

CAD for Principals™

*[www.cadforprincipals.org](http://www.cadforprincipals.org)*

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A/E/C SYSTEMS 2001

Chicago

June 19, 2001

# Agenda

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- CAD for Principals Introduction – Kristine Fallon
- CAD Software Evaluation – Alex Maxim
- How useful is the CAD Software Evaluation to a real-world business? – Bob Ritger
- CAD Vendor update – Arleen Boyd
- Best practices in work processes – Ken Stowe
- Most valuable Next Step for CAD for Principals?  
Open forum facilitated by Kristine Fallon

# CAD for Principals

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- Is an open membership organization of AEC Principals and other Decision Makers
- Kristine K. Fallon, FAIA leads CAD for Principals
- CAD for Principals does accept vendor and other funding

# CAD for Principals Goals

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- Analyze/ document use of CAD and related technologies in practice
- Define needed technology developments and improvements
- Identify requirements and best practices for implementing technology that will benefit practice
- Generate industry-wide participation to define:
  - A vision of the tools and technologies needed for building design and construction
  - The actions necessary to drive development and effective implementation of those tools

# Initial Methodology

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- Identify a group of firms representing a wide range of practice
- Identify principals willing to participate
- Survey principals' attitudes and assessments of CAD technology
- Interview each principal face-to-face
- Interview at least 1 CAD user in each firm
- Ask principals to draft a technology Requirements Statement

# Participants

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DeStefano + Partners:  
Eckenhoff Saunders  
Landahl Design Studio  
Loebl Schlossman & Hackl  
Lester B. Knight  
Kurtz Associates  
McClier  
McClier  
Nagle Hartray  
OWP&P  
OWP&P  
Ross Barney + Jankowski

Leonard Clagett  
Steve Saunders  
Greg Landahl  
Jim Pritchett  
Robert Barnes  
Walter Hainsfurther  
Dave Gutierrez  
Steve Santucci  
Jack Hartray  
Deb Sheehan  
Geoff Walters  
Carol Ross Barney

# Initial Findings

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- Decreasing satisfaction with the technology status quo
  - Current CAD provides tools for drawing, not for the total work process
- Pent-up demand for better
  - Tools
  - Work processes
- Principals want to regain control of technology direction and costs

# Problems Identified

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- Initial training hurdle
- Constant relearning/ obsolescence of skills
- Isolation of experienced architects from the process
- You develop either computer skills or architectural skills, not both
- Difficulties in monitoring project progress and catching mistakes early
- Difficulty of coordinating and enforcing complicated CAD standards and procedures
- Problems getting output

# Vision

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“To date computers have eased the cumbersome task of preparing complex documents that require enormous amounts of data. Computers have improved our ability to envision a three-dimensional object and present it to the user. The next step is to seamlessly link the architect’s efforts to the industry that procures, assembles, constructs, delivers, and operates and occupies the buildings.”

**W. STEPHEN SAUNDERS AIA**  
Eckenhoff Saunders Architects, Inc.

# Statement of Requirements

for the Next Generation of CAD Products

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- Ease of use
- Software that works like a design professional thinks
- Design and quality feedback
- Budget, schedule, performance controls
- Output and deliverables
- Industry-wide interoperability / electronic process

# The Holy Grail of CAD

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“Starting in 1959 we outlined a system that would, in effect, join man and machine in an intimate cooperative complex. A combination that would use the creative and imaginative powers of man and the analytical and computational powers of the machine... The designer seated at the console drawing a sketch ... and commanding a computer slave to refine the sketch into a perfect drawing, to perform various numerical analyses having to do with structural strength, clearances of adjacent parts, and other analyses as well.”

- *Steven Coons, 1963*

*Is the problem with the users  
or with the technology?*

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# Why Haven't We Achieved It?

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"There is a simplistic view of a building model as a three-dimensional model of the building elements, the functional attributes associated with each element, and the construction details that surround the elements. Such a model potentially allows the automatic production of drawings.

Such computer models have some serious limitations, especially in attempting to make a recording of a complete design. ...Needed are more advanced systems incorporating deterministic rules that define how one change affects other changes."

- *Charles Eastman, 1983*

# CAD Software Evaluation

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- Based on Statement of Requirements
  - ~200 Criteria
- Vendors reply to Statement of Requirements
- Responses evaluated by 2+ people using that CAD system in AEC practice
- Metrics created by group of CAD/ IT managers, consultants and principals
- Evaluators use metrics to score products
- Principals review results
- PSMJ publishes report

# Six Vendors Participated

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- AEC DesignWare
- Autodesk
- Bentley
- Bricsnet
- Graphisoft
- Revit

# Evaluators

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- Daniel Ceglinski – ADD Inc
- Robert P. Davis
- Scott DeGaro - Trudeau/Architects
- Susanmarie C. Koenigs - Callison Architecture, Inc.
- Christopher Lawrence - Huckabee & Associates, Inc.
- Randall Lewis, R.A. - Tulsa District, U.S.A.C.E.
- Alex Maxim - NBBJ
- Jeffrey A. Penza, AIA - Penza Associates Architects, Inc.
- Klaus Philipsen, AIA - ArchPlan Inc. Philipsen Architects
- Tim Rice, AIA - LMN Architects
- Robert C. Ritger, AIA - The Hillier Group
- Brian Kerry Smith, AIA - Knight Advanced Technology
- Kenneth H. Stowe, P.E. - George B. H. Macomber Co.

# Metrics Committee

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- Arleen Boyd - Fishtail Consulting
- Leonard Clagett, AIA - Erickson, Herscoe DeStefano + Partners
- Kristine K. Fallon, FAIA - Kristine Fallon Associates, Inc.
- Ronald R. Hart - CAD Directions
- Robert C. Ritger, AIA - The Hillier Group
- Lawrence M. Rocha, Associate AIA - Wimberly Allison Tong & Goo Architects
- Jill Rothenberg - ADD Inc

# Principal-Reviewers

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- Leonard Clagett, AIA - Erickson, Herscoe DeStefano + Partners
- John F. Hartray, FAIA - Nagle Hartray Danker Kagan McKay
- Gregory Landahl, FAIA - Landahl Design Studio
- Rodger Poole, AIA - HLM Design

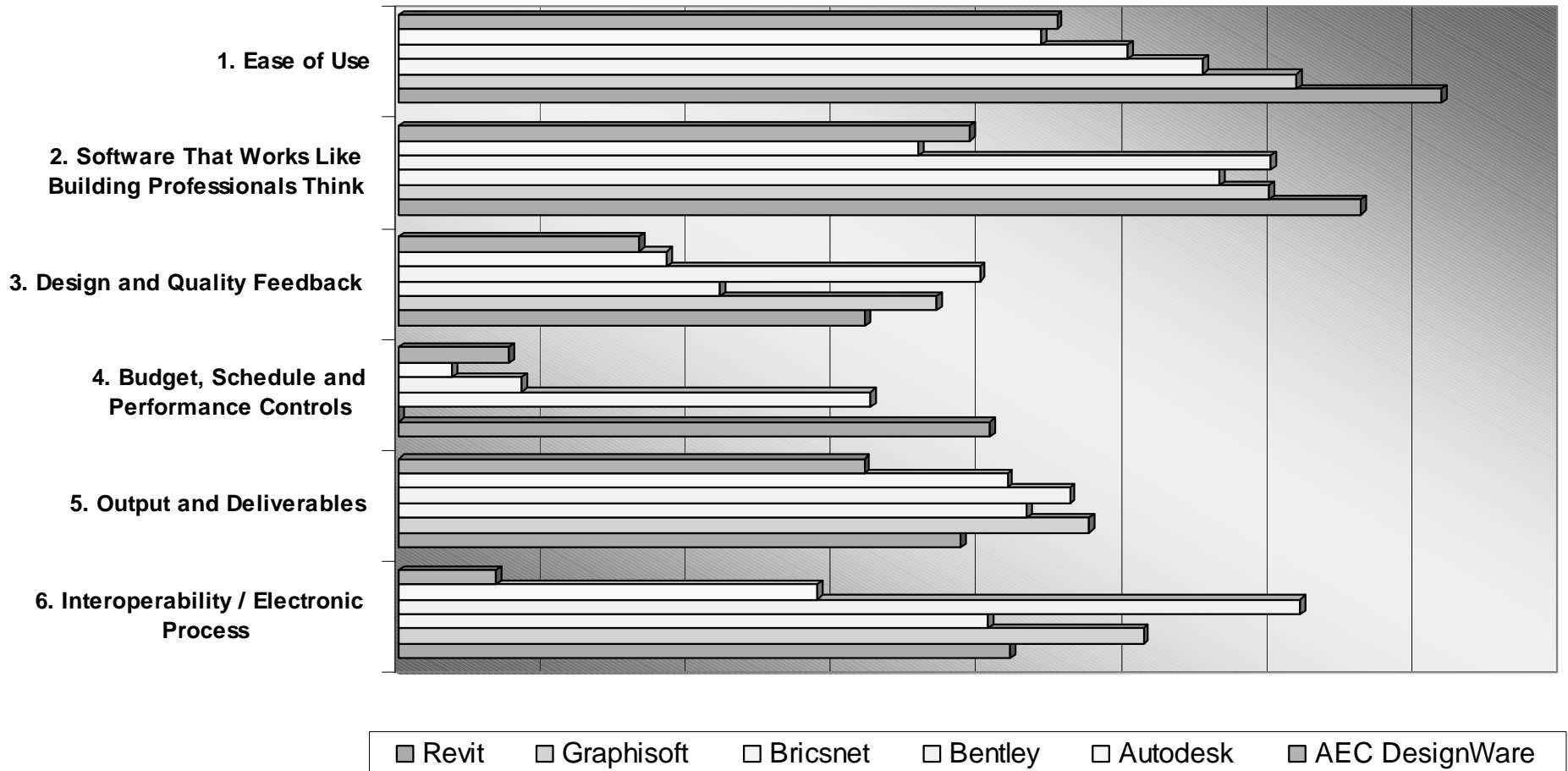
# Major Findings

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- High-end CAD applications frequently do NOT provide design automation
- Ease of use IS possible in advanced, Next Generation CAD software
- Users want integrated functionality, not multiple products
- Users are ahead of vendors in understanding the need for robust exchange of 3D models

# Software Comparison



# CAD for Principals Council: Initiatives for 2000

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- ✖ 1. Broaden Participation
- ✖ 2. Form Committees
  - Business Requirements
  - Best Practices
  - Technical
- ✖ 3. Call for Vendor Responses to the Statement of Requirements
- 4. Create AEC Executive CAD Briefing
  - Give principals the knowledge and confidence to direct use of CAD and related technologies to support business goals

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***www.psmj.com***

# Open Forum

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- Most valuable Next Step for CAD for Principals?
  - Update evaluation?
  - Education?
  - Interoperability issues?
  - Other suggestions?

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- Announcements
- Statement of Requirements
- CAD for Principals Study
- CAD Software Evaluation
- Discussion forum
- Press room:
  - Releases
  - Browse/ download ppts



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