

SECTION 8.

LOCATING COLUMNS IN NEW BUILDINGS

1. GENERAL.

1.1 The ideal apparatus floor from a equipment viewpoint is to have a floor space free from columns or other obstructions. This can be accomplished in buildings where the equipment floor is covered with a truss type roof structure, thus providing a flush ceiling.

Exchange buildings should be planned in most cases to provide for the installation of the standard 2000 type equipment racks. In special circumstances, a single purpose building for other types of equipment may be designed to the dimensions of that equipment.

1.2 The drawings attached to this text illustrate the main points.

2. INTRODUCTION.

2.1 The greatest number of standard 4'6" wide 2000 type racks can be sited in an equipment floor when columns are located in such positions as to provide for uniform and orderly groupings of each rack of equipment.

The location of columns is therefore related to -

- (i) Acceptance of a uniform aisle spacing.
- (ii) Ability to include uniform groupings and approved numbers of 4'6" racks in any or all rows.
- (iii) The dimensions allowed for passages.
- (iv) The inclusion of correctly sited cable holes in floors.

These conditions can be met by -

- (a) Wider column spacing.
- (b) An extended length of beam between columns and side walls or between columns.
- (c) Larger dimensioned floor slabs supported by a minimum number of beams.

3. NEW BUILDING DESIGN.

3.1 Uniform Aisle Spacing can be arranged in any multi-purpose building where columns are located provided that the centres of the columns along the main axis or length of the building are spaced at multiples of 6'6". The ideal spacing is 19'6".

Arrangements should therefore be made for the inclusion of a maximum number of 19'6" spacings of columns in any new building at the planning stage.

Drawings attached to this text illustrate the co-ordination of standard 2000 type equipment and wiring aisles with columns spaced at 6'6", 13'0" and 19'6" respectively.

The number of Racks in a Row is related to the need for uniform groupings of various racks of equipment.

The maximum number to be included in any row should not exceed 7.

The provision of a lesser number is determined by the -

- (i) Width of the building;

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- (ii) Location of columns;
- (iii) Orderly pattern of subscribers' line equipment;
- (iv) Co-ordination in groups of various ranks of major racks.

Where standard 19'6" main axis spacing of columns is provided, and where it is desirable to include the maximum number of racks in a row, the positioning of columns as indicated in appropriate Figs. may be introduced.

Attached drawing also illustrate the spacing of columns across a building.

The allowed dimensions for passages surrounding 2000 type equipment layouts have been designed for the greatest economy in the use of floor areas. The width of mid passageways has also been selected to conform to the use of 6'6" multiples in the spacing of columns.

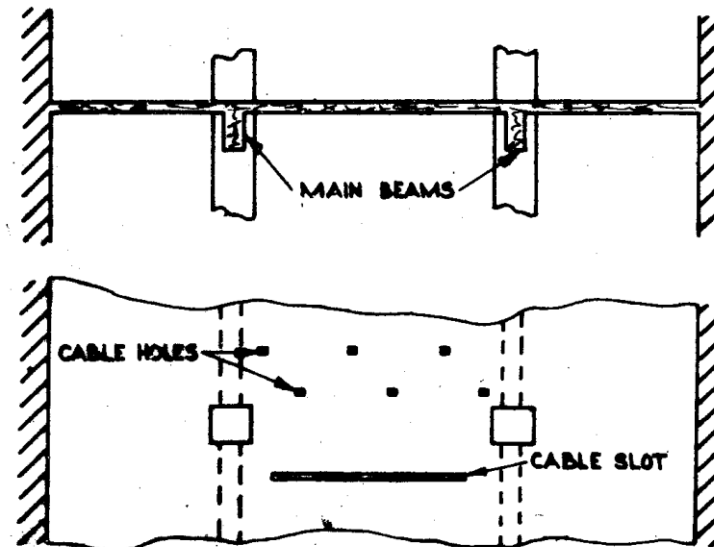


FIG. 1. A WIDE FLOOR SLAB SUPPORTED ON A MINIMUM NUMBER OF BEAMS ALLOWS FOR THE PROVISION OF A MAXIMUM NUMBER OF CABLE HOLES AND SLOTS.

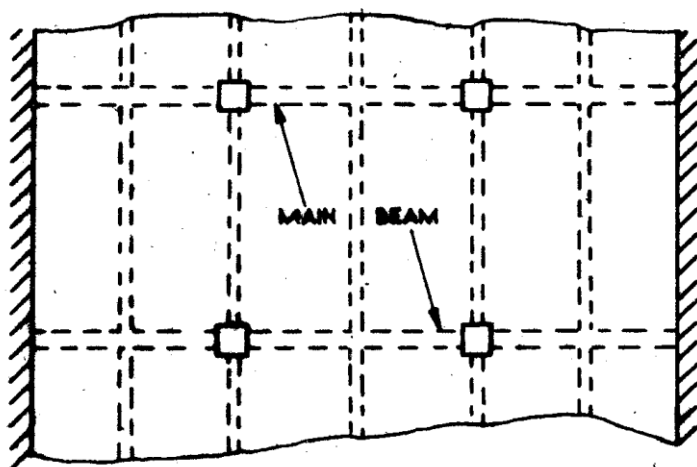
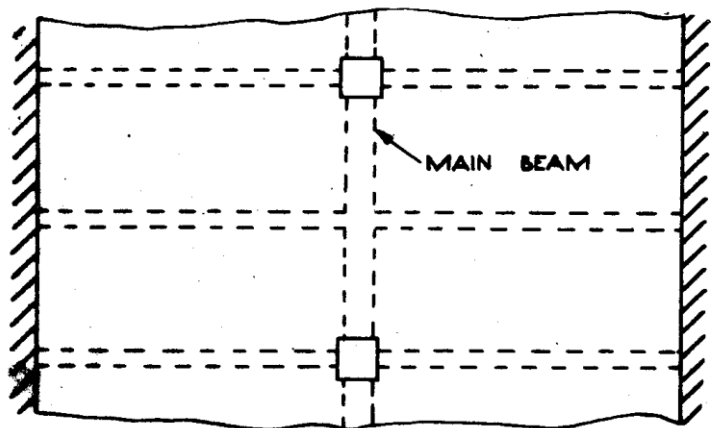


FIG. 2. THE BEAM ARRANGEMENTS SHOWN IN THESE TWO FIGURES RESTRICT THE SITING OF CABLING HOLES AND SLOTS DUE TO THE OBSTRUCTIONS CAUSED BY THE BEAM POSITIONS.

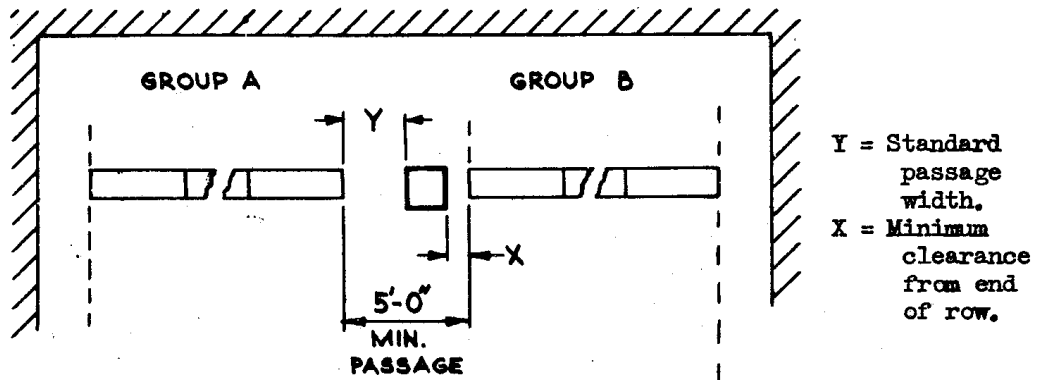


FIG. 3. GENERAL CONDITION FOR SITING OF COLUMNS IN LONGITUDINAL PASSAGES.

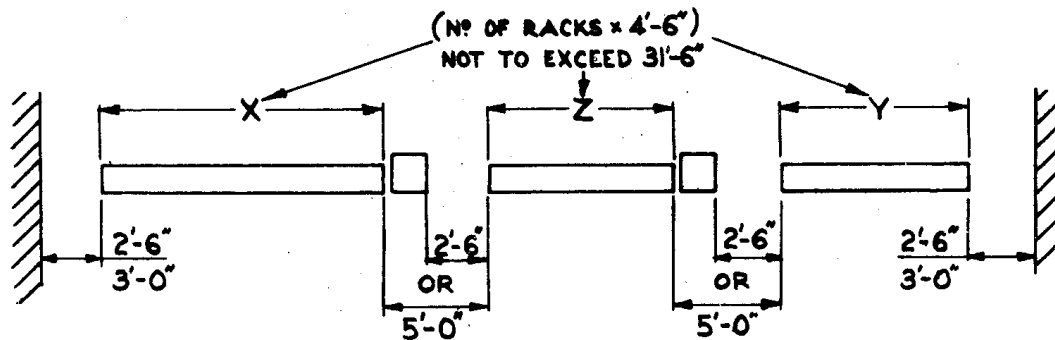


FIG. 4. GENERAL CONDITIONS FOR SITING COLUMNS ACROSS A BUILDING, A MAXIMUM OF 7 AND MINIMUM OF 4 RACKS IN EACH GROUP SHOULD APPLY.

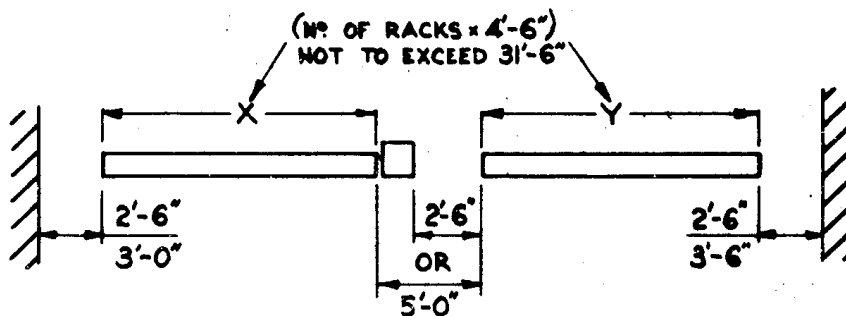


FIG. 5. GENERAL CONDITIONS WHERE A COLUMN IS PROVIDED BETWEEN TWO GROUPS OF EQUIPMENT.

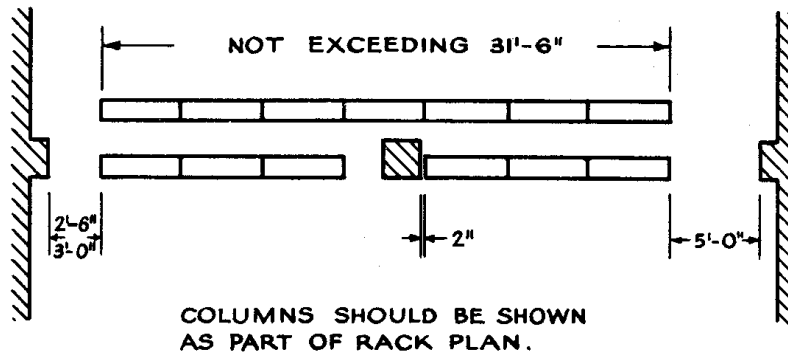


FIG. 6. WHEN A COLUMN IS LOCATED IN ANY ROW THE POSITION SELECTED SHOULD BE SUCH THAT ONLY ONE RACK IS DISPLACED. THE CLEARANCE BETWEEN THE COLUMN FACE AND RACK ANGLE IS SHOWN.

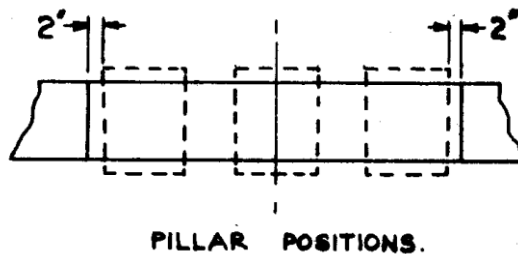


FIG. 7. ALTERNATE POSITIONS FOR COLUMN PLACEMENT.

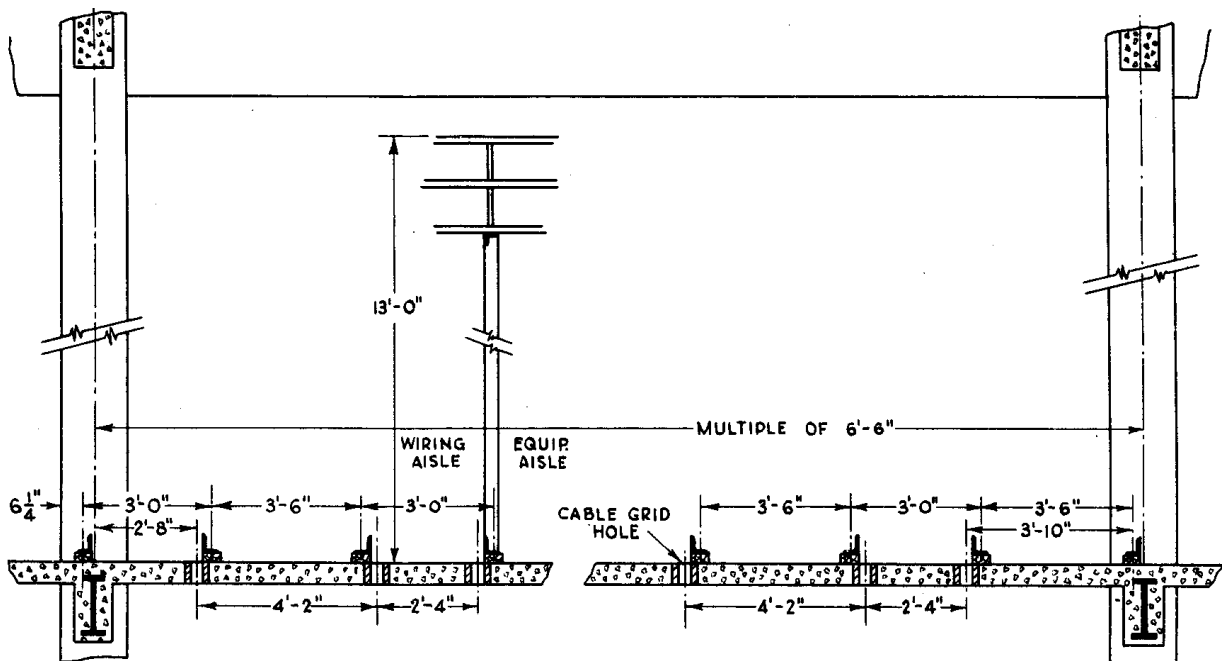
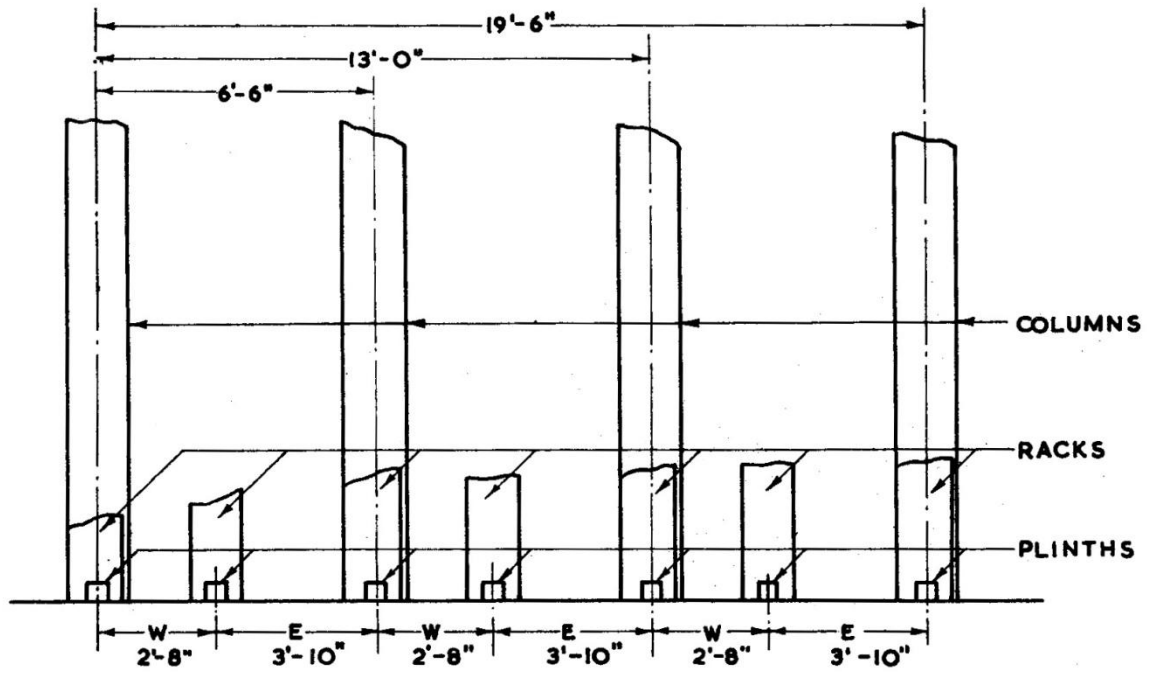


FIG. 8. THE RELATIONSHIP BETWEEN COLUMNS AT 19'6" CENTRES, GRID ROLLS IN FLOORS, APPROVED EQUIPMENT AND WIRING AISLES AND RACK POSITIONS IS ILLUSTRATED IN THIS FIGURE.



**FIG. 9. RELATIONSHIP BETWEEN COLUMNS AND
ROWS OF EQUIPMENT FOR 6'-6", 13'-0"
OR 19'-6" SPACING OF COLUMNS.**