

Complexity in the Everyday: The Design Lineage of a Gel-coated Fiberglass Bathtub and Shower Enclosure

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Design is a complex process. Design takes aspects from multiple sources and weaves them together. Sources can range from form, technology, manufacturing, societal needs and acceptance, and aesthetics. Weaving of those sources occurs at the scale of an individual working through a particular design and the evolution of a design over many generations. As objects evolve, their design lineage become more complex with the addition of influences by designers, inventors, society, and technological advancements. The design history of any object adjusts to each new influence by adaptation; wherein an object's current design assimilates that influence. These shifts in an object's design lineage may be small or significant. The shifts may be subtle or evident. What is a seemingly simple product is a complex aggregation of several, differently scaled design and technological innovations. The combination of these influences makes the design lineage of objects complex.

This diagram demonstrates the design complexity of the 26033CT by Aquatic Bath, a gel-coated fiberglass bathtub and shower enclosure. This combination tub and shower enclosure is typical for the drop-in units that can be purchased at retail stores such as Home Depot and Lowes. The 26033CT has a pitched tub at the bottom for bathing and three continuous enclosing walls for showering. The lower part of the back wall of the morphs to support an acrylic bar and to create integral shelves. The product is seamless, with no joints between the bathtub and shower walls or between the walls and the shelves. This particular design, as designated by the CT, imitates a ceramic tile surface by an embossed a pattern of four-inch squares on its walls.

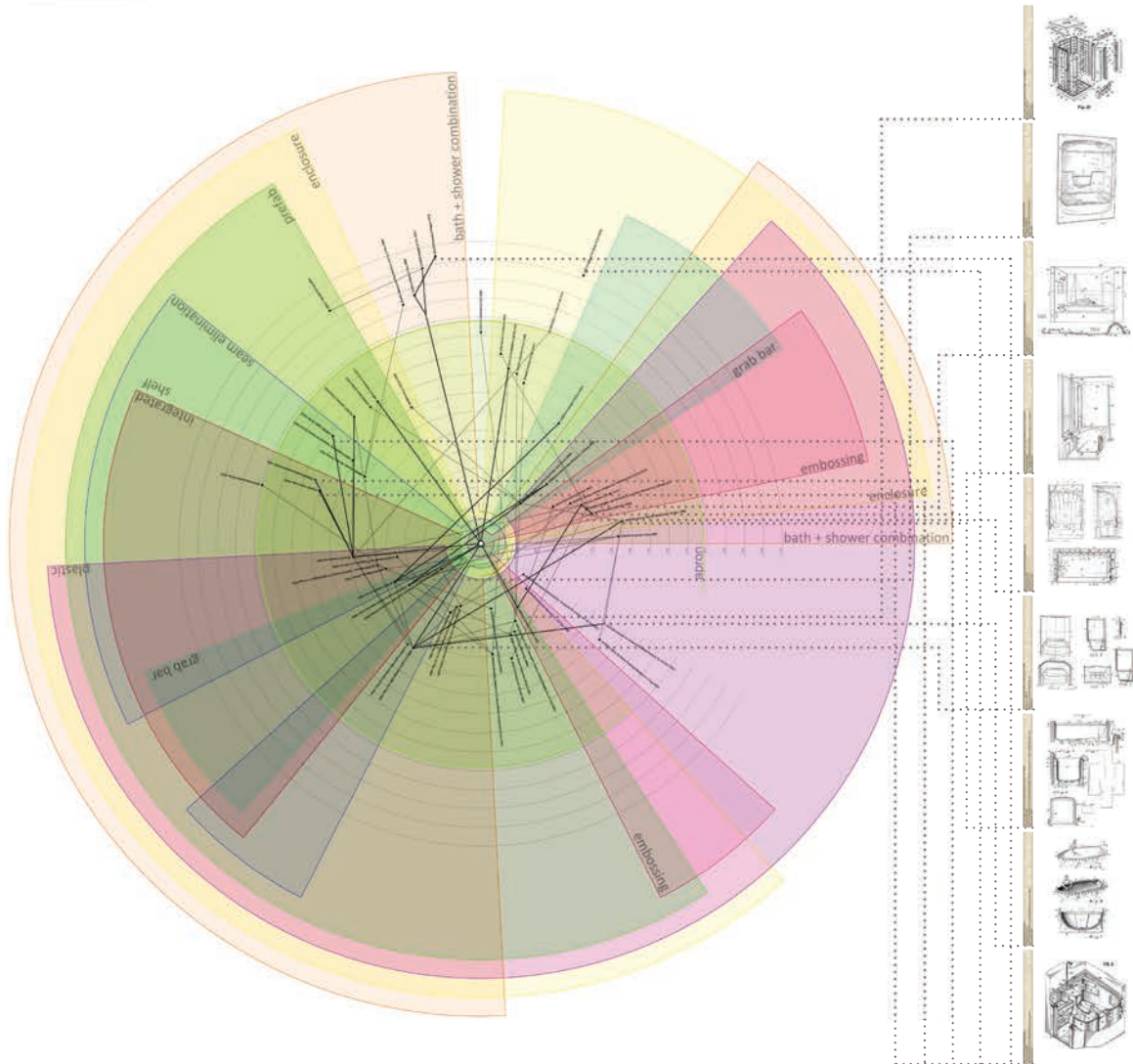
The diagram covers 150 years of inventions that influenced the design of the 26033CT. These inventions are documented by United States utility patents and include plumbing technology for the shower head, combining the bathtub and the shower into a single unit, developing enclosing walls for the shower, eliminating all seams within the unit, the invention of the grab bar, the integration of the shelving with the enclosing walls, the invention and application of gel-coated fiberglass to bath fixtures, and the technology to emboss patterns in the fiberglass. Each patent listed includes the patent number, filer, and date; to the right of the poster are key patents to the design lineage.

Some of the inventions developed independently of another. For example, the introduction of the grab bar had very little relationship to the development of the use of fiberglass in bathroom fixture production. Conversely, some advancements are necessarily sequential, such as the development of the embossing pattern in the fiberglass is inherently and directly linked to the invention of fiberglass and its application to bathroom fixtures. Most of relationships between inventions are indirectly linked. An example would include the combination of the bathtub with the shower must follow after the shower's plumbing technology is resolved, while at the same time the development of the shower's plumbing technology did not necessitate the combination of these two units.



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“... single things are extremely complicated entities, so complicated that we can pretend to understand them only by generalizing about them. One way out is frankly to accept the complexity of single things.”

George Kubler, *The Shape of Time*

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