DESIGNER'S GUIDE

Section IV Close Out Procedures

(Revised May 22, 2013)

Yale University
Facilities Planning & Construction

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IV. CLOSE OUT PROCEDURES

CLOSE-OUT DELIVERABLES

During the close-out phase of a project three deliverables are required of the Design Team – two are required as part of base services, Assignment Plans and MEP System Descriptions, while one additional service is required – Record Archive Drawings and Specifications.

Assignment Plans: Assignment Plans are 8 ½ x 11 documents which reflect the architectural layer of the contract documents. The only information required on these documents is the architectural layout, the room name, the room number and net assignable square feet of each room. Net assignable square feet (nasf) is defined as the area bounded by the inside face of demising walls for a given room. Yale School of Medicine tracks net assignable square feet assigned to Departments, as well as net assignable square feet attributable to Administration, such as common toilet rooms, common corridors and stairwells. The Assignment Plans need to be in the format as shown in Exhibit IV-A (see last page) and need to be submitted both in 8 ½ x 11 format and on disk (CD or floppy disk is acceptable). Yale University CAD Standards must be followed (see Exhibit IV-A).

In addition to the Assignment Plan described above, a plan of the existing conditions (prior to the project construction) shall be submitted. The existing plan shall be at the same scale as the Assignment Plan and shall include former configuration of walls and (if applicable) former room numbers. The existing plan should have similar information as the Assignment Plan (that is, no extraneous demolition information). Please see “Assignment Plan Procedure” on page IV-3 for submittal timing and process.

MEP Systems Description: In either 8 ½ x 11 or 11 x 17 format, MEP System Descriptions are kept on file by the Yale University Facilities Planning & Construction Maintenance personnel for reference when called upon to make alterations or emergency repairs to completed projects. These System Description documents should therefore have a brief narrative of the appropriate system and how it functions, along with a single-line diagram conveying how the system is configured. An example of an MEP System Description is shown as Exhibit B in Appendix IV.

Record Archive Drawings and Specifications: After Substantial Completion, the Constructor will give to the Design Team the marked up Field Record Drawings which were kept on-site during the project. Using this set of documents to assess the number of changes that were made during the Construction process, the Designer should prepare a proposal to incorporate these changes into the original Contract Documents to be labeled as Record Archive Drawings. Changes made to the documents during this process need not be "bubbled" or called out in any way. They simply need to be incorporated into the base documents. Changes that were made in the form of a prepared sketch by the Design Professionals during the Construction Phase need not be transferred to the original Contract Documents. These sketches can be grouped onto one page or multiple large pages and referenced within the original Contract Documents via notes. If this is done, the sketches should be scanned such that an electronic version can also be submitted. In addition, the Contract Document Mechanical Duct Layout Drawing does not need to be modified to reflect the final configuration of ductwork. Rather, this document should reference, in a bold way, a separate document, the sheet-metal shop drawing document, which needs to be scanned and included as part of the Record Archive Drawings set. In the same way, the fire protection drawings, as produced during the shop drawing process, should be scanned and included within the Record Archive Drawing set, both electronically and in hard copy. Please note that the Finish Schedule should be updated to reflect the final finishes selected and installed (paint manufacturer and color, base, carpet, etc.).

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As part of the Archive Drawing Submission, the Design Team must provide a final tabulation of total net assignable square feet (nasf) and gross square feet (gsf) of the project. As stated above, nasf is defined as the area bounded by the inside face of the demising walls for a given room. Total nasf will be the sum of all *program* space (i.e., not toilet rooms, custodial closets, etc.). Gross square feet (gsf) is defined as the total area in which construction of any kind occurs even if not contiguous, with the following exception. Do not include area outside of the primary construction area(s) through which ducts, pipes or electrical service passes to connect to shafts, panels or risers. If a project abuts an outside wall, gross floor area is measured from the inside face. If you are unclear on how to calculate gsf for a particular project, check with your Project Manager.

When complete, the Record Archive Drawings in disk form (Compact Disk is preferred) and one reproducible bond set to be submitted to the Project Manager.

Please Note: The record archive documents (as all design and construction documents) should note in a prominent location on the cover sheet the YALE PROJECT NUMBER and the Yale project name. (Verify this number with the Project Manager)

(This does not preclude the inclusion of the consultant's project number on the documents as required).

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ASSIGNMENT PLAN PROCEDURE

1. A draft version of the assignment plan must be submitted by the architect *two weeks* before the date that the project is scheduled to be punch-listed as Substantially Complete.

2. At the end of Preliminary Design and *prior to this draft submittal*, the Project Manager ***must*** obtain approval of the room numbers from Mary Hill.

3. The draft assignment plan will be reviewed by David Kula and any issues will be resolved before the final version is accepted.

4. In addition to the assignment plan(s), a plan showing the area as it existed prior to the project must be submitted in the same format. This can be a cleaned up version of the demolition plan (see attached before and after examples). The “before” plan should be dated at the start of construction to avoid confusion between the two versions.

5. The final version of the assignment plan, with all issues resolved with David Kula, ***must*** be submitted on the date of substantial completion. Immediately upon receipt, the PM will transmit this final version to Mary Hill using the model transmittal format (f:\pm&c general\forms\ accepted\trans_ap.doc)

APPENDIX IV A - Yale University Facilities Planning & Construction CAD Standards

Please visit the Yale University Facilities Planning & Construction CAD Standards Web site:

http://www.facilities.yale.edu/publications/CADStandards.pdf

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EXHIBIT IV B - Example of a MEP System Description

Project Narrative

BML (Brady Memorial Laboratory) Room 350
Laboratory Renovation, Department of Pathology
Yale Project No. 930503—10

Demolition:

All demising partitions and ceilings were removed within the project area.

Asbestos/Lead:

A limited amount of asbestos was removed from existing piping within the project area prior to construction. Existing window sashes had lead paint which was removed as part of the project.

Architectural:

New gypsum wallboard walls, vct floors, and acoustic tile ceilings were installed as part of this project. Two separate wet bench lab spaces were created along with a common equipment room to be shared by these labs. In addition, a teaching lab support space was created. The thought was, if some day the teaching labs move, the teaching lab support space would become a lab module.

Mechanical:
(See system description).
All spaces within the project area are served from the Brady Addition air handler AHU-1. All exhaust within the project area is tied to the Brady Addition exhaust fans via riser at the Congress Avenue. These risers are then tied into a manifold at the Lauder roof. (Note, in the future, the western most riser is to be tied to new Lauder 30,000 cfm infrastructure exhaust fans.) All spaces within the project area have DDC controls and are true vav systems. Existing radiators at perimeter walls were retained and connected via new drops to low pressure steam lines.

Electrical:

(See system descriptions).
All lighting is 277 volt lighting.

Plumbing:
(See system descriptions).
DI water was provided via “point of use systems” consisting of 3 cartridges each, located beneath the sink at each sink tied to the domestic cold water lines. This had to be done in that the house DI system was at full capacity and could not support additional outlets.

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EXHIBIT IV- B

Fire Alarms/Sprinklers:

All areas within the project area are covered with fire sprinklers served from the Brady Addition stairwell via 4' main the Brady/Lauder corridor. All devises are addressable and are tied to the Brady Addition fire alarm panel. This panel is located within the Brady Addition corridor fire alarm closet adjacent to the University telephone closet.

Special Equipment:

None.

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BR+A

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Connecticut

Fort Lauderdale
Florida

Chicago
Illinois

Renovation to BML35O
Department of Pathology

Yale University School of Medicine

Yale Project No. 930503-10
WOTS No. 73205000

December 20, 1994

Plumbing Systems Description

New cold water, hot water and hot water recirculation piping connect to existing systems and extend to each and every fixture requiring same.

New sanitary waste and vent piping and laboratory waste and vent connect to existing systems and extend to each and every fixture requiring same.

New air, gas and vacuum piping connect to existing systems and extend to each and every fixture requiring same.

New sprinkler heads extend from existing system to accommodate new Architectural layout.

Point-of-use pure water systems are provided at each sink location. HYAC

Systems **HVAC Systems Description**

The primary heating source is the existing steam to hot water heat

exchanger located in the Penthouse Mechanical Room.

Hot water reheat and radiation piping is connected to the Brady/Lauder

Building riser in the Third Floor Lauder Corridor.

The heating and cooling of the spaces (rooms) is provided via air terminal units with in-duct hot water heating coils and perimeter radiation. One (1) heating/ cooling thermostat shall modulate the heating coil control valves and VAV terminal unit to maintain space temperature setting.

Area will be served by the existing BML/LH-AHU-1 located in the Brady/Lauder Penthouse Mechanical Room.

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The exhaust system is connected to new exterior building risers furnished under a separate contract.

High velocity medium pressure ductwork from the existing capped supply air main to the inlet of air terminal boxes and between exhaust riser and exhaust air terminal units is provided.

Low pressure ductwork downstream of all supply air terminal boxes and upstream of exhaust air terminal units is provided.

Control for the laboratories with fume hoods is provided via independent controllers in the laboratory area to maintain safe working conditions at the hood and comfort levels within the laboratories.

The face velocity at the hood is continually maintained at 100'-0'~ per minute (adj.). The fume hood exhaust has a minimum flow of 200 cfm in the sash closed position through the airfoil rail on the front of the hood. Exhaust air volume is directly proportional to the sash opening based on a face velocity of 100 fpm. Hood face velocity is the highest priority in the control sequence. An emergency override button sequences the hood exhaust to maximum flow, regardless of sash height. Emergency override is indexed on and off at the hood.

The supply air to the laboratory is maintained at a volume directly proportional to the exhaust through the fume hood minus the negative pressure with respect to the corridor (200 cfm typical). Changes in hood exhaust volume have a corresponding change in supply volume.

A room sensor monitors room temperature with respect to setpoint and sequences the hot water coil to maintain a total Btuh output (CFM times 1.08 times delta T) for the room as required to heat the space. A change in supply air volume repositions the hot water valve, to maintain setpoint (total Btuh output constant). All control is provided through the programmable controller, including a discharge air temperature sensor downstream of the reheat coil.

Cooling is provided via override of the supply box and sequencing of the general exhaust valve. When the space temperature exceeds setpoint, the supply box opens and the general exhaust opens to maintain the negative pressure (cfm) with respect to the corridor. The hot water coil is sequenced off during the cooling control sequence.

A preset minimum is programmed for the supply box to provide minimum ventilation (6 air changes per hour) when the hood is closed and room does not require cooling. The general exhaust sequences to maintain negative pressure in the laboratory. The hot water valve sequences to maintain space temperature.

All laboratory exhaust air boxes/valves fail in the open position.

Electrical Systems Description

New normal lighting connect to existing Lighting Panel BML-NP-H-L-3-1.

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New emergency lighting and exit signs connect to existing Emergency Lighting. Panel

BML-EP-H-L-3-1.

Power serving the area connects to New Panel LP3-L4A and Existing Panels LP3-B7A and LP3-B7B.

Telephone/data outlets and conduit system to accessible ceiling space is provided with dragwire for telephone/data cabling.

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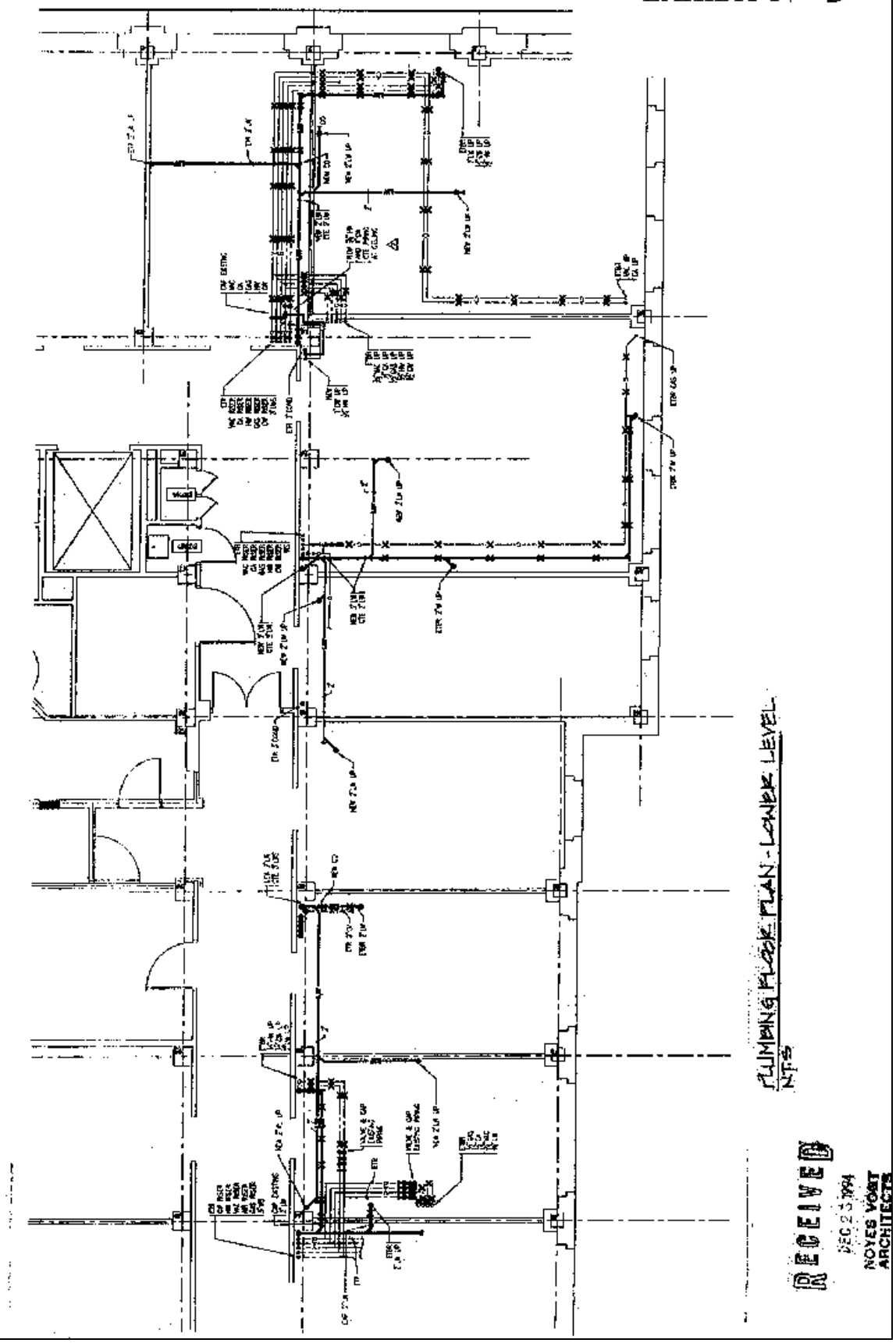
EXHIBIT IV - B



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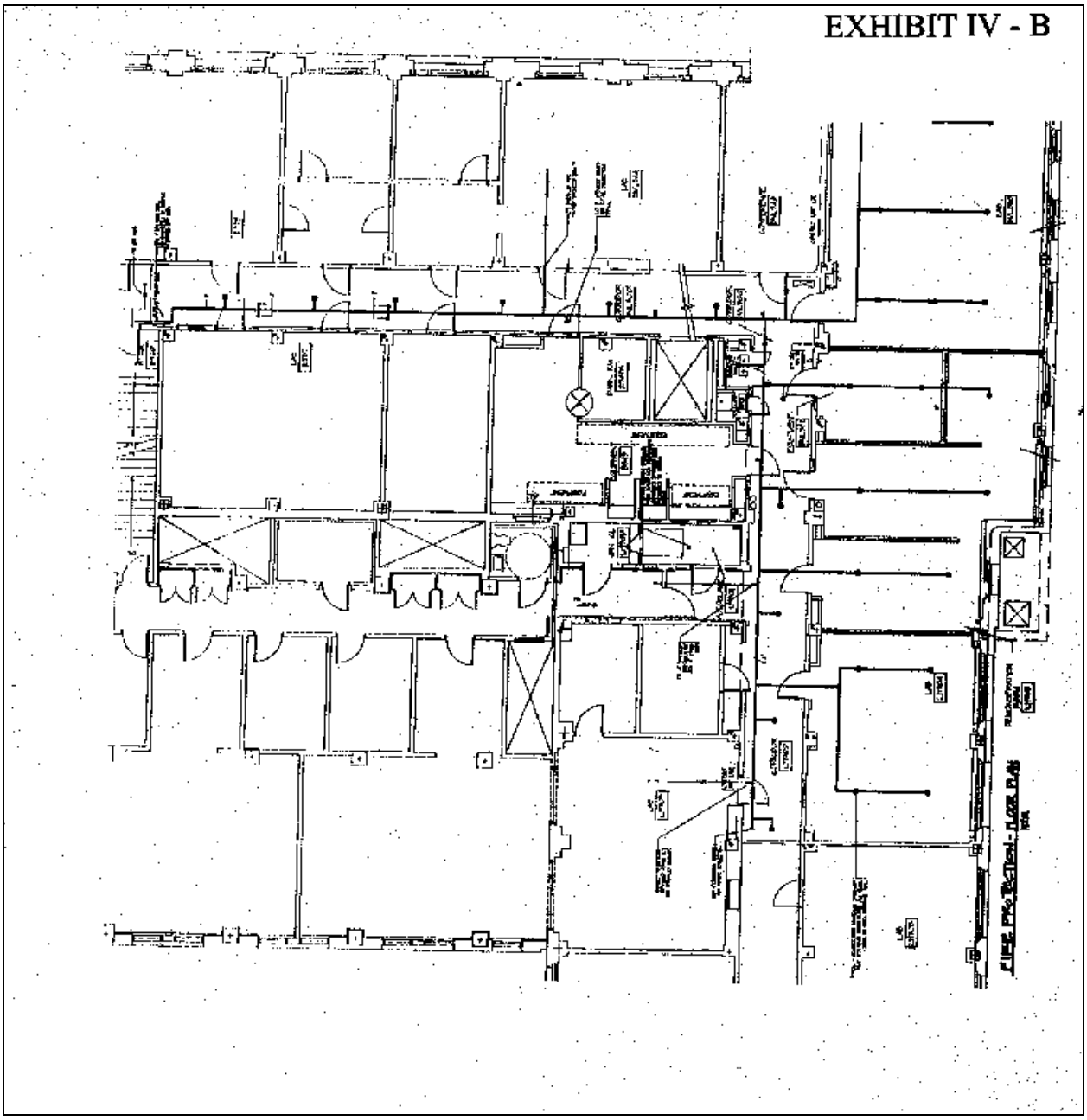

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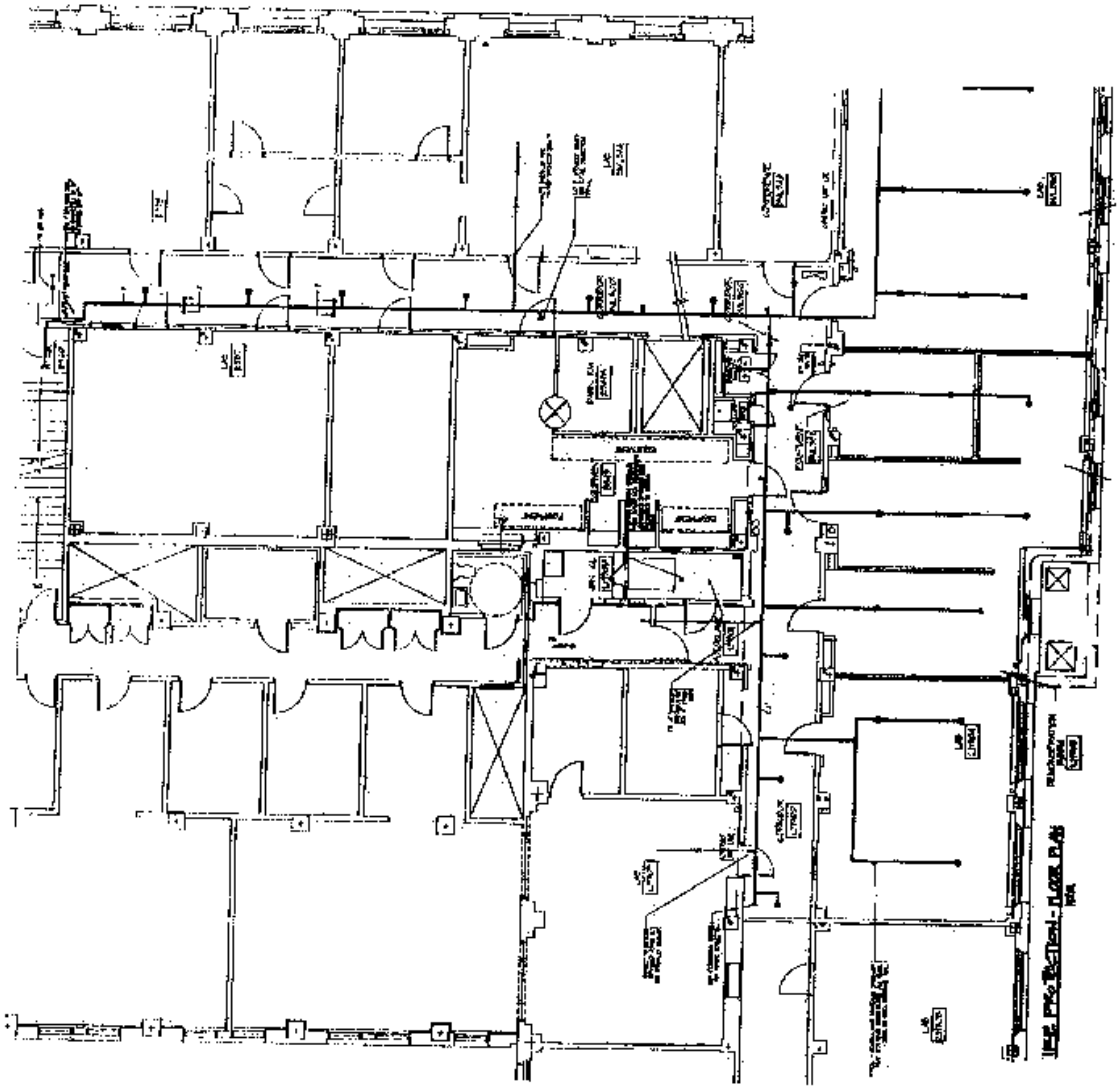

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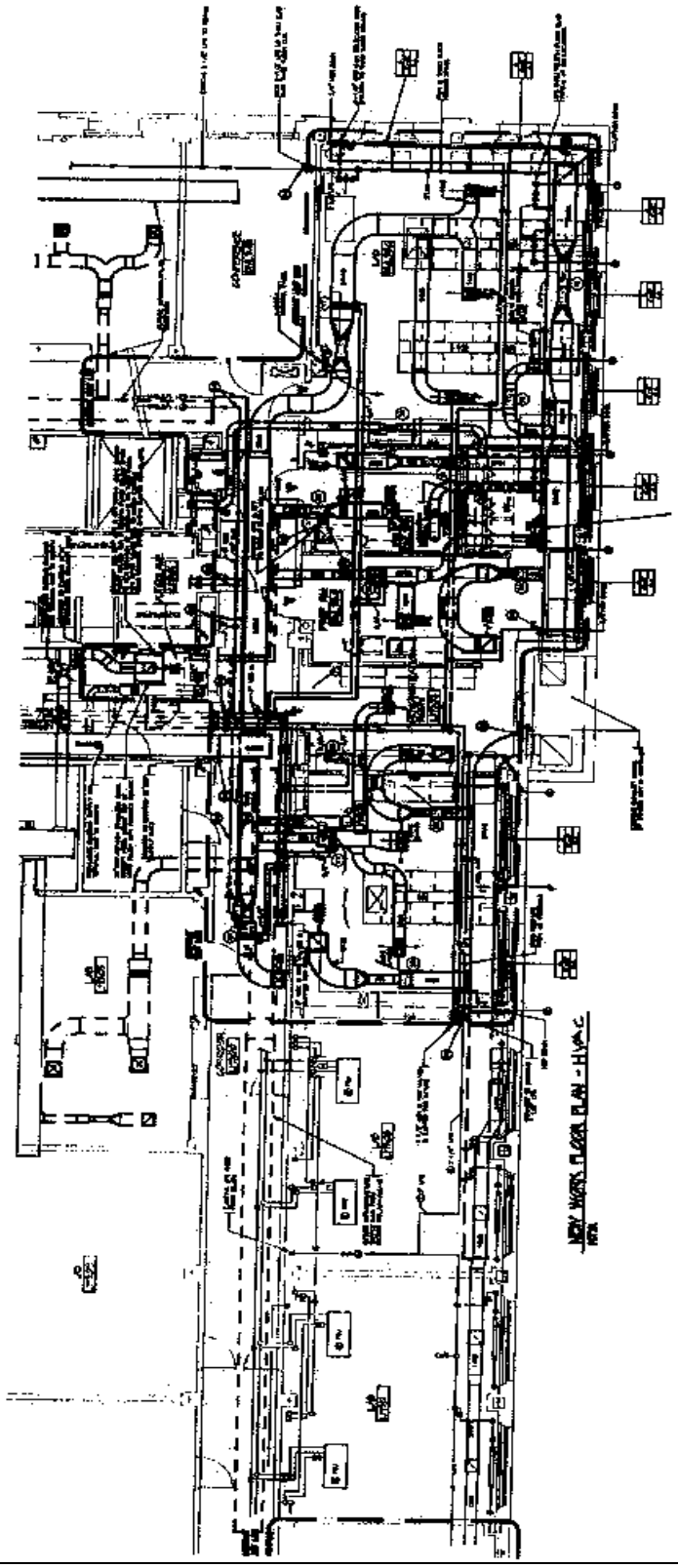

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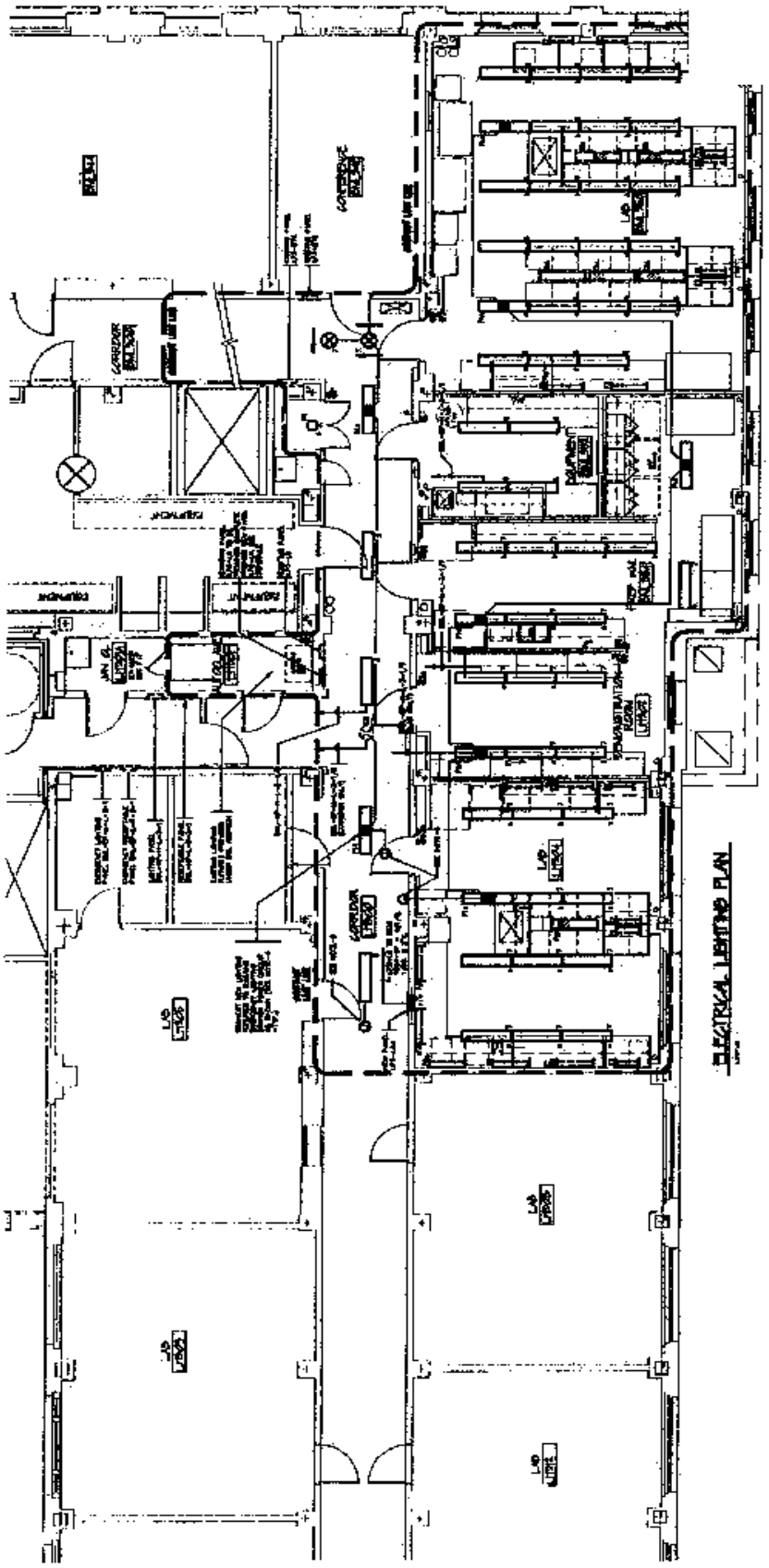

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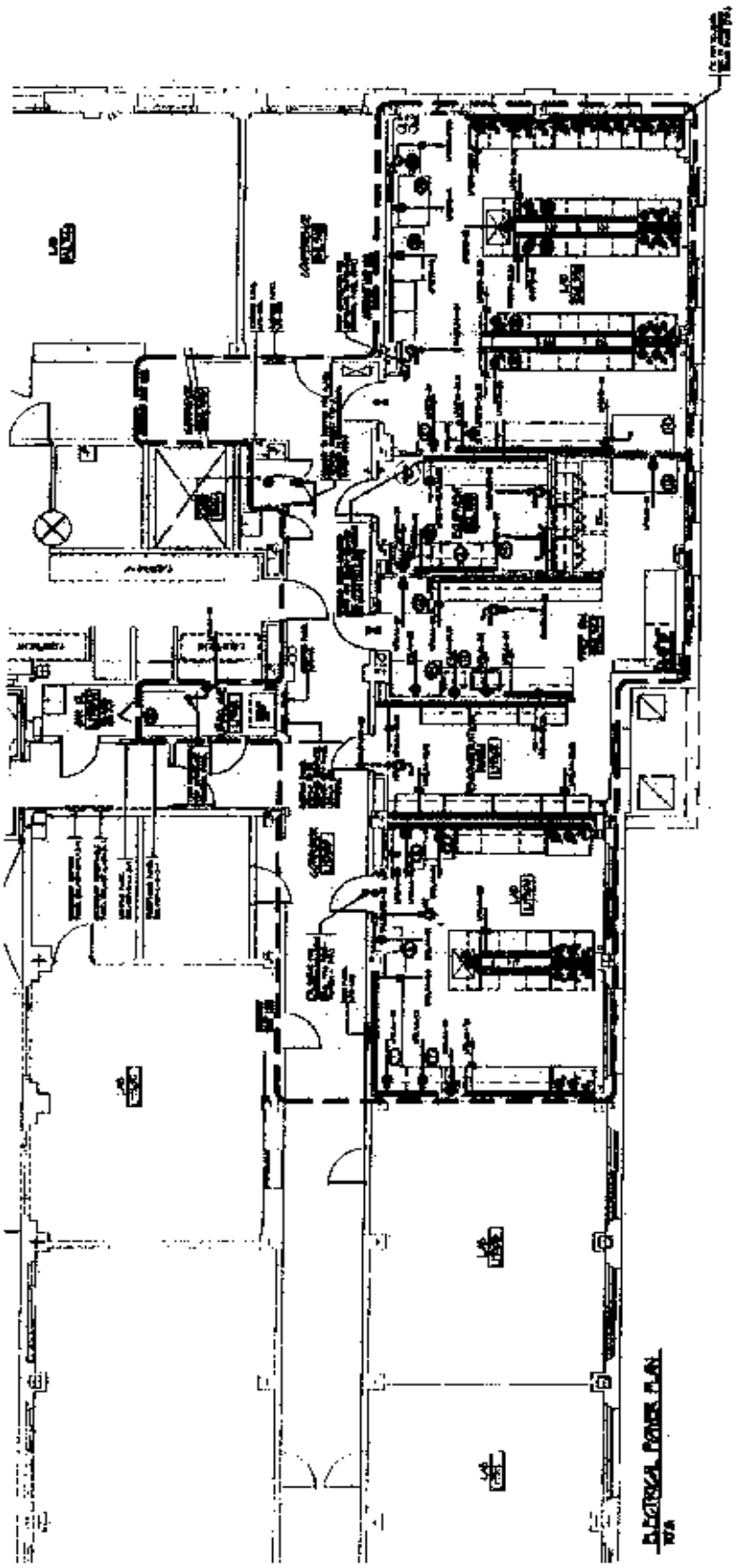

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