PUBLIC WORKS DIVISION
BUILDING 1005, MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5001

IN REPLY REFER TO:
11000
PWO
19 Oct 87

From: Public Works Officer, Marine Corps Base, Camp Lejeune
To: Area Facility Officer, Marine Corps Service Support Schools

Subj: ELECTRICAL SURVEY, BLDG M223

Ref: (a) Work Request No. 903-87 of 26May87

Encl: (1) Engineering Evaluation Report

1. The enclosure is provided as requested by the reference.

2. Preliminary cost estimates of the options and recommendations are included in the report.

3. Point of contact is Mr. Andrew Young, Manager, Electrical Branch, extension 3658.

F. E. Cone

F. E. CONE
By direction

REPORT ON THE ENGINEERING EVALUATION OF ELECTRICAL REQUIREMENTS
BUILDING M-223

Purpose: The purpose of this engineering report is to evaluate the existing configuration of electrical circuits and to determine the extent of expansion and/or renovation, as required, to provide sufficient electrical capacity for the 105 Zenith Z-248 Personal Computers (PC) installed in the training laboratory.

Findings: Under Construction Contract N62470-84-C-7844, this building was completely renovated to accommodate the training laboratory. The electrical circuits were designed and installed for 105 Telex terminals with the total connected electrical load of 63 KVA or 1.02 KVA per student station. The electrical requirement of 1.02 KVA for each station was based on the guidelines that were published in the "Facilities Analysis for Real Time Financial Manpower Management Information System" by Naval Training Equipment Center, Orlando, Florida. With the replacement of the Telex terminals with Zenith Z-248 PCs, the electrical load of each work station is increased from 1.02 KVA to 1.78 KVA and the total connected load is increased to 93 KVA. This 93 KVA load exceeds the 81 KVA rating of the electrical distribution panelboard and its related feeders.

Options and Recommendations: To accommodate the installation of the Zenith Z-248 PCs in this training laboratory, the following is suggested:

a. Reduce the number of PCs from 105 to 70 to match the electrical load rating of the existing electrical system with no interruption of class schedules and no cost to physical plant.

b. Upgrade electrical components for 105 PCs by providing separate utilization transformers rated at 300 KVA for Building M-223 and by renovating the existing electrical distribution panelboards to accommodate 20 ampacity branch circuits for each work station and increasing the ampacity rating of panelboard feeders.

To implement the upgrading of electrical components, a preliminary cost estimate was prepared and is in the amount of $33,200.

M-223

ELECTRICAL REQUIREMENTS
BUILDING M-223

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Findings: Under Construction Contract N62470-84-C-7844, this building was completely renovated to accommodate the training laboratory. The electrical circuits were designed and installed for 105 Telex terminals with the total connected electrical load of 83 KVA or 1.02 KVA per student station. The electrical requirement of 1.02 KVA for each station was based on the guidelines that were published in the "Facilities Analysis for Real Time Financial Manpower Management Information System" by Naval Training Equipment Center, Orlando, Florida. With the replacement of the Telex terminals with Zenith Z-248 PCs, the electrical load of each work station is increased from 1.02 KVA to 1.78 KVA and the total connected load is increased to 93 KVA. This 93 KVA load exceeds the 81 KVA rating of the electrical distribution panelboard and its related feeders.

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1.78 KVA → 14.8 Amps

ONE STATION { CRT = 1.4 Amp @ 120V
CPU = 5.0 Amp @ 120V
6.4 Amp @ 120V

105 STATION × 768 VA / STATION = 80.6 KVA, 224 AMPS

1.8 KVA × 62 OUTLETS = 112 KVA, 310 Amps

BACK-UP DRIVE { 62 × 9A × 120V = 67 KVA, 186 Amps

TTL 496 Amps
(179 KVA)