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ASBESTOS-CONTAINING MATERIAL RE-INSPECTION FOR BUILDING NS69 VOLUME 10
CNC CHARLESTON SC
2/15/2000
BAT ASSOCIATES, INC.

Volume 10

**Asbestos-Containing Material Re-inspection
For Building NS69
Charleston Naval Shipyard
Charleston, South Carolina**

Contract No. N2467-96-D-0998
Delivery Order No. 0013

Prepared for:

Department of the Navy
Southern Division
NAVFACENGCOM
2305 Eagle Drive
North Charleston, SC 29419

Prepared by:

BAT Associates, Inc.
5151 Brook Hollow Parkway
Suite 250
Norcross, Georgia 30071
(770) 242-3908

February 15, 2000

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1.0 EXECUTIVE SUMMARY

BAT Associates, Inc. (BAT) was retained by the U.S. Department of the Navy, Southern Division (SouthDiv), Naval Facilities Engineering Command (NAVFACENGCOM) to perform an asbestos-containing material (ACM) re-inspection of Building NS69 located at the Charleston Naval Shipyard (CNS) in Charleston, South Carolina.

A list of ACM identified in Building NS69 is summarized in Table 1.0.

**Table 1.0
 Summary of Identified ACM**

HA No.	Material Description	Sample Analysis Results	Approx. Quantity of ACM	NESHAP Category
3	Pipe Fitting Insulation, white with cloth wrap	5% chrysotile	210 EA	Regulated, friable
11	Caulking, gray	2% chrysotile	140 LF	Regulated, friable

NOTES: HA = Homogeneous Area LF = Linear Feet EA = Each

1. One percent or less asbestos content is considered a non-asbestos-containing material by EPA and the State of South Carolina.
2. Federal and state regulations require a minimum of three non-asbestos-containing analysis results per homogeneous area (material) to classify that material as being a non-asbestos-containing material. However, one "positive" asbestos-containing analysis result would classify that material as being an asbestos-containing material.
3. No Quality Control discrepancies were noted.

BAT recommends the following management actions for the identified ACM in Building NS69 in Table 2.0.

**Table 2.0
 Recommended Response Actions**

HA No.	Material Description	Recommended Response Action
3	Pipe Fitting Insulation, white with cloth wrap	Removal Prior to Renovation or Demolition
11	Caulking, white	Removal Prior to Renovation or Demolition

Other suspect ACM not identified could be present in areas of the building inaccessible to the asbestos building inspectors. For example, materials could exist in walls and other locations where access could only be gained by demolition of the building. Also, other materials currently not recognized by the asbestos building inspection industry could exist.

The total estimated cost for the removal of the identified and/or assumed ACM in Building NS69 is approximately \$10,450. See Section 10.0 for a break down of the preliminary cost estimate for the removal of the identified or assumed ACM.

2.0 BUILDING INSPECTION INFORMATION FORM

Building Name: Boiler House
Building Number: NS69
Facility: Charleston Naval Shipyard
Building Area (square footage): 1,800
Year Built: 1963
Building Type: Steam Heat
No. of Floors in Building: One
Purpose of ACM Survey: Re-Inspection
Facility Unit Identification Code (UIC): N/A

Building Contact: Mr. Gary Crawford
Contact's Telephone No.: (843) 200-3187
Building Survey Date(s): January 28, 2000

Asbestos Inspector's Name: Mr. Foshie Bell
Asbestos Inspector's Accreditation No: GA2900
Inspection Company: BAT Associates, Inc.
Company Telephone No. (770) 242-3908

3.0 INTRODUCTION

BAT Associates, Inc. (BAT) was retained by the U.S. Department of the Navy, Southern Division (SouthDiv), Naval Facilities Engineering Command (NAVFACENGCOM) to perform an asbestos-containing material (ACM) re-inspection of all buildings located at the Charleston Naval Shipyard in Charleston, South Carolina. The purpose of this re-inspection was to:

1. Perform a comprehensive ACM re-inspection of 34 buildings in accordance with Federal and U.S. Navy requirements;
2. Assess the condition of previously identified friable and non-friable ACM; and
3. Provide a preliminary cost estimate for the removal of identified ACM.

The re-inspection was performed in accordance with the Navy's Asbestos Facility Inventory/Assessment Protocol (NEESA 70.2-010) and the U.S. Environmental Protection Agency's (USEPA) Asbestos Hazard Emergency Response Act (AHERA) and the Asbestos School Hazard Abatement Reauthorization Act (ASHARA).

The results of the re-inspection survey are presented in 24 separate volume reports. This report describes the results for Building NS69.

This re-inspection survey was performed by Mr. Foshie Bell, under the direct supervision of Mr. Douglas J. Milton, CIH, on January 26, 2000. Mr. Bell is an accredited asbestos building inspector and management planner. Mr. Milton, a Certified Industrial Hygienist, is an accredited asbestos inspector, management planner, and project designer.

This report discusses the sampling methodology used during the re-inspection and assessment (Section 4.0); a list of all identified suspect materials (Section 5.0); a summary of the bulk sample analysis results (Section 6.0); results of quality control sampling; (Section 7.0); physical assessments of the identified ACM (Section 8.0); a hazard assessment of the identified ACM (Section 9.0); preliminary cost estimates for removal (Section 10.0); and conclusions (Section 11.0). Appendix A contains drawings identifying the location of collected bulk samples and the locations of identified ACM. Appendix B contains photographic documentation of identified ACM. Appendix C contains personnel and laboratory accreditations. Appendix D contains laboratory analysis results.

The assessment protocol for ACM involved three distinct steps:

1. Performed preliminary walk-through of the building to identify suspect ACM and to determine the amount of suspect ACM, to define the number of samples to be collected, to identify access problems (e.g., collection of samples in a limited access pipe chase below the building), and to determine the degree of personal protection necessary for the bulk sample collection.

2. Visually inspected the building for ACM to identify the location of the suspect ACM and to determine if the material was friable or non-friable. Suspect materials were then categorized according to the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for asbestos as: Category I non-friable materials, Category II non-friable materials, and Regulated (friable) Asbestos-Containing Materials (RACM).
3. Collected bulk samples for the analysis for asbestos content (see Section 4.0, *Sampling Methodology*, for details).

4.0 SAMPLE METHODOLOGY

Representative, randomly selected bulk samples were collected in accordance with the Navy's and AHERA sampling protocol, as described in 40 CFR 763.86, and in accordance with BAT's contract requirements. Bulk samples were collected from homogenous areas (materials) in a manner that minimized any release of airborne asbestos fibers. A homogeneous area (material) is defined as a material uniform in size, color and texture.

The minimum number of samples collected from each homogeneous area was as follows:

1. *Friable Spray-Applied or Trowel-Applied Material* (including plaster)
 - a. Less than or equal to 1,000 Square Feet (S.F.) = 3 samples
 - b. Greater than 1,000 S.F and less than or equal to 5,000 S.F. = 5 samples
 - c. Greater than 5,000 = 7 samples

2. *Pipe and Duct Insulation*

- a. Three samples per homogeneous area of insulation.

3. *Elbows, Valves, Fittings, and Connection Mud*

Three representative samples from each type of insulated elbow, valve, fitting, and connection mud.

4. *Boiler, Tanks, and Furnaces*

A minimum of 3 samples per unit.

5. *Patchwork*

Patchwork is defined as a patch or repair to existing material based on the following quantities:

- a. Surfacing material patches are limited to a maximum of 6 S.F.
- b. Pipe and duct insulation patches are limited to a maximum of 6 Linear Feet (L.F.) or 6 S.F.
- c. Boiler, tank, and furnace patches are limited to 6 S.F.

If the patchwork exceeded the limits prescribed above, it was sampled according to the homogeneous area protocol in items 1 to 4 above. If a material qualifies as patchwork, a single sample was collected per patch.

6. *Ceiling or Acoustical Tile*

3 samples

7. *Miscellaneous Friable Material*

3 samples

8. *Non-Friable Material*

Non-friable materials for purpose of this survey included Transite-type panels, floor tiles, floor tile mastic, and other miscellaneous materials.

Minimum of 3 samples.

The procedures followed for collection of each bulk sample is outlined briefly below:

1. The accredited inspector collecting the sample was equipped with the appropriate personal protective equipment. This included a half-mask air-purifying respirator, protective gloves and protective eyewear.
2. The surface of the material being sampled was wetted with amended water (containing a surfactant to aid penetration) mist to lessen the risk of fiber release during sampling.
3. Each sample was extracted using the appropriate equipment, (e.g., a sample container, knife, core borer). Care was taken to insure that all layers of the suspect materials, down to the substrate, were included in the sample.
4. Each sample was placed in an individual container, which was then sealed and labeled with a unique identification number which was also recorded on the sample data log-in sheet.
5. After each sample was collected, the area immediately surrounding the sampling location was inspected for debris and wet-cleaned as necessary to lessen the risk of an airborne fiber release.

6. All necessary data were recorded on the BAT Suspect Material Inventory Form including sample number, sample location, type of suspect material, name of inspector collecting the sample and other relevant information.
7. Samples were then transported to Cape Environmental Management Inc. (CAPE) Asbestos Laboratories in Atlanta, Georgia, for Polarized Light Microscopy (PLM) analysis. The CAPE Asbestos Laboratory participates in the National Voluntary Laboratory Assurance Program (NVLAP) for the analysis of asbestos content in suspect materials. CAPE's NVLAP Laboratory Code is 102111-0.
8. BAT collected duplicate samples during the collection of primary bulk sampling for quality control (QC) purposes. QC samples were collected at ten percent of the bulk sample locations. They were assigned unrelated sample identification numbers and analyzed by Analytical Environmental Services, Inc. (AES). AES participates in the National Voluntary Laboratory Assurance Program (NVLAP) for the analysis of asbestos content in suspect materials. AES's NVLAP Laboratory Code is 102033-0.
9. Upon receipt by the laboratory, the samples were logged in and assigned a unique laboratory identification number. The laboratory analyzed the samples in accordance with 40 CFR 763.87 subpart F. Copies of the laboratory accreditations for both laboratories may be found in Appendix D.

5.0 ASBESTOS INVENTORY AND ASSESSMENT

Table 3.0 describes the suspect ACM identified in and around Building NS69.

Table 3.0
Summary of Identified Suspect ACM

HA No.	Description of Suspect ACM	Location of Suspect ACM	AHERA Category of Material
1	Mortar, on cinder block	Rooms 100 and 102	N/A
2	Caulking, black	Room 101	N/A
3	Pipe Fitting Insulation, white with cloth wrap	Rooms 101 and 102	TSI
4	Pipe Insulation, white with cloth wrap	Rooms 101 and 102	N/A
5	Tank insulation, white	Room 101	N/A
6	Mastic, white	Room 101	N/A
7	Silver Paint	Rooms 101 and 102	N/A
8	Boiler Insulation, white	Room 102	N/A
9	Mortar, on brick	Exterior of the building	N/A
10	Caulking, gray	Not identified during re-inspection	N/A
11	Caulking, white	Exterior of the building, around door frames	Misc.
12	Roofing, with black felt	Roof	N/A
13	Roofing Tar, black	Roof	N/A
14	Roofing Tar, gray	Not identified during re-inspection	N/A
15	Roofing Tar, brown patch	Not identified during re-inspection	N/A

Notes: Misc. = Miscellaneous Material TSI = Thermal System Insulation
 N/A = Not Applicable

6.0 SUMMARY OF SAMPLE ANALYSIS RESULTS

Table 4.0 contains a summary of the bulk sample analysis results for suspect ACM identified in this building.

All thermal system insulation (TSI), if present, was classified as friable material. As long as the outer covering remains intact and is in good condition the TSI can be considered non-friable (29 CFR 763.85). Ceiling tile, if asbestos is present was considered a friable material. However, if non-friable materials are drilled, sawed, ground or otherwise physically or mechanically disturbed, they may release asbestos fibers to the environment and therefore would be considered a friable material.

According to AHERA protocol, all samples within a homogeneous area must have an asbestos content of one percent or less by weight using Polarized Light Microscopy (PLM) analysis before the material can be categorized as non-asbestos-containing. If one sample is determined

as asbestos-containing using PLM analysis, the entire homogeneous area must be classified asbestos-containing.

Table 4.0
Summary of Sample Analysis Results

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
1	NS69-001, NS69-002, 69-1-1	Mortar, on cinder block	NAD	N/A
2	NS69-003, NS69-004, 69-2-1	Caulking, black	NAD	N/A
3	NS69-005, NS69-006, NS69-007, NS69-008, NS69-009	Pipe Fitting Insulation, white with cloth wrap	5% chrysotile	Friable
4	NS69-011, NS69-012, NS69-013, NS69-014	Pipe Insulation, white with cloth wrap	NAD	N/A
5	NS69-015, NS69-016, NS69-017, NS69-018	Tank insulation, white	NAD	N/A
6	NS69-019, NS69-020, 69-6-1	Mastic, white	NAD	N/A
7	NS69-021, NS69-022, 69-7-1	Silver Paint	NAD	N/A
8	NS69-023, NS69-024, NS69-025, NS69-026	Boiler Insulation, white	NAD	N/A
9	NS69-027, NS69-028, 69-9-1	Mortar, on brick	NAD	N/A
10	N/A	Caulking, gray	N/A	N/A
11	NS69-031, NS69-032	Caulking, white	2% chrysotile	Non
12	NS69-033, NS69-034	Roofing, with black felt	NAD	N/A
13	NS69-035, NS69-036, 69-13-1	Roofing Tar, black	NAD	N/A
14	N/A	Roofing Tar, gray	N/A	N/A
15	N/A	Roofing Tar, brown patch	N/A	N/A

Notes: NAD = No Asbestos Detected N/A = Not Applicable

7.0 RESULTS OF QUALITY CONTROL SAMPLING

BAT collected and analyzed the samples identified in Table 5.0 for two purposes, one, to bring the existing survey into compliance with the NESHAP requirement that a minimum of three negative sample analyses is needed to categorize a material as being a non-asbestos-containing material, and two, for quality control. The purpose of quality control (QC) sampling was to ensure reproducibility of the primary laboratory analysis results.

Table 5.0
Validation of Quality Control Sampling

Sample I.D. No.	Primary Laboratory Analysis Results	QC Laboratory Analysis Results
69-1-1QC	NAD	NAD
69-2-1QC	NAD	NAD
69-6-1QC	NAD	NAD
69-13-1QC	NAD	NAD

Notes: QC = Quality Control NAD = No Asbestos Detected

No discrepancies between primary laboratory and quality control laboratory bulk sample analysis were noted.

8.0 PHYSICAL ASSESSMENT OF IDENTIFIED ACM

The following sections contain a summary of the methodology BAT specialists used to conduct the physical assessment for this building. This methodology was developed in accordance with USEPA AHERA re-inspection requirements contained in 40 CFR Part 763.85.

1. Physical Assessment for Friable ACM.

A. **Condition.** Friable ACM were assigned to one of the following categories based on a visual inspection and touch test:

- 1) **Significantly Damaged Condition.** Material which met one or both of the following characteristics:
 - a. Ten percent (10%) or more of the material in the functional space is crumbled, blistered, or is hanging from the surface, deteriorated, showing adhesive failure, water stained, gouged or marred, and the damage is evenly distributed.
 - b. Twenty-five percent (25%) or more of the material in the functional space is crumbled, blistered, or is hanging from the surface, deteriorated, showing adhesive failure, water stained, gouged or marred, and the damage is localized.
- 2) **Damaged Condition.** Material which met one or both of the following characteristics:
 - a. The surface is crumbling, blistered, water stained, gouged or marred, or otherwise damaged on less than ten percent (10%) of the material in the functional space (but material is too damaged to be characterized as good condition) and the damage is evenly distributed.
 - a. The surface is crumbling, blistered, water stained, gouged or marred, or otherwise damaged on twenty-five percent (25%) or more of the material in the functional space (but material is too damaged to be characterized as good condition) and the damage is localized.
- 3) **Good Condition.** Material with very limited, or no visible damage or deterioration.

B. **Potential for Disturbance.** Friable ACM were assigned to one of the following categories based on a visual inspection and assessment of surroundings:

- 1) **Potential for Significant Damage.** Material which met one or more of the following conditions:
 - a. High potential for Contact. Service workers are in the vicinity of the material more than once each week or the material is in a public area and is accessible to building occupants.
 - b. High Potential for Vibration. Loud motors or engines present in the vicinity of the material or there are intrusive noises or easily sensed vibrations from surrounding area, such as nearby highways or airports.
 - c. High Potential for Air Erosion. High velocity air moving across or against material.

- 2) **Potential for Damage.** Material which met one or more of the following conditions for potential for significant damage:
 - a. Moderate Potential for Contact. Service workers are in the vicinity of the material at least once each month, but less than once each week or the material is in a room or office and is accessible to the occupants.
 - b. Moderate Potential for Vibration. Motors or engines present but not obtrusive or occasional loud noise in the vicinity of the material.
 - c. Moderate potential for Air Erosion. Noticeable movement of air across or against material, but not high in velocity.

- 3) **Low Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage or potential for damage:
 - a. Low Potential for Contact. Service workers are in the vicinity of the material less than once each month or the material is visible but not accessible to the building occupants in the course of normal activity.
 - b. Low Potential for Vibration. None of the conditions for high or moderate potential for vibration are met.
 - c. Low Potential for Air Erosion. None of the conditions for high or moderate potential for air erosion are met.

2. Physical Assessment for Thermal ACM.

A. **Condition.** Thermal ACMs were assigned to one of the following categories based on a visual inspection:

1) **Significantly Damaged Condition.** Material which met one or both of the following characteristics:

- a. Missing jackets, crushed, heavily gouged, or punctured insulation on equal to or greater than ten percent (10%) of the material in the functional space, and the damage is evenly distributed.
- b. Missing jackets, crushed, heavily gouged, or punctured insulation on equal to or greater than twenty-five percent (25%) of the material in the functional space, and the damage is localized.

2) **Damaged Condition.** Material which met one or both of the following characteristics:

- a. Missing jackets, crushed, heavily gouged, or punctured insulation on less than ten percent (10%) of the material in the functional space, and the damage is evenly distributed.
- b. Missing jackets, crushed, heavily gouged, or punctured insulation on greater than twenty-five percent (25%) of the material in the functional space, and the damage is localized.

3) **Good Condition.** Material with very limited, or no visible damage or deterioration.

B. **Potential for Disturbance.** Thermal ACMs were assigned to one of the following categories based on a visual inspection and assessment of surroundings:

1) **Potential for Significant Damage.** Material which met one or more of the following conditions:

- a. High Potential for Contact. Service workers are in the vicinity of the material more than once each week or the material is in a public area and is accessible to building occupants.
- b. High Potential for Vibration. Loud motors or engines present in the vicinity of the material or there are intrusive noises or easily sensed vibrations from surrounding area, such as a nearby highway or airport.

- c. High Potential for Air Erosion. High velocity air moving across or against the material.
- 2) **Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage.
- a. Moderate Potential for Contact. Service workers are in the vicinity of the material at least once each month but less than once each week or the material is in a room or office and is accessible to the occupants.
 - b. Moderate Potential for Vibration. Motors or engines present but not obtrusive or occasional loud noise in the vicinity of the material.
 - c. Moderate Potential for Air Erosion. Noticeable movement of air across or against material, but not high in velocity.
- 3) **Low Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage or potential for damage:
- a. Low Potential for Contact. Service workers are in the vicinity of the material less than once per month or the material is visible but not accessible to the building occupants in the course of normal activity.
 - b. Low Potential for Vibration. None of the conditions for high or moderate potential for vibration are met.
 - c. Low Potential for Air Erosion. None of the conditions for high or moderate potential for air erosion are met.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number NS69

SAMPLE NUMBER(S): NS69-005, NS69-006, NS69-007, NS69-008, and NS69-009

HOMOGENEOUS AREA No.: 3

TYPE OF MATERIAL: Surfacing TSI Other

Description: Pipe Fitting Insulation, white with cloth wrap

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 210 EA

CONDITION:

Percent Damage: 5 % Damage Localized Distributed

Type of Damage: Deterioration Water Physical

DESCRIPTION:

Overall Rating: Good Fair Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact: High Moderate Low

Description: None identified.

Influence of Vibration: High Moderate Low

Description: None identified.

Potential for Air Erosion: High Moderate Low

Description: None identified.

OVERALL RATING: Potential for Significant Damage Potential for Damage Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number NS69

SAMPLE NUMBER(S): NS69-031 and NS69-032

HOMOGENEOUS AREA No.: 11

TYPE OF MATERIAL: Surfacing TSI Other

Description: Caulking, white

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 140 LF

CONDITION:

Percent Damage: 40 % Damage Localized Distributed
Type of Damage: Deterioration Water Physical

DESCRIPTION:

Overall Rating: Good Fair Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact: High Moderate Low

Description: None identified.

Influence of Vibration: High Moderate Low

Description: Weathering.

Potential for Air Erosion: High Moderate Low

Description: Weathering.

OVERALL RATING: Potential for Significant Damage Potential for Damage Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

9.0 HAZARD ASSESSMENT OF IDENTIFIED ACM

AHERA describes a hazard assessment as "the means of collecting and considering whatever data were necessary for the management planner to make an informed, responsible recommendation to the LEA [Local Education Agency] consistent with response action requirements". As stated in AHERA, there is no single assessment method that is required in the regulations.

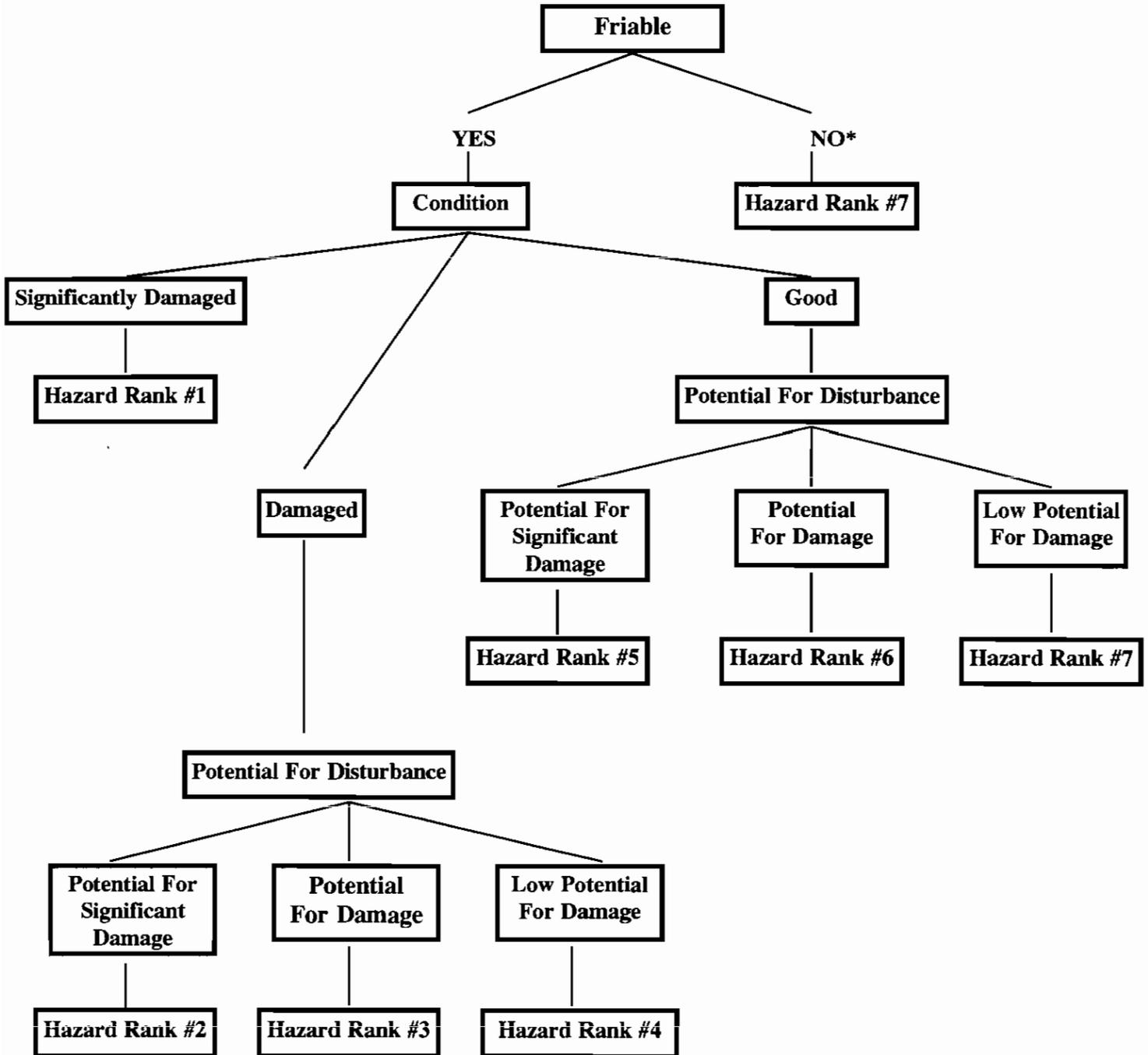
BAT adopted for this re-inspection one of the four general classes of hazard assessment models considered during the AHERA rule-making process. This method for hazard assessment is a modified decision tree as detailed in the USEPA, *Guidance for Assessing and Managing Exposure to Asbestos in Buildings*, or the *Pink Book*. Based on the physical assessment responses documented in the field, the BAT Management Planner proceeded through the decision tree process depicted in Figure 1.0 on the following page.

Only the identified and/or assumed asbestos-containing materials were assessed for hazards.

All of the identified and/or assumed asbestos-containing materials observed in this building were in good condition on the day of the survey.

Figure 1.0 Decision Tree Diagram For Hazard Assessment

Hazard rank #1 are materials of highest concern, and hazard rank #7 are the materials least likely to release asbestos fibers to the work area.



*Miscellaneous materials that are considered non-friable were placed in the Hazard Rank #8 category, which is in good condition with a low potential for damage.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number NS46

SAMPLE NUMBER(S): NS69-031 and NS69-032

HOMOGENEOUS AREA No.: 11

TYPE OF MATERIAL: Surfacing TSI X Other

Description: Caulking, white

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 140 LF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|---|
| <input checked="" type="checkbox"/> (1) Significantly damaged | <input checked="" type="checkbox"/> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| (8) Non-friable ACM | |

COMMENTS: None.

10.0 PRELIMINARY COST ESTIMATE FOR REMOVAL OF IDENTIFIED ACM

The following is a preliminary cost estimate for the abatement (removal) of identified ACM in Building NS69. This estimate is based on removing all of the materials during the same project. It does not include the cost of replacement materials. The cost estimate includes, project surveillance, air monitoring, and disposal of materials. These costs are estimates only; BAT made no attempt to obtain bids from removal contractors for this work, however, the average unit costs of three asbestos abatement contractors were used to develop the preliminary removal costs. Additionally, quantities noted are based upon engineering measurements. BAT recommends the use of architectural measurements for more accurate quantification.

Material Description	Unit Cost (\$)	Quantity	Total Abatement Cost (\$)
Pipe Fitting Insulation	15.89	210 EA	3,337
Caulking, white	6.76	140 LF	946
Handling Cost	25.00	3 EA	75
Mobilization	300.00	2 EA	600
Waste Disposal Cost	<u>50.00</u>	<u>8 CY</u>	<u>400</u>
Removal Subtotal			5,358
IH Supervision and Monitoring			<u>1,000</u>
Project Subtotal			6,358
Contingency (64%)			<u>4,069</u>
Project Total			10,427

LF = Linear Feet EA = Each CY = Cubic Yard

11.0 CONCLUSIONS

Inspection of Building NS69 and confirmatory laboratory bulk sample analysis of selected samples identified the following materials with asbestos concentrations greater than one percent.

<u>Identified ACM</u>	<u>Quantity</u>	<u>NESHAP Category</u>
Pipe Fitting Insulation, white with cloth wrap	210 EA	Regulated, friable
Caulking, white	140 LF	Regulated, friable

The following materials were not sampled in order to avoid disrupting their integrity, and they were assumed to contain asbestos:

<u>Assumed ACM</u>	<u>Quantity</u>	<u>NESHAP Category</u>
--------------------	-----------------	------------------------

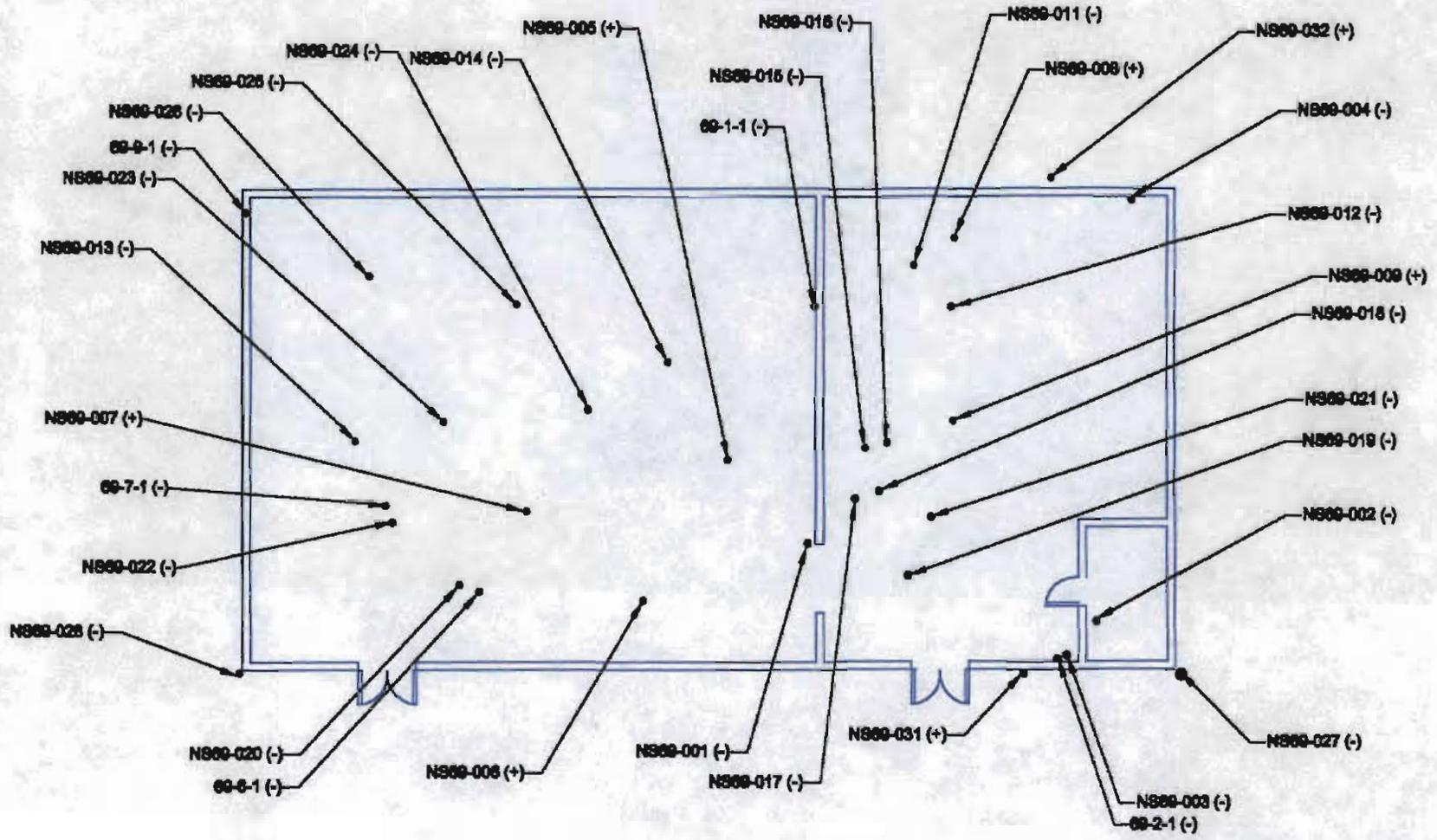
None.

Other suspect ACM not identified could be present in areas of the building inaccessible to the asbestos-building inspectors. For example, material could exist in walls and other locations where access could only be gained by demolition of the building. Also, other materials currently not recognized as ACM by the asbestos building inspection industry could exist.

EPA rules governing the application, removal and disposal of ACM were promulgated under NESHAP [40 CFR 61 Part M]. NESHAP requires the building owner or asbestos removal contractor to notify EPA when a building containing ACM is to be renovated, ACM is to be removed, or the building is to be demolished. At least 20 days notification is required "...if less than 260 linear feet of asbestos pipe covering or 160 square feet of asbestos material are removed during building renovation". Ten days notification is required when the amount is greater than 260 linear feet or 160 square feet of friable ACM.

APPENDIX A

SAMPLE AND ACM LOCATION DRAWINGS



BUILDING NS69
Sample Locations

LEGEND

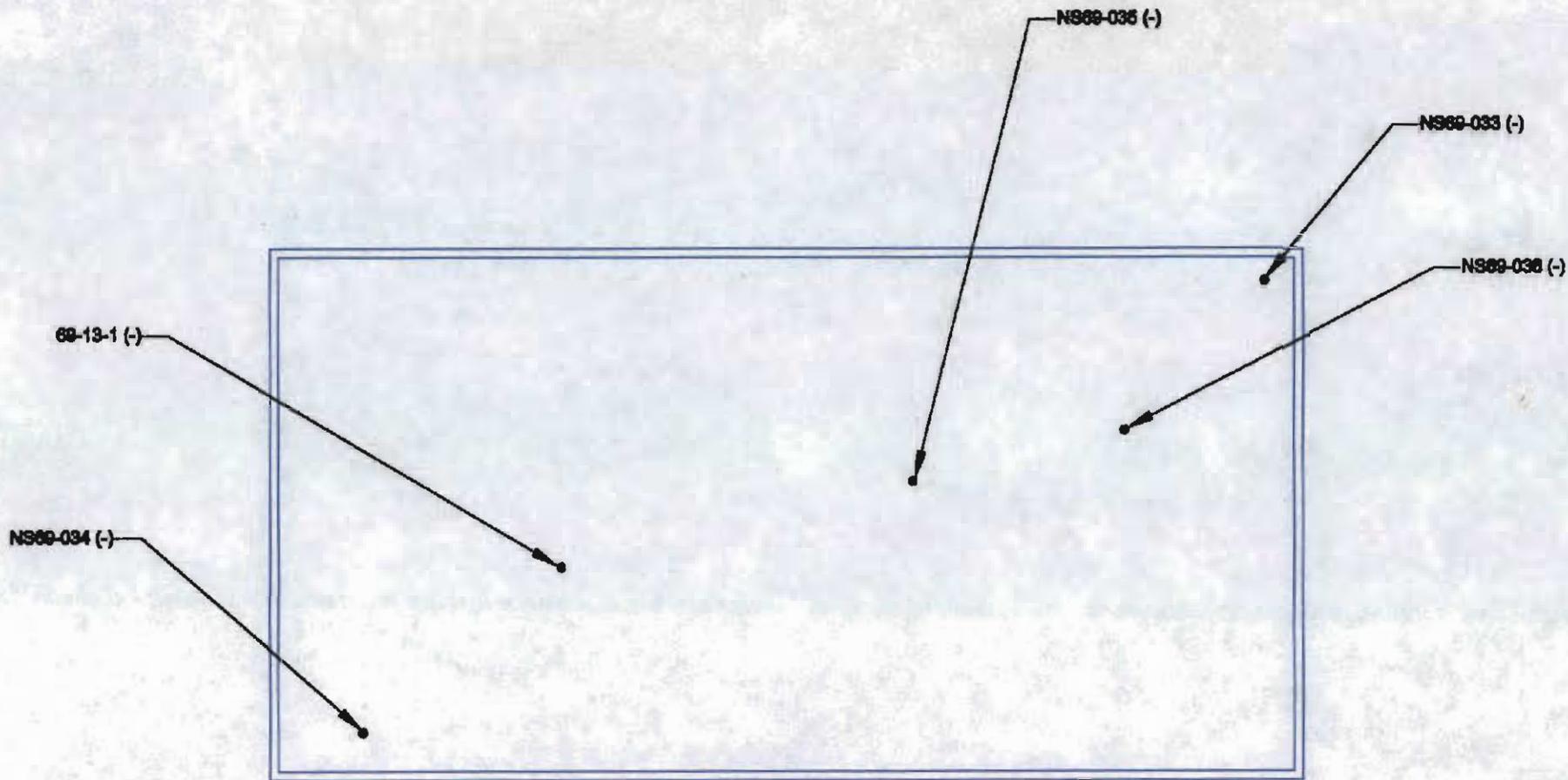
- - Sample Location
- (-) - Non-Asbestos-Containing Sample Location
- (+) - Asbestos-Containing Sample Location



NOTE 1: Asbestos-Containing White Caulking is Located on the Exterior of the Building.

NOTE 2: Cloth Wrapped Pipe Fitting Insulation Should Be Considered Asbestos-Containing.

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES
8121 BROOK HOLLOW PARKWAY, SUITE 200
NORCROSS, GA 30071



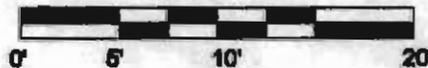
**NOTE: No Asbestos-Containing
Materials Identified on
the Roof.**

BUILDING NS69

ROOF

LEGEND

- - Sample Location
- (-) - Non-Asbestos-Containing Sample Location



BAT Associates, Inc.
 ENVIRONMENTAL, HEALTH & SAFETY SERVICES
 8151 BROOK HOLLOW PARKWAY, SUITE 200
 NORCROSS, GA 30071

APPENDIX B
PHOTOGRAPHIC DOCUMENTATION
OF IDENTIFIED ACM



Pipe Fitting Insulation, white with cloth wrap, HA # 3



Caulking, white, HA # 11

APPENDIX C
PERSONNEL AND LABORATORY ACCREDITATIONS



The Georgia Institute of Technology

This is to certify that

Foshie Bell

has attended an EPA-approved half-day Continuing Education Course entitled:

Inspecting Buildings for Asbestos Containing Materials (Annual Refresher Course for Building Inspectors)

as required by the Federal EPA AHERA Model Accreditation Plan for re-accreditation as a Building Inspector for Asbestos (TSCA Title II).

Georgia Tech Research Institute
Electro-Optics, Environment and Materials Laboratory
Atlanta, GA 30332
Phone: (404) 894-7430; FAX: (404) 894-1267

August 26, 1998

Dates of Attendance

August 26, 1999

Expiration Date

149-64-0385

Social Security Number

Myrtle I. Turner, CET
Course Director

2900

Certificate Number

The Environmental Institute

Douglas J. Milton

Social Security Number - 266-55-7179

*Has completed coursework and satisfactorily passed
an examination that meets all criteria required for
EPA/AHERA/ASHARA (TSCA Title II) Approved Reaccreditation
and NESHAP Regulations Training
Asbestos in Buildings: Inspector & Management
Planner Refresher*

December 15, 1999

Course Date

6398

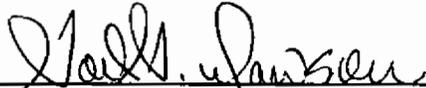
Certificate Number

December 15, 1999

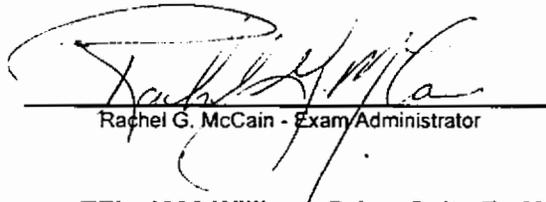
Examination Date

December 14, 2000

Expiration Date



Tod A. Dawson - Course Director

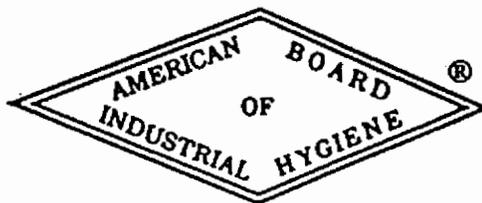


Rachel G. McCain - Exam Administrator



TEI - 1300 Williams Drive, Suite E - Marietta, Georgia 30066 - (770) 427-3600

The
American Board of Industrial Hygiene®
ABIH®



organized to improve the practice of Industrial Hygiene
proclaims that

Douglas J. Milton

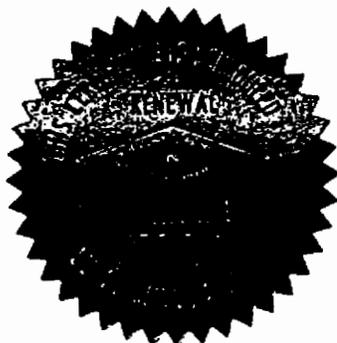
having met all requirements through
education, experience and examination,
is hereby certified in the

**COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE**

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH



November 12, 1997

date

J. Kenneth Conroy

Chair ABIH

CP 7612

certificate
number

Ray T. Conner

Secretary ABIH



ASBESTOS ABATEMENT LICENSE

No. 22860

This certifies that

Douglas J Milton

266-MC-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Management Planner

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from 09/24/98.

The holder of this license is qualified in accordance with requirements of the Asbestos Hazard Emergency Response Act of 1986 (AHERA) to perform as an abatement Building Inspector.

07/28/99

Richard D. Sharpe

ORIGINAL

07/28/99 14:31



Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control
CR-001126



ASBESTOS ABATEMENT LICENSE

No. 22859

This certifies that

Douglas J Milton

266-BQ-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Building Inspector

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from 09/23/98.

07/28/99

Richard D. Sharpe

ORIGINAL

07/28/99 14:28



Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control
CR-001126



ASBESTOS ABATEMENT LICENSE

No. 22860

This certifies that

Douglas J Wilton

266-NE-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Management Planner

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from

09/24/98.

The holder of this license is qualified in accordance with requirements of the Asbestos Hazard Emergency Response Act of 1986 (AHERA) to perform as an abatement Building Inspector.

07/28/99

Richard D. Sharpe

ORIGINAL

07/28/99 14:31



Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control
CR-001126



ASBESTOS ABATEMENT LICENSE

No. 22859

This certifies that

Douglas J Wilton

266-NE-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Building Inspector

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from

09/23/98.

07/28/99

Richard D. Sharpe

ORIGINAL

07/28/99 14:28



Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control
CR-001126

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation



CAPE ENVIRONMENTAL MANAGEMENT, INC.
ATLANTA, GA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2000

Effective through

A handwritten signature in black ink, appearing to read "James L. Galt".

For the National Institute of Standards and Technology

NVLAP Lab Code: 102111-0

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
ATLANTA, GA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

September 30, 2000

Effective through

A handwritten signature in black ink, appearing to read "James L. Galt".

For the National Institute of Standards and Technology

NVLAP Lab Code: 102033-0

APPENDIX D
LABORATORY ANALYSIS RESULTS



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: B203
 Page 117 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3209
 Client Sample ID: 69-1-1
 Location: Not Given

Sample Description: Gray semi-hard partly granular to silty with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	59

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: **B203**
 Page 118 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3210
 Client Sample ID: 69-201
 Location: Not Given

Sample Description: Gray semi-hard gummy with fibers, aggregates and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	5
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	<1
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	93

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAnalyst:

S. Arkhipov

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: B203
 Page 119 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3211
Client Sample ID:	69-6-1		
Location:	Not Given		

Sample Description: Tan semi-hard woven to gummy with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	50
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	50

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

QCAAnalyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: **B203**
 Page 120 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3212
 Client Sample ID: 69-7-1
 Location: Not Given

Sample Description: Silver semi-hard silty to granular with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	2
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	97

COMMENTS: Silver paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: **B203**
 Page 121 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3213
 Client Sample ID: 69-9-1
 Location: Not Given

Sample Description: Gray semi-hard partly granular to silty with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	95
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:	<1	Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	3
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: **B203**
 Page 122 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3214
 Client Sample ID: 69-13-1
 Location: Not Given

Sample Description: Layered: 1) Gray semi-hard partly granular to bitumenous; 2) Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	15
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	15
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	70
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

QCAlyst:

S. Arkhipov

Andrew Pittman

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

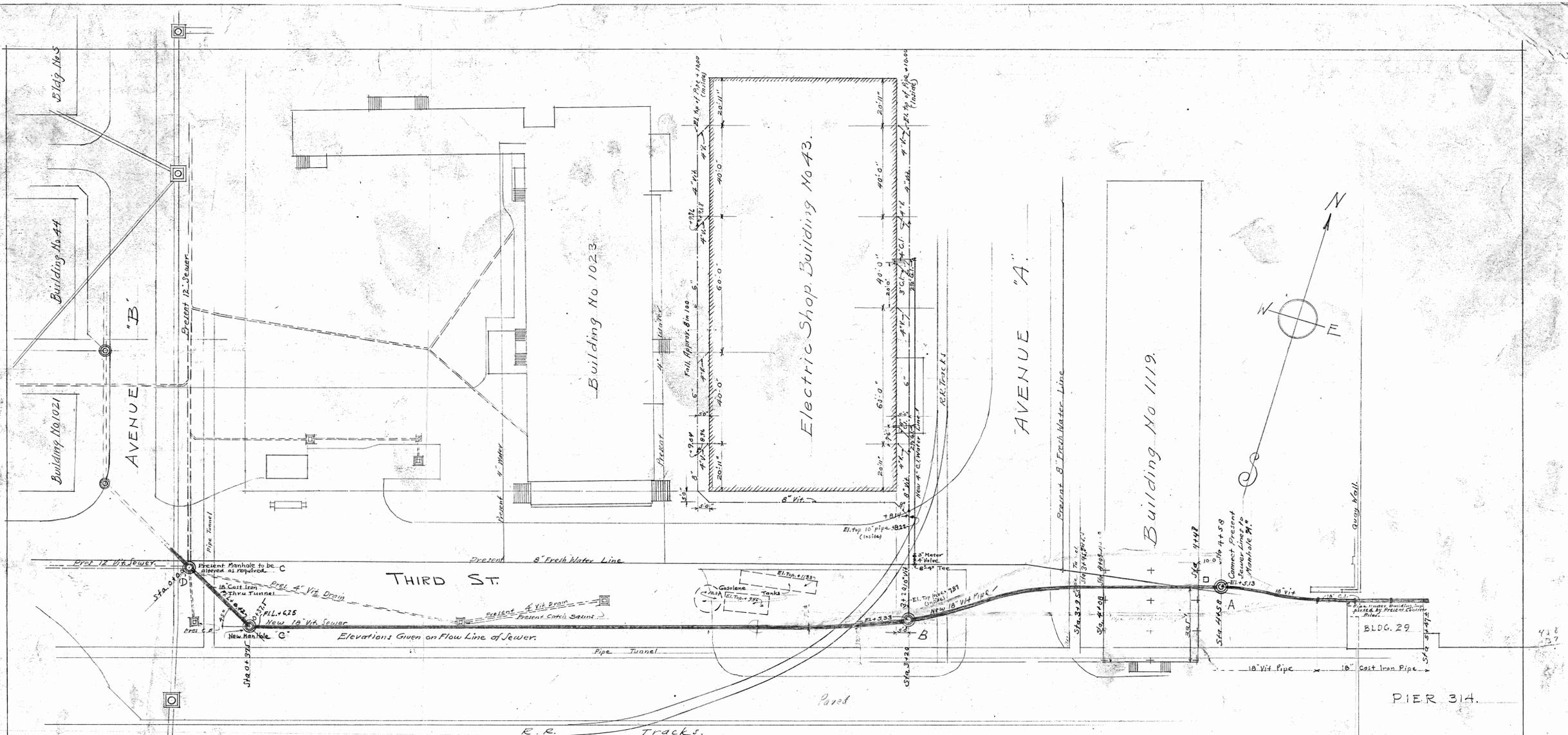
BAT

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES

5151 Brook Hollow Pkwy., Suite 250
Norcross, GA 30071
Phone: (770) 242-3908
Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT		DOUGLAS J. MILTON	
BAT JOB NAME		Charleston Naval Shipyard	BAT JOB NO. 971001
		TASK NO. 13.03	
ANALYSIS REQUESTED		<input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____	
CHECK ONE:		<input type="checkbox"/> ROUTINE	
		<input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN)	AS SOON AS POSSIBLE
		<input type="checkbox"/> RUSH - FAX (HANDWRITTEN)	AS SOON AS POSSIBLE
SAMPLE ID		SAMPLE ID	
1. 69-1-1		16.	
2. 69-201		17.	
3. 69-6-1		18.	
4. 69-7-1		19.	
5. 69-9-1		20.	
6. 69-13-1		21.	
7.		22.	
8.		23.	
9.		24.	
10.		25.	
11.		26.	
12.		27.	
13.		28.	
14.		29.	
15.		30.	
SPECIAL INSTRUCTIONS: <i>Analyze to Positive</i>			
Relinquished by: <i>Joshie Bell</i>		Received by: <i>Janie Bell</i>	
Date: 1/31/00 Time: <i>1342</i>		Date: <i>1-31-00</i> Time: <i>1:42pm</i>	



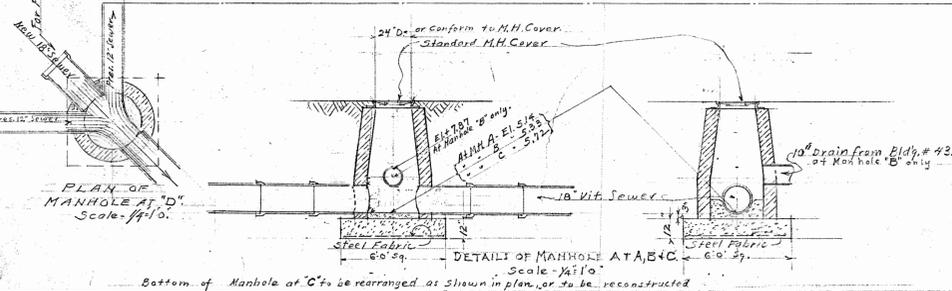
THIRD ST.

GENERAL LAYOUT
Scale: 1" = 20'

EDGE OF DRY DOCK.

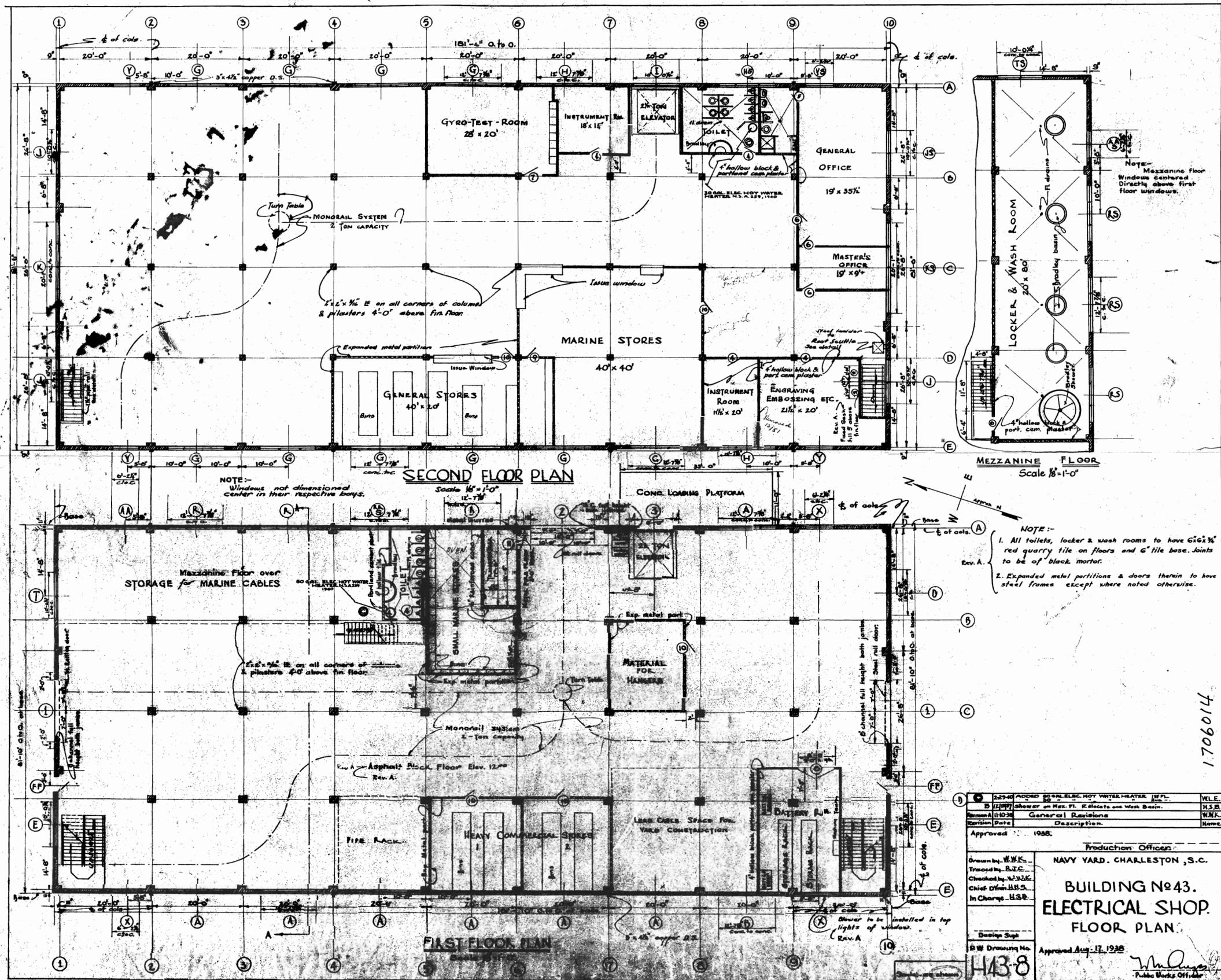
ELEVATION OF NEW SEWER LINE.
Horizontal Scale 1" = 20'
Vertical Scale 1" = 3'

Note: Adjust work in Field as may be required
by Local Conditions, and advise R.W. Draft.



July 25, 1940 Drawn by H.S.B. Traced by Checked by Chief Dgm. W.H.B. In Charge H.S.B.	Elevation of Flow Line at Manhole "C" Connected By H.S.B. NAVY YARD, CHARLESTON, S.C. ELECTRIC SHOP, BUILDING NO. 43. ROOF DRAINS, SEWERS AND WATER SUPPLY LINE
Design Supt. P.W. Drawing No.	Approved Dec. 8, 1938  Public Works Officer.

Scales as Shown **H43-43**



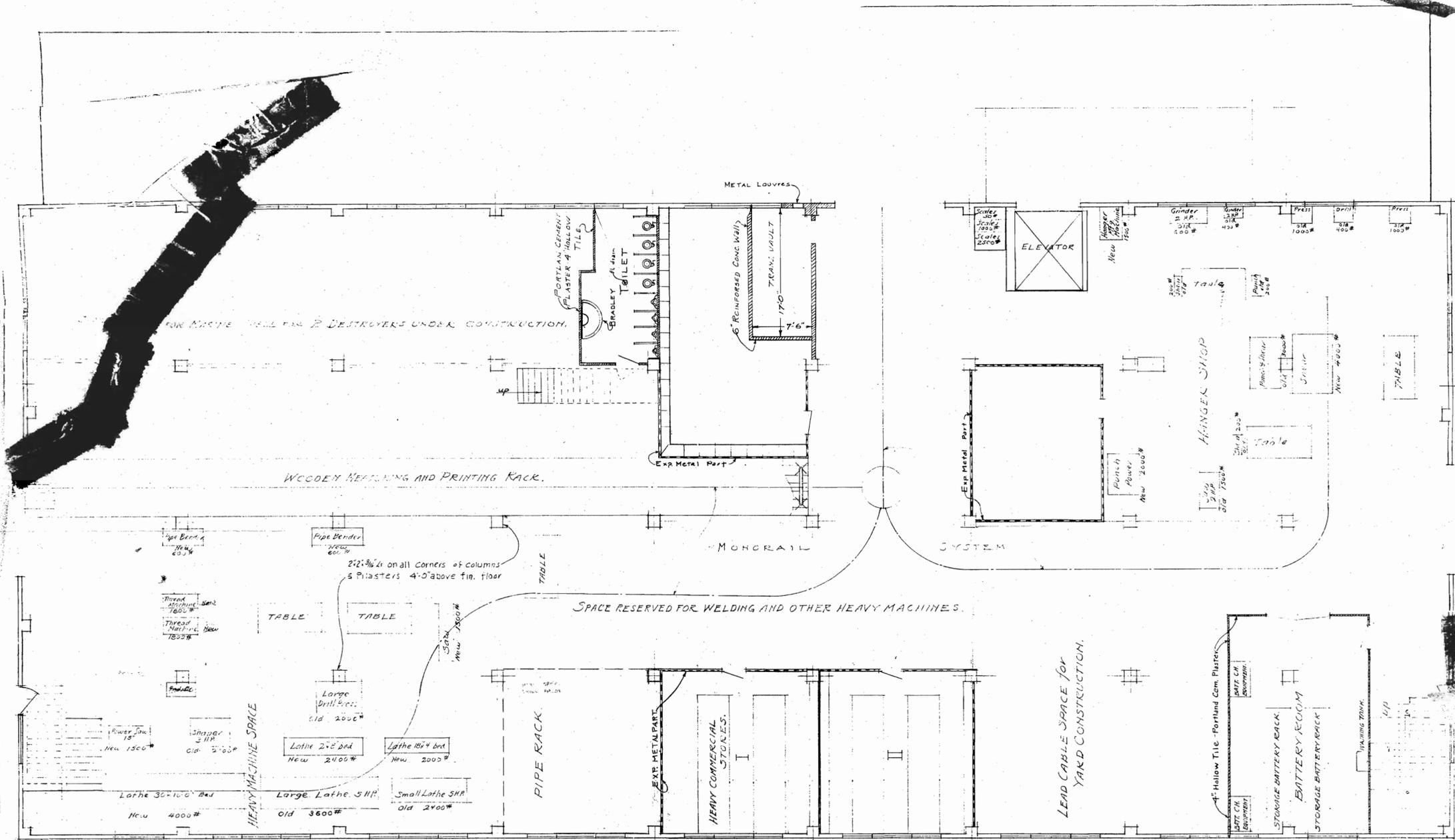
NOTE:-
Windows not dimensioned
center in their respective bays.

NOTE:-
1. All toilets, locker & wash rooms to have 6x6x3/4" red quarry tile on floors and 6" tile base. Joints to be of black mortar.
Rev. A.
2. Expanded metal partitions & doors therein to have steel frames except where noted otherwise.

2-25-40	ADD 800W. EL. HOT WATER HEATER (W.P.L.)	W.L.E.
11-10-34	SHOWER on MEZ. FL. E. of locker and Wash Basin.	H.S.B.
11-10-34	General Revisions	W.N.K.
Revision	Date	Description
Approved	1935.	
Production Officers		
Drawn by	W.W.K.	NAVY YARD, CHARLESTON, S.C.
Traced by	B.T.C.	
Checked by	W.N.K.	
Chief Draftsman	H.S.B.	
In Charge	U.S.S.	
Design Supt.		
Drawing No.	H43-8	Approved Aug-17-1935
		Public Works Officer

1706014

1706014



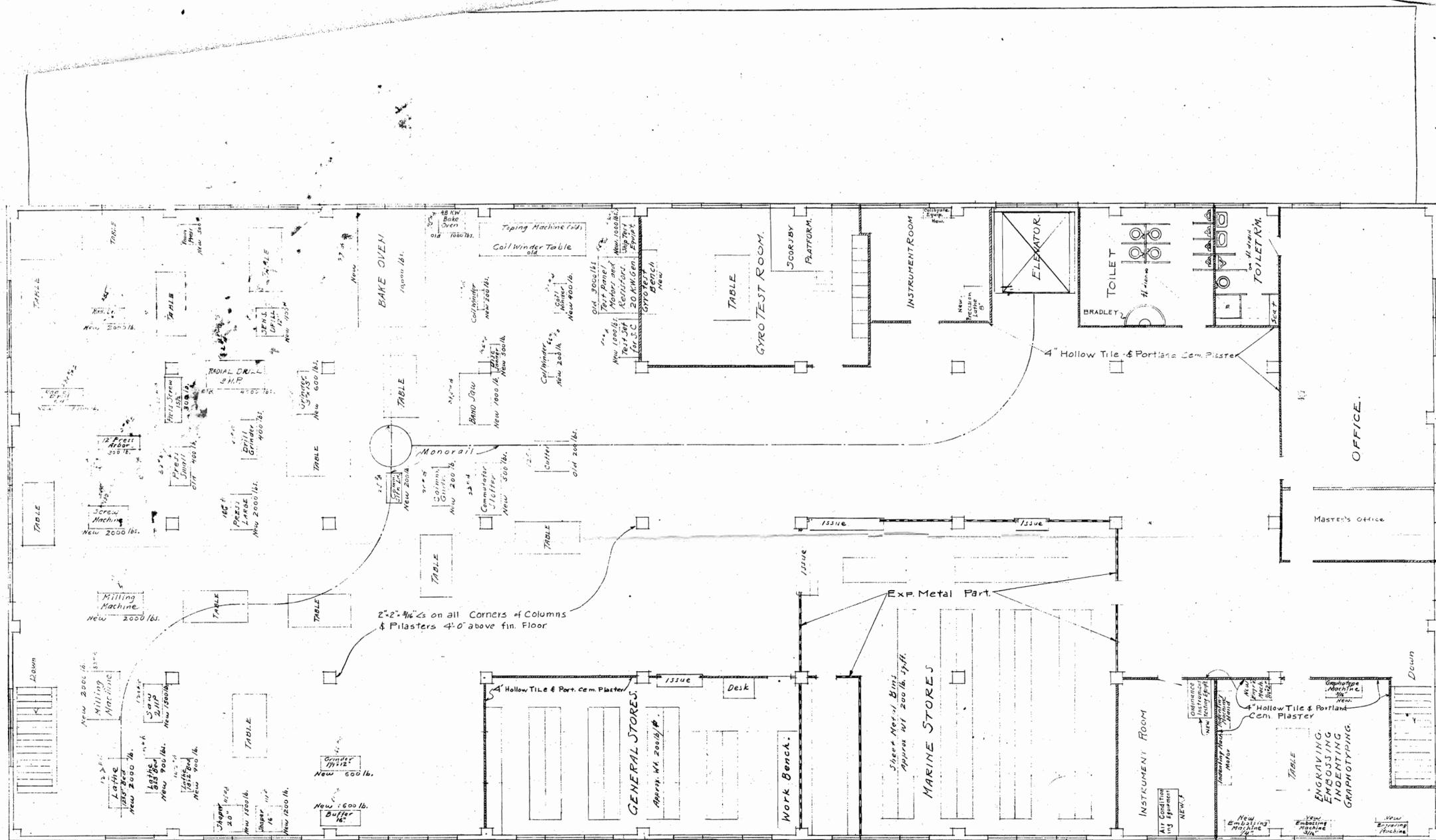
FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"

1706013

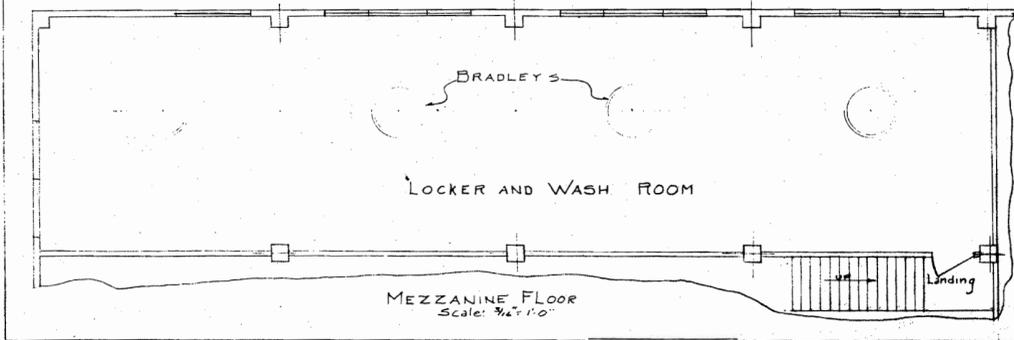
Revision	Date	By
Approved	10 Aug 1938	
Production Officer		
Drawn By:	H. B.	
Traced By:	C. B.	
Checked By:	H. B.	
In Charge		
Chief Dfwn		
DESIGN SUPT.		
P.W. DRWG. NO.	443-9	
DATE	Aug 17 1938	
For	PUBLIC WORKS OFFICER	

1706013

Poor Quality



SECOND FLOOR PLAN
SCALE: 1/16" = 1'-0"



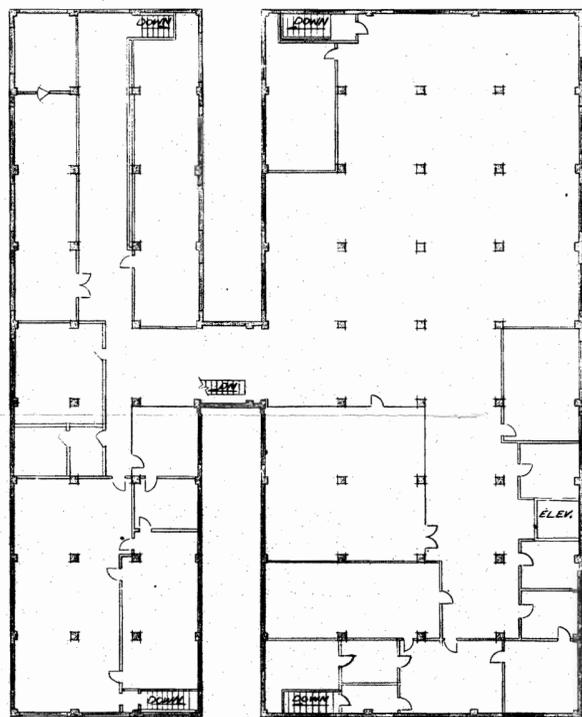
MEZZANINE FLOOR
Scale: 3/16" = 1'-0"

1706012

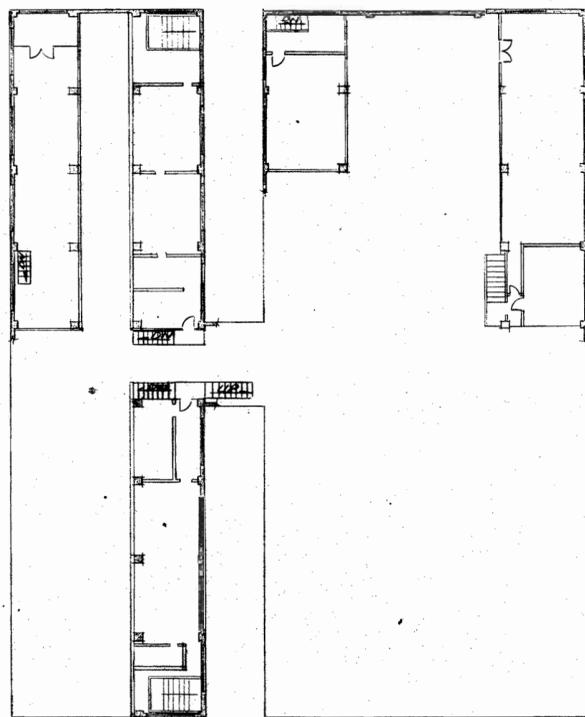
Division	Date	Brief	B.Y.
Approved	10 Aug. 1938		
Drawn By	H.S.B.		
Traced By	C.V.B.		
Checked By	H.S.B.		
In Charge			
Chief Draftsman			
DESIGN SUPT.	F.W.D.W.G.N.		
H43-10			
NAVY YARD, CHARLESTON, S.C.		BUILDING N ^o 43	
ELECTRIC SHOP		SECOND FLOOR	
PROPOSED LAYOUT		EQUIPMENT	
Aug 17 - 1938		M. S. Miller	
FOR PUBLIC WORKS OFFICE			

1706012

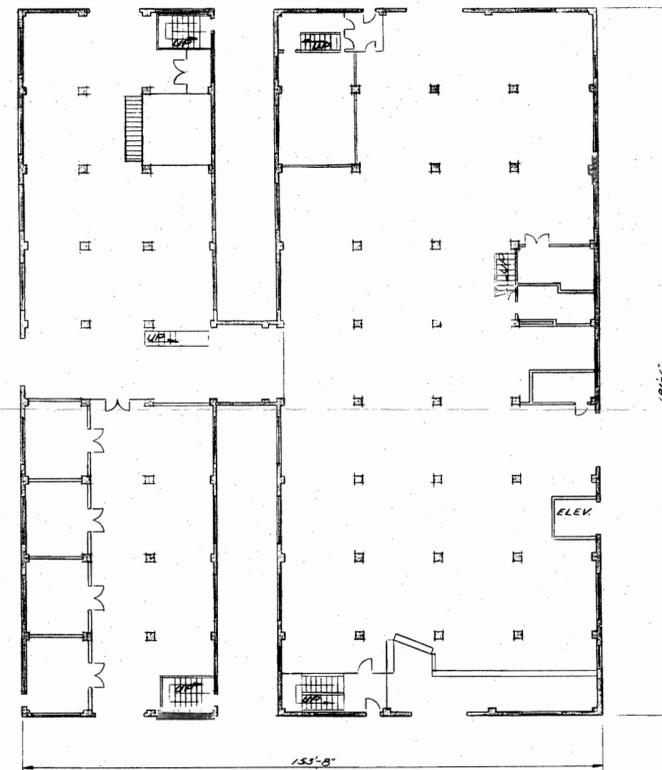
L.B.W.



SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

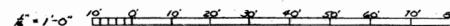


MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

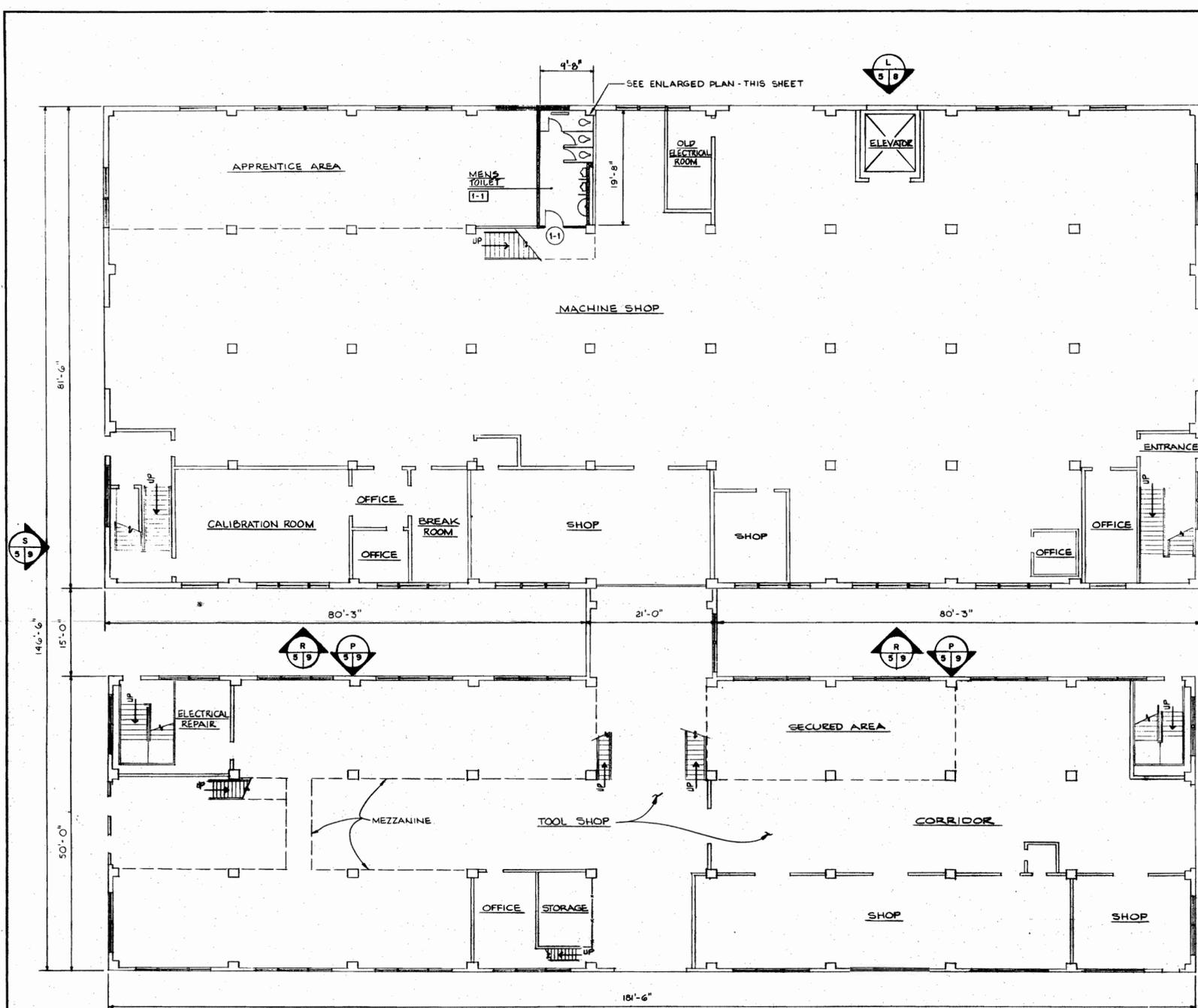
GRAPHIC SCALE



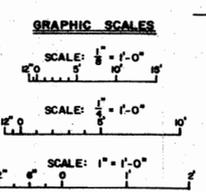
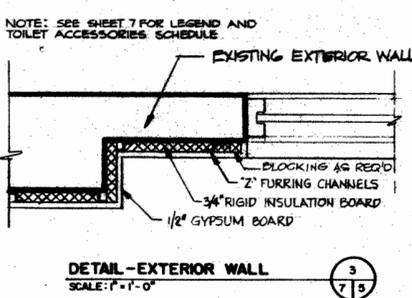
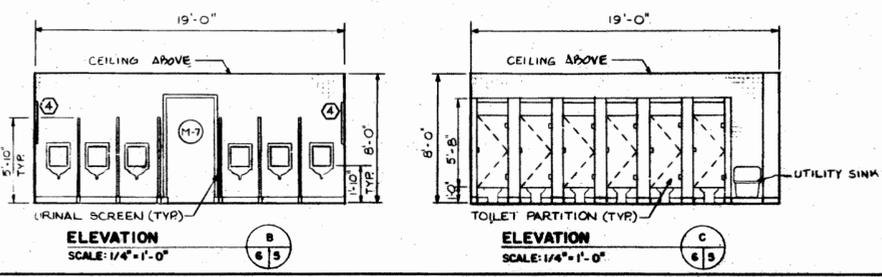
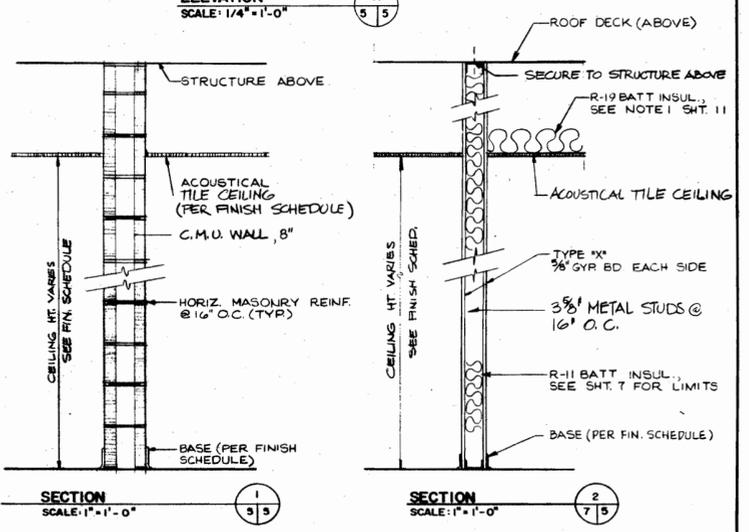
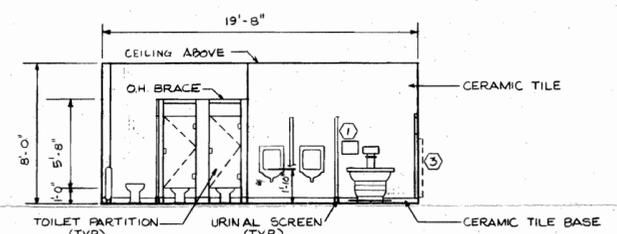
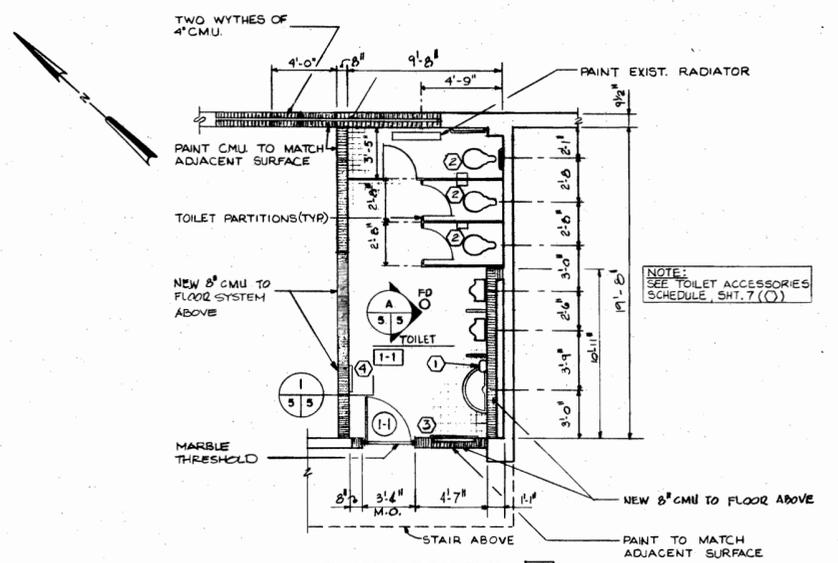
BUILDING 43 UP DATED 5-29-80 M.JENKINS, J.VOEGELIN		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND	
P. W. CIVIL NO. 1193-126		CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.	
DESIGNED: HASEBUTA 3/20/72	CHECKED: M'LEMORE	BUILDING 43 FLOOR PLANS UP DATED 3/30/72	
APPROVED: M'LEMORE	DATE:		
DATE:	DATE:		
SCALE: F 1/8" = 1'-0"	CODE SHEET NO. 20091	NAV. FAC DRAWING NO.	SHEET 1 OF 1

1706011

1706011



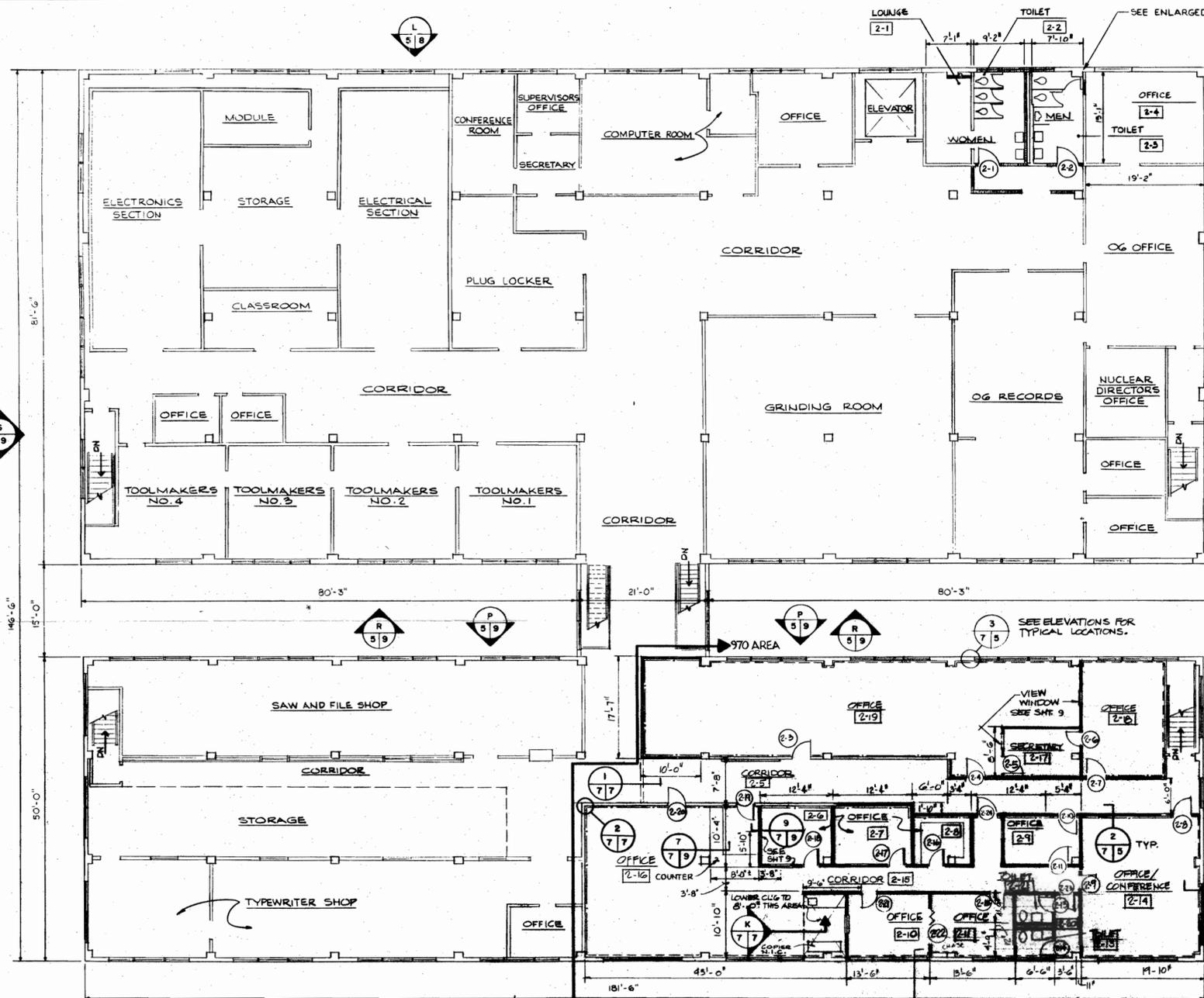
FIRST FLOOR PLAN - BUILDING 43
SCALE: 1/8" = 1'-0"



1706010

SYMBOL	DESCRIPTION	DATE	APPROVAL
REVISIONS			
P.W. DWG. NO. H43-594		DEPARTMENT OF THE NAVY	
DESIGNED: GALLAGHER		NAVAL FACILITIES ENGINEERING COMMAND	
DRAWN: PETERSON		CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.	
ARCHITECTS: GENEMER ASSOCIATES, INC.		BUILDING 43	
DIRECTOR: BONGIORNO		ALTERATIONS TO BUILDING 43	
ENGR. IN CHARGE: SPROVERO		FIRST FLOOR PLAN, SECTIONS	
DATE: _____		REQUEST NO. _____	
OFFICE IN CHARGE: _____		NAV. FAC. DRAWING NO. 5090671	
DATE: _____		CONTRACT NO. N62467-85-C-1578	
SCALE NOTED: _____		SPEC. 06-85-1578	
		SHEET 5 OF _____	

1706010

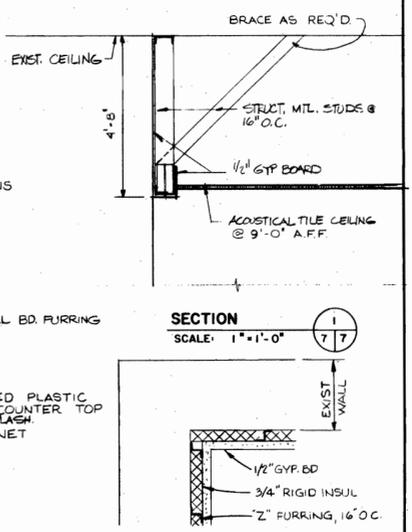
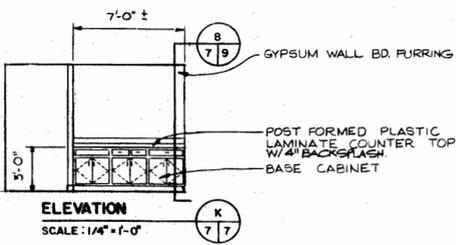
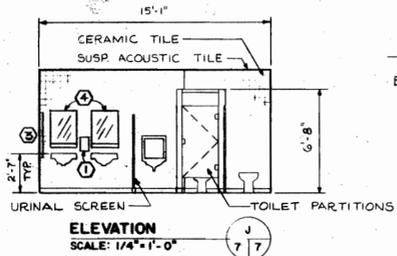
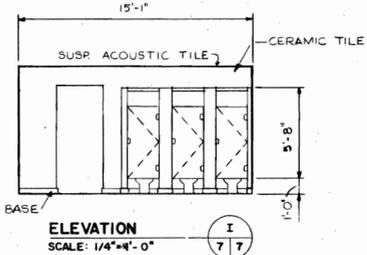
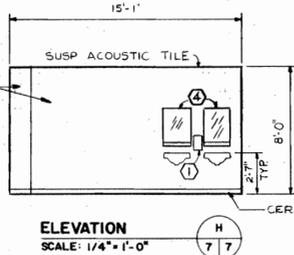
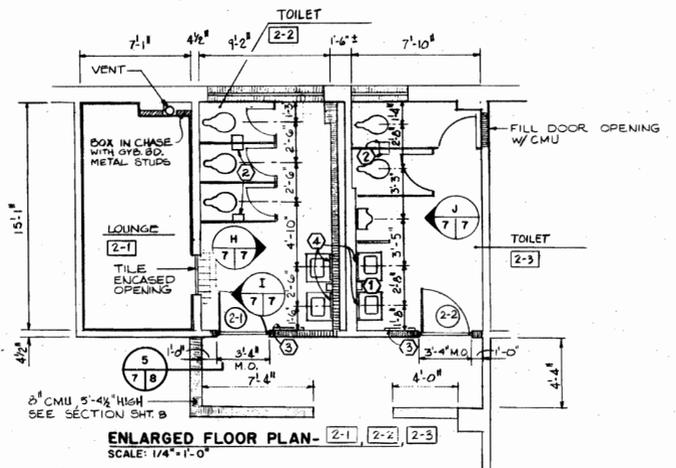


SECOND FLOOR PLAN - BUILDING 43
SCALE: 1/8"=1'-0"

- TOILET ACCESSORIES SCHEDULE**
- (1) POWDER SOAP DISPENSER
 - (2) PAPER DISPENSER (DOUBLE ROLL)
 - (3) PAPER TOWEL DISPENSER AND WASTE RECEPTACLE
 - (4) 18" x 24" MIRROR WITH SHELF

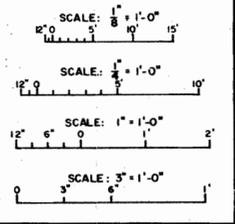
- LEGEND**
- EXISTING WALL
 - NEW METAL STUD WALL
 - EXISTING EXTERIOR WALL W/ NEW INSULATION
 - EXISTING INTERIOR WALL W/ NEW INSULATION
 - NEW METAL STUD WALL W/ NEW INSULATION
 - FOLDING DOOR

NOTE: 1. ALL SPACES IN 970 AREA EXCEPT CORRIDOR 2-5 TO RECEIVE INSULATION ABOVE CEILING
2. INSTALL VENETIAN BLINDS AT ALL WINDOWS IN 970 AREA.



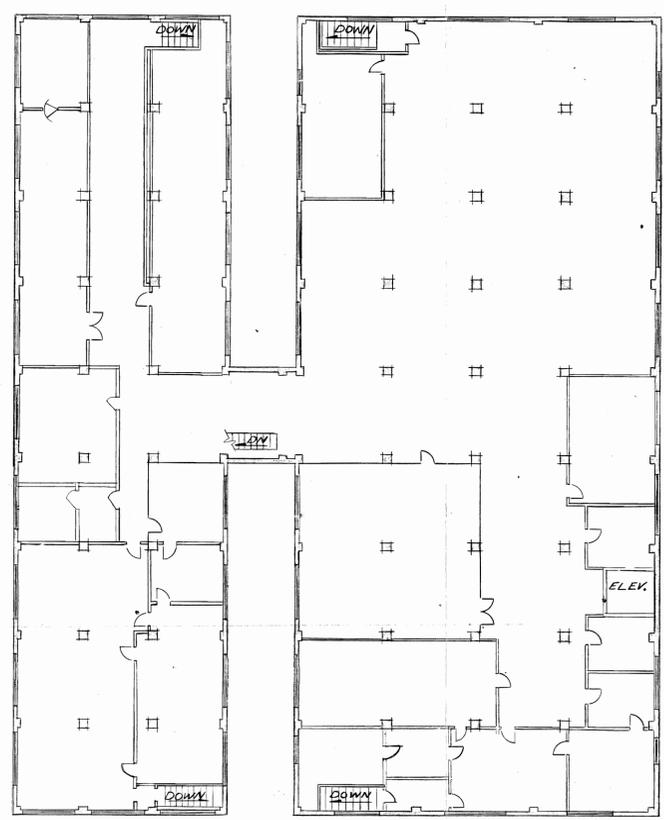
PLAN DETAIL - INT. EXIST. WALL
SCALE: 3/8"=1'-0"

GRAPHIC SCALES

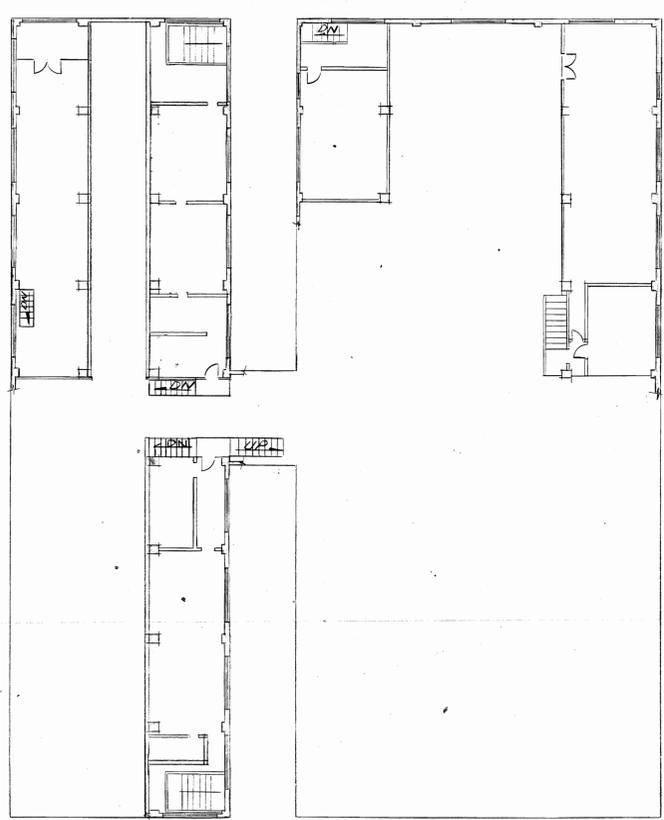


ELLIS NAEMYERT GENHEMER ASSOCIATES INC. ARCHITECTS ENGINEERS	SYMBOL	DESCRIPTION	DATE	APPROVAL
	P.W. DWG. NO. H43-596 DESIGNED: GALLAGHER DRAWN: GALLAGHER IN CHARGE: BONGIORNO IN CHARGE: SPROVERO			
	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C. BUILDING 43			
	ALTERATIONS TO BUILDING 43 SECOND FLOOR PLAN, INT. ELEV.			
APPROVED: _____ OFFICER IN CHARGE		DATE: _____ REQUEST NO.		NAV. FAC. DRAWING NO. 5095673 CONSTR. CONTR. NO. N62467-85-C-1578
DATE: _____ SCALE NOTED		SPEC. 06-85-1578 SHEET 7 OF		

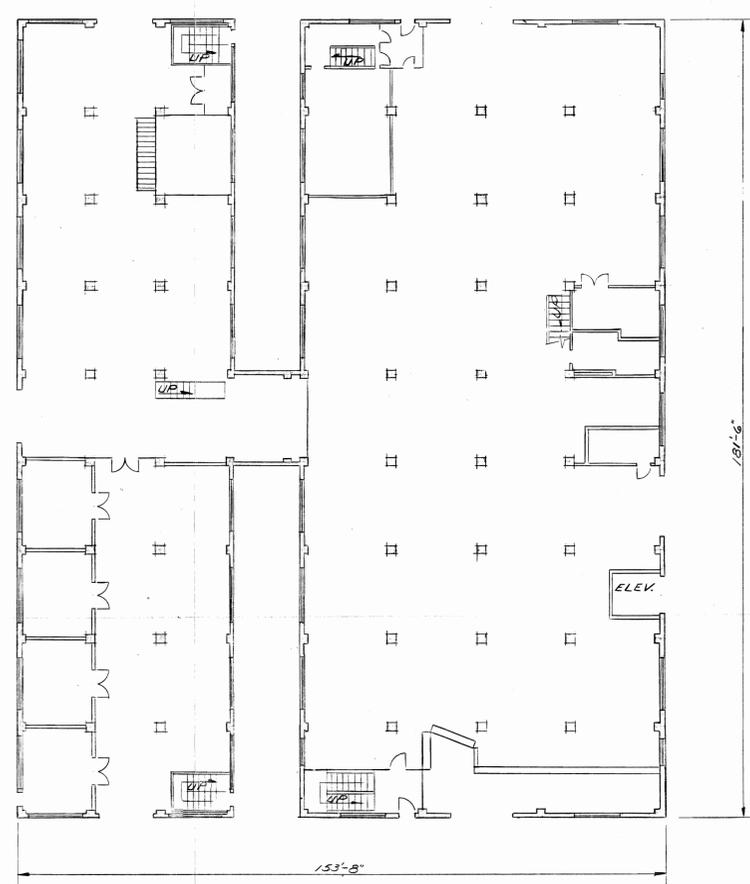
1706008



SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"



MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE



BUILDING 43 UP DATED 15-29-80 M.JENKINS J.VOEGELE		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND	
P. W. DWG. NO. H43-126		CHARLESTON NAVAL SHIPYARD, CHARLESTON, S.C.	
DESIGNED:		<p align="center">BUILDING 43 FLOOR PLANS UP DATED 3/30/72</p>	
DRAWN: HARUTA 3/30/72			
CHECKED: M. S. LEMORE			
BR. MGR: M. S. LEMORE			
APPROVED:			
DIRECTOR DESIGN DIVISION	DATE	SIZE	CODE IDENT NO.
APPROVED:		F	80031
OFFICER IN CHARGE	DATE	NAV. FAC DRAWING NO.	
SATISFACTORY TO:		CONSTR. CONTR. NO.	
	DATE	SCALE AS NOTED	SPEC
			SHEET 1 OF 1