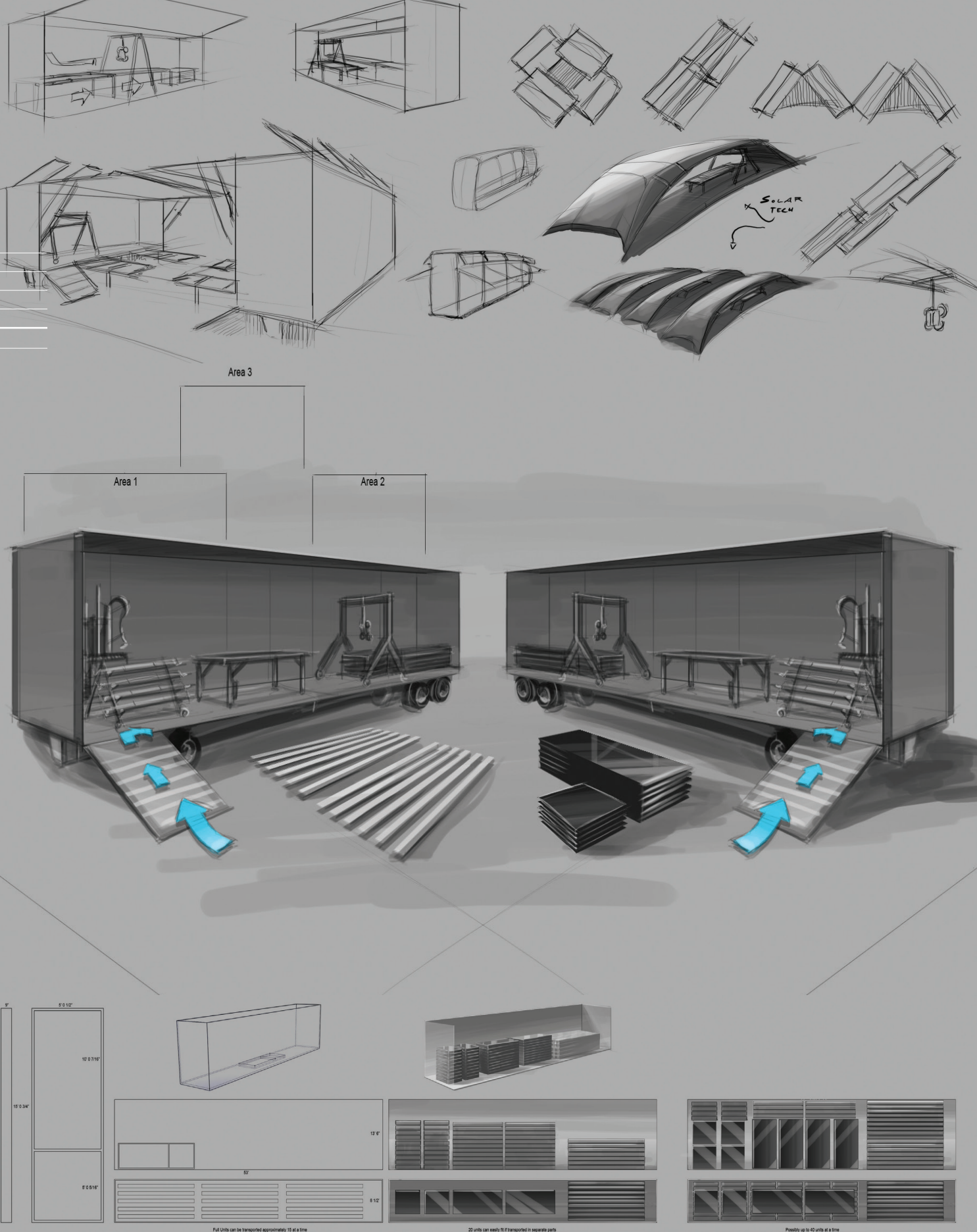
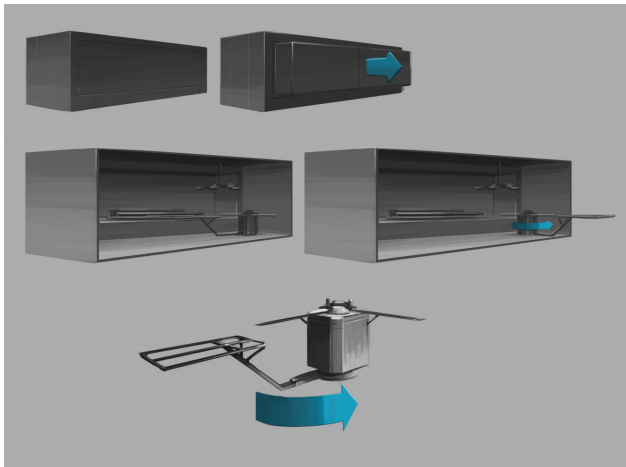
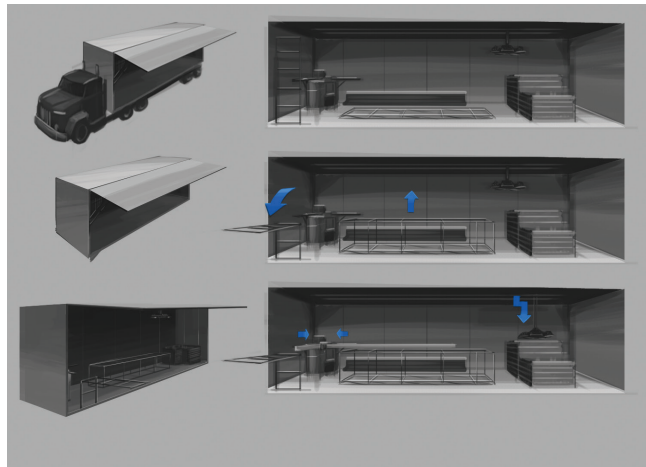


Cassette Wall Assembly Mobile Facility

The mobile assembly facility makes the fabrication of cassette walls possible in overseas locations. This system will refine and evolve the cassette wall assembly process, minimizing time and labor, in order to maximize efficiency. This process will be modified to exist within a multi-trailer mobile facility, enabling units to be shipped and assembled in custom modules. With the ability to change the assembly order of each unit, parts can be pre-assembled in various ways allowing for much more units to be shipped at once. Using auto-assembly robotic technology, units can be made quickly with fewer workers and errors. Units assembled and inspected on-site can be immediately installed without the need for bunking and packaging. The flexibility of an on-site assembly system makes any location an efficient jobsite.





ASSEMBLY OVERVIEW

The Pomona Facility consists of various work stations to complete each duty in the sequential order needed. In an effort to properly distribute the responsibilities, the shop is split into 3 areas, each with its own special tasks.

Area 1 – Frame Assembly: The metal curtain wall frames are assembled including the installation of operable sub-assembled vent windows, sub-assembled trickle vents, and metal insulation stiffeners. Vinyl back gaskets are installed followed by corner sealant shots and insulation. Finally, primer is applied to the frame and panels are clamped down and quality inspected.

Area 2 – Glass and Sealant: After a quick recheck square of frames, the glass is installed per specification and clamped down as needed to aid any deflection. Next, the structural sealant is applied to the frames and inspected. Each unit is lightly cleaned and moved to the next stage.

Area 3 – Bunking: After accepting all deliveries into the final stage, required bulb gaskets are installed on each unit. A final cleaning and quality control check are performed. Custom wood bases are created for units that are to be bunked. All completed units are then bundled together and kept in sequential order with foam between each one. The bunks are ready for truck loading to be transported to their final destination.

MOBILE FACILITY RESEARCH

Modern trailer technology offers highly extendable and customizable features allowing the full potential use of interior space. The on-site process eliminates the need for a bunking area and using simple power options and lifts, area 1 and 2 can be combined into a single area work flow. Many of these trailers have various interior extension options which can create efficiently structured work zones. Trailer sides are capable of lifting using hydraulics and hinges, creating open spaces for cleaning and storage. This essentially doubles the work area, creating an organized outdoor separation between stations while maintaining protection from the elements. Green generators and solar panels are also common among mobile facilities, allowing them to use less energy than required to perform the same task in a full warehouse.

Using the appropriate combination of these technologies, the design concept can be based on a full trailer customization prepared with all essential tools necessary. Another method involves the use of multiple trailers, each with its own specially designed workspace. A single trailer can be stationed for small jobs, while multiple trailers can be used for large jobs, able to handle larger quantities for maximum on-site flexibility. The multitude of these trailers can also affect the number of workers needed. Depending on the job scenario, sites can be constructed to accommodate for faster build times, less workers, and difficult work terrains.

CONCEPT DEVELOPMENT

The initial response to creating a mobile facility is the issue with space. Transporting the highest amount of tools and materials possible is a huge benefit of an on-site assembly system. Full units bunked and transported from the current facilities can be done 15-20 units at a time. However, by separating units into pre-assembled parts, glass, and frames, truckloads can arrive at the construction zones 80-100 units at a time.

With a new automated system, the goal is to increase the units produced from 8 units a day to at least 20-25 units a day. Using partially robotic solutions to full automated assembly line systems, it is possible to produce any unit amount required of a job. With a system this efficient, units would be made according to how many could be installed in a day, as opposed to how many can be assembled or transported.

Various solutions are being developed from a single system trailer to multiple array trailer systems. The ultimate goal is full automation with minimal quality inspection. Multiple types can be developed for small and large jobs each with the ability to perform tasks individually and collectively as a whole. The mobile cassette wall assembly facility will revolutionize the way we think about unit fabrication and show that Enclos leads the industry in building technology.

