

4D Tools Research Needs Punch List:

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WDI

3D Model Tools:

- Fully parametric 3D design tools for AEC industry

Meanwhile, while waiting for the above:

- Navigation through 3D world
- Intuitive interface device (joystick?)
- Creation of control surfaces on existing surfaces (floors, walls, etc.)
- Control surfaces as attributes
- Control areas such as access restrictions, guideways etc.
- Interface of 3D model to independent databases
- Navigation of traditional 2D design information via 3D Model
- Ability to create temporary construction site works – scaffolding, laydown areas, access roads - as whole units or as modular units.
- Ability to “disassemble” or re-group temporary construction site works – scaffolding, laydown areas , access roads
- Improved materials rendering for “look and feel issues
- Improved light rendering

4D specific tools

- autonomous agent development
 - for construction access, etc
 - for behavior of users
- multiple window overlays on 3D model
- visual display of 3D object attributes (as in the info mural)
- Improved definitions of attribute classes e.g. business attributes, schedule, design, etc.
- Interface with business management tools (RFI, change order, scheduling software)
- Create new interface with inventory management and estimating software

Business Tools:

- New design contract for price constrained design
 - Inclusion of key subs in the construction management process
- New role / contract for GC, architects and engineers

IP relationships

Encryption of design data

Who owns designs created in collaborative work relationships?

How long do they own them, etc, etc., etc.