

AGC's LEAN CONSTRUCTION EDUCATION PROGRAM

LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: TRACKING SHEET

Fill out using the steps described below

	Eight-Piece Batch Simulation	Four-Piece Batch Simulation	One-Piece Batch Simulation
Number of Completed Fixtures			
Number of Fixtures in Progress			
Number of Completed Special-Order Fixtures			
Cash Flow +\$150 for Completed – \$50 for WIP			

At the end of each round of the simulation you should record the results for your group.

- Note the number of completed batches
- Note the number of fixtures completed
 - Count each fixture completed within the batches individually
- Note the number of fixtures in progress
 - Count each fixture in progress within the batches individually
- Note the number of completed special-order fixtures
- Calculate the cash flow for the project
 - For each completed fixture, give your group \$150
 - For each fixture in progress, subtract \$50 from your total

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LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: TIMEKEEPER

As the timekeeper, you start and stop the simulations. Each simulation lasts exactly five minutes. You will alert the facilitator at two minutes, at three minutes, and again at four minutes so the facilitator can introduce the specially ordered fixtures. You must also note the time when the first batch of light fixtures is completed.

For each simulation, follow these steps:

1. Start the simulation.
2. At two minutes, alert the facilitator.
3. At three minutes, alert the facilitator.
4. At four minutes, alert the facilitator.
5. Note the time when the first batch completes.
6. At five minutes, stop the simulation.

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LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: FACILITATOR

As the facilitator, your role is to introduce one specially ordered fixture when alerted by the timekeeper at two, three, and four minutes. To do this, you will go to the fixture assembly apprentice and introduce a colored piece of paper.

Your role is not to affect production quality or speed, but simply to place the specially ordered fixtures in the process. Take your time. The specially ordered fixture must travel with the batch in which it was introduced.

For each simulation, follow these steps:

1. When the timekeeper indicates two minutes, provide a new specially ordered fixture at the assembly operation to use in place of a standard fixture.
2. When the timekeeper indicates three minutes, introduce a new specially ordered fixture at the assembly operation.
3. When the timekeeper indicates four minutes, introduce a new specially ordered fixture at the assembly operation.

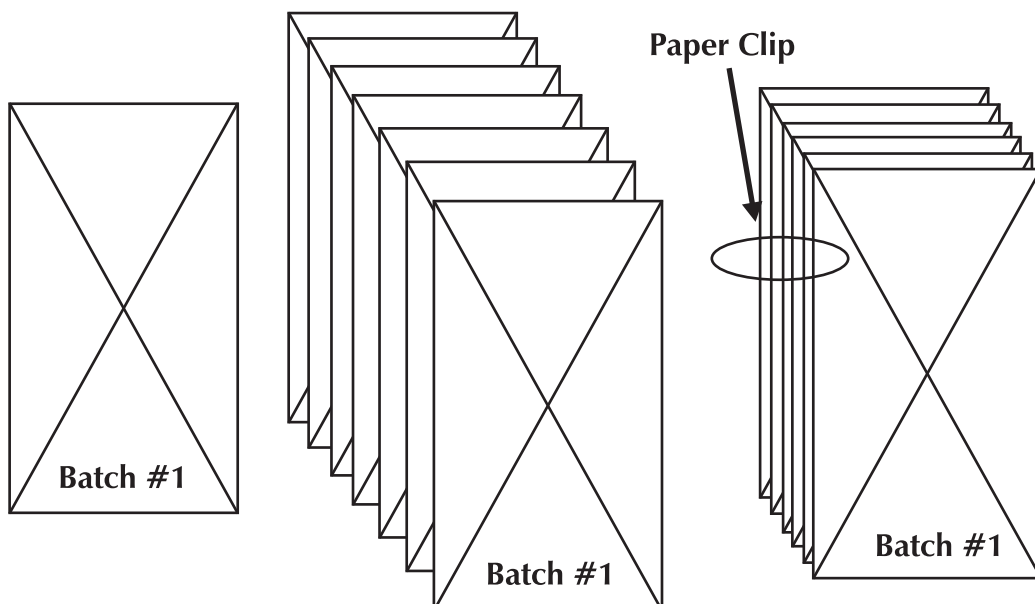
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LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: APPRENTICE — ASSEMBLY

As the apprentice, your role is to begin the light fixture assembly operation, knowing your performance will be judged on how many assemblies you complete.

For each simulation, follow these steps:

1. Take a single sheet of paper from the stack.
 - From time to time, the facilitator will provide a special sheet of paper to use in place of the standard paper within your batch.
2. Write the batch number on the paper.
 - Note: Each batch will contain the number of fixtures equal to the batch size you are instructed to use. So, for an eight-piece batch simulation, there are eight light fixtures in Batch #1 and in Batch #2 and so on.
3. Draw straight lines joining the diagonal corners of each sheet of paper, as shown in the below.
 - Repeat the process until the batch size is reached.
4. Use the paper clip to combine the batch of papers into one package.
5. Pass on to the journeyworker responsible for installing.
6. Repeat steps one through five, with a new batch number, until time runs out.



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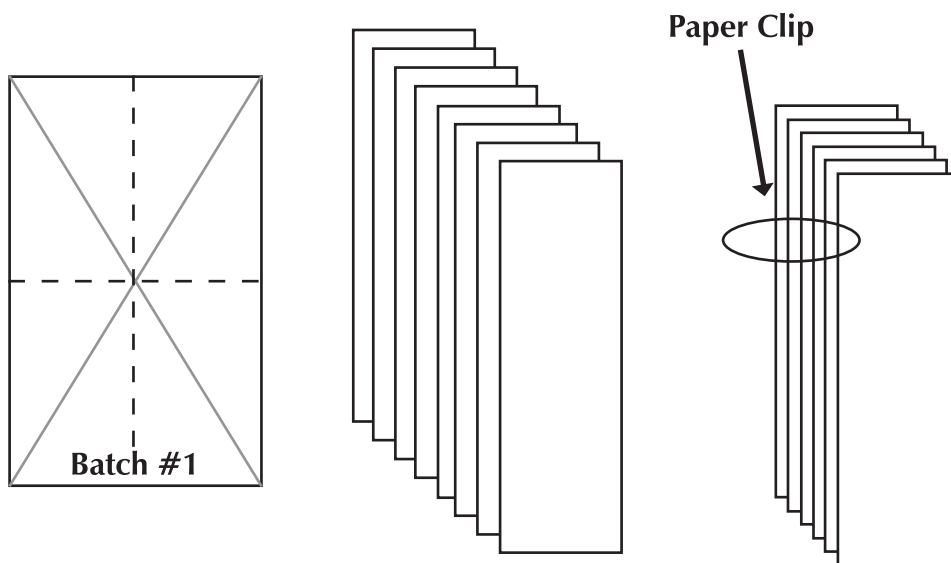
LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: JOURNEYWORKER — INSTALLATION

As the first journeyworker, your role is to complete the installation operation of the light fixture production process, knowing your performance will be judged on how many installed assemblies you complete.

Your work will start when you receive Batch #1. The papers will have diagonal lines already marked each sheet.

For each simulation, follow these steps:

1. Remove the paper clip.
2. Take a single sheet of paper.
3. Draw dotted lines joining the midpoints of opposite sides of the paper, as shown in the figure below. (Previously marked lines appear in gray.)
4. Fold the paper in half along its longer side.
5. Repeat until all papers in the batch have been marked appropriately and folded.
6. Once all the papers in the batch have the lines and are folded, combine them into a batch, again using the paper clip.
7. Pass on to the journeyworker responsible for wiring and clipping.
8. Repeat steps one through seven for each batch.



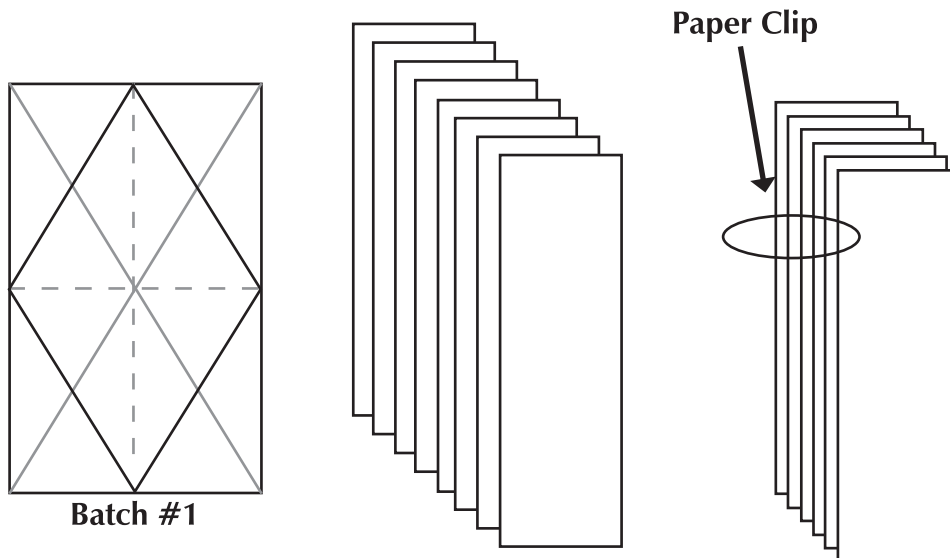
LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: JOURNEYWORKER — WIRE AND CLIP

As the second journeyworker, your role is to complete the wire-and-clip operation of the light fixture production process, knowing your performance will be judged on how many wire-and-clip assemblies you complete.

Your work will start when you receive Batch #1. The papers will be folded, have diagonal lines joining the corners and dotted lines joining the midpoints of opposite sides.

For each simulation, follow these steps:

1. Remove the paper clip.
2. Take a single paper at a time, unfolding each one to execute the operation.
3. Draw straight lines to join the midpoint of all adjacent sides, as shown in the figure below. (Previously marked lines appear in gray.)
4. Refold each paper as before.
5. Repeat until all papers in the batch have been marked appropriately and folded.
6. Combine the papers into the batch using the paper clip.
7. Pass on to the journeyworker responsible for lamp and finish.
8. Repeat steps one through seven for each batch.



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LIGHT FIXTURE ASSEMBLY SIMULATION WORKSHEET: JOURNEYWORKER — LAMP AND FINISH

As the third journeyworker, your role is to complete the lamp and finish operation of the light fixture production process, knowing your performance will be judged on how many lamp and finish assemblies you complete.

Your work will start when you receive Batch #1. The papers will be folded, have diagonal lines joining the corners and adjacent sides of the paper, and dotted lines joining the midpoints of opposite sides.

For each simulation, follow these steps:

1. Remove the paper clip.
2. Take a single paper at a time, unfolding each to execute the operation.
3. Draw a solid line over each dotted line.
4. Draw straight lines parallel to the longer side of the paper to divide the paper into four equal columns, as shown in the figure below. (Previously marked lines appear in gray.)
5. Refold the paper.
6. Repeat until all papers in the batch have been marked appropriately and folded.
7. Combine the papers into the lot using the paper clip.
8. The product is complete.

