



## NCFMTC 2007 Presentation Abstracts

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*Wednesday, August 8, 2007*

### WG1: General Session

#### **It's Back to School for BIM**

***Diane Davis***

*Chair, Scoping Group*

*National Building Information Model Standards Committee*

*President*

*AEC InfoSystems*

***Kimon Onuma***

*Principal*

*Onuma, Inc.*

We all know that Building Information Modeling (BIM) is coming. The question is, when? As it begins to arrive, how will it affect the design/build/manage process at American colleges and universities? This talk will discuss the work of the National BIM Standards Committee, the status and progress of BIM use, and the reasons for that growth.

The shift from the current 2D CAD paradigm to 3D Building Information Models (BIM) is occurring now. The federal government and DOD, including GSA, the Army Corps of Engineers, and the US Coast Guard are requiring that a growing number of major projects be done using BIM, and there are successful projects that prove the new model works well.

At what rate is BIM being adopted, and when and how will it begin to affect larger colleges and universities? Many NCFMTC member schools are both building and planning more large capital projects. Should they be requiring that their A/E firms move to BIM? Or will their A/E firms begin to push them? What will it cost either side to make the change?

College and university construction project managers have expressed interest in BIM because they believe it will enable them to cut costs by better controlling the design and change order process. Is this a reasonable expectation? How will managers who have carefully built integrated information resources out of campus space inventories, CAD plans, and GIS databases, begin to incorporate BIM data? What does a world and campus view look like? How can it support the larger organization's decision needs? To what extent is this about process, rather than software product? What are the business drivers, enablers, and changes needed to get the benefit from BIM? What activities are happening

in the industry to help you jump start your BIM migration, and what are some best practices and lessons learned that are relevant to managing a campus?

The presenters will discuss these questions and more, from both a national standards perspective, and as private practitioners with successfully-completed BIM-based projects. We will use several examples to explain the business drivers, including an animation of spending money on buildings vs. their ability to function over time.

## **W2A: Building a Campus Data Model from Scratch**

***Jim Nelson***

*Director of Planning Resources*

*University Planning Office*

*Harvard University*

This presentation will discuss the data models Harvard is developing to assist the planning, design, construction, commissioning and operation of a new campus currently being planned in Boston. Over the coming decades Harvard will be developing a new campus adjacent to the Harvard Business School in Boston. This development will include significant new infrastructure, the relocation of Schools from other campus districts, reuse of vacated space, and the construction of millions of gross square feet. The presentation will present data models and business processes that support: surveying and GIS to maintain the current conditions of site infrastructure, information delivery to assist commissioning, and high level scenario testing for moves.

## **W2B: Basic GIS Modeling: Improving Campus Maintenance, Management, and Planning**

***Matt Davis***

*Regional Manager*

*ESRI Boston*

Data models, workflow and geoprocessing models, 3D and time series models are all basic GIS building blocks. When combined these capabilities add new dimensions to how decisions are being made in day to day operations as well as planning for the future. This presentation will explore some of the many uses and benefits that can be realized by providing broad access to basic GIS capabilities in a campus environment.

## **W2C: BIM to FM in 10**

***Clyne Curtis***

*CAD Database Manager*

*Brigham Young University*

***Brian Haines***

*Product Marketing Manager*

*Facilities Management Solutions*

*Autodesk*

BIM is changing the way buildings are designed and constructed, but is it changing how they're operated and maintained? There is a lot of interest in the industry surrounding the use of building information for facilities management, but how does this really work and how do the benefits of BIM extend to facilities management? Brian Haines of Autodesk and Clyne Curtis of Brigham Young University will demonstrate the process of leveraging the use of BIM (Building Information Model) and it's powerful ability to carry building information downstream and place it into the hands of facilities management teams. This

presentation will utilize a BIM model of one of the largest campus facilities at Brigham Young which has been produced in Autodesk's Revit application, and we will demonstrate how that information can flow seamlessly into Autodesk's FMDesktop CAFM solution.

### **W3A: Data Security: What Is Sensitive?**

**Rich Grady**

*Panel Moderator*

*President*

*Applied Geographics*

**Michael Parkin**

*Manager, Drawing Information Systems*

*Department of Facilities*

*Massachusetts Institute of Technology*

**Jim Nelson**

*Director of Planning Resources*

*University Planning Office*

*Harvard University*

**Don Uchman**

*Coordinator of Spatial Graphics*

*Space Information & Planning*

*Architecture, Engineering and Construction University of Michigan*

Data security requires both technical and policy attention, and needs to deal with the question of what is truly sensitive. In this context, the panel will explore the following topics:

1. Specific data examples, including floor plans and utility networks;
2. Specific security measures, including access control, roles, and privileges;
3. Information security policy issues, including vulnerability assessments and risk management;
4. Community expectations, including students, faculty, administration, first responders, and the public.

### **W3B: The 60 Month Tune-up**

**Montgomery Combs**

*Director of Systems and Services*

*Facilities Management Department*

*Brown University*

**Steve Hanes**

*Sr. Business Solutions Consultant*

*FAMIS Software, Inc.*

When your organization is powered by an FM system, it is imperative to continually monitor its performance. Like the engine that powers your vehicle, your FM system requires periodic maintenance and check-ups. This tune-up procedure allows you to improve the performance and maintain the reliability of your system.

Brown University implemented the FAMIS Enterprise Facilities Management system in 2002. After using the system for 5 years, Brown decided it was time for a tune-up. This session will focus on the whys and hows of this tune-up procedure.

### **W3C: FACADE: Future-Proofing Architectural Computer-Aided Design: MIT Libraries CAD and BIM Preservation Research Project**

**William Reilly**

*Technology Project Manager*

*MIT Libraries*

How are libraries responding to the challenges of preserving 2D and 3D CAD data over archival timeframes? What are the digital library research problems inherent in trying to capture the expansive set of associated artifacts defined by the BIM? How will future architects, architectural historians, faculty and students of architecture want to use these materials in their work, research, and study?

This talk presents a description of a new two-year project that seeks to address these kinds of questions, taking as materials for its initial building project the 3D CATIA models and 2D AutoCAD drawings produced for the MIT Stata Center that were designed by its architect, Frank Gehry.

The MIT Libraries, in conjunction with the MIT School of Architecture and Planning, have commenced work on a new two-year research project called FACADE, funded by a grant from the federal Institute of Museum and Library Services (IMLS.gov). The FACADE project (Future-proofing Architectural Computer-Aided Design) will research methods and best practices to capture, describe, manage, preserve, and make available digital CAD models that are created by architects during building projects. The project will capture these models for archiving in DSpace, MIT's digital archive system, and will further develop DSpace's digital preservation capabilities to support the storage and use of this type of digital material for future use by architects, architectural historians, and design and architecture instructors. <http://facade.mit.edu>

The FACADE project has five major objectives

- Analysis, identification and description of native digital formats produced by top CAD software used by architects, primarily CATIA and AutoCAD formats. Registration of these formats into the Global Digital Formats Registry for general access.
- Analysis, design and implementation of native CAD file ingestion, management, preservation and dissemination practices, and development of necessary modules for the DSpace digital archive system. These may include archiving of relevant CAD software packages for future processing, or development of emulation tools and frameworks for rendering these files in the DSpace platform at a minimum.
- Analysis and recommendation related to process documentation (relationships between various CAD files and versions, and between CAD files and other project communication and documentation).
- Analysis and recommendations related to annotation of CAD files for important related information, such as non-graphical files related to materials used.
- Documentation, training, outreach and dissemination of results to the digital library, digital preservation, and DSpace user communities

#### **W4A: Inside Out: Leveraging GIS to Analyze Space Data**

**Michael Parkin**

Manager, Drawing Information Systems  
MIT Department of Facilities

Geographic Information Systems are typically created to manage and analyze information about land. As these systems mature, they become more powerful as their information pools become deeper and more accurate. Typically these systems stop at the exterior of a building, but what happens if you take this tool inside buildings to manage a campus?

MIT's efforts with their Space Management System have created a spatial data infrastructure based on the interior spaces of its campus. As the system matured, it has worked its way from the inside out and now integrates space, building, and land information. MIT can now manage and analyze this information together in a common framework and is now realizing the importance of spatial relationships of interior and exterior features. By leveraging the power of GIS, MIT now visualizes, analyzes, and shares information about its campus in new and exciting ways.

This presentation will illustrate the process of how MIT has taken GIS inside of its buildings and will show different types of analyses now possible in this framework. This presentation will showcase a number of different GIS and CAD technologies and will also touch upon topics such as open standards and interoperability.

#### **W4B: Implementation and Benefits of a Web-Based, Campus Facilities Space Accounting and Capital Planning Software System**

**Eric Rothgarn**

*Office of Resource Management & Planning  
University of California at Davis*

**Diane Behling**

*Educational Facility Planner  
Capital Planning and Space Management  
University of California, Santa Cruz*

This talk recounts the implementation experiences of two University of California campuses: UC Santa Cruz (5,707,750 GSF) and UC Davis (15,803,504 GSF). Both campuses implemented Network Digitality's FacilitiesLink system to transition away from outdated legacy systems and integrate with established distributed CAD, GIS, and FIS RDMS systems across their campuses and at the corporate level. We will discuss the reasons for the system change, the key issues the implementation plan had to address, and the lessons learned along the way.

#### **W4C: A Campus-Wide Geodatabase: Bricks and Mortar of a University's GIS**

**Katherine O'Brien**

*GIS Coordinator  
University of North Carolina at Chapel Hill*

In the year 2000, funding for Phase I of the University of North Carolina at Chapel Hill's Capital Improvement Project was approved. Construction spending of \$1.1 billion dollars over an eight year period meant renovation and upgrades to existing buildings and utilities as well as construction of new facilities. The University's Capital Improvement Project

highlighted the need to share geographical information between project stakeholders and data custodians.

A Mapping/GIS needs assessment was conducted and an implementation plan that included an enterprise solution for twelve business units was developed. This presentation gives an overview of an enterprise Geographic Information System, including data modeling workshops, application workshops, end-user workflow analysis, training, organizational structure, hardware and software assessment, successes and challenges, and lessons

## **W5A: Play Ball! Using Technology and a Common Language To Build a Team**

***Myra Agree***

*Office of Space and Facilities Planning  
Vanderbilt University Medical Center*

***Marty Chabot***

*Vice President, Marketing  
FM:Systems*

In 1998 Vanderbilt University Medical Center (VUMC) set a goal to become one of the top ten research facilities in the nation. It was clear that achieving this goal would require visionary leadership as well as exacting administration. Because facility costs can be recouped for federally funded research projects, better space management was a key factor for success.

From 1984 until 2000 VUMC's Office of Space and Facilities Planning collected research utilization of facilities manually – a painstakingly slow process with lots of room for error. By automating this process, the Medical Center was able to easily and accurately track the 9 million square feet of space that make up their campus. They not only increased their F&A rate, but the solution helped them proactively manage their facilities and improve the productivity of their research space by over 55 percent.

The results were realized through collaboration with various department liaisons and the adoption of the new web technology enterprise-wide. Training non-technical users was a major requirement, forcing VUMC to develop innovative techniques such as drop in training sessions for one-on-one assistance, and online inventory forms with videos and links to specific email addresses for help.

Myra Agree, space management coordinator from VUMC, will discuss the lifecycle of VUMC's implementation from it's "infancy" as a departmental space inventory database and it's growth into a system used across the institution. Marty Chobot, vice president of marketing for FM:Systems, will discuss strategies for deploying technology with non-technical users in mind.

## **W5B: Interactive Wheelchair Access Maps**

***Charles E. Bowler***

*Manager of Facilities Infrastructure Drawings  
University of Maryland, College Park*

To navigate around a major university in wheelchair can be quite a task. A complex network of sidewalks can be hard to use if you are in a wheelchair, especially if there are steep grades and steps to navigate.

AutoCAD map provides the ability to develop a computerized network on which one can define the shortest path between any two points. The task of defining a network that is free

of conditions prohibiting wheelchair access is the first step in developing a wheelchair access network. Locating limitations to wheelchair passage and building entrance locations was accomplished by field reconnaissance prior to network development.

Within AutoCAD map the path trace function works great on the desktop. One gets instantaneous answers to the shortest path, graphically on their monitor and it can be printed.

Interactive access via the web to this information for navigation, however, is something that would provide a user not at an autocad installation to have a way to define and print a map that they could use to make a trip. This ability to distribute the path trace capability to any site for interactive use was the purpose of the prototype project described in this presentation.

The shortest path technology is not directly distributed from Autocad Map to the Web environment nor a technique that one finds in any manuals. To make a map on the Internet interactive required special programming techniques. In order to test the concept the University of Maryland solicited the help of AVATECH in developing a prototype of an interactive map. The resultant wheelchair access, shortest paths mapping that is in active on the web was very successful. A user could select any of the points on the network and receive a shortest path within seconds.

Our presentation will illustrate how the University set up the network for testing and describe the type of outside-the-box work done by AVATECH in making this interactive web development of the path process. AutoCAD MapGuide provides the environment for this development but it is not a direct function of MapGuide. This technique would be of interest to all universities that would like to provide interactive path trace web access for their students who must use wheelchairs.

## **W5C: Space Inventory Techniques**

### ***Kreon Cyros***

*President & CEO*

*The INSITE Consortium*

Few institutions today are without some form of a space inventory. One might find a less positive reality, however, if they were to ask if all of those space inventories do provide significant decision support for senior management for executing their responsibilities of managing, allocating, and planning for space. Why is that?

This session will identify those data elements that are absolutely necessary to have a basic inventory that can provide significant responses to three basic questions about our facilities:

- What space do we have, and where is it?
- How well are we using the space we have?
- When might we anticipate needing more (or less) space

We will then explore what it takes to maintain those critical data elements in a timely and accurate manner so as to assure our space inventory's ability to support your organization's most strategic space decision-making. Both data collection and maintenance techniques will be discussed as well as the oft-time more critical issue of organizing your office to take on the responsibilities to assure that you are the first to know of space changes – not the last.

*Thursday, August 9, 2007*

**TG1: General Session**

**Implementing GIS: How Do I Know If I Was Successful?**

**Jeannie Rice** (Moderator)  
*Campus Planning & Construction  
Director, Facilities Information Services  
Vanderbilt University*

**John Przybyla**  
Vice President  
Woolpert, Inc.

**Sean Myers**  
*GIS Project Manager  
CDM*

**Rich Grady**  
President  
*Applied Geographics, Inc.*

The open session will cover GIS implementation and maintenance, and will focus on the panelist's answers to questions from the moderator and the audience on topics including resource requirements, expectations, capabilities, and possible causes of failure.

The experience of the panelists will provide many possibilities for anecdotal stories of successes and near failures. The "who, what and where" of those experiences should provide some insight into the world of GIS, where a picture is truly worth a thousand words.

GIS systems mean different things to different people and may not be for everyone. What questions do you have to answer in order to gain management support, to come in under budget and on schedule, and to deliver a successful project?

**T2A: Integrating BIM and GIS: The Road Ahead**

**Paul Cote**  
*Harvard Graduate School of Design  
Architect, Open Geospatial Consortium Testbed for CAD, GIS and BIM*

The emergence of new exchange specifications for building information (IFC and Collada) and city models (CityGML) promises many opportunities for combining the capabilities of GIS and BIM for campus management.

This talk summarizes these emerging trends with two examples: Evolution of a Typical Municipal GIS for Development a Three-Dimensional City Model; and Developing the Open Geospatial Web Services Architecture for CAD, GIS and BIM.

**T2B: Telling your story using APPA's Facilities Performance Indicators**

**Margaret P. Kinnaman**  
*Director, Business Administration and Support Services  
Facilities Management Division  
University of Maryland, Baltimore*



Strategic performance indicators provide essential information that can be used by an organization to achieve organizational excellence and better communicate with decision makers. Nowhere is this more important than in higher education where the largest capital asset is buildings and infrastructure.

Discover what APPA has done to provide strategic tools for its members. Explore APPA's Facilities Performance Indicators WEB based reports and Dashboards. See how these indicators are starting to make a difference in helping all areas of the campus understand our building and infrastructure reality.

Hear how campuses are using these indicators to improve performance, tell their story, create campus partnerships and obtain essential resources.

## **T2C: Mitigation and Rebuilding After a Natural Disaster (Katrina)**

### ***Mike Guidry***

*Associate Vice President*

*Facilities Services*

*Tulane University*

In late August 2005, the worst natural disaster in the history of the U.S. caused unbelievable destruction to New Orleans, its people and institutions, including Tulane University. Saturday, Aug. 27, 2005 was move-in day for Tulane students. In a matter of hours, students and parents went from unpacking boxes in residence halls to hurriedly evacuating the city. By Sunday, every Tulane student was evacuated -- with approximately 400 students bused to Jackson State University along with the "away" Tulane emergency team. Only President Cowen and a handful of essential personnel remained on campus in New Orleans.

This presentation will describe the impact on Tulane and the lessons learned by University administrators in general, and Facilities services in particular:

- 1.) Emergency Plan:
  - What Worked - What Didn't
  - Lessons learned
- 2.) Communication:
- 3.) Loss of Basic Services:
  - Gas
  - Electricity
  - Food
  - Water
- 4.) Expecting the Unexpected
- 5.) Personnel:
  - Their Loses
  - Their Needs
- 6.) FEMA:
  - Understanding their process
  - Mitigation Company on the same page with FE
  - MA
- 7.) Securing Documents Before You Need Them

### **T3A: Lessons Learned While Implementing Document Management**

***Glenn Seehausen***

*President  
ACAD-Plus*

Glenn Seehausen, CEO of ACAD-Plus, Inc. will be sharing information about what works and what does not work when implementing a Document Management system. Specific examples of real-world implementation will be used. Mr. Seehausen will draw from his experience implementing Document Management in the Facilities environment at Universities such as Caltech, MIT, Stanford, Cal State Fullerton, and the University of Southern California.

### **T3B: Accurate Space Inventory is Essential for Effective Campus Master Planning**

***Annie Newman***

*Senior Associate  
SBRA / Shepley Bullfinch Richardson & Abbot*

***Tim Anderson***

*Vice President  
CFI*

When it comes time to update or create a Campus Master Plan having an accurate space inventory is critical to your success. Using a variety of case studies, Anne Newman and Tim Anderson (CFI) will educate attendees on the benefits of utilizing existing defensible information, versus collecting data about space use for the sole purpose of doing a Master Plan.

- Learn the strategies to follow to get your inventory in shape before the master plan begins. Learn how to save money and reduce the amount of time that it takes to create or update a master plan.
- Learn about the critical few elements that every planner needs before they can start a master plan initiative.
- Learn about best practices of who should own the upkeep of the space inventory and tips and tricks to keep it current.
- Learn from other Universities who have made their space inventory the "gold source" of space data on campus.

### **T3C: Design process, space programming, and the use of a Building Information Model (BIM) in the early design phases of the new science building at Fitchburg State College**

***Luciana Burdi PhD***

*Program Manager  
Division of Capital Asset Management and Maintenance  
Commonwealth of Massachusetts*

***Jay Bry***

*Assistant Vice President of Administration  
Fitchburg State College*

***Jon French***

*CBT/Childs Bertman Tseckares, Inc.*

**Richard Green, FAIA**

*Director, Sciences Group  
CBT/Childs Bertman Tseckares, Inc.*

**Sheila Sykes**

*Vice President for Finance and Administration  
Fitchburg State College*

The 43,725 gsf Condike Science Building was constructed in 1963 on the campus of Fitchburg State College. Although the building has served the College well, the MEP systems have reached the end of their useful lives and need to be replaced. In addition, science programs have expanded and the teaching of science has evolved to the point where the existing facility can no longer fulfill the aspirations of the College to assume a leadership position in providing excellence in science and mathematics education.

As a result, a Science Modernization Study has been undertaken to assess the existing Condike Science Building and develop a facilities program comprising 77,845 nsf for biology, chemistry, physics, computer science, geology and geography, mathematics, classrooms, and shared science facilities. In addition, the Study identified eight potential options to accommodate the program and develop a state-of-the-art facility that will serve the needs of the college in the immediate future and provide flexibility to ensure long-term needs are fulfilled as the pedagogies of science and mathematics continue to evolve.

A BIM model, at the beginning, was in a massing form rather than specific building designs as these types of planning diagrams are the proper tools for the evaluation of options at the initial stage of a study project. The massing illustrated departmental areas, specific functional zones of activity, circulation, and major utility locations that will illustrate the advantages and disadvantages of the possible site and building options.

Once we focused on a single scheme, the Model evolved into conceptual building plans with specialty areas such as wet and dry labs, classrooms, offices, etc generally arranged.

All of the documentation was undertaken in 3D and, with databases attached, we were able to track the square footages of specific types of spaces, such as labs, offices MEP areas, net building area versus gross building area, or areas of specialty finishes, etc

The Board of Higher Education, DCAM, Fitchburg State College and the Design Team determined that the best option was to construct a new 80,714 gsf three-story plus mechanical penthouse, addition on the site currently occupied by the little-used Parkinson Gymnasium to accommodate wet lab facilities for chemistry and biology, as well as space for physics, and then renovate Condike, the Link, and the lower level of Sanders for math, computer science, geology/geography, shared classrooms, and shared science facilities.

**T4A: Fine-Grained Semantic Indoor Maps, Situational Awareness, and Applications**

**Seth Teller**

*Computer Science and Artificial Intelligence Laboratory  
Electrical Engineering and Computer Science Department  
Massachusetts Institute of Technology*

We describe a number of research and development projects underway to support effective human and robotic operation within complex indoor spaces. These include: fine-grained representations of indoor spaces, adjacencies among spaces, and space type, contents, and semantic annotations; rapid capture methods for space models and space annotations; sensor network self-configuration and machine vision methods to provide GPS-like services indoors; and various network services and applications that provide, fetch, manipulate and display location-based data in a scalable, timely fashion to support human and robot tasks.

Our long-term goal is to provide small mobile robots, and hand-held or body-worn devices, with the same awareness of their surroundings that humans have, and to enable in situ persistent annotation of the environment at fine grain.

**T4B: Developing a GIS Data Model Standard for Interior Spaces**

**Stuart Rich**  
*GIS Practice Manager*  
*Penobscot Bay Media*

As interior space management challenges become more complex and the requirements for visualization, analysis, and reporting span the campus or even the country, the need to represent our interior spaces in a GIS becomes more urgent. We will discuss the various floor space standards (BOMA, FICM, AIA, IFC, BIM) and the implications of building a GIS data model that optimizes standards support and integration opportunities with real property and work order management systems. A proposed data model template will be presented and we will discuss technology alternatives for floor plan data validation and collection.

**T4C: Now That We Have It, How Do We Keep Track of It? A Model for Managing Construction and Building Records at Harvard University**

**Maureen Jennings**  
*Archivist/Librarian*  
*Property Information Resource Center*  
*Harvard University*

Then: A set of building plans from the early 1900s consisted of sixteen hard-copy drawings. Now: A recent Harvard dormitory construction project closed out with over six hundred drawings in three formats (hard copy for the archives, AutoCAD for the facilities managers, and a quick-reference microfiche aperture card), some 1800 separate items that must be organized accurately or are otherwise as good as lost. With a collection of 90,000 drawings and growing, how does a two-person staff stay on top of the landslide of information?

In 2005, the PIRC undertook a search for a more archives-specific document management system that would accomplish these goals: 1) provide secure, remote access to the drawing catalog [and eventually to electronic files] by authorized users; 2) increase efficiency by cataloging materials in one system, regardless of format, with minimal staff, and 3) ensure consistency of data by operating within an ISO framework compliant with AIA and library/archives standards.

This presentation outlines the process of how we determined our needs and drafted our ideal wish list for a new system; the RFP process; the realities of implementing the new system, and what distance is left to cover. Facilities Management staff struggling with similar issues may find our hits and our misses useful in their own searches.

**T5A: N**

**Michael Flaxman**  
*Professor of Urban Planning and Operations Research*  
*Head, Urban Information Systems Group*  
*Massachusetts Institute of Technology*

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## **T5B: Space Management Systems – Behind the Bells and Whistles**

### **David Barnas**

*Senior Physical Space Administrator  
Facilities Planning & Design  
SUNY Buffalo*

### **Robert Boes**

*Senior Systems Planner  
Campus Planning and Design  
Massachusetts Institute of Technology*

### **William R. Tibbs, Jr.**

*Campus Planner  
Brown University*

Though most of us have been wowed by the features that various software systems promise, what are we really looking for when purchasing and implementing a space management system? After several years of experience with a variety of FM systems and schools, the speakers have come to the conclusion that, to be successful, systems have to be grounded in an institution's business realities. This talk will give three examples that illustrate the importance of this approach to systems management.

#### *A) Understanding executive valuation of enterprise systems*

When senior managers have to make a purchase or ongoing funding decision about an enterprise-wide system, what criteria do they use? This section discusses key factors, which include (among many) a wide vision of system use and utility, a detailed understanding of how the system fits and enhances existing business processes, a pragmatic cost-benefit analysis, and the identification of any targets of opportunity for cost or problem avoidance. This type of strategic business analysis can make it easier to convey the value of technical systems to non-technical managers.

#### *B) Using work process analysis to guide software selection and acquisition*

This section suggests some ways to compare CAFM products and vendors in addition to the usual software feature/benefit checklists. Operating on the hard-won belief that successful implementations stem from process a lot more than product, this section focuses on a clear prioritization of the school's business goals, evaluation of the implementation plan and implementation team, and the implementation responsibilities of both vendor and school staff.

#### *C) Addressing "people" issues associated with space systems*

People are central to what we do, both in terms of providing folks places to work and learn, and in terms of the central roles that data about people play in the space-related computer applications we all manage and use. The problem is that there is often no agreement in key field or organizational definitions for people data across the various systems on campus that reference it (e.g. HR, sponsored programs, accounting, space inventories, and others). This section will discuss the importance of these structural differences, the problems they can pose for space systems, and how those problems can be addressed.

## **T5C: GPS – A primer**

### **Jim Pugh**

*GIS Project Manager  
Evans, Mechwart, Hambleton, & Tilton, Inc.*

Presented in a vendor-neutral format, this seminar will provide information on advantages and drawbacks of survey-grade, mapping-grade and recreational-grade GPS tools and applications around campus. Topics will include a brief history of GPS technology, the system components, pre-mission planning, expected levels of accuracy, common sources of error, and real-time and post-mission methodologies to improve spatial accuracy. Participants will gain a better understanding of GPS and will be better prepared to integrate the technology with existing CAD and GIS data sets used to support ongoing campus facilities management.

*Friday, August 10, 2007*

**FG1: Google SketchUp Modeling and Campus Visualization**  
*(General Session)*

**Chris Dizon**

*Google SketchUp Account manager  
Google*

**Allyson McDuffie**

*Education Program Development Specialist  
Google*

*First section - Chris Dizon:*

Visualize in 3D. Google SketchUp Pro is a tool for creating, visualizing, and communicating existing environments and proposed projects. Attend this session to see a live demo of SketchUp Pro in action and learn how you can design in 3D quickly and easily.

*Second section - Allyson' McDuffie:*

Students all over North America spent the Spring semester modeling their college campuses in SketchUp and geo-referencing them in Google Earth for Google's first ever Build Your Campus in 3D Competition (<http://contest.sketchup.com>). Over 350 teams registered and the winners were chosen by a panel of distinguished professionals. Students are creating some pretty amazing things. Allyson McDuffie, part of Google's SketchUp for Education team, is excited to show you the results of their efforts."

**F2A: Using SketchUp and ArcGIS to Map and Manage Buildings**

**Gary Smith**

*Principal  
Green Mountain GeoGraphics*

This paper outlines the steps and procedures employed to create a 3D GIS presentation of a complex 4-story school building. The work described in the presentation should be viewed as a proof-of-concept that illustrates the potential of GIS to manage and visualize the utilization of a building in a 3D GIS. Structured into GIS data layers, the virtual presentation allows users the ability to peel back ceilings, walls and floors to reveal lower levels of the building. The user has the ability to look out from every window and query windows, doors and rooms for attribute information important to the management of the school. Rooms can be associated with existing databases that identify room functionality, occupancy by class period and other activities associated with the space. Working from floor and ceiling plans and numerous digital photos, both in and outside the building, each component of the building was built in SketchUp Pro and then exported to an ArcGIS multipatch feature class for display and use in ArcScene, one of the 3D Viewing

environments in ArcGIS. Many lessons were learned and the author will share this information with the audience through a live demonstration.

## **F2B: Preservation Issues of Drawings and Other Documents**

**Walter Newman**

*Director of Paper Conservation  
Northeast Document Conservation Center  
100 Brickstone Square  
Andover, MA  
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Facilities managers rely on architectural renderings that may be original drawings or reproductions, with paper, cloth, or plastic supports. Conservation of these documents takes on an added dimension when the documents must not only be preserved but also must withstand use. Older materials present conservation problems that are familiar to professional conservators, while newer formats present newer and sometimes more complex preservation problems. An overview of best practices for preservation will be presented, including guidelines for storage, handling, use, and reproduction of the documents. We will also consider when and whether a conservation professional should be consulted, both for collection preservation and for conservation treatment of individual documents. Images of documents before and after treatment will be presented, in order to demonstrate the capabilities and limitations of conservation. The ethical principles that should govern conservators will be explained, as well as what to expect when working with a professional conservator. The preservation challenges of modern document formats and alternatives to conservation will also be suggested.

## **F2C: Trends In Wide Format Printers and Scanners: The Transition From Flat Files to File servers**

**Peter Sutton**

*Senior Product Line Manager  
Pittman Charrette*

Since the invention of Diazo technology in the 1890s, the way we approach the creation, storage and modification of plans/drawing has changed dramatically. This presentation will cover the changes in modern wide-format technology and how this affects your workflow, in a vendor neutral format. It will also focus on how new wide format technologies can greatly improve efficiencies, while older technologies simply hold you back. Topics to be covered include:

- What does today's technology look like?
- How do I match my output needs to the right printing technology?
- Wide Format Scanning – when does it pay to invest?
- Cost justifying the upgrade path
- 3-D Printing

## **F3A: Assessment and Implementation Planning for GIS Systems**

*Birds of a Feather Session*

## **F3B: Birds of a Feather Sessions**

*Attendee-Organized Open Sessions*

**F3C: Birds of a Feather Sessions**

***Attendee-Organized Open Sessions***