UNIVERSITY OF CALIFORNIA
BERKELEY

HISTORIC STRUCTURE REPORT

NAVAL ARCHITECTURE BUILDING

8 August 2002

FINAL REPORT

SIEGEL & STRAIN Architects • 1295 59th Street • Emeryville CA 94608 • 510 / 547.8092

UNIVERSITY OF CALIFORNIA
BERKELEY

HISTORIC STRUCTURE REPORT

NAVAL ARCHITECTURE BUILDING

Report Preparation

Field Observations February and July 2001
Burton Peek Edwards and Justin Pauly
(Siegel & Strain Architects)

Historical Summary
Steve Finacom
(Planning Analyst / Historian Capital Projects
University of California, Berkeley)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Naval Architecture Building (originally called the Drawing Building) was designed by John Galen Howard who served as campus architect from 1903 to 1924. It was constructed during two building campaigns in 1914 and 1918 and is located on its original site, along Hearst Avenue, at the northern edge of the Berkeley campus.

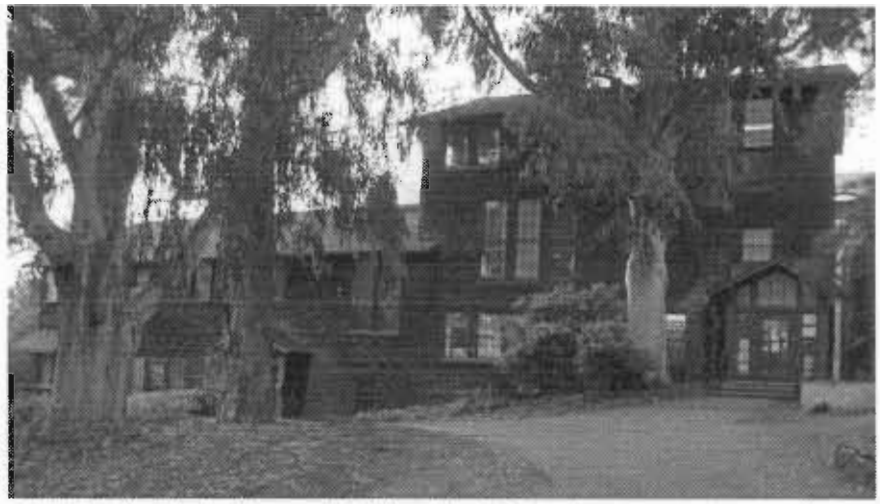


Figure 1. Naval Architecture Building: South Facade

The building is a simple two story (three story at the 1918 Addition) wood framed gable roofed structure clad in dark brown stained wood shingles. The exterior of the 1914 Drawing Building is substantially intact. Banks of large double hung windows - each approximately 3' wide and 10' tall - adorn the north façade and express the spaces within: large studios – originally for life drawing classes. Entryways on the south and a decorative Georgian Style window/balcony on the west are also character defining features. The interior was originally either exposed wood framing or unfinished horizontal redwood sheathing. Many of these unfinished wood surfaces have since been painted. The volume of the original studio spaces is still visible even though some have been divided into smaller spaces. The building was altered in 1930 when approximately one half of the 1918 Addition was removed to make way for the construction of Davis Hall (George Kelham, 1931).

The Naval Architecture Building is a very significant contributor to the architectural context of the Northside. It, along with Northgate Hall and Cloyne Court, are the surviving remnants of a larger grouping of wood shingled buildings which reflect the tenets of the early Bay Region Tradition.

The Naval Architecture Building is also very significant in the context of the University itself. First, it represents one of the few remaining shingled works by John Galen Howard, the University's first campus architect. Second, its early Bay Region Style and rustic setting contrast with the more formal concrete and stone buildings surrounding the "Glade" to the south.. Finally, The Naval Architecture Building has served as incubator to a number of significant University programs in the Art, Architecture and Engineering departments.

The Naval Architecture Building is listed on both the National Register of Historic Places and as a city of Berkeley Landmark.

LOCATION MAP

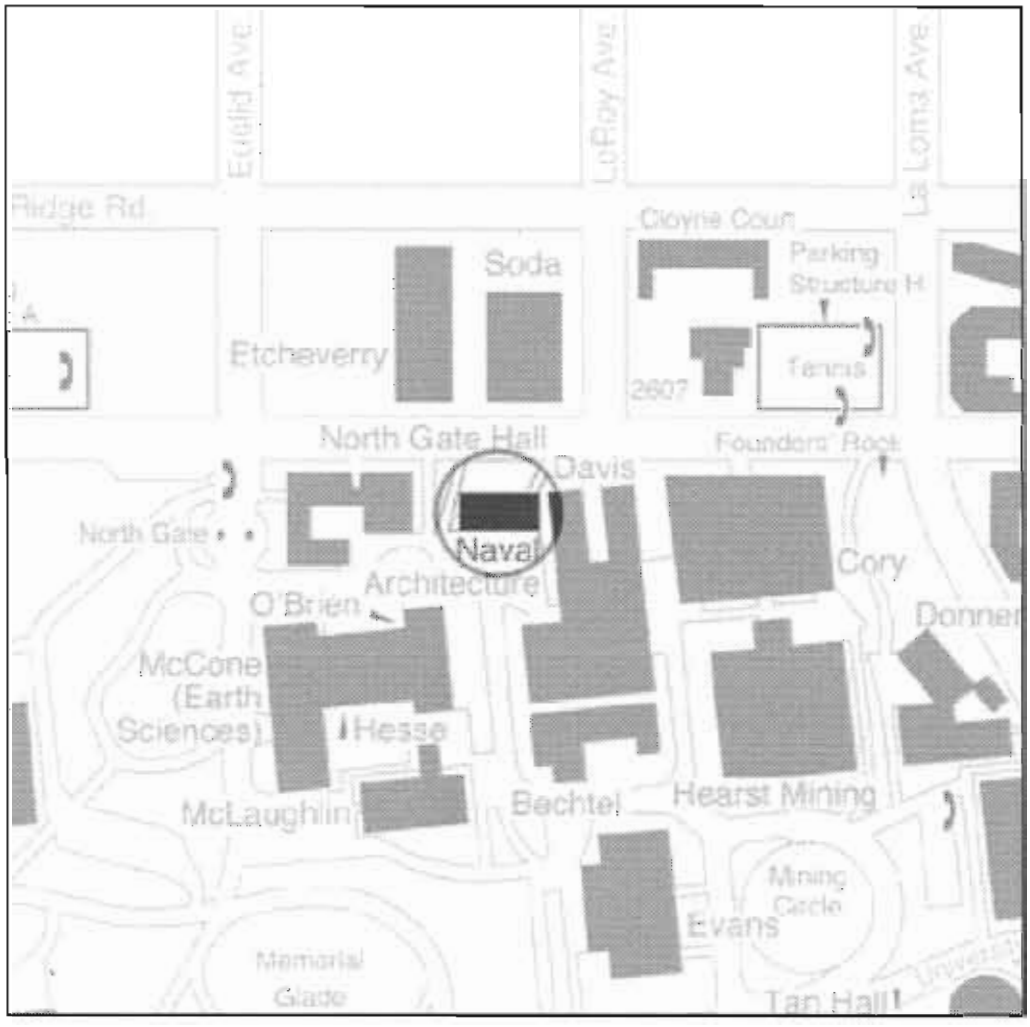


Figure 2. Location Map

LIST OF FIGURES

All photographs by the authors except as noted.

HISTORICAL SUMMARY AND SIGNIFICANCE

Naval Architecture Building

What is now known as Naval Architecture was designed by campus Supervising Architect John Galen Howard in 1914 as an annex to the Architecture Building (now Northgate Hall). Howard chose for the building a rustic, shingle style that he had used for other nearby buildings including Northgate Hall and Cloyne Court (originally a private residential hotel) at Le Roy and Ridge Road. Together with Howard's Women's Faculty Club, these three buildings are the most important surviving representatives of Howard's shingled institutional buildings. Unlike Howard's buildings in the Beaux Arts style, his shingle structures—often designed as "temporary" buildings—did not conform to the artificial building terraces and formal grid arrangment of the campus but, instead, responded to natural features such as the sloping topography and nearby creeks. Howard's shingle buildings, including Naval Architecture, are harmonious and simple in design, often including touches of neo-classical elements.

Howard's shingle buildings are also part of a relatively small class of institutional shingle buildings constructed in Berkeley in the late 19th and early 20th century. While hundreds of brown-shingle homes were being built in that period, a much smaller number of shingle-style institutional structures were completed.

Conforming with the "building with nature" tenets of the Arts & Crafts movement and Bay Region design, these buildings incorporated natural materials - particularly redwood - avoided ostentatious architectural ornamentation or finishes, and sought to blend with their natural settings. Buidlings from this movement included a number of Berkeley public schools—all but one of which have been demolished—and private institutional buildings such as the First Unitarian Church (now the University's Dance Facility), Berkeley's Town and Gown Club (Dwight and Dana), and the original St. John's Presbyterian Church (College Avenue, near Derby), now the Julia Morgan Theater.

Howard was one of the most prolific designers of these buildings. In addition to the four buildings noted above (Northgate, Women's Faculty Club, Cloyne Court, Naval Architecture) he designed other shingle buildings, all since demolished, the board-and-batten Dwinelle Annex, the redwood "log cabin" Senior Hall on the campus, and a shingle style extension to Maybeck's Faculty Club.

History of Use

Naval Architecture served as an annex to Northgate Hall for instructional purposes in Architecture until 1924. It is associated with the training and/or instructional work of numerous prominent architects including John Hudson Thomas, Henry Gutterson, William Wurster, Joseph Esherick, Charles Moore, William Turnbull, and Vernon DeMars.

In 1924 the building was reassigned as the home of the newly formed Department of Art. In this capacity it was associated with the formative years of a regionally influential department and a number of regionally important artists and art teachers such as Eugen Neuhaus, Perham Nahl, and Worth Ryder.

In 1930 the building was reassigned for use by the College of Engineering, its first direct association with the engineering activities of the University. In that same year the eastern end of the building was demolished to permit construction of the Engineering Materials Laboratory. Plans for the original building indicate that the demolished eastern portion continued the arrangement of north-facing architectural studios still present in the western portion of the building. The re-assignment of the building to the College of Engineering permitted growth in the University's engineering programs.

> The building was occupied in 1931 by faculty members who specialized in graphics, mechanics, and design, and by corresponding drafting rooms. There were complaints about poor heating and lighting. The middle of the second floor was used as a blueprint facility...in addition, the structure housed a small museum of power machinery and transportation...the Engineering Design Building served the newly-established Process Engineering group of the Department until it was dissolved.
> (*Goldmith, Mechanical Engineering at Berkeley, p. 38*).

In 1951 the building went temporarily out of engineering use when it was assigned to house the newly created Department of City and Regional Planning. This would remain an independent academic unit until a reorganization in 1959 placed it, with Architecture, Landscape Architecture, and Decorative Arts, in the newly formed College of Environmental Design. The first decade of the Department in 1950 is associated with a number of prominent teachers and practitioners in the planning field including T.J. Kent and Francis Violich.

In 1964 City and Regional Planning vacated the building and moved to the newly completed Wurster Hall. The building was then reassigned for use by the Naval Architecture program in Engineering. Naval architecture—the design and engineering of ships—became a part of the University's curriculum in 1918, and was formally established as a department in 1958, within the Division of Mechanical Engineering. Starting in 1950 the United States Department of the Navy began to encourage expansion of the Naval Architecture program at Berkeley. In the late 1950s it became a graduate program only; it was the first such program to be accredited to award the Master's Degree by the Engineers Council for Professional Development. Naval Architecture as a degree granitng program was ultimately dissolved in 1997.

In recent decades the Naval Architecture Building has been used by the College of Engineering for offices and various activities. The UC Berkeley Foundation - the fundraising arm of the Berkeley campus - had its offices located on the ground level of the building.

Architecturally, the building has been modified over the years with alterations to interior spaces as its uses and activities have changed. Alterations to the exterior have included some modifications to entrances. The major alteration was the circa 1930 demolition of the eastern wing of the building which stepped up the hill.

Demolition of the building was planned during the 1960's to create a site for the consturciton of new engineering facilities. In the mid-1970's demolition of the building was again anticipated to provide a location for a new building to house the Engineering Library and various student services and other College activities and programs. Sustained community protest resulted in the placement of the building on the National Register of Historic Places, an environmental impact study and, ultimately, the withdrawal of the proposal for its demolition. The proposed new building was redesigned and sited

further to the south, as the present-day Bechtel Engineering Center.

Significance

The significance of the Naval Architecture Building derives from:

- Its association with its architect, John Galen Howard, the most important designer in the history of the Berkeley campus;
- Its status as one of the few surviving institutional brown-shingle buildings in Berkeley from the first era of Bay Tradition architecture, and one of the oldest—and oldest surviving—buildings in the northeast portion of the Berkeley campus;
- Its association with the early decades of the Department of Architecture at Berkeley and with the formative years of the Department of City and Regional Planning. Many prominent architects and planners studied or taught in the building between 1914 and 1962;
- Its association with the Department of Art, serving as the original home for that Department, which produced and influenced important artists and regional artistic movements;
- Its role as a key transitional structure between the more formal institutional buildings of the central campus and the more rustic off-campus Northside neighborhood, a district that is rich in historical and architectural character and associations. Part of this association involves the ensemble of Northgate and Naval Architecture, two similar shingled buildings from the same era, located in close proximity to one another.
- Proposals in 1976-77 for a new Engineering Center along Hearst Avenue called for the demolition of the Naval Architecture Building. Campus and civic groups protested these plans, another site was chosen for the proposed building, and, in part as a consequence, the University began to voluntarily incorporate evaluation of architectural and historic significance of existing structures into analysis of new building projects. Evaluation standards have evolved with time. The University's 1990 Long Range Development Plan specified that, for environmental review purposes, a proposed project would be considered as having a significant adverse impact if it has "the potential to disrupt or adversely affect a prehistoric, historic, archaeological, or paleontological resource..."

  In later Environmental Impact Reports on campus projects the University has identified significant adverse impacts and mitigations for projects that would affect historic or cultural resources, including any building that possesses integrity of location, design, setting, materials, workmanship, feeling, and association and:

  > is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; is associated with the lives of persons important in California's history; embodies the distinct characteristics of a type, period, region, or method of construction, or that represents the work of a master, or that possesses high artistic value; or has yielded or may be likely to yield information important in prehistory of history.
  >
  > (Citation: Underhill Area Draft Environmental Impact Report, page, IV.D-12, April, 2000)."

JOHN GALEN HOWARD

Figure 3. John Galen Howard (photo: Moss, The Howards)

John Galen Howard's architectural vision helped give form to the dreams and ambitions of early University patrons who wished to create an "Athens of the West." In all, twenty-two campus buildings bear Howard's signature and for close to a quarter of a century he enjoyed the privilege of being the University's sole architect in charge of all building projects. Following Howard's dismissal in 1924, no subsequent architect would enjoy such power. Howard was a prolific intellectual. As a poet, he published multiple volumes of verse. As an educator he helped found and direct The University's School of Architecture. As an architect, his accomplishments are equaled by few others of his time and the majority of his structures are still in active use to this day.

John Galen Howard was born in 1864 in Chelmsford, Massachusetts. In 1882 he began his studies at the Massachusetts Institute of Technology, which, at the time, was the only school of architecture in the United States. The initial program at M.I.T. focused primarily on the technical aspects of architecture. Howard spent three years at M.I.T. before the death of his father placed the family under financial hardship and forced Howard to leave school and seek work in the Brookline, Massachusetts office of Henry Hobson Richardson, one of America's pre-eminent turn-of-the-century architects. Howard's stay at Richardson's office was short-lived as Richardson was in the final years of his brief 48-year life when Howard arrived.

In 1887, Howard struck out to try his hand in California, spending a year with the Los Angeles firm of Caukin and Haas before returning to the East Coast to work in the New York City offices of McKim, Mead & White. This office was undoubtedly the most influential of Howard's early work experiences. McKim, Mead & White were at the center of what came to be considered "the American Renaissance," a brief flowering of American culture that drew upon classical imagery to inform the artistic expressions of the time. Good examples of the firms work can be found in the Boston Public Library (completed in 1885) and New York City's Pennsylvania Railway Station (completed- 1910, demolished-1964). It was here that Howard would become more strongly rooted in the notion that

architecture could be a highly evolved artistic expression as opposed to the technologically oriented practices of M.I.T. or the western boomtown mentality of Los Angeles.

Howard forged strong working relationships with the firms partners, Stanford White and Charles Mckim. It was the latter who sponsored Howard's sojourn to Europe for a year of travel and study and later encouraged him to attend the prestigious *Ecole des Beaux Arts* in Paris where both McKim and White had undertaken their advanced architectural studies. Howard passed his entrance exams and entered the atelier of Victor Laloux. Howard left the *Ecole* prior to receiving his diploma, just as he had done at M.I.T. However, this was a common practice among young Americans studying at the *Ecole*. A French diploma was not the goal of attending the *Ecole*, the goal was to study and work in the most architecturally sophisticated environment possible, and this was achieved with or without a diploma.

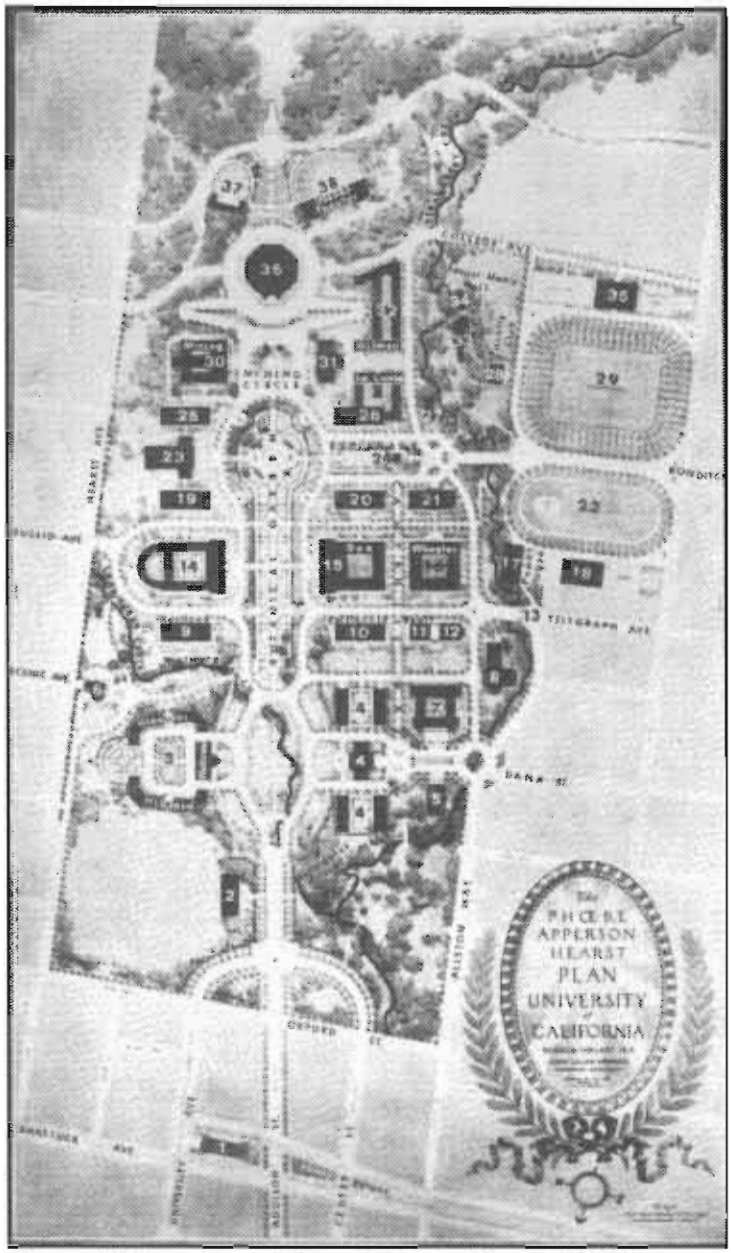


Figure 4. University of California Master Plan (JGH 1914)
(drawing: Bancroft Library, UC Berkeley)

Upon returning to America in 1893, Howard spent two more years with McKim, Mead and White before partnering with Samuel M. Cauldwell to create Howard & Cauldwell in New York. It should also be noted that in 1893 The World's Columbian Exposition in Chicago helped fuel interest in the "City Beautiful" movement in America. This type of planning, with it's emphasis on axiality, symmetry, hierarchy, large urban spaces and individual buildings designed in classical styles was exactly the kind of work that Howard had been trained for in Paris. Shortly after establishing his new firm, Howard would have the opportunity to exhibit the skills garnered through his beaux-arts education.

In 1897 a competition to design the University of California Campus at Berkeley was announced. The competition for the University design was the brainchild of Bernard Maybeck and was sponsored by Phoebe Hearst to commemorate her late husband, Senator George Hearst. The competition prospectus epitomizes the grandiose visions of the University patrons in its call for designers to disregard all

financial concerns in their quest to create a magnificent "city of learning." Howard's scheme for the University (Fig. 4) placed fourth among dozens of competitors from around the world, the first place being awarded to Emile Bernard from France.

The Bernard Plan aligned the campus along a major east-west axis, or "grand-alee," linking University Avenue with The Rose Gardens at the East end of campus and providing multiple large public spaces along the way. Two cross axes provided the organizational structure for the majority of the departmental buildings. The scheme was bold, grandiose and far more eloquently presented than any of its competitors. Unfortunately, Bernard didn't speak English, refused to move to California, was difficult to get along with and had created a scheme that required severe alterations to the landscape in order to fit into the site. While the Bernard plan was adopted as the official plan for the Campus, it was Howard who was subsequently chosen as the Supervising Architect for the University and would therefore be responsible for implementing the plan.

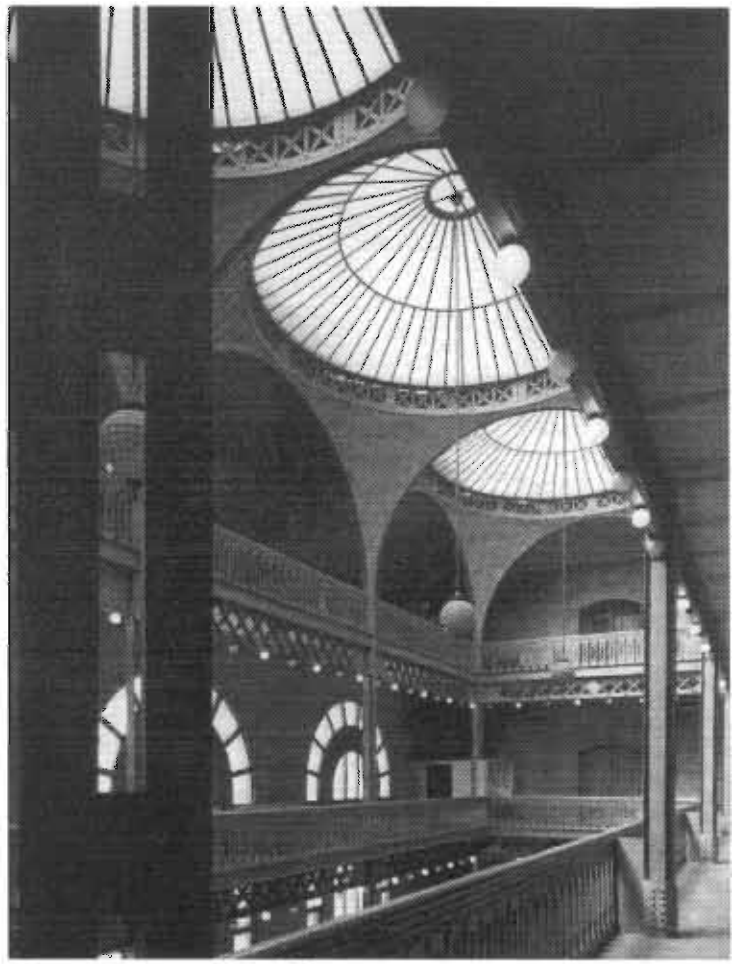


Figure 5. Memorial Vestibule
Hearst Mining Building (JGH 1905)
(photo: Henry Bowles)

Howard seemed a likely choice as he had already been awarded the commission for the Hearst Memorial Mining Building (Fig. 5) earlier in the year. He also knew Maybeck, who had attended the *Ecole'* and had become acquainted with other influential local architects, including Willis Polk and Ernest Coxhead, during his brief stint in Los Angeles in 1887.

Howard would eventually persuade the University to make several changes to the Bernard Plan, including shifting the main axis of the University away from University Avenue and aligning it with the Golden Gate, a decision which enhanced the relationship of the plan to the natural topography of the site, while symbolically representing the westward march of civilization, a popular idea with the Bay Area's civic leaders. The more Howard worked on the Bernard Plan, the more the plan began to resemble Howard's own competition entry.

It should be noted that at the same time he was appointed to the position of University Architect,

Howard was also appointed as the University's first Professor of Architecture. Berkeley was only the thirteenth School of Architecture in the United States, the first on the west coast. Howard would lead the school from 1903 to 1926 and remain as a Professor until his death in 1931. He began the school with a handful of students in the corner of his office and when he left, it was an accredited program with a graduate curriculum and seven Professors.

From 1903 to 1924, during his reign as University Architect, Howard would design and oversee construction of some of the University's most important structures. The Greek Theatre, California Hall, Hearst Memorial Mining Building, Doe Library, the original Boalt Hall (Now Durant), Sather Gate, Agriculture hall (now Wellman) and Sather Tower are just some of Howard's more prominent structures on campus. Ironically, during Howard's tenure as director, The School of Architecture was housed in what are now referred to as North Gate Hall and The Naval Architecture Building, both designed by Howard. These low-slung brown-shingled buildings were undoubtedly designed as temporary structures. Howard would not live to see the school housed in its permanent location, Wurster Hall.

Howard's major buildings on campus were designed and planned with sensitivity to the original Beaux Arts plan and for the most part are clad in granite, a material that would be abandoned by the University in the late teens with the advent of more affordable materials such as poured-in-place concrete. They are rich in architectural detail and well scaled to their surroundings. Very few structures built on the Campus in the post-Howard era match their elegance.

It should be noted that while the University consumed much of Howard's time, he also ran a thriving private practice, Howard and Galloway, formed in 1906. Notable projects that came out of the office were The Adams Grant Building and The Italian-American Bank in San Francisco. The Gregory House, in Berkeley, is a good example of Howard's work at a residential scale and reflects his interest and participation in the Bay Region Style with its shingle aesthetic. The firm was also involved in large scale planning projects, having earned a reputation for this type of planning through their affiliation with the Campus Plan at Berkeley. Howard was involved with the planning of the Panama Pacific International Exposition in 1915, for which he designed the Civic Auditorium in Civic Center Plaza and the firm was named as the chief architect for the Alaska-Yukon Exposition in Seattle, Washington in 1909.

Howard enjoyed a certain freedom in his work with the University. He was their sole architect and he had staunch supporters who believed in and shared his vision for the Berkeley Campus. Among these supporters were Benjamin Ide Wheeler, President of the University from 1899 until 1919 and Phoebe Apperson Hearst, the great financial patron of the school and a University Regent until her death in 1919. Undoubtedly, the power of his supporters prevented his detractors from challenging the free creative reign that he enjoyed with the University.

However, with Wheeler's retirement and Hearst's death, Howard's position eventually began to be challenged. Decisions that had once been made entirely by Howard were now being made by the University and certain campus projects were being awarded to other architects. The situation led to tension between the two parties that resulted in Howard's formal dismissal in 1924. In 1925 Howard resigned as director of The School of Architecture, but remained a professor until his death in 1931.

JOHN GALEN HOWARD: PROJECTS AT UC BERKELEY

1899	Competition Entry: Phoebe Hearst Architectural Plan (4th Place)
1902-07	Hearst Memorial Mining Building
1902-03	Greeek Theatre
1903-05	California Hall
1904	Power House
1906	Architecture Building - The Ark (now Northgate Hall)
1906	Order of the Golden Bear Club House (Senior Men's Hall)
1907-11, 1914-18	Doe Memorial Library
1908-10	Sather Gate and Bridge
1908-11	Boalt Hall (now Durant Hall)
1910-12	Agriculture Hall (now Wellman Hall)
1913	South Hall Annex (David Farquharson, 1870-73)
1913-14	Sather Tower - The Campanile (designed-1911)
1913-14	Drawing Building (now Naval Architecture)
1915-17	Wheeler Hall
1917	Gliman Hall
1916-17	Hilgard Hall
1920	Military Science Building (now Dwinelle Annex)
1922-23	California Memorial Stadium
1923	Stephens Hall
1923	Women's Faculty Club
1923	Le Conte Hall
1924	Haviland Hall
1924	Hesse Hall

FIELD OBSERVATIONS

I. INTRODUCTION

The following observations were made by SIEGEL & STRAIN Architects during field investigations in preparation for an Historic Structures Report (HSR) covering the Naval Architecture Building (historic name: the Drawing Building), by John Galen Howard (Fig. 6). The building was built in two successive phases beginning in 1914 (Fig. 7). The original – Phase I - building comprises the westernmost 75 ft. and will be referred to as the Drawing Building. Phase II – originally approximately 100 ft. in length – will be referred to as the Addition. Approximately one half of the Addition was removed in 1930 to make way for the construction of Davis Hall (George Kelham, 1931). The current building, which includes the entire Drawing Building and the remaining half of the Addition, will be referred to by the name of the University program currently occupying the structure - the Naval Architecture Building (NAB). The NAB has been occupied successively by various University programs: Architecture (1914-1923) providing north lit studios for life drawing and drafting, Art (1923-1930), Engineering (1930-1951), City and Regional Planning (1951-1964) and Naval Architecture (1964-present). The building's name has changed over time to reflect its occupants. Additional information regarding the Naval Architecture Building and the history of programs associated with it are found in the Historical Summary included in this report.

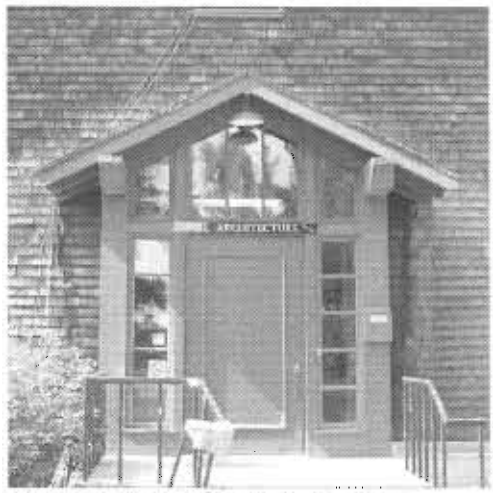


Figure 6. Original entry to Drawing Building

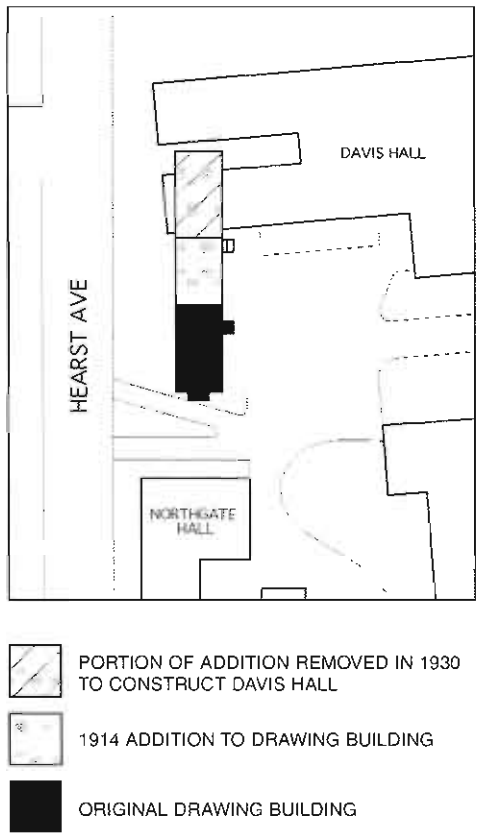


Figure 7.

When evaluating the significance and condition of buildings, Architectural Historians use a scale to rate the architectural and historic value of the building, its rooms or spaces, as well as individual features. The typical rating scale employs four categories: "Very Significant," "Significant," "Contributing," and "Non-Contributing." The definition of each category is further described on page 32 of this report. The Architectural Historian's use of the term "Very Significant" or "Significant" does not necessarily equate to the same meaning as used by the California Environmental Quality Act (CEQA). Even though the term "Significant" is used in two of these categories; the fact that a space or building feature is called "Very Significant" or "Significant" in the Historic Structures Report does not of

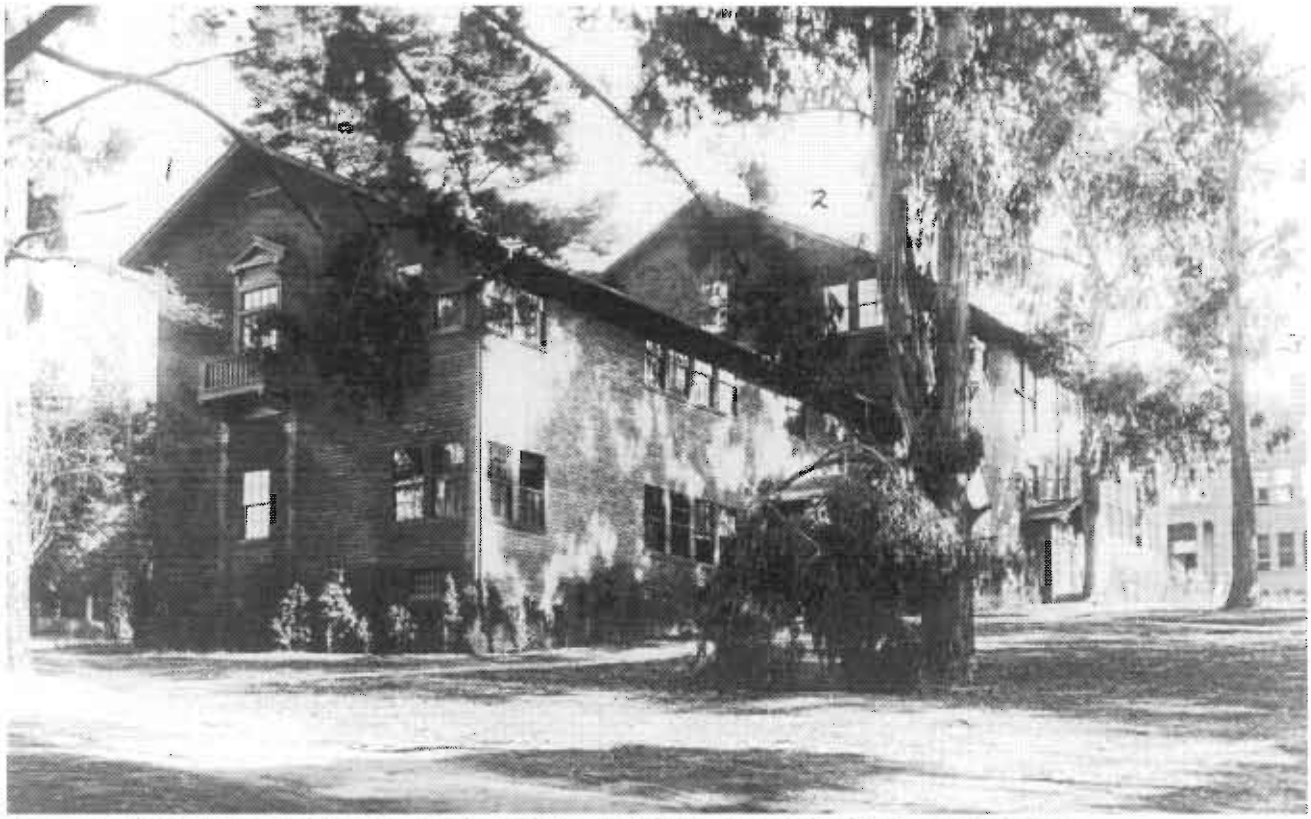


Figure 8. The Drawing Building (1) and the Addition (2) (photo: Bancroft Library, UC Berkeley)

Figure 9. After demolition of the eastern half of the Addition (+/- 1932)
Note: New door and stairway at the West Facade (photo: Bancroft Library, UC Berkeley)

necessity mean that the alteration or removal of that space or the entire structure would meet the CEQA criteria for what is called a "Significant impact on the environment."

II. GENERAL DESCRIPTION

The Naval Architecture Building (NAB) is situated on the northern edge of the Berkeley campus. It is rectangular in plan, approximately 37 ft. wide and 120 ft. long, with its primary axis running east / west, parallel to Hearst Avenue immediately to the north. The building has a simple two story (three story at the Addition) gable roofed section with the longitudinal ridge beam offset to the north. This establishes a higher top plate at the northern facade which in turn allows for significantly larger windows in the north facing studios along Hearst Avenue (Fig. 10).

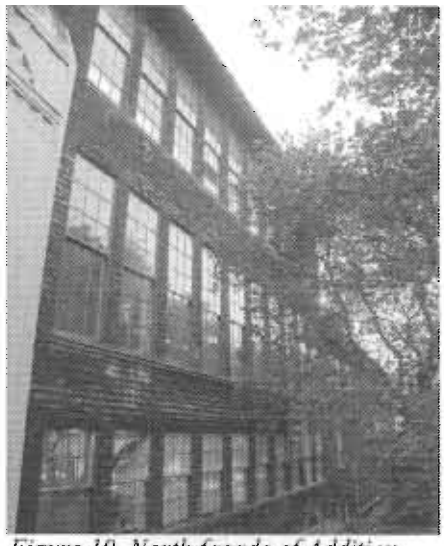


Figure 10. North facade of Addition

The NAB is a wood frame structure clad in cedar shingles. The 2 x 6 exterior wall framing members (16 inches on center) are clad at the exterior with 1 x 4 tongue and groove horizontal sheathing which is in turn covered with dark stained cedar shingles. This exterior wall framing system is exposed at most of the interior of the building. Horizontal Douglas Fir tongue and groove sheathing is also sometimes used as an interior finish material – particularly along the corridors (Fig. 11). The floor system of the NAB is supported by a post and beam structural system – usually with knee braces (Fig. 12).

Figure 11. Stair at entry hall of Drawing Building

The NAB was constructed during two building campaigns in 1914 and 1918. Phase I of the NAB consisted of a 37 ft. by 75 ft. rectangular two story building. Phase II extended the original building up the hill to the east. Although a larger building, three stories and 37 ft. by 100 ft.; the Addition none the less continues the design and details of Phase I. The plans for Phase II are dated 1918 and refer to this phase as the "Addition." As will be described later, a substantial portion of the Addition was removed in 1930 to make way for the new Engineering Materials Laboratory (now called Davis Hall or Davis Hall North) by then campus architect George Kelham. (see "Davis Hall, Historic Structures Report," SIEGEL & STRAIN, Architects, 7 September 2001)

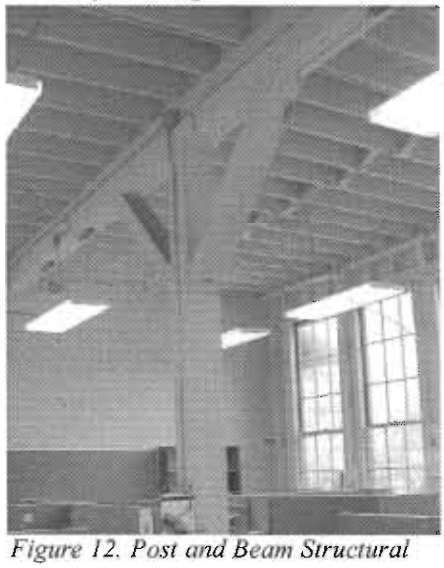


Figure 12. Post and Beam Structural System

III. SITE

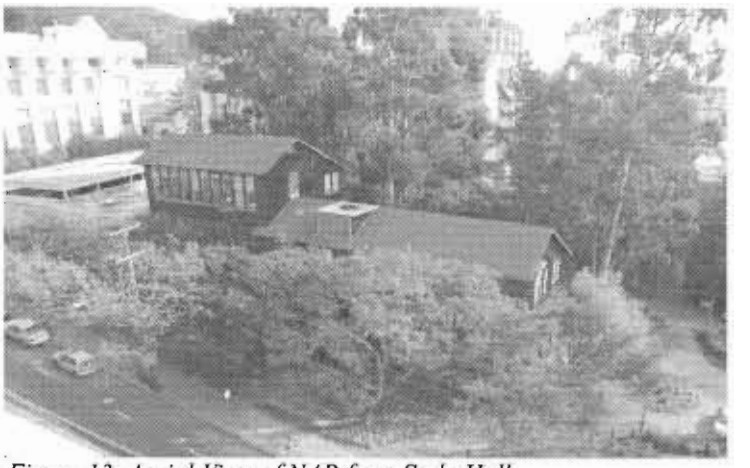


Figure 13. Aerial View of NAB from Soda Hall

The NAB remains in its original location. The long rectangular building steps up once, at Phase II, as it extends eastward up the hill (Fig. 13). It is parallel to and set back from Hearst Avenue to the north. The approximately 40 ft. deep setback is heavily vegetated with California Live Oaks. Several mature eucalyptus trees form a grove on the southern side of the building. Significant landscape elements are described in "Notes on Site Landscaping" – see appendix. The eastern end of the building, severely truncated in 1930, presents a nearly blank shingle wall to the cast-in-place concrete structure of Davis Hall (George Kelham, 1931) barely three feet away. The western end of the NAB faces a recently landscaped area between it and Northgate Hall ("The Ark," John Galen Howard, 1908 with subsequent additions by Howard, Jory & Steilberg, and restoration by Stoller). It is particularly noteworthy that the NAB's front doors face the campus to the south rather than Hearst Avenue to the north. This was the original orientation of the Drawing Building and was further reinforced by the placement of the entrance for the Addition, also on the south façade.

At the time NAB was constructed, the north campus environment was substantially different from what it is today. Early buildings were residential in style and character, even the larger buildings such as Cloyne Court, 2600 Ridge Road at Leroy (John Galen Howard, 1904) and College Hall (Fig. 14), a private dormitory at Hearst and Galey (current site of Parking Structure H) were both covered in brown shingles. The original North campus environment also contained a number of other wooden structures including the Northgate Hall (Fig. 15 - John Galen Howard, 1908), the Home Economics Building (Fig. 16 - demolished to make way for Davis Hall in 1930) and Leuschner Observatory (Fig. 17 - Clinton Day, 1895).

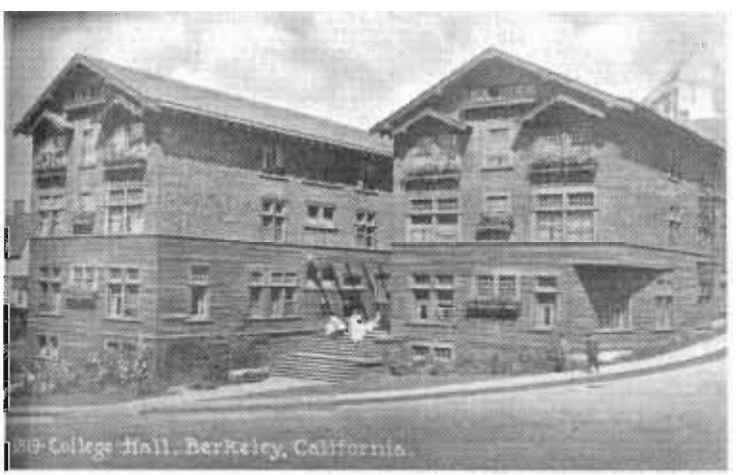


Figure 14. College Hall, (demolished) Hearst Avenue and Galey Road, Berkeley (Historical Postcard)

Today the environs around the NAB include additional historic structures, the Protor Apartment Building, 1865 Euclid (John Galen Howard, 1912), Beta Theta Pi Fraternity, 1879 Leroy (Ernest Coxhead, 1893) and Allenoke, 2601 Ridge Road (Ernest Coxhead, 1903). Some more recent interventions which have dramatically changed the characer of the neighborhood include Davis Hall (George Kelham,1930) and (SOM, 1966), Etchevery Hall (SOM, 1962-64), Soda Hall (Edward Larabee Barnes, 1992-94), Parking Structure H at Gayley Road and Cory Hall.

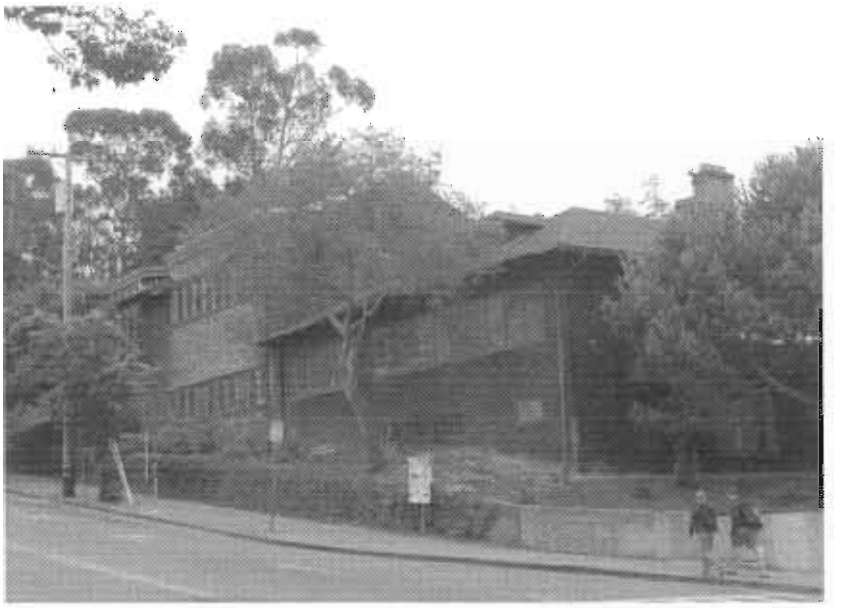


Figure 15. Northgate Hall

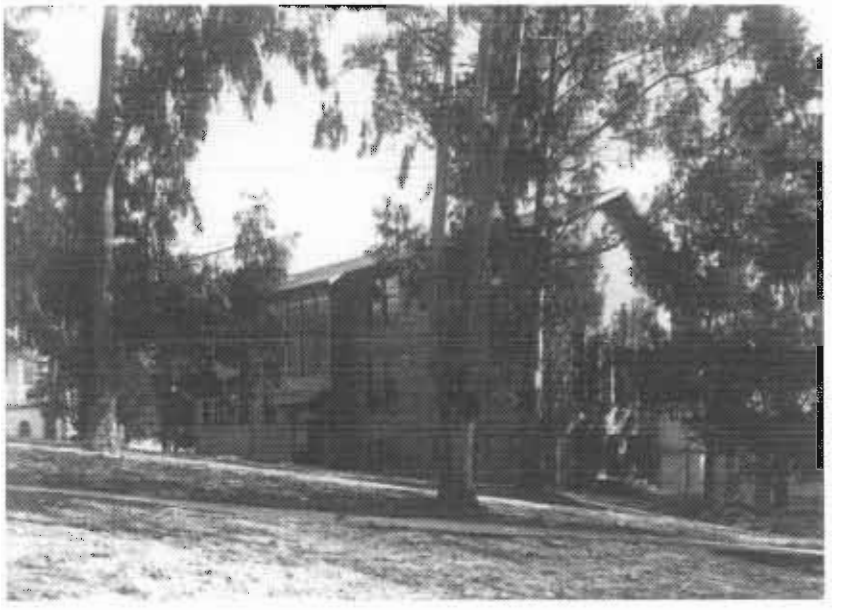


Figure 16. Home Economics Building (demolished) adjacent to Drawing Building (photo: Bancroft Library, UC Berkeley)

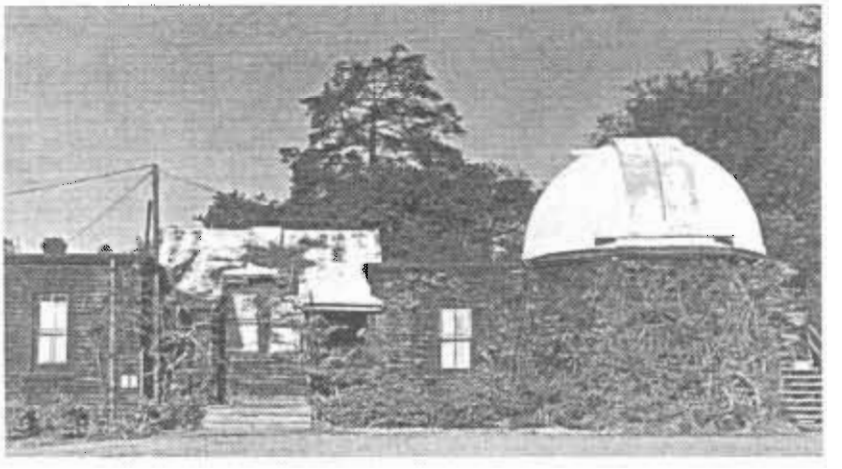


Figure 17. Leuschner Observatory (demolished) (photo: Ehrich, Photographic Guide to UC Berkeley)

IV. EXTERIOR

The *partie* of the NAB as expressed on its facades remains substantially intact. The two and three story north facing facades have large glazed areas which express their use as drawing studios. The south facing facades have smaller windows as befitting the smaller scaled offices and models' rooms which were originally located on that side of the building. Further descriptions will be covered in the discussions of the individual facades. Additional information concerning the physical condition and structural integrity of the NAB is found in the March 20, 1992 *Evaluation of Various Seismic Performance Ratings* by David Logan Messinger and Associates (see appendix).

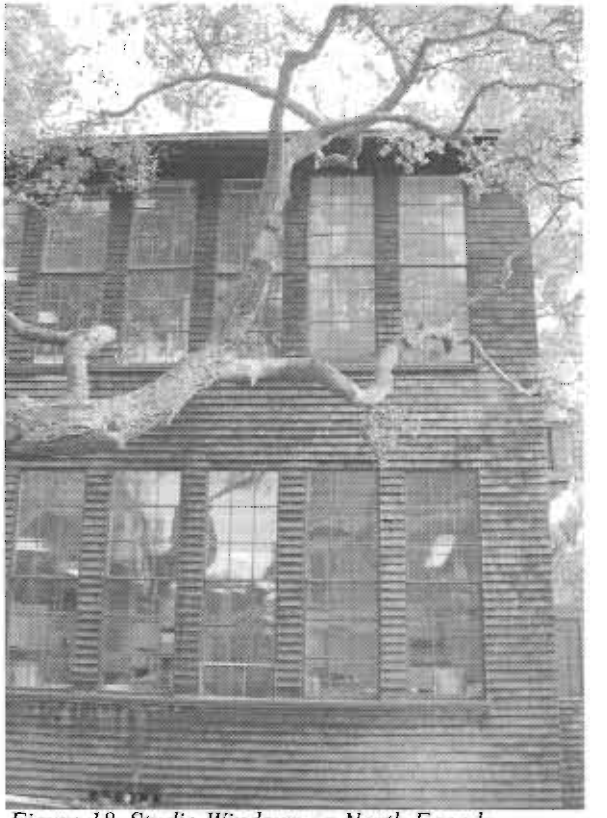


Figure 18. Studio Windows on North Facade

North Façade ***Very Significant, Good Condition***

The façade of the original two story Drawing Building was approximately 72 ft. long. The height of the façade varies from 27 ft. to 35 ft.as the grade drops off to the west. The building contained two large studios (25 ft. by 60 ft. by14 ft. high), one on each floor. Each studio is expressed on the north façade by thirteen tall (3 ft. wide by 10 ft. tall) double hung multi-lite (9 over 9) windows (Fig. 18). These windows are still intact and generally in good condition. The restrooms were placed on intermediate levels off the stair landings. Their location was expressed on the north façade by the use of smaller scale double hung windows. The men's restroom, being in the basement and partially below grade, retains an original pair of smaller multi-lite (3 over 3) double hung windows. The women's restroom (# 107) contains an original double hung window (6 over 6). The custodian's quarters (room # 203) contains a pair of double hung windows (6 over 6). It is unclear whether this was a later alteration or, perhaps, a change made during construction. A crawl space vent located approximately 16 ft. to the east of the original end wall also appears to be original. A fire escape, shed dormer and a wall louver over the women's restroom window have been added (Fig. 19) - other alterations to the north façade have been minimal.

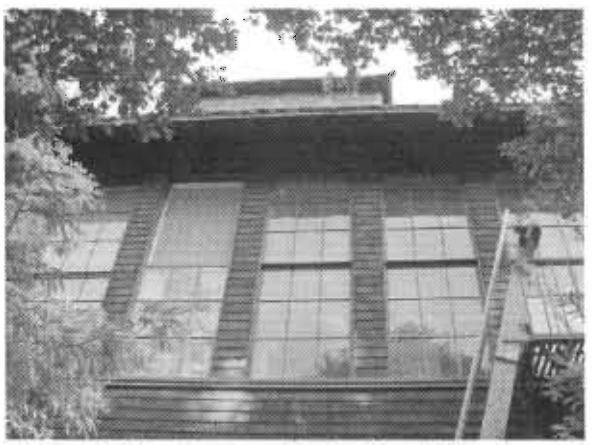


Figure 19. Fire Escape added to North Facade

The façade of the Addition is approximately one half of its original length. Its original façade was approximately 100 ft. long (50 ft. remains) and had twenty windows on each of the upper two levels. The windows of the Addition matched the style and proportions of those in the Drawing Building (approximately 3 ft. wide by 10 ft. tall). The win-

dows were apportioned ten per studio. These studios, at 25 ft. by 48 ft. were slightly smaller than those in the Drawing Building. The façade of the first level of the Addition had ten shorter multi lite (6 over 6) double hung windows which defined the single studio space at that level. A crawl space was located under the eastern most portion of the Addition. Although the Addition lost half its length in 1930 when that portion of the site was cleared for Davis Hall, the NAB retains its stylistic integrity. The only major additive element to the exterior of the Addition has been the metal fire escape.

Figure 20. East Facade showing windows at Room #300

The north façade of the NAB is considered *Very Significant*. Of particular note is the fenestration: the original multi lite double hung wooden sash and hardware, their number and arrangement. The fire escapes and the shed dormer at room # 202 / 202a are *Non-Contributing*.

East Façade ***Non-Contributing, Poor Condition***

The nearly blank east façade presents a curious situation. The wall as it exists today was not originally intended as an exterior façade, does not match the façade it replaced when the Addition was partially demolished and has been further altered – perhaps twice. Currently the two story end wall is blank except for a pair of tall windows on the upper level – in room # 300 – and a single replacement window in room # 209 (Fig. 20). The upper windows were probably relocated from the adjacent north wall when it was demolished in 1930 and, at some later date, have been boarded up from the inside to create wall space for a blackboard in the classroom.

South Façade ***Significant, Fair Condition***

The combined south façades clearly show the division of the NAB into its two components. The two story Drawing Building with a carefully composed, asymmetrical facade occupies the western portion. The adjacent three story Addition presents a somewhat awkward façade with its entry squeezed into the eastern corner. The extreme awkwardness of the entry is due primarily to the fact that the current façade is only one half its original length (Fig. 21).

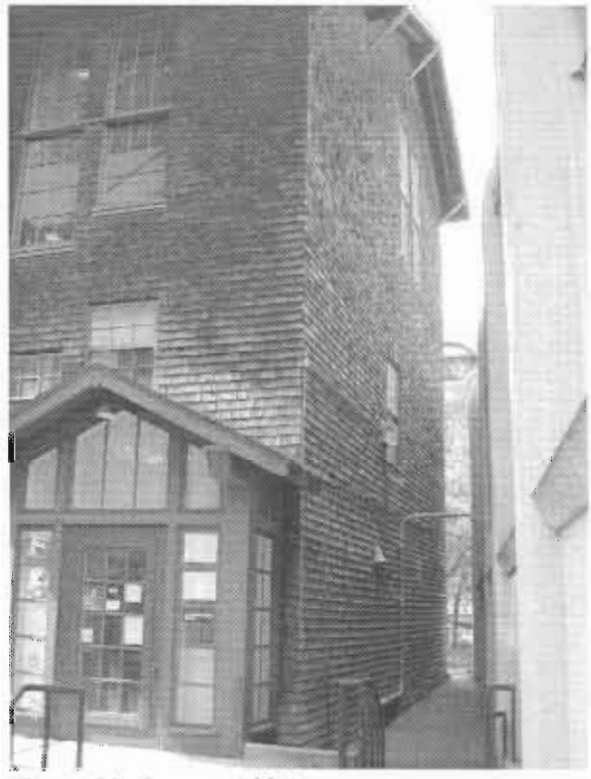


Figure 21. Entry to Addition

The Drawing Building façade is substantially intact (Fig. 22). There is a band of smaller multi lite (6 over 6) double hung windows at the second level. Their arrangement reflects the original plan of the spaces at this level. The first pair of windows lit a corner office (#200b), the next two (out of a grouping of four) lit a second office (#200a), while the last two (out of a grouping of four) lit what was the foyer to the studio. A single window lit the landing at the top of the stair while a pair of tall, triple hung (6 over 6 over 6 - of differing proportions) lit the stair itself. The first floor windows mirror those of the upper floor with the exception of a single window at the east which lights the basement landing which leads to the men's room. Asymmetrical on the facade, but directly under the foyer window, is the entry porch. The projecting gable porch roof covers a single panel door with multi pane side lites. The porch, columns, door and windows are rendered in a simple Craftsman style. Minor changes to this façade have included awnings, surface wiring and a window mounted air conditioner – all of which are reversible. The steps and handrails have also been modified in attempts to comply with handicap access requirements. An odd skylight sits on the south slope of the roof (Fig. 23). It is probably original and once served as the only ventilation to the custodian's toilet room (#203).

Figure 22. Drawing Building: South Facade

All the remaining original elements on the south façade are *Very Significant* and should be retained. Any building restoration should include the removal of the awning, air conditioner and surface wiring. Various utility items should also be more sensitively incorporated. These include utility meters and lock boxes. The condition of the south façade is only *Fair* because it is on the weather side of the building. The roof and wall shingles show signs of serious deterioration. The entry porch itself shows signs of wear and lack of maintenance.

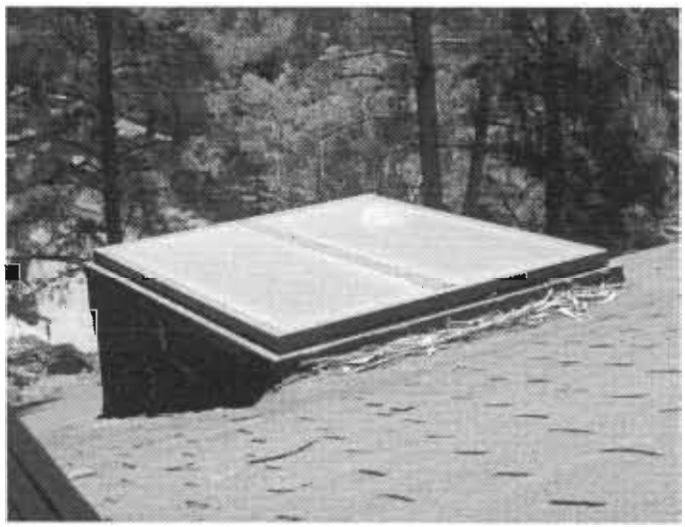


Figure 23. Skylight at Room #203

The south façade of the Addition has incurred greater changes over time (Fig. 24). The original façade was more balanced than what exists today. The windows on the third floor continue to reflect the spaces behind them although a curious change took place on the stair leading from the second to third floors. When the Addition was truncated the run of the stair had to be shortened. This was accomplished by eliminating the landing located at the taller of the two stair windows. The modified stair stringer now crosses in front of the window (Fig. 25 & 30) and is clearly visible in the Janitor's Closet (Room # 208). The fenestration at the ground floor originally consisted of three windows to the left of the entry door. They aligned with the three taller windows immediately above. At the time of the remodeling of the first floor, four additional windows were added to serve new office spaces. The resulting row of seven windows is somewhat ungainly. The entry porch itself is a near match to the entry porch at the Drawing Building although attempts have been made to adapt it for handicap access.

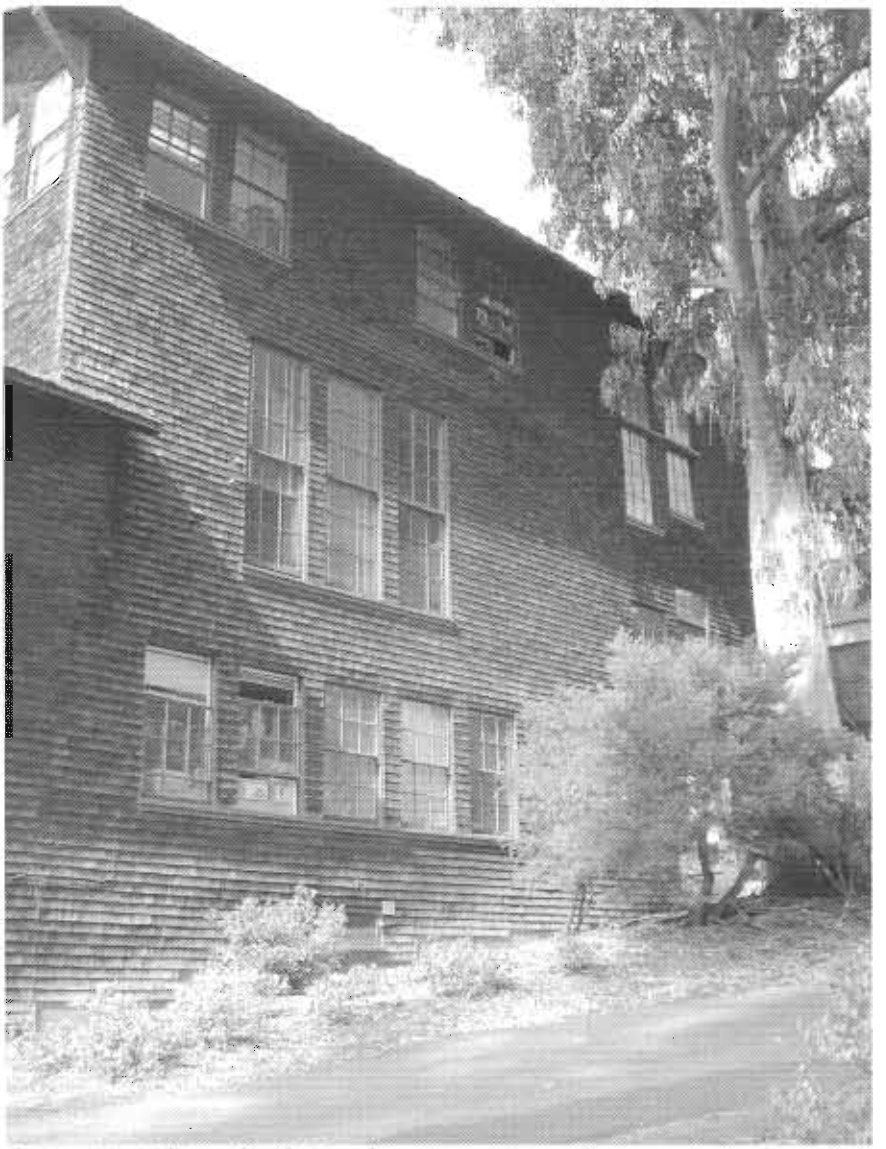


Figure 24. Addition: South Facade

All remaining original portions of the Addition are *Significant* and should be retained, including the original windows and entry porch. The shingles around the porch are severely deteriorated due to water damage and are in need of replacement.

Figure 25. Relocated stair stringer crosses windows

West Façade ***Significant, Fair Condition***

The Drawing Building is almost devoid of decoration inside and out with the notable exception of the Georgian inspired balcony and pedimented French doors on the west façade (Fig. 26). It is worth noting that this façade faces Howard's earlier work; North Gate Hall. These significant architectural elements on the second floor remain intact, but are seriously deteriorated. The first floor originally contained a single multi lite (6 over 6) double hung window which has since been replaced by an entry door to room # 102. This entrance also required a porch and stair for access. While these are not unattractively done, they are somewhat heavier in scale than what Howard himself might have designed and consequently are considered only *Contributing*. The awnings at the corner window are later additions and are *Non-Contributing*.

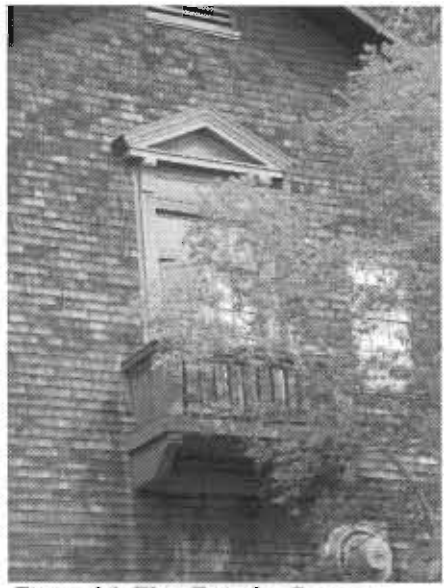


Figure 26. West Facade: Georgian inspired balcony

V. INTERIOR

The sparseness of the interior with its exposed framing at the exterior walls, ceilings and under the stairs reflects both the modesty of the budget and the aesthetic of the Bay Region Tradition which prized an honesty of materials and their expression. The original plan was very utilitarian and clearly expressed on the exterior. The studios were located on the north side of the building and had large expanses of windows to capture the north light. The few small offices and changing rooms for the models were located at the corners of the south façade while circulation space occupied the remainder of the southern exposures. Much of the interior post and beam structural system remains visible. The interior partitions, often covered on one side with 1x4 horizontal sheathing which is similar to the exterior sheathing, divided the studios from the circulation space. The original interior surfaces, both walls and ceilings, were left as unfinished wood (Fig. 27).

Figure 27. Unfinished wood interior

Drawing Building - First Floor

Many changes have been made to the Drawing Building's interior over the course of its lifespan. The interiors, which were once dominated by the spacious drawing studios, have now been subdivided by both temporary office partitions and with full height wood framed walls. The remnants of the larger spaces are still clearly visible

General Observations:

Interior partitions have been greatly altered throughout - both in terms of configuration and finishes. Many unfinished wood surfaces have been painted to increase light reflectivity.

Significant Features:
- Entry porch / lobby
- Original unfinished wood @ walls and ceiling
- Original battleship linoleum floor where extant
- Interior stairway / circulation areas along south wall
- Exposed wall framing system
- Post and beam structure where visible
- Multi lite (6 over 6) sash @ north windows – and other original sash,
- Room 102a appears to retain its original configuration as an office.
- The Stairway configuration is unaltered at the Drawing Building.

Figure 28. Dormer window at Room #202/202a

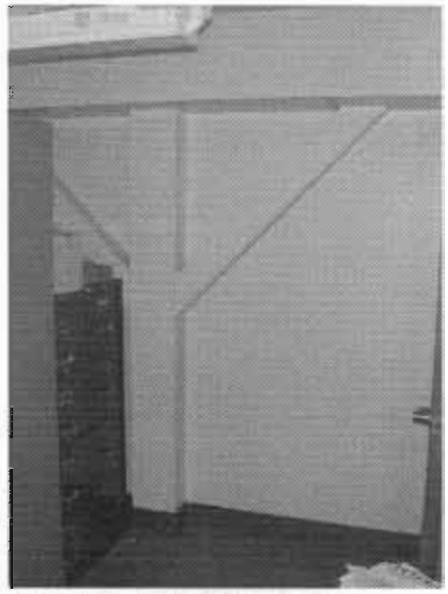


Figure 29. Post and Beam structure with knee brace (Room #112)

Drawing Building - Second Floor

General Observations:
Interior partitions have been greatly altered throughout - both in terms of configuration and finishes. Many unfinished wood surfaces have been painted to increase light reflectivity.

Significant Features:
- Original battleship linoleum floor where extant
- Interior stairway / circulation areas along south wall
- Exposed wall framing system
- Post and beam structure where visible
- Volume of original studio space @ room # 200 and 202 which were originally combined into one space. (dormer @ 202 / 202a not contributing) (Fig. 28).
- Multi lite (6 over 6) sash @ north windows –and other original sash
- Room 200b appears to retain its original configuration as an office.
- Walls surrounding the stairway are in their original location although the balustrade at room 206 has been filled in

The Addition - First Floor

General Observations:
Interior partitions have been greatly altered throughout - both in terms of configuration and finishes. Many unfinished wood surfaces have been painted to increase light reflectivity. Further changes have included the insertion of open office area and lowering of ceiling @ rooms #108-118. None of original interior spaces exist. Stairway from level 1 to level 2 has been removed. Windows on south side significantly altered – 4 windows added.

Significant Features:
- Post and beam structure where visible (Fig. 29).

The Addition - Second Floor

General Observations:
Interior partitions have been greatly altered throughout - both in terms of configuration and finishes. Many unfinished wood surfaces have been painted to increase light reflectivity.
Stairway from level 1 to level 2 removed.
Stairway from level 2 to level 3 altered (abandoned landing visible in janitor's closet # 208) (Fig. 30).


Figure 30. Altered stair landing at Room #208

Significant Features:
- Winding stair to room # 203, the former residence for on site custodian (Fig. 31)
- Skylight in room # 203, the original custodian's toilet / shower (Fig. 23)
- Volume of original studio at room #204
- Sink in room # 204 (Fig. 32)
- Multi lite (9 over 9) sash @ north windows – and other original sash.
- Exposed wall framing system
- Post and beam structure where visible
- Battleship linoleum floor where extant
- Interior stairway / circulation areas along south wall.


Figure 31. Winding stair to Room #203

The Addition - Third Floor

General Observations:
Interior partitions have been greatly altered throughout - both in terms of configuration and finishes. Many unfinished wood surfaces have been painted to increase light reflectivity.
Stairway from level 2 to level 3 altered.

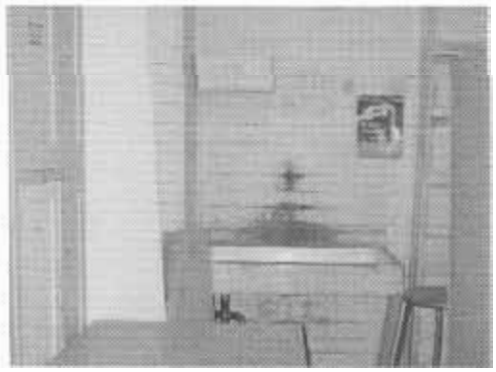


Figure 32. Sink in Room #204

Significant Features:

- The volume of room # 300 is perhaps the best remaining example of the studios that were once the main feature of this building (Fig. 33).
- Multi lite (9 over 9) sash @ north windows – and other original sash.
- Exposed wall framing system.
- Rooms 300A, B and C are in the location of the original office and models' rooms although the demising walls have been relocated.

Figure 33. Room #300

VI. MISSING ELEMENTS

Clearly the most obvious missing element is the eastern 50 ft. section of the Addition demolished in 1930. The second floor contained the single largest studio space of the entire structure. The demolition of this wing is most apparent on the south façade where the entry porch, once near the center of the elevation, now sits awkwardly at the extreme end.

A substantial qualitative loss has occurred wherever the interior finishes of the building – the exposed natural wood structural system – have been painted, covered with wall board or otherwise altered. Much of the beauty and significance of the original building was in its directness and simplicity of materials and finishes. Another qualitative loss occurred where the large open studios have been subdivided into smaller offices.

The removal of the stairway from level 1 to level 2 of the Addition has also compromised the clarity of the circulation of the original building. The relocation of the stairway leading from level 2 to level 3 of the Addition has caused a subtle mis-alignment of the façade and the interior.

VI. CONCLUSIONS

The NAB is a *Very Significant* contributor to the architectural context of the Northside. The NAB along with Northgate Hall and Cloyne Court are surviving remnants of a much larger grouping of buildings which reflected the tenets of the early Bay Region Tradition. Today, NAB, Northgate, Protor Apartments and Beta Theta Pi Fraternity anchor what was once a residential buffer zone between the University and the district of single family homes to the north.

The NAB is also *Very Significant* in the context of the University itself. First, it represents one of the few remaining shingled works by John Galen Howard, the University's first campus architect. Second, its informal character and rustic setting offer something of a foil to the more formal "Glade" in front of Doe Library. Finally, the NAB has served as an incubator to a number of significant University programs.

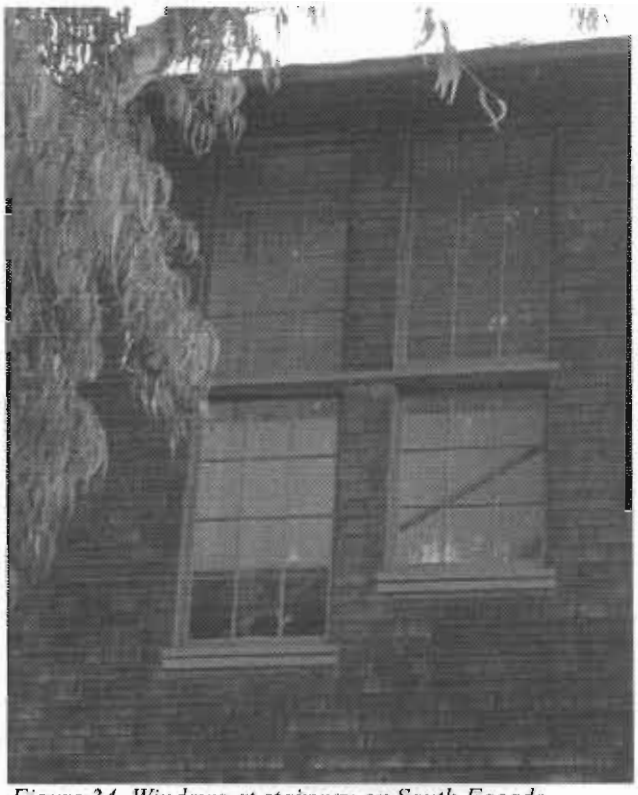


Figure 34. Windows at stairway on South Facade

Its period of significance can be considered to be 1914 to 1930. These coincide with the date of the first construction campaign and the demolition of half the Addition to make way for the construction of Davis Hall.

Many of the specific elements worthy of note and therefore of preservation and restoration have been mentioned in the observations covering individual spaces. Here we will attempt to generalize regarding the NAB's significant features and how they might best be treated.

Exterior:
Three of the building's four facades (north, south and west) are stylistically intact – even after the partial demolition of the Addition in 1930. The most significant is the north façade which is most clearly representative of the NAB's architectural style, building function and period of significance. The tall, multi lite windows are the most significant character defining features of the building. The alterations to this façade – the roof dormer, wall louver and fire escape are considered *Non-Contributing*. The character defining features of the south façade include the original windows and the two Craftsman style entry porches. The west façade's principal feature is the second floor balcony with pedimented French door. The east façade is *Non-Contributing*.

The question of how might the east façade be altered in subsequent building campaigns is a good one. One possibility would be to reconstruct the 50 ft. portion removed in 1931. The drawings for this building exist and its reconstruction could be achieved without conjecture (see plans for original building, Figures: 44 - 45).

By way of contrast to the masonry buildings on the campus, the exterior building fabric – the current wood shingles - are not to be considered as character defining features in and of themselves - shingles were not considered as a permanent siding material and may already have been replaced at least once. What is significant is that a wood shingle exterior with a natural finish be utilized for any proposed renovation. In the process, later alterations such as awnings, window air conditioner and external wiring should be removed. The roofing material should receive similar consideration; original cedar shingle roofing may still exist under replacement layers of roofing and should be replaced in kind if possible.

Interior:

The two most important character defining features of the interior are the volume of the studio spaces and the exposed structural system with a natural wood finish. All efforts should be taken to preserve those original features which still remain and reconstruct those which have been lost. The circulation space which exists along the south side of the building carries with it the next highest level of significance. The relationship between the stairways and their adjacent windows should be retained.

The simple and direct quality of the original finishes – battleship linoleum flooring, unfinished wood, simple stair rail pickets and balusters, straight forward hardware and light fixtures should be reinforced during any future rennovation. The NAB also contains its original steam heat radiators which should be preserved. (see: Steam Heating Plans dated 1918 – Figures: 47 - 48)

Of special note, even though not within the scope of this Historic Structure Report, is the collection of approximately six ships' models (Figures: 35 - 40). which are displayed at various locations throughout the building. While not original to the Drawing Building, they have definitely acquired a significance as part of the Naval Architecture program and should be properly cataloged and preserved.

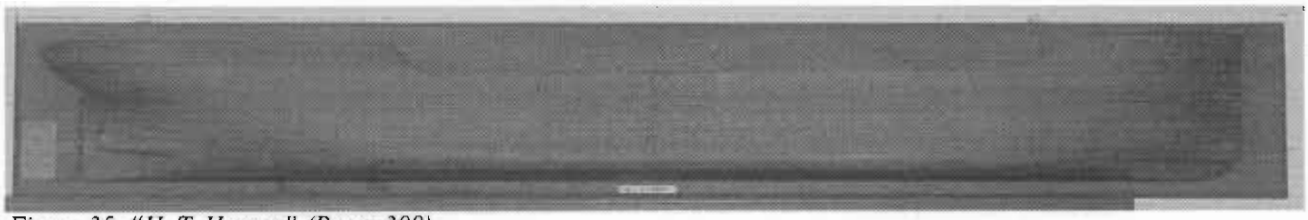


Figure 35. "H. T. Harper" (Room 300)

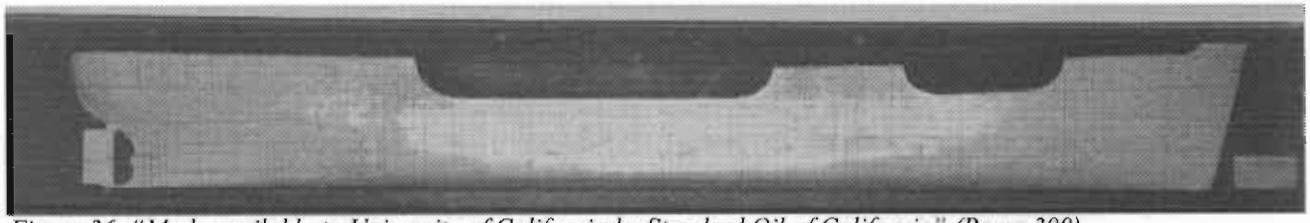


Figure 36. "Made available to University of California by Standard Oil of California" (Room 300)

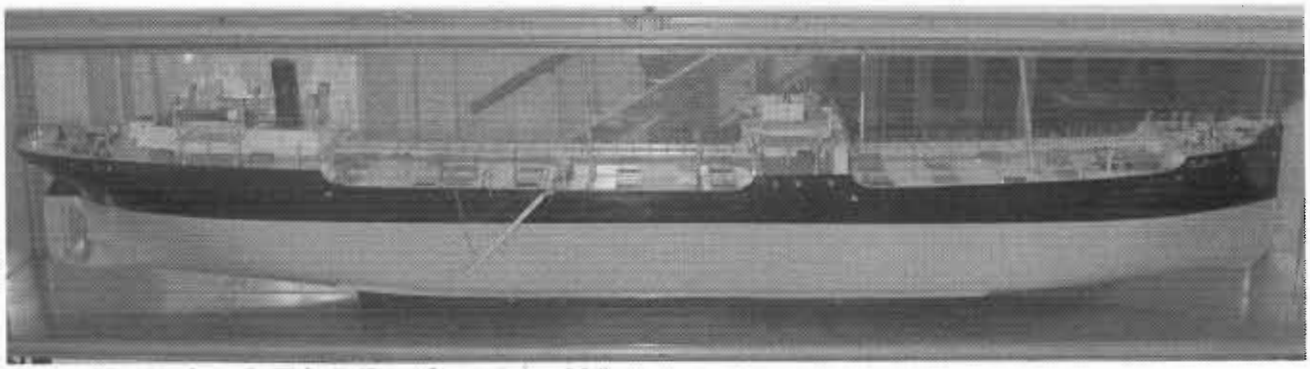


Figure 37. "Herbert G. Wylie" (Corridor at Room 204)

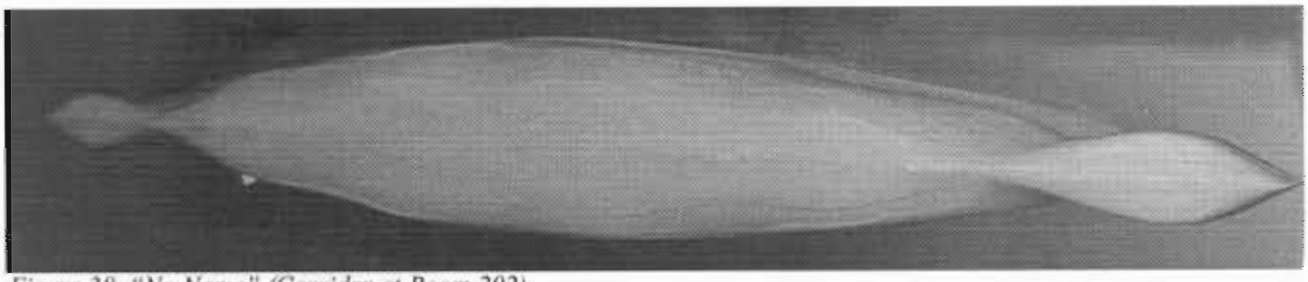


Figure 38. "No Name" (Corridor at Room 202)

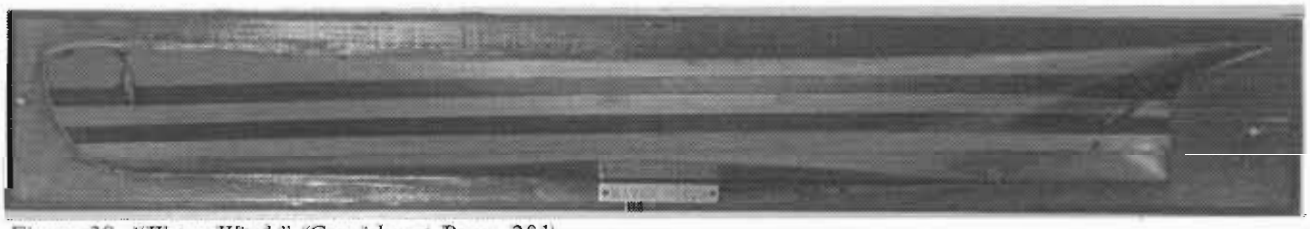


Figure 39. "Water Witch" (Corridor at Room 201)

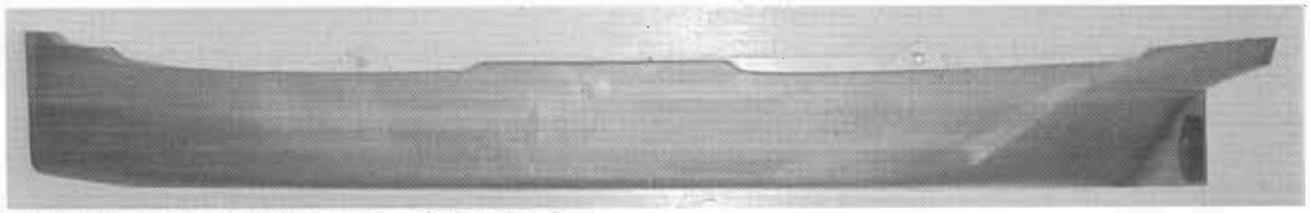


Figure 40. "No Name" (First / Second Floor landing)

EVALUATIVE PLANS

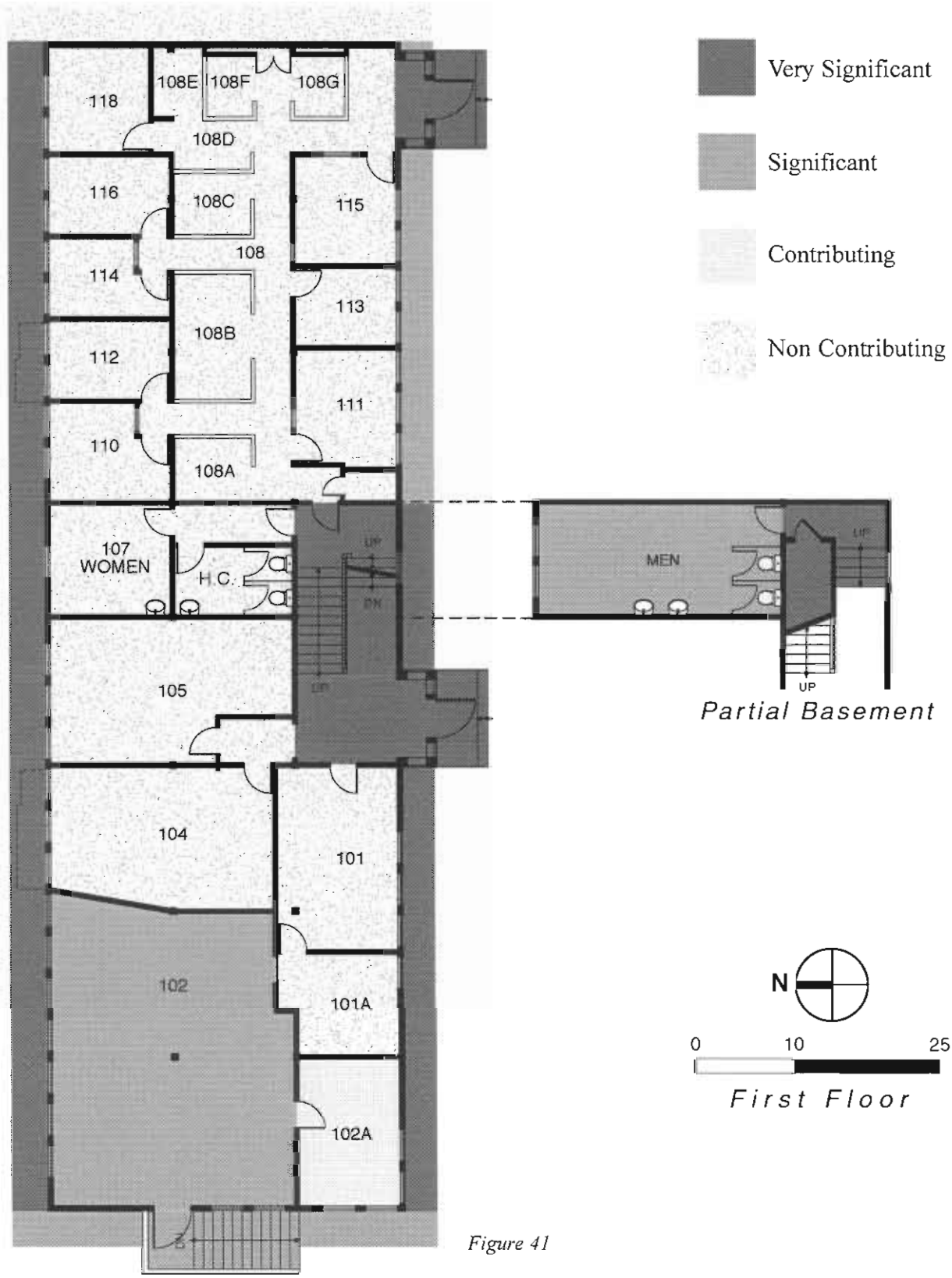


Figure 41

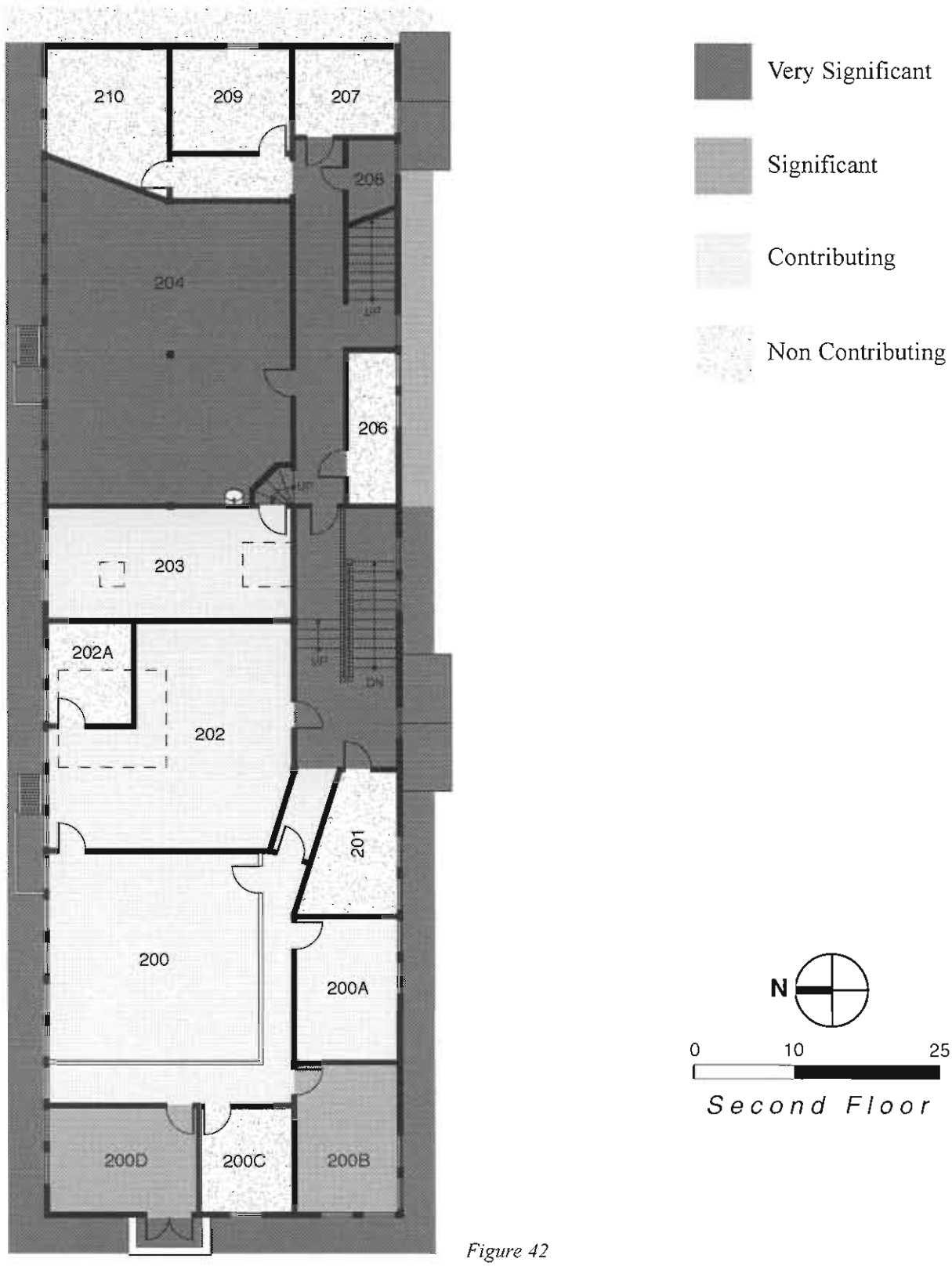
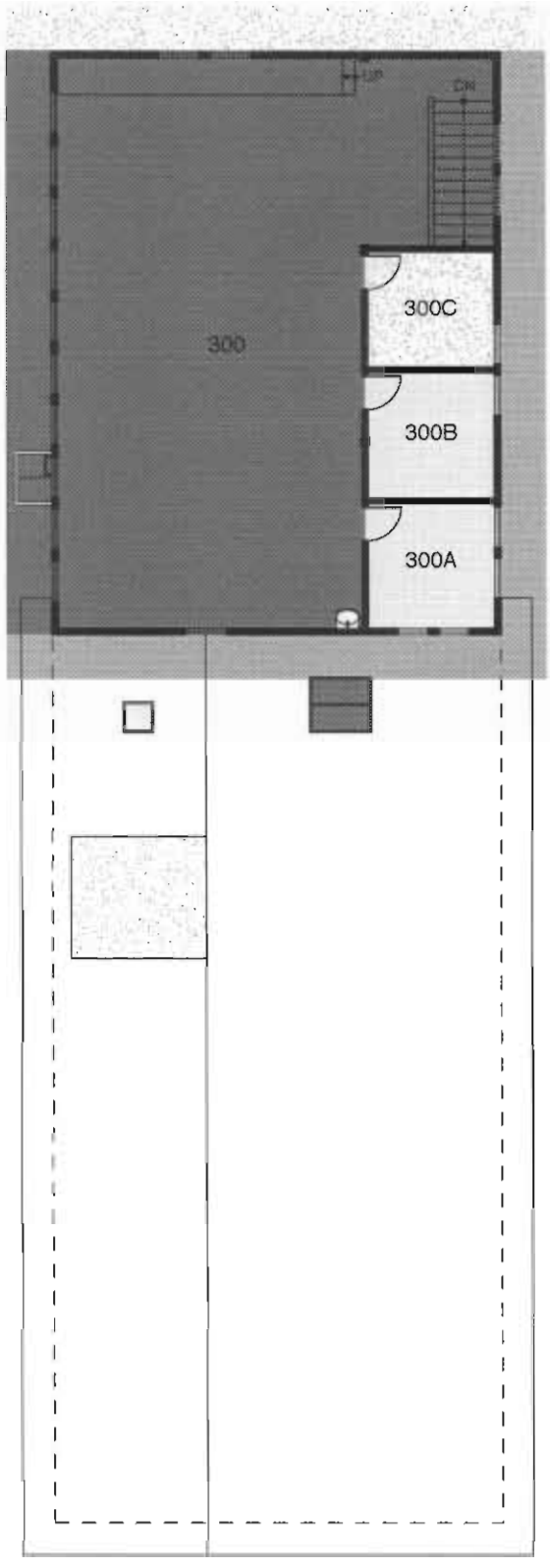

210
209
207
208
204
206
203
202A
202
201
200
200A
200D
200C
200B
Very Significant
Significant
Contributing
Non Contributing
N
0
10
25
Second Floor

Figure 42



Very Significant

Significant

Contributing

Non Contributing

N

0 10 25

Third Floor

Figure 43

EVALUATION CRITERIA

The following criteria were used to evaluate both the exterior and interior elements of Davis Hall during Field Survey work performed during February of 2001. The terminology listed below is utilized throughout the rest of this report to describe the building overall as well as individual elements. A summary of findings is contained on the accompanying Evaluation forms.

I. Architectural / Historic Value

A professional appraisal of the architectural / historical significance of the building and its elements based on a combination of historical research and field observation.

Very Significant (VS)

- The building / element was built during the period of significance.
- It is architecturally significant.
- It is associated with a significant individual or event.
- It contributes significantly to the overall character.
- It remains intact or with only minor alterations.
- It is physically in good to excellent condition.
- It is highly sensitive to change.

Significant (S)

- The building / element was built during the period of significance, but …
- is of secondary importance,
- has been altered,
- is in deteriorated condition,
- was not built during the period of significance, but is architecturally significant,
- is sensitive to change.

Contributing (C)

- The building / element was built during the period of significance, but is not architecturally significant.
- The building / element was not built during the period of significance, but is architecturally compatible with the original building.
- Is less sensitive to change

Non-Contributing (NC)

- The building / element was not built during the period of significance.
- The building / element has been subjected to major additions or incompatible alterations.
- It is incompatible in style, material, scale, character or use with the original building.
- It is in poor to deteriorated or critical condition.
- It is not particularly sensitive to change

II. Condition

A visual appraisal of the current condition of the building / elements.

Excellent (E)	• The building / element is in near original condition.
Good (G)	• The building / element is mostly intact.
Fair (F)	• The building / element is showing signs of wear or deterioration.
Poor (P)	• The building / element is badly damaged, missing, or not functioning.
Unknown (U)	• The building / element is not accessible for inspection.

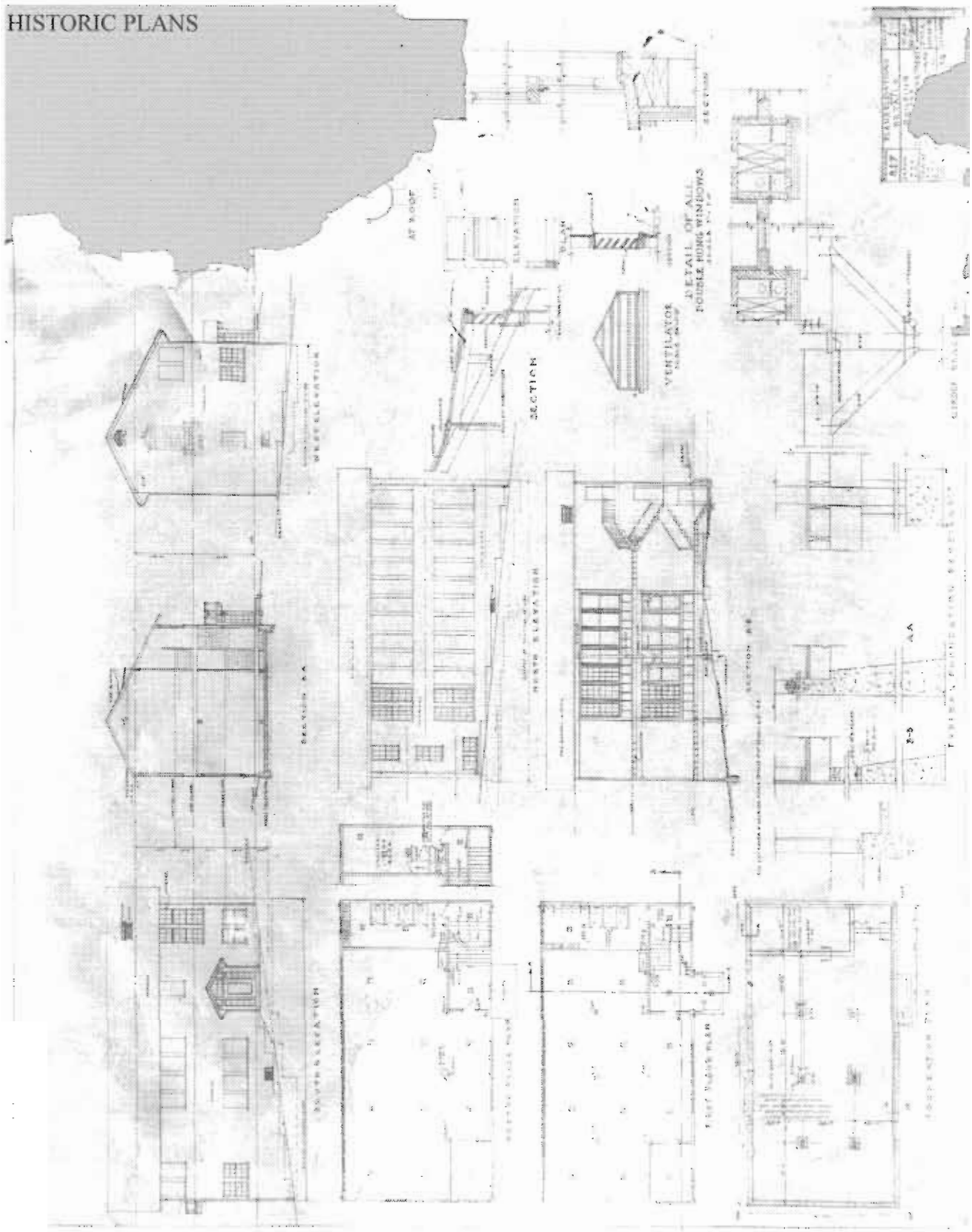


Figure 44. Building for Art Department (JHGH, 1914) Bancroft Library, UC Berkeley

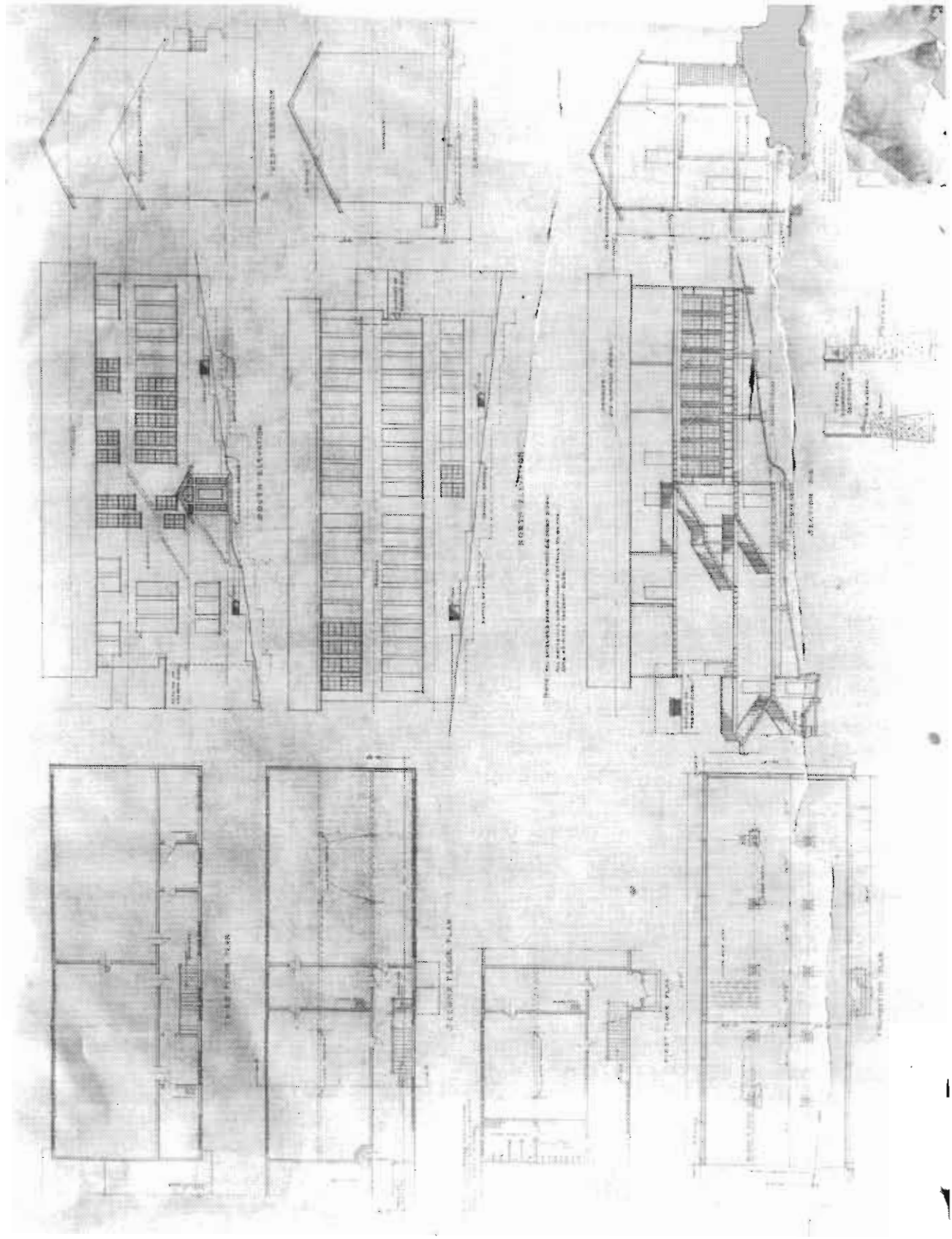


Figure 45. Addition (JGH, 1918) Bancroft Library, UC Berkeley

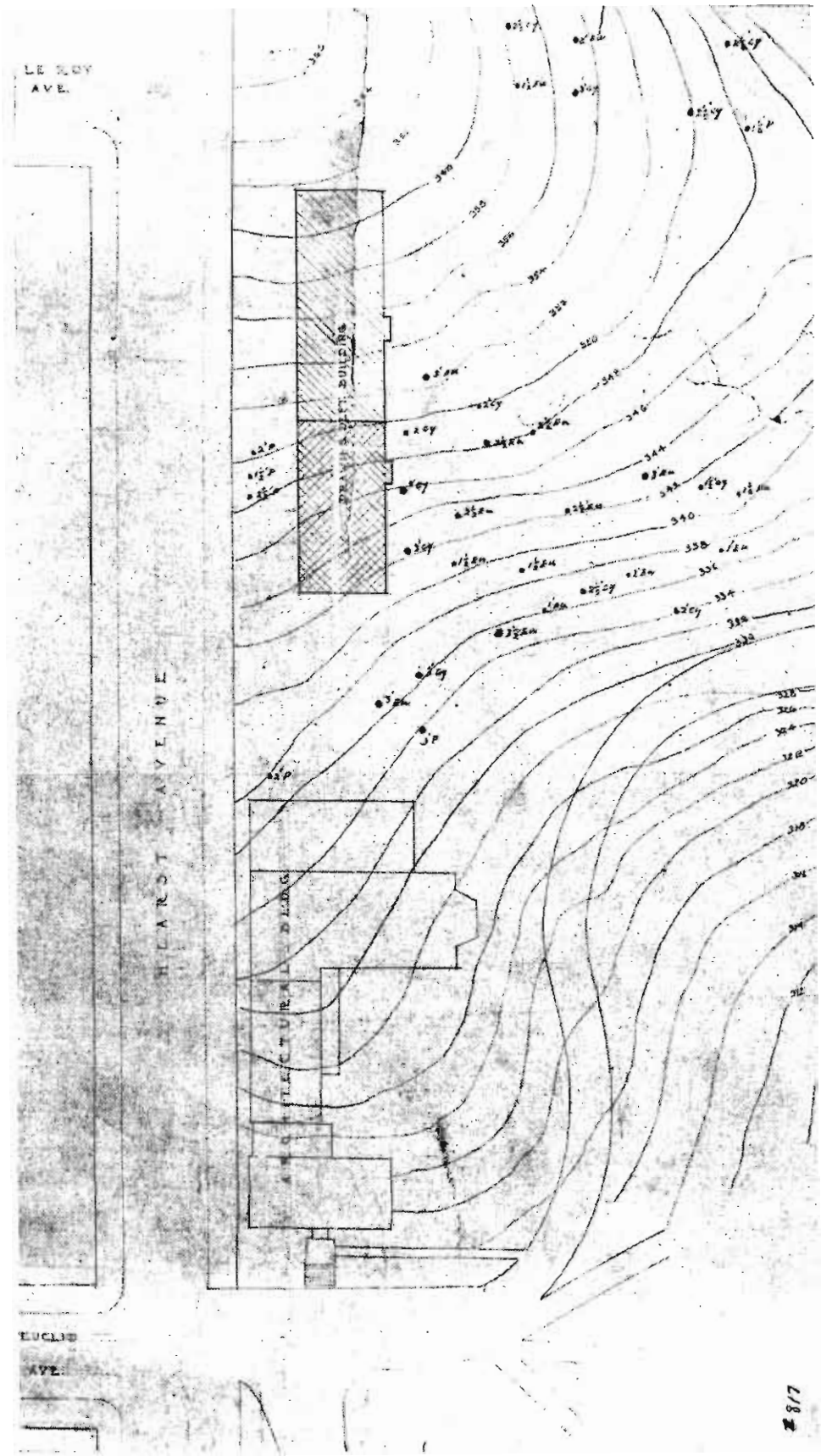


Figure 46. Site Plan (JGH, 1918) Bancroft Library, UC Berkeley

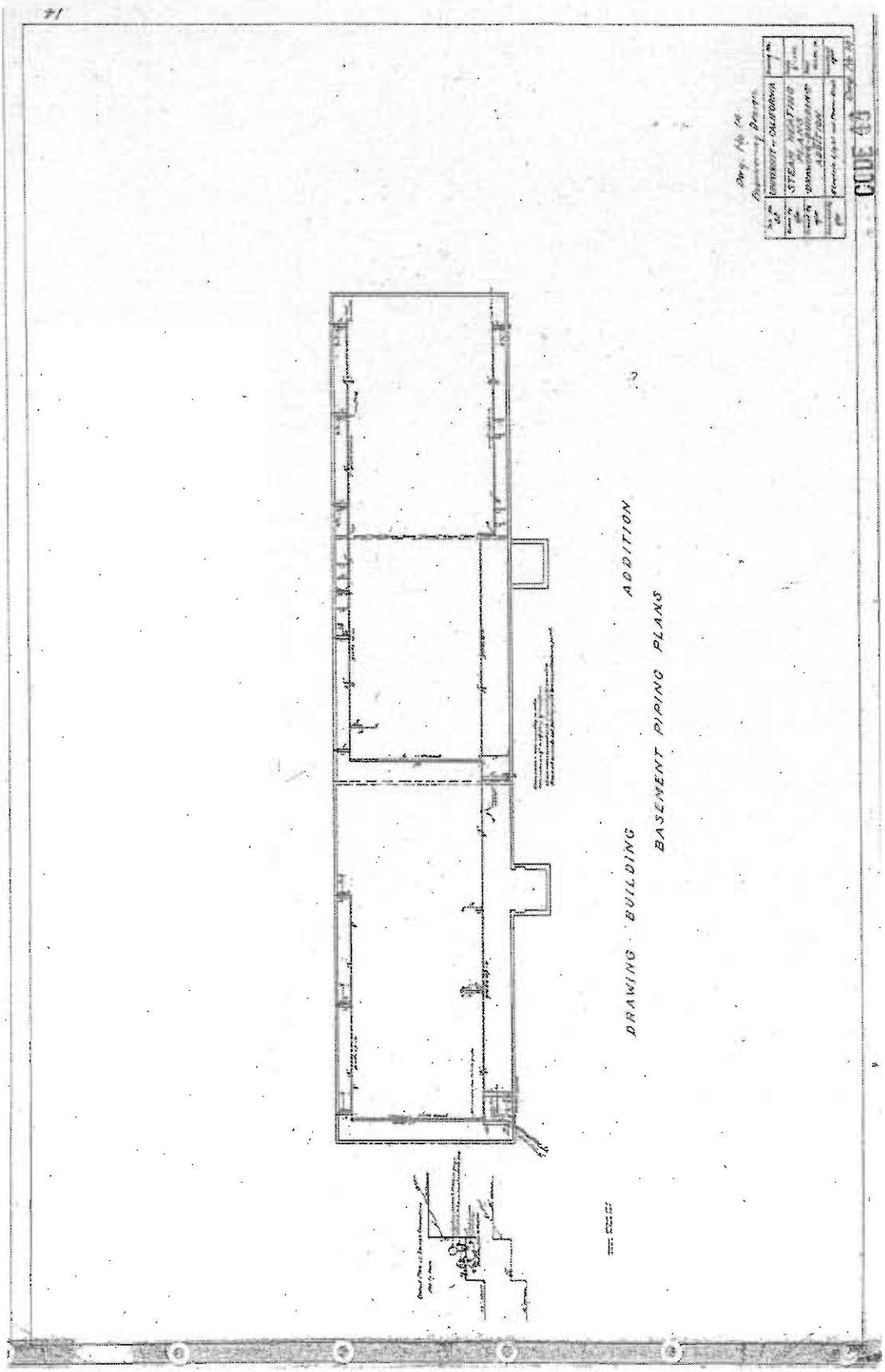


Figure 47. Drawing Building, Steam Heating Plan - Foundation Plan (Capital Projects, Plan Room, UC Berkeley)

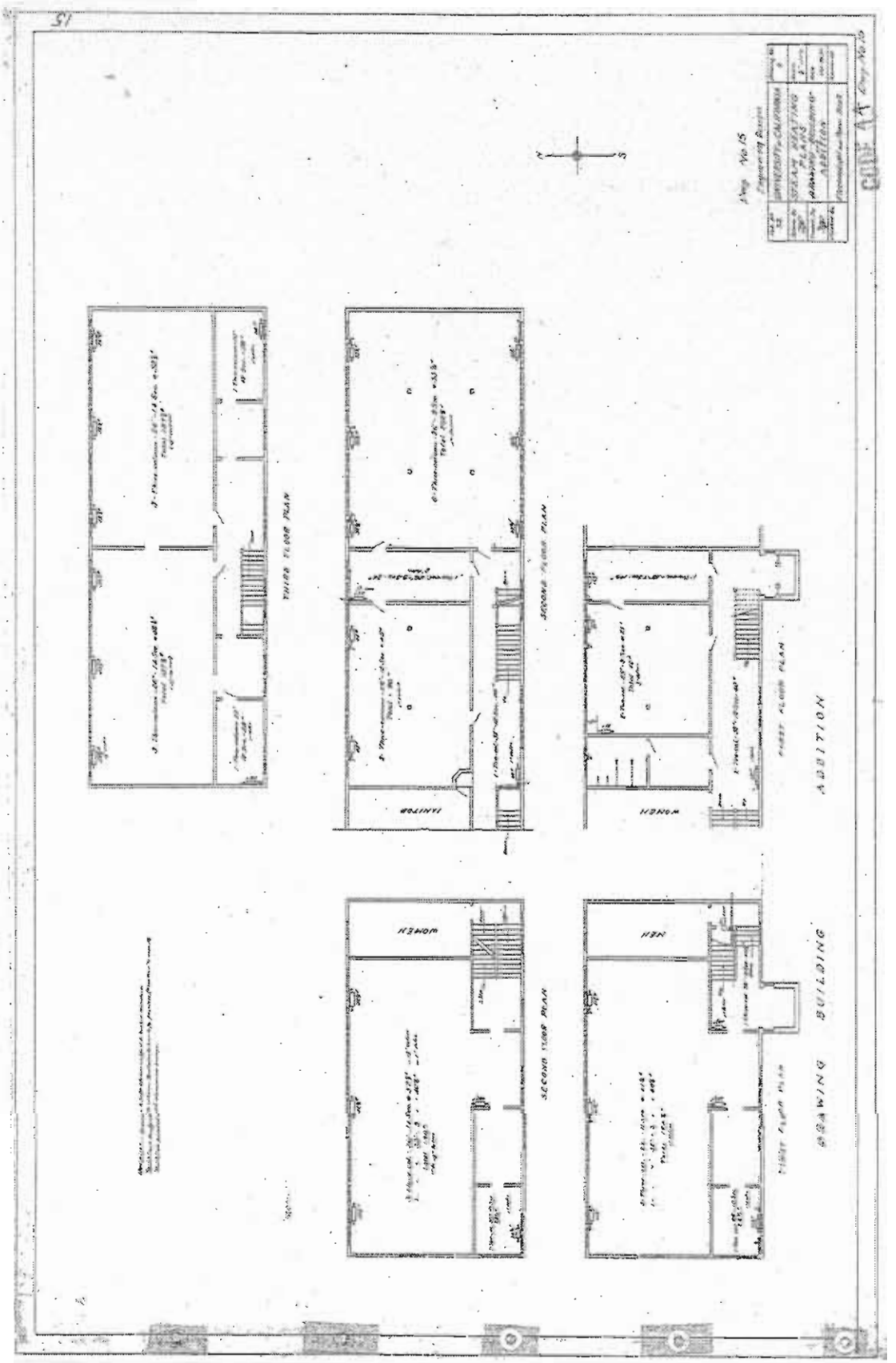


Figure 48. Drawing Building, Steam Heating Plan - Floor Plans (Capital Projects, Plan Room, UC Berkeley)

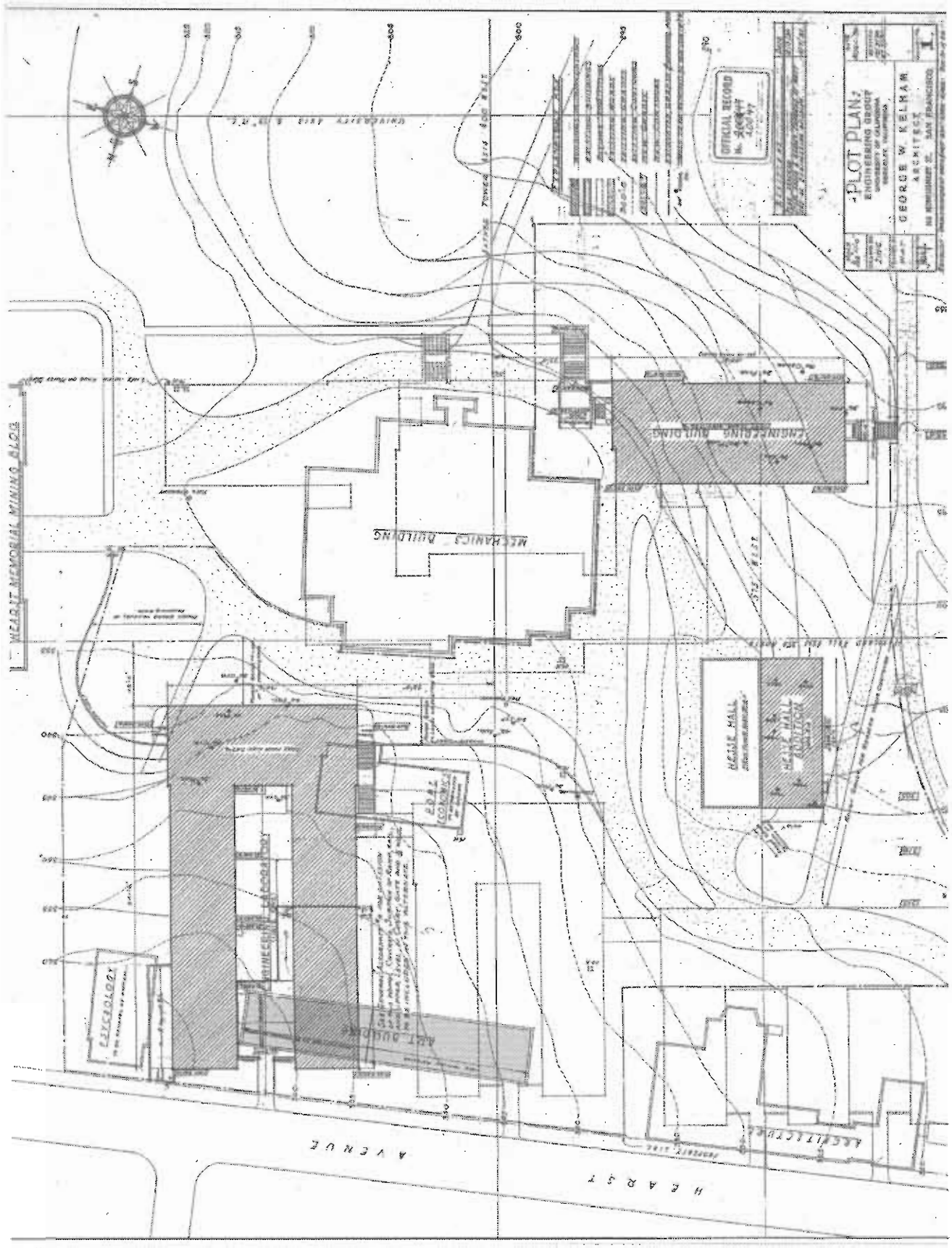


Figure 49. Plot Plan: Engineering Group (George W. Kelham, 1930) Capital Projects, Plan Room, UC Berkeley

MEETING NOTES:

DATE: 13 February 2001
LOCATION: DAVIS HALL, UCB
PROJECT: EIR / Historic Structures Reports:
North East Quadrant Science and Safety Projects
BY: Amy Skewes-Cox (incorporates later annotations by Jim Horner)
ATTENDEES: Jim Horner, Campus Landscape Architect
Amy Skewes-Cox, D. Mandel, Cynthia Servetnick, Lee Ellis

NOTES:

I. DESCRIPTION OF DAVIS NORTH PLANTS (by area on attached map)

1. Three (3) large Eucalyptus globules which Jim Horner says are representative of a "rustic" landscape (mix of eucs., pines, and a minimally improved or maintained understory); "Rustic" = a less maintained such as rustic landscapes on campus (such as Observatory Hill and west of Memorial Stadium); its small size and proximity to plazas does not lend to maintaining this landscape; area "1" also includes three (3) Pinus radiata, one (1) E. lehmanii and a Eucalyptus sideroxylon and an understory of Pittosporum tobira Callistemon sp (bottlebrush), agapanthus africanus, and Hypericum calcyium (St. John's Wort). There are on two E. lehmanii on campus and this one tree may be able to be moved (at considerable expense).

2. Includes two (2) Pinus radiata and one (1) E. sideroxylon.

3. Three (3) Pinus radiata and one (1) Juniperus torulosa; one (1) unidentified eucalyptus.

4. One (1) large E. globules on south entrance to Naval Architecture. (Size plus age = specimen; should be saved if possible as it seems outside of area likely to be disturbed)

5. Three (3) Pittosporum undulatum (Victorian box). These are very tall and multiple branching (about 35' tall) They are notable for their form, size and function and should be considered for preservation. They are not able to be transplanted.

6. West wall of Cory: four (4) Arbutus unedo that may be over 25 years old and about 25' in height; this cluster is notable as a group; has good form and may be unique and should be considered for preservation; one unknown oak species (2 trees ?) in this area may be worth relocating; ivy understory, one (1) Griselinia lucida.

7. One (1) Cononeaster lacteus; one (1) viburnum; one (1) Cratagus phaenopyrum (Washington hawthorne); three (3) Griselinia lucida; one (1) small maple that looks like Japanese maple, but not certain.

8. Eight (8) Quercus agrifolia (specimens due to age, location, group and historical association with Naval Architecture); two (2) Arbutilon hybridus (Chinese lantern shrubs); three (3) very young redwood that appear to have seeded themselves; street trees are four (4) Turkey oak Redwoods and Turkey oaks could be removed. (Note: other street trees on opposite side of Hearst are Liquid amber.)

Other planting on south side of Naval Architecture, abutting the building, consists of clusters of Pittosporum tobira and Raphiolepis indica.

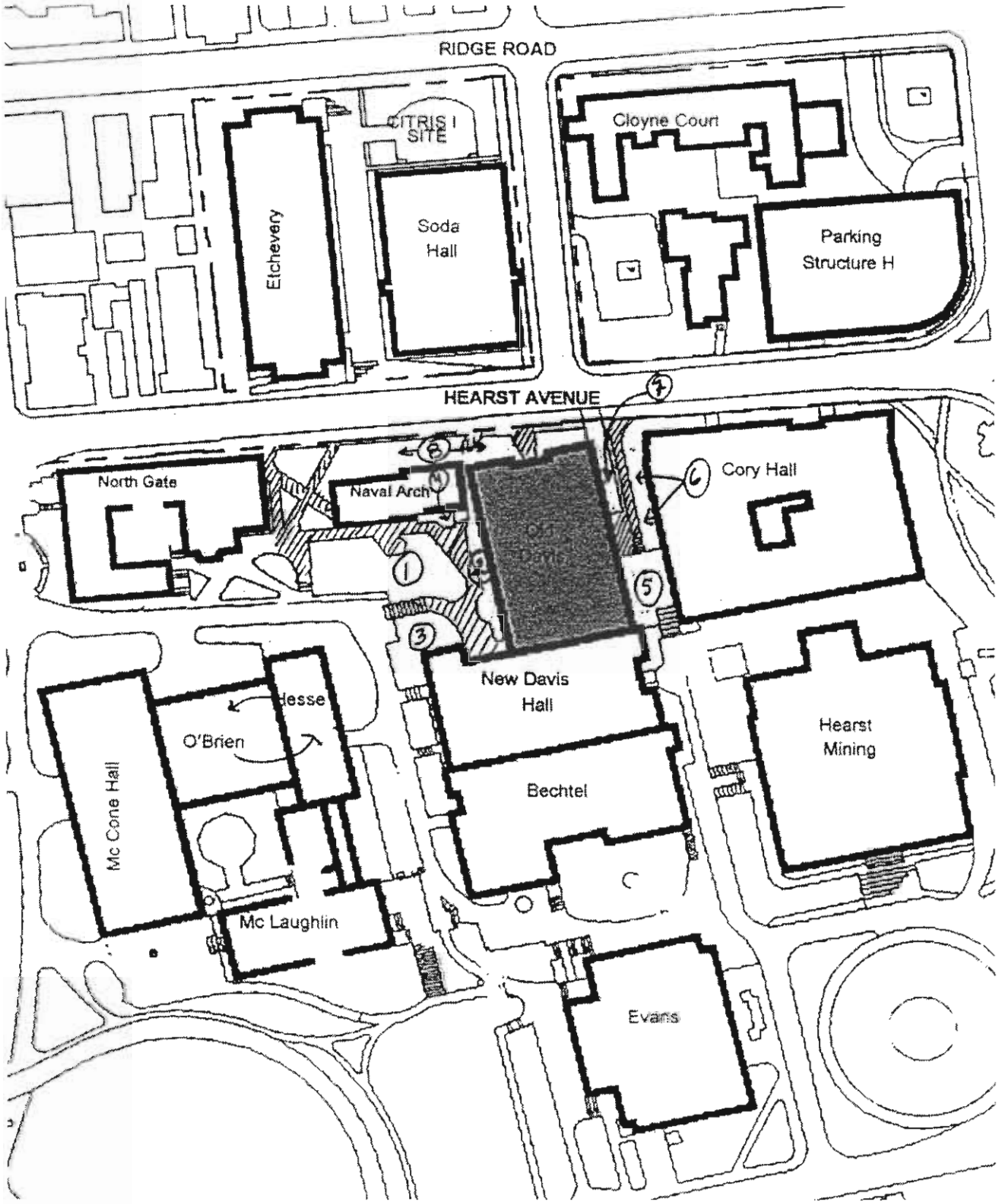


Figure 50. Plan: Description of Davis North Plants

Room #	100 H	*Name/Historic Use*	Entry / Foyer	*Overall Value*	**V S**
Floor #	1	*Current Use*	Entry / Foyer	*Overall Condition*	**F**

Ceiling	unfinished exposed framing
Walls	unfininshed horizontal sheathing / paint
Floors	battleship linoleum / concrete @ basement
Trim	unfinished wood
Doors	single panel wood (original?) w/ sidelights
Hardware	misc
Windows	multi pane sidelights and vestibule - probably original
Lighting	fluorescent and natural
Alterations	paint and bulletin boards on walls
Misc.	misc exposed conduit and electrical equipment @ walls to basement

Recorder BPE
Date 8/17/2001

Room #	101	*Name/Historic Use*	Entry Hall/Foyer	*Overall Value*	**N C**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**

Ceiling	beaver board
Walls	board and batten w/ beaver board
Floors	carpet
Trim	painted wood baseboards
Doors	(1) new solid wood, (1) new glazed
Hardware	new
Windows	(3) 6/6 double-hung
Lighting	(2) fluorescent
Alterations	previously opent to 102 / 104
Misc.	column in room

Recorder BPE
Date 8/17/2001

Room #	101 A	*Name/Historic Use*	Office	*Overall Value*	**N C**
Floor #	1	*Current Use*	Office	*Overall Condition*	**F**

Ceiling	beaver board
Walls	board and batten, beaver board
Floors	carpet
Trim	painted wood baseboards
Doors	(1) glazed
Hardware	misc.
Windows	(1) 6/6 double-hung
Lighting	(1) fluorescent
Alterations	reconfigured out of rooms 102 / 102a
Misc.	

Recorder BPE
Date 8/17/2001

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	102	*Name/Historic Use*	Drawing Studio	*Overall Value*	**S**
Floor #	1	*Current Use*	Office	*Overall Condition*	**F**
Ceiling	beaver board			*Recorder*	BPE
Walls	beaver board, gyp.			*Date*	8/17/2001
Floors	carpet				
Trim	none				
Doors	new exterior door @ west				
Hardware	new				
Windows	(7) 9/9 double hung original windows at north; (2) 6/6 double hung new window at west				
Lighting	natural north light, (7) suspended fluorescent fixtures				
Alterations	original drawing studio included 102 104 105				
Misc.	original columns in center of room				

Room #	102 A	*Name/Historic Use*	Office (off of Drawing Studio)	*Overall Value*	**C**
Floor #	1	*Current Use*	Office	*Overall Condition*	**F**
Ceiling	gyp. board			*Recorder*	BPE
Walls	board and batten, beaver board			*Date*	8/17/2001
Floors	carpet				
Trim	painted wood base boards				
Doors	(1) 5-panel wood door, possibly a relocated original				
Hardware	door knobs, possibly original				
Windows	(4) 6/6 double hung windows in corner, original				
Lighting	natural and new fluor.				
Alterations					
Misc.	original corner office space, original radiator				

Room #	104	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Hispanic Engineers & Scientists Office	*Overall Condition*	**F**
Ceiling	beaver board			*Recorder*	BPE
Walls	gyp. board			*Date*	8/17/2001
Floors	carpet				
Trim	painted wood baseboards				
Doors	(1) new				
Hardware	new				
Windows	(3) 9/9 double-hung, original				
Lighting	natural, (3) fluorescent				
Alterations	original drawing studio included 102 104 105				
Misc.	exposed structural post				

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	105	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Society of Women Engineers/ Office	*Overall Condition*	**F**

Ceiling	painted beaver board
Walls	east-painted 1x horizontal wood siding (possibly original material); west- wall board
Floors	carpet
Trim	painted wood baseboards
Doors	(1) glazed upper panel
Hardware	new
Windows	(3) 9/9 double-hung original
Lighting	(3) fluorescent fixtures
Alterations	original drawing studio included 102 104 105
Misc.	

Recorder BPE
Date 8/30/2001

Room #	107	*Name/Historic Use*	Women's Restroom	*Overall Value*	**NC**
Floor #	1	*Current Use*	Women's Restroom	*Overall Condition*	**F**

Ceiling	gyp board
Walls	gyp board
Floors	tile / lino
Trim	wood
Doors	new
Hardware	misc
Windows	1 original double hung
Lighting	fluor
Alterations	adapted for ADA
Misc.	incorporated both toilet room and sink room

Recorder BPE
Date 8/17/2001

Room #	107 A	*Name/Historic Use*	Closet	*Overall Value*	**VS**
Floor #	base.	*Current Use*	Janitor's Closet	*Overall Condition*	**G**

Ceiling	underside of stair framing
Walls	south- exposed frame; unfinished horizontal 1x siding at others
Floors	concrete
Trim	none
Doors	(1) 5 panel wood door - possibly original
Hardware	standard hardware, original mortise lock set
Windows	none
Lighting	(1) bare bulb
Alterations	exposed heating pipe
Misc.	understair closet

Recorder BPE
Date 8/17/2001

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	107 B	*Name/Historic Use*	Men's Restroom	*Overall Value*	**S**
Floor #	base.	*Current Use*	Men's Restroom	*Overall Condition*	**G**
Ceiling	board			*Recorder*	BPE
Walls	gyp. bd.			*Date*	8/17/2001
Floors	tile				
Trim	wd				
Doors	wd - original (?)				
Hardware	misc				
Windows	two original double hung				
Lighting					
Alterations					
Misc.	some original fixtures				

Room #	108 ABCD	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Open Office	*Overall Condition*	**P**
Ceiling	gyp. board, dropped			*Recorder*	JTP
Walls	gyp. board			*Date*	8/17/2001
Floors	carpet, linoleum tile				
Trim	new baseboards				
Doors	none				
Hardware	none				
Windows	none				
Lighting	new artificial, no natural light				
Alterations	significant subdividing & remodeling, dropped ceiling				
Misc.					

Room #	108 E	*Name/Historic Use*	Office	*Overall Value*	**N.C.**
Floor #	1	*Current Use*	Kitchenette	*Overall Condition*	**P**
Ceiling	exposed mechanical			*Recorder*	JTP
Walls	East wall with original horizontal 1x siding, gyp. board elsewhere			*Date*	8/17/2001
Floors	linoleum tile				
Trim	none				
Doors	none				
Hardware	none				
Windows	none				
Lighting	artificial				
Alterations	significant				
Misc.					

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	108 F, G	*Name/Historic Use*	Entry Hall / Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Reception	*Overall Condition*	**P**

Ceiling	gyp.
Walls	gyp.
Floors	carpet
Trim	new rubber baseboards
Doors	pair of new closet doors
Hardware	new
Windows	none
Lighting	recessed lighting
Alterations	significant subdividing and remodeling, dropped ceiling
Misc.	

Recorder JTP
Date 8/17/2001

Room #	110	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**

Ceiling	gyp. board
Walls	gyp. board
Floors	carpet
Trim	new baseboards
Doors	new
Hardware	new
Windows	(2) 6/6 double-hung (original)
Lighting	natural & fluorescent
Alterations	original drawing studio included 108, 110, 112, 114, 116
Misc.	

Recorder JTP
Date 8/17/2001

Room #	111	*Name/Historic Use*	Stair/Hall	*Overall Value*	**NC**
Floor #	1	*Current Use*	Conference/Library	*Overall Condition*	**P**

Ceiling	gyp. board
Walls	gyp. board
Floors	carpet
Trim	new baseboards
Doors	new
Hardware	new
Windows	(2) 6/6 original double-hung, (1) 6/6 double-hung added @ west end
Lighting	natural, and new recessed lighting
Alterations	office created out of former hallway
Misc.	

Recorder JTP
Date 8/17/2001

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	112	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**
Ceiling	gyp. board			*Recorder*	JTP
Walls	gyp. board			*Date*	8/17/2001
Floors	carpet				
Trim	new baseboards				
Doors	new				
Hardware	new				
Windows	(2) original double-hung				
Lighting	natural and new fluor.				
Alterations	original drawing studio included 108, 110, 112, 114, 116				
Misc.	original column with knee brace @ south wall				

Room #	113	*Name/Historic Use*	Stair/Hall	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**
Ceiling	gyp. board			*Recorder*	JTP
Walls	gyp. board			*Date*	8/17/2001
Floors	carpet				
Trim	new baseboards				
Doors	new				
Hardware	new				
Windows	(1) double-hung original, (1) double-hung added @ east end				
Lighting	natural and new artificial				
Alterations	significant				
Misc.	office created out of hallway				

Room #	114	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**
Ceiling	gyp.			*Recorder*	JTP
Walls	gyp.			*Date*	8/17/2001
Floors	carpet				
Trim	new baseboards				
Doors	new				
Hardware	new				
Windows	(2) 6/6 double-hung (original)				
Lighting	natural and new fluor.				
Alterations	original drawing studio included 108, 110, 112, 114, 116				
Misc.					

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	115	*Name/Historic Use*	Stair/Hall	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**
Ceiling	gyp. board, exposed duct work			*Recorder*	JTP
Walls	gyp. board, some exposed framing			*Date*	8/17/2001
Floors	carpet				
Trim	new baseboards				
Doors	new interior				
Hardware	new				
Windows	(2) new fixed interior windows, (2) double-hung added @ exterior				
Lighting	natural and new fluor.				
Alterations	significant				
Misc.					

Room #	116	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**
Ceiling	gyp. board			*Recorder*	JTP
Walls	gyp. board			*Date*	8/17/2001
Floors	carpet				
Trim	new baseboards				
Doors	new				
Hardware	new				
Windows	(2) 6/6 double-hung (original)				
Lighting	natural & new fluor.				
Alterations	original drawing studio included 108, 110, 112, 114, 116				
Misc.					

Room #	118	*Name/Historic Use*	Office/Storage	*Overall Value*	**NC**
Floor #	1	*Current Use*	Office	*Overall Condition*	**P**
Ceiling	dropped, gyp. board			*Recorder*	JTP
Walls	gyp. board			*Date*	8/17/2001
Floors	carpet				
Trim	rubber baseboards				
Doors	new				
Hardware	new				
Windows	(2) 6/6 double hung (original)				
Lighting	natural & new artificial				
Alterations	significant				
Misc.					

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	200	*Name/Historic Use*	Drawing Studio	*Overall Value*	C
Floor #	2	*Current Use*	Library/Classroom	*Overall Condition*	F
Ceiling	painted gyp. board, w/ roof hatch			*Recorder*	BPE
Walls	1/2 height at corridor			*Date*	8/17/2001
Floors	carpet				
Trim	painted baseboards on wall				
Doors	(2) new				
Hardware	new				
Windows	(5) 9/9 double-hung original				
Lighting	(6) new fluorescent, roof hatch				
Alterations	1/2 height partition added				
Misc.	roof hatch, 2 radiators (one original)				

Room #	200 A	*Name/Historic Use*	Office / model room off studio	*Overall Value*	C
Floor #	2	*Current Use*	Office	*Overall Condition*	F
Ceiling	beaver board			*Recorder*	JTP
Walls	south-gyp. board; plaster at all others			*Date*	8/17/2001
Floors	battleship linoleum (original?)				
Trim	painted wood baseboards				
Doors	5 panel wood door (possibly a relocated original)				
Hardware	new				
Windows	(2) 6/6 double hung, original				
Lighting	natural and new fluor.				
Alterations	original room configuration with relocated doorway				
Misc.	air conditioner inserted in window, sloped ceiling				

Room #	200 B	*Name/Historic Use*	office / model room off studio	*Overall Value*	S
Floor #	2	*Current Use*	Student Office	*Overall Condition*	G
Ceiling	exposed framing, sloped			*Recorder*	BPE
Walls	t&g horizontal plank siding			*Date*	8/17/2001
Floors	carpet				
Trim	none				
Doors	(1) five panel wood door (possibly original)				
Hardware	new				
Windows	(4) 6/6 double-hung corner (original)				
Lighting	natural (corner window) & artificial				
Alterations	relocated door				
Misc.	sloped ceiling				

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	200 C	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	2	*Current Use*	Office	*Overall Condition*	**F**

Ceiling	beaver board
Walls	beaver board
Floors	carpet
Trim	none
Doors	(1) new
Hardware	new
Windows	(1) 6/6 double-hung (original)
Lighting	natural, (1) fluorescent
Alterations	created out of original studio space
Misc.	

Recorder BPE
Date 8/17/2001

Room #	200 D	*Name/Historic Use*	Drawing Studio	*Overall Value*	**S**
Floor #	2	*Current Use*	Office	*Overall Condition*	**F**

Ceiling	beaver board
Walls	homosote at north and west walls; gyp. board at south and east walls
Floors	carpet
Trim	new baseboards
Doors	(2) original 8-lite exterior doors w/ single 4-lite transom above; new door at interior
Hardware	possibly original at exterior doors
Windows	(2) 9/9 double-hung (original)
Lighting	corner office w/ light at two walls, new fluorescent
Alterations	created out of original studio space
Misc.	significance of room stems from doors and windows as original architectural elements

Recorder JTP
Date 8/17/2001

Room #	200 H	*Name/Historic Use*	Hallway	*Overall Value*	**VS**
Floor #	2	*Current Use*	Hallway	*Overall Condition*	**G**

Ceiling	unfinised wood
Walls	unfinished and painted (original) wood
Floors	battleship linoleum
Trim	varies
Doors	varies
Hardware	misc
Windows	(1) original multilite @ south wall
Lighting	fluorescent
Alterations	first to second stair at Addition removed. second to third stair relocated after 1930 demolition
Misc.	ships model in corridor

Recorder BPE
Date 8/17/2001

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	201	*Name/Historic Use*	Foyer/Office	*Overall Value*	**NC**
Floor #	2	*Current Use*	Student Office	*Overall Condition*	**F**
Ceiling	beaver board, sloped			*Recorder*	BPE
Walls	gyp. board			*Date*	8/17/2001
Floors	battleship linoleum (original?)				
Trim	painted wood baseboards				
Doors	(1) new wood door w/ glazing				
Hardware	new				
Windows	(2) 6/6 double hung (original)				
Lighting	natural and fluorescent				
Alterations	created out of original studio space and foyer				
Misc.	sloped ceiling				

Room #	202	*Name/Historic Use*	Drawing Studio	*Overall Value*	**C**
Floor #	2	*Current Use*	Student Office	*Overall Condition*	**F**
Ceiling	painted beaver board			*Recorder*	BPE
Walls	exposed structure, beaver board			*Date*	8/17/2001
Floors	battleship linoleum				
Trim	none				
Doors	misc. (one possible original)				
Hardware	new				
Windows	(3) 9/9 double-hung (original)				
Lighting	natural and new fluorescent				
Alterations	created out of original studio space w/ partial height walls added @ 202a				
Misc.	new dormer / skylight				

Room #	202 A	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	2	*Current Use*	Student Office	*Overall Condition*	**F**
Ceiling	beaver board, ceiling dropped to height of window			*Recorder*	BPE
Walls	beaver board			*Date*	8/17/2001
Floors	battleship linoleum				
Trim	none				
Doors	(1) new				
Hardware	new				
Windows	(2) 9/9 double-hung (original)				
Lighting	(1) fluorescent				
Alterations	created out of original studio space - dormer skylight added				
Misc.	(1) original radiator				

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	203	*Name/Historic Use*	Janitor's Room	*Overall Value*	C
Floor #	2	*Current Use*	Computer Lab	*Overall Condition*	F

Ceiling	plank	*Recorder*	JTP
Walls	n-plank siding, e-plank and homosote; w-plank and homosote; s-plank & homosote	*Date*	8/17/2001
Floors	battleship linoleum		
Trim	new baseboards		
Doors	new		
Hardware	new		
Windows	(2) 6/6 double-hung (original)		
Lighting	natural, new fluorescent		
Alterations	Janitor's shower and toilet removed		
Misc.	(1) skylight, (1) roof hatch - originally for ventilation of shower / toilet		

Room #	204	*Name/Historic Use*	Drawing Studio	*Overall Value*	S
Floor #	2	*Current Use*	Student cubicles	*Overall Condition*	F

Ceiling	exposed framing	*Recorder*	BPE
Walls	homosote, t&g plank	*Date*	8/17/2001
Floors	carpet		
Trim	wood baseboards		
Doors	(1) five panel wood (possibly original)		
Hardware	new		
Windows	(8) 9/9 double-hung (original)		
Lighting	natural and new fluor.		
Alterations	created out of original studio space		
Misc.	column in space, sink in corner (orig?), (N) drawing lockers, hexagonal walls in corner (1918?.)		

Room #	206	*Name/Historic Use*	Open Landing	*Overall Value*	NC
Floor #	2	*Current Use*	Office	*Overall Condition*	F

Ceiling	wall board	*Recorder*	BPE
Walls	wall board, masonite wainscoting	*Date*	8/17/2001
Floors	battleship linoleum (possibly original)		
Trim	none		
Doors	(1) five panel wood door (possibly a recolocated original)		
Hardware	(n) lock, old mortise knob- not original		
Windows	(2) 9/9 double-hung (original)		
Lighting	natural and (2) new fluor.		
Alterations	former landing, turned into office		
Misc.			

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	207	*Name/Historic Use*	Hall	*Overall Value*	**NC**
Floor #	2	*Current Use*	Graduate Office	*Overall Condition*	**F**

Ceiling	beaver board
Walls	planks at east wall; gyp. board elsewhere
Floors	linoleum tile- not original
Trim	wood moldings and baseboards at north and south walls
Doors	possibly a relocated original
Hardware	possibly original
Windows	(1) double hung (original)
Lighting	natural, (1) fluorescent
Alterations	conversion of hallway into office space
Misc.	relocated radiator, lots of exposed piping and conduit

Recorder JTP
Date 8/17/2001

Room #	208	*Name/Historic Use*	Possible under-stair closet	*Overall Value*	**S**
Floor #	2	*Current Use*	Janitors Closet	*Overall Condition*	**F**

Ceiling	exposed underside of stair
Walls	exposed framing
Floors	misc. patches of battleship over wood planks
Trim	none
Doors	blind door
Hardware	possibly original
Windows	(1) 6/6 double-hung (original)
Lighting	natural
Alterations	(n) east wall, possibly open space originally
Misc.	important space because it reveals changes to the building over time

Recorder JTP
Date 8/17/2001

Room #	209	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	2	*Current Use*	Office	*Overall Condition*	**F**

Ceiling	exposed joists (+/- 14' high)
Walls	homosote, beaver board, t&g
Floors	battleship linoleum
Trim	wood baseboards
Doors	(1) new
Hardware	new
Windows	(1) 9/9 double-hung (relocated original window?)
Lighting	natural and new fluorescent
Alterations	created out of original studio space
Misc.	original radiator

Recorder BPE
Date 8/17/2001

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	210	*Name/Historic Use*	Drawing Studio	*Overall Value*	**NC**
Floor #	2	*Current Use*	Office	*Overall Condition*	**F**

Ceiling	exposed joists (+/- 14' high)
Walls	homosote, beaver board, t&g
Floors	battleship linoleum
Trim	wood baseboards
Doors	(1) new
Hardware	new
Windows	(2) 9/9 double-hung at north wall, original
Lighting	natural and new fluorescent
Alterations	screated out of original studio space
Misc.	original radiator

Recorder BPE
Date 8/17/2001

Room #	300	*Name/Historic Use*	Drawing Studio	*Overall Value*	**VS**
Floor #	3	*Current Use*	Graduate Student Office	*Overall Condition*	**F**

Ceiling	beaver board
Walls	beaver board at altered walls; 3" wood plank siding at original walls
Floors	new carpet, some original battleship linoleum at stairs - platform @ black board (1930?)
Trim	new
Doors	new
Hardware	new
Windows	(10) 6/6 double-hung at north & south walls (original); original center pivots at stairs (3Wx4H)
Lighting	abundant natural north light, new fluor.
Alterations	black board over (2) relocated windows (1930) in east wall
Misc.	(3) radiators, ship models, exposed 1 3/4" x 5 3/4" framing

Recorder JP/BPE
Date 8/17/2001

Room #	300 A	*Name/Historic Use*	Office (off of Drawing Studio)	*Overall Value*	**C**
Floor #	3	*Current Use*	Graduate Office	*Overall Condition*	**F**

Ceiling	beaver board
Walls	exposed framing at exterior walls, beaver board at new walls
Floors	battleship linoleum
Trim	new
Doors	new
Hardware	new
Windows	(4) 4/4 double-hung corner (original)
Lighting	natural, new fluor.
Alterations	added partitions
Misc.	1 original radiator

Recorder JTP
Date 8/17/2001

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Room #	300 B	*Name/Historic Use*	Foyer (off of Drawing Studio)	*Overall Value*	**C**
Floor #	3	*Current Use*	Student Office	*Overall Condition*	**F**

Ceiling	beaver board (sloped)	*Recorder*	BPE
Walls	gyp. board (horizontal), exposed 2x6 at exterior walls (with diagonal brace)	*Date*	8/17/2001
Floors	battleship linoleum		
Trim	new rubber baseboards		
Doors	new		
Hardware	new		
Windows	1/2 of a pair of 4/4 double-hung (original, other half is in 300B)		
Lighting	natural and new fluor.		
Alterations	created from hallway / foyer		
Misc.	sloped ceiling, radiators (relocated)		

Room #	300 C	*Name/Historic Use*	Hallway	*Overall Value*	**NC**
Floor #	3	*Current Use*	Graduate Student Office	*Overall Condition*	**F**

Ceiling	beaver board	*Recorder*	JTP
Walls	exposed framing at exterior walls, beaver board at interior	*Date*	8/17/2001
Floors	battleship linoleum (original?)		
Trim	new baseboards		
Doors	new		
Hardware	new		
Windows	1/2 of a pair of 4/4 double hungs (original, other 1/2 is in 300B)		
Lighting	natural and fluorescent		
Alterations	interior partitions		
Misc.	radiator (possibly original, relocated)		

VALUE: **VS**: Very Significant **S**: Significant **C**: Contributing **NC**: Not Contributing
CONDITION: **E**: Excellent **G**: Good **F**: Fair **P**: Poor (significantly altered)

Form No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

RECEIVED
JAN 28 1991
CURRENT PLANNING

1 NAME

HISTORIC Drawing Building

AND/OR COMMON
Naval Architecture Building

2 LOCATION

STREET & NUMBER University of California

__NOT FOR PUBLICATION

CITY, TOWN Berkeley __ VICINITY OF

CONGRESSIONAL DISTRICT

STATE	CODE	COUNTY	CODE
California	06	Alameda	001

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	X PUBLIC	__OCCUPIED	__AGRICULTURE	__MUSEUM
X BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	X EDUCATIONAL	__PRIVATE RESIDENCE
__SITE	PUBLIC ACQUISITION	ACCESSIBLE	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	X YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		__NO	__MILITARY	__OTHER:

4 OWNER OF PROPERTY

NAME Regents of the University of California

STREET & NUMBER
2200 University Avenue

CITY TOWN Berkeley __ VICINITY OF

STATE California 94720

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE
REGISTRY OF DEEDS, ETC Alameda County Courthouse

STREET & NUMBER
1225 Fallon Street

CITY TOWN Oakland

STATE California 94612

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
none

DATE

__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR
SURVEY RECORDS

CITY, TOWN

STATE

7. DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
X EXCELLENT	__DETERIORATED	X UNALTERED	__ORIGINAL SITE
__GOOD	__RUINS	__ALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Drawing Building is situated on the northern edge of the University of California, Berkeley, campus near the intersection of Hearst and Euclid Avenues. The site which directly adjoins the Architecture Building (1906) slopes gently up hill to the east along Hearst Avenue. The long dimension of the building lies on an east west axis above the Architecture Building and together the two buildings present a unified shingle street scape along Hearst Avenue. This architectural enclave surrounded by its foilage of mature euclyptus, oak, poplar and pine trees forms one of the few remaining rustic environments on the University campus.

The Drawing Building is in excellect condition for a structure of its age and type. It measures approximately 40 feet by 120 feet, being architecturally an unusually fine pragmatic realization in wood frame post and beam construction sheathed in unstained cedar shingles. The form of the building consists of a two story western portion stepping up one-half level with the slope of the site to a three story eastern portion. The roof is gabled with a ridge slightly offset to the north giving greater height to the studio windowed north wall.

The northern wall, designed to give the interior spaces maximum lighting, is dominated by a nearly continuous expanse of multiple-paned double-hung sash grouped in the western portion of the facade in two rows of thirteen each and in the eastern portion in three rows of ten, manifesting the large studio spaces for which the Drawing Building was built. This impressive expanse of glass is interrupted only in the center of the facade where several smaller individual windows reflect the lavatories and janitorial rooms within.

In contrast with the expansive glazing of the studios along the northern length of the building, the fenestration on the southern facade in its irregular pattern of shapes and placements reflects such uses as small offices, stairways and halls. Also placed within the south wall are two handsome and identical entrances, one at the eastern end and the other at the juncture where the two story portion of the building meets the three story portion. The entrances are projected from the facade under classic gabled roofs and enclosed on three sides with heavy wood frames and glazed panels.

A third entrance distinguishes the short western facade reached from a short flight of outside steps. Although this entrance itself is without detail, it is magnificently enhanced overhead by a protruding Georgian Revival pediment adorning a small parade balcony on the second floor above. It is interesting to note that this balcony mirrors a smaller parade balcony diagonally on the parallel facing wall of the adjacent Architecture Building.

The interior post and beam structure of the Drawing Building has been reinforced with knee braces in acknowledgement of the great extent of window area in the north wall. The posts are spaced in regular intervals and are exposed throughout. Another characteristic of the building, one shared with its site

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	X ARCHITECTURE	X EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
__1700-1799	__ART	__ENGINEERING	__MUSIC	__THEATER
__1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION
X 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES

BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

ARCHITECTURAL:

Although John Galen Howard is best known for the formal classically derived buildings which dominate many areas of the University of California, Berkeley, campus and were the stylistic outgrowth of his training at the Ecole des Beaux Arts, he did a handful of superb designs which place him firmly in the woodsy mannerist regional mode known as the Bay Area Tradition. The Bay Area Tradition is not so much a style as a highly self-conscious method of combining local vernacular technology and imagery with fragments of architectural fashions current at the time; this creates a complex series of cross-cultural visual references. The Bay Tradition has not been continuously present, but has been a cyclically recurring design philosophy. It evolved in the early 1890's in the work of designers a generation older than Howard: Ernest Coxhead, Bernard Maybeck, A.C. Schweinfurth, Willis Polk and others. It reappeared in a deliberately anti-heroic manifestation in the late 1920's in the work of William Wurster and his students and associates: Garder Daily, Mario Corbett, Joseph Esherick, etc.; the work of Charles Moore and William Turnbull, Esherick Homsey Dodge and Davis, Richard Peters and the AGORA group represent a distinct third phase of this tradition. Most of these figures from the second and third phases of the Bay Area Tradition were either students or faculty at the University of California; Howard's Architecture Building and Drawing Building have been important both visually and philosophically in their work.

The Drawing Building displays both the various design sources and the forthright acceptance of complex or contradictory programme requirements, which are the distinctive concerns of the Bay Area Tradition. The utilitarian forms of the north wall derived from the early industrial forms of the Eastern Seaboard; their sheathing in natural-finish shingles is both humanizing and contradictorily rustic. In formal terms the north wall's function is strictly public: it defines the street and creates a dignified (but non-monumental) image appropriate to an institutional structure. The south wall, which is the campus side, the side seen and used by students themselves, is casual, informal, even homey. The north side reveals the regular and repetitive studio spaces; the south side's irregularily sized and placed windows hint at the complex series of variegated spaces which serve them and which function as a connector between the regular, almost formal elements and the irregualr, sloping site. The ridge line is not centered but is placed closer to the street; this allows a larger scale conforming to the street on the building's north side and lower walls enhancing the more residential qualities of the south side. There are stylistic references to such diverser styles as the Georgian Revival and the craftsman bungalow. The building is thus a series of seemingly contradictory things:

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Draper, Joan Elaine: John Galen Howard and the Beaux-Arts Movement in the United States, Masters Thesis, University of California, Berkeley, 1972

Gebhard, David: A Guide to Architecture in San Francisco and Northern California, Santa Barbara, Peregrine Smith Press, 1973

Howard, John Galen: Building for Drawing Department; Plans, elevations and details, October 1913 (University of California, Berkeley, Archives)

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY .11

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	10	562810	4191000
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

University of California, Berkeley, campus, within area bounded by Hearst Avenue on the north, Northgate Hall (Architecture Building) on the west, Hesse and O'Brien Halls on the south, Davis Hall to the east and south east.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

Lesley Emmington — 30 August 1976

ORGANIZATION — DATE

City of Berkeley, Landmarks Preservation Commissioner — 653-8543

STREET & NUMBER — TELEPHONE

195 The Uplands

CITY OR TOWN — STATE

Berkeley — California 94705

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE — DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

GPO 892-453

4

evidenced in the entries and stairways where it is contrasted with the non-bearing partitions smooth clad in stained fir tongue and grove siding.

Prior to 1930, the Drawing Building extended another studio length of two floors toward the east. This section was removed in 1930 for the Engineering Materials Laboratory (1931). A third entrance, on the west facade, was added by 1930, replacing a window area. Over the years some of the studios within the building have been comfortably partitioned to accomodate to curriculum and departmental changes. Currently the Drawing Building is used for the Offices of the College of Engineering Interdisciplinary Studies Center and Department of Naval Architecture, making good use of the studio spaces for drafting purposes, and is called the Naval Architecture Building.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
RECEIVED
DATE ENTERED

it is formal and casual, sophisticated and straightforward, urbane and rustic; institutional and residential. As fascinating as the building is, it must not be considered alone, but in connection with the Architecture Building immediately to the west which shares many of its design attributes. The two buildings together create an atmospheric street scape, a welcoming entrance and symbolic gesture from "gown" to "town" which is much stronger than either building separately. This relationship was clearer at the time the buildings were built; the hilly streets to the north of campus were lined with Berkeley's well-known brown shingled houses (many designed by Maybeck, by Coxhead, and by Howard himself). Howard's wood vernacular campus buildings were an effective transition in scale, form and materials between the city and the University. That pressures for higher density and institutional growth have effectively obliterated these neighborhoods and deprived the Drawing Building and Architecture Building of their ambassadorial function is distressing; but it has perhaps increased their importance as a remnant of an intellectual and aesthetic milieu whose architectural legacy has largely disappeared.

John Beach, Architectural Historian

EDUCATIONAL:

It would be difficult to find other buildings on the Berkeley campus richer in important historical associations than the Drawing Building. Here pioneering departments were established, major new scholarly and artistic approaches developed, and generations of distinguished teachers and their students found a congenial environment.

Drawing Building (and Architecture Building): Cradle of the School of Architecture 1914-1923. The Drawing Building was built in connection with the founding of the School of Architecture in 1913/14 by which Berkeley played its part at the fore-front of the general movement to raise professional, technical and artistic standards of American architects. The great model was the École des Beaux-Arts in Paris. John Galen Howard had been a brilliant student at the École and was the founder of both the Department of Architecture (1903) and the newly autonomous School of Architecture which offered a two year graduate program leading to a professional degree. University architect, teacher, and leader within the Educational Committees of the American Institute of Architects and the Society of Beaux-Arts Architects, Howard guided the new School of Architecture within a short time to a position rivaling that of the older schools at Harvard, MIT, Columbia and Cornell. In line with the Beaux-Arts emphasis on excellence in drawing and drafting, a space was needed for a curriculum which, according to early catalogues, included art anatomy, copying from models of classical antiquity,, graphostatics, stereotomy, descriptive geometry, and perspective in the media of pencil, water color and pen and ink. The Drawing Building was thus designed by Howard accordingly as a workshop for training the new generation of architects (continued on next page)

in the techniques and standards of the movement. Trained under Howard's tenure from 1903 to 1927 were many of the most important Bay Area architects - John Hudson Thomas, Henry Gutterson, John Reid, William Wurster and Vernon DeMars.

Something of the building's impact on students of architecture can be judged by a statement of the eminent Bay Area architect Joseph Esherick who, asked to list in print "America's proudest architectural achievements" for the July 1976 AIA Journal, singled out the Drawing Building and the Architecture Building for special praise.

Birthplace of the Art Department, 1923-1930. The Drawing Building was to play a different but once again important role with the establisment of the autonomous Art Department in 1923. This was a milestone because it broadened the educational range of the Berkeley campus and generated a pioneering approach to the teaching of art. The first chairman was Eugen Neuhaus, well known landscape artist in the California Decorative Style, noted author, and brilliant teacher. Another major California artist and influential teacher who worked in the Drawing Building was Worth Ryder under whose guidance a new system of teaching was evolved emphasizing fundamental priciples of visual design independent of any historical style.

Engineering Design Building, 1930-1951. Still adaptable to new needs, the Drawing Building now began to serve the growing engineering community with its complex of buildings in this part of the campus. Despite the removal of the east end of the building in 1930, the superb north-lighted studios continued to house drafting functions. The building became a technical training center for both both architects and engineers.

First Home of the Department of City and Regional Planning, 1951-1964. Yet again the Drawing Building sheltered a new and innovative department when T.J.Kent moved the recently founded Department of City and Regional Planning there in 1951. This department was one of the first in the nation to consider architectural planning on a urban and regional scale. Professor Kent has described the departments first permanent home as a "handsome, functional and emotionally rewarding environment". He adds, "I have nodoubt that the 150 or so graduates of the University's city planning program who worked with us in the building during these years, 1951-1964, were influenced in major ways by the quality of this superb John Galen Howard building".

Continuation of a Tradition, Naval Architecture Building, 1964-present. True to what by now was its tradition the Drawing Building in 1964 became the seat of a new department, Naval Architecture. Once again, like its predecessors in the building, this group of scholars formulated a novel approach. Based on a more

theoretical orientation than the earlier practical/trade tradition, Naval Architecture at Berkeley revolutionized the field.

In summary, not only is the Drawing Building a distinguished and rare example within the work of John Galen Howard's Bay Tradition mode, it has been also the scene of the work of major architects, artists, engineers and city planners, and time and again the home of new innovative departments whose approaches have radiated from the Drawing Building to set the standards in the fields.

Loren Partridge, Department of Art History
Randonph Starn, Department of History
University of California, Berkeley

CITY OF BERKELEY
DEPARTMENT OF HOUSING AND DEVELOPMENT

(APPLICATION REQUESTING DESIGNATION FOR LANDMARK STATUS)

Ordinance 4694-N.S. Individual Landmark $50.00 * Historical Disc. $100.00
UC-Berkeley Campus *fee not applicable when Council initiates designation

1. Name of Property Naval Architecture Building Survey Code No. _____
2. Building Naval Architecture Bldg. Site _____ Open Space _____
originally known as Drawing Arts Building
3. County Alameda 4. City Berkeley
5. Street See attachment A for location
6. Vicinity (if rural) _____
7. Present Occupant UC-Berkeley: Building presently houses 4 activities, Department of Naval Arch., Interdisciplinary Studies Center, student lounge ar offices
8. Present Owner Regents of the University of California Contact person: Ira S. Fink, 469 University Hall, Berkeley 94720 642-3150
9. Original Owner (if known) Regents of the University of California
10. Date of Construction 1914 11. Style Bay Area Tradition
12. Architect/Builder John Galen Howard 13. Original Use UC-Classrooms (Drawing Arts Building)
14. Historic Value: national x state x county ___ city x neighborhood ___
(or none) known
see attached
15. Architectural Value: national x state x county x city x neighborhood x none ___
see attached
16. Notable Garden or Landscaping: yes x no ___ Courtyard and Trees
Blue Gums planted between 1870 and 1880, Calif. Black Oaks in a group in this area are onl
specimens on campus
17. Photographs contemporary x historical _____
dates September 1976 dates _____
photographer John Beach photographer _____
repository LPC Archives repository _____
18. Bibliography: Published Sources "Guide to Architecture of San Francisco and Northe California" by Gebhard et al
Public Records _____
Interviews _____
Other _____
19. Block Number ___ 20. Lot No. ___ 21. Lot Size: Frontage _____
Depth _____
22. Current Zoning Status R-5 23. Adjacent Property Zoning Status C-1, R-5 (Hillside)
R-5 is described as High Density Residential. "Hillside" merely means consideration given
24. Present Use: residential (single family ___ multiple ___) office x hilly terr
store ___ public x other x specify classrooms, student loung
_____
25. Adjacent Property Use (check all that apply): residential (single family ___ multiple x) office x store x public x
other x specify classrooms, meeting rooms, library

26. Assessed Property Value: current_____ 5 yrs. ago____ 10 yrs. ago_____

University of California property is not assessed

27. Present Condition of Property: exterior: excellent_x_ good__ fair__ poor__
interior: excellent__ good_x_ fair__ poor__
grounds: excellent_x_ good__ fair__ poor__

28. Property Endangered: yes_x_ no___ source, if yes UC seeks to demolish in ord to construct an engineering center on this site

29. Potential New Property Uses: see above

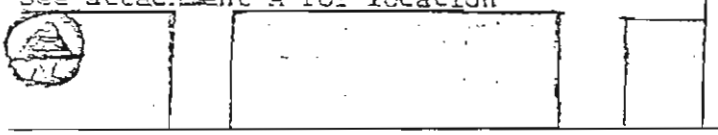
30. History: Briefly descirbe the historical significance of this propert

See attached

31. Architecture: Briefly describe the appearance of this structure. Indicate notable features as well as later alterations and changes. Include notable landscaping or natural features.

See attached

32. Location Map (nearest intersection or permanent landmark)



See attachment A for location

33. Photograph (Contact print fro 35mm black and white photo)

34. Additional Comments or Continuation of Previous Answers

There is also attached (Attachment B), a listing prepared by the University, of the structures presently on the UC-Berkeley campus designed by Mr. Howard. Of these 23 structures, only 4 are in the same style and scale as the Naval Architecture Building. The 4 count includes Naval Architecture.

35. Recorder: Name Shirley Dean Title Councilmember

Address Berkeley City Hall Date 9-14-76

Berkeley, Ca 94704

John Galen Howard, (...) architect of the Drawing Arts (now Naval Architecture) Building, was an Eastener who had received his architectural training at the Massachusetts Institute of Technology and at the Ecole de Beaux Arts in Paris. He worked in the finest and most fashionable architectural offices of his day: for McKim, Mead and White, for H.H. Richardson, and for Richardson's successors Shepley, Rutan and Coolidge. Howard's opportunity to settle in California came when he was offered the job supervising implementation of the University of California campus plan. Howard's own proposal had placed fifth in Phoebe Apperson Hearst's international competition for a campus plan, but Emile Benard, the first prize winner, refused to leave his native France and Howard was chosen to replace him.

Howard's best known buildings (UC's Hearst Mining Building, Doe Library, Wheeler Hall and various residential and commercial structures in the East Bay and San Francisco) are styled in the Academic Classicism traditionally employed by students at the Ecole de Beaux Arts. But Howard also created a handful of superb and important buildings which place him firmly in the woodsy mannerist regional design mode known as the Bay Area Tradition.

The Bay Area Tradition is not so much a style as an attitude to design, a highly self-conscious method of combining local vernacular, technology and image with fragments of architectural fashions of the period as well as carefully selected pieces of the past. This creates a complex series of cross-cultural visual references which attempt to express the complexity of the (partly mythic) California experience. Ernest Coxhead, Bernard Maybeck, A.C. Schwinfurth, Willis Polk and others who were collectively responsible for evolving this mode were all, like Howard, not native to California. They were concerned (despite their widely varied cultural, architectural and educational backgrounds) with creating an uniquely California design response. Their buildings from 1890 on were an obvious inspiration, visually and philosophically, for such Howard designs as the Drawing Arts Building, the Architecture Building and his three houses for the Gregory family in the Berkeley hills.

The presence of the Bay Area Tradition has been cyclical rather than continuous. It reappeared in the late 1920's in a deliberately anti-heroic manifestation in the work of W.W. Wurster; continuing through his own later work and that of his students and associates: Gardner Dailey, Mario Corbett, Michael Goodman and the early work of Joseph Esherick. The work of Chas. Moore and Wm. Turnbull of Esherick, Homsey, Dodge and Davis, of Richard Peters, and of the Agora Group represents a distinct third phase of this tradition. Most of these figures from the second and third phases of the Bay Area Tradition were either students or faculty at the University of California-Berkeley. Howard's Drawing Arts Building and Architecture Building have been important influences on their later work.

The Drawing Arts Building displays the varied design sources and the forthright acceptance of complex or contradictory programme requirements which are distinctive aspects of the Bay Area Tradition. The utilitarian forms of the north wall derive from the early industrial buildings of the Eastern Seaboard; their sheathing in natural finish shingles is both humanizing and contradictorily rustic. There is a contrast in function between the two main facades of the building: the formal purpose of the north wall is a strictly public one, that of defining the street

and creating a dignified (but non-monumental) image appropriate to an institutional structure, and the South Wall, which faces the campus rather than the street, is the side used by the students themselves and is casual, informal, and even homey. The glazing of the north side reveals the regular and repetitive studio spaces; the south side's irregularly sized and placed windows hint at the complex series of variegated spaces which serve them, and which function as a transition between the regular, almost formal elements and the irregular sloping site. The ridgeline is not centered, but is placed closer to the street. This allows a higher wall simultaneously allowing more light for the studios and emphasizing the public scale of the north side; the roof thus sweeps lower on the south enhancing the more residential qualities of that facade. There are references in the building to such diverse styles as the Georgian Revival and the Craftsman Bungalow. The building is an interlocked series of seemingly contradictory things: it is both formal and casual; sophisticated and straight-forward; urbane and rustic; institutional and residential. But as fascinating as the building is in itself, it should not be considered alone. The Drawing Arts Building shares many design qualities with the Architecture Building immediately to its west, and the two structures together create an atmospheric streetscape for Berkeley, a welcoming entrance for the University of California campus and a symbolic gesture from gown to town much stronger than the sum of its parts.

The Drawing Arts Building would seem then to deserve the recognition of landmark status on a number of grounds: (applicable City of Berkeley Landmark Preservation Ordinance references are cited)

- as a notable work of a recognized master, John Galen Howard; as an outstanding example of the Bay Area Tradition design mode (3.1, a (2));

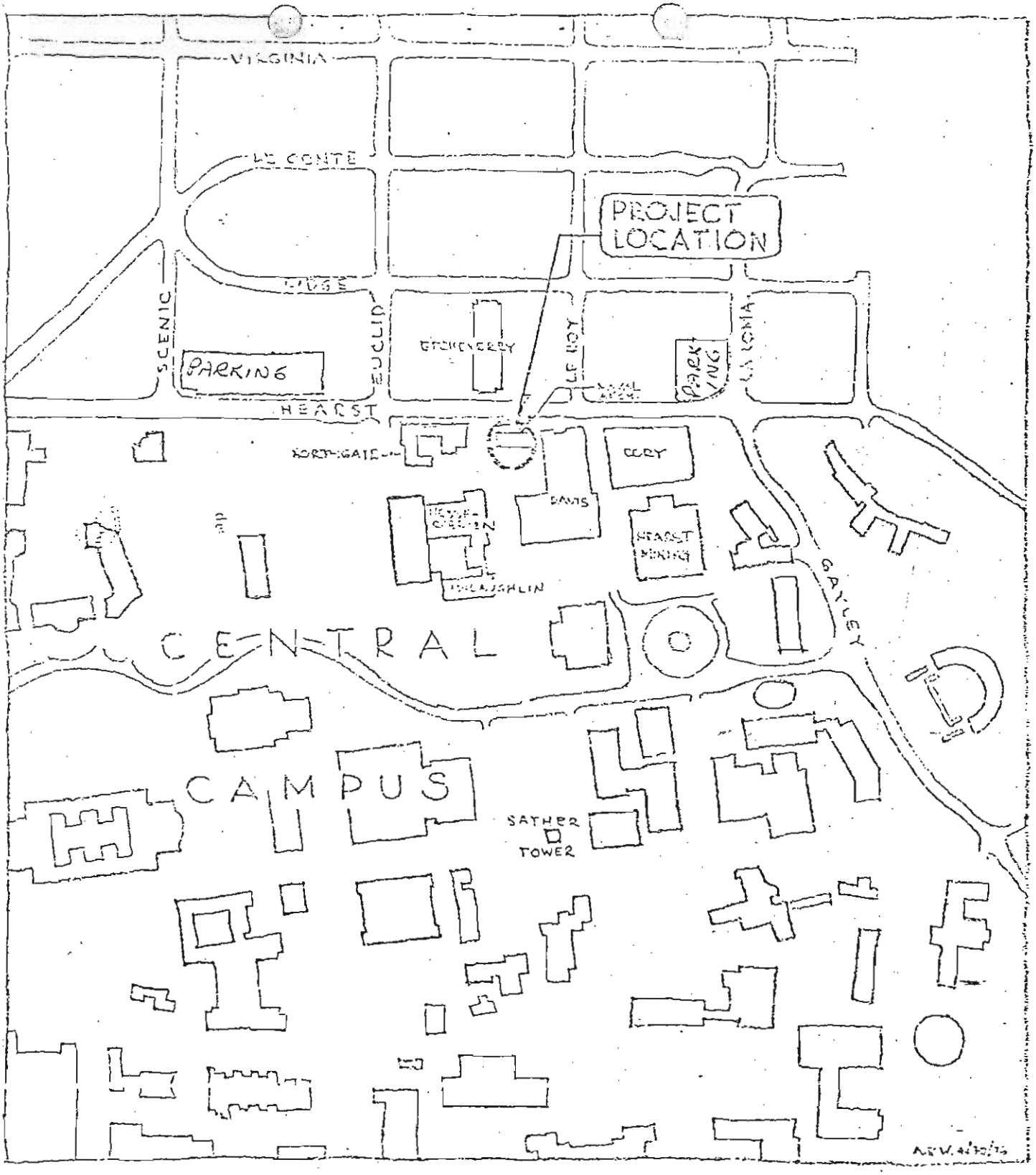
- as an important visual landmark of the Berkeley cityscape (3.1, a (3));

- for its role in the formation of nationally and internationally famous artists, architects and city planners (3.1,b);

- for its educational role in two senses: as an envelope for the educational process and for that visual exposure which is a large part of the educational process for young designers (3.1, c);

- as a visual reminder of the process by which the University of California grew and of the traditional relationship between those who have taught and attended the University and the general cultural development of the City of Berkeley (3.1,d).

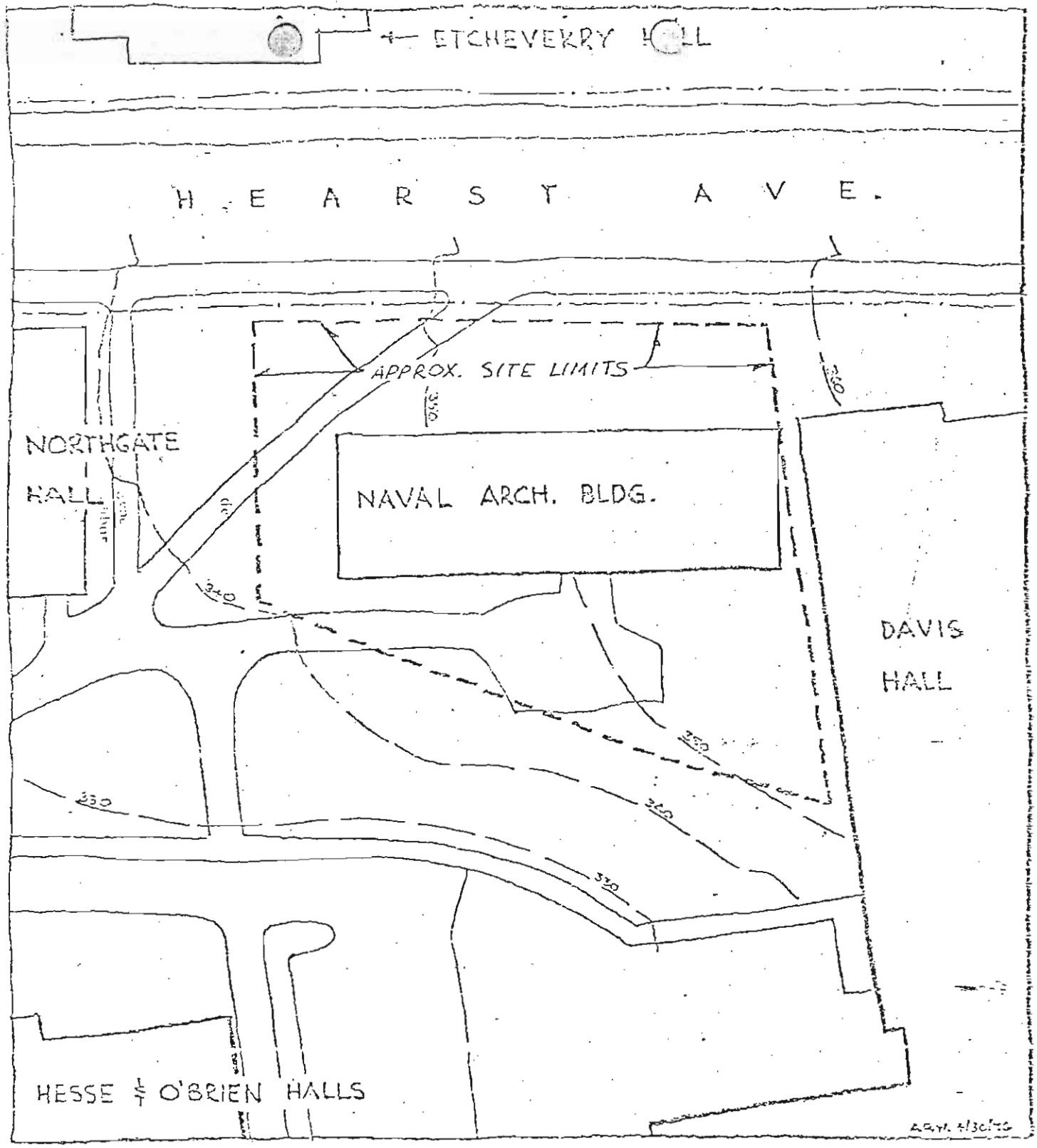
John Beach, Chairperson
Berkeley Landmarks Preservation Commission



VICINITY MAP
SHOWING LOCATION OF PROPOSED
ENGINEERING CENTER BUILDING

SCALE:
1:4800
(1" = 400')

ATTACHMENT "A"



MAP
SHOWING EXTENT OF SITE OF PROPOSED
ENGINEERING CENTER BUILDING

N

SCALE:
1:480
(1" = 40')

ATTACHMENT "A"

BUILDINGS AND LANDMARKS

designed by

JOHN GALEN HOWARD

University of California, Berkeley

Barrow Lane Gallery (1904)
California Hall (1905)
California Memorial Stadium (1923)
Doe Memorial Library (1918)
Durant Hall (1912)
Drinelle Annex (1920)
Gilman Hall (1917)
Haviland Hall (1924)
Hearst Greek Theatre (1903)
Hearst Memorial Mining Building (1907)
Hesse Hall (1924)
Hilgard Hall (1918)
LeConte Hall (1924)
Naval Architecture Building (1914)
Northgate Hall (1906)
Sather Gate and Bridge (1913)
Sather Tower (1914)
Senior Men's Hall (1906)
South Hall Annex (1913)
Stephens Hall (1923)
Wellman Hall (1913)
Wheeler Hall (1918)
Women's Faculty Club (1923)

ATTACHMENT B

NAVAL ARCHITECTURE BUILDING
UNIVERSITY OF CALIFORNIA AT BERKELEY

RESTORATION REPORT
MAY 8, 1991

STOLLER KNOERR ARCHITECTS
1818 Harmon Street
Berkeley, CA 94703

NAVAL ARCHITECTURE BUILDING
UNIVERSITY OF CALIFORNIA AT BERKELEY

RESTORATION REPORT
MAY 8, 1991

OFFICE OF PHYSICAL RESOURCES
Project Manager: John Rolle

CONSULTANTS:

Architectural:
Stoller Knoerr Architects
1818 Harmon Street
Berkeley, CA 94703

Structural:
David Logan Messinger and Associates, Inc.
4009 Webster Street
Oakland, CA 94609

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

INTRODUCTION

The Naval Architecture Building restoration report is a study prepared by Stoller Knoerr Architects at the request of the Office of Physical Resources at the University of California at Berkeley. The purpose of the study is to assist the University in the coordination of the necessary maintenance work and structural improvements, and to demonstrate possibilities how work within the scope of deferred maintenance may incidentally and efficiently contribute to a future comprehensive building renovation. The design and construction of this building suggest a unified strategy for renovation, incorporating structural, thermal, acoustical, programmatic, historical and other considerations, into which deferred maintenance work should be integrated.

PROCESS

The study includes the documentation of the building's floor plans, sections and elevations; a survey of the existing conditions of the building envelope with recommendations for exterior renovation and maintenance work; and a complete vertical load and seismic analysis with recommendations for a structural retrofit. Excluded from the scope of the study are a building use analysis, a cost estimate, and the discussion of interior elements, with the exception of structural components. A termite report, prepared by Arthur Slater of the Office of Physical Resources at the University of California, was also used as a reference for our recommendations.

Evaluation: The evaluation phase included site surveys of existing conditions of the building's envelope and structure. As-built drawings and a narrative description were developed and an inventory of existing and historical details on the building's exterior was produced.

Recommendations: Recommendations for the building's envelope and structure were derived from the survey and evaluation of existing conditions. In particular, alternatives for a renovation strategy for exterior walls and windows were developed.

2. ARCHITECTURAL

EVALUATION

HISTORIC DEVELOPMENT

The Naval Architecture Building, designed by John Galen Howard as the Drafting Building, was completed in 1914. Its main purpose was to provide additional drawing studios for the rapidly expanding Department of Architecture, which at the time occupied adjacent North Gate Hall.

The Naval Architecture Building measures about 37' x 122' and features a split-level floor arrangement in the longitudinal direction. It is composed of a two-story portion on the west or downhill side, facing North Gate Hall, and a three story portion on the uphill side. This latter portion originally extended considerably further uphill, until in 1930 three structural bays were demolished to make room for Davis Hall. At this time, the interior circulation system was rearranged and a new entrance on the west side, reached via a short flight of stairs, was created. No major changes in the organization of the building have occurred since.

Through the years, the building served a variety of occupants, until in 1964 its current main user, the Department of Naval Architecture and Offshore Engineering moved in. The interior of the upper first floor of the building was recently renovated to accommodate the Department of Transportation Studies.

In 1976, the Naval Architecture Building became the third site on the Berkeley Campus to be listed on the National Register of Historic Places. As an ensemble, the Naval Architecture Building and adjacent North Gate Hall today represent one of the few remaining wood frame/shingle-style environments on the campus.

BUILDING DESCRIPTION

The building is entirely of wood frame construction, with framing members, ceiling joists and rafters exposed in many places. Of particular significance is the exposed interior post and beam structure (Illustration 6b), carrying most of the floor and roof loads. Exterior walls and most interior partitions are sheathed with horizontal 1x4 fir boards. The exterior walls are finished with unstained cedar sidewall shingles, the roof with grey composite roof shingles. Neither walls, roof nor floors are thermally or acoustically insulated.

One of the most conspicuous features of the building is the extensive amount of fenestration, particularly on the north elevation. To allow for higher windows on this side, the ridge of the roof is slightly offset to the north. The rows of high

uniform windows on the north elevation express the large studio spaces beyond (Illustration 7f). In contrast, the fenestration on the south elevation in its irregular patterns and shapes responds to diverse uses, such as small offices, halls and stairways (Illustration 7d). The windows, typically double-hung, are multiple-pane wood sash with single glazing.

The building is in a general state of disrepair, and deferred maintenance work is necessary to arrest further deterioration. Above and beyond the scope of deferred maintenance, there are serious fire and life safety concerns, structural deficiencies, and the lack of any handicapped access, which eventually need to be corrected in a comprehensive renovation of the building.

For building plans, elevations and sections documenting existing conditions, see drawings A1-A8. For a more detailed description of the building history and its architectural significance, see the National Register of Historic Places Inventory -- Nomination Form prepared by Lesley Emmington for the City of Berkeley, filed on October 15, 1976.

ANALYSIS/RECOMMENDATIONS

The exterior of the Naval Architecture Building is protected by its landmark status. All renovation work should therefore attempt to bring the exterior back to its original design as far as it can be determined and as far as it is not in conflict with current code and program requirements. In many instances, like the necessary repair/replacement of windows or the addition of wall insulation, a balance may have to be sought between preservationist concerns and functional needs. Although the interior of the building is not protected by its landmark status, the unique features on the inside, specifically the exposed structural members, are essential to the building's character and appeal, and should also be preserved.

The major elements of concern in the scope of this study are as follows:

1. Exterior walls: A visual inspection of the existing sidewall shingles showed large areas on all sides of the building to be in poor condition (Illustration 7a). Their removal would be incidental with the implementation of structural recommendations calling for the addition of plywood over the existing horizontal sheathing to resist lateral forces (see page 13). New unstained cedar sidewall shingles should be used throughout for replacement. Alternatives have been developed as part of this study to also add insulation to the exterior walls, which will be discussed below in the context with windows.

2. Grade at wall conditions: Areas on all four sides of the building have been identified where the distance between grade and wood members is less than 6" as required by code. In some cases, this has resulted in dry-rot of structural members, specifically mud sills (Illustration 1a). It is necessary to remove the soil or asphalt in these areas and lower the grade to the required distance from all wood members. At the east elevation the finished grade lies substantially above the top of the mud sill plate (see Termite Report), and no foundation exists. This condition requires a new foundation to resolve the grade differential, as described in the structural report section. There is also contact between grade and wood on the undersides of the entrance porticos (Illustration 1c). New concrete stem walls should replace the boards now covering the sides of the porticos, and the grade under the floor joists should be lowered to the required level in these areas. It should be noted that the crawl space under the first floor is currently contaminated with asbestos and that asbestos abatement should precede any foundation work recommended here.

3. Roofs: On visual inspection, the roof appears to be generally in fair condition (Illustration 5b), except along the eaves on all sides and where roofs intersect with walls. Fascias are generally deteriorated (see Termite Report), and the ends of some beams and rafters show water stains (Illustration 5a). Due to their inaccessibilty, it is difficult to determine if these members are actually rotted. Repair of roofing and decking along the eaves is necessary to stop further deterioration. Flashing should be installed at the intersection of roof and projecting walls.

   There have been reports of leaks, particularly at the cupola, where signs of previous leakage are apparent on the inside, yet structural members do not seem to be substantially damaged. The roof of the cupola does not provide proper drainage (Illustration 5b). Since the cupola is not an original element and does not contribute functionally, structurally nor visually to the building's performance, its removal is recommended (see page 9).

   Waterproofing conditions should be inspected when the roofing material is stripped for addition of a plywood diaphragm, as called for in the structural report section. Similar to the exterior walls, there is the question whether to insulate the roof between the rafters from inside, possibly as part of a comprehensive building renovation, or to add rigid insulation on the outside, which would most efficiently be done in the context of deferred maintenance work. The latter option would change the exterior appearance of the roof significantly (see drawing A19) and would have to be coordinated with the Campus Planning office. The objective should be to achieve a sensible balance with floor, wall and window insulation.

As in adjacent North Gate Hall, the original roofing material was most likely wood shingles, although no historic documents were available to confirm this assumption. Restoring the roof with redwood shingles treated with fire retardant should be considered and weighed against maintenance requirements and the potential fire hazard. The installation of an exterior fire protection (sprinkler) system is not recommended for preservationist reasons. A high-quality fire retardant composition shingle matching the existing in color and texture may be an acceptable compromise.

4. Windows and doors: The three entrance doors are in fair to poor condition (for typical details, see drawing A9). Areas where the wood has been chipped off should be repaired (Illustration 2c). Weatherstripping should be added to reduce the amount of infiltration. There have been reports of door closers occassionally malfunctioning. On the west side, the balcony door with multiple-pane glazing and the fixed light above have dry-rotted sash (Illustration 2e) and should be replaced to match the existing . (See detail drawing A12). The existing wood sash single-glazed windows are generally in fair to poor condition. Problems exist primarily on the south side, where the windows are typically unpainted (Illustration 2a). There is minor damage to the sash in about 40% of all windows, whereas the glass panes appear to be in good condition (disregarding occassional broken panes, Illustration 2d). A problem throughout seems to be the caulking that is porous or broken off in many cases. For details of existing double-hung and pivoted windows, see drawing A14.

Energy conservation is one of the major shortcomings in the performance of the building's windows and walls. This problem is most severe on the north elevation, where the area of fenestration accounts for over 40% of the total wall area (south side 25%). The high amount of infiltration and heat transmission loss through windows in this building must be considered when seeking a sensible balance in the treatment of windows and walls for improvement of the building's energy conservation properties.

Within the scope of this report, alternatives have been developed demonstrating different options in response to this problem. If for all practical purposes it seems impossible to bring the building up to energy conservation code standards, any measure shown in these proposals would bring an improvement and should be carefully considered and weighed against potential interference with the program and concerns for the historic preservation of the building. Drawings A16 and A17 demonstrate options how a layer of rigid insulation on the outside of the walls could be added in the context of the work that is necessary to structurally upgrade

the building. Drawing A18 shows a wall section with batt insulation and gypsum wall board on the inside (which increases the acoustical isolation but conceals the structure and makes the building considerably heavier -- a disadvantage in a potential earthquake) and a double-glazed window that matches the elevation of the existing. A combination of rigid insulation on the outside and double-glazed windows is also possible.

Individual elements in need of renovation work include:

1. Balcony and pediment: The balcony on the west side of the building mirrors a similar element on the east elevation of North Gate Hall, and is enhanced by an intricate pediment above the balcony door (Illustration 7e). Whereas the pediment is in excellent condition (documented on drawing A11), the balcony is structurally hazardous due to dry-rot in railing members (Illustration 3b) and 1x4 tongue and groove floor boards. These elements need to be replaced to match the existing appearance as shown on drawing A12.

2. Exterior stairs on west side: These stairs, consisting of eleven risers at 7 1/2", lead to the entrance that was added in 1930. Although entrance and stairs were not part of the original design, the current space program and code requirements make their removal undesirable. However, the wall under the stair lacks any foundation and, due to contact with the compacted soil, mud sill and lower parts of the studs are heavily damaged (see Termite Report). It is recommended to entirely rebuild these stairs with a new foundation, and to lower the finish grade as required. The bottom of the stair, where now a newel post sits flush on a tilted concrete pad, also needs to be reworked for better drainage. For documentation of existing conditions, see drawing A13.

3. Entrance porticos: There are two identical entrance porticos adorning the south elevation. The problems on the underside of these protruding elements have been mentioned above. There is some dry-rot visible on the outside, but generally the wooden parts including structural members, sash and trim seem to be in fair condition. The caulking is damaged to a degree where the edges of the glass panes are exposed and broken off in some places (Illustrations 2b,c). These conditions need to be repaired immediately. The gabled roofs of these porticos are in poor condition and should receive new decking and roofing to prevent damage of structural members (Illustrations 7a,d). Flashing should be installed where the portico roofs meet the building's south wall. For details of portico and glazing, see drawing A10.

4. Awning on the southwest corner: The canvas awning is a fairly recent addition to the building exterior, and its removal would be desirable from a strictly preservationist point of view. However, this awning indicates the need for effective sun control, which the original design does not provide (Illustration 7c).

5. Cupola: See drawings A8 and A19. This dormer-like addition to the original roof had recurring leak problems, although none have been reported recently. Poor visual and functional performance suggest its removal, as discussed earlier. An undisrupted roof would increase the strength of the roof diaphragm that needs to be installed. Although the previous leakage (Illustrations 4a-d) does not appear to have caused dry-rot in structural members such as rafters and plates, all wooden parts showing water stains should be replaced in the context of removing the cupola.

6. Exposed interior post and beam system: Although the interior of the building is, strictly speaking, not protected by the stipulations of the building's landmark status, the exposed structure is a significant design feature (Illustration 6b) and should be preserved in a future renovation. Since the post and beam structure is not suited to form rigid frames, the partitions between the columns need to be transformed into shear walls. For this purpose, the existing horizontal wood boards need to be temporarily removed from the walls and may be put back on after plywood, tie-down posts, bolting, nailing, strapping etc. have been installed. The locations of the shear walls, as shown on drawings S 5-7, were set by the location of existing partitions and can be adjusted to potential changes in the use of the building.

3. STRUCTURAL

PROCESS

The purpose of this evaluation is to provide a complete vertical and lateral load analysis of the building and to prepare schematic drawings, for the purpose of establishing an order-of-magnitude cost for reconstruction to the "University Policy - Seismic Safety" standards.

The scope of the structural investigation and report involved the following areas of work:

1. Prepare a complete vertical load and seismic analysis of the building and prepare schematic strengthening drawings for the purpose of establishing an order-of-magnitude cost for the reconstruction to the "University Policy - Seismic Safety" standards which will include the following.

2. Review all available construction documents. (None were available).

3. Field verification and identification of changes in existing construction.

4. Opening up of areas to view existing construction details, if necessary.

5. Prepare a report which will include schematic drawings at reduced scale, photographs and written text describing deficiencies and proposed methods of reconstruction.

REFERENCES

No drawings were available from the University for the preparation of this report. The only drawings available were prepared by this office.

The criteria used to evaluate the building was the "University Policy - Seismic Safety" (UPSS) Standards for rehabilitation of projects dated May 17, 1988, wherein it is stated "...the intent of the seismic rehabilitation shall be to reconstruct buildings and other structures so that they would have a GOOD seismic performance rating, as defined in Appendix A, based on the present state of earthquake engineering." The present state of earthquake engineering for rehabilitation of buildings is the current issue of Title 24, CAC except that the 1973 edition of the Uniform Building Code shall be used to calculate the seismic base shear V.

DESCRIPTION OF BUILDING

The building consists of an east and west unit (see sheet S-1). The west end was built as a two-story structure. The east end was built as a three-story structure and originally extended further east, but a portion of the east end was removed to make room for another building.

The entire building is of wood frame construction, and is covered with wood shingles on the outside walls and composition roofing on the roof over 1" straight wood sheathing. The inside walls and ceiling are either exposed or covered with a light-weight fiberboard or wood sheathing material. This relatively light-weight reduces the hazards of potential earthquakes over a heavier building, but due to the lack of diagonal or plywood sheathing on the walls, floor and roof the resistance of the building to both wind and earthquake forces is very low.

The outside walls of the building are sheathed with 1" straight sheathing; 2x6 diagonal bracing between the studs gives a small amount of lateral bracing resistance. Interior columns and beams support most of the floor and roof loads. Some of the columns and beams have knee bracing which supplies a small amount of resistance to lateral loads (Illustration 6b). Due to inadequate connections for the bracing and the flexibility of the system, the capacity to resist wind and earthquake forces is very low. As a result of lacking shear resistance the south wall shows a slight, yet noticeable, bulge at the line where the two-story west portion and the three-story east portion adjoin (Illustration 6a).

The exterior elevations of the building, especially on the north side, have a very large area of windows. This makes it difficult to provide adequate bracing for the building. The cupola at the western roof portion reduces the potential diaphragm strength, making intermediate shear walls necessary.

Both the east and west units of the building have wood floors except for a small toilet area between the two units that has a slab-on-grade. The wood floor is supported by a system of wood joists, wood beams and wood columns supported by concrete piers.

A portion of the roof is supported by rafters with ceiling ties above the wall plate line. This arrangement is not capable of resisting the code designated roof live load and needs to be strengthened.

Fire damage is apparent at the west end of the building under the first floor. Some of the charred members have been replaced and others are still in place with new members alongside.

DESCRIPTION OF BUILDING

The building consists of an east and west unit (see sheet S-1). The west end was built as a two-story structure. The east end was built as a three-story structure and originally extended further east, but a portion of the east end was removed to make room for another building.

The entire building is of wood frame construction, and is covered with wood shingles on the outside walls and composition roofing on the roof over 1" straight wood sheathing. The inside walls and ceiling are either exposed or covered with a light-weight fiberboard or wood sheathing material. This relatively light-weight reduces the hazards of potential earthquakes over a heavier building, but due to the lack of diagonal or plywood sheathing on the walls, floor and roof the resistance of the building to both wind and earthquake forces is very low.

The outside walls of the building are sheathed with 1" straight sheathing; 2x6 diagonal bracing between the studs gives a small amount of lateral bracing resistance. Interior columns and beams support most of the floor and roof loads. Some of the columns and beams have knee bracing which supplies a small amount of resistance to lateral loads (Illustration 6b). Due to inadequate connections for the bracing and the flexibility of the system, the capacity to resist wind and earthquake forces is very low. As a result of lacking shear resistance the south wall shows a slight, yet noticeable, bulge at the line where the two-story west portion and the three-story east portion adjoin (Illustration 6a).

The exterior elevations of the building, especially on the north side, have a very large area of windows. This makes it difficult to provide adequate bracing for the building. The cupola at the western roof portion reduces the potential diaphragm strength, making intermediate shear walls necessary.

Both the east and west units of the building have wood floors except for a small toilet area between the two units that has a slab-on-grade. The wood floor is supported by a system of wood joists, wood beams and wood columns supported by concrete piers.

A portion of the roof is supported by rafters with ceiling ties above the wall plate line. This arrangement is not capable of resisting the code designated roof live load and needs to be strengthened.

Fire damage is apparent at the west end of the building under the first floor. Some of the charred members have been replaced and others are still in place with new members alongside.

Some of the soil adjacent to the outside walls is too close to the wood shingles and framing, resulting in dry-rot conditions.

RECOMMENDATIONS

1. The entire roof needs to be stripped, covered with 3/8" plywood nailed over the existing straight sheathing and then re-roofed.

2. The outside walls need to be stripped of shingles and covered with plywood nailed over the straight sheathing and then re-shingled.

3. The floors on all levels need to be stripped of finish flooring material and covered with plywood nailed over the existing 1" straight laid flooring.

4. Partitions shown on the structural drawings need to be converted to shear walls by nailing on plywood sheathing and connecting to new foundation walls under the first floor. In general, shear walls should be located one over another from floor to floor. The total required length of shear walls will remain the same, but in some cases plywood could be applied to both sides of a wall to increase the seismic resistance of that wall.

5. Additional nailing of top plates of exterior walls should be done as needed to provide sufficient chord strength for floor and roof diaphragms.

6. Roof rafters with ceiling ties above the wall plate line should have the ceiling dropped and new ceiling ties installed across the rooms at the wall plate line.

7. The east end wall has no foundation except below the interior girders and at the outside corners. Apparently when the east end of the building was removed no new foundation was placed under the wall. Asphalt paving has been placed outside the east wall adjacent to the wood shingles so this condition is only visible from the crawl space. A new concrete foundation should be placed under this wall.

8. Column/beam connectors should be added to all columns and beams under the first floor.

9. Mudsills over the concrete foundations are fastened to the concrete with 1/2" Ø anchor bolts spaced from 4 to 5 ft. on center. This is generally inadequate to transfer lateral loads from the framing to the concrete on all the walls. New, larger bolts should be installed in all the mudsills and corresponding concrete foundations.

10. Form boards still remain on some of the concrete foundations especially around the piers. Also, wood debris lies on the ground within the crawl space. All wood except that supporting the structure should be removed to avoid attracting termites. Some termite damage and dry rot exist in areas where the soil is in contact with the wood (see Appendix).

The seismic strengthening work in the building could be phased into two parts: the first phase would consist of strengthening the exterior walls by the addition of anchor bolts, tie-downs posts and plywood, and the addition of a roof diaphragm; the second phase would consist of installation of interior shear walls and the seismic strengthening of the floors. Because of the great number of windows, the work in phase 1 would account for only a small, yet necessary, portion of the seismic improvements.

RATING OF BUILDING

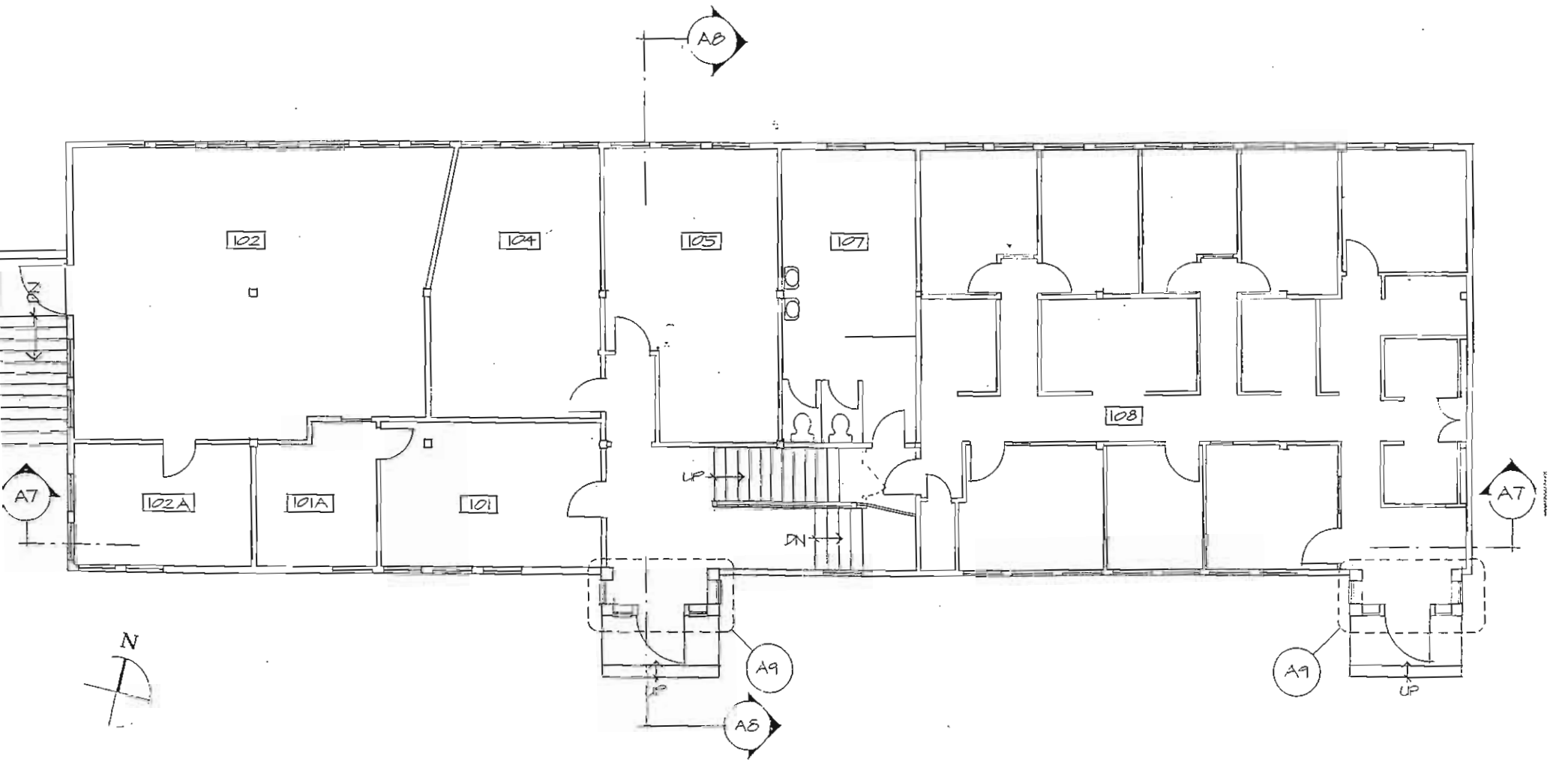
Our rating of this building is based on expected performance under a major seismic disturbance (Modified Mercalli Intensity scale of IX, see UPSS) and the wind and seismic loads in the 1973 edition of the Uniform Building Code, whichever governs.

The units of the building are rated POOR in their present condition, but would be rated GOOD with the completion of the corrective work indicated in this report.

4. DRAWINGS

LIST OF DRAWINGS

#	Drawing Title	Scale	Sheet Size
A 1	First Floor Plan	1/8" = 1'-0"	11x17
A 2	Second Floor Plan	1/8" = 1'-0"	"
A 3	Third Floor Plan	1/8" = 1'-0"	"
A 4	South Elevation	1/8" = 1'-0"	"
A 5	North Elevation	1/8" = 1'-0"	"
A 6	East and West Elevations	1/8" = 1'-0"	"
A 7	Longitudinal Section	1/8" = 1'-0"	"
A 8	Transverse Section	1/8" = 1'-0"	"
A 9	Plan of Entrance Canopy	1 1/2" = 1'-0"	8 1/2x11
A 10	Entrance Canopy, Interior and Exterior Elevation	3/4" = 1'-0"	"
A 11	Cornice Detail	1 1/2" = 1'-0"	"
A 12	Balcony and Balcony Door	1 1/2" = 1'-0"	"
A 13	Stair @ West Entrance	1 1/2" = 1'-0"	"
A 14	Typical Window Details	3" = 1'-0"	11x17
A 15	Window with Added Plywood	3" = 1'-0"	8 1/2x11
A 16	Window with Added Exterior Rigid Insulation, Alternative I	3" = 1'-0"	"
A 17	Window with Added Exterior Rigid Insulation, Alternative II	3" = 1'-0"	"
A 18	Double-Glazed Window in R-21 Wall Assembly	3" = 1'-0	"
A 19	Typical Roof Sections	1 1/2" = 1'-0"	"
S 1	Foundation and First Floor Plan	1/16" = 1'-0"	8 1/2x11
S2	Second Floor Diaphragm Plan	1/16" = 1'-0"	"
S3	Partial Roof and Third Floor Plan	1/16" = 1'-0"	"
S4	Section and West End Roof Plan	1/16" = 1'-0"	"
S5	Longitudinal Section	1/16" = 1'-0"	"
S6	Partial Sections	1/16" = 1'-0"	"
S7	Partial Sections	1/16" = 1'-0"	"



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

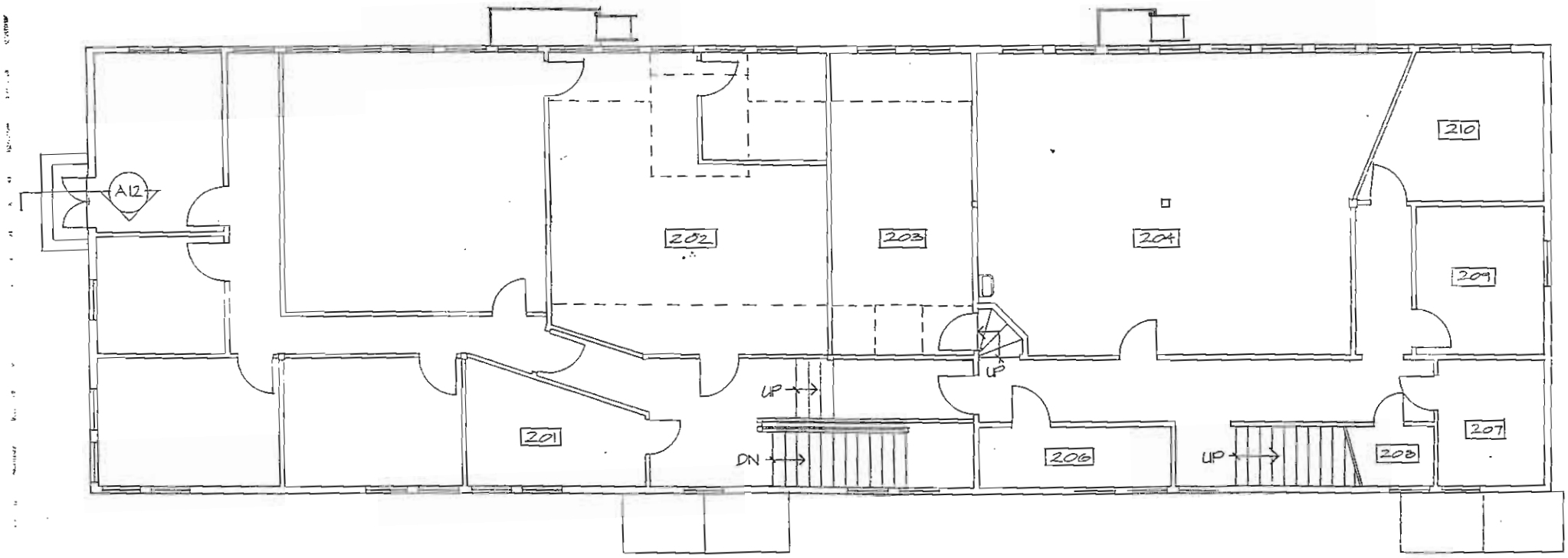
ATOLLER ARCHITECTS

SCALE:	1/8 " = 1'-0"
DRAWN BY:	RL
DATE:	24 OCT. 1990

FIRST FLOOR PLAN

SHEET TITLE

A1



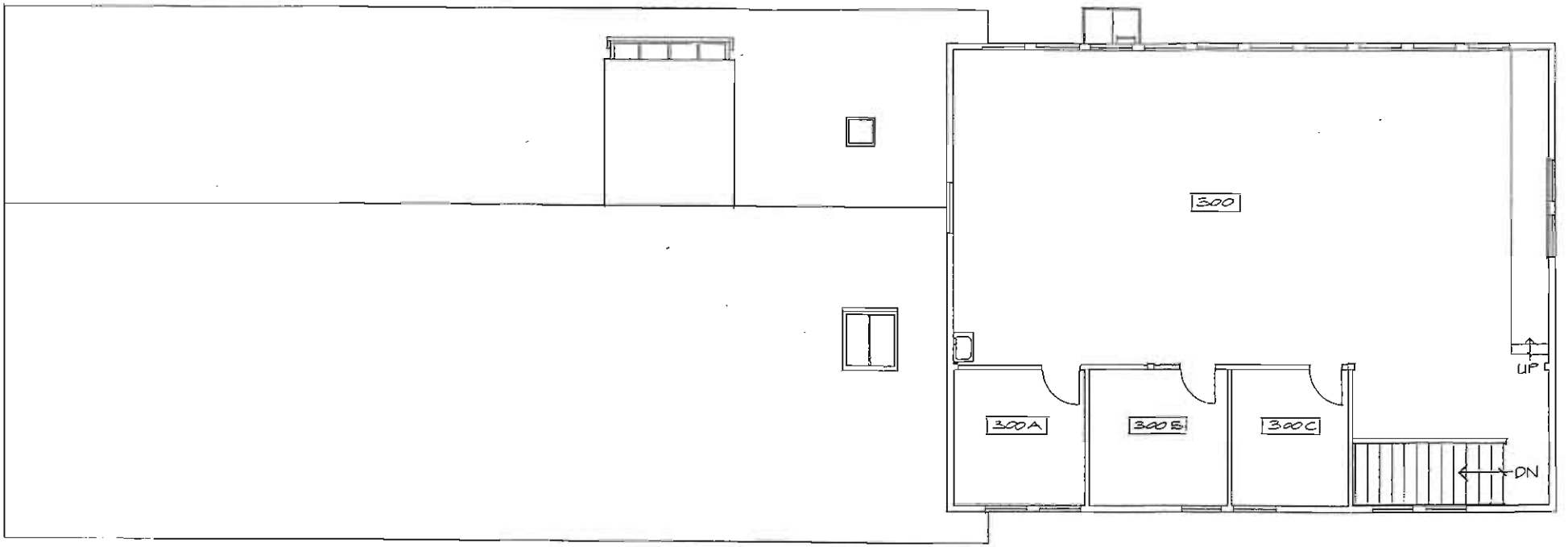
UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER & MORSE ARCHITECTS

SCALE:	1/8" = 1'-0"
DRAWN BY:	RL
DATE:	24 OCT. 1990

SECOND FLOOR PLAN

A2



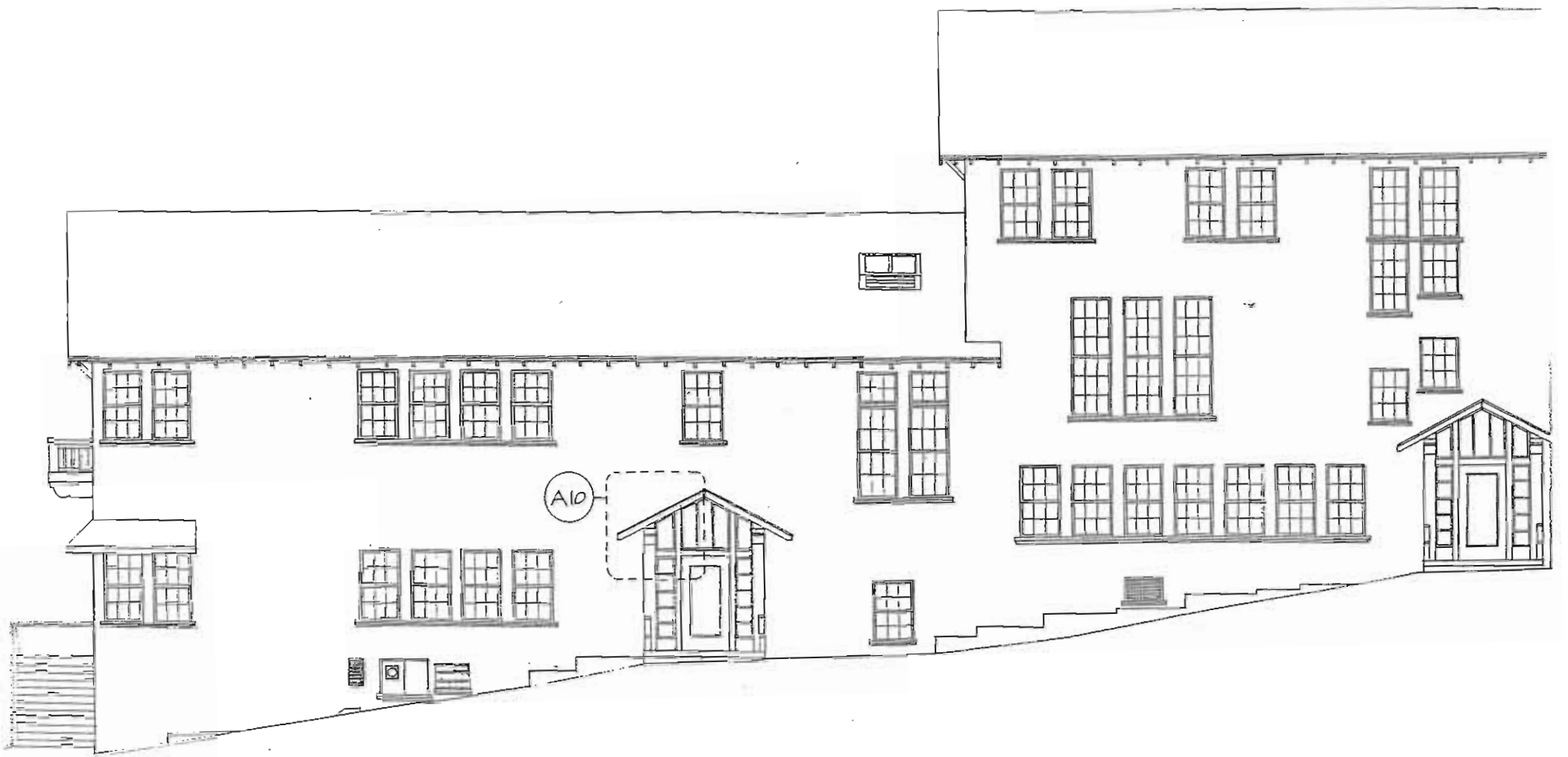
UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER AMOEBA ARCHITECTS

SCALE:	1/8 " = 1'-0"
DRAWN BY:	RL
DATE:	24 OCT. 1990

THIRD FLOOR PLAN
SHEET TITLE:

A3
DRAWING NUM



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER ARCHITECTS

SCALE: 1/8" = 1'-0"

DRAWN BY: RL

DATE: 24 OCT. 1990

SOUTH
ELEVATION

SHEET TITLE:

A4

DRAWING NU

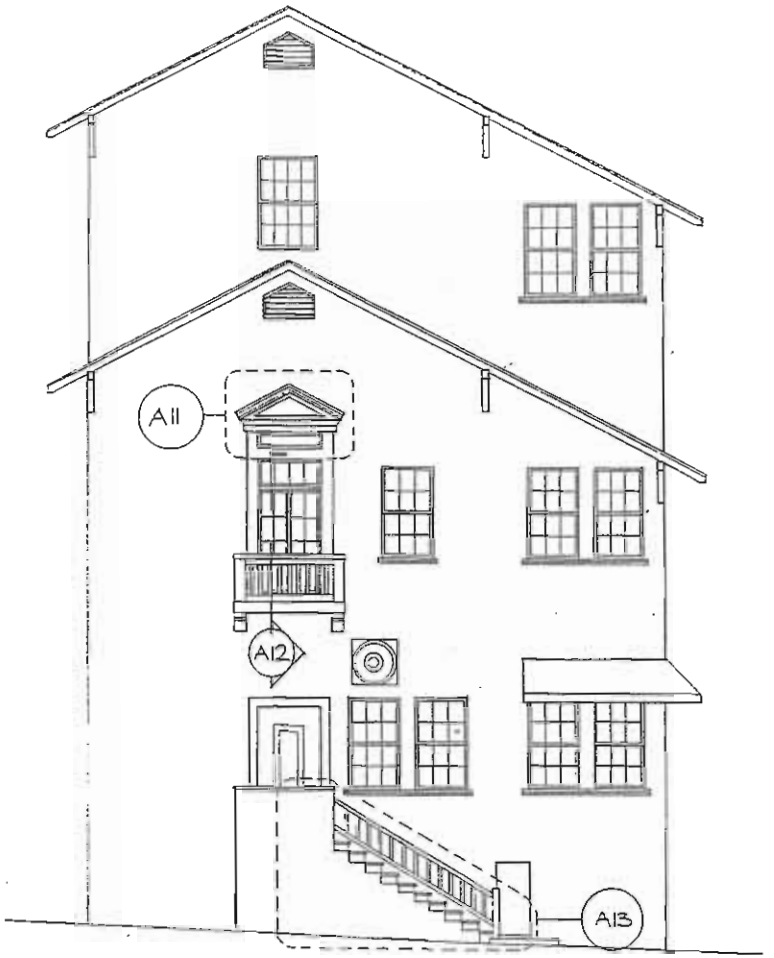
UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER KNOTEK ARCHITECTS

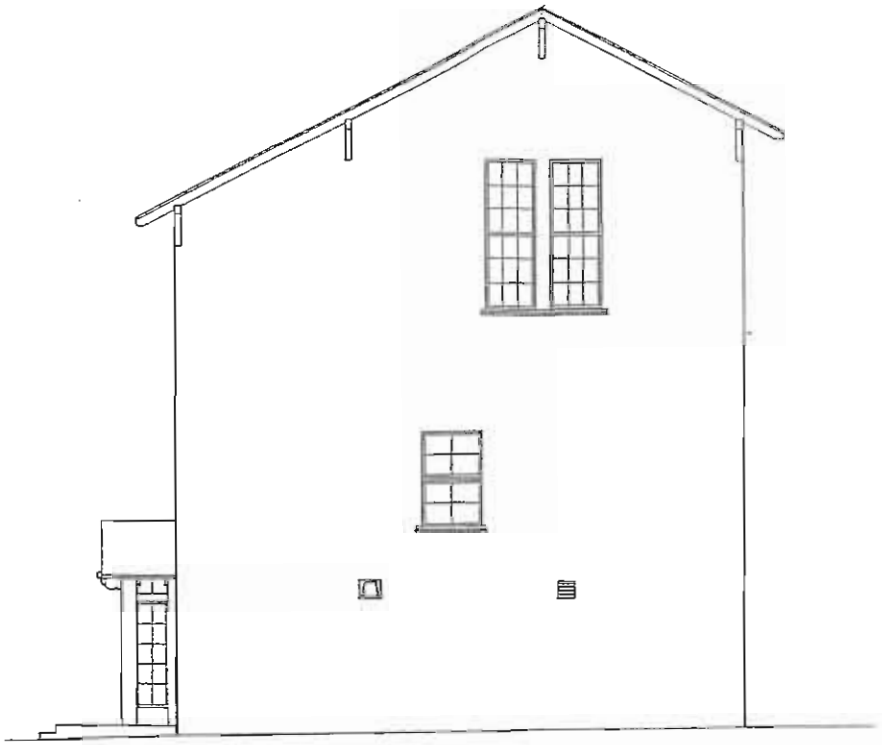
SCALE:	1/8 " = 1'-0"
DRAWN BY:	RL
DATE:	24 OCT. 1990

NORTH
ELEVATION
SHEET TITLE:

A5
DRAWING NUM



WEST ELEVATION



EAST ELEVATION

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

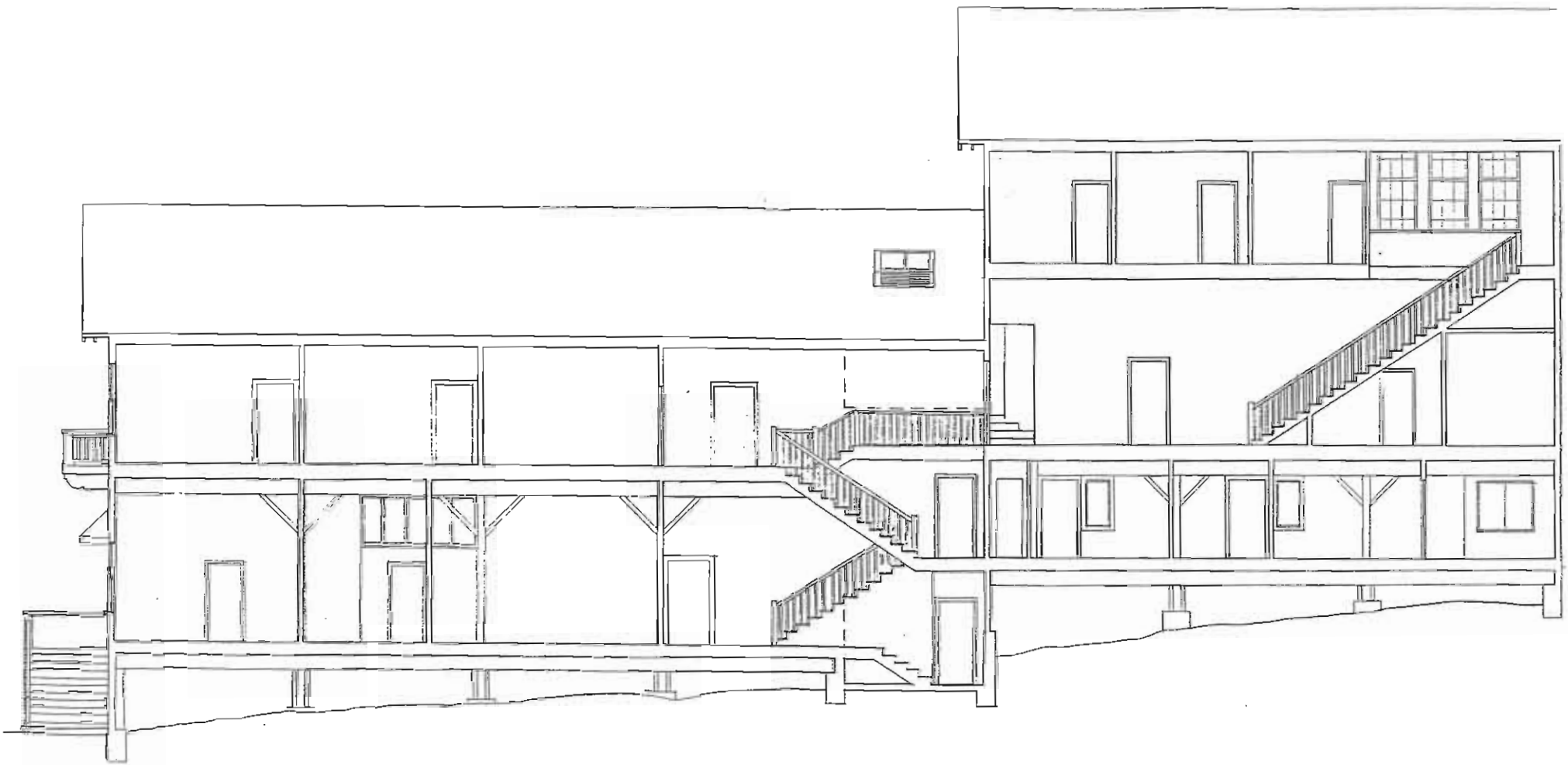
STOLLER ENGER ARCHITECTS

SCALE: 1/8" = 1'-0"
DRAWN BY: RL
DATE: 24 OCT. 1990

EAST AND WEST ELEVATIONS

SHEET TITLE

A6



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

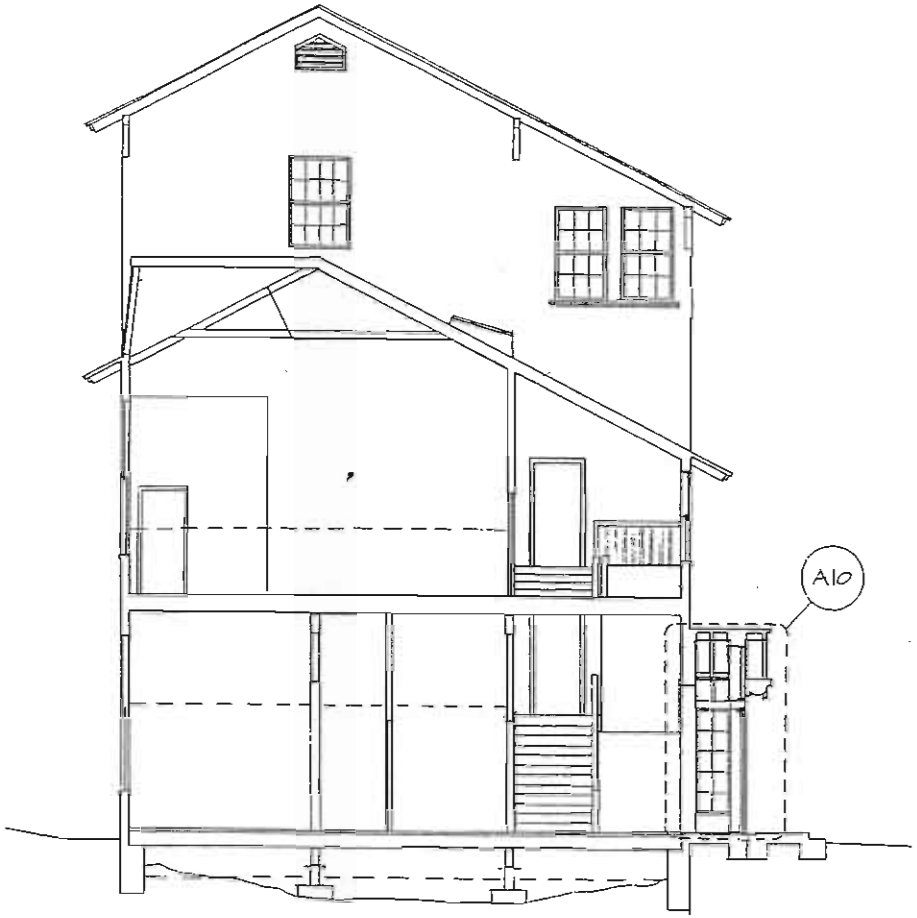
SCALE: 1/8" = 1'-0"
DRAWN BY: RL
DATE: 24 OCT. 1990

LONGITUDINAL SECTION

SHEET TITLE:

A7

DRAWING NUMBER



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

ETOLLER ENOTEN ARCHITECTS

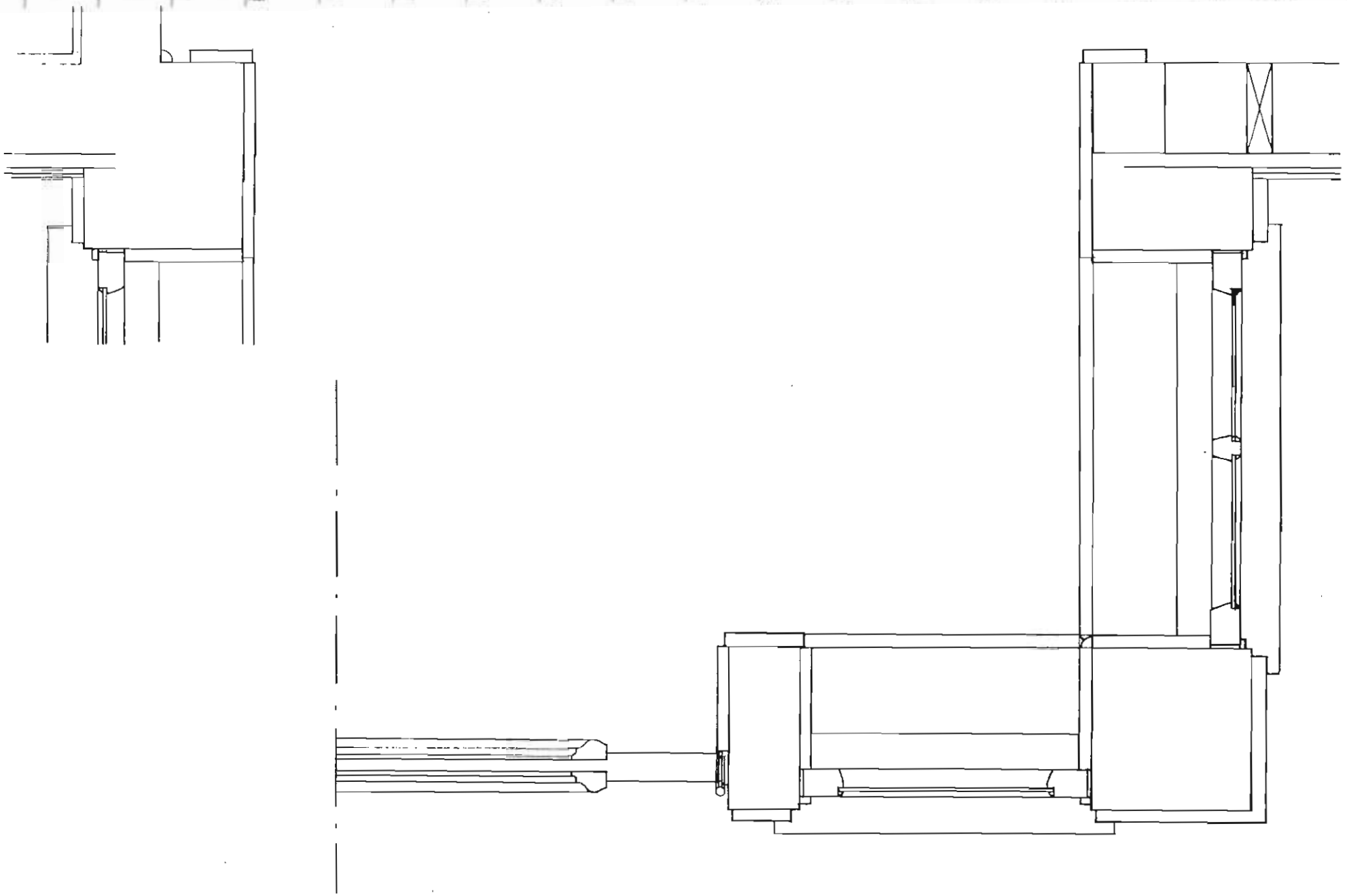
SCALE: 1/8" = 1'-0"

DRAWN BY: RL

DATE: 24 OCT. 1990

TRANSVERSE SECTION

A8



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER KNOERR ARCHITECTS
1818 Harmon Street
Berkeley
California 94703
415/653 3151

SCALE: 1 1/2" = 1'-0"

DRAWN BY: RL

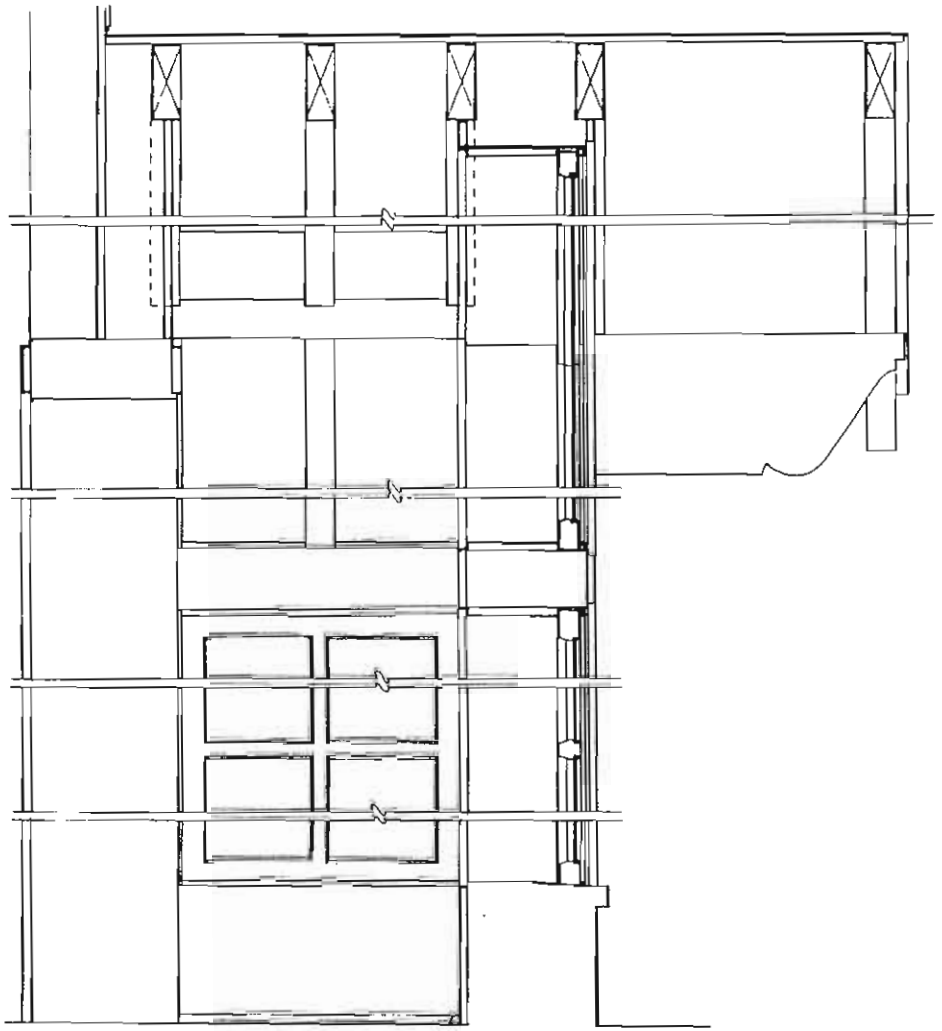
DATE: 24 OCT. 1990

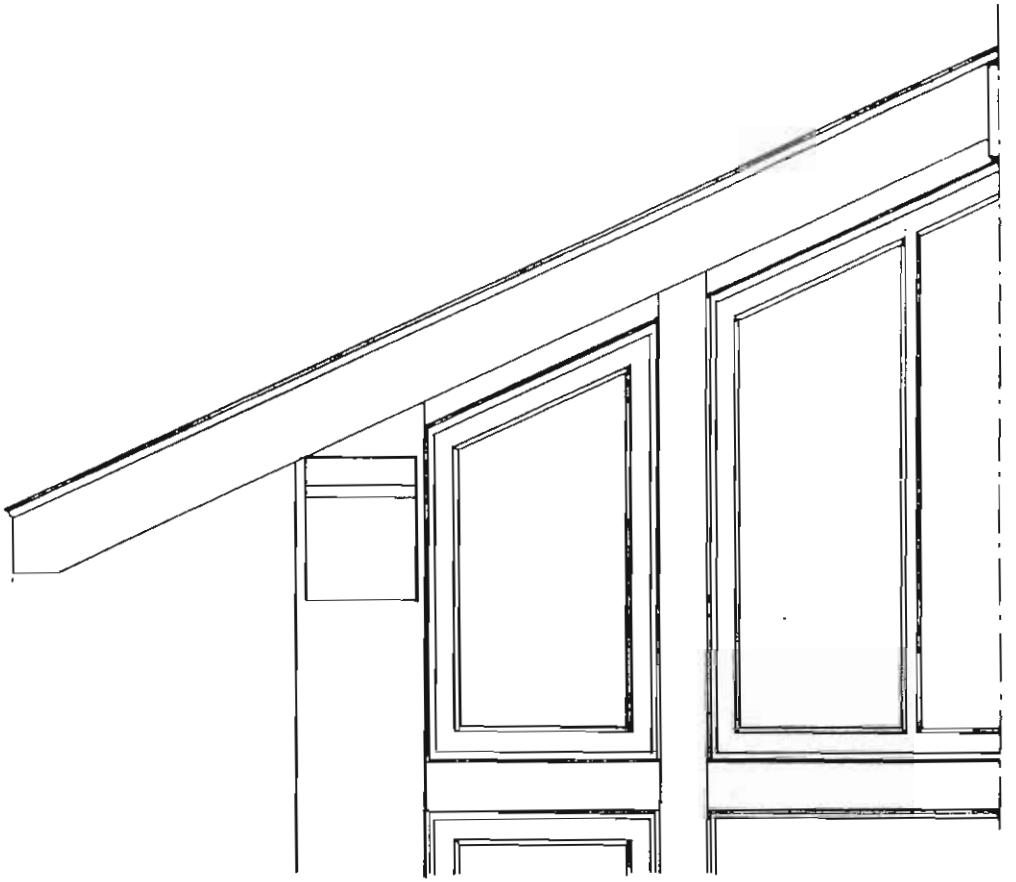
PLAN OF
ENTRANCE CANOPY

SHEET TITLE:

A9

DRAWING NUMBER





UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER
KNOBRR ARCHITECTS
1818 Harmon Street
Berkeley,
California 94703
415/452-3151

SCALE: 3/4" = 1'-0"

DRAWN BY: RL

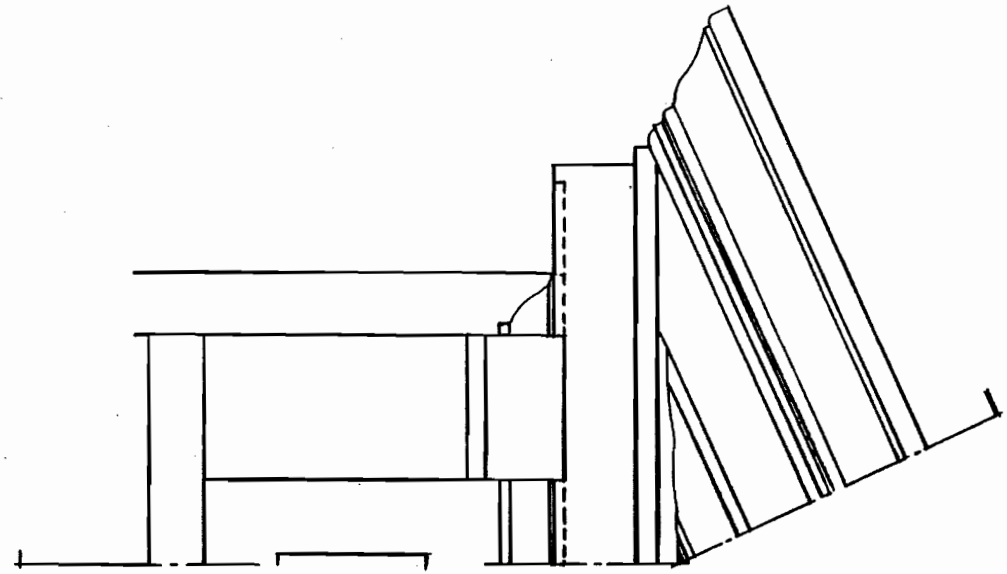
DATE: 24 OCT. 1990

ENTRANCE CANOPY INTER. & EXTERIOR ELEVATION

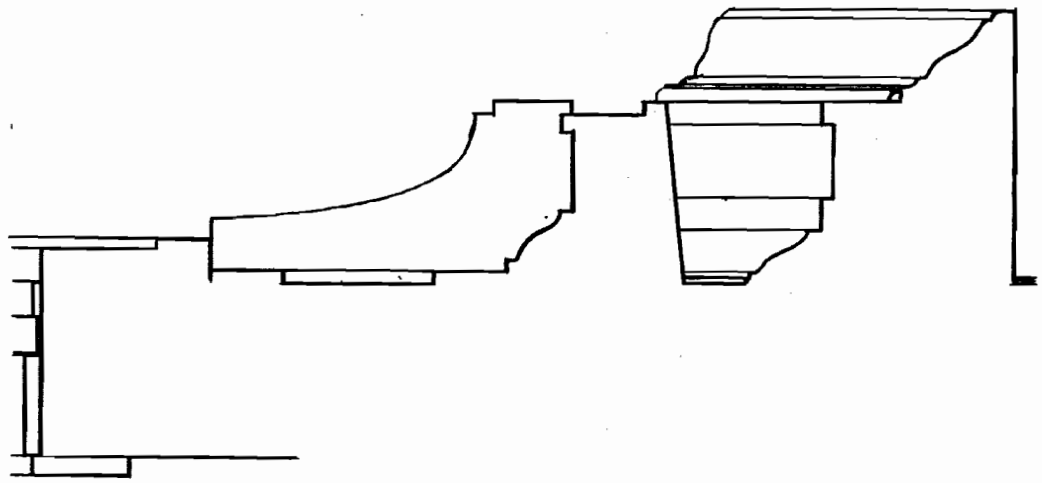
SHEET TITLE

A10

PARTIAL ELEVATION

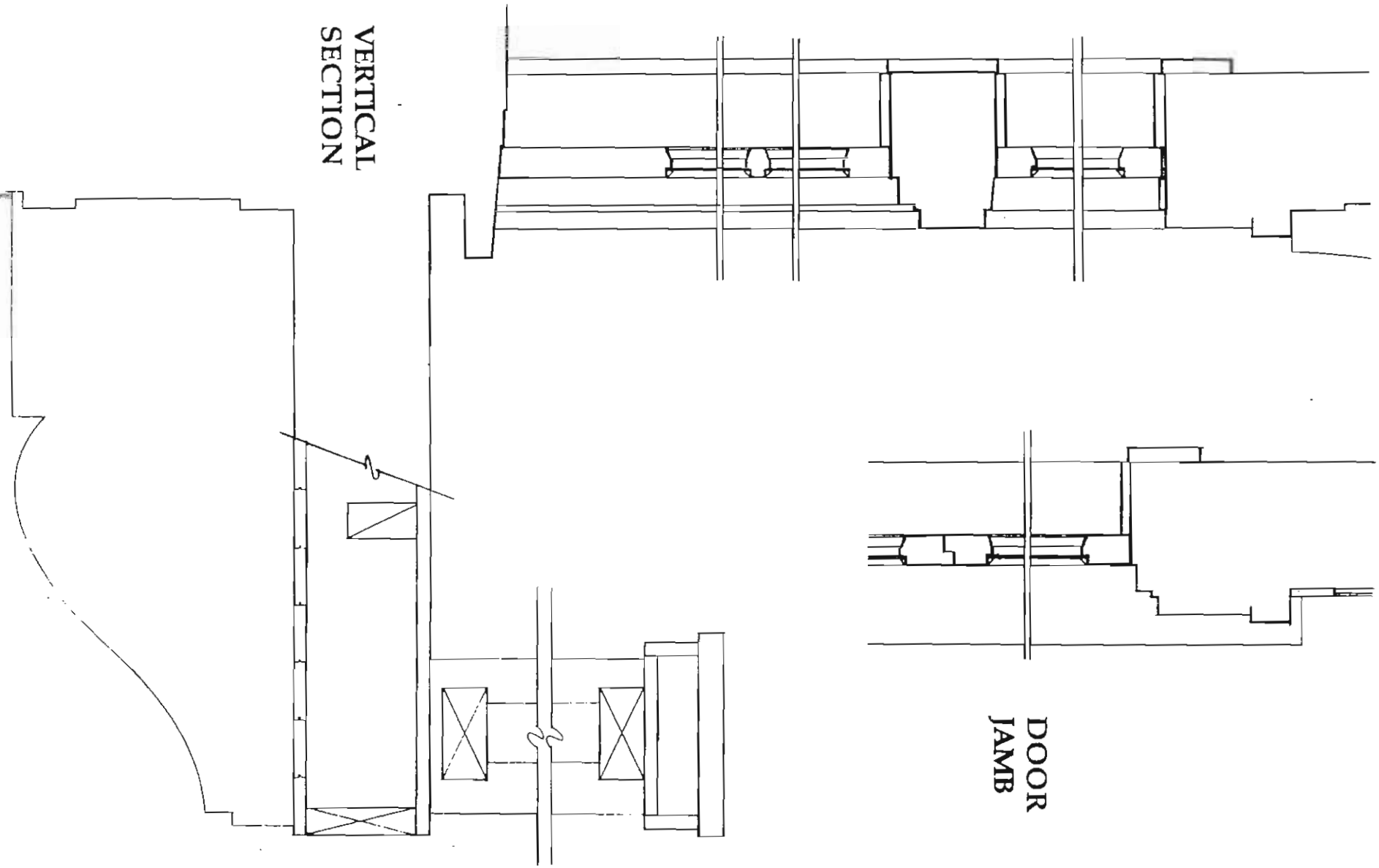


SECTION



UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	STOLLER KNOERR ARCHITECTS 1818 Harmon Street Berkeley California 94703 415/652-3151	SCALE: 1 1/2" = 1'-0" DRAWN BY: RL DATE: 24 OCT. 1990	CORNICE DETAIL SHEET TITLE	A11

VERTICAL SECTION



DOOR JAMB

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER
KNOERR ARCHITECTS
1818 Harmon Street
Berkeley
California 94703
415/652 3131

SCALE: 1 1/2" = 1'-0"

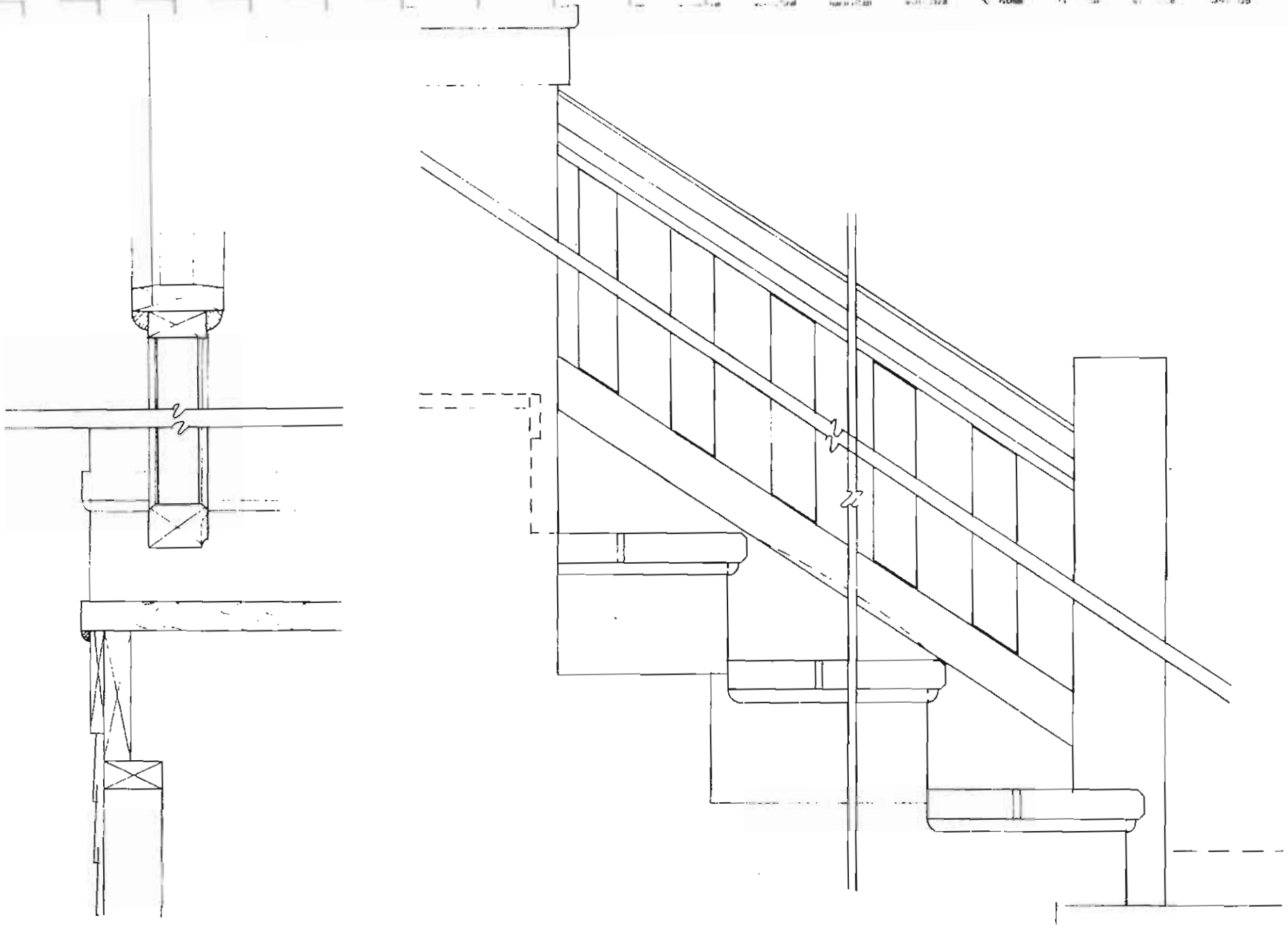
DRAWN BY: RL

DATE: 24 OCT. 1990

SHEET TITLE:

BALCONY AND BALCONY DOOR

A12



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER
KNOERR ARCHITECTS
1818 Harmon Street
Berkeley,
California 94703
415/652-3151

SCALE: 1 1/2" = 1'-0"

DRAWN BY: RL

DATE: 24 OCT. 1990

SHEET TITLE:

EXTERIOR STAIR DETAIL

A13

DOUBLE-HUNG WINDOW

PIVOT WINDOW

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

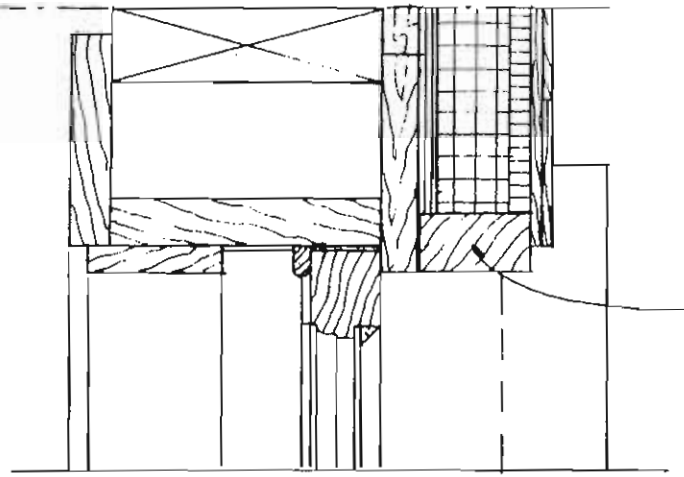
TYPICAL WINDOW DETAILS

SCALE: 3" = 1'-0"
DRAWN BY: RL

A14

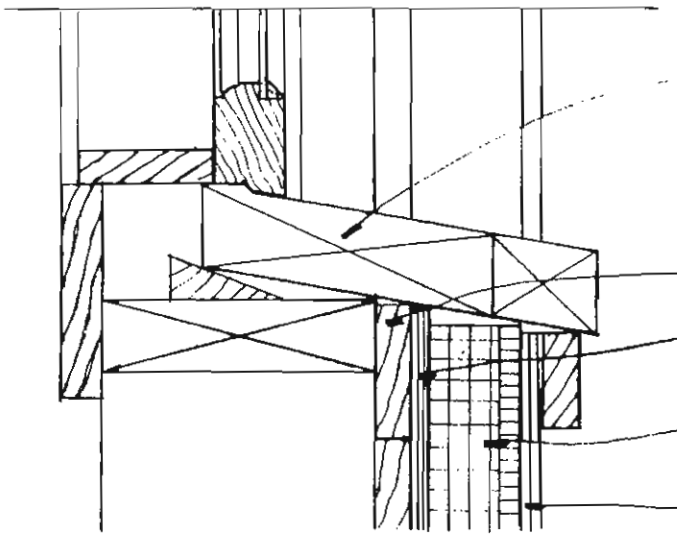
JAMB

(HEAD ACCORDINGLY)



ADDED $2\frac{3}{8}$" x $1\frac{1}{4}$" TRIM TO MATCH SILL

SILL



EXISTG. SILL W/ CONT'S. PIECE ADDED OR 1-PIECE NEW CONT'S. SILL, RABBETED W/JAMB

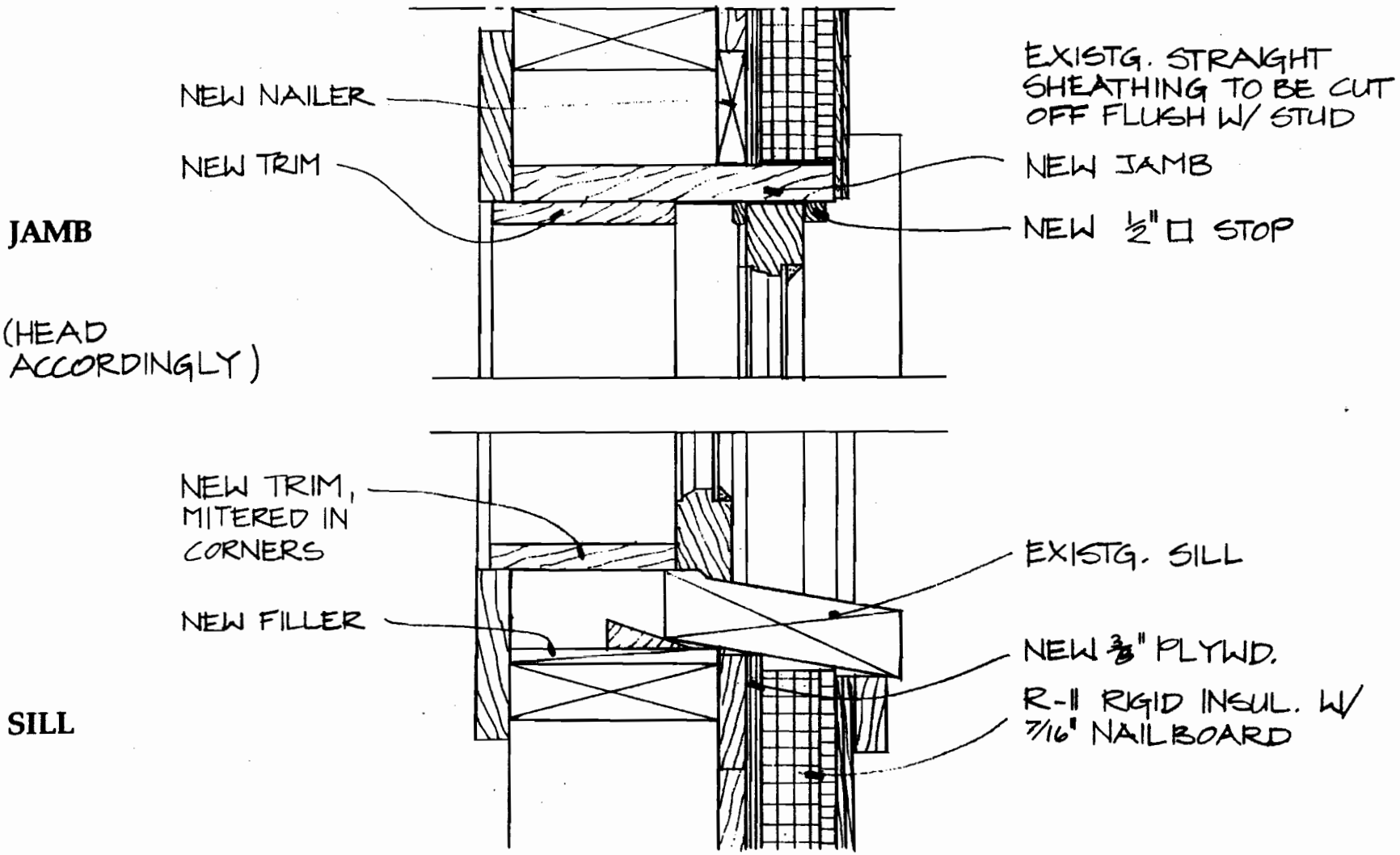
EXISTG. HORIZ. SHEATHING

NEW $\frac{3}{8}$" PLYWD.

R-11 RIGID INSUL W/ $\frac{7}{16}$" NAILBOARD

NEW CEDAR SHINGLES

UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	STOLLER KNOERR ARCHITECTS 1818 Harmon Street Berkeley California 94703 (415) 652-3151	**SCALE:** 3" = 1'-0" **DRAWN BY:** RL **DATE:** 24 OCT. 1990	**WINDOW WITH RIGID INSULATION ADDED** **SHEET TITLE:**	**A16** **DRAWING NUMBER**



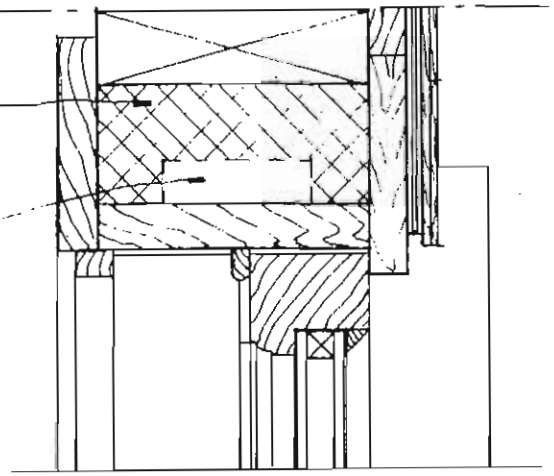
UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	STOLLER KNOERR ARCHITECTS 1818 Harmon Street Berkeley California 94703 415/652-3151	**SCALE:** 3" = 1'-0" **DRAWN BY:** RL **DATE:** 24 OCT. 1990	**WINDOW WITH RIGID INSULATION ADDED, ALTERNATIVE** **SHEET TITLE:**	**A17** **DRAWING NUMBER**

JAMB

NEW FOAMED-IN-PLACE INSUL.

SPACE FOR SPRING-LOADED COUNTER-BALANCE

(HEAD ACCORDINGLY)



SILL

NEOPRENE GASKET (FOR DOUBLE-HUNG)

NEW TRIM TO MATCH EXISTG.

NEW ½" GYP. BD.

NEW 2x BLOCKING

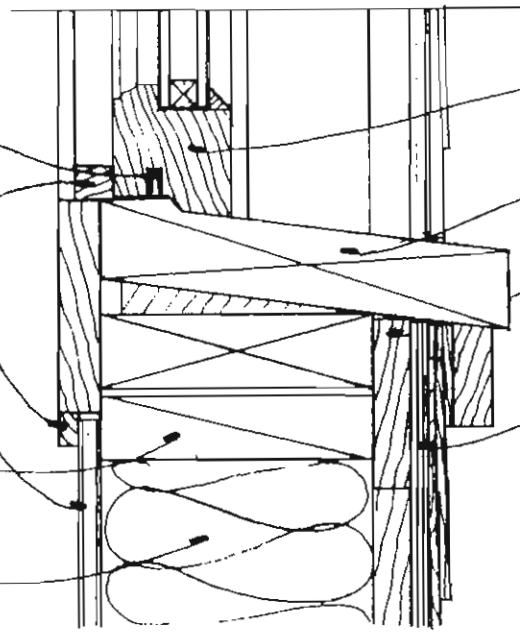
NEW R-19 BATT INSUL.

NEW DOUBLE-GLAZED WINDOW TO MATCH EXISTG.

NEW SILL TO MATCH

EXISTG. STRAIGHT SHEATHING

ADDED ⅜" PLYWD.



UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	STOLLER KNOERR ARCHITECTS 1818 Harmon Street Berkeley, California 94703 415/653-3151	SCALE: 3" = 1'-0" DRAWN BY: RL DATE: 24 OCT. 1990	DOUBLE-GLAZED WINDOW IN R-19 WALL SHEET TITLE:	A18 DRAWING NUMBER

BIBLIOGRAPHY

Beach, John Application Requesting Designation for Landmark Status: Naval Architecture Building (City of Berkeley) Berkeley, CA 1976 (recorder listed as Shirley Dean)

Berkeley Architectural Heritage Association. John Galen Howard & The Beaux-Arts Tradition. Berkeley, CA: Berkeley Architectural Heritage Association, 1988.

California Art Research. John Galen Howard. California Art Research Monographs, V.17 p.1-12. San Francisco, CA: 1936-37.

Campus Planning Study Group. Campus Historic Resources Study. Berkeley, CA: University of California, Berkeley, 1978.

Cerny, Susan D. Berkeley Landmarks. Berkeley, CA: Berkeley Architectural Heritage Association, 1994.

Corbett, Michael R. Splendid Survivors: San Francisco's Downtown Architectural Heritage. San Francisco, CA: California Living Books, 1979.

Delehanty, Randolph The Naval Architecture Building (Appendix D1, ECIS 76314), Berkeley, CA 1977 (EIR comments)

Draper, Joan Elaine. John Galen Howard and the Beaux-Arts Movement in the United States. Masters Thesis: Berkeley, CA: 1972.

Edwards, Burton Peek University of California – Berkeley, Historic Structures Report: Davis Hall, Emeryville, CA 2001

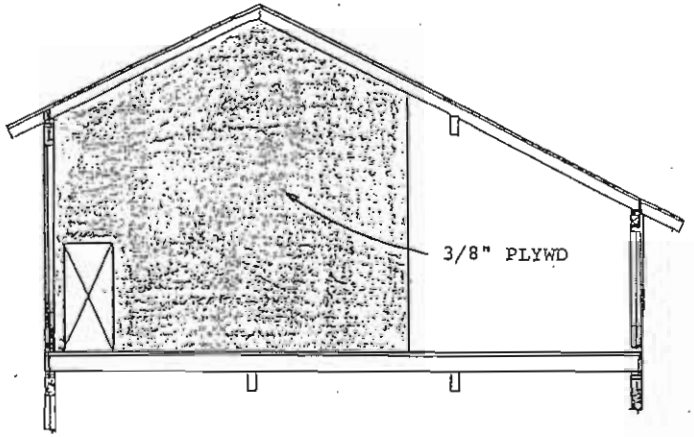
Ehrich, Benjamin B. Photographic Guide to the University of California, Berkeley. Palo Alto, CA: Pacific Book Publishers, 1969.

Emmington, Lesley National Register of Historic Places Inventory – Nomination Form: Drawing Building, Berkeley, CA 1976 (Architectural section prepared by John Beach and historical section prepared by Loren partridge and Randolph Starn)

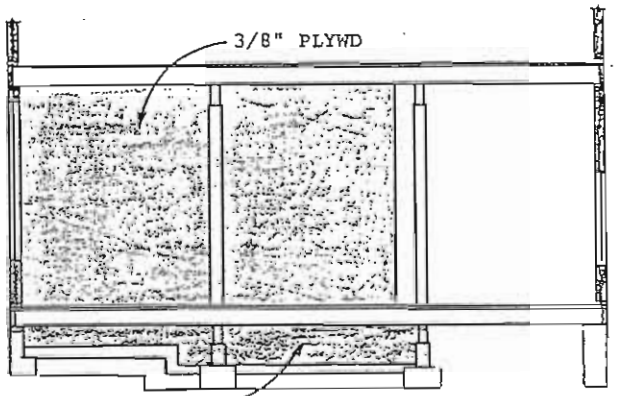
Helfand, Harvey The Campus Guide University of California, Berkeley New York, Princeton Architectural Press, 2002

Howard, John Galen. Architectural Drawings of John Galen Howard: buildings for the University of California at Berkeley. Bancroft Library, University Archives.

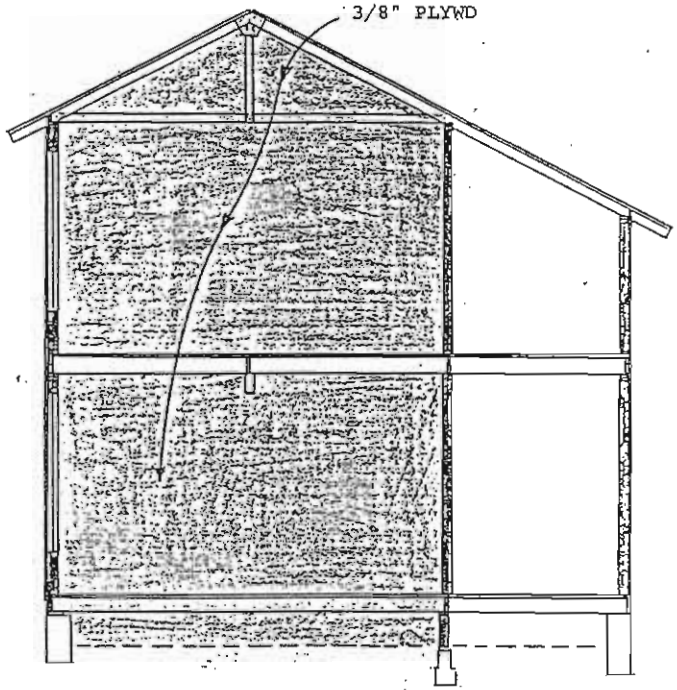
Kostof, Spiro, ed. The Architect. New York: Oxford University Press, 1977.



SECTION (E)



SECTION (F)



SECTION (G)

SHEET S7

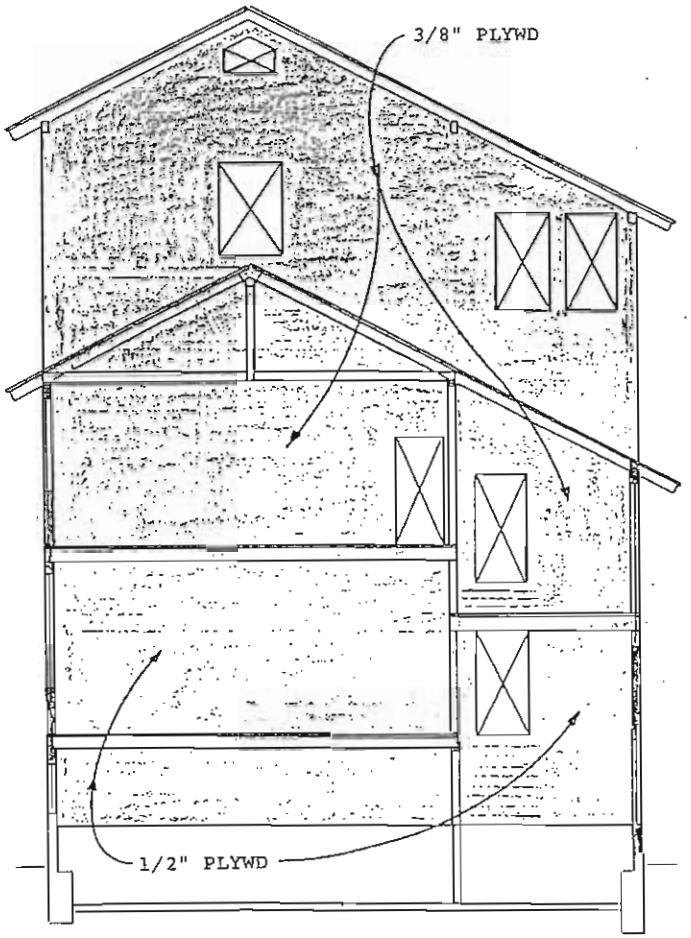
UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609
415/655-9700

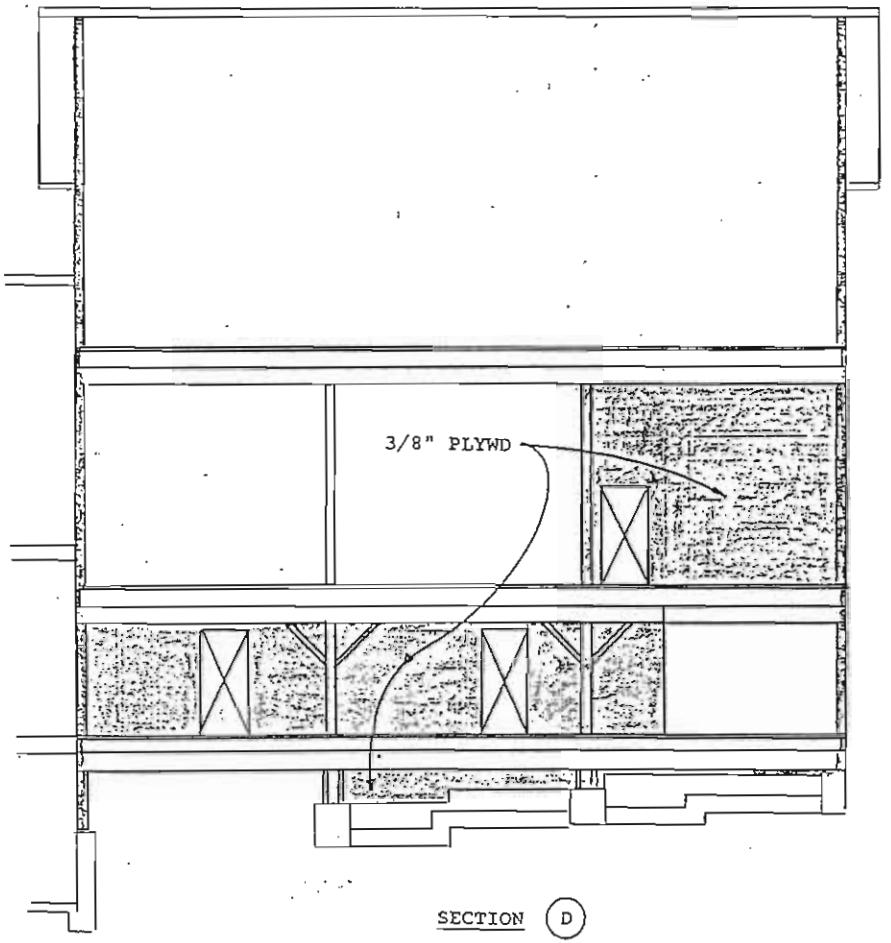
SECTIONS
Sheet Title

Scale 1/8" = 1'-0"

S7
Drawing Number



SECTION (C)



SECTION (D)

SHEET S6

All plywd. shown is new.

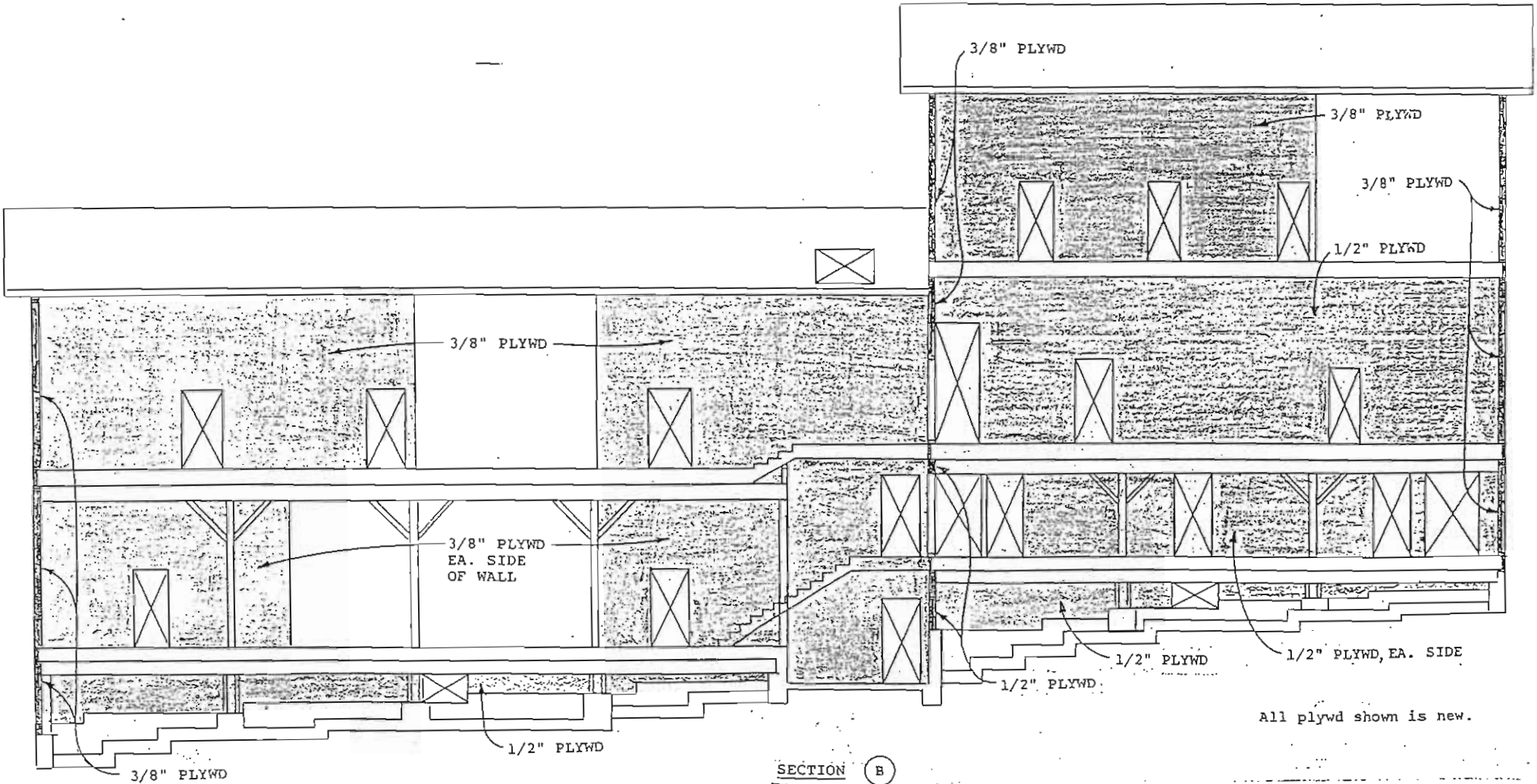
UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609
415/655-9700

Sheet Title: SECTIONS

Scale: 1/8" = 1'-0"

Drawing Number: S6



All plywd shown is new.

SECTION (B)

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

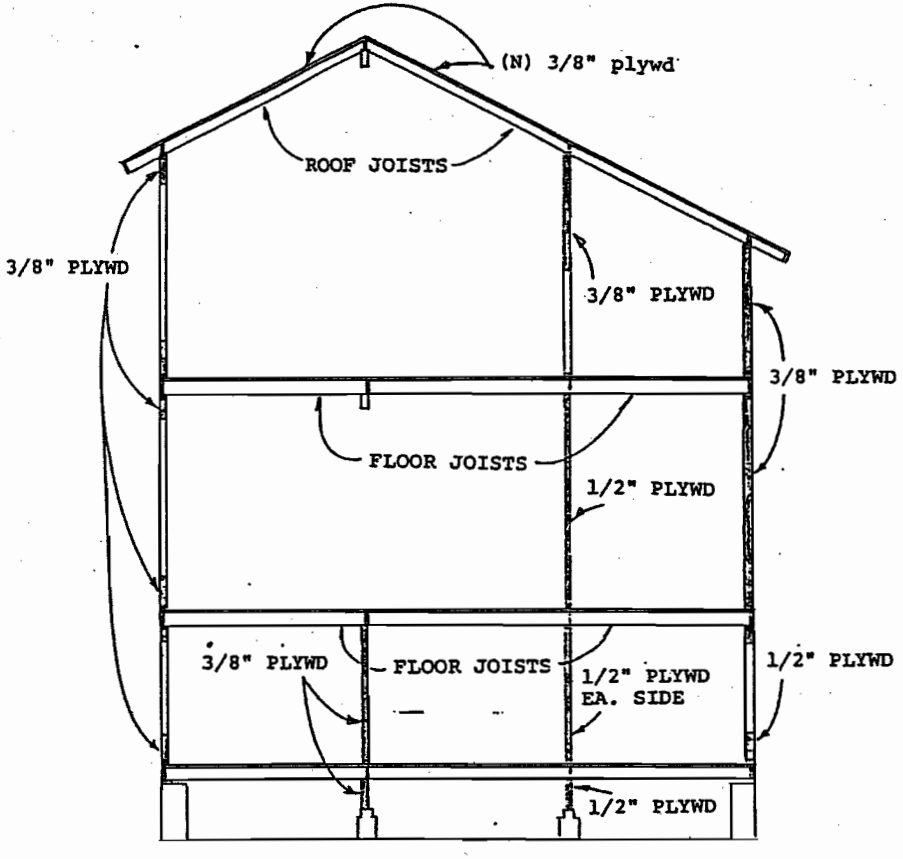
DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609
415/655-9700

Sheet Title: LONGITUDINAL SECTION

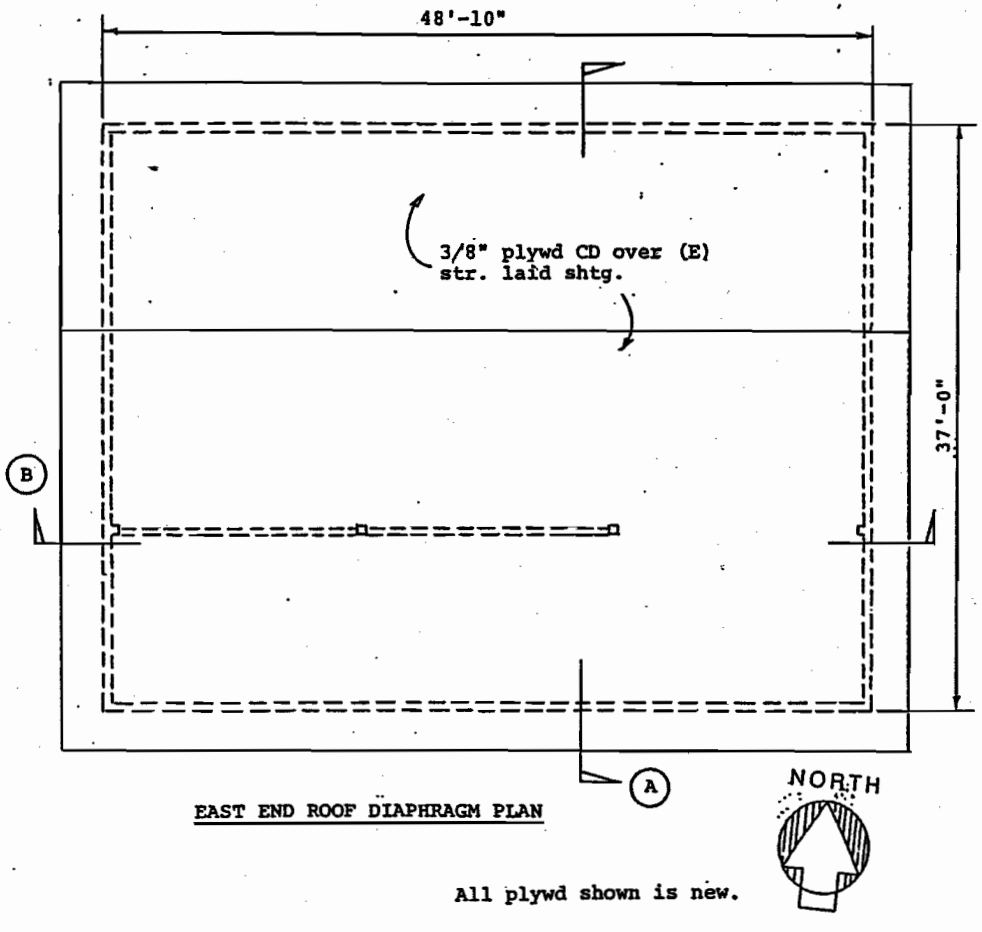
Scale: 1/8" = 1'-0"

S5

Drawing Number



SECTION (A)



EAST END ROOF DIAPHRAGM PLAN

All plywd shown is new.

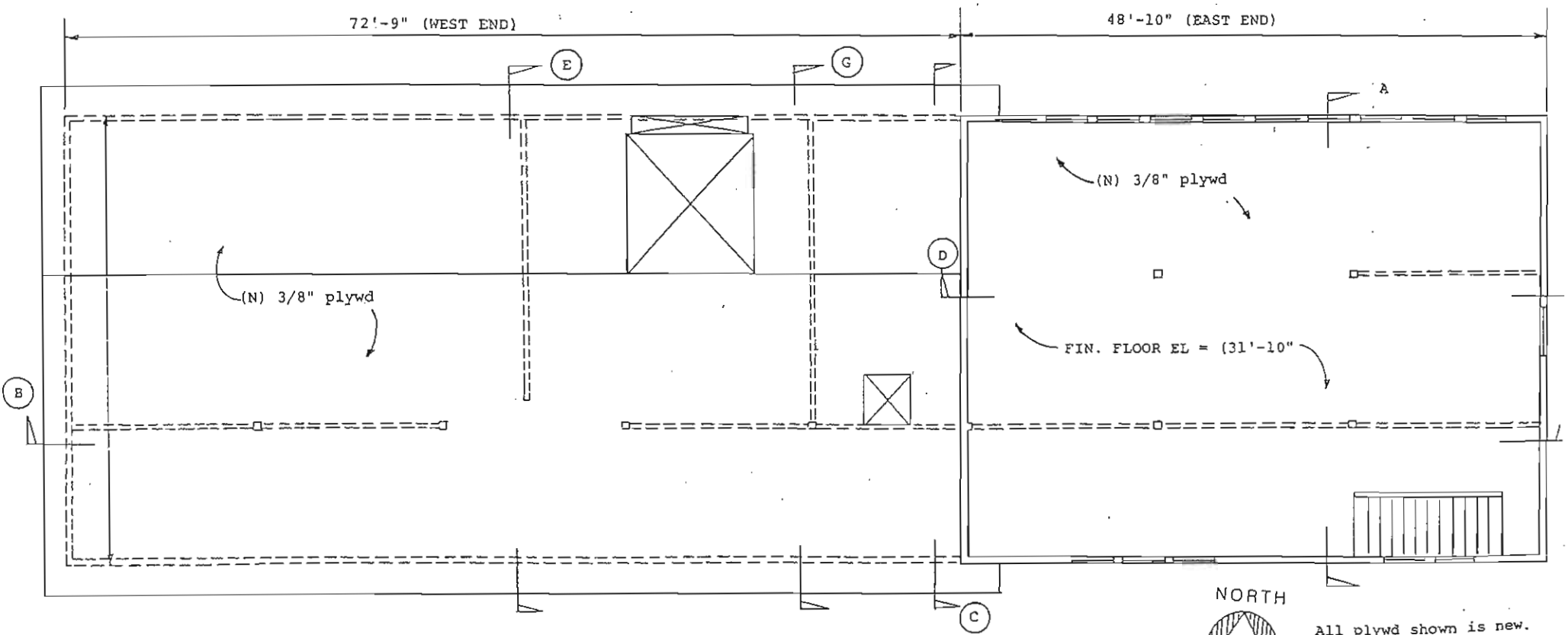
UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609
415/655-9700

TRANSVERSE SECTION,
PARTIAL ROOF PLAN
Sheet Title

Scale 1/8" = 1'-0"

S4
Drawing Number



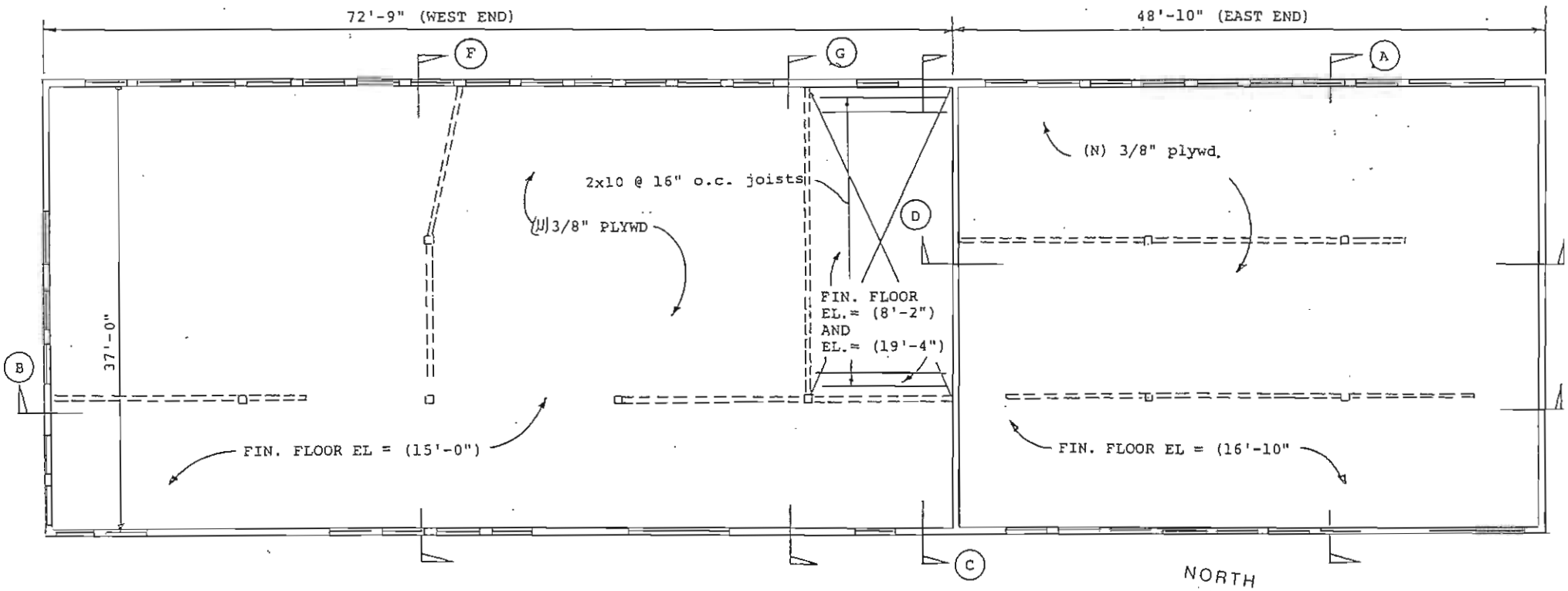
All plywd shown is new.

WEST END ROOF DIAPHRAGM AND EAST END THIRD FLOOR DIAPHRAGM PLAN

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE

DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609

Sheet Title: THIRD FLOOR AND PARTIAL ROOF PLAN



All plywd shown is new.

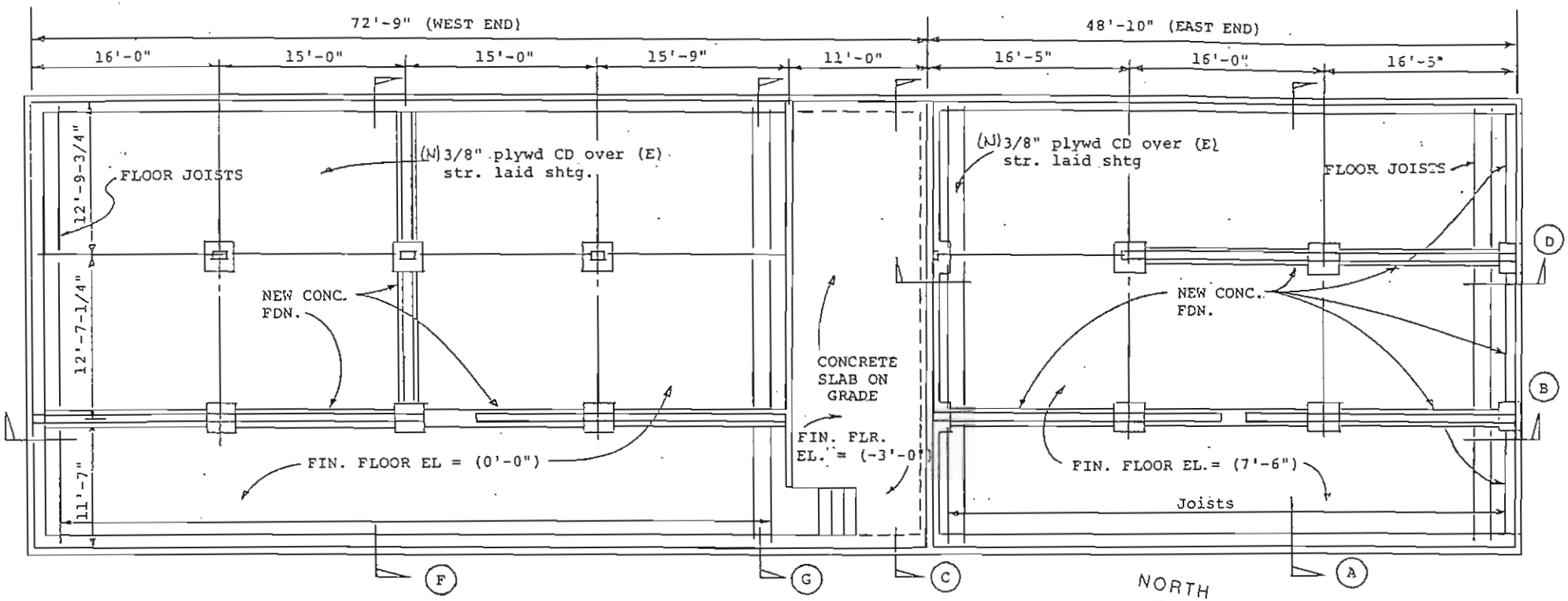
SECOND FLOOR DIAPHRAGM PLAN

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609
415/655-9700

Sheet Title: SECOND FLOOR PLAN

S2



FOUNDATION AND FIRST FLOOR DIAPHRAGM PLAN

All plywd shown is new.

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

DAVID LOGAN MESSINGER & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS
4009 Webster Street
Oakland, California 94609
415/655-9700

Sheet Title: FOUNDATION AND FIRST FLOOR PLAN

Scale: 1/8" = 1'-0"

Drawing Number: S1

In the Degenkolb report, the entire approach was different. Since large numbers of buildings were examined, it was necessary to take the cursory, judgmental approach with no calculations being prepared. More than likely, the Degenkolb seismic performance rating for the Naval Architecture Building was based upon the premise that wood buildings perform well in earthquakes. This is true in many instances such as wood frame residences which have many interior partitions. The Naval Architecture Building, however, is not a wood frame residence - it is a large two to three story building with many windows and large interior areas without partitions. In addition, the vertical and horizontal seismic bracing elements are all composed of straight laid sheathing, which has very poor seismic resistance as opposed to diagonal sheathing or plywood.

Please let me know if I can be of further assistance.

Very truly yours,

DAVID L. MESSINGER AND ASSOCIATES

David L. Messinger

David L. Messinger

(UCNNAV1/25/ATT)

Additional nailing of top plates of exterior walls should be done as needed to provide sufficient chord strength for floor and roof diaphragms.

Roof rafters with ceiling ties above the wall plate line should have the ceiling dropped and new ceiling ties installed across the rooms at the wall plate line.

The east end wall has no foundation except below the interior girders and at the outside corners. Apparently when the east end of the building was removed no new foundation was placed under the wall. Asphalt paving has been placed outside the east wall adjacent to the wood shingles so this condition is only visible from the crawl space. A new concrete foundation should be placed under this wall.

Column/beam connectors should be added to all columns and beams under the first floor.

Mudsills over the concrete foundations are fastened to the concrete with 1/2" diameter anchor bolts spaced from 4 to 5 ft. on center. This is generally inadequate to transfer lateral loads from the framing to the concrete on all the walls. New, larger bolts should be installed in all the mudsills and corresponding concrete foundations.

Form boards still remain on some of the concrete foundations especially around the piers. Also, wood debris lies on the ground within the crawl space. All wood except that supporting the structure should be removed to avoid attracting termites. Some termite damage and dry rot exist in areas where the soil is in contact with the wood.

Soil should be removed from outside the building at various locations to give a clearance of 6" between wood and ground.

The seismic performance ratings assigned in the Stoller/Knoerr/Messinger report was POOR for the Naval Architecture Building.

CONCLUSIONS

After reading and evaluating the previous three reports, we can only re-affirm our opinion that the Naval Architecture Building should be rated POOR. The reason for this is that in both the McClure and Messinger and the Stoller/Knoerr/Messinger reports, detailed examinations were made of not only the construction documents but also the buildings themselves. Detailed structural calculations were prepare to support our conclusions.

The building is rated Group D and VERY POOR. The cost of reconstruction would be the cost to demolish and construction of the building from the ground up.

The 1981 Degenkolb report examined 152 buildings on the Berkeley Campus as part of an examination of all of the buildings on all nine University of California Campuses. The ratings assigned to individual buildings were in accordance with the UPSS, and were *"... based on brief observations of the drawings on file at the campus, a cursory look at the exterior of most of the buildings, and a judgmental opinion retarding the seismic performance of each building based on observations of building performance in previous earthquakes."* The Degenkolb report assigned a seismic performance rating of FAIR to the Naval Architecture Building.

The 1990 Stoller/Knoerr/Messinger report was prepared for the purpose of assisting the University in the restoration and coordination of the necessary maintenance and structural improvements.

The structural aspects of the Stoller/Knoerr/Messinger report consisted of a re-evaluation of the 1974 McClure and Messinger report, a physical examination of the building, a detailed review of the available construction documents, preparation of structural calculations using the UPSS as the review criteria, identification of deficiencies in the seismic resisting system, and preparation of a seismic retrofit scheme to mitigate the identified deficiencies.

The Stoller/Knoerr/Messinger report identified and confirmed the basic seismic resisting deficiencies found in the 1974 McClure and Messinger report and the following corrective work was recommended: (See drawings S1 - S7)

The entire roof needs to be stripped, covered with 3/8" plywood nailed over the existing straight sheathing and then re-roofed with wood shingles.

The outside walls need to be stripped of shingles and covered with plywood nailed over the straight sheathing and then recovered with wood shingles.

The floors on all levels need to be stripped of finish flooring material and covered with plywood nailed over the existing 1" straight laid flooring.

Partitions shown on the structural drawings need to be converted to shear walls by nailing on plywood sheathing and connecting to new foundation walls under the first floor.

SEISMIC RISK ASSESSMENT

Before getting into the details of the review of the previous reports, some background is necessary to explain the approach taken in seismic risk assessment of buildings. A seismic risk assessment consists of three parts: a seismic hazard analysis, a seismic performance analysis, and a seismic risk analysis.

The seismic hazard analysis identifies the exposure of the site to geologic hazards; the seismic performance analysis evaluates the building damage potential when subjected to the anticipated ground motion; and the seismic risk analysis combines the hazard and performance analysis to determine the anticipated damage and to recommend retrofit measures to upgrade the building to "life-safety" standards.

The seismic hazard analysis hardly requires explanation: The Naval Architecture Building lies about 1,100 feet to the west of the Hayward fault, a known, active fault capable of producing earthquakes of Richter magnitude 7 - 7.25. The Campus is also exposed to earthquake ground shaking from the San Andreas and Calaveras faults.

Seismic Performance Analyses: The 1974 McClure and Messinger report consisted of a physical examination of the building, a detailed review of the available construction documents, preparation of structural calculations using the UPSS as the review criteria, identification of deficiencies in the seismic resisting system, and preparation of a seismic retrofit scheme to mitigate the identified deficiencies.

The findings of the 1974 McClure and Messinger report for the Naval Architecture Building were:

This structure is rectangular in shape, and has shape characteristics that would have made it very simple to brace if bracing elements had been incorporated into the original design. Unfortunately, the structure is devoid of almost any acceptable bracing elements. The roof and floors cannot function as diaphragms because the sheathing was laid straight. The exterior walls cannot function as shear walls because the sheathing was nailed horizontal. The cross walls on each side of the toilet rooms cannot function as shear walls because they are either unsheathed or sheathed with straight sheathing. Also, many other required bracing elements are not present. This building offers little resistance to lateral forces and is particularly vulnerable to wind forces in a north-south direction. The cost of reconstruction of this structure would be uneconomical and unless the structure has some historical significance, it should be phased out in use as a University building.

DAVID LOGAN MESSINGER AND ASSOCIATES, INC.
CONSULTING STRUCTURAL ENGINEERS
4009 WEBSTER STREET, OAKLAND, CALIFORNIA 94609
TELEPHONE (510) 655-9700
FAX (510) 655-3369

DAVID L. MESSINGER, S.E.
GERARD T. QUINN, S.E.

March 20, 1992

Mr. Leroy Bean, Assistant Vice Chancellor
Office of Physical Resources, Planning,
Design and Construction
University of California
2000 Carleton Street
Berkeley, CA 94720

Subject: Naval Architecture Building, University of California Berkeley - Evaluation of Various Seismic Performance Ratings, Our Job No. 9211

Dear Mr. Bean:

Pursuant to your request, I am herewith submitting the following report on various seismic hazard analyses which have been performed on the Naval Architecture Building.

Three seismic reports have been prepared for the Naval Architecture Building: The first by McClure and Messinger in 1974; the second by Degenkolb and Associates in 1981; and the third by Stoller/Knoerr in 1990 with Messinger and Associates as structural engineers. The objective of these three reports was to assign a seismic performance rating (GOOD, FAIR, POOR OR VERY POOR) according to the "University Policy - Seismic Safety" (UPSS).

The scope of work proposed for this report is as follows:

1. Review the three reports to ascertain the amount and type of work which went into each report.

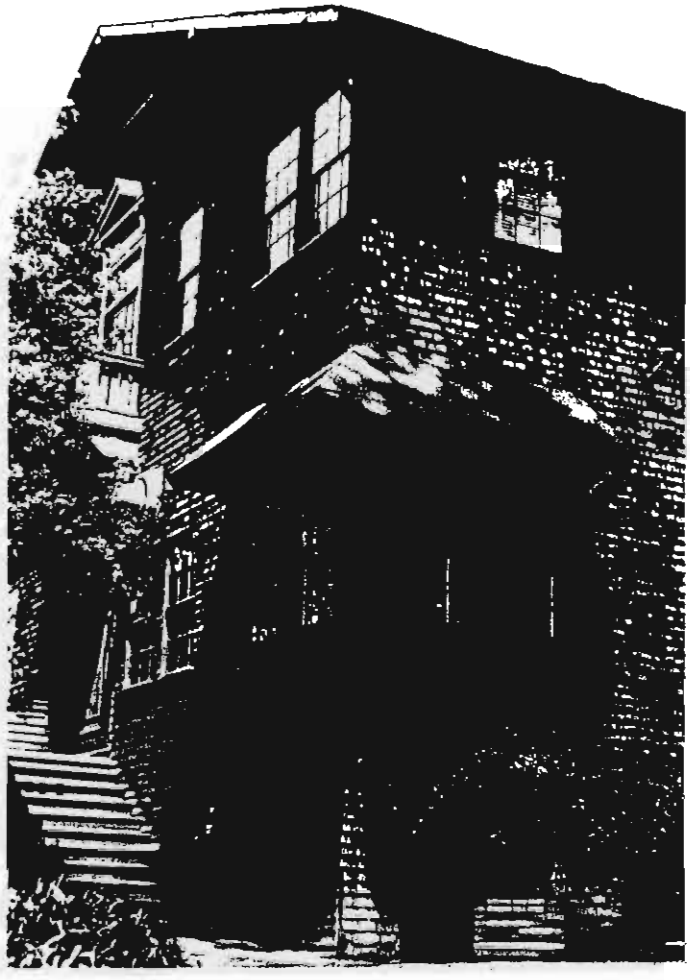
2. Summarize the conclusions of each report, and explain how the each seismic rating was determined.

3. Prepare a seismic performance rating based on the requirements of the "University Policy - Seismic Safety" which will reflect our review of the three previous reports.

4. Attend one meeting, if necessary, to explain our report.

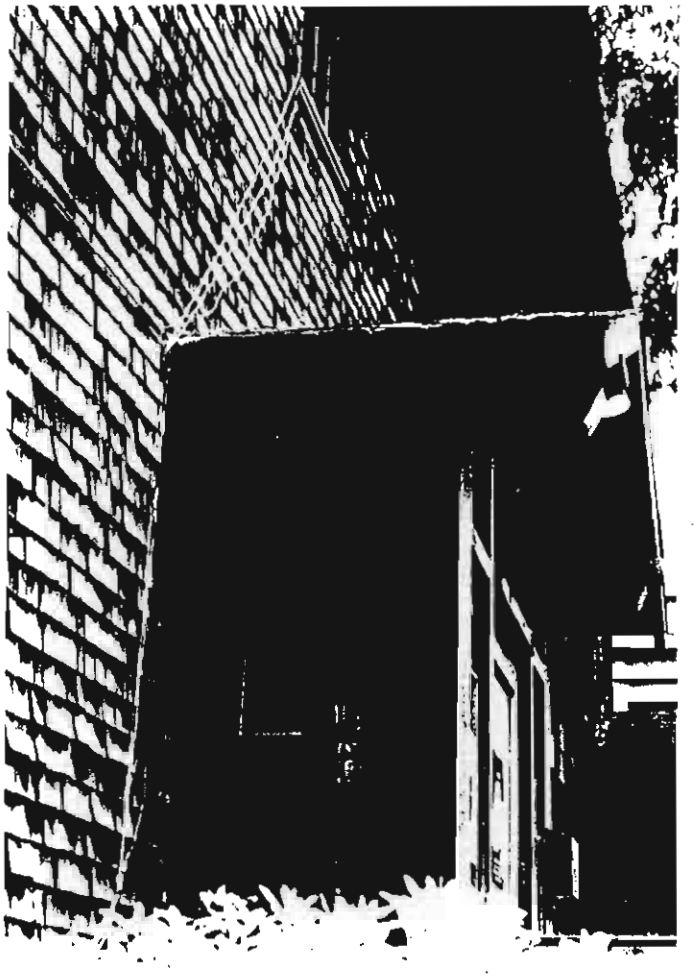
7e. Elevations: Balcony and pediment on west side.

7f. Elevations: North side with long bands of windows.



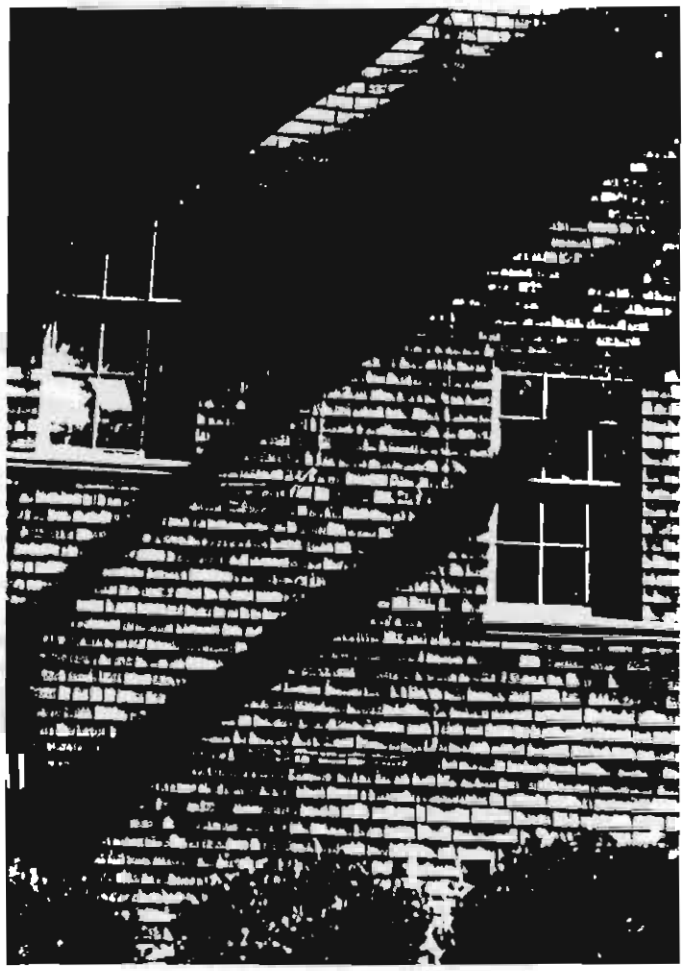
7c. Elevations: Southwest corner with awning and stair.

7d. Elevations: South side with portico and awning.



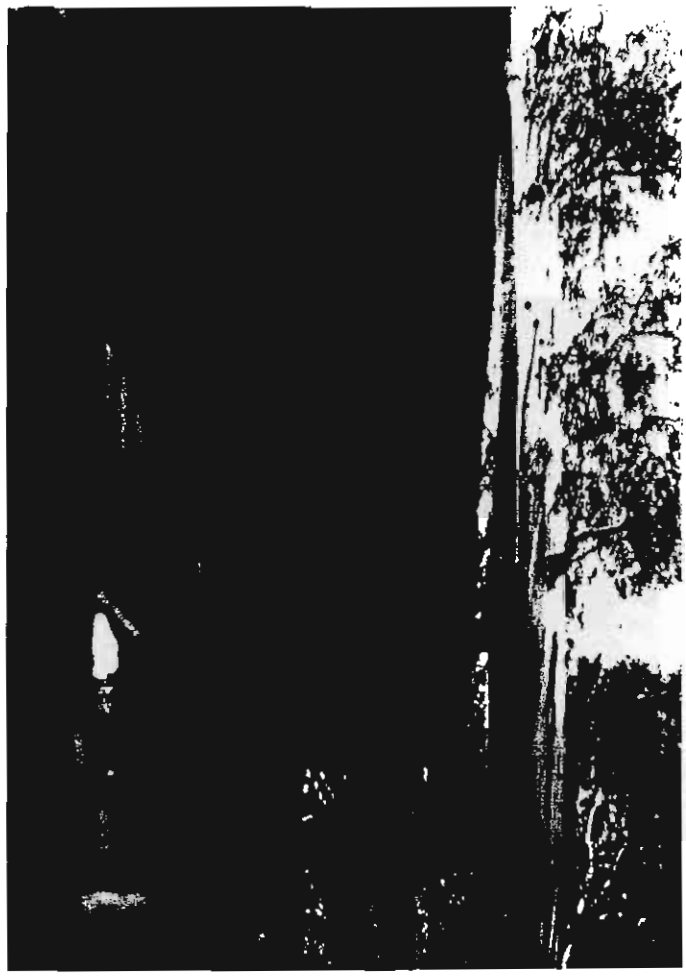
7a. Elevations: Mossy roof edge at entrance portico, shingle conditions.

7b. Elevations: Entrance portico.

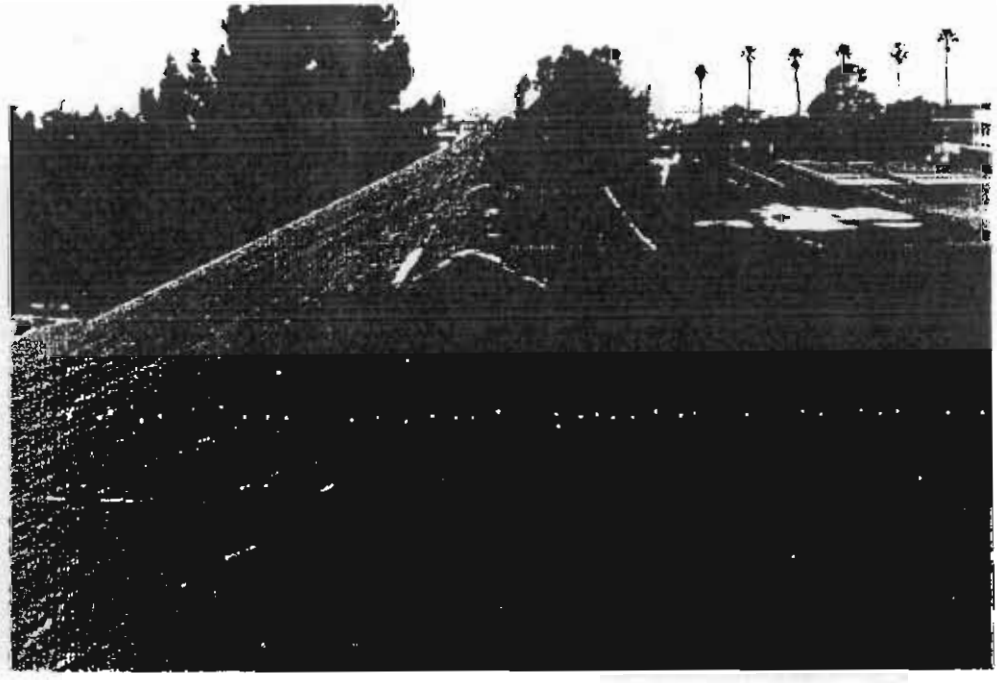


6a. Structural conditions: Bulge on south side.

6b. Structural conditions: Post and beam connection.

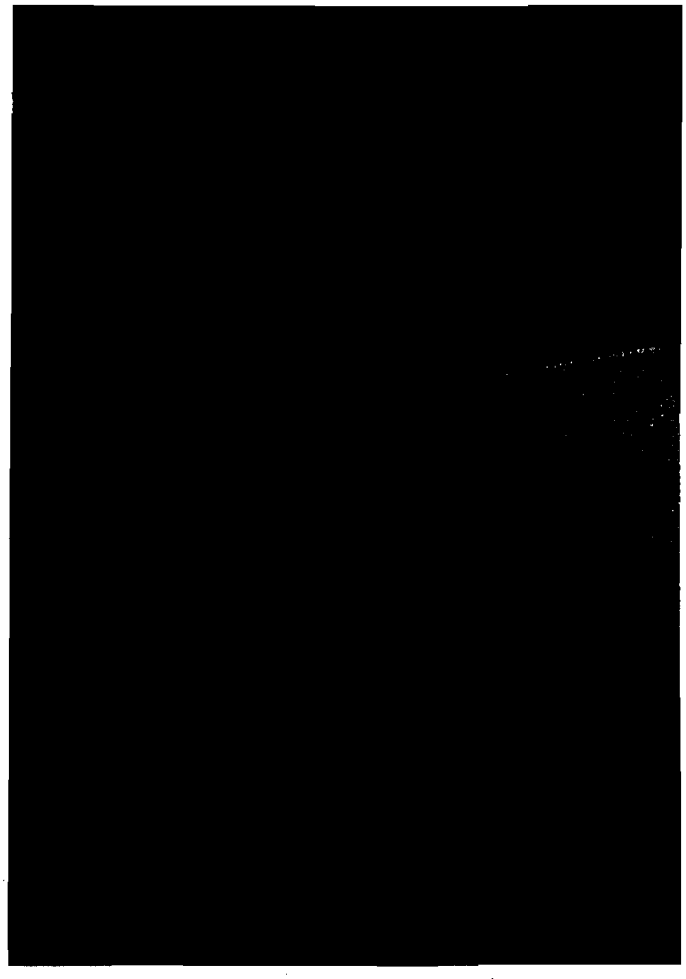


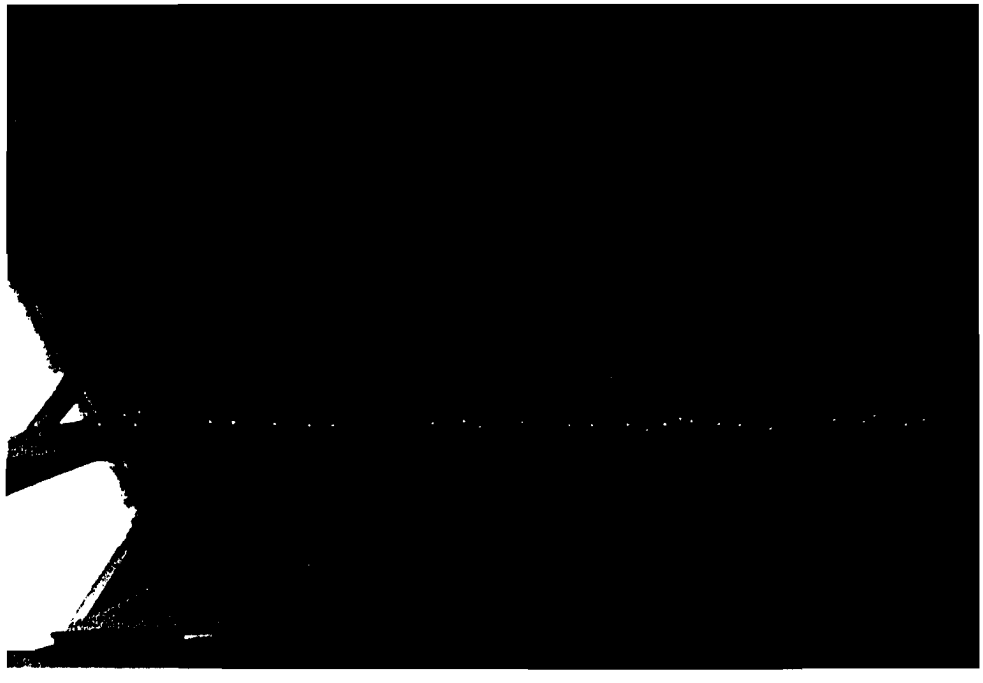
5a. Roof conditions: End of beam at west side showing water stain.



5b. Roof conditions: Ridge of lower roof portion with cupola roof.

4c+d. Water stains at cupola: Wall plate, rafters and cupola lights.

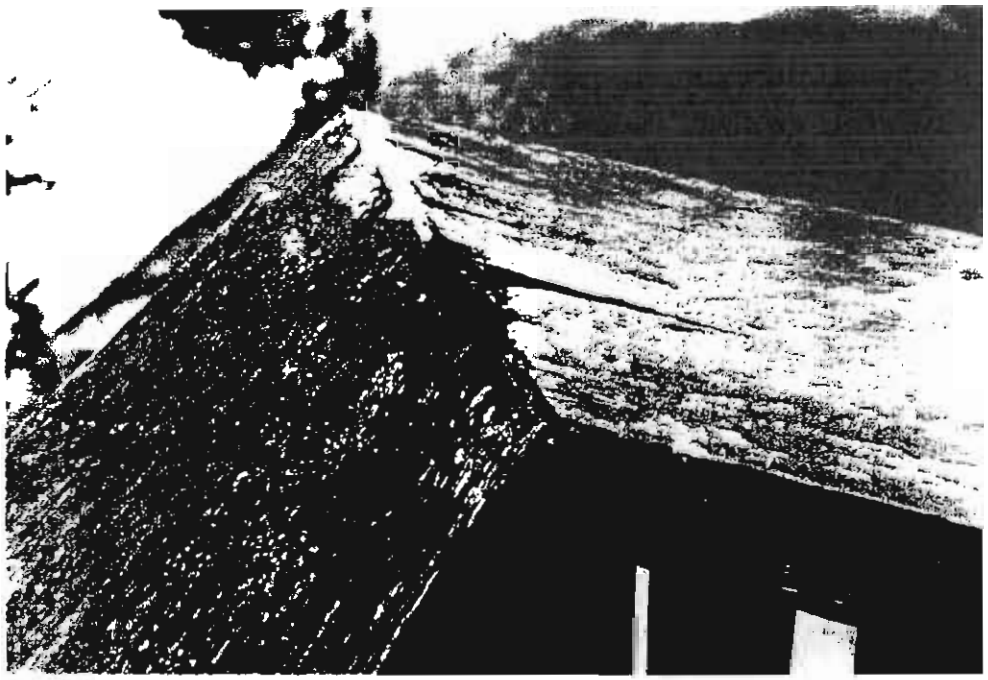




4a+b. Water stains at cupola: Rafters, collar ties and ceiling board.

4. Wood in porch has been damaged by fungus (note unfinished floor repair). Replace damaged members and paint to preserve.

3a. Balcony conditions: Threshold of balcony door.



3b. Balcony conditions: Rotted balcony railing.

1. Damaged (rotted) facing board under roof indicates that the roof should be inspected by a roofing contractor.

1a. Sill at grade conditions: Rotted mud sill at south elevation.

1b. Sill at grade conditions: Black top at sill near center of north elevation.

UNIVERSITY OF CALIFORNIA AT BERKELEY
NAVAL ARCHITECTURE BUILDING
STUDY AND REPORT

Sheet Title: NORTH ELEVATION

Scale: 1/8" = 1'-0"

Sheet No.: A 5

STOLLER KNOERR ARCHITECTS
1818 Hearst Street Berkeley, California 94611 (415) 652-31

Job No. | Drawn by | Dated

VISUAL INSPECTION

DOCUMENTING PHOTOGRAPH

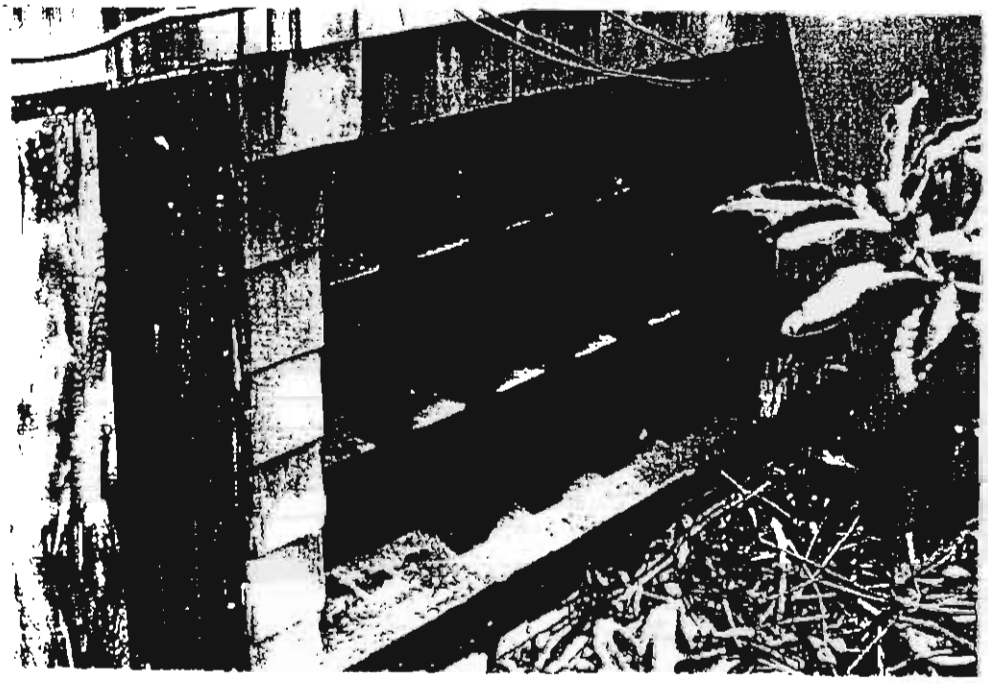
AND

RECOMMENDATIONS

for

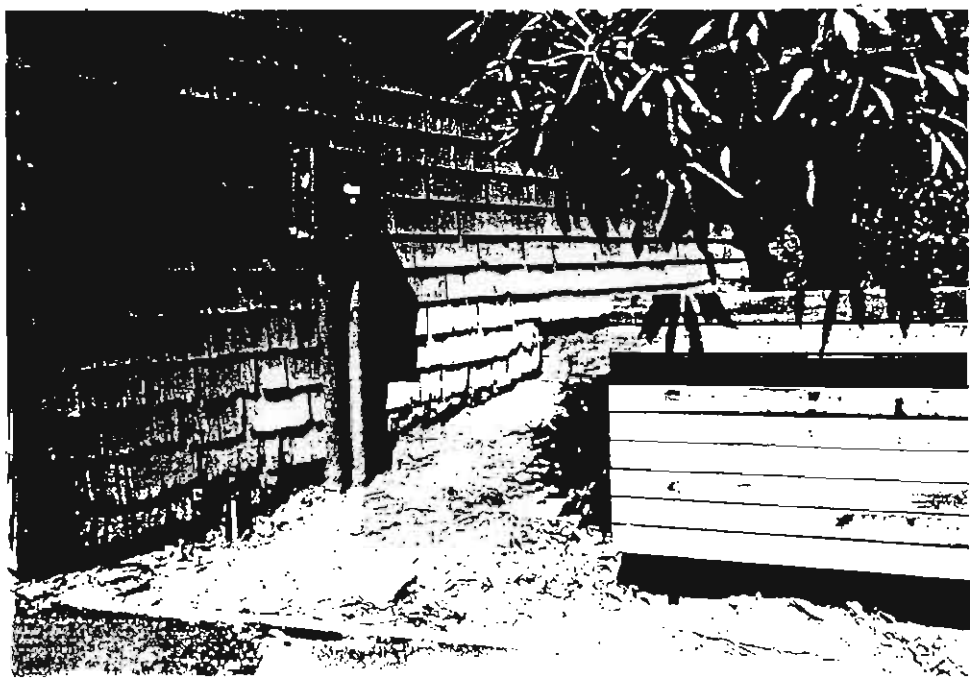
NORTH ELEVATION, Sheet A 5

2. Damaged wood behind the shingles. See 1 above.



3 Unscreened section of vent permits access for rodents, skunks, feral cats, to the subarea. Screen with 1/4" hardware cloth.

1a. Damaged shingles. Indadequate ground to wood clearance and water draining into the building have created extensive fungus damage at the base of the south facing outside wall.



1b Damaged shingles Refer to above

UNIVERSITY OF CALIFORNIA AT BERKELEY
NAVAL ARCHITECTURE BUILDING
STUDY AND REPORT

Sheet Title: SOUTH ELEVATION

Scale: 1/8" = 1'-0"

Sheet No.: A 4

STOLLER KNOERR ARCHITECTS
1818 Hearst Street Berkeley, California 94611 (415) 652-3151

Job No. | Drawn by | Dated

VISUAL INSPECTION

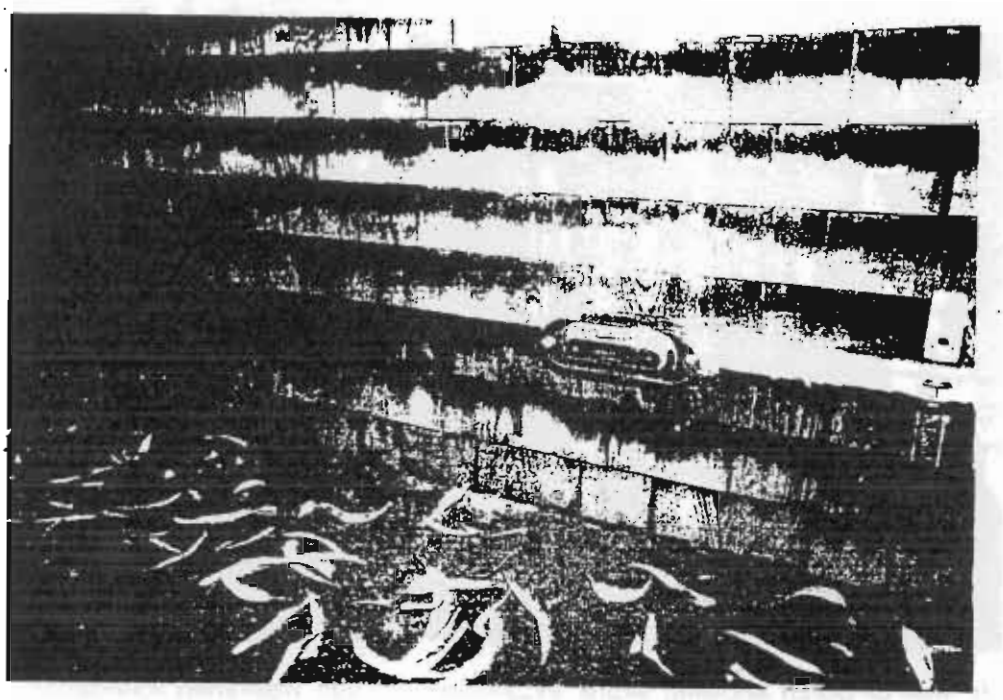
DOCUMENTING PHOTOGRAPHS

AND

RECOMMENDATIONS

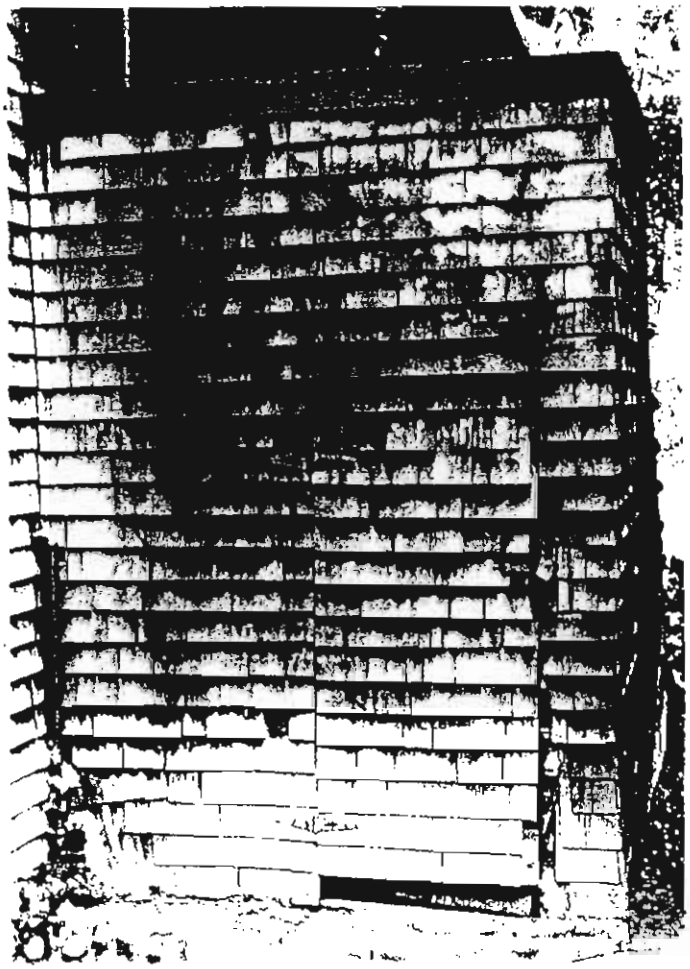
for

SOUTH ELEVATION, Sheet A 4

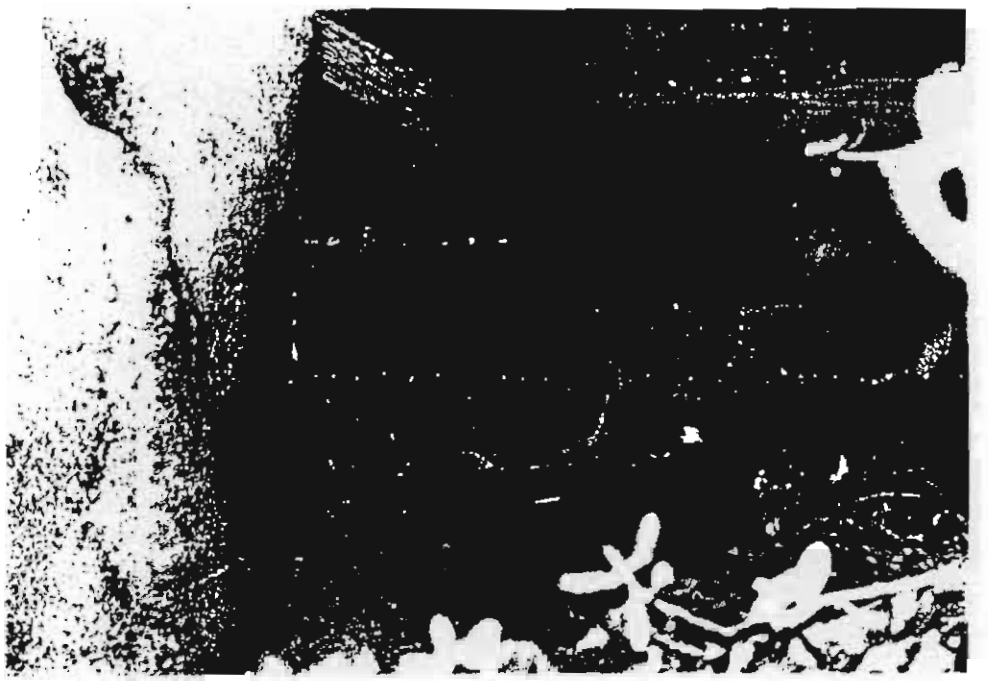


13. Asphalt laid over base of shingles providing continuous earth to ground contact on east wall and on a section of the north wall. Raise the foundation, or excavate the ground to eliminate the earth to wood contacts.

11. Outside wall of porch showing skunk excavation through weakened foundation. Replace foundation to code.

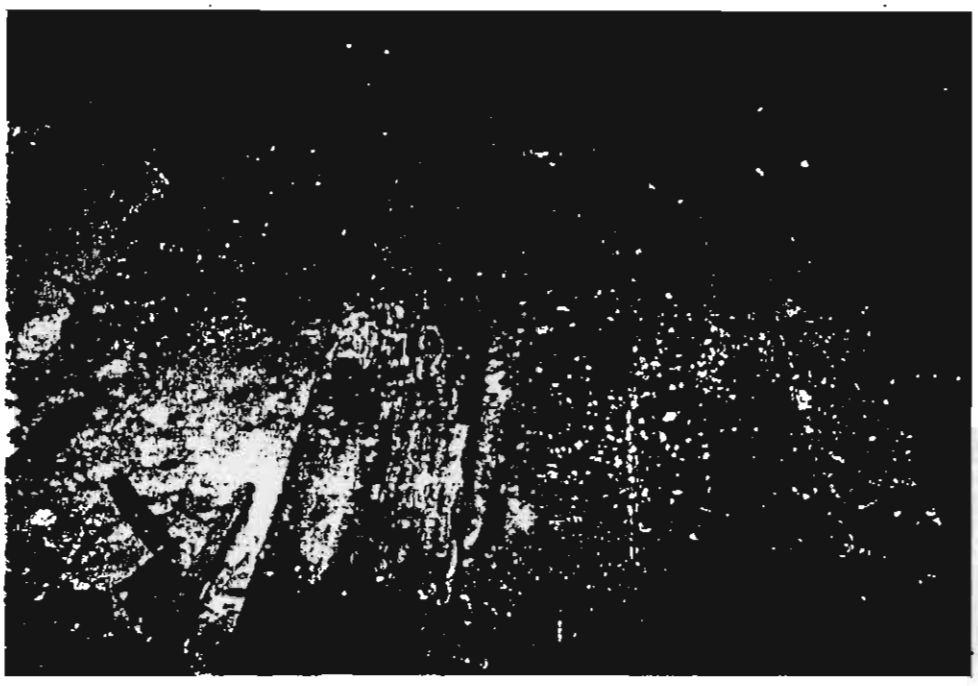


12 Door to area under porch has excessive clearance and needs to be reconstructed to exclude rodents. Clearance should be less than 1/4" to exclude mice.

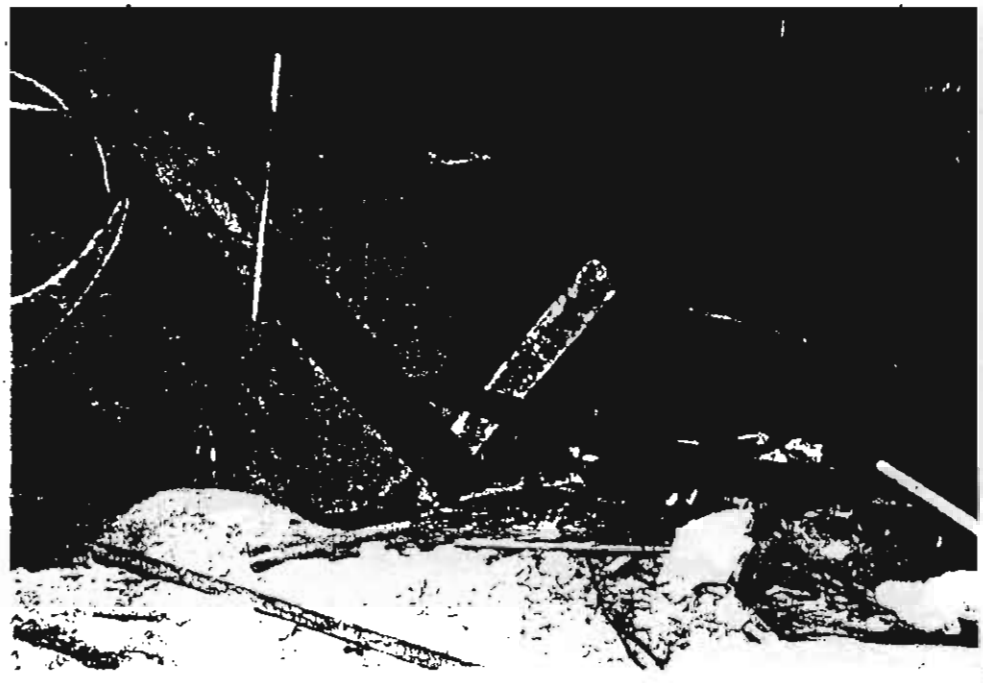


9. Base of porch showing extensive fungal decay because of wood to earth contact. Reconstruct base of porch to eliminate earth to ground contact and provide a minimum of 6" clearance.

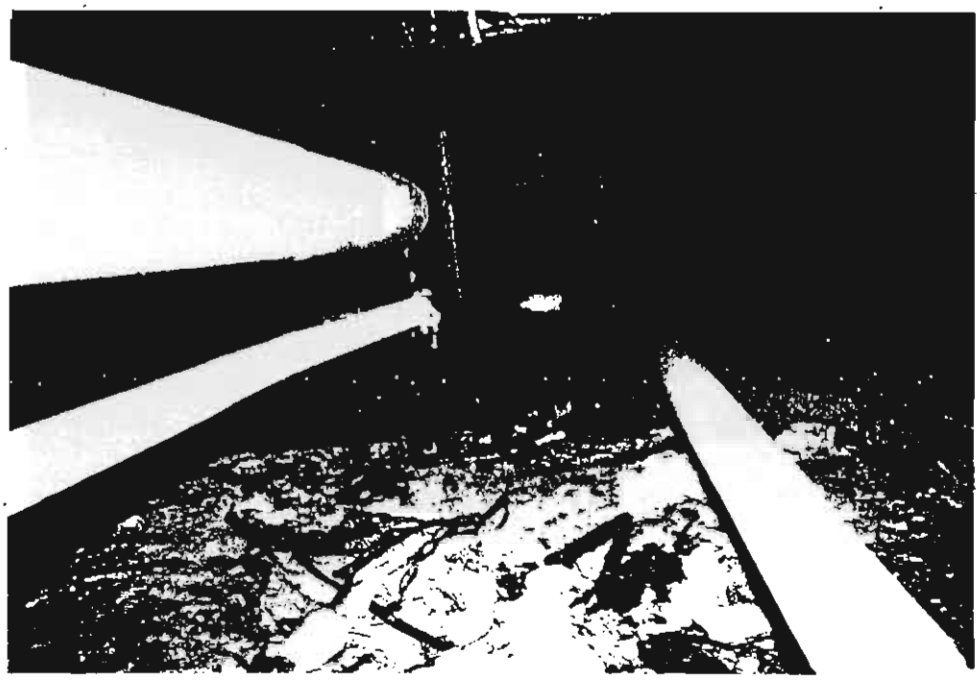
10 Inside wall of porch showing earth to wood contact. Excavate or raise foundation to provide 6" clearance. The foundation is in poor condition (see 11) and should be replaced.



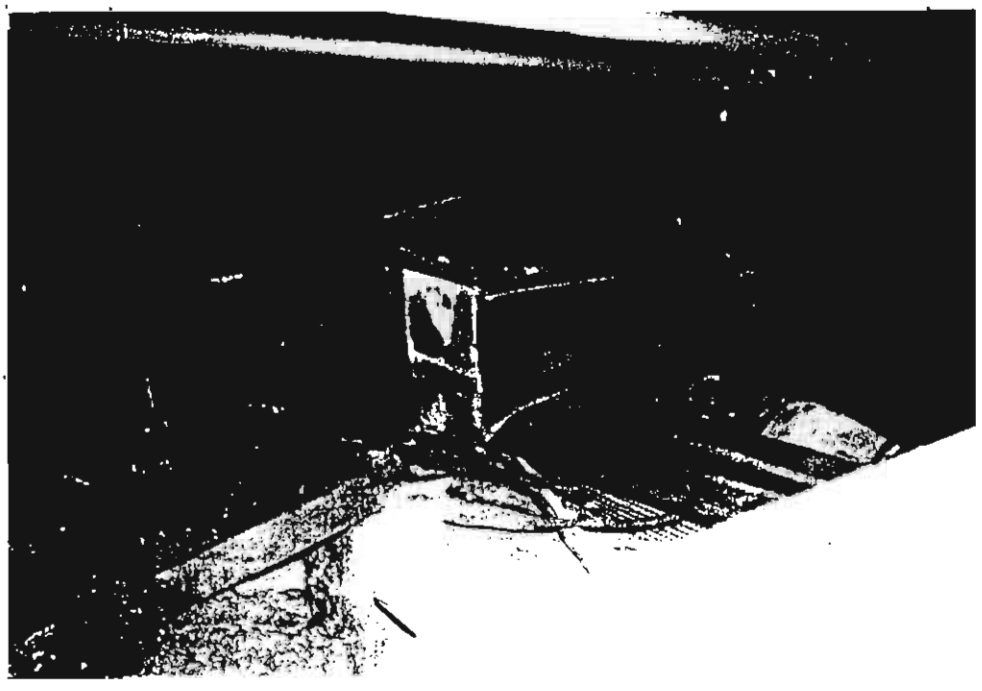
7. Subterranean termite (**Reticulitermes hesperis**) damage in boards in subarea. Infestation is not active. Remove and dispose of boards.



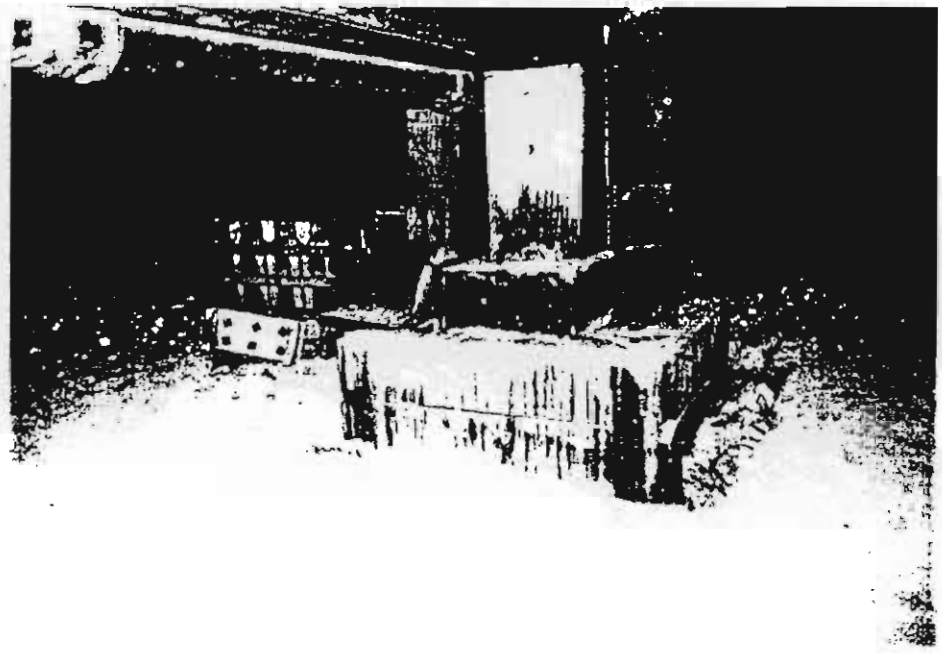
8. Scrap wood in the subarea Remove and dispose of boards



5. Foundation forms left in place. Remove.



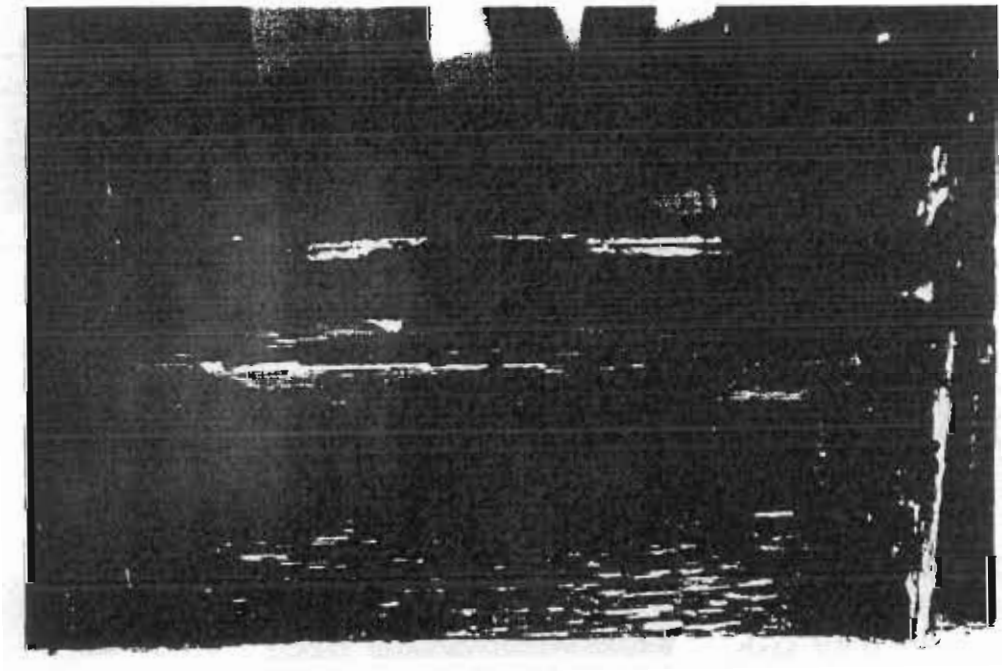
6 Scrap wood and cardboard stored in subarea. Remove.



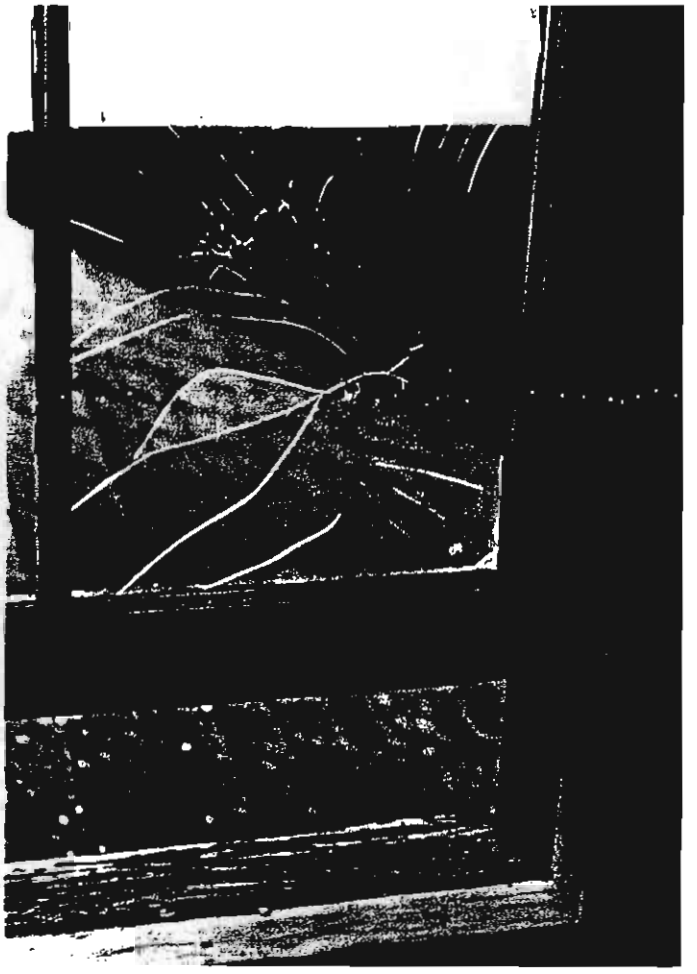
3. Wood forms around base of piers (6 ea. in upper (east) and lower (west) subareas). Recommend removing the forms.

4 Forms penetrating the foundation and providing continuous contact from the earth to the sill Repair to bring to code or provide chemical barrier

2b. Glazing and sash conditions: Recently applied caulking has fallen off.



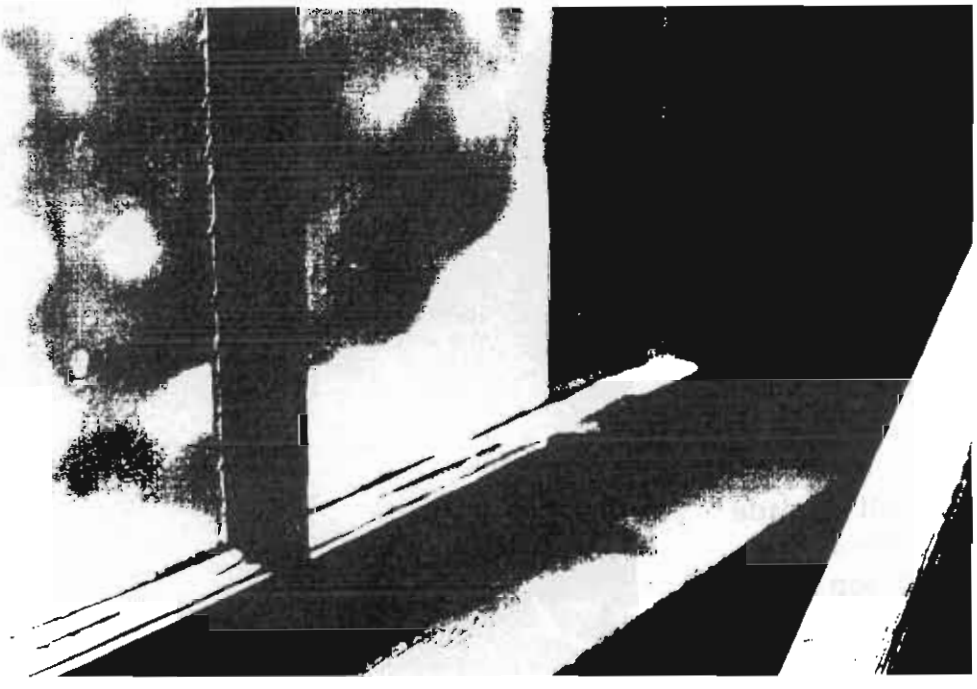
2c. Glazing and sash conditions: Bottom light of entrance portico.



2d. Glazing and sash conditions: Broken window pane, rotted sill at 3rd floor classroom.

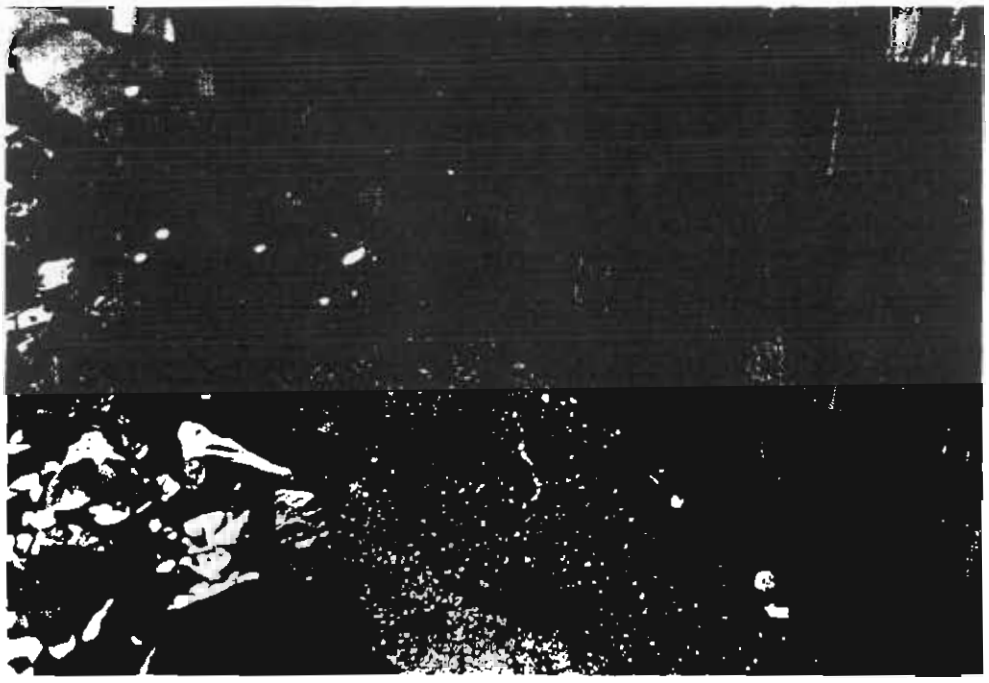
2e. Glazing and sash conditions: Balcony door sash.

1c. Sill at grade conditions: Lacking stem wall on side of entrance portico.

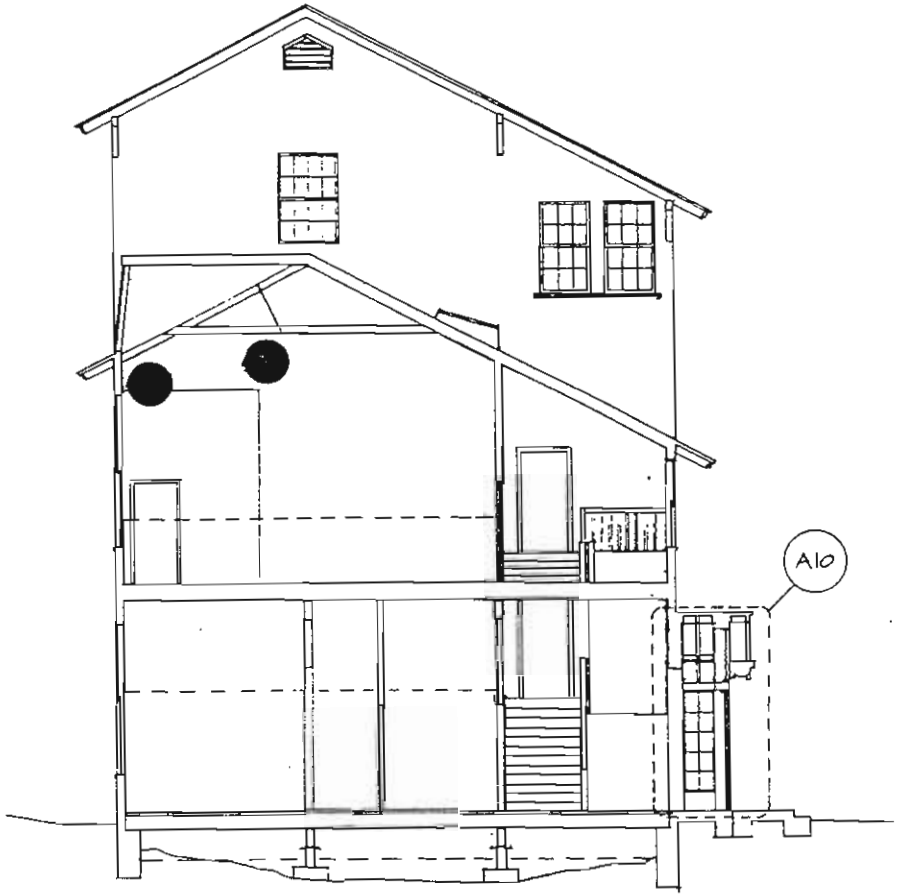


2a. Glazing and sash conditions: Typical unpainted sash on south side.

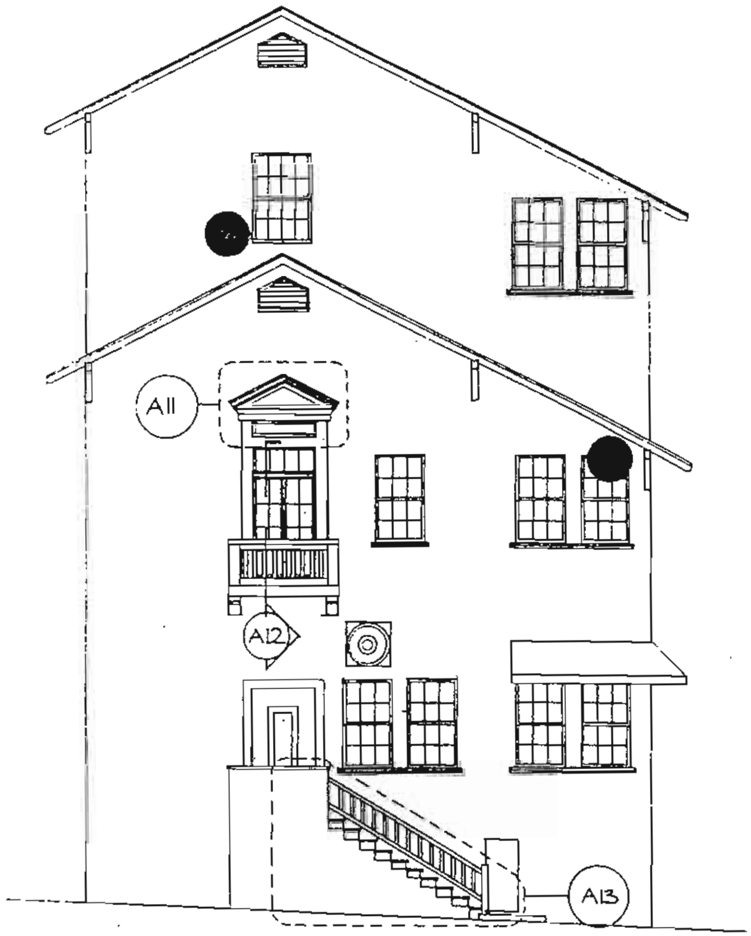
1a. Sill at grade conditions: Rotted mud sill at south elevation.



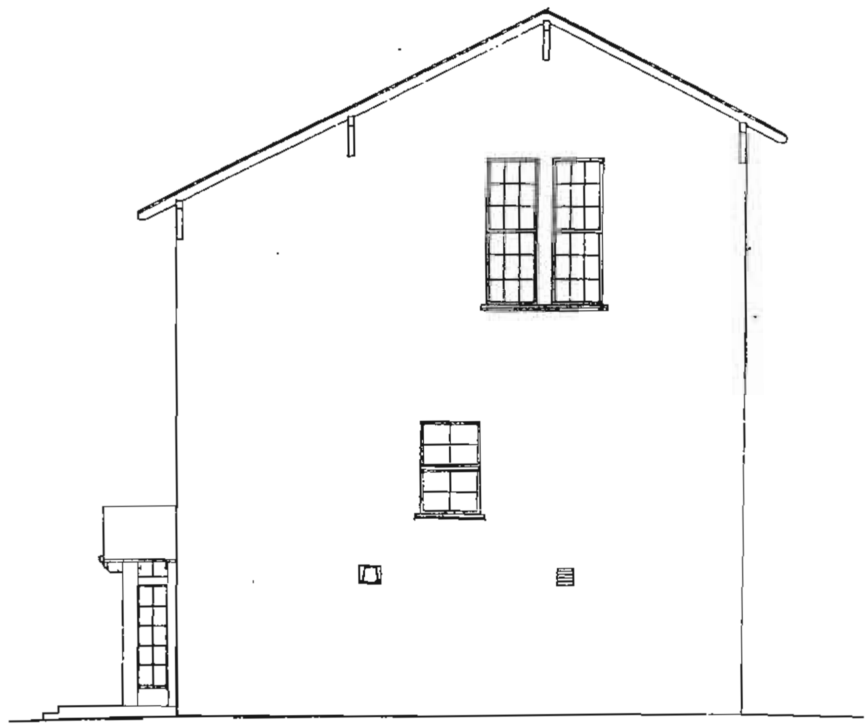
1b. Sill at grade conditions: Black top at sill near center of north elevation.



UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY		SCALE:	TRANSVERSE SECTION	A8
		DRAWN BY: RL		
		DATE: 24 OCT. 1990	SHEET TITLE:	DRAWING NUMBER

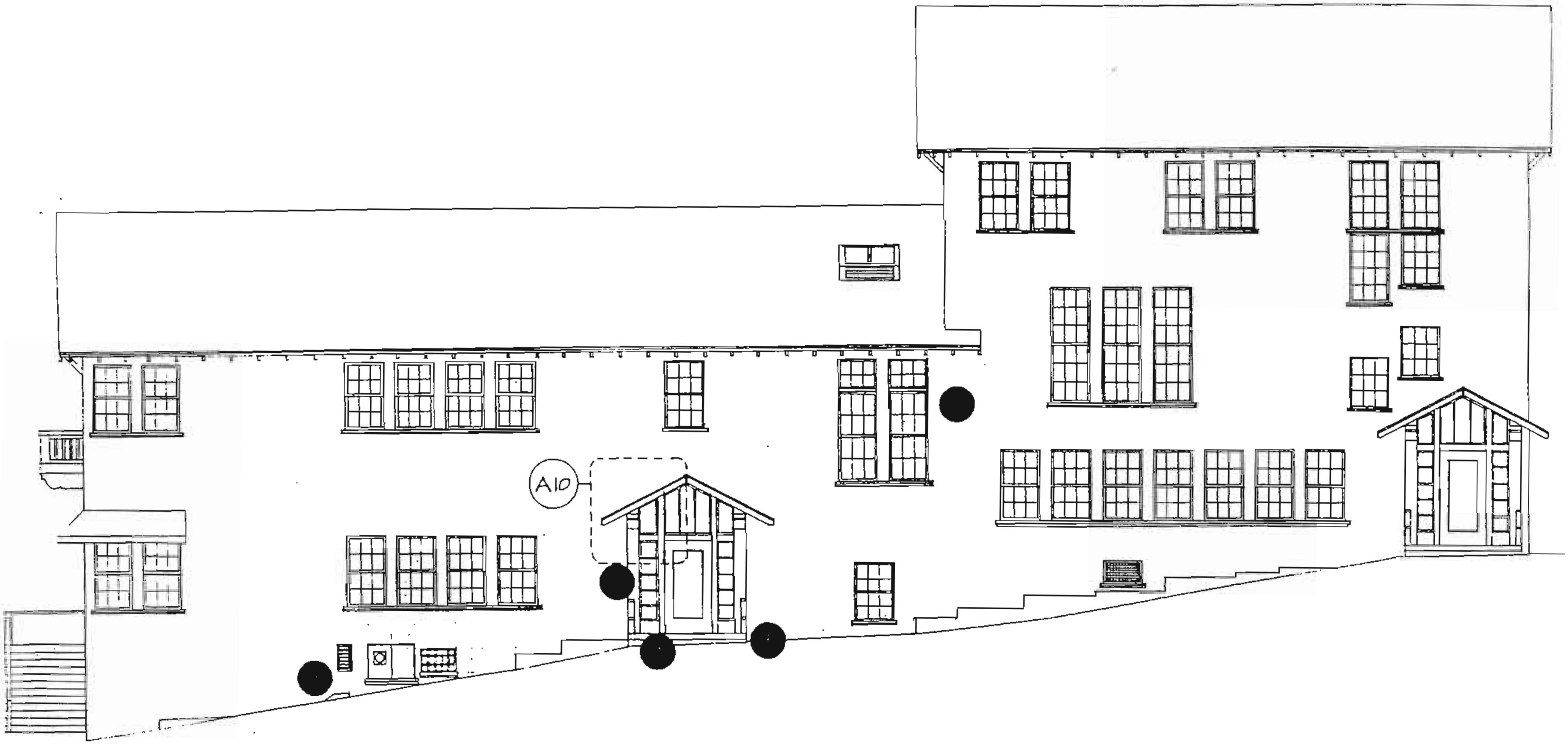


WEST ELEVATION

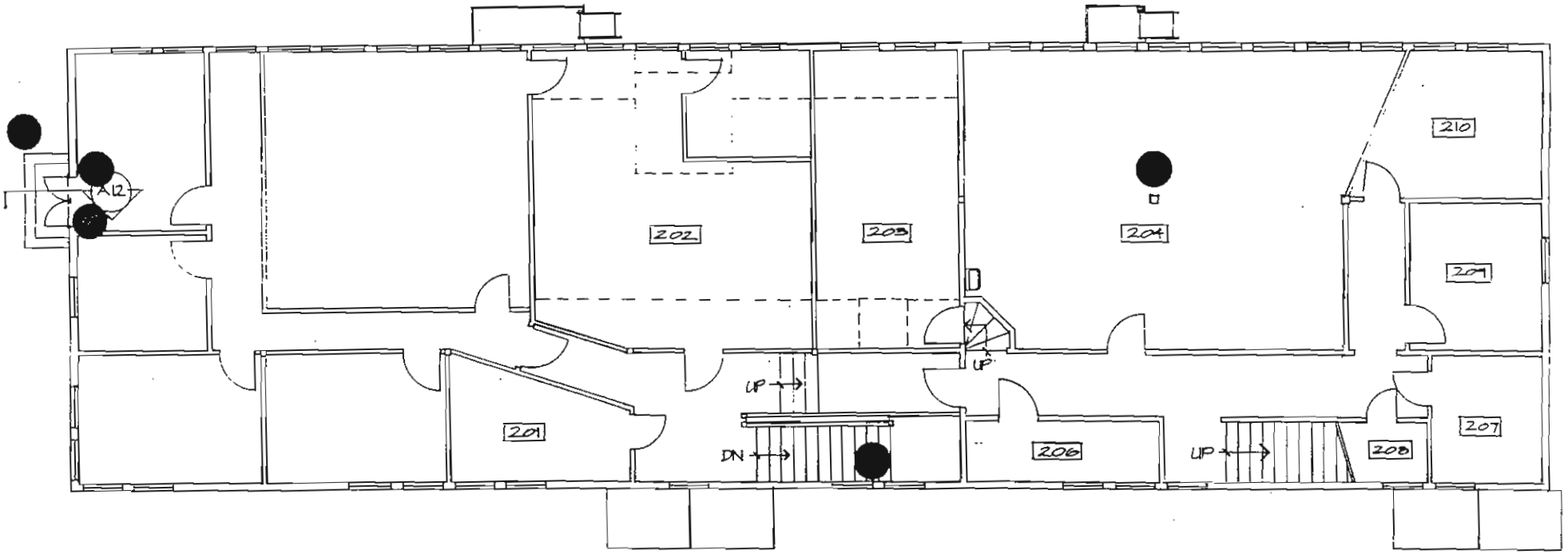


EAST ELEVATION

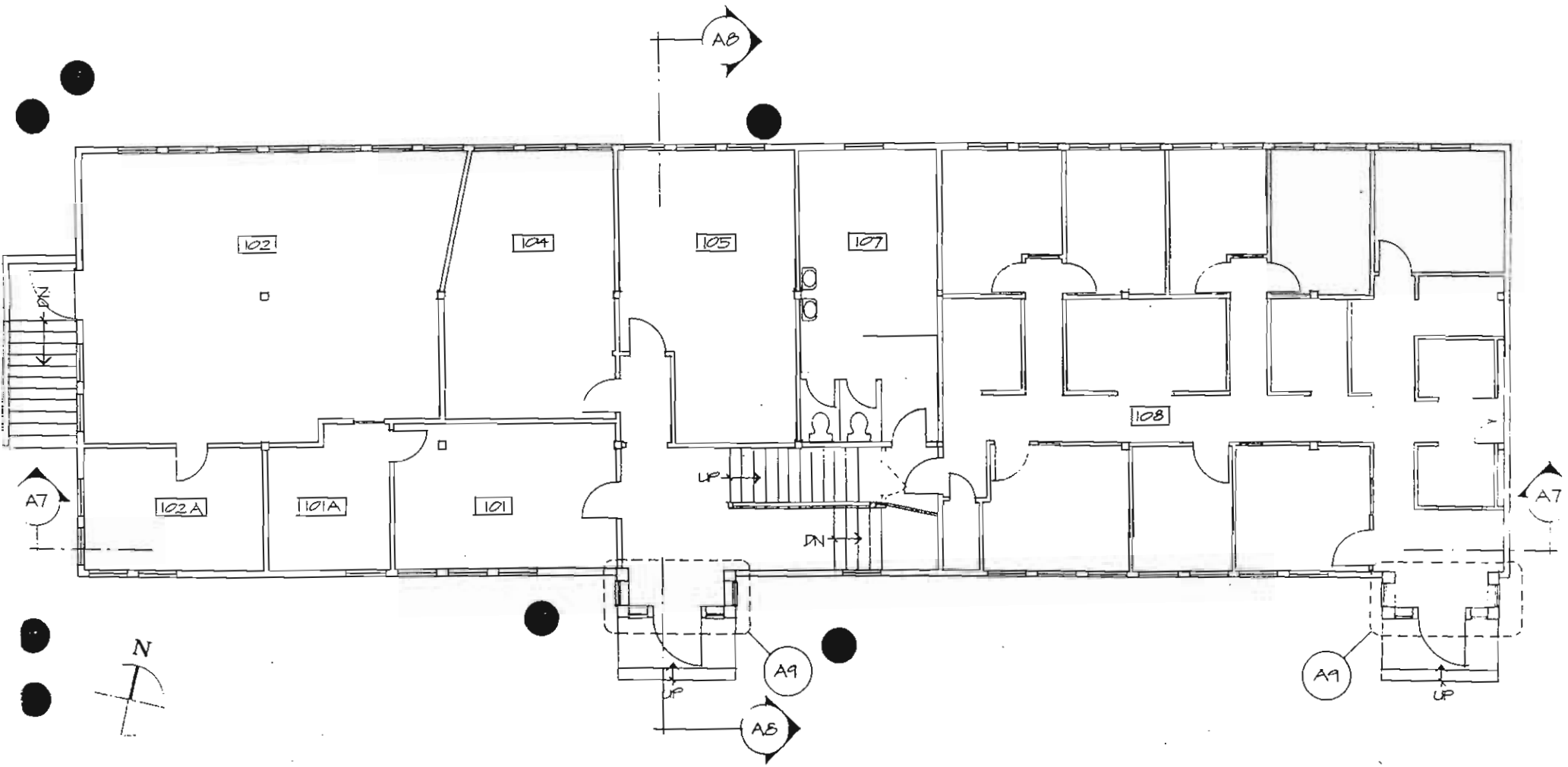
UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	ARCHITECTS	SCALE: DRAWN BY: RL DATE: 24 OCT. 1990	EAST AND WEST ELEVATIONS SHEET TITLE:	A6 DRAWING NUMBER



UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	ARCHITECTS	SCALE: / DRAWN BY: RL / DATE: 24 OCT. 1990	SOUTH ELEVATION (SHEET TITLE)	A4 (DRAWING NUMBER)



UNIVERSITY OF CALIFORNIA AT BERKELEY NAVAL ARCHITECTURE BUILDING STUDY	STOLLER ENDRES ARCHITECTS	SCALE: DRAWN BY: RL DATE: 24 OCT. 1990	SECOND FLOOR PLAN SHEET TITLE:	A2 DRAWING NUMBER



UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

SCALE:

DRAWN BY: RL

DATE: 24 OCT. 1990

FIRST FLOOR PLAN

SHEET TITLE:

A1

DRAWING NUMBER

VISUAL INSPECTION

DOCUMENTING PHOTOGRAPHS

AND

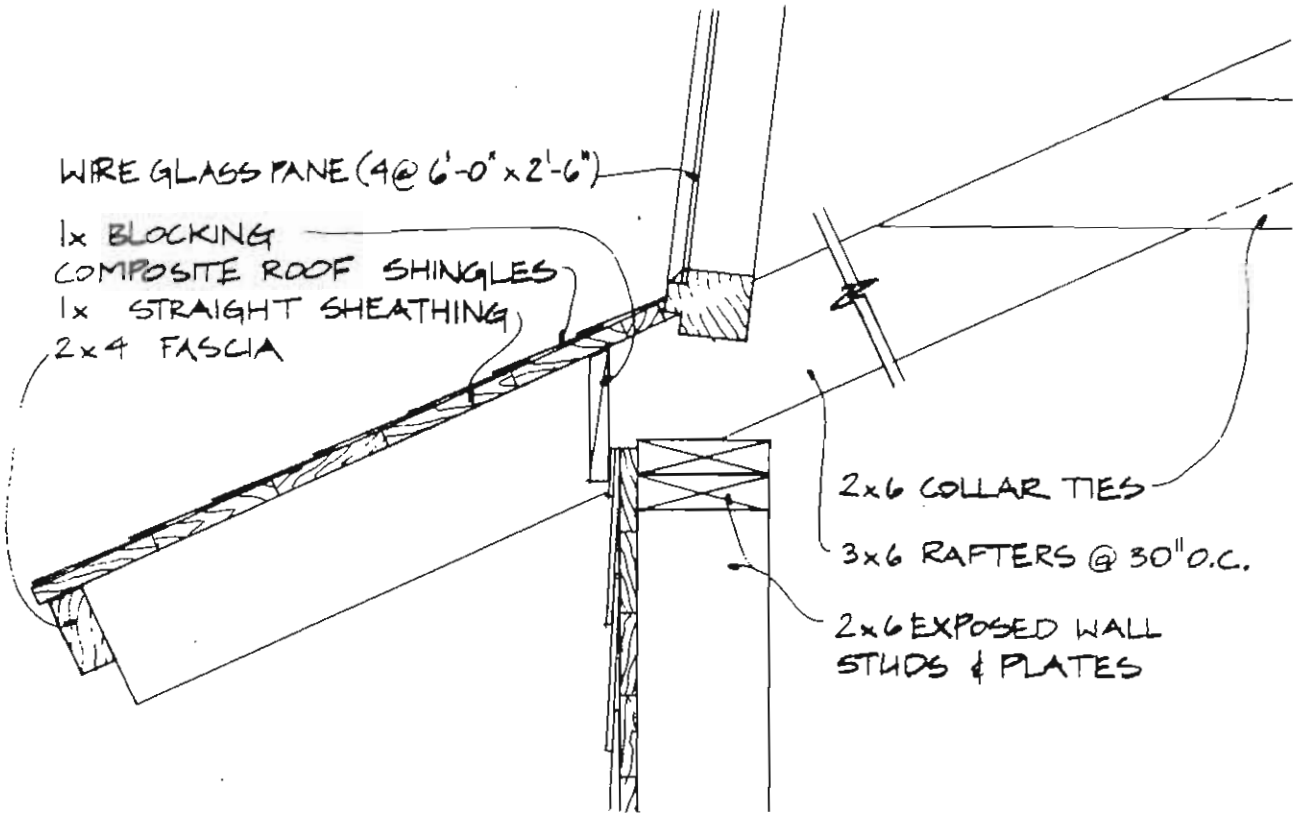
RECOMMENDATIONS

for

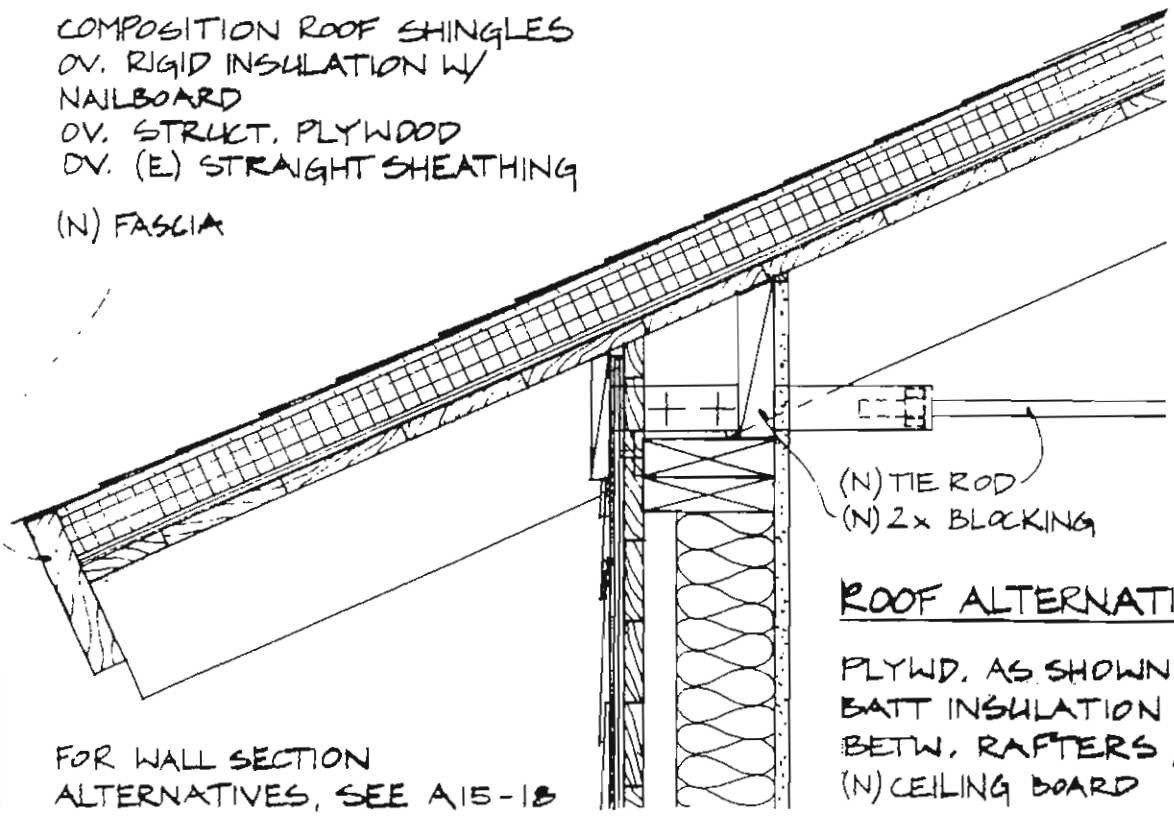
LOWER AND UPPER
FIRST LEVEL
FLOOR PLAN, Sheet A 1

LIST OF ILLUSTRATIONS

5. APPENDIX



EXISTING DETAIL
AT CUPOLA



UPGRADED ROOF EDGE

UNIVERSITY OF CALIFORNIA
AT BERKELEY
NAVAL ARCHITECTURE
BUILDING STUDY

STOLLER KNOERR ARCHITECTS
1818 Hearst Street
Berkeley
California 94703
415/433-3111

SCALE: 1 1/2" = 1'-0"
DRAWN BY: RL
DATE: 29 APR. 1990

SHEET TITLE: TYPICAL ROOF SECTIONS

A19
DRAWING NUMBER

Longstreth, Richard. On The Edge of The World, Four Architects in San Francisco at the Turn of the Century. New York: Architectural History Foundation; Cambridge, MA, and London: MIT Press, 1983.

Messinger, David Logan Naval Architecture Building, University of California Berkeley – Evaluation of Various Seismic Performance Ratings, (Job # 9211), Oakland, Ca 1992

Moss, Stacey. The Howards: First Family of Bay Area Modernism. Oakland, CA: Oakland Museum, 1988.

Partridge, Loren. John Galen Howard and the Berkeley Campus. Berkeley, CA: Berkeley Architectural Heritage Association, 1978.

Pickerell, Albert G. and May Dornin. The University of California: A Pictorial History. Berkeley, CA: University of California Press, 1968.

O'Gorman, James F. H.H. Richardson and His Office- Selected Drawings. Boston, MA: Harvard College Library and David R. Godine, 1974.

Sibley, Robert. The Golden Book of California. Berkeley, CA: The California Alumni Association, 1937.

Stadtman, Verne A. The Centennial Record of the University of California. Berkeley, CA: University of California Printing Dept., 1967.

United States Department of the Interior, National Park Service, Interagency Resources Division. National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation. Washington, DC. 1991.

United States Department of the Interior. National Park Service. Cultural Resources, Preservation Assistance Division. The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings. Washington, DC. 1992.

University of California. Office of University Relations. A Brief History of the University of California. Berkeley, CA: The University of California, 1974.

Woodbridge, Sally B. The University of California: National Register of Historic Places Inventory Nomination Form. 1980.

Woodbridge, Sally B. National Register of Historic Places Multiple Resource Nomination Form for the University of California, Beaux-Arts Campus. 1981.

University Archives Pictorial Collection. Bancroft Library, University of California, Berkeley. manuscript. August, 1995.