1. You are running EMT conduit to feed a 480v 3Ø piece of equipment. The name plate indicates a non-continuous load of 84.5 amps. There will also be a 26amp 120v heater utilizing this same conduit. In addition to the required feeders, you will also install 5 #12 THHN control wires in the same raceway. The majority of this conduit run will be 4” AFR in Louisville Kentucky.

<table>
<thead>
<tr>
<th>480v Equipment</th>
<th>120v Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire</td>
<td>Wire</td>
</tr>
<tr>
<td>Bkr</td>
<td>Bkr</td>
</tr>
<tr>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>EMT</td>
<td></td>
</tr>
</tbody>
</table>
7. We have 6 1/0 THHNs feeding a piece of hard wired equipment. This comprises 2-3Θ 480v feeds and a ground. All equipment has 75' C rated Terminations. The Panel is in a temperature controlled area maintaining 80' F, and the equipment is in a mechanical room with a general regulated temperature around 95' to 105' F. Provide the following information.

   a. Maximum ampacity the 1/0 can safely handle. 

   b. Maximum legal Breaker used. 

   c. Ground size for this installation. 

   d. Size EMT Required. 

8. How much can a 1/0 THW carry in a rigid conduit mounted 7 in above the roof in Bowman Field, with 7 CCC in the raceway.

9. What size THHN wire, Breaker, Ground, and EMT conduit is required to feed two pieces of equipment, fed from separate breakers, pulling 3phase loads of 47 amps and 62 amps.
You are running EMT conduit to feed a 480v 3Ø piece of equipment. The name plate indicates a non-continuous load of 84.5 amps. There will also be a 26amp 120v heater utilizing this same conduit. In addition to the required feeders, you will also install 5 #12 THHN control wires in the same raceway. The majority of this conduit run will be on the roof in Louisville Kentucky.

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<tbody>
<tr>
<td>#1 Wire</td>
<td>#8 Wire</td>
</tr>
<tr>
<td>150 Bkr</td>
<td>40 Bkr</td>
</tr>
<tr>
<td>#6 GND</td>
<td></td>
</tr>
<tr>
<td>1½ EMT</td>
<td></td>
</tr>
</tbody>
</table>

1. Wire 84.5 Aps
   \[ \frac{310.15 (a)(3)(a)}{80} = 8 \]

2. Bkr 240.6 (a)
   \[ 128.80 \rightarrow 150 Bkr \]
   \[ 37.60 \rightarrow 40 Bkr \]

3. Ground 250:122 TBL
   \[ 150 Bkr \rightarrow #6 \]
   \[ 40 Bkr \rightarrow #10 \]
   **Choose Largest!**

4. EMT #1 #8 #6 #12
   \[ \begin{align*}
   \text{TBL 5 Dimensions Conductors} \\
   \times 3 & \times 2 & \times 1 & \times 5 \\
   0.0133 & 0.0366 & 0.0507 & 0.0665 \\
   \end{align*} \]
   **Total Area of Each Size of Conductor**

5. Add Total Area of All Conductors
   \[ 0.659 in^2 \]

6. TBL 4
   \[ 40\% \text{ Fill Area} \ldots \text{Run} \ 1\frac{1}{2} \text{" EMT (}.814 in \text{ Fill Area)} \]