

TITLE I REPORT
FOR THE
SLAC ADMINISTRATIVE TELEPHONE SYSTEM

REPORT TO SLAC - NO. ABA-56
STANFORD UNIVERSITY SUBCONTRACT S-128
UNDER AEC CONTRACT AT (04-3)-400

Submitted By
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AETRON-BLUME-ATKINSON
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ARCHITECT-ENGINEER-MANAGER
1455 California Avenue
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September 21, 1962
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INTRODUCTION

This report presents the public telephone system criteria which has been developed jointly by ABA and SLAC and through coordination with Pacific Telephone and Telegraph Company.

The telephone facilities described herein are for buildings as listed on Chart No. 3, on page 9, underground services, temporary and permanent installations.

A. GENERAL

The phone outlet allocation for each building is based on personnel and equipment occupancy.

The temporary phone facilities will be run overhead.

The permanent phone facilities will be underground cable running to and from the switchboard located in the Administration-Engineering Building.

B. CONTRACTUAL CONSIDERATIONS

The system as outlined in this report for the administrative area will require a contract with Pacific Telephone & Telegraph Company. To establish communications between the administrative area and a private system in the operations area, tie trunks will be required. The telephone company will not provide a contract for the tie trunks to a private system unless the proposed system is presented to the Public Utility Commission to establish rates for this service.

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The conditions as herein stated to connect a Pacific Telephone & Telegraph Company system to a private system has been installed by governmental agencies and has set a precedent for this type of service. This type of service to a governmental agency has been established by rulings of the Public Utility Commission.

C. TEMPORARY PROVISIONS

A temporary overhead 50 pair cable for the Construction Office Building will be installed parallel to the west side boundary as shown on Drawing D-601-901 and terminated in the temporary two-position manual switchboard located in the Construction Office Building. All poles will be removed after the permanent duct system is installed. Chart No. 1 on page 7 details the line requirements.

1. The temporary system for the initial construction will consist of six phones located at the site and connected to the ABA switchboard for period "A" noted in the installation Chart No. 2 on page 8.

2. The temporary system for the Construction Office Building will consist of 69 phones for period "B" noted in the installation Chart No. 2. At the completion of the project all telephone equipment and all phones except two will be removed. The two remaining phones will be connected to the permanent SLAC system.

3. The temporary system for the Test Laboratory will require two phases of temporary service:

a. extension of 25 locals from the Stanford University switchboard for period "B" as shown on Chart No. 2, and

b. extension of 25 locals from the ABA Construction Office Building switchboard for period "D" as shown on Chart No. 2, and utilized until the permanent system is activated. During the switch-over from period "B" to period "D" there will be no disruption of service for the 25 locals.

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D. PERMANENT PROVISIONS

1. Cable Access - Cable access to the site for the permanent system shall be installed by the telephone company under Sand Hill Road, 34.4 feet west of the center of the entrance road, and to a point 15 feet south on SLAC property as shown on Drawing DD 640-102 Rev. 1, "Initial Site Improvementments Layout Plan 2".

The permanent cable, a minimum of 200 pairs, will run in customer-installed underground duct from the under-road conduit to the equipment room in the Administration-Engineering Building.

2. Type of System - The permanent telephone system will be a three digit dial system with a "restrictor" to disable the normal ability of a local telephone to dial outside the "free" exchange area. An additional digit may be added later for special coding.

The telephone equipment will be a three-position switchboard with a total capacity of 45 trunks and 392 locals and with provisions for future expansion to five position switchboard and 784 local lines. The number of locals may be supplemented by adding any number of extensions or by the use of key type service, utilizing four local lines with extensions to six or twelve phones.

3. Space Requirements

a. Space requirements in the Administration-Engineering Building for telephone equipment are as shown on Drawings D-541-100 and D-541-101. The dial equipment room is adequate for the initial 392 local lines with provisions for future expansion as outlined above.

b. Space requirements in other buildings are determined by the number of phones located in the building. The exact space is best determined for each building individually.

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4. Telephone Outlet Requirements - Estimated outlet requirements covered by this report are shown on Chart No. 3 on page 9. Requirements not covered by this report are shown on Chart No. 4 on page 10.

E. SWITCHBOARD TIME SCHEDULE

1. The time required for studies, manufacturing and installation of the switchboard and related equipment are estimates determined by the Pacific Telephone and Telegraph Company.

a. Studies to be made by PT&T will require approximately 2 months.

b. Manufacturing of the equipment will be done by Western Electric and will require approximately seven months.

c. Installation of the equipment will be by Western Electric and will require approximately 2 months.

2. The schedule below represents the Construction period of the A&E Building and the telephone exchange installation schedule.

1962							FY 63			FY 64		
1962							1963					
S	O	N	D	J	F	M	A	M	J	J	A	
							Construction					
Studies		Manufacturing					Inst'l					

F. COST ESTIMATES

1. Cost estimates outline all construction, non-recurring installation, recurring monthly and temporary service to within 5 feet of any building (except the Administration-Engineering Building telephone exchange) in the administrative area; conduit within the buildings is not included in this estimate. Monthly phone toll charges are not included in this estimate.

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2. CONSTRUCTION

Estimated Installation Cost

a. Permanent Underground
Ducts (Administrative System)

(1)
\$26,200

3. SERVICE (Permanent)

	Basic Termination Charge	Non-recurring Estimated Installation Costs	Recurring Estimated Monthly Costs
SLAC Telephone Exchange (A&E Building)	\$26,000	\$2,688	\$2,075
Telephone Service to Administration & Shop Area (Based on 392 installed phones)		\$1,568	770
Telephone Service to Control Building Switchboard (10 incoming tie trunks) (10 outgoing tie trunks)		200	210
Pay Phones (Nine)		90	(3) 9
Lease Line (Two)		20	12
TOTAL	\$26,000 ⁽²⁾	\$4,566	\$3,076

4. SERVICE (Temporary)

	Non-recurring Estimated Installation Costs	Recurring Estimated Monthly Costs
SLAC Service for Test Laboratory (Includes 6 trunks to Stanford)	\$1,750	(4) \$ 374
ABA Construction Office Service	\$3,740	\$ 900

(1) This cost included in account 601.

(2) Basic Termination Charge: This is an agreement between the Telephone Company and the Customer that the equipment will be in service for a period of no less than 5 years. In the event this service is disconnected within 5 years, the customer will pay the Telephone Company the amount less one sixtieth (1/60) for each month it remained in service.

(3) Plus guaranteed revenue of \$64.80/Month.

(4) Monthly cost will be cancelled when connected to the permanent system.

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G. ESTIMATED ENGINEERING CHARGES

Direct Labor Cost

Title I	\$ 1,500
Title II	\$ 3,200
Title III	<u>\$ 300</u>
	\$ 5,000

DEFINITIONS

Trunks - Connecting lines between telephone exchanges.

Locals - Phones located in buildings with service to a local switchboard, or exchange.

Extensions - Two or more phones served by one local line.

Key Service - Secretary answering service connected to 6 or 12 phones.

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CHART NO. 1

ESTIMATED TEMPORARY PHONE SERVICE REQUIREMENTS

<u>SERVICE</u>	<u>QUANTITY</u>
Flat business (direct service) Contractor (Contractor responsibility)	12
Trunklines - Stanford Exchange (Required when Test Laboratory is connected to Construction Office Building switchboard)	6
Trunk line - emergency (leased)	1
Trunks to telephone exchange (local)	17*
Trunks to telephone exchange (San Francisco)	2
Trunks to telephone exchange (East Bay)	1
Locals - Construction Office Building	69
Locals - Test Laboratory	25
Pay phone (direct) Test Laboratory	1

*Does not include "Trunk lines - Stanford (6)"

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CHART NO. 2

INSTALLATION CHART

PERIOD	LENGTH MONTHS	APPROX. DATE	EVENT
A	To completion of ABA work	August, 1962	Initial Construction
B	To completion of ² switchboard in Construction Office Bldg.	March 11, 1963	Beneficial occupancy by SLAC. Extension lines from Stanford switchboard to Test Laboratory.
C	To completion of ABA work	May 15, 1963 (Operator on duty)	Two-Position manual switchboard in operation in Construction Office Building.
D	To completion of ³ dial equipment in A & E Bldg.	May 15, 1963	Extension lines from Construction Office Building switchboard to Test Laboratory.
E	Indef.	August 15, 1963 (Operator on duty)	Three-position switchboard and dial equipment in operation in Administration-Engineering Building.

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The information for the installation chart has been derived from the latest Critical Path network.

CHART NO. 3

ESTIMATED ADMINISTRATIVE TELEPHONE SYSTEM REQUIREMENTS

	TOTAL OUTLETS (Excluding Pay Phones)	Pay Phone
Cryogenic Building	6	
Utility Building A	1	
Electronic & Stores	22	
Fabrication Building	27	1
Heavy Assembly	7	
Central Laboratory	171	1
Administration-Engineering	247	3
Construction Office Building	3**	
Cafeteria	4	2
Auditorium	4	1
Test Laboratory	27	1
Utility Building 'C'	1	
Guard House	1	
Control Building (20 Tie trunk lines only)*		
	TOTAL	9
	521***	

* To Control Building Switchboard (Tie trunk lines for operational telephone system)

** See Page 2, Paragraph C.2.

*** The total number of outlets in each building are for building flexibility and do not determine the number of phones to be installed. Phones will be installed at locations as required.

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CHART NO. 4

ITEMS NOT COVERED BY THIS REPORT

FOR THE

OPERATIONAL TELEPHONE SYSTEM

Accelerator Housing

Klystron Gallery

Control Building

Switchyard

End Station A

End Station B

Unit Substations Klystron Gallery

Master Substation

West Cooling Tower

East Cooling Tower

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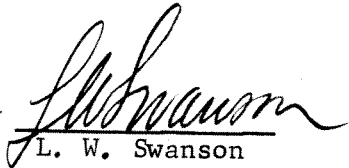
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