**PROBLEM STATEMENT**

- Dampp-Chaser is interested in improving the design of their product for manufacturable and cost reasons to make it easier to process and cheaper to produce all while maximizing profits and maintaining a quality product. The production process has several manufacturability and cost issues, some of those problems include:
  - The resistance wire is very thin and does not easily connect to the power cord.
  - The glass the resistance wire is fed through is increasing in difficulty to source and in cost.
  - The process for applying the snap-in bushing is physically difficult and demanding.

**REQUIREMENTS**

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<tr>
<th>#</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>Dehumidifier must meet domestic and international standards.</td>
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<td>2</td>
<td>Humidifier must heat to a temperature consistent with current production.</td>
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<td>3</td>
<td>Concept must be applicable across our product catalog.</td>
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<td>4</td>
<td>Outer diameter of dehumidifier must be the same as the current outer diameter.</td>
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**CONCEPTS**

- Initial approaches included finding a new resistance wire to replace glass, alternate bushing for unit, alternate insulation, and wire holder.

**FINAL DESIGN, APPROACH, PLAN**

The final resistance wire was found from the current company that Dampp-Chaser now purchases from called JenTer. Once the new wire was found, the question of how will this wire be stabilized within the unit and not violate the UL standards for insulation was found.

**RESULTS**

Team 11 did research into insulated wire as well as snap-in bushings. Team 11 were able to find an insulated wire that would be a good replacement for the glass. Team 11 was unable to find a bushing that would work better than the current one but were able to find a bushing air tool that is compatible. Team 11 created a 3D modeled transfer cap to hold the wire tight during the filling of vermiculite.

**SUMMARY AND CONCLUSIONS**

Team 11 met the major deliverable of reducing the cost of overall process while increasing the efficiency of the assembly steps. The glass tubing has been removed from the bill of materials reducing the cost. The new resistance wire attests to the old wire and can be incorporated with the unit. The new resistance wire met the challenge of needing a stabilizer which is where the transfer cap is introduced combined with a wire holder.

**FUTURE WORK**

The transfer cap has been introduced and tested with the product and results show that it is a success. The new wire works with the current assembly methods and shows promise of a quality replacement to the old wire. Small details would need to be worked out for the change of wire and newly incorporated transfer cap within the assembly steps.

**TEAM & ACKNOWLEDGEMENTS**

- Nicholas Hutchens – Engineering Technology
- Devin Whitaker – Engineering Technology
- Hampton Jesup – Engineering Technology
- Sponsor – Kelly Hollifield
- Sponsor – Cody Britton
- Mentor – Scott Pierce

**REFERENCES**

2. [https://jen-ter.com/](https://jen-ter.com/)