In systems building, as in any departure from traditional ways, concrete offers the architect unequaled opportunity. By its very nature, the material is ideally suited to the systems approach. It permits wider design latitude and infinite aesthetic variations to relieve standardized structural forms. Innumerable architects, shaping concrete to new ideas on sketch paper, are broadening the systems concept to meet the needs of industrialized techniques.

**Diagram:**

- **Styrofoam Plugs** (omit where air is required)
- **Knock-out plugs and embedded ducts in a cast-in-place waffle-slab system offer opportunities to integrate air handling and electrical distribution.**
- **Possible light fixture in coffer**
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See SWEETS 1967 2C/CU
(1966 5C/CU)
TWO NEW BUILDINGS BY KENNETH CLARK, FAIA

Two recent designs prepared by Kenneth S. Clark, FAIA, Santa Fe, for Holloman Air Force Base, New Mexico.

A 75-bed general hospital with health laboratories, out-patient clinics, and administration offices was completed in May, 1967.

And a 500 seat motion picture theatre is under construction.

AIA URGES GOVERNMENT TO REQUIRE DESIGN TEAMS IN ROADS PROGRAM

WASHINGTON, D. C. — Congress was asked today by The American Institute of Architects to make “design concept teams” of specialists a required part of the Federal Government’s interstate roads program.

AIA first vice president, George E. Kassabaum, of St. Louis, Mo., told the Senate Committee on Public Works that architects were “convinced that this approach will produce a highway that is a part of the community, rather than one that takes the community apart.”

Design concept teams are panels of engineers, economists, sociologists, planners and architects who focus on the “complete social, economic and physical impact” that a given freeway or expressway corridor will have on a community.

The concept team, said Kassabaum, is being tested on a 20-mile segment of the Interstate Freeway System in central Maryland. He said that AIA strongly urges that such a team be required by the Federal Government for the design of all future segments of the Interstate System.

Kassabaum added that design opportunities in highway safety have not been fully exploited, nor are highway engineers making use of significant breakthroughs in lighting, breakaway light and sign structures, and similar innovations.

“The fact of the matter is that good design cannot be prescribed,” said the AIA official. “The design opportunities which a highway represents do not derive from any textbook or code. Of course, there are reasonable guidelines, but the greatest design success is the product of specialized skills.

“If the Federal and state highway departments would only utilize the design skills that are now available, we are convinced the highways would be safer and less disruptive,” Kassabaum concluded.

The AIA testimony was delivered as part of hearings underway on the Highway Beautification Act of 1965. The AIA, which represents 22,000 of the nation’s architects, reaffirmed its stand in support of the Beautification Act.

The Institute recommended that mandatory just compensation features of the beautification law be repealed and asked that the law be amended to permit states to provide effective billboard and junkyard control by either compensation or police power.

NEW LEASE ON LIFE FOR THE CHURCH AT LAS TRAMPAS, N. M.

The Church of San Jose de Gracia de Las Trampas has been given a new coat of mud plaster, a new roof and two new towers. The project was undertaken by the people of Las Trampas with the financial assistance, and counsel of the Las Trampas Foundation.

Kellogg Roofing Service of Santa Fe was employed to apply the new bonded roof. Livermore Construction Co. of Santa Cruz constructed and installed the wood
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towers. These towers were copied from the ones shown in old photographs taken of the church between 1900 and 1930.

Mrs. Tranquilino Lopez, one of the two mayordomas of the church for 1967, directed the crew of women plasterers and did a major portion of the plastering herself. Tranquilino Lopez and Bernadino Armijo, the two mayordomas for 1967, were in charge of the restoration project. Both men are also members of the Board of Directors of the Las Trampas Foundation.

The scaffolding to do the mudding job was loaned by R. E. McKee, Contractor, of Santa Fe and a truck for transporting the scaffolding to and from Las Trampas was provided by Mr. Lewis Barker of Pojoaque.

The church is stripped of all loose mud plaster.

Mrs. Fermina Leyba and Mr. Jose T. Lopez prepare the mud plaster mix.

Mrs. Oufila V. Aguilar of El Valle applies a new coat of mud plaster.

The bell is lowered from its improvised position under the balcony railing. It was hoisted and hung in its proper place in one of the towers.

Nathaniel A. Owings, FAIA, senior partner of Skidmore, Owings and Merrill, Architects, supervises the installation of the towers.

The new look of the Church of San Jose de Gracia.
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NEW MEXICO HIGHLANDS EXPANDS

New Mexico Highlands University, located in Las Vegas, N. M., has undergone considerable expansion in the last few years. This expanding enrollment is expected to continue — from 1700 students in 1966-67 to 2000 in 1968-69, and on to some 3000 students by 1975.

To guide the Board of Regents in the decisions of what will be needed and where to build for these needs, a General Development Plan has been prepared by Harvey S. Hoshour, Albuquerque architect. Mr. Hoshour lays down the broad guide lines for expansion. He asks that the present streets, which cut through the campus, be eliminated and that pedestrian malls be developed. It is unfortunate that he was not asked to present more detailed suggestions of how these malls might be designed, or how the spaces around and between the buildings might be dealt with.

It is all too evident that no thought has ever been given to the relationship of one building to another on the existing campus. The present campus gives one the impression that each new building project was designed and constructed by separate architects on separate lots, all owned by separate clients.

While complete dominance of a single building style is to be avoided, it does seem that some cohesive order is desirable. The General Development Plan may help to establish a sense of “campus,” but only if the Board of Regents will employ a continuing architectural advisor, such as Mr. Hoshour, and an imaginative landscape architect.

— JPC

THE THOMAS C. DONNELLY LIBRARY

The new Donnelly Library is the most noticeable and impressive of the recent work at Highlands.

Robert Walter, the architect for the Library, describes the building as follows: “This building is made of concrete, steel, stone and glass; these are real and measurable elements that can be seen, touched, walked under and climbed through. This reality is only a part of architecture. What is not so obvious is that architecture also must offer events of the imagination, and they are difficult and elusive to define.

The space is deliberately dramatic and designed to involve people as both spectators and actors, moving on many levels against other planes and in other volumes. It is made to be used, looked out of and down from; it is not designed to be simply looked at. The large concrete forms are left raw in honesty and to fix the geometry of the space. The brilliant colors are meant as human accents, as
variable as the personalities within the building.

I hope that the building will age with the warmth and kindness of nature's patina and with the use by those who feel that books record human dignity vital to our and future time.

A HIGHRISE DORMITORY

Designs have been completed by Philippe Register, architect, of a 9 story dormitory for New Mexico Highlands University. The dormitory will contain 160 double rooms to accommodate a total of 320 students. The ground floor will contain a dining room for seating 200 people at one time, an apartment, a lobby and a powder room. The eight floors, which comprise the 2nd through the 9th levels, will each contain 20 double rooms, and will have a lounge, toilet facilities, showers, and telephone alcoves.

Each of the student rooms will be approximately 12 feet wide and 16 feet long. Built-in features will include a desk with drawers and Formica top, combination bookshelf and light, and closets with built-in dresser drawers. Each room will be fully carpeted and will have one wall made of material for tacking pictures. There will be two operable windows in each room for light and ventilation.

There will be a basement under a portion of the building which will serve as a laundry area with coin operated washers and dryers, and trunk storage.

The construction will be reinforced load bearing brick with reinforced concrete walls and columns in the basement. Reasons for choosing the load bearing wall system include the attractive appearance and acoustical advantages of 6" thick exposed brick walls between rooms, and the building can be erected more rapidly than if it were constructed with a reinforced concrete frame. The floor construction will consist of precast concrete tees with 2" concrete topping.

The exterior of the building will be a combination of brick and exposed concrete, which will match the existing campus buildings in terms of materials. The panels between the windows will be textured precast concrete.

This building will be entirely heated by electricity. Each bedroom will have its own heating unit, and, thus, will have its own thermostat. The ground level will be both heated and cooled electrically.

It is expected that construction will be underway by the first of November, 1967, and that the building will be ready for occupancy by the first of March, 1969.

—P. R.

THE TEACHER EDUCATION CENTER

The new facilities for the College of Education at New Mexico Highlands University will front onto a recently developed campus park. The designs for the project include two single story units and elevated two story block. The elevated element will span the plaza area created between the separate single story units.

The plans for the 38,000 square foot, concrete frame structure are being prepared by Robert Walters, architect.
Camp Stoney, near Santa Fe, New Mexico, is located on a beautiful unspoiled site of 1500 acres of foothills wooded with pinon and juniper with magnificent views of the high mountain country. At an elevation of 6000 ft., it has a wonderful climate of cool nights and warm sunshine filled days. Moisture is rationed; just quick thundershowers. The Camp is harmonious with these surroundings, and each building is carefully oriented as to location of trees, views, and sun.

The Client desired a maintenance free Camping Center for Young People. (Use of these facilities as a Conference Center is of secondary importance.) The buildings were designed with sturdy elements and rugged materials; each has a beauty of its own—brick, stone, concrete, prefinished decking, and laminated beams.

The Chapel is the focal point as this is a "church camp." A large white concrete cross symbolizes the role of the Church in the World, and is dominant from the exterior. The native stone wall of the altar area needs very few appointments to enhance the church-like quality. There is much weather protection with a roof, brick piers and storage walls, but the open air quality is preserved for communion with nature.

The goals of the architect were to provide the client a Camp facility with durability to function well for years and to age gracefully, with flexibility to accommodate the programs of the many and varied Camp Directors who plan for the different age groups of youngsters, and, above all to create an atmosphere to inspire the young people in their relationship to God and to their Fellow Campers.

—A. S. M.
The camp is divided into separate bunk house areas for boys and girls. Each of the areas contains three bunk houses and a bath house. Built as simple "A" frame structures, each bunk house has accommodations for sixteen campers. The deep porches provide sheltered gathering places for group discussions and teaching sessions.

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SOUTHERN UNION GAS COMPANY
The Wooden Walls of Territorial New Mexico

by:
Richard E. Ahlborn
Associate Curator
Division of Cultural History
Smithsonian Institution
Washington, D. C.

Architectural historians seem to agree that Spanish buildings in New Mexico are characterized by wall construction in adobe brick.

The classic work on Hispanic structures in New Mexico by George Kubler (1940) focused on the region’s remarkable series of Franciscan churches. Although many of these were built of stone in the first colonial period, 1598-1680, they converted largely to adobe wall construction in the reconquest era, 1693-1821. More recent investigations, including Taos Adobes, (1964) and the article on “The Architecture Of Northern New Mexico” in the 1966 September-October issue of this journal by co-editors Bunting and Conron, pointed out the continuing significance of adobe construction in the Mexican period, 1821-1848, and to a slightly lesser extent in Territorial times, 1848-1912.

Between the Mexican and First World War, building projects in New Mexico reflected the shifts from Hispano-Mexican to Anglo-American authority, technology and taste. An influx of Protestant sects increased ecclesiastic building, and the new Territorial Government required expanded space. In addition, there was the need to house a new complexity of secular institutions, both military and commercial. The diminished threat of Indian hostilities, the advance of rail lines and communication ties, and the remarkable increase of governmental and commercial activities all implemented an expanded physical and economic security. Photographs suggest that the resulting commercial and governmental buildings in post Civil War New Mexico drew inspiration from stone and brick models of Mid-western Victorian revival styles.

The military end of the War between the States found men moving westward again. From 1870 to 1910 the number of inhabitants in New Mexico rose from ninety-two thousand to three hundred and twenty-seven thousand. Settlers, new and old, needed houses.

The older building technology of adobe wall construction was not always sufficient. Moreover, Anglo-Americans were accustomed to solving their domestic housing problems with wood. Powered saws, planers and lathes, as well as the wide variety of molding planes, from Sandusky and eastward, joined the adze, auger, axe, hand lathe, and other traditional tools introduced by Spaniards before 1600. The domestic architecture in New Mexico became a blend of Hispanic and Anglo-American woodworking technology.

Spanish-Americans were masters at woodwork. Seventeenth-century churches and houses in Mexico displayed precisely cut and intricately fitted wooden ceilings and framed doors whose design origins lay in the Mudejar style of Moorish Spain. Even along the unstable northern frontier of New Spain, handsomely carved wooden beams (vigas) supported heavy earthen roofs in 17th-century stone missions. It is, however, not in these imposing, official struc-
tures of colonial New Mexico, but in the vernacular building methods used by Spanish settlers to raise fences and house walls that we must look for an Hispanic building tradition in wood that persisted through Territorial times.

In New Mexico, Spaniards called a wall of vertical members a *jacal*. The method, often used in pre-Renaissance Europe to form a defense wall, was known as a pallisade: stakes driven upright into the ground and lashed together. Spain and Mexico used the *jacal* to fence in corrals. By Territorial times in New Mexico, closely set posts filled in with adobe plaster served as walls for corrals, stables and houses.

On the Atlantic coast, settlers from northern Europe also built wooden walls before 1700. While Englishmen employed vertically set timbers and inner planking, Scandinavians raised walls of horizontal logs. Massive framing with stout vertical beams eventually gave way to balloon construction in well-settled areas, but houses built of logs set lengthwise and notched at the corners followed the frontier West. The log house moved into the great river basins and plains, and finally out to California and New Mexico.

Plate 1 shows the two basic methods of constructing a solid wooden wall just described: the vertical post and the horizontal log. Both techniques appear in a single structure built a few miles north of Española on the Chama river, probably before 1900. The form of house and stable are not clearly separated — a practical combination used from rural times in Medieval Europe through frontier times in our Western States. The wall building technologies of Hispano and Anglo-Americans, the use of available materials, and the continuation of a traditional way of life are successfully combined in this specimen of vernacular architecture. It is an exceptional document of the cultural history of Territorial New Mexico.

In our example, the upper end of each vertical post is cut into a tenon. When lined up, the pointed ends establish a running tongue. This lets into a groove cut on the underside of a horizontal capping beam. In nearby corrals, posts set at intervals and at
corners are often allowed to retain their natural forks in order to support a capping beam placed at right angles to the parallel walls which they brace. Where nails are plentiful, tops of posts are cut flat and covered by a plank. In houses at Cañones, this plank supports ceiling beams (vigas), whose ends are cut flush with the wall and covered with a fascia board. Cracks between posts are filled with adobe plaster, often of sufficient thickness to hide the facal construction. These methods of building wooden walls with vertical members as seen in rural northern New Mexico seems to be a Spanish innovation.

On the other hand, the "log cabin" type of wall appears to have been introduced to New Mexico by eastern settlers from Ohio, Missouri, and Kentucky by early Territorial times. An inventory of 1766 (Twitchell 1, no. 454) in the Land Management Bureau at Santa Fe suggests a house made of logs, but the description is too brief to establish the exact method of wall construction. Fortunately, early photographs provide visual documents of log build-

ings in New Mexico, such as the grist mill at the Pascual Martinez house in Taos.

This trading center for Indian and Spaniard, and later for eastern trapper and mountaineer, was the site of a sawmill set up by Wilfred Witt before 1860. Las Vegas, because of its site on the railroad, had the Territory's first planing mill in 1879. (Bunting, Taos Adobes, p. 11)

Plate 2 indicates a distinctive use of milled lumber in a barn at Vallecitos. Short, thick planks, averaging 4 by 6 by 48 inches, are nailed horizontally over a frame. The unusually short length of these planks may be the result of spacing between studs. However, the lack of uniform size suggests the economic use of scrap lumber. Horizontal sheathing on the gable ends of the barn introduces the third type of wooden wall common to Territorial New Mexico.

Throughout sparsely settled Rio Arriba county, numerous post-Spanish War houses display board and batten gables set above what appear to be traditional walls of adobe brick. Actually, these walls are
made of frames covered with horizontal wooden siding. On this board surface, strips of lathing are set at an angle about a foot apart to produce a diagonal pattern of ridges that hold a thin covering layer of adobe plaster. Board siding may also be set on the diagonal and covered with tar paper before the slanting pattern of lathing is nailed on. The shallow crust of adobe which is held by and covers over the diagonal lathing requires constant repair.

Plate 3 illustrates a common variation in the frame, siding and lathing wall. Here, wider lathing is attached as vertical planks, but the lathing is again used to support a surface of adobe plaster. The adobe surface has fallen away to reveal a set of short, narrow planks set perpendicular to a horizontal median board under a window. Built shortly after the nearby south penitente morada of Abiquiu (about 1910), the small building serves as a tiny chapel honoring Our Lady Of Guadalupe.

Wood also appears in buildings of adobe brick. Short beams appear as deeply set lintels over door and window openings. Planks are used to strengthen and level the courses of adobe brick. However, neither use of wood represents the extent of technological innovation shown in the vertical post or diagonal lathing method.

We may assume that the lack of wooden walls in Spanish-colonial New Mexico reflected a cultural preference for adobe technology, as well as an acceptance of the relative inaccessibility of large timbers. Even in Hispanic houses of the mid 1800's, including those built near forested mountain slopes and well-timbered streams, walls of adobe brick predominate. (Post or jácal walls are poorly documented before 1850.) It is not until railways carried machinery for planing and sawmills into the territory that houses began to display the variety of wooden walls described here.

The Territorial architecture of New Mexico is distinguished by more than wooden pediments and porch banisters, and patterned cornices of kiln-fired brick. The Hispanic use of vertical-post walls continues alongside methods of the English-speaking frontier to raise walls of horizontal logs and, with the introduction of milled, standard size pieces of lumber, of siding and lathing on framed studding.

In comparison to Spanish colonial times, adobe takes on a less dominant role as the basic building material of the region. Brick, stone and wood begin to win popular use. But it is noteworthy that adobe is used on board walls of diagonal lathing and vertical ports, perhaps as an Hispanic preference for its visual effect.

Despite the increasing weight of Anglo-American culture, its materials and technology, the traditional forms of late Spanish-colonial architecture in New Mexico persist through the 1800's and well into the present century. This heritage included the use of wooden walls in the vernacular buildings of Territorial New Mexico.

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