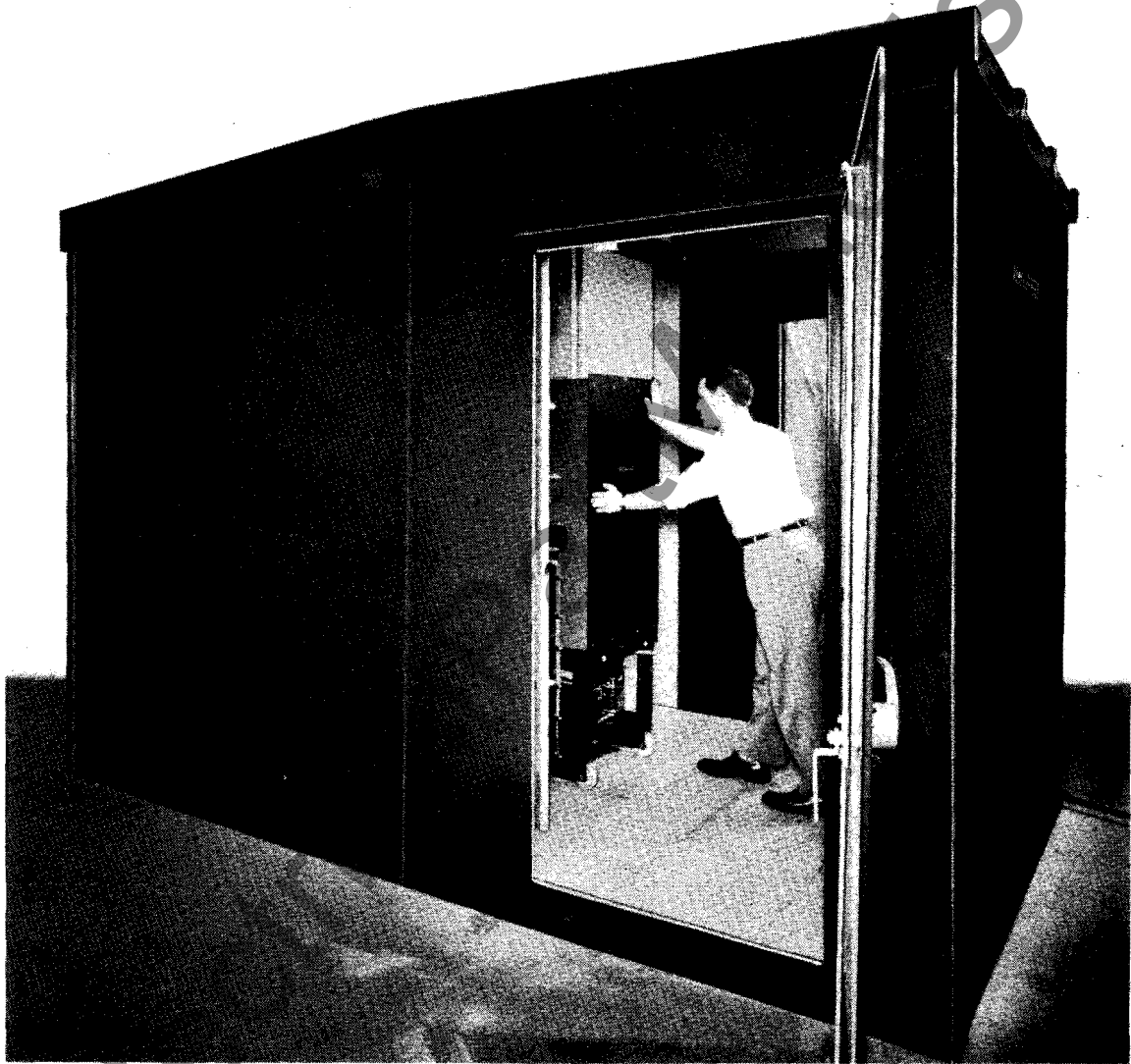




— *Shelterfor-M* —  
**OUTDOOR METAL-CLAD  
SWITCHGEAR**

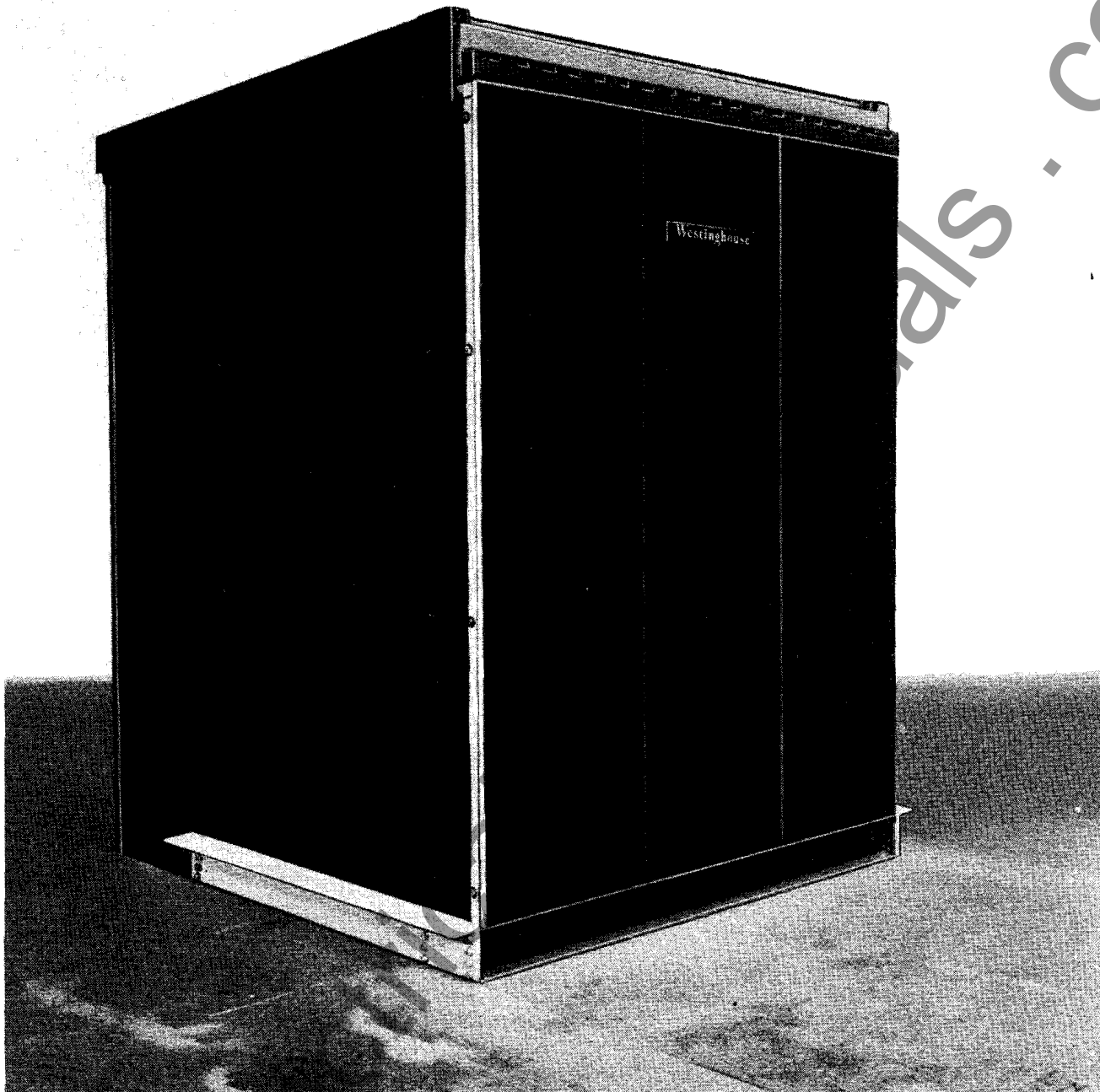


**Figure 1**

Westinghouse *Shelterfor-M* Outdoor Metal-Clad Switchgear provides a sheltered aisle for operation and maintenance. This outdoor switchgear includes the features of Indoor Metal-Clad in a weatherproof enclosure. The aisle space, large enough to permit the free interchange of circuit breakers, is also ample for operation and maintenance without interference from the weather.

**ADVANTAGES**

1. All weather operation and maintenance is possible.
2. Foundation requirements are simple...not operating or breaker drawout pad is required.
3. Space requirements are decreased. In some cases, as much as 40% less plot area is required.
4. Indoor accessories are supplied, including test cabinet - no transport truck is required.



**Figure 2**

### **METAL-CLAD CELL UNIT SHIPPING GROUP**

**Shelterfor-M** Outdoor Metal-Clad Switchgear is shipped with the cell units completely assembled and the aisle enclosure in pre-assembled components. The outdoor enclosure front panel is assembled across the front of the shipping group. Since the outdoor enclosure front panel is not required in double bus arrangements using a common aisle, a protective structure will cover the instrument panels in this instance.

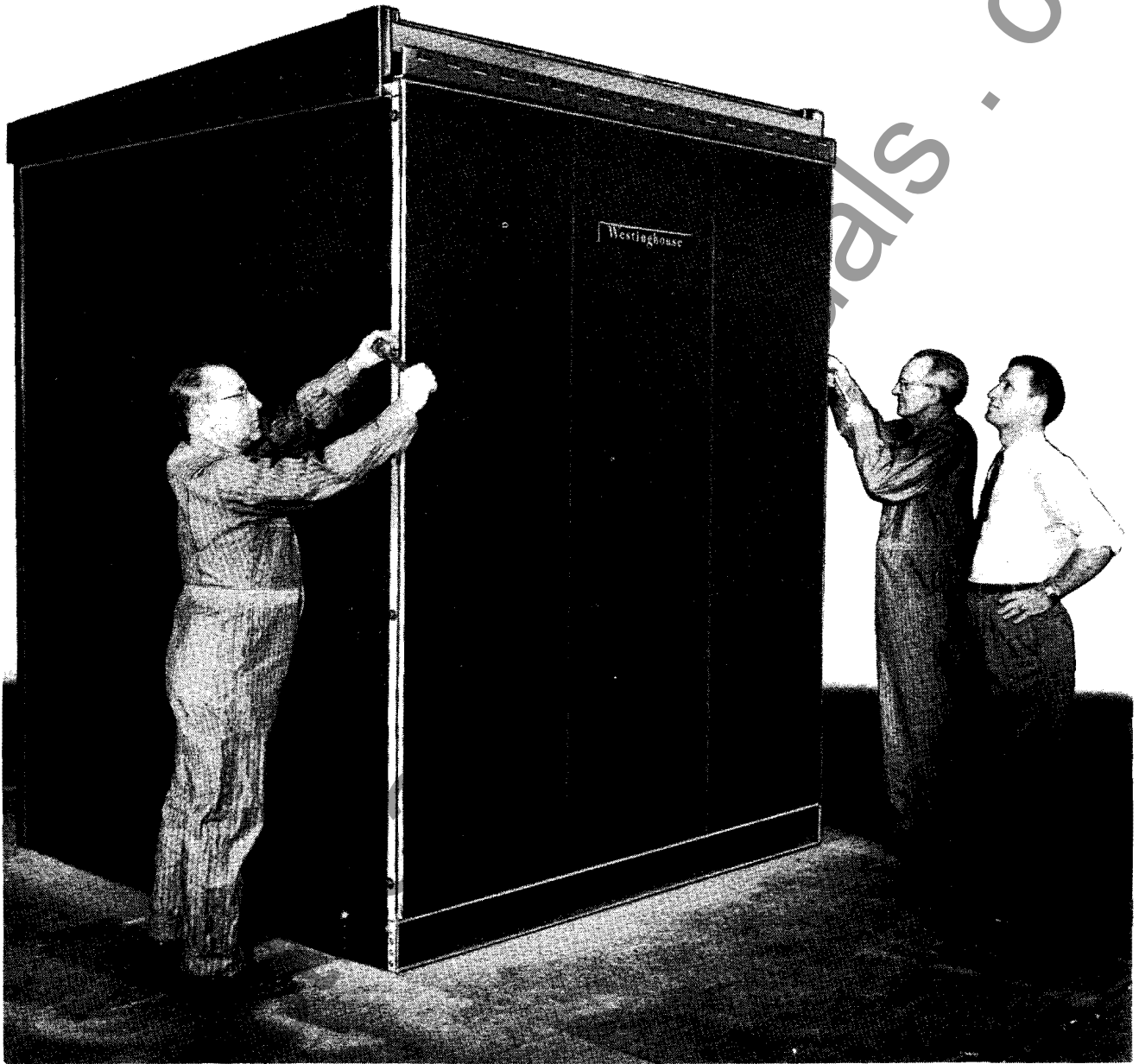
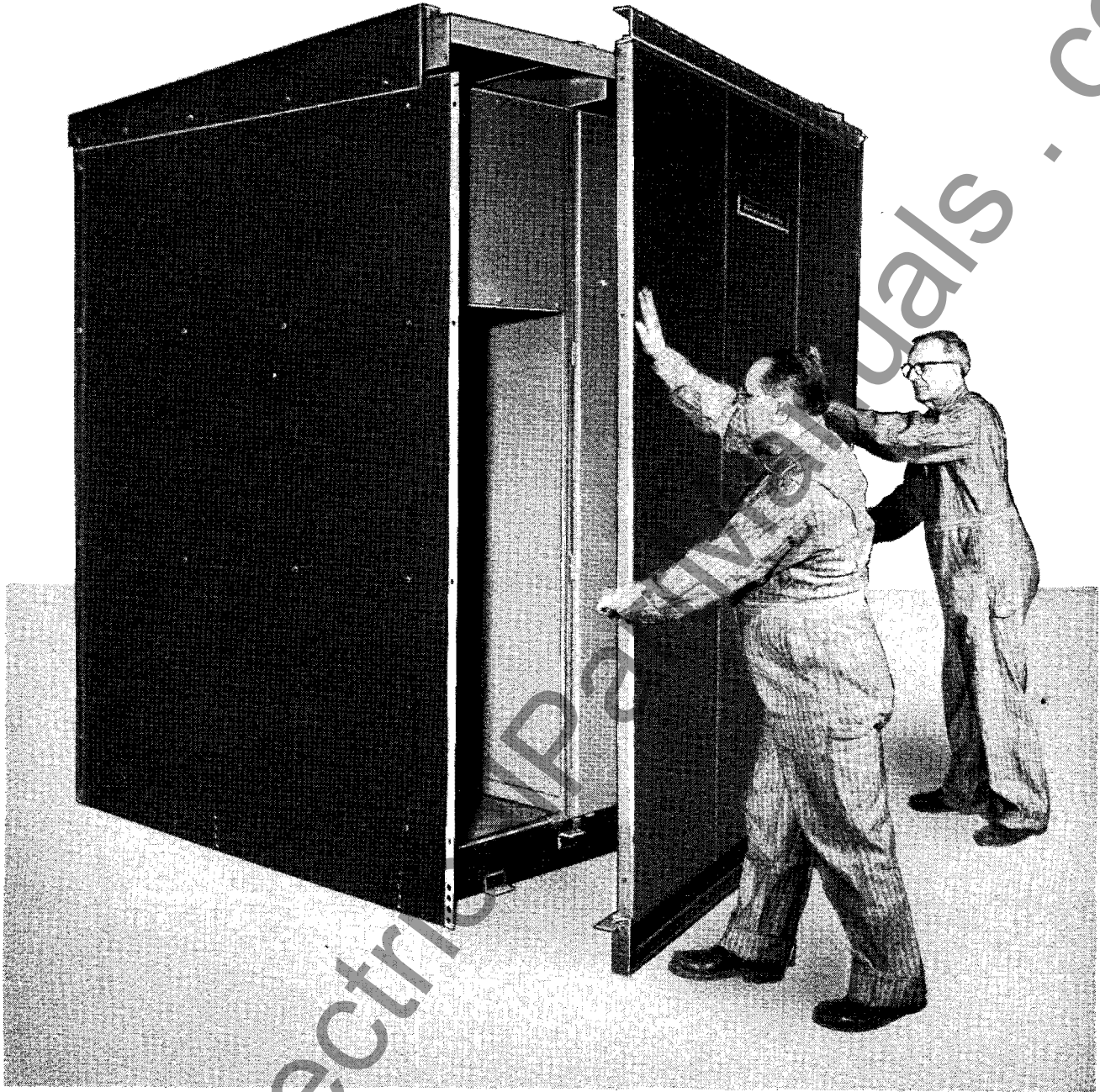


Figure 3

### UNBOLTING OUTDOOR ENCLOSURE FRONT PANEL

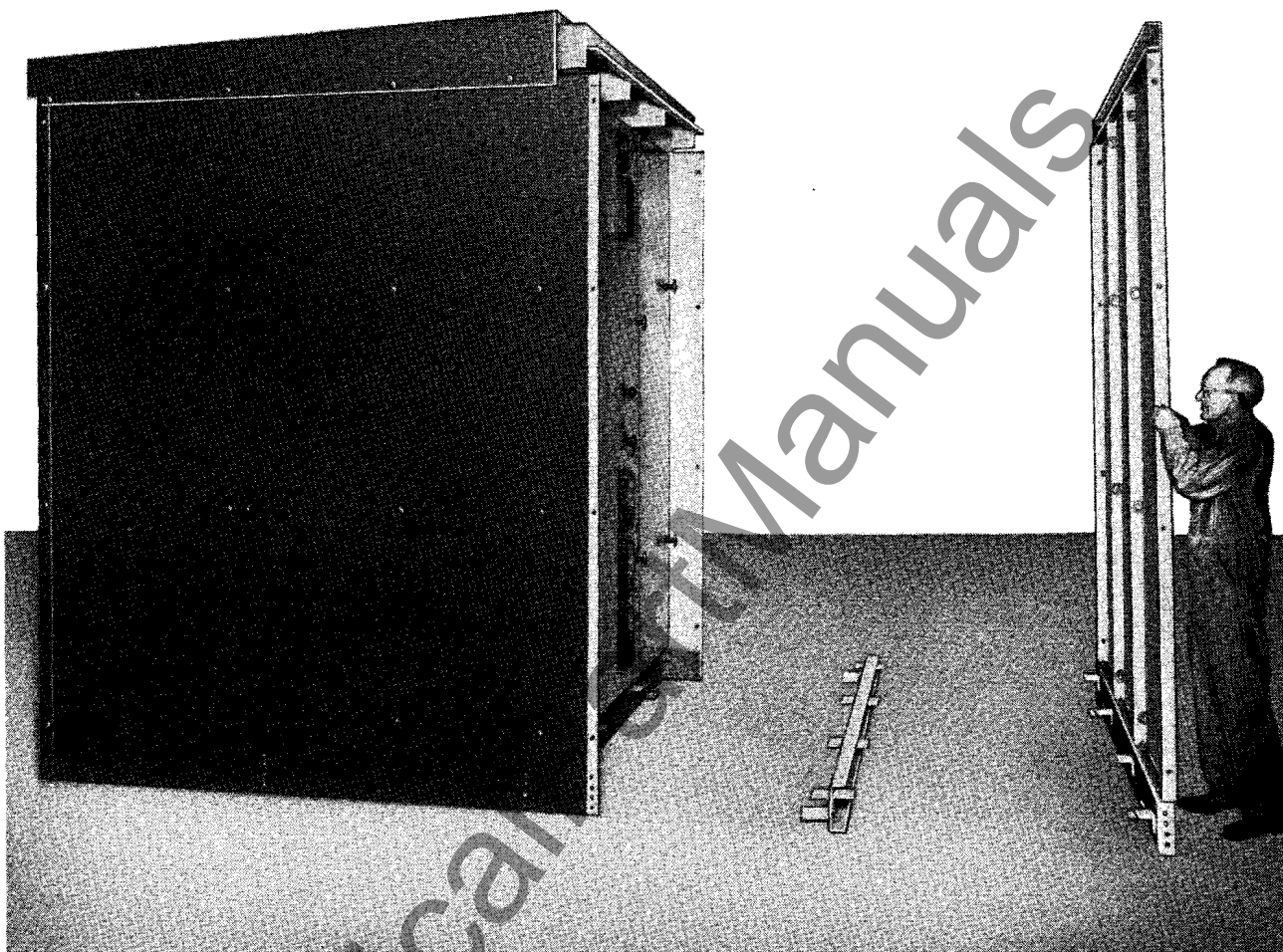
During shipment the outdoor enclosure front panel is bolted to the Metal-Clad compartment. The first step in the assembly of the outdoor enclosure is the unbolting of this panel.



**Figure 4**

#### **REMOVAL OF OUTDOOR ENCLOSURE FRONT PANEL**

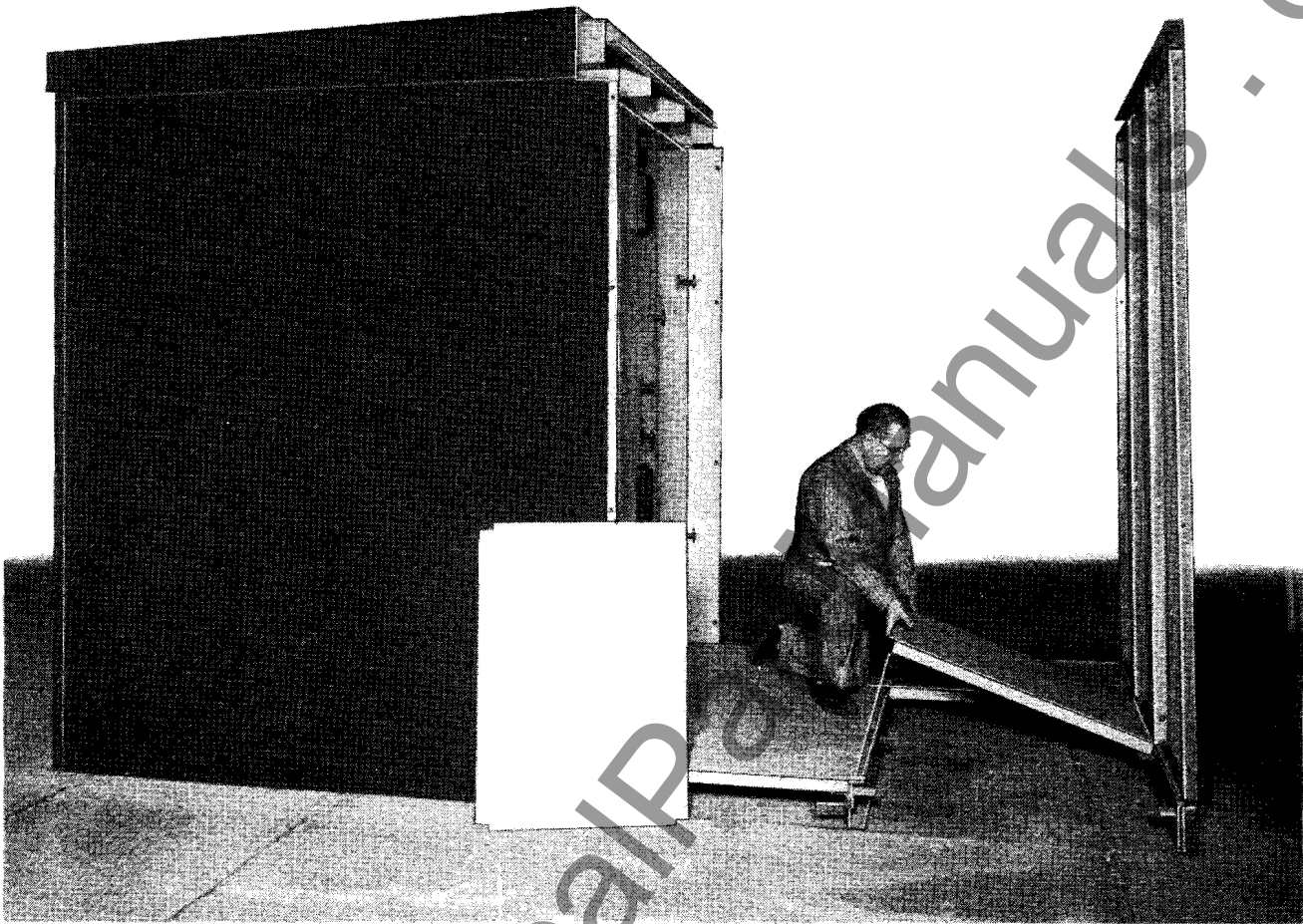
This photo demonstrates the easy removal of the outdoor enclosure front panel from the Metal-Clad compartment shipping group. Note that the channel iron base is bolted to and forms an integral part of the outdoor enclosure front panel.



**Figure 5**

**FLOOR CHANNEL AND OUTDOOR ENCLOSURE FRONT PANEL  
IN POSITION FOR LAYING THE FLOOR**

With the floor channel in position and the outdoor enclosure front panel moved to its proper location, the next step in assembly is laying the floor .

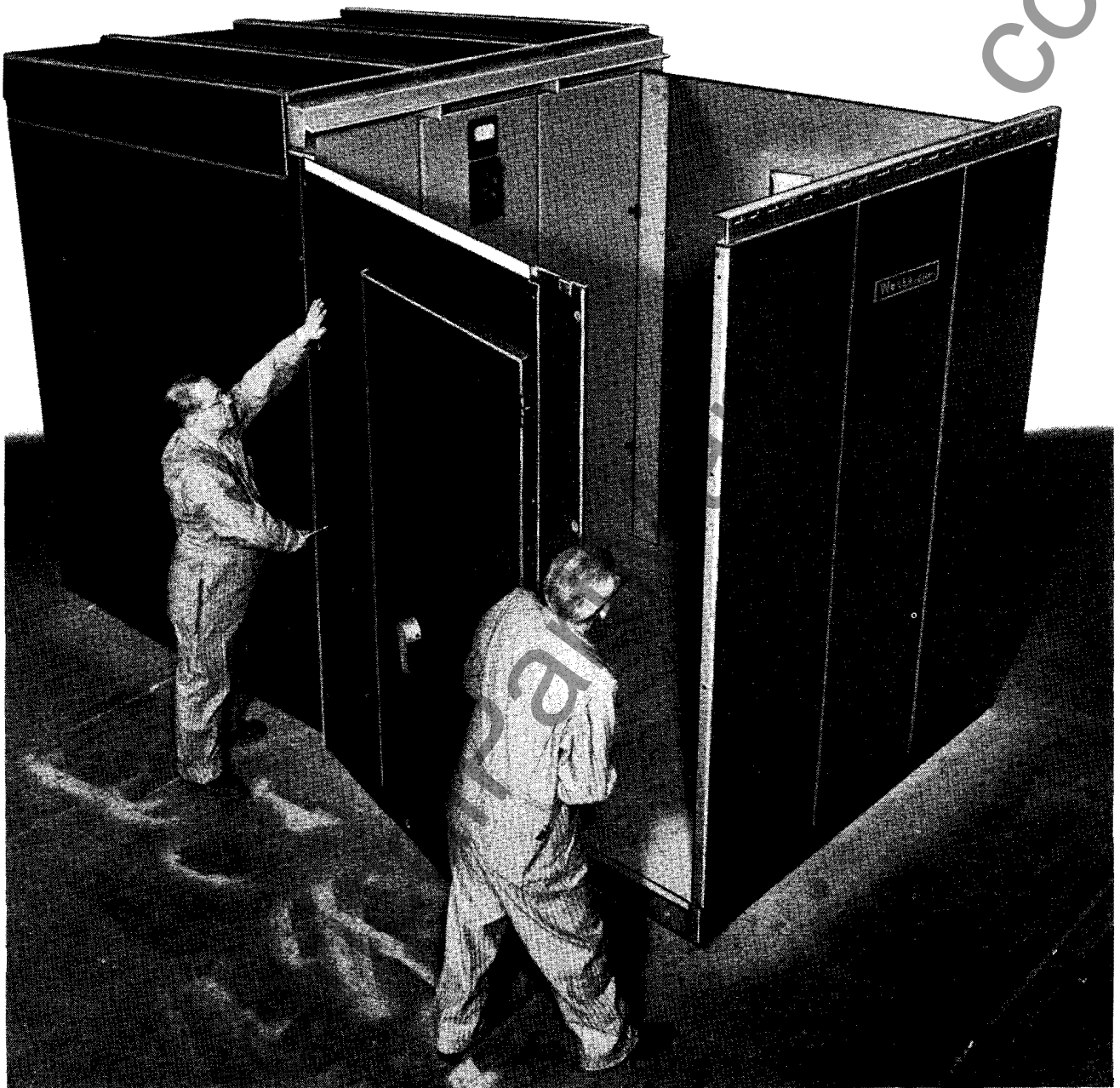


**Figure 6**

#### **LAYING THE FLOOR**

The floor consists of steel plates, which are easily laid, with the floor channel enclosure front panel and the Metal-Clad compartment providing the anchor points. The floor plates are of the interlocked type to assure smoothness and rigidity of the floor surface. The floor is constructed of steel plates assuring sufficient strength to support the heaviest breaker and manpower load.





**Figure 7**

#### **MOVING END PANEL INTO POSITION**

After the floor is in position, the end panels are then bolted to the end of the assembly. The end panels, including the door, are completely pre-assembled to limit field installation assembly to a minimum.

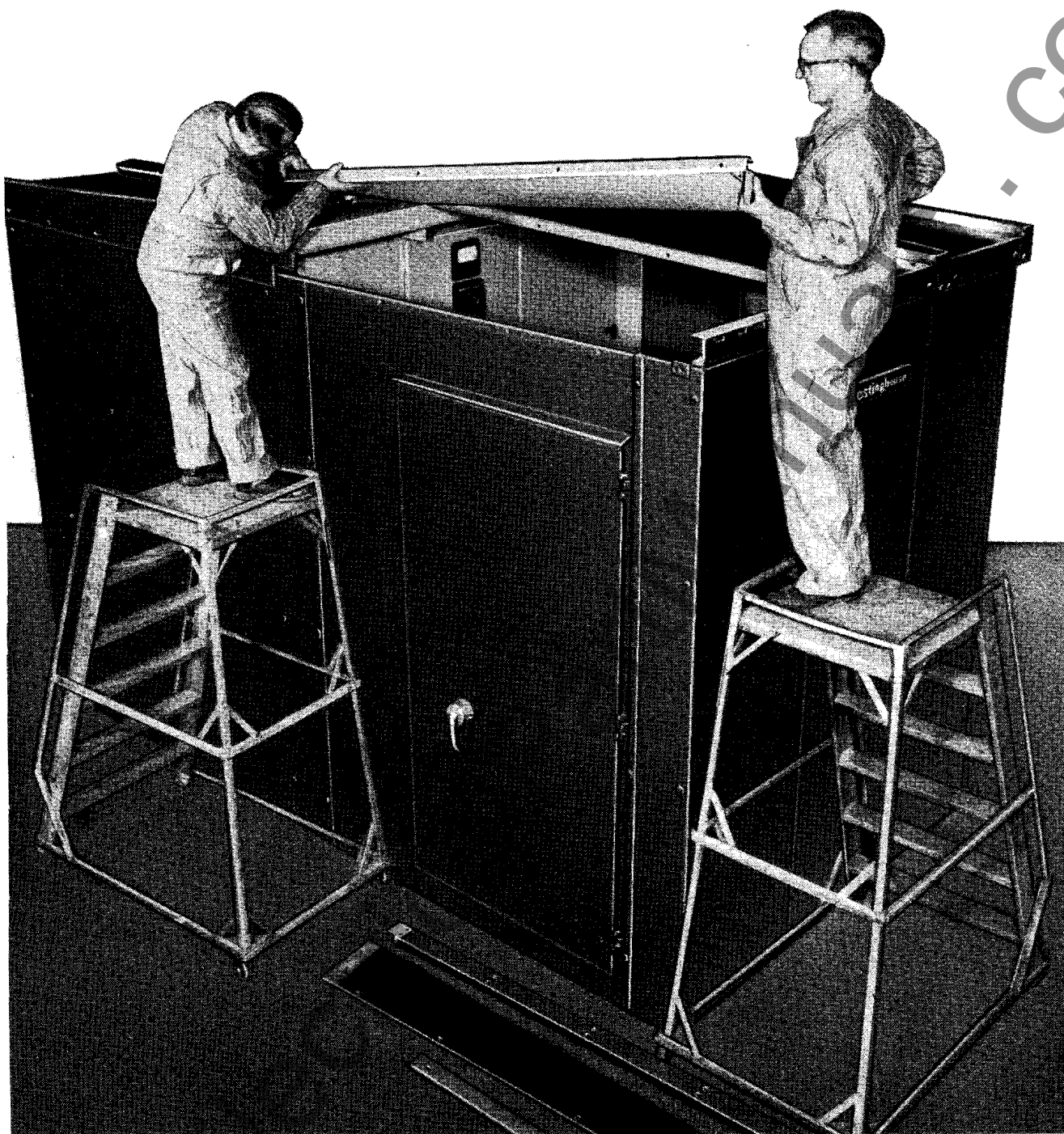
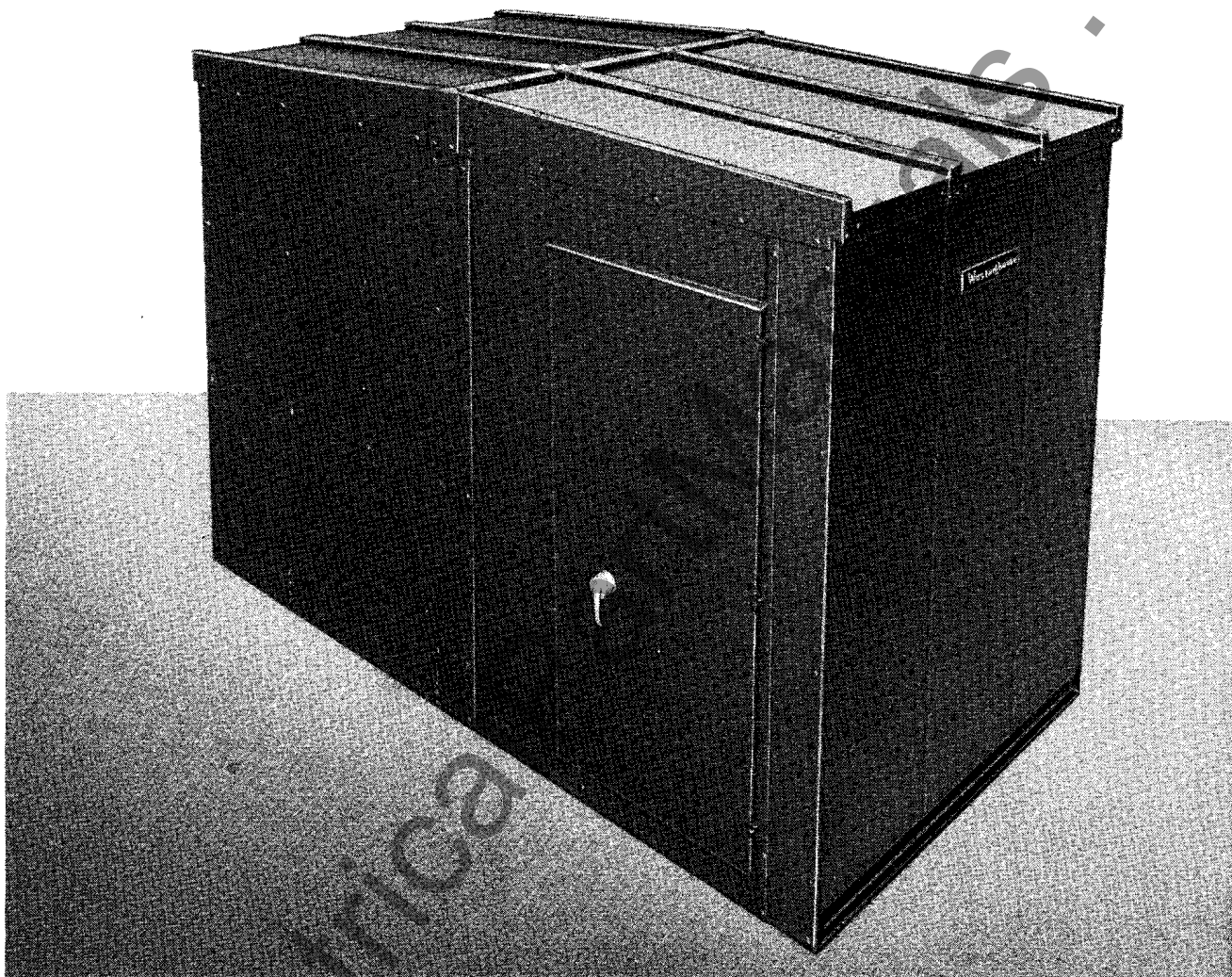


Figure 8

### ASSEMBLING ROOF

The roof of the enclosure is composed of panels of unit width which are bolted to the top of the assembly. Weatherproofing is accomplished by the bolting of a formed cover which is placed over the seams and bolted in position. Note the ventilating openings at the top of the front panel. The openings are screened to prevent entrance of rodents. In this photo the screen is shown removed to better illustrate the ventilating openings. The screen and formed weatherproof covers are shown on the floor beside the enclosure.





**Figure 9**

**COMPLETED SHELTERFOR-M OUTDOOR METAL-CLAD ASSEMBLY**

This view of the completed *Shelterfor-M* assembly illustrates in detail the roof assembly showing the formed weatherproof covers.

KV	A	B
5	149	74
15	161	86

DIMENSIONS IN INCHES - NOT TO SCALE

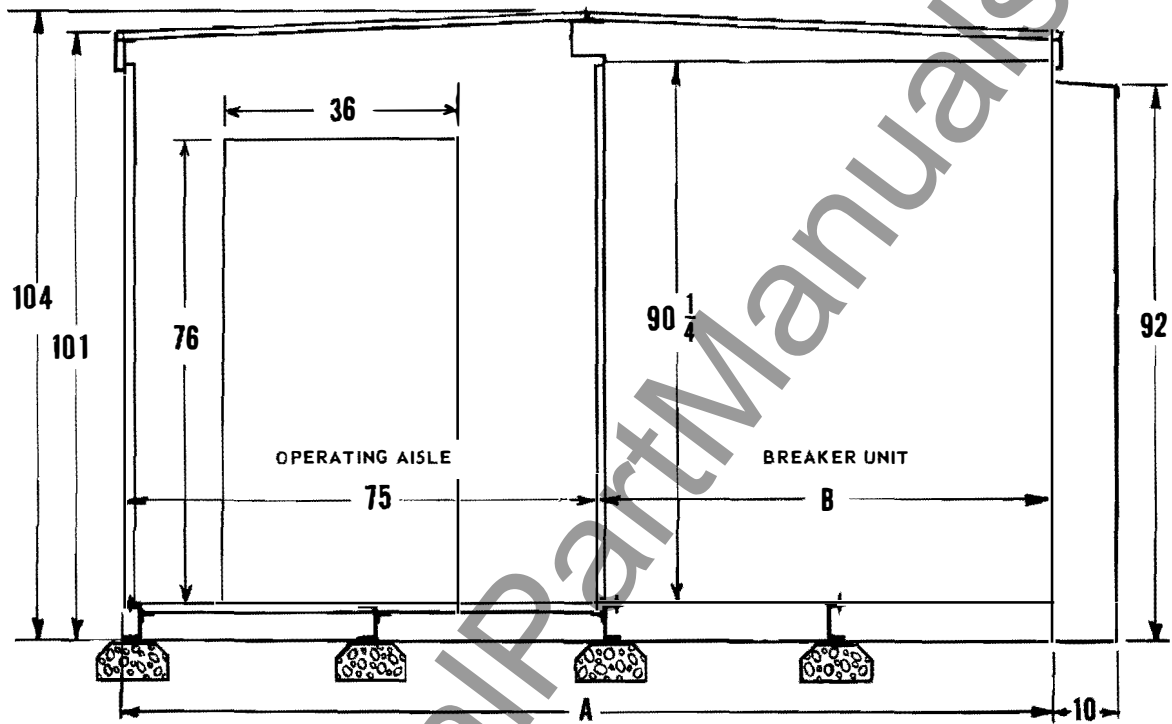
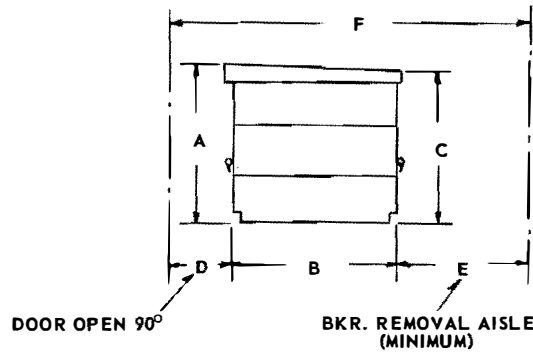


Figure 10

#### DETAIL DIMENSIONS OF SHELTER FOR-M UNIT

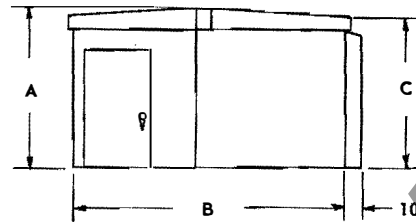
These dimensions show the 75" aisle depth provided. Illustration also shows a suggested foundation arrangement. The base design is required only to support the units - it is no longer necessary to provide a surface suitable for breaker transfer.

DIMENSIONS IN INCHES - NOT TO SCALE



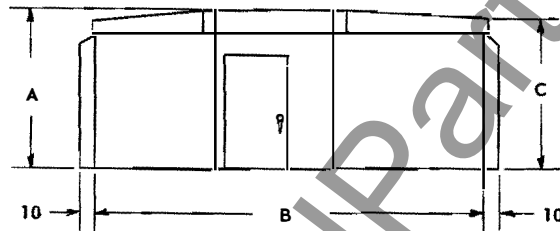
KV	A	B	C	D	E	F
5	90	90	87	28 30 38	49	167 169 177
15	104	102	101	38	55	195

CONVENTIONAL ODMC SWGR.



KV	A	B	C
5	104	149	101
15	104	161	101

SHELTERFOR-M ODMC SWGR.  
SINGLE BUS ARRANGEMENT



KV	A	B	C
5	106	219	101
15	106	243	101

SHELTERFOR-M ODMC SWGR. WITH DOUBLE BUS,  
DOUBLE ROW ARRANGEMENT WITH COMMON AISLE.

Figure 11

### COMPARATIVE DIMENSIONS OF VARIOUS ARRANGEMENTS OF SHELTERFOR-M SWITCHGEAR WITH CONVENTIONAL OUTDOOR METAL-CLAD SWITCHGEAR

The dimensions shown illustrate the space requirements of several arrangements of Outdoor Metal-Clad Switchgear. The *Shelterfor-M* design, because it eliminates front and rear doors and encloses a common operating and drawout aisle, actually requires less plot space than conventional Metal-Clad Switchgear with its associated front and rear aisle requirements.

*Shelterfor-M* Outdoor Metal-Clad Switchgear is particularly well suited to a double row - double bus arrangement. The common aisle permits a weather protected area for interchanging breakers between busses.



**Westinghouse Electric Corporation ♦ East Pittsburgh Division**

**Assembled Switchgear & Devices Department**

**Switchgear Assemblies Section ♦ East Pittsburgh, Pa.**