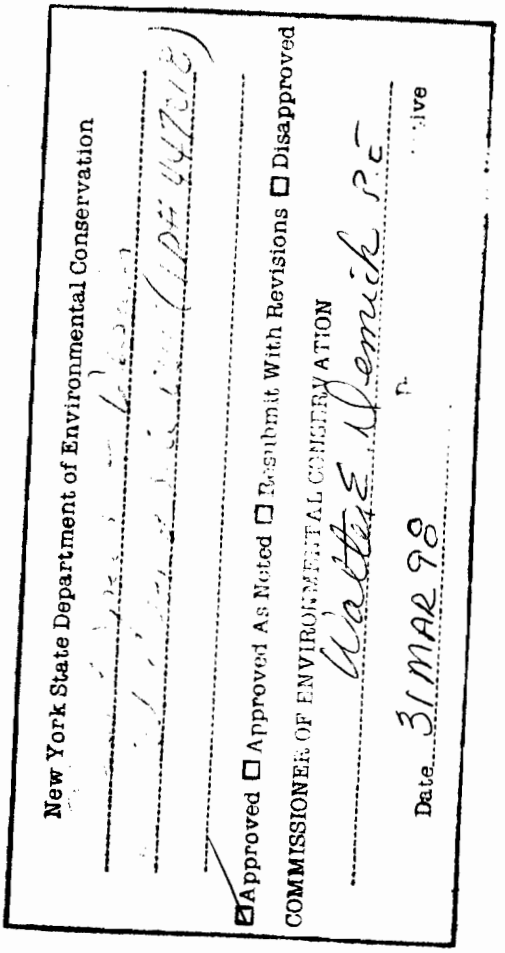
REMEDIAL DESIGN REPORT

For

CLEANUP AND DEMOLITION OF THE UNITED PLATING BUILDING
LOCATED IN
SCHENECTADY, NEW YORK

Prepared For:

NYSDEC
Division of Environmental Remediation
50 Wolf Road
Albany, New York 12233-7010



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CHA Project No. 6808.07

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TABLE OF CONTENTS

1.0 INTRODUCTION

Clough, Harbour & Associates, LLP (CHA) in association with Lawler, Matusky, & Skelly Engineers, LLP (LMS) has prepared this document describing the construction and monitoring plan to clean and demolish the United Plating (UP) building located at 1776 Foster Avenue in the City of Schenectady, New York (Figure 1). This Remedial Design Report has been prepared in accordance with the Project Work plan for Remedial Design of the United Plating Site Building Demolition dated October, 1997.

This Remedial Design Report is the culmination of a Focused Feasibility Study (FS) for the United Plating Building (Inactive Hazardous Waste Site No. 447018) Operable Unit 1 prepared by LMS for the New York State Department of Environmental Conservation (NYSDEC) in April, 1996. Based on the results of this FS, prior remedial investigations, and the criteria identified for evaluation of alternatives, the NYSDEC has issued a Record of Decision (ROD) dated March 1997 for partial treatment of the contaminated building at the site, with demolition and offsite disposal. In the ROD the NYSDEC identifies Alternative 4B as the preferred remedial alternative. This Alternative includes:

- partial treatment of hazardous and contaminated debris and interior surfaces
- off-site disposal of all debris in a Part 360 solid waste management facility
- building demolition
- off-site disposal of the building rubble with appropriate salvage. All debris to be disposed of in a permitted Part 360 solid waste management facility
- monitoring on a real-time basis for mitigation and control of dust

The remedial design for the United Plating Operable Unit 1 site conforms with the elements outlined in the ROD as reflected in the subsequent sections of this Report.

2.0 SITE AND PROJECT DESCRIPTION

2.1 Site Description

The United Plating (UP) site is located at 1776 Foster Avenue in the City of Schenectady, New York (Figure 1-1). The site is approximately 1.7 acres, half of which is covered by the building footprint. UP operated as a metal plating facility from 1945 until 1990. The site is bounded by Seneca Street to the north, Foster Avenue to the west, a vacant field to the east, and residential housing to the south. A children's playground lies to the southeast of the site. The west side of the property consists of a parking area in front of the main building structure and an overgrown area in behind the building and in front of an annexed structure. Access to the facility is through a locked gate off of Seneca Street. The Mohawk River lies approximately 0.25 mile to the northwest of the site. The natural topography drains to the northwest toward the Mohawk River.

The site is occupied by two structures, the first containing the remnants of the plating operations and offices and the second is the annexed structure which housed a treatment facility. The building footprint occupies 26,195 ft^2. The main structure is a six-story brick building, which contains metal, concrete and brick, wood, plastic and other debris. The annexed structure is a one-story metal structure and a two-story concrete building; the roof of the annexed lean-to type building on the south end has collapsed.

UP operated as a metal plating corporation from 1945 until 1990. The facility had a pretreatment system through which the generated wastes were processed prior to discharge to the City of Schenectady, Anthony Street Treatment Plant. According to the records, the pretreatment system consisted of cyanide, chromium, and acid/alkaline waste treatment systems (UP 1986).

The UP site consists of two NYSDEC designated operable units. The first, Operable Unit No. 1, refers to the building and is the remedial objective in this Report. The second, Operable Unit No.2, pertains to the remediation of subsurface materials, soils and groundwater and is not the subject of this Report. As stated previously, the UP building has six floors (levels). The first three levels are

multi-room levels and levels four, five and six are comprised of a single rooms for storage. As part of the FS, an inventory of the estimated quantity of debris contained on each level and within each room has been tabulated. Table 1 presents the estimated quantities in tons for each material type (i.e., metal, concrete and brick, wood, plastic and other). A second debris quantities table (Table 2) was also prepare in the FS which presents the estimated quantities within each room by material type and further subdivides the estimated quantity into uncontaminated, contaminated and hazardous debris. Both tables are included with this Report.

2.2 Project Description

This section is intended to provide an outline of the work that has been completed for the UP building. This background provides the understanding and basis for the recommended remedial program consisting of partial treatment of the contaminated building at the site, with demolition and offsite disposal.

1. Interim Remedial Investigation Data Report

The Interim Remedial Investigation was conducted to determine if interim remedial measures were needed. Site investigations activities included a site survey, installation of groundwater monitoring wells, sampling and analysis of water and sediment from the building sewer system, subsurface soil borings and sampling, and building chip, sediment and swipe sampling and analysis. Based on the remedial investigations, remedial measures for site cleanup were recommended and a focused feasibility study was initiated.

2. Focused Feasibility Study

The purpose of the Focused Feasibility Study was to identify and evaluate potential applicable remedial alternatives which could be employed to obtain site remedial goals

and to develop a basis for selecting a preferred remedial alternative based on this evaluation.

This analysis included the evaluation of five alternatives. These alternatives were:

- Alternative No. 1 - No Action
- Alternative No. 2 - Institutional Measures and Containment
- Alternative No. 3 - Full On-site Cleanup
- Alternative No. 4 - Partial On-site Cleanup
- Alternative No. 5 - Minimal On-site Cleanup

The preferred alternative proposed in the Focused Feasibility Study was Alternative 4, Partial On-site Cleanup with off-site disposal as discussed in the NYSDEC Record of Decision.

3. Record of Decision

The NYSDEC issued a Record of Decision in March, 1997 which provided the following summary of proposed remedial actions:

- Partial On-site Cleanup with off-site disposal has been selected because it complies with New York State Standards, Criteria and Guidance (SCG's), is protective of human health and the environment, is feasible, has favorable short and long term effectiveness, is permanent, and it allows for the completion of the remedial program in Operable Unit No. 2.

- The estimated cost to implement the remedy is $2,689,000 and there are no annual operation and maintenance costs.

- The elements of the selected remedy include: implementation of a remedial design program and the preferred remedy, partial treatment of hazardous and contaminated debris and contaminated interior surfaces, offsite disposal of all debris, demolition of the building, and off site disposal of the building rubble with appropriate salvage, real-time monitoring and control of dust generated during remediation.

4. Structural Investigation Report

M. J. Engineering and Land Surveying, P.C. (MJ Engineering) has performed two structural inspections of the UP building. The first was performed November 8, 1995 and the second was completed June 17, 1997. Following the most recent inspection, a Structural Investigation Report was prepared by MJ Engineering dated June, 1997. MJ Engineering evaluated the steel and timber framing, concrete slabs, timber roofs and CMU and brick walls. Based on MJ Engineering's evaluation, the UP building is in fair to very poor condition, depending upon the structural element under consideration. The general conclusion from the Structural Inspection Report is the extent and nature of structural repair and upgrade required to maintain or reuse the building is too great to be economically feasible. With respect to remediation activities, it is recommended that shoring and bracing be evaluated for each room so that debris removal and cleaning may be completed with a reduced risk of unexpected failure of walls and roofs.

5. Project Work Plan For Remedial Design

A Project Work Plan was prepared by CHA in association with LMS for Task 8 Remedial Design Services. The work plan includes a detailed description of all tasks to conduct the remedial design, a detailed budget for each task and subtask, and a breakdown of the expenses associated with each task and subtask.

As part of the work plan, a project schedule was prepared, which highlights all work activities, deliverable dates, and other important project milestones prior to contract award.

6. Construction Quality Assurance/Quality Control Plan

As part of the remediation of OU No. 1 for the UP building, quality assurance (QA) practices are required to insure that the remediation is done according to the design. These practices are outlined in this Construction Quality Assurance/Quality Control Plan (CQAQCP) and have been incorporated into the Contract Documents used for bidding the cleaning, demolition and disposal of the UP Building.

7. Community Health and Safety Plan

A draft Community Health and Safety Plan (CHASP) has been prepared for the remediation of OU No. 1 for the UP building. This plan has been prepared to protect residents in the vicinity of the UP building site while construction of the planned site remediation is being conducted. Incorporated in the CHASP are sections covering environmental monitoring procedures, action levels that will initiate contingency procedures, emergency response procedures, sampling and quality assurance/quality control procedures, data recording and Reporting procedures, dust suppression techniques, site control, and public relations for this project. The Contractor as part of their Site Specific Health and Safety Plan must prepare a CHASP prior to Construction startup.

3.0 OBJECTIVES AND TECHNICAL APPROACH

The objective of the remediation of OU No. 1 at the UP building site is to clean and decontaminate the building in a manner which will permit the demolition of the building by standard building

demolition techniques. Of particular concern is the cleaning of debris, equipment and interior surfaces to remove dust and dirt contaminated with heavy metal constituents, the removal of asbestos-containing materials, the removal of lead painted surfaces, and the control of dust during cleaning and demolition activities. The technical approaches to be used to achieve the objectives are outlined in the subsequent sections below.

3.1 Site Preparation, Building Stabilization and Removals

To ready the UP building for remediation, several site preparation activities must be completed. These include: securing the site with a security fence, construction of access driveways and work areas, and construction of a decontamination pad and disposal staging area. In addition to this exterior site preparation, the UP building and annex structures will be made safe for entry prior to any work performed inside the building. This preparation will include the removal and stabilization of loose cap stones and bricks, parapet walls, removal of portions of brick walls and shoring of specified walls, roofs and floors.

3.2 Pre-Demolition Asbestos Survey

In accordance with the Project Work Plan and New York State regulations, a pre-demolition asbestos survey has been conducted to obtain the necessary state variances for demolition. The survey consisted of an asbestos inspection conducted by a state certified asbestos inspector. The objective of the survey was to identify potential asbestos-containing material (ACM) and collect samples of each material for analysis. The survey also included collecting data and recording observations regarding the quantity, condition and location of the materials.

The samples taken from the site have been submitted to a state certified laboratory for polarized light microscopy (PLM) analysis. For non-organically bound (NOB) ACM identified and sampled, analyses were conducted using a transmission electron microscope (TEM). A pre-demolition asbestos Report summarizing field and analytical activities and abatement options has been prepared and is appended to this Report as Appendix B. Applicable state variances necessary in order for demolition

to occur are discussed in the survey report. Appendix C is a state variance petition submitted to the NYSDOL and currently under review. Asbestos removal and abatement shall be performed in accordance with the regulations, the approved variance and NYSDOL conditions to the variance.

3.3 Building Cleanup

Building cleanup will begin following a preconstruction meeting held at the site and upon confirmation that the site is secured with fencing and the building is stabilized. The installation of shoring and bracing as applicable for each level and room will also be completed prior to initiating building cleanup. The contractor must insure and provide through written notification to the Engineer that each level and room is structurally safe for cleaning operations prior to initiation of cleanup work. Table 3 - Summary Matrix of Cleanup and Demolition Scope of Work indicates which level and room will require shoring and bracing.

The building cleanup procedure will be performed in accordance with, but not limited to, the Project Specification Sections 02078. The objective is to clean debris and equipment to satisfy the disposal requirements of permitted landfills and scrap metal facilities accepting the materials. In general the cleaning procedure will involve precleaning debris, equipment and apparatus using wet methods and HEPA vacuuming within each room of the building. Debris, equipment and apparatus will then be removed to an exterior, central decontamination area, where the items will be decontaminated using powerwashing and wet wiping. The wash water used during the decontamination process will be contained and collected for disposal. Debris and equipment removed from the site will be either landfilled or salvaged after wipe sampling determination and characterization.

Upon removal of materials from each room, the interior building surfaces will be cleaned in accordance with the Project Specification Section 02078. The objective of this cleaning will be to remove contamination to levels necessary to enable the building demolition to be performed by a general demolition contractor rather than a specialty contractor. It is also the objective of interior building cleaning to reduce contaminant levels and permit disposal of the demolition debris in solid waste landfill after wipe sampling determination and characterization.

3.4 Building Demolition

When the building cleaning is completed and the temporary shoring has been removed, the contractor will demolish the UP building using approved means and methods selected by the contractor. A sequence of demolition has been provided for the Contractor for consideration. The Contractor will prepare a demolition work plan (detailing demolition sequence) for the Engineer to review prior to demolition work.

4.0 CLEANUP LEVELS TO BE ACHIEVED

A Construction Quality Assurance and Quality Control Plan (CQAQCP) has been prepared for the UP building demolition. The document discusses the number of samples, tests and analytical protocol which will be implemented during the building remediation. The document includes Table 3-1 entitled Sampling and Analysis Summary Table which presents the sampling and analytical requirements for the cleaning and demolition of the UP building. Two criteria were defined in the Focused Feasibility Study prepared for the UP building and these will be used to classify the waste generated during the UP remediation. These are toxicity characteristic (TC) and the Universal Treatment Standards (UTS) for cadium, chromium, or lead.

The objective of the wipe sampling and analysis will be to determine if the debris, equipment and building surfaces are hazardous by characteristic following the specified cleaning. If the test results indicate that the building materials are characteristically hazardous, (e.g. exceed TC levels) the engineer will direct the contractor to segregate the material for disposal as hazardous waste. If, however, the debris exhibited a characteristic level of contamination above the UTS but below the TC limitation for cadium, chromium, or lead the material will be categorized as contaminated non-hazardous solid waste. And finally, if the debris or building materials exhibit characteristic levels below the UTS for cadium, chromium, or lead the material will be categorized as uncontaminated debris (solid waste).

The wipe sampling and analysis described in the CQAQCP will be the basis for categorizing the waste materials as hazardous, contaminated non-hazardous and uncontaminated solid waste during cleanup and demolition. The contractor will, in addition to this swipe testing, be required to test all hazardous and contaminated non-hazardous solid waste in accordance with the requirements established by the disposal facility selected by the Contractor and approved by the Engineer.

Some areas of the building tested during the remedial investigation did not exhibit characteristics above the UTS levels. The waste materials from these areas will not require swipe sampling and analysis during cleaning and demolition, and these materials will be disposed of as uncontaminated solid waste as discussed in the Scope of Work - Section 5.0 of this report.

5.0 SCOPE OF WORK

The scope of work for the remediation of the UP building will include executing five tasks. The first task, an asbestos pre-demolition survey, has been completed and the information and data collected from this task is appended to this Report. The remaining tasks 2, 3, 4, 5 and 6 include:

Building Stabilization and Removals
Building, Shoring and Cleanup
Building Demolition
Summary of Permits Necessary to Implement Cleanup & Demolition
Health and Safety and Decontamination Requirements

The scope of work for each task is discussed in the subsections below. Of paramount importance during the execution of the scope of work will be the control of fugitive dust. The New York State Department of Health (NYSDOH) ambient air quality standard for respirable dust is 150 ug/m^3. The monitoring and control of dust is discussed in the Community Health and Safety Plan prepared for this project. The contractor must follow the monitoring procedures and incorporate the dust control techniques described in this plan so that the EPA standard of 150 mg/m^3 is not exceeded.

5.1 Task 1 - Asbestos Pre-demolition Survey

The purpose of this inspection was to identify existing asbestos-containing material (ACM) associated with the subject structure. The inspection was performed consistent with New York State Department of Labor (NYSDOL) Industrial Code Rule 56-1.9, the National Emission Standard for Hazardous Air Pollutants (NESHAPS) Title 40 of the Code of Federal Regulations (CFR) Part 61(M), and the Occupation Safety and Health Administration (OSHA) Title 29 CFR Part 1926.1101 (k) regulations. This survey has been appended in Appendix B.

5.2 Task 2 – Site Preparation, Building Stabilization and Removals

As part of the structural inspections conducted by MJ Engineering, a set of drawings depicting the building's floor plans were prepared. These drawings are included as part of this Remedial Design Report as Figures 3 through 10. These Figures identify the various levels within the UP building as well as the room names on each level. A detailed scope of work for shoring, cleaning and demolition has been prepared for each room on six levels and the annexed area. Table 3 - Summary Matrix of Cleanup and Demolition Scope of Work has been prepared based on the scope of work discussed below.

The estimated tonnage of materials to be cleaned and removed from the building is 1,502 tons. This material will be processed to permit off-site disposal. The process will involve pre-cleaning the debris within each room using a HEPA vacuum and washing, then moving the debris to the decontamination pad and power washing the debris to decontaminate. A preliminary decontamination pad location is shown on D-2 of the Contract Drawings (Appendix D). This drawing also shows the position of building egress and regress, the temporary storage containers and personnel decontamination unit. The decontamination pad will be constructed in accordance with Specification Section 02230 of the Contract Documents and facilitate the collection and disposal of wash water.

There are several areas of the main building and annexed buildings that first need to be removed and stabilized before any work can be done inside the building. There are also areas that are inaccessible

due to building roof collapses. The following areas are identified (from top down) along with a description of what work needs to be done in these areas. (See Fig. 3 for main building elevation).

Sixth level: (Storage Room) The sixth level south side brick wall in the area of the stair opening shall be removed. This corner needs to be shored along the south wall, and the exterior brick wall needs to be removed from the top of parapet (elev. = 358.0') down to the sixth floor top of steel (elev. = 344.0') This wall is currently crumbling due to leaks in the roof causing water and ice to infiltrate the wall. Also, any loose brick or stone caps on the roof parapet should be removed from the top of building. The contractor will need to verify worker safety when accessing roofs/parapets due to the unsafe conditions of existing roof decking and joists.

Fifth level: (Storage Room) A portion of the south side brick exterior wall, between pilasters, shall be removed as indicated on the drawings (Appendix D, Drawing S-7). The wall shall be removed from the top of parapet (elev. =345.0') down to the top of fifth floor slab (elev. = 328.8').

Fourth level: (Storage Room West) A portion of the south side brick exterior wall, between pilasters, shall be removed as indicated on the drawings (Appendix D, Drawing S-6). There is currently a large opening in the wall in this area, and it is located directly below the fifth level wall removal area. The wall shall be removed from the top of fifth floor slab (elev. =328.8') down to the top of fourth floor slab (elev. = 313.8')

Third level: (Mezzanine) The limits of the wood framed mezzanine located on the third level (elev. = 301.8') will need to be guard railed and the mezzanine cannot be walked on (Appendix D, Drawing S-4). The mezzanine will need to be removed once the guardrail is securely in place.

Third level: (Brewery Room) The loose brick and stone cap on the roof level (elev. = 324.0') will need to be removed. In order to safely support shoring loads, the west side of the brewery room that borders the main building will need to have its contents relocated away from this edge. This area is approximately 40' x 11' (Appendix D, Drawing S-5).

Second level: (Annexed Building) Certain area of the wood floor construction has deteriorated and is unsafe to walk on (Appendix D, Drawing S-3). Personnel should be kept out of this area.

First level: (Main Plating Room) An area of the main plating room roof located in the northeast corner will need to be removed back to sound construction, as indicated on the drawings (Appendix D, Drawing S-2). Several of the tongue and groove roof planks are either missing or have sustained damage due to falling debris and snow loads.

First level: (Main Building) An area located on the southeast side of the building has experienced total roof collapse. A small work shop and office area occupied this space, which is currently accessible only from the annexed building (Appendix D, Drawing S-2). Personnel will have to be kept out of this area until this part of the building has been demolished.

First level: (Annexed Building) A structural steel frame located in the waste water treatment area will need to be disassembled. This frame is currently missing a support column and anchor bolts from support columns to the concrete slab on grade.

First level: (Annexed Building) An area located on the west side of the building has experienced total roof collapse. This area is constructed of wood framed roofing and CMU walls, and is currently accessible only from the annexed building. Personnel will need to be kept out of this area until this part of the building has been demolished.

There are additional areas in the building that need to be removed prior to cleaning, but the surrounding structure must be shored first. These areas will be identified in the shoring and cleaning sections of this report. The contractor will be responsible for guard railing all openings as there will be several openings created in the building walls due to removals. Also, any existing openings that are in the building will need to be guard railed (e.g. elevator openings). The elevator car itself needs to be removed from the elevator shaft, or secured in place until the demolition of the building begins.

5.2.1 First Level - Shoring and Cleaning

The first level is comprised of five rooms including the main plating room, chrome plating room, silver plating room, office area and the west end collapsed area. This level will require a considerable amount of cleaning and debris removal prior to demolition (estimated amount of material on the first level is 984 tons). Based on a field evaluation conducted by CHA, the first level roof will not require shoring. The debris and equipment cleaning and removal requirements for the first level are depicted on Contract Drawing No. D-2 and Specification Section 02078.

5.2.1.1 Main Plating Room

Cleaning in this room will involve removal of an estimated 536 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that all but 136.8 tons of the entire 536 tons of the materials within this room can be disposed of as a non-hazardous contaminated and solid waste. This quantity will be confirmed through field wipe sample analysis. An estimated 136.8 tons of metal waste will require treatment prior to disposal as a hazardous waste.

The interior surfaces of the main plating room will be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance and Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.1.2 Chrome Plating Room

Cleaning in this room will involve removal of an estimated 129 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that all but 15.6 tons of the entire 129 tons of the materials within this room can be disposed of as a non-hazardous contaminated and solid waste. An estimated 15.6 tons of metal waste will

require disposal as a hazardous waste. These quantities will be confirmed through field wipe sampling analysis.

The interior surfaces of the chrome plating room must be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance and Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.1.3 Silver Plating and Shop Room

Cleaning in this room will be inclusive of the area designated as the shop room and will involve removal of an estimated 230 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that all but 11 tons of the entire 230 tons of the materials within this room can be disposed of as a non-hazardous contaminated and solid waste. These quantities will be confirmed through field wipe sampling analysis. An estimated 9.8 and 1.2 tons of wood and miscellaneous waste respectively will require disposal as a hazardous waste.

The interior surfaces of the silver plating room must be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance and Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.1.4 Office Rooms

Cleaning in this room will involve removal of an estimated 62 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of the 62 tons of the material

within this room can be disposed of as a non-hazardous contaminated and solid waste. Noted ACMS will be removed after the solid waste is removed.

The interior surfaces of the office room will not require decontamination.

5.2.1.5 West End Collapsed Area

This area of the UP site was designated as office area and is not believed to be contaminated. The floor and roof structure of this portion of the building are in very poor condition and not suitable for access by workers. Therefore this area will not be cleaned prior to demolition. The contents within this area will be disposed of with the structural demolition materials.

5.2.2 Second Level - Shoring and Cleaning

The second level is comprised of five rooms including the chemical storage room, parts storage room, anodizing room, pipe and spring room and office area. This level will require a considerable amount of cleaning and debris removal prior to demolition (estimated amount of material on the second level is 842 tons). Based on a field evaluation conducted by CHA, the second level roof will require shoring as discussed in the subsequent sections. The debris and equipment cleaning and removal requirements for the second level are depicted on Contract Drawing No. D-3 and in Specification Section 02078.

5.2.2.1 Chemical Storage Room

Shoring in this room will not be required to clean and remove debris and to decontaminate the interior surfaces.

Cleaning in this room as shown on Drawing D-3 will involve removal of an estimated 27 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that all 27 tons of the materials within this room can be

disposed of as a non-hazardous contaminated and solid waste. The materials have been characterized as metal, concrete/brick, wood, plastic and miscellaneous debris, however, this will be confirmed with periodic wipe sample analysis prior to disposal.

The interior surfaces of the chemical storage room must be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required. It is anticipated that the chemical storage room floor will require milling to remove the top 0.5 inch of concrete. This process and material removal is intended to decontaminate the concrete floor so that the remaining floor may be demolished and disposed of as non-hazardous material. The area of flooring requiring milling will be delineated based on analytical testing of additional concrete chip samples collected during the cleaning phase of remediation (as per the Construction QA/QC Plan). The contractor will control dust during the milling process in accordance with Specification 02078.

5.2.2.2 Parts Storage Room

Shoring in this room will not be required to clean and remove debris and to decontaminate the interior surfaces.

Cleaning in this room as shown on Drawing D-3 will involve removal of an estimated 249 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that all 249 tons of the materials within this room can be disposed of as a non-hazardous contaminated and solid waste. The materials have been characterized as metal, concrete/brick, wood, plastic and miscellaneous debris. However, this will be confirmed with periodic wipe sample analysis prior to disposal.

The interior surfaces of the parts storage room must be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and

sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.2.3 Anodizing Room

The anodizing room roof level (elev. = 301.8') shall be shored as indicated on the Contract Drawings. Once the room is shored, the northeast corner of the roof that has collapsed shall be cut back to the limits indicated on the Contract Drawings (See Drawing S-4). The opening in the roof shall remain open during the cleaning and debris removal process.

Cleaning in this room as shown on Drawing D-3 will involve removal of an estimated 105 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that all 105 tons of the materials within this room can be disposed of as a non-hazardous contaminated and solid waste. The materials have been characterized as metal, concrete/brick, wood, plastic and miscellaneous debris, however, this will be confirmed with periodic wipe sample analysis prior to disposal.

The interior surfaces of the anodizing room must be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.2.4 Pipe and Spring Room

Shoring in this room will not be required to clean and remove debris, and to decontaminate the interior surfaces. Based upon the inspections and analysis completed additional determinations should be reviewed by the contractor at the time of construction and the need for showing and bracing reassessed.

Cleaning in this room will involve removal of an estimated 263 tons of debris and equipment prior to cleaning the interior building surfaces. It is estimated based on the feasibility study performed for the site that 238 tons of the estimated materials in this room will require treatment prior to disposal. An estimated 235 tons of the hazardous waste material is metal. Prior to removal of debris and equipment, pipe insulation containing asbestos and asbestos contaminated debris and equipment underlying the piping will be remediated. The characteristics of the ACM contained in the pipe and spring room are discussed in greater detail in the report presented in Appendix B. The location of the asbestos contamination is shown on the Drawings D-3 (Appendix D).

The interior surfaces of the pipe and spring room will be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.2.5 Office And Sewing Rooms

Shoring in this room will not be required to clean and remove debris and to decontaminate the interior surfaces.

Cleaning in this room will involve removal of an estimated 198 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of the 198 tons of the material within this room can be disposed of as solid waste. Asbestos-containing floor tile located within these rooms will require appropriate handling and disposal as described in Specification Section 02080 and Drawing D-3. The characteristics of the ACM contained in the Office and Sewing rooms are detailed in the report presented in Appendix B.

The interior surfaces of the office room will be decontaminated according to Specifications Sections 02080.

5.2.3 Third Level - Shoring and Cleaning

The third level is comprised of four rooms including the mezzanine, lead smelting room, parts storage room and brewery room. This level will require a considerable amount (estimated amount of material on the third level is 253 tons) of cleaning and debris removal prior to demolition. Based on a field evaluation conducted by CHA, the third level roof will require shoring as discussed in the subsequent sections. The debris and equipment cleaning and removal requirements for the third level are depicted on Contract Drawing D-4 and Section 02098 of the Contract Specification. Shoring requirements are shown on Drawing S-5 plus other associated sheets.

5.2.3.1 Mezzanine

Shoring in this room will not be required to clean and remove debris and to decontaminate the interior surfaces.

Cleaning in this room will involve removal of an estimated 7 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of this material can be disposed of as solid waste. However, this will be confirmed through periodic field wipe sample analysis. The materials contained in this room are primarily metallic.

The interior surfaces of the mezzanine room will be decontaminated according to Specification Section 02078.

5.2.3.2 Lead Smelting Room

Shoring in this room will not be required to clean and remove debris and to decontaminate the interior surfaces.

Cleaning in this room as shown on Drawing D-4 will involve removal of an estimated 64 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of

this material can be disposed of as solid waste. However, this will be confirmed through periodic field wipe sample analysis. The materials contained in this room are primarily metallic (estimated amount on material is 61 tons).

The interior surfaces of the lead smelting room will be decontaminated in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.3.3 Parts Storage Room

Shoring in this room will not be required to clean and remove debris and to decontaminate the interior surfaces.

Cleaning in this room will involve removal of an estimated 23 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of this material can be disposed of as solid waste. However, this will be confirmed through periodic field wipe sample analysis. The materials contained in this room are primarily metallic (i.e., 21.8 tons).

The interior surfaces of the parts storage room will be decontaminated according to Specification Section 02078.

5.2.3.4 Brewery Room

The brewery room roof level (elev. = 322.0') shall be shored as indicated on the Contract Drawings S-5 and associated sheets. Because of the quantity of materials in this room, aisles will have to be cleared in order to install the shoring. Also, additional shoring shall be located along the west wall due to observed water damage.

Cleaning in this room will involve removal of an estimated 160 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of this material can be disposed of as non-hazardous contaminated and solid waste. However, this will be confirmed through periodic field wipe sample analysis. The materials contained in this room are primarily metallic (estimated amount of material is 145 tons).

The interior surfaces of the brewery room will be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.4 Fourth Level - Shoring and Cleaning

The fourth level is comprised of a single storage room. This level will require a considerable amount (estimated amount of material on the fourth level is 426 tons) of cleaning and debris removal prior to demolition. Based on a field evaluation conducted by CHA, the fourth level roof will require shoring as discussed in the subsequent section and as shown on Drawing S-6 and associated sheets.. The debris and equipment cleaning and removal requirements for the fourth level are depicted on Drawing D-5 and in Specification Section 02078.

5.2.4.1 Storage Room

The east and west side roof levels (elev. = 327.8') shall be shored as indicated on Drawing S-6. Several of the east side roof joists have cracked near their bearing points. These joists shall be repaired as indicated on the drawings. Approximately 30% of debris, equipment, and materials on both sides of the fourth level that needs to be relocated in order to install shoring in the desired locations. Moving of this debris will be conducted during the shoring of the room. Cleaning and removal of this material, however, must wait until the shoring is complete.

Cleaning in this room will involve removal of an estimated 426 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of this material can be disposed of as non-hazardous contaminated and solid waste. However, this will be confirmed through periodic field wipe sample analysis. Two pieces of equipment that contain asbestos will be removed as asbestos prior to the remaining material being removed. The materials contained in this room are primarily metallic (estimated amount of material is 419 tons).

The interior surfaces of the fourth level storage room will be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.2.5 Fifth Level - Shoring and Cleaning

The fifth level is comprised of a single storage room. This level will require a moderate amount (estimated amount of material on the fifth level is 110 tons) of cleaning and debris removal prior to demolition. Based on a field evaluation conducted by CHA, the fifth level roof will require shoring as discussed in the subsequent section S-7 and associated sheets. The debris and equipment cleaning and removal requirements for the fifth level are depicted on Drawing No. D-6 and Specification Section 02078.

5.2.5.1 Storage Room

The storage room roof level (elev. = 343.0') shall be shored as indicated on the Drawings S-7 and associated sheets. Debris and materials on the fifth level will have to be relocated to install the shoring in the desired locations. Cleaning and removal of this material, however, must wait until the shoring is complete.

Cleaning in this room as shown on Drawing will involve removal of an estimated 110 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of this material can be disposed of as solid waste. The materials contained in this room are primarily metallic (estimated amount of material is 102 tons). The interior surfaces of the fifth level storage room will not require decontamination. These surfaces will be ready for demolition upon completion of debris and equipment removal.

5.2.6 Sixth Level - Shoring and Cleaning

The sixth level is comprised of a single storage room. This level will require a limited amount (estimated amount of material on the sixth level is 17 tons) of cleaning and debris removal prior to demolition. Based on a field evaluation conducted by CHA, the sixth level roof will require shoring as discussed in the subsequent section. The debris and equipment cleaning and removal requirements for the sixth level are depicted on Contract Drawing No. D-7 and Specification Section 02078.

5.2.6.1 Storage Room

The storage room roof level (elev. = 356.0') shall be shored as indicated on Drawings S-7 and associated sheets. Some debris and materials on the sixth level will have to be relocated to install the shoring in the desired locations. Cleaning and removal of this material, however, must wait until the shoring is complete.

Cleaning in this room will involve removal of an estimated 17 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all of this material can be disposed of as solid waste. The materials contained in this room are primarily metallic (estimated amount of material is 14 tons).

The interior surfaces of the sixth level storage room will not require decontamination. These surfaces will be ready for demolition upon completion of debris and equipment removal.

5.2.7 Annexed Building - Shoring and Cleaning

The annexed building is a long rectangular structure comprised of two rooms and an area referred to as the lean--to. The annex is located on the south side of the UP building . This structure contains an estimated 945 tons of debris and equipment requiring cleaning and removal prior to demolition. Based on a field evaluation conducted by CHA, the annexed building roof and floor will not require shoring. Based on a field evaluation of the second floor, CHA has determined that certain areas of the floor construction is unsafe to walk on. Personnel should be kept out of this area. The lean-to section roof has collapsed, and this material is to be handled as debris. The debris and equipment cleaning and removal requirements for the annexed area are depicted on Contract Drawing D-1 and Specification Section 02078.

5.2.7.1 Waste Water Treatment And Hazardous Waste Storage

Cleaning of waste water treatment and hazardous waste storage rooms will involve removal of an estimated 945 tons of debris and equipment. It is estimated based on the feasibility study performed for the site that all but 230.1 tons of this material can be disposed of as non-hazardous contaminated and solid waste. However, this will be confirmed through periodic field wipe sample analysis. An estimated 230.1 tons of metal and plastic materials will require treatment prior to disposal. ACM will be removed according to Specification Section 02078. The characteristics of the ACM contained in the annexed structure are detailed in the report presented in Appendix B.

The interior surfaces of the annexed structure must be decontaminated. These surfaces will be cleaned in accordance with the procedures outlined in Section 02078 of the specifications and sampled and tested in accordance with the Construction Quality Assurance And Quality Control Plan. Verification samples will be taken to demonstrate that the cleaning process has effectively achieved the clean up levels required.

5.3 Task 3 - Building Demolition

The following sequence listed below suggests an order of anticipated building demolition. The sequence below can be found in project specification Section 02060 and its purpose is for guidance only. The contractor shall select and provide a work plan to demolish the buildings.

1. 1 Story Metal Building (Annexed)
2. 2 Story Concrete Building (Annexed)
3. 1 Story Lean-to Collapsed (Annexed)
4. 1 Story Collapsed Office Area*
5. 2 Story Office/Sewing Area*
6. 6th Level Storage Area Roof, Walls and Floor
7. 5th Level Storage Area Roof, Walls and Floor
8. 3rd Level Brewery Area Roof*
9. 4th Level Storage Area Roofs, Walls, and Floor
10. 3rd Level Platform and Roof
11. 3rd Level Brewery Area Walls and Floor
12. 2nd Level Remaining Roof and Walls, Anodizing and Pipe Area Walls and Floors
13. 1st Level Elevated Platform and Walls (down to slab on grade)

* The contractor shall exercise caution when demolishing areas that share bearing walls to remain with adjacent areas for a later demolition time. If there is any doubt about common bearing walls, the contractor shall notify the owner's representative prior to demolition work.

The intent of the demolition Steps 1 thru 4 is to give the contractor immediate perimeter access to the main building as well as increased site space for mobility. Once the annexed buildings, collapsed area, and office areas have been demolished, the main building shall be demolished top down. Several of the building's roofs and floors have common masonry bearing walls. Care should be taken by the contractor to remove only walls that aren't supporting adjacent structures to be demolished in a later sequence. The entire building shall be demolished down to top of existing slab on grade (elev. = 273'-6").

5.4 Task 4 - Summary of Permits Necessary to Implement Cleanup & Demolition

To perform the scope of work discussed above the contractor must apply for and obtain the necessary City of Schenectady, state and federal permits. The required permits will include but may not be limited to:

A building construction demolition permit.
An asbestos removal variance, NYSDOH and USEPA asbestos notifications.
A permit to haul solid contaminated, and hazardous waste.

Permits shall be posted within the project field office located on site.

5.5 Task 5 - Health and Safety and Decontamination Requirements

A Site Specific Health and Safety Plan (SHASP) has been prepared for the site in accordance with the appropriate Occupational Safety and Health Administration (OSHA) regulations (29CFR1910 and 1926). The SHASP addresses those issues unique to the UP site and includes any modifications to the generic HASP in response to these conditions. This document has been developed to ensure the safety and health of LMS, CHA, and NYSDEC employees during the demolition. These personnel are to be provided by the contractor.

In addition to the SHASP, the contractor will be required to prepare a health and safety plan for the construction cleaning and demolition work scope. This plan shall be prepared in accordance with the contract specification Section 01392. Compliance with this HASP is required of all workers and third parties who enter the site. The On-Site Coordinator (OSC) and on-site Health and Safety Officer (HSO) are responsible for assuring compliance with this plan. These personnel are to be provided by the Contractor.

The personnel and equipment decontamination requirements for the UP building remediation will be detailed in the Contractor prepared HASP and the designated decontamination areas are shown on Contract Drawings Decon. 1 and 2.

6.0 COST ESTIMATE

An itemized cost estimate for implementation of the UP building remediation has been prepared by CHA for the scope of work described in Section 5.0. A total remediation cost of $2,844,000 has been estimated and is presented as Table 4 - Construction Cleaning and Demolition Cost Estimate.

7.0 PROJECT SCHEDULE

The estimated project schedule to complete the UP building remediation in accordance with the NYSDEC ROD is outlined below. The time duration estimated for each construction phase shall be taken from the time of contract award and notice to proceed.

Construction Phase	Time (weeks)
• Submittals	4
• Site Preparation and Mobilization	4
• Building Shoring and Cleanup	7
• Building Demolition	8
• Project Close-out and Demobilization	3
TOTAL ESTIMATED PROJECT DURATION	**26 weeks**

The project schedule assumes 8 hour work days and 5 day work weeks.

TABLES

BLE 2

ESTIMATED DEBRIS QUANTITIES XICITY CHARACTERISTIC AND DEBRIS TYPE

UNITED PLATING SITE

ROOM	METAL (TONS) U	C	H	CONCRETE & BRICK (TONS) U	C	H	WOOD (TONS) U	C	H	PLASTIC (TONS) U	C	H	OTHER (TONS) U	C	H	TOTAL DEBRIS (TONS)
First Floor																
Wastewater Treatment Room	-	690.2	230.1	3.0	-	-	7.4	-	-	-	-	11.5	3.0	-	-	945.2
Main Plating Room	-	410.3	136.8	2.1	-	-	-	7.3	-	-	4.4	-	-	2.3	-	563.2
Chrome Plating Room	-	108.9	15.8	-	-	-	-	1.7	-	-	-	-	-	2.4	-	128.6
Silver Plating Room	-	212.4	-	-	0.7	-	-	-	9.8	-	5.9	-	-		1.2	230
Office	52.9	-	-	-	-	-	-	2	-	-	0.4	-	-	6.4	-	61.7
Subtotal - 1st Floor	52.9	1421.8	382.5	5.1	0.7	0	7.4	11.0	9.8	0	10.7	11.5	3.0	11.1	1.2	1928.7
Second Floor																
Chemical Storage Mezzanine	-	15.0	-	7.5	-	-	4.2	-	-	-	0.2	-	-	0.4	-	27.3
Parts Storage Room	240.7	-	-	1	-	-	1.1	-	-	1.9	-	-	4.0	-	-	248.7
Anodizing Room	97.7	-	-	0.4	-	-	5	-	-	-	0.4	-	1	-	-	104.5
Pipe and Spring Room	-	-	235.2	-	-	-	1.8	-	0.2	0.2	-	-	23.2	-	2.6	263
Office/Sewing Room	176.6	-	-	-	-	-	6.6	-	-	1	-	-	-	11.8	-	196
Subtotal - 2nd Floor	515.0	15.0	235.2	8.9	0.0	0.0	20.5	0.0	0.2	3.1	0.6	0.0	28.2	12.2	2.6	841.5
Third Floor																
Grated Area	6.1	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-	6.5
Lead Smelting Room	61.1	-	-	1.5	-	-	-	0.6	-	-	-	-	-	0.4	-	63.6
Parts Storage Room	21.8	-	-	-	-	-	0.5	-	-	-	-	-	0.2	-	-	22.5
Brewery Room	145.4	-	-	-	2.0	-	-	0.9	-	-	1.6	-	-	9.9	-	159.8
Subtotal - 3rd Floor	234.4	0.0	0.0	1.5	2.0	0.0	0.9	1.7	0.0	0.0	1.6	0.0	0.2	10.3	0.0	252.6
Fourth Floor																
Storage Room	-	419.3	-	0.4	-	-	-	5.3	-	-	0.3	-	-	0.7	-	426
Subtotal - 4th Floor	0	419.3	0	0.4	0	0	0	5.3	0	0	0.3	0	0	0.7	0	426
Fifth Floor																
Storage Room	102.7	-	-	4.1	-	-	2.6	-	-	-	-	-	-	-	-	109.4
Subtotal - 5th Floor	102.7	0	0	4.1	0	0	2.6	0	0	0	0	0	0	0	0	109.4
Sixth Floor																
Storage Room	14.0	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	16.6
Subtotal - 6th Floor	14.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6
BUILDING TOTAL (tons)	919	1856.1	617.7	20	2.7	0	34	18	10	3.1	13.2	11.5	31.4	34.3	3.8	3574.8
Assumed Density (tons/cy)		6.615			1.956			0.54			1.161			0.0801		
BUILDING TOTAL (cy)A	278	581	187	20	3	0	128	87	37	5	22	21	80	85	10	864.5

TABLE 1

ESTIMATED QUANTITY OF DEBRIS BY TYPE
BASED ON FIELD OBSERVATIONS (FEBRUARY 1996)

UNITED PLATING SITE

h:\geo\quinn\6808\uplating.wk4

ROOM	METAL (tons)	CONCRETE & BRICK (tons)	WOOD (tons)	PLASTIC (tons)	OTHER (tons)	TOTAL DEBRIS (tons)
First Floor						
Wastewater Treatment Room	920.3	3	7.4	11.5	3	945.2
Main Plating Room	547.0	2.1	7.3	4.4	2.3	563.1
Chrome Plating Room	124.2	0	1.7	0	2.4	128.3
Silver Plating Room	212.4	0.7	9.8	5.9	1.2	230
Office	52.9	0	2	0.4	6.4	61.7
Subtotal - 1st Floor	1857	5.8	28.2	28.2	15.3	1934.3
Second Floor						
Chemical Storage Mezzanine	15	7.5	4.2	0.2	0.4	27.3
Parts Storage Room	240.7	1	1.1	1.9	4	248.7
Anodizing Room	97.7	0.4	5	0.4	1	104.5
Pipe and Spring Room	235.2	0	1.8	0.2	25.8	263.0
Office/Sewing Room	176.6	0	8.6	1.0	11.8	198.0
Subtotal - 2nd Floor	765	9	21	3.7	43.0	841.5
Third Floor						
Grated Area	6.1	0.0	0.4	0.0	0.0	6.5
Lead Smelting Room	61.1	1.5	0.8	0.0	0.4	63.8
Parts Storage Room	21.8	0.0	0.5	0.0	0.2	22.5
Brewery Room	145.4	2.0	0.9	1.6	9.9	159.8
Subtotal - 3rd Floor	234	3.5	2.6	1.6	10.5	252.6
Fourth Floor						
Storage Room	419.3	0.4	5.3	0.3	0.7	426.0
Subtotal - 4th Floor	419.3	0.4	5.3	0.3	0.7	426.0
Fifth Floor						
Storage Room	102.7	4.1	2.6	0	0.5	109.9
Subtotal - 5th Floor	102.7	4.1	2.6	0	0.5	109.9
Sixth Floor						
Storage Room	14	0	2.6	0	0	16.6
Subtotal - 6th Floor	14	0	2.6	0	0	16.6
BUILDING TOTAL (tons)	3392.4	22.7	62	33.8	70	3580.9
Assumed Density (tons/cy)	6.615	1.958	0.54	1.161	0.801	
BUILDING TOTAL (cy)A	1026	23	230	48	175	1502

A - Assume 1:1 volume of void space to volume of material for disposal purposes.

TABLE 3

SUMMARY MATRIX OF CLEANUP AND DEMOLITION SCOPE OF WORK

UNITED PLATING SITE

Item No.	Building Level	Room Name	General Description of Materials Present	Asbestos Removal Required	Shoring Required For Cleanup	Special Cleaning Requirements
1	1	Main Plating	Plating Process Equip. and Debris Comprised of Metal, Concrete & Brick, Plastic and Wood	Yes	No	Asbestos Pipe Insulation and Contaminated Debris.
2	1	Chrome Plating	Plating Process Equip. and Debris Comprised of Metal and Wood.	Yes	No	Asbestos Pipe Insulation and Contaminated Debris.
3	1	Silver Plating	Plating Process Equip. and Debris Comprised of Metal, Concrete & Brick, Plastic and Wood	Yes	No	Asbestos Boiler Insulation and Hazardous Waste Wood Ceiling Removal.
4	1	Office	Solid Waste Comprised of Metal, Plastic, and Wood	Yes	No	Asbestos Containing Floor Tile.
5	2	Chemical Storage	Parts and Debris comprised of Metal, Concrete & Brick, Plastic, and Wood	No	No	Delineate and Mill Concrete Floor to Remove Top Inch of Contaminated Concrete.
6	2	Parts Storage	Parts and Debris comprised of Metal, Concrete & Brick, Plastic, and Wood	No	No	None
7	2	Anodizing	Parts and Debris comprised of Metal, Concrete & Brick, Plastic, and Wood	No	Yes	None
8	2	Pipe and Spring	Process Equipment and Debris Comprised of Metal, Plastic, and Wood	Yes	No	Asbestos Pipe Insulation and Contaminated Debris.
9	2	Office & Sewing	Solid Waste Comprised of Metal, Plastic, and Wood	Yes	No	Asbestos Containing Floor Tile.
10	3	Mazzine	Parts and Debris comprised of Metal, and Wood	No	No	None
11	3	Lead Smelting	Process Equipment and Debris Comprised of Metal, Concrete & Brick, and Wood	No	No	None
12	3	Parts Storage	Parts and Debris comprised of Metal, and Wood	No	No	None
13	3	Brewery	Parts and Debris comprised of Metal, Concrete & Brick, Plastic, and Wood	No	Yes	Relocation of Debris to Clear Designated Shoring Area.
14	4	Storage	Parts and Debris comprised of Metal, Concrete & Brick, Plastic, and Wood	No	Yes	None
15	5	Storage	Parts and Debris comprised of Metal, Concrete & Brick, and Wood	No	Yes	None
16	6	Storage	Parts and Debris comprised of Metal, and Wood	No	Yes	None

UNITED PLATING BUILDING

Cleaning and Demolition Cost Estimate

New York State Department of Environmental Conservation

CHA Project Number 6808.08, NYS Site Number 447018.

COST ESTIMATE

Payment Item Number	*Description*	*Quantity Type*	*Unit or Lump Sum Price*		*Total Amount ($)*
			Quantity	*Unit Rate*	
1	Mobilization/Demobilization and Site Preparation	LS	One Item	$170,000	$170,000
2	Site Services	UP	180 days	$340/day	$61,200
3	Health and Safety	UP	180 days	$1466.67	$264,000
4	Shoring/Scaffolding	LS	One Item	$53,400	$53,400
5	Pre-Cleaning	LS	One Item	$154,700	$154,700
6	Equipment Decontamination	LS	One Item	$500,000	$500,000
7	Building Decontamination	LS	One Item	$25,400	$25,400
8	Asbestos Removal & Disposal	LS	One Item	$11,200	$11,200

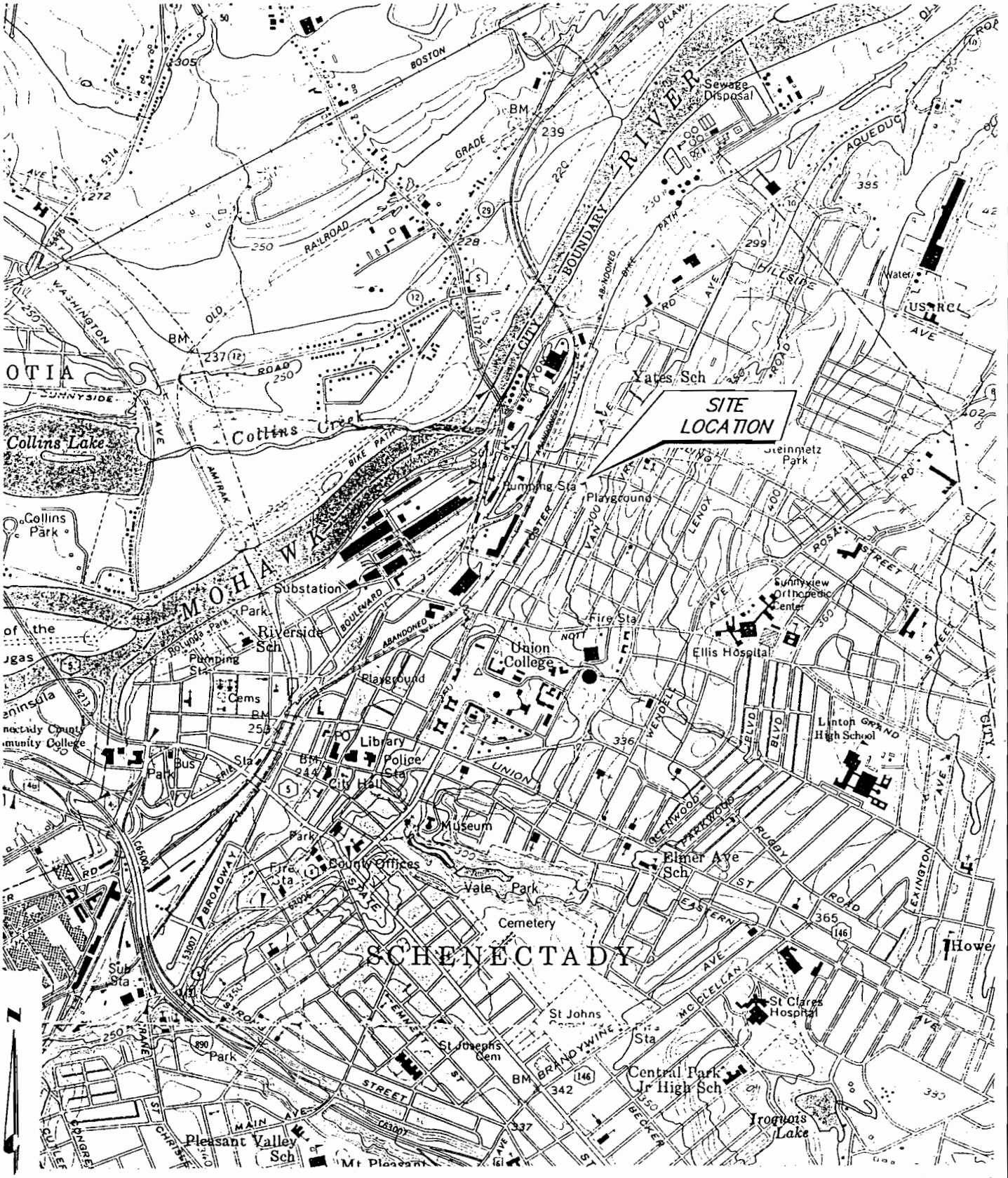
1/2

UNITED PLATING BUILDING
Cleaning and Demolition Cost Estimate
New York State Department of Environmental Conservation
CHA Project Number 6808.07, NYS Site Number 447018

COST ESTIMATE

Payment Item Number	*Description*	*Estimated Quantity*	*Unit or Lump Sum Price*		*Total Amount ($)*
			Quantity	*Unit Rate*	
9	Concrete Abrasion	UP	500 square feet	$10/ft^2$	$5,000
10	Hazardous Wood Demolition	LS	One Item	$8,300	$8,300
11	General Building Demoltion	LS	One Item	$1,378,000	$1,378,000
12	General Solid Waste Disposal	UP	1000 tons	$60/ton	$60,000
13	Hazardous Waste Disposal	UP	255 cubic yards	$160/yd^3$	$40,800
14	QA/QC	UP	140 swipe samples	$400/ea.	$56,000
15	QA/QC	UP	10 chip samples	$40/ea.	$4,000
16	QA/QC	UP	240 air samples	$100/ea.	$24,000
17	Wash Water Disposal	LS	80,000 gallons	$0.35/gal	$28,000
Grand Total Bid:	**$ 2,844,000** (Price in figures)				

FIGURES



SOURCE: N.Y.S.D.O.T. 7.5' Topographic
QUADRANGLE: SCHENECTADY, N.Y.

SCALE: 1"=2000'

CHA
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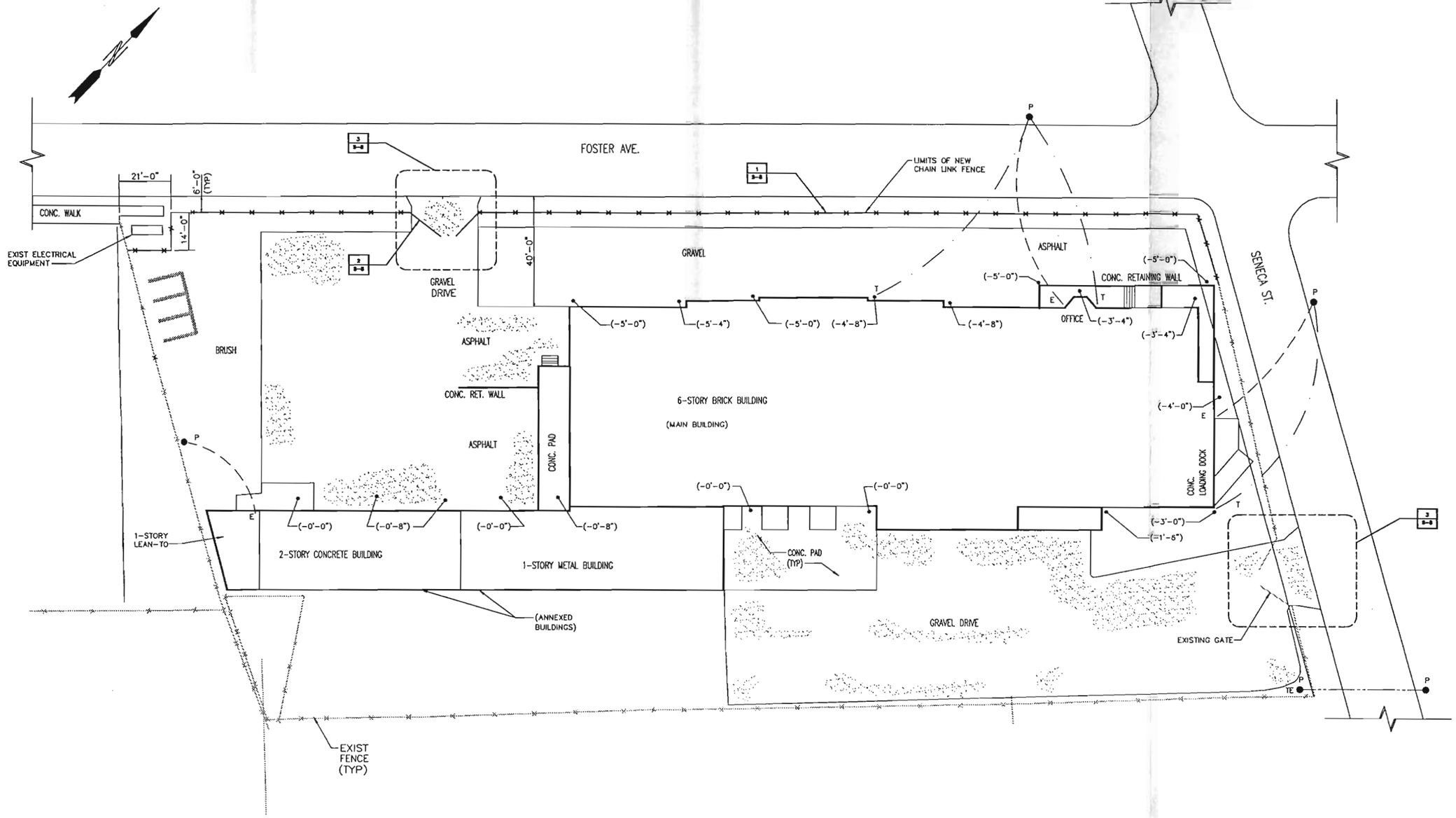
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

REMEDIAL DESIGN REPORT
UNITED PLATING BUILDING
SCHENECTADY, NEW YORK

FIGURE NO. 1 | DATE: NOVEMBER, 1997

SITE LOCATION MAP



PLOT SCALE 1=2

CAD OPERATOR M.C.

DATE LAST REVISED 12/18/97

.DWG FILE NAME N:6808/07/6808FIG2

SITE PLAN
SCALE: 1"=40'-0"

LEGEND:

- P = UTILITY POLE
- E = ELECTRICAL
- T = TELEPHONE
- TE = TEMPORARY ELECTRICAL
- = LIMITS OF DRIVE TO RECEIVE STONE AS PER DWG S-8

NOTES:

1. TOP OF EXIST MAIN BUILDING SLAB ELEV.=273'-6"
2. ELEVATIONS SHOWN AROUND BUILDING PERIMETER (-X'-X") ARE EXIST TOP OF GRADE ELEVATIONS ± RELATIVE TO TOP OF MAIN BUILDING SLAB.

CHA
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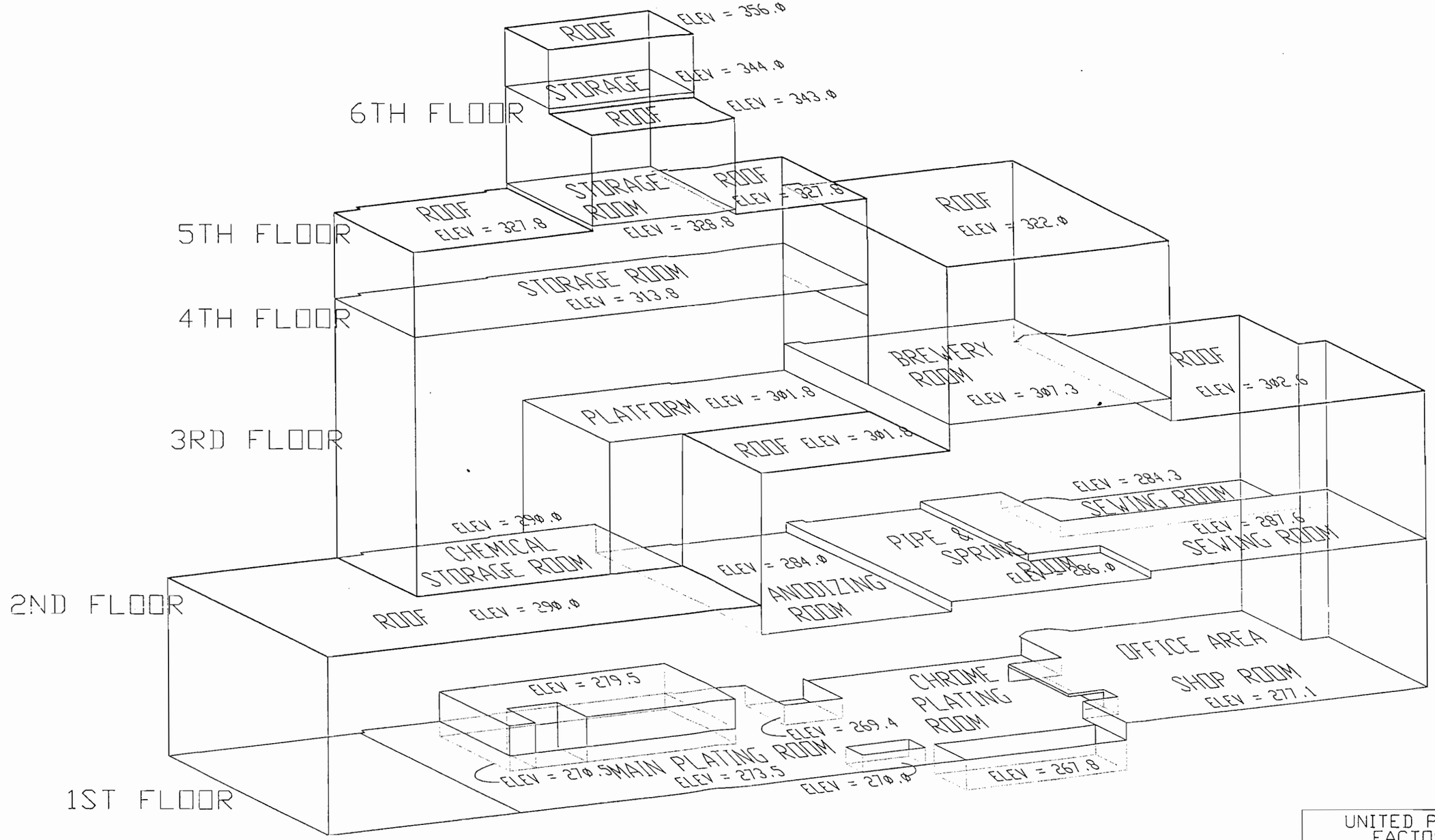
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

PROJ. NO. 6808.07 | DATE: DEC. 1997

FIGURE 2
UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.
SITE PLAN



ELEVATIONS ARE APPROXIMATE

DATE	REVISIONS

UNITED PLATING FACTORY

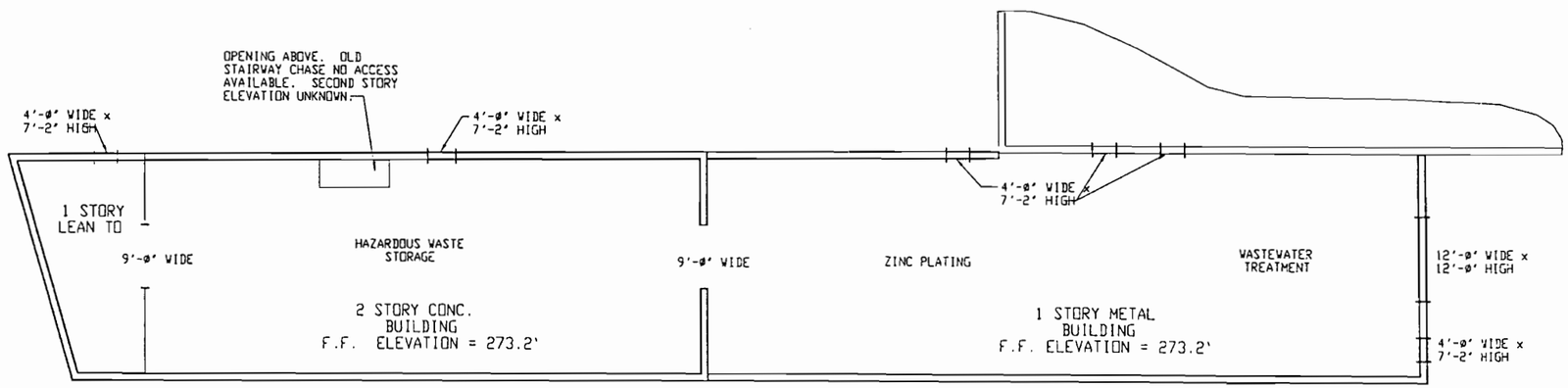
1742-44 FOSTER AVENUE
SCHENECTADY, N.Y.

CITY OF SCHENECTADY	SCHENECTADY COUNTY, N.Y.
NONE	DATE : 1/23/96

M.J. ENGINEERING AND LAND SURVEYING, P.C.
1533 CRESCENT ROAD CLIFTON PARK, NEW YORK

ELEVATION VIEW | SHEET NO.

FIGURE NO. 3



2Ø Ø 2Ø

SCALE

DATE	REVISIONS

UNITED PLATING FACTORY

1742-44 FOSTER AVENUE
SCHENECTADY, N.Y.

CITY OF SCHENECTADY	SCHENECTADY COUNTY, N.Y.
SCALE : 1" = 20'	DATE : 1/23/96

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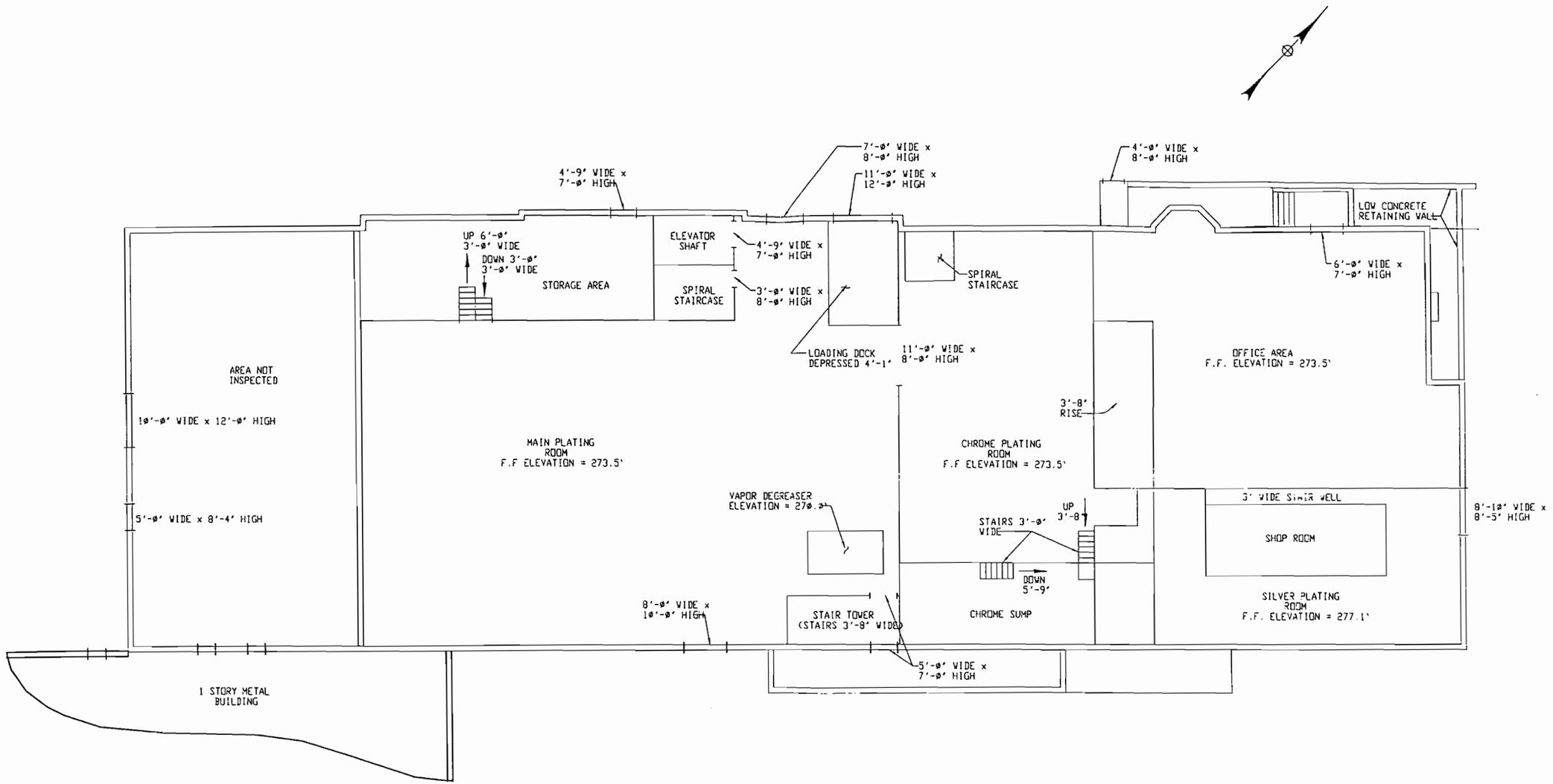
1339 CRESCENT ROAD CLIFTON PARK, NEW YORK

ADDITION FLOOR PLAN FP-1A

FIGURE NO. 4



DATE	REVISIONS

UNITED PLATING FACTORY

1742-44 FOSTER AVENUE
SCHENECTADY, N.Y.

CITY OF SCHENECTADY	SCHENECTADY COUNTY, N.Y.
SCALE : 1' = 20'	DATE : 1/23/96

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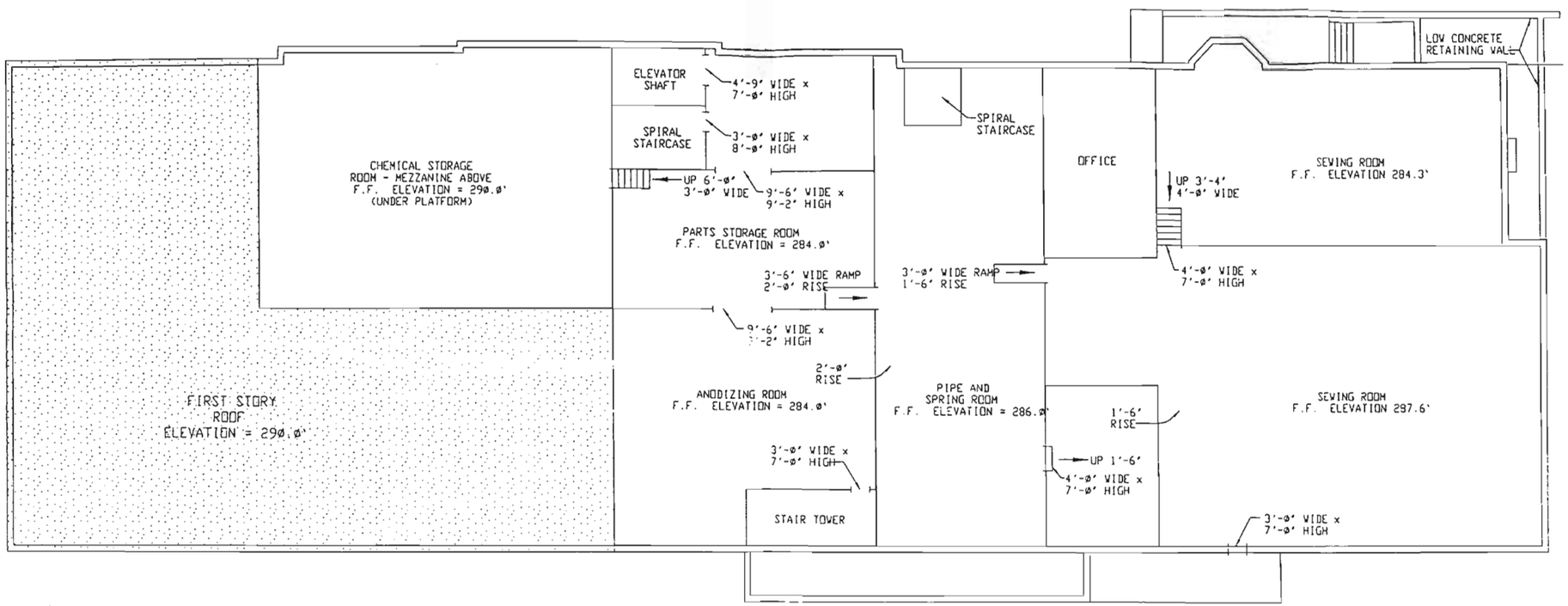
FIRST FLOOR PLAN FP-1

FIGURE NO. 5



2Ø Ø 2Ø

SCALE

DATE	REVISIONS

UNITED PLATING FACTORY

1742-44 FOSTER AVENUE
SCHENECTADY, N.Y.

CITY OF SCHENECTADY	SCHENECTADY COUNTY, N.Y.
SCALE : 1" = 2Ø'	DATE : 1/23/96

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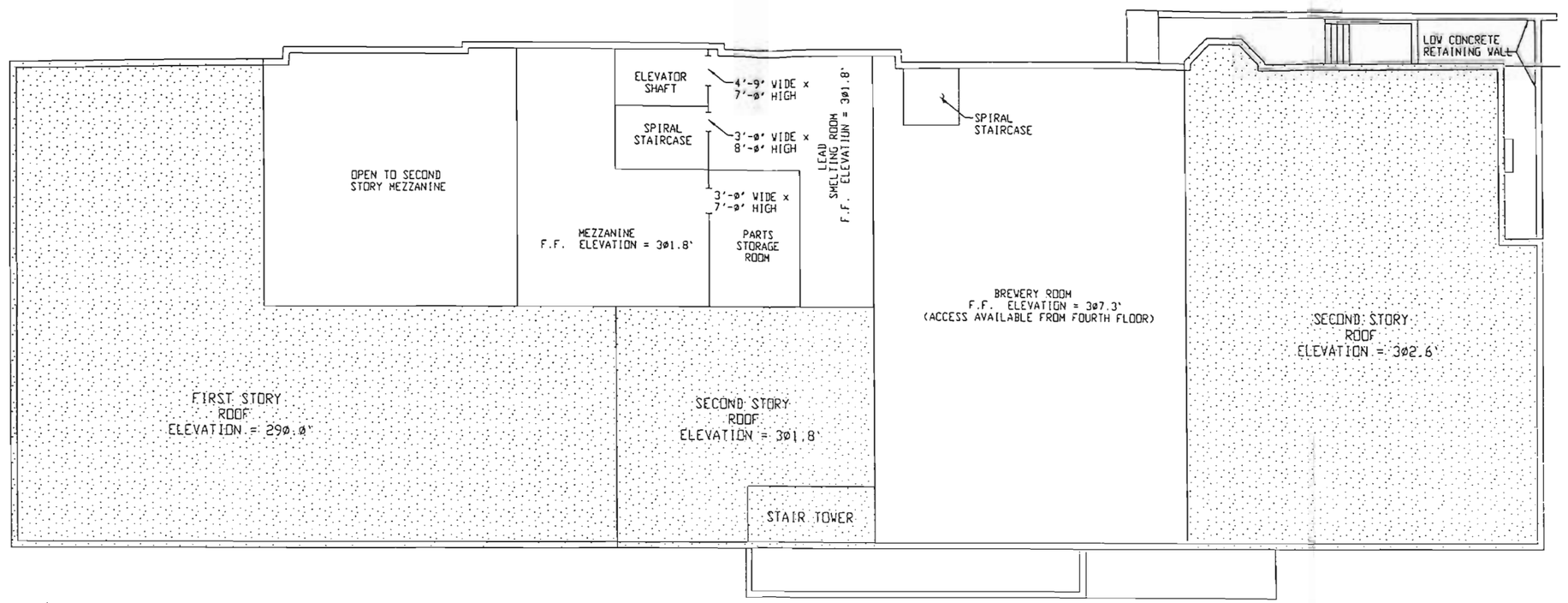
SECOND FLOOR PLAN FP-2

FIGURE NO. 6



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SCALE

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SCHENECTADY, N.Y.

CITY OF SCHENECTADY	SCHENECTADY COUNTY, N.Y.
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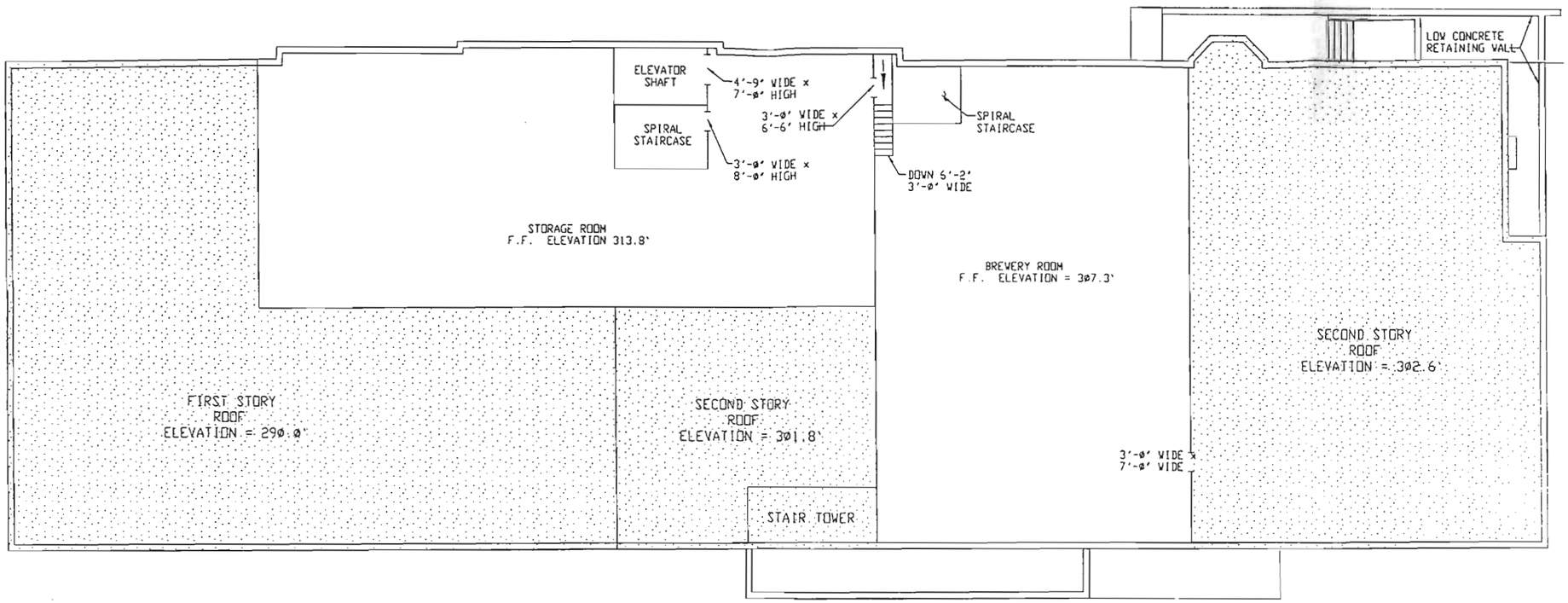
THIRD FLOOR PLAN | FP-3

FIGURE NO. 7



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UNITED PLATING FACTORY

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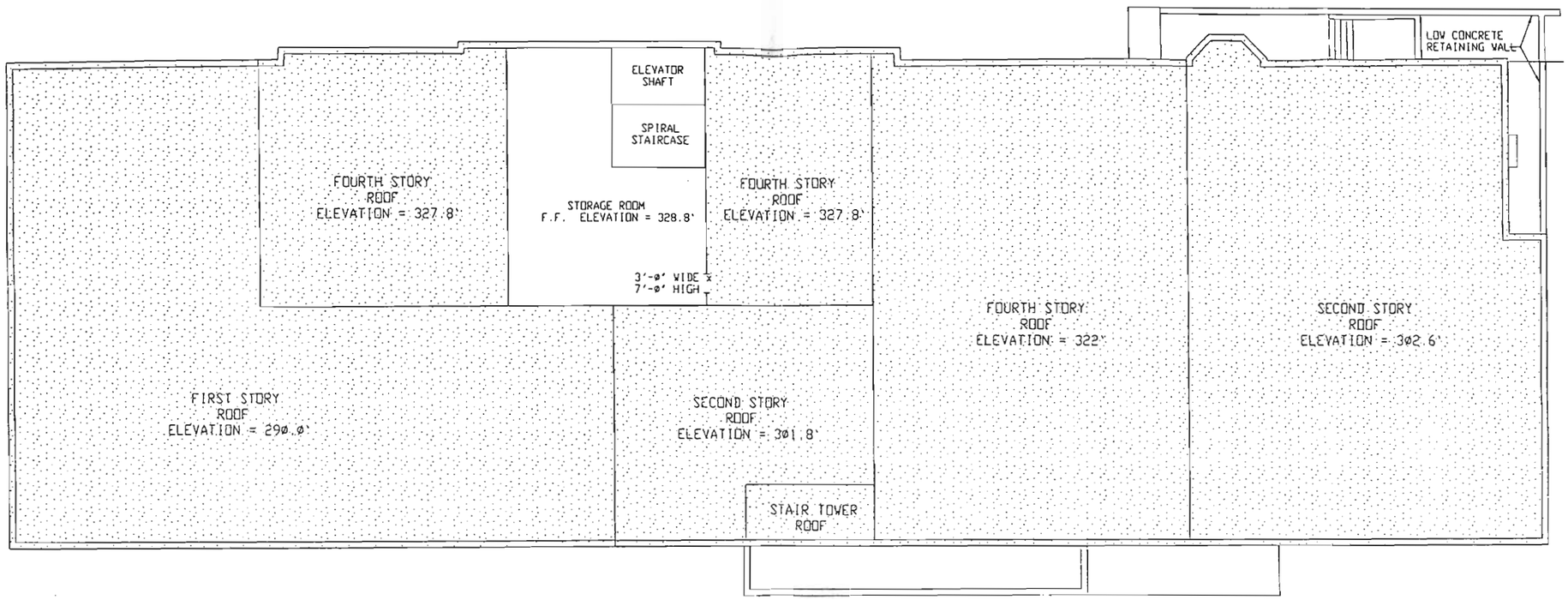
FOURTH FLOOR PLAN FP-4

FIGURE NO. 8



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SCALE

DATE	REVISIONS

UNITED PLATING FACTORY

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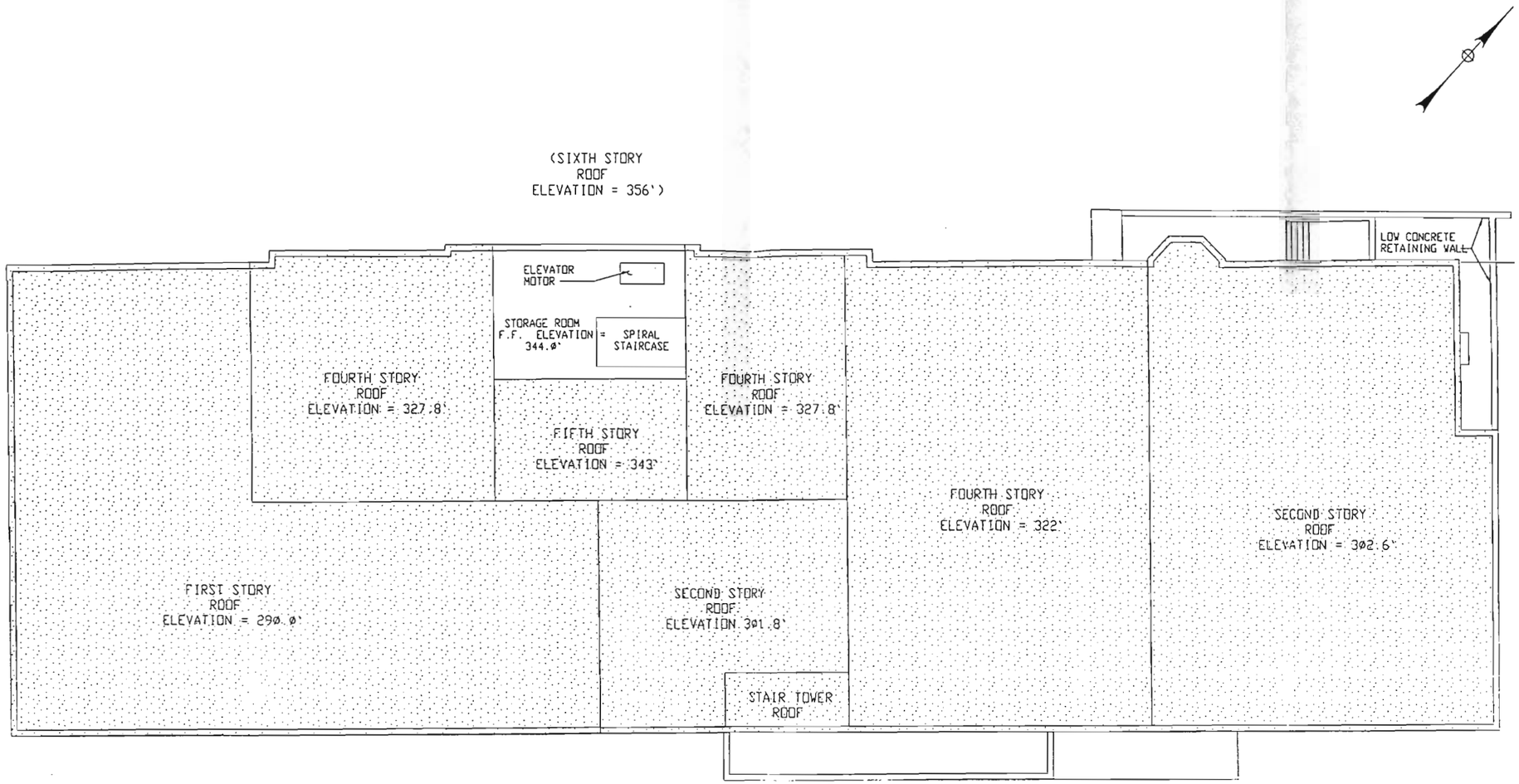
FIFTH FLOOR PLAN FP-5

FIGURE NO. 9



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SCALE

DATE	REVISIONS

UNITED PLATING FACTORY

1742-44 FOSTER AVENUE
SCHENECTADY, N.Y.

CITY OF SCHENECTADY	SCHENECTADY COUNTY, N.Y.
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SIXTH FLOOR PLAN	FP-6

FIGURE NO. 10

APPENDIX A
STRUCTURAL CALCULATIONS

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CHECK BY MLM

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SHEET 1 OF
DATE 11/4/97
PROJ. NAME & LOC. UNITED PLATING
PROJ. NO. 6808.41.82

SUBJECT

INTRODUCTION

THE EXISTING UNITED PLATING BUILDINGS ARE TO BE CLEANED BEFORE DEMOLITION. FOR SAFETY PURPOSES, DUE TO THE CONDITION OF THE BUILDING, PORTIONS OF BUILDINGS ROOFS SHALL BE SHORED. THE FOLLOWING CALCULATIONS WILL DETERMINE SHORING LOADS, ANALYZE THE SAFE LOAD CARRYING CAPACITY OF THE FLOOR MEMBERS CARRYING SHORING LOADS, AND DETERMINE THE REQ'D SHORING SPACING & LOCATIONS. ALSO CALCULATED IS THE SAFE LOAD CARRYING CAPACITY OF EXIST FLOORS WITHOUT SHORING.

AN ASSUMED YIELD SRENGTH OF 33 KSI WAS USED FOR STEEL MEMBERS, AN ALLOWABLE COMPRESSIVE SRENGTH OF 3000 PSI WAS USED FOR CONCRETE SLABS. CONCRETE SLABS WERE ANALYZED AS MINIMAL REINFORCED CONCRETE SLABS DUE TO LACK OF INFORMATION AVAILABLE ON THE BUILDING. CHA BELIEVES THIS ASSUMPTION IS CONSERVATIVE BECAUSE THIS STRUCTURE HAS ADEQUATELY SUPPORTED EQUIP / MACHINERY LOADS FOR ITS SERVICE LIFE.

THE INTENT OF THE CALCULATED SHORING LOADS IS TO LOCATE COMMONLY USED SINGLE POLE OR DOUBLE POLE (FRAME) SHORING BY THE CONTRACTOR, GIVEN MAXIMUM LOADS/LF THAT WILL BE IMPOSED ON THE SHORING. SHORING LOADS IMPOSED INCLUDE A SNOW LOAD OF 45 PSF (+ DRIFT SNOW LOADS WHERE REQ'D).

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DATE 11/4/97
PROJ. NO. 6808.41.82

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TABLE OF CONTENTS

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SHEET 1 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS

— 6TH LEVEL ROOF LOAD —

LIVE LOAD

SNOW	45 PSF	NYSBC
SNOW DRIFT	—	ASCE 7-95

DEAD LOAD

4-PLY FELT AND GRAVEL	5.5 PSF
INSULATION (WET)	2 PSF
1x10 TONGUE AND GROOVE WOOD PLANK (WET)	5 PSF
2x10 WOOD JOISTS 16" o.c. (WET); (INCLUDES BRIDGING)	10 PSF
DL = 22.5 PSF	
DL+LL = 67.5 PSF	

6TH FLR ROOF = 70 PSF

$W_{6TH\ FLR\ ROOF} = \left(70 \frac{lbs}{FT^2}\right)(7.167\ FT)$ (ASSUME SHORING @ 7'-2")

$W_{6TH\ FLR\ ROOF} = 500 \frac{lbs}{FT}$

$W_{6TH} = 500 \frac{lbs}{FT}$

CHECK CAPACITY OF EXIST WOOD JOISTS

(NDS '91 TABLE 2.3.1) $F'_b = F_b C_D C_M C_t C_L C_F C_V C_{fu} C_{fl} C_c C_f$

(NDS '91 SUPPLEMENT AND NDS STANDARD)

$F_b = 900$ PSI ASSUME
$C_D = 0.9$
$C_M = 0.85$
$C_t = 0.8$
$C_L = 1.0$
$C_F = 1.1$
$C_V = -$ (ONLY APPLIES TO GLUE LAM'S)
$C_{fu} = -$
$C_{fl} = 1.15$
$C_c = +$
$C_f = -$

$= (900_{PSI})(0.9)(0.85)(0.8)(1.0)(1.1)(1.15)$

$F'_b = 697_{PSI}$ $S_x = 21.39_{IN^3}$ (2x10 JOISTS)

$M_{ALLOW} = F_b S_x$

$= \frac{\left(697 \frac{lbs}{IN^2}\right)(21.39_{IN^3})}{(12\ IN/FT)} = 1242\ lbs\text{-}FT$

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SHEET 2 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS

6TH LEVEL CONT.

$M_{ALLOW} = 1.24$ K-FT

EXIST CONDITIONS

$M_{MAX} = \frac{wl^2}{8}$

$w = \left(70\frac{lbs}{FT^2}\right)(1.33\,FT)$

$w = 93.1\frac{lbs}{FT}$

$M_{MAX} = \frac{(0.093\frac{K}{FT})(20\,FT)^2}{8}$

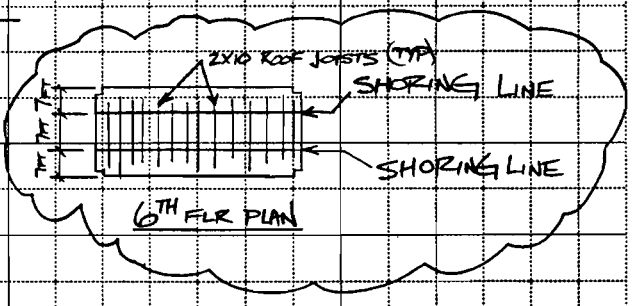
$M_{MAX} = 4.66$ K-FT $\gg M_{ALLOW} = 1.24$ K-FT NG

TRY SHORING AT MAX SPAN = 7'-6"

$M_{MAX} = \frac{(0.093\frac{K}{FT})(7.5\,FT)^2}{8}$

$M_{MAX} = 0.65$ K-FT $< M_{ALLOW} = 1.24$ K-FT OK

FOR 6TH LEVEL ROOF USE TWO ROWS OF SHORING APPROXIMATELY 7FT o.c.



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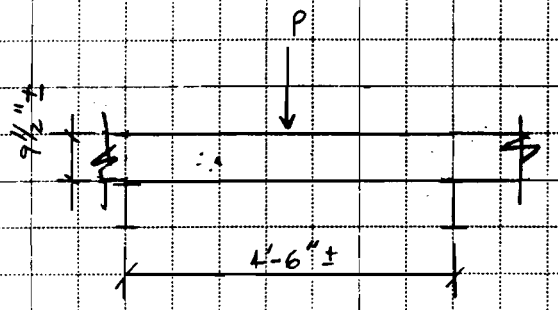
SHEET 3 OF 58
DATE 11/10/97
PROJ. NO 6808

SUBJECT ANALYSIS OF EXIST CONC SLAB - 6TH FLOOR

6TH FLOOR - SHORING LOADS ON:



ASSUME LL ON SLABS = 30 PSF
LINE LOAD = 500 PLF

ASSUME SHORING COLUMNS ARE 10'-0" O.C.

$P = 5.0^K$ (LL)

$M_{U\,MAX\,LL} = \frac{13}{64}(5)(4.5)(1.7) = 7.8^{K\cdot FT}$

$M_{U\,MAX\,DL} = .107\left(\frac{9.5}{12}\right)(150)\left(\frac{4.5}{2}\right)^2(1.4) + .107(.030)(4.5)(1.7) =$

$= (0.36 + 0.11)$

SLAB ANALYSIS:

ASSUME $f_y = 40{,}000$ psi
$f_c' = 3{,}000$ psi

$M_{U\,TOTAL} = 7.8 + .36 + 0.11 = 8.27$ K-FT

$A_{s\,min} = 0.002bh = 0.002(12)(9.5)$

$= 0.23\ in^2/FT$ SAY #4 @ 9"

ASSUME $d = 7\frac{1}{2}"$ (CONSERV), $A_s = 0.27\ in^2/FT$

$a = \frac{0.27(40)}{(0.85)(3)(12)} = 0.35"$, $Z = 7.5 - \frac{.35}{2} = 7.32"$

$M_n = A_s f_y Z = \frac{0.27(40)(7.32)}{12} = 6.59$ K FT < 8.27 K FT NG

DECREASE COLUMN SPACING TO 8'-0":

$P = 4.0^K$, $M_{U\,TOTAL} = \frac{4}{5}(7.8) + .47 = 6.71$ K-FT > 6.59 NG

DECREASE SPACING TO 7'-6":

$P = 3.75^K$, $M_{U\,TOTAL} = \frac{3.75}{5}(7.8) + .47 = 6.32$ K-FT < 6.59 K-FT OK

MAX SPACING = 7'-6"

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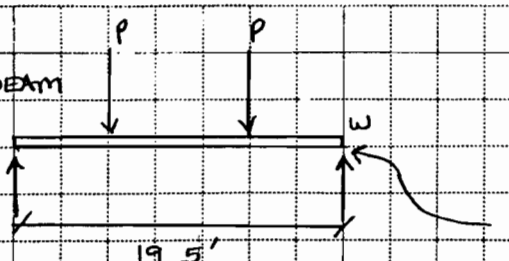
SUBJECT ANALYSIS OF EAST STL. BM'S; - 6TH FLOOR

ASSUME $F_y = 33$ KSI

A) BEAM



$P = 3.75^K$

$w = 4.5\left(\frac{9.5}{12}(.150) + .030\right) = 0.67$ KLF (DL, LL)

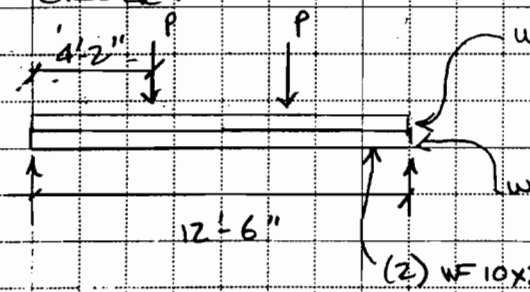
USE W14x22 (ACTUAL BM: d = 14", b = 5½")

$M_{MAX} = 0.33(3.75)(19.5) + \frac{.67(19.5)^2}{8} = 55.9$ K·FT

$M_{AVAIL} = \left(\frac{33}{36}\right)58$ K·FT $= 53.2 < 55.9$ K·FT (5% OVER STRESS)

$(R_L = R_R = 9.4^K)$

B) GIRDER:



$P = \frac{.67(19.5)}{2} + 3.75 = 10.3^K$ (SLAB WT + LL) (R_{ABOVE})

$W_{WALL} = .040(3)(14) + \frac{19}{2}(.020) = 2.35$ KLF

$W_{ROOF} = .93\left[\frac{12}{16}\right] = 0.70$ KLF

$M_{MAX} = \left[10.3(4.16)\right] + \frac{3.05(12.5)^2}{10} = 90.5$ K·FT

SEE OVERCALC SECTION PROPERTIES: $S_x = 43\ in^3$, (PG 5)

$M_{ALLOW} = F_b S_x = \frac{33(.66)43}{12} = 78.1$ K·FT (16% OVERSTRESS)

NG

(THIS GIRDER NEEDS TO BE REINFORCED - TRY WELDING W6x15 TO UNDERSIDE OF WF10'S: NEW $S_x = 50.7\ in^3$; ←

$= \frac{50.7}{43}(78.1) = 92.1$ K·FT > 90.5 K·FT OK (SEE pp 4A & 4B)

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III WINNERS CIRCLE
ALBANY, NY 12205

Title : UNITED PLATING Job # 6808
Dsgnr: JLB Date: 9:50AM, 3 FEB 98
Description : SHORING CALCULATIONS

Scope :

Built-Up Section Properties

General Information

Description : 6TH FLOOR GIRDER

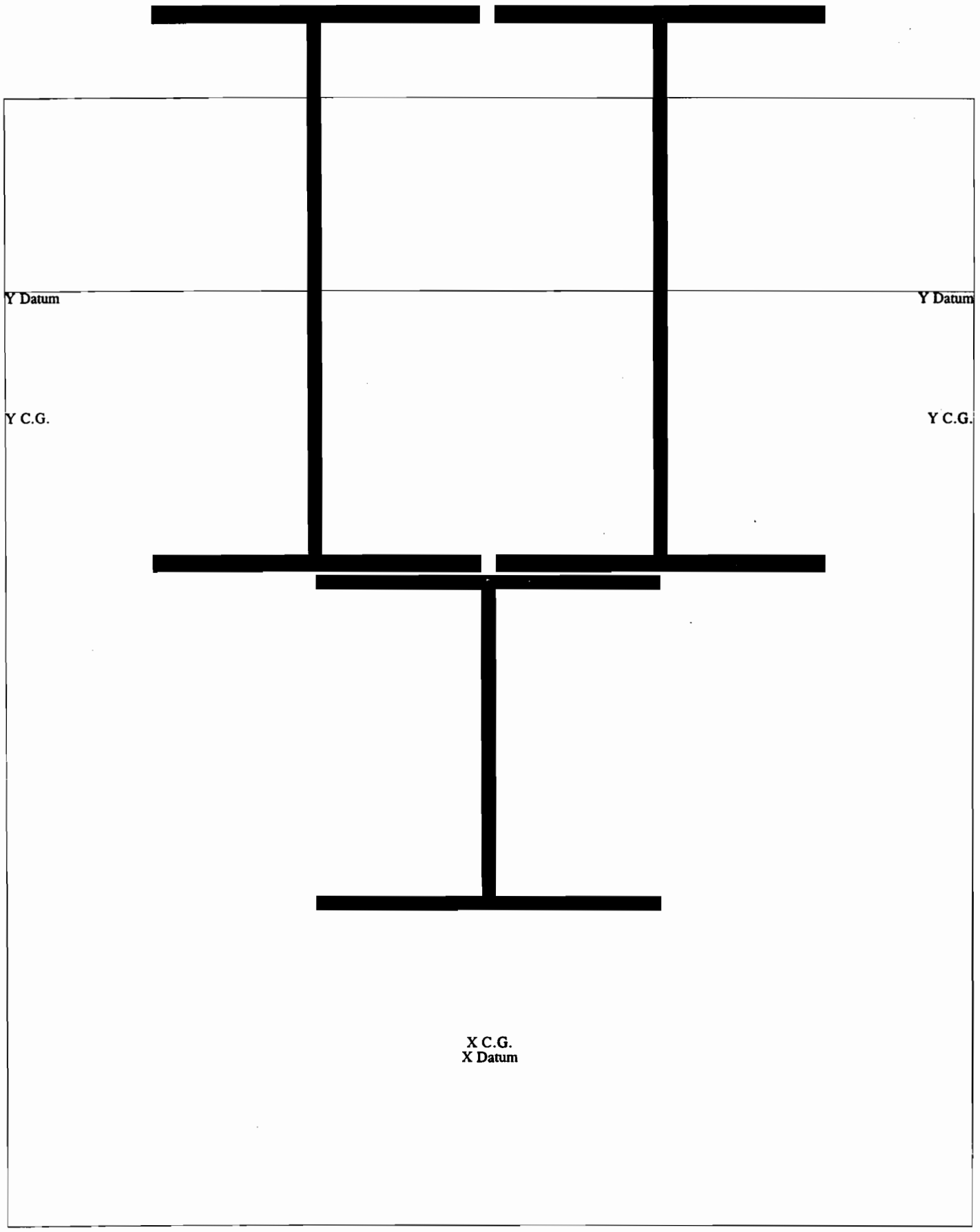
Steel Shapes

#1:	Name	WF10X21	Angle	0 deg	Xcg	2.88 in	Ycg	4.95 in
			Depth	9.90 in	Width	5.75 in	Area	6.19 in2
		Ixx 106.30 in4	Iyy	9.70 in4	Xbar	3.00 in	Ybar	0.00 in
#2:	Name	WF10X21	Angle	0 deg	Xcg	2.88 in	Ycg	4.95 in
			Depth	9.90 in	Width	5.75 in	Area	6.19 in2
		Ixx 106.30 in4	Iyy	9.70 in4	Xbar	3.00 in	Ybar	0.00 in
#3:	Name	W6X15	Angle	0 deg	Xcg	3.00 in	Ycg	3.00 in
			Depth	5.99 in	Width	5.99 in	Area	4.43 in2
		Ixx 29.10 in4	Iyy	9.32 in4	Xbar	0.00 in	Ybar	8.00 in

Summary...

Total Area	16.810 in2	Ixx	450.50 in4	r xx	2.887 in
		Iy	140.14	r yy	5.177
X cg Dist.	0.00 in				
Y cg Dist.	2.11 in	Edge Distances from CG.			
		+X	5.870 in	S left	23.854 in3
		-X	-5.875	S right	23.874
		+Y	7.058	S top	63.826
		-Y	-8.887	S bottom	50.694

X Datum
X C.G.



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GENERAL SECTION PROPERTIES

6TH FLOOR GIRDER (EXISTING)

PLATE & PIPE SHAPES

ID	Plates Height	Plates Width	Pipes Radius	Pipes Thickness	Distance to C.G. X	Distance to C.G. Y	Area
AISC Shape	AISC Section		Depth	Width	Distance to C.G. X	Distance to C.G. Y	Angle
#1	wf10x21		9.900	5.750 in	-2.900	0.000 in	0.00 °
#2	wf10x21		9.900	5.750 in	2.900	0.000 in	0.00 °

CALCULATED PROPERTIES

Section Area	=	12.380 in2	Measured from bottom & left:			Fiber Distances:	
			X-Dist. To CG	=	0.000 in	X-Left	= -5.775 in
I-xx	=	212.600 in4	Y-Dist. To CG	=	0.000 in	X-Right	= 5.775 in
I-yy	=	123.516 in4				Y-Top	= 4.950 in
			r-xx	=	4.144 in	Y-Bottom	= -4.950 in
Sx : Top	=	42.949 in3	r-yy	=	3.159 in		
Sx : Bottom	=	42.949 in3					
Sy : Left	=	21.388 in3					
Sy : Right	=	21.388 in3					

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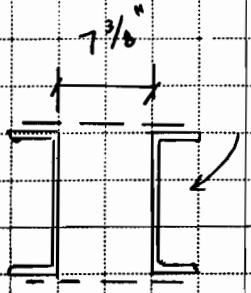
SHEET 6 OF 58
DATE 11/12/97
PROJ. NO. 6808

SUBJECT COL ANALYSIS - 5TH - 6TH FLR



$\ell = 12'-0"$

P = LOAD ON COL: $\frac{9.4^K}{2} + \frac{9.4^K}{2} + 2.35\left(\frac{13.5'}{2}\right) + 0.70\left(\frac{13.5}{2}\right)$

$P = 30.0^K$

AREA OF COL: $12.18\ in^2 = A$

$r_y = 4.46\ in$

$\frac{K\ell}{r} = \frac{1.0(12)(12)}{4.46} = 32.3$

$C_c = \left(2\pi^2 E/F_y\right)^{\frac{1}{2}} = \left(\frac{2\pi^2(29{,}000{,}000)}{33{,}000}\right)^{\frac{1}{2}} = 132$

$C_c > \frac{K\ell}{r}$ ∴ AISC E2-1.

$$F_a = \frac{\left[\ \right] - \frac{(32.3)^2}{2(132)^2}\Big]33}{\frac{5}{3} + \frac{3(32.3)}{8(132)} - \frac{(32.3)^3}{8(132)^3}} = \frac{18.2\ ksi}{2.0^*} = 9.1\ ksi$$

$f_a = 30/12.18\ in^2 = 2.5\ ksi < 9.1\ ksi$ OK

* NOTE: AN ADDITIONAL FACTOR OF SAFETY OF 2.0 HAS BEEN INCORPORATED INTO THE ALLOWABLE COMPRESSIVE STRESS OF THE EXISTING BUILDING COLUMNS DUE TO: LOOSE OR BENT LACING PLATES & COLUMNS BEING OUT OF PLUMB.

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SHEET 7 OF 58
DATE 11/4/97
PROJ. NO. 6808.4182

SUBJECT SHORING LOADS

5TH LEVEL ROOF LOAD

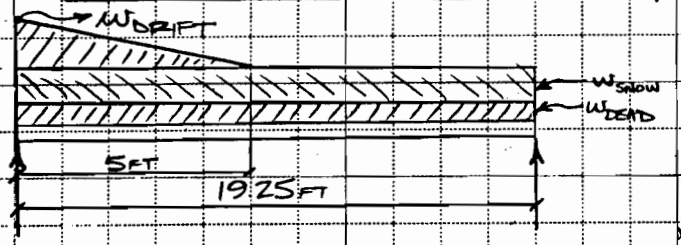
LIVE LOAD

SNOW 45 PSF NYSBC
SNOW DRIFT (SEE PG 4) ASCE 7-95

DEAD LOAD

ROOF CONSTRUCTION SIMILAR TO 6TH LEVEL ROOF 22.5 PSF (PG 1)

TYPICAL ROOF JOIST LOADING



$W_{DRIFT} = \left(23.9\frac{lbs}{FT^2}\right)(1.33\,FT) = 0.03\frac{K}{FT}$

$W_{SNOW} = \left(45\frac{lbs}{FT^2}\right)(1.33\,FT) = 0.06\frac{K}{FT}$

$W_{DEAD} = \left(22.5\frac{lbs}{FT^2}\right)(1.33\,FT) = 0.03\frac{K}{FT}$

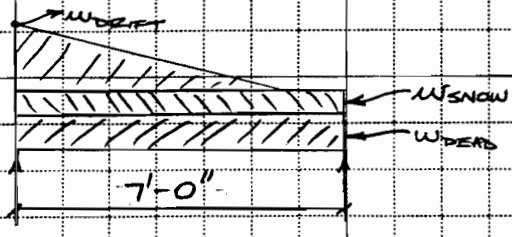
$+\quad 91.4\frac{lbs}{FT^2}$ W/ DRIFT LOAD

(SEE PG 2)

*$M_{MAX} = 4.23$ K-FT $> M_{ALLOW} = 1.24$ K-FT NG

(*SEE ENERCALC RESULTS PG 9)

TRY SHORING LINE AT 7'-0"



*$M_{MAX} = 0.52$ K-FT $< M_{ALLOW} = 1.24$ K-FT OK

(*SEE ENERCALC RESULTS PG 10)

FOR 5TH FLR ROOF USE TWO ROWS OF SHORING APPROXIMATELY 7'-0" O.C. (WOOD BM ROOF AREA)

1ST LINE OF SHORING (NEAR DRIFT AREA) → $W_{5TH\,FLR} = \left(91.4\frac{lbs}{FT^2}\right)(3.21\,FT) + \left(70\frac{lbs}{FT^2}\right)(3.21\,FT) = 518\frac{lbs}{FT}$

2ND LINE OF SHORING → $W_{5TH\,FLR} = \left(70\frac{lbs}{FT^2}\right)(7.0\,FT) = 490\frac{lbs}{FT}$

USE $W_{5TH} = 500\frac{lbs}{FT}$

USE $W_{5TH} = 550\frac{lbs}{FT}$ DRIFT AREA

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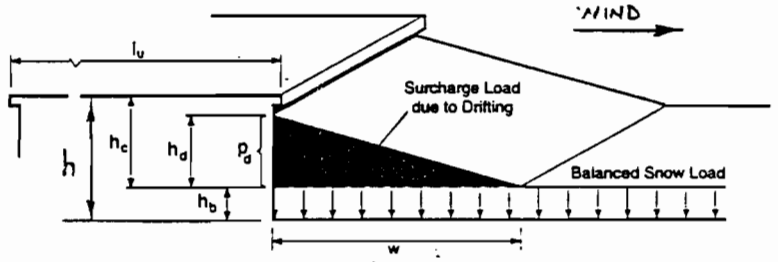
SHEET 8 OF 58 | DATE 11/4/97 | PROJ. NO. 6808.41.82

SUBJECT 5TH LEVEL ROOF DRIFT : SHORING LOADS

SNOW DRIFT LOAD - LEEWARD STE=

REF : ASCE 7-95



h = 13 FT

l_u = 25 FT

NOTE : IF l_u ≤ 25 FT, USE l_u = 25 FT IN EQUATION FOR h_d BELOW.

LOCATION (CITY, STATE) : SCHENECTADY, NY

CATEGORY (TABLE 1-1) = II

TERRAIN (EXPOSURE) CATEGORY (6.5.3) = C

P_g = GROUND SNOW (FIG. 7-1) = 40 PSF

C_e = EXPOSURE FACTOR (TABLE 7-2) = 1.0

C_t = THERMAL FACTOR (TABLE 7-3) = 1.2

I = IMPORTANCE FACTOR (TABLE 7-4) = 1.0

P_f = FLAT ROOF SNOW LOAD (SLOPE ≤ 5°)

P_{f_1} = 0.7 C_e C_t I P_g = 33.6 PSF

FOR P_g ≤ 20 PSF, $P_{f_{MIN}} = P_g \cdot I$ = — PSF

FOR P_g ≥ 20 PSF, $P_{f_{MIN}} = 20 \cdot I$ = 20 PSF

P_f = LARGER VALUE OF P_{f_1} AND $P_{f_{MIN}}$ = 33.6 PSF

P_s = RAIN-ON-SNOW SURCHARGE = 0 PSF

[WHERE P_g ≤ 20 PSF & SLOPE < 1/2"/FT, P_s = 5 PSF
WHERE P_g ≥ 20 PSF OR SLOPE ≥ 1/2"/FT, P_s = 0]

$P_{f_2} = P_{f_1} + P_s$ = 33.6 PSF

P_f' = LARGER VALUE OF P_{f_2} AND $P_{f_{MIN}}$ = 33.6 PSF

γ = DRIFT DENSITY

$\gamma_1 = 0.13 P_g + 14$ = 19.2 PCF

γ = LOWER VALUE OF γ_1 AND 30 PCF = 19.2 PCF

$h_b = P_f / \gamma$ = 1.75 FT

$h_c = h - h_b$ = 11.25 FT

[IGNORE DRIFT IF h_c / h_c < 0.2]

h_d = HEIGHT OF SNOW DRIFT

$h_d = \left[0.43 \sqrt[3]{l_u \sqrt[4]{P_g + 10}}\right] - 1.5$ = 1.84 FT

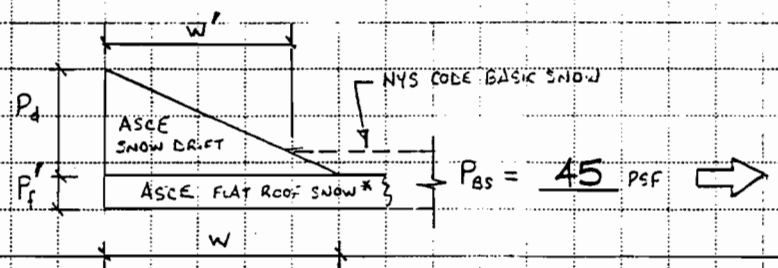
h_d = LOWER VALUE OF h_d AND h_c = 1.84 FT

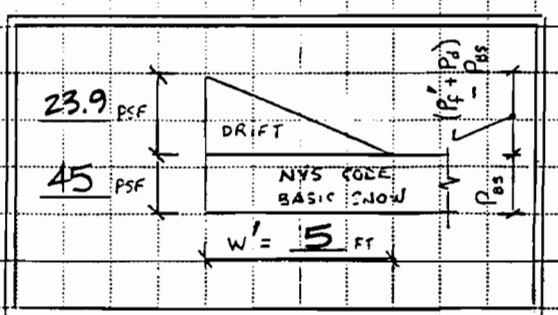
$P_d = h_d \cdot \gamma$ = 35.3 PSF

FOR $h_d \leq h_c$, $w = 4 \cdot h_d$ = 7.36 FT

FOR $h_d \geq h_c$, $w = 4 \cdot (h_d)^2 / h_c$ = — FT

$P_c' + P_d$ = 68.9 PSF





$$w' = \frac{\left[(P_f' + P_d) - (P_{BS})\right] \cdot w}{P_d} = 4.98 \text{ FT}$$

* P_f' INCLUDES RAIN-ON-SNOW SURCHARGE P_s VALUE

SINGLE SPAN BEAM ANALYSIS

UNITED PLATING BLDG

5TH LEVEL ROOF JOIST (W/OUT SHORING)

SPAN DATA			MEMBER DATA			
Center Span	=	19.25 ft	I:Inertia	=	1.000 in4	All distances for load locations refer
Left Cantilever	=	0.00 ft	E:Elastic Modulus	=	1 psi	to left support. Neg ('-') distances
Right Cantilever	=	0.00 ft	End Fixity	:	Pin/Pin	means load is on left cantilever

UNIFORM LOADS

Center Span #1 = 0.09 k/ft

TRAPEZOIDAL LOADS

1: 0.030k/ft @ Left, 0.000k/ft @ Right, Start @ 0.00ft -> 5.00ft

CONCENTRATED LOADS

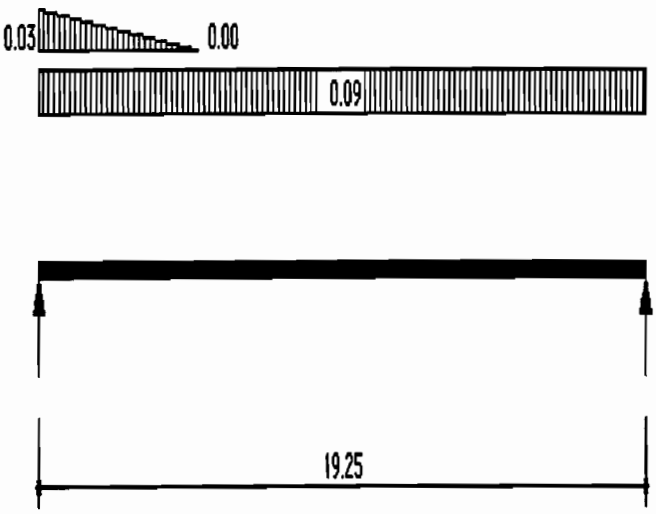
APPLIED MOMENTS

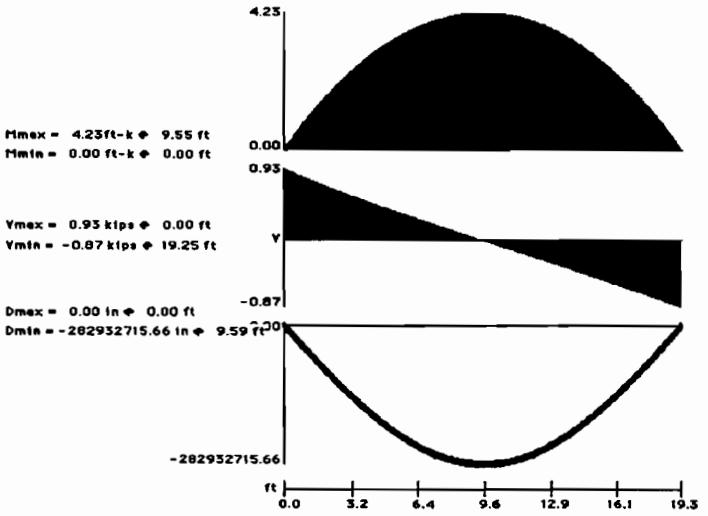
SUMMARY

Moments			Shears			Deflections
Max. Span Moment	=	4.23 k-ft	Left Support	=	0.93 k	Max. @ Span = -282932715.661 in at 9.59 ft
Max. Mom. Location	=	9.55 ft	Right Support	=	0.87 k	
Min. Span Moment	=	0.00 k-ft	**Reactions**			
Min. Mom. Location	=	0.00 ft	Left Support	=	0.93 k	
Max @ Left Support	=	0.00 k-ft	Right Support	=	0.87 k	
Max @ Right Support	=	0.00 k-ft				
MAXIMUM MOMENT	=	4.23 k-ft				

Query Values

Between Supports @ X = 0.00 ft, M = 0.00 k-ft, V = 0.935 k, Defl. = 0.000 in





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ALBANY, NY 12205

Single Span Beam Analysis

Description : 5TH LEVEL ROOF JOIST (W/SHORING)

General Information

Center Span	7.00 ft	Moment of Inertia	1.000 in4
Left Cantilever	ft	Elastic Modulus	1 ksi
Right Cantilever	ft	Beam End Fixity	Pin-Pin

Uniform Loads

On Center Span...		On Left Cantilever...		On Right Cantilever...	
# 1	0.090 k/ft	# 1	k/ft	# 1	k/ft

Trapezoidal Loads

Magnitude @ Left	0.030 k/ft	k/ft	k/ft	k/ft
Magnitude @ Right	k/ft	k/ft	k/ft	k/ft
Dist. To Left Side	ft	ft	ft	ft
Dist. To Right Side	5.000 ft	ft	ft	ft

Query Values

Center Location	0.000 ft	**Left Cant**	0.000 ft	**Right Cant**	0.000 ft
Moment	0.00 k-ft		0.00 k-ft		0.00 k-ft
Shear	0.37 k		0.00 k		0.00 k
Deflection	0.00000 in		0.00000 in		0.00000 in

Summary

Moments...				Shears...		Reactions...	
Max + @ Center	0.61 k-ft	a	3.39 ft	@ Left	0.37 k	@ Left	0.37 k
Max - @ Center	0.00 k-ft	at	0.00 ft	@ Right	0.33 k	@ Right	0.33 k
@ Left Cant	0.00 k-ft			**Deflections...**			
@ Right Cant	0.00 k-ft			@ Center	-5389.474 in at 3.48 ft		
Maximum =	**0.61** k-ft			@ Left Cant.	0.000 in at 0.00 ft		
				@ Right Cant	0.000 in at 0.00 ft		

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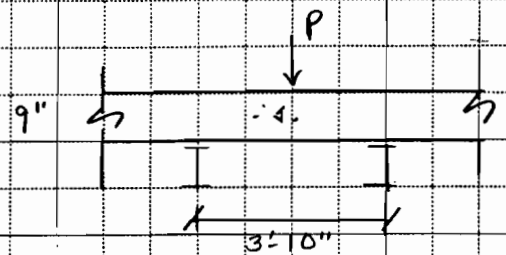
SHEET 11 OF 58
DATE 11/17/97
PROJ. NO. 6800

SUBJECT ANALYSIS OF EXIST CONC. SLAB - 5TH FLR

5TH FLOOR - SHORING LOADS ON:



LL = 30 PSF
LINE LOAD = 550 PLF MAX

- ASSUME SHORING IS AT 7'-6" O.C. :

$550(7.5) = 4.13^{K} = P$

(ASSUME d = 7")

$A_s = 0.27 in^2/FT$

$a = 0.35''$, $Z = 7 - \frac{.35}{2} = 6.83''$

$\phi M_n = \frac{0.27(40)(6.83)}{12} = 6.14 K\cdot FT$

$\therefore M_n = 6.14 K\cdot FT > 5.83 K\cdot FT$ OK

$M_{u\,MAX\,LL} = \frac{13}{64}(4.13)(3.83)(1.7) = 5.5^{K\cdot FT}$

$M_{u\,MAX\,DL} = \left[.107\left(\frac{9}{12}\right)(150)(3.83)^2(1.4)\right] + \left[.107(.030)(3.83)^2(1.7)\right] =$

$= (.247 + .080)$

$M_{u\,TOTAL} = 5.5 + .247 + 0.080$
$= 5.83 K\cdot FT$

IF COL SPACING IS DECREASED TO 7'-0",

$P = (550\ \frac{lbs}{FT})(7_{FT}) = 3.85^{K}$

$M_{u\,TOTAL} = \frac{3.85}{4.13}(5.5) + .247 + 0.080 = 5.45 K\cdot FT < 6.14 K\cdot FT$ OK

MAX SPACING = 7'-0"

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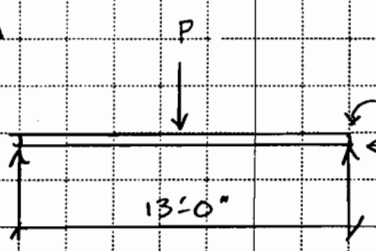
SHEET 12 OF 58
DATE 11/17/97
PROJ. NO. 6808

SUBJECT ANALYSIS OF EXIST STL. BMS - 5TH FLR

A) BM



$P = 4.13^K$

$w = 3.83\left(\frac{9}{12}(.150) + 0.030\right) = .55_K$

SAY ASB 9 x 19.75

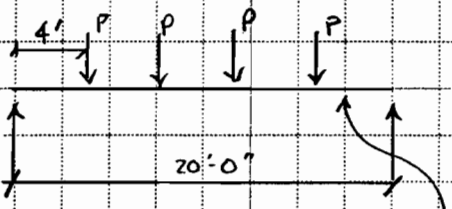
$$m_{MAX} = \frac{4.13(13)}{4} + \frac{.55(13)^2}{8} = 25.0 \text{ K-FT}$$

m_{AVAIL}: $S_x = 17.8 \text{ in}^3$

$F_b = 0.66(33) = 21.8 \text{ KSI}$

$$m_{AVAIL} = \frac{21.8(17.8)}{12} = 32.3 \text{ K-FT} > 25.0 \text{ K-FT} \quad \underline{OK}$$

B) GIRDER:



$P = 4.13 + .55(13) = 11.28^K$

$m_{MAX} = 23^K(4) + 11.28^K(4) = 137^{K\text{-FT}}$

SAY W21X44

$R_L = 23^K = R_R$

$S_x = 81.6 \text{ in}^3$

$$F_b S_x = \frac{.66(33)(81.6)}{12} = 148 \text{ K-FT} > 137 \text{ K-FT} \quad \underline{OK}$$

$R_L = R_R = 11.28^K(2) = 22.6^K$

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SHEET 13 OF 58
DATE 11/19/97
PROJ. NO.

SUBJECT COL ANALYSIS - 4TH - 5TH FLR

$\ell = 15' \pm$

P_5 = LOAD ON COL. (FROM 5TH FLR)

$23^K + (.55^{KLF} \times 13) = 30^K$

(SEE 5TH-6TH FLR COL. ANALYSIS)

$A = 12.18 in^2$

$r_y = 4.46 in$

$P_5 + P_6 = P_{TOTAL} = 30^K + 30^K = 60^K$

$$\frac{kl}{r} = \frac{1.0(15)(12)}{4.46} = 40.4$$

$$C_c = \left(\frac{2\pi^2 29{,}000{,}000}{33000}\right)^{\frac{1}{2}} = 132 > 40.4 \therefore$$

$$F_a = \frac{\left[1 - \frac{(40.4)^2}{2(132)^2}\right]33}{\frac{5}{3} + \frac{3(40.4)}{8(132)} - \frac{(40.4)^3}{8(132)^3}} = \frac{17.7\ ksi}{2.0\ (F.S.)} = 8.9\ ksi$$

(REF P 6)

$f_a = 60^K / 12.18_{in^2} = 4.9\ ksi < 8.9\ ksi$ O.K.

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SHEET 14 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS

4TH LEVEL ROOF LOAD

LIVE LOAD

SNOW 45 PSF NYSBC
SNOW DRIFT (SEE PG 8) ASCE 7-95

DEAD LOAD

ROOF CONSTRUCTION SIMILAR TO 6TH LEVEL ROOF 22.5 PSF (PG 1)

ASSUME → NEW ROOF MEMBRANE PLACED OVER ORIGINAL ROOF CONSTRUCTION

ROOF MEMBRANE	2 PSF
INSULATION	0.5 PSF
+	
	25 PSF

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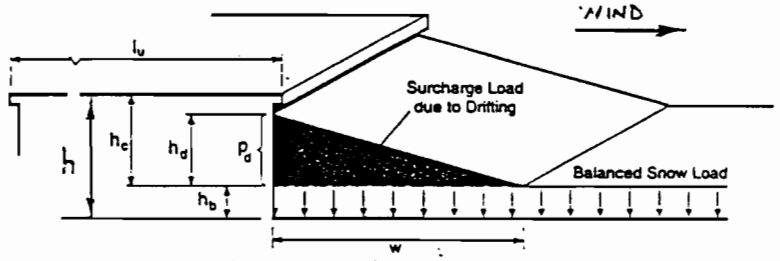
SHEET 15 OF 58 | DATE 11/4/97 | PROJ. NO. 6808.41.82

SUBJECT 4TH LEVEL ROOF DRIFT

SNOW DRIFT LOAD - LEEWARD STEP

REF: ASCE 7-95



h = 15.25 FT

l_u = 40 FT

NOTE: IF l_u < 25 FT, USE l_u = 25 FT IN EQUATION FOR h_d BELOW

LOCATION (CITY, STATE): SCHENECTADY, NY

CATEGORY (TABLE 1-1) = II

TERRAIN (EXPOSURE) CATEGORY (B, C, D) = C

P_g = GROUND SNOW (FIG. 7-1) = 40 PSF

C_e = EXPOSURE FACTOR (TABLE 7-2) = 1.0

C_t = THERMAL FACTOR (TABLE 7-3) = 1.2

I = IMPORTANCE FACTOR (TABLE 7-4) = 1.0

P_f = FLAT ROOF SNOW LOAD (SLOPE ≤ 5°)

$P_{f_1} = 0.7\, C_e\, C_t\, I\, P_g$ = 33.6 PSF

FOR $P_g \le 20$ PSF, $P_{f_{MIN}} = P_g \cdot I$ = — PSF

FOR $P_g \ge 20$ PSF, $P_{f_{MIN}} = 20 \cdot I$ = 20 PSF

P_f = LARGER VALUE OF P_{f_1} AND $P_{f_{MIN}}$ = 33.6 PSF

P_s = RAIN-ON-SNOW SURCHARGE = 0 PSF

[WHERE $P_g \le 20$ PSF & SLOPE < 1/2"/FT, P_s = 5 PSF
WHERE $P_g \ge 20$ PSF OR SLOPE ≥ 1/2"/FT, P_s = 0]

$P_{f_2} = P_{f_1} + P_s$ = 33.6 PSF

P_f' = LARGER VALUE OF P_{f_2} AND $P_{f_{MIN}}$ = 33.6 PSF

γ = DRIFT DENSITY

$\gamma_1 = 0.13\, P_g + 14$ = 19.2 PCF

γ = LOWER VALUE OF γ_1 AND 30 PCF = 19.2 PCF

$h_b = P_f / \gamma$ = 1.75 FT

$h_c = h - h_b$ = 13.5 FT

[IGNORE DRIFT IF $h_d / h_c < 0.2$]

h_d = HEIGHT OF SNOW DRIFT

$h_{d_1} = \left[0.43 \sqrt[3]{l_u} \sqrt[4]{P_g + 10}\right] - 1.5$ = 2.4 FT

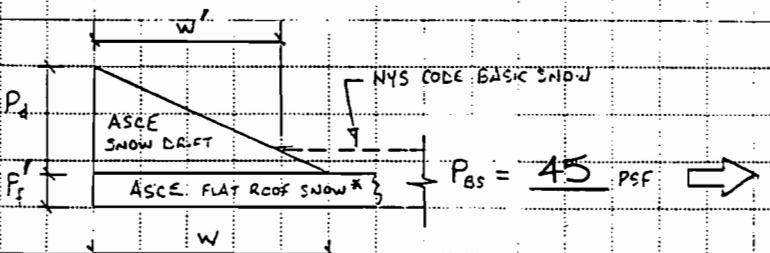
h_d = LOWER VALUE OF h_{d_1} AND h_c = 2.4 FT

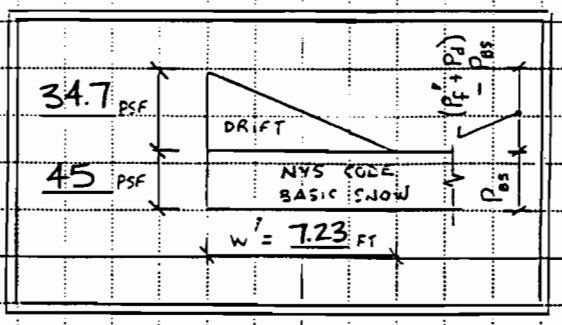
$P_d = h_d \cdot \gamma$ = 46.1 PSF

FOR $h_d \le h_c$, $w = 4 \cdot h_d$ = 9.6 FT

FOR $h_d \ge h_c$, $w = 4 \cdot (h_d)^2 / h_c$ = — FT

$P_c' + P_d$ = 79.7 PSF





$$w' = \frac{\left[(P_f' + P_d) - (P_{BS})\right] \cdot w}{P_d} = 7.23 \text{ FT}$$

* P_f' INCLUDES RAIN-ON-SNOW SURCHARGE P_s VALUE

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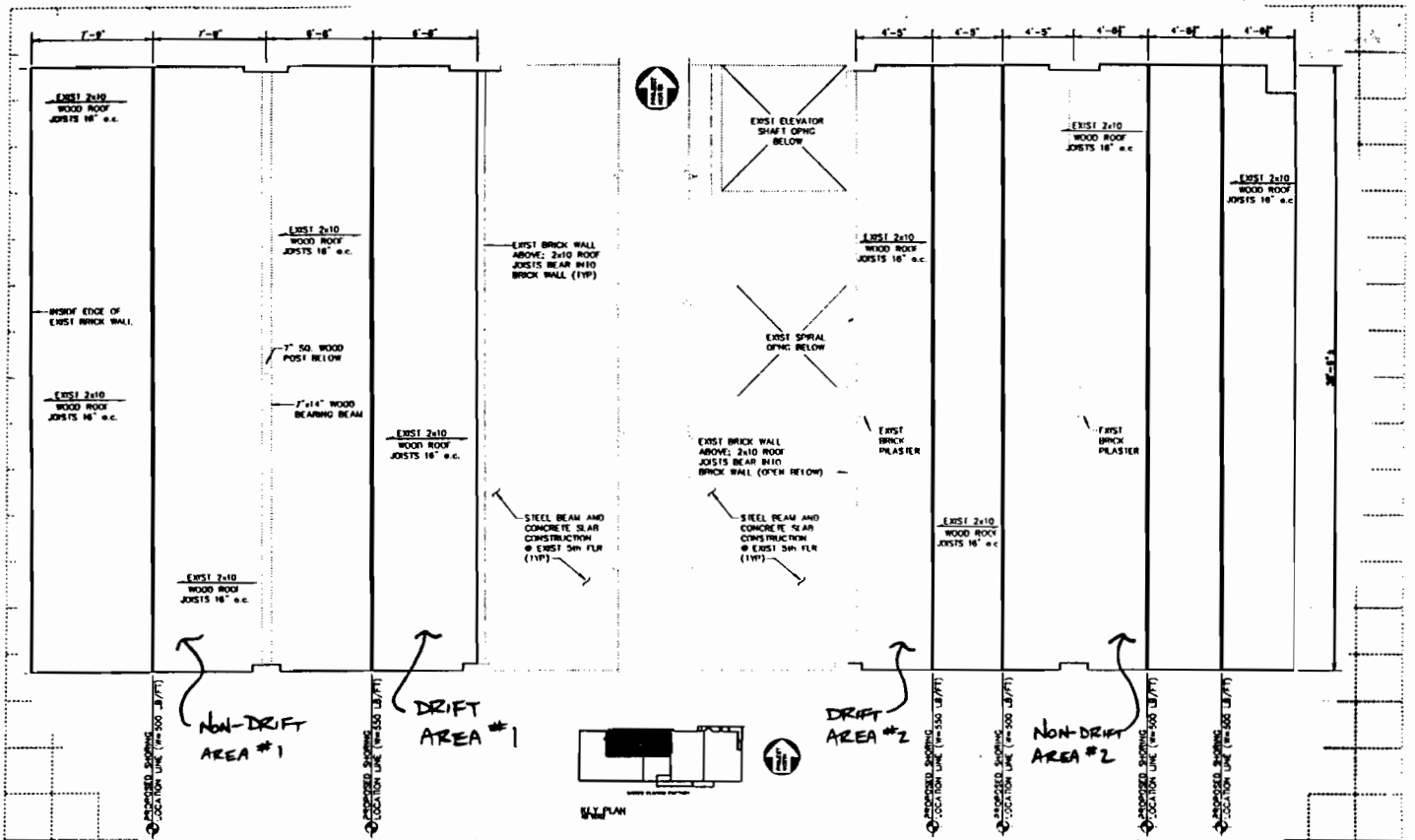
SHEET 16 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

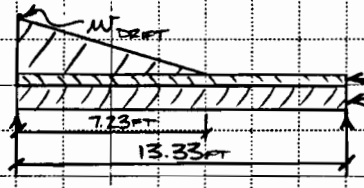
SUBJECT 4TH LEVEL CONT. SHORING - LOADS



4th LEVEL STORAGE RM ROOF FRAMING/SHORING PLAN
SCALE: 1/4"=1'-0"
NOTES:
1. TOP OF EXIST JOIST ELEV=13'-3"± A.F.F. @ WEST BEARING WALL (TYP)
TOP OF EXIST JOIST ELEV=14'-6"± A.F.F. @ EAST BEARING WALL (TYP)
2. 4th LEVEL F.F. ELEV=315'-9"±

4th LEVEL STORAGE RM ROOF FRAMING/SHORING PLAN
SCALE: 1/4"=1'-0"
NOTES:
1. TOP OF EXIST JOIST ELEV=14'-3"± A.F.F. @ WEST BEARING WALL (TYP)
TOP OF EXIST JOIST ELEV=13'-6"± A.F.F. @ EAST BEARING WALL (TYP)
2. 4th LEVEL F.F. ELEV=315'-9"±

DRIFT AREA #1 (TYPICAL ROOF JOIST)



$w_{DRIFT} = \left(34.7\frac{lbs}{FT^2}\right)\left(1.33FT\right) = 0.05\frac{K}{FT}$

$w_{SNOW} = \left(45\frac{lbs}{FT^2}\right)\left(1.33FT\right) = 0.06\frac{K}{FT}$

$w_{DEAD} = \left(25\frac{lbs}{FT^2}\right)\left(1.33FT\right) = 0.033\frac{K}{FT}$

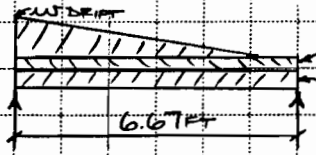
$+\left(104.7\frac{lbs}{FT^2}\right)$

$*M_{MAX} = 2.29 K\text{-}FT > M_{ALLOW} = 1.24 K\text{-}FT$ (SEE PG 2)

NG

*SEE ENERCALC PG 17

TRY SHORING LINE AT 6'-8"



$*M_{MAX} = 0.66 K\text{-}FT < M_{ALLOW} = 1.24 K\text{-}FT$ OK

*SEE ENERCALC PG 18

$w_{4TH\ DRIFT\#1} = \left(104.7\frac{lbs}{FT^2}\right)\left(3.33FT\right) + \left(70\frac{lbs}{FT^2}\right)\left(3.33FT\right) = 582\frac{lbs}{FT}$

SHORING LINE AT 6'-8" OK

$w_{4TH\ DRIFT\#1} = 600\frac{lbs}{FT}$

SINGLE SPAN BEAM ANALYSIS

UNITED PLATING BLDG

4TH LEVEL ROOF JOIST – (DRIFT AREA #1 W/OUT SHORING)

SPAN DATA

Center Span	=	13.33 ft
Left Cantilever	=	0.00 ft
Right Cantilever	=	0.00 ft

MEMBER DATA

I:Inertia	=	1.000 in4
E:Elastic Modulus	=	1 psi
End Fixity	:	Pin/Pin

All distances for load locations refer to left support. Neg ('-') distances means load is on left cantilever

UNIFORM LOADS

Center Span #1	=	0.09 k/ft

TRAPEZOIDAL LOADS

1: 0.050k/ft @ Left, 0.000k/ft @ Right, Start @ 0.00ft -> 7.23ft

CONCENTRATED LOADS

APPLIED MOMENTS

SUMMARY

Moments

Max. Span Moment	=	2.29 k-ft
Max. Mom. Location	=	6.35 ft
Min. Span Moment	=	0.00 k-ft
Min. Mom. Location	=	0.00 ft
Max @ Left Support	=	0.00 k-ft
Max @ Right Support	=	0.00 k-ft
MAXIMUM MOMENT	=	2.29 k-ft

Shears

Left Support	=	0.77 k
Right Support	=	0.65 k

Reactions

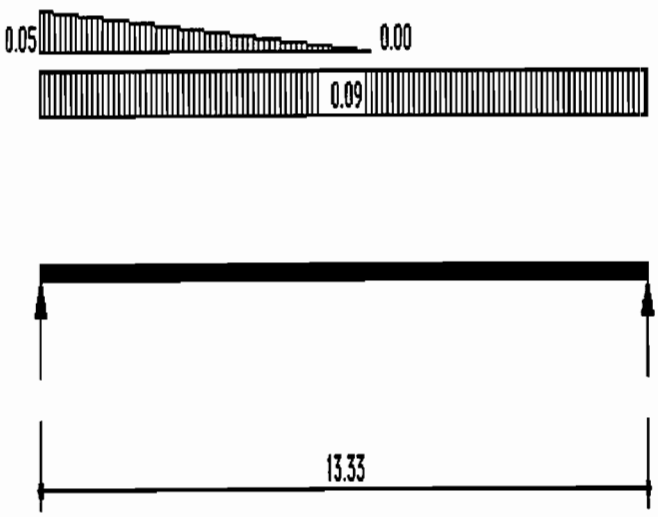
Left Support	=	0.77 k
Right Support	=	0.65 k

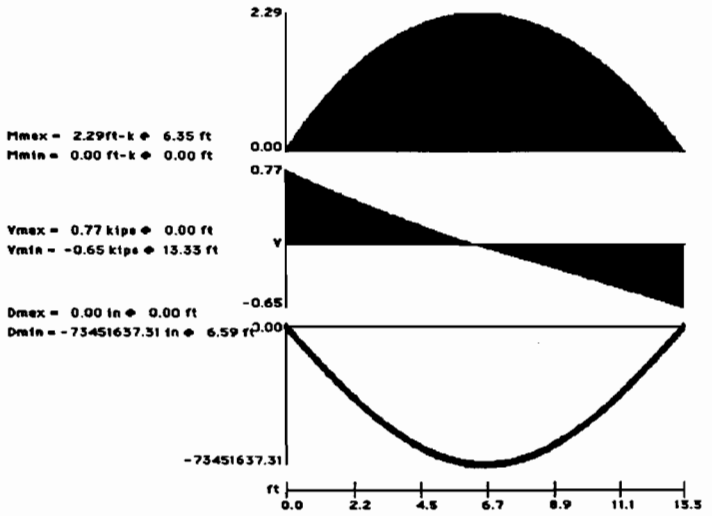
Deflections

Max. @ Span = -73451637.310 in at 6.59 ft

Query Values

Between Supports @ X = 0.00 ft, M = 0.00 k-ft, V = 0.768 k, Defl. = 0.000 in





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UNITED PLATING
ROOF BM ANALYSIS
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SINGLE SPAN BEAM ANALYSIS

UNITED PLATING BLDG

4TH LEVEL ROOF JOIST – (DRIFT AREA #1 W/ SHORING)

SPAN DATA

Center Span	=	6.67 ft
Left Cantilever	=	0.00 ft
Right Cantilever	=	0.00 ft

MEMBER DATA

I:Inertia	=	1.000 in4
E:Elastic Modulus	=	1 psi
End Fixity	:	Pin/Pin

All distances for load locations refer to left support. Neg ('-') distances means load is on left cantilever

UNIFORM LOADS

Center Span #1	=	0.09 k/ft

TRAPEZOIDAL LOADS

1: 0.050k/ft @ Left, 0.000k/ft @ Right, Start @ 0.00ft -> 6.67ft

CONCENTRATED LOADS

APPLIED MOMENTS

SUMMARY

Moments

Max. Span Moment	=	0.66 k-ft
Max. Mom. Location	=	3.21 ft
Min. Span Moment	=	0.00 k-ft
Min. Mom. Location	=	0.00 ft
Max @ Left Support	=	0.00 k-ft
Max @ Right Support	=	0.00 k-ft
MAXIMUM MOMENT	=	0.66 k-ft

Shears

Left Support	=	0.42 k
Right Support	=	0.37 k

Reactions

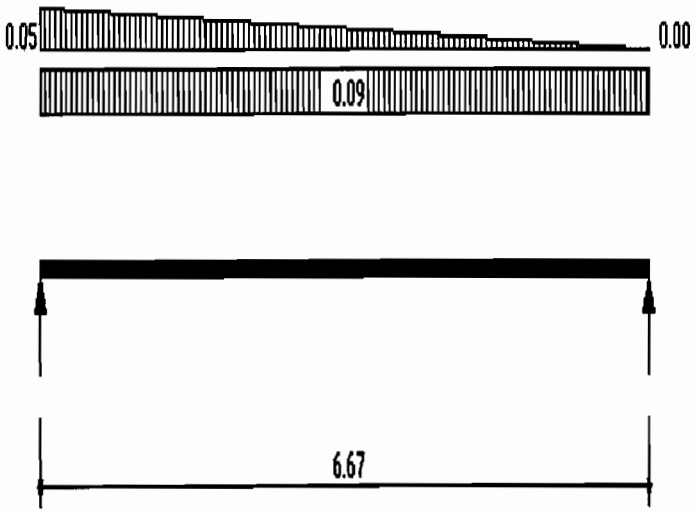
Left Support	=	0.42 k
Right Support	=	0.37 k

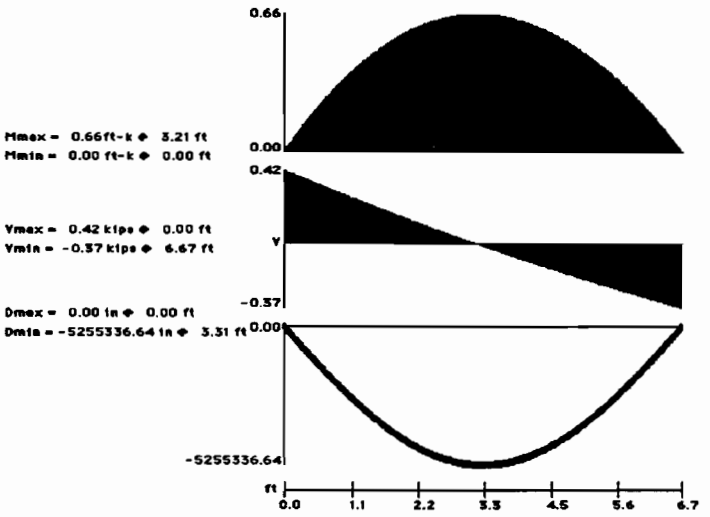
Deflections

Max. @ Span = -5255336.644 in at 3.31 ft

Query Values

Between Supports @ X = 0.00 ft, M = 0.00 k-ft, V = 0.421 k, Defl. = 0.000 in





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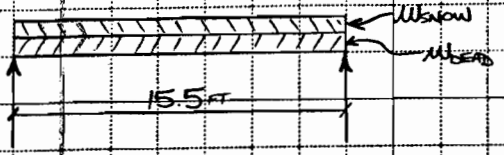
SHEET 19 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT 4TH LEVEL CONT.: SHORING LOADS

NON-DRIFT AREA #1



$w_{SNOW} = 0.06 \frac{K}{FT}$

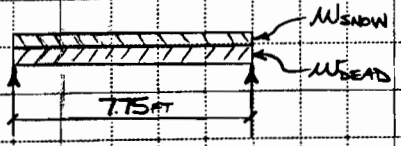
$w_{DEAD} = 0.033 \frac{K}{FT}$

$$M_{MAX} = \frac{wl^2}{8} = \frac{(0.093 \frac{K}{FT})(15.5 FT)^2}{8} = 2.79 \text{ K-FT}$$

$M_{MAX} = 2.8 \text{ K-FT} > M_{ALLOW} = 1.24 \frac{K}{FT}$ (SEE PG 2)

NG

TRY SHORING LINE AT 7'-9"



$$M_{MAX} = \frac{wl^2}{8} = \frac{(0.093 \frac{K}{FT})(7.75 FT)^2}{8} = 0.698 \text{ K-FT}$$

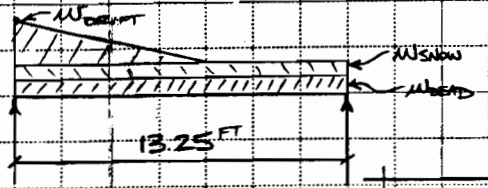
$M_{MAX} = 0.7 \text{ K-FT} < M_{ALLOW} = 1.24 \frac{K}{FT}$ OK

FOR UNIFORMITY USE SHORING LINE AT 7'-0"

$w_{4TH\ NON-DRIFT\ \#1} = (70 \frac{lbs}{FT^2})(7.75 FT) = 543 \frac{lbs}{FT}$

$w_{4TH\ NON-DRIFT\ \#1} = 550 \frac{lbs}{FT}$

DRIFT AREA #2



$w_{DRIFT} = 0.05 \frac{K}{FT}$

$w_{SNOW} = 0.06 \frac{K}{FT}$

$w_{DEAD} = 0.033 \frac{K}{FT}$

(SEE PG 16)

ASSUME DRIFT AREA #2 = DRIFT AREA #1
THEREFORE SHORING AT 4'-5" OK

$w_{4TH\ DRIFT\ \#2} = (104.7 \frac{lbs}{FT^2})(4.42 FT) = 463 \frac{lbs}{FT}$

$w_{4TH\ DRIFT\ \#2} = 500 \frac{lbs}{FT}$

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SHEET 20 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT 4TH LEVEL CONT. : SHORING LOADS

NON-DRIFT AREA #2

BY INSPECTION OF NON-DRIFT AREA #1, SHORING LINE AT 4'-5" OK FOR NON-DRIFT AREA #2

$$W_{4TH\ NON\text{-}DRIFT\ \#2} = \left(70\tfrac{lbs}{ft^2}\right)\left(4.75\,ft\right) = 333\tfrac{lbs}{FT}$$

$$W_{4TH\ NON\text{-}DRIFT\ \#2} = 500\tfrac{lbs}{FT}$$

4TH FLOOR - SHORING LOADS (EAST)
(STORAGE RM)

NOTE: FLOOR FRAMING SIMILAR TO 4TH FLOOR (WEST), ∴ MAX SPACING = 7'-0"

MAX SPACING = 7'-0"

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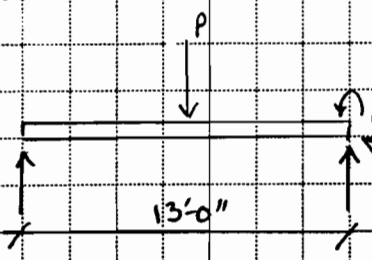
SHEET 21 OF 58
DATE 11/19/97
PROJ. NO. 6808

SUBJECT ANALYSIS OF EXIST STL. BMS - 4TH FLR (WEST)

A) BM



$P = \left(600\frac{lbs}{ft^2}\right)(7ft) = 4.2^K$

$W = 3.67'\left(\frac{10}{12}(.150) + 0.030\right) = .57_K$

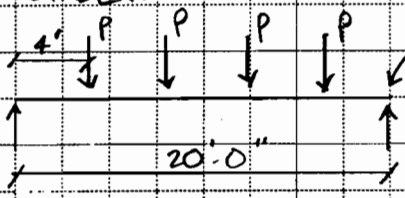
SAY ASB 10 x 23.3

$M_{MAX} = \frac{4.2(13)}{4} + \frac{.57(13)^2}{8} = 25.7\ K\cdot FT$

$M_{AVAIL} = F_b S_x = \frac{.66(33)(22.0^3)}{12} = 40\ K\cdot FT$

$40\ K\text{-FT} > 25.7\ K\text{-FT}$ OK

B) GIRDER:



SAY W 24x55 (CONSERV.)

$P = 4.2 + .57(13) = 11.6^K$

$R_L = R_R = (11.6^K)(2) = 23.2^K$

$M_{MAX} = 23.2(4) + 11.6^K(4) = 139\ K\text{-FT}$

$F_b S_x = \frac{.66(33)(114)}{12} = 207\ K\cdot FT > 139\ K\text{-FT}$ OK

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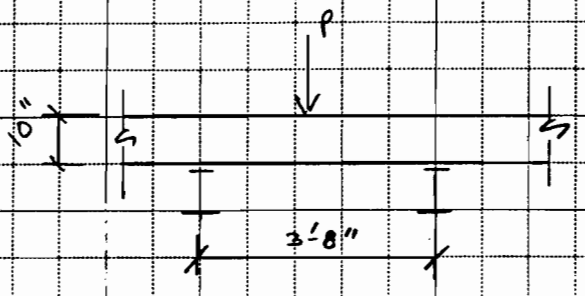
SHEET 22 OF 58
DATE 11 | 19 | 97
PROJ. NO. 6808

SUBJECT ANALYSIS OF EXIST CONC SLAB - 4TH FLR (WEST)

4TH FLOOR - SHORING LOADS ON: (WEST)



LL = 30 PSF
LINE LOAD = 600 PLF
- ASSUME SHORING = 7'-0"
P = 600(7) = 4.2 K

$M_{u\,MAX\,LL} = \frac{13}{64}(4.2)(3.67)(1.7) = 5.32^{K}$

$M_{u\,MAX\,DL} = \left[.107\left(\frac{10}{12}\right)(.150)(3.67)^2(1.4)\right] + \underset{LL}{\left[.107(0.030)(3.67)^2(1.7)\right]}$

$= 0.33$ K·FT

$M_{u\,TOTAL} = 5.32 + 0.33 = 5.65$ K·FT

BASED ON 5TH FLR SLAB ANALYSIS,

$5.65^{K\text{-}FT} < 6.14^{K\text{-}FT}$ OK

MAX SPACING = 7'-6"

SUBJECT ANALYSIS OF EXIST COL. 3RD - 4TH FLR

SEE 4TH - 5TH FLR. COL. ANALYSIS

$\ell = 24'-0" \pm$ (CONSERV)

P_4 = LOAD ON COL. (FROM 4TH FLR)

$60^K + 23.2^K + .57(13) = 90.6^K$
(P_5+P_6) (4TH) + (4TH)

$A = 12.18 in^2$

$r_y = 4.96 in$

$\frac{K\ell}{r} = \frac{1.0(24)(12)}{4.96} = 64.6 < C_c = 132$ ∴

$$F_a = \frac{\left[1 - \frac{(64.6)^2}{2(132)^2}\right]33}{\frac{5}{3} + \frac{3(64.6)}{8(132)} - \frac{(64.6)^3}{8(132)^3}} = \frac{15.8\ ksi}{2.0\ (F.S.)} = 7.9\ ksi$$

(REF P6)

$f_a = 91 / 12.18 = 7.5\ ksi < 7.9\ ksi$ OK

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SHEET 24 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 3RD FLR BREWERY RM

3RD LEVEL BREWERY RM ROOF LOAD

LIVE LOAD

SNOW	45 PSF	
SNOW DRIFT	(SEE PG 26)	

DEAD LOAD

ROOF CONSTRUCTION SIMILAR TO 6TH LEVEL ROOF	22.5 PSF	(PG 1)

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SHEET 25 OF 58

DATE 11/4/97

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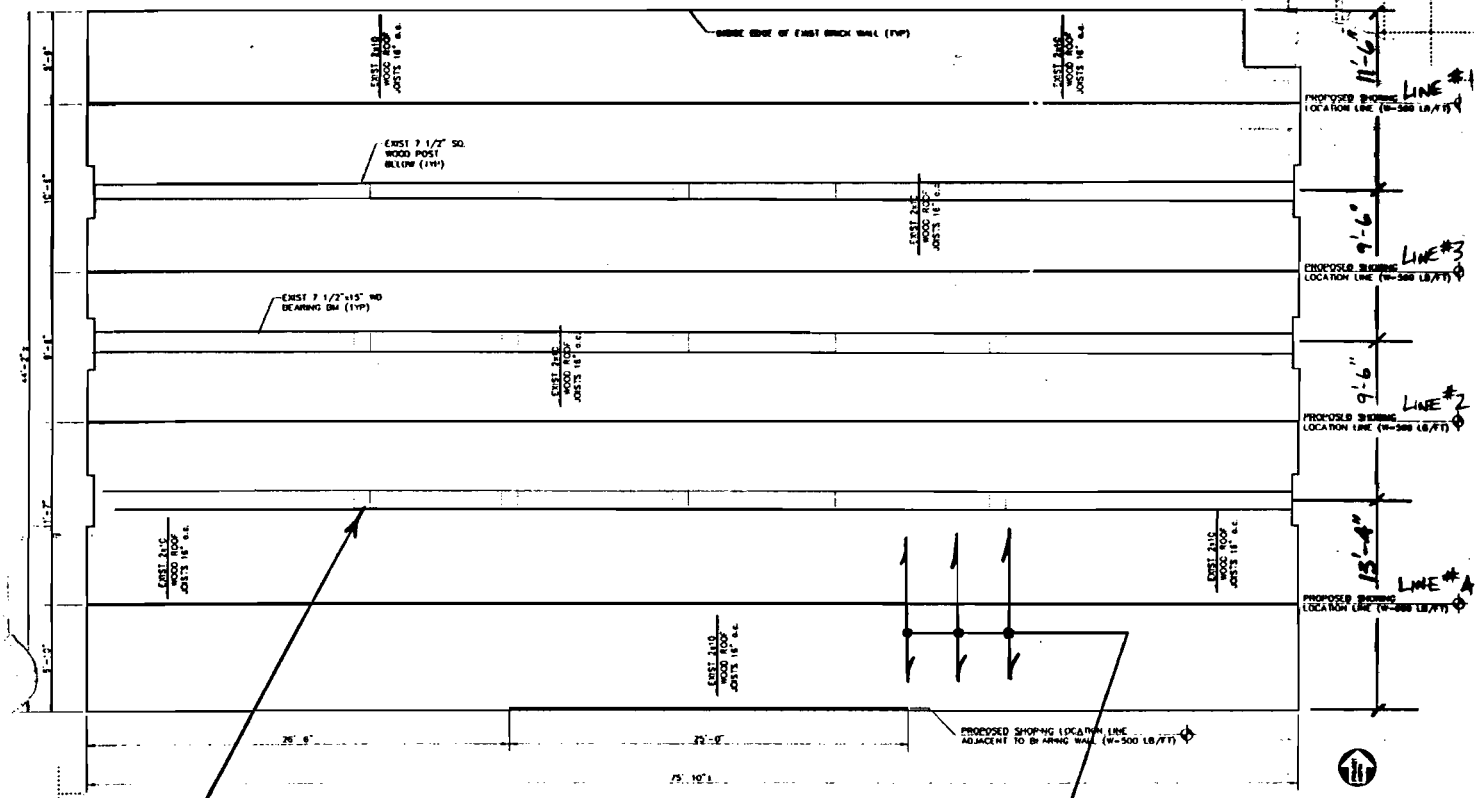
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION - 3RD FLR BREWERY RM

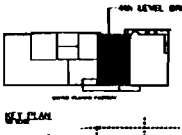
3RD FLR BREWERY RM PLAN



3rd LEVEL BREWERY RM ROOF FRAMING/SHORING PLAN

SCALE: 1/4"=1'-0"

NOTES:
1. TOP OF EXIST JOIST ELEV=95'-1"± A.F.F. @ WEST WALL (TYP)
   TOP OF EXIST JOIST ELEV=96'-6"± A.F.F. @ EAST WALL (TYP)
2. F.F. ELEV=80'-3"±
3. MAXIMUM SHORING COLUMN SPACING = 5'-0"



W15 FLR GIRDERS WITH C8 BUILT-UP COLUMNS SPACED 10'-6" O.C. (TYP)

EXIST W8 FLR BEAMS SPACED 3'-8½" O.C. SUPPORTING 9" THK SLAB ABOVE (TYP)

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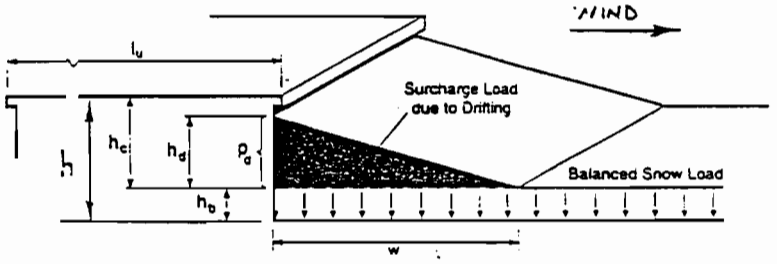
SHEET 26 OF 58 | DATE 11/4/97 | PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS : 3RD LEVEL BREWERY RM. CONT.

SNOW DRIFT LOAD - LEEWARD STEP

REF : ASCE 7-95



h = 5.8 FT

l_u = 27.5 FT

NOTE : IF l_u ≤ 25 FT, USE l_u = 25 FT IN EQUATION FOR h_d BELOW

LOCATION (CITY, STATE) : SCHENECTADY, NY

CATEGORY (TABLE 1-1) = II

TERRAIN (EXPOSURE) CATEGORY (6.5.3) = C

P_g = GROUND SNOW (FIG. 7-1) = 40 PSF

C_e = EXPOSURE FACTOR (TABLE 7-2) = 1.0

C_t = THERMAL FACTOR (TABLE 7-3) = 1.2

I = IMPORTANCE FACTOR (TABLE 7-4) = 1.0

P_f = FLAT ROOF SNOW LOAD (SLOPE ≤ 5°)

P_{f_1} = 0.7 C_e C_t I P_g = 33.6 PSF

FOR $P_g \leq 20$ PSF, $P_{f_{MIN}} = P_g \cdot I$ = — PSF

FOR $P_g \geq 20$ PSF, $P_{f_{MIN}} = 20 \cdot I$ = 20 PSF

P_f = LARGER VALUE OF P_{f_1} AND $P_{f_{MIN}}$ = 33.6 PSF

P_s = RAIN-ON-SNOW SURCHARGE = 0 PSF

[WHERE $P_g \leq 20$ PSF & SLOPE < 1/2"/FT, P_s = 5 PSF]

[WHERE $P_g \geq 20$ PSF OR SLOPE ≥ 1/2"/FT P_s = 0]

$P_{f'} = P_f + P_s$ = 33.6 PSF

P_f' = LARGER VALUE OF P_f AND $P_{f_{MIN}}$ = 33.6 PSF

γ = DRIFT DENSITY

$\gamma_1 = 0.13 P_g + 14$ = 19.2 PCF

γ = LOWER VALUE OF γ_1 AND 30 PCF = 19.2 PCF

$h_b = P_f / \gamma$ = 1.75 FT

$h_c = h - h_b$ = 4.05 FT

[IGNORE DRIFT IF $h_c / h_c < 0.2$]

h_d = HEIGHT OF SNOW DRIFT

$h_d = \left[0.43 \sqrt[3]{l_u} \sqrt[4]{P_g + 10}\right] - 1.5$ = 1.95 FT

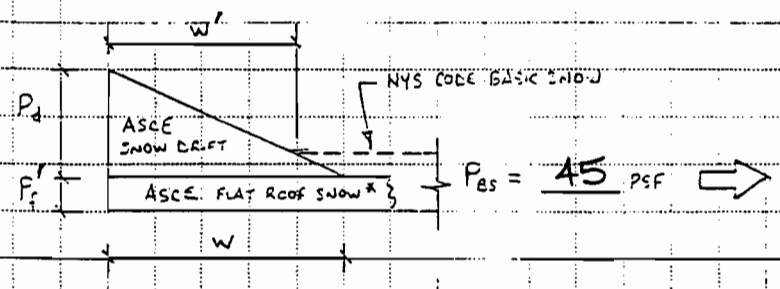
h_d = LOWER VALUE OF h_d AND h_c = 1.95 FT

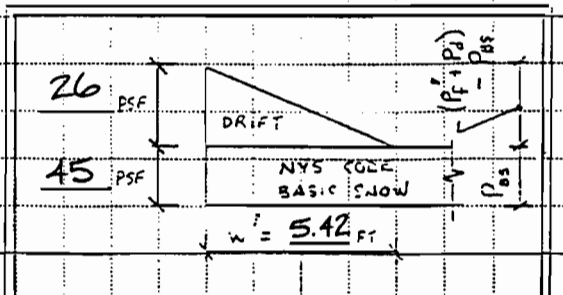
$P_d = h_d \cdot \gamma$ = 37.4 PSF

FOR $h_d \leq h_c$, $w = 4 \cdot h_d$ = 7.8 FT

FOR $h_d \geq h_c$, $w = 4 \cdot (h_d)^2 / h_c$ = — FT

$P_d' = P_d$ = 71 PSF





$$w' = \frac{\left[(P_f' + P_d) - (P_{BS})\right] \cdot w}{P_d} = 5.42 \text{ FT}$$

* P_f' INCLUDES RAIN-ON-SNOW SURCHARGE P_s VALUE

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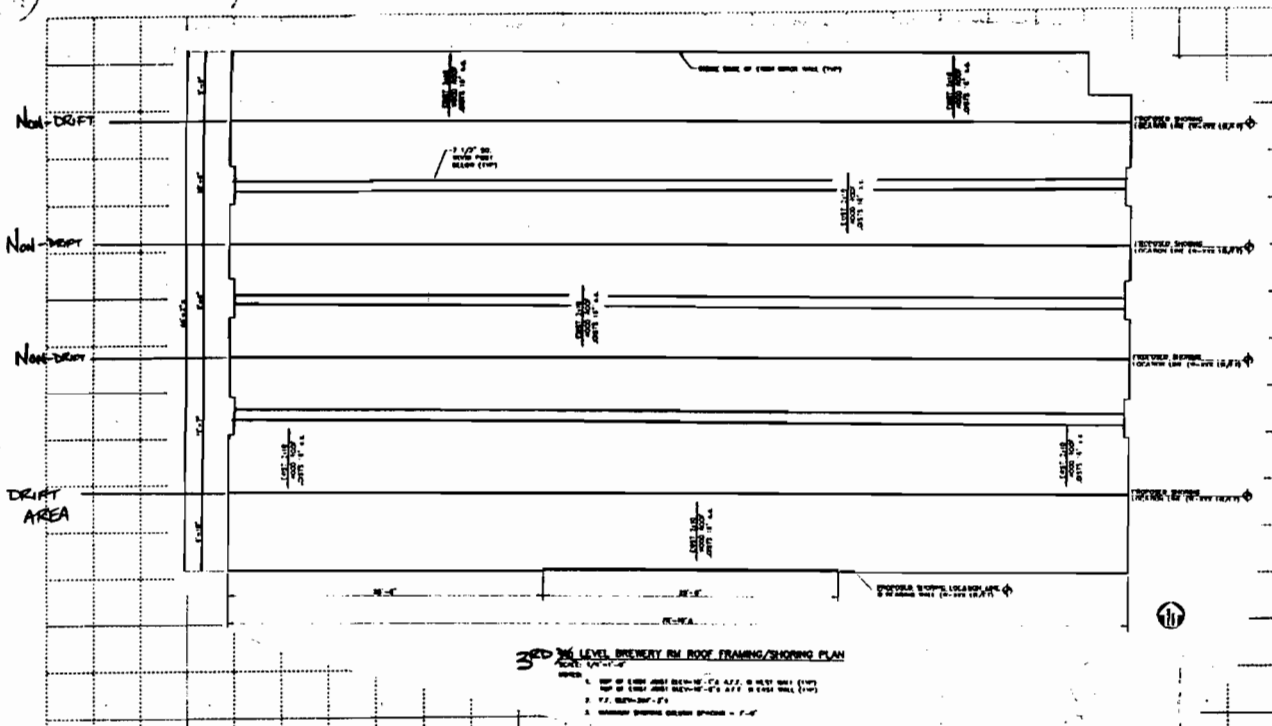
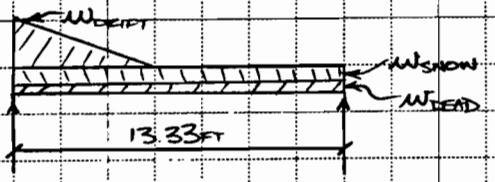
SHEET 27 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS : 3RD LEVEL BREWERY RM. CONT.



3RD LEVEL BREWERY RM ROOF FRAMING/SHORING PLAN

DRIFT AREA (TYPICAL ROOF JOIST)



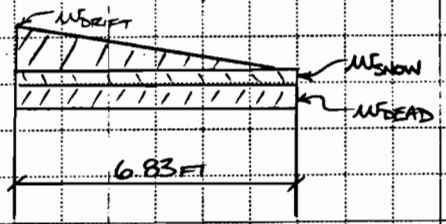
$$W_{DRIFT} = \left(26\frac{lbs}{FT^2}\right)(1.33FT) = 0.035\frac{lbs}{FT}$$
$$W_{SNOW} = \left(45\frac{lbs}{FT^2}\right)(1.33FT) = 0.06\frac{lbs}{FT}$$
$$W_{DEAD} = \left(22.5\frac{lbs}{FT^2}\right)(1.33FT) = 0.03\frac{lbs}{FT}$$
$$+$$
$$93.5\frac{lbs}{FT^2}$$

$*M_{MAX} = 2.09\,K\text{-}FT > M_{ALLOW} = 1.24\,K\text{-}FT$ NG (SEE PG 2)

SUPERSEDED BY PG 28

* SEE ENERCALC PG 29

TRY SHORING AT 6'-10"



$*M_{MAX} = 0.60\,K\text{-}FT < M_{ALLOW} = 1.24\,K\text{-}FT$ OK

* SEE ENERCALC PG 30

SHORING AT 6'-10" OK

$$W_{DRIFT\ @\ WALL} = \left(93.5\frac{lbs}{FT^2}\right)(3.42FT) = 320\frac{lbs}{FT^2}$$

$W_{DRIFT\ @\ WALL} = 500\frac{lbs}{FT^2}$

$$W_{DRIFT\ AREA} = \left(93.5\frac{lbs}{FT^2}\right)(3.42FT) + \left(70\frac{lbs}{FT^2}\right)(3.42FT) = 559\frac{lbs}{FT}$$

$W_{DRIFT\ AREA} = 600\frac{lbs}{FT}$

$$W_{NON\text{-}DRIFT} = \left(70\frac{lbs}{FT^2}\right)(5.5FT) = 385\frac{lbs}{FT}$$

$W_{NON\text{-}DRIFT} = 500\frac{lbs}{FT}$

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SHEET 28 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS: 3RD LEVEL BREWERY RM CONT.

REVISED SHORING LOADS AT 3RD LEVEL BREWERY RM

NOTE: BREAK-UP SINGLE SHORING LINE INTO TWO SHORING LINES TO REDUCE LOADS ON CONCRETE FLOOR BELOW, DUE TO LIVE LOADS CREATED BY EXISTING EQUIPMENT THROUGHOUT BREWERY ROOM

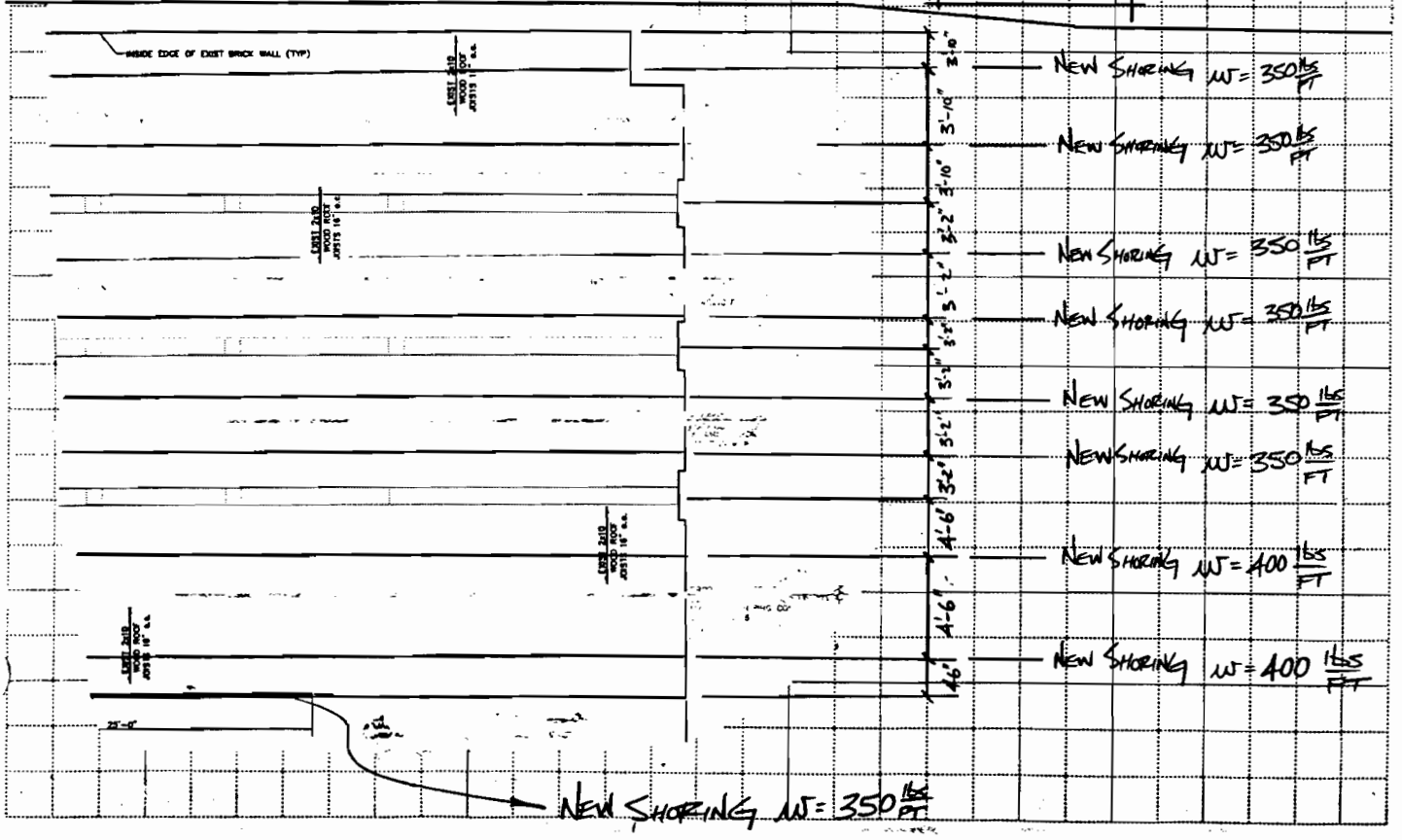
$$W_{\substack{DRIFT \\ @ WALL}} = \left(93.5 \tfrac{lbs}{FT^2}\right)\left(\tfrac{4.5 FT}{2}\right) = 210 \tfrac{lbs}{FT} \rightarrow SAY \boxed{W_{\substack{DRIFT \\ @ WALL}} = 350 \tfrac{lbs}{FT}}$$

(ALONG NORTH WALL)

$$W_{\substack{DRIFT \\ AREA}} = \left(93.5 \tfrac{lbs}{FT^2}\right)\left(\tfrac{4.5 FT}{2}\right) + \left(70 \tfrac{lbs}{FT^2}\right)\left(\tfrac{4.5 FT}{2}\right) = 368 \tfrac{lbs}{FT} \rightarrow SAY \boxed{W_{DRIFT} = 400 \tfrac{lbs}{FT}}$$

(ALONG SOUTH WALL)

$$W_{NON-DRIFT} = \left(70 \tfrac{lbs}{FT^2}\right)(4.5 FT) = 315 \tfrac{lbs}{FT} \rightarrow SAY \boxed{W_{\substack{NON- \\ DRIFT}} = 350 \tfrac{lbs}{FT}}$$



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SINGLE SPAN BEAM ANALYSIS

UNITED PLATING BLDG

SPAN DATA

Center Span	=	13.33 ft
Left Cantilever	=	0.00 ft
Right Cantilever	=	0.00 ft

MEMBER DATA

I:Inertia	=	1.000 in4
E:Elastic Modulus	=	1 psi
End Fixity	:	Pin/Pin

All distances for load locations refer to left support. Neg ('-') distances means load is on left cantilever

UNIFORM LOADS

Center Span #1	=	0.09 k/ft

TRAPEZOIDAL LOADS

1: 0.035k/ft @ Left, 0.000k/ft @ Right, Start @ 0.00ft -> 5.42ft

CONCENTRATED LOADS

APPLIED MOMENTS

SUMMARY

Moments

Max. Span Moment	=	2.09 k-ft
Max. Mom. Location	=	6.53 ft
Min. Span Moment	=	0.00 k-ft
Min. Mom. Location	=	0.00 ft
Max @ Left Support	=	0.00 k-ft
Max @ Right Support	=	0.00 k-ft
MAXIMUM MOMENT	=	2.09 k-ft

Shears

Left Support	=	0.68 k
Right Support	=	0.61 k

Reactions

Left Support	=	0.68 k
Right Support	=	0.61 k

Deflections

Max. @ Span = -67008918.450 in at 6.64 ft

Query Values

Between Supports @ X = 0.00 ft, M = 0.00 k-ft, V = 0.682 k, Defl. = 0.000 in

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UNITED PLATING
ROOF BEAM ANALYSIS
6808.41.82
MLM
CHECK BY
Date: 11/12/97

SINGLE SPAN BEAM ANALYSIS

UNITED PLATING BLDG

SPAN DATA

Center Span	=	6.83 ft
Left Cantilever	=	0.00 ft
Right Cantilever	=	0.00 ft

MEMBER DATA

I:Inertia	=	1.000 in4
E:Elastic Modulus	=	1 psi
End Fixity	:	Pin/Pin

All distances for load locations refer to left support. Neg ('-') distances means load is on left cantilever

UNIFORM LOADS

Center Span #1 = 0.09 k/ft

TRAPEZOIDAL LOADS

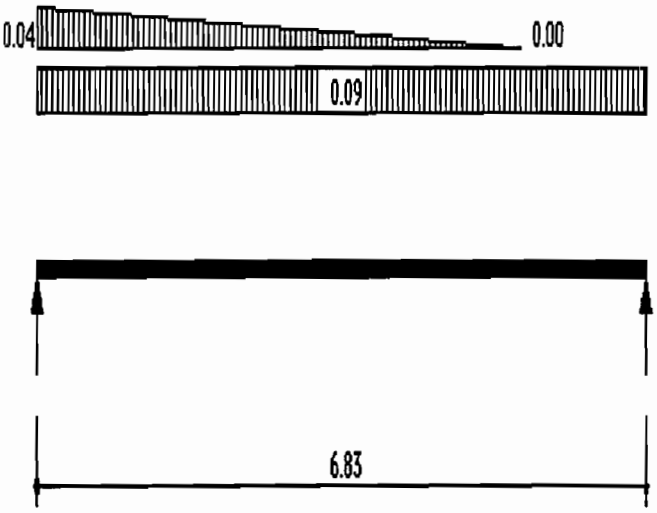
1: 0.035k/ft @ Left, 0.000k/ft @ Right, Start @ 0.00ft -> 5.42ft

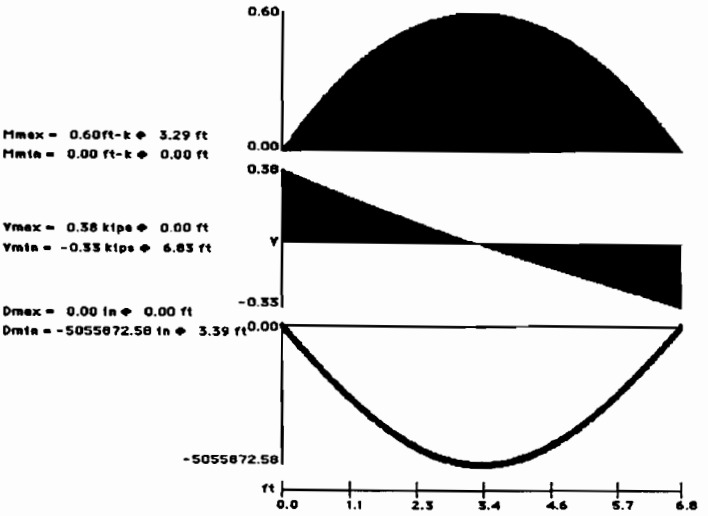
CONCENTRATED LOADS

APPLIED MOMENTS

SUMMARY

Moments			Shears			Deflections
Max. Span Moment	=	0.60 k-ft	Left Support	=	0.38 k	Max. @ Span = -5055872.578 in at 3.39 ft
Max. Mom. Location	=	3.29 ft	Right Support	=	0.33 k	
Min. Span Moment	=	0.00 k-ft	**Reactions**			
Min. Mom. Location	=	0.00 ft	Left Support	=	0.38 k	
Max @ Left Support	=	0.00 k-ft	Right Support	=	0.33 k	
Max @ Right Support	=	0.00 k-ft	**Query Values**			
MAXIMUM MOMENT	=	0.60 k-ft	Between Supports @ X = 0.00 ft, M = 0.00 k-ft, V = 0.377 k, Defl. = 0.000 in			





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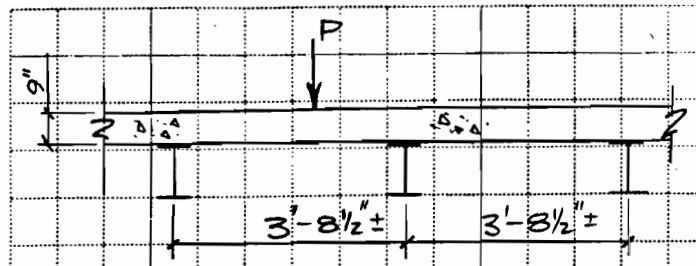
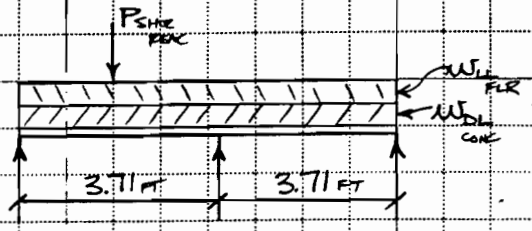
SHEET 31 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 3RD FLR BREWERY RM.



- ASSUME LL ON SLAB = 30 PSF
- SHORING LINE LOAD = 600 PLF
- ASSUME CONCRETE SLAB HAS MINIMAL REINFORCING



TRY SHORING COLUMNS AT 8'-0" o.c.

$P_{SHOR\ REAC} = \left(600\frac{lbs}{FT}\right)(8\ FT)$

$P_{SHOR\ REAC} = 4.8^{K}$

$M_{MAX} = M_W + M_P$

$= 0.07wl^2 + \frac{13}{64}Pl$

(ASC PG 2-312) (ASC PG 2-306)

$= (0.07)\left(0.209\frac{K}{FT}\right)(3.71_{FT})^2 + \left(\frac{13}{64}\right)(4.8^{K})(3.71_{ft})$

$M_{MAX} = 3.82\ K\text{-}FT$

$W_{LL\ FLR} = \left(30\frac{lbs}{FT^2}\right)(1\ FT)$ (CHECK 1 FT WIDTH OF SLAB)

$W_{LL\ FLR} = 30\frac{lbs}{FT}$

$W_{DL\ CONC} = \left(150\frac{lbs}{FT^3}\right)\left(\frac{9\ in}{12\ in/FT}\right)(1\ FT)$

$W_{DL\ CONC} = 113\frac{lbs}{FT}$

$W_{TOTAL} = 1.4(W_{DL\ CONC}) + 1.7(W_{LL\ FLR})$

$W_{TOTAL} = 209\frac{lbs}{FT}$

CHECK EXIST CONC SLAB (FLEXURE: 1 FT WIDTH OF SLAB)

$A_s = 0.27\ in^2/FT$, $a = 0.35"$, $Z = 6.83"$

$M_n = 6.14\ K\text{-}FT$ (SEE p 11 FOR REF.)

$M_N = M_{ALLOW} = 6.14\ K\text{-}FT$

CONCRETE SLAB ADEQUATE TO SUPPORT ROOF SHORING COLUMNS SPACED AT 8'-0" o.c. MAX

$M_{MAX} = 3.82\ K\text{-}FT < M_{ALLOW} = 6.14\ K\text{-}FT$ OK

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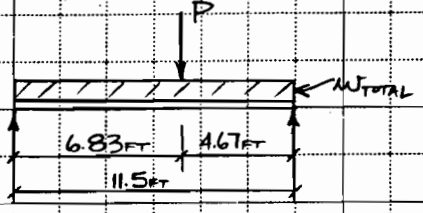
SHEET 32 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION — 3RD FLR BREWERY RM

CHECK EXIST W8 BEAMS (SPACED 3'-8½")

LINE #1 – COLUMN SHORING @ 8'-0" o.c.

$d = 8$ IN
$b_f = 4$ IN
$t_f = 1/4$ IN
} ASSUME W8x13
$F_y = 33$ KSI



$P = 4.8^K$

$w_{TOTAL} = w_{LL} + w_{DL}$

$= \left(30\frac{lbs}{FT^2}\right)(3.71_{FT}) + \left(150\frac{lbs}{FT^3}\right)\left(\frac{9_{IN}}{12_{IN/FT}}\right)(3.71_{FT})$

$w_{TOTAL} = 529\frac{lbs}{FT}$

$^*M_{MAX} = 21.9$ K-FT $> {}^*M_{ALLOW} = 18$ K-FT NG

*SEE ENERCALC PG 35 AND 35A

LINE #1 – COLUMN SHORING @ 6'-0" o.c.

$^*R_{MAX} = 5.97^K$

$P = \left(600\frac{lbs}{FT}\right)(6_{FT})$

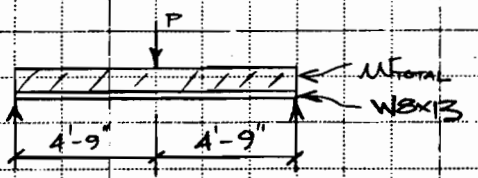
$P = 3.6^K$

$^*M_{MAX} = 18.61$ K-FT $< {}^*M_{ALLOW} = 18$ K-FT OK
3% OVERSTRESSED

LINE #1 COLUMN SHORING AT 6'-0" o.c. MAX.

*SEE ENERCALC PG 36 AND 36A

LINE #2 AND #3



TRY SHORING @ 8'-6" o.c.

$w_{TOTAL} = 0.529\frac{K}{FT}$

$P = \left(500\frac{lbs}{FT}\right)(8.5_{FT})$

$P = 4.25^K$

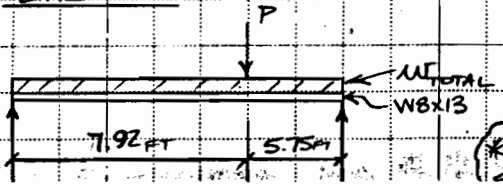
$^*M_{MAX} = 18.5$ K-FT $< {}^*M_{ALLOW} = 18$ K-FT OK
3% OVERSTRESSED

LINE #2 AND #3 COLUMN SHORING AT 8'-0" o.c. MAX (CONCRETE SLAB CONTROLS)

$^*R_{MAX} = 4.3^K$

*SEE ENERCALC PG 37

LINE #4



$w_{TOTAL} = 0.529\frac{K}{FT}$

$P = \left(178\frac{lbs}{FT}\right)(6.0_{FT})$

$P = 2.87^K$

TRY SHORING @ 6'-0" o.c.

$^*M_{MAX} = 22$ K-FT $< {}^*M_{ALLOW} = 18$ K-FT

LINE #1 COLUMN SHORING 22% OVERSTRESSED NG

*SEE ENERCALC PG 38

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SHEET 33 OF 58
DATE 12/8/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 3RD FLR BREWERY RM

RE-CHECK EXIST W8 BEAMS (DUE TO NEW SHORING SCHEME (SEE PG 28) SHORING CALCS)

LINE #1 – COLUMN SHORING @ 6'-0" o.c.

$P = \left(350\frac{lbs}{FT}\right)(6FT)$

$P = 2.1^K$

$$M_{TOTAL} = \frac{wl^2}{8} + Pa$$

$$= \frac{\left(0.529\frac{K}{FT}\right)(11.5FT)^2}{8} + (2.1^K)(3.83FT)$$

$M_{TOTAL} = 16.8\,K\text{-}FT < M_{ALLOW} = 18\,K\text{-}FT$ (SEE PG 14) OK

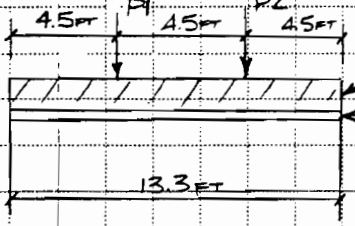
$$w_{AVAIL} = \left(\frac{8}{l^2}\right)(M_{ALLOW} - Pa)$$

$$= \left(\frac{8}{(11.5FT)^2}\right)\left((18K\text{-}FT) - (2.1^K)(3.83FT)\right)$$

$w_{AVAIL} = \frac{0.60\frac{K}{FT}}{3.71FT} = 0.162\frac{K}{FT^2}$

$w_{AVAIL} = 162\frac{lbs}{FT^2}$

LINE #4



$P1 = \left(400\frac{lbs}{FT}\right)(6FT)$

$P1 = 2.4^K$

$P2 = \left(315\frac{lbs}{FT}\right)(6FT)$

$P2 = 1.89^K$

$^*M_{MAX} = 21.6\,K\text{-}FT > {}^*M_{ALLOW} = 18\,K\text{-}FT$

19% OVERSTRESSED

NG

*SEE ENERCALC PG 34

NOTE: MUST REMOVE EQUIPMENT FROM DRIFT AREA BEFORE SHORING THE ROOF IN 3RD FLR BREWERY RM. DRIFT LENGTH = 40'-0" ± ALONG INTERIOR WALL

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III WINNERS CIRCLE
ALBANY, NY 12205

Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 9:42AM, 12 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

General Information

Description

Steel Section	**W8X13**		Fy	33.00ksi
		Pinned-Pinned	Load Duration Factor	1.00
Center Span	13.33 ft	Bm Wt. Added to Loads		
Left Cant.	0.00 ft	LL & ST Act Together		
Right Cant	0.00 ft			
Lu	0.00 ft			

Distributed Loads

	#1	#2	#3	#4	#5	#6	#7	
DL	0.529							k/ft
LL								k/ft
ST								k/ft
Start Location								ft
End Location	13.670							ft

Point Loads

	#1	#2	#3	#4	#5	#6	#7	
Dead Load	2.400	1.890						k
Live Load								k
Short Term								k
Location	4.500	9.000						ft

Summary

Overstressed in Bending !

Using: W8X13 section, Span = 13.33ft, Fy = 33.0ksiEnd Fixity = Pinned-PinnedFy = 33.00ksi, Lu = 0.00ft, LDF = 1.000

	Actual	Allowable		
Moment	21.567 k-ft	17.991 k-ft	Max. Deflection	-0.606 in
fb : Bending Stress	26.109 ksi	21.780 ksi	Length/DL Defl	264.0 : 1
fb / Fb	1.199 : 1		Length/(DL+LL Defl)	264.0 : 1
Shear	5.816 k	24.258 k		
fv : Shear Stress	3.165 ksi	13.200 ksi		
fv / Fv	0.240 : 1			

Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	Maximum	DL Only	LL @ Center	LL+ST @ Center	LL @ Cants	LL+ST @ Cants	
Max. M +	21.57 k-ft	21.57					k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	5.82 k	5.82					k
Shear @ Right	5.70 k	5.70					k
Center Defl.	-0.606 in	-0.606	0.000	-0.606	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Def	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	5.82	5.82		5.82			k
Reaction @ Rt	5.70	5.70		5.70			k

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ALBANY, NY 12205

Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 3:20PM, 10 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

General Information

Description

Steel Section	**W8X13**		Fy	33.00ksi
		Pinned-Pinned	Load Duration Factor	1.00
Center Span	11.50 ft	Bm Wt. Added to Loads		
Left Cant.	0.00 ft	LL & ST Act Together		
Right Cant	0.00 ft			
Lu	0.00 ft			

Distributed Loads

	#1	#2	#3	#4	#5	#6	#7	
DL	0.529							k/ft
LL								k/ft
ST								k/ft
Start Location								ft
End Location	11.500							ft

Point Loads

	#1	#2	#3	#4	#5	#6	#7	
Dead Load	4.800							k
Live Load								k
Short Term								k
Location	6.830							ft

Summary

Overstressed in Bending !

Using: W8X13 section, Span = 11.50ft, Fy = 33.0ksiEnd Fixity = Pinned-PinnedFy = 33.00ksi, Lu = 0.00ft, LDF = 1.000

	Actual	Allowable		
Moment	21.928 k-ft	17.991 k-ft	Max. Deflection	-0.404 in
fb : Bending Stress	26.546 ksi	21.780 ksi	Length/DL Defl	341.8 : 1
fb / Fb	1.219 : 1		Length/(DL+LL Defl)	341.8 : 1
Shear	5.968 k	24.258 k		
fv : Shear Stress	3.247 ksi	13.200 ksi		
fv / Fv	0.246 : 1			

Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	Maximum	DL Only	LL @ Center	LL+ST @ Center	LL @ Cants	LL+ST @ Cants	
Max. M +	21.93 k-ft	21.93					k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	5.07 k	5.07					k
Shear @ Right	5.97 k	5.97					k
Center Defl.	-0.404 in	-0.404	0.000	-0.404	0.000	0.000 in	
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000 in	
Right Cant Def	0.000 in	0.000	0.000	0.000	0.000	0.000 in	
...Query Defl @	0.000 in	0.000	0.000	0.000	0.000	0.000 in	
Reaction @ Left	5.07	5.07		5.07			k
Reaction @ Rt	5.97	5.97		5.97			k

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ALBANY, NY 12205

Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 3:20PM, 10 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

Section Properties

Steel Section	**W8X13**	Weight	13.04 #/ft	r-xx	3.211 in
Depth	7.99 in	Ixx	39.60 in4	r-yy	0.843 in
Web Thick	0.230 in	Iyy	2.73 in4	Misc	1.010 in
Width	4.000 in	Sxx	9.912 in3		
Flange Thick	0.255 in	Syy	1.365 in3		
Area	3.84 in2				

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Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 3:28PM, 10 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

General Information

Description

Steel Section	**W8X13**		Fy	33.00ksi
		Pinned-Pinned	Load Duration Factor	1.00
Center Span	11.50 ft	Bm Wt. Added to Loads		
Left Cant.	0.00 ft	LL & ST Act Together		
Right Cant	0.00 ft			
Lu	0.00 ft			

Distributed Loads

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
DL	0.529							k/ft
LL								k/ft
ST								k/ft
Start Location								ft
End Location	11.500							ft

Point Loads

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	
Dead Load	3.600							k
Live Load								k
Short Term								k
Location	6.830							ft

Summary

Overstressed in Bending !

Using: W8X13 section, Span = 11.50ft, Fy = 33.0ksiEnd Fixity = Pinned-PinnedFy = 33.00ksi, Lu = 0.00ft, LDF = 1.000

	Actual	Allowable		
Moment	18.610 k-ft	17.991 k-ft	Max. Deflection	-0.349 in
fb : Bending Stress	22.529 ksi	21.780 ksi	Length/DL Defl	395.2 : 1
fb / Fb	1.034 : 1		Length/(DL+LL Defl)	395.2 : 1
Shear	5.255 k	24.258 k		
fv : Shear Stress	2.859 ksi	13.200 ksi		
fv / Fv	0.217 : 1			

Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	Maximum	DL Only	LL @ Center	LL+ST @ Center	LL @ Cants	LL+ST @ Cants	
Max. M +	18.61 k-ft	18.61					k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	4.58 k	4.58					k
Shear @ Right	5.25 k	5.25					k
Center Defl.	-0.349 in	-0.349	0.000	-0.349	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Def	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	4.58	4.58		4.58			k
Reaction @ Rt	5.25	5.25		5.25			k

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ALBANY, NY 12205

Title : UNITED PLATING **Job #** 6808.41.82
Dsgnr: MLM **Date:** 3:28PM, 10 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

Section Properties

Steel Section	**W8X13**	Weight	13.04 #/ft	r-xx	3.211 in
Depth	7.99 in	Ixx	39.60 in4	r-yy	0.843 in
Web Thick	0.230 in	Iyy	2.73 in4	Misc	1.010 in
Width	4.000 in	Sxx	9.912 in3		
Flange Thick	0.255 in	Syy	1.365 in3		
Area	3.84 in2				

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ALBANY, NY 12205

Title : UNITED PLATING **Job #** 6808.41.82
Dsgnr: MLM **Date:** 3:43PM, 10 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

General Information

Description

Steel Section	**W8X13**		Fy	33.00ksi
		Pinned-Pinned	Load Duration Factor	1.00
Center Span	10.50 ft	Bm Wt. Added to Loads		
Left Cant.	0.00 ft	LL & ST Act Together		
Right Cant	0.00 ft			
Lu	0.00 ft			

Distributed Loads

	#1	#2	#3	#4	#5	#6	#7	
DL	0.529							k/ft
LL								k/ft
ST								k/ft
Start Location								ft
End Location	11.500							ft

Point Loads

	#1	#2	#3	#4	#5	#6	#7	
Dead Load	4.250							k
Live Load								k
Short Term								k
Location	4.750							ft

Summary

Overstressed in Bending !

Using: W8X13 section, Span = 10.50ft, Fy = 33.0ksiEnd Fixity = Pinned-PinnedFy = 33.00ksi, Lu = 0.00ft, LDF = 1.000

	Actual	Allowable		
Moment	18.447 k-ft	17.991 k-ft	Max. Deflection	-0.281 in
fb : Bending Stress	22.332 ksi	21.780 ksi	Length/DL Defl	447.8 : 1
fb / Fb	1.025 : 1		Length/(DL+LL Defl)	447.8 : 1
Shear	5.173 k	24.258 k		
fv : Shear Stress	2.815 ksi	13.200 ksi		
fv / Fv	0.213 : 1			

Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	Maximum	DL Only	LL @ Center	LL+ST @ Center	LL @ Cants	LL+ST @ Cants	
Max. M +	18.45 k-ft	18.45					k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	5.17 k	5.17					k
Shear @ Right	4.77 k	4.77					k
Center Defl.	-0.281 in	-0.281	0.000	-0.281	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Def	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	5.17	5.17		5.17			k
Reaction @ Rt	4.77	4.77		4.77			k

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III WINNERS CIRCLE
ALBANY, NY 12205

Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 9:29AM, 12 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

General Information

Description

Steel Section	**W8X13**		Fy	33.00ksi
		Pinned-Pinned	Load Duration Factor	1.00
Center Span	13.67 ft	Bm Wt. Added to Loads		
Left Cant.	0.00 ft	LL & ST Act Together		
Right Cant	0.00 ft			
Lu	0.00 ft			

Distributed Loads

	#1	#2	#3	#4	#5	#6	#7	
DL	0.529							k/ft
LL								k/ft
ST								k/ft
Start Location								ft
End Location	13.670							ft

Point Loads

	#1	#2	#3	#4	#5	#6	#7	
Dead Load	2.870							k
Live Load								k
Short Term								k
Location	7.920							ft

Summary

Overstressed in Bending !

Using: W8X13 section, Span = 13.67ft, Fy = 33.0ksiEnd Fixity = Pinned-PinnedFy = 33.00ksi, Lu = 0.00ft, LDF = 1.000

	Actual	Allowable		
Moment	21.884 k-ft	17.991 k-ft	Max. Deflection	-0.593 in
fb : Bending Stress	26.493 ksi	21.780 ksi	Length/DL Defl	276.8 : 1
fb / Fb	1.216 : 1		Length/(DL+LL Defl)	276.8 : 1
Shear	5.368 k	24.258 k		
fv : Shear Stress	2.921 ksi	13.200 ksi		
fv / Fv	0.221 : 1			

Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	Maximum	DL Only	LL @ Center	LL+ST @ Center	LL @ Cants	LL+ST @ Cants	
Max. M +	21.88 k-ft	21.88					k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	4.91 k	4.91					k
Shear @ Right	5.37 k	5.37					k
Center Defl.	-0.593 in	-0.593	0.000	-0.593	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Def	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	4.91	4.91		4.91			k
Reaction @ Rt	5.37	5.37		5.37			k

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SHEET 39 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 3RD FLR BREWERY RM

CHECK EXISTING GIRDER

SPAN = 10'-6"
L_b = 3.71 FT

d = 15 IN
b_f = 5½ IN
t_f = ¼ IN

15 x 33 AMERICAN STANDARD BEAM
S_x = 48.7 IN^3
F_b = 0.66 F_y

$$M_{ALLOW} = F_b S_x$$

$$= \frac{(0.66)(33\,KSI)(48.7\,IN^3)}{12\,\frac{IN}{FT}}$$

$$M_{ALLOW} = 88.4\ K\text{-}FT$$

$$M_{MAX} = \frac{wl^2}{8}$$

ASSUME $w = \frac{15^K}{3.71\,FT} = 4.0\,\frac{K}{FT}$ (CONSERVATIVE)
(15^K: REAC OF (2) WB BMS; 3.71 FT: WB BM SPACING)

$$= \frac{(4.0\,\frac{K}{FT})(10.5\,FT)^2}{8}$$

$w = 4.0\,\frac{K}{FT}$

$M_{MAX} = 55.1\ K\text{-}FT$

$$R_{MAX} = \frac{wl}{2} = \frac{(4.0\,\frac{K}{FT})(10.6\,FT)}{2}$$

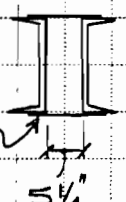
$R_{MAX} = 21.2^K$

$M_{MAX} = 55\ K\text{-}FT < M_{ALLOW} = 88.4\ K\text{-}FT$ OK

EXISTING GIRDER ADEQUATE TO RESIST SHORING LOADS

CHECK EXISTING COLUMN

NEGLECT COLUMN BRACING



d = 8⅛"
b_f = 2¼"
t_f = ¼"

ASSUME C8x11.5
MAX HT = 16.5 FT

$P_{MAX} = (2)(R_{MAX})$

$P_{MAX} = (2)(21.2^K)$

$P_{MAX} = 42.4^K$

* AREA = 6.76 IN^2
* r_x = 3.11 IN

*SEE ENERCALC PG 41

AISC 5-42

$$C_c = \sqrt{\frac{2\pi^2 E}{F_y}} = \sqrt{\frac{2\pi^2(29000\,KSI)}{(33\,KSI)}} = 132$$

$$\frac{Kl}{r} = \frac{(1.0)(16.5\,FT)(12\,\frac{IN}{FT})}{(3.11\,IN)} = 64$$

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SHEET 40 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 3RD FLR BREWERY RM

$C_c = 132 > \frac{Kl}{r} = 64 \quad \therefore \quad F_a = \frac{\left[1 - \frac{\left(\frac{Kl}{r}\right)^2}{2C_c^2}\right] F_y}{\frac{5}{3} + \frac{3}{8}\frac{\left(\frac{Kl}{r}\right)}{C_c} - \frac{\left(\frac{Kl}{r}\right)^3}{8C_c^3}}$ (AISC E2-1)

$$F_a = \frac{\left(1 - \frac{(64)^2}{(2)(132)^2}\right) 33 \text{ KSI}}{\frac{5}{3} + \frac{3}{8}\frac{(64)}{(132)} - \frac{(64)^3}{(8)(132)^3}} = \frac{29.12 \text{ KSI}}{1.83} = 15.91 \text{ KSI}$$

$$\frac{15.91 \text{ KSI}}{2.0 \text{ (F.S.)}} = 8.0 \text{ KSI}$$

(REF: p 6)

$$f_a = \frac{P}{A} = \frac{42.4^K}{6.76 \text{ IN}^2} = 6.27 \text{ KSI}$$

$$\frac{f_a}{F_a} = \frac{6.27 \text{ KSI}}{8.0 \text{ KSI}} = 0.78 < 1.0 \quad \text{OK}$$

EXIST BUILT-UP COLUMNS ADEQUATE TO RESIST NEW SHORING LOADS

GENERAL SECTION PROPERTIES

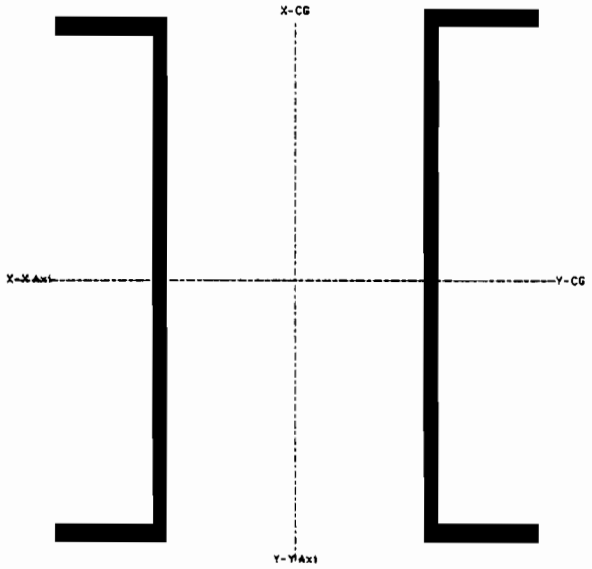
UNITED PLATING
EXIST COLUMN

PLATE & PIPE SHAPES

ID	Plates Height	Plates Width	Pipes Radius	Pipes Thickness	Distance to C.G. X	Distance to C.G. Y	Area
AISC Shape	AISC Section		Depth	Width	Distance to C.G. X	Distance to C.G. Y	Angle
#1	c8x11.5		8.000	2.260 in	3.190	0.000 in	0.00 °
#2	c8x11.5		8.000	2.260 in	-3.190	0.000 in	180.00 °

CALCULATED PROPERTIES

Section Area	-	6.760 in2	Measured from bottom & left:			Fiber Distances:	
			X-Dist. To CG	-	-0.000 in	X-Left	- -4.879 in
I-xx	-	65.200 in4	Y-Dist. To CG	-	0.000 in	X-Right	- 4.879 in
I-yy	-	71.430 in4				Y-Top	- 4.000 in
			r-xx	-	3.106 in	Y-Bottom	- -4.000 in
Sx : Top	-	16.300 in3	r-yy	-	3.251 in		
Sx : Bottom	-	16.300 in3					
Sy : Left	-	14.640 in3					
Sy : Right	-	14.640 in3					



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SHEET 42 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS

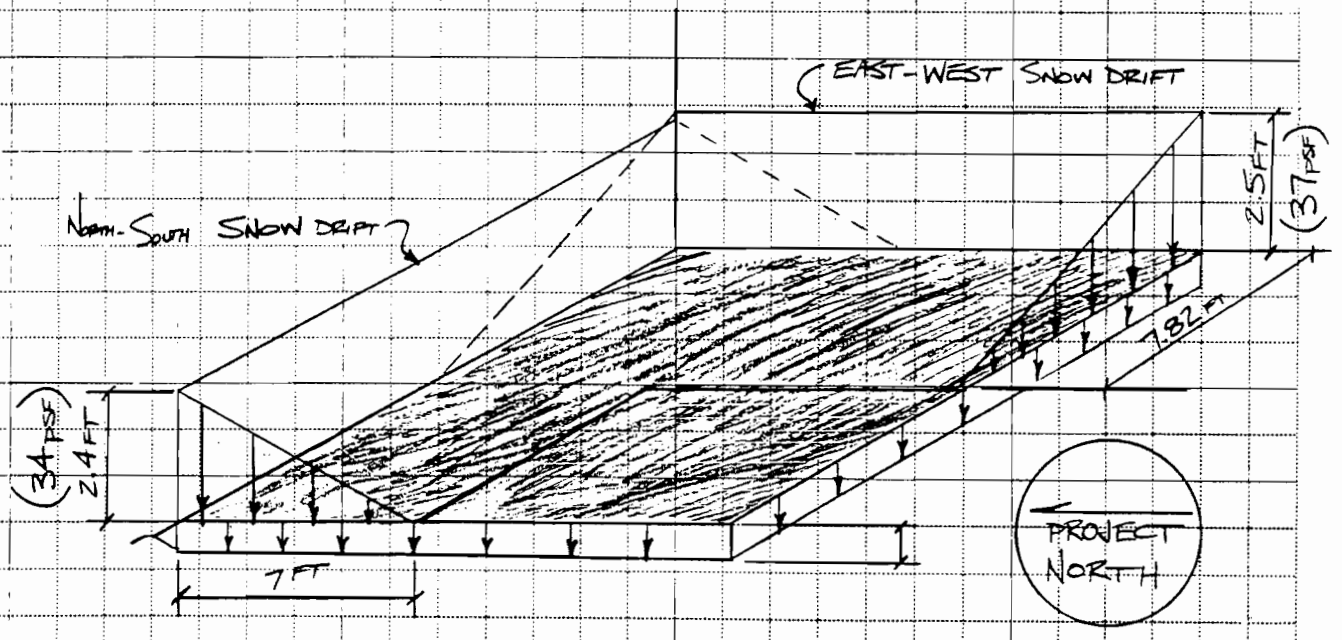
2ND LEVEL ANODIZING RM ROOF LOAD

LIVE LOAD

SNOW	45 PSF	NYSBC
SNOW DRIFT	(SEE PG 43 AND 44 DRIFT IN TWO DIRECTIONS)	ASCE 7-95

DEAD LOAD

6TH LEVEL ROOF CONSTRUCTION	22.5 PSF
SUSPENDED CEILING AND INSULATION (WET)	2.5 PSF
	25 PSF



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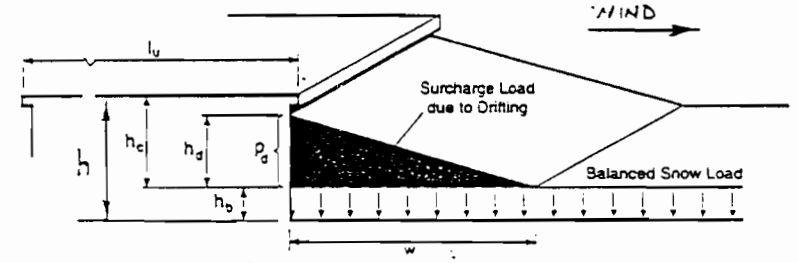
SHEET 43 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT 2ND LEVEL ROOF DRIFT (EAST-WEST DIRECTION): SHORING LOADS

SNOW DRIFT LOAD - LEEWARD STEP

REF: ASCE 7-95

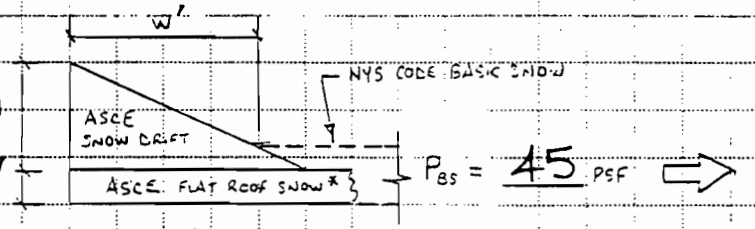


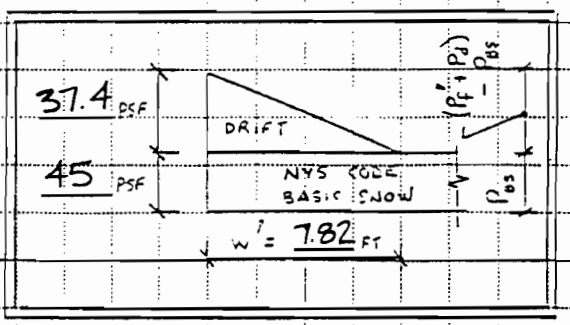
h = 20.25 FT
l_u = 44 FT

NOTE: IF l_u < 25 FT, USE l_u = 25 FT IN EQUATION FOR h_d BELOW

LOCATION (CITY, STATE): SCHENECTADY, NY
CATEGORY (TABLE 1-1) = II
TERRAIN (EXPOSURE) CATEGORY (6.5.3) = C
P_g = GROUND SNOW (FIG. 7-1) = 40 PSF
C_e = EXPOSURE FACTOR (TABLE 7-2) = 1.0
C_t = THERMAL FACTOR (TABLE 7-3) = 1.2
I = IMPORTANCE FACTOR (TABLE 7-4) = 1.0
P_f = FLAT ROOF SNOW LOAD (SLOPE ≤ 5°)
P_f = 0.7 C_e C_t I P_g = 33.6 PSF
FOR P_g ≤ 20 PSF, $P_{f\,MIN}$ = $P_g \cdot I$ = — PSF
FOR P_g ≥ 20 PSF, $P_{f\,MIN}$ = 20 · I = 20 PSF
P_f = LARGER VALUE OF P_f AND $P_{f\,MIN}$ = 33.6 PSF
P_s = RAIN-ON-SNOW SURCHARGE = 0 PSF
[WHERE P_g ≤ 20 PSF & SLOPE < 1/2"/FT, P_s = 5 PSF.
WHERE P_g ≥ 20 PSF OR SLOPE ≥ 1/2"/FT P_s = 0]

$P_f' = P_f + P_s$ = 33.6 PSF
P_f' = LARGER VALUE OF P_f' AND $P_{f\,MIN}$ = 33.6 PSF
γ = DRIFT DENSITY
$\gamma_1 = 0.13 P_g + 14$ = 19.2 PCF
γ = LOWER VALUE OF γ_1 AND 30 PCF = 19.2 PCF
$h_b = P_f'/\gamma$ = 1.75 FT
$h_c = h - h_b$ = 18.5 FT
[IGNORE DRIFT IF h_c/h_c < 0.2]
h_d = HEIGHT OF SNOW DRIFT
$h_d = \left[0.43\sqrt[3]{l_u}\sqrt[4]{P_g + 10}\right] - 1.5$ = 2.54 FT
h_d = LOWER VALUE OF h_d AND h_c = 2.54 FT
$P_d = h_d \cdot \gamma$ = 48.8 PSF
FOR $h_d \le h_c$, $w = 4 \cdot h_d$ = 10.2 FT
FOR $h_d > h_c$, $w = 4 \cdot (h_d)^2/h_c$ = — FT
$P_f' + P_d$ = 82.4 PSF





$$w' = \frac{\left[(P_f' + P_d) - (P_{BS})\right] \cdot w}{P_d} = 7.82 \text{ FT}$$

* P_f' INCLUDES RAIN-ON-SNOW SURCHARGE P_s VALUE

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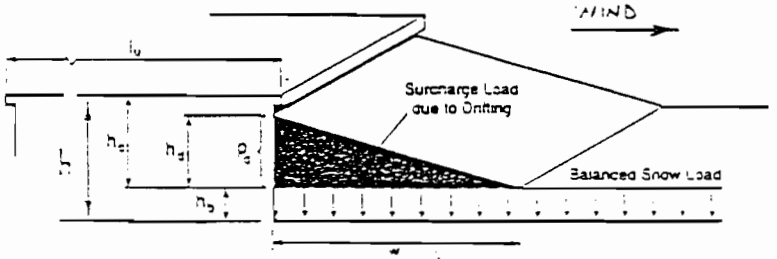
SHEET 44 OF 58
DATE 4/4/97
PROJ. NO. 6808.41.82

SUBJECT 2ND LEVEL ROOF DRIFT (NORTH - SOUTH DIRECTION): SHORING LOADS

SNOW DRIFT LOAD - LEEWARD STEP

REF: ASCE 7-95

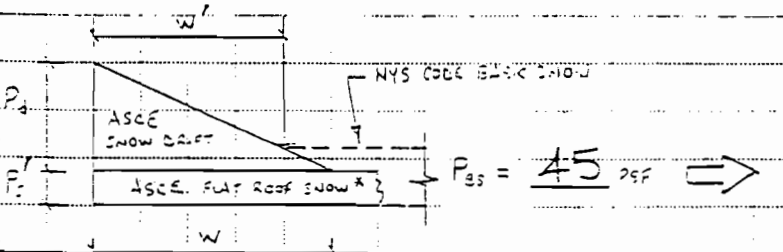


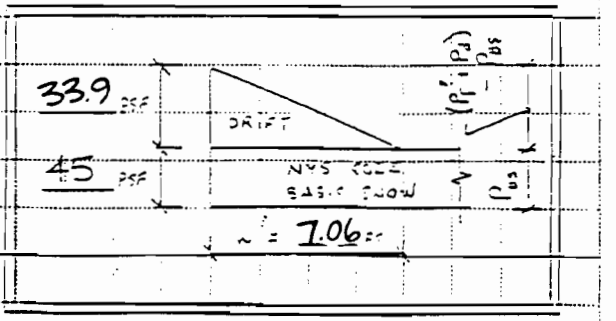
h = 26 ft
l_u = 38.5 ft

NOTE: IF l_u < 25 FT, USE l_u = 25 FT IN EQUATION FOR h_d BELOW

LOCATION (CITY, STATE): SCHENECTADY, NY
CATEGORY (TABLE 1-1) = II
TERRAIN (EXPOSURE) CATEGORY (6.5.3) = C
P_g = GROUND SNOW (FIG. 7-1) = 40 PSF
C_e = EXPOSURE FACTOR (TABLE 7-2) = 1.0
C_t = THERMAL FACTOR (TABLE 7-3) = 1.2
I = IMPORTANCE FACTOR (TABLE 7-4) = 1.0
P_f = FLAT ROOF SNOW LOAD (SLOPE ≤ 5°)
P_f = 0.7 C_e C_t I P_g = 33.6 PSF
FOR P_g ≤ 20 PSF, $P_{f\,min}$ = $P_g \cdot I$ = — PSF
FOR P_g ≥ 20 PSF, $P_{f\,min}$ = 20 · I = 20 PSF
P_f = LARGER VALUE OF P_f AND $P_{f\,min}$ = 33.6 PSF
P_s = RAIN-ON-SNOW SURCHARGE = 0 PSF
[WHERE P_g ≤ 20 PSF & SLOPE < ½"/FT, P_s = 5 PSF
WHERE P_g ≥ 20 PSF OR SLOPE ≥ ½"/FT P_s = 0]

P_f' = P_f + P_s = 33.6 PSF
P_f' = LARGER VALUE OF P_f AND $P_{f\,min}$ = 33.6 PSF
γ = DRIFT DENSITY
γ_1 = 0.13 P_g + 14 = 19.2 PCF
γ = LOWER VALUE OF γ_1 AND 30 PCF = 19.2 PCF
h_b = P_f' / γ = 1.75 FT
h_c = h_{c1} + h_{c2} = 24.25 FT
[IGNORE DRIFT IF h_b / h_c < 0.2]
h_d = HEIGHT OF SNOW DRIFT
h_d = 0.43 $\sqrt[3]{l_u + 100}$ $\sqrt[4]{P_g + 10}$ − 1.5 = 2.36 FT
h_d = LOWER VALUE OF h_d AND h_c = 2.36 FT
p_d = $h_d \cdot \gamma$ = 45.3 PSF
FOR $h_{c1} \le h_d$, w = 4 · h_d = 9.44 FT
FOR $h_{c1} > h_d$, w = 4 · $(h_d)^2 / h_{c1}$ = — FT
P_d' − P_f = 78.9 PSF





$w' = \frac{[(P_f' + P_d) - (P_{gs})] \cdot w}{P_d}$ = 7.06 FT

* P_f' INCLUDES RAIN-ON-SNOW SURCHARGE P_s VALUE

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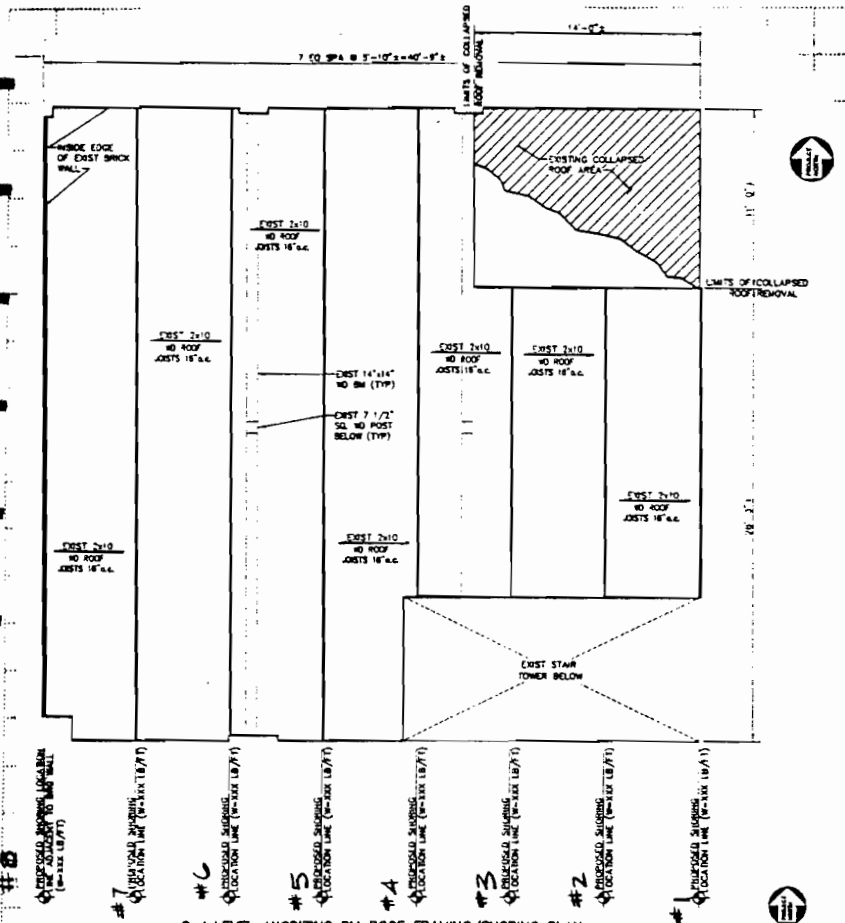
SHEET 45 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

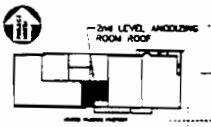
SUBJECT SHORING LOADS



2nd LEVEL ANODIZING RM ROOF FRAMING/SHORING PLAN

SCALE: 1/4"=1'-0"

NOTES:
1. TOP OF EXIST JOIST ELEV. = 15'-0"± A.F.F. (TYP)
2. 2nd LEVEL ANODIZING RM F.F. ELEV. = 184'-0"±
3. MAXIMUM SHORING COLUMN SPACING = 6'-0"
4. REMOVE EXIST PARTIALLY COLLAPSED ROOF AREA WITHIN LIMITS INDICATED.



2ND LEVEL ROOF SHORING PLAN

LINE #1 SHORING

$$W_{TOTAL} = W_{DEAD} + W_{SNOW} + W_{DRIFT}$$

$$= \left(25\frac{lbs}{FT^2}\right)(3FT) + \left(45\frac{lbs}{FT^2}\right)(3FT) + \left(37\frac{lbs}{FT^2}\right)(3FT)$$

$$= 321\frac{lbs}{FT}$$

SAY $W_{TOTAL} = 500\frac{lbs}{FT}$

LINE #1 $W_{TOTAL} = 500\frac{lbs}{FT}$

LINE #2 SHORING

(SEE SKETCH PG 42)

W_{DRIFT} $\frac{37\frac{lbs}{FT^2}}{7.82FT} = 4.73\frac{lbs/FT^2}{FT}$ ∴ @ 3FT $W_{DRIFT} = 23\frac{lbs}{FT^2}$, @ 5FT $W_{DRIFT} = 13\frac{lbs}{FT^2}$ } AVERAGE $W_{DRIFT} = 18\frac{lbs}{FT^2}$

$$W_{TOTAL} = W_{DEAD} + W_{SNOW} + W_{DRIFT}$$

$$= \left(25\frac{lbs}{FT^2}\right)(5.83FT) + \left(45\frac{lbs}{FT^2}\right)(5.83FT) + \left(18\frac{lbs}{FT^2}\right)(5.83FT)$$

$W_{TOTAL} = 513\frac{lbs}{FT}$

LINE #2 $W_{TOTAL} = 550\frac{lbs}{FT}$

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SHEET 46 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT SHORING LOADS

LINE #3 SHORING

$$W_{TOTAL} = W_{DEAD} + W_{SNOW} + \cancel{W_{DRIFT}}^{0} \text{ (OUT OF DRIFT AREA)}$$

$$= \left(25\tfrac{lbs}{FT^2}\right)(5.83_{FT}) + \left(45\tfrac{lbs}{FT^2}\right)(5.83_{FT})$$

$$= 408\ \tfrac{lbs}{FT}$$

SAY $W_{TOTAL} = 500\ \tfrac{lbs}{FT}$

LINE #3 $W_{TOTAL} = 500\ \tfrac{lbs}{FT}$

LINE #4, #5, #6, #7 SHORING (SIMILAR LOADING CONDITIONS)

$$W_{TOTAL} = W_{DEAD} + W_{SNOW} + W_{DRIFT}$$

$$= \left(25\tfrac{lbs}{FT^2}\right)(5.83_{FT}) + \left(45\tfrac{lbs}{FT^2}\right)(5.83_{FT}) + \left(34\tfrac{lbs}{FT^2}\right)(5.83_{FT})$$

$$= 606\ \tfrac{lbs}{FT}$$

SAY $W_{TOTAL} = 650\ \tfrac{lbs}{FT}$

LINE #4, #5, #6 AND #7
$W_{TOTAL} = 650\ \tfrac{lbs}{FT}$

LINE #8 SHORING

$$W_{TOTAL} = W_{DEAD} + W_{SNOW} + W_{DRIFT}$$

$$= \left(25\tfrac{lbs}{FT^2}\right)(3_{FT}) + \left(45\tfrac{lbs}{FT^2}\right)(3_{FT}) + \left(34\tfrac{lbs}{FT^2}\right)(3_{FT})$$

$$= 312\ \tfrac{lbs}{FT}$$

SAY $W_{TOTAL} = 500\ \tfrac{lbs}{FT}$

LINE #8
$W_{TOTAL} = 500\ \tfrac{lbs}{FT}$

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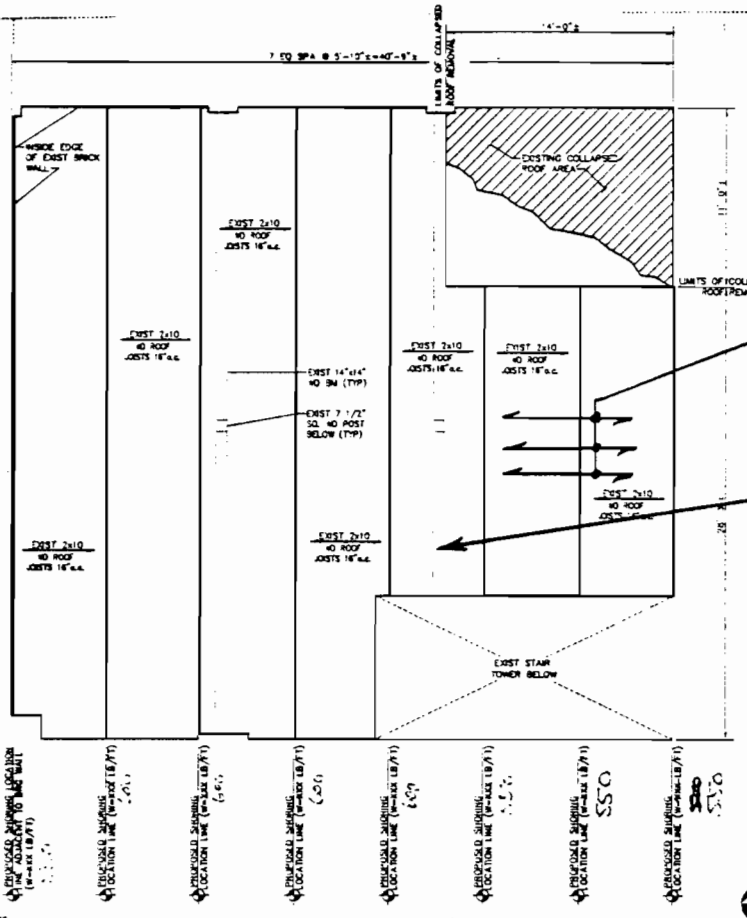
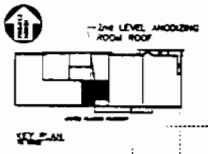
SHEET 47 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION — 2ND FLR ANODIZING RM



2nd LEVEL ANODIZING RM ROOF FRAMING/SHORING PLAN
SCALE: 1/4"=1'-0"

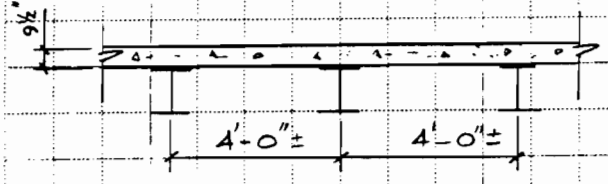
NOTES:
1. TOP OF EXIST JOIST ELEV. = 15'-0"± A.F.F. (TYP)
2. 2nd LEVEL ANODIZING RM F.F. ELEV. = 284'-0"±
3. MAXIMUM SHORING COLUMN SPACING = 8'-6"
4. REMOVE EXIST PARTIALLY COLLAPSED ROOF AREA WITHIN LIMITS INDICATED.



EXIST W9 FLR BEAMS SPACED 4'-0" o.c. SUPPORTING 9½" THK SLAB ABOVE (TYP)

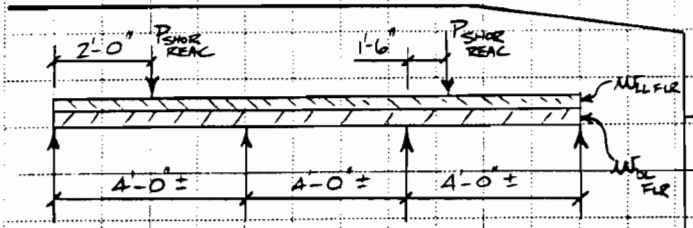
W20 FLR GIRDER WITH C12 BUILT-UP COLUMNS SPACED 14'-6" o.c. (MAX)

CHECK EXIST CONC SLAB



- ASSUME LL ON SLAB = 30 PSF
- SHORING LINE LOAD = 600 lbs/FT
- ASSUME CONCRETE SLAB NOT REINFORCED

TRY SHORING COLUMNS AT 7'-6" o.c.



$P_{SHOR\ REAC} = \left(600\frac{lbs}{FT}\right)(7.5\,FT)$

$P_{SHOR\ REAC} = 4.5^{K}$

$M_{MAX} = 4\ K\text{-}FT$

*SEE ENERCALC PG 48+49

(ASSUME 1FT WIDTH OF CONCRETE)

$W_{LL\ FLR} = \left(30\frac{lbs}{FT^2}\right)(1\,FT)$

$W_{LL\ FLR} = 30\frac{lbs}{FT}$

$W_{DL\ CONC} = \left(150\frac{lbs}{FT^3}\right)\left(\frac{9.5\,in}{12\frac{in}{FT}}\right)(1\,FT)$

$W_{DL\ FLR} = 120\frac{lbs}{FT}$

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III WINNERS CIRCLE
ALBANY, NY 12205

Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 9:54AM, 12 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Multi-Span Steel Beam

General Information

Description

Fy - Yield Stress 33.00 ksi Load Duration Factor 1.00
Spans Considered Continuous Over Supports

Span Information

Span	ft	4.00	4.00	4.00
Steel Shape				
End Fixity		Pin-Pin	Pin-Pin	Pin-Pin

Loads

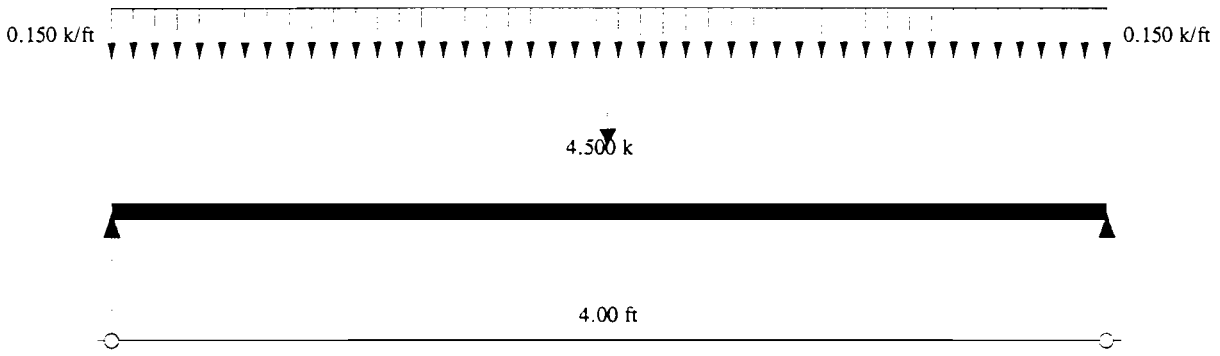
Dead Load	k/ft	0.15	0.15	0.15
Live Load	k/ft			
Point #1 DL	k	4.50		4.50
LL	k			
@ X	ft	2.000		1.500

Results

Mmax @ Cntr	k-ft	4.0	0.0	3.5
@ X =	ft	2.00	0.00	1.49
Max @ Left End	k-ft	0.0	-1.6	-1.6
Max @ Right End	k-ft	-1.6	-1.6	0.0
fb : Actual	psi	0.0	0.0	0.0
Fb : Allowable	psi	0.0	0.0	0.0
		Bending OK	**Bending OK**	**Bending OK**

Reactions & Deflections

Shear @ Left	k	2.15	0.29	3.52
Shear @ Right	k	2.95	0.31	1.58
Reactions...				
DL @ Left	k	2.15	3.24	3.83
LL @ Left	k	0.00	0.00	0.00
Total @ Left	k	2.15	3.24	3.83
DL @ Right	k	3.24	3.83	1.58
LL @ Right	k	0.00	0.00	0.00
Total @ Right	k	3.24	3.83	1.58
Max. Deflection	in	0.000	0.000	0.000
@ X =	ft	0.00	0.00	0.00



Mmax = 4.00 k-ft at 1.99 ft from left

Dmax = 0.0000 in at 0.00 ft from left

Mmax @ right = -1.58 k-ft

DL Reaction = 2.154 k

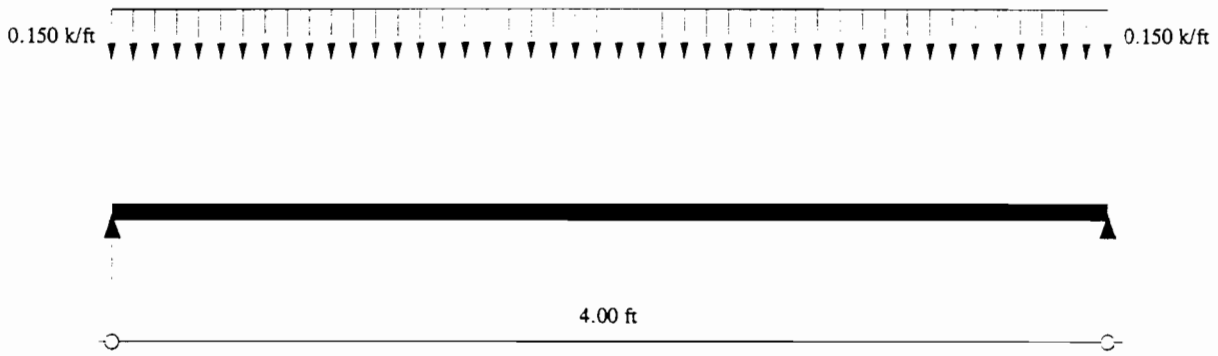
LL Reaction = 0.000 k

Total Reaction = 2.154 k

DL Reaction = 3.236 k

LL Reaction = 0.000 k

Total Reaction = 3.236 k



Mmax = 0.00 k-ft at 0.00 ft from left

Dmax = 0.0000 in at 0.00 ft from left

Mmax @ left = -1.58 k-ft

DL Reaction = 3.236 k

LL Reaction = 0.000 k

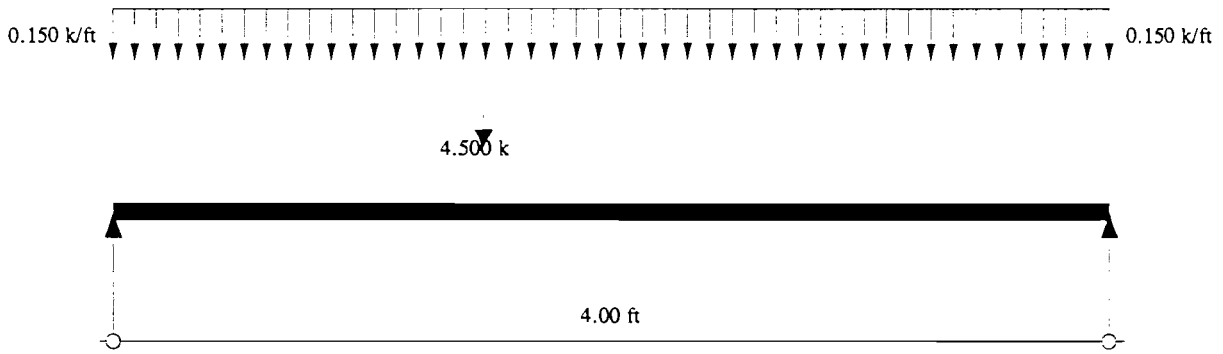
Total Reaction = 3.236 k

Mmax @ right = -1.61 k-ft

DL Reaction = 3.825 k

LL Reaction = 0.000 k

Total Reaction = 3.825 k



Mmax = 3.46 k-ft at 1.49 ft from left

Dmax = 0.0000 in at 0.00 ft from left

Mmax @ left = -1.61 k-ft

DL Reaction = 3.825 k

LL Reaction = 0.000 k

Total Reaction = 3.825 k

DL Reaction = 1.582 k

LL Reaction = 0.000 k

Total Reaction = 1.582 k

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 2ND FLR ANODIZING RM

CHECK EXIST CONC SLAB CONT.

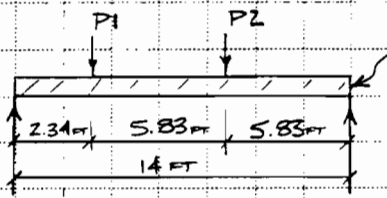
$M_n = 6.59$ K-FT (SEE PG 3)

$M_{MAX} = 4$ K-FT $< M_{ALLOW} = 6.59$ K-FT OK

CONCRETE SLAB ADEQUATE TO RESIST SHORING POINT LOADS SPACED 7'-6" O.C.

CHECK EXIST W9 BEAMS (SPACED 4'-0" ± O.C.)

EXIST W9: $d = 9\frac{1}{4}"$, $b_f = 4\frac{1}{4}"$, $t_f = \frac{1}{4}"$ } ASSUME W10 x 15



TRY SHORING @ 6'-0" O.C.

$P1 = \left(513 \frac{lbs}{FT}\right)(6FT) = 3.1^K$ (SEE PG 45 SHORING CALCS)

$P2 = \left(321 \frac{lbs}{FT}\right)(6FT) = 1.93^K$ (SEE PG 45 SHORING CALCS)

$W_{TOTAL} = W_{LL} + W_{DL}$

$= \left(30 \frac{lbs}{FT^2}\right)(4FT) + \left(150 \frac{lbs}{FT^3}\right)\left(\frac{9.5IN}{12\frac{IN}{FT}}\right)(4FT)$

$W_{TOTAL} = 595 \frac{lbs}{FT}$

$^*M_{MAX} = 24.26^{K-FT} < {}^*M_{ALLOW} = 24.97$ K-FT OK

*SEE ENERCALC PG 51

W9 BMS ADEQUATE TO RESIST SHORING POINT LOADS SPACED 6'-0" O.C.

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ALBANY, NY 12205

Title : UNITED PLATING Job # 6808.41.82
Dsgnr: MLM Date: 10:20AM, 12 FEB 98
Description : EXIST BM ANALYSIS

Scope :

Steel Beam Design

General Information

Description

Steel Section	**B10X15**		Fy	33.00ksi
		Pinned-Pinned	Load Duration Factor	1.00
Center Span	14.00 ft	Bm Wt. Added to Loads		
Left Cant.	0.00 ft	LL & ST Act Together		
Right Cant	0.00 ft			
Lu	0.00 ft			

Distributed Loads

	#1	#2	#3	#4	#5	#6	#7	
DL	0.595							k/ft
LL								k/ft
ST								k/ft
Start Location								ft
End Location	14.000							ft

Point Loads

	#1	#2	#3	#4	#5	#6	#7	
Dead Load	3.100	1.930						k
Live Load								k
Short Term								k
Location	2.340	8.170						ft

Summary

Beam OK

Using: B10X15 section, Span = 14.00ft, Fy = 33.0ksiEnd Fixity = Pinned-PinnedFy = 33.00ksi, Lu = 0.00ft, LDF = 1.000

	Actual	Allowable		
Moment	24.263 k-ft	24.974 k-ft	Max. Deflection	-0.430 in
fb : Bending Stress	21.160 ksi	21.780 ksi	Length/DL Defl	390.6 : 1
fb / Fb	0.972 : 1		Length/(DL+LL Defl)	390.6 : 1
Shear	7.655 k	30.360 k		
fv : Shear Stress	3.328 ksi	13.200 ksi		
fv / Fv	0.252 : 1			

Force & Stress Summary

<<-- These columns are Dead + Live Load placed as noted -->>

	Maximum	DL Only	LL @ Center	LL+ST @ Center	LL @ Cants	LL+ST @ Cants	
Max. M +	24.26 k-ft	24.26					k-ft
Max. M -							k-ft
Max. M @ Left							k-ft
Max. M @ Right							k-ft
Shear @ Left	7.66 k	7.66					k
Shear @ Right	5.91 k	5.91					k
Center Defl.	-0.430 in	-0.430	0.000	-0.430	0.000	0.000	in
Left Cant Defl	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Right Cant Def	0.000 in	0.000	0.000	0.000	0.000	0.000	in
...Query Defl @	0.000 in	0.000	0.000	0.000	0.000	0.000	in
Reaction @ Left	7.66	7.66		7.66			k
Reaction @ Rt	5.91	5.91		5.91			k

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SHEET 52 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 2ND FLR ANODIZING RM

CHECK EXISTING GIRDER

SPAN = 20'-0"
L_b = 4'-0"

$d = 20\frac{1}{4}"$
$b_f = 5\frac{1}{2}"$
$t_f = \frac{1}{4}"$
AMERICAN STANDARD 20 × 65.4
$S_x = 116.9\ in^3$

$$M_{ALLOW} = F_b S_x = \frac{(0.66)(33\ KSI)(116.9\ in^3)}{(12\ \frac{IN}{FT})}$$

$M_{ALLOW} = 212$ K-FT

ASSUME $W = \frac{15.3^K}{4FT} = 3.8\ \frac{K}{FT}$

$$M_{MAX} = \frac{wl^2}{8} = \frac{(3.8\ \frac{K}{FT})(20\ FT)^2}{8}$$

$M_{MAX} = 190$ K-FT

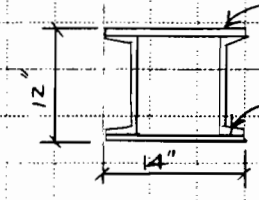
$$R_{MAX} = \frac{wl}{2} = \frac{(3.8\ \frac{K}{FT})(20\ FT)}{2}$$

$R_{MAX} = 38^K$

$M_{MAX} = 190$ K-FT $<$ $M_{ALLOW} = 212$ K-FT OK

EXIST GIRDER ADEQUATE TO RESIST SHORING LOADS

CHECK EXISTING COLUMN



ASSUME → C12x30

* $A_{REA} = 26.39\ in^2$
* $r_y = 4.398\ in$

*SEE ENERCALC PG53

$P_{MAX} = (2)(R_{MAX})$ COL HEIGHT = 12 FT
$P_{MAX} = (2)(38^K)$
$P_{MAX} = 76^K$

AISC 5-42

$$C_c = \sqrt{\frac{2\pi^2 E}{F_y}} = 132$$

$$\frac{Kl}{r_y} = \frac{(1.0)(12\ FT)(12\ \frac{IN}{FT})}{(4.398\ in)} = 33$$

$C_c > \frac{Kl}{r}$

$$\therefore F_a = \frac{\left(1 - \frac{(\frac{Kl}{r})^2}{2C_c^2}\right) F_y}{\frac{5}{3} + \frac{3(\frac{Kl}{r})}{8C_c} - \frac{(\frac{Kl}{r})^3}{8C_c^3}} \quad \left(\text{AISC } \S 2\text{-}1\right)$$

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GENERAL SECTION PROPERTIES

UNITED PLATING
EXIST COLUMN

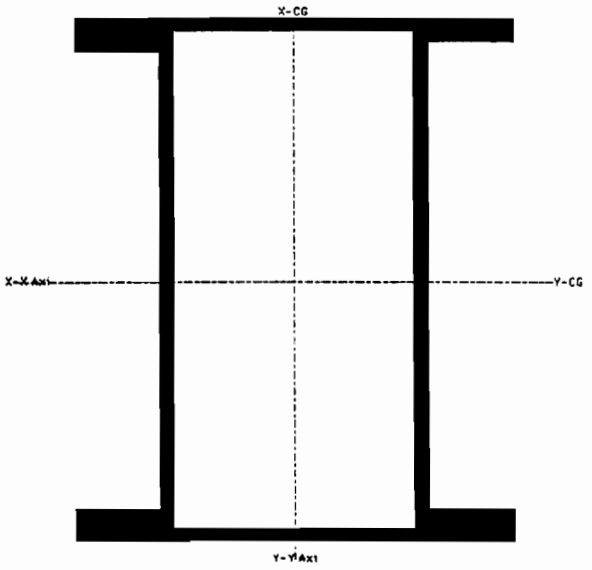
PLATE & PIPE SHAPES

ID	Plates Height	Plates Width	Pipes Radius	Pipes Thickness	Distance to C.G. X	Distance to C.G. Y	Area
#1	0.313	14.000 in			0.000	6.156 in	4.38 in2
#2	0.313	14.000 in			0.000	-6.156 in	4.38 in2

AISC Shape	AISC Section	Depth	Width	Distance to C.G. X	Distance to C.G. Y	Angle
#1	c12x30	12.000	3.170 in	4.500	0.000 in	0.00 °
#2	c12x30	12.000	3.170 in	-4.500	0.000 in	180.00 °

CALCULATED PROPERTIES

Section Area	=	26.390 in2	Measured from bottom & left:			Fiber Distances:	
			X-Dist. To CG	=	0.000 in	X-Left	= -7.000 in
I-xx	=	655.696 in4	Y-Dist. To CG	=	-0.000 in	X-Right	= 7.000 in
I-yy	=	510.407 in4				Y-Top	= 6.313 in
			r-xx	=	4.985 in	Y-Bottom	= -6.313 in
Sx : Top	=	103.872 in3	r-yy	=	4.398 in		
Sx : Bottom	=	103.872 in3					
Sy : Left	=	72.915 in3					
Sy : Right	=	72.915 in3					



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SHEET 54 OF 58
DATE 11/4/97
PROJ. NO. 6808.41.82

SUBJECT ANALYSIS OF EXIST FLR CONSTRUCTION – 2ND FLR ANODIZING RM

$$F_a = \frac{\left(1 - \frac{(33)^2}{(2)(132)^2}\right)(33\ KSI)}{\frac{5}{3} + \left(\frac{3}{8}\right)\left(\frac{33}{132}\right) - \frac{(33)^3}{(8)(132)^3}} = \frac{31.97\ KSI}{1.76} = \frac{18.16\ KSI}{2.0\ (F.S.)} = 9.1\ KSI$$

↳ (REF. p6)

$F_a = 9.1\ KSI$

$$f_a = \frac{76^K}{26.39\ IN^2} = 2.88\ KSI$$

$$\frac{f_a}{F_a} = \frac{2.88\ KSI}{9.1\ KSI} = 0.32 < 1.0\ \text{OK}$$

EXIST BUILT-UP COLUMNS ADEQUATE TO RESIST NEW SHORING LOADS

SUBJECT ALLOWABLE FLR LOADS

— DETERMINE MAX. UNIFORM LOAD ON ALL CONCRETE SLABS (WITHOUT SHORING)

— 6TH LEVEL — SLAB THICKNESS = 9.5 IN

— CHECK CONCRETE SLAB —

$M_{ALLOW} = 6.59\ K\text{-FT}$ (SEE PG 50) (ASSUME: 1 FT WIDTH OF SLAB)

$$M_{ALLOW} = \frac{w_{ALLOW}\, l^2}{8} + \frac{w_{CONC}\, l^2}{8}$$

$$w_{CONC} = \left(150\frac{lbs}{FT^3}\right)\left(\frac{9.5\,IN}{12\frac{IN}{FT}}\right)(1\,FT)$$

$$w_{CONC} = 0.119\frac{K}{FT}$$

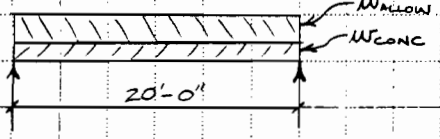
$$w_{ALLOW} = \left(M_{ALLOW} - \frac{w_{CONC}\, l^2}{8}\right)\left(\frac{8}{l^2}\right)$$

$$= \left(6.59_{K\text{-FT}} - \frac{\left(0.119\frac{K}{FT}\right)(4.46FT)^2}{8}\right)\left(\frac{8}{(4.46FT)^2}\right)$$

$$w_{ALLOW} = \left(2.53\frac{K}{FT}\right)(1\,FT)$$

$$w_{ALLOW_{CONC}} = 2530\frac{lbs}{FT^2}$$

— CHECK STL BEAMS —



ASSUME W14x22
$L_b = 0\ FT$
$S_x = 29\ IN^3$

$$M_{MAX} = F_b S_x \rightarrow \frac{0.66(33KSI)(29\,IN^3)}{\left(12\frac{IN}{FT}\right)}$$

$$M_{MAX} = 52.6\ K\text{-FT}$$

$$w_{CONC} = \left(150\frac{lbs}{FT^3}\right)\left(\frac{9.5\,IN}{12\frac{IN}{FT}}\right)(4.46\,FT)$$

$$w_{CONC} = 0.530\frac{K}{FT}$$

$$w_{ALLOW} = \left(52.6K\text{-FT} - \frac{\left(0.530\frac{K}{FT}\right)(20FT)^2}{8}\right)\left(\frac{8}{(20FT)^2}\right)$$

$$w_{ALLOW} = \frac{\left(0.522\frac{K}{FT}\right)}{(4.46FT)}$$

$$w_{ALLOW_{STL\ BM}} = 117\frac{lbs}{FT^2}$$

6TH LEVEL FLOOR RATING

$$w_{ALLOW} = 100\frac{lbs}{FT^2}$$

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SHEET 56 OF 58
DATE 12/5/97
PROJ. NO. 6808.41.82

SUBJECT ALLOWABLE FLR LOADS

5TH LEVEL

– CHECK CONCRETE SLAB –

THKNESS = 9 IN

$M_{ALLOW} = 6.14$ K-FT (SEE PG 11)

$$W_{ALLOW} = \left(6.14\ \text{K-FT} - \frac{\left(0.113\frac{K}{FT}\right)(4\ FT)^2}{8}\right)\left(\frac{8}{(4\ FT)^2}\right)$$

$$W_{ALLOW} = \left(2.96\frac{K}{FT}\right)(1\ FT)$$

$$W_{CONC} = \left(150\frac{lbs}{FT^3}\right)\left(\frac{9\ IN}{12\frac{IN}{FT}}\right)(1\ FT)$$

$W_{CONC} = 0.113\frac{K}{FT}$

$$W_{ALLOW\ CONC} = 2960\frac{lbs}{FT^2}$$

CHECK STL BEAMS (SAY ASB 9x19.75)

$M_{ALLOW} = 32.3$ K-FT (SEE PG 12)

$$W_{ALLOW} = \left(32.3\ \text{K-FT} - \frac{\left(0.450\frac{K}{FT}\right)(13\ FT)^2}{8}\right)\left(\frac{8}{(13\ FT)^2}\right)$$

$$W_{CONC} = \left(150\frac{lbs}{FT^3}\right)\left(\frac{9\ IN}{12\frac{IN}{FT}}\right)(4\ FT)$$

$W_{CONC} = 0.450\frac{K}{FT}$

$$W_{ALLOW} = \frac{1.079\frac{K}{FT}}{(4\ FT)} \rightarrow W_{ALLOW} = 270\frac{lbs}{FT^2}$$

5TH LEVEL FLOOR RATING
$W_{ALLOW} = 200\frac{lbs}{FT^2}$

4TH LEVEL

– CHECK CONCRETE SLAB – THKNESS = 10 IN

SPAN = 3'-8" (BY INSPECTION STL BEAMS CONTROL FOR ALLOWABLE FLR LOADS)

– CHECK STL BEAMS – (SAY ASB 10x23.3)

$M_{ALLOW} = 40$ K-FT (SEE PG 21)

$$W_{ALLOW} = \left(40\ \text{K-FT} - \frac{\left(0.460\frac{K}{FT}\right)(13\ FT)^2}{8}\right)\left(\frac{8}{(13\ FT)^2}\right)$$

$$W_{ALLOW} = \frac{1.43\frac{K}{FT}}{(3.67\ FT)} \rightarrow W_{ALLOW} = 391\frac{lbs}{FT^2}$$

$$W_{CONC} = 150\frac{lbs}{FT^3}\left(\frac{10\ IN}{12\frac{IN}{FT}}\right)(3.67\ FT)$$

$W_{CONC} = 0.460\frac{K}{FT}$

4TH LEVEL FLOOR RATING
$W_{ALLOW} = 200\frac{lbs}{FT^2}$

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SHEET 57 OF 58
DATE 12/5/97
PROJ. NO. 6808.4182

SUBJECT ALLOWABLE FLR LOADS

— 3RD LEVEL (BREWERY RM)

— CHECK CONCRETE SLAB — 9" THK CONCRETE SLAB
SPAN = 3.71 FT

NOTE: BY INSPECTION STL BM CAPACITY GOVERNS FOR ALLOWABLE FLOOR LOADS.

— CHECK STEEL BEAMS —

$M_{ALLOW} = 18 K\text{-}FT$ (SEE PG 33)

$w_{CONC} = \left(150 \frac{lbs}{FT^3}\right)\left(\frac{9"}{12\frac{"}{FT}}\right)(3.71 FT)$

$w_{CONC} = 0.417 \frac{K}{FT}$

$w_{ALLOW} = \left(18 K\text{-}FT - \frac{(0.417 \frac{K}{FT})(13.3 FT)^2}{8}\right)\left(\frac{8}{(13.3 FT)^2}\right)$

$w_{ALLOW} = \frac{(0.397 \frac{K}{FT})}{(3.71 FT)} \rightarrow w_{ALLOW} = 107 \frac{lbs}{FT^2}$

3RD LEVEL BREWERY RM FLOOR RATING
$w_{ALLOW} = 100 \frac{lbs}{FT^2}$

— 3RD LEVEL — (CHEMICAL STORAGE RM)

ASSUME 3RD LEVEL CHEMICAL STORAGE RM FLOOR FRAMING SIMILAR TO 3RD LEVEL BREWERY RM ∴ $w_{ALLOW} = 100 \frac{lbs}{FT^2}$

3RD LEVEL CHEMICAL STORAGE RM FLOOR RATING
$w_{ALLOW} = 100 \frac{lbs}{FT^2}$

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SHEET 58 OF 58
DATE 12/5/97
PROJ. NO. 6808.41.82

SUBJECT ALLOWABLE FLR LOADS

— 2ND LEVEL — (ANODIZING RM)

— CHECK CONCRETE SLAB — 9" THK CONCRETE SLAB
SPAN = 4'-0"

— CHECK STL BEAMS — (ASSUME B10X15)

$M_{ALLOW} = 25\,K\text{-}FT$ (SEE PG 50)

NOTE: BY INSPECTION STL BM CAPACITY GOVERNS FOR ALLOWABLE FLOOR LOADS

$$W_{ALLOW} = \left(25\,K\text{-}FT - \frac{(0.450\,\frac{K}{FT})(14.5\,FT)^2}{8}\right)\left(\frac{8}{(14.5\,FT)^2}\right)$$

$$W_{CONC} = 150\,\frac{lbs}{FT^3}\left(\frac{9\,IN}{12\,\frac{IN}{FT}}\right)(4\,FT)$$

$W_{CONC} = 0.450\,\frac{K}{FT}$

$$W_{ALLOW} = \frac{(0.501\,\frac{K}{FT})}{(4\,FT)} = 125.3\,\frac{lbs}{FT^2}$$

2ND LEVEL ANODIZING RM FLOOR RATING
$W_{ALLOW} = 100\,\frac{lbs}{FT^2}$

— 2ND LEVEL — (PIPE AND SPRING RM)

— CHECK CONCRETE SLAB — 9½" THK CONCRETE SLAB
SPAN = 3'-4"

NOTE: STL BM GOVERNS BY INSPECTION

— CHECK STL BEAMS —

$d = 8\frac{1}{4}\,IN$
$b_f = 4\frac{3}{8}\,IN$
$t_f = \frac{1}{4}\,IN$

ASSUME W8X13
$S_x = 9.91\,IN^3$
SPACED 3'-4" o.c.
SPAN = 10.33 FT

$$M_{ALLOW} = F_b S_x \rightarrow \frac{(0.66)(33\,KSI)(9.91\,IN^3)}{(12\,\frac{IN}{FT})}$$

$M_{ALLOW} = 18\,K\text{-}FT$

$$W_{ALLOW} = \left(18\,K\text{-}FT - \frac{(0.395\,\frac{K}{FT})(10.33\,FT)^2}{8}\right)\left(\frac{8}{(10.33\,FT)^2}\right)$$

$$W_{CONC} = 150\,\frac{lbs}{FT^3}\left(\frac{9.5\,IN}{12\,\frac{IN}{FT}}\right)(3.33\,FT)$$

$W_{CONC} = 0.395\,\frac{K}{FT}$

$$W_{ALLOW} = \frac{(0.954\,\frac{K}{FT})}{(3.33\,FT)} = 287\,\frac{lbs}{FT^2}$$

2ND LEVEL PIPE AND SPRING RM FLOOR RATING
$W_{ALLOW} = 250\,\frac{lbs}{FT^2}$

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SHEET R1 OF
DATE 11/4/97
PROJ. NO. 6000.41.82

SUBJECT

CODES

(ACI-318) - AMERICAN CONCRETE INSTITUE - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (LATEST ED.)

(AISC) - AMERICAN INSTUTE OF STEEL CONSTRUCTION INC. "MANUAL OF STEEL CONSTRUCTION"

(ASCE 7-95) AMERICAN SOCIETY OF CIVIL ENGINEERS - "MINIMUM DESIGN LOAD FOR BUILDINGS AND OTHER STRUCTURES"

(NYSBC) NEW YORK STATE BUILDING CODE - OFFICAL COMPILATION - CODES, RULES & REGULATIONS - 9 EXECUTIVE(B)

(NFPA) NATIONAL FOREST PRODUCTS ASSOCIATION NATIONAL DESIGN STANDARD

TABLE III.—WORKING STRESSES PERMISSIBLE FOR STRUCTURAL TIMBERS
(Pounds per square inch)

Species	Bending				Compression					
	Allowable stress in extreme fiber				Allowable stress parallel to grain "short columns"			Allowable stress perpendicular to grain		
	Damp or wet location (docks, piling, and sills)	Outside, not in contact with soil (bridges and open sheds)	Under shelter in a dry location (factories and warehouses)	Allowable horizontal shear stress. All locations	Wet location	Outside location	Dry location	Wet location	Outside location	Inside location
Cedar, western red	750	800	900	80	650	700	700	125	150	200
Cedar, northern white	600	650	750	70	450	500	550	100	140	175
Chestnut	700	850	950	90	600	700	800	150	200	300
Cypress	900	1,100	1,300	100	800	1,100	1,100	225	250	350
Douglas fir, (No. 1 structural)	1,100	1,400	1,600	100	900	1,100	1,200	225	250	350
Douglas fir (No. 2 structural)	900	1,100	1,300	90	800	900	1,000	200	225	300
Douglas fir (Rocky mountain region)	700	900	1,100	85	700	800	800	200	225	275
Fir, balsam	600	750	900	70	500	600	700	100	125	150
Gum, red	800	900	1,100	100	650	750	800	150	200	300
Hemlock, western	900	1,100	1,300	75	800	900	900	200	225	300
Hemlock, eastern	800	900	1,000	70	600	700	700	200	225	300
Hickory	1,200	1,500	1,900	140	1,000	1,200	1,500	350	400	600
Larch, western	900	1,100	1,200	100	800	1,000	1,100	200	275	325
Maple, sugar or hard	1,000	1,300	1,500	150	900	1,100	1,200	300	375	500
Maple, silver or soft	700	900	1,000	100	600	700	800	200	250	350
Oak, white or red	1,000	1,200	1,400	125	800	900	1,000	300	375	500
Pine, southern yellow (dense)	1,100	1,400	1,600	125	900	1,100	1,200	225	250	350
Pine, southern yellow (sound)	900	1,100	1,300	105	800	900	1,000	200	225	300
Pine, eastern white	750	800	900	85	650	750	750	125	150	250
Pine, western white	750	800	900	85	650	750	750	125	150	250
Pine, Norway	800	1,000	1,100	85	700	800	800	150	175	300
Redwood	800	1,000	1,200	70	750	900	1,000	125	150	250
Spruce, red, white, and Sitka	800	900	1,100	85	650	750	800	125	150	250
Spruce, Engelmann	500	650	750	70	450	550	600	100	140	175
Tamarack, eastern	900	1,100	1,200	95	800	900	1,000	200	225	300

(*Revised*). *U. S. Department of Agriculture, Forest Service, Forest Products Laboratory, Madison, Wis., Dec. 2, 1919.*

R2

APPENDIX B

SURVEY REPORT/PRE-DEMOLITION ASBESTOS

ASBESTOS PRE-DEMOLITION INSPECTION AND ANALYSIS REPORT

OF

THE UNITED PLATING BUILDING
1742-44 FOSTER AVENUE
SCHENECTADY, NEW YORK

Prepared For:

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

50 Wolf Road, Albany, New York 12233
Michael Zagata, Commissioner
Division of Hazardous Waste Remediation
Michael J. O"Toole, Jr., P.E., Director

DECEMBER 1997

CHA Project number 6808.07

Prepared By:

CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS
& LANDSCAPE ARCHITECTS
III Winners Circle
Albany, New York 12205
(518) 453-4500

TABLE OF CONTENTS

APPENDICES

ASBESTOS PRE-DEMOLITION INSPECTION AND ANALYSIS REPORT OF THE UNITED PLATING BUILDING 1742-44 FOSTER AVENUE SCHENECTADY, NEW YORK

1.0 INTRODUCTION

Clough, Harbour & Associates LLP (CHA), through Lawler, Matusky & Skelly Engineers LLP (LMS) has been assigned the Remedial Design (RD) of the United Plating Building (UP) site cleaning and demolition. LMS had previously performed the remedial investigation/feasibility study (RI/FS) on the site. As part of CHA's preliminary design services, CHA performed an asbestos pre-demolition inspection and analysis of the United Plating Building located at 1742-44 Foster Avenue in the City of Schenectady, Schenectady County, New York. The structure assessed for this report covers approximately one-third of the 1.7 acre site. As previously indicated, demolition of the building is proposed at this time.

The purpose of this pre-demolition survey was to identify existing asbestos-containing materials (ACMs) associated with the subject structure. The inspection was performed consistent with New York Code of Rules and Regulations Title 12 Part 56-1.9 also known as, New York State Department of Labor (NYSDOL) Industrial Code Rule 56-1.9, the National Emission Standard for Hazardous Air Pollutants (NESHAPS) Title 40 of the Code of Federal Regulations Part 61(M) (40CFR 61(M)), Occupation Safety and Health Administration (OSHA) 29 CFR Part 1926.1101 (k) regulations, and CHA's standard scope of work for asbestos pre-demolition inspections.

2.0 SCOPE OF WORK

The scope of this asbestos pre-demolition inspection consisted of the following:

2.1 A thorough inspection of the subject properties by United States Environmental Protection Agency (USEPA)/NYSDOL certified inspectors to identify, assess, quantify, and sample suspect ACMs listed in 12 NYCRR 56-1.9 such as:

- Surfacing materials
- Thermal system insulation (TSI)
- Roofing and siding materials
- Miscellaneous materials such as dust and debris, gaskets, ceiling tiles, floor tiles, etc.

2.2 A thorough review of building plans and records, if available, for references to locations of asbestos, renovations, and/or repairs at the site.

2.3 Three bulk samples were collected from each identified suspect ACM. Collected bulk samples were submitted to a certified laboratory where the percentage of asbestos for each sample was determined using polarized light microscopy (PLM). For this project, 56 bulk samples were collected and analyzed by PLM methodology. For those samples that were non-friable organically bound (NOB) materials (i.e. floor tiles and roofing materials), the New York State Department of Health (NYSDOH) has determined that the PLM method of determining asbestos content is statistically unreliable. Therefore, NYSDOH requires further analysis of the materials using a gravimetric reduction of the sample and transmission electron microscopy (TEM) analysis to make a definitive conclusion of the asbestos content of a material. For this project, 10 bulk samples were analyzed using the TEM methodology. The analysis procedure continued until the first asbestos positive sample for any group of three samples was determined, thus omitting the remaining sample analysis.

2.4 Mapping was created, identifying locations of assessed suspect ACM and locations and areas where ACM was located based on analytical results.

2.5 Additionally, the survey included identification of building locations/identity, the owner's name and address, the name and address of the owner's agent, the party performing the survey, the dates of the survey, and the laboratory used for the analysis of the samples collected during the survey as per regulatory requirements.

3.0 PROJECT DESCRIPTION

The structure inspected for this report is a multi-story brick, interior steel-framed open-bay building. Information pertaining to an exact construction date for the structure was not available. However, the United Plating Building operated as a metal plating corporation from 1945 until 1990. The building is constructed on a concrete slab-on-grade, with various subgrade concrete sections used as containment areas for operating boilers and metal plating tanks. The north section of the factory appears to have been constructed at a later date. Access below this section indicates that it was built over a dirt crawl space. The hot and cold water pipes that remain were insultated in less than 10% of the areas. Gas-fired, residential-sized hot water heaters had no suspect ACMs associated with them. The main building heat was supplied by gas-fired boilers providing radiant heating. The attached shed area was heated by a gas supplied forced hot air unit suspended from the ceiling without suspect ACMs associated with it. Interior walls were sheathed with sheetrock over wooden 2" x 4" studs. The floors consist of bare concrete, vinyl-resilient floor tiles adhered with black mastic, or hardwood floors and carpet or a combination of these coverings. Throughout the history of the building, these systems appear to have been reinstalled and/or over-layed with additional floor coverings. The ceiling systems consist of open joists in the processing areas, sheetrock in less than 10% of the rooms, and suspended ceilings throughout offices and manufacturing areas. During the site inspection of the said building systems, 20 suspect materials were identified. Random and representitive samples of each suspect material associated with the said building systems were collected. The results of the inspection and sample analysis are summarized below.

4.0 SITE INSPECTION AND ANALYTICAL RESULTS

On November 14, 1997, Christopher K. Mullin and Charles Kavanaugh, EPA/NYSDOL certified asbestos inspectors (NYSDOL Certification No. AH 93-10945 and 96-00125, respectedly), conducted a comprehensive asbestos pre-demolition inspection of the United Plating Facility site at 1742-44 Foster Avenue, Schenectady, New York. The site structure and associated building systems, were inspected, and samples were collected of identified suspect ACMs following established protocol. Sample location plans showing the relative location of ACM per area inspected are included in Appendix A. All samples were submitted to EMSL Analytical, Inc. for analysis. EMSL is a USEPA certified laboratory, (101048-10) for performance of PLM and TEM asbestos analysis. The percentage of asbestos for each collected sample was determined using PLM. For those samples that were NOB materials (i.e., floor tiles, roofing materials), the NYSDOH has determined that the PLM method of determining asbestos content is statistically unreliable. Therefore, NYSDOH requires further analysis of the materials using a gravimetric reduction of the sample and TEM analysis to make a definitive conclusion of the asbestos content of a material. State and federal regulations indicate that a material is considered an ACM if it is greater than 1% by weight asbestos after complete laboratory analysis. For this project, TEM analysis was performed on 10 of the 56 collected samples. Analytical reports detailing the type of asbestos and relative percentages per building material are included in Appendix B. Based on the identification of the previously noted building systems, sheetrock, floor tiles and ceiling tiles, pipe and furnace insulation, roofing asphalt materials, and breaching materials, were considered suspect ACM. The inspection results are summarized in the table below.

ACM PRE-DEMOLITION INSPECTION SUMMARY
UNITED PLATING BUILDING
1742-44 FOSTER AVENUE
SCHENECTADY, NY

MATERIAL DESCRIPTION	MATERIAL LOCATION	APPROX. QUANTITY	CONDITION	ACM/NON-ACM	SAMPLE NO.
Brown 12 in. X 12 in. ceiling tile	1st floor Office	470 sf	Fair	Non-ACM	CT_1-01/02/03
Gray/White 2'x4' ceiling tile	2nd floor Parts & Storage	240 sf	Poor	Non-ACM	CT_2-01/02/03
Gray/White 10 in. pipe breaching	1st floor of Annex Building	2 lf	Poor	20% ACM (Chrysotile)	BM_1-01/02/03
Brown/Gray 6 in. pipe breaching	Chrome sump boiler	2 lf	Poor	8.2% ACM (Chrysotile)	BM_2-01/02/03
Brown/Gray 1/4 in. Transite	4th floor equipment storage area	10 sf	Good	24% ACM (Chrysotile)	TR_1-01/02/03
Brown/Gray ½ in. Transite	4th floor Brewery	10 sf	Good	13 % ACM (Chrysotile)	TR_2
Black/Green 12 in. x12 in. floor tile	1st floor Office	470 sf	Fair	18.01% ACM (Chrysotile)	FT_1-01/02/03
Gray/Black 12 in. X12 in. floor tile	1st floor Office	470 sf	Fair	8.3 %ACM (Chrysotile)	FT_2-01/02/03
Black/Brown 12 in. X 12 in. floor tile	2nd floor Sewing Room	1540 sf	Fair	27.61% ACM (Chrysotile)	FT_3-01/02/03
Gray 1.5 in. Gasket	Storage Area boiler	2 sf	Fair	57% ACM (Chrysotile)	BG_1-01/02/03
Brown/Gray Rolled Gasket	Storage Area boiler	2 sf	Fair	27% ACM (Chrysotile)	WG_2-01/02/03
Gray/Black Rolled underlayment	1st Office	470 sf	Fair	Non-ACM	SH_1-01/02/03
Gray/Beige Air Cell	2nd floor Parts and Storage Room	8 lf	Poor	9.1%ACM (Chrysotile)	AC_1-01/02/03

MATERIAL DESCRIPTION	MATERIAL LOCATION	APPROX. QUANTITY	CONDITION	ACM/NON-ACM	SAMPLE NO.
Black Rolled Roofing	Throughout Roof System	9957 sf	Poor	3.2 % ACM (Chrysotile)	RF_1-01/02/03
Black Roof Cement	Throughout Roof System	9957 sf	Poor	8.5 % ACM (Chrysotile)	RC_1-01/02/03
Black floor tile mastic	1st and 2nd floor Sewing Rooms and Offices	2480 sf	Fair	<1% ACM	MT_1-01/02/03
White Powder loose	Annex Shed	2 sf	NA	NON-ACM	WD_1-01/02/03
Brown/Gray sheet rock	1st &2nd floor Storage-Silver Plating Shop/ Annex/ N. wall- 1st floor Pipe & Spring Room	5416sf	Fair to Good	NON-ACM	SR_1-01/02/03
White 3-1/2 in. MAG	1st floor Plating Room	100 lf	Poor	NON-ACM	MG_1-01/02/03
Gray/White 3 in. MAG	1st floor Plating & Chrome Plating Rooms	110 lf 15 sf	Poor	33% ACM (Chrysotile)	MG_2-01/02/03

in. = inch
ft. = foot
lf = linear foot
sf = square feet
MAG = Magnesium Silicate
Chrysotile= Chrysotile asbestos is typically grayish-white, yellow, green, or brown in color. Chrysotile is in nearly 95% of ACMs and used mostly for thermal and electrical insulation.
Fair - ACM attached to its substrate and not more than 10% broken.
Poor - ACM that is more than 10% broken and/or delaminated from the substrate.

5.0 SUMMARY AND RECOMMENDATIONS

Based upon CHA's site observations and analytical bulk sample results, CHA has established the following summary of conditions and recommendations.

5.1 The following materials have been found to contain asbestos in quantities greater than one percent. (See plans A1 through A4 for mapped locations).

- The pipe breaching (BM_1 and BM_2) consisting of 4 linear feet of materials located in the Annex and near the Chrome Sump boiler.
- Transite (TR_1 and TR_2) consisting of 20 square feet of material found on 4th floor equipment.
- Boiler gasket (BG_1 and WG_1) consisting of 4 square feet of material located on both boilers
- Asbestos containing 12"x12" floor tiles (FT_1, FT_2,and FT_3) consisting of 2480 square feet of material located on the 1st. and 2nd floor.
- 9975 square feet of roofing material including rolled roofing and roofing cement (RF and RC samples).
- Lateral pipe insulation (MG_2 and AC_1) consisting of 232 linear feet of material located in the Chrome Plating Room and in the 2nd floor Parts and Storage Area.

5.2 Base on the site inspection and sample analysis, CHA has the following recommendations:

5.2.1 Based on regulatory requirements of NYSDOL Industrial Code Rule 56-1.9 (e), CHA recommends that no bids be advertised, contracts let, or demolition activities conducted prior to the completion of an asbestos remediation, performed according to all applicable local, state, and federal regulations, including newly enacted OSHA regulations relating to asbestos. CHA also recommends utilization of applicable variance 100 or designing site-specific variance from 12 NYCRR 56 for removal of ACMs prior to building demolition.

5.2.2 Based on regulatory requirements of NYSDOL Industrial Code Rule 56-1.9 (d), CHA recommends that information derived from the building survey be immediately transmitted by the building owner, or its agent, to the NYSDEC Commissioner of Labor through the NYSDOL Department of Division of Safety and Health, Asbestos Control Bureau and the local government charged with issuing permits.

6.0 LIMITATIONS

The conclusions presented in this report are based on information gathered in accordance with the Scope of Work defined in Section 2.0 of this report. All conclusions reflect observable conditions existing at the time of the site inspection, information provided by Owner, and information reported from the bulk sample analysis.

APPENDIX A

PLANS

LEGEND FOR SHEETS A1 THRU A4

BM-2 = BREACHING MATERIAL ON 6 inch PIPE

SH-1 = SHEETING UNDERLAYMEND UNDER FT-01

AC-1 = THERMAL SYSTEM INSULATION (AIR CELL)

FT-4 = 12 x 12 inch OFF-WHITE FLOOR TILE

RC-3 = ROOFING CEMENT OVER PHOTO LAB

RF-2 = ROOFING FELT OVER ANODIZING ROOM

RC-2 = ROOFING CEMENT OVER ANODIZING ROOM

CT-1 = 12 x 12 inch BROWN (WHITE FACE) "SQUIGGLES" CEILING TILE

CT-2 = 2 x 4 ft. WHITE CEILING TILE

SR-1 = SHEET ROCK

WD-1 = WHITE DUST/DEBRIS

RF-1 = ROOF FELT OVER LEAN TO

RC-1 = ROOF CEMENT OVER LEAN TO

FT-1 = 12 x 12 inch GREEN 1/8 inch THICK FLOOR TILE

FT-2 = 12 x 12 inch TAN 1/8 inch THICK FLOOR TILE

FT-3 = 12 x 12 inch BROWN FLOOR TILE

BG-1 = BROWN GASKET

WG-1 = WHITE GASKET

MG-1 = THERMAL SYSTEM INSULATION (MAGNISIUM SILICATE)

MG-2 = THERMAL SYSTEM INSULATION (MAGNISIUM SILICATE)

TR-1 = TRANSITE 1/4 inch THICK

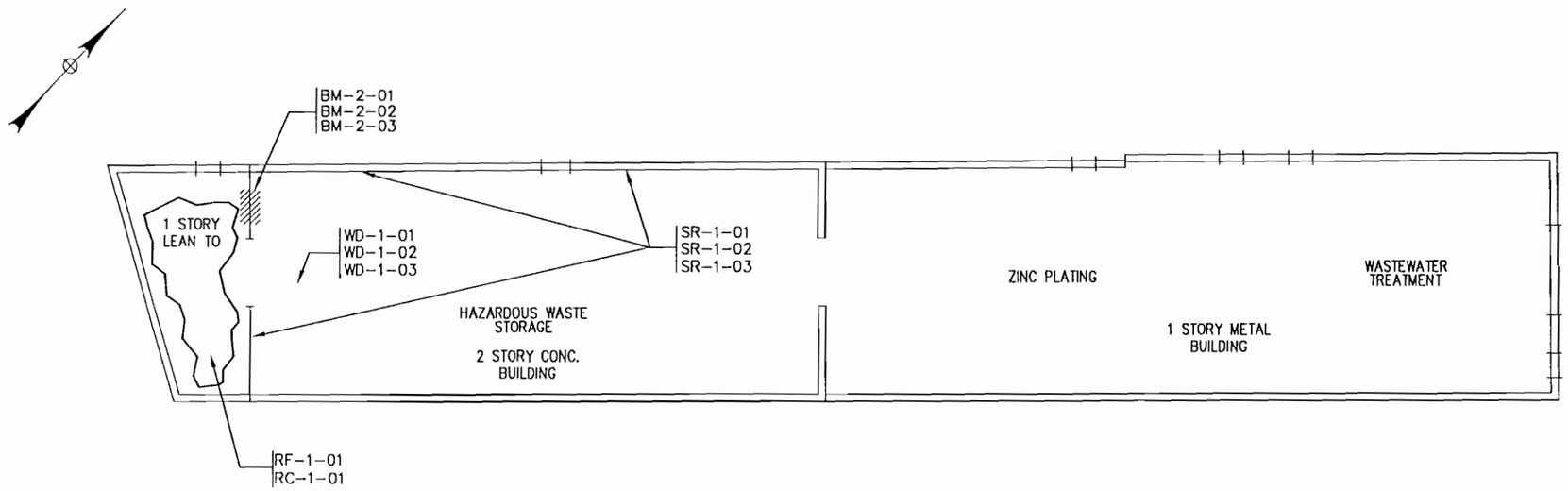
TR-2 = TRANSITE 1/2 inch THICK

MT-1 = FLOOR TILE MASTIC

BM-01 = BREACHING MATERIAL ON 10 inch PIPE

ASBESTOS-CONTAINING MATERIAL

XX-X-XX SAMPLE LOCATION



20 0 20

SCALE: 1' = 20'

NOT FOR CONSTRUCTION

95% SUBMITTAL - ISSUED: 12/19/97

CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

DWG. NO. 6808.07.83

DATE DECEMBER, 1997

UNITED PLATING

BUILDING PRE-DEMOLITION SURVEY
WASTEWATER TREATMENT BUILDING

NYSDEC I.D. NO. 447018

A1

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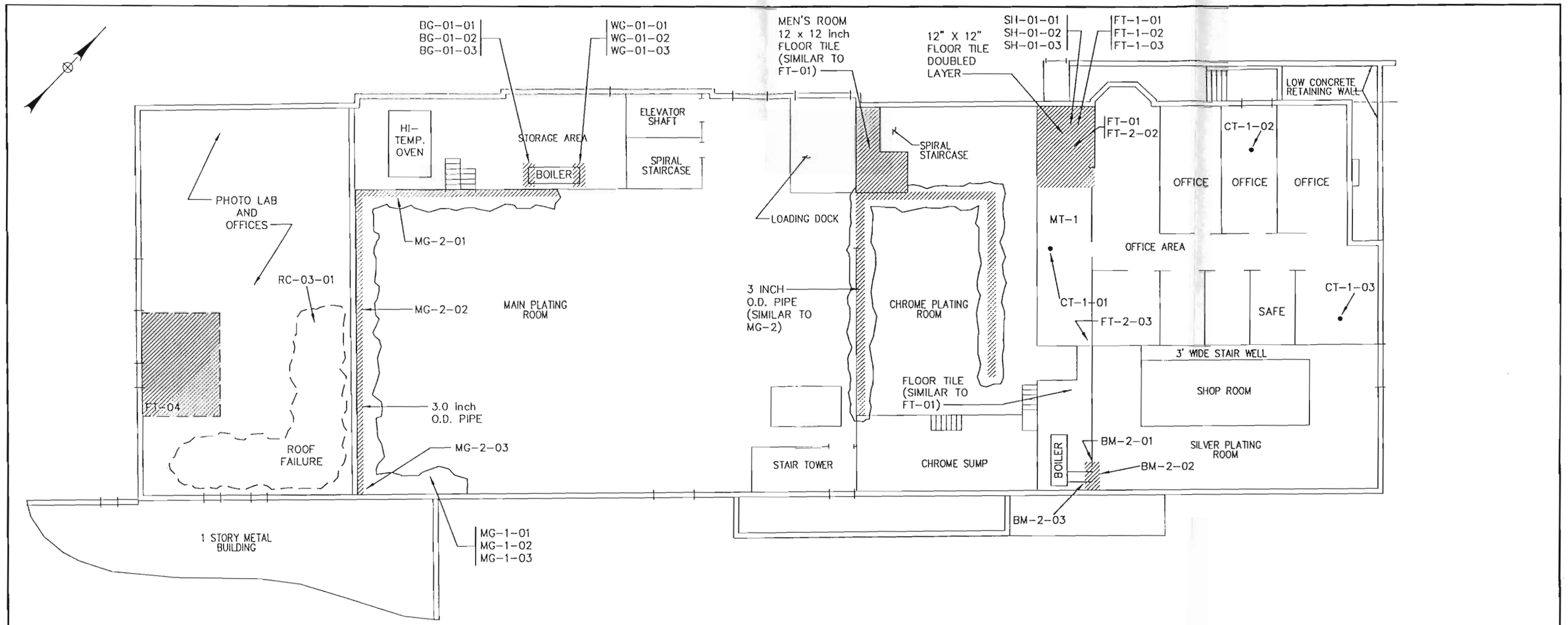


ASBESTOS-CONTAINING DEBRIS

ASBESTOS-CONTAINING MATERIAL

XX-X-XX SAMPLE LOCATION

20 0 20

SCALE: 1" = 20'

N:\6808\07\ASBESTA2.dwg\1=20\JDF\12/17/97

NOT FOR CONSTRUCTION
95% SUBMITTAL - ISSUED: 12/19/97

CHA CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

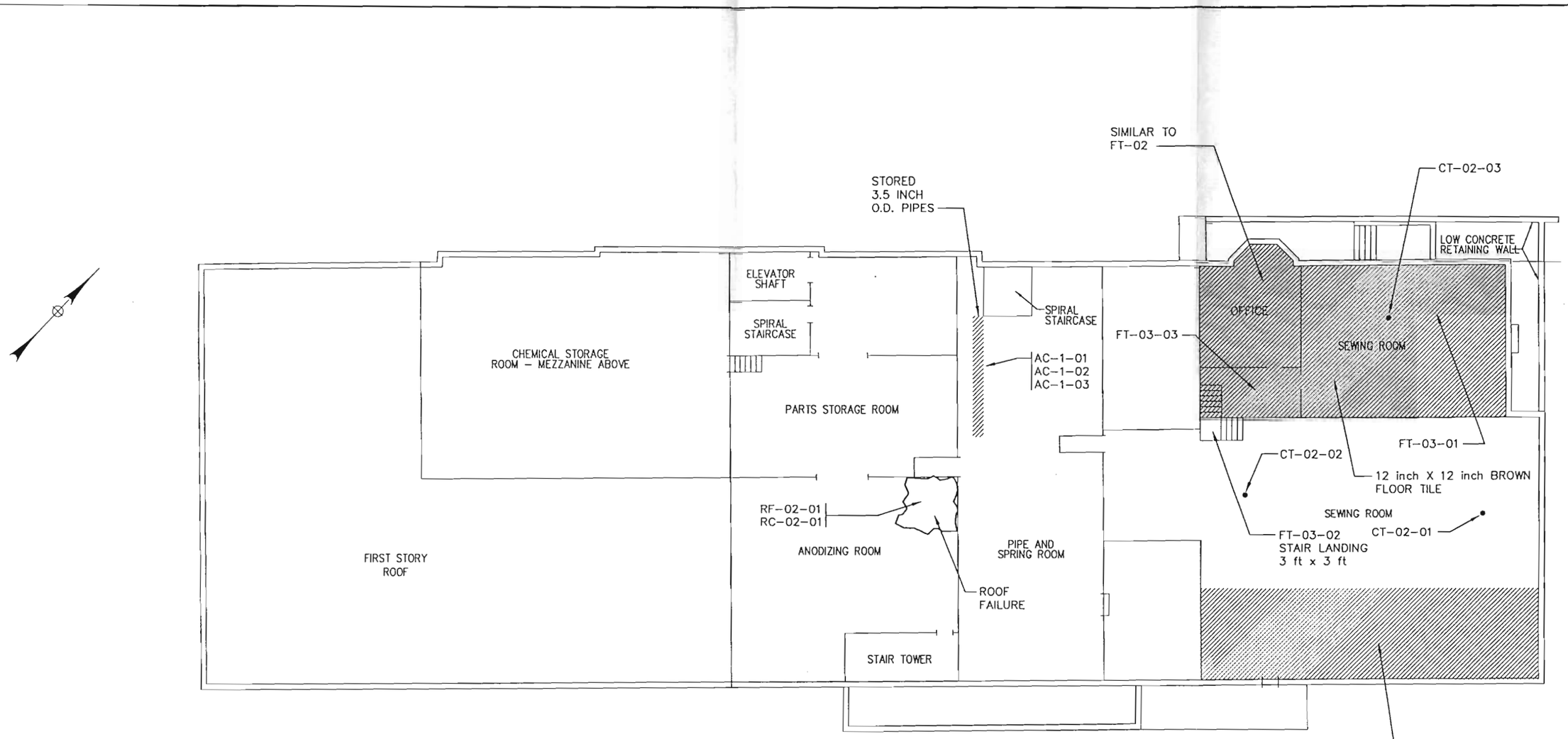
DWG. NO. 6808.07.83 | DATE DECEMBER, 1997

UNITED PLATING

BUILDING PRE-DEMOLITION SURVEY FIRST LEVEL

NYSDEC I.D. NO. 447018

A2



ASBESTOS-CONTAINING DEBRIS

ASBESTOS-CONTAINING MATERIAL

XX-X-XX SAMPLE LOCATION

20 0 20

SCALE: 1" = 20'

N:\6808\07\ASBESTA3.dwg\1=20\JDF\12/18/97

NOT FOR CONSTRUCTION

95% SUBMITTAL - ISSUED: 12/19/97

CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

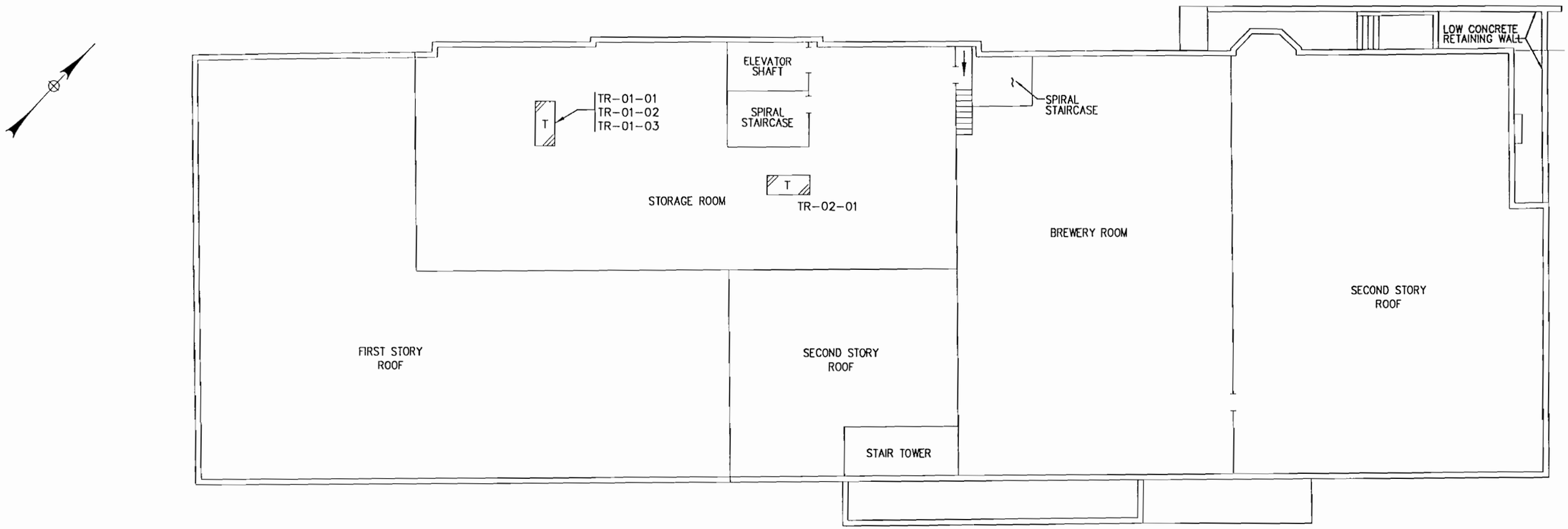
DWG. NO. 6808.07.83 DATE DECEMBER, 1997

UNITED PLATING

BUILDING PRE-DEMOLITION SURVEY SECOND LEVEL

NYSDEC I.D. NO. 447018

A3



XX-X-XX SAMPLE LOCATION

T APPROXIMATE LOCATION OF ASBESTOS ENCASED EQUIPMENT (TRANSITE)

20 0 20

SCALE: 1" = 20'

NOT FOR CONSTRUCTION

95% SUBMITTAL – ISSUED: 12/19/97

CHA
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CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

DWG. NO. 6808.07.83 DATE DECEMBER, 1997

UNITED PLATING

BUILDING PRE-DEMOLITION SURVEY FOURTH LEVEL

NYSDEC I.D. NO. 447018

A4

N:\6808\07\ASBESTA4.dwg\1=20\JDF\12/18/97

APPENDIX B
LABORATORY REPORTS

EMSL Analytical, Inc.

208 Stonehenge Lane
Carle Place, New York
Ph: (516) 997-7251 F: 997-7528

Clough Harbour & Associates
III Winners Circle
Albany, NY 12205

December 1, 1997
Ref Number: LI97-9698
ELAP 11469
NVLAP 101049-10

Project: United Plating 6808.0782

Analysis of New York State NOBs Performed by TEM ELAP 198.4 Method*

SAMPLE ID	SAMPLE DESCRIPTION	COLOR	NON-FIBROUS MATRIX MATERIAL	NON-ASBESTOS FIBROUS MATERIAL	PERCENT ASBESTOS
FT1-1	Floor Tile	Green	81.99%	None Detected	18.01% Chrysotile
FT1-2	Floor Tile	Green	-	-	Not Analyzed
FT1-3	Floor Tile	Green	-	-	Not Analyzed
FT3-1	Floor Tile	Brown	72.4%	None Detected	27.6% Chrysotile
FT3-2	Floor Tile	Brown	-	-	Not Analyzed
FT3-3	Floor Tile	Brown	-	-	Not Analyzed
CH1-1	Tar	Black	100%	None Detected	None Detected
SH1-2	Tar	Black	100%	None Detected	None Detected
SH1-3	Tar	Black	100%	None Detected	None Detected
MT-1	Mastic	Black	100%	None Detected	<1% Chrysotile

Analyst

Laboratory Director

*Results near 1% are not reliable by this method and a more accurate TEM method is recommended.
To ensure reliable results, EMSL recommends the use of SEM as a quality control measure. Without SEM QC the current diagnosis error rate of TEM/NOB and TEM/Chatfield occurs at a frequency of approximately 1-2% of samples analyzed. Without SEM QC, EMSL is not responsible for errors which could have been prevented with SEM QC.

EMSL Analytical, Inc.

208 Stonehenge Lane
Carle Place, New York
Ph: (516) 997-7251 F: 997-7528

Clough Harbour & Associates
III Winners Circle
Albany, NY 12205

December 17, 1997
Ref Number: LI97 10233
ELAP 11469
NVLAP 101049-10

Project: UNITED PLANTING 6808.07.82

Analysis of New York State NOBs Performed by TEM ELAP 198.4 Method*

SAMPLE ID	SAMPLE DESCRIPTION	COLOR	NON-FIBROUS MATRIX MATERIAL	NON-ASBESTOS FIBROUS MATERIAL	PERCENT ASBESTOS
FT-04	Floor Tile	Green	95.1%	None Detected	4.9% Chrysotile

Post-it® Fax Note 7671

To Chris Mellen	Date # of pages ▶
Co./Dept.	From
Phone #	Co.
Fax #	Phone #
	Fax #

Analyst

Laboratory Director

*Results near 1% are not reliable by this method and a more accurate TEM method is recommended.
To ensure reliable results, EMSL recommends the use of SEM as a quality control measure. Without SEM QC the current diagnosis error rate of TEM/NOB and TEM/Chatfield occurs at a frequency of approximately 1-2% of samples analyzed. Without SEM QC, EMSL is not responsible for errors which could have been prevented with SEM QC.

L197-10168

EMSL Analytical, Inc. Asbestos

CHAIN OF CUSTODY L197-10233-TEM

EMSL Representative: Joe Frasca

Your Company Name: Clough, Harbour & Associates

EMSL-Bill to:

Street: 111 Winners Circle

Box #:

City/State: Albany, NY Zip 12205

Street:

Box #:

City/State: Zip:

Phone Results to: Name Chris Mallin

Telephone #: 518 453 4524

Fax Results to: Name

Fax Number: (518) 458-1735

Project Name/Number: United Plating 6808.07.82

Purchase Order #:

MATRIX

- ☐ Air
- ☒ Bulk
- ☐ Wipe
- ☒ Floor Tile
- ☐ Drinking Water
- ☐ Wastewater
- ☐ Soil
- ☐ Dust

TURNAROUND

- ☐ 6-10 Days
- ☒ 5 Days
- ☐ 72 Hours
- ☐ 48 Hours
- ☐ 24 Hour
- ☐ 12 Hour
- ☐ Same Day*
- ☐ 6 Hours

*S.D. - A.M. delivery by Fed. Ex.-Results by Mid-night or earlier

PCM

- ☐ NIOSH 7400
- ☐ OSHA
- ☐ Other:

PLM

- ☐ EPA 600
- ☒ NOB
- ☒ ~~Point Count~~
- ☐ Other:

SEM

- ☐ Qualitative
- ☐ Quantitative

TEM AIR

- ☐ AHERA
- ☐ NIOSH 7402
- ☐ Level I
- ☐ Level II

TEM BULK

- ☐ Drop Mount (Qualitative)
- ☐ Chatfield
- ☐ Chatfield / SEM QC
- ☒ Conventional (Quantitative)*
- ☐ EMSL Method
- ☐ NOB
- ☐ NOB / SEM QC
- ☐ Micro Vac - Quantitative
- ☐ Micro Vac - Qualitative

TEM WATER

- ☐ Wastewater
- ☒ Drinking Water EPA 100.2
- ☐ Water - NY Wastewater
- ☐ Water-NY Drinking Water

TEM WIPE

- ☐ Quantitative
- ☐ Qualitative

XRD

- ☐ Asbestos
- ☐ Silica

OTHER

- ☐

Client Sample # (s) FT-04 - RC-02 Total Samples: 2

Relinquished: Date: Time:

Received: Jackie Blow Date: 12/15/97 Time: 11:20 am

Received: Date: Time:

NOTE: For Additional Samples Use Reverse Side. Please duplicate this form and use additional sheets if necessary.

L197-10168

EMSL Analytical, Inc.

Asbestos

CHAIN OF CUSTODY

L197-10233-TEM

Your Company Name: Clough Harbour & Associates

Project Name/Number: United Plating Fac. 6608.0782 Purchase Order #:

SAMPLE NUMBER	LOCATION	VOLUME (If Applicable)
* FT-04		10'x12'
* RC-03		4'5x8'0 SF
* PLM 1st Analysis Then TEM		

NOTE: Please duplicate this form and use additional sheets if necessary.

EMSL Analytical, Inc.

208 Stonehenge Lane
Carle Place, New York
Ph: (516) 997-7251 F: 997-7528

Clough Harbour & Associates
III Winners Circle
Albany, NY 12205

December 17, 1997
Ref Number: LI9710168
ELAP 11469
NVLAP 101048-10

Project: UNITED PLANTING INCORPORATED - 6808-0782

PLM NOB Analysis Results (ELAP 198.1 Method)*

SAMPLE ID	SAMPLE DESCRIPTION	COLOR	NON-FIBROUS MATRIX MATERIAL	NON-ASBESTOS FIBROUS MATERIAL	PERCENT ASBESTOS
FT-04	Floor Tile	Green	100%	None Detected	Inconclusive
RC-02	Roof Material	Black	97.5%	None Detected	2.5% Chrysotile

ATTENTION:
Chris Mullen

Analyst

Laboratory Director

*Polarized Light Microscopy (PLM) is not reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials (NOBs). Results <1% asbestos are inconclusive and quantitative Transmission Electron Microscopy (TEM) is currently the only method which can be used to determine if this material can be considered or treated as non-asbestos containing.

EMSL Analytical, Inc.

208 Stonehenge Lane
Carle Place, New York 11514
Phone (516) 997-7251 Fax (516) 997-7528

Attn.: CHRIS MULLEN, EES
Clough Harbour & Associates
111 Winners Circle
Albany, NY 12205

Tuesday, November 25, 1997

Ref Number: LI979648

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/M4-82-020/ELAP 5.2.1-6.0 Methods*

Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS % TYPE	NONASBESTOS % FIBROUS	NONASBESTOS % NONFIBROUS
CT-1-01		Brown/Grey Fibrous Heterogeneous	Teased	None Detected	60.% Cellulose	10.% Ca Carbonate 30.% Matrix
CT-1-02		Brown/Grey Fibrous Heterogeneous	Teased	None Detected	60.% Cellulose	10.% Ca Carbonate 30.% Matrix
CT-1-03		Brown/Grey Fibrous Heterogeneous	Teased	None Detected	60.% Cellulose	10.% Ca Carbonate 30.% Matrix
CT-2-01		Grey/White Fibrous Heterogeneous	Teased	None Detected	50.% Cellulose 5.% Glass	10.% Ca Carbonate 35.% Matrix
CT-2-02		Grey/White Fibrous Heterogeneous	Teased	None Detected	50.% Cellulose 5.% Glass	10.% Ca Carbonate 35.% Matrix
CT-2-03		Grey/White Fibrous Heterogeneous	Teased	None Detected	50.% Cellulose 5.% Glass	10.% Ca Carbonate 35.% Matrix

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

** Inconclusive

Alex Chechelovski
Analyst

Approved
Signatory

EMSL Analytical, Inc.

208 Stonehenge Lane
Carle Place, New York 11514
Phone (516) 997-7251 Fax (516) 997-7528

Attn.: CHRIS MULLEN, EES
Clough Harbour & Associates
111 Winners Circle
Albany, NY 12205

Tuesday, November 25, 1997

Ref Number: LI979648

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/M4-82-020/ELAP 5.2.1-6.0 Methods*

Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS % TYPE	NONASBESTOS % FIBROUS	% NONFIBROUS
M-1-01		Grey/White Fibrous Heterogeneous	Teased	20.% Chrysotile	10.% Other	10.% Ca Carbonate 60.% Matrix
BM-1-02				Not Analyzed		
BM-1-03				Not Analyzed		
M-2-01		Brown/Grey Fibrous Heterogeneous	Teased	8.2% Chrysotile	5.% Cellulose 5.% Other	20.% Ca Carbonate 61.8% Matrix
BM-2-02				Not Analyzed		
BM-2-03				Not Analyzed		

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

-- Inconclusive

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Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
-1-01		Brown/Grey Fibrous Heterogeneous	Teased/Crushed	24.%	Chrysotile			30.%	Ca Carbonate
								46.%	Matrix
TR-1-02					Not Analyzed				
TR-1-03					Not Analyzed				
-1-01		Black/Green Fibrous Heterogeneous	Ashed		Inconclusive **	20.%	Other	20.%	Ca Carbonate
								60.%	Matrix
FT-1-02		Black/Green Fibrous Heterogeneous	Ashed		Inconclusive **	20.%	Other	20.%	Ca Carbonate
								60.%	Matrix
FT-1-03		Black/Green Fibrous Heterogeneous	Ashed		Inconclusive **	20.%	Other	20.%	Ca Carbonate
								60.%	Matrix

mments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

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POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/M4-82-020/ELAP 5.2.1-6.0 Methods*

Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
-2-01		Grey/Black Fibrous Heterogeneous	Ashed	8.3%	Chrysotile	25.%	Other	25.%	Ca Carbonate
								41.7%	Matrix
FT-2-02					Not Analyzed				
FT-2-03					Not Analyzed				
-3-01		Brown/Black Fibrous Heterogeneous	Ashed		Inconclusive **	15.%	Other	30.%	Matrix
								35.%	Ca Carbonate
								20.%	Quartz
FT-3-02		Brown/Black Fibrous Heterogeneous	Ashed		Inconclusive **	10.%	Other	35.%	Quartz
								35.%	Ca Carbonate
								20.%	Matrix
FT-3-03		Brown/Black Fibrous Heterogeneous	Ashed		Inconclusive **	15.%	Other	25.%	Quartz
								35.%	Ca Carbonate
								25.%	Matrix

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

** Inconclusive

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Project: UNITED PLATING 6808.0782

				ASBESTOS		NONASBESTOS	
SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	%	TYPE	% FIBROUS	% NONFIBROUS
BG-1-01		Grey/Red Fibrous Heterogeneous	Teased	57.%	Chrysotile		43.% Matrix
BG-1-02				Not Analyzed			
BG-1-03				Not Analyzed			
WG-2-01		Brown/Grey Fibrous Heterogeneous	Teased	27.%	Chrysotile	33.% Other	40.% Matrix
WG-2-02				Not Analyzed			
WG-2-03				Not Analyzed			

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

** Inconclusive

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SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
I-1-01		Grey/Black Fibrous Heterogeneous	Ashed		Inconclusive **	5.%	Cellulose	10.%	Ca Carbonate
						50.%	Other	35.%	Matrix
SH-1-02		Grey/Black Fibrous Heterogeneous	Ashed		Inconclusive **	5.%	Cellulose	10.%	Ca Carbonate
						60.%	Other	25.%	Matrix
SH-1-03		Grey/Black Fibrous Heterogeneous	Ashed		Inconclusive **	10.%	Cellulose	5.%	Ca Carbonate
						50.%	Other	35.%	Matrix
-1-01		Grey/Beige Fibrous Heterogeneous	Teased	9.1%	Chrysotile	35.%	Cellulose	25.%	Ca Carbonate
								30.9%	Matrix
AC-1-02					Not Analyzed				
AC-1-03					Not Analyzed				

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

** Inconclusive

Alex Chernyavski
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Performed by EPA 600/M4-82-020/ELAP 5.2.1-6.0 Methods*

Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
-02		Brown/Gray Fibrous Heterogeneous	Teased	13.%	Chrysotile	17.%	Other	30.%	Ca Carbonate
								40.%	Matrix
RF-1-01		Black Fibrous Heterogeneous	Ashed	3.2%	Chrysotile	25.%	Other	15.%	Ca Carbonate
								56.8%	Matrix
RF-1-02					Not Analyzed				
-1-03					Not Analyzed				
RC-1-01		Black Fibrous Heterogeneous	Ashed	8.5%	Chrysotile	25.%	Other	15.%	Ca Carbonate
								51.5%	Matrix
RC-1-02					Not Analyzed				

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

** Inconclusive

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Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS % TYPE	NONASBESTOS % FIBROUS	% NONFIBROUS
F -1-03				Not Analyzed		
MT-1		Black Non-Fibrous Heterogeneous	Dissolved	Inconclusive **		100.% Other
WD-1-01		White Non-Fibrous Homogeneous	Crushed	None Detected		100.% Ca Carbonate
W -1-02		White Non-Fibrous Homogeneous	Crushed	None Detected		100.% Ca Carbonate
WD-1-03		White Non-Fibrous Homogeneous	Crushed	None Detected		100.% Ca Carbonate
SR-1-01		Brown/Grey Fibrous Heterogeneous	Teased/Crushed	None Detected	5.% Cellulose	5.% Ca Carbonate 90.% Matrix

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

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Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
[illegible]-1-02		Brown/Grey Fibrous Heterogeneous	Teased/Crushed		None Detected	5.%	Cellulose	5.%	Ca Carbonate
								90.%	Matrix
SR-1-03		Brown/Grey Fibrous Heterogeneous	Teased/Crushed		None Detected	5.%	Cellulose	5.%	Ca Carbonate
								90.%	Matrix
[illegible]G-1-01		White Fibrous Heterogeneous	Crushed		None Detected	5.%	Cellulose	85.%	Ca Carbonate
						5.%	Min. Wool	5.%	Matrix
[illegible]-1-02		White Fibrous Heterogeneous	Crushed		None Detected	5.%	Cellulose	85.%	Ca Carbonate
						5.%	Min. Wool	5.%	Matrix
MG-1-03		White Fibrous Heterogeneous	Crushed		None Detected	5.%	Cellulose	85.%	Ca Carbonate
						5.%	Min. Wool	5.%	Matrix
MG-2-01		Grey/White Fibrous Heterogeneous	Crushed	33.%	Chrysotile	17.%	Cellulose	25.%	Ca Carbonate
								25.%	Matrix

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples also analyzed by ELAP 198-1 Method

** Inconclusive

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Performed by EPA 600/M4-82-020/ELAP 5.2.1-6.0 Methods*

Project: UNITED PLATING 6808.0782

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
G-2-02				Not Analyzed					
MG-2-03				Not Analyzed					

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.
NY samples also analyzed by ELAP 198-1 Method

– Inconclusive

Alex Chechelovski
Analyst

Approved Signatory

APPENDIX C

ASBESTOS REMOVAL ASBESTOS ABATEMENT VARIANCE PETITION

STATE OF NEW YORK - DEPARTMENT OF LABOR
DIVISION OF SAFETY AND HEALTH
ENGINEERING SERVICES UNIT
STATE OFFICE BUILDING CAMPUS
ALBANY, N.Y. 12240

PREPARE APPLICATION IN TRIPLICATE

SUBMIT ALL APPLICATIONS TO THE ADDRESS SHOWN WITH A CERTIFIED CHECK OR MONEY ORDER (made payable to the Commissioner of Labor)

PETITION FOR A VARIANCE OR OTHER RELIEF

(NOT APPLICABLE FOR PUBLIC EMPLOYERS)

1. NAME AND ADDRESS OF PETITIONER
New York State Department of Environmental Conservation
50 Wolf Road; Albany, NY 12233
Agent: Clough, Harbour and Associates LLP

2. PETITIONER'S TELEPHONE NUMBER:
(518) 457-5400/Agent's # (518) 453-4500

3. PETITIONER'S FEDERAL EMPLOYER IDENTIFICATION NUMBER(FEIN)

4. FOR AN ASBESTOS PROJECT ONLY, PETITIONER OR AGENT IS OR HOLDS (Check appropriate box)

- ☐ Asbestos Contractor - License No. _____
- ☐ Air Monitor - Certificate No. _____
- ☒ Project Designer - Certificate No. AH 93-10945
- ☐ Project Monitor - Certificate No. _____
- ☐ Management Planner - Certificate No. _____
- ☐ Other (Specify) _____

5. AFFECTING PREMISES KNOWN AS
United Plating

6. STREET ADDRESS OF SUCH PREMISES
1776 Foster Avenue

7. These premises are situated on North (NORTH-EAST-SOUTH-WEST) side of Foster Avenue (STREET-AVENUE-ROAD)

(Check one) in the ☒ CITY ☐ TOWN ☐ VILLAGE OF Schenectady, County of Schenectady

8. NAME AND ADDRESS OF ALL DESIGNATED EMPLOYEE REPRESENTATIVES (Enter "None" if no employee organization)

This question is not applicable to an Asbestos Project

THE PETITIONER HEREBY PETITIONS THE COMMISSIONER OF LABOR FOR A VARIANCE (OR OTHER RELIEF) FROM THE REQUIREMENTS OF THE LABOR LAW, ORDERS OF THE COMMISSIONER OF LABOR REQUIRING COMPLIANCE WITH THE STATE BUILDING CONSTRUCTION CODE, THE NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE, AND/OR THE RULES OF THE COMMISSIONER OF LABOR AS STATED BELOW.

A. CITATION

LIST THE APPLICABLE SECTION AND PARAGRAPH OF THE RELEVANT LAW, CODE, OR REGULATION(S) FOR WHICH A VARIANCE IS BEING REQUESTED.

9. LABOR LAW	10. STATE BUILDING CONSTRUCTION CODE	11. UNIFORM FIRE PREVENTION CODE	12. INDUSTRIAL CODE RULE NUMBER
30			56

13. ORDERS ISSUED:
☐ No ☐ Yes
If yes, enter date issued

14. ISSUED BY:
☐ STATE INSPECTOR
☐ LOCAL INSPECTOR

15. ISSUED TO: ☐ OWNER ☐ AGENT ☐ LESSEE
(Enter name appearing on Notice of Violation)

16. QUOTE THE TEXT OF THE ORDERS AS GIVEN ON THE NOTICE OF VIOLATION AND ORDER TO COMPLY, if applicable.

17. IF A VARIANCE HAS BEEN GRANTED PREVIOUSLY COVERING THE SAME SECTION AND PARAGRAPH AS SPECIFIED ABOVE IN ITEMS 5-8., LIST THE CASE NUMBER AND DATE SUCH VARIANCE WAS GRANTED.

Applicable Variance 100

B. DESCRIPTION OF PREMISES

(To be filled out only when pertinent to the petition)

18. Date building was constructed pre-1945 19. No. Stories: Front 6 Rear 6

20. Construction of building is: Wood: ☐ Non-fireproof: ☒ (Masonry walls, wood floors and roof) Fireproof: ☐ (Masonry walls, concrete floors and roof

21. Size of lot: At street level 1.7 Acres Feet front _____ Feet deep _____

22. Size of building: At street level Feet front _____ Feet deep _____

23. Size of building: At typical floor level Feet front _____ Feet deep _____

24. Use of each floor and maximum number of persons on each floor are as follows:

Floor	Equipped with Automatic Sprinklers		USE	OCCUPANCY			
				Present		Proposed	
	Yes	No		Men	Women	Men	Women
Cellar			Abandoned Steel Plating				
1			"				
2			"				
3			"				
4			"				
5			"				

C. REASON FOR REQUEST FOR VARIANCE

25. State the grounds for a variance (or other relief) setting forth difficulties and/or hardships involved in complying with the requirements stated above. Failure to complete this section may result in dismissal or denial of this petition.

SEE ATTACHMENT 'A'

D. PROPOSAL

26. State the proposal, if any, for securing safety or protecting health without literal compliance with such requirements.

SEE ATTACHMENT 'B'

This question is not applicable to an Asbestos Project

27. I affirm that a copy of this Petition

☐ has been sent or ☐ will be sent within 3 days of sending this Petition to the Commissioner of Labor, to all designated employee representatives by certified mail, return receipt requested

AND

☐ has been posted or ☐ will be posted within one week of sending this Petition to the Commissioner of Labor at the site affected by the variance in an easily accessible location

I certify that the information contained in this Petition is true and accurate.

28. DATE

29. SIGNATURE OF PETITIONER OR PETITIONER'S AGENT

Christopher K. Mullin, I.E.
(518) 453-4524

Return THREE copies of this application and the $350.00 fee to the address shown on front.

(Use additional 8½ x 11 sheets, if necessary)

ATTACHMENT A
ANSWER TO QUESTION NO. 25
"REASON FOR REQUEST FOR VARIANCE"

ATTACHMENT A

ANSWER TO QUESTION NO. 25
"REASON FOR REQUEST FOR VARIANCE"

UNITED PLATING FACILITY
ASBESTOS REMOVAL AT 1776 FOSTER AVENUE
SCHENECTADY, NEW YORK

In order to conduct the facility clean-up and demolition of the United Plating Facility at 1776 Foster Avenue in the City of Schenectady, New York, a variance from Title 12 of the New York Code of Rules and Regulations, Part 56 (12NYCRR56) herein requested.

In summary, variance from the following sections is sought due to the building instability and potential hazards associated with abatement within the site structure.

56-19(e)	Building Demolition Survey - Abatement
56-5.1	Equipment and Waste Container Decontamination and required removal procedure
56-6.1	Engineering Controls
56-7.1(d)	Materials and Equipment - Plastic Sheeting
56-8.1(g)(j)(k)(l)	Work Area Preparation
56-9.1	Personal Decontamination Enclosure System
56-10.1	Waste Decontamination Enclosure System
56-11.1(b)	Access to and Maintenance of Decontamination Enclosure Systems and Work Area Barriers
56-12.1(c)	Handling and Removal Procedures
56-15.2(b)(c)(d)(e)	Cleanup Procedures

To augment and maintain the safety and health procedures, alternative engineering controls have been developed, and are included as Attachment B,

To reduce the potential of building collapse during removals, it is proposed that removal of Friable Thermal Systems Insulation (TSI) from stable building area be removed prior to building demolition and non-friable floor tiles and roofing be removed after building demolition. Table 1 summarizes the materials that were determined to be ACMs.

Table 1
Asbestos Removal
UNITED PLATING FACILITY

Floor(Building)	ACM	Quantity	Location
1st Floor	TSI w/MJPs, Debris	225 LF	In Chrome Plating Room and Plating Room
2nd Floor	TSIw/ MJPs	8 LF	In Stockpiled Pipes in Parts and Storage Room
1st Floor	Breeching	2 SF	Chrome Sump
Annex	Breeching	2 LF	West Wall
1st Floor	Boiler Gasket	4 SF	Two on Boiler in Storage Area
1st Floor	12 x 12 vat	940 SF	Office Area & Bathroom
2nd Floor	12 x 12 vat	1540 SF	Sewing Room & Office
4th Floor	Transite Equipment	20 SF	On Non-Fixed Equipment
Roof	Tar and Felts	SF	On Building Roof Storage Area

TSI - Thermal System Insulation
MJPs - Mudded Joint Packings
VAT - Vinyl Asbestos Tile

Asbestos building location plans are included as Attachment C.

The building areas that contain asbestos can be described as follows:

First Floor: The first floor of the UP Building is an open bay room with offices on the North side. The area has been specified for shoring to insure to structural stability during non-asbestos environmental remediation and should be sound for asbestos glove bagging operations of the 225 Lf of TSI Removal. However, the roof and floor systems in areas where non-friable ACM have been noted are structurally unstable and unsafe for asbestos abatement activities.

Second Floor: The second floor is divided into multiple rooms for chemical and equipment storage and sewing offices. The 8 LF of TSI is located on a stockpiled pipe in an area of the building that appears structurally stable. However, the areas where non-friable ACMs have been noted, are structurally unstable and unsafe for asbestos abatement activities.

Fourth Floor: The fourth floor is an open storage area containing two pieces of chemical storage equipment that are encased with transite. The equipment is semi-fixed to the structure and can be removed from the area safely.

Roofing System: The various roofing systems range from fair condition to poor conditions and over 60% of the structural systems have been evaluated to be unsafe.

The asbestos removal includes removal of friable asbestos TSI prior to building demolition and non-friable asbestos VAT and roofing material after these specific areas have been demolished and the debris removed.

To maintain the health and safety of all parties, a New York State Department of Labor Licenced Asbestos Abatement Sub-Contractor (AAC) will be awarded the contract to complete the asbestos removal as specified in Attachment B and the project contract specifications.

ATTACHMENT B
ANSWER TO QUESTION NO. 26
"VARIANCE PROPOSAL"

ATTACHMENT B

ANSWER TO QUESTION 26
"PROPOSAL"

UNITED PLATING FACILITY
ASBESTOS REMOVAL AT 1776 FOSTER AVENUE
SCHENECTADY, NEW YORK

To insure the safety and health of parties involved in the asbestos removal process, the following procedures will be strictly adhered to:

1. Contractors who are involved in the asbestos removal process of friable ACMs, will be certified according to 12 NYCRR 56-2. The Certified Asbestos Contractor will be present during the demolition of building portions that contain non-Friable ACMs.

2. The work area shall be restricted to Authorized personnel, as defined by 12 NYCRR 56-1.4(r). The Friable Asbestos Removal Areas shall be marked according to 12 NYCRR 56-8.1 and the Occupational Safety and Health Administration (OSHA) Asbestos in Construction Standard outlined by Title 29, of the Code of Federal Regulations, Part 1926.1101(k) (29 CFR 1926.1101(k)). All signage will be posted in a manner that allows the reader to take appropriate protective measures. The SAD signage will be posted at the perimeter of the work area during the demolition of building portions that contain Non-Friable ACMs.

3. A large personal and waste decontamination enclosure system, as described in 12 NYCRR 56-9 and 12 NYCRR 56-10, respectively, shall be utilized for the work area. The decontamination enclosure systems do not need to be contiguous with the Friable ACM Removal Area but will be within the Work Area. The decontamination enclosure systems shall be established before any Removal Friable ACM Area preparation.

5. All persons within the regulated area shall don the appropriate personal protective equipment (PPE) including the level of protection supplied by the respirator type dictated by the results of the OSHA exposure assessment outlined in 29 CFR 1926.1101 (f). PPE shall be worn whenever a person is in the removal area, until such a time that post-abatement air clearance sampling results indicate the area can be deregulated. A minimum protection level of "Type C" will be used by all persons within the building.

6. The removal process includes, but is not limited to, the following:

   a. <u>Friable ACM Removals:</u>

      i. The immediate area of the Friable ACMs, including the surrounding 15 ft., will be demarked with barrier tape and considered the Friable Asbestos Removal Area until satisfactory air-clearance results demonstrate otherwise.

      ii. After Friable Asbestos Removal areas are demarcated and the decontamination systems are established, the removal areas shall be prepared as outlined in 12 NYCRR 56-8 (a-j).

      iii. The asbestos removal area shall be pre-cleaned according to 12 NYCRR 56-8.1

(a-i), and 12 NYCRR 56-16.

iv. The Friable ACM removal area will be entered by donning one protective suit in the personal decontamination system and moving to the Friable ACM Removal Area, where additional personal protective equipment as dictated by OSHA will be donned. Personal protective equipment shall be appropriate for use in areas having elevated or reduced temperatures and humidity.

v. Localized negative air ventilation shall be provided at each specific removal activity by HEPA vacuums. A second asbestos removal worker will implement continuous localized negative air flow. At no time during an asbestos removal event will local negative air not be implemented.

vi. When the Friable ACM removal areas have been established, removals may begin by utilizing only commercially available glovebags, as outlined in 12 NYCRR 56-16.1 (b) and as below.

1. At least two persons shall perform one glovebag removal.

2. Glovebags should not be used on surfaces that exceed 150 degrees.

3. Glovebags shall be only used once and not moved prior to removal.

4. Glovebags shall be installed utilizing "duct tape" such that they completely cover the circumference of the pipe and fitting where the removal is to be conducted.

5. All installed glovebags shall be smoke tested for leaks and resealed if required. Before the asbestos removal, all asbestos material shall be wet with amended water. After the TSI has been stripped, the surface from which it has been removed shall be wet with amended water and scrubbed with a stiff nylon brush to remove all visible asbestos-containing material.

6. The exposed pipe shall be encapsulated utilizing a bridging encapsulant as outlined in 12 NYCRR 56-13.1(e).

7. Prior to glovebag disposal, the glovebag shall be collapsed by removing the air within the bag by using a HEPA vacuum. The glovebag shall be containerized within a 6-mil fire retardant plastic bag while the glovebag is still connected to the removal substrate. The glovebag shall then be disconnected from the substrate and lowered directly into the 6-mil plastic bag. The glovebag/plastic bag shall then be disposed of as asbestos waste.

vii. All asbestos contaminated debris shall be wet wiped and HEPA vacuumed or collected into a 6 mil plastic bag.

viii. All waste bags shall be sealed air tight, HEPA vacuumed in the removal area and then wet wiped prior to transporting to the waste decontamination system. Once in the waste decontamination system the waste shall be decontaminated as outlined in 12 NYCRR 56-5.

ix. When personnel are exiting the removal area, gross debris will be removed from the person via HEPA vacuuming and the outer protective suit will be removed while maintaining a proper respirator fit. The personnel shall proceed directly to

the equipment room of the personal decontamination system and proceed through according to 12 NYCRR 56-4.

b. Non-Friable Asbestos Removal:

i. After the Friable ACM has been removed and the areas have been cleared by air sampling, building demolition may commence (after additional and separate environmental remediation).

ii. The work area will be further isolated according to the procedures outlined in applicable variance 100 (AV100) Section "Work Area Isolation," Parts (2-4).

iii. The work area will be established as outlined in AV100, Section "Unauthorized Individuals." "Personnel," "Plasticizing," and "Decontamination Areas (1-4)."

iv. Due to other environmental concerns, waste water generated during the procedures outlined in AV100, Section "Waste Water and Filtration," will be collected, characterized, filtered and treated as required or disposed of as liquid hazardous waste.

v. The generated demolition debris will be handled as industrial wastes according to the applicable regulations. Water will be used judiciously to keep dust down, due to extensive sub-surface contamination and sub-surface contaminate movement/transport.

vi. Non-Friable Asbestos Components shall be disposed of as industrial wastes with other building components.

vii. Due to soil contamination, the site soils will not be disturbed.

7. Air quality within the work areas shall be monitored according to AV100, Section "Air Monitoring."

ATTACHMENT C
ASBESTOS REMOVAL PLANS

APPENDIX D
CONTRACT DRAWINGS

DRAWING NOTES:

1. REMOVE ASBESTOS-CONTAINING BREACHING MATERIALS AS SPECIFIED.
2. PRE-CLEAN STORED DEBRIS EQUIPMENT AND APPARATUS AND REMOVE TO DECONTAMINATION AREA. DISPOSE OF MATERIALS BASED ON ANALYSIS OF REPRESENTATIVE WIPE SAMPLE TEST RESULTS.
3. REMOVE ASBESTOS-CONTAINING GASKET MATERIAL AS SPECIFIED.
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5. REMOVE ASBESTOS-CONTAINING FLOOR TILE AS SPECIFIED.
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9. REMOVE APPROXIMATELY ONE INCH OF SURFACE CONCRETE FLOORING BASED ON HORIZONTAL DELINEATION OF ADDITIONAL SAMPLE COLLECTION.
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13. REMOVE CHIPPED AND DETERIORATED PAINT AS SPECIFIED.

GENERAL NOTES:

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B. PRE-CLEAN AND SEAL WATER TIGHT WITH CONCRETE, FOR THE PROJECT DURATION, ALL FLOOR DRAINS AND SUMPS WITHIN THE BUILDING DECONTAMINATION LIMITS.

C. PRE-CLEAN NON-FIXED AND SEMI-FIXED EQUIPMENT, WITHIN DECONTAMINATION OPERATION LIMITS, AND REMOVE TO EQUIPMENT DECONTAMINATION AREA.

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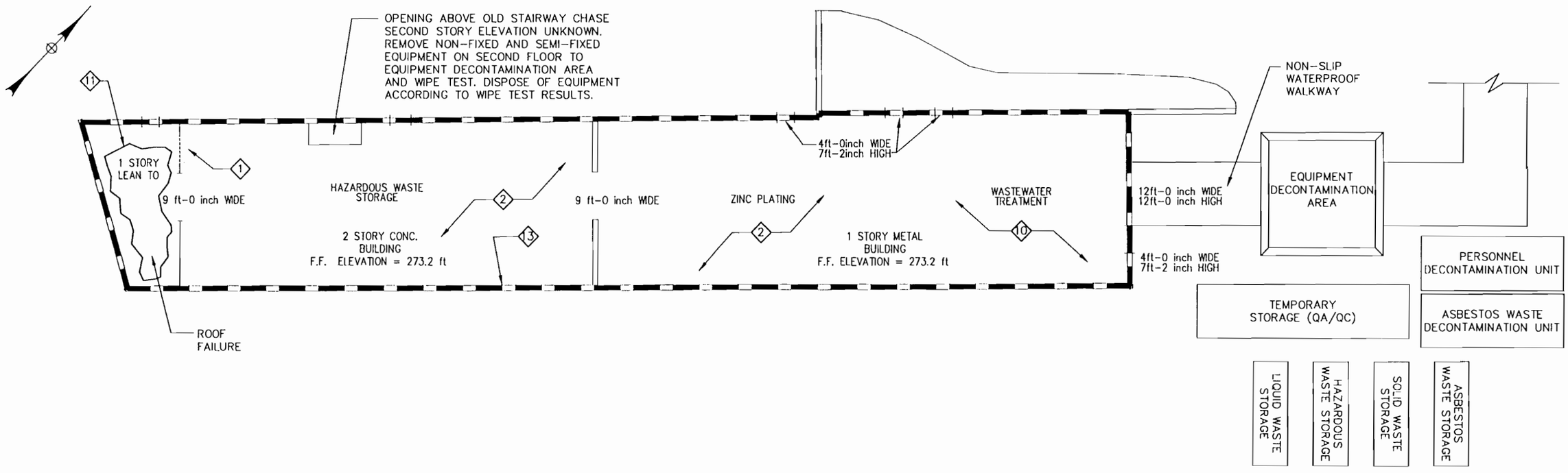
F. REMOVE FLAKING AND CHIPPED PAINTS FROM THE SUBSTRATE AS LEAD-BASED PAINT.

ASBESTOS-CONTAINING MATERIAL

BUILDING DECONTAMINATION LIMIT



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SCALE: 1" = 20'

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III WINNERS CIRCLE ALBANY, NEW YORK, 12205

DWG. NO. 6808.07.83 | DATE FEBRUARY, 1998

UNITED PLATING

BUILDING DECONTAMINATION WASTEWATER TREATMENT BUILDING

NYSDEC I.D. NO. 447018

D-1

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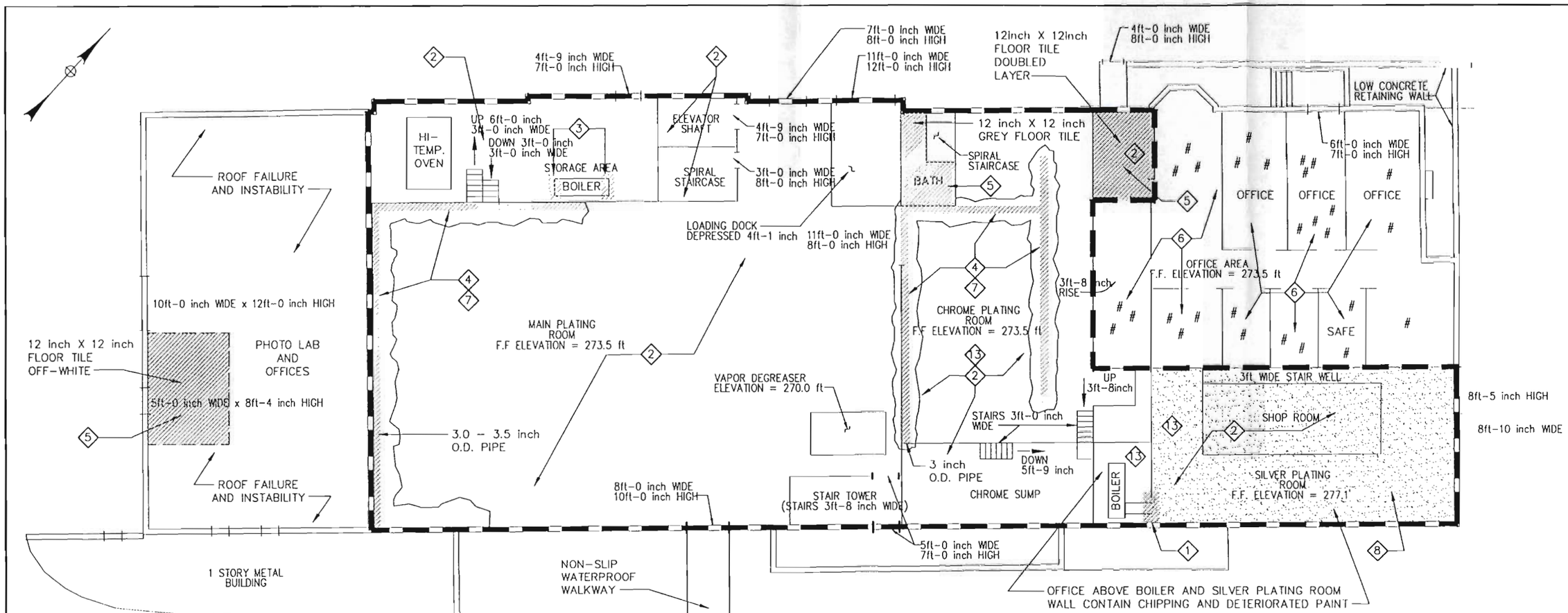

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DWG. NO. 6808.07.83 | DATE FEBRUARY, 1998

UNITED PLATING

BUILDING DECONTAMINATION FIRST LEVEL

NYSDEC I.D. NO. 447018

D-2

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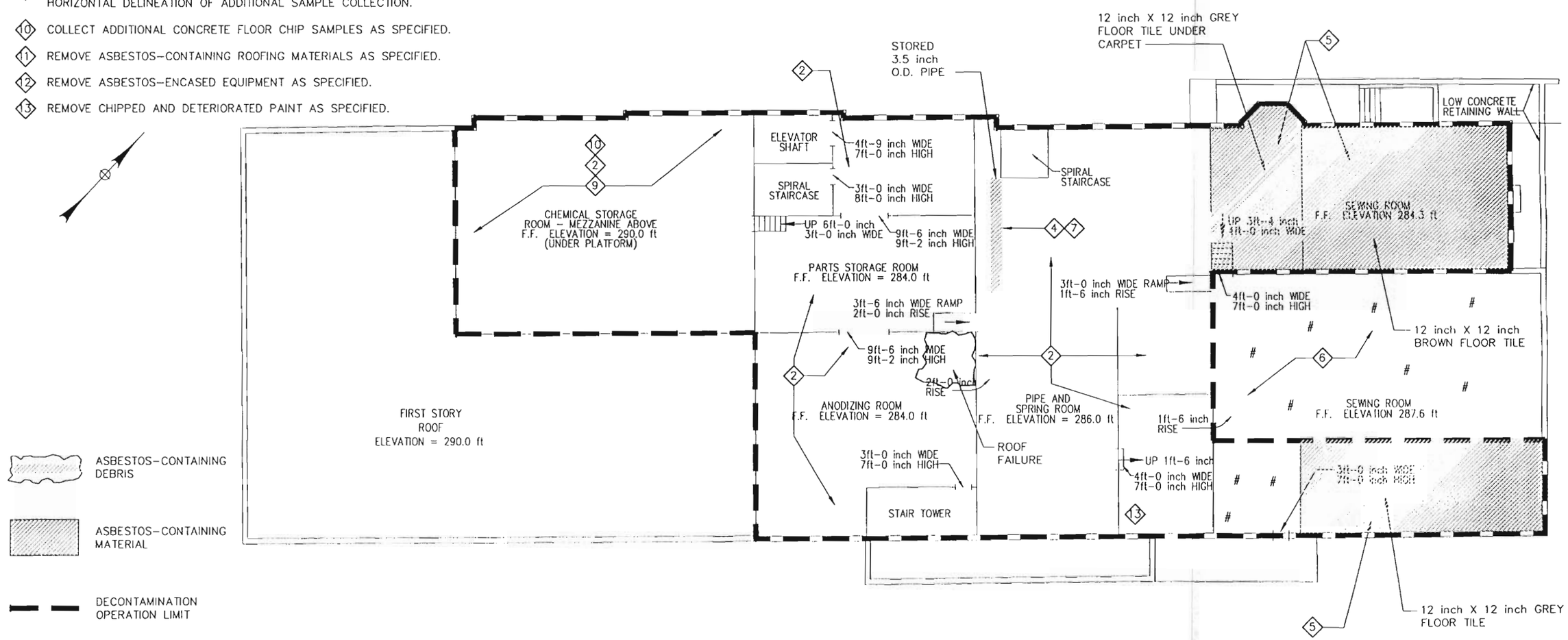

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DWG. NO. 6808.07.83 | DATE FEBRUARY, 1998

UNITED PLATING

BUILDING DECONTAMINATION SECOND LEVEL

NYSDEC I.D. NO. 447018

D-3

DRAWING NOTES:

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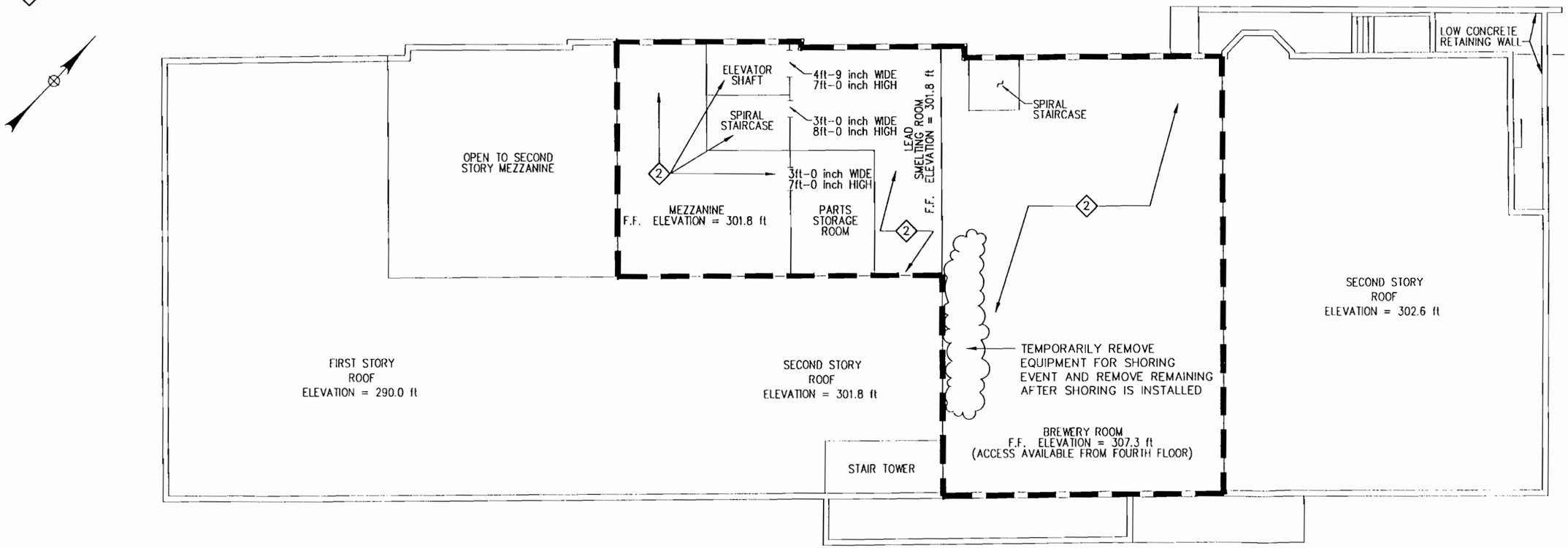

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DWG. NO. 6808.07.83 | DATE FEBRUARY, 1998

UNITED PLATING

BUILDING DECONTAMINATION THIRD LEVEL

NYSDEC I.D. NO. 447018

D-4

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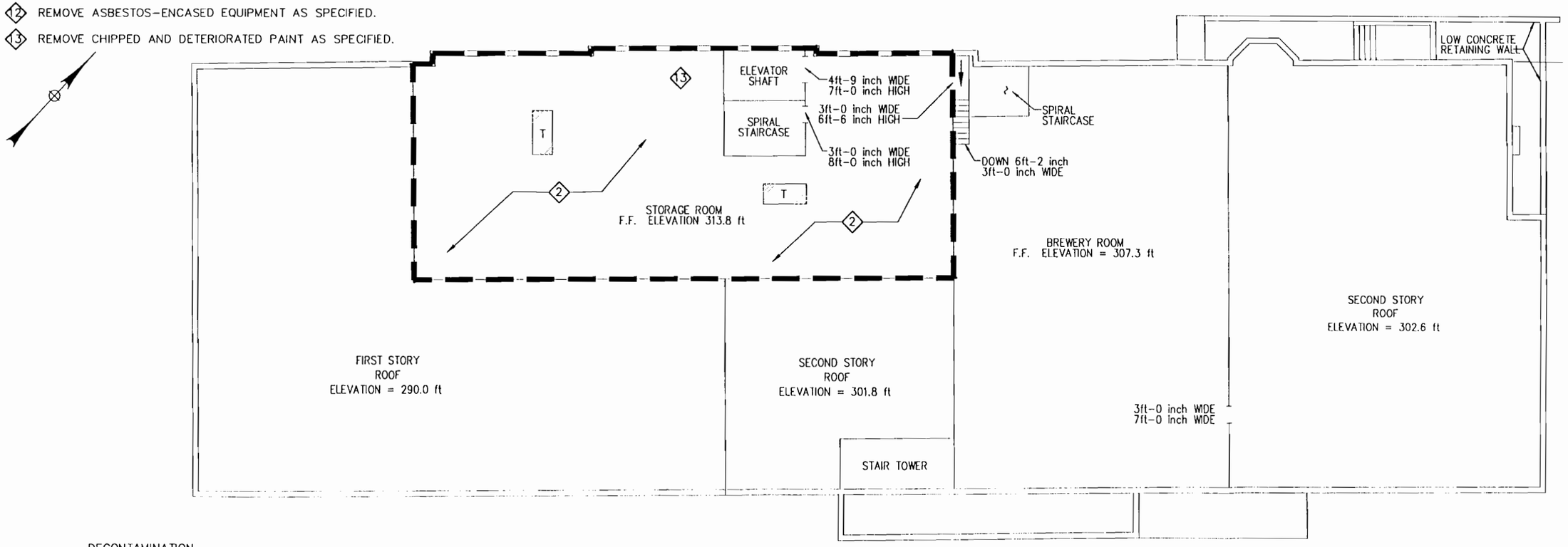

DECONTAMINATION OPERATION LIMIT

T — APPROXIMATE LOCATION OF ASBESTOS ENCASED EQUIPMENT (TRANSITE)

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SCALE: 1" = 20'

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III WINNERS CIRCLE ALBANY, NEW YORK, 12205

DWG. NO. 6808.07.83 | DATE FEBRUARY, 1998

UNITED PLATING

BUILDING DECONTAMINATION FOURTH LEVEL

NYSDEC I.D. NO. 447018

D-5

DRAWING NOTES:

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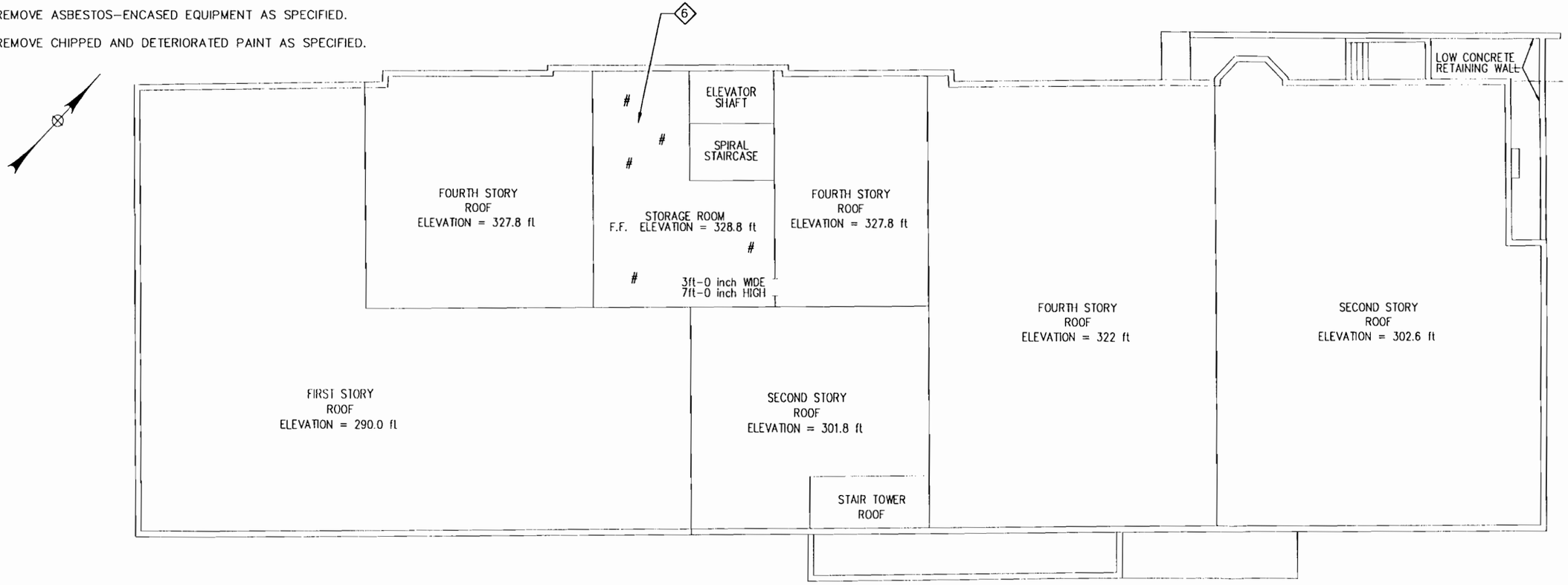

SOLID WASTE

20 0 20

SCALE: 1" = 20'

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III WINNERS CIRCLE ALBANY, NEW YORK, 12205

DWG. NO. 6808.07.83 DATE FEBRUARY, 1998

UNITED PLATING
BUILDING DECONTAMINATION FIFTH LEVEL
NYSDEC I.D. NO. 447018

D-6

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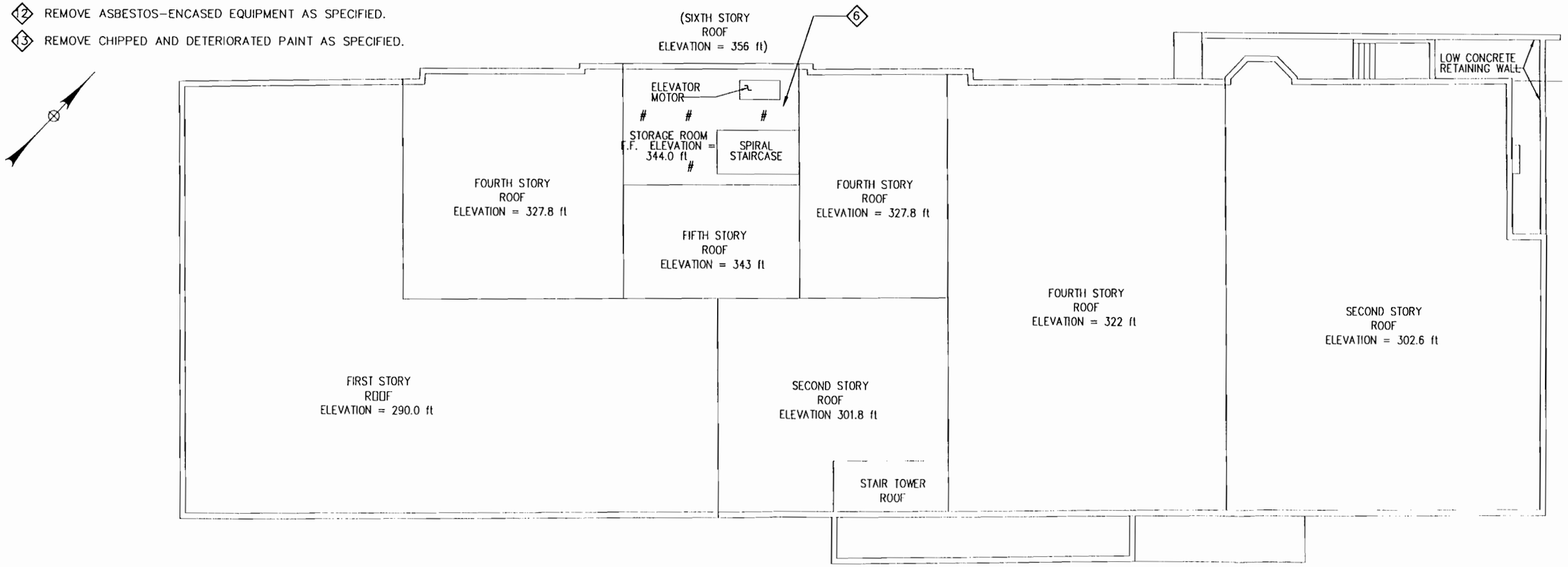

SOLID WASTE

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SCALE: 1" = 20'

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III WINNERS CIRCLE ALBANY, NEW YORK, 12205

DWG. NO. 6808.07.83 DATE FEBRUARY, 1998

UNITED PLATING

BUILDING DECONTAMINATION SIXTH LEVEL

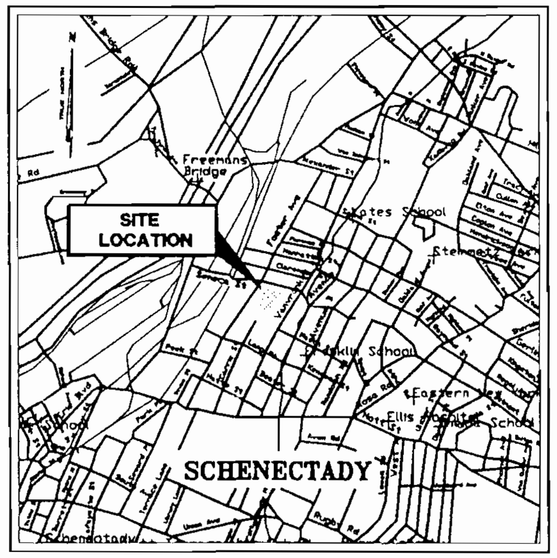
NYSDEC I.D. NO. 447018

D-7

UNITED PLATING FACTORY DEMOLITION

CITY OF SCHENECTADY

NYSDEC INACTIVE HAZARDOUS WASTE SITE NO. 447018



SITE LOCATION MAP
NO SCALE

DRAWING INDEX

Revisions:	Drawn By:	App'd. By:	Date:

Designed By:	Date:
MLM	2/98
Drawn By:	Date:
WCH	2/98
Checked By:	Date:
JB	2/98

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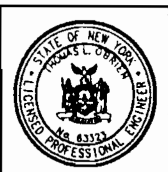

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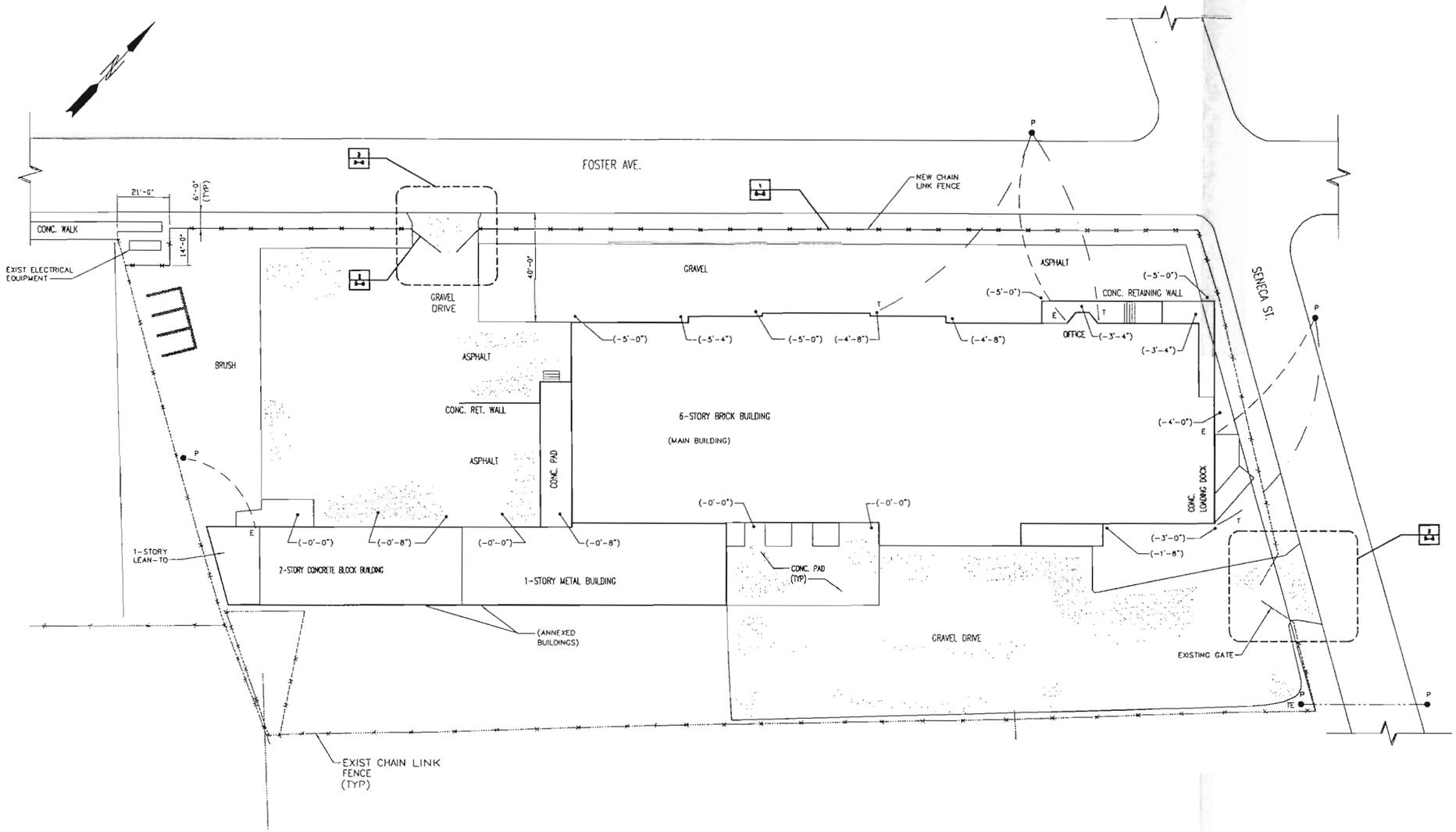
CHA Project No. 6808

UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.

TITLE SHEET

Drawing No. **T-1**

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 1 OF 19



SITE PLAN
SCALE: 1"=20'-0"

LEGEND:

- P = UTILITY POLE
- E = ELECTRICAL
- T = TELEPHONE
- TE = TEMPORARY ELECTRICAL
- = AREAS TO RECEIVE STONE AS PER DWG S-8

NOTES:

1. TOP OF EXIST MAIN BUILDING SLAB ELEV.=273'-6"
2. ELEVATIONS SHOWN AROUND BUILDING PERIMETER (-X'-X") ARE EXIST TOP OF GRADE ELEVATIONS ± RELATIVE TO TOP OF MAIN BUILDING SLAB.

Revisions:	Drawn By:	Appd. By:	Date:

Designed By: MLM	Date: 2/98
Drawn By: WCH	Date: 2/98
Checked By: JB	Date: 2/98

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CLOUGH, HARBOUR & ASSOCIATES LLP
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
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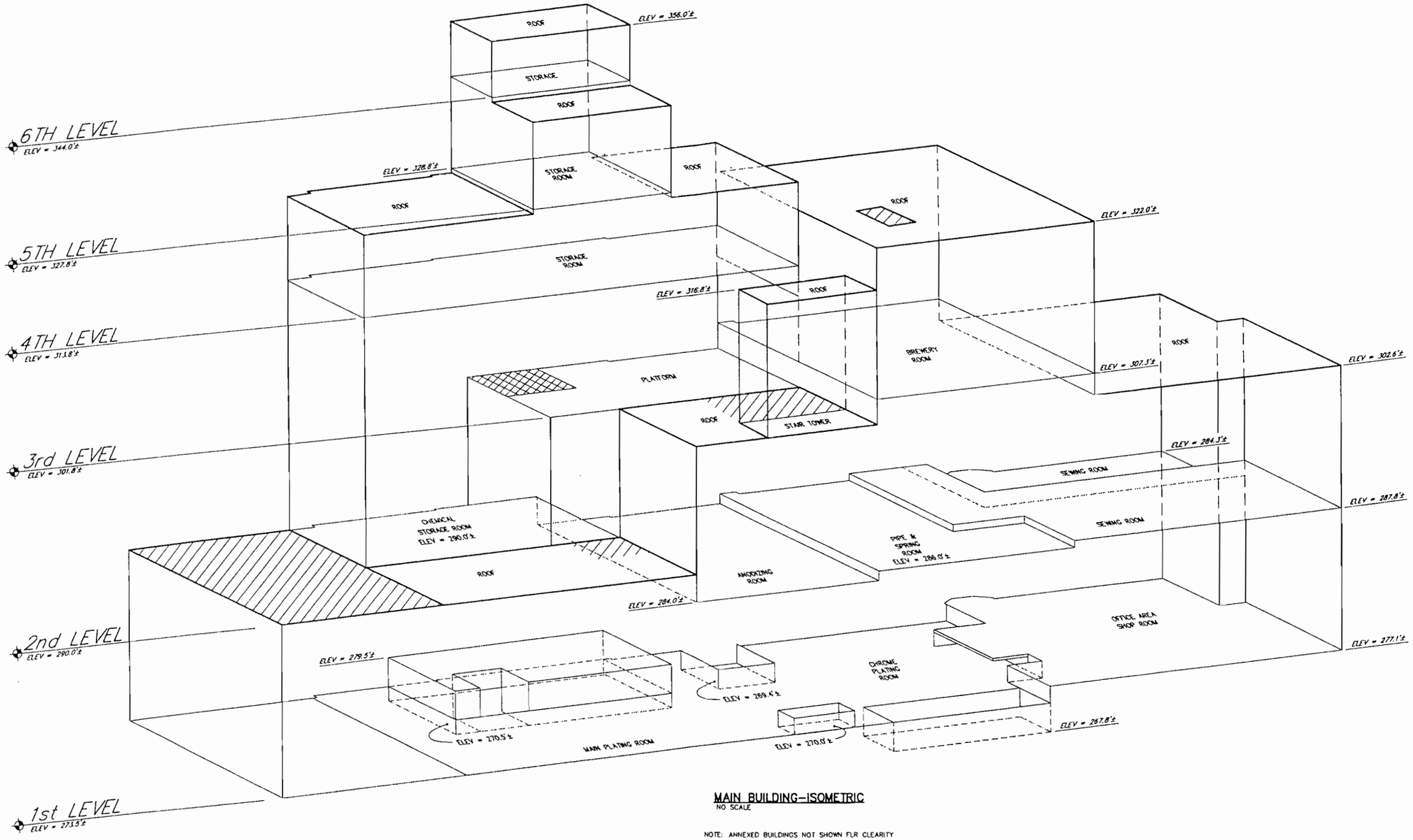
UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.

SITE PLAN

Drawing No. **C-1**

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 2 OF 19

FILE NAME & LAYOUT/LEVEL/DWG DATE 11/27 OPERATOR KEN PLOT SCALE 1:1



MAIN BUILDING–ISOMETRIC
NO SCALE

NOTE: ANNEXED BUILDINGS NOT SHOWN FLR CLEARITY

LEGEND:

= COLLAPSED ROOF AREA

= UNSTABLE FLOOR AREA

Revisions:	Drawn By:	Appr'd. By:	Date:

Designed By: MLM	Date: 2/98
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PROJECT NORTH

STATE OF NEW YORK — THOMAS L. CROTTY — LICENSED PROFESSIONAL ENGINEER — No. 63324

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CHA Project No. 5808

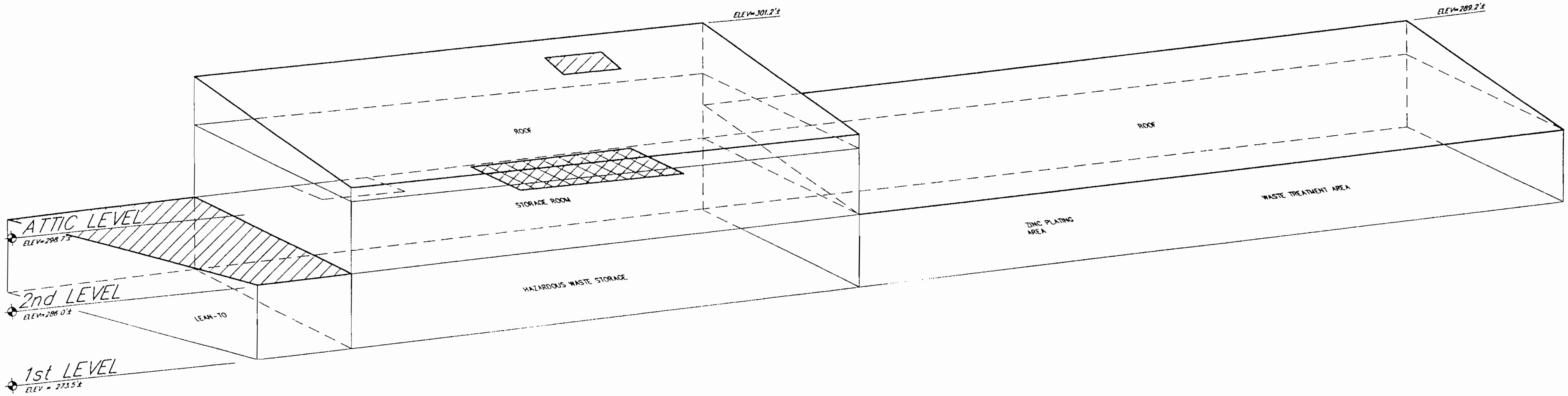
UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.

MAIN BUILDING–ISOMETRIC

SCALE: AS NOTED | DATE: FEBRUARY 1998

Drawing No. I-1

SHEET 3 OF 19



ANNEXED BUILDINGS–ISOMETRIC
NO SCALE

LEGEND:

- (single hatch) = COLLAPSED ROOF AREA
- (cross hatch) = UNSTABLE FLOOR AREA

Revisions:	Drawn By:	App'd. By:	Date:

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PROJECT NORTH

STATE OF NEW YORK · THOMAS L. O'BRIEN · No. 63323 · LICENSED PROFESSIONAL ENGINEER

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CHA Project No. 6808

UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.

ANNEXED BUILDINGS–ISOMETRIC

Drawing No. I-2

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 4 OF 19

GENERAL NOTES

1. THE CONTRACTOR SHALL STABILIZE ALL AREAS, SHORE ALL ROOFS, DECONTAMINATE, DEMOLISH, AND REMOVE ALL BUILDINGS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
2. ALL DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE OWNER'S REPRESENTATIVE.
3. DO NOT CHANGE SIZE NOR SPACING OF STRUCTURAL ELEMENTS.
4. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
5. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
6. ALL MAIN BUILDING UNSHORED FLOOR AREA LOADING (NOT INDICATED ON DRAWINGS) SHALL NOT EXCEED 100 PSF.

DEMOLITION

1. ALL KNOWN UNSOUND, COLLAPSED, AND UNSTABLE BUILDING AREAS ARE SHOWN ON THE DRAWINGS. ADDITIONAL DETERIORATION TO THE BUILDINGS MAY EXIST PRIOR TO THE TIME OF BIDDING. THE CONTRACTOR SHALL STABILIZE THESE DETERIORATED AREAS WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.
2. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.
3. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE APPROVAL.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING SHORING & DEMOLITION WORK WITH OTHER TRADES THAT WILL BE PRESENT ON THE PROJECT.
5. USE OF EXPLOSIVES ON THE JOB SITE IS NOT PERMITTED.
6. EXISTING CONCRETE SLAB ON GRADE & FOUNDATION WALLS SHALL NOT BE DEMOLISHED UNLESS NOTED OTHERWISE ON THE DRAWINGS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING GUARDRAIL SYSTEMS & FENCING OFF LEADING EDGES, OPENINGS IN SLABS, AND TRIPPING & FALL HAZARDS CREATED DURING SHORING AND DEMOLITION OF THIS BUILDING. ERECT TEMPORARY CONSTRUCTION BARRIERS AND PROVIDE WARNING SIGNS AROUND ROOF AND FLOOR OPENINGS AND WHERE REQUIRED TO ENSURE SAFETY OF WORKERS.
8. BURNING OF COMBUSTIBLE MATERIALS ON SITE IS NOT PERMITTED.

LUMBER

1. GENERAL STANDARD: NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION BY NATIONAL FOREST PRODUCTS ASSOCIATION (N.F.P.A.) LATEST EDITION.
2. ALL LUMBER SHALL BE PRESSURE TREATED.
3. STRUCTURAL FRAMING (JOISTS, GIRDERS): USE SELECT STRUCTURAL No. 2 GRADE OR BETTER OF ANY OF THE FOLLOWING SPECIES: SPRUCE, PINE, AND FIR.
4. FASTENERS AND ANCHORAGE: PROVIDE TYPE, MATERIAL, AND FINISH AS RECOMMENDED BY APPLICABLE STANDARDS FOR NAILS, BOLTS, NUTS, WASHERS, AND ANCHORING DEVICES.
   A. NAILS: FS FF-N-105
5. ANCHOR AND NAIL AS SHOWN, AND TO COMPLY WITH "RECOMMENDED NAILING SCHEDULE" OF REFERENCED FRAMING STANDARD AND WITH N.F.P.A. "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION".
6. SET ROUGH CARPENTRY TO REQUIRED LEVELS AND LINES WITH MEMBERS PLUMB AND TRUE TO LINE AND CUT AND FITTED.

SHORING

1. ALL VERTICAL AND HORIZONTAL SHORING SHOULD BE INSTALLED AND USED IN COMPLIANCE WITH SAFETY RULES AND RECOMMENDATIONS PUBLISHED BY THE SCAFFOLDING, SHORING AND FORMING INSTITUTE, INC.
2. IMPOSED SHORING LOADS ARE COMPUTED AS APPLIED CONCENTRICALLY TO THEIR SUPPORT MEMBER, WHETHER FRAME LEGS OR SINGLE POST SHORES.
3. LATERAL STABILITY BRACING MUST BE DESIGNED AND INSTALLED BY CONTRACTOR FOR ALL SINGLE POST SHORING. FOR GENERAL RECOMMENDED METHODS REFER TO THE MANUFACTURER'S RECOMMENDATIONS.
4. FOLLOW ALL STATE, LOCAL, AND FEDERAL CODES, ORDINANCES AND REGULATIONS PERTAINING TO SHORING.
5. A SHORING LAYOUT SHALL BE AVAILABLE ON THE JOBSITE AT ALL TIMES.
6. USE MANUFACTURER'S RECOMMENDED SAFE WORKING LOADS CONSISTENT WITH THE TYPE OF SHORING FRAME AND THE HEIGHT FROM SUPPORTING SILL TO FRAMEWORK.
7. DO NOT EXCEED THE SHORE FRAME SPACING OR TOWER HEIGHTS AS SHOWN ON THE LAYOUT.
8. PLUMB AND LEVEL ALL SHORING FRAMES & POSTS AS THE ERECTION PROCEEDS. DO NOT FORCE BRACES ON FRAMES TO FIT—LEVEL THE SHORING TOWERS UNTIL PROPER FIT CAN BE MADE EASILY. CHECK PLUMB AND LEVEL OF SHORING TOWERS JUST PRIOR TO POUR.
9. FASTEN ALL BRACES SECURELY.
10. EXERCISE CAUTION IN ERECTING OR DISMANTLING FREE STANDING SHORING TOWERS TO PREVENT TIPPING.
11. DO NOT CLIMB CROSS BRACES.
12. AVOID ECCENTRIC LOADS ON U-HEADS, TOP PLATES AND SIMILAR MEMBERS BY CENTERING STRINGERS ON THOSE MEMBERS.
13. USE SPECIAL PRECAUTIONS WHEN SHORING FROM OR TO SLOPED SURFACES.
14. DO NOT REMOVE BRACES OR BACK-OFF ON ADJUSTMENT SCREWS UNTIL PROPER AUTHORITY IS GIVEN.
15. POST MANUFACTURER'S SHORING SAFETY RULES IN A CONSPICUOUS PLACE AND BE SURE THAT ALL PERSONS WHO ERECT, USE, OR DISMANTLE SHORING ARE AWARE OF THEM.
16. INSPECT ALL EQUIPMENT BEFORE USING. NEVER USE ANY EQUIPMENT THAT IS DAMAGED, SEVERELY RUSTED, OR IS MISSING LOCKING DEVICES. ANY COMPONENT WHICH CANNOT BE BROUGHT INTO PROPER ALIGNMENT OR CONTACT WITH THE COMPONENT INTO OR ONTO WHICH IT IS INTENDED TO FIT SHALL BE REMOVED AND REPLACED.
17. USE MANUFACTURER'S RECOMMENDED SAFE WORKING LOADS AND PROCEDURES FOR:
   A. SPAN, SPACING, AND TYPES OF SHORING MEMBERS.
   B. TYPES, SIZES, HEIGHTS, AND SPACING OF VERTICAL SHORING SUPPORTS.
18. DO NOT MAKE UNAUTHORIZED CHANGES OR SUBSTITUTION OF EQUIPMENT; CONSULT MANUFACTURER'S REPRESENTATIVE PRIOR TO MAKING CHANGES NECESSITATED BY JOBSITE CONDITIONS.
19. ACCESS MUST BE PROVIDED TO ALL WORK PLATFORMS. IF IT IS NOT AVAILABLE FROM THE STRUCTURE, ACCESS LADDERS, FRAMES WITH BUILT-IN LADDERS, OR STAIRWAYS MUST BE PROVIDED. WHEN FRAMES WITH BUILT-IN LADDERS ARE USED, CLEATED PLANK OR FABRICATED PLANK MUST BE USED AT PLATFORM LEVELS TO MINIMIZE OR ELIMINATE PLATFORM OVERHANG. ACCESS LADDERS MUST EXTEND AT LEAST FOUR (4) FEET ABOVE PLATFORMS.
20. AVOID SHOCK OR IMPACT LOADS FOR WHICH THE SHORING WAS NOT DESIGNED.
21. DO NOT PLACE ADDITIONAL TEMPORARY LOADS ON ERECTED FORMWORK OR POURED SLABS WITHOUT CHECKING THE CAPACITY OF THE SHORING AND/OR STRUCTURE TO SAFELY SUPPORT SUCH ADDITIONAL LOADS.
22. THE COMPLETED SHORING SETUP SHALL HAVE THE MANUFACTURER'S SPECIFIED BRACING TO GIVE IT LATERAL STABILITY.
23. THE ERECTION SHORING SHOULD BE UNDER THE SUPERVISION OF AND EXPERIENCED AND COMPETENT PERSON.
24. DO NOT EXCEED THE SHORE FRAME SPACING OR TOWER HEIGHTS AS SHOWN ON THE SHORING LAYOUT.
25. PLUMB ALL POST SHORES AS THE ERECTION PROCEEDS. RECHECK PLUMB OF POST SHORES AFTER SHORES ARE ALL IN PLACE AND BRACED.
26. EACH POST SHORE SHALL BE ADEQUATELY BRACED FOR STABILITY AS PER MANUFACTURER'S RECOMMENDATIONS.

DESIGN LOAD DATA:

LIVE LOADS:

UNIFORM SNOW LOAD:	45 PSF
SNOW DRIFT LOAD:	PER ASCE 7-95
FLOOR:	10 PSF

DEAD LOADS:

CONCRETE:	150 PCF
BRICK WALLS:	40 PSF/WYTHE
ROOF:	25 PSF

EARTHWORK & SITE PREPARATION

1. STONE MATERIAL SHALL COMPLY WITH NEW YORK STATE CONSTRUCTION AND MATERIALS STANDARD SPECIFICATION SECTION 304-2.02 TYPE 2:

SIEVE	PERCENT PASSING
2"	100
1/4"	25-60
NO.40	5-40
NO.200	0-10

2. COMPACTION OF SUBBASE MATERIAL SHALL BE DONE IN 6" LIFTS TO 95% ASTM D-1557 DENSITY SPECIFICATIONS.
3. FLOWABLE FILL MATERIAL SHALL HAVE THE FOLLOWING MIX DESIGN:

MATERIALS	MIX PROPERTIES
50 LBS./YD CEMENT	9-10 1/2" SLUMP
400 LBS./YD FLY ASH	FLOWABILITY- 25 FT.
3000 LBS./YD AGGREGATE	
350 LBS./YD WATER	

IT IS THE INTENT OF THE MIX DESIGN TO BE LOW STRENGTH AND REMOVABLE, ULTIMATE STRENGTH SHOULD BE LESS THAN 200 PSI.

4. SOIL STABILIZATION FABRIC SHALL BE WOVEN POLYPROPYLENE, NYLON, POLYESTER FIBERS, OR A COMBINATION THAT MEET OR EXCEED LISTED MINIMUM PHYSICAL PROPERTIES DETERMINED ACCORDING TO ASTM D4759 & THE FOLLOWING REFERENCED TESTS:
   A. GRAB TENSILE STRENGTH (ASTM D4632): 300 LB.
   B. BURST STRENGTH (ASTM D3786): 600 PSI.
   C. PUNCTURE RESISTANCE (ASTM D-4833): 145 LB.
   D. TRAPEZOID TEAR STRENGTH (ASTM D-4533): 115 LB.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING/ PROVIDING ADDITIONAL STONE MATERIAL FOR ACCESS TO THE PROJECT SITE AS INDICATED ON THE DRAWINGS. SUFFICIENT GRADING MUST BE DONE DURING THE PROGRESS OF THE WORK SO THAT THE ENTIRE SITE SHALL BE WELL DRAINED AND FREE FROM WATER POCKETS.
6. PREVENT SURFACE, SUBSURFACE OR GROUND WATER FROM FLOODING PROJECT AREA, AS WELL AS SURROUNDING AREAS.

CAST-IN-PLACE CONCRETE

1. CAST-IN-PLACE CONCRETE WORK SHALL COMPLY WITH THE FOLLOWING CODES AND STANDARDS: ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS". ACI-318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", EXCEPT AS NOTED HEREIN.
2. 28 DAY COMPRESSIVE STRENGTH = 3000 PSI.
3. NORMAL WEIGHT AGGREGATES: ASTM C 33, EXCEPT LOCAL AGGREGATES OF PROVEN DURABILITY MAY BE USED WHEN ACCEPTABLE TO ENGINEER. MAXIMUM COARSE AGGREGATE SIZE SHALL BE 1-1/2 INCHES.
4. PORTLAND CEMENT: ASTM C 150, TYPE I & II.
5. WATER: POTABLE.
6. AIR-ENTRAINING ADMIXTURE: ASTM C 260.
7. DESIGN MIX:
   MIX PROPORTIONS AND DESIGN: PROPORTIONS MIXES COMPLYING WITH MIX DESIGN PROCEDURES SPECIFIED IN ACI 301.
   A. USE AIR ENTRAINING ADMIXTURE IN ALL CONCRETE PROVIDING NOT LESS THAN 5 PERCENT NOR MORE THAN 7 PERCENT ENTRAINED IN AIR.
   B. DESIGN MIXES TO PROVIDE NORMAL WEIGHT CONCRETE WITH THE FOLLOWING PROPERTIES, AS INDICATED ON DRAWINGS AND SCHEDULES:
      1. W/C RATIO = 0.45 MAXIMUM
8. CONCRETE MIXING SHALL COMPLY WITH ASTM C 94 REQUIREMENTS.

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL WORK TO CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION ALLOWABLE STRESS DESIGN 9th EDITION.
2. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
3. CONNECTIONS:
   A. WELD (SHIELDED METAL ARC) - ELECTRODES SHALL BE E70XX AND BE IN ACCORDANCE WITH AWS D1.1 UNLESS NOTED OTHERWISE.

STRUCTURAL ABBREVIATIONS

@	AT	K	KIP (1000 LBS.)
AB	ANCHOR BOLT	KB	KNEE BRACE
ACT.	ACTUAL	KWY	KEYWAY
ADDL	ADDITIONAL	KPL	KICK PLATE
ADH	ADHESIVE	KO	KNOCKOUT
ADJ	ADJACENT	KD	KILN-DRIED
ADJT	ADJUSTABLE		
AFF	ABOVE FINISHED FLOOR		
AGG	AGGREGATE	LB	LAG BOLT
ALIGN	ALIGNMENT	LBL	LABEL
ALUM	ALUMINUM	LDR	LEADER
ALT	ALTERNATE	LG	LENGTH
ANC	ANCHOR, ANCHORAGE	LH	LEFT HAND
AB	ANCHOR BOLT	LLBB	LONG LEG BACK TO BACK
L	ANGLE	LLH	LONG LEG HORIZONTAL
APPD	APPROVED	LLV	LONG LEG VERTICAL
ARCH	ARCHITECT, ARCHITECTURAL	LOA	LENGTH OVERALL
ARCW	ARC WELD	LOC	LOCATION
APPROX	APPROXIMATE	LWC	LIGHTWEIGHT CONCRETE
		LMTL	LIMTEL
B-B	BACK TO BACK	LL	LIVE LOAD
BET	BETWEEN	LP	LOW POINT
BEV	BEVEL	LVL	LEVEL
BF	BITUMINOUS JOINT FILLER		
BLDG	BUILDING		
BLK	BLOCK	MAS	MASONRY
BLKG	BLOCKING	MATL	MATERIAL
BM	BEAM	MAX	MAXIMUM
BMT	BOAT	MECH	MECHANICAL
BOT	BOTTOM	MFD	METAL FLOOR DECKING
BF	BOTTOM OF	MRD	METAL ROOF DECKING
BP	BASE PLATE	MFR	MANUFACTURER
BPL	BEARING PLATE	MIN	MINIMUM
BRG	BEARING	MISC	MISCELLANEOUS
BS	BOTH SIDES	MKG	MARK
BSMT	BASEMENT	MO	MASONRY OPENING
BLT'N (IN)	BUILT-IN	MTL	METAL
BW	BOTH WAYS		
BVL	BEVEL	NF	NEAR FACE
		NEC	NECESSARY
CANTIL	CANTILEVER	NPS	NOMINAL PIPE SIZE
CST	CAST STONE	NA	NOT AVAILABLE
CAULK	CAULKING	NIC	NOT IN CONTRACT
C/C	CENTER TO CENTER	NO	NUMBER
CPL	COUNTERPLATE	NOM	NOMINAL
CHAM	CHAMFER	NS	NEAR SIDE
CHD	CHORD	NTS	NOT TO SCALE
CJ	CONSTRUCTION JOINT		
CF	CORK JOINT FILLER	OA	OVERALL
CL	CENTERLINE	OC	ON CENTER
CLR	CLEAR, CLEARING	OD	OUTSIDE DIAMETER
CTR	CENTER	OF	OUTSIDE FACE
CTRD	CENTERED	OPG	OPENING
CLG	CEILING	OWJ	OPEN WEB JOIST
CJ	CONTROL JOINT	OWSJ	OPEN WEB STEEL JOIST
CLR	CLEAR	OPH	OPPOSITE HAND
CLEAR OPG	CLEAR OPENING	OPP	OPPOSITE
CMU	CONCRETE MASONRY UNIT	OS	OTHERWISE SPECIFIED
COL	COLUMN	OSHP	OPPOSITE
CONC	CONCRETE	OSL	OUTSTANDING LEG
CONT	CONTINUOUS	OVS	OVERSIZE
COMB	COMBINATION, COMBINE		
CO	COMPANY	PL	PLATE OR PROPERTY LINE
CNCL	CONCEALED	PCS	PIECES
CONST	CONSTRUCTION	PER	PERIMETER
CONTR	CONTRACTOR	PERP	PERPENDICULAR
CPT	COURSE	PLMB	PLUMBING
XSECT	CROSS-SECTION	PLYWD	PLYWOOD
		PROJ	PROJECTION
DEPT	DEPARTMENT	PSF	POUNDS PER SQUARE FOOT
DET	DETAIL	PSI	POUNDS PER SQUARE INCH
DIA	DIAMETER	PTD	POST-TENSIONED CONCRETE
DF	DOUGLAS FIR	PCF	POUNDS PER CUBIC FOOT
DIAG	DIAGONAL	PRECST	PRECAST
DIM	DIMENSION	PRC	PRECAST CONCRETE
DIST	DISTANCE	PREFAB	PREFABRICATED
DN	DOWN	PREFIN	PREFINISHED
DL	DEAD LOAD	PREP	PREPARATION
do	DITTO	PT	POINT OR POINT OF TANGENT
DTA	DOVETAIL ANCHOR	PTD	PAINTED
DTS	DOVETAIL ANCHOR SLOT	PVMT	PAVEMENT
DWG	DRAWING		
DWL	DOWEL	QUAL	QUALITY
		QC	QUALITY CONTROL
EA	EACH	R	RADIUS
EE	EACH END	RC	REINFORCED CONCRETE
EF	EACH FACE	RST	REINFORCING STEEL
EJ	EXPANSION JOINT	RD	ROOF DRAIN
ELEC	ELECTRIC, ELECTRICAL	RDL	RADIAL
EL OR ELEV	ELEVATION	REBAR	DEFORMED REINFORCING BAR
ENGR	ENGINEER	REQD	REQUIRED
EMBED	EMBEDDED	RVS	REVERSE SIDE
ENCL	ENCLOSURE	REC	RECESS
EPJF	EXPANDED NEOPRENE JT FILLER	REDCN	REDUCTION
EPJF	EXPANDED POLYETHYLENE JT FILLER	REINF	REINFORCING OR REINFORCED
EQ	EQUAL	RESTEEL	REBAR, WWF, WIRE OR PLAIN BARS
EQUIP	EQUIPMENT	RET WALL	RETAINING WALL
ES	EACH SIDE	REV	REVISION
EST	ESTIMATED	RH	RIGHT HAND
EW	EACH WAY	RM	ROOM
EXIST	EXISTING	RO	ROUGH OPENING
EXPN	EXPANSION		
EXT	EXTERIOR		
EB	EXPANSION BOLT	SCHED	SCHEDULE
EJ	EXPANSION JOINT	SECT	SECTION
EXP	EXPOSED	SHT	SHEET
EWWF	EXTRA HEAVY	SW	SHALAR
EXTR	EXTRA STRONG	SLBB	SHORT LEG BACK TO BACK
		SLH	SHALAR
FAB	FABRICATE	SLTD	SLOTTED
FB	FACE BRICK	SPA	SPACE OR SPACAL
FOB	FACE OF BRICK	SMT	SEALANT
FOC	FACE OF CONCRETE	SP	SHEAR PLATE
FOM	FACE OF MASONRY	STD	STANDARD
FD	FLOOR DRAIN	STIF	STIFFENER
FF	FAR FACE	STRM	STARRUP
FIN	FINISHED	STR	STRAIGHT
FFL	FINISHED FLOOR LEVEL	SHTHG	SHEATHING
FJS	FLUSH JOINT	SMA	SHIELDED METAL ARC
FL	FLANGE	SPEC	SPECIFICATION
FLR	FLOOR	SPT	SPOT-WELDED(D)
FND	FOUNDATION	SQFT	SQUARE FEET
FS	FAR SIDE, FOOTING STEP	SST	STAINLESS STEEL
FT	FEET	STL	STEEL
FTG	FOOTING	STRUCT	STRUCTURAL
FNO	FURNISHED BY OTHERS	SUB	SUBSTITUTE
		SYS	SURFACED OR DRESSED FOUR SIDES
GA	GAUGE	S1S	SURFACED OR DRESSED ONE SIDE
GALV	GALVANIZED	S2S	SURFACED OR DRESSED TWO SIDES
GB	GRAB BAR	SYM	SYMMETRICAL
GC	GENERAL CONTRACTOR	SPCD	SPACING
GCMU	GLAZED CONCRETE MASONRY UNIT	SQ	SQUARE
GRND	GROUND OR GRADE		
GRTG	GRATING	T/	TOP OF
GYP BD	GYPSUM DRY WALL	T&B	TOP & BOTTOM
GWB	GYPSUM WALLBOARD	T&G	TONGUE & GROOVE
		TF	TOP OF FOOTING
H	HALF-ROUND	TC	TOP CHORD
HD	HEAD(ED)	TOS	TOP OF SLAB
HDR	HEADER	TST	TOP OF STEEL
HD	HEAVY DUTY	THK	THICK
HES	HIGH EARLY-STRENGTH CEMENT	THD	THREAD, THREADED
HEX	HEXAGONAL	TSF	TONS PER SQUARE FOOT
HK	HOOK	TW	TOP OF WALL
HORIZ	HORIZONTAL	TYP	TYPICAL
HP	HIGH POINT		
HS	HAND RAIL	ULT	ULTIMATE
HT	HEIGHT	UNF	UNFINISHED
HTS	HIGH TENSILE STRENGTH	UNO	UNLESS NOTED OTHERWISE
HVY	HEAVY	UDL	UNIFORM DISTRIBUTED LOAD
ID	INSIDE DIA	VERT	VERTICAL
IF	INSIDE FACE	VB	VAPOR BARRIER
IN	INCH OR INCHES		
INCL	INCLUDE	W/	WITH
INFO	INFORMATION	W/O	WITHOUT
INSD	INSIDE	WD	WOOD
INSUL	INSULATE, INSULATION	WP	WORKING POINT
INT	INTERIOR	WWF	WELDED WIRE FABRIC
INV	INVERT	WS	WATERSTOP
		WTW	WALL TO WALL
J	JOIST		
JT	JOINT	YD	YARD
JF	JOINT FILLER	YP	YIELD POINT
		YS	YIELD STRENGTH

Revisions:	Drawn By:	App'd. By:	Date:

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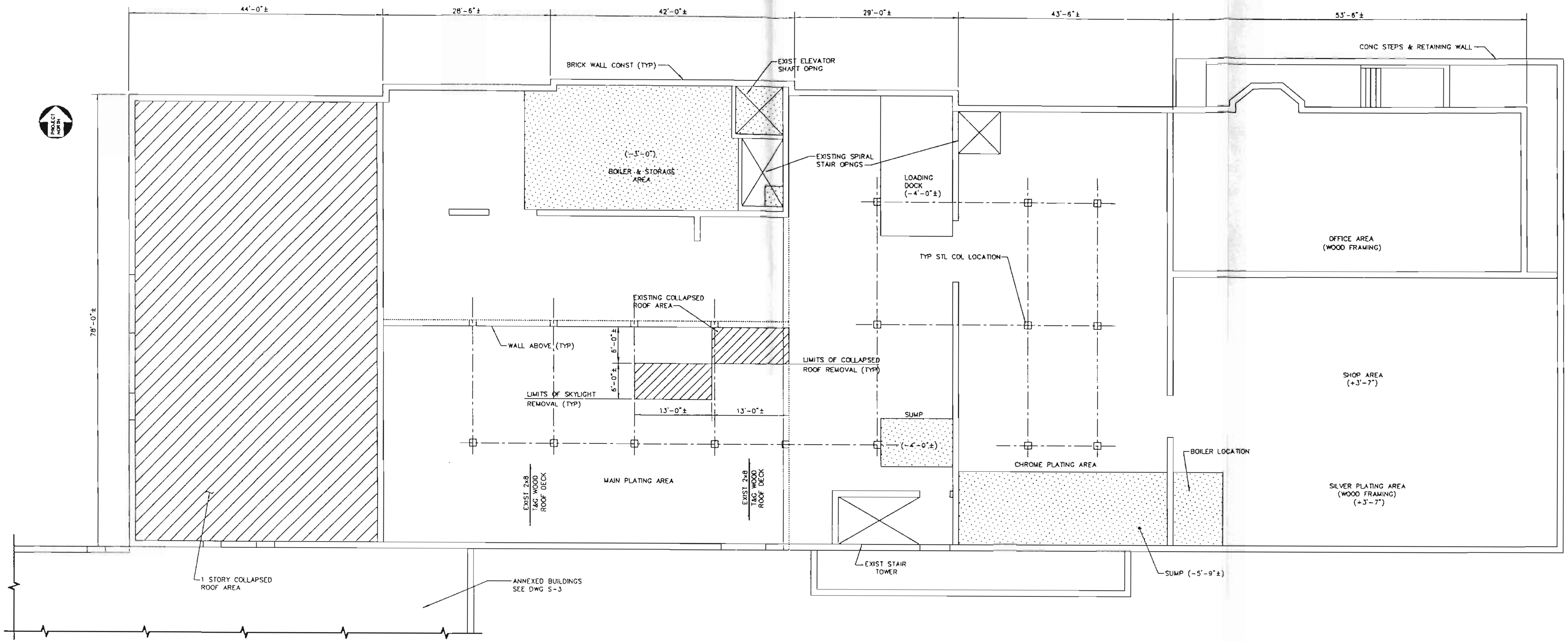
UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.

GENERAL NOTES

Drawing No. S-1

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 5 OF 19



MAIN BUILDING 1ST LEVEL REMOVALS PLAN

SCALE: 1/8"=1'-0"

NOTES: 1. TOP OF EXIST SLAB ELEV=273'-6"± U.N.O. (±X'-X")

LEGEND:

- [hatched] = LIMITS OF COLLAPSED ROOF AREAS
- ☐ = STEEL COLUMN LOCATION
- [dotted] = LIMITS OF EXISTING CONC SLAB OPENINGS TO BE INFILLED W/ FLOWABLE FILL AS PER DWG S-1.

Revisions:	Drawn By:	App'd. By:	Date:

Designed By:	Date:
MLM	2/98
Drawn By:	Date:
WCH	2/98
Checked By:	Date:
JB	2/98

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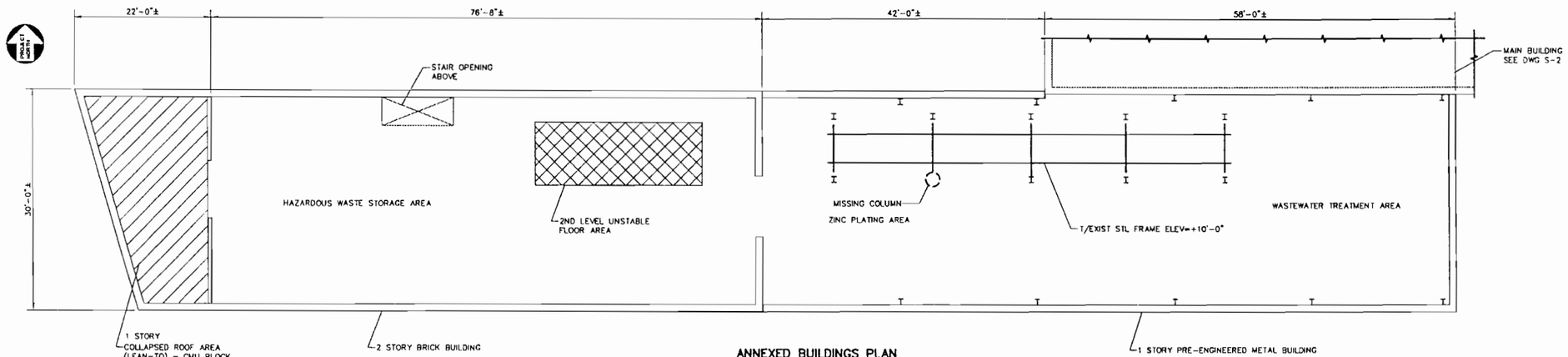
UNITED PLATING FACTORY
DEMOLITION
SCHENECTADY, N.Y.

MAIN BUILDING 1ST LEVEL REMOVALS PLAN

Drawing No. **S-2**

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 6 OF 19



ANNEXED BUILDINGS PLAN

SCALE: 1/8"=1'-0"

NOTES: 1. TOP OF EXIST SLAB ELEV=273'-2"±
2. EXIST STL FRAME SHALL BE DISASSEMBLED PRIOR TO ANY WORK IN THE BUILDING.

LEGEND:

- COLLAPSED ROOF AREA
- UNSTABLE FLOOR AREA

KEY PLAN

Revisions:	Drawn By:	App'd. By:	Date:

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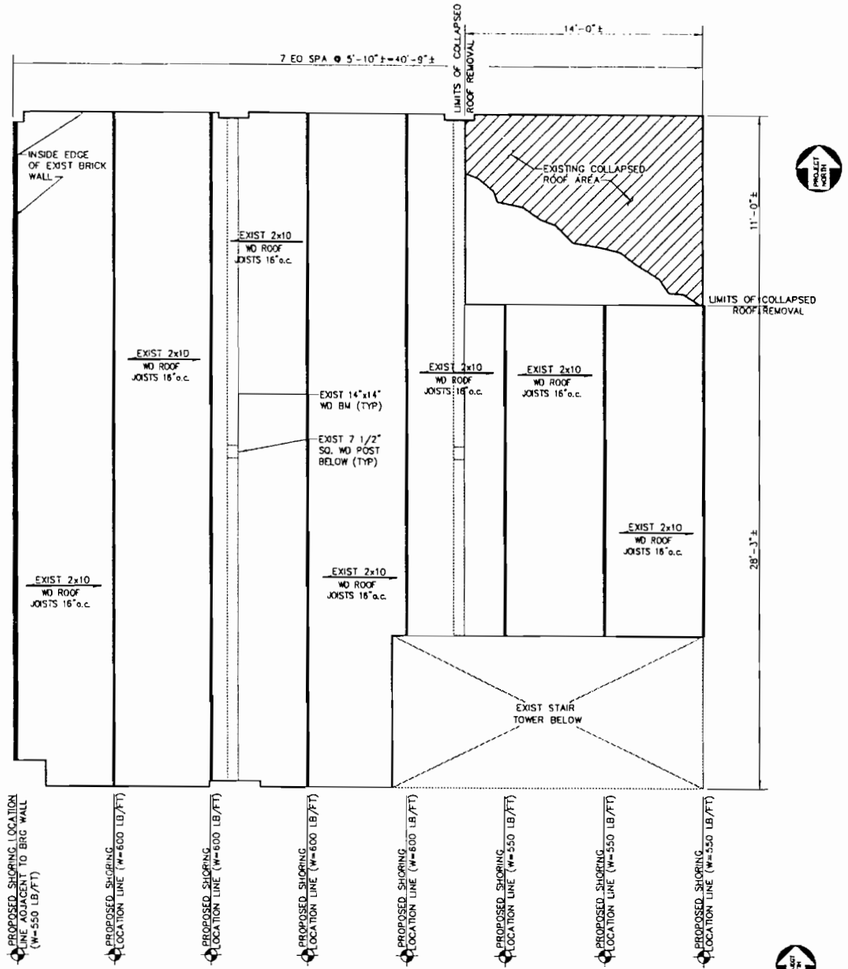
ANNEXED BUILDINGS PLAN

SCALE: AS NOTED | DATE: FEBRUARY 1998

Drawing No. **S-3**

SHEET 7 OF 19



2nd LEVEL ANODIZING RM ROOF FRAMING/SHORING PLAN

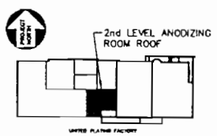
SCALE: 1/4"=1'-0"

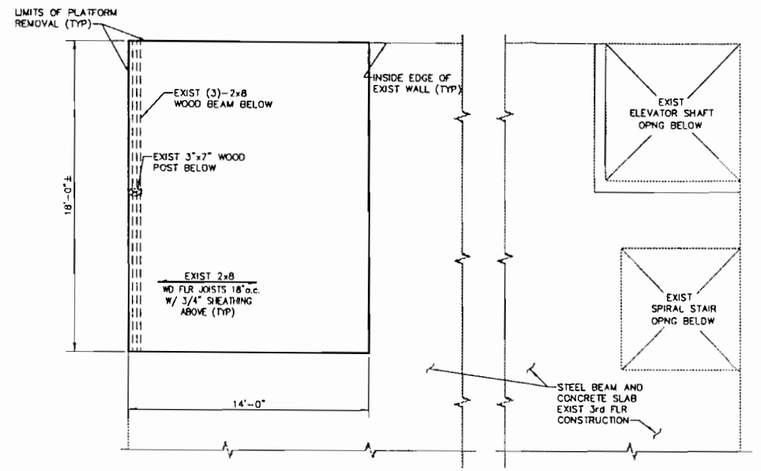
NOTES:

1. TOP OF EXIST JOIST ELEV. = 15'-0"± A.F.F. (TYP)
2. 2nd LEVEL ANODIZING RM F.F. ELEV = 284'-0"±
3. MAXIMUM SHORING COLUMN SPACING = 6'-0"
4. REMOVE EXIST PARTIALLY COLLAPSED ROOF AREA WITHIN LIMITS INDICATED.
5. ONCE SHORING IS REMOVED, MAX LIVE LOAD ON FLOOR = 100 PSF

LEGEND:

▨ = COLLAPSED ROOF AREA



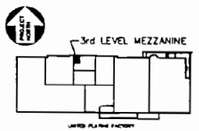


3rd LEVEL PLATFORM FLOOR REMOVALS PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. TOP OF EXIST PLATFORM ELEV. = 11'-6"± A.F.F. (TYP)
2. 3rd LEVEL SLAB ELEV = 301'-9"±
3. MAX. LIVE LOAD ON FLOOR = 100 PSF



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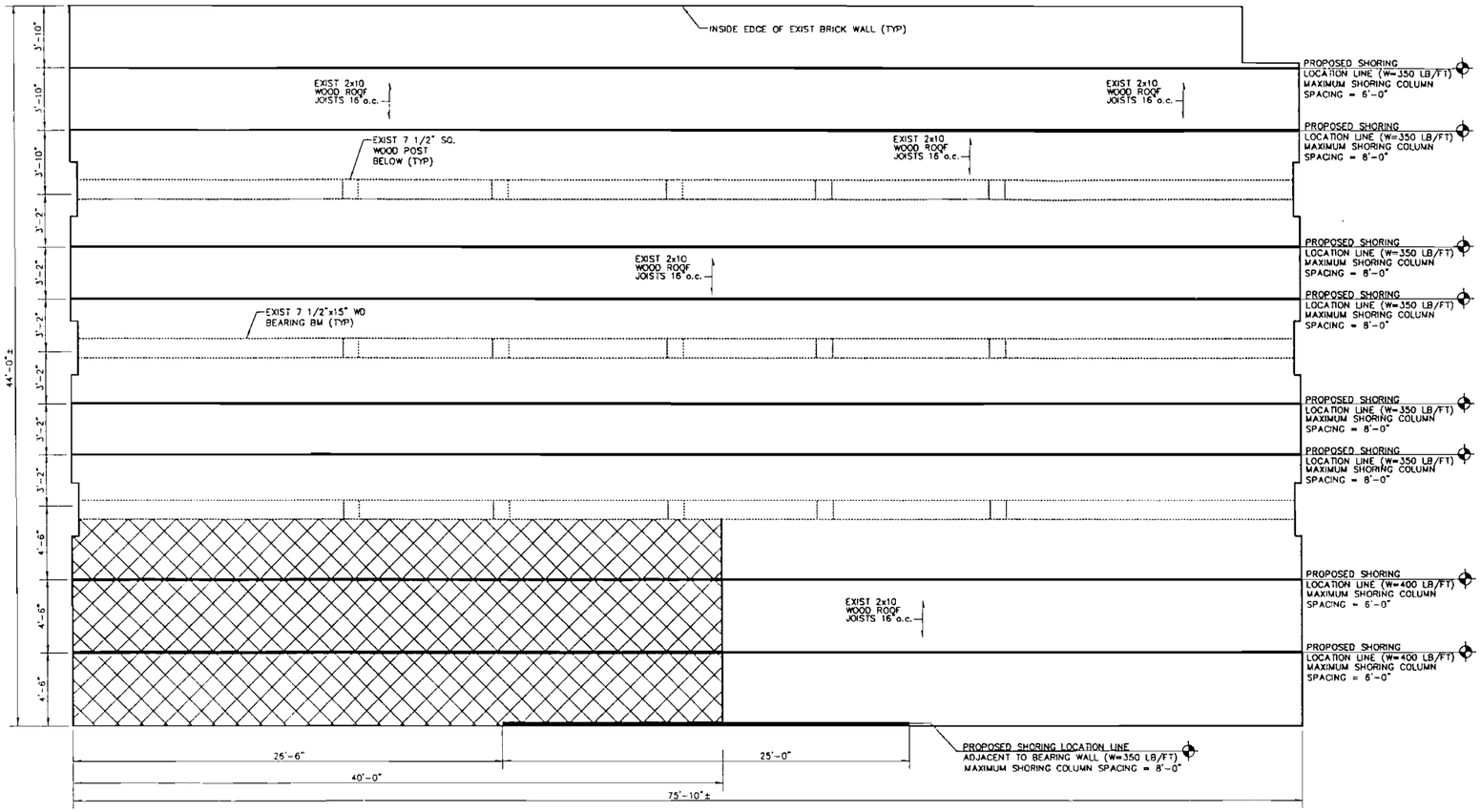
2ND LEVEL ROOF SHORING & 3RD LEVEL REMOVALS PLANS

Drawing No. **S-4**

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 8 OF 19



3rd LEVEL BREWERY RM ROOF FRAMING/SHORING PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. TOP OF EXIST JOIST ELEV=15'-1"± A.F.F. @ WEST WALL (TYP)
   TOP OF EXIST JOIST ELEV=18'-6"± A.F.F. @ EAST WALL (TYP)
2. F.F. ELEV=307'-3"±
3. MAXIMUM SHORING COLUMN SPACING = (SEE SPECIFIC SHORING LINE ABOVE)
4. ONCE SHORING IS REMOVED, MAX LIVE LOAD ON FLOOR = 100 PSF

LEGEND:

= AREA OF 3RD LEVEL FLOOR TO BE CLEARED OF EXISTING EQUIPMENT DEBRIS PRIOR TO ROOF SHORING.

KEY PLAN

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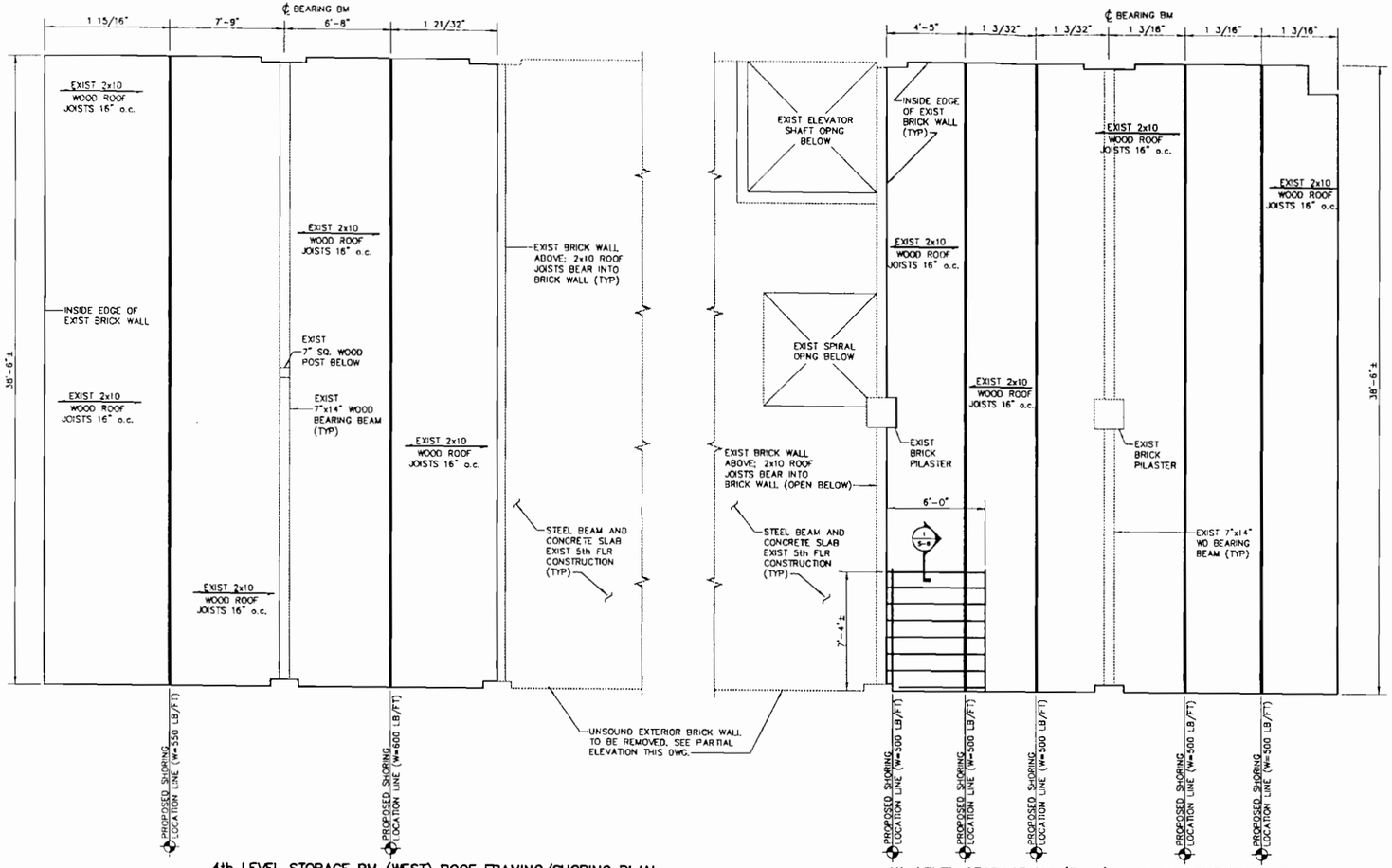
3RD LEVEL ROOF SHORING PLAN

Drawing No. **S-5**

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 9 OF 19

FILE NAME & PLOT/LAYOUT/LINE DATE: 11/21/97 OPERATOR: RMF PLOT SCALE: 1=1

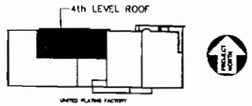


4th LEVEL STORAGE RM (WEST) ROOF FRAMING/SHORING PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. TOP OF EXIST JOIST ELEV=13'-5"± A.F.F. @ WEST BEARING WALL (TYP)
   TOP OF EXIST JOIST ELEV=14'-6"± A.F.F. @ EAST BEARING WALL (TYP)
2. 4th LEVEL F.F. ELEV=313'-9"±
3. MAXIMUM SHORING COLUMN SPACING = 7'-6"
4. ONCE SHORING IS REMOVED, MAX LIVE LOAD ON FLOOR = 200 PSF



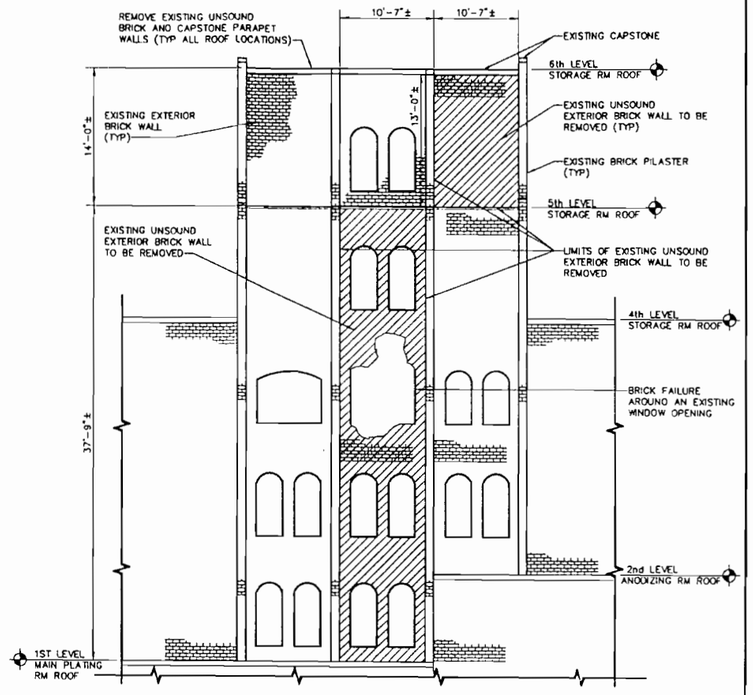
KEY PLAN

4th LEVEL STORAGE RM (EAST) ROOF FRAMING/SHORING PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. TOP OF EXIST JOIST ELEV=14'-3"± A.F.F. @ WEST BEARING WALL (TYP)
   TOP OF EXIST JOIST ELEV=13'-6"± A.F.F. @ EAST BEARING WALL (TYP)
2. 4th LEVEL F.F. ELEV=313'-9"±
3. MAXIMUM SHORING COLUMN SPACING = 7'-6"
4. ONCE SHORING IS REMOVED, MAX LIVE LOAD ON FLOOR = 200 PSF



WALL REMOVALS: PARTIAL ELEVATION LOOKING NORTH

NO SCALE

NOTE: SEE FRAMING/SHORING PLANS FOR ELEVATIONS.

LEGEND:

▨ = AREAS OF WALL TO BE REMOVED

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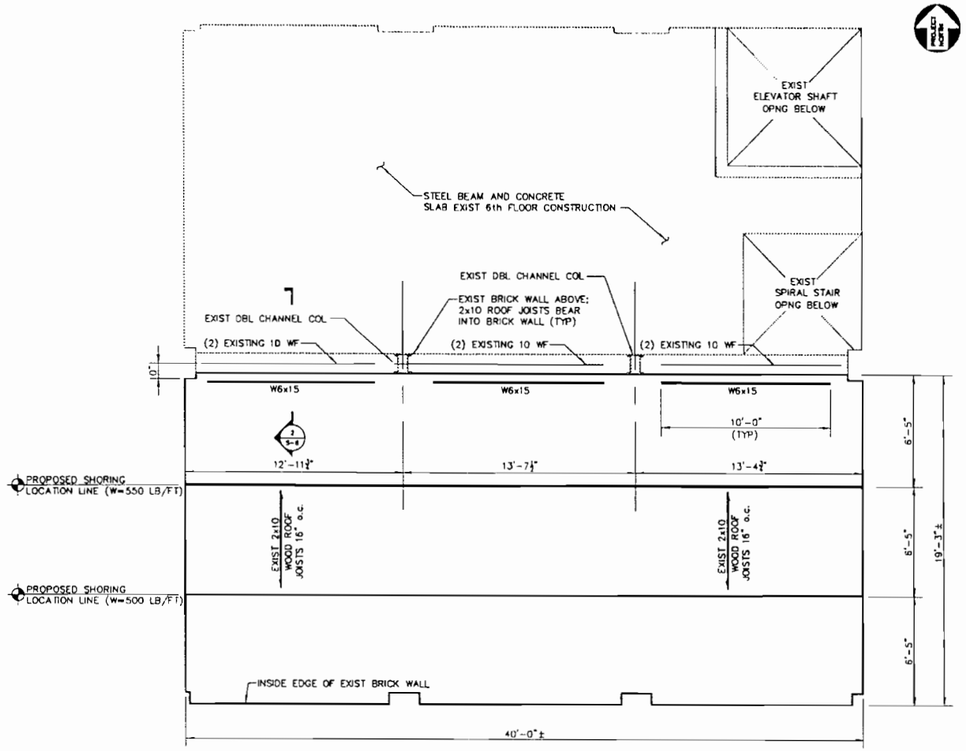
4TH LEVEL SHORING PLANS & WALL REMOVAL ELEVATION

Drawing No. **S-6**

SCALE: AS NOTED | DATE: FEBRUARY 1998 | SHEET 10 OF 19

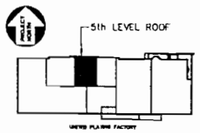


5th LEVEL STORAGE RM ROOF FRAMING/SHORING PLAN

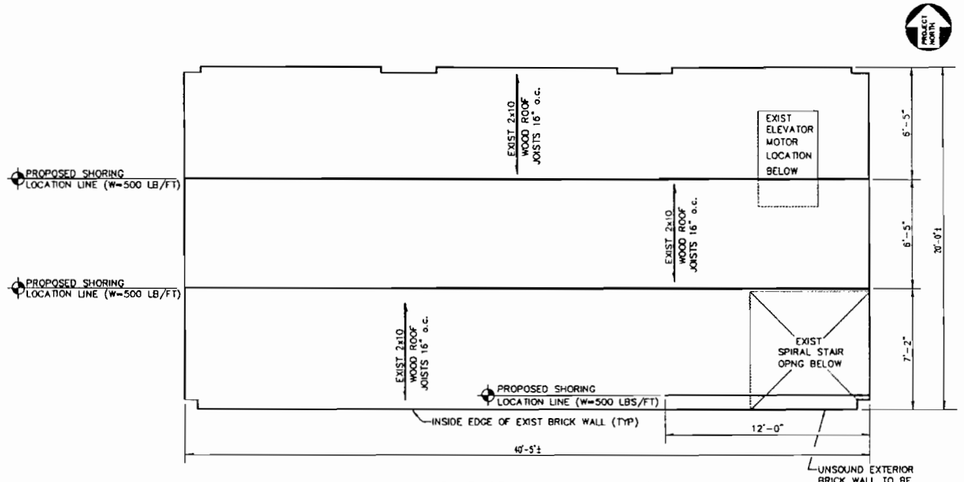
SCALE: 1/4"=1'-0"

NOTES:

1. TOP OF EXIST JOIST ELEV=14'-0"± A.F.F. @ NORTH BEARING WALL (TYP)
   TOP OF EXIST JOIST ELEV=13'-2"± A.F.F. @ SOUTH BEARING WALL (TYP)
   TOP OF EXIST STL BM ELEV=13'-2"± A.F.F.
2. 5th LEVEL F.F. ELEV=328'-9"±
3. MAXIMUM SHORING COLUMN SPACING = 7'-6"
4. ONCE SHORING IS REMOVED, MAX LIVE LOAD ON FLOOR = 200 PSF



KEY PLAN

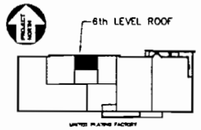


6th LEVEL STORAGE RM ROOF FRAMING/SHORING PLAN

SCALE: 1/4"=1'-0"

NOTES:

1. TOP OF EXIST JOIST ELEV=12'-2"± A.F.F. @ NORTH WALL (TYP)
   TOP OF EXIST JOIST ELEV=11'-8"± A.F.F. @ SOUTH WALL (TYP)
2. 6th LEVEL F.F. ELEV=344'-0"±
3. MAXIMUM SHORING COLUMN SPACING=7'-6"
4. ONCE SHORING IS REMOVED, MAX LIVE LOAD ON FLOOR = 100 PSF



KEY PLAN

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UNITED PLATING FACTORY
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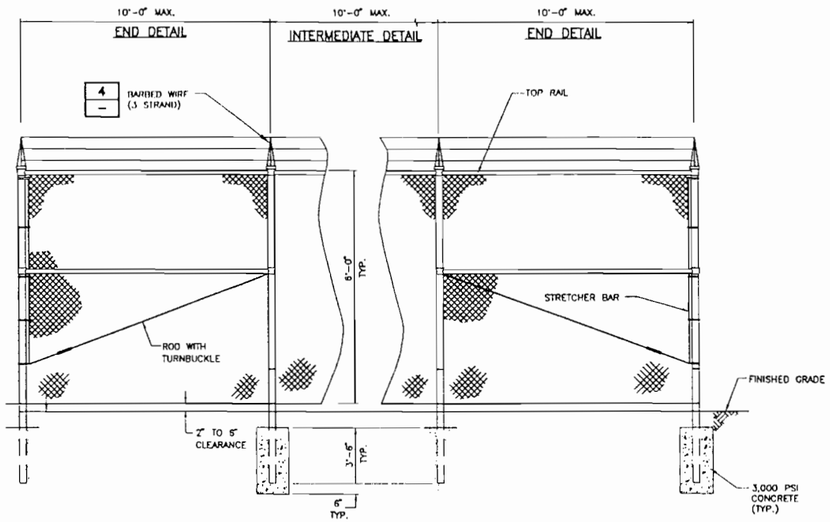
5TH & 6TH LEVEL ROOF SHORING PLANS

SCALE: AS NOTED | DATE: FEBRUARY 1998

Drawing No. **S-7**

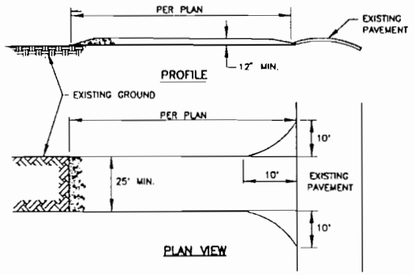
SHEET 11 OF 19

DATE 2/27/98 SPECIFICATION TAB PLOT SCALE 1=1
FILE NAME S:\6808\CAD\S6808.DWG



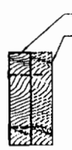
1 / G-2 CHAIN LINK FENCE DETAIL
NO SCALE

NOTES. 1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. CONC. ALTERNATE POSTS (TYP.).



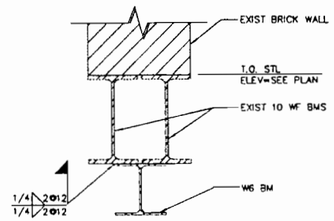
1. STONE SIZE & MATERIAL – SEE DWG S-1.
2. LENGTH–AS REQUIRED, BUT NOT LESS THAN THAT INDICATED ON THE PLANS
3. THICKNESS–NOT LESS THAN 12".
4. WIDTH, MINIMUM, NOT LESS THAN THE FULL WIDTH OF THE PROPOSED HAUL ROAD.
5. SOIL STABILIZATION FABRIC WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE – SEE SPECIFICATIONS.
6. CONTRACTOR SHALL PROVIDE ADDITIONAL STONE AS NECESSARY TO MAINTAIN GRAVEL DRIVE.
7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
8. REMOVE EXIST CONC/STONE CURB AT ENTRANCE AS REQ'D.

3 / G-2 STABILIZED CONSTRUCTION ENTRANCE DETAIL
NO SCALE



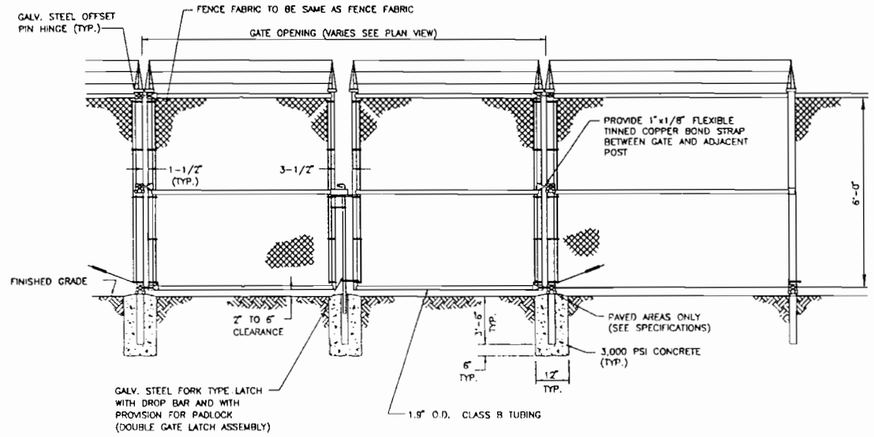
1 / S-6 ROOF JOIST REPAIR SECTION
NO SCALE

NOTES: 1. NEW JOISTS SHALL BE 12'-0" LENGTH.
2. NAILS: 16d GALV.–5 PATTERN



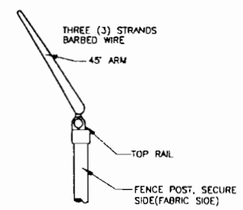
1 / S-7 BEAM REINFORCING SECTION
SCALE: NONE

NOTES:
1. CENTER W6 BEAM BETWEEN SUPPORTS.
2. CLEAN EXIST 10 WF BEAMS PRIOR TO WELDING.



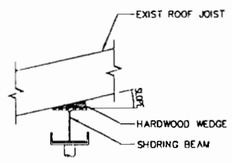
2 / G-2 CHAIN LINK FENCE DETAIL WITH DOUBLE SWING GATE
NO SCALE

NOTES: 1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. CONC. POSTS SURROUNDING GATE.

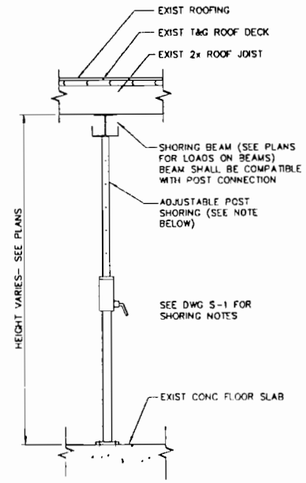


4 / – GENERAL PURPOSE BARBED WIRE OBSTACLE ATTACHMENT DETAIL
NO SCALE

(NOTE: PROVIDE 3 STRANDS OF BARBED WIRE & ATTACHMENT FOR PERMANENT INSTALLATION ONLY)



TYP. SHORING WEDGE DETAIL
NO SCALE



TYP SHORING ELEVATION
NO SCALE

NOTES:
1. THE ADJUSTABLE POST SHORING & BEAM SHOWN ABOVE IS FOR IDEA PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING SHORING METHOD TO SUPPORT LOADS INDICATED ON THE PLANS.
2. SHORING SHALL BE INSTALLED AT LOCATIONS AS INDICATED ON THE PLANS.

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SECTIONS AND DETAILS

SCALE: AS NOTED | DATE: FEBRUARY 1998

Drawing No. **S-8**

SHEET 12 OF 19