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Assembly Instruction

1. IF NOT DONE SO ALREADY UNPACK FRAME SUB-ASSEMBLY SECTIONS AND SPREAD OUT FOR ACCESS AND IDENTIFICATION IN THE LATER STEPS OF ASSEMBLY. (FIGURE A).

   LOCATE AND REFERENCE UNIT AI SHEET THAT INCLUDES FRAME DIMENSION REFERENCES AND PARTS LIST.

2. SELECT A FRAME SUB-ASSEMBLY AND MOVE TO WORK AREA (IF NEEDED), LAY THE ASSEMBLY HORIZONTALLY ON THE WORKSURFACE. NOTE THE 3 HOLE PATTERN (FIGURE B) FEATURES AT THE DIFFERENT LEVELS. FROM THE HARDWARE KIT RETRIEVE THE JUNCTION BLOCKS (FIGURE C) AND POSITION ONE AT EACH 3 HOLE PATTERN SO THAT THE BOSSES ENGAGE THE UPPER AND LOWER HOLE OF EACH PATTERN (FIGURE D). THE BOSS FEATURES WILL BE A LIGHT PRESS FIT INTO THE HOLES.

3. RETRIEVE THE PACK OF SCREWS FROM THE HARDWARE KIT. AT EACH JUNCTION BLOCK START AND RUNDOWN A SCREW THROUGH THE CAVITY IN THE JUNCTION BLOCK (FIGURE D) AND INTO THE FRAME. THIS WILL SECURE THE BLOCK TO THE VERTICAL FRAME SECTION.

   NOTE: AN IMPACT DRIVER MAY BE USED BUT EXCESSIVE DRIVING CAN STRIP THE THREADS IN THE FRAME. IT IS ADVISABLE TO STOP DRIVING IMMEDIATELY AFTER THERE’S AUDIBLE IMPACTS. IF A DRILL DRIVER IS USED A LOWER CLUTCH SETTING IS RECOMMENDED.
4. IF APPLICABLE FLIP OVER FRAME SECTION (FIGURE E) AND REPEAT STEPS 2 & 3 FOR ANY 3 HOLE PATTERNS ON THE 2ND SIDE (FIGURE F).

5. REPEAT STEPS 2-4 ON REMAINING FRAME SECTIONS. THERE SHOULDN'T BE ANY REMAINING JUNCTION BLOCKS FROM THE HARDWARE BAG OR OPEN 3 HOLE PATTERNS AFTER THESE STEPS ARE COMPLETE (FIGURE G).

6. RETRIEVE THE UNIT REFERENCE AI SHEET WITH IMAGE OF ASSEMBLED UNIT. USE THIS TO IDENTIFY THE POSITION OF EACH SUB-ASSEMBLY WITH RESPECT TO THE FINISHED UNIT. ARRANGE THE SUB-ASSEMBLIES IN THAT ORDER ON THE GROUND TO FACILITATE ASSEMBLY OF THE HORIZONTAL MEMBERS.

**NOTE 1:** END ASSEMBLIES ONLY HAVE JUNCTION BLOCKS ON ONE SIDE.

**NOTE 2:** ON THE SUB ASSEMBLY VERTICAL PCS THERE ARE THRU HOLES PROVIDED FOR WALL MOUNTING HARDWARE. ARRANGE THE SUB-ASSEMBLIES SO THAT THESE HOLES SHARE A COMMON PLANE TO WALL MOUNT (FIGURE H).

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Beginning with one of the end frame sections and locate the appropriate horizontal members over the junction blocks (Figure I).

**NOTE:** Ensure the horizontal members are aligned properly. The extruded lip should face the interior of the frame section and all countersunk holes should be on the same side.

**NOTE:** On some frame units there are different length horizontal members from one column to the next. Reference the unit AI sheet to determine which length member is correct. If there’s only one length of horizontal frame member on the REF. AI sheet then disregard this note.

**NOTE:** Do not deviate from the provided AI sheet and install different frame lengths to different columns. This will cause issues with installation of modules and shelves.

Start and run-down a screw through the horizontal member into the junction block to fix the member to the frame (Figure J). Install all members to the sub-assembly section.

**NOTE:** An impact driver may be used but excessive driving can strip the threads in the block. It is advisable to stop driving immediately after there’s audible impacts. If a drill driver is used a lower clutch setting is recommended.

**NOTE:** WHILE ASSISTANCE IS HELPFUL AND ADVISABLE FOR BUILDING FRAME UNITS ONCE THE FRAME SECTION, TO BE INSTALLED, IS POSITIONED ON TOP OF THE HORIZONTAL MEMBERS IT IS EASIER IF ONLY ONE PERSON ADJUSTS THE MEMBERS TO START THE BLOCKS INTO THE FRAME. DURING THIS STEP OTHERS HELPING SHOULD ACT AS SPOTTERS.

10 INSTALL SCREWS AT EACH OF THE JUNCTION BLOCKS TO FIX THE SUB-ASSEMBLY TO THE FRAME (FIGURE L).

**NOTE:** ENSURE SUB ASSEMBLY SECTIONS ARE ORIENTED CORRECTLY SO THAT THE WALL MOUNTING THRU HOLES ALL SHARE A COMMON PLANE. REORIENT ASSEMBLY IF NECESSARY TO CORRECT BEFORE INSTALLING SCREWS.

11 REPEAT STEPS 7-10 UNTIL ALL HORIZONTAL MEMBERS AND SUB-ASSEMBLY SECTIONS ARE INSTALLED. ENSURE ALL HORIZONTAL MEMBERS AND SUB-ASSEMBLY SECTIONS ARE IN CORRECT ALIGNMENT.
12 WITH ALL FRAME SECTIONS INSTALLED CAREFULLY STAND THE FRAME ASSEMBLY UPRIGHT (FIGURE M) AND INSPECT FOR CORRECTNESS TO REF. AI SHEET.


13 INSTALL PLASTIC CAPS FROM HARDWARE BAG ON THE TOP AND BOTTOM OF EACH VERTICAL SECTION (FIGURE O).
NOTE: NATIONAL DEFINES A STRUCTURAL WALL AS A LOAD-BEARING WALL CONSTRUCTED OF MATERIALS SUCH AS: Poured Concrete, Concrete Block, or Studs. Wood Studs must be a nominal 2" x 4" size minimum. Metal Studs must be “C” Channel, 20-Gauge thick minimum. Metal or Wood Studs must be on centers no greater than 24” and have maximum height of 14’ restrained at floor and ceiling. Interior walls shall be designed to resist not less than a force of 5 LBS. per square foot applied perpendicular to wall. The deflection of such wall under a load of 5 LBS. per square foot shall not exceed 1|240 of the span for walls with brittle finishes, and 1|120 of the span for walls with flexible finishes (per uniform building code section 2390b). If you have any questions concerning your load-bearing structures, please consult your architect or structural engineer.

14 Orient the frame with the mounting thru holes towards the wall and position in the approximate installed location. Level the unit while adjusting to the final installed position and, if necessary, mark the location of the mounting holes via the thru holes.

NOTE: Do not install frame units to the wall where the top surface is less than 39” inches from the ground.

15 Reference fastener table (FIGURE P) for recommended hardware for various wall construction types. Select the hardware and install to the wall using all of the provided through holes.

<table>
<thead>
<tr>
<th>HARDWARE RECOMMENDATION</th>
<th>WALL/FASTENER DESCRIPTION</th>
<th>SIZE</th>
<th>MODEL #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel Stud:</strong></td>
<td>(1/2” to 3/4” drywall)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hilti HTB-2 Anchor</td>
<td>3/16” x 2 1/2” Grade 5, or Grade 5 equivalent bolt with minimum head height of .134”</td>
<td>3588749</td>
<td></td>
</tr>
<tr>
<td><strong>Wood Stud:</strong></td>
<td>(1/4” to 1/2” drywall)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(meets or exceeds ANSI/ASME B18.6.4 and SAE J933)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panhead sheet metal screw</td>
<td>#10-2 1/4”PHP</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dry Wall:</strong></td>
<td>(1/2” to 3/4” drywall)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hilti HTB-2 Anchor</td>
<td>3/16” x 2 1/2” Grade 5, or Grade 5 equivalent bolt with minimum head height of .134”</td>
<td>3588749</td>
<td></td>
</tr>
<tr>
<td><strong>Solid Masonry:</strong></td>
<td>Buildex Tapecon concrete anchor screw</td>
<td>3/16” x 2 3/4”</td>
<td>24310</td>
</tr>
<tr>
<td><strong>Masonry Block:</strong></td>
<td>Buildex Tapecon concrete anchor screw</td>
<td>3/16” x 2 3/4”</td>
<td>24310</td>
</tr>
</tbody>
</table>

FIGURE P

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