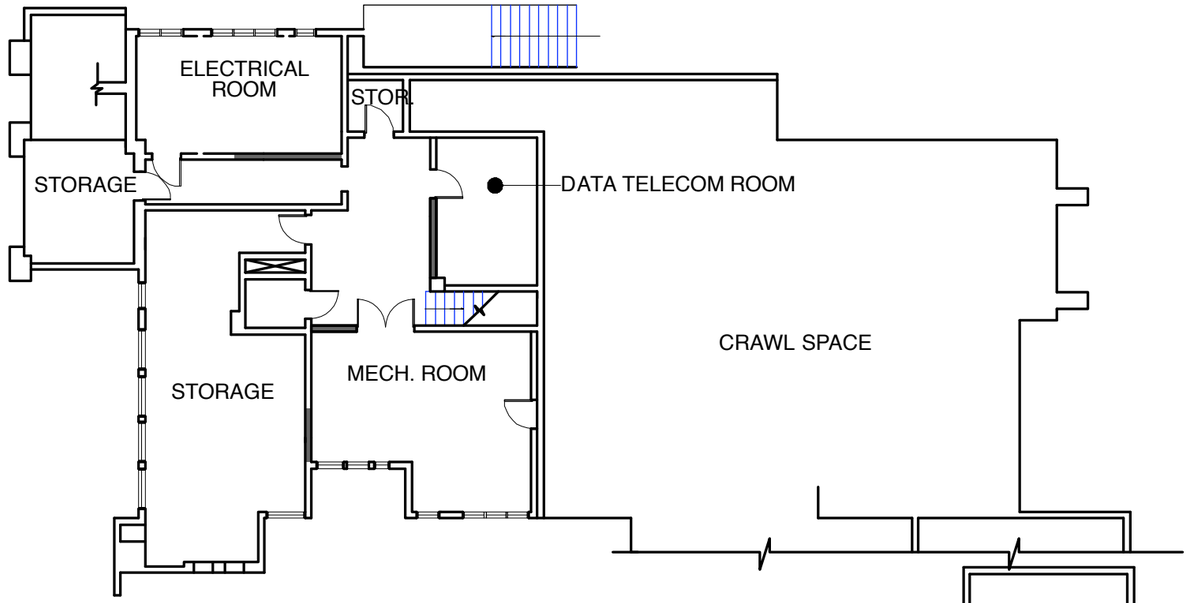
1

SCALE: 1/16" = 1'-0"

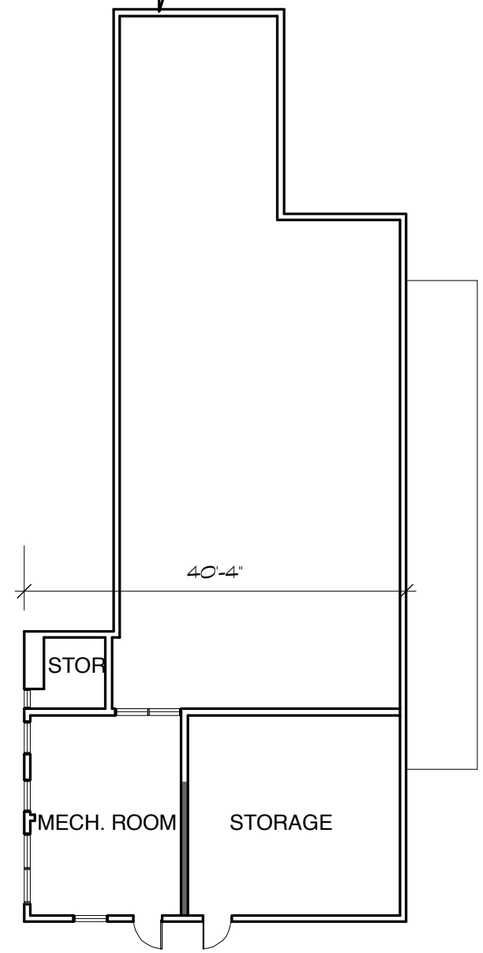
KEY PLAN







BUILDING C: PROPOSED BASEMENT



BUILDING B: PROPOSED BASEMENT

LEGEND

- EXISTING WALL
- NEW WALL
- EXISTING TO BE REMOVED

N TRUE NORTH

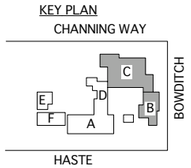
0 4' 8' 16' 32'

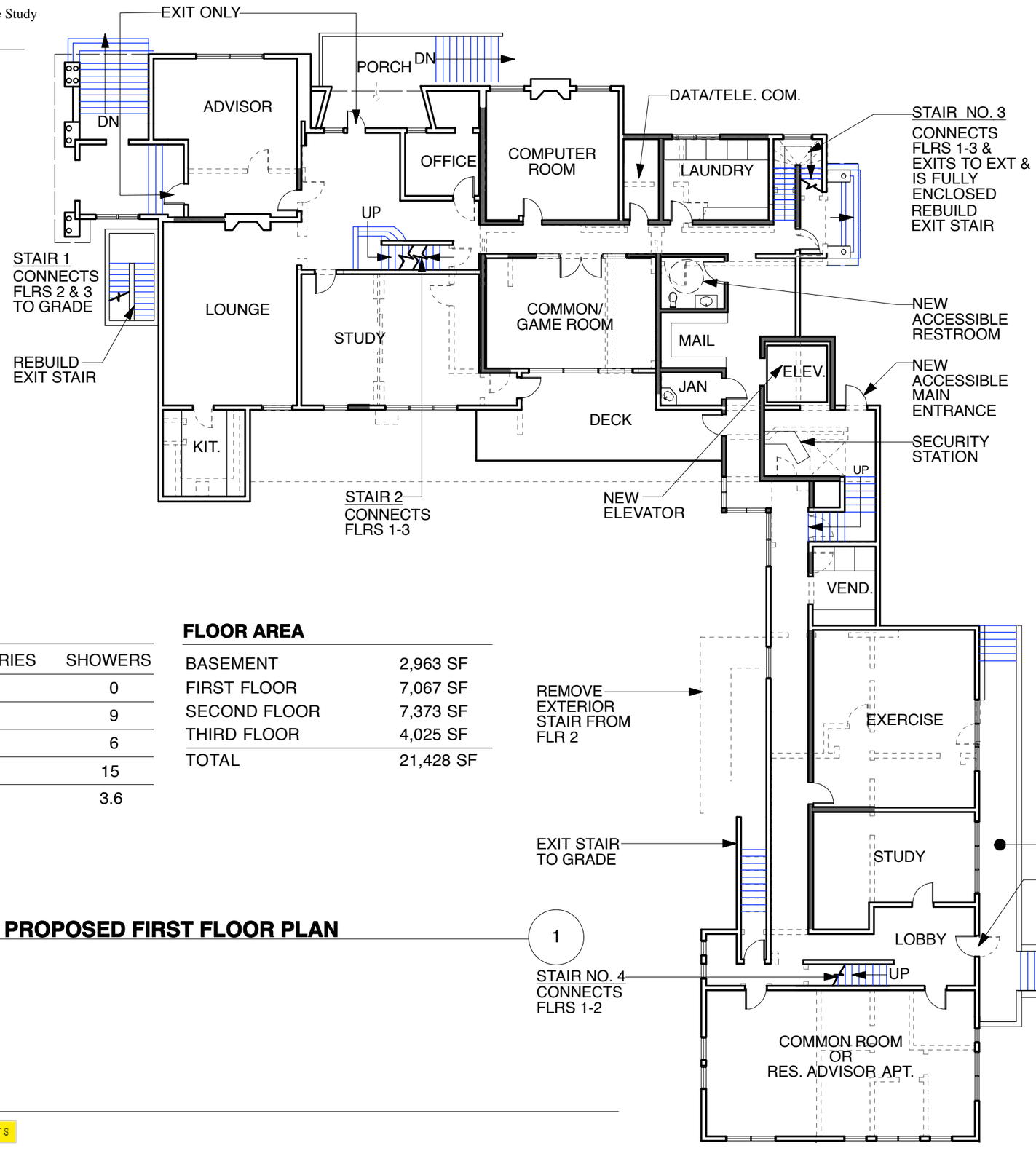
BUILDING B & C: PROPOSED BASEMENT FLOOR PLAN

SCALE: 1/16" = 1'-0"

1

KEY PLAN





LEGEND

- EXISTING WALL
- NEW WALL
- EXISTING TO BE REMOVED

N TRUE NORTH

0 4' 8' 16' 32'

TOTAL BED COUNT

NO STUDENT BEDS ON FIRST FLOOR

TOTAL: 55

TOTAL FIXTURE COUNT

FLOOR	TOILETS	LAVATORIES	SHOWERS
1ST	1	1	0
2ND	8	8	9
3RD	6	6	6
TOTAL	15	15	15
STUDENT/ FIXTURE RATIO	3.6	3.6	3.6

FLOOR AREA

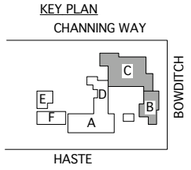
BASEMENT	2,963 SF
FIRST FLOOR	7,067 SF
SECOND FLOOR	7,373 SF
THIRD FLOOR	4,025 SF
TOTAL	21,428 SF

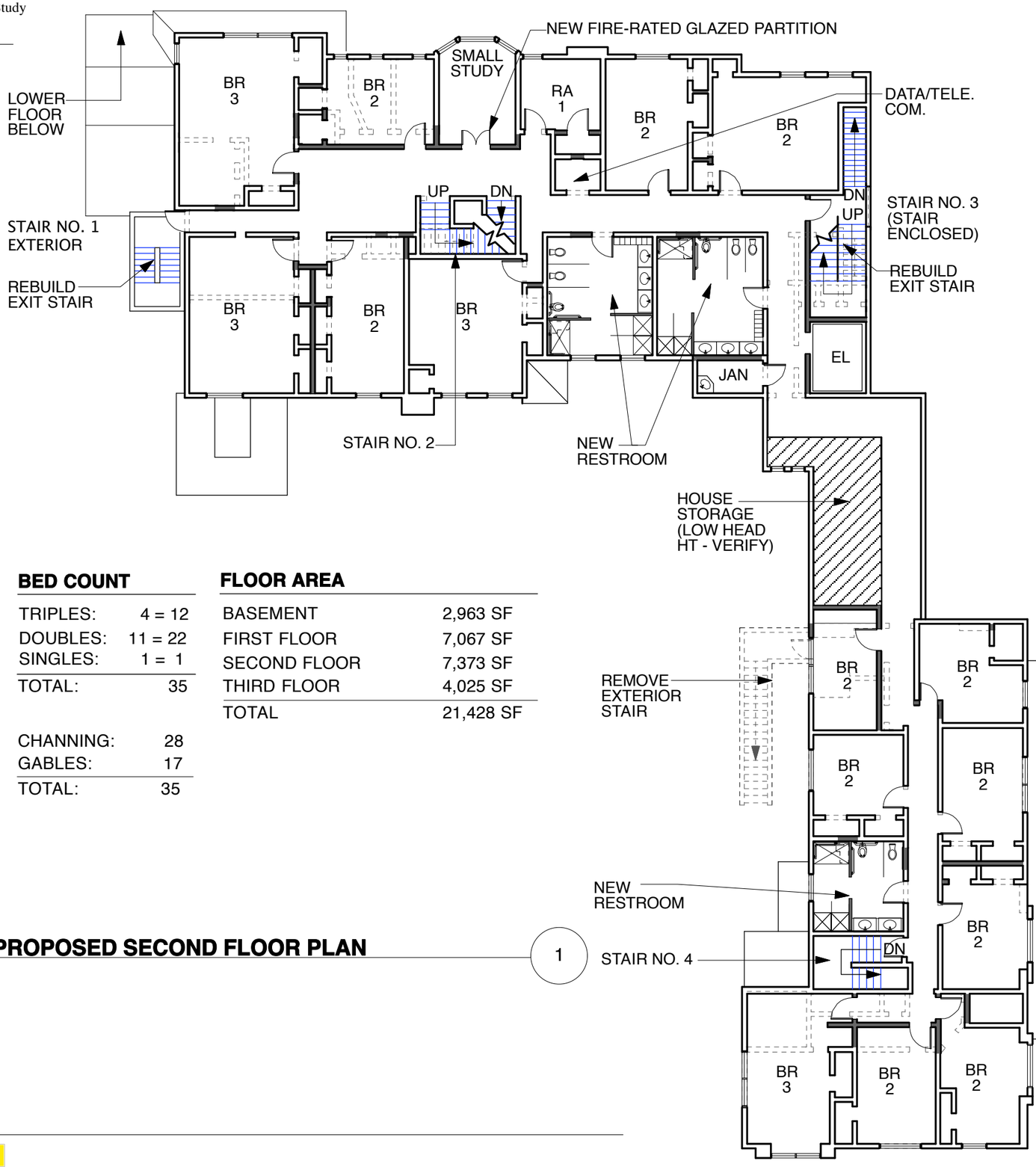
BUILDING B & C: PROPOSED FIRST FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN





LEGEND

- EXISTING WALL
- NEW WALL
- EXISTING TO BE REMOVED

N TRUE NORTH

0 4' 8' 16' 32'

PLUMBING FIXTURE COUNT

TOILETS:	8
LAVATORIES:	8
SHOWERS:	9

BED COUNT

TRIPLES:	4 = 12
DOUBLES:	11 = 22
SINGLES:	1 = 1
TOTAL:	35
CHANNING:	28
GABLES:	17
TOTAL:	35

FLOOR AREA

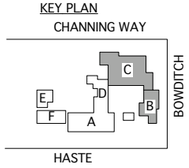
BASEMENT	2,963 SF
FIRST FLOOR	7,067 SF
SECOND FLOOR	7,373 SF
THIRD FLOOR	4,025 SF
TOTAL	21,428 SF

BUILDING B & C: PROPOSED SECOND FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN



FLOOR AREA

BASEMENT	2,963 SF
FIRST FLOOR	7,067 SF
SECOND FLOOR	7,373 SF
THIRD FLOOR	4,025 SF
TOTAL	21,428 SF

BED COUNT

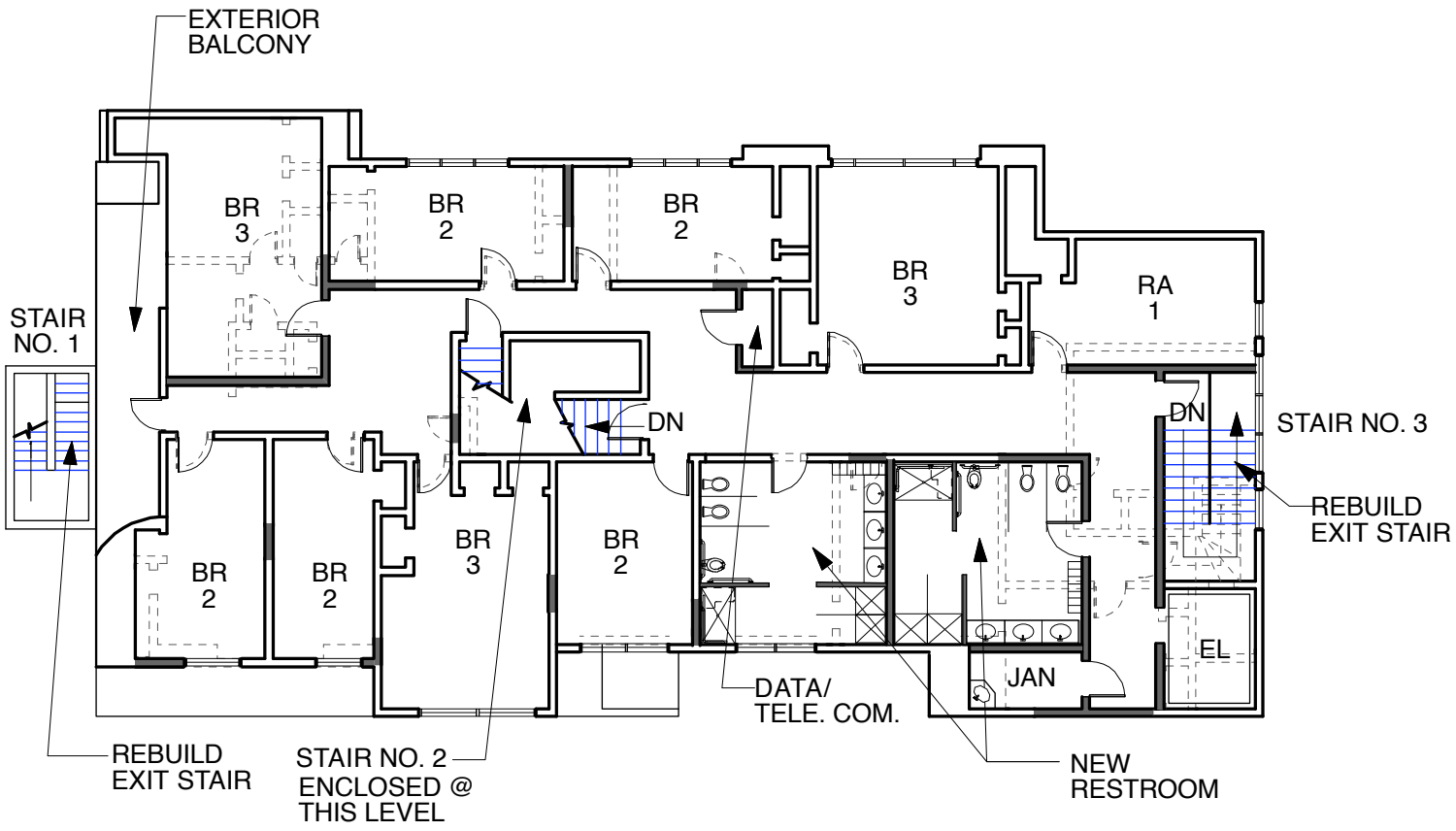
TRIPLES:	3 = 9
DOUBLES:	5 =10
SINGLES:	1 = 1
TOTAL:	20

LEGEND

- EXISTING WALL
- NEW WALL
- EXISTING TO BE REMOVED

PLUMBING FIXTURE COUNT

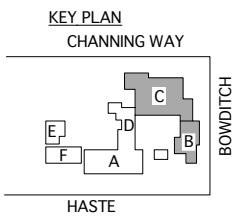
TOILETS:	6
LAVATORIES:	6
SHOWERS:	6

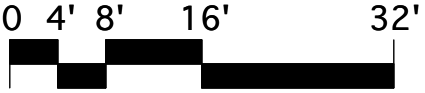


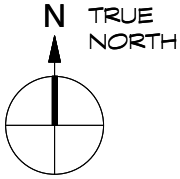
BUILDING C: PROPOSED THIRD FLOOR PLAN

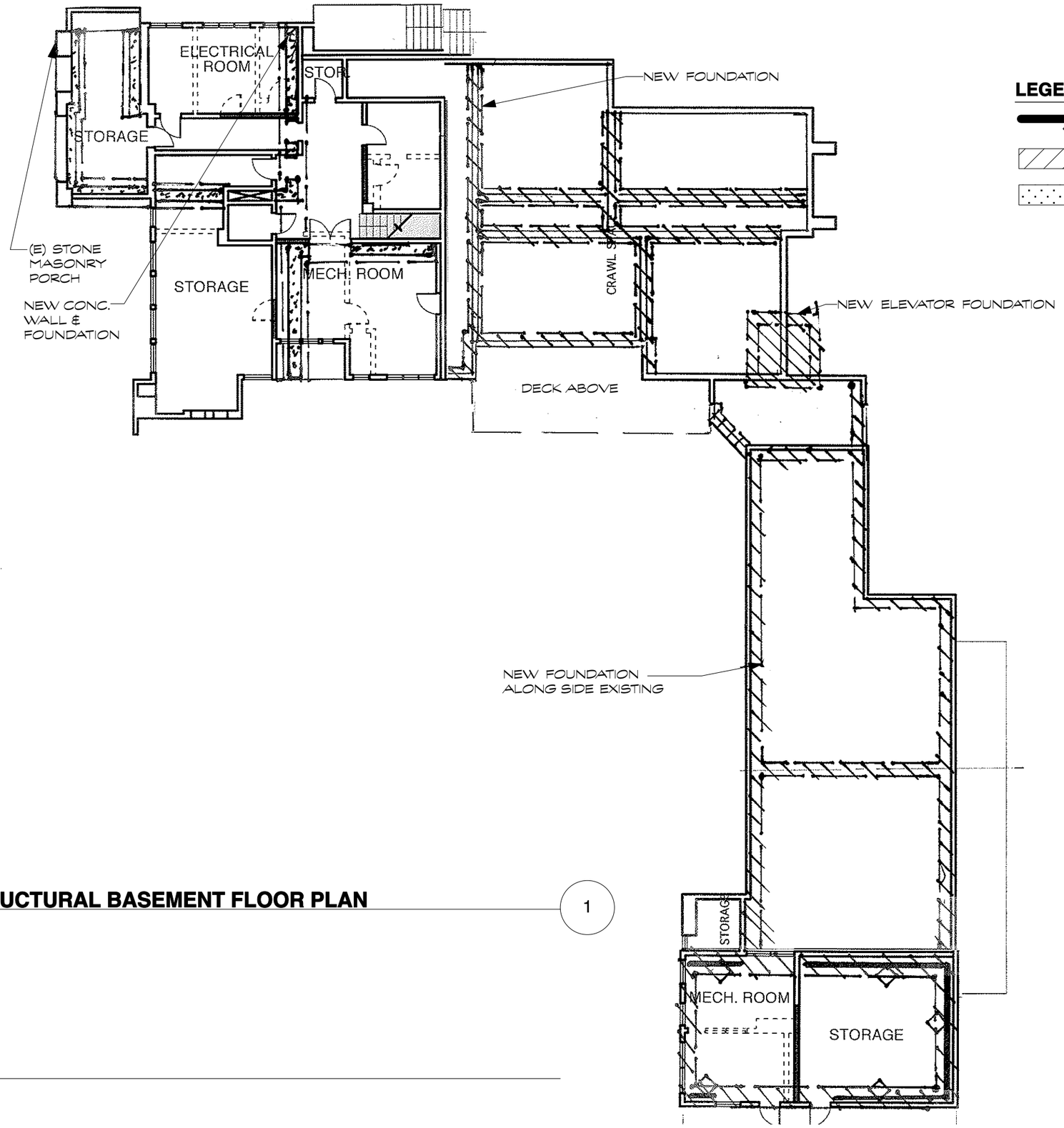
1

SCALE: 1/16" = 1'-0"









LEGEND

- PLYWOOD SHEAR WALL
- NEW CONCRETE FOUNDATION
- NEW CONCRETE WALL & FOUNDATION

N TRUE NORTH

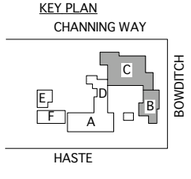
0 4' 8' 16' 32'

BUILDING B & C: STRUCTURAL BASEMENT FLOOR PLAN

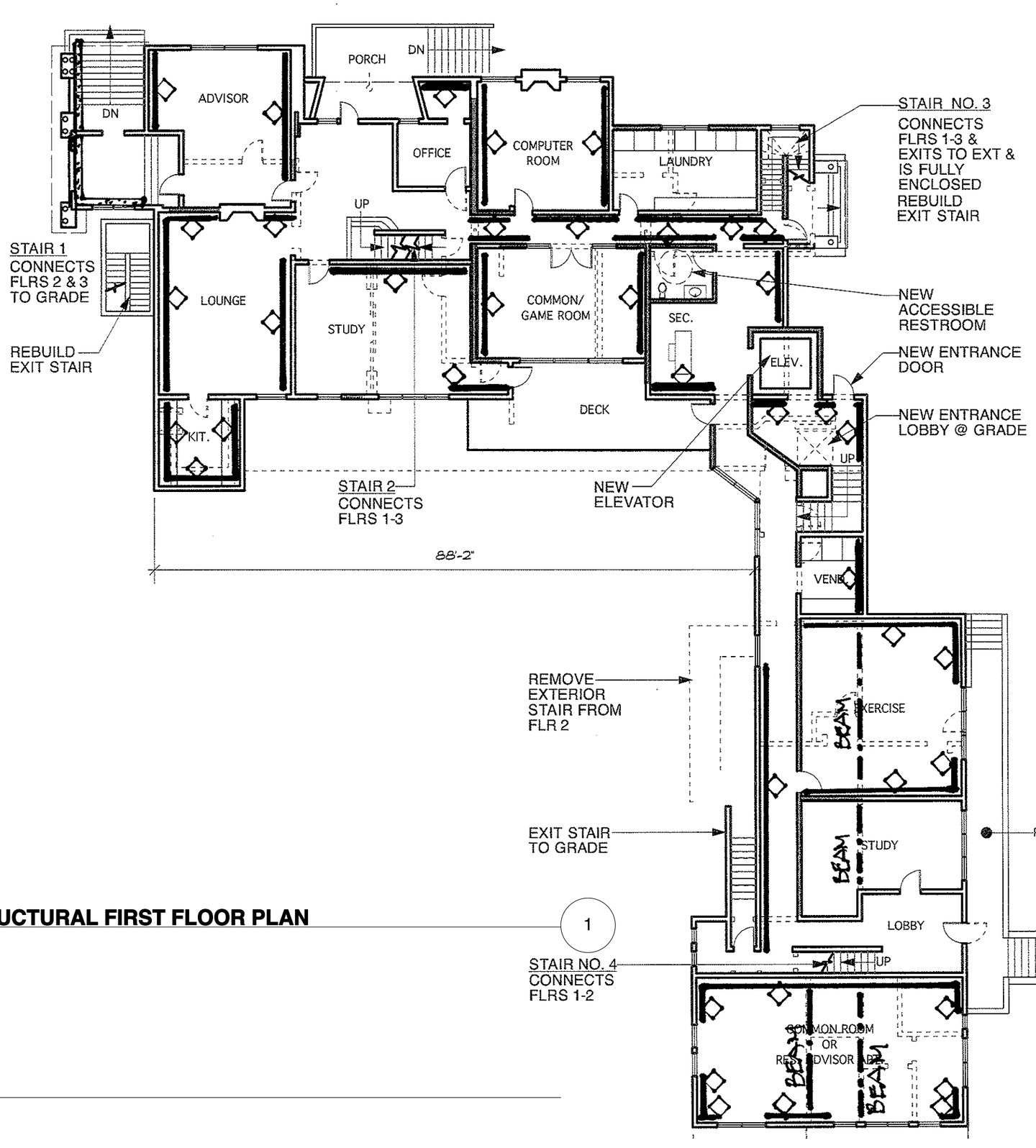
1

SCALE: 1/16" = 1'-0"

KEY PLAN



CODY ANDERSON WASNEY ARCHITECTS



LEGEND

PLYWOOD SHEAR WALL

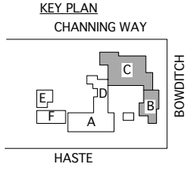
NEW CONCRETE FOUNDATION

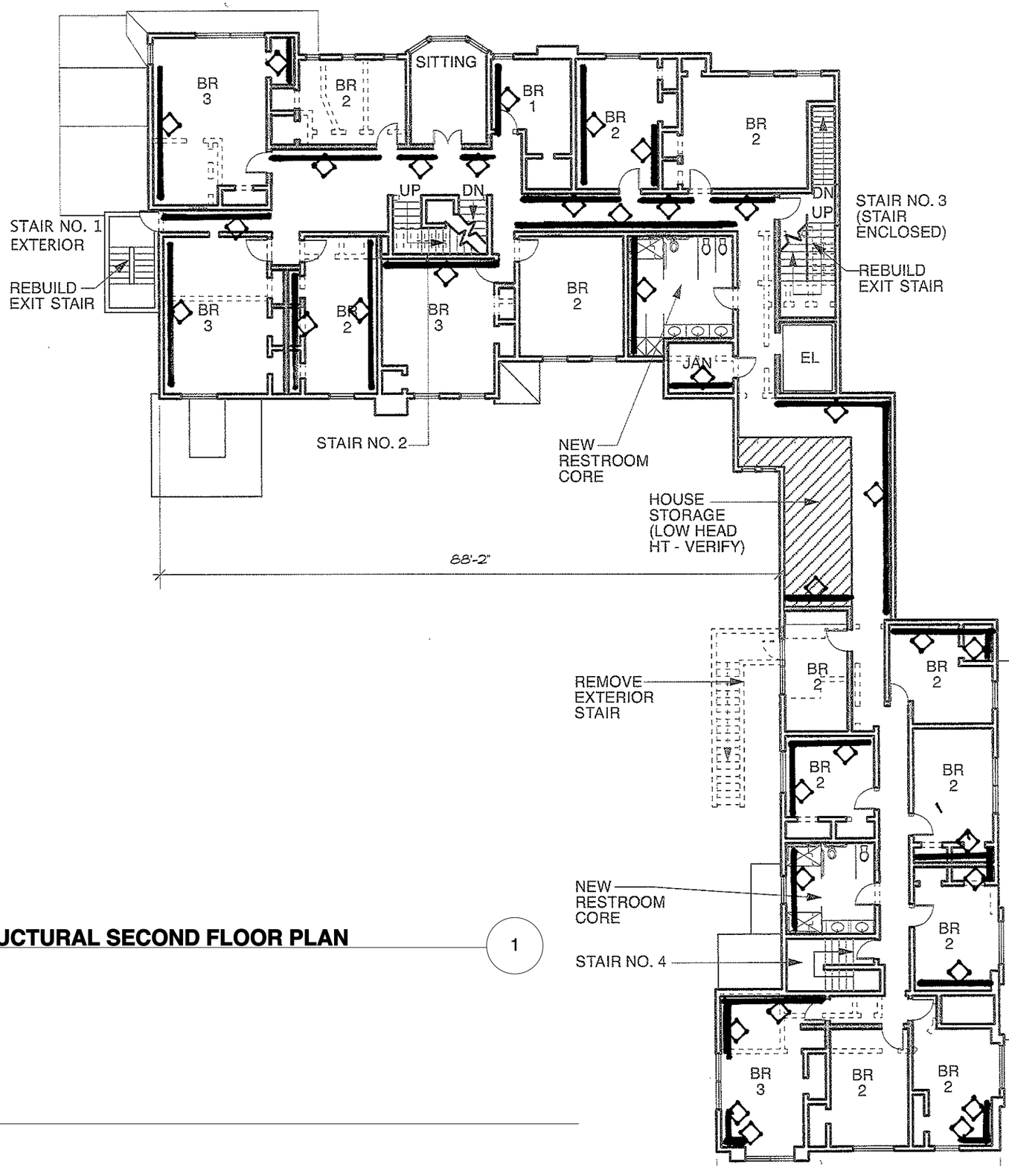
BUILDING B & C: STRUCTURAL FIRST FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN





LEGEND

PLYWOOD SHEAR WALL

N TRUE NORTH

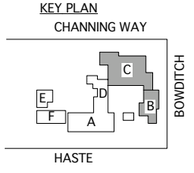
0 4' 8' 16' 32'

BUILDING B & C: STRUCTURAL SECOND FLOOR PLAN

1

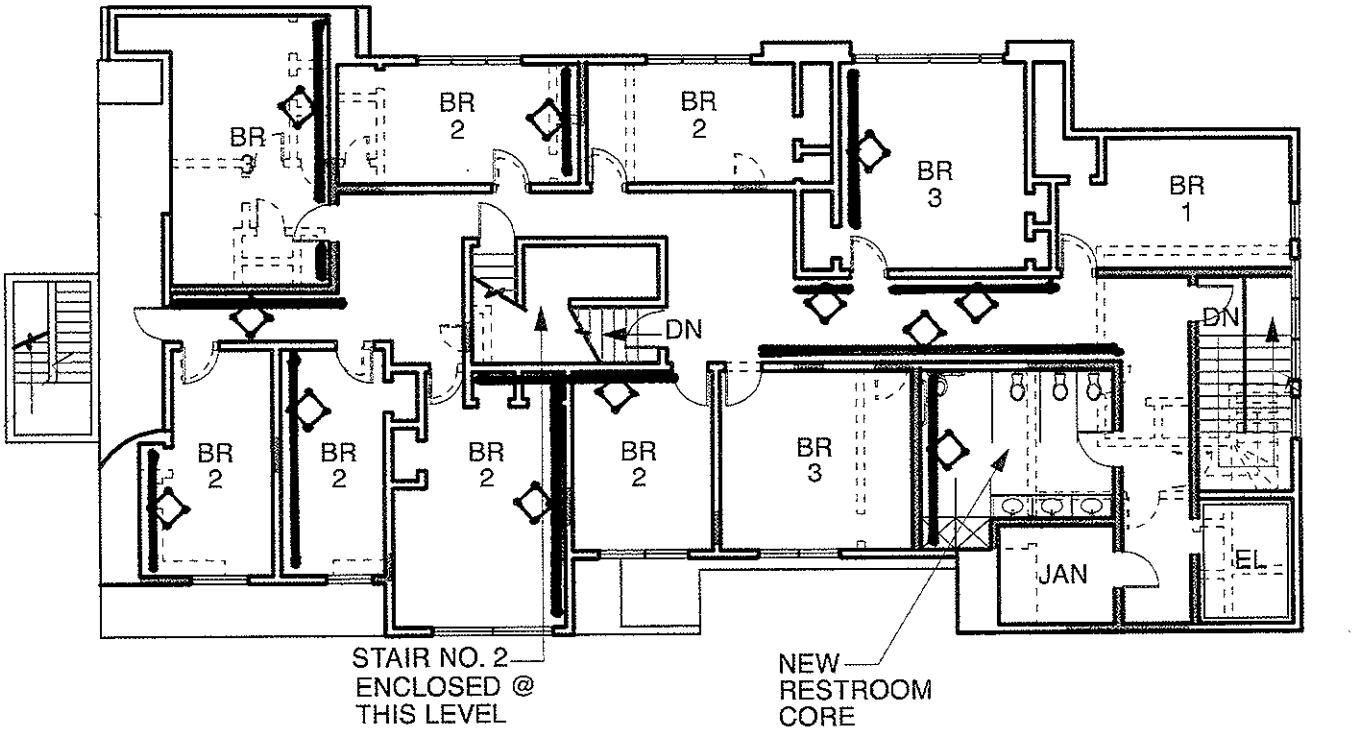
SCALE: 1/16" = 1'-0"

KEY PLAN



LEGEND

PLYWOOD SHEAR WALL

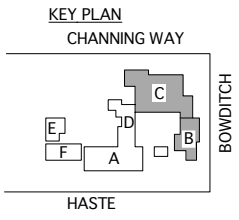


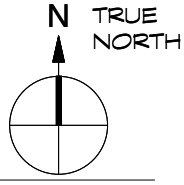
BUILDING C: STRUCTURAL THIRD FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN





8

Building D Scope of Work

SITE WORK

Site Utilities
- Provide new water service for fire sprinkler system
- Provide a new domestic water service from main in street
- Provide a new sewer lateral to main in the street
- Provide a new underground electrical service to distribution lines in public right of way.
- Provide a new underground natural gas service from main in street.

Site Accessibility
- Provide two new accessible parking spaces with required signage (one van accessible) on southwest corner of site.
- Provide new accessible concrete path from public sidewalk, and from new accessible parking space to new main entrance on east side of building.

Landscaping / Hardscaping
- Provide an adequate allowance for extensive hardscape, landscaping, and irrigation.

STRUCTURE

Structural Narrative by WJE

BUILDING D (STUDY HALL)

Per Knapp (2008), the south two-story portion of Building D was constructed in 1917, and the north one-story art studio added in 1920. Building D is currently used for offices.

- Roof sheathing: Straight roof sheathing is visible from the building interior, and is likely to have been the diaphragm sheathing provided in initial construction. It is not known whether plywood sheathing has been added during subsequent reroofing. Roof plywood sheathing needs to be added, and detailed to connect to shear walls at the building perimeter and at vertical steps in the roof. See Retrofit Descriptions.

- Roof framing: Roof framing uses exposed trusses, beams and rafters that appear to be in good condition. The system used for truss connections is not obvious, therefore further investigation of the truss adequacy is recommended. The trusses appear to be performing adequately at this time.

- Second floor sheathing: Provide plywood floor sheathing on a room-by-room basis and tie into shear walls and steel frames. See Retrofit Descriptions.

- Second floor framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- First floor framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- Foundation: The foundation for the two-story portion on Building D appears to be parging over brick masonry. The material for the north art studio addition appears to be concrete, which is highly deteriorated in some locations. Provide new foundations alongside existing at new shear wall and steel frame locations. Provide new foundations at crawl space interior as shown on plans.

- Shear walls: Provide plywood shear walls at locations noted on the plans. See Retrofit Descriptions

- Steel special moment resisting frames: There is not currently enough wall in this building to provide a plywood shear wall bracing solution at all locations. Steel moment frames are suggested as an approach to maintaining the building exterior appearance and minimize interior modifications required. Provide two-story steel special moment frames at locations as shown on the plans. Steel frame columns at the first floor are to continue through the crawlspace to the foundations.

- Cripple walls: It is anticipated that Building D has cripple walls over some portion of the building perimeter. Plywood sheathed cripple walls are needed in the crawlspace at all

existing and new foundation lines. Sheathing is anticipated to be continuous for the full foundation length except at ventilation and access openings.

- Anchorage to foundation: Provide anchorage at all existing and new foundation lines as per Retrofit Descriptions

- Single story art studio at north end: Provide plywood sheathing and anchorage to foundation on all existing walls. Evaluate wood framing for possible decay due to water intrusion at the tarp-covered skylight.

BUILDING ENVELOPE

Roof: Remove all layers of roofing (assume three layers) down to spaced sheathing. Install new 5/8-inch CDX plywood over entire roof. See Structural description above for nailing requirements. Install new fire resistant treated wood shingle roof system (including roofing felt) over new spaced sheathings.

Skylight at north end: Provide allowance to reglaze and seal large skylight in one-story "studio" at north end of building.

Shingles Siding: Shingle siding is in reasonably serviceable condition. There are selected areas of more pronounced weathering, warping and wear, but in general, the siding is not at the end of its lifespan. Given the age of the building, we assume that the singles are not original.

We've observed the windows and doors are not provided with head flashings, and have been told that water intrusion is a major problem with these buildings. Therefore, there are two possible options to consider for the exterior siding;

Option 1: Selectively repair shingles where damaged and provide a general allowance for caulking and sealing joints around windows and doors. Remove shingles required to install head flashings at windows, and reinstall to match existing. Provide allowance to steam clean all exterior siding.

This option preserves existing fabric, but does not allow for exterior shear plywood installation, and does not allow a comprehensive and competent approach at exterior envelope waterproofing with new buildings felts and proper head flashings at openings.

Option 2: Remove all shingle siding and accompanying wood trim such as water tables, horizontal bands, etc that are part of building skin. Salvage wood trim materials if possible for reuse. If not possible, replace in kind. Carefully survey and match existing shapes and sizes, including decorative shapes and borders and bands. Where required by structural recommendations above, remove existing straight sheathings and install new plywood shear plywood of matching thickness. See Structural for nailing, blocking requirements, etc. Install new cedar shingle siding system, including building felts, over new plywood and existing

straight sheathing where it remains. New shingle siding to match existing size, shape, borders, banding and thickness, and existing corner treatments.

This option allows for a comprehensive approach to building envelope waterproofing, and will give a new skin that could last thirty to fifty years. It also allows for easier installation of exterior shear plywood than installation on interior sides of walls. However, it removes shingle siding that has serviceable life remaining, some of which may be historic fabric.

See structural narrative and drawings for extent of shear walls.

Exterior Woodwork: (includes exposed rafter tails, soffit sheathing, fascias, barge rafters, horizontal and vertical trim, watertables, door and window casings, etc.)

Repairs small amounts of dry rot or decay in exterior woodwork with epoxy wood consolident. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, replace to match existing.
Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

Exterior Doors and Windows: Door Hardware: see description of door hardware under Interior Tenant Improvements below.

A detailed door and window survey has not been performed as part of this study, but the general conditions of exterior openings have been observed, and most openings will need remedial work. The performance specification for all windows and doors is as follows: Each window and door must operate smoothly, and latch and lock easily. Replace all broken sash chords.

Replace all cracked, broken or missing glass. Replace all cracked, damaged or missing glazing putty. Replica historical glass is NOT required.

Each opening must have a full complement of hardware, including hinges, sash lifts, locks, latches, stops and closers at doors. Hardware that has been added to reinforced the unit over time such as cover plates, corner angles, stitch plates, etc. shall all be removed. All hardware shall be free of paint. Repairs small amounts of dry rot or decay in sashes or doors with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, provide a replacement sash or door to match existing.

Finishes: Paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

For the purposes of this cost estimate, assume an allowance of $500 per window and $750 per exterior door for refurbishment, repair, replacement, and new hardware.

Architectural Sheet Metal

Install new copper roof ventilators for attic ventilation.

As part of reroofing scope, install all new copper roof flashing and new gutters and downspouts. New gutters and downspouts to match existing shape and configuration.

Install new copper head flashings at all windows and exterior door openings, where doors are not protected by canopies or deep overhangs directly above. Selectively remove shingles as required to for installation. All head flashings to be Z-shaped with soldiered, closed corners, with vertical leg extending past window head four inches on each side.

INTERIOR MODIFICATIONS

Summary**:** Future use is unknown, but assumed as public function.

Existing wall and ceiling finishes to remain: Unless specifically noted for demolition and removal, assume wall and ceiling finishes to remain. However, assume a generous cut and patch and repair allowance, because new building systems will require removing portions of wall and ceiling finish throughout.

At all new and existing painted wall and ceiling finishes: patch, repair and prep for paint. Install one coat primer/sealer, two coats latex eggshell enamel. Allow for different colors on walls and ceilings.

Interior woodwork with clear finish: Baseboard, window and door casing, miscellaneous running trim ceiling and exposed roof structure: match existing at all new construction. Allow for a generous patch, repair and prep allowance. Patch, repair and prep for clear sealer.

Insulation: Provide sound batt insulation in all interior walls separating bedrooms from adjacent rooms or spaces, and provide thermal batt insulation in any exterior wall cavity that is open or exposed during construction. Provide new sound batt insulation in all bathroom walls.

Bathrooms:
All existing bathrooms will be removed in this building. Provide two new gang restrooms. Install new water resistant gypsum board on all walls, and regular drywall on ceilings.

Install new tiled floor over waterproof membrane over reinforced mortar bed. At upper unit, provide tiled walls at tub/shower. All wall tile set over reinforced mortar bed over waterproof membrane over gypsum board. Tile allowance (material only): $10 per square foot. Slope floor to floor drains.

Provide solid plastic toilet partitions at toilet stalls

Provide accessible toilet accessories including seat cover dispensers, toilet paper dispensers, paper towel dispensers, trash receptacles and grab bars and coat hooks.

Provide solid surface counter top with undermount sinks at vanity. Provide continue mirror with stainless steel frame for full width above.

See Plumbing description for fixtures. See Mechanical description for ventilation system.

Interior doors: At all existing doors to remain, provide patch / repair allowance of $500 per door.

Door hardware
All door latch or locksets must have accessible lever hardware, and be compatible with the University's keying standards. Assume all existing door latchsets / locksets to be replaced.

Floor finish: Provide low profile accessible carpet tile throughout. Install using stretch-in method, not glue down. Assume $35 dollar per yard material cost only (pad and carpet).

VERTICAL CIRCULATION

Provide a new gurney-sized accessible two-stop hydraulic elevator in new shaft.

Remove and replace exterior wood stairs at west side of building of building.

At all stairs, provide compliant striping and handrails.

BUILDING SYSTEMS

Mechanical – Install new hydronic baseboard heating systems in entire building--place convectors on exterior walls, below windows whenever possible. Install boilers in rated rooms in mechanical room on first floor with flues up through rated shafts up to roof. Provide required combustion air intakes. Assume one boiler.

Install new exhaust fans in restroom. All exhaust fans terminated through roof

Electrical – Install new electrical service, and rewire entire building. Provide new convenience outlets per current code and new fluorescent lighting per current code in each room. Conceal all work.

Plumbing: install new hot and cold domestic water distribution piping. Install new insulated recirculating water heater system with water heaters in mechanical room. Install new high efficiency low flow faucets, and dual flush toilets.

Install new cast iron drain waste vent system throughout. Provide floor drains with trap primers in all bathrooms.

Remove existing fire sprinkler system and install new system with concealed piping throughout.

Install new fire alarm system.

Communications: Install new data / telecommunication system with data / phone /CTV jacks in all rooms. Terminate to MDF on first floor.

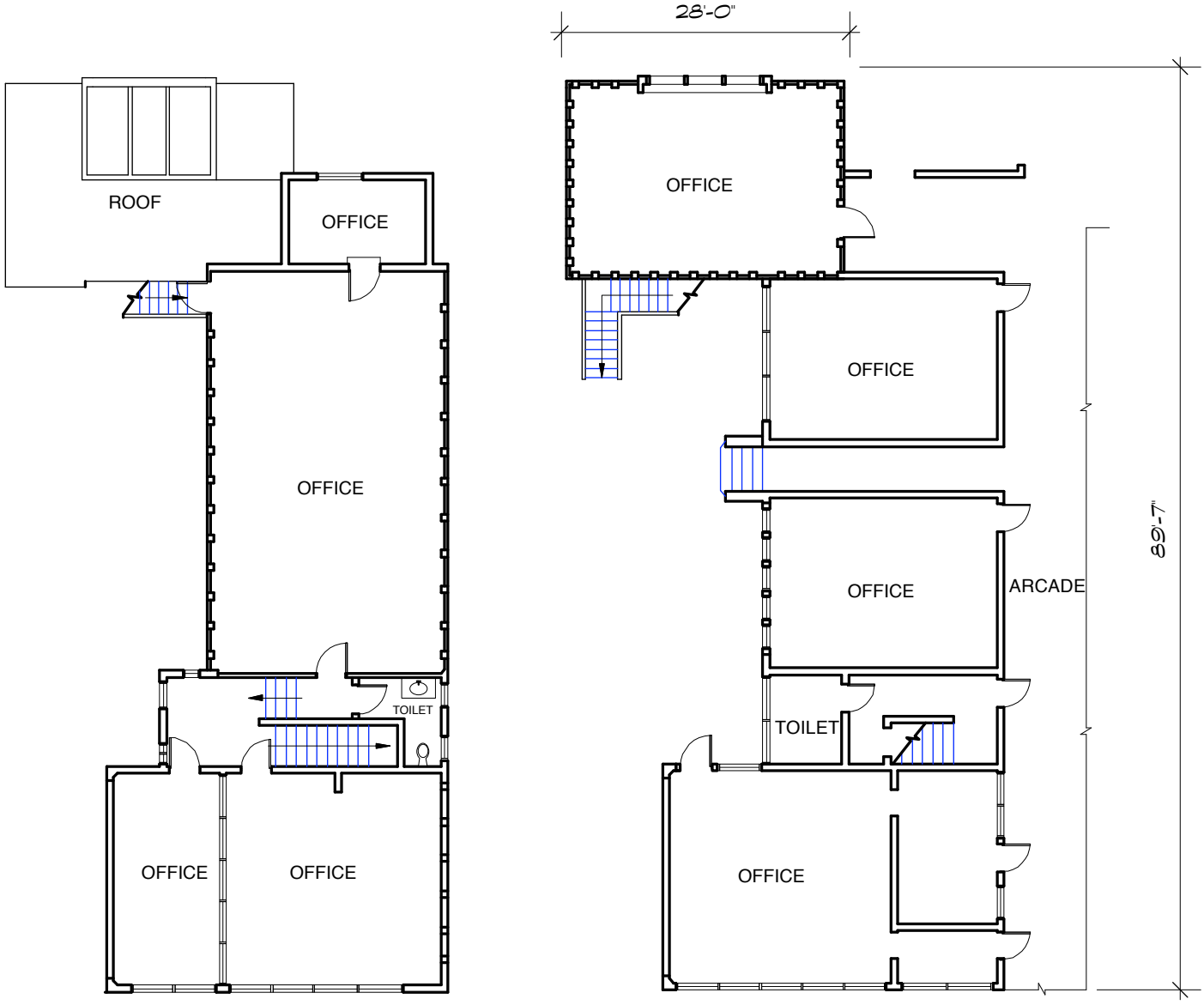
Security / Access: Provide access control system to each exterior door with electric strike and monitoring capability for "prop open" alert. New main access door to have proximity card reader control.

LEGEND

EXISTING WALL

FLOOR AREA

BASEMENT	2,079 SF
FIRST FLOOR	1,906 SF
TOTAL	3,985 SF



BUILDING D: (E) SECOND FLOOR PLAN

SCALE: 1/16" = 1'-0"

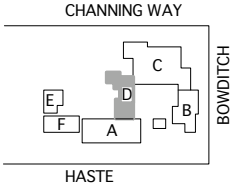
2

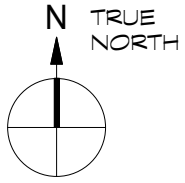
BUILDING D: (E) FIRST FLOOR PLAN

SCALE: 1/16" = 1'-0"

1

KEY PLAN

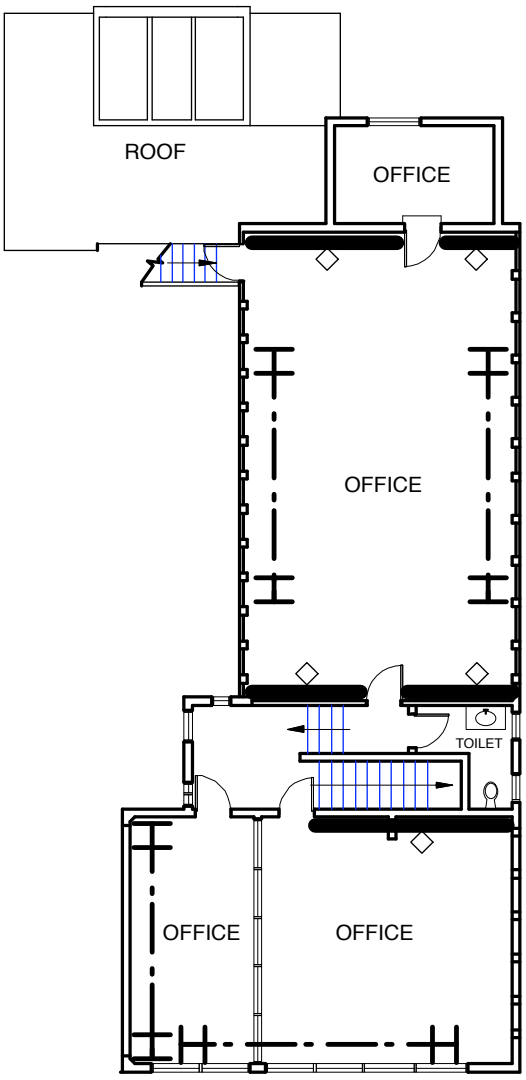


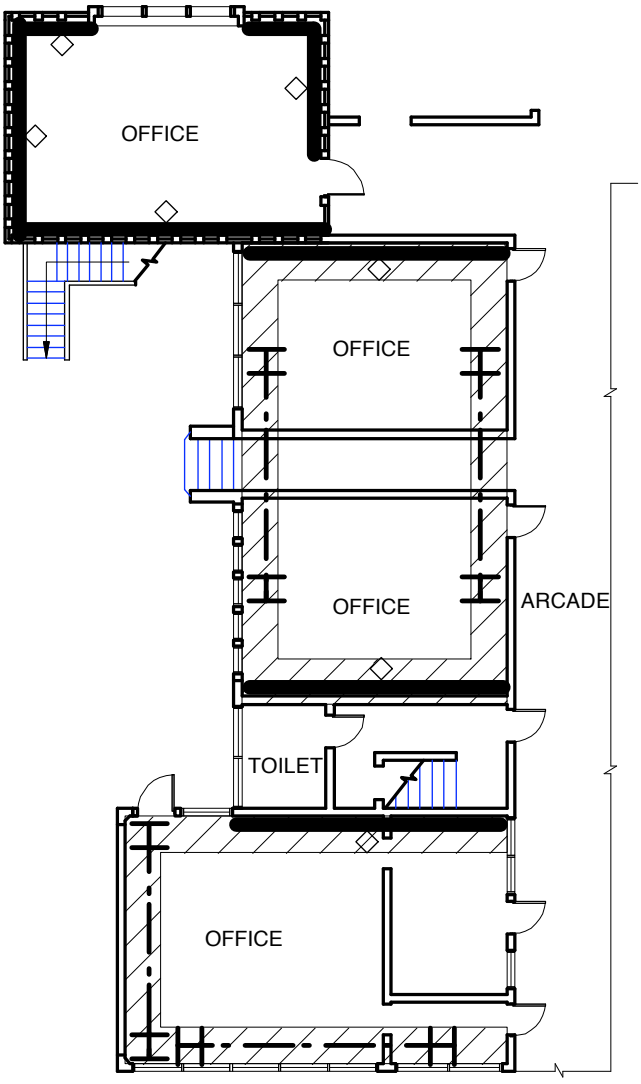


LEGEND

PLYWOOD SHEAR WALL

NEW CONCRETE FOUNDATION





BUILDING D: STRUCTURAL SECOND FLOOR PLAN

2

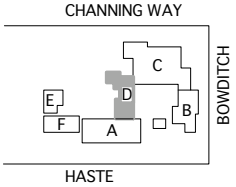
SCALE: 1/16" = 1'-0"

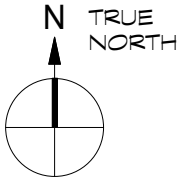
BUILDING D: STRUCTURAL FIRST FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN





9

Building E Scope of Work

SITE WORK

Site Utilities
- Provide new water service for fire sprinkler system
- Provide a new domestic water service from main in street
- Provide a new sewer lateral to main in the street
- Provide a new underground electrical service to distribution lines in public right of way.
- Provide a new underground natural gas service from main in street.

Site Accessibility
- Provide new Accessible van parking space and appropriate signage
- Provide new accessible wood ramp with steel handrails to front porch. Assume 30 lineal feel with one intermediate landing.

Landscaping / Landscaping
- Provide a $50,000 allowance for landscaping / irrigation

STRUCTURE

Structural Narrative by WJE

BUILDING E (THE COTTAGE)

Per Knapp (2008), Building E was originally constructed in 1901, with a two-story addition at the south added in 1912. Building E is a two-story wood frame building with a wood framed floor and crawlspace below.

STRUCTURAL REVISIONS REQUIRED FOR GRAVITY AND SEISMIC LOADING

- Roof sheathing: The current roof sheathing is not known, but could be spaced sheathing based on other construction in the complex. Provide plywood roof sheathing.

- Roof framing: Framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- Second floor sheathing: The floor sheathing has not been observed. Based on age of building, hardwood floors with wood sheathing could be anticipated. No modifications to floor sheathing are proposed at this time. Sheathing should be confirmed.

- Second floor framing: Second floor framing has not been observed. Based on adequate performance to date, it is assumed to be substantially adequate for the main portions of the floor. Floor support for the interior fireplace and chimney is not known, since masonry does not extend to the first story. It is anticipated that steel structural beams and posts may be needed to provide noncombustible support to the fireplace and chimney. Modifications to provide clearances to combustible materials may also be required in vicinity of the fireplace and chimney.

- First floor framing: Based on adequate performance to date, it is assumed to be substantially adequate. Condition should be checked and any decay or other damage repaired.

- Foundation: The foundation is primarily constructed of brick masonry, with limited concrete foundations at the tower. The existing foundation appears to be adequately supporting the structure at this time. A survey for strength of mortar and areas of deterioration should be conducted. It is anticipated that the existing foundation can continue to be used for gravity load support. Selected new concrete foundations are proposed at locations of new shear walls, as shown on the first floor plan.

- Shear walls: New plywood shear walls are proposed at the first and second stories, as shown on the plans, and described in the Retrofit Descriptions. It is anticipated that the shear wall sheathing will be installed on the interior of the building.

- Cripple walls: Plywood sheathed cripple walls are needed in the crawlspace at all existing and new foundation lines. Sheathing is anticipated to be continuous for the full foundation length except at ventilation and access openings.

- Anchorage to foundation: Anchor bolts are needed at four feet on center for the full length of new and existing foundations. Anchor bolts in new foundations are to be cast-in bolts with steel plate washers. Anchor bolts in existing foundations will require the removal of a 1 foot by 1 foot key section of masonry stem wall, placement of the bolt, and casting of concrete or grout to fill in the key.

- Exterior chimney: The exterior chimney has been removed to a height at which the safety hazard posed in minimal. No further work on the exterior chimney is required. Complete removal is acceptable if desired.

- Interior chimney: The primary concern posed by the interior chimney is vertical support. See discussion of second floor framing. If the fireplace is to be used, the condition of the chimney flue and the height of the chimney should be checked for adequacy.

- Exterior stairs and porches: The exterior stairs and porches at both the first and second story levels appear to be in fair to poor condition. It is anticipated that these will need to be substantially reconstructed.

STRUCTURAL REVISIONS RELATED TO PROPOSED ARCHITECTURAL PLAN

- The first floor bathroom requires the removal of what is anticipated to be a bearing wall between the original building and the 1912 addition. It is anticipated that a structural beam and supporting posts will be required. New spread footings may also be required at each post.

BUILDING ENVELOPE

Roof: Remove all layers of roofing (assume three layers) down to spaced sheathing. Install new 5/8-inch CDX plywood over entire roof. See Structural description above for nailing requirements. Install new fire resistant treated wood shingle roof system (including roofing felt) over new spaced sheathings.

Balcony: remove existing waterproofing and walking surface down to framing. Provide positive drainage to through-wall scuppers (drain and overflow) and install new walkable waterproof membrane surface ("Dexo-tex" or equal).

Shingles Siding: Shingle siding is in reasonably serviceable condition. There are selected areas of more pronounced weathering, warping and wear, but in general, the siding is not at the end of its lifespan. Given the age of the building, we assume that the singles are not original.

We've observed the windows and doors are not provided with head flashings, and have been told that water intrusion is a major problem with these buildings. Therefore, there are two possible options to consider for the exterior siding;

Option 1: Selectively repair shingles where damaged and provide a general allowance for caulking and sealing joints around windows and doors. Remove shingles required to install head flashings at windows, and reinstall to match existing. Provide allowance to steam clean all exterior siding.

This option preserves existing fabric, but does not allow for exterior shear plywood installation, and does not allow a comprehensive and competent approach at exterior envelope waterproofing with new buildings felts and proper head flashings at openings.

Option 2: Remove all shingle siding and accompanying wood trim such as water tables, horizontal bands, etc that are part of building skin. Salvage wood trim materials if possible for

reuse. If not possible, replace in kind. Carefully survey and match existing shapes and sizes, including decorative shapes and borders and bands. Where required by structural recommendations above, remove existing straight sheathings and install new plywood shear plywood of matching thickness. See Structural for nailing, blocking requirements, etc. Install new cedar shingle siding system, including building felts, over new plywood and existing straight sheathing where it remains. New shingle siding to match existing size, shape, borders, banding and thickness, and existing corner treatments.

This option allows for a comprehensive approach to building envelope waterproofing, and will give a new skin that could last thirty to fifty years. It also allows for easier installation of exterior shear plywood than installation on interior sides of walls. However, it removes shingle siding that has serviceable life remaining, some of which may be historic fabric.

Exterior Woodwork (includes exposed rafter tails, soffit sheathing, fascias, barge rafters, horizontal and vertical trim, watertables, door and window casings, etc.): Repairs small amounts of dry rot or decay in exterior woodwork with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, replace to match existing.

Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

Exterior Doors and Windows
Door Hardware: see description of door hardware under Interior Tenant Improvements below.

A detailed door and window survey has not been performed as part of this study, but the general conditions of exterior openings have been observed, and most openings will need remedial work.
The performance specification for all windows and doors is as follows:

- Each window and door must operate smoothly, and latch and lock easily. Replace all broken sash chords.
- Replace all cracked, broken or missing glass. Replace all cracked, damaged or missing glazing putty.
- Replica historical glass is NOT required.
- Each opening must have a full complement of hardware, including hinges, sash lifts, locks, latches, stops and closers at doors. Hardware that has been added to reinforced the unit over time such as cover plates, corner angles, stitch plates, etc. shall all be removed. All hardware shall be free of paint.
- Repairs small amounts of dry rot or decay in sashes or doors with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, provide a replacement sash or door to match existing
- Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.
    - For the purposes of this cost estimate, assume an allowance of $500 per window and $750 per exterior door for refurbishment, repair, replacement, and new hardware.

Architectural Sheet Metal
Vents, Penetrations: Install new copper roof ventilators for attic ventilation.

As part of reproofing scope, install all new copper roof flashing and new gutters and downspouts. New gutters and downspouts to match existing shape and configuration.

Install new copper head flashings at all windows and exterior door openings, where doors are not protected by canopies or deep overhangs directly above. Selectively remove shingles as required to for installation. All head flashings to be Z-shaped with soldiered, closed corners, with vertical leg extending past window head four inches on each side.

INTERIOR MODIFICATIONS

Summary: Modifications will convert existing office use into two separate apartments, stacked as flats. The upper flat will continue to be accessed via an external stair. The lower flat will be accessed through the original front door, via a new sloping accessible ramp. The lower unit will be designed as an accessible unit, while the upper unit will not.

See Floor plans for interior reconfiguration including new walls and walls to be removed. Unless otherwise noted in structural description, all interior walls / partitions to be framed from wood or metal studs with one layer of 5/8 inch drywall on each side. All drywall attached with screws only and finished to a smooth Level 4 finish.

Lower unit ceiling: remove existing suspended T bar ceiling system and plaster ceiling above, and install one layer gypsum board over entire ceiling after installation of MEPS systems.

Existing wall and ceiling finishes to remain: Unless specifically noted for demolition and removal, assume wall and ceiling finishes to remain. Assume a generous cut and patch and repair allowance, because new building systems will require removing portions of wall and ceiling finish throughout.

At all new and existing wall and ceiling finishes:, patch, repair and prep for paint. Install one coat primer/sealer, two coats latex eggshell enamel. Allow for different colors on walls and ceilings.

Interior wood trim: baseboard, window and door casing, miscellaneous running trim: match existing at all new construction. Allow for a generous patch, repair and prep allowance. Patch, repair and prep for paint. Install one coat alkyd primer, two coats alkyd semi-gloss enamel. Allow for different color from wall and ceiling colors.

Insulation: Provide sound batt insulation in all interior walls separating bedrooms from adjacent rooms or spaces, and provide thermal batt insulation in any exterior wall cavity that is open or exposed during construction. Provide new sound batt insulation in all bathroom walls.

Kitchens: At new kitchens, provide new WIC Custom grade laminate-clad casework (uppers and lowers) with solid surface ("Corian" or equal) countertops.
Flooring shall be sheet linoleum.
Appliances shall be residential grade—provide a $5000 allowance for the following items: refrigerator (with automatic icemaker), dishwasher, range, hood, and garbage disposal. Rough in of MEP connections, and hook up and installation are separate from this allowance.
See summary under plumbing systems for balance of information.

Bathrooms: At new and remodeled bathrooms, remove existing fixtures and finishes down to framing and examine for dry rot. Provide $1500 allowance for miscellaneous repair due to dry rot. Install new water resistant gypsum board on all walls, and regular drywall on ceilings.

Floor finish other than kitchen, bath and laundry: provide over low profile pad carpeting throughout all other areas. Install using stretch-in method, not glue down. Assume $35 dollar per yard material cost only (pad and carpet).

See Plumbing description for fixtures. See Mechanical description for ventilation system.

Install new tiled floor over waterproof membrane over reinforced mortar bed. At upper unit, provide tiled walls at tub/shower. All wall tile set over reinforced mortar bed over waterproof membrane over gypsum board. Tile allowance (material only): $10 per square foot.

At lower level accessible bath, install roll-in tiled shower with fold down seat and hand shower. Note: at lower unit, flush floor transition, and roll in shower will require depressing floor framing. Assume reframing entire bathroom floor in this area.

Install new paint grade vanity with solid surface top. Install one mirror and recessed medicine cabinet, four robe/ towel hooks, and two 30-inch towel bars at each restroom.

Install grab bars at toilet and shower at lower unit accessible restroom.

Laundry rooms / closets: Provide laundry hookup for washer dryer. Provide 2000 allowance for laundry appliances and installation. Provide linoleum floor in laundry room / closet. Provide plastic laminate clad shelving / countertops as shown on plans in laundry areas.

Interior doors: At upper unit, assume reuse of existing doors, with generous patch / repair allowance of $500 per door. At lower unit, assume all new 3'-0" wide rail and stile doors with new lever hardware. At all interior doors, prep for paint, install one coat alkyd primer, two coats alkyd semi-gloss enamel. Color to match base / trim.

Fire rated doors are not required in this building.

Door hardware: All door latch or locksets must have accessible lever hardware, and be compatible with the University's keying standards. Assume all existing door latchsets / locksets to be replaced.

VERTICAL CIRCULATION

A passenger elevator is not required for this building.

Existing exterior wood stairs at north side of building to remain. Install new code compliant handrails, striping and provide a $7,500 allowance for miscellaneous repair and refurbishment of these stairs. Paint per requirements for exterior woodwork.

BUILDING SYSTEMS

Mechanical – Install new hydronic baseboard heating systems in entire building--place convectors on exterior walls, below windows whenever possible. Install boiler in rated closet in attic with flue through roof and required combustion air intakes.
Install new exhaust fans in restroom. Install new residential grade hoods over ranges. All exhaust fans terminated to through sidewalls or roof

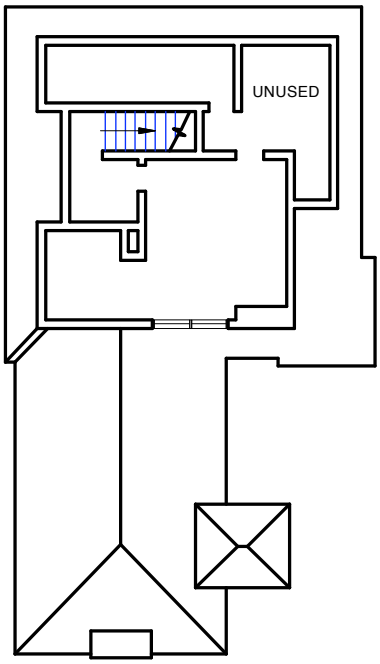
Electrical – Install new electrical service, and rewire entire building. Provide new convenience outlets per current code and new fluorescent lighting per current code in each room. Conceal all work.

Plumbing: install new hot and cold domestic water distribution piping. Install new high efficiency point-of-use water heater in mechanical room in attic. Install new high efficiency low flow faucets (kitchen and lavatory), dual flush toilets, and shower valves.
Install new cast iron drain waste vent system throughout.

Remove existing fire sprinkler system and install new system with concealed piping throughout.

Install new fire alarm system and interconnect with existing or new system in neighboring building F.

Communications: Install new data / telecommunication system with data / phone /CTV jacks in all rooms except kitchen, bath and laundry. Terminate to data / phone board in attic.



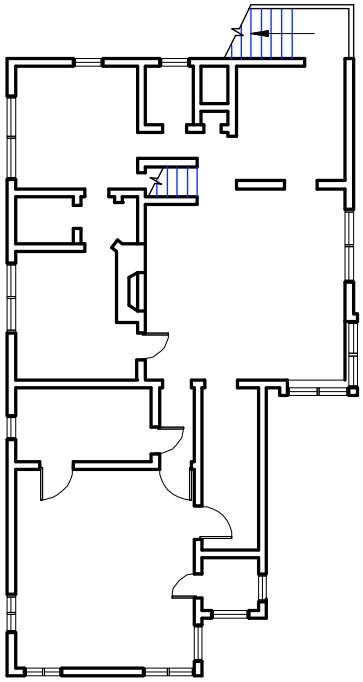
LEGEND

EXISTING WALL

BUILDING E: (E) THIRD FLOOR PLAN

3

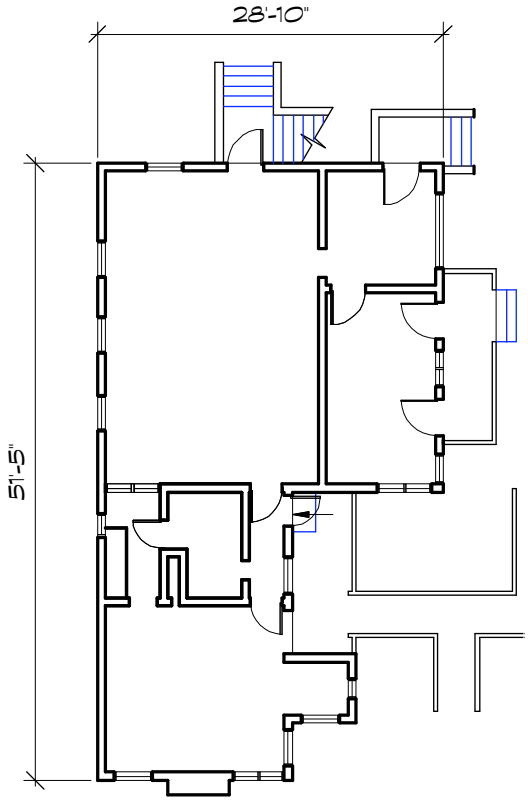
SCALE: 1/16" = 1'-0"



BUILDING E: (E) SECOND FLOOR PLAN

2

SCALE: 1/16" = 1'-0"

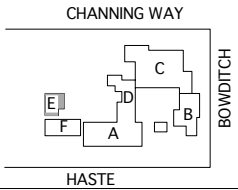


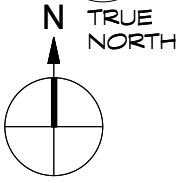
BUILDING E: (E) FIRST FLOOR PLAN

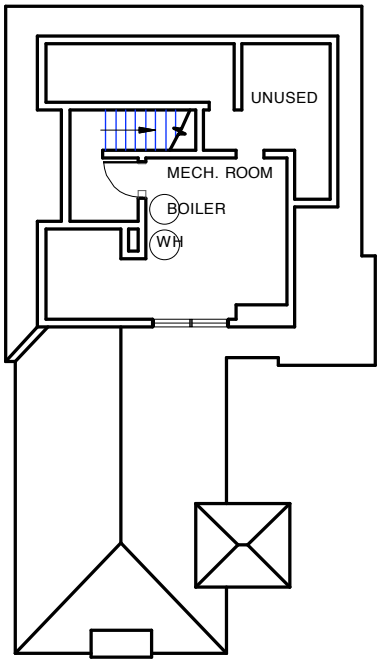
1

SCALE: 1/16" = 1'-0"

KEY PLAN







LEGEND

EXISTING WALL
NEW WALL
EXISTING TO BE REMOVED

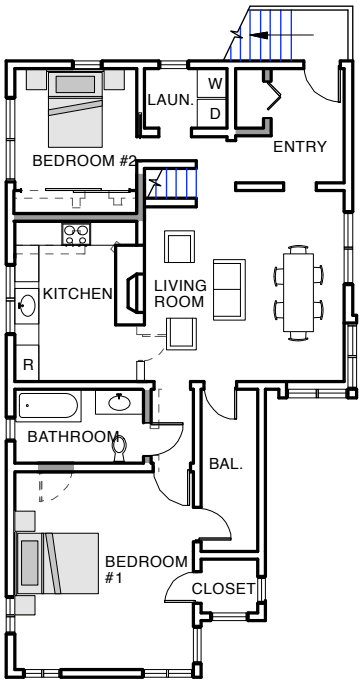
FLOOR AREA

FIRST FLOOR	1,098 SF
SECOND FLOOR	1,098 SF
TOTAL	2,196 SF

BUILDING E: PROPOSED THIRD FLOOR PLAN

3

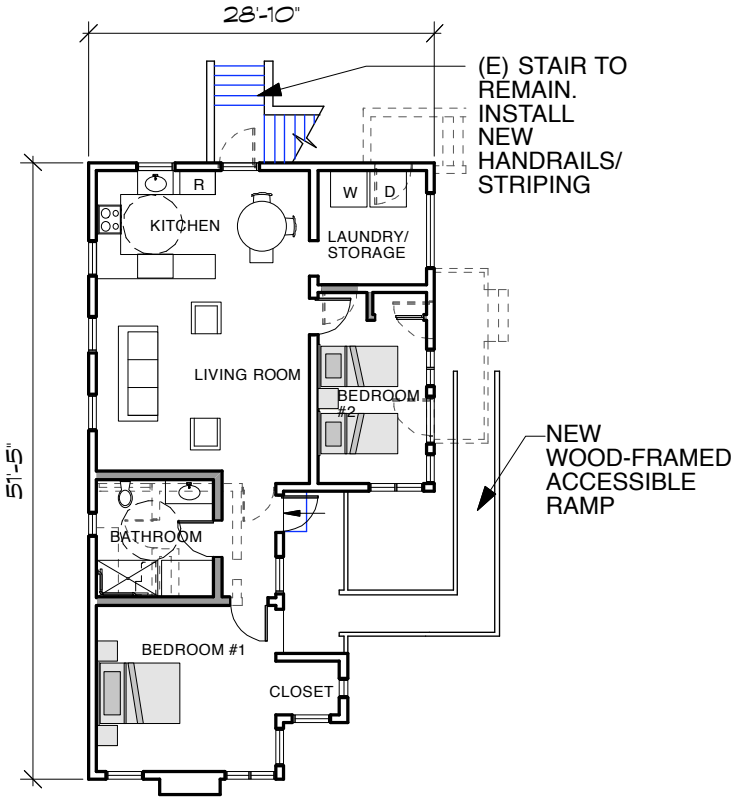
SCALE: 1/16" = 1'-0"



BUILDING E: PROPOSED SECOND FLOOR PLAN

2

SCALE: 1/16" = 1'-0"

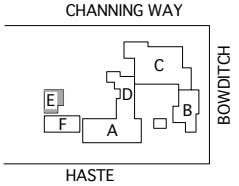


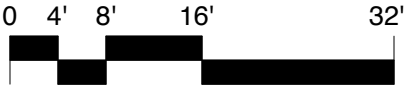
BUILDING E: PROPOSED FIRST FLOOR PLAN

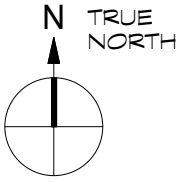
1

SCALE: 1/16" = 1'-0"

KEY PLAN



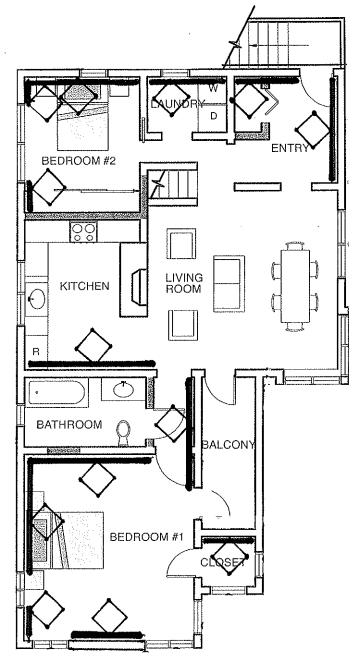




LEGEND

PLYWOOD SHEAR WALL

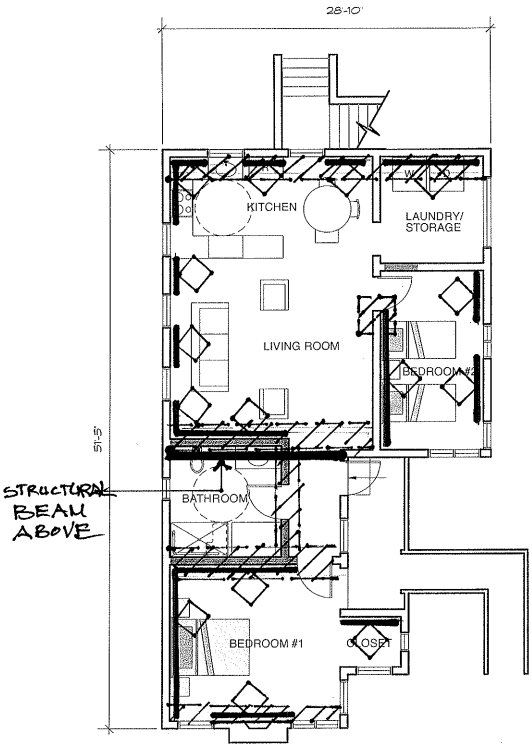
NEW CONCRETE FOUNDATION



BUILDING E: STRUCTURAL SECOND FLOOR PLAN

SCALE: 1/16" = 1'-0"

2

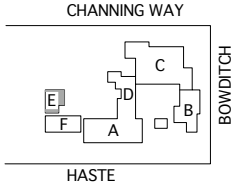


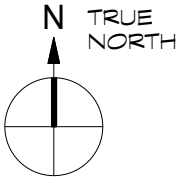
BUILDING E: STRUCTURAL FIRST FLOOR PLAN

SCALE: 1/16" = 1'-0"

1

KEY PLAN





10

Building F Scope of Work

SITE WORK

Site Utilities
- Provide new water service for fire sprinkler system
- Provide a new domestic water service from main in street
- Provide a new sewer lateral to main in the street
- Provide a new underground electrical service to distribution lines in public right of way.
- Provide a new underground natural gas service from main in street.

Site Accessibility
- Provide new Accessible van parking space and appropriate signage
- Provide new accessible wood ramp with steel handrails to front porch. Assume 30 lineal feel with one intermediate landing.

Landscaping / Landscaping
- Provide a $50,000 allowance for landscaping / irrigation

STRUCTURE

Structural Narrative by WJE

BUILDING F (POOL AND GYMNASIUM)

Per Knapp (2008) Building F was likely built as a one story building in 1911, remodeled to two stories in 1916. Building F is a large wood framed building with a large open gymnasium room at the second floor with a stage at the west end. The first floor is currently used for storage and has several interior partitions dividing the area. A single-story shed roof portion at the north side appears to have originally been part of the covered exterior pathway between buildings, but is now enclosed and used for storage.

STRUCTURAL REVISIONS REQUIRED FOR GRAVITY AND SEISMIC LOADING

- Roof plywood sheathing needs to be added, detailed at perimeter to tie into shear walls. The current roof sheathing is spaced sheathing.

- Roof framing is anticipated to require retrofit for vertical loads. Since it is exposed, addition of new framing members and connections should be possible. This will allow for support of new loads due to addition of plywood, ceiling, and utilities.

- Second floor plywood sheathing needs to be added, detailed at perimeter to tie into shear walls. At stage location, remove stage and provide plywood at typical floor level.

- Second floor framing is anticipated to require retrofit where existing posts were removed for pool installation. Recommend addition of structural steel beams and girders in order to allow existing post stumps, pipe and steel rod to be removed.

- First floor infill of abandoned swimming pool is anticipated to require reconstruction. Three possible approaches for dealing with the pool include 1) reconstruct floor infill to current building code requirements, add means of ventilation and align with sleepers over existing concrete to allow continuous floor surface, 2) infill the pool area with concrete over steel deck, supported on steel beams as required, or 3) remove pool and return floor to conventional crawlspace with wood-framed floor. Option 3 allows the most flexibility with setting floor elevations, and will greatly aid in construction of interior foundations shown on plan.

- The existing foundation appears to be unreinforced brick masonry with a plaster parging coat. Stone masonry is visible below the brick masonry at the southwest corner, suggesting that stone masonry may underlay the brick at the building perimeter. The southwest corner also shows signs of foundation settlement. The settlement cracking does not appear to be new, however continued settlement cannot be ruled out without further investigation. Because the interior floor at the perimeter appears to be slab on grade, it is possible that there is soil fill between the exterior foundation wall and the pool wall. Replacement of the exterior foundation with a new reinforced concrete foundation should be anticipated. See first floor plan for extent of new foundation.

- Seismic upgrade of shear walls - See first and second floor plans for anticipated extent of shear walls. See Retrofit Description below for description of typical construction. Infill

framing and provide shear wall at removed chimney and fireplace. Can be installed at building interior or exterior, depending on architectural preference.

- Anchorage to foundation - assume 5/8-inch anchor bolts with steel plate washers added at building perimeter and wall dividing one story and two-story areas. See Retrofit Descriptions.

- Removal of the masonry chimney and second story fireplace at south face are recommended. The chimney is highly deteriorated, and has visible cracks. If replacement is needed, brick veneer on a wood-framed fireplace and flue is suggested. Suggest saving existing bricks for use in veneer.

- Removal of masonry flue at south face and replacement with wood-framed flue is recommended.

- Provide light-gage steel anchors between one-story roof and north wall.

- Balcony at east of Building F is currently highly deteriorated. Reconstruction of the deck and beams should be anticipated. Posts should be connected top and bottom with steel hardware or epoxied bolts

- Exterior stairs and handrails should be rebuilt or strengthened to meet current code requirements.

STRUCTURAL REVISIONS RELATED TO PROPOSED ARCHITECTURAL PLAN

- Second floor structural headers and posts will be required for new openings in Line B wall between one story and two story portions.

BUILDING ENVELOPE

Roof: Remove all layers of roofing (assume three layers) down to spaced sheathing. Install new 5/8-inch CDX plywood over entire roof. See Structural description above for nailing requirements. Install new fire resistant treated wood shingle roof system (including roofing felt) over new spaced sheathings.

Balcony: remove existing waterproofing and walking surface down to framing. Provide positive drainage to through-wall scuppers (drain and overflow) and install new walkable waterproof membrane surface ("Dexo-tex" or equal).

Shingled Siding: Shingle siding is in reasonably serviceable condition. There are selected areas of more pronounced weathering, warping and wear, but in general, the siding is not at the end of its lifespan. Given the age of the building, we assume that the singles are not original.

We've observed the windows and doors are not provided with head flashings, and have been told that water intrusion is a major problem with these buildings. Therefore, there are two possible options to consider for the exterior siding;

Option 1: Selectively repair shingles where damaged and provide a general allowance for caulking and sealing joints around windows and doors. Remove shingles required to install head flashings at windows, and reinstall to match existing. Provide allowance to steam clean all exterior siding.

This option preserves existing fabric, but does not allow for exterior shear plywood installation, and does not allow a comprehensive and competent approach at exterior envelope waterproofing with new buildings felts and proper head flashings at openings.

Option 2: Remove all shingle siding and accompanying wood trim such as water tables, horizontal bands, etc that are part of building skin. Salvage wood trim materials if possible for reuse. If not possible, replace in kind. Carefully survey and match existing shapes and sizes, including decorative shapes and borders and bands. Where required by structural recommendations above, remove existing straight sheathings and install new plywood shear plywood of matching thickness. See Structural for nailing, blocking requirements, etc. Install new cedar shingle siding system, including building felts, over new plywood and existing straight sheathing where it remains. New shingle siding to match existing size, shape, borders, banding and thickness, and existing corner treatments.

This option allows for a comprehensive approach to building envelope waterproofing, and will give a new skin that could last thirty to fifty years. It also allows for easier installation of exterior shear plywood than installation on interior sides of walls. However, it removes shingle siding that has serviceable life remaining, some of which may be historic fabric.

Exterior Woodwork
(includes exposed rafter tails, soffit sheathing, fascias, barge rafters, horizontal and vertical trim, watertables, door and window casings, etc.)

Repairs small amounts of dry rot or decay in exterior woodwork with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, replace to match existing.

Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.

Exterior Doors and Windows
Door Hardware: see description of door hardware under Interior Tenant Improvements below.

A detailed door and window survey has not been performed as part of this study, but the general conditions of exterior openings have been observed, and most openings will need remedial work. The performance specification for all windows and doors is as follows:

- Each window and door must operate smoothly, and latch and lock easily. Replace all broken sash chords.
- Replace all cracked, broken or missing glass. Replace all cracked, damaged or missing glazing putty. Replica historical glass is NOT required.
- Each opening must have a full complement of hardware, including hinges, sash lifts, locks, latches, stops and closers at doors. Hardware that has been added to reinforced the unit over time such as cover plates, corner angles, stitch plates, etc. shall all be removed. All hardware shall be free of paint.
- Repairs small amounts of dry rot or decay in sashes or doors with epoxy wood consolidant. Use Dutchmen style repairs for larger areas of decay. Where required because unit is damaged beyond salvage and repair, provide a replacement sash or door to match existing
- Finishes: paint prep and prime all new and existing windows and doors. One coat primer, two coats 100 percent acrylic enamel finish.
- For the purposes of this cost estimate, assume an allowance of $500 per window and $750 per exterior door for refurbishment, repair, replacement, and new hardware.

Architectural Sheet Metal
Install new copper roof ventilators for attic ventilation.

As part of reproofing scope, install all new copper roof flashing and new gutters and downspouts. New gutters and downspouts to match existing shape and configuration.

Install new copper head flashings at all windows and exterior door openings, where doors are not protected by canopies or deep overhangs directly above. Selectively remove shingles as required to for installation. All head flashings to be Z-shaped with soldiered, closed corners, with vertical leg extending past window head four inches on each side.

INTERIOR MODIFICATIONS

Summary: Modifications will convert existing office use into two separate apartments, stacked as flats. The upper flat will continue to be accessed via an external stair. The lower flat will be accessed through the original front door, via a new sloping accessible ramp. The lower unit will be designed as an accessible unit, while the upper unit will not.

See floor plans for interior reconfiguration including new walls and walls to be removed. Unless otherwise noted in structural description, all interior walls / partitions to be framed from wood or metal studs with one layer of 5/8 inch drywall on each side. All drywall attached with screws only and finished to a smooth Level 4 finish.

Lower unit ceiling: remove existing suspended T bar ceiling system and plaster ceiling above, and install one layer gypsum board over entire ceiling after installation of MEPS systems.

Existing wall and ceiling finishes to remain: Unless specifically noted for demolition and removal, assume wall and ceiling finishes to remain. Assume a generous cut and patch and repair allowance, because new building systems will require removing portions of wall and ceiling finish throughout.

At all new and existing wall and ceiling finishes: patch, repair and prep for paint. Install one coat primer/sealer, two coats latex eggshell enamel. Allow for different colors on walls and ceilings.

Interior wood trim: baseboard, window and door casing, miscellaneous running trim: match existing at all new construction. Allow for a generous patch, repair and prep allowance. Patch, repair and prep for paint. Install one coat alkyd primer, two coats alkyd semi-gloss enamel. Allow for different color from wall and ceiling colors.

Insulation: Provide sound batt insulation in all interior walls separating bedrooms from adjacent rooms or spaces, and provide thermal batt insulation in any exterior wall cavity that is open or exposed during construction. Provide new sound batt insulation in all bathroom walls.

Kitchens: At new kitchens, provide new WIC Custom grade laminate-clad casework (uppers and lowers) with solid surface ("Corian" or equal) countertops. Flooring shall be sheet linoleum.

Appliances shall be residential grade—provide a $5000 allowance for the following items: refrigerator (with automatic icemaker), dishwasher, range, hood, and garbage disposal. Rough in of MEP connections, and hook up and installation are separate from this allowance.

See summary under plumbing systems for balance of information.

Bathrooms: There is one existing bathroom in this building, but it is in poor condition and will be demolished. New restrooms will be built. Provide for new fixtures. Install new water resistant gypsum board on all walls, and regular drywall on ceilings.

See Plumbing description for fixtures. See Mechanical description for ventilation system.

Install new tiled floor over waterproof membrane over reinforced mortar bed. At upper unit, provide tiled walls at tub/shower. All wall tile set over reinforced mortar bed over waterproof membrane over gypsum board. Tile allowance (material only): $10 per square foot.

At lower level accessible bath, install roll-in tiled shower with fold down seat and hand shower. Note: at lower unit, flush floor transition, and roll in shower will require depressing floor framing. Assume reframing entire bathroom floor in this area.

Install new paint grade vanity with solid surface top. Install one mirror and recessed medicine cabinet, four robe/ towel hooks, and two 30-inch towel bars at each restroom.

Install grab bars at toilet and shower at lower unit accessible restroom.

Floor finish other than kitchen, bath and laundry: provide over low profile pad carpeting throughout all other areas. Install using stretch-in method, not glue down. Assume $35 dollar per yard material cost only (pad and carpet).

Laundry rooms / closets: Provide laundry hookup for washer dryer. Provide 2000 allowance for laundry appliances and installation. Provide linoleum floor in laundry room / closet. Provide plastic laminate clad shelving / countertops as shown on plans in laundry areas.

Interior doors: At upper unit, assume reuse of existing doors, with generous patch / repair allowance of $500 per door. There are no existing doors at the upper unit. Provide for new doors. At lower unit, assume all new 3'-0" wide rail and stile doors with new lever hardware. At all interior doors, prep for paint, install one coat alkyd primer, two coats alkyd semi-gloss enamel. Color to match base / trim.

Fire rated doors are not required in this building.

Door hardware
All door latch or locksets must have accessible lever hardware, and be compatible with the University's keying standards. Assume all existing door latchsets / locksets to be replaced.

VERTICAL CIRCULATION

A passenger elevator is not required for this building.

Existing exterior wood stairs at north side of building to remain. Install new code compliant handrails, striping and provide a $7,500 allowance for miscellaneous repair and refurbishment of these stairs. Paint per requirements for exterior woodwork.

BUILDING SYSTEMS

Mechanical – Install new hydronic baseboard heating systems in entire building--place convectors on exterior walls, below windows whenever possible. Install boiler in rated closet in attic with flue through roof and required combustion air intakes.

Install new exhaust fans in restroom. Install new residential grade hoods over ranges. All exhaust fans terminated to through sidewalls or roof

Electrical – Install new electrical service, and rewire entire building. Provide new convenience outlets per current code and new fluorescent lighting per current code in each room. Conceal all work.

Plumbing: install new hot and cold domestic water distribution piping. Install new high efficiency point-of-use water heater in mechanical room in attic. Install new high efficiency low flow faucets (kitchen and lavatory), dual flush toilets, and shower valves.

Install new cast iron drain waste vent system throughout.

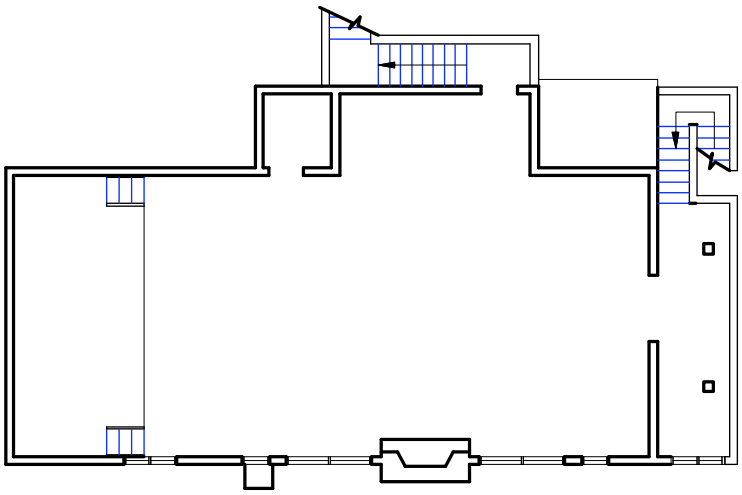
Remove existing fire sprinkler system and install new system with concealed piping throughout.

Install new fire alarm system and interconnect with existing or new system in neighboring building E.

Communications: Install new data / telecommunication system with data / phone /CTV jacks in all rooms except kitchen, bath and laundry. Terminate to data / phone board in attic.

LEGEND

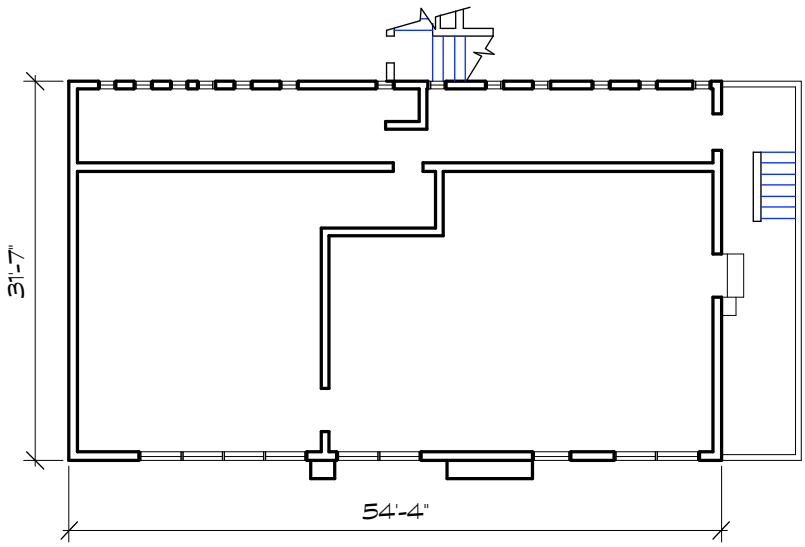
EXISTING WALL



BUILDING F: (E) SECOND FLOOR PLAN

SCALE: 1/16" = 1'-0"

2

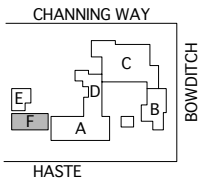


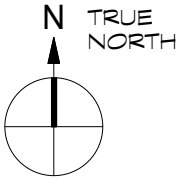
BUILDING F: (E) FIRST FLOOR PLAN

SCALE: 1/16" = 1'-0"

1

KEY PLAN



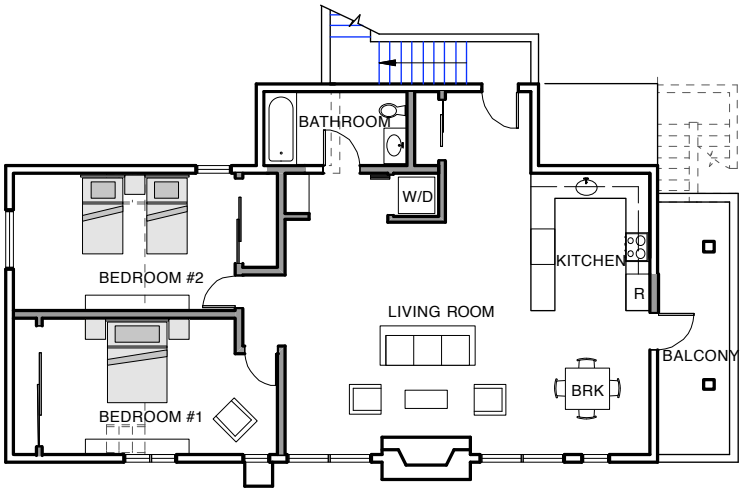


LEGEND

EXISTING WALL
NEW WALL
EXISTING TO BE REMOVED

FLOOR AREA

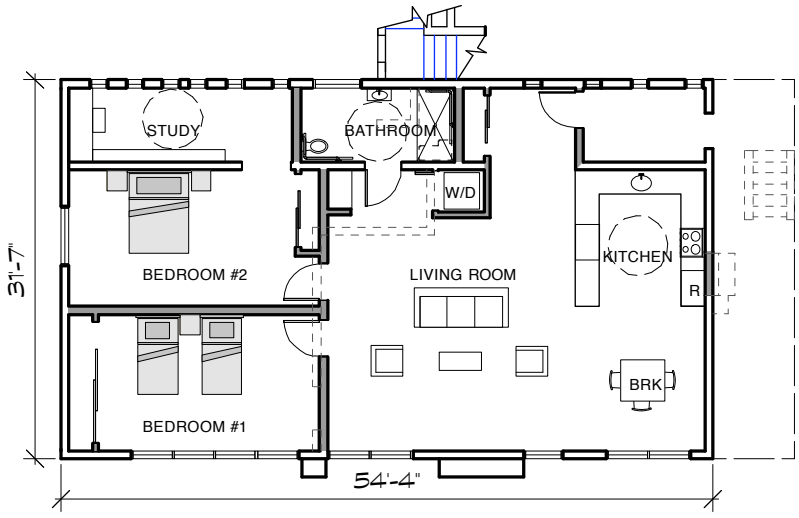
FIRST FLOOR	1,530 SF
SECOND FLOOR	1,393 SF
TOTAL	2,923 SF



BUILDING F: PROPOSED SECOND FLOOR PLAN

2

SCALE: 1/16" = 1'-0"

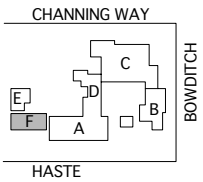


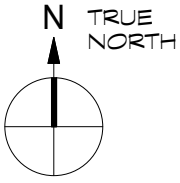
BUILDING F: PROPOSED FIRST FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN

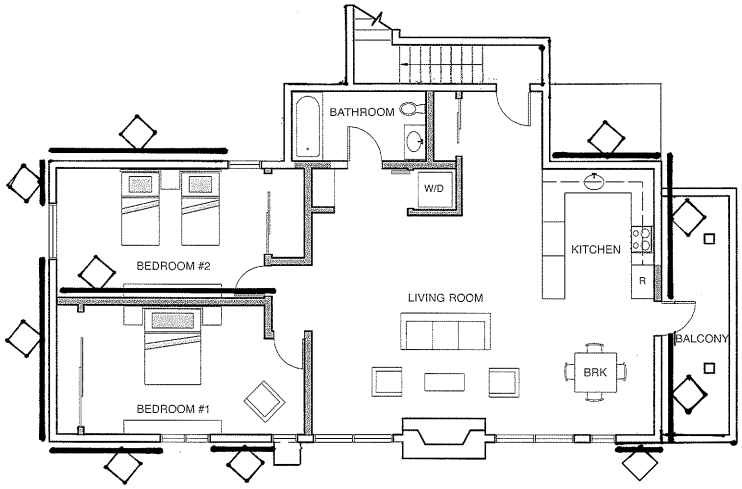




LEGEND

PLYWOOD SHEAR WALL

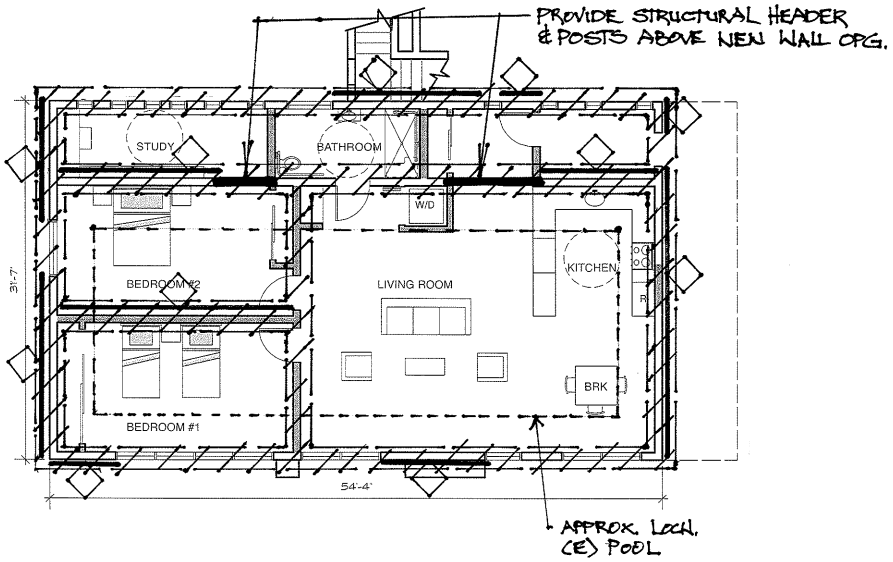
NEW CONCRETE FOUNDATION



BUILDING F: STRUCTURAL SECOND FLOOR PLAN

2

SCALE: 1/16" = 1'-0"

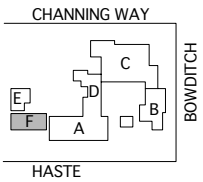


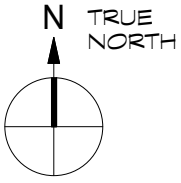
BUILDING F: STRUCTURAL FIRST FLOOR PLAN

1

SCALE: 1/16" = 1'-0"

KEY PLAN





11

Cost Estimate

See attached estimate prepared by Davis Langdon.

CONCEPTUAL COST MODEL

for

University of California, Berkeley
Anna Head School Re-use Study
Berkeley, California

Cody Wasney Anderson Architects
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Revised
March 5, 2009

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CONTENTS

INCLUSIONS

The project consists of the renovation of a group of buildings at the Anna Head site in Berkeley to provide student housing and staff / faculty accomodation. There are six buildings in total, four of which are considered suitable for the proposed program - these are currently used as low-medium grade office space or storage by various UC Berkeley departments.The two remaining buildings are also occupied - currently by department offices and a tenant running a pre-school program.

The buildings and their intended future uses are as follows:

Building A (Alumnae building) - remains as existing - *no work included*

Building B ("Gables") - Student housing

Building C ("Channing") - Student housing

Building D ("Study Hall") - remains as existing - *no work included*

Building E ("The Cottage") - Faculty / staff housing

Building F ("Poolhouse") - Faculty / staff housing

Buildings A and B are not included in the scope of this study

Buildings B,C, E & F will receive structural upgrades, renovation of the existing building exterior walls and roof, renovation/reconstruction of the interior spaces, new interior finishes, and all new building services and equipment.

INCLUSIONS

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been obtained from historical records and/or discussion with contractors. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated. The mark-ups cover the costs of field overhead, home office overhead and profit and range from 15% to 25% of the cost for a particular item of work.

Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors and general contractors, with a minimum of 4 bidders for all items of subcontracted work and 6-7 general contractor bids. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since Davis Langdon has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, the statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents Davis Langdon's best judgement as professional construction consultant familiar with the construction industry. However, Davis Langdon cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

EXCLUSIONS

Contractual / Schedule Items

Cost escalation beyond a start date of March 2009

Compression of schedule, premium or shift work, and restrictions on the contractor's working hours

Owner's moving and relocation costs

Environmental impact mitigation

Hazardous material handling, disposal and abatement

Architectural and design fees

Design, testing, inspection or construction management fees

Assessments, taxes, finance, legal and development charges

Scope change and post contract contingencies

Builder's risk, project wrap-up and other owner provided insurance program

Building Systems and Equipment

Owner supplied and installed furniture, fixtures and equipment

Loose furniture and equipment except as specifically identified

OVERALL SUMMARY

	Gross Floor Area	$ / SF	$x1,000
Building B	7,680 SF	427.89	3,286
Building C	16,650 SF	377.73	6,289
Building E	2,648 SF	390.85	1,035
Building F	3,670 SF	406.00	1,490
TOTAL Building Construction	30,648 SF	394.82	12,100
Sitework			*included above*
TOTAL Building & Sitework Construction	*March 2009*		*12,100*

Please refer to the Inclusions and Exclusions sections of this report

AREAS & CONTROL QUANTITIES

Areas	Building B	Building C	Building E	Building F
	SF	SF	SF	SF
Basement *(excludes crawl spaces)*	1,025	2,500	0	0
First Floor	3,250	4,525	1,265	1,770
Second Floor	3,200	4,720	1,340	1,790
Third floor	0	4,475	0	0
SUBTOTAL (enclosed)	7,475	16,220	2,605	3,560
Covered Exterior Areas (Exterior walkways)	410	860	85	220
GROSS AREA	7,680	16,650	2,648	3,670

(covered areas taken at 50%)

Control Quantities	Building B	Building C	Building E	Building F
Number of stories	3	4	2	2
Enclosed Area	7,475	16,220	2,605	3,560
Covered Area	410	860	85	220
Gross Area	7,680	16,650	2,648	3,670
Footprint Area	3,250	4,525	1,265	1,770
Gross Exterior Wall Area				
Retaining Wall Area	1,185	2,120	0	0
Finished Wall Area	9,340	17,890	4,790	6,050
Window count	88	110	36	30
Door count (exterior)	8	11	6	3
Roof Area	6,055	8,050	2,100	3,100
Elevators (ea.)	n/a	1	n/a	n/a

BUILDING B COMPONENT SUMMARY

Gross Area: 7,680 SF

		$/SF	$x1,000
1. Foundations		19.41	149
2. Vertical Structure		23.05	177
3. Floor & Roof Structures		19.94	153
4. Exterior Cladding		36.95	284
5. Roofing, Waterproofing & Skylights		16.84	129
Shell (1-5)		116.19	892
6. Interior Partitions, Doors & Glazing		16.11	124
7. Floor, Wall & Ceiling Finishes		26.77	206
Interiors (6-7)		42.87	329
8. Function Equipment & Specialties		7.47	57
9. Stairs & Vertical Transportation		3.13	24
Equipment & Vertical Transportation (8-9)		10.60	81
10. Plumbing Systems		14.60	112
11. Heating, Ventilating & Air Conditioning		24.98	192
12. Electric Lighting, Power & Communications		30.00	230
13. Fire Protection Systems		7.00	54
Mechanical & Electrical (10-13)		76.58	588
Total Building Construction (1-13)		246.24	1,891
14. Site Preparation & Demolition		13.55	104
15. Site Paving, Structures & Landscaping		36.20	278
16. Utilities on Site		13.02	100
Total Site Construction (14-16)		62.77	482
TOTAL BUILDING & SITE (1-16)		309.01	2,373
General Conditions	12.00%	37.11	285
Contractor's Overhead & Profit or Fee	3.00%	10.42	80
PLANNED CONSTRUCTION COST	*March 2009*	356.54	2,738
Contingency for Development of Design	20.00%	71.35	548
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	*March 2009*	427.89	3,286

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
1. Foundations				
New concrete strip footing, including removal of (E) footing, temporary shoring, (N) concrete, rebar, formwork, and doweling into (E) concrete as required.	372	LF	300.00	111,600
New wall base anchorage blocks at (E) foundations	15	EA	500.00	7,500
Allowance for repairs to (E) foundation - scope to be determined	1	LS	30,000.00	30,000
				149,100
2. Vertical Structure				
Plywood sheathing to (E) wood framed walls, interior face of perimeter walls typically. Includes minor framing modifications, end posts and hold downs as required				
Basement	104	LF	40.00	4,160
First floor	240	LF	50.00	12,000
Second floor	212	LF	50.00	10,600
Cripple walls in crawl space	240	LF	40.00	9,600
Anchor bolts, including plate washers / grouting	387	LF	100.00	38,700
Walls at (N) lobby area adjacent to elevator	40	LF	50.00	2,000
Allowance for repairs to (E) decaying / damaged / sub-standard framing - scope to be determined	1	LS	50,000.00	50,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Allowance for work at (N) addition at junction of buildings B and C	1	LS	50,000.00	50,000
				177,060

3. Floor and Roof Structure

Floor Structure

Selective repair of damaged/decaying floor framing - allowance	1	LS	30,000.00	30,000
New plywood sheathing to (E) second floor framing	3,200	SF	5.00	16,000
Steel beam above proposed first floor exercise / study areas at location of (E) demolished load bearing wall	104	LF	250.00	26,000

Roof Structure

New plywood sheathing to (E) roof framing	6,055	SF	2.50	15,138
Selective repair of damaged/decaying roof framing - allowance	1	LS	50,000.00	50,000
Add steel connections between main building and attached porch / roof structures	80	LF	200.00	16,000
				153,138

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
4. Exterior Cladding				
Selective renovation/ replacement of (E) exterior siding				
Remove/replace (E) damaged wood shingle siding - allow 20% of total	1,868	SF	25.00	46,700
Steam clean (E) shingle siding	9,340	SF	5.00	46,700
Repair damage to (E) exterior wood framing and trim, allowance	1	LS	30,000.00	30,000
Patch/repair exterior wall/roof at location of demolished stair at West side of building	1	LS	15,000.00	15,000
New entrance lobby at ground floor	480	SF	100.00	48,000
Caulking and sealing				
Caulk / seal, including (N) window head flashing	9,340	SF	2.50	23,350
Windows & doors				
Refurbish (E) windows and doors to operable condition, including painted finish and (N) hardware as necessary				
Windows	88	EA	750.00	66,000
Doors	8	EA	1,000.00	8,000
				283,750
5. Roofing, Waterproofing & Skylights				
Replace (E) roofing				
Fire-resistant wood shingles over roofing felt on skip sheathing	6,055	SF	15.00	90,825
Flashing, gutters and downspouts, sheet metal trim - allowance	6,055	SF	5.00	30,275

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Porch decks				
Install (N) waterproof walkable deck surface (Dex-o-tex or similar). Slope deck to falls with thru' wall scuppers	410	SF	20.00	8,200
				129,300

6. Interior Partitions, Doors & Glazing

Partitions				
New interior partitions - wood stud with painted gypsum board and sound insulation.	2,390	SF	20.00	47,800
Allowance for cut/patch (E) partition walls	1	LS	50,000.00	50,000
Interior doors				
New SC wood doors				
Rated *(including smoke seals and closer)*	14	EA	1,600.00	22,400
New hardware at all doors	14	EA	250.00	3,500
				123,700

7. Floor, Wall & Ceiling Finishes

Allowances for (N) interior finishes				
Floors	7,475	GSF	10.00	74,750
Walls / base and trim	7,475	GSF	10.00	74,750

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Ceilings				
Basement - patch repair (E) ceiling	1,025	GSF	7.50	7,688
Ground floor - patch repair (E) ceiling	3,250	GSF	7.50	24,375
Second floor - patch repair (E) ceiling	3,200	GSF	7.50	24,000
				205,563

8. Function Equipment & Specialties

Casework				
Bathroom vanities	6	LF	300.00	1,800
Restroom cubbies	60	EA	100.00	6,000
Misc. casework and shelving	1	LS	2,000.00	2,000
Equipment				
Laundry - washer and dryer				*By Owner*
Student bedroom accessories - closet, towel bar, mirror	8	RMS	2,500.00	20,000
Bathroom / showers				
Bathroom stalls				
Standard	1	EA	1,200.00	1,200
Accessible	1	EA	1,500.00	1,500
Shower stalls				
Standard	0	EA	2,000.00	
Accessible	2	EA	3,000.00	6,000
Bathroom / shower accessories	4	SETS	800.00	3,200
Misc. equipment, allowance	1	LS	5,000.00	5,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Signage				
Code / exiting signage	7,680	GSF	1.00	7,680
Door ID signage	20	RMS	150.00	3,000
				57,380

9. Stairs & Vertical Transportation

Stairs				
Upgrade all (E) stair with code compliant handrails / guardrails, nosings and striping	4	FLT	6,000.00	24,000
				24,000

10. Plumbing Systems

New plumbing system - including hot and cold domestic water, recirculating hot water system with boilers in basement, new faucets and shower valves, dual flush WC's and floor drains in shower rooms.	7,475	SF	15.00	112,125
				112,125

11. Heating, Ventilation & Air Conditioning

New hydronic baseboard heating system, including boiler, flues etc.	7,475	SF	25.00	186,875
Bathroon exhaust fans / ducting	1	EA	5,000.00	5,000
				191,875

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
12. Electrical Lighting, Power & Communication				
New electrical system - including service, panel boards, distribution, user convenience power, lighting, data/telecoms system and fire alarm	7,680	SF	30.00	230,400
				230,400
13. Fire Protection Systems				
New fire sprinkler system - all pipes to be concealed	7,680	SF	7.00	53,760
				53,760
14. Site Preparation & Building Demolition				
Site preparation				
Clear / grade for new parking and access for foundation work, allowance	3,000	SF	3.00	9,000
Building demolition				
Selective demolition of (E) interior finishes, removal of all (E) MEP systems and equipment	7,475	SF	8.00	59,800
Remove (E) roof finishes down to (E) sheathing	6,055	SF	5.00	30,275
Remove (E) exterior wood stairs at West side of building	1	LS	5,000.00	5,000
				104,075

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
15. Site Paving, Structures & Landscaping				
Site Paving / landscaping				
Accessible parking space - AC paving with striping and signage	2	EA	5,000.00	10,000
Allowance for landscaping / irrigation	1	LS	250,000.00	250,000
Sitte Structures				
New ADA compliant access ramp to front porch level - wood framed ramp with steel handrails	30	LF	600.00	18,000
				278,000
16. Utilities on Site				
Demo / remove (E) site utilities	1	LS	25,000.00	25,000
Provide (N) incoming building services:				
Domestic water Fire water Sewer lateral Natural gas Underground electrical service	1	LS	50,000.00	50,000
City connection fees, allowance	1	LS	25,000.00	25,000
				100,000

BUILDING C COMPONENT SUMMARY

Gross Area: 16,650 SF

		$/SF	$x1,000
1. Foundations		12.34	206
2. Vertical Structure		33.57	559
3. Floor & Roof Structures		20.75	345
4. Exterior Cladding		21.29	354
5. Roofing, Waterproofing & Skylights		10.70	178
Shell (1-5)		98.65	1,643
6. Interior Partitions, Doors & Glazing		16.27	271
7. Floor, Wall & Ceiling Finishes		26.79	446
Interiors (6-7)		43.06	717
8. Function Equipment & Specialties		11.76	196
9. Stairs & Vertical Transportation		24.02	400
Equipment & Vertical Transportation (8-9)		35.78	596
10. Plumbing Systems		14.61	243
11. Heating, Ventilating & Air Conditioning		25.56	426
12. Electric Lighting, Power & Communications		30.60	510
13. Fire Protection Systems		7.00	117
Mechanical & Electrical (10-13)		77.77	1,295
Total Building Construction (1-13)		255.27	4,250
14. Site Preparation & Demolition		10.51	175
15. Site Paving, Structures & Landscaping		1.08	18
16. Utilities on Site		6.01	100
Total Site Construction (14-16)		17.60	293
TOTAL BUILDING & SITE (1-16)		272.86	4,543
General Conditions	12.00%	32.73	545
Contractor's Overhead & Profit or Fee	3.00%	9.19	153
PLANNED CONSTRUCTION COST	*March 2009*	314.79	5,241
Contingency for Development of Design	20.00%	62.94	1,048
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	*March 2009*	377.73	6,289

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
1. Foundations				
New concrete strip footing, including removal of (E) footing, temporary shoring, (N) concrete, rebar, formwork, and doweling into (E) concrete as required.	360	LF	300.00	108,000
New wall base anchorage blocks at (E) foundations	65	EA	500.00	32,500
Pad footings at (N) steel posts, allowance	10	EA	1,500.00	15,000
Elevator pit	1	LS	20,000.00	20,000
Allowance for repairs to (E) foundation - scope to be determined	1	LS	30,000.00	30,000
				205,500
2. Vertical Structure				
Concrete retaining / shear wall	144	LF	1,200.00	172,800
Plywood sheathing to (E) wood framed walls, interior face of perimeter walls typically. Includes minor framing modifications, end posts and hold downs as required				
First floor	340	LF	50.00	17,000
Second floor	310	LF	50.00	15,500
Third floor	210	LF	50.00	10,500
Cripple walls in crawl space	230	LF	40.00	9,200
Anchor bolts, including plate washers / grouting	590	LF	100.00	59,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Walls at (N) elevator	1,600	SF	25.00	40,000
Allowance for repairs to (E) decaying / damaged / sub-standard framing - scope to be determined	1	LS	50,000.00	50,000
New steel posts at location of (N) beams				
First floor	10	EA	2,500.00	25,000
Second floor	10	EA	2,500.00	25,000
Third floor	10	EA	2,500.00	25,000
New steel framing at elevator tower, allowance	10	T	4,000.00	40,000
Stabilize (E) North stone chimney, allowance	1	LS	30,000.00	30,000
Strengthen (E) West stone porch	1	LS	40,000.00	40,000
				559,000

3. Floor and Roof Structure

Floor Structure

Selective repair of damaged/decaying floor framing - allowance				
First floor	1	LS	25,000.00	25,000
Second floor	1	LS	25,000.00	25,000
Third floor	1	LS	25,000.00	25,000
New plywood sheathing to (E) second floor framing				
Second floor	4,720	SF	5.00	23,600
Third floor	4,475	SF	5.00	22,375

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
New steel floor framing beams				
Second floor	100	LF	250.00	25,000
Third floor	100	LF	250.00	25,000
Strengthen (E) main interior stair, allowance	1	LS	25,000.00	25,000
Rebuild (E) exterior wood stairs / porch structures				
West stone porch steps/deck	225	SF	50.00	11,250
South wood porch deck	360	SF	50.00	18,000
North wood entry steps/deck	200	SF	50.00	10,000
Roof Structure				
New plywood sheathing to (E) roof framing	8,050	SF	5.00	40,250
Selective repair of damaged/decaying roof framing - allowance	1	LS	50,000.00	50,000
Add steel connections between main building and attached West stone porch structure	25	LF	200.00	5,000
Add steel connections between main building and attached South porch / roof structures	75	LF	200.00	15,000
				345,475

4. Exterior Cladding

Selective renovation/ replacement of (E) exterior siding				
Remove/replace (E) damaged wood shingle siding - allow 20% of total	3,578	SF	25.00	89,450
Steam clean (E) shingle siding	17,890	SF	2.50	44,725
Repair damage to (E) exterior wood framing and trim, allowance	1	LS	50,000.00	50,000
Clean / repoint (E) stonework,. Allowance	1	LS	10,000.00	10,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
New elevator tower exterior walls	800	SF	25.00	20,000
Caulking and sealing				
Caulk / seal, including (N) window head flashing	18,690	SF	2.50	46,725
Windows & doors				
Refurbish (E) windows and doors to operable condition, including painted finish and (N) hardware as necessary				
Windows	110	EA	750.00	82,500
Doors	11	EA	1,000.00	11,000
				354,400

5. Roofing, Waterproofing & Skylights

Replace (E) roofing				
Fire-resistant wood shingles over roofing felt on skip sheathing	8,050	SF	15.00	120,750
Flashing, gutters and downspouts, sheet metal trim - allowance	8,050	SF	5.00	40,250
Porch / balcony decks				
Install (N) waterproof walkable deck surface (Dex-o-tex or similar). Slope deck to falls with thru' wall scuppers	860	SF	20.00	17,200
				178,200

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
6. Interior Partitions, Doors & Glazing				
Partitions				
New interior partitions - wood stud with painted gypsum board and sound insulation.	6,420	SF	20.00	128,400
Allowance for cut/patch (E) partition walls	1	LS	50,000.00	50,000
Interior doors				
New SC wood doors				
Rated *(including smoke seals and closer)*	50	EA	1,600.00	80,000
New hardware at all doors	50	EA	250.00	12,500
				270,900
7. Floor, Wall & Ceiling Finishes				
Allowances for (N) interior finishes				
Floors	16,220	GSF	10.00	162,200
Walls / base and trim	16,220	GSF	10.00	162,200
Ceilings				
Basement - patch repair (E) ceiling	2,500	GSF	7.50	18,750
Ground floor - patch repair (E) ceiling	4,525	GSF	7.50	33,938
Second floor - patch repair (E) ceiling	4,720	GSF	7.50	35,400
Third floor - patch repair (E) ceiling	4,475	GSF	7.50	33,563
				446,050

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
8. Function Equipment & Specialties				
Casework				
Kitchenette casework - base cabinets, counter and wall cabinets	26	LF	750.00	19,500
Laundry room casework - base cabinets, counter	15	LF	450.00	6,750
Bathroom vanities	43	LF	300.00	12,900
Restroom cubbies	55	EA	250.00	13,750
Misc. casework and shelving	1	LS	5,000.00	5,000
Equipment				
Kitchenette -refrigerator, dishwasher, and garbage disposal (residential grade)	1	LS	3,000.00	3,000
Laundry - washer and dryer				*By Owner*
Student bedroom accessories - closet, towel bar, mirror	17	RMS	2,500.00	42,500
Bathroom / showers				
Bathroom stalls				
Standard	8	EA	1,200.00	9,600
Accessible	3	EA	1,500.00	4,500
Shower stalls				
Standard	8	EA	2,000.00	16,000
Accessible	4	EA	3,000.00	12,000
Bathroom / shower accessories	23	SETS	800.00	18,400
Misc. equipment, allowance	1	LS	10,000.00	10,000
Signage				
Code / exiting signage	16,650	GSF	1.00	16,650
Door ID signage	35	RMS	150.00	5,250
				195,800

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
9. Stairs & Vertical Transportation				
Stairs				
Replace (E) exterior wood stairs at West side of building - rebuild to current code requirements	3	FLT	20,000.00	60,000
Rebuild (E) interior wood stairs at East side of building C - rebuild to eliminate winders and create compliant landings	1	LS	30,000.00	30,000
Upgrade all (E) stair with code compliant handrails / guardrails, nosings and striping	10	FLT	6,000.00	60,000
Elevator				
Hydraulic 4-stop elevator - double entry cab sized for gurney	1	EA	250,000.00	250,000
				400,000
10. Plumbing Systems				
New plumbing system - including hot and cold domestic water, recirculating hot water system with boilers in basement, new faucets and shower valves, dual flush WC's and floor drains in shower rooms.	16,220	SF	15.00	243,300
				243,300
11. Heating, Ventilation & Air Conditioning				
New hydronic baseboard heating system, including boiler, flues etc.	16,220	SF	25.00	405,500

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Bathroon exhaust fans / ducting	4	EA	5,000.00	20,000
				425,500

12. Electrical Lighting, Power & Communication

New electrical system - including service, panel boards, distribution, user convenience power, lighting, data/telecoms system and fire alarm	16,650	SF	30.00	499,500
Elevator power supply	1	LS	10,000.00	10,000
				509,500

13. Fire Protection Systems

New fire sprinkler system - all pipes to be concealed	16,650	SF	7.00	116,550
				116,550

14. Site Preparation & Building Demolition

Site preparation				
Clear / grade for new parking and access for foundation work, allowance				*See Building B*
Building demolition				
Selective demolition of (E) interior finishes, removal of all (E) MEP systems and equipment	16,220	SF	8.00	129,760
Remove (E) roof finishes down to (E) sheathing	8,050	SF	5.00	40,250

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Remove (E) exterior wood stairs at West side of building	1	LS	5,000.00	5,000
				175,010

15. Site Paving, Structures & Landscaping

Site Paving / landscaping				
Accessible parking space - AC paving with striping and signage				*See Building B*
Allowance for landscaping / irrigation				*See Building B*
Sitte Structures				
New ADA compliant access ramp to front porch level - wood framed ramp with steel handrails	30	LF	600.00	18,000
				18,000

16. Utilities on Site

Demo / remove (E) site utilities	1	LS	25,000.00	25,000
Provide (N) incoming building services:				
Domestic water Fire water Sewer lateral Natural gas Underground electrical service	1	LS	50,000.00	50,000
City connection fees, allowance	1	LS	25,000.00	25,000
				100,000

BUILDING E COMPONENT SUMMARY

Gross Area: 2,648 SF

		$/SF	$x1,000
1. Foundations		18.96	50
2. Vertical Structure		20.93	55
3. Floor & Roof Structures		13.90	37
4. Exterior Cladding		29.46	78
5. Roofing, Waterproofing & Skylights		17.22	46
Shell (1-5)		100.47	266
6. Interior Partitions, Doors & Glazing		11.99	32
7. Floor, Wall & Ceiling Finishes		28.25	75
Interiors (6-7)		40.25	107
8. Function Equipment & Specialties		18.85	50
9. Stairs & Vertical Transportation		2.83	8
Equipment & Vertical Transportation (8-9)		21.68	57
10. Plumbing Systems		14.76	39
11. Heating, Ventilating & Air Conditioning		26.49	70
12. Electric Lighting, Power & Communications		30.00	79
13. Fire Protection Systems		7.00	19
Mechanical & Electrical (10-13)		78.25	207
Total Building Construction (1-13)		240.64	637
14. Site Preparation & Demolition		14.99	40
15. Site Paving, Structures & Landscaping		27.57	73
16. Utilities on Site		11.33	30
Total Site Construction (14-16)		53.89	143
TOTAL BUILDING & SITE (1-16)		294.54	780
General Conditions	12.00%	35.51	94
Contractor's Overhead & Profit or Fee	3.00%	9.82	26
PLANNED CONSTRUCTION COST	*March 2009*	339.86	900
Contingency for Development of Design	15.00%	50.99	135
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	*March 2009*	390.85	1,035

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
1. Foundations				
New concrete strip footing, including removal of (E) footing, temporary shoring, (N) concrete, rebar, formwork, and doweling into (E) concrete as required.	84	LF	300.00	25,200
New wall base anchorage blocks at (E) foundations	44	EA	500.00	22,000
Pad footings at (N) steel posts	2	EA	1,500.00	3,000
				50,200
2. Vertical Structure				
Plywood sheathing to (E) wood framed walls, interior face of perimeter walls typically. Includes minor framing modifications, end posts and hold downs as required				
First floor	150	LF	50.00	7,500
Second floor	130	LF	50.00	6,500
Cripple walls in crawl space	260	LF	40.00	10,400
Anchor bolts, including plate washers / grouting	260	LF	100.00	26,000
New steel posts at location of (N) beam in first floor bathroom	2	EA	2,500.00	5,000
				55,400

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
3. Floor and Roof Structure				
Floor Structure				
Selective repair of damaged/decaying floor framing and sheathing - allowance	1	LS	5,000.00	5,000
Steel structure to support suspended masonry chimney at second floor - allowance	1	LS	10,000.00	10,000
Steel beam above proposed first floor bathroom at location of (E) demolished load bearing wall	1	EA	5,000.00	5,000
Roof Structure				
New plywood sheathing to (E) roof framing	2,100	SF	5.00	10,500
Selective repair of damaged/decaying roof framing - allowance	2,100	SF	3.00	6,300
				36,800
4. Exterior Cladding				
Selective renovation/ replacement of (E) exterior siding				
Remove/replace (E) damaged wood shingle siding - allow 20% of total	960	SF	25.00	24,000
Steam clean (E) shingle siding	4,800	SF	2.50	12,000
Repair damage to (E) exterior wood framing and trim, allowance	1	LS	7,500.00	7,500
Caulking and sealing				
Caulk / seal, including (N) window head flashing	4,800	SF	2.50	12,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Windows & doors				
Refurbish (E) windows and doors to operable condition, including painted finish and (N) hardware as necessary				
Windows	36	EA	500.00	18,000
Doors	6	EA	750.00	4,500
				78,000

5. Roofing, Waterproofing & Skylights

Replace (E) roofing				
Fire-resistant wood shingles over roofing felt on skip sheathing	2,100	SF	15.00	31,500
Flashing, gutters and downspouts, sheet metal trim - allowance	2,100	SF	5.00	10,500
Balcony deck				
Install (N) waterproof walkable deck surface (Dex-o-tex or similar). Slope deck to falls with thru' wall scuppers	180	SF	20.00	3,600
				45,600

6. Interior Partitions, Doors & Glazing

Partitions				
New interior partitions - wood stud with painted gypsum board and sound insulation.	800	SF	20.00	16,000
Allowance for cut/patch (E) partition walls	1	LS	5,000.00	5,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Interior doors				
New SC wood doors	4	EA	1,500.00	6,000
Patch/repair and repaint (E) doors	5	EA	500.00	2,500
New hardware at all doors	9	EA	250.00	2,250
				31,750

7. Floor, Wall & Ceiling Finishes

Allowances for (N) interior finishes				
Floors	2,605	GSF	10.00	26,050
Walls / base and trim	2,605	GSF	10.00	26,050
Ceilings				
Ground floor - new painted gypboard ceiling	1,265	GSF	10.00	12,650
Second floor - patch repair (E) ceiling	1,340	GSF	7.50	10,050
				74,800

8. Function Equipment & Specialties

Casework				
Kitchen Casework - base cabinets, counter and wall cabinets	40	LF	750.00	30,000
Bathroom vanities	8	LF	300.00	2,400
Misc. casework and shelving	1	LS	2,500.00	2,500
Equipment				
Kitchen - range + hood, refrigerator, dishwasher, and garbage disposal (residential grade)	1	LS	5,000.00	5,000
Laundry - washer and dryer	1	LS	2,000.00	2,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Bathroom / shower accessories	2	SETS	1,500.00	3,000
Misc. equipment, allowance	1	LS	5,000.00	5,000
				49,900

9. Stairs & Vertical Transportation

Exterior stair / porch landings				
Reconstruct (E) stairs and landings to match (E) within code requirements	1	LS	7,500.00	7,500
				7,500

10. Plumbing Systems

New plumbing system - including hot and cold domestic water, hi-efficiency point-of-use water heater, new faucets and shower valves, dual flush WC's.	2,605	SF	15.00	39,075
				39,075

11. Heating, Ventilation & Air Conditioning

New hydronic baseboard heating system, including boiler, flues etc.	2,605	SF	25.00	65,125
Bathroon exhaust fans / ducting	2	EA	2,500.00	5,000
				70,125

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
12. Electrical Lighting, Power & Communication				
New electrical system - including service, panel boards, distribution, user convenience power, lighting, data/telecoms system and fire alarm	2,648	SF	30.00	79,425
				79,425
13. Fire Protection Systems				
New fire sprinkler system - all pipes to be concealed	2,648	SF	7.00	18,533
				18,533
14. Site Preparation & Building Demolition				
Site preparation				
Clear / grade for new parking and access for foundation work, allowance	1,000	SF	3.00	3,000
Building demolition				
Selective demolition of (E) interior finishes, removal of all (E) MEP systems and equipment	2,648	GSF	8.00	21,180
Remove (E) roof finishes down to (E) sheathing	2,100	SF	5.00	10,500
Remove (E) exterior chimney, allowance	1	LS	5,000.00	5,000
				39,680

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
15. Site Paving, Structures & Landscaping				
Site Paving / landscaping				
Accessible parking space - AC paving with striping and signage	1	EA	5,000.00	5,000
Allowance for landscaping / irrigation	1	LS	50,000.00	50,000
Sitte Structures				
New ADA compliant access ramp to front porch level - wood framed ramp with steel handrails	30	LF	600.00	18,000
				73,000
16. Utilities on Site				
Demo / remove (E) site utilities	1	LS	5,000.00	5,000
Provide (N) incoming building services:				
Domestic water Fire water Sewer lateral Natural gas Underground electrical service	1	LS	25,000.00	25,000
				30,000

BUILDING F COMPONENT SUMMARY

Gross Area: 3,670 SF

		$/SF	$x1,000
1. Foundations		24.11	89
2. Vertical Structure		13.92	51
3. Floor & Roof Structures		32.11	118
4. Exterior Cladding		33.03	121
5. Roofing, Waterproofing & Skylights		18.09	66
Shell (1-5)		121.27	445
6. Interior Partitions, Doors & Glazing		18.05	66
7. Floor, Wall & Ceiling Finishes		26.68	98
Interiors (6-7)		44.73	164
8. Function Equipment & Specialties		14.25	52
9. Stairs & Vertical Transportation		2.04	8
Equipment & Vertical Transportation (8-9)		16.29	60
10. Plumbing Systems		14.55	53
11. Heating, Ventilating & Air Conditioning		25.61	94
12. Electric Lighting, Power & Communications		30.00	110
13. Fire Protection Systems		7.00	26
Mechanical & Electrical (10-13)		77.16	283
Total Building Construction (1-13)		259.46	952
14. Site Preparation & Demolition		18.48	68
15. Site Paving, Structures & Landscaping		19.89	73
16. Utilities on Site		8.17	30
Total Site Construction (14-16)		46.54	171
TOTAL BUILDING & SITE (1-16)		306.00	1,123
General Conditions	12.00%	36.78	135
Contractor's Overhead & Profit or Fee	3.00%	10.35	38
PLANNED CONSTRUCTION COST	*March 2009*	353.14	1,296
Contingency for Development of Design	15.00%	52.86	194
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	*March 2009*	406.00	1,490

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
1. Foundations				
New concrete strip footing, including removal of (E) footing, temporary shoring, (N) concrete, rebar, formwork, and doweling into (E) concrete as required.	295	LF	300.00	88,500
				88,500
2. Vertical Structure				
Plywood sheathing to (E) wood framed walls, interior face of perimeter walls typically. Includes minor framing modifications, end posts and hold downs as required				
First floor	165	LF	50.00	8,250
Second floor	135	LF	50.00	6,750
Cripple walls in crawl space	165	LF	40.00	6,600
Anchor bolts, including plate washers / grouting	295	LF	100.00	29,500
				51,100
3. Floor and Roof Structure				
Floor Structure				
First floor - new wood/steel framed floor structure to replace (E) pool / infill.	1,296	SF	25.00	32,400
Selective repair of damaged/decaying first floor framing and sheathing - allowance	1	LS	5,000.00	5,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
New steel framing at second floor to strengthen previous building modifications	1,790	SF	10.00	17,900
New floor sheathing at second floor	1,790	SF	5.00	8,950
Modify wall/floor framing at location of (N) openings in load bearing walls at first floor	2	EA	2,000.00	4,000
Rebuild balcony/deck at first floor East elevation	220	SF	40.00	8,800
Roof Structure				
New plywood sheathing to (E) roof framing	3,100	SF	5.00	15,500
Strengthen (E) roof framing, allowance	3,100	SF	2.50	7,750
Selective repair of damaged/decaying roof framing - allowance	3,100	SF	3.00	9,300
Add steel connections between North perimeter wall and attached roof structure	55	LF	150.00	8,250
				117,850

4. Exterior Cladding

Selective renovation/ replacement of (E) exterior siding				
Remove/replace (E) damaged wood shingle siding - allow 10% of total	605	SF	25.00	15,125
Remove/replace (E) wood shingle siding to install struxtural ply sheathing	1,950	SF	25.00	48,750
Steam clean (E) shingle siding	6,020	SF	2.50	15,050
Repair damage to (E) exterior wood framing and trim, allowance	1	LS	10,000.00	10,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Caulking and sealing				
Caulk / seal, including (N) window head flashing	6,020	SF	2.50	15,050
Windows & doors				
Refurbish (E) windows and doors to operable condition, including painted finish and (N) hardware as necessary				
Windows	30	EA	500.00	15,000
Doors	3	EA	750.00	2,250
				121,225

5. Roofing, Waterproofing & Skylights

Replace (E) roofing				
Fire-resistant wood shingles over roofing felt on skip sheathing	3,100	SF	15.00	46,500
Flashing, gutters and downspouts, sheet metal trim - allowance	3,100	SF	5.00	15,500
Balcony deck				
Install (N) waterproof walkable deck surface (Dex-o-tex or similar). Slope deck to falls with thru' wall scuppers	220	SF	20.00	4,400
				66,400

6. Interior Partitions, Doors & Glazing

Partitions				
New interior partitions - wood stud with painted gypsum board and sound insulation.	1,950	SF	20.00	39,000
Allowance for cut/patch (E) partition walls	1	LS	7,500.00	7,500

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Interior doors				
New SC wood doors	11	EA	1,500.00	16,500
Patch/repair and repaint (E) doors	1	EA	500.00	500
New hardware at all doors	11	EA	250.00	2,750
				66,250

7. Floor, Wall & Ceiling Finishes

Allowances for (N) interior finishes				
Floors	3,560	GSF	10.00	35,600
Walls / base and trim	3,560	GSF	10.00	35,600
Ceilings				
Ground floor - patch repair (E) ceiling	1,770	GSF	7.50	13,275
Second floor - patch repair (E) ceiling	1,790	GSF	7.50	13,425
				97,900

8. Function Equipment & Specialties

Casework				
Kitchen Casework - base cabinets, counter and wall cabinets	44	LF	750.00	33,000
Bathroom vanities	6	LF	300.00	1,800
Misc. casework and shelving	1	LS	2,500.00	2,500
Equipment				
Kitchen - range + hood, refrigerator, dishwasher, and garbage disposal (residential grade)	1	LS	5,000.00	5,000
Laundry - washer and dryer	1	LS	2,000.00	2,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
Bathroom / shower accessories	2	SETS	1,500.00	3,000
Misc. equipment, allowance	1	LS	5,000.00	5,000
				52,300

9. Stairs & Vertical Transportation

Exterior stair / porch landings				
Reconstruct (E) stairs and landings to match (E) within code requirements	1	LS	7,500.00	7,500
				7,500

10. Plumbing Systems

New plumbing system - including hot and cold domestic water, hi-efficiency point-of-use water heater, new faucets and shower valves, dual flush WC's.	3,560	SF	15.00	53,400
				53,400

11. Heating, Ventilation & Air Conditioning

New hydronic baseboard heating system, including boiler, flues etc.	3,560	SF	25.00	89,000
Bathroon exhaust fans / ducting	2	EA	2,500.00	5,000
				94,000

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
12. Electrical Lighting, Power & Communication				
New electrical system - including service, panel boards, distribution, user convenience power, lighting, data/telecoms system and fire alarm	3,670	SF	30.00	110,100
				110,100
13. Fire Protection Systems				
New fire sprinkler system - all pipes to be concealed	3,670	SF	7.00	25,690
				25,690
14. Site Preparation & Building Demolition				
Site preparation				
Clear / grade for new parking and access for foundation work	1,000	SF	3.00	3,000
Building demolition				
Selective demolition of (E) interior finishes, removal of all (E) MEP systems and equipment	3,670	SF	8.00	29,360
Remove (E) roof finishes down to (E) sheathing	3,100	SF	5.00	15,500
Remove (E) concrete pool structure and associated first floor infill framing/deck	1,296	SF	10.00	12,960
Remove (E) chimney / flue on South elevation	1	LS	7,000.00	7,000
				67,820

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
15. Site Paving, Structures & Landscaping				
Site Paving / landscaping				
Accessible parking space - AC paving with striping and signage	1	EA	5,000.00	5,000
Allowance for landscaping / irrigation	1	LS	50,000.00	50,000
Sitte Structures				
New ADA compliant access ramp to front porch level - wood framed ramp with steel handrails	30	LF	600.00	18,000
				73,000
16. Utilities on Site				
Demo / remove (E) site utilities	1	LS	5,000.00	5,000
Provide (N) incoming building services:				
Domestic water Fire water Sewer lateral Natural gas Underground electrical service	1	LS	25,000.00	25,000
				30,000

BASIS OF COST MODEL

Cost Model Prepared From — Dated — Received

Drawings / Sketches received Jan. 9 - Jan. 12, 2009:
- Architectural plans, showing current and proposed program layout
- Structural plans showing remedial work

Narratives received Jan. 9 - Jan. 12, 2009:
- Architectural / systems narratives
- Structural narratives

Discussions with the Project Architect and Engineers

Conditions of Construction

The pricing is based on the following general conditions of construction

A start date of March 2009

The general contract will be competitively bid with qualified general and main subcontractors

There will not be small business set aside requirements

The contractor will be required to pay prevailing wages

There are no phasing requirements

The general contractor will have full access to the site during normal business hours

A

Retrofit Descriptions – All Buildings (Section prepared by WJE)

Retrofit Descriptions - All Buildings

- Plywood shear walls - assume 15/32 plywood added at all walls indicated on the building plans. Nail with 10d at 4 inches, provide shear transfer connection, blocking at the wall top and bottom as required. Provide 3x or 4x studs at plywood panel edges. Plywood can be installed at building interior or exterior, as appropriate for architectural design, and then covered with architectural finishes as required. Assume that tie-downs are provided at each end of each shear wall. Assume MSTI48 at upper floor, assume HD5A and 4x4 post at foundation with tie-down rod extended through any cripple wall space to the concrete or masonry foundation. Added dry (MC19%) blocking may be required at the floor at tie-down locations.
- Concrete shear walls - assume eight inches minimum, 10 inches average, reinforced with two layers, number 4 bars at 12 inches each way each layer, with foundation dowels to match, anchor bolts at 24 inches on center at wall top, with 3x or 4x pressure treated foundation sill plate.
- Steel moment frames - assume W12x45 beam and columns for frame steel weight. Assume Reduced Beam Section (RBS, dogbone) at each beam to column connection. Welded using notch-tough electrodes. UT and special inspection of all welding.
- Roof sheathing - assume 15/32 plywood, unblocked, nailed with 10d at six-inches at supported ends, and at wall lines below. Provide blocking between plywood and wall lines below if none exists.
- Floor sheathing - assume 15/32 plywood, nailed with 8d at 4 inches at edges and at all walls below, 12 inches field. Assume that existing sheathing can be used as blocking when applied at the top of the floor. Assume blocking must be added if installed on underside floor framing at ceiling.
- Added anchor bolts to concrete foundations where concrete strength is adequate - Epoxy anchor bolts are needed at four feet on center for the full length of new and existing foundations, unless a closer spacing is noted in the building by building description. Provide 3x3x1/4 steel plate washer on each anchor bolt. Where configuration does not allow for drilling anchor bolts, provide one Simpson UFP10-SDS3 anchor to replace each anchor bolt.
- Added anchor bolts to weak concrete foundations or brick masonry foundations - Anchor bolts are needed at four feet on center for the full length of new and existing foundations, unless a closer spacing is noted in the building by building description. Anchor bolts in existing foundations will require the removal of a 1 foot by 1 foot key section of masonry or concrete stem wall, placement of the bolt, and casting of concrete or grout to fill in the key.
- New concrete foundation in crawl space - assume a minimum width of 16 inches, three No. 5 bars top and bottom and No. 4 ties at 12 inches on center. Where crawl space is of moderate height, concrete may be extended to underside of floor framing. Where crawls space is tall, foundation to be two feet minimum height (18 inches below grade), with framed cripple wall and sheathing on top to underside framing above.
- New concrete foundations are to be doweled to the existing foundation with epoxied rebar dowels. Provide 2 dowels at each end where the new foundation intersects an existing foundation. Where new and existing foundations run alongside each other, provide dowels at 12 inches on center.