



Center for Transportation
Research and Education

IOWA STATE UNIVERSITY

Developing a Visual Electronic Design and Specifications System

tech transfer summary

RESEARCH PROJECT TITLE

Development of Object-Oriented Design and Specifications for Iowa DOT and Urban Standards: Phase I (TR-487)

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MORE INFORMATION

<http://www.ctre.iastate.edu>

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Objectives

- Create a graphical system that can help designers and contactors visualize projects more clearly and construct them more efficiently.
- Turn paper-based design standards and construction specifications into a visual electronic reference library (ERL) or object-oriented design and specification (OODAS) system.

Problem Statement

Currently, individuals including designers, contractors, and owners learn about a project's requirements by studying a combination of paper and electronic copies of the construction documents, including the drawings, specifications, road and bridge standard drawings, design criteria, contracts, addenda, and change orders. This can be a tedious process since one needs to go back and forth between the various documents to obtain information about the entire project.

Object-oriented computer-aided design (OO-CAD) is an innovative technology that can bring a change to this process by graphical portrayal of information. OO-CAD allows users to point and click on portions of an object-oriented drawing that are then linked to relevant databases of information (e.g., specifications, procurement status, and shop drawings).

Technology Description

Visual ERL

Building an electronic reference library is a practical starting point in developing a visual design standards and construction specifications system. An ERL includes 3D objects that are linked to 2D drawings. An ERL provides an index that can be used as a database interface for standard designs and specifications. This approach can minimize the time and effort that would be required to develop a new database. In addition, existing ERL users would be able to easily transition into a full-scale OODAS system in the future.

Iowa's ERL currently has indexed all first-level sections of Iowa DOT and Statewide Urban Design and Specifications (SUDAS) standards and specifications.

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