3-D Engineered Models

3D models use digital and geolocated data to depict relevant aspects of the project in three dimensions. Three-dimensional modeling combines the horizontal and vertical aspects of a construction project into an integrated digital model. Using the 3D software, design and construction teams can connect virtually to develop, test, and alter designs throughout the design and construction phases. 3D Models:

- Reduce utility conflicts/changes.
- Save on surveying and checking grades, cross sections, and other quantities or project element locations.
- Core building block for technologies such as automated machine control, clash detection, and quantity verification.
- Expand to 4D/5D with project schedule/cost data.

When to Use: 30%CR - PS&E, & Construction

Whom: Core Constructability Team, Designers, Construction Team

References:

FHWA Everyday Counts EDC-2 Innovations: 3D Models, https://www.fhwa.dot.gov/construction/3d/

Guide for 3D Engineered Models for Bridges and Structures, https://www.fhwa.dot.gov/construction/3d/hif17039.pdf

Christopher Schneider, FHWA Techbrief: 3D, 4D, and 5D Engineered Models for Construction, 2013, https://www.fhwa.dot.gov/construction/pubs/hif13048.pdf