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<td>12</td>
</tr>
</tbody>
</table>
I. INTRODUCTION

A. SCOPE

This report presents the Title I work performed in regard to the Administration and Engineering Building. The work includes preliminary drawings, outline specifications, schedule of following work, and a construction cost estimate. The building will be conveniently located near the site entrance and in close proximity to the Central and Test Laboratories. Refer to vicinity map on drawing SK-A-01292-A.

B. FACILITY

The Administration and Engineering Building will be a two story office-type building. The main switchboard and telephone equipment room for the site will be located in the building. In addition to certain public spaces such as conference rooms and lobbies, the building consists of private and semi-private offices accessible through a double loaded corridor. The two floors are basically similar in layout and consist of approximately 22,000 sq ft per floor for a total of 44,000 sq ft.

Area Analysis - Total

| Gross:         | 44,023 sq ft |
| Net Useable:   | 33,625 sq ft |
| Cubage:        | 579,166 cu ft|
| Persons:       | 260          |

Efficiency: \( \frac{\text{Net Useable}}{\text{Gross}} \times 100 = \frac{33,625}{44,023} \times 100 = 76.5\% \)
Area Analysis Breakdown by Floor

First Floor (Engineering)

Gross:
Net Useable:
Persons:
Efficiency: \( \frac{17,228}{21,754} \times 100 = 79.2\% \)
Gross/Person: \( \frac{21,754}{108} = 201.4 \text{ sq ft} \)
Net/Person: \( \frac{17,228}{108} = 159.5 \text{ sq ft} \)

Second Floor (Administration)

Gross:
Net Useable:
Persons:
Efficiency: \( \frac{16,467}{22,269} \times 100 = 73.9\% \)
Gross/Person: \( \frac{22,269}{152} = 116.5 \text{ sq ft} \)
Net/Person: \( \frac{16,467}{152} = 108.3 \text{ sq ft} \)
II. BASIS OF DESIGN

A. GENERAL

Design criteria studies and results of Title I work have indicated that the Administration and Engineering facilities can be economically combined in one building.

B. SITE AND FACILITY

1. Site Considerations

The general layout of Administration and Engineering Building is based on an organization of space requirements around a central court. The topography of the site will allow a natural separation of the administration and engineering functions of the building. A pedestrian bridge spans from the level of the public parking lot and entrance drive directly to the second floor of the building, giving the public direct access to the administration services located on this floor. The engineering groups on the first floor will have grade level access to the various laboratory buildings nearby.

2. Layout

A rectangular layout of the building evolved from a consideration of the relatively large number of private and semi-private offices required. The floor plans are designed for maximum efficiency of the available area.

3. Architecture

Architectural vocabulary as proposed to and approved by the Stanford Board of Trustees has been utilized in the design of the building. The vertical structural members will be faced with textured concrete tile.
Pressed metal decking and standard architectural sash will make up the typical wall section between columns. Roof overhangs will provide protection from sun and rain. A sight barrier around roof perimeter will screen mechanical equipment from view.

4. Structure

A monolithic reinforced concrete frame and slab floors was selected by ABA after careful studies of alternate framing schemes.

5. Electrical

A lighting level of 100 foot-candles in office spaces and 20 ft-c in corridors and service areas will be provided.

6. Mechanical

All office spaces will be heated and air conditioned by roof mounted units. Hot and cold water will be supplied to them from a central boiler/chiller installation in Utility Building A.

a. Air conditioning will be required.1

7. Extension

The building can be extended to the west or north when and if project needs so require.

C. HEALTH AND SAFETY

There are no unusual health or safety requirements in the building.

All applicable codes such as the Uniform Building Code and AEC Design Criteria have been followed in regards to health and safety and fire protection. The building will be constructed of non-combustibles and have sprinklers throughout.

III. OUTLINE SPECIFICATIONS


1. Occupancy - Group F-2
2. Type of Construction - Type IV (N)
3. Number of Stories - 2
4. Location on the Property - separated on four sides
5. Area Limitations (per Uniform Building Code)
   - Type IV (N) Fire Zone III
   - Basic Area (One Story) 12,000 sq ft

   **Condition A** Property line at midpoint
   \[
   37.5 - 20 = 17.5 \times 5\% = 87.5\%
   \]
   \[
   12,000 \times 1.875 = 22,500
   \]
   Total for two story \(2 \times 22,500 = 45,000\) sq ft
   When sprinklered: Double allowable area = 86,000 sq ft

   **Condition B** Property line at most advantageous point
   \[
   75 - 10 = 65 - 20 = 45 \times 5\% = 225\%
   \]
   Maximum allowed = 100\%
   \[
   12,000 \times 2 = 24,000\ sq\ ft
   \]
   Total for two stories \(24,000 \times 2 = 48,000\) sq ft
   When sprinklered: Double allowable area = 96,000 sq ft

   **Condition C** AEC criteria limits non-combustible separated
   areas to 15,000 sq ft unsprinklered, separated.
   \(40,000\) sq ft sprinklered.

   Actual gross area per floor is approximately 22,000 sq ft or
   \(44,000\) sq ft total which is within Condition C AEC requirements.
B. FOUNDATION

Reinforced concrete spread footings.

Concrete slab on grade designed for 100 pounds per square foot.

C. STRUCTURAL FRAME

Reinforced concrete.

Påmslab designed for live load of 100 pounds per square foot at second floor and 20 pounds per square foot at roof.

Lateral and seismic loads to be taken by concrete shear panels in plane of interior walls as required.

Exposed concrete exterior spandrel beams and interior columns.

D. ROOF

4 ply built-up tar and gravel (colored granular material) on 2 inch rigid insulation.

E. EXTERIOR WALLS

Pressed metal panels similar to Robertson, Mahon, or other equal, insulated.

Windows - Architectural projected aluminum sash with minimum operating panel.

Structural columns faced with pre-cast concrete tile.

F. PARTITIONS

All interior, non load-bearing partitions. Incombustible materials, such as drywall on metal studs or 2-inch solid drywall, non rated except as required for legal exit corridor requirements. Approximately 25% of interior partitions glazed above 7 foot.
NOTE: Certain interior walls will be constructed of reinforced concrete to act as seismic and lateral load-bearing members.

Interior surfaces painted.

G. FLOORS

Medium grade vinyl asbestos on concrete, rubber base, ceramic tile floor in toilet rooms.

H. CEILINGS

Suspended acoustic tile except in such utility areas as toilet rooms, equipment rooms, janitor closets, and some exterior covered areas where plaster will be used.

Nine-foot ceiling height throughout with eight-foot in corridors.

I. DOORS

Hollow core wood flush panel doors between offices.

Metal and glass and solid core wood doors where required for legal exits such as corridor and exit access doors.

J. WINDOWS

See exterior walls.

3/16" crystal glazing typical with 1/4" plate at public areas.

K. ELECTRICAL

100 foot-candle illumination in office areas, 20 ft-c in all other spaces.

Building Load Requirements:

<table>
<thead>
<tr>
<th>Description</th>
<th>Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>36,030 sq ft @ 100 F.C.</td>
<td>216 KVA</td>
</tr>
<tr>
<td>7,070 sq ft @ 20 F.C.</td>
<td>10 KVA</td>
</tr>
</tbody>
</table>
Roof Mt'd Air Conditioning Equipment  35 KVA
Total  311 KVA

L. MECHANICAL
All office and public spaces air conditioned.
Hot water and cooling water for mechanical equipment to come from Utility Building A. Boilers, water chillers, and supply and return piping are considered under separate proposals for Utility Building A and Site Utilities. The approximate air conditioning load is 150 tons of refrigeration.

K. FIRE PROTECTION
Automatic water sprinkler system throughout.

N. TELEPHONE EQUIPMENT
Project M main telephone switchboard will be located in building.
Telephone company will supply batteries for emergency operation. Appropriate charging equipment will be installed.

O. UTILITIES
All utilities to the building will be underground. Circulating hot water for heating and chilled water for air conditioning are considered on utilities. The supply and return lines from the central boiler/chiller installation in Utility Building A will be installed as part of the initial site utilities. Utilities to five feet outside of building are included in this report.

SITE UTILITIES

<table>
<thead>
<tr>
<th>Service</th>
<th>Off-Site Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Test Laboratory Substation</td>
</tr>
<tr>
<td>Telephone</td>
<td>Project M mail communications</td>
</tr>
</tbody>
</table>

Direction of On-Site Supply
- South
- West
SITE UTILITIES

<table>
<thead>
<tr>
<th>Service</th>
<th>Off-Site Location</th>
<th>Direction of On-Site Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Test Laboratory Substation</td>
<td>South</td>
</tr>
<tr>
<td>Telephone</td>
<td>Project M main communications trunk lines running north &amp; south and east of building.</td>
<td>East</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>Project M main communications trunk lines running north &amp; south and east of building.</td>
<td>East</td>
</tr>
<tr>
<td>Domestic Water</td>
<td>Main water feeder running north &amp; south and east of the building.</td>
<td>South or East</td>
</tr>
<tr>
<td>Fire Protection Water</td>
<td>Main water feeder running north &amp; south and east of the building.</td>
<td>South or East</td>
</tr>
<tr>
<td>Hot Water</td>
<td>Central installation in Utility Building A.</td>
<td>South</td>
</tr>
<tr>
<td>Chilled Water</td>
<td>Central installation in Utility Building A.</td>
<td>South</td>
</tr>
<tr>
<td>Sanitary Line</td>
<td>Main sewer running north and south of the building.</td>
<td>East</td>
</tr>
</tbody>
</table>

IV. PROJECT TIME SCHEDULE

Submittal of Title I 11-27-61
Review and Approval by Stanford 2 weeks
Start of Title II Work 12-11-61
Title II 50% submittal 3-5-62 - 11 weeks
Title II 90% submittal 4-9-62 - 16 weeks
Review and approval by Stanford and AEC 4-23-62 - 2 2 weeks
Title II 100% submittal (Corrections after final approval by Stanford and AEC) 4-30-62 - 1 week
Corrections and Reproduction of Contract Documents after Final Approval by Stanford 1 week
Reproduction of Contract Documents 1 week
Bidding Time 4 weeks
Bid Review, Approval and Award of Contract 2 weeks
Estimated Construction Time 12 months
V. DRAWING LIST

SK-A-03162-A  Administration and Engineering Building Site, Plot, and Roof Plans

SK-A-03162-B  Administration and Engineering Building Floor Plans

SK-A-03162-C  Administration and Engineering Building Elevations and Sections

SK-M&E-03162-A  Building Mechanical Schematic and Electrical One Line Diagrams
VI. ADMINISTRATION AND ENGINEERING

BUILDING COSTS ESTIMATE

1. SUMMARY

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Construction Cost</td>
<td>$ 796,000</td>
</tr>
<tr>
<td>Engineering Design and Inspection (Titles I, II, and III)</td>
<td>70,300</td>
</tr>
<tr>
<td>Total Estimated Costs</td>
<td>$ 866,300</td>
</tr>
</tbody>
</table>
### 2. CONSTRUCTION COST ESTIMATE:

<table>
<thead>
<tr>
<th>Architectural and Structural</th>
<th>Quantity</th>
<th>Unit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthwork - Rock - Membrane</td>
<td>1,300</td>
<td>CY</td>
<td>5.78</td>
</tr>
<tr>
<td>Concrete - Forms - Reinf. Finish</td>
<td>2,535</td>
<td>CY</td>
<td>100.00</td>
</tr>
<tr>
<td>Concrete Tile</td>
<td>7,300</td>
<td>Sq.Ft.</td>
<td>2.96</td>
</tr>
<tr>
<td>Misc. Iron</td>
<td>LS</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Metal Wall Facing - Roof shields</td>
<td>17,000</td>
<td>Sq.Ft.</td>
<td>.96</td>
</tr>
<tr>
<td>Roofing and Insulation</td>
<td>30,400</td>
<td>Sq.Ft.</td>
<td>.46</td>
</tr>
<tr>
<td>Sheetmetal incl. Mullions</td>
<td>LS</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Carpentry - Doors - Frames</td>
<td>LS</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Perimeter Insulation</td>
<td>14,00</td>
<td>Sq.Ft.</td>
<td>.18</td>
</tr>
<tr>
<td>Acoustical Ceilings</td>
<td>43,500</td>
<td>Sq.Ft.</td>
<td>.80</td>
</tr>
<tr>
<td>Ceramic Tile</td>
<td>1,200</td>
<td>Sq.Ft.</td>
<td>2.92</td>
</tr>
<tr>
<td>Metal Partitions - Metal Doors</td>
<td>LS</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Metal Sash and Glazing</td>
<td>5,075</td>
<td>Sq.Ft.</td>
<td>3.88</td>
</tr>
<tr>
<td>Glass Walls Incl. Mullions -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Partitions</td>
<td>3,100</td>
<td>Sq.Ft.</td>
<td>4.70</td>
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<tr>
<td>Lath and Plaster Ceilings</td>
<td>38,000</td>
<td>Sq.Ft.</td>
<td>.91</td>
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<tr>
<td>Finish Hardware</td>
<td>LS</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Resilient Floor and Base</td>
<td>43,000</td>
<td>Sq.Ft.</td>
<td>.55</td>
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<tr>
<td>Painting - Caulking</td>
<td>140,000</td>
<td>Sq.Ft.</td>
<td>.13</td>
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<tr>
<td>Building Specialties</td>
<td>LS</td>
<td>----</td>
<td>----</td>
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<tr>
<td>Sun Control Screens</td>
<td>1,500</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Reserve for Future Partitions</td>
<td></td>
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Sub-Total $542,600

### Mechanical and Electrical

<table>
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<th>Description</th>
<th>Cost</th>
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<tr>
<td>Plumbing</td>
<td>$23,700</td>
</tr>
<tr>
<td>sprinklers</td>
<td>22,000</td>
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<tr>
<td>Datacom and Phones</td>
<td>4,700</td>
</tr>
<tr>
<td>Heating, Ventilating and Air Conditioning</td>
<td></td>
</tr>
<tr>
<td>Multi-zone Roof Mt'd Fan Units</td>
<td>23,300</td>
</tr>
<tr>
<td>Piping, Ductwork, insulation, dampers, etc.</td>
<td>53,300</td>
</tr>
<tr>
<td>Fiberglass duct and linear diffusers</td>
<td>18,800</td>
</tr>
<tr>
<td>Controls</td>
<td>10,600</td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
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<tr>
<td>Interior Lighting</td>
<td>68,700</td>
</tr>
<tr>
<td>Exterior Lighting</td>
<td>2,400</td>
</tr>
<tr>
<td>Convenience Outlets</td>
<td>15,200</td>
</tr>
<tr>
<td>Ventilating Lead</td>
<td>10,700</td>
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Sub-Total $253,400

Total Estimated Construction Cost $796,000
### Total Estimated Construction Costs

- $796,000

### Transferred to Utility Building A Account for Central Heating & Air Conditioning Electrical Load
- $20,000

### Transferred to Utility Building A Account for Central Heating & Air Conditioning
- $52,000

### Transferred to Laboratory Heat Transfer System Account for Cooling Tower Capacity Required by Central Chillers
- $12,000

### November 1961 Budget
- $880,000

### NOT INCLUDED IN THIS CONSTRUCTION COST ESTIMATE

1. Exterior Walks
2. Exterior Courts
3. Exterior Slabs
4. Exterior Steps
5. Covered Walkways
6. Landscaping
### Laboratory Unit Area and Unit Volume Construction Costs:

<table>
<thead>
<tr>
<th>Gross Area (Sq. Ft.)</th>
<th>Cost Per Sq. Ft. (Gross)</th>
<th>Net Area (Sq. Ft.)</th>
<th>Cost Per Sq. Ft. (Net)</th>
<th>Volume (Cu.Ft.)</th>
<th>Cost Per Cu.Ft.</th>
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<tbody>
<tr>
<td>44,023</td>
<td>$12.28</td>
<td>33,695</td>
<td>$16.10</td>
<td>579,466</td>
<td>$0.936</td>
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<tr>
<td>44,023</td>
<td>$19.98</td>
<td>33,695</td>
<td>$26.11</td>
<td>579,466</td>
<td>$1.52</td>
</tr>
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(REVISED)

TITLE I REPORT

ON

ADMINISTRATION AND ENGINEERING BUILDING

REPORT TO PROJECT M NO. ABA-32
STANFORD UNIVERSITY SUBCONTRACT S-128
UNDER AEC CONTRACT AT(OL-3)-363

Submitted by [Signature]  Approved by [Signature]

AETRON-BLUME-ATKINSON
A Joint Venture
ARCHITECT-ENGINEER-MANAGER
CHARLES LUCKMAN ASSOCIATES
Architectural Associates
355 California Avenue
Menlo Park, California

Revised March 1, 1962