

Gantt Huberman Architects

112 West 5th Street
Charlotte, NC 28202
704 334-6436

20 October 1987

Karen *KMF*
WJ
FF
FE

Commander
Atlantic Division
Naval Facilities Engineering Command
Attn: Susan Gayle, P.E.
Building N-26, Naval Station
Norfolk, VA 23511

Re: Electronics/Communications Maintenance Shop
FY-89 MCON Project P-229
Marine Corps Base, Camp Lejeune, NC
A-E Contract No. N62470-86-C-9260

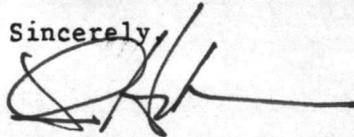
Gentlemen:

In accordance with the letter from Lindsey Gardner dated 6 October 1987, we are enclosing three (3) copies of our Response To Value Engineering Study Report dated 20 October 1987.

By copy of this letter, we are sending two (2) copies to Jim Baldwin and one (1) copy to the Activity, Attn: Karen Foskey.

We look forward to notification of a time and date for an on-board meeting at LANTDIV offices to review the V.E. Report and the 35% comments. In the meantime, if you have any questions or comments, please let me know.

Sincerely,



Jeffrey A. Huberman, AIA
Gantt Huberman Architects

Enclosure as above

cc w/encl: James Baldwin; LANTDIV
Karen Foskey; MCB, Camp Lejeune

JAH/jt
302

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ELECTRONICS/COMMUNICATIONS MAINTENANCE SHOP
MARINE CORPS BASE
CAMP LEJEUNE, NC

FY-89 MCON PROJECT NO. P-229

A-E CONTRACT NO. N62470-86-C-9260

RESPONSE TO VALUE ENGINEERING STUDY REPORT

GANTT HUBERMAN ARCHITECTS
112 WEST 5TH STREET
CHARLOTTE, NC 28202

20 OCTOBER 1987



ELECTRONICS/COMMUNICATIONS MAINTENANCE SHOP
MARINE CORPS BASE
CAMP LEJEUNE, NC

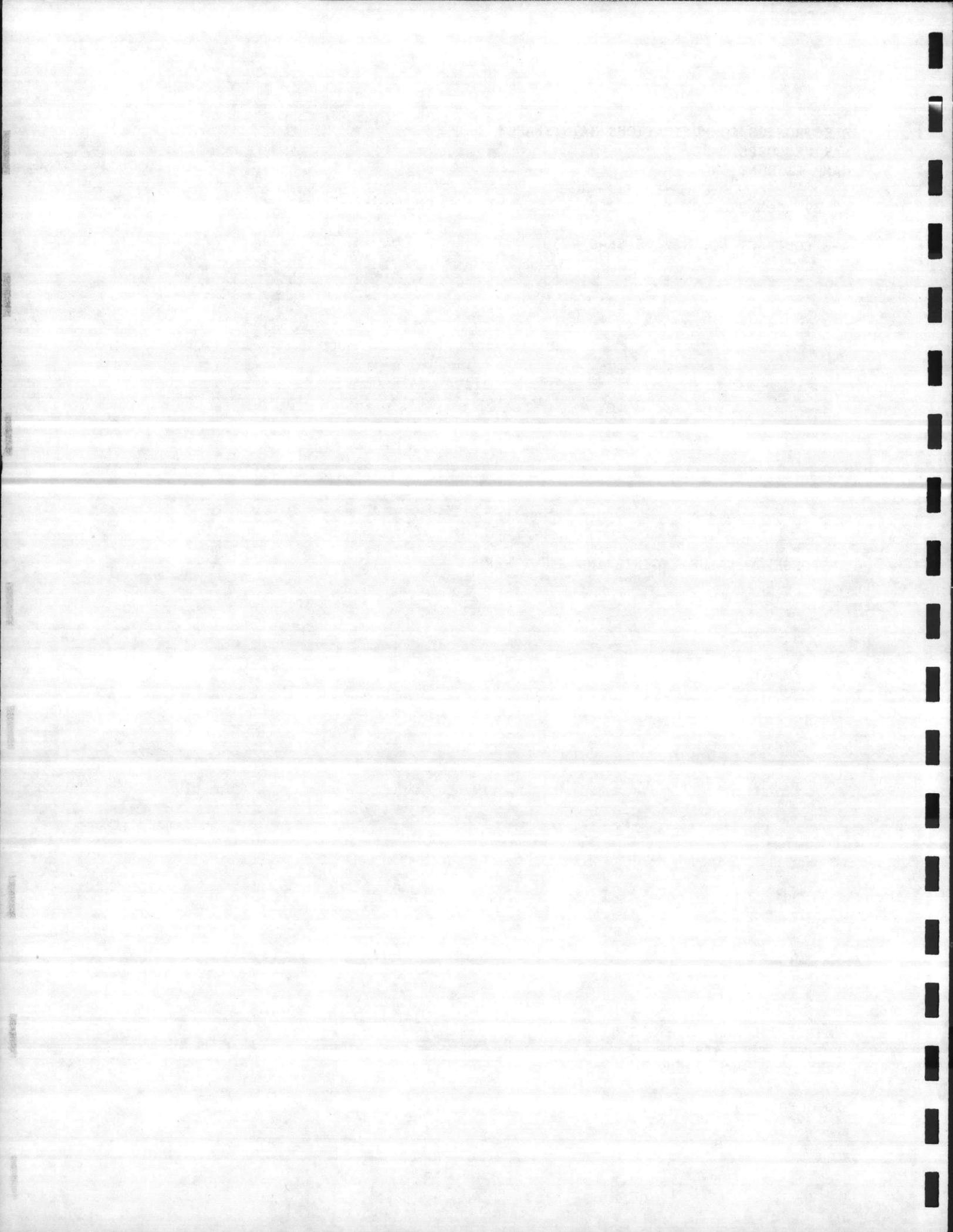
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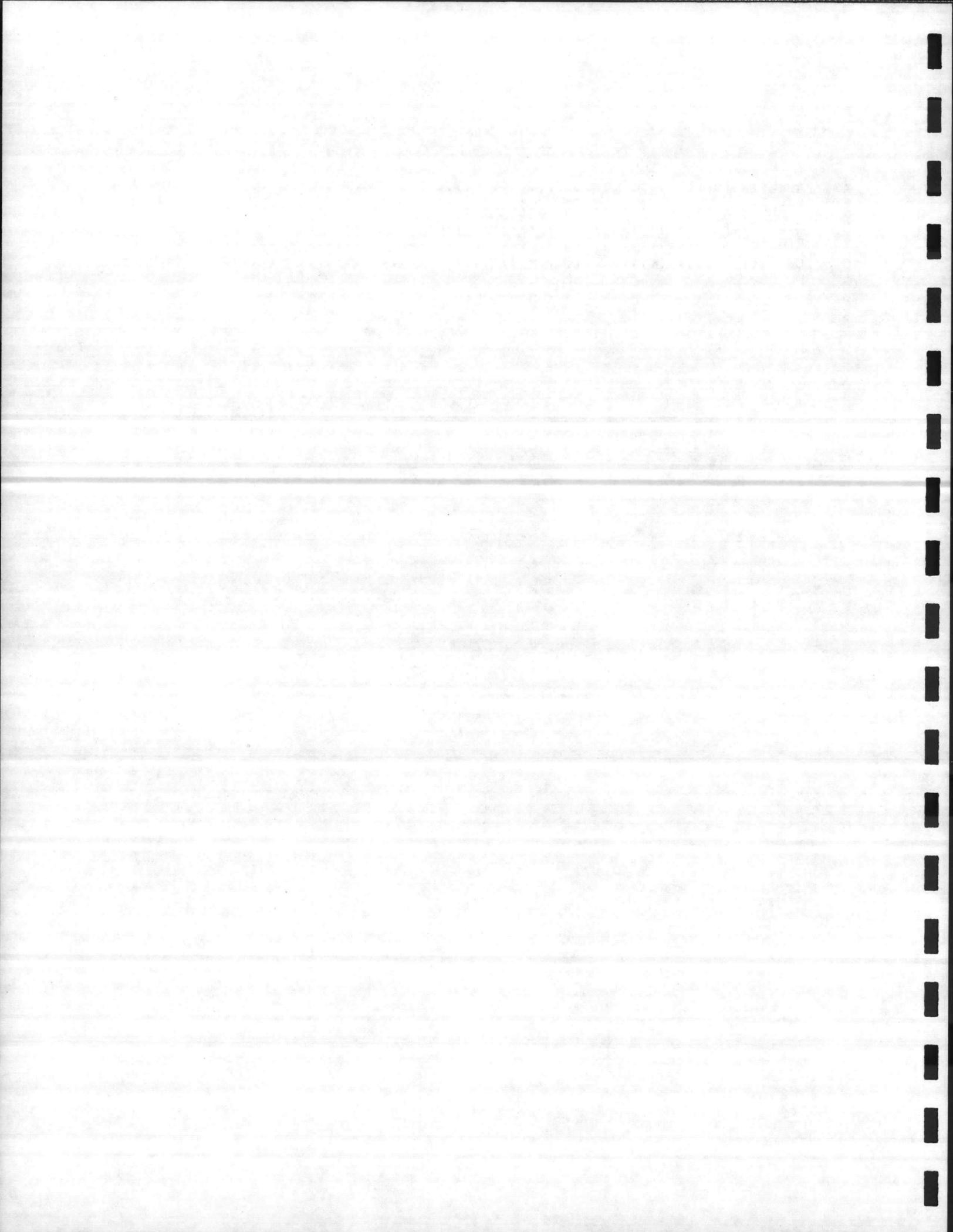
RESPONSE TO VALUE ENGINEERING STUDY REPORT

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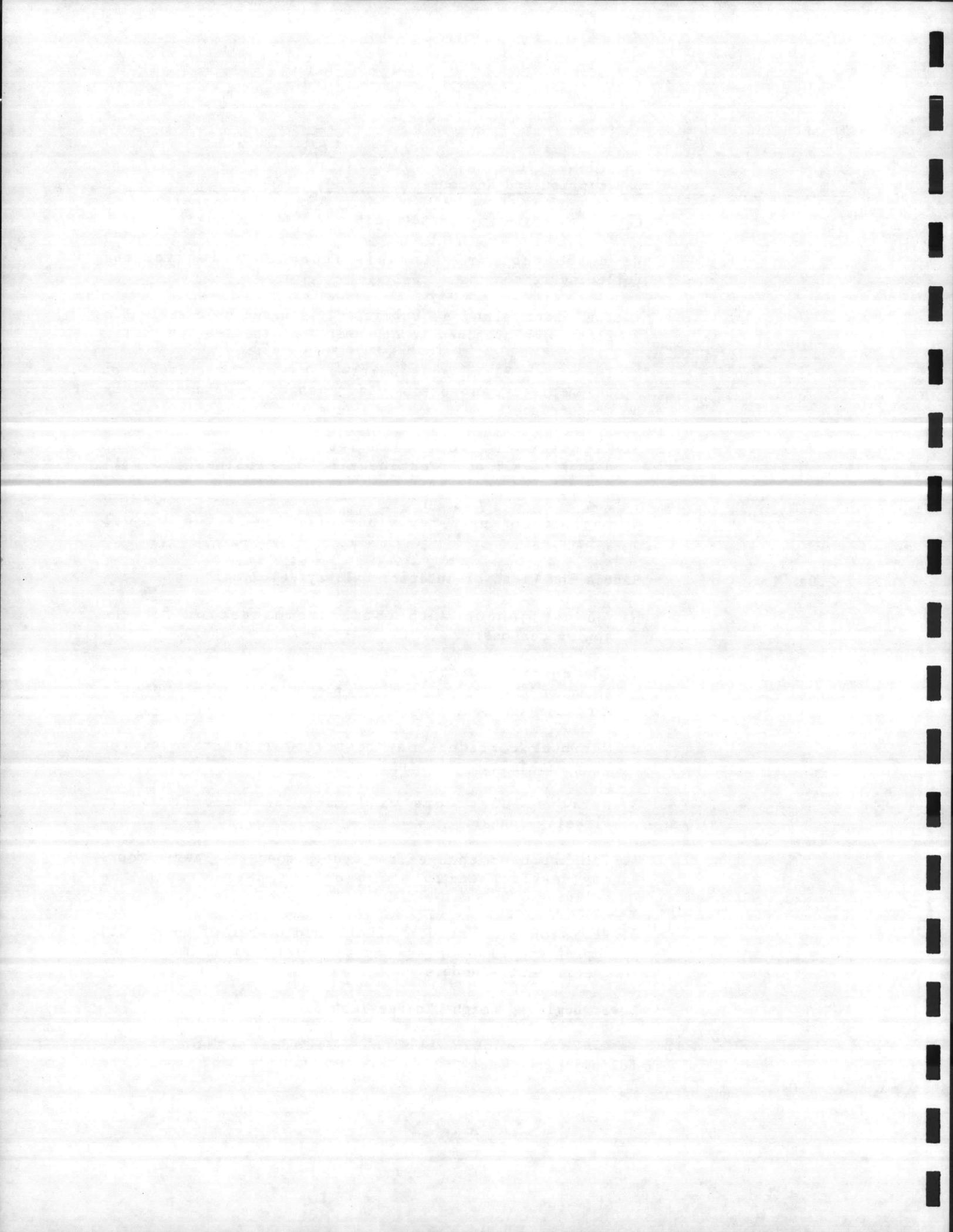


A Architectural.....A-1 thru A-4
S Structural.....S-1 thru S-4
M Mechanical.....M-1 only
E Electrical.....E-1 thru E-3
C Civil.....C-1 thru C-2



A. ARCHITECTURAL

Item	Description and Response
A-1.0	<p data-bbox="526 365 1019 390">Revise The Plan Layout/\$499,415</p> <p data-bbox="526 428 1453 491">We do not concur with this recommendation for the following reasons:</p> <ol data-bbox="526 529 1453 932" style="list-style-type: none"><li data-bbox="526 529 1453 592">1. The floor plan, as submitted, is based on a schematic floor plan attached to Appendix A of the A-E Contract.<li data-bbox="526 617 1453 722">2. The floor plan, as submitted, meets the criteria of the Activity and User. Any changes will need their concurrence.<li data-bbox="526 747 1453 852">3. Significant floor plan revisions will impact the design of all other engineering disciplines and will cause major redesign.<li data-bbox="526 877 1453 932">4. Major floor plan revisions will impact the project schedule.
A-2.0	<p data-bbox="526 974 1256 999">Reduce The Width of Interior Hallways/\$182,841</p> <p data-bbox="526 1037 1453 1100">We do not concur with this recommendation for the following reasons:</p> <ol data-bbox="526 1138 1453 1667" style="list-style-type: none"><li data-bbox="526 1138 1453 1222">1. The corridor widths, as submitted, are equal to those shown on the schematic floor plan attached to Appendix A of the A-E Contract.<li data-bbox="526 1247 1453 1310">2. Narrower corridors may restrict circulation by the User within the building.<li data-bbox="526 1348 1453 1411">3. Narrower corridors will make the building appear visually longer.<li data-bbox="526 1436 1453 1541">4. The proposed change from double doors to single doors may restrict circulation of the User within the building.<li data-bbox="526 1566 1453 1667">5. Revision of corridor widths and number of doors will impact the floor plans of all discipline and impact the project schedule.
A-3.0	<p data-bbox="526 1709 1117 1734">Lower Building Height To Feet/\$58,674</p> <p data-bbox="526 1772 1453 1824">We do not concur with this recommendation for the following reasons:</p>



1. The building height, as designed, is based on a standard ceiling height of 8'-8". The overall building height is calculated by the required clearances above the ceiling for HVAC and electrical fixtures, plus structure, plus the required 1/2 inch per foot roof slope.
2. The building height for the high bay area is based on the User's request of 16 feet clear to the bottom of the hook of the bridge crane, plus structure, plus the required 1/2 inch per foot roof slope.
3. A reduction of height of 2'-0", as proposed, does not seem realistic insofar as the building height, as submitted, was calculated from required clearances for ceilings, overhead coiling doors, the structural system, HVAC, electrical, roof slopes, the bridge crane, and other systems.

A-4.0

Reduce The Number of Exterior Doors/\$18,246

We do not concur with this recommendation for the following reasons:

1. The number of doors is based on the schematic floor plan attached to Appendix A of the A-E Contract.
2. The User has reviewed the floor plan as submitted and concurs with the door locations as necessary for the building to function.

A-5.0

Reduce Ceiling height From 8'-8" To 8'-0"/\$14,052

We do not concur with this recommendation for the following reasons:

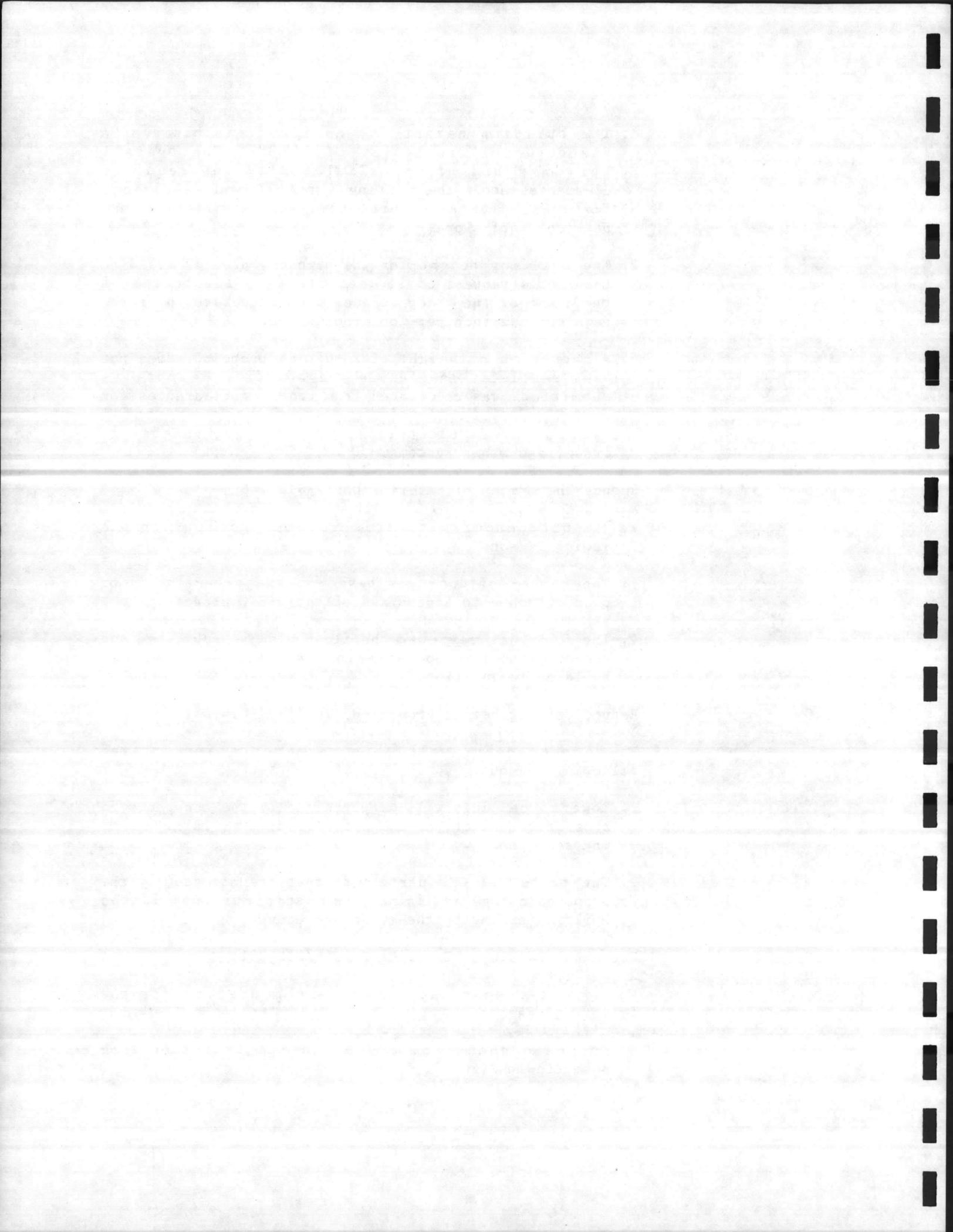
1. Lowered ceilings will be perceived by the occupants in a negative manner, as the ceilings in the large rooms may seem too low.
2. The number of CMU partitions that are affected by the proposed change is minimal, as most partitions in the building extend to the structure above.

A-6.0

Use Metal Panels on Exterior Fascia/\$12,331

We do not concur with this recommendation for the following reasons:

1. Proposed change is a substantial deviation from submitted design.



2. Metal panels increase vulnerability to damage, water leakage, etc., whereas brick will not be susceptible to damage or the elements.
3. Other industrial buildings in this area utilize brick exteriors.
4. There is not a substantial cost savings to justify the use of metal panels.

A-7.0

Reduce Height Of Overhead Coiling Doors/\$2,503

We do not concur with this recommendation to decrease the size of the 14'-8" by 11'-0" wide overhead coiling door in Room 113 to 10'-0" by 10'-0", as the door size was determined by the User to satisfy functional requirements of the vehicles and equipment utilizing this area.

A-7.1

Reduce Door Size And Use Chain Drive System/\$12,166

We do not concur with this recommendation for the following rooms:

1. The sizes of the overhead coiling doors were determined by the User to satisfy functional requirements of vehicles and equipment utilizing the shops.
2. The A-E intended to utilize chain drive overhead coiling doors, not electrically operated doors.

A-8.0

Use 2'x4' Ceiling In Lieu of 2'x2'/\$9,690

We do not concur with this recommendation, as 2'x4" ceiling tile has a tendency to sag in high humidity areas such as Camp Lejeune.

A-9.0

Use Metal Studs In Lieu Of CMU On Parapet/\$4,150

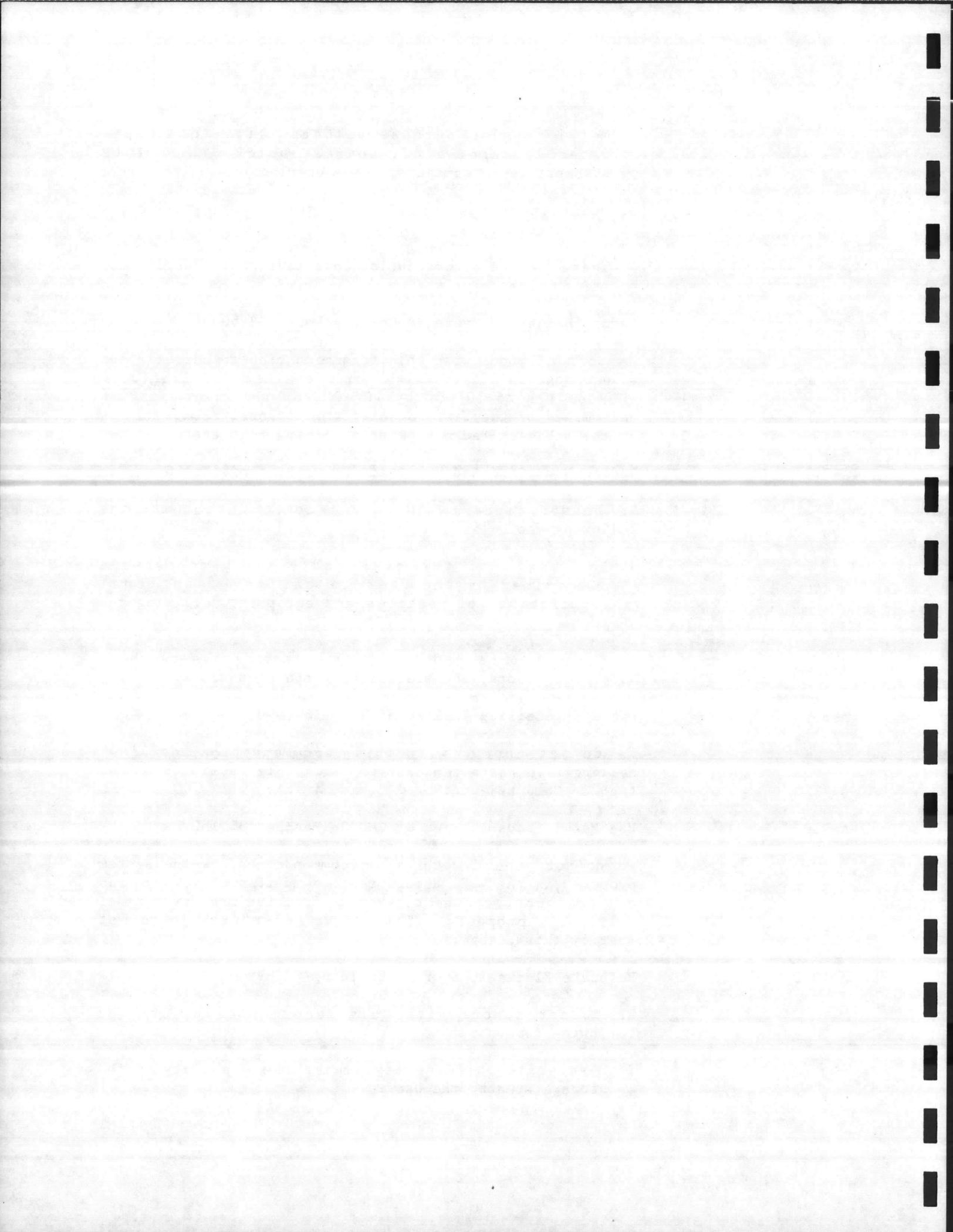
We do not concur with this recommendation, as the system proposed in the V.E. Report requires different trades and a significant change of systems from the masonry parapet originally proposed. The assumed cost savings do not justify this change.

A-10.0

Relocate Flammable Storage Building/\$3,499

We do not concur with this recommendation for the following reasons:

1. A separate building may impact the usability of the storage area by the User.



2. A separate building would have to be located within the proposed site plan and not impede vehicular circulation.
3. A separate building, we believe, would be more costly than the savings indicated, as a separate building would have more exterior walls, a separate roof, and independent ventilation and electrical systems.
4. The flammable storage area, where shown, is safe, and will be designed in accordance with applicable codes and criteria, and as per LANTDIV Code 408.

A-11.0

Reduce Number Of Windows On Exterior/\$1,962

We do not concur with this recommendation for the following reasons:

1. The number of windows is based on the schematic floor plan attached to Appendix A of the A-E Contract.
2. A reduction of windows decreases the possibility of natural ventilation of interior areas during spring and fall.

S-12.0

Delete Ceramic Tile Floor And Base In Storage Rooms/\$528

We do not concur with this recommendation. The suggestion is to eliminate ceramic tile in Rooms 140, 141, and 177. These rooms occur in the toilet/shower core, where the floor slab will already be depressed for the installation of ceramic tile floors. The three storage rooms are relatively small, and it is easier for the Contractor to depress the slab for the entire core and not worry about a change in the floor slab elevation for the storage areas. Ceramic tile bases are used whenever ceramic tile floors are used.

A-13.0

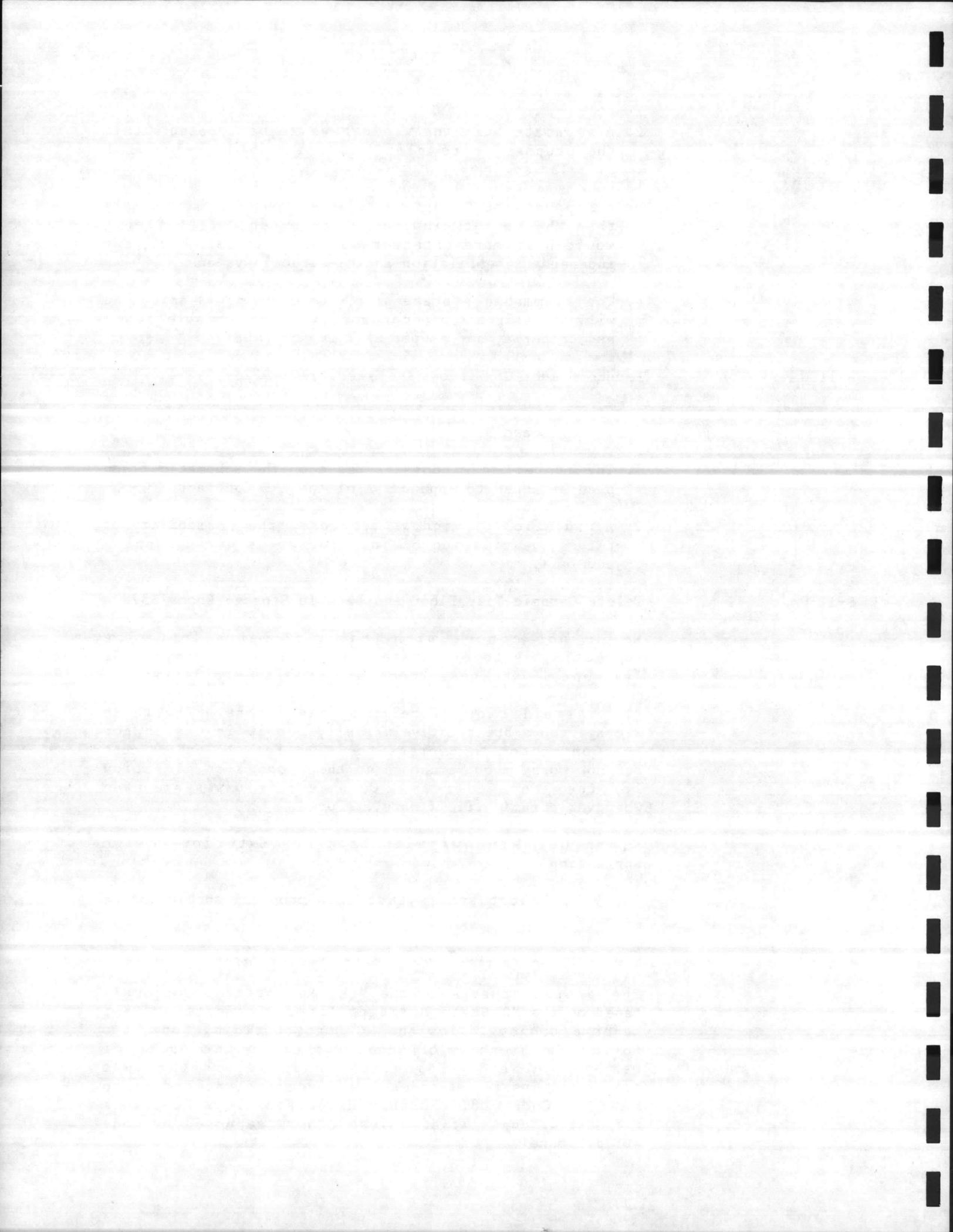
Flush Out Windows With Brick On Exterior/Design Suggestion

The V.E. Report states that this proposal should not be pursued.

A-14.0

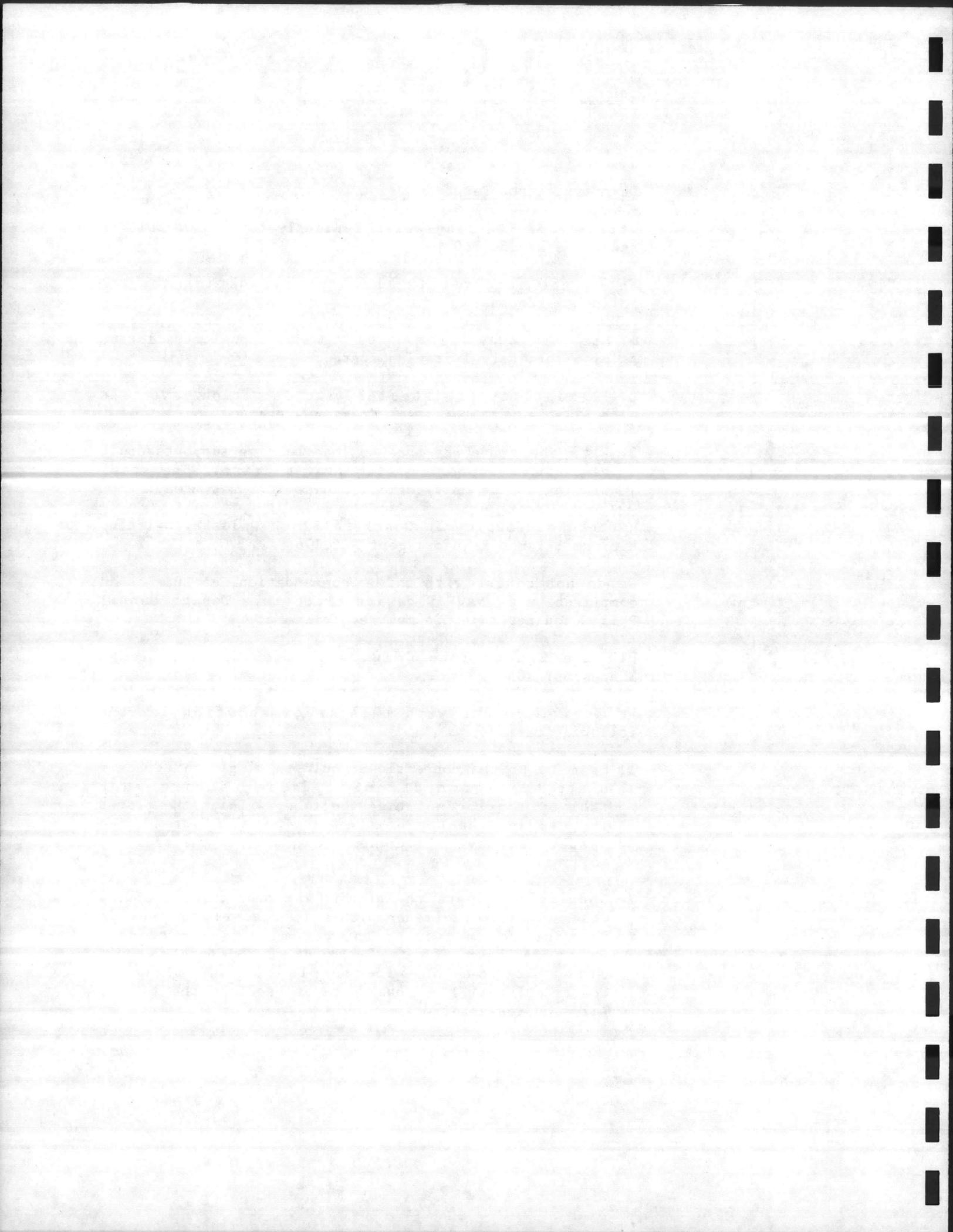
Change Construction Type From II To IV/\$54,553

The proposed change in the V.E. Report is erroneously based on the NC State Building Code. Projects at Camp Lejeune do not follow the NC State Building Code, but follow the hierarchy of codes listed in the Bases of Design. The building, as designed, is the most economical insofar as codes are concerned, according to LANTDIV Code 408. Further discussion regarding this proposal is unjustified unless otherwise noted by Code 408 personnel.



S. STRUCTURAL

Item	Description and Response
S-1.0	<p data-bbox="532 363 1458 426">Utilize Load-bearing Walls Typically In Lieu Of Columns And Girders/\$131,860</p> <p data-bbox="532 457 1458 520">We do not concur with this recommendation for the following reasons:</p> <ol data-bbox="532 552 1458 840" style="list-style-type: none"><li data-bbox="532 552 1458 615">1. Speed of construction was a major issue of selection of a total steel framing system.<li data-bbox="532 646 1458 709">2. Flexibility of interior wall partition layout is available with the steel framing system.<li data-bbox="532 741 1458 840">3. With the crane bay area no load bearing supports could be used for support of the bridge crane. The steel framing is the only logical choice for this area.
S-2.0	<p data-bbox="532 871 1458 934">Reduce Reinforcing In Concrete Block Walls By Deleting Minimum Seismic Reinforcement/\$62,176</p> <p data-bbox="532 966 1458 1060">We do not concur with this recommendation, as this is in compliance with NAVFAC design criteria. Design Manual P-355 requires this minimum reinforcement.</p>
S-3.0	<p data-bbox="532 1092 1458 1155">Utilize Square Tube Columns In Lieu Of Wide Flange Shapes/\$37,135</p> <p data-bbox="532 1186 1458 1249">We do not concur with this recommendation for the following reasons:</p> <ol data-bbox="532 1281 1458 1724" style="list-style-type: none"><li data-bbox="532 1281 1458 1470">1. Beam to column connections would be single sided shear plate type connections. These require shop fabrication for notching the tube, welding the plates in, capping the top of the tube, etc. Wide flange shapes can have all connections made in the field by bolting.<li data-bbox="532 1501 1458 1724">2. Connections where the girders run over the top of the column require stiffener plates in the web to provide bracing to the top of the column. As a matter of practice, our office only does "cantilevered construction" on interior bays. Cantilevered construction will be considered in reducing the girder sizes on the interior.



3. Wide flange shapes are still the major shape used in steel framed construction for columns. The tube columns are best suited for torsional or biaxial bending where the full use of their shape and higher strength capacity can be realized.

4. The wide flange shapes are in many cases well over design capacities. This is for ease of erection and connection efficiency. Typically an 8" wide flange or web is considered minimum for framing a beam or girder into a column. This contributes to the higher weight total for the columns.

S-4.0

Use 5 Ton Powered Monorail Crane In Lieu Of 5 Ton Bridge Crane/\$30,816

We do not concur with this recommendation for the following reasons:

1. The 5 ton bridge crane was a requirement of the User.
2. The monorail crane leaves no flexibility in the pick-up and placement locations that the bridge crane can provide.

S-5.0

Utilize Joist Girders In Lieu Of Wide Flange Girders/
\$30,328

We do not concur with this recommendation for the following reasons:

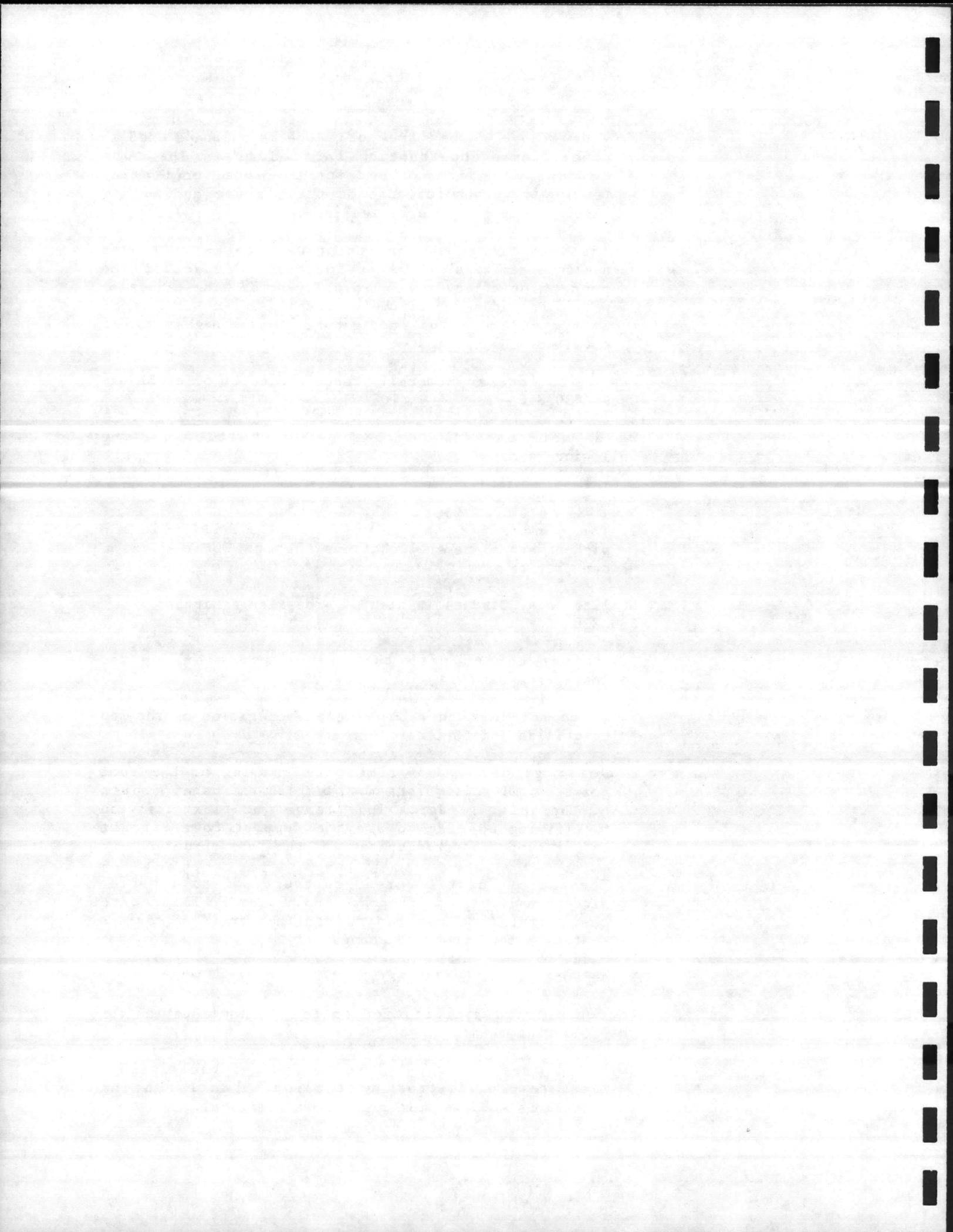
1. We do not feel there is enough repetition on the job to utilize joist girders effectively.
2. Joist girders also limit the spacing of the roof joists. All roof joists must bear at the panel points of the joist girder. This leaves no flexibility in the framing spacing to provide support to equipment either supported or suspended by the roof structure.
3. The use of "cantilevered construction" on interior girders as stated in proposal S-3.0 item 2 will reduce the weight somewhat and reduce the margin of savings stated in this proposed change.

S-6.0

Raise Footings Eight Inches/\$21,078

We concur with modification to this recommendation for the following reason:

1. Final grade must be close to that of the finished floor to provide frost protection. Final footing elevations will be held as high as practical.



S-7.0

Utilize "K" Type Joists Instead Of "H" Type/\$18,774

We do not concur with this recommendation for the following reasons:

1. Our office at this time feels K-Series joist shall only be used in limited situations where only uniform loads are applied to the joist.
2. H-Series joist have twice the allowable vertical shear capacity on the web as K-Series joist. The joist manufacturers in our area are still recommending the use of H-Series joist where concentrated loads from mechanical equipment, piping, etc. can be expected.
3. The actual savings in H-Series vs. K-Series is only \$4,991. The bulk of the savings in the proposed savings is in the estimate for bridging, \$12,528 versus \$5,328.

S-8.0

Delete Floor Slab Welded Wire Fabric Reinforcement/
\$13,327

We do not concur with this recommendation for the following reasons:

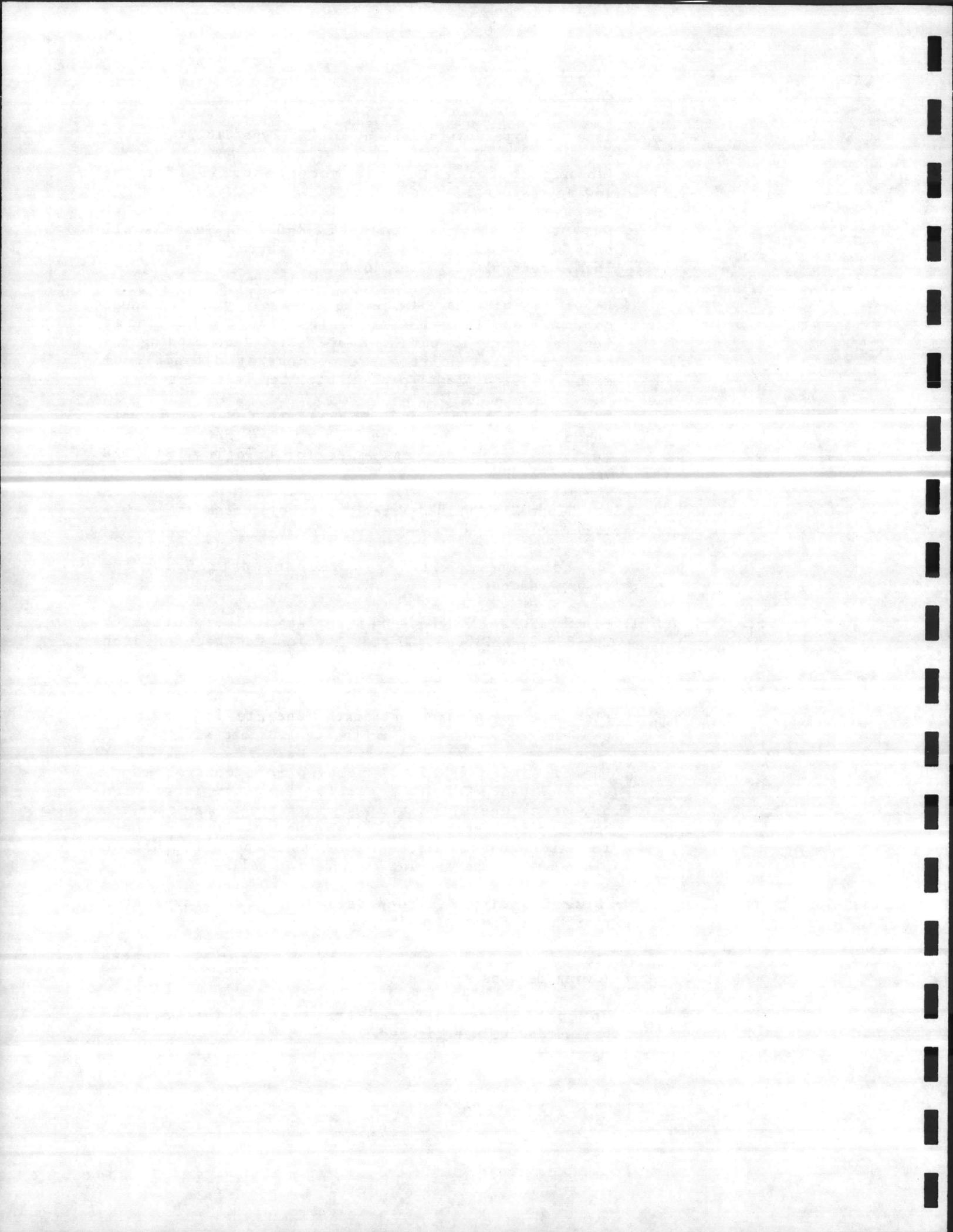
1. Minimum slab on grade reinforcement is required by TM5-809-2, AMF 88-3, Chapter 2 which has been used on all previous projects.
2. Typically when the welded wire fabric is not used in a slab on grade a higher strength concrete is required, this was not considered in the design cost savings.
3. When the wire fabric is removed more control joints are required. This is generally easy for large open bay areas where additional joints can be saw cut with some typical spacing. With the various room layouts in this project, more joints would be difficult to place due to the spacing of interior walls.

S-9.0

Utilize Existing Railroad Ballast As Capillary Water Barrier Under Floor Slabs/\$9,486

We do not concur with this recommendation for the following reasons:

1. No cost of removal and transfer of the railroad ballast stone was figured.



2. The specifications call for clean washed stone aggregate, 3/4" or less to be used as coarse aggregate. The railroad ballast would also require cleaning and gradation to insure it conforms with the specification. This cost was not figured.

3. The actual project cost with the consideration of items number 1 and 2 above will probably offset the cost savings of reusing the stone.

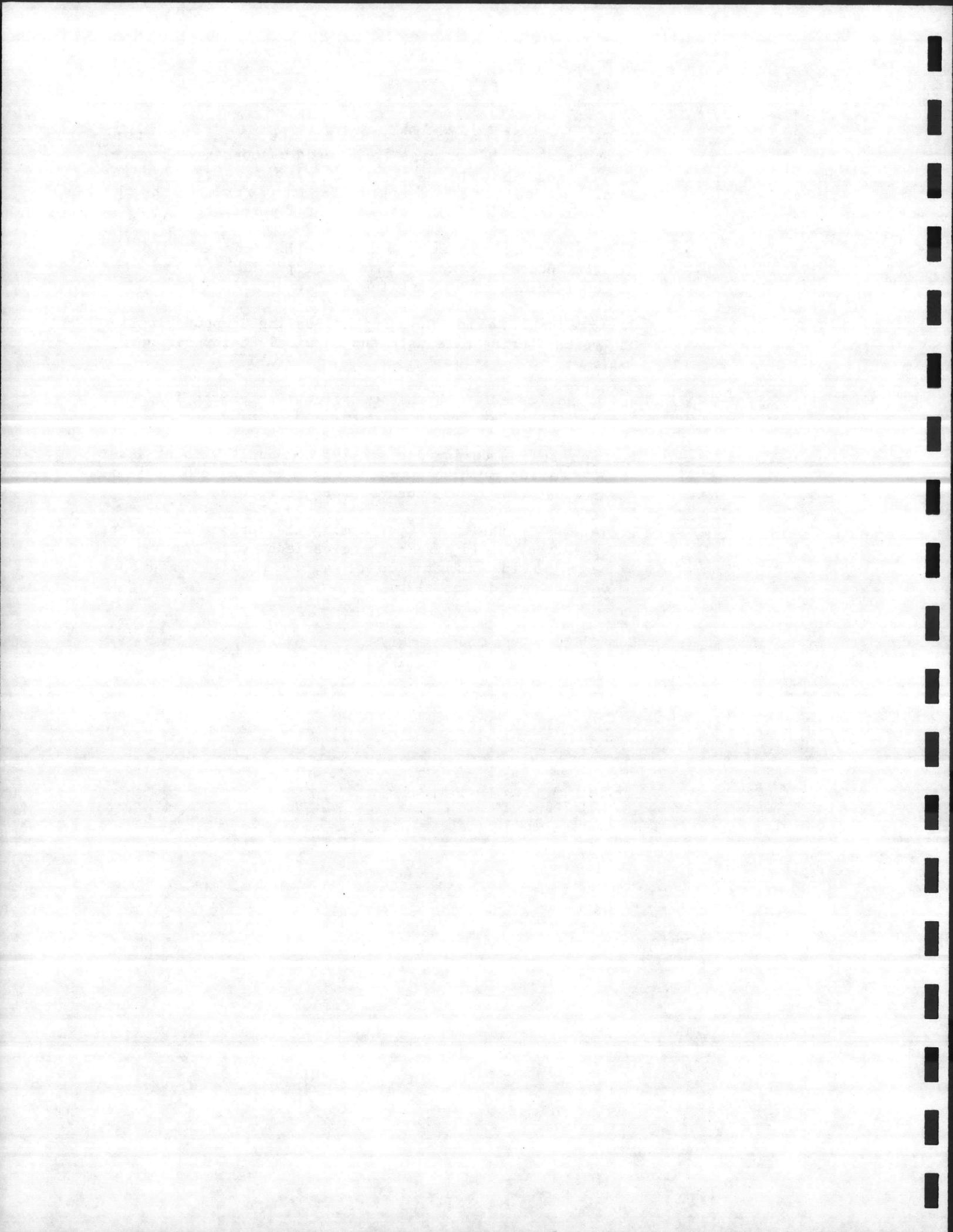
S-10.0

Utilize High Solids Curing And Sealing Compound In Lieu Of Typical During Materials And Chemical Sealer-Hardner/
\$6,751

We do not concur with this modification for the following reasons:

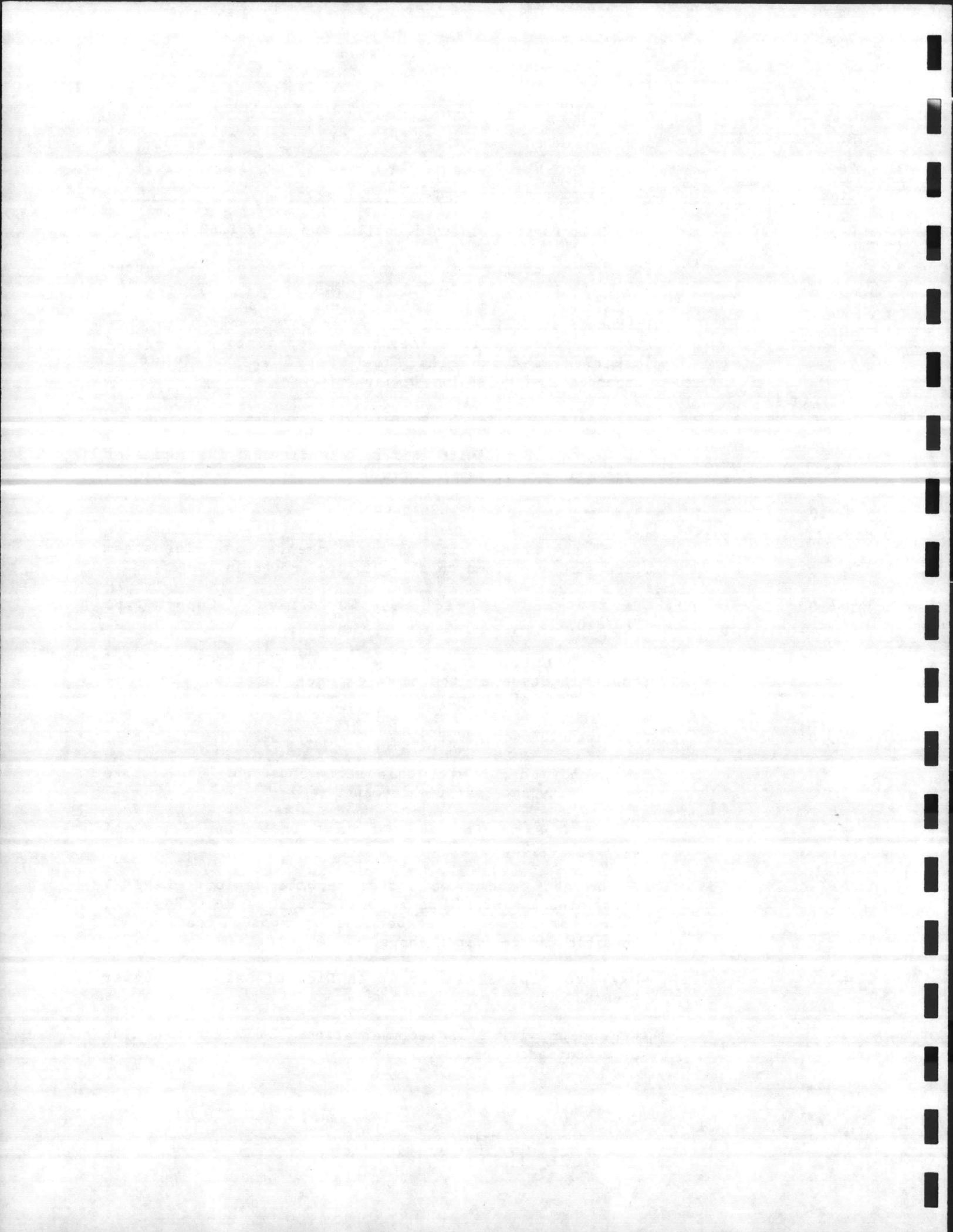
1. High solids curing and sealing compounds with at least 30% solids must be specified and the quality of application must be insured for the slab on grade.

2. Generally the trade performing the curing and sealing operation should have prior experience with the use of high solids curing compound to insure the proper performance of the slab.



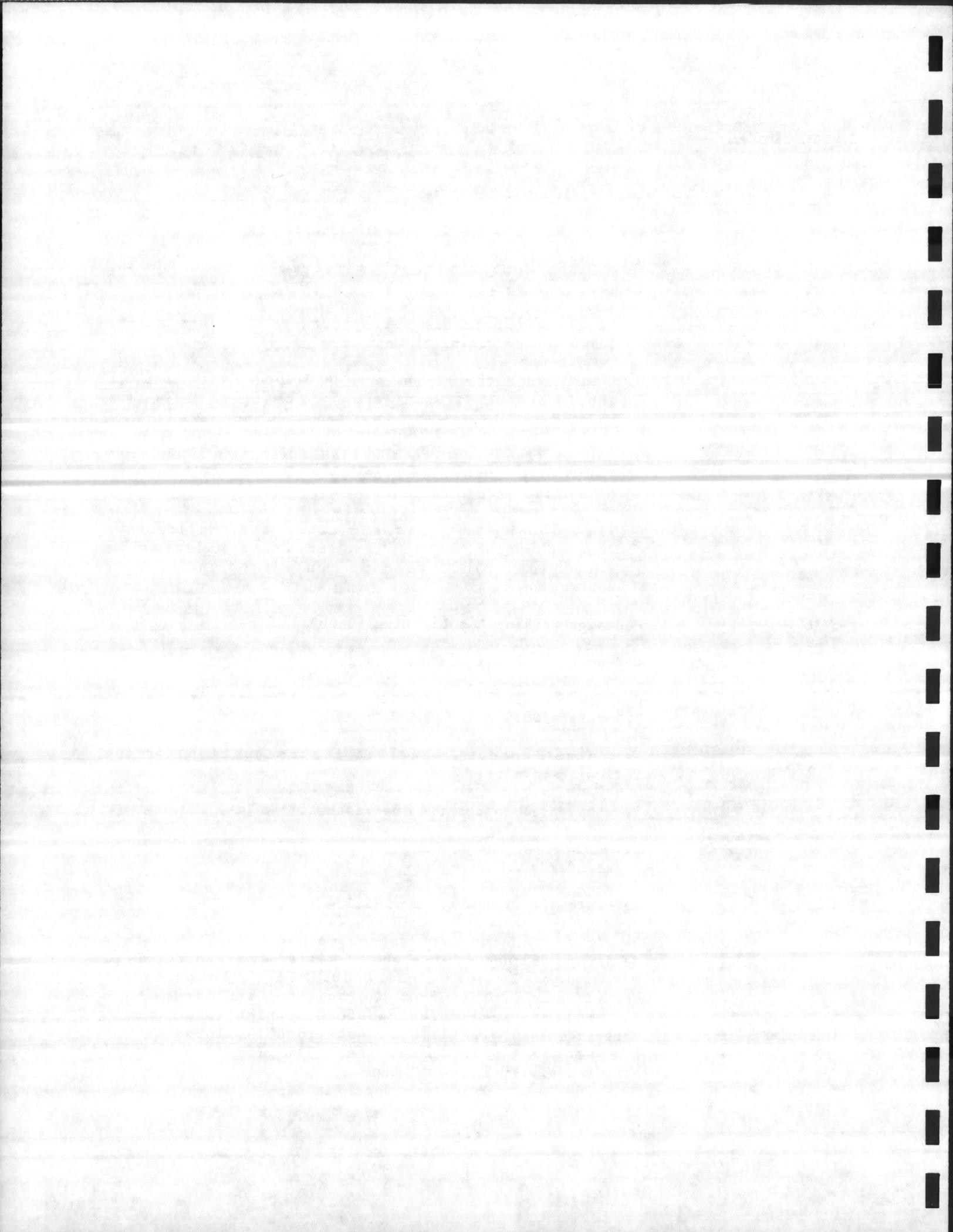
M. MECHANICAL

<u>Item</u>	<u>Description and Response</u>
M-1.0	<p>Use Heat Pumps In Lieu Of Chiller And AHU's/\$300,682</p> <p>We do not concur with this recommendation. We concur that the first cost savings are impressive. However, the V.E. Report did not do a life cycle analysis of the proposed system. Also the system as proposed violates some of the design criterial as set forth in DM-3 and other related manuals. The system was designed in accordance with LANTDIV Design Criteria.</p>
M-2.0	<p>Eliminate Sprinkler System/\$102,155</p> <p>We do not concur with this recommendation. The sprinkler system is a requirement of LANTDIV.</p>
M-3.0	<p>Reduce Steam Line Size/\$12,990</p> <p>We do not concur with this recommendation. The steam line size was sized to allow future growth in the area.</p>
M-4.0	<p>Use PVC and CPVC Schedule 40 In Lieu Of Copper Type "L"/\$10,453</p> <p>We do not concur with the use of plastic in lieu of copper because of the many exposed locations and the possibility of damage.</p>
M-5.0	<p>Eliminate Showers/\$9,989</p> <p>We do not concur with this recommendation. Showers are an Activity and User requirement.</p>
M-6.0	<p>Use PVC Pipe In Lieu Of Cast Iron Pipe For Roof Drainage/\$9,830</p> <p>We do not concur with this recommendation. LANTDIV allows the use of PVC as a Contractor option. However, we do not recommend it because of exposed locations and possible damage within shops.</p>
M-7.0	<p>Use PVC Pipe Schedule 40 In Lieu Of Cast Iron Sewer Pipe/\$3,411</p> <p>We concur with this recommendation. LANTDIV allows this as a Contractor option.</p>



E. ELECTRICAL

Item	Description and Response
E-1.0	<p data-bbox="521 375 1203 405">Use 3500 Lumen Lamps In Lieu Of 2850/\$4,429</p> <p data-bbox="521 438 1450 501">We do not concur with this recommendation for the following reasons:</p> <ol data-bbox="521 535 1450 1010" style="list-style-type: none"><li data-bbox="521 535 1450 598">1. We could not locate a manufacturer that has a 3500 lumen energy saving 35 watt lamp.<li data-bbox="521 632 1450 724">2. Some manufacturers have a 3500 lumen 40 watt lamp but the lumen output using energy saving ballasts is reduced.<li data-bbox="521 758 1450 850">3. The wattage input to a ballast with two 3500 lumen lamps may exceed the 86 watt input allowed in NFGS-16510 specification.<li data-bbox="521 884 1450 1010">4. The 3500 lumen lamps and associated ballasts we located cost more than the lamps and ballasts we specified. This was not considered in the V.E. Report.
E-2.0	<p data-bbox="521 1047 1089 1077">Redesign Parking Lot Lighting/\$3,669</p> <p data-bbox="521 1110 1073 1136">We concur with this recommendation.</p>
E-3.0	<p data-bbox="521 1173 1450 1236">Change Parking Lot Lighting Poles To Wood In Lieu Of Fiberglass/\$3,013</p> <p data-bbox="521 1270 1450 1333">We do not concur with this recommendation for the following reasons:</p> <ol data-bbox="521 1367 1450 1488" style="list-style-type: none"><li data-bbox="521 1367 1450 1392">1. Wood poles do not fit the aesthetics of the site.<li data-bbox="521 1430 1450 1488">2. Wood poles do not meet accepted design per Activity standards.
E-4.0	<p data-bbox="521 1526 1065 1556">Relocate 500 KV Transformer/\$2,324</p> <p data-bbox="521 1589 1450 1837">We do not concur with this recommendation. Military design guidelines require an oil filled transformer be a minimum of 25 feet from a building. To place the transformer 10 feet from the building would require a less-flammable-liquid transformer which is much more expensive than oil filled. Additionally, locating the transformer in the paved area will eliminate vehicle maneuverability into the shop.</p>



E-5.0

Reduce Number Of Duplex Receptacles/\$1,709

We do not concur with this recommendation for the following reasons:

1. At some future time receptacles may be beneficial in these areas.
2. Only a minimum amount of receptacles are located in these areas. The minimal cost savings derived by removing these receptacles does not offset the inconvenience caused by not have a receptacle if required.

E-6.0

Use Weatherproof Boxes For Outside Receptacles/\$1,445

We do not concur with this recommendation for the following reasons:

1. Each group of switches for van hook-up consists of six disconnect switches. Thus a box 24 x 24 x 6 inches as suggested is not of adequate size. A weatherproof box of adequate size would be quite expensive and probably not offset the cost of weatherproof switches.
2. It would be inconvenient for the User to route cables out of switches mounted in a large weatherproof box. Each "box" could have six large cables running to van locations causing cabling problems.

E-7.0

Reduce Number of G.F.I. Receptacles/\$1,398

We concur with this recommendation for using GFI feed through receptacles, but do not concur with eliminating outside receptacles for the following reason:

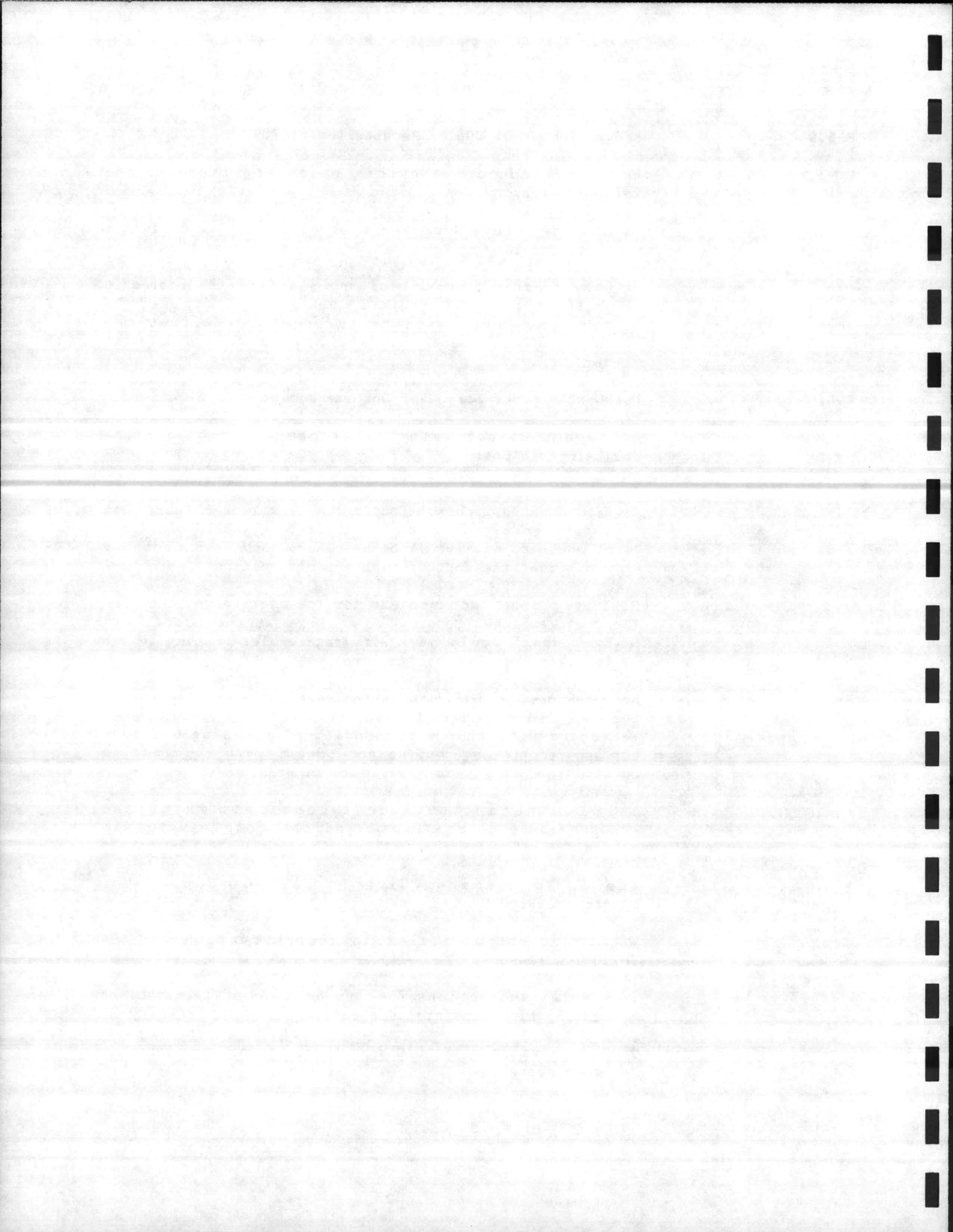
1. Eliminating outside receptacles may cause inconvenience to the User, and the cost savings is minimal.

E-8.0

Change To Aluminum Wire In Lieu Of Copper For Electrical/\$1,030

We do not concur with this recommendation for the following reasons:

1. Regular inspections need to be made of terminations causing higher maintenance costs.
2. Cost savings of \$1,030 do not offset the inconvenience of #1 above.

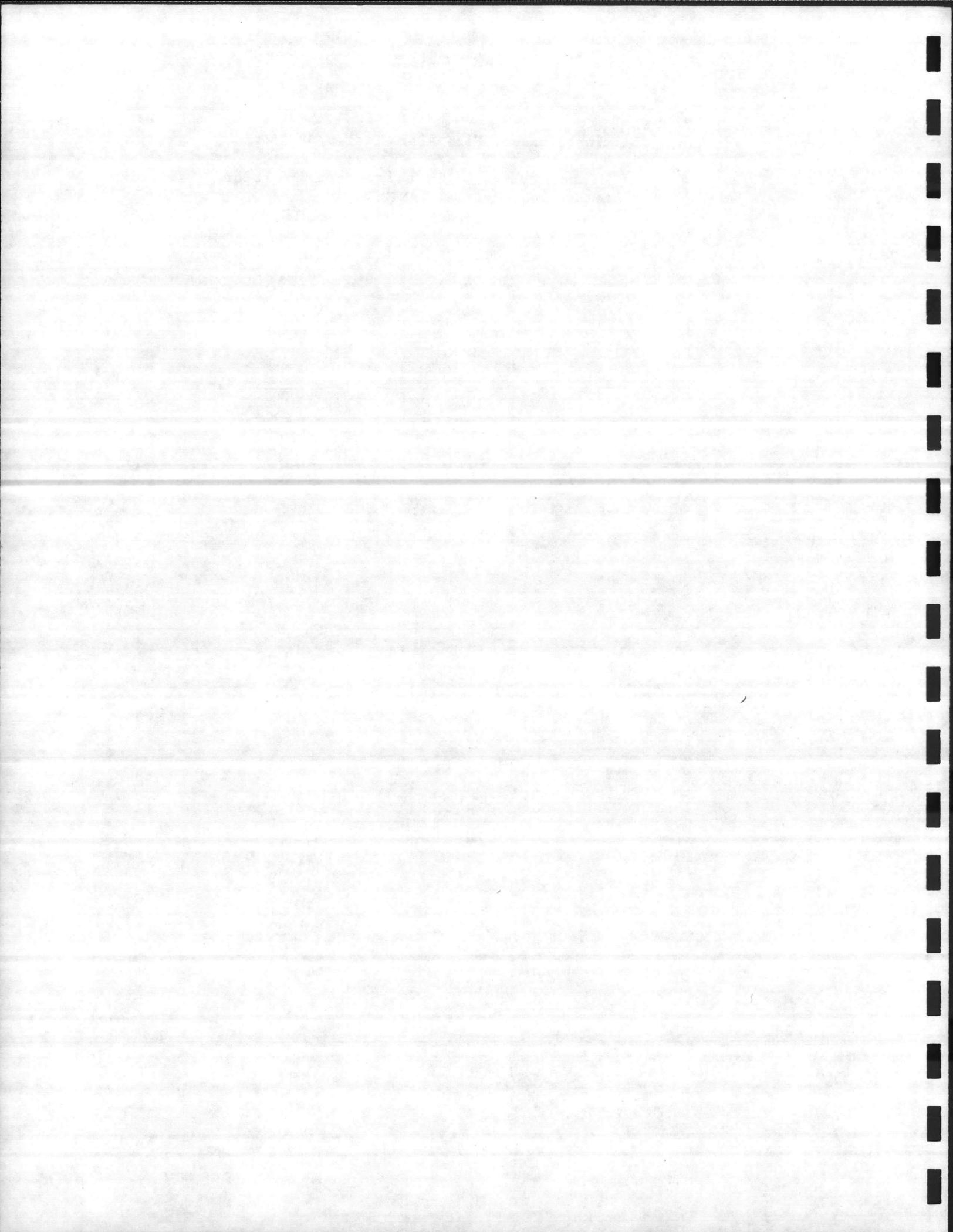


E-9.0

Eliminate Manual Fire Alarm System/\$8,254

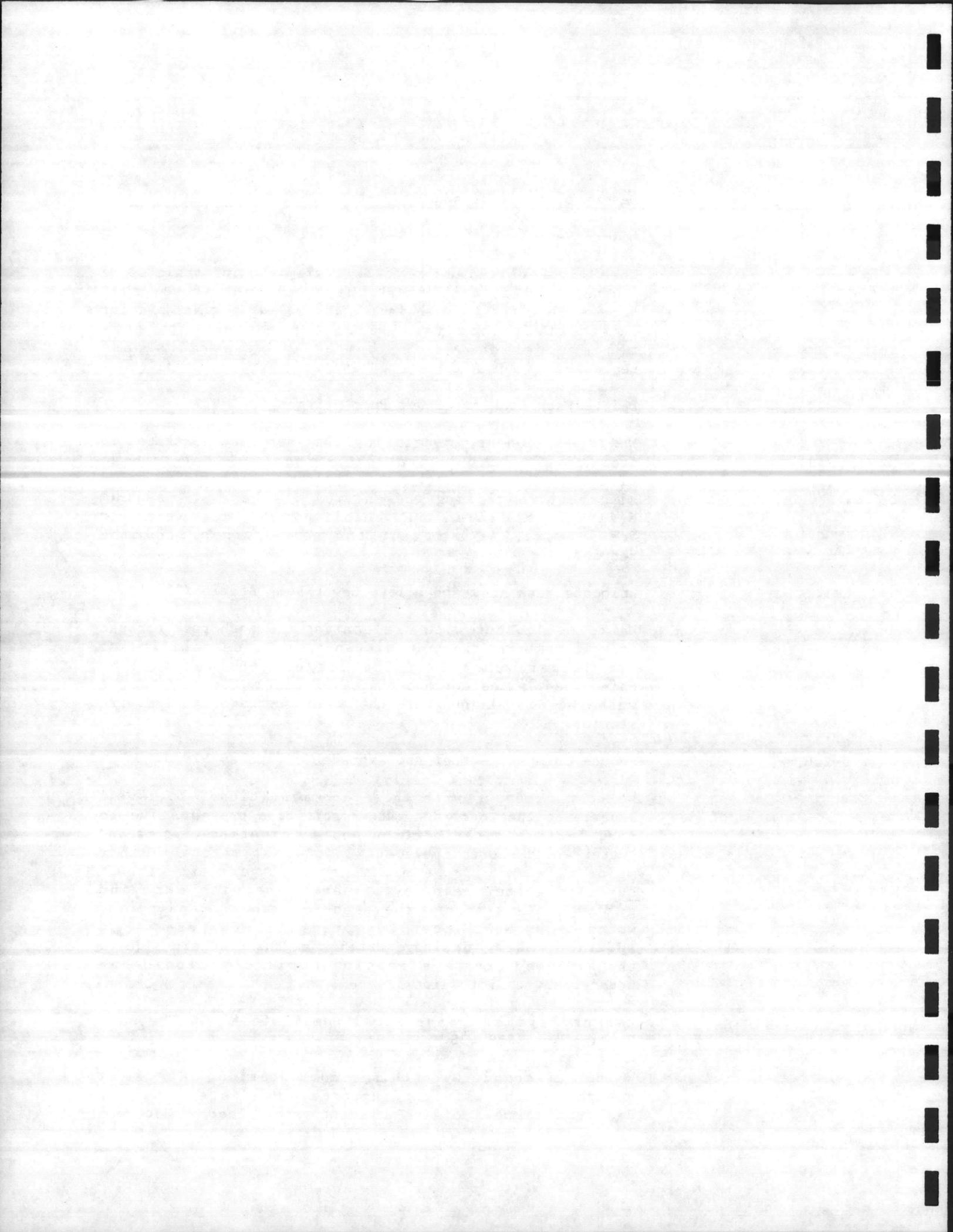
We do not concur with this recommendation. Fire alarm system is required per LANTDIV.

2



C. CIVIL

Item	Description and Response
C-1.0	<p data-bbox="532 386 1040 415">Delete Vehicle Wash Rack/\$68,712</p> <p data-bbox="532 449 1459 638">The V.E. Report recommend that all incoming vehicles be cleaned prior to arriving at the site, and assumes that access to off site wash facilities would be available for intermittent periods. We do not concur with this recommendation, as the number of wash racks were requested by the Activity and User.</p>
C-1.1	<p data-bbox="532 674 1295 703">Delete Wash Rack And Sewer Pump Station/\$101,332</p> <p data-bbox="532 737 1459 953">We do not concur in deleting the wash rack as stated in Item C-1.0. The pump station is required to discharge effluent from the wash rack. Raising the building would also require raising the entire site because maximum desirable slopes in the vehicle parking areas were used for safety. As a result the net savings would be reduced.</p>
C-1.2	<p data-bbox="532 989 1425 1018">Relocate Wash Rack And Delete Sewer Pump Station/\$32,620</p> <p data-bbox="532 1052 1459 1241">We do not concur with relocating the wash rack because it will maximize the trip distance and accessibility of the larger vehicles. The larger vehicles will be maintained in the northwest area of the building and the wash rack is aligned with the access corridor to the work station.</p>
C-2.0	<p data-bbox="532 1276 1377 1306">Reduce Curb And Gutter And Regrade To Ditches/\$19,970</p> <p data-bbox="532 1339 1459 1688">We do not concur with this recommendation. It is our experience that curb and gutter acts as a preventative to road surface deterioration and elimination of curb and gutter would shorten pavement life. Estimates are that major repairs will be necessary in five years without curb and gutter, and in fifteen years with curb and gutter. This incurs the need for annual repair fund which is an O & M cost for practical purposes. In addition, using drainage ditches at the southern side of the site may create elevation conflicts with other underground utility lines.</p>
C-3.0	<p data-bbox="532 1724 1459 1787">Reduce Pavement Base Rock From 9" to 6" In The Main Parking Area/\$39,438</p> <p data-bbox="532 1820 1459 1906">We do not concur with this recommendation. The final design for the main parking area will determine the design thickness of the pavement base. There could be a</p>



reduction on total thickness of pavement base, if design dictates. We do maintain all areas of the parking lot are subject to concentrated loads.

C-4.0

Delete A/C Paving In P.O.V Parking Area/\$32,094

We do not concur with eliminating asphalt paving, as it may impact User's function. We do not believe User or Activity would be satisfied with unpaved parking areas from both maintenance and aesthetics value.

C-5.0

Reduce The Asphalt Paving Thickness In Non-Traffic Areas/\$16,566

We do not concur with varying the asphalt thickness within a continuous paved area. The thinner asphalt section would be susceptible to shear forces at the transition joint. This would cause cracking and continuous maintenance. Additionally, the parking area layout could change at any time by the User, and this would destroy the concept of this savings.

C-6.0

Eliminate Fencing Around Building/\$27,358

We do not concur with this recommendation. Eliminating fencing will not meet with Activity and User security requirements for this facility.

C-7.0

Reduce 8" Base Rock To 6" - P.O.V. Parking/\$10,055

We concur with this recommendation.

C-8.0

Redesign Wash Rack Sedimentation Basin/\$2,176

We do not concur with this recommendation. The overall size and volume of the sedimentation basin is designed for accessibility to remove settled material. Quality of effluent would be reduced if modifications are implemented.

C-9.0

Replace Concrete Apron With 3" Asphalt Paving/\$229

We do not concur with this recommendation. This area where the concrete apron is proposed is subject to excessive vehicular turning. The concrete apron minimizes the maintenance associated with this activity.

