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Facilities Planning for the Electronic Age

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You come in here with minds full of mush... my job is to make you think... Today's topic is "Facilities Planning for the Electronic Age." Before we undertake it we need an historical perspective to understand how facilities planning, if undertaken without appropriate concern for the needs and capabilities of the users of the facility, can have unforeseen, disastrous results.

Eighty four years and two days ago a certain facility, a well planned facility, one that met all of the established standards for its age, and one that employed cutting edge technology, proved, in dynamic fashion, that merely meeting standards, following formulas, and utilizing technology does not guarantee success, or a safe, usable facility. Can you name the facility in question, Mr. Hart? It seems that Mr. Hart could not be with us today. Can anyone name that facility?

Very good, the Titanic. In the case of the Titanic facilities were planned, but without sufficient consideration for the needs and capabilities of the people involved. Established standards were slavishly followed despite their inadequacy in terms of number of lifeboats, crew training, and communication. Now, as then, standards need to be viewed with a jaundiced eye, and exceeded or modified when the standard is insufficient for the needs of the user. Practical common sense should hold sway when planning facilities. Who can tell us, out of the 2,228 passengers and crew the number of lives so tragically lost when Titanic sank? Close. To be precise 1,523 souls were lost. And now, who can name them?

Thank you for indulging me. I've always admired John Houseman's portrayal of Professor Kingsfield in the Paper Chase. I really don’t believe you have minds full of mush. On the contrary I respect your abilities to think, read, and absorb the bewildering array of information already published on the major tasks of planning facilities: working with formulas and standards; the pros and cons of pulling twisted pair, coax, or fiber; reading blueprints, negotiating with architects, what a punch list is, calculating space and planning adjacencies, completing a building program, bidding and negotiations. If that is what you want, this is your opportunity to leave because I am not going to talk about any of those topics. I had difficulty deciding how to talk about facilities planning for the electronic age in a way that would apply to all depositories (academic and public, selective and regional, Supreme Court and yes, even law.) I also considered all of the permutations of facilities planning those depositories might be entertaining - completely new facilities, remodeling existing facilities,

for some installing that first computer or network, or upgrading existing ones. The conclusion I came to was that the common denominator was the needs of the user, so my emphasis will be on planning facilities for people in the electronic age. I will be trying to get you to think about practical, common sense considerations: things that work, things that don't work, things that sometimes get overlooked, but that make a difference and that will help make the facility you plan usable.

By now some of you are wondering to yourselves, "Why is Bob speaking on this topic and why should I stay and listen to him?" My library history includes associations with a variety of libraries which have planned facilities and I have been with them during times when they have implemented various technologies. They range from my undergraduate days working at the Normal Public Library in Normal, Illinois, where my facilities planning experience covered "if we move the typewriter to a shelf, we can use the typewriter stand to hold this cutting edge Apple IIe." That was soon followed by running wiring for our state-of-the-art DataPhase terminals. Along the way, during my time as a cataloger at the Kokomo-Howard-County Public Library in Kokomo, Indiana, we mercifully went from those wonderful, monolithic, blue-gray dedicated OCLC terminals to the first microcomputer-based OCLC terminals, brought up an OPAC and circulation system, and remodeled the library building. While I was at Miami University in Oxford, Ohio, we brought up an Innovative Interfaces system. Presently I am with University Library at IUPUI where in 1993 we moved from an overcrowded facility into our current $32 million dollar high-tech showcase, where we are pushing hard on the edges of the electronic age.

Since I will be using our library to illustrate some of my points, I need to tell you about our environment. [OVERHEAD, exterior view of University Library] University Library at Indiana University-Purdue University at Indianapolis serves an urban campus of 27,000 students pursuing 174 undergraduate and graduate degree programs. From the beginning the library was envisioned to fill the task of, as Will Manley's October 1, 1995 Booklist column, "Clean, Well- Lighted Stacks" puts it "...preparing for a vision of tomorrow and taking care of the details of today..." Taking these opposing goals in reverse order:

The details of today are taken care of by: 5 floors of 256,880 square feet of assignable space, 1 million volume capacity, and every floor is stressed to accommodate compact shelving. One thousand four hundred seventy study spaces are comprised of 641 study carrels, 42 group study rooms, 40 faculty study rooms, 2 classrooms, a 100 seat auditorium and adaptive education accommodations.

For the "vision of tomorrow" that we have implemented today, connectivity, flexibility, and expandability were vital elements: [OVERHEAD, close-up of SIECOR box] every office, every work area, every classroom, every study carrel has a high-end power and data connection, over 1700 in all, and all capable of connecting to the Internet. Each of these connections has two twisted pair copper lines for voice transmission, two twisted pair copper lines for data transmission, two single mode fiber optic lines for high-speed data transmission, and one multi- mode fiber optic cable for delivering full motion, sound, and images. To enhance flexibility for the future, conduit was installed that will permit establishing new connections roughly every 5 feet. Approximately 60 dedicated Express OPAC stations are distributed throughout the building and in the stack areas. There are over 120 Scholar's Workstations in the library. Sixteen are housed in the Electronic

Reference Room that sits across from the reference desk on the second floor of the library, the rest are distributed amongst the upper floors, [OVERHEAD, third floor cluster of Scholar's Workstations] and in the electronic classroom. [OVERHEAD, electronic classroom 0106, side view] Current base level for a Scholar's Workstation [OVERHEAD, close-up of student at Scholar's Workstation] is either an Intel based 486 with 16 meg of ram, or a Macintosh 660AV, both platforms with a 17 inch color monitor. Every Scholar's Workstation is connected to the campus broadband and to the Internet. Each group of four Scholar's Workstations is networked to a laser printer. [OVERHEAD, third floor cluster of Scholar's Workstations] Several Pentium machines have been installed, and as more are added the "old" Scholar's Workstations will migrate to OPAC status. The Scholar's Workstation concept allows students, faculty, and the public to identify and access information regardless of location or format (text, image, sound, or full-motion video), retrieve the information, and produce a finished product from a single workstation. Connections to the Internet, scripted gateways to other library catalogs, and locally mounted indexes and full-text products provide access to information. The workstations make available a variety of word processors, spreadsheet programs, database programs and presentation software to assist users in producing the end product. [OVERHEAD, close up of laptop] Laptops can be checked out for use in the library and connection to any of the activated jacks in the building.

This electronic age we are supposed to be planning facilities for, this transition plan we rush to prepare for, consists of wave upon wave of new technologies; hardware and software that arise and are rapidly replaced, formats and standards that are adopted and made obsolete, new methods of communicating and modes of interacting that roll through segments of our society and are embraced by some, rejected by others, unaffordable to many. One constant element in all of this sea change, at times lost in the bustle to partake of the electronic age, is the people the electronic age should benefit. Several of you have in your possession a note card. Will those with note cards please stand? Pay close attention to these people. They represent a cross section of your users, and I will introduce you to them from time to time.

Everyone except those with "S" cards please sit. Those who are comfortably seated, please raise your dominant hand. Now, carefully take your dominant hand and place it firmly under your cheek. Because we all know that any instruction can and will be misunderstood (how many times have you instructed patrons to "press F1" only to have them press the "F" key and the number "one" key sequentially?) I will rephrase as unambiguously as I can. SIT on it. Now, please continue taking notes. "S" card holders, my southpaw sistren and brethren, please be seated while I educate the masses on how facilities planning affects us. When you place equipment, leave ample room on both sides of the keyboard to accommodate the mouse, and any textual material that needs to be used for reference or writing. [OVERHEAD, workstation in Electronic Reference Room] As you can see in this shot with the computer in the corner there is no maneuvering space on the left side of the unit. [OVERHEAD, close-up of student at Scholar's Workstation] This setup works much better. Do not route the cabling so that it is impossible to move the mouse to the other side of the unit. Once I sat in a meeting where it was seriously suggested that to prevent theft, the mouse pads be glued to the table. To the right-hand side of the unit, of course. On the IBM in my office I move the mouse to the left of the keyboard and I go into Control Panel and switch the mouse buttons. That setup works best for me. It drives the Client Support Team

nuts when they have to visit to fix a problem, but I've made enough accommodations for their world. My office, my rules. Some of your patrons may take similar attitudes with public use stations. Sometimes the answer to "Why isn't the computer responding, I clicked the mouse button?" is that the buttons have been flipped by the last patron.

Those of you with "V" cards should also have a length of black crepe paper. Please get one of your neighbors to blindfold you. You represent the visually-impaired. I am also including in this group eyeglass wearers, especially bifocal wearers. Glare from monitors and overhead lights, and furniture that isn't deep enough to keep huge monitors out of your face have glasses wearers adopting all sorts of weird poses trying to see the screen clearly. Low-vision and legally blind patrons need you to put electronic age technology to work for them: technology that magnifies the screen, Braille keyboards, speech-recognition software and text-reading devices. Make it available to them.

Elegy for an unknown feline or, power

Most people would agree that power is a necessary ingredient for a facility in the electronic age, and would plan for sources of clean, conditioned power to be routed to appropriate areas of the facility. Going further, plans should be made for uninterruptible power sources or backup generators. Regardless, rest assured that according to Murphy, and despite all planning, power failures do occur in ways unforeseen. We do not know how the stray cat maneuvered its way undetected into the power room, we merely know that its curiosity for knowledge about the electrical requirements of a modern library proved the old adage "curiosity killed the cat." Curiosity also killed power in half of the building, and of course it was the half of the building that reference inhabits. What do you do in the electronic library of the future when the power goes out? If you have anticipated the unlikely occurrence you might a) have the L.C. Subject Heading books close at hand, b) have multiple copies of the L.C. Classification Outline handy (or in user-speak, "you know, those thin blue pamphlets"), c) call the catalogers up to the service points, and d) have Andriot and the Subject Bibliographies close by. This unfortunate tale points out the need for plans to take care of patron needs when the power goes out. You won't be able to tell them if the document has been checked out, but you will be able to direct them to appropriate material.

Will all "H" card holders please stand and adopt the traditional "hear no evil" pose? For the hearing impaired patron, how many of your facilities will have an interpreter on staff or someone who knows the manual alphabet? How patient and persistent are your front line staff in assisting the hearing impaired, someone whose speech is difficult to understand because of an accent, or who "just - does - not - speak - with - the - enunciation - and - grammar" to which you are accustomed? "H" card holders please be seated.

Prophylactic measures or, practicing safe computing

There are some scary viruses out there in the electronic age. You are providing patrons the ability to electronically go traipsing all over the world. You don't know who they've been FTP'ing with or where their disks have been. What is a concerned facility to do? Institute virus scanners on all workstations. If your computers are on a network, periodically rebuild the machines. For our safety and that of our patrons we rebuild machines several times a day by inserting a special rebuild disk. The rebuild disk completely reformats the computer

hard drive, then pulls all necessary files off of the network server. Depending on network load the rebuild process takes 12 to 18 minutes. As an added benefit to the rebuild process we no longer restrict patrons from downloading to the hard drive because at least once a day the drives are cleaned off. With these measures you can help protect yourselves and your patrons.

"M" card holders, in the words of Steppenwolf, "get your motor runnin'." Please come down front, I have special seats reserved for you. To get here please use the aisle furthest from you. We understand that as representatives of the mobility impaired it sometimes takes you longer to reach your destination, or that you sometimes require assistance to reach items on shelves. Or retrieve printouts from printers placed up on tabletops. We will be patient. Oh, we have a problem. There are more of you than there are accessible stations. I'm sorry, we did have more but someone without an impairment is using the space. Excuse me, but you will need to relinquish this/these station/s. Our policy and signage clearly states that special needs patrons have priority using this/these station/s.

Site visits or, it's amazing what you can see if you just look

In a non-traditional sense, site visits are where you find them. Anywhere you happen to be and where technology is can be a site visit. For example, while at a conference you have to make an emergency trip to the dentist. In between grimaces of pain notice the computer setup in the dentist's office. Does the furniture accommodate the hardware adequately? Is that the type of monitor you are thinking about purchasing? Didn't that laser printer make short work of printing out such an extensive bill? The point is to be aware of the technology around you in everyday situations and make use of the information. When planning a facility, visit as many library sites as you can, and choose sites with varying degrees of technology implementation, and a variety of systems. There is a lot to learn from approaches taken by institutions that are different from yours as well as those that are similar.

Another place for diversity in site visits is in the composition of the site visit team. In the three years since our new building opened we have literally had hundreds of site visits, official and unofficial. Most of the groups I have seen visiting the library or have taken on tours have been fairly homogenous: the senior managers will come, reference librarians will come, an occasional collation of catalogers will visit. Rarely will a cross-section of these groups come together. You have to wonder, don't they like each other? Also, where are the support staff? Where are the users? Be inclusive. Insight lives everywhere.

Some of you received cards with a "C" surrounded by the international "not" sign. Please stand. The symbol doesn't stand for "no copyright infringement allowed." Instead it symbolizes users who have little or no computer experience. They might be a returning adult student, Theresa Q. Public, or just someone unfortunate enough not to have the means to afford what many of us are taking for granted as common appliances. These users too have special needs deserving consideration in your planning process. Someone at the "What is a mouse and how do I use it?" level will be completely lost when you cheerily inform them that all they have to do is do a Web search, FTP the file, (the one in spreadsheet format, not the text file) import it into Lotus 1- 2-3, and maybe send a copy to

the network printer. Yes, over time there will be fewer users at this level, but we aren't there yet. "C" card holders, be seated.

While planning for the technology, plan for the training

The multiplicity of interfaces and constant rounds of the upgrades and enhancements game argue strongly for constant, continual training of staff and patrons in the electronic age. In your planning process consider where and when the training will take place. Will there be a separate training room, or will the installed base of equipment have to be taken over for any training session? Is specialized equipment needed for training? Who will conduct training sessions? How will training on the electronic resources impact training for the print resources? How will you handle patrons with varying skill levels? The training needs and approaches are vastly different for a returning adult student and an engineering graduate student.

You have been lied to for years. Size does matter, and I will show you why. [OVERHEAD, electronic classroom 0106, side view] This side view of our electronic classroom shows the 17 inch monitors, which is not an uncommon size for monitors these days. If you look closely you will see the CPUs are positioned vertically on the floor. Even with this accommodation it is difficult for patrons to see the instructor, the front of the classroom, or the projection screen over the top of the monitor. [OVERHEAD, electronic classroom 0106, front view, patron peeking over top of monitor] It is also difficult for the instructor to see the class. I shot this from the instructors station at the front of the classroom. On a good day I'm pushing 5'10" tall. The person seated at the computer is 5'9" and as you see, her eyes barely clear the top of the monitor. Aisle width in a classroom or cluster is another concern where going with the accepted standard may not be enough. [OVERHEAD, electronic classroom 0106, side view] That chair is positioned at the distance of a seated person. Imagine all of the stations filled. How would you get in to help with a problem? Does your mental image get more claustrophobic when you add in winter coats, backpacks, purses, etc.? Another size issue involves cord length. For your installation does the standard cord or cable length permit the pieces to move freely without unplugging the equipment? If not, get longer cables. I've been approached at the reference desk by patrons who swear the equipment is broken, when all that has happened is that monitor cable unplugged itself when they swiveled it to get a better viewing angle.

As I mentioned earlier our electronic reference room is just a few feet on the other side of our reference desk. The glass wall facing the desk is thirty feet long, with a door in the middle. Our reference desk just happens to have a thirty foot long front with no opening in the front of the desk. I'm sure the architectural profession appreciates the balance and symmetry this arrangement represents. Architects don't work in libraries. Patrons frequently have problems requiring assistance in the electronic reference room - problems with the software or interpreting screens, paper jams, the printer is out of paper, or which one of the laser printers did my printout get routed to? So we stand, proceed fifteen feet to the end of the desk, fifteen feet backwards to clear the side extension, turn the corner (two feet), fifteen feet forward this time, turn, fifteen feet forward to the doorway, "Now, how may I help you?" Reverse. Repeat. Many times a day. You do the math, then tell me size isn't important. That is a lot of territory to cover in providing assistance. The solution is to place an opening in the front of the desk. Because of the construction of the desk and the power

and cabling considerations the latest estimate I have heard on the cost of this surgery was $7,500. .Will everyone who received a card please stand one more time. Thank you for assisting me today. Ladies and gentlemen, look once again at this cross-section of your users. When you have the temerity to plan high-tech facilities for the electronic age, by all means maximize the technology available, innovate, and try new combinations. But in your planning you had best remember these people and their needs in the electronic age. If you do, your facilities planning for people in the electronic age won't be a Titanic disaster.