SOCIETY OF BUILDING SCIENCE EDUCATORS
SBSE NEWS
SUMMER 1995

Attendees of the transcendent 1992 Technology Conference approach Salk Institute.

SBSE SUMMER WORKSHOP AT BERKELEY

Forty-seven participants, including many first-time SBSEers, have been selected for this year's SBSE Summer Workshop. The August 2–5 session will feature Vital Signs Resource Packages on *Whole Building Energy Use Simulation and Prediction for Retrofits* (Larry Dengelman, Texas A&M), *HVAC Systems and Components* (Walter Grondzik, Florida A&M), *Dynamics of Solar Shading Devices* (Scott Johnson, Miami University), *Health in the Built Environment* (Tang Lee, University of Calgary), *Measuring and Displaying Building Thermal Performance* (Murray Milne, UCLA), *Interior Illuminance and Daylight Control* (Marc Schiler, USC), and *Glazing Performance* (Mike Utzinger, University of Wisconsin–Milwaukee). Attendees and presenters will enjoy the facilities of the Clark Kerr Campus of the University of California *[unless you're blind or deaf—ed.]* and the PG&E Energy Center in San Francisco, atypically urban sites for SBSE activities. In the tradition of SBSE, everyone will contribute to the training effort—participants are required to bring a one-page description of a candidate building from their region for a Vital Signs work-up. ▮

—Gail Brager

SBSE ANNUAL MEETING

The 1995 annual meeting will be held at the ASES Conference in Minneapolis on Sunday, July 16, 5 p.m., in the Crystal Room of the conference hotel. The meeting will include discussions about our summer '96 retreat (our foray in the international arena), peer review, continuing education opportunities, *[the extinction of—ed.]* the ACSA Technology Conference, and nomination of officers. Other related ASES events are an SBSE-sponsored Vital Signs workshop before the meeting and an informal SBSE dinner after the meeting.

CALL FOR NOMINATIONS—If you want to nominate yourself or anyone else for either president-elect or secretary/treasurer, and you cannot attend the annual meeting, place your nomination with John Reynolds. ▮

—John Reynolds

SBSE 1996 INTERNATIONAL

Planning for SBSE's first international meeting next summer is well underway. Our 1996 annual summer workshop will be held in Istanbul, Turkey, and Nicosia, Cyprus. If possible, the timing will enable participants to attend the preceding United Nations HABITAT 2 Conference (3–14 June 1996 in Istanbul) as well. *[The SBSE dates will also coordinate with the XIX Congress of the International Union of Architects to be held the first week of July 1996. This year's theme is* Present and Future: Architecture in Cities.*—ed.]* The workshop will last approximately two weeks with 5–6 days in Istanbul, and the rest in Cyprus. Universities in both countries expressed interest in sponsoring the SBSEers. We, in turn, may want to offer seminars and workshops to university faculty, students, and local practitioners. Details are still forthcoming; there will be presentations of the latest planning news at the 1996 Solar Conference and at the SBSE Workshop in Berkeley. Get your passports ready! ▮

—Fatih Rifki

LETTER TO THE EDITOR

another nice job!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

—G.Z. Brown

[There's no imitating the real G.Z. Brown. Count those exclamation marks!—ed.]

TREASURER'S REPORT

SBSE is in sound financial condition. Since February 1994, our accounts have grown from $10,000 to $12,509. A detailed report will be made at the annual meeting. Dues notices will be mailed separately this summer.

—Leonard Bachman

SBSE NEWS INFORMATION

SBSE News is published quarterly by the Society of Building Science Educators, a not-for-profit corporation. Material for publication should be submitted to Bruce Haglund, Editor, Department of Architecture, University of Idaho, Moscow, ID 83844–2451, phone 208–885–6781, fax 208–885–9428, e-mail <bhaglund@osprey.csrv.uidaho.edu> before the first of March, June, September, or December. Membership and mailing list inquiries should be directed to Leonard Bachman, Secretary/Treasurer, University of Houston, College of Architecture, 4800 Calhoun, Houston, TX 77204, phone 713–743–2372.

PERSONAL OBSERVATIONS—ACSA CONFERENCE

[In the "Message from the President" (May 1995, ACSA News*), Diane Ghirardo proclaimed, "Among other accomplishments this year are [sic] the* ***successful*** *reintegration of the Technology Conference in the Annual Meeting" [ed.'s emphasis, not hers]. Indeed, this year's technology section consisted of six sessions of four papers each, five by SBSE members. Our roving reporter, Lance Lavine, forwarded his review of the goings-on. In the same issue of* ACSA News *that ballyhooed the '****successful*** *reintegration,' the agenda for next year's Annual Meeting was announced—with* ONLY ONE *[ed.'s emphasis again] technology-related section (Construction Technology) scheduled, one of "Special focus sessions, possibly extended by an extra day, dedicated to technology, to recognize the importance of technology in our curricula, and to support the incorporation of the former Technology Conference into the ACSA Annual Meeting." SBSE, do you feel slighted? Our president-in-waiting, Mary Guzowski, contacted Kenneth Schwartz, co-chair of the 1996 Boston Annual Meeting. His response to our concerns appears on page 3 in the form of a call for papers.—ed.]*

I have wondered, as have many of you, why it was so imperative to merge the Technology Conference with the Annual ACSA meeting. And that question remains unanswered even after the "reintegration" last March in Seattle. From my point-of-view the merger accomplished little more than the diminution of the quality of discussion engendered by the kinds of questions that technology poses for architectural thought and practice.

There was a strange dichotomy in the sessions I attended. I saw three SBSE papers—David Smith talked about the role of ecology in architectural education; Mary Guzowski spoke on the problems encountered by the Boyne River Ecology Center near Toronto, Ontario; and Charlie Brown discussed how an architect's predicted plan preferences could guide designers to more energy-conscious solutions. Each of these papers grew from thoughtful research that directly examined what we do as teachers and professionals; grounded its arguments in real problems faced by contemporary architects; and proposed ways to understand and confront these problems. In other words, while it was not necessary to agree with the contentions put forth, each grew from issues germane to architectural thought and practice.

Other presentations I attended had titles like Martin Heidegger in a Post-Structuralist World. *[Actual title, Towards a Heideggerian Way of Building: An Examination of Two Works by E. Fay Jones.—ed.]* While I admire the thought of Martin Heidegger and am interested in changes in literary criticism, I fail to understand why either of these is relevant to our understanding of architecture. As I listened to these papers I "saw" their authors grasping for interesting, intellectual perspectives borrowed from other fields of thought and applied to unwilling and unresponsive architectural victims. This criticism is not against the role of theory in technology or architecture. The SBSE papers I heard affirmed architecture as a rich source of theoretical inquiry. The other papers, however, seemed to contend that it was necessary to import other fields' critical perspectives in order to understand architecture more clearly.

The debate on technology's role in architecture was far more focused at the old Technology Conferences. I miss the confrontations of people like John Whitman and Ed Allen. Whitman was the quintessential English scholar always on the lookout for the obscure and profound. Allen was the prototypical American pragmatist seeking to know the myriad ways that design can be measured. Sessions were followed by dinners replete with passionate discourse among people who cared deeply about their work. The SBSE papers at the ACSA Annual Meeting reminded me that the study of architectural technology encompasses an infinite source of good ideas, interesting questions, and diverse viewpoints. It was difficult for me to sense this same fervor in the more pedantic accounts of architecture as the by-product of literary criticism or philosophy of aesthetics.

Perhaps the old Technology Conference was too successful *[Is that possible?]*, too interesting *[Couldn't stand the competition, eh?]*, or too costly *[The likely, more mundane reason for the cutback!—ed.]* to survive the ACSA bureaucracy. Whatever the reason for its demise, I miss it. Its loss is significant to architectural thought pertinent to technology, practice, and education.

—Lance Lavine

CALL FOR PAPERS

Projecting the Modern, ACSA Annual Meeting, Boston, Massachusetts, March 11–14, 1996.

The 1996 ACSA Annual Meeting will include a "conference within a conference" focusing on building technology. The technology "conference" will begin the afternoon before the Annual Meeting, affording a full day*[Wow, one whole day?—ed.]* for paper presentations, plenary sessions, and a keynote speaker. This focus on technology recognizes the importance of the building sciences in our curricula.

The Annual Meeting, including the technology component, will provide a forum for sharing approaches to re-position architecture and architectural education relative to the rapidly shifting conditions of cultural modernity *[?!?—ed.]*. As this century draws to a close, social and economic upheaval escalate, and technological advances continue. The essential and integral relationship of construction, design, technology, and culture will be explored through paper sessions and panel discussions. Papers are invited that contribute to our understanding of the role of technological innovation and the place that design will take in technological research, production, and practice.

Please submit five "blind" copies of:

1. a 200-word (max.) abstract, clearly stating the paper's pedagogical objectives, research methodology, and significant conclusions
2. the paper text (4,000 words), double-spaced in an 8½" x 11" format. Graphics should be reproducible and no larger than 8½" x 11".

Only the paper title should appear at the top of the abstract and text; no other identification (name, school, affiliation, address) may appear on any page. Each submission must be accompanied by a cover sheet with paper title, author's name(s), affiliation, address, telephone and fax numbers, and author's signature (which serves as an agreement to submit a final copy in ACSA format for the proceedings by January 15, 1996), as well as designation of the category or session for which the paper is being submitted (e.g., Technology Session). Papers must arrive at ACSA by Friday, September 29, 1995. Send them to: 1735 New York AV, NW; Washington, DC 20006. Direct administrative questions to ACSA at 202–785–2324.

Additional information on the Annual Meeting may be found in the May *ACSA News,* in the four-page Call for Papers. Direct your questions about the technology sessions to topic co-chairs, Edward Ford or Timothy Stenson, University of Virginia School of Architecture, phone 804–924–3175, fax 804–982–2678. ▌

—Kenneth A. Schwartz, Co-Chair, 1996 ACSA Annual Meeting

AVAILABLE

SPREADSHEETS FOR ARCHITECTS: POCKETKNIFE SOFTWARE

by Leonard Bachman and David Thaddeus, Van Nostrand Reinhold (123 pp. w/ diskette, about $50), is fresh off the press. The book features an on-disk collection of Lotus 1-2-3 (ver. 2.3 & 2.4 for DOS) menu-driven templates illustrating structural, lighting, acoustical, thermal, and utility applications. A free upgrade to Lotus 1-2-3 ver. 5.0 for Windows is offered to book purchasers. Included in the book are: (1) a user's manual for the templates, (2) a how-to on adapting the automenu skeleton template, and (3) instructions for writing stand-alone spreadsheets. Sections of the book are devoted to number-crunching, database, word processing, graphics, and desktop features of Lotus 1-2-3, as well as spreadsheets in general. The book project began after conversations with VNR's Wendy Lochner at the 1993 SBSE Timberline Workshop. A year later PKS software debuted at the 1994 SBSE Green Gulch Retreat. Leonard and David express their appreciation to all, especially Ed Allen, Murray Milne, Bruce Haglund, and Peter Pfeiffer—readers and reviewers extraordinaire.

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AVAILABLE [CONTINUED]

BUILDING RESEARCH DATABASE

is accessible via modem connection to Energy Design Online, 212–662–0388. Prepared for DOE by Oak Ridge National Laboratory, the database contains full citations and abstracts for 1,962 research projects on every aspect of building construction, including insulation materials and systems, fenestration, mechanical systems, and indoor air quality control. Contact Ned Nisson, *Energy Design Update* editor and founder of Energy Design Online, for further information, 212–662–7428.

GLAZING PRODUCTS DIRECTORY

The National Fenestration Rating Council has distributed its fourth edition to all ACSA schools. The directory contains descriptive and energy performance information for 16,000+ products from over 100 manufacturers nationwide. See your department chair, or call the NFRC at 301–589–NFRC.

GREEN BUILDINGS DEMYSTIFIED

the 2nd International Green Building Conference and Exposition, will be held August 13–15, 1995, at Big Sky Resort, Big Sky, Montana. Contact the U.S. Green Building Council office at 301–657–3469 for more information.

GEOTHERMAL TELECONFERENCES

Two-hour teleconferences on geothermal heat pumps in commercial buildings and for residential customers will be presented September 14 and November 16, respectively. For more information, contact Debra Brown; Policy Research Associates, Inc.; 11260 Roger Bacon DR Suite 206; Reston, VA 22090, fax 703–742–8671.

LIGHTING FUTURES LAUNCHED

Looking for a newsletter that reports advances in the lighting industry, especially in technologies and techniques? Sponsored by the U.S. Environmental Protection Agency, *Lighting Futures* is published six times a year and, for a limited time, is available free of charge. For a subscription, contact Publications, Lighting Research Center, Rensselaer Polytechnic Institute, Troy NY 12180–3590, phone 518–276–8716, fax 518–276–2999, e-mail <lrc@rpi.edu>, WWW <http://www.rpi.edu/dept/lrc/LRC.html>. ▌

BOOKS TO REVIEW

Newsletter editor seeks book reviews.

▌*Northern Cityscape: Linking Design to Climate,* by Norman Pressman, 264 pp., paperback, $38, Winter Cities Association, c/o City of Yellowknife, PO Box 580, Yellowknife, NT, Canada X1A 2N4.

▌*A Primer on Sustainable Building*. For a copy of the Lovins' latest contact the Rocky Mountain Institute, 1739 Snowmass Creek RD; Snowmass, CO 81654-9199; phone 970-927-3851; fax 970-927-3420; e-mail <orders@rmi.org>. ▌

BOOK REVIEW

Eco-Interiors: A Guide to Environmentally Conscious Interior Design, by Grazyna Pilatowicz, John Wiley & Sons, 170 pp., paperback, $24.95. *Eco-Interiors,* even though well-conceived, just doesn't come through. The idea is great—a guide for interior designers explaining environmental issues, and the steps they can take to address those issues. The format also makes sense—opening chapters provide background on global and indoor environmental issues, a main body provides design guidelines and solutions, and several case studies followed by extensive information listings to wrap things up. Unfortunately, the execution leaves much to be desired.

Its faults are numerous—many topics are addressed superficially, inaccurate or incomplete technical information is presented, charts bear no relation to the text they are illustrating, and recommendations and resources are too dated to be relevant. Pilatowicz clearly has the best of intentions, and her arguments for addressing global environmental issues integrally with the indoor environment are laudable. Her book, however, is little more than a schematic primer on the subject, and an incomplete one at that. ▌

—Environmental Building News

AWARD-WINNING COURSE—ENVIRONMENT

Mark DeKay's environmental technology course has deep roots in the Reynolds/Cartwright/Brown vision of universal enlightenment through ECS. Credit is also due the various, recently rediscovered archival (some say scriptural!) texts from previous SBSE retreats, including those of the apostle Lance.

ABSTRACT

Buildings constructed today will outlive their energy sources. They are responsible for over a third of U.S. energy use and an equal share of global warming. This course introduces an ecological approach to architecture and covers the schematic design of buildings for heating, cooling, lighting, and water. The intention is for students to learn to design responsible and beautiful places that sail elegantly into the 21st century on available renewable energy.

Lectures and projects are organized to parallel the design process, with emphasis on the architectural implications of technological systems. Where possible, students' design studio projects are used as the vehicle for class assignments. Climate and region are approached as a context for design. Principles of thermal comfort, regional design strategies, bioclimatic design theory, and ecological design processes are covered. Systems for heating, cooling, lighting, and water are addressed holistically and concurrently, rather than topically and discretely.

Multiple "logics" are used—myths and meanings, systems and relationships, parts and performance. Architectural strategies are explored at a range of scales—element, building, and site. Lectures and exercises stress tools and methods as (1) generative, (2) analytic, and (3) evaluative. Assignments include bioclimatic site analysis, schematic design strategies, and schematic-level design and analyses using computers.

EDUCATIONAL GOALS

Reducing Environmental Impacts—The design of buildings and cities is a contributing cause of every major environmental problem today. Buildings consume vast quantities of finite, nonrenewable resources; produce half the world's CO_2 emissions; contribute to global warming; and represent half of the world's CFC consumption. Architectural design decisions are responsible for: (1) environmental external factors, such as the off-site effects of energy and materials production and consumption; (2) on-site effects, such as destruction of local ecosystems, habitat, and pollution of air, water, and soil; and (3) indoor pollution caused by toxic building materials, poor construction practices, and poorly designed ventilation. Students learn the consequences of their design decisions and how to reduce their impact.

Process-Integrated Technology—Students learn about technological questions in terms of their design context. Systems are integrated with the design process; appropriately detailed methods are applied at each stage. For instance, rule-of-thumb methods and graphic analyses are used for preliminary design; more detailed analytical calculation procedures are introduced as more design detail emerges. In this way, analysis can integrate with the generative and iterative processes of architectural design. The interrelationships among different technical systems and among technical systems and other design concerns are stressed, particularly the aesthetic, formal, and experiential opportunities in environmental control strategies.

Holistic Systems Thinking—Educationally, technology is usually approached scientifically and analytically, rather than through aesthetics or systems integration. Students learn to see technology as a part of several larger wholes. Students are more receptive to learning about technological issues if they are presented holistically, including their aesthetic, social, and formal implications. Typically, architects don't begin a design by thinking analytically about particular issues, such as saving energy. Instead, the early stage of design is a process of synthesis in which diagrammatic images are used to generate and represent several ideas simultaneously.

Formal Implications of Technology—Technology is most often thought of as a subject of practicality, considered only after the more glamourous activity of design. Rather than having students learn about technology as a means to more lofty ends, they learn about the formal

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AND BUILDINGS I

implications of technological systems and the possibility for the convergence, overlap, and tension between technical agendas and other architectural intentions. The course asks designers to create a building as light fixture, heat exchanger, energy storage system, catchment system, and ideally, ecosystem. The limits of meeting requirements for renewable energy within a building's lifespan require the architecture to do most of the work, while offering opportunities for delight and affection.

TEACHING STRATEGIES

The Ecological Paradigm—An ecological paradigm is inclusive, embracing simultaneously many points-of-view. It also extends context to the structure and function of the natural environment, guided by the realism of natural limits. Since natural systems are inherently the most sustainable systems, they can be used as analogs for human design, both factually and conceptually. The characteristics of mature natural systems are powerful models and metaphors for buildings and cities, yet they are not deterministic. Such generative analogs include: energy independence, finite but permeable boundaries, complexity, interrelatedness, materials cycling, similarity through varying levels of organization, organic growth, and sophisticated information management.

Thematic and Temporal Organization—Contrary to lecture-course tradition, the concepts are approached concurrently, rather than topically. For instance, building organization patterns are introduced for heating, cooling, and lighting at the same time. Scale and phase of design process are used to organize the material. Precision and sophistication of design tools for energy and environmental concerns are matched to the phases of the design process (e.g., quick, rough tools for schematic design).

Focus on Design Strategies and Tools—The overriding theme of lectures is the relationship among environmental forces, energy, and form. A generative language of typological strategies at a range of scales is presented. Precedents and examples are used generously, from both vernacular and contemporary, U.S. or foreign sources. Techniques for design are taught, focusing on rule-of-thumb schematic tools that allow rapid exploration. Tools are used generatively to help form concepts, analytically to understand the problem and its context, and evaluatively to assess performance.

Learning about Energy While Learning to Design—To retain a deep understanding of energy and environmental issues, designers must learn about them while in the process of learning to design. The course presents design strategies and methods accessible to students and easily applicable in the design process. Lecture material is design-oriented. Students use their studio projects as the vehicle for all course assignments, taking the course out of the lecture hall. ▮

—Mark DeKay

GEHRY VIDEO [CONTINUED FROM PAGE 6]

structural steel framing, caissons). Some detail section drawings have been matched to their slide counterparts.

The bid working drawings were used to generate additional building representations. An undergraduate student received a McNair Scholars Award to construct a ½" scale model. This model, over two feet square by four-and-a-half feet high, was built on its own wheeled base. A graduate student input half the building on *Architrion II* and *UpFront*. Both projects took nearly six months to complete.

While the video provides a diary of major site events, it was difficult to maintain a complete record of the building process. Slides of significant building methods will be keyed with corresponding videotaped sequences. Computer scans of Gehry's detail drawings of the same fabrications or assemblies will eventually be compiled on an interactive CD-ROM. This last portion is unfunded.

Anybody want to help with support sources? Have tape will travel. ▮

—J. Stephen Weeks

SBSE PEOPLE

❤ Wedding bells tolled this June for **Virginia Cartwright** and James Tice in Eugene, Oregon. The happy couple is barnstorming in quest of the perfect wedding reception. Contending sites are Eugene, Saratoga, CA, and Dobbs Ferry, NY.

Mark DeKay was recognized with a 1995 AIA Education Honors Award for his course, *Environment and Buildings I* (see related article). The jury included Jerry Bancroft, Montana State; Dennis Domer, University of Kansas; Daniel Friedman, University of Cincinnati; Marvin Melecha, NCSU; Susan Piedmont–Palladino, VPI; and Harry Robinson, Howard University. Mark will present his course concept at the ACSA/AIA Teachers' Seminar at Cranbrook this summer (June 24–27). (The trip to Cranbrook **is** the award.)

He's pulled the wool over their eyes again. **Bruce Haglund** has been promoted to full professor.

☆ The Japan Technology Management Center sponsored a project by **Jong-Jin Kim** to assess intelligent building technologies in Japan. He investigated the electronic control of environmental (daylighting, electric lighting, and HVAC) systems of high-rise office buildings. The literature, publications, product information, and photographs obtained in Japan (Tokyo, Osaka, and Kyoto) will be incorporated in teaching materials for a course entitled, *Building Technology of the Future*.

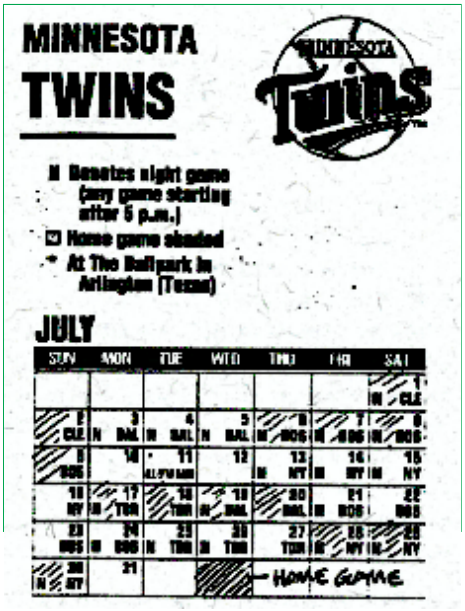
Margot MacDonald, in conjunction with the Renewable Energy Institute at Cal Poly SLO, has been awarded a $5,000 faculty development grant for a project entitled, *Integrated Campus Infrastructure*. ▮

SERVICES OFFERED

Desktop publisher seeks work more interesting than business reference tools. Expertise in editing architecture-speak. If you thought *InsideOut* was finally in English and more clear or if you like this newsletter and you have a publishing project that needs some help, let Tisha know. You can e-mail her either through Bruce or directly <cbdr@IDUI1.csrv.uidaho.edu> or <egashira@osprey.csrv.uidaho.edu>.

[Tisha, better known as ed.'s ed., can supply you with all the red marks you can stand. Somehow, English happens—ed.] ▮

SBSE SAVED FROM SCAB-BALL



GEHRY MUSEUM VIDEO IN PROCESS

Building an Idea: A Time-Lapse Video of the University of Minnesota Art Museum

In March 1991, with some inspiration from then-colleague Susan Ubbelohde, Stephen J. Weeks initiated a small research project ($15,000), a time-lapse video documentation of the construction of the University of Minnesota Museum of Art, designed by architect Frank Gehry with Meyer Scherer and Rockcastle, Ltd.. This video, when incorporated with slides and representational drawings, study models, and technical documents, provides a unique insight of construction processes in a cold climate. The video system included a color camera with wide-angle lens, a heated weather-tight housing, mounting bracket, cables, time-lapse VCR (these are commonly installed in banks, post offices, and grocery stores to catch miscreants), 20 SVHS tapes, and a secure indoor box. Museum construction began in January 1992 and ended in October 1993.

This innovative combination of traditional production images—drawings, plans, sections, elevations, details from the project manual—with real- or accelerated-time footage of construction practices offers another way to study the transformation from idea to building form. Construction sequences described by the time-lapse video are overlapped or combined with slide documentation to examine the relationship between the conceptual and the built images and to advance our knowledge of construction trends and techniques. Computer animations simulate particular practices. And finally, technical documents incorporated with computer animations and footage of real events deepen our understanding of how design affects the process of construction.

The tapes (13 of them, each at least 4 hours in length, containing roughly 55 days of work) have been edited to a one-hour version and a half-hour version. There has been only one public showing, at the opening of the Museum, and a copy of the tape was sent to the benefactor, Frederick Weisman. Over 1,200 slides are being ordered sequentially to parallel certain common construction techniques (e.g., masonry wall, stainless steel membrane installation, Verendel truss and

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