

Constructability Improvement of Steel Silos during Field operations

Abstract:

Steel silos are widespread around the world, and are used for storing different materials, including cement, fertilizers, grains, and raw materials. Building a new silo provides a fairly big storage capacity within a short period of time. There are many types of steel silos, including field-welded silos, bolted silos, bolted silos with corrugated sheets, and silos (with small capacities) completely fabricated in shops. This paper presents a new method that has been used in Egypt to build bolted silos with corrugated steel sheets. This method mainly features inverting the traditional sequence of field tasks, such that the building operation starts with the uppermost part of the structure and proceeds to the lowermost part. The method requires that the completed parts of the structure be lifted up, using specially devised tripod-mounted hoists, so that building operations always take place at grade. The new method is described in this paper in detail, along with the problems encountered during field operations. In addition, the merits, in terms of the basics of construction management, are discussed. They are cost, schedule, quality, and safety. Finally, this paper presents a new method that offers substantial opportunity for enhancing constructability of enhancing constructability of steel silos during field operations.