How to Find an LED Equivalent Wall Pack to Replace a High Pressure Sodium Wall Pack:  
Printable Worksheet

1.) Determine the Wattage of Your HPS Wall Pack

Example: I have a 250w HPS fixture.

2.) Find the Mean Lamp Lumens of Your High Pressure Sodium Lamp

Use the table below to determine the mean lamp lumens of your HPS wall pack:

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>Mean Lumens*</th>
<th>System Watts</th>
<th>Lamp Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>35w HPS</td>
<td>2,025</td>
<td>45</td>
<td>16,000</td>
</tr>
<tr>
<td>50w HPS</td>
<td>3,600</td>
<td>64</td>
<td>24,000</td>
</tr>
<tr>
<td>70w HPS</td>
<td>5,350</td>
<td>91</td>
<td>24,000</td>
</tr>
<tr>
<td>100w HPS</td>
<td>8,550</td>
<td>129</td>
<td>24,000</td>
</tr>
<tr>
<td>150w HPS</td>
<td>14,400</td>
<td>185</td>
<td>24,000</td>
</tr>
<tr>
<td>200w HPS</td>
<td>19,800</td>
<td>241</td>
<td>24,000</td>
</tr>
<tr>
<td>250w HPS</td>
<td>27,000</td>
<td>295</td>
<td>24,000</td>
</tr>
<tr>
<td>310w HPS</td>
<td>33,300</td>
<td>365</td>
<td>24,000</td>
</tr>
<tr>
<td>400w HPS</td>
<td>45,000</td>
<td>464</td>
<td>24,000</td>
</tr>
<tr>
<td>600w HPS</td>
<td>81,000</td>
<td>665</td>
<td>24,000</td>
</tr>
<tr>
<td>400w HPS</td>
<td>45,000</td>
<td>840</td>
<td>24,000</td>
</tr>
</tbody>
</table>

*Mean lumens measured at 50% of life.  

Example: The 250w HPS fixture throws 27,000 mean lamp lumens.

3.) Find the Visually Effective Lumens (VELs) of your High Pressure Sodium Lamp

Multiply the mean lamp lumens found in step two by the S/P ratio for the fixture (see following chart for S/P ratios).

VELs = Mean lamp lumens x S/P ratio
Example: 27,000 mean lamp lumens x 0.62 S/P ratio = 16,740 VELs

4.) Find the Luminaire Efficacy of the HPS Wall Pack
Use the following equation:

\[
\text{Luminaire Efficacy (\%)} = \frac{\text{Emitted Lumens}}{\text{Lamp Lumens}}
\]

Or, use the following chart:
Example: The luminaire efficacy of a traditional HPS wall pack is 65%.

5.) Adjust for Mean Visible Luminaire Lumens
Multiply the VELs found in step three by the luminaire efficacy found in step four.

Mean Visible Luminaire Lumens = VELs x Luminaire Efficacy (%)

Example: 16,740 VELs x 65% = 10,881 mean visible luminaire lumens

6.) Calculate the Mean Visible Luminaire Lumens for the LED Replacement Wall Pack
Divide HPS wattage in half and find the closest LED match.
Example: 250w / 2 = 125w. Closest LED wattage is 126w.

Find initial light source lumens.
Example: A 126w LED throws 17,724 initial light source lumens.

Multiply initial light source lumens by 85%.
Example: 17,724 initial light source lumens x 85% = 15,065.4 mean lamp lumens

Use the S/P ratio chart to select the S/P ratio for the LED wall pack. Multiply S/P by the mean lamp lumens.
Example: 1.21 S/P x 15,065.4 mean lamp lumens = 18,229.13 VELs

Use the “Luminaire Efficacy of HPS and LED Wall Packs” chart to find the efficacy of the LED wall pack.
Example: The efficacy of a traditional LED wall pack is 83%.

Find mean visible luminaire lumens of the LED wall pack by multiplying its VELS by its efficacy.
Example: 18,229.13 VELs x 83% = 15,130.18 mean visible luminaire lumens

7.) Compare the Mean Visible Luminaire Lumens of the HPS and LED Wall Packs

Example: The 250w HPS wall pack threw 10,881 mean visible luminaire lumens. The 126w LED wall pack threw 15,130 mean visible luminaire lumens.

8.) If Desired, Calculate the Mean Visible Luminaire Lumens of Other LED Wall Packs
Repeat steps six and seven until you find the right LED wall pack for you.

Example: A 95w LED wall pack throws 11,348 mean visible luminaire lumens, which means it provides slightly more light than the 250w HPS fixture. This may be the best replacement.