SECTION 237-050-201
ISSUE 3, NOVEMBER 1988

Erection Methods
Central Office
Laying Out the Floor

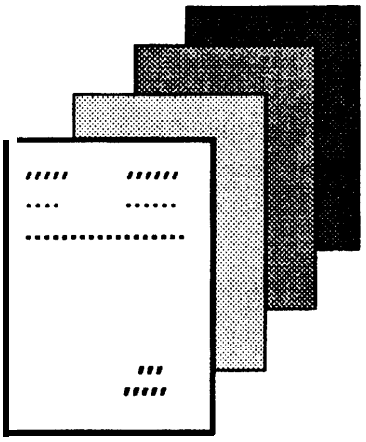

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TABLE OF CONTENTS

		PAGE
1	GENERAL	4
2.	PLANNING	4
	Floor Plan Drawing (JD-XXXXX-F or FCR)	4
3.	ESTABLISHING REFERENCE LINES	5
4.	MARKING THE FLOOR LAYOUT	5

1. GENERAL

1.01 This section presents the methods and procedures recommended for laying out and marking the floor of either an electromechanical or an electronic/digital system installation.

1.02 This section is reissued for general update. Because of extensive changes, change indicators are omitted. Remove the previous issue of this section from the binder or microfiche file and replace it with this issue.

2. PLANNING

2.01 To plan the floor layout, the installer is to study first the hardware job documents and appropriate floor plan requirements and guidelines. For the GTD-5 EAX, refer to Section 780-224-071 of GTE Practices. These documents are furnished either with the equipment or in advance of its arrival on the job site. The hardware job documents reflect site peculiar information relative to the installation of a system and are prepared individually for each office to be installed. These documents will take the form of drawings and/or mechanized computer printouts.

2.02 Typical hardware job drawings are floor plan layouts, cable rack layouts, power distribution layouts, terminal block locations and frame equipment locations. These drawings carry a JD prefix and a five-digit base number which is individually assigned for each office. A mnemonic suffix is assigned to each type of drawing to aid in describing the specific type of information contained on that particular document. For example, the document suffix EPDG, denotes that the drawing applies to Equipment Power Distribution and Grounding. Refer to the 793 Specification for a listing of the job drawings applicable to your specific installation.

2.03 The installer is also to study the 792 Specification furnished with each job. This specification contains the installer's notes pertaining to each specific job site.

2.04 The study of the documentation referenced in paragraphs 2.01 and 2.02, will familiarize the installer with the tasks ahead of him. This documentation will provide the necessary background information to aid the installer in laying out the floor of the office.

Floor Plan Drawing (JD-XXXXX-F or FCR)

2.05 The floor plan drawing, numbered JD-(five-digit site number)-F or -FCR, is the prime drawing to be referenced for marking the actual layout of the floor. The dimensions given on this drawing should be verified with the actual floor area being used prior to actually marking the floor. If deviations exist, discuss with equipment engineer prior to marking the floor. The dimensions shown in brackets on the floor plan drawing are approximate and should only be used for reference. The equipment locations are usually shown on the floor plan drawing with reference to two adjoining walls. In some cases, however, it is necessary to mark the equipment layout in reference to columns or obstructions within the office area.

2.06 In some cases, floor markers are provided in the floor of the building by the building contractor. When available, these markers shall be used by the installer to form the reference lines required for actually marking the floor layout.

2.07 The installer is to keep in mind that the equipment is to be set up in the office area as nearly as possible in accordance with the floor plan drawing furnished by the engineering department. Floor plans for typical GTD-5 EAX power room and floor plans are shown in Exhibits 1 and 2.

Always use the dimensions as specified on the floor plan drawing provided by the engineering department. The physical location of all equipment frames, channel brace supports, and distributing frames must be within 3/16" of the dimensions specified on the F or FCR drawing. Measure both ends where applicable. Dimensions are not to be obtained by scaling the floor plan drawing.

3. ESTABLISHING REFERENCE LINES

3.01 When floor markers are not available, form the reference lines as described in Figure 1. One line will locate the end frame in each lineup from a wall per the FCR drawing. The other line will locate the front edge of the guardrail along one frame lineup as measured from another wall per the FCR drawing. Refer to Figures 2a through d and 3.

3.02 When equipment frames in the office are located in one or both directions from a starting point labeled D on the FCR drawing, one or both reference lines should pass through this point.

3.03 After drawing the reference lines, verify that the dimensions locating the lines were taken from the part of the wall (inside, middle, outside) specified on the FCR drawing.

3.04 Verify that each line is parallel to a wall by measuring the distance from the line to the wall at both ends of the wall.

3.05 If the wall is over 3 inches closer to a reference line on one end than it is on the other end, contact the office engineer for approval before continuing to mark the floor.

4. MARKING THE FLOOR LAYOUT

4.01 Ideally, the floor should be marked entirely, prior to moving any equipment into the office area. If this cannot be done, place the equipment within the office area so that it does not interfere with the actual marking of the floor layout, so that additional movement of the equipment is held to a minimum when marking the floor.

4.02 All floor measurements must be made with a steel tape that will not stretch or pull and cause confusion on a critical dimension. However, a cloth tape must be used if it becomes necessary to make any measurement over or close to any working equipment existing within the office area. Care must be exercised, if it becomes necessary to use a cloth tape in such an instance, that the tape is not pulled or stretched causing a false measurement.

4.03 Refer to Figures 2a through d. In electronic system installations, there is no frame base angle to consider as shown in Figure 2a. The floor marking for the Standard Hardware Electronic Systems (SHES) frames is to include the front and rear kickplates in order to maintain the correct aisle spacing (Figures 2c and 2d).

4.04 In electromechanical system installations, the relationships between the outside dimensions and the base angles of the equipment are to be obtained from the appropriate equipment assembly drawings. Use a chalk line to mark each line that represents the front edge of all guardrails in a lineup. The floor plan drawing FCR dimensions between lineups are measured from guardrail to guardrail (Figure 2b).

4.05 Using a template locate the holes in the frame feet from the front edge of the guardrail and from the holes located in the adjacent frame. Include the spacing between frames in the hole to hole distance on the template. Mark the spacing from any end aisle panels to the holes in the adjacent frame on the templates to locate the first frame in each lineup. Add two inches to the .87 inch template dimension circled in Figure 2c, in order to locate the holes in the floor from

the front edge of the guardrails. Refer to Figure 2d.

NOTE: For the purpose of laying out lines for frame bases, subtract 2" from each guardrail for proper dimensions.

4.06 Use the template and the chalk line described in paragraphs 4.03 and 4.04 to mark where the holes should be drilled in the floor to support the frames.

4.07 After laying out the entire floor, verify the correct floor locations of all markings. Use the FCR drawing before any holes are drilled in the floor.

4.08 Once the floor is entirely marked and verified, the major markings which must be retained until the equipment is installed can be applied with a straight edge and a felt tip marker.

4.09 As shown in Figure 3, the important reference lines and equipment location markings must be protected with masking or scotch tape so that they do not become erased. If the floor of the office is concrete or wood, the reference and equipment lines may be marked permanently with a chisel, or may be protected by shellac as desired.

4.10 The reference and equipment lines at all points shall continue at least six inches beyond the outside of the portion of the floor to be actually covered by the equipment. Before laying out and marking a number of short dimensions, the total dimension shall be marked first and the shorter, individual equipment frame dimensions must be spaced inside the total dimensions as shown in Figure 4. This dimensioning is necessary to prevent the "gaining" which normally will occur when marking out the short dimensions successively.

4.11 Prior to actually locating any equipment within the office area verify that any associated conduit, cable holes, cable ducts, etc, are installed in the proper locations and will not interfere with the placement of the equipment as indicated on the floor plan drawing. If necessary, adjust the equipment location markings to agree with the installed conduit or cable holes providing that the change will be compatible to the total equipment layout and will not result in the creation of new problems in the equipment arrangement.

4.12 When the floor is completely laid out and marked, all variations from the original floor plan job drawing are to be marked on the job drawing. If there are any variations, the office engineer must be notified and a marked-up copy of the floor plan job drawing sent to the engineering department that issued the original floor plan job drawing. All variations must be approved by the office engineer.

NOTES:

1. Locate reference line AC parallel to wall.
2. Determine the largest common multiple that can be used in the office. The largest common multiple is the largest number that can be multipled by three feet for the width and four feet for the lenght without exceeding the width or the length of the room. in this example eight is the largest common multiple that can be used in the office.
3. Lay out leg AB in the largest common multiple of three feet (8 x 3).
4. Strike arc D from point A in the largest common multiple of four feet (8 x 4).
5. Strike arc E from point B in the largest common multiple of five feet (8 x 5).
6. Reference line AF will be drawn through the point of intersection of arcs D and E, thus forming angle BAF as a right angle.

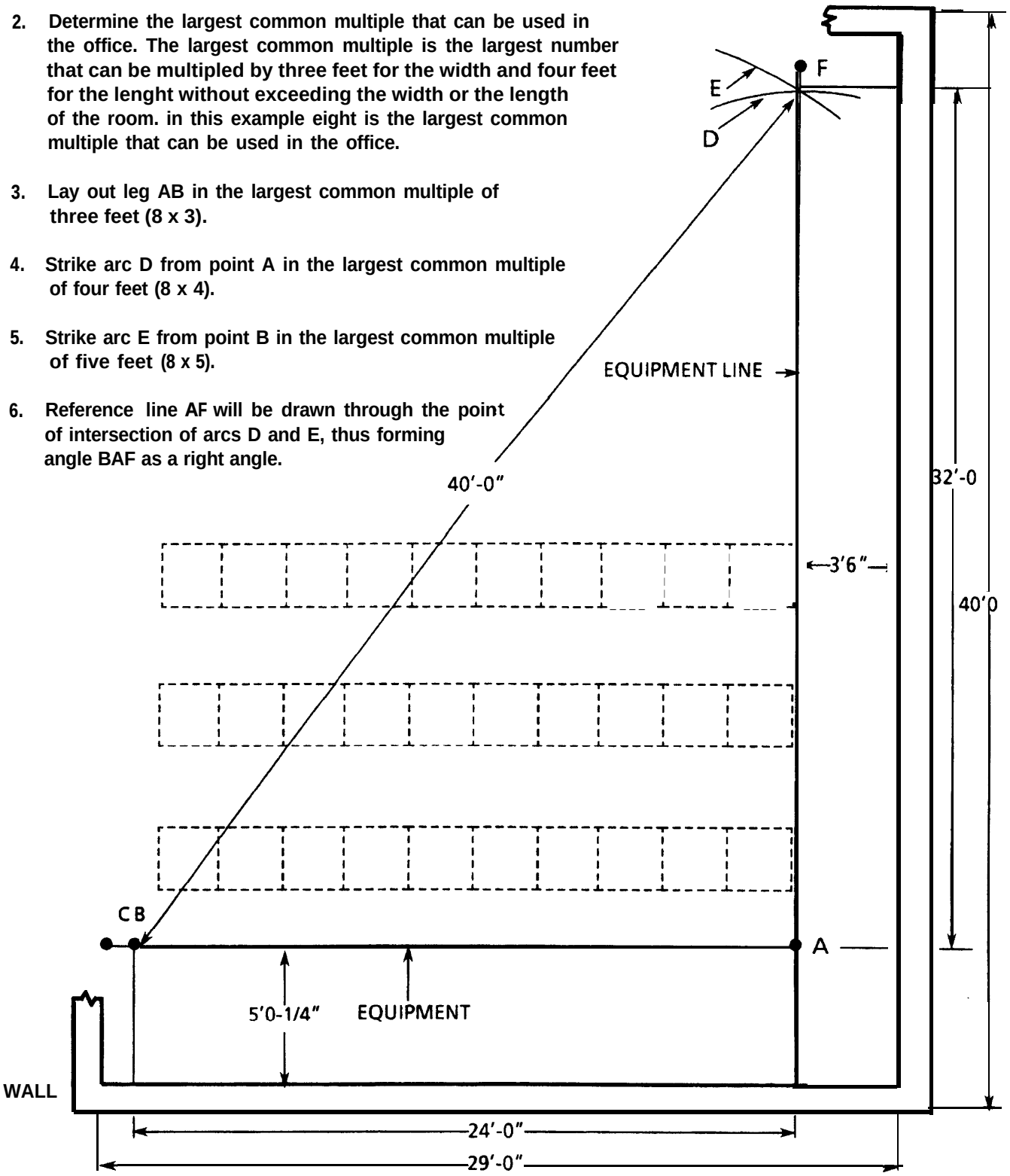
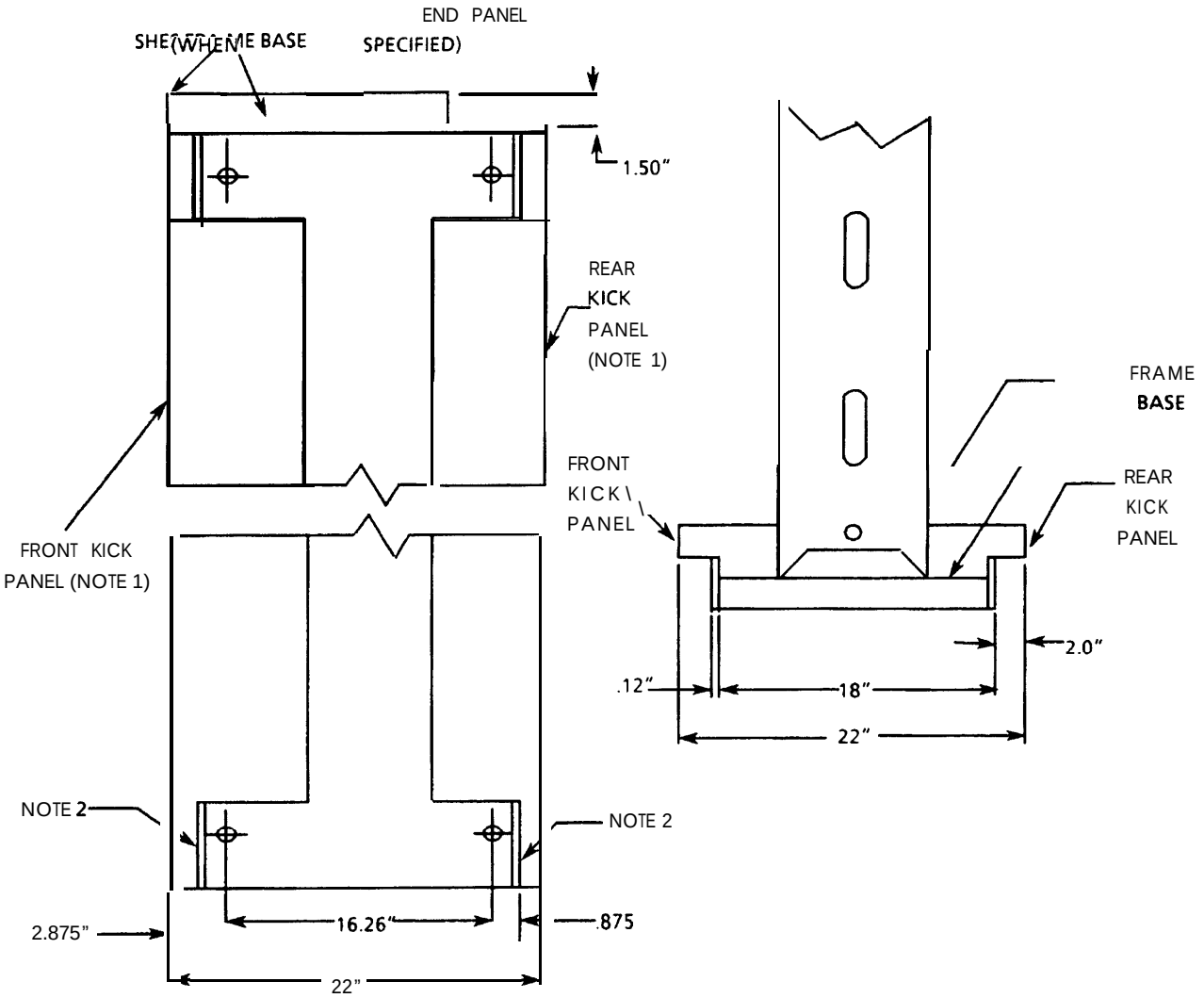


Figure 1. Establishing Reference Lines for Laying Out an Office.



NOTES:

1. **FRONT AND REAR KICK PANELS ARE TO BE LAID OUT ON FLOOR IN ELECTONIC INSTALLATIONS.**
2. **THE THICKNESS OF KICKPLATES IS .12 INCHES (SEE SIDE VIEW).**

Figure 2a. Electronic/Digital System SHES Frame Base Dimensions.

Figure 2. Typical System Frame Base and Base Angle Dimensions.

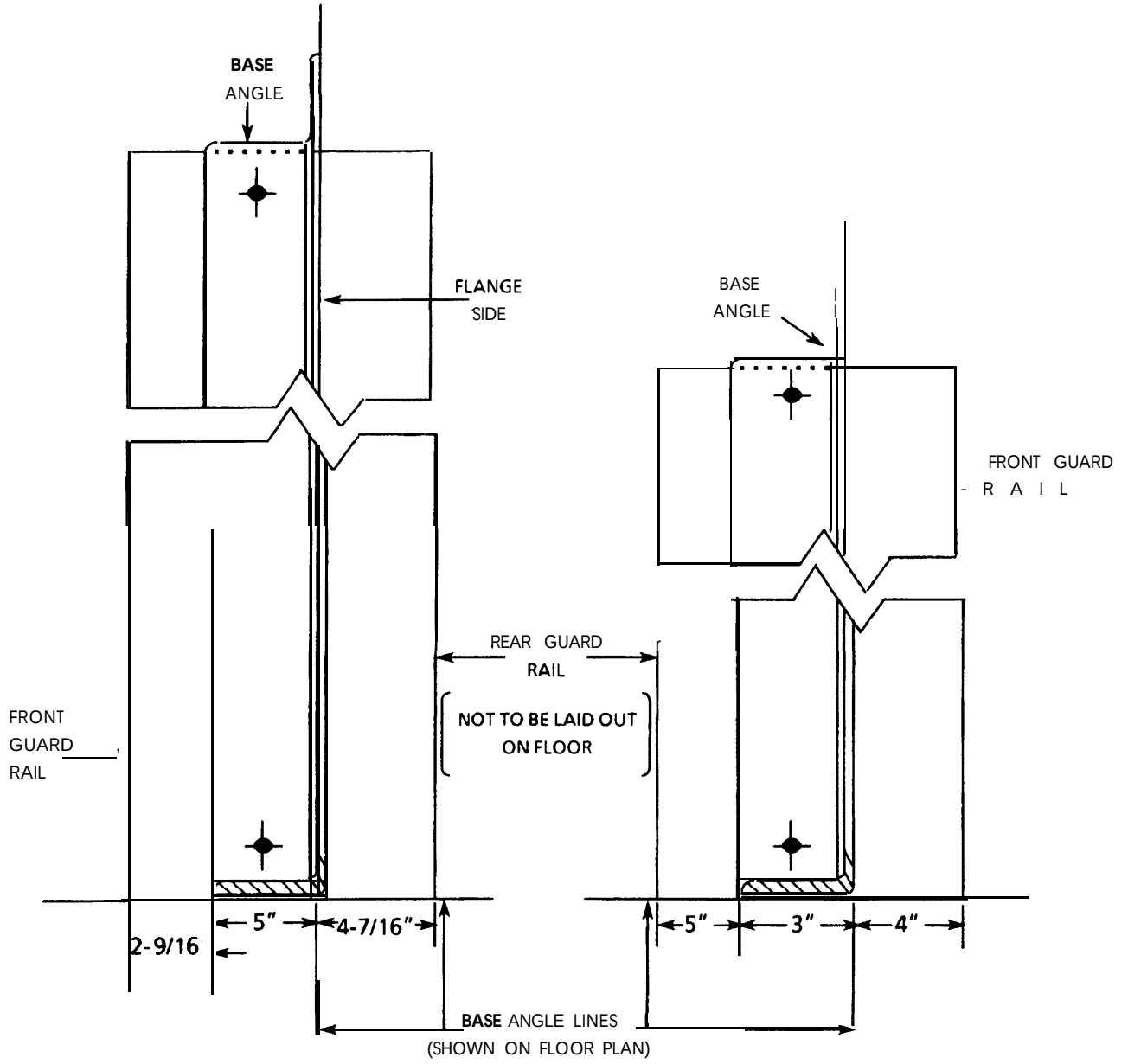
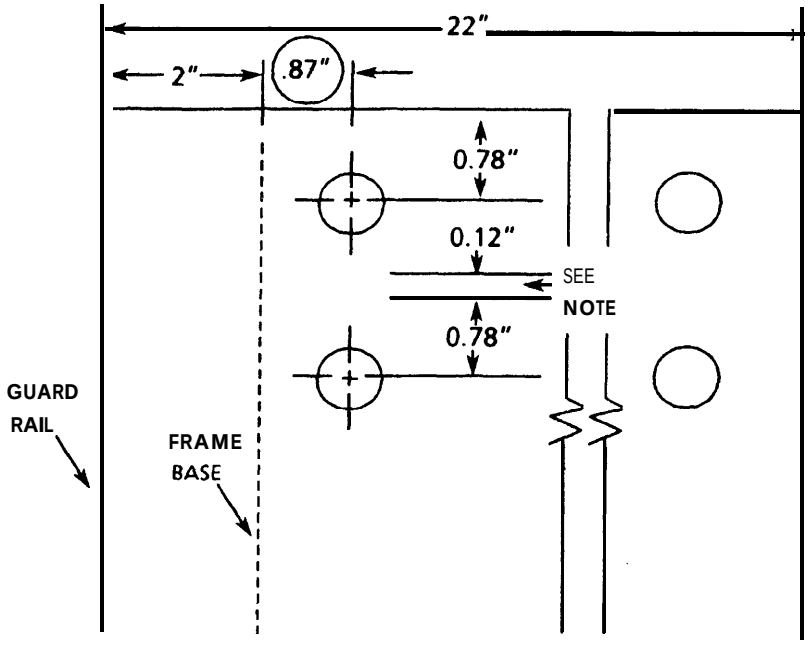


Figure 2b. Electromechanical System Frame Base Angle Dimensions.

Figure 2. Typical System Frame Base and Base Angle Dimensions.



NOTE: THE DIMENSION BETWEEN ADJACENT FRAME BASES IS 0.12 (1/8) OF AN INCH.

Figure 2c. Floor Marking Template Dimensions.

Figure 2. Typical System Frame Base and Base Angle Dimensions.

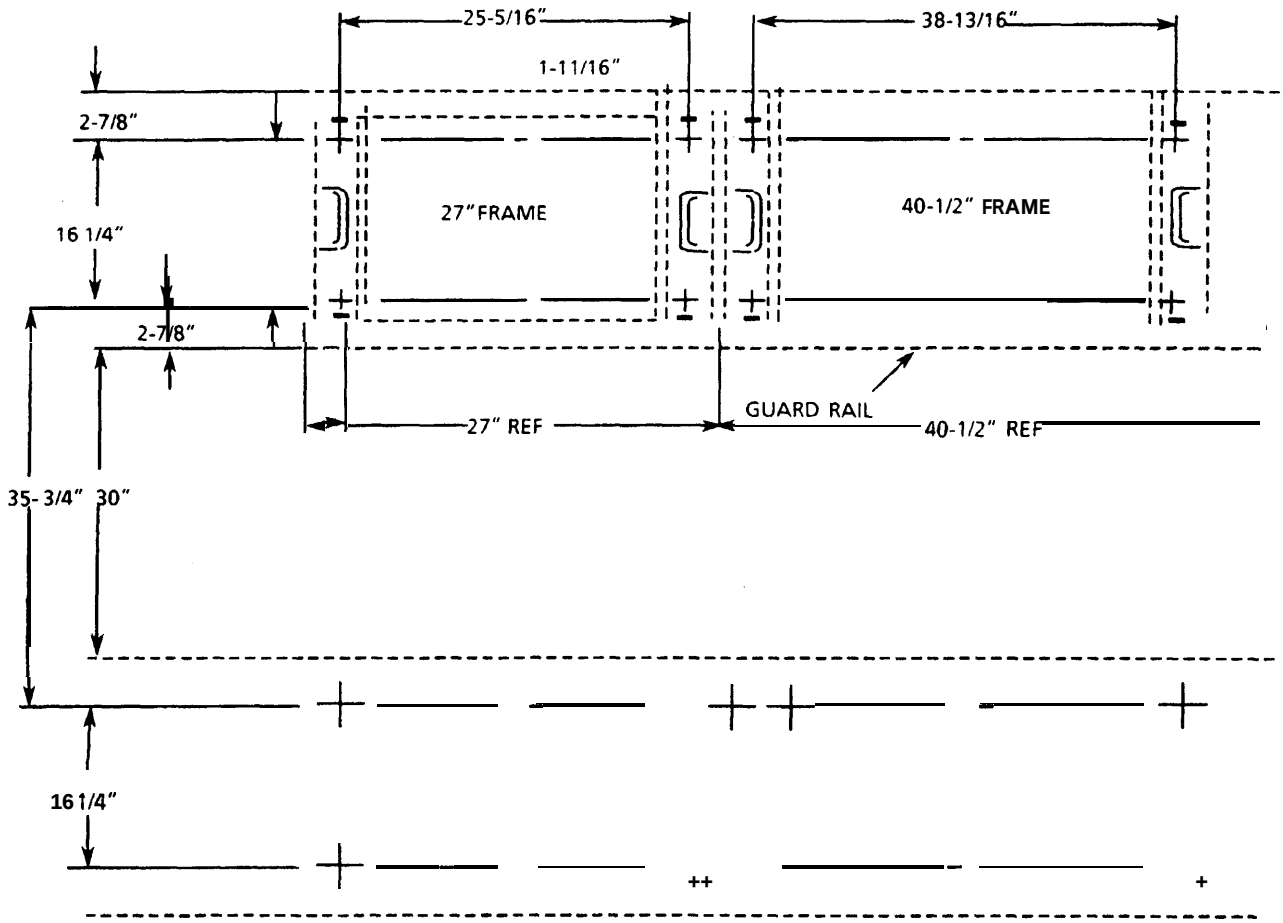


Figure 2d. Standard and Queen Size Frame Base Oimensions for Floor Drilling.

Figure 2. Typical System Frame Base and Base Angle Dimensions.

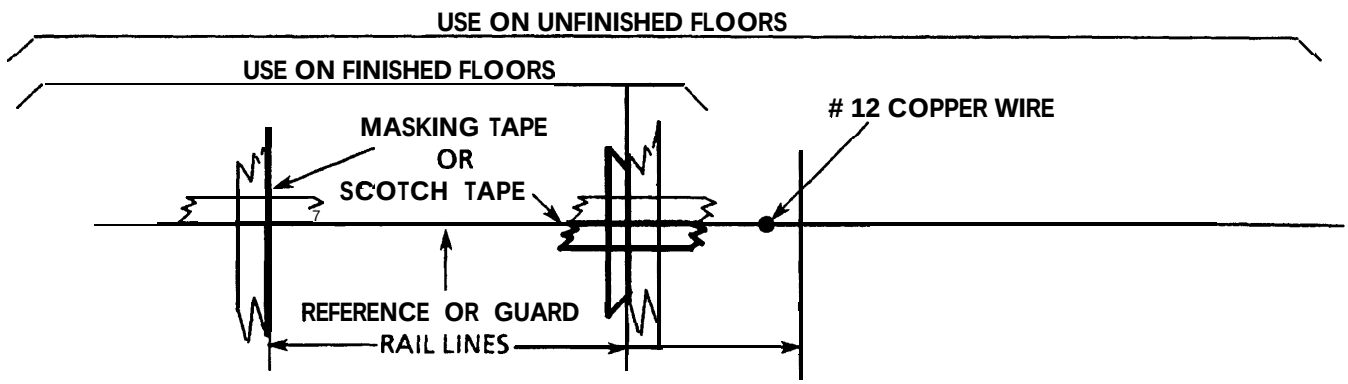
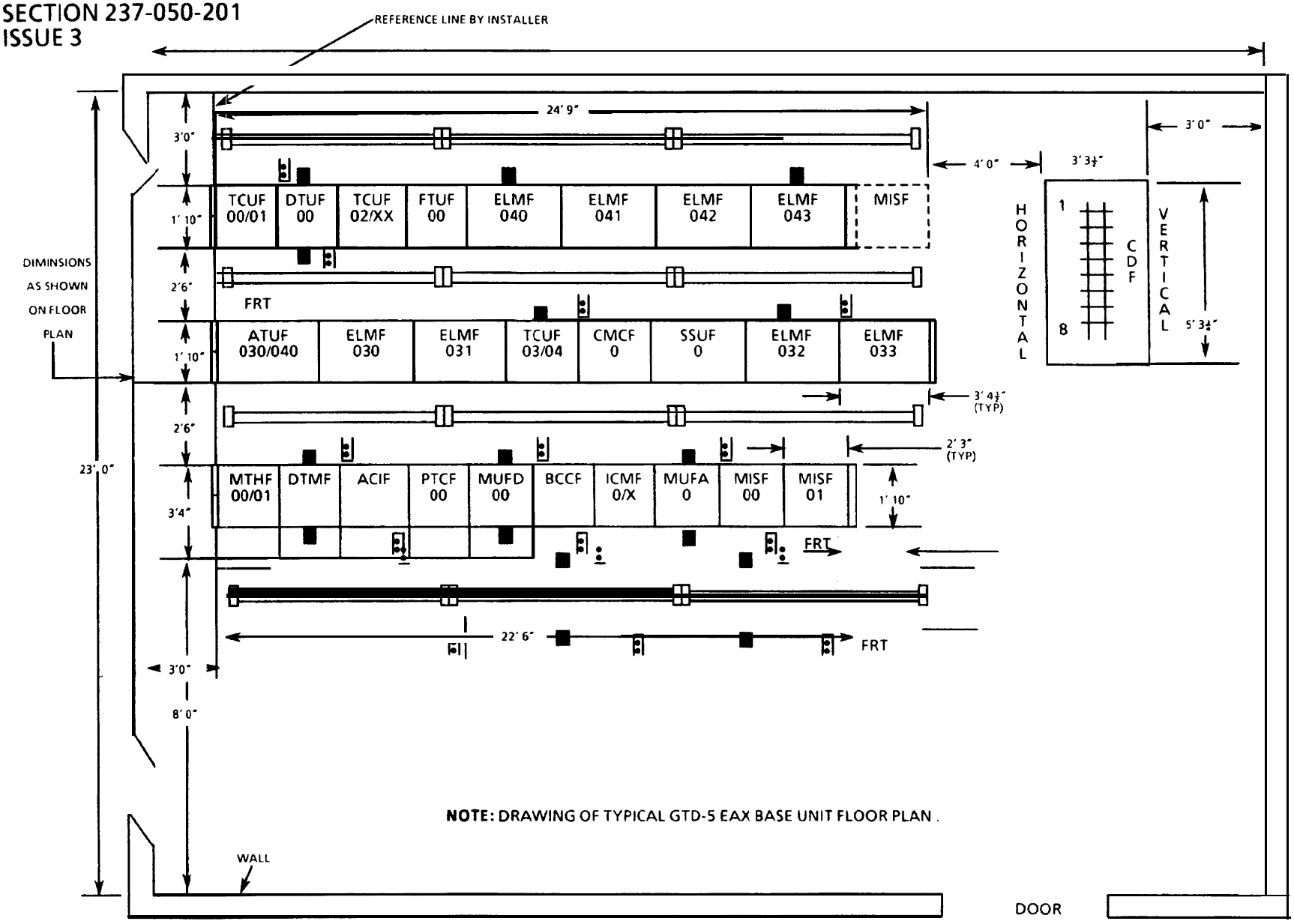


Figure 3. Methods of Preserving Reference and Equipment Line Markings.



NOTE: DRAWING OF TYPICAL GTD-5 EAX BASE UNIT FLOOR PLAN .

Figure 4. Laying Out and Marking Floor Dimensions.

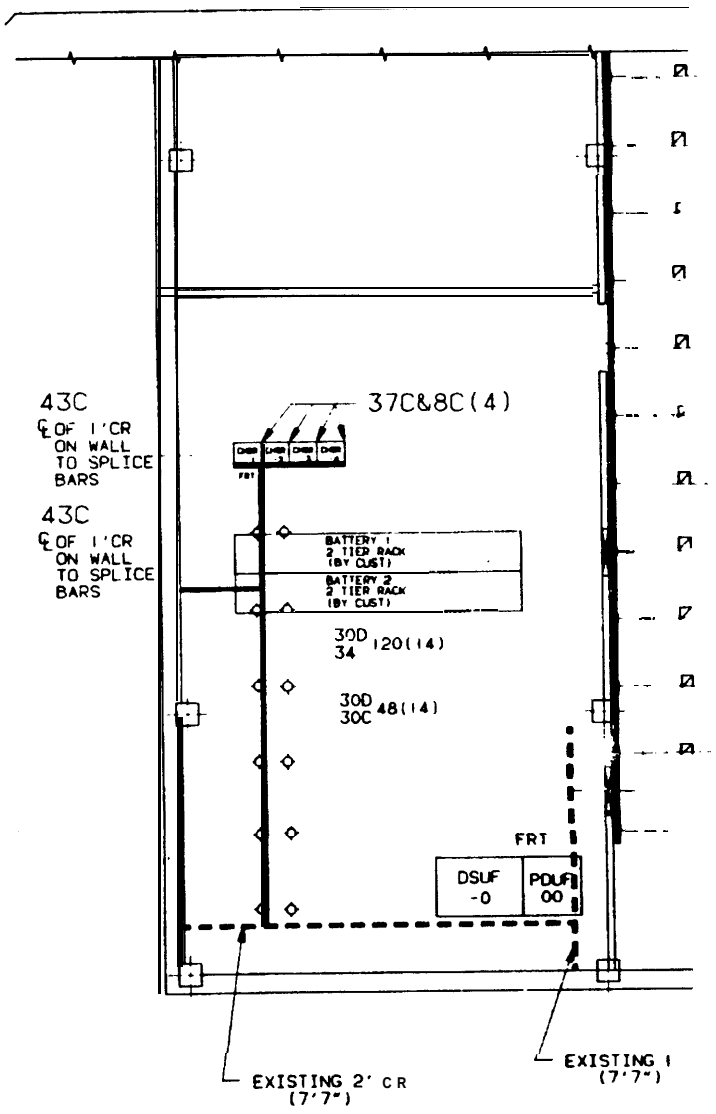
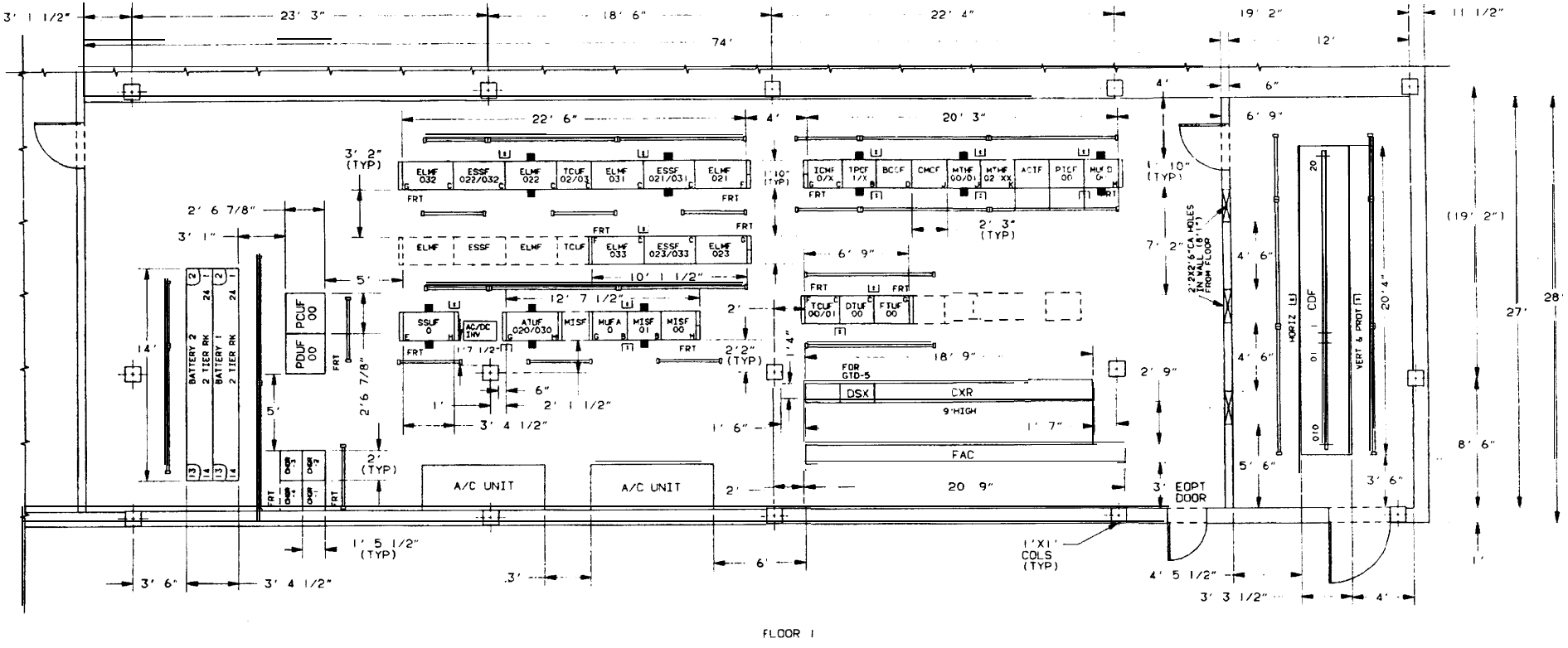


Exhibit 1. Example of GTD-5 EAX Power Room Floor Plan.



FLOOR 1

Exhibit 2. Example of GTD 5 EAX Base Unit Floor/Cable Runway Drawing.