

C. KIM, H. KIM, T. PARK. **Site layout optimization for caisson structure prefabrication.** *Gerontechnology* 2012;11(2):411; doi:10.4017/gt.2012.11.02.408.00 **Purpose** As the volume of international trade increased, the needs for large concrete caisson breakwaters, which can accommodate the bigger vessels, increased accordingly¹. However, due to the size of the caissons, the constructions of large-scale maritime infrastructures often face challenges about how to manage the construction site, improve the construction processes, and enhance productivity. **Method** This paper presents a methodology to optimize the caisson structure fabrication process by controlling the locations of construction equipment and prefabrication facilities using genetic algorithm (GA), coupled with the functions of a Delmia-platform. First, a virtual construction site layout is established with a set of required facilities and equipment on the Delmia-platform based on the spatial information of the construction site (*Figure 1*). Site layout constraints and requirements are then determined to properly reflect the nature and conditions of the projects. Lastly, a genetic algorithm is employed to find out the optimal construction site layout for the construction processes. **Results & Discussion** The proposed GA-based methodology is expected to assist construction engineers in determining optimized construction site layout for caisson structure prefabrication in the early project phase and further identifying the potential risks of projects.

References

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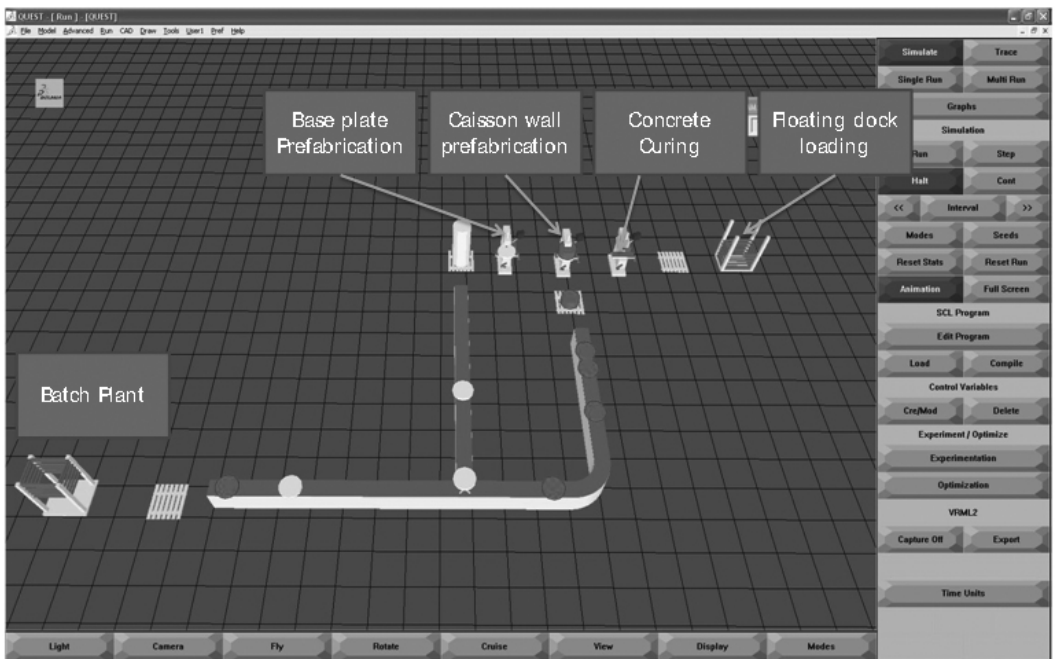


Figure 1. Caisson structure prefabrication simulation on Delmia platform