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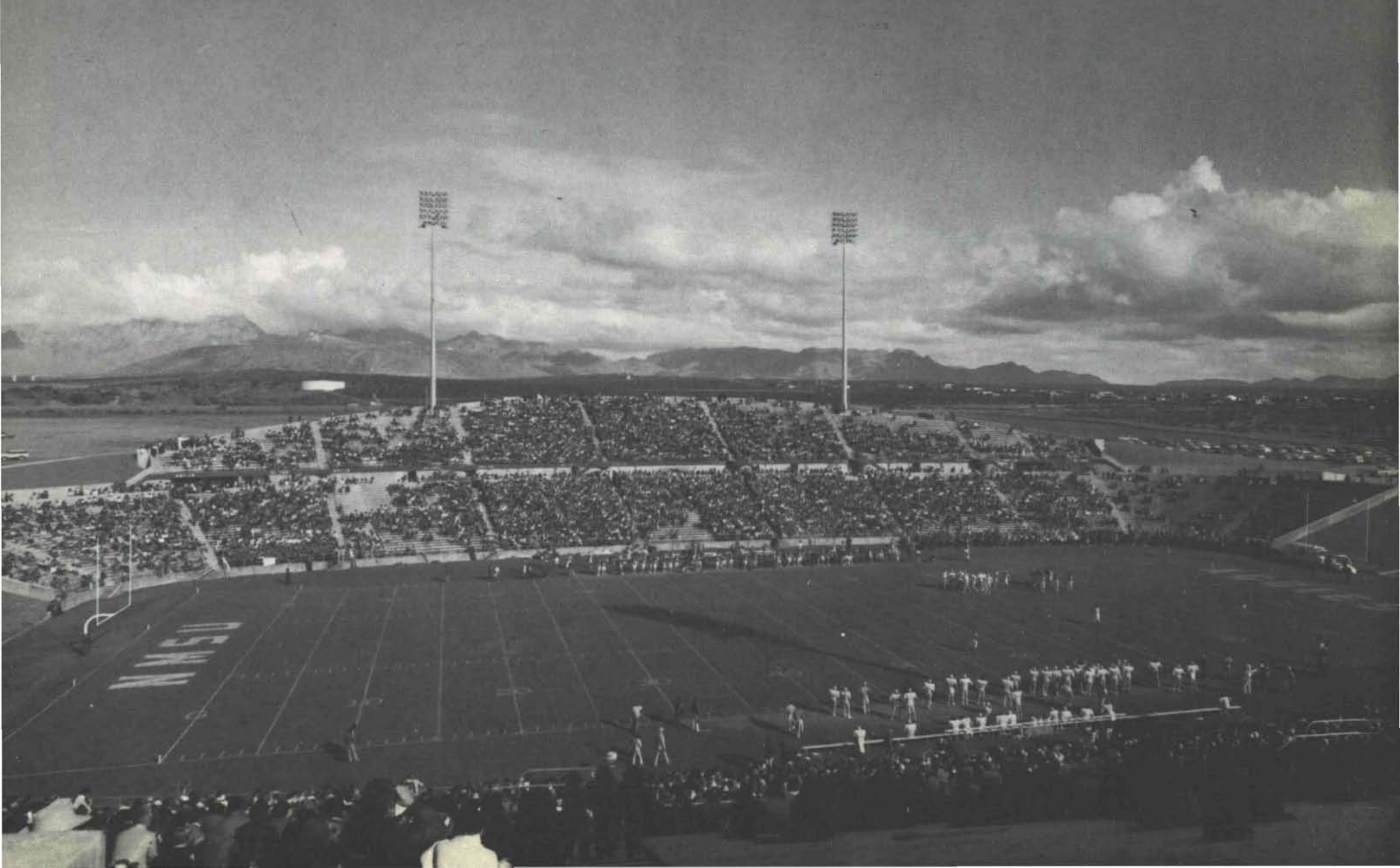

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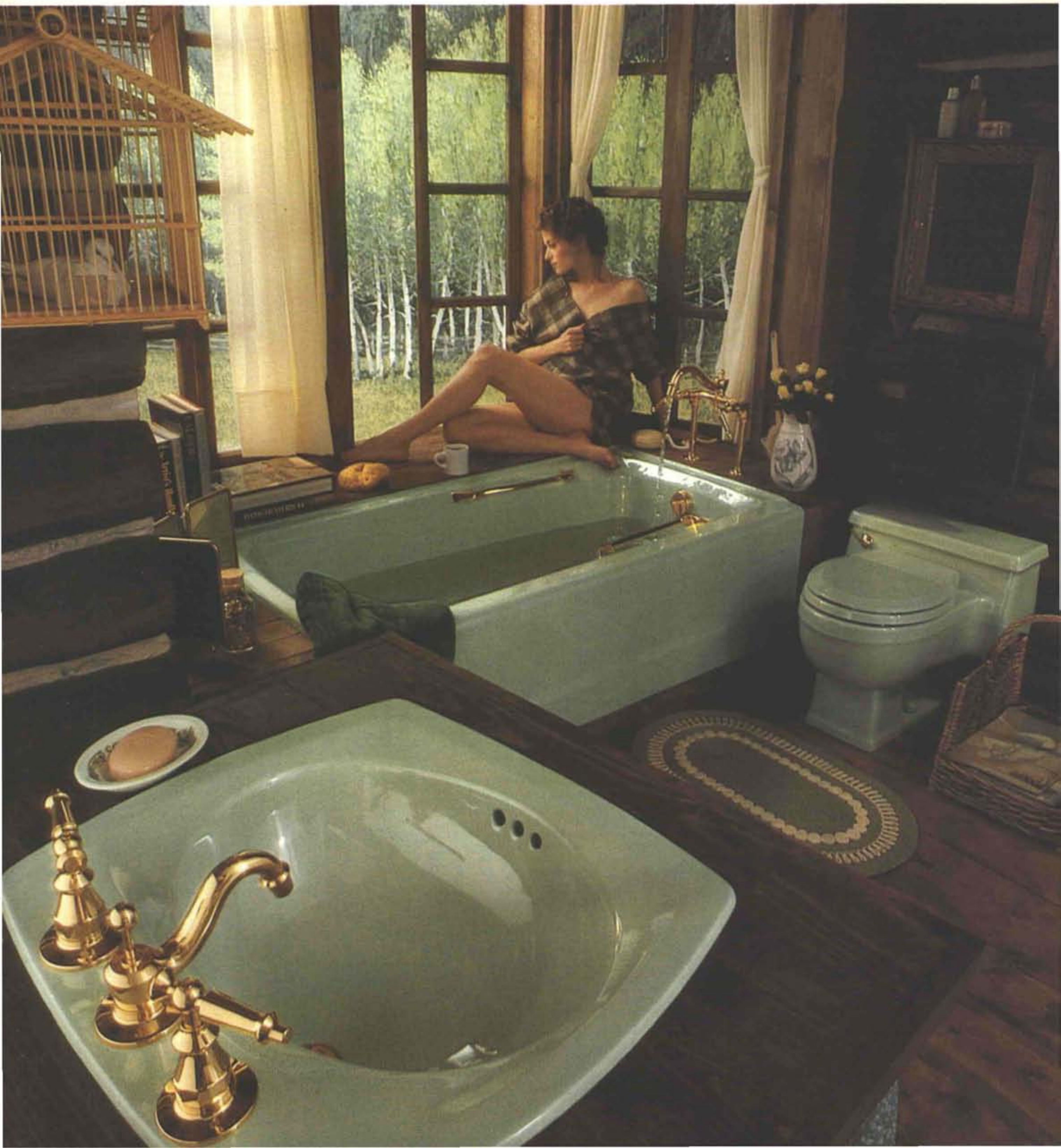


ASPEN GREEN

Kohler Brings You Closer to Nature

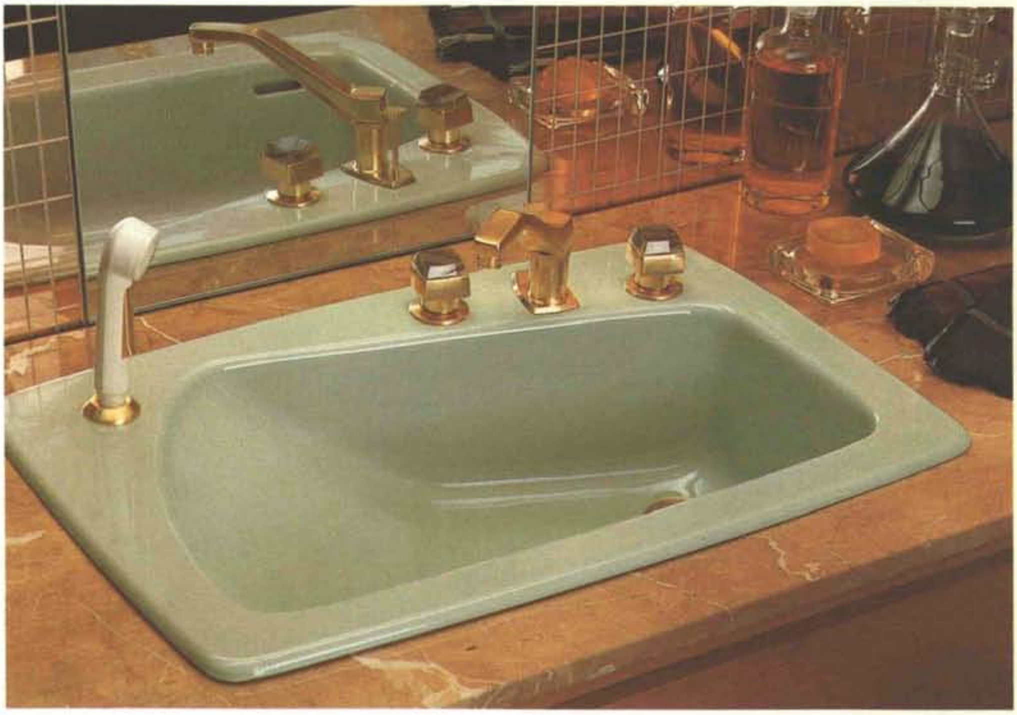
Imagine the sun streaming through the aspens on a cool mountain morning. The silver green of the leaves casts shadows across the grey tree trunks.

Now Kohler captures this ever-changing freshness with a color from the very edge of the forest: Aspen Green.

An intriguing, yet subtle color for your bathroom, powder room and kitchen.

Aspen Green is a color that captures the feeling homeowners want to create in the bath . . . an atmosphere of shimmering freshness, delicate beauty and intriguing color combinations. It is available in the full line of Kohler plumbing fixtures — whirlpool baths, bathtubs, fiberglass bathing modules, lavatories, toilets, bidets and kitchen sinks.

At left: Aspen Green goes high-fashion when played against bright wall coverings of silvers and greens. Barbados Whirlpool bath, with its sweeping expanse of smooth, seamless fiberglass in Aspen Green, is the focal point of the room. The one-piece bathing module features four adjustable whirlpool jets, dual air controls and a choice of solid state, low voltage timers. Toilet is Kohler's water-saving Wellworth Water-Guard. Castelle lavatory offers spacious basin, self-rimming installation and enameled cast iron construction. Faucets in 24 carat gold finish from Kohler's Alterna series with genuine onyx inserts. Suburban Water-Guard showerhead is designed to save water, energy and money.



Above: Rust-tone marble countertop serves as a bold foil to the Lady Vanity shampoo-grooming center lavatory in gentle Aspen Green. Alterna Onyx Water-Guard faucet in 24 carat gold finish.

On the cover: Aspen Green. As forest-fresh as an aspen grove. Guardian bath, Pompton toilet and Rondelle lavatory in Aspen Green with faucets and fittings from Kohler's "Antique" series in polished 24 carat gold finish.

ASPEN GREEN

Soft Appealing Inviting

Surround Aspen Green plumbing fixtures with white to give the bath or kitchen a totally elegant look. Accent it with bold earthtones for drama and spice. It's versatile. It's exciting.

Upper left: Bright patterns of garden flowers and bold sweeps of solid earthtones bring decorating drama to a powder room with fixtures in Aspen Green. Continentally-styled pedestal lavatory is sculptured in gleaming vitreous china. "Antique" Water-Guard water-saving faucet in chrome finish adds an eclectic look to the decor. Rochelle toilet features contemporary styling, low silhouette and no-overflow design.

Aspen Green brings verdant freshness and intriguing color combinations to the kitchen, too.

Lower left: Trieste sink in Aspen Green on a white countertop makes the work center of this kitchen look better and work better. Trieste features enameled cast iron construction, self-rimming installation, centrally located disposal basin, optional hardwood cutting board and generous 43" by 22" dimensions. Shown with Centura single lever Water-Guard water-saving faucet.

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• vol. 21 no. 6 • • nov.-dec. 1979 • new mexico architecture

This past year has been one of catch-up for the magazine staff. We have been trying to push the date of magazine release back towards its normal and proper time. We expect the January/February issue to be in the mail before the end of January; that's when it ought to be released.

Further, through the support of our fine advertisers, we have been able to bring our accounts payable to a current status. Some of the 1978 issues, especially the September/October issue, "the Architectural Styles of Santa Fe," were over budget. More advertising revenue was expected; it did not come forth. Accordingly, we have carefully economized this past year. As we move into 1980, we expect to add additional pages; with the continued support of our advertisers and readers the magazine can begin a new period of growth.

We ask our readers and especially our architect readers to express their appreciation to the advertisers for their faith in **New Mexico Architecture** magazine.

The staff of **NMA** wishes to take this opportunity to say "thank you" to each advertiser; we could not publish one page without you!

John P. Conron
Mildred Brittelle
Charles E. Nolan, Jr.

□ □ □ □

MAGAZINE SUPPORTERS:

The **NMA** staff wishes to thank those members who have contributed to its growth.

Sponsor: Charles E. Nolan, Jr.
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(Cover: N. M. State University Football Stadium — David Sullenberger, Photographer)

—Official Publication of the New Mexico Society of Architects, A. I. A.—

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A LETTER— G. Wright, AIA, Comments on Ranchos de Taos Church

The Archbishop of Santa Fe
202 Morningside Drive N.E.
Albuquerque, NM 87108

Your Excellency,

I have been told by my friend, Van Dorn Hooker, of the University of New Mexico, the great news that the stucco at the Ranchos de Taos Church is being removed from the exterior of that building and will be replaced by hand finished soft mud plaster. This is indeed gratifying and a most rewarding decision on the part of the parishioners. The lovers of architecture everywhere will be pleased that the parishioners, if I understand it correctly, are the ones doing the work and will be willing to continue to maintain the building. The principal problem years ago was that the parish had seemingly lost the desire to do the hard work necessary to keep up the tradition of replastering and funds were not available for paid labor on an annual basis.

To me, and I am sure to Van Dorn Hooker, Kent Stout, Ben Benson and all the others as architects who had been involved over ten years ago in the battle to save Ranchos, this is truly wonderful news. Ranchos is a living church, more now than ever. The wrong (expedient) decision has at last been rectified.

My thanks, in the name of architecture, to the parishioners, friends and benefactors of Ranchos de Taos.

Sincerely yours,

George Wright, AIA Dean
School of Architecture and
Environmental Design
The University of Texas at Arlington
Arlington, Texas 76019

CONSERVATION TRAINING PROGRAMS IN ROME OPEN TO AMERICANS

The International Centre for Conservation (Rome), known as ICCROM, is again offering courses in architectural conservation, conservation science, conservation of mural paintings, and safety, climate control and lighting in museums. Robert R. Garvey, Jr., Executive Director of the International Centre Committee, which coordinates U. S. membership in ICCROM, announced today that the application deadline for the 1981 courses has been extended to February 15, 1980.

"ICCROM offers an exciting opportunity for American professionals to participate in a unique training program," Mr. Garvey said. "I encourage qualified individuals to apply for the 1981 programs.

The International Centre for the Study of the Preservation and Restoration of Cultural Property, (ICCROM), is an international, intergovernmental organization established in 1958. Organized under the auspices of UNESCO, the Centre is an independent body consisting of 61 member nations. With headquarters in the Opizio di San Michele, Rome, it serves as a research and training center and as a clearinghouse for the exchange of conservation information and specialists among nations. Concerned with the scientific and technical problems of cultural conservation, ICCROM collects and circulates information, institutes and coordinates research, and assists in training research workers and technicians and in raising the standard of restoration work. The Centre today has established itself as the foremost international preservation institution.

Those wishing to apply should contact the International Centre Committee, 1522 K Street, NW, Suite 430, Washington, D. C. 20005. In view of the short time remaining until the deadline, those interested are urged to call Dorothy A. De Gennaro at (202) 254-8778 and request this material.

ARCHITECTURAL PROFESSIONALS SELECT 1980 P/A AWARD WINNERS

Wolfgang F. E. Preiser, partner in charge of research, Architectural Research Consultants, Inc., Albuquerque, and associate professor and co-director, Institute for Environmental Education, School of Architecture and Planning, University of New Mexico, was one of eight architectural professionals who selected the winners of the 27th annual P/A Awards program sponsored by *Progressive Architecture* magazine.

The awards will be presented on January 18 at the Plaza Hotel in New York City.

This year's jury selected 29 winning entries in the areas of architectural design, urban design and planning, and applied architectural research out of 928 submissions from architects and related professionals practicing in the U. S. and Canada. The competition has been held annually since 1953.

Preiser was educated at Vienna Institute of Technology, the University of Karlsruhe, Germany, Virginia Polytechnic Institute and State University, and at Pennsylvania State University, where he received his doctorate in man-environment relations. He is consultant to various institutions on topics of elderly environments, correctional and educational environments and aesthetics, has lectured at U. S., Canadian, European, and Australian universities, and is chairman and coordinator for national conferences, workshops and symposia in environmental design research. He served previously as research architect, U. S. Army Corps of Engineers.

He is the author of *Facility Programming-Methods and Applications* and *Environmental Design Research*, Vols. 1 and 2.

Preiser is a member of American Association for the Advancement of Science, the American Institute of Architects, and is first vice president of International Organization for Human Ecology.

Football has been a part of New Mexico State University since 1893 when the first official game was played in an open field. Growth of the athletic program and the college at several times through the years made it necessary to provide more modern facilities. The most recent effort began in 1974, but ended with the failure of a bond election.

Backers for a new stadium did not give up, however. During the 1977 Legislature, a bill sponsored by State Senator Lamar Gwaltney appropriated 4 million dollars to construct a new 22,000 seat stadium, and a dream of many years was on its way to becoming a reality.

Boehning, Protz & Associates, Architects, assumed the task of making this dream come true under odds which a lot of people thought were impossible considering the low budget and time deadline of September 16, 1978.

In May, 1977, an intensive programming and design effort was undertaken by the architects resulting in a preliminary design which met the requirements, the budget, and the schedule initially envisioned. This design was approved by the Board of Regents on May 13, 1977.

The design development of this preliminary design continued immediately thereafter. The criteria used for design and construction were as follows:

CONSTRAINTS

Besides the relatively tight $4,000,000 construction budget, the major project constraints were site related. Although the designated site, a 200 + acre corner of the campus, was more than adequate to accommodate the athletic and parking needs, several site characteristics limited the suitability of various portions of the site. Most critical of these were: (1) The Tortugas Arroyo cutting through the southeast portion of the site; and (2) A 30 foot deep sanitary landfill pit located in the south central portion of the site. The stadium property had to avoid the Tortugas Arroyo and all development, including parking, had to avoid the landfill pit.

SPECIAL CONDITIONS

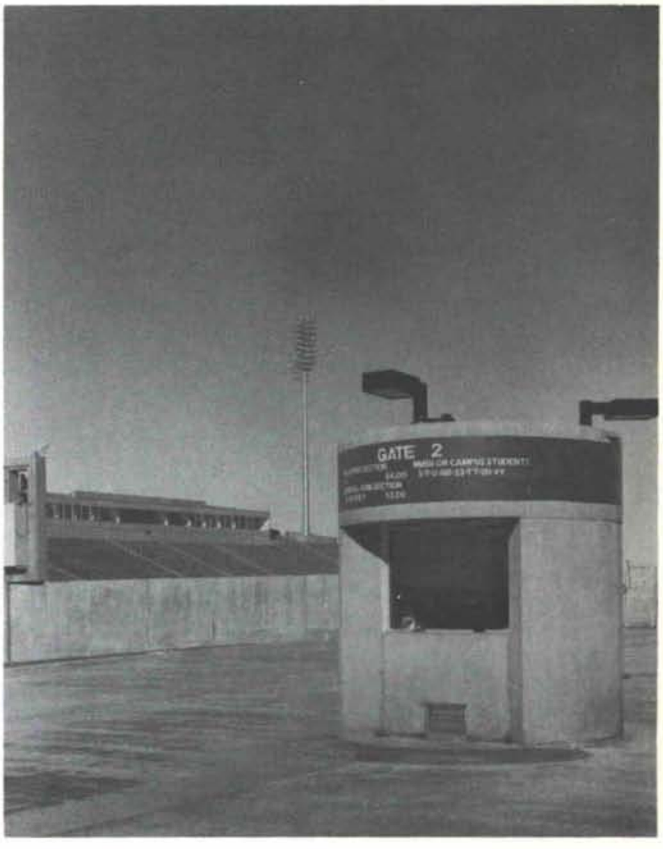
Two special conditions strongly influenced the choice of the design concept: the existing soil characteristics and Owner's in house earth moving capabilities. The soil on the site is an easily excavated sandy soil with good bearing characteristics. The Owner has a large collection of earthmoving machinery, including selfpropelled scrapers, bulldozers, compacting rollers, watering trucks, etc.

SOLUTION

The stadium is comprised of two crescent shaped, earth seating berms surrounding an oval shaped bowl which accomodates the football playing area. The football field is oriented on a north-north-west, south-south-east axis, in line with the existing Pan Am Center arena. The field orientation is nearly optimal in relation to autumn afternoon sun position and implies that the western seating area is the home team side. It has a natural turf playing surface.

The New Mexico State University Football Stadium

Boehning, Protz & Associates
Architects



The earth seating berms, built from the material excavated from the center bowl area, rise 48 feet from grade. The bottom of the excavated bowl, or playing field level is 12-13 feet below existing grade. The second phase of construction provided reinforced concrete risers, treads and bench seats to accommodate the spectators . According to NMSU Athletic Director Keith Colson, visiting coaches and officials from some areas of the country that do not understand the concept of excavating and building berms have asked if the "hole" was there before the stadium.

The upper level berm seating is separated from the lower bowl seating by a mid-level concourse, 12'-6" wide. Concession stands, public toilets, handicapped seating areas, and other support facilities are connected with this main public circulation artery.

At the top of the western seating berm, with its back to the afternoon sun, is a complete pressbox. This facility includes rooms for writers, radio broadcasters, coaches' spotters, as well as lounge and toilet facilities.

At the north end of the stadium, between the two crescent seating berms, is a varsity locker building with locker and dressing facilities for both home and visiting teams. Team rooms, weight rooms, coaches and officials lockers, etc. are also included in this building. The locker building was designed to accommodate future expansion.

PROJECT TEAM

New Mexico State University

Dr. Gerald W. Thomas	President
Carl Hall	Asst. to President
Dr. Donald C. Roush	Academic Vice President
Robert Kirkpatrick	V.P. for Business Affairs
Byron Darden	University Attorney
Duane Dorsey	University Architect
Fred Day	Physical Plant Director
Keith Colson	Athletic Director
Robert Wright	Prof. of Elementary Education
David Lopez	Sports Information Director
Conrad Keys	Associate Prof. of Civil Engr.
Joe Lopez	Public Relations
Roy Lashway	Director of Auxiliary Services

ARCHITECTS

Boehning, Protz & Associates, Architects

D. Craig Protz, A.I.A.	Partner in Charge
Ernest Pogue	Project Architect

Caudill Rowlett Scott, Associated Architects

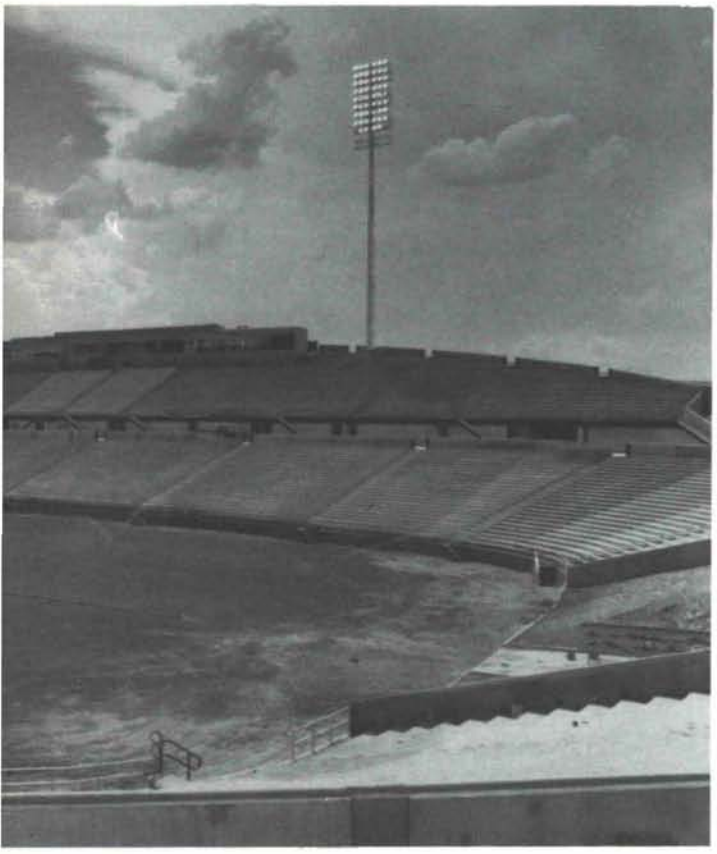
David F. Thorman	Project Manager
Glenn Bradford	Designer
Carl Joiner	Project Architect
Suthipan Smitthipong	Design Development
Jeff Conroy	Education Specialist
Dennis Roth	Programmer

CONSULTANTS

Structural	Frank Henri & Associates
Civil	Boyle Engineering
Geotechnical	Anderson, Bradley, Dyess & Woods
Mechanical & Electrical	Allison Engineering

PHOTOGRAPHS

David Sullenberger



ACCESS

At the south end of the stadium, a ramped vehicular roadway come up to grade from the playing field, permitting emergency vehicle access to the field.

Parking for 5,500 cars is provided. 2,000 of these parking spaces are now existing around the Pan Am Center. 3,500 new parking spaces are provided under this phase of construction with provisions made for future expansion of 2,000 parking spaces.

LIGHTING & SECURITY

A four pole lighting system permits nighttime football playing. This level of illumination will be expandable to a level which will permit color television. A perimeter fence encloses the entire stadium as a security measure.

CONSTRUCTION PHASING

In order to meet the completion deadline of the stadium by September 16, 1978, the construction followed a fast track procedure. Separate contracts were awarded in advance of completion of all the contract documents. As previously mentioned in the special conditions, the Owner's earthmoving capability was heavily involved in the construction process.

The following is a description of the phases.

Phase 1 Earthwork: This phase was the prime area where NMSU Physical Plant was able to utilize its expertise and equipment to cut projects costs. The berm and site were excavated and graded to within 6" to 18" of final grade. This included some installation of utility lines.

Phase II Concrete: This phase included all work related to forming and pouring the grandstands and concourse. During this phase, NCAA regulations were changed for Class 1A athletic programs. To meet this mandate seating had to be expanded from the originally programmed 22,000 to 30,000 seats in order for NMSU to remain classified as a major athletic university.

Phase III Facilities: This phase included all work at the pressbox, locker room, and rooms along the concourse: restrooms, concessions, police and first aid.

Phase IV Seating: Included in this phase was the seating and installation of same. The Aggie Booster Club donating backs for the seats of two upper level sections as VIP seating areas.

Phase V Landscaping: This phase included chainlink fence surrounding the facility and landscaping at the berm and other related stadium facilities. This is another area where NMSU Physical Plant was able to utilize its expertise and equipment to cut project costs.

AFTERWORDS

In recent years the average attendance for home football games was approximately 8,000. On the evening of September 16, 1978, when the new Aggie

Memorial Stadium was opened and dedicated as scheduled, there were in excess of 30,000 fans to witness the event setting a new State of New Mexico record for attendance at a sporting event. During the 1978 football season there was an average attendance in excess of 17,000 with the 1979 season establishing a new record for NMSU of more than 18,000 average attendance exceeding NCAA Division 1A attendance criteria.

Athletic Director Colson states, "As the proprietor of this facility, NMSU feels it is perfect for our needs. A beautiful setting, adequate seating, excellent lighting, parking, restrooms, concession areas, and the dressing room facility has all necessary rooms and storage. The pedestrian flow is smooth, and the concourse provides easy entrance and exit. The pressbox is beautifully done all on one level for the working media with no VIP section, which is what was desired.

"Most coaches and administrators who have visited our stadium are amazed at the facility when we tell them the cost and the time frame within it was built."

The successful completion of this project could not have been accomplished without the total cooperation and dedication of everyone connected with it, especially NMSU's Board of Regents; Administration; Athletic, Physical Plant and Agriculture Departments and its Stadium Committee. Ray Ward and Son Construction and all of its crew, subcontractors and suppliers are also commended for their cooperation and diligence.

D. Craig Protz, AIA

Examples of Innovations and Applications of Behavioral Science in Architecture and Environmental Design

Wolfgang F. E. Preiser

A. Facility Programming and Behavioral Science

In the activity of facility programming building use information is identified and documented in the form of functions, activities and performance criteria a proposed building is to accommodate. The process of programming will not be described here, rather, reference is made to the book *Facility Programming* (Preiser, 1978) which presents methods and applications of programming from the perspective of user needs in buildings.

Adapted from Farbstein (1978) the basic, seven steps in the programming process include:

(1) Organizational goals and objectives of the client need to be obtained and documented, whether they are formal, informal or personal (e.g., those of the managing director) or hidden. Frequently difficulties exist in obtaining stated goals and objectives, and inferences will have to be made from existing operations. Further, pertinent constraints such as codes and regulations need to be analyzed.

(2) Organizational objectives are translated into functions the organization needs to carry out, e.g., administration, instruction, etc. Usually, departmental names and breakdowns of organizations reflect the major functions they are to carry out. Brauer and Preiser (1976) attempted to describe the process of arriving at facility requirements in programming through systematic translation of sets and sub-sets of organizational goals and objectives.

(3) Functions of organizations are further broken down into activities or programs that need to be spatially accommodated. Activities refer to specific work processes, e.g., writing, assembling, etc., which take place in specific activity settings or work stations.

(4) Performance requirements and environmental criteria for each activity setting are formulated.

(5) A schedule and adjaceny requirements are devised in order to establish priorities and trade-offs concerning time/space utilization.

(6) Designation of spaces occurs after all activity settings with appropriate space estimates have been compiled, thus providing the first gross area estimate.

(7) Options as to different program resolutions are presented, usually tied to time phases and cost considerations, e.g., no-cost solutions (based on exchange of existing furnishings, donated labor and goods), medium-cost solutions requiring some capital expenditure (e.g., painting, remodeling) and high-cost solutions requiring major investment (e.g., structural changes and additions to existing or entirely new buildings).

The program clarifies for the client, user, and the architect the facility requirements which may exist for a given or potential project. The program may indicate organizational changes or functional realignment of the organization's existing space, without necessarily resulting in a new design project or building. Different formats have been developed for presenting building use information and specification, usually on an activity setting basis. Gerald Davis (1978) is one of the pioneers of the field of programming with a behavioral emphasis. His programming information categories include descriptions of the type of activity setting or space, the users (numbers, age, background, etc.), activities to be accommodated, the size and shape requirements of the activity setting, equipment and furnishings, internal physical organization, inter-relationships and proximities to other activity settings, special requirements (e.g., image), services and utility requirements, as well as a rough space estimate.

Traditionally only "hard" data on building performance were entered into programs, such as atmospheric criteria (temperature, relative humidity, air changes, odors and heat gain), and rarely, visual criteria and acoustic criteria. A programming format developed by Architectural Research Consultants of Albuquerque provides a detailed user description which include behavioral science information as it pertains to concepts of person-environment relationships, such as spatial behavior or even imagery and esthetic data.

An example of facility programming which dealt with a cross-cultural context involved an Indian Pueblo Cultural Food Preparation Center (Petronis et al., 1978). In this case language barriers existed and the Project Team resorted to pictograms, symbol language and modeling techniques in communicating with the prospective users of the facility about performance requirements. Special dimensional requirements were uncovered (the Cochiti Indian women were an average of five feet tall), and detailed records of the functions and activities to be accommodated were made with the active participation of the future users. Specific cultural and climatological issues such as natural ventilation were included. Also, locally common materials (wood, adobe) were specified.

An extended version of this paper was presented at the University of Washington, Seattle, WA, USA, in January, 1979.

B. **Post-Occupancy Evaluation and Behavioral Science Input**

Data gathering techniques in post-occupancy evaluation will only be mentioned in passing, and where appropriate. Post-occupancy evaluations are distinct from post-construction evaluations in that they specifically deal with the use performance of a building. Post occupancy evaluations are also distinct from merely descriptive studies of buildings in that they require criteria standards, objectives or threshold values to evaluate the performance of a building.

As Thomas Davis (1970) stated there are seven types of evaluation, some of which are qualitative in nature. In some cases expert opinions are used. In recent years various case studies have been conducted by the author, using a host of social science data gathering and analysis techniques. Buildings evaluated included student dormitories (Davis, 1977), a public plaza, office buildings, elderly housing, mobile home parks, Navajo schools as well as classrooms and playgrounds. A number of facility types were also evaluated in terms of accessibility for the handicapped (Gray et al., 1978).

Two examples are referred to here, only to illustrate the type of information which pertains to social science subject matter and methodology. The first example is a post-occupancy evaluation of university offices (Marino, et al., 1977).

Information on the client organization, its organizational structure and objectives, functions, activities and required support facilities was gathered, and transferred onto performance requirement sheets. Measurements concerning the ambient physical environment were made, as were inventories of existing equipment and furnishings. Means to elicit open responses from the users of the facility were devised. Problems and conflicts in the existing offices were identified and documented. Three options at different cost levels were developed to resolve the identified problems.

The second case study dealt with an evaluation of school facilities of the Navajo Indians in New Mexico and Arizona. This evaluation was primarily qualitative. Data from users (students, teachers and administrators) were elicited through an appropriate, multi-method approach including art projects, interviews (in Navajo language), building inventories and observations. A number of behavior-related issues in existing facilities were uncovered which apparently conflicted with the cultural heritage of the population in question. Some of the identified culture related issues involved orientation of openings, natural lighting and ventilation, views, natural materials, color choices, scale of buildings and seating arrangements (Bartlett, et al., 1978).

C. **Behavior-based Information Systems and Design Guidance**

Large organizations engaged in considerable amount of construction (and especially, repetitive facility types) greatly benefit from user feedback. Examples are the Army Corps of Engineers' "Design Guide Series," (1976). Criteria for the ambient environment quality, issues such as privacy, and others which require social science input are included in these Design Guides.

Habitability research, as depicted in the research and feedback cycle in Figure 1 aims at increasing habitability/quality of the built environment. Evaluation studies of various building types presume that an evaluation and measurement technology can be used effectively, including a number of social science data gathering and analysis techniques. The resulting data are fed into a continuously up-dated habitability information system which in turn is the basis for the establishment of design criteria and the design

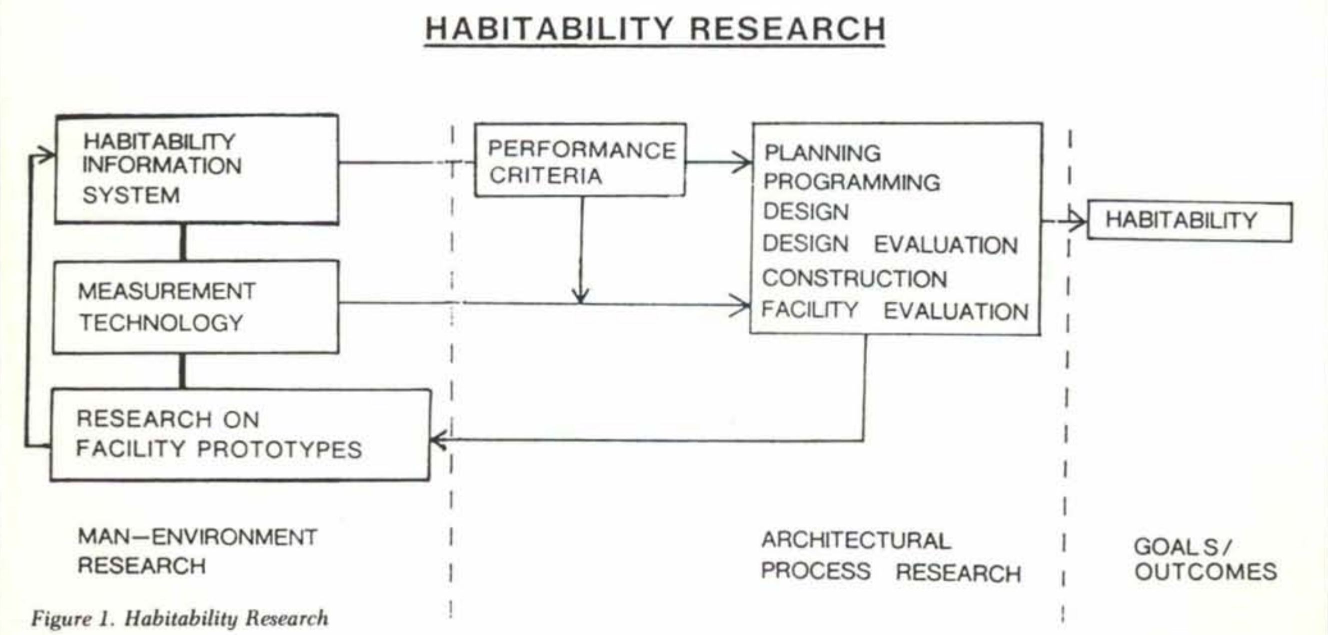


Figure 1. Habitability Research

guidance literature, of which the above referenced Design Guide Series is a part. Habitability criteria and design guidance constitute crucial input into the programming and evaluation phases of the building delivery cycle. Eventually, such a feedback loop, if instituted on a broad basis, will greatly contribute to raising the responsiveness of buildings to user needs. A habitability information system of the kind referred to above was piloted by the U. S. Army Corps of Engineers during the mid-seventies but later abandoned due to unavailability of funds.

At this time, an information system for use by students and researchers in the person-environment field is being initiated at the University of New Mexico School of Architecture. It is intended to provide cross-indexed access to about 1,500 current, annotated sources in the person-environment research literature. Apart from difficulties in arriving at appropriate taxonomies the need exists to translate person-environment research data into digest-type information which can be used by the design professions.

D. Environmental Impact Statements

Environmental impact statments for proposed projects are frequently required before permission to start the project is granted. In a recent case in Albuquerque, New Mexico, an established, older neighborhood (Stronghurst) was faced with a proposed adjacent industrial park including a beverage distribution center. The probable impact of the proposed development on the environmental quality of the neighborhood was testified on in front of the City of Albuquerque's Environmental Planning Commission. The result was the imposition of stringent environmental controls, including reduced floor space, berms to mitigate the noise impact, and means to deal with the esthetic compatibility of the proposed development with the scale and character of the proposed development with the scale and character of the existing neighborhood. Reference was made to behavioral science data on noise impact, and a study concerning esthetic compatibility of built environments was conducted.

E. Environmental Education

A further application of behavioral science information and concepts in architecture pertains to environmental or built-environment education. The need exists to inform the public and raise its awareness concerning the effect of the built environment on people's health and safety as well as psychological well being. Research studies on a host of topics have been carried out, pointing to the ill effects of the built environment, e.g., on fluorescent lighting, windowless buildings, overt crowding, lack of personalized space, etc.

Some traditional values held by the population at large may require evaluation and adjustment in order to overcome problems in the built environment. They include the emphasis on bigness, newness, and quantity versus quality of the environment. The myth of endless growth of our cities (based upon formerly available cheap transportation) may have been disspelled.

Environmental education aims at informing both the school age and adult populations. Isolated program efforts have been undertaken by agencies at the local, state and federal levels in this regard, however, without a clear direction, coordination and very limited funding support. The American Institute of Architects has recognized the need for environmental education in one of its committees, and the National Endowment for the Arts supports a national program called "Architects in the Schools." It permits architects to work directly with school children on issues of the built environment, with special emphasis on a hands-on approach and involvement in improving the environments of participating schools. The National Endowment for the Arts further recognized the need for this field of endeavor by supporting the formation of the Institute for Environmental Education which is co-sponsored by the College of Education and the School of Architecture at the University of New Mexico.

Some of the new directions for environmental design and changes advocated by the Institute for Environmental Education and this author would appear to involve behavioral science research. They include, in no particular order of priority an emphasis on holistic and systems approaches to solving problems in the built environment. Reduced system sizes are advocated, e.g., in schools and other institutions, in order to raise environmental quality. Reduced systems inter-dependencies are suggested and more decentralized facility programming in order to reduce system failures, e.g., through brown-outs. More functional integration of land and building uses in space and time is needed instead of segregation. Incremental and urban infill is proposed instead of endless growth expansion of cities. Recycling of materials and spaces should be given higher priority. Natural lighting, ventilation, heating and cooling should be used whenever possible, resulting in "new" or rediscovered, small, human scale built forms. Cultural identity and fit should be recognized when buildings in different regions and for different cultural groups, e.g., Native American tribes. Lastly, user participation should become a rule in environmental design in order to achieve more responsive facilities which accommodate user needs better.

F. Prototype Development

Building on the activities of facility programming and the development of design criteria and guidance literature is the actual development of prototypes of facilities for special user groups (e.g., housing for the Indian elderly), sponsored by appropriate organizations and agencies at the regional and national levels. Such projects entail behavioral science research into the particular behavioral and cultural requirements of the clients user groups. At this time, there are great difficulties in finding agencies which will cooperate with each other. For example, the research on housing for elderly Indians would require inter-agency cooperation between the Departments of Housing and Urban Development and Health, Education and

Welfare. On the other hand, there are examples of intra-agency prototype research and development, e.g., that on speech privacy specifications for offices of the General Services Administration. Similarly, the U. S. Army Corps of Engineers and the Navy have conducted prototype development for their respective facility types, based partly on behavioral science research data. *W.F.E.P.*

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Washington Report

From Your Congressman

HAROLD RUNNELS

96-6

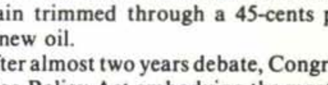
The Enemy Is Us

This year I have heard more about energy, in Congress and at home, than any other subject. Everyone is sincerely concerned about whether or not we will have enough energy, at a price most people can afford, to continue the lifestyle we have become accustomed to. The President has staked his political future on solving this problem, but the past is prologue to our current dilemma.

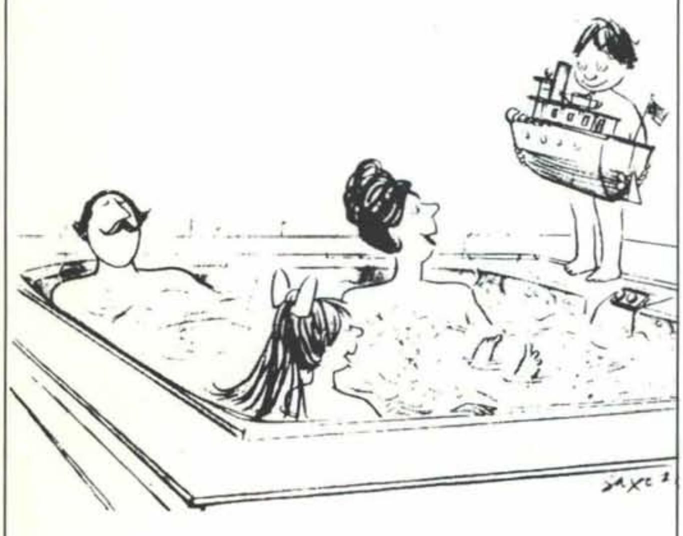
The *Independent Petroleum Association of America* (the trade association for 11,000 small businessmen in the oil and gas industry) has compiled a list of the major factors affecting our energy supplies over the past 25 years. Some were beyond our control but most were not. In fact, actions of the federal government over the last quarter century probably did more than anything else to get us in trouble. The objectives were cheap energy, but the consequences were a decline in domestic petroleum production and a dangerous dependence on imported oil.

- 1954: The Supreme Court, contrary to the explicit intent of Congress, requires the Federal Power Commission to impose utility-style regulations on individual natural gas producers.
- 1956: Legislation allowing wellhead natural gas prices to be set in the marketplace is vetoed by President Eisenhower for reasons unrelated to the bill's merits.
- 1960: The Organization of Petroleum Exporting Countries (OPEC) is founded with the avowed purpose of controlling production levels and increasing the revenues of the oil producing countries. At the time, the U.S. is importing only 18% of its oil consumption.
- 1966: Oil and gas leasing on federal lands is suspended, beginning a policy of denying access to potential domestic oil and gas reserves.
- 1967: Arab oil producers embargo all oil shipments to the U.S. during and following the "Six Days" War. The embargo, the third interruption of exports from Arab countries, fails because producers still have excess oil supplies available for ourselves and our allies.
- 1968: Domestic consumption of petroleum fuels exceeds U.S. petroleum capacity, and the nation—for the first time—is partially dependent on imported oil.
- 1969: Following enactment of a "tax reform" act reducing percentage depletion for oil and gas (alone among 105 extractive industries), domestic exploratory drilling begins its sharpest drop since World War II. Oil imports represent 22% of consumption.
- 1970: U.S. production of crude oil peaks and begins a decline that has yet to be arrested. Passage of the National Environmental Policy Act initiates a decade of frustration in the effort to drill offshore, site refineries, build pipelines, stimulate coal use, and develop nuclear power.
- 1971: Crude oil prices, along with those of other industrial commodities are controlled in "Phase I" of the Nixon Administration Economic Stabilization Program.
- 1972: For the first time since World War II, the U.S. is producing crude oil at full capacity. There is no spare domestic capacity to cushion the impact of foreign supply cutoffs.
- 1973: U.S. natural gas production peaks and begins declining. The "Yom Kippur" War precipitates an Arab oil embargo against the U.S. and the Netherlands. We are 33% dependent on foreign oil.
- 1974: Price controls implemented in 1971 by the Nixon Administration are lifted from all commodities—*except crude oil.*
- 1975: Congress repeals the percentage depletion for about 85% of U.S. oil and natural gas production, singling out petroleum fuels again. President Ford signs the Energy Policy and Conservation Act extending price controls on crude oil until October 1981 under a complex "composite pricing" system.
- 1976: In February, the Federal Energy Administration reduces domestic crude oil prices by about $1.50 per barrel; in July, freezes them; and in December, reduces them by another 20-cents per barrel. Congress enacts the Tax Reform Act of 1976—retroactively imposing a punitive tax on cash expenditures by domestic oil and gas producers for intangible drilling costs. The U.S. is now 42% dependent on foreign oil.
- 1977: In February, the Department of Interior retroactively doubles rental fees on most oil and gas leases in Federal onshore areas of the U.S. On March 1, U.S. crude oil prices are again trimmed through a 45-cents per barrel reduction on new oil.
- 1978: In October, after almost two years debate, Congress passes the Natural Gas Policy Act embodying the most complex regulatory system ever imposed on an American industry. Regulation is extended to the intrastate natural gas market, thus imposing federal controls on 100% of U.S. gas production for the first time.
- 1979: Political turmoil in Iran interrupts their oil exports and the Federal gasoline allocation system in this country cannot cope with the shortage so gasoline lines spring up. President Carter announces a phased program to decontrol U.S. oil prices by October 1981 as intended by Congress, but proposes an additional tax on domestic oil. Revenues needed to increase U.S. energy production would instead be diverted to the U.S. Treasury. Some 31 different synthetic fuels bills are currently pending in the House alone and the President has proposed cutting "red tape" for energy production. This year U.S. dependence on foreign oil will exceed 45% and cost about $65 billion.

This growing dependence on others for essential energy supplies is a threat to our economy, our national security and our position of world leadership. In the immortal words of *Pogo*, the cartoon character, in this war for energy independence, "We have met the enemy and he is us."



The above record was sent to this magazine. We present it for your thoughts, consideration and comments. John P. Conron, FAIA, Editor



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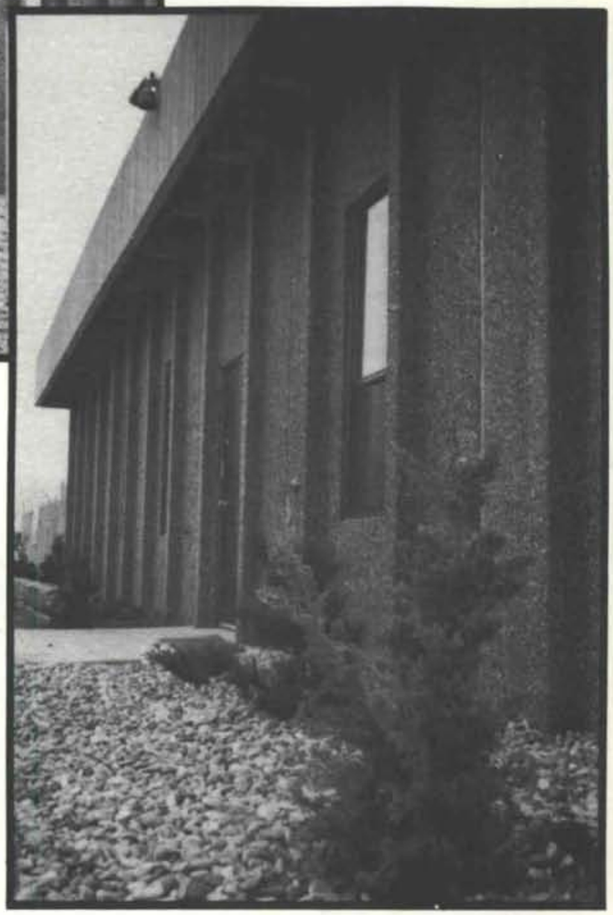

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