READY TO ASSEMBLE CARDBOARD CASKET

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ABSTRACT

Covington Box is a cardboard box manufacturing company that specializes in custom cardboard packaging. Additionally, the company creates direct cremation caskets and viewing caskets made primarily from corrugated cardboard and sold directly to morgues and funeral homes. The team was tasked by Covington CEO, Tony Fifer, to produce a design that fit the criteria of both products. The product is designed to provide an inexpensive but tasteful option for funeral viewing and also to meet the needs for transportation and cremation.

Figure 1: Cremation Corrugated Viewing Casket

CUSTOMER NEEDS/SPECS

Tony Fifer requested that the team conceptualize and construct a cardboard viewing **and** cremation casket that is budget friendly and easy to assemble The full needs list is detailed in Table 1.

Customer needs	Target Specs
Increase shipping envelope safely	10-15 caskets per pallet
High level of safety	Build for 250lbs test for 500lbs
Sealant to prevent leakage	Anything that prevents all leakage. Targeting zero leaks
Avoid usage of non-cremation features	All materials polymer and cardboard
Price	Build for under $200
Short assembly time on site	Assembled in under 10 minutes in any reasonable location with no tools

Table: 1 Customer Needs Matrix

DESIGN CONCEPTS

As a team, three design concepts were created using the teams understanding of all of Covington's needs. Figures 2 though 4 depict the teams' initial concepts of threaded handles, pocketed handles, and a rope harness along with various lid designs and sealing methods

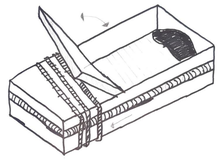

Figure 2: Concept 1 Utilizing a Rope Harness

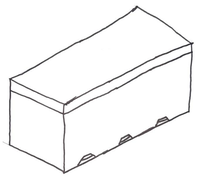

Figure 3: Concept 2 Utilizing Pocketed Handles

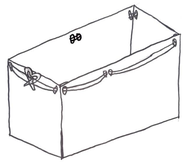

Figure 4: Concept 3 Utilizing Threaded Handles

FINAL DESIGN

After communicating with the team sponsor, discussing changes, developing a solution, and developing a final design prototype, the team was left with the final design shown below.

The Final product possesses:

- Decorated cloth covering to provide a formal appearance,
- Rope handles and retaining grommets for transportation and support
- Easy assembly folding design to facilitate the timed assembly and shipping space requirement.
- Industrially available leak-proof bag meant for cremation caskets as a sealing method
- Devoid of any metal inclusions or other non-cremation material

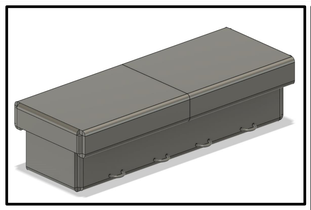

Figure 5: Most Up-To-Date CAD model

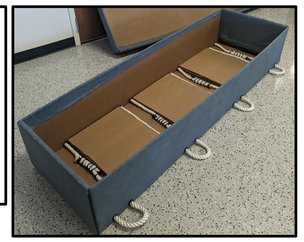

Figure 6: Internal view of the rope handle design

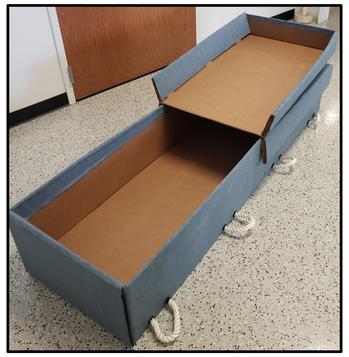

Figure 7: Final Design

TEST RESULTS

Initial testing began with a trip to International Paper in Butler Indiana. While there, the team was able to produce a working prototype from the initial CAD drawings with the help of Ryan Myers. After successfully producing a final model, the casket was put through the necessary testing.

Figure 5: Product Load Testing (500lbs)

CONCLUSION

The team has delivered a fully functioning ready to assemble corrugated casket for Covington Box while successfully using the design phases of this project effectively to produce a low-cost solution for the sponsor. This product allows Covington Box to not only add a product to their production line, but also allows the company to ship out more viewing cremation caskets than they were previously able to. Finally, the design also allows for the company to eliminate all metal inclusions from their previous design to ensure that no metal or other debris is left behind after cremation.

LESSONS LEARNED

With the conclusion of the project, the team learned:

- Problem solving skills
- Proper documentation of the solution to a proposed problem
- How to manage a design team
- Engineering design processes and methods
- Professional and communication skills
- Business process flow
- Design criteria for corrugated manufacturing and design
- Design criteria for the death-care industry

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