

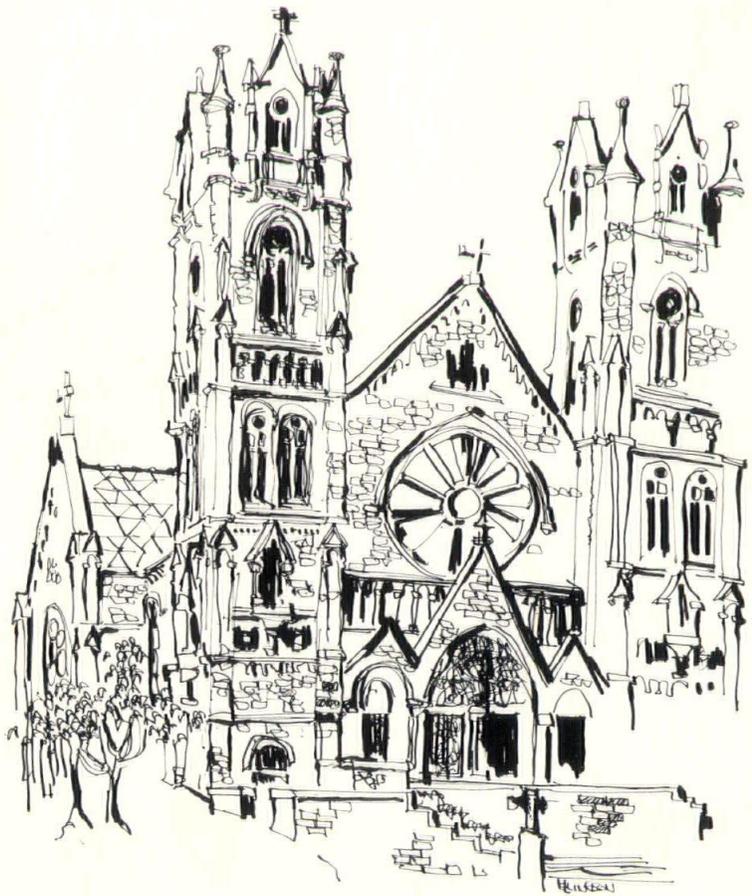
e

AMERICAN INSTITUTE  
OF  
ARCHITECTS

AUG 9 1961

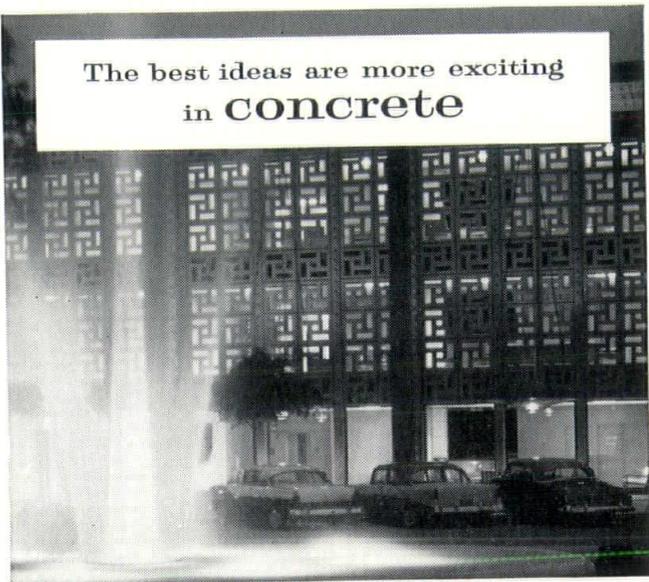
**LIBRARY**

UTAH SUMMER 1961



**A I A · A R C H I T E C T U R E**

The best ideas are more exciting  
in **concrete**



Stanford University Medical Center, Palo Alto, Calif. Architect: E. D. Stone, N.Y. Structural Engineers: Pregnoff & Matheu, San Francisco

## Decorative patterns in concrete give unity and beauty!

At the new Medical Center in Palo Alto, precast concrete grilles provide a strong light-and-shadow pattern to set the design theme repeated on other concrete surfaces. The elegant beauty achieved gives dramatic evidence of concrete's esthetic versatility and its structural advantages.

### **PORTLAND CEMENT ASSOCIATION**

307 Executive Bldg., Salt Lake City 11, Utah

*A national organization to improve and extend the uses of concrete*

UTAH ARCHITECTURE

SUMMER 1961

PRESIDENT'S LETTER ..... 5  
IMPRESSIONS ..... 7  
CONFUSION IN ARCHITECTURE ..... 10  
NEWS ..... 12  
ITEMS ..... 17  
RICHARD KLETTING ..... 20  
TESTING CONCRETE ..... 23  
EDITORIAL ..... 28

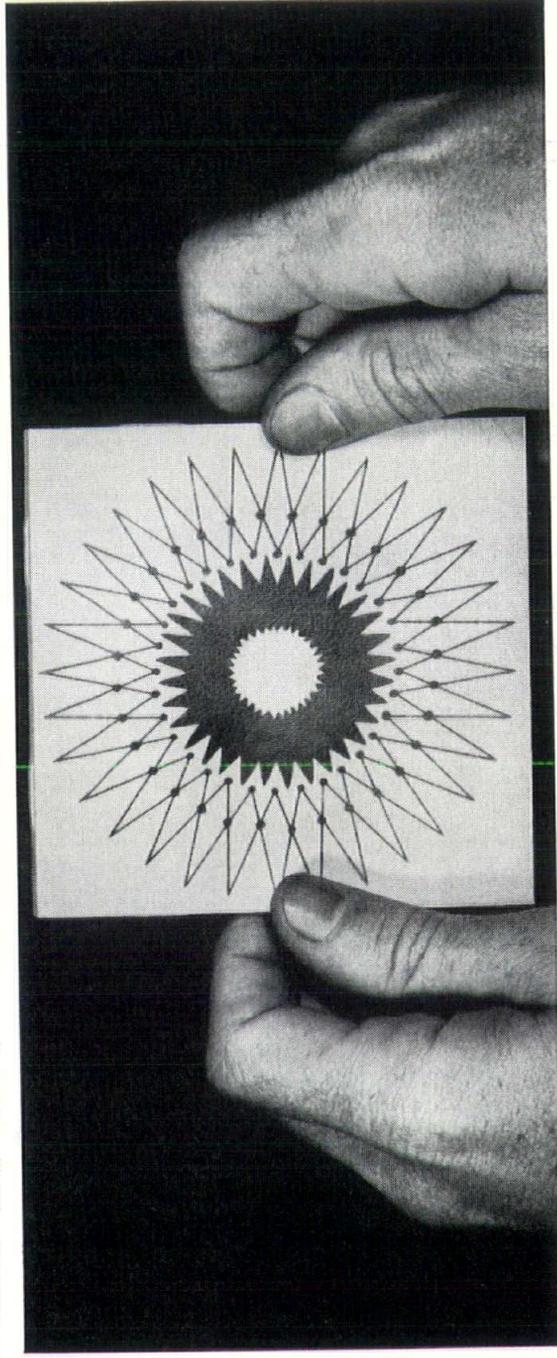
*Published by Utah Chapter, American Institute of Architects, No. 25*

*President ..... M. E. Harris, Jr.*  
*Vice President ..... Nathan Woolley*  
*Secretary ..... Bruce R. Dixon*  
*Treasurer ..... Peter M. A. Moyes*

*Editorial Staff: George N. Daniels, John R. Smith, Donald Bergsma,  
William W. Louie, William Browning, Nelson Aldrich, Dolores Hilton*  
*Cover Design: Ed Maryon                      Cover Sketch: Paul Ellingson*

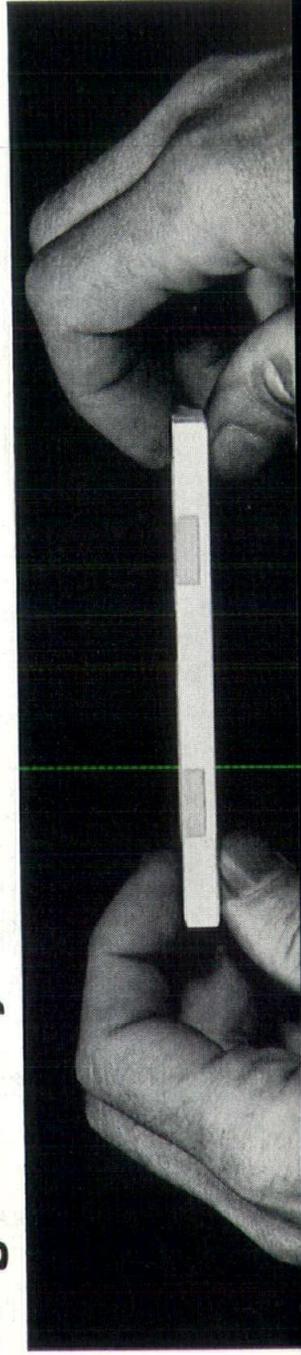
**Fine as ever on the front...**

Clearest everlasting colors, best designs  
(This one: **Sun Circle**)



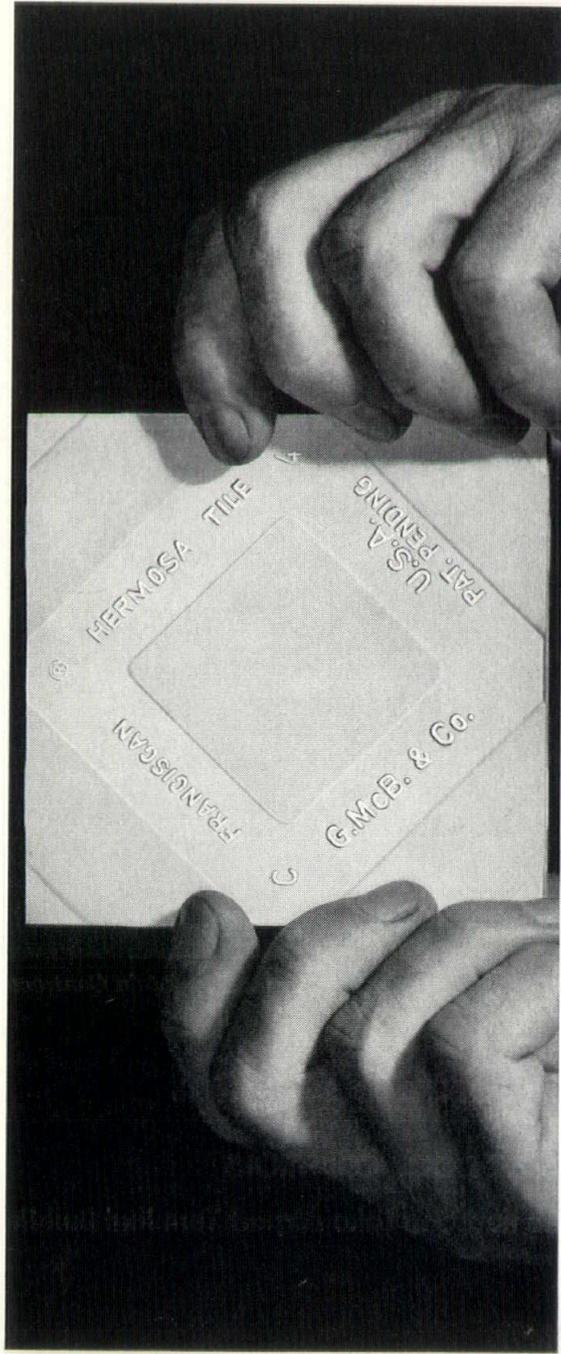
**Tough as always thru and thru...**

Rugged strength for long-lasting beauty



**THE NEWS IS ON THE BACK**

glazed ceramic tile from now on. And because you deal in the finest, you will be seeing the name often.



## Franciscan Hermosa Tile

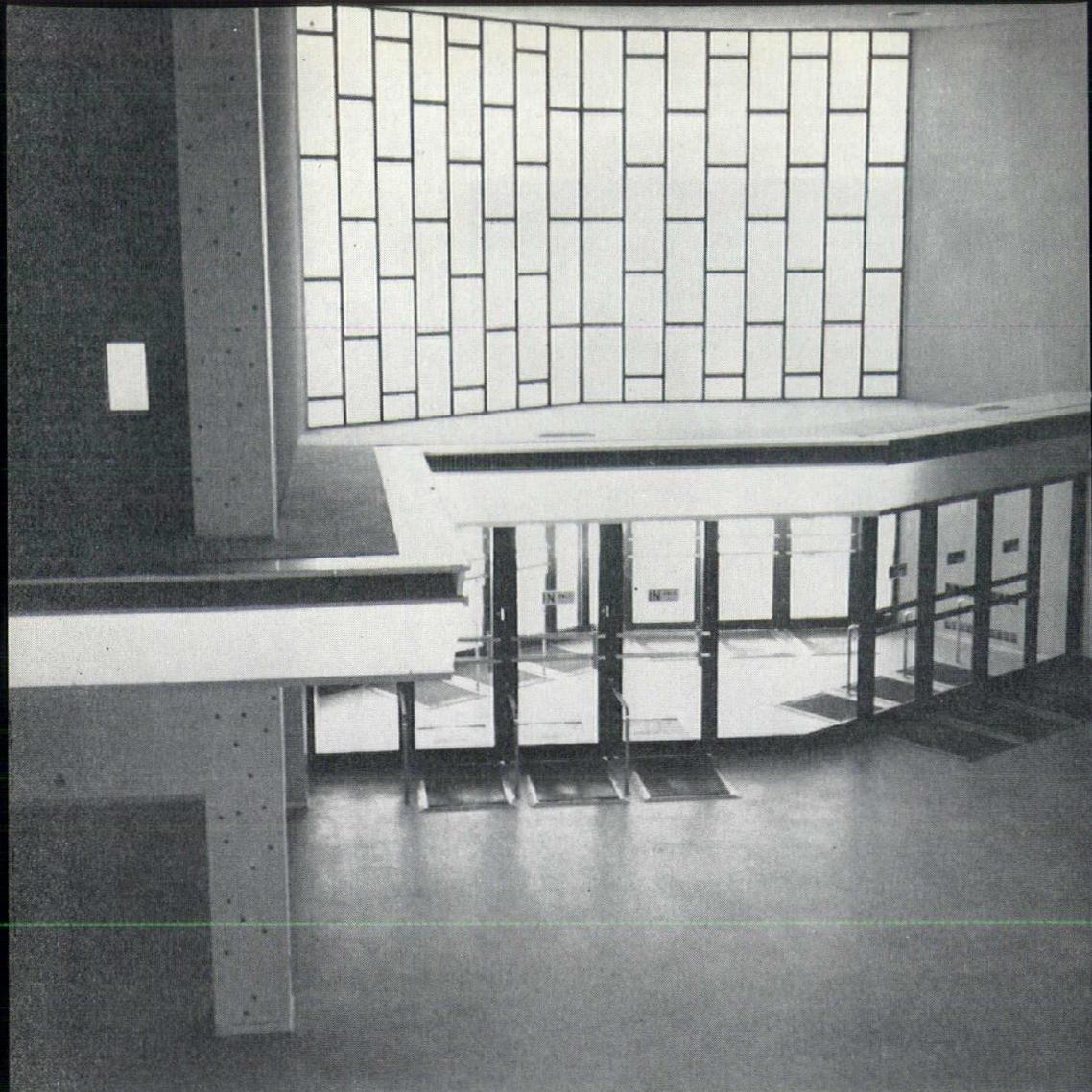
*(formerly Hermosa Tile)*

ARCHITECTURAL PRODUCTS DIVISION

**GLADDING, McBEAN & CO.\***

SALES OFFICES: LOS ANGELES • SAN FRANCISCO • PORTLAND  
SPOKANE • SEATTLE • PHOENIX • SALT LAKE CITY

\*You know them—they make Ceramic Veneer, Solar Screen, Ceramic Mosaics, Roof Tile, Lincoln Glazed Brick, Quarry Tile, Contour CV... and Franciscan Hermosa Tile.



*Architect: Ashton, Evans & Brazier*

*Photo: Intermountain Contractor*

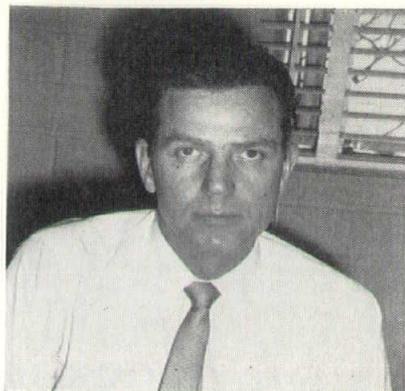
**SUPPLIERS FOR  
SAN-PAN TRANSLUCENT FIBERGLASS PANELS  
AND  
STANLEY AUTOMATIC DOOR CONTROLS**

... as used in the new Salt Lake Airport Terminal Building

***7. C. Stayner***

2985 SOUTH SECOND WEST - SALT LAKE CITY, UTAH

HU 4-4411 - CERTIFIED ARCHITECTURAL HARDWARE CONSULTANTS



## PRESIDENT'S LETTER

Philadelphia, the scene of the 1961 Convention of the American Institute of Architects, is also the scene of one of the most far reaching examples of the redesign of the downtown area of a city.

The theme of the Convention was "Re-designing Urban America." The program of the Convention was well designed and certainly to the point.

The Key-Note Address was given by Sr. William Holford, FRIBA, President, Royal Institute of British Architects. He indicated how the Architect is deeply involved in urban design, whether he is conscious of it or not; that the success of each new building is measured in a large part by how well it fits the city pattern.

Following speakers Dr. Robert C. Weaver, Administrator, HHFC; Bruno Zevi, Architectural Historian, University of Rome; and Lewis Mumford, Philosopher and Critic, developed an atmosphere of real reflection on the theme.

The culminating program of the Convention was given by the re-planners of Philadelphia. Moderated by Edmund N. Bacon, this program traced the efforts in redesigning downtown Philadelphia, from the beginning to date, in a most inspiring and sobering manner.

It was inspiring in that it was a comprehensive job well done. It was sobering in that it was an arduous task, covering many years, to conquer the problems of Public Apathy, irreconcilable differences of opinion among vested interests and great political resistance.

What does this mean to us?

Well, the Downtown Planning Association, Inc., of Salt Lake City, composed of many interests, has accepted our proposal to study the downtown area and to develop the "Second Century Plan" for downtown Salt Lake City. They have pledged \$35,000.00 to cover expenses of the program.

The Utah Chapter has pledged 3000 hours of time to this project.

We will want to be well informed and take full advantage of recent experiences of planning groups in other cities. It behooves us to make the most of their experiences.

We will need to keep close to the political situation and will need to help stimulate public interest in order to get a good design implemented.

The Philadelphia Convention re-emphasized that good design without implementation serves only the academic.

We want to make this a meaningful contribution to *our* city, esthetically, economically and to its social well being.

M. E. HARRIS, JR.

Look into *Flameless*

**ELECTRIC  
HEATING**

**for Your Building**

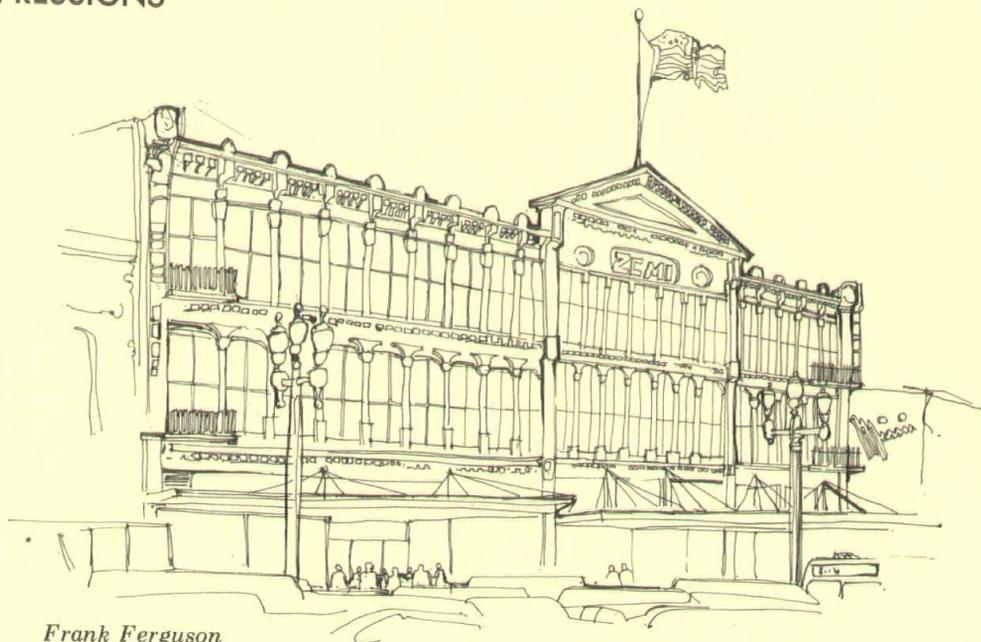
Our salesmen will be happy to give  
you information on request.



**UTAH POWER & LIGHT CO.**

Buy now from your dealer

## IMPRESSIONS



*Frank Ferguson*

*ZCMI FACADE Folsom & Taylor*

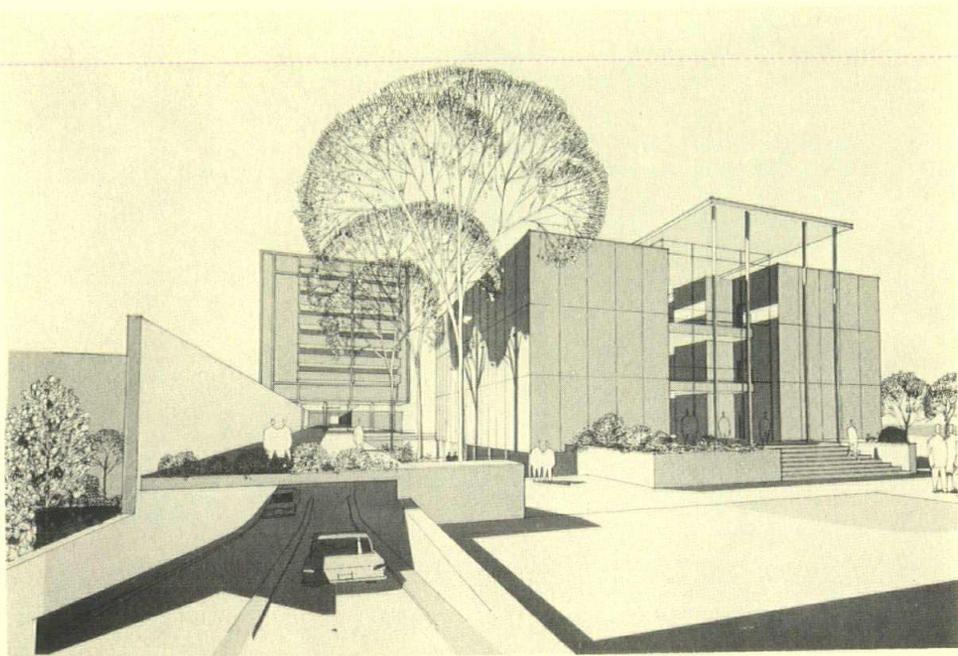
## PRESERVING THE PAST

We have noticed, with great pleasure, letters published in the local newspapers expressing concern over the possibility of the destruction of the facade of the ZCMI Department Store. It was also interesting to note that George Nelson, internationally known designer, on his first visit to Salt Lake City acclaimed the facade as "one of the most handsome facades in America," and suggested that it not be removed in the name of progress.

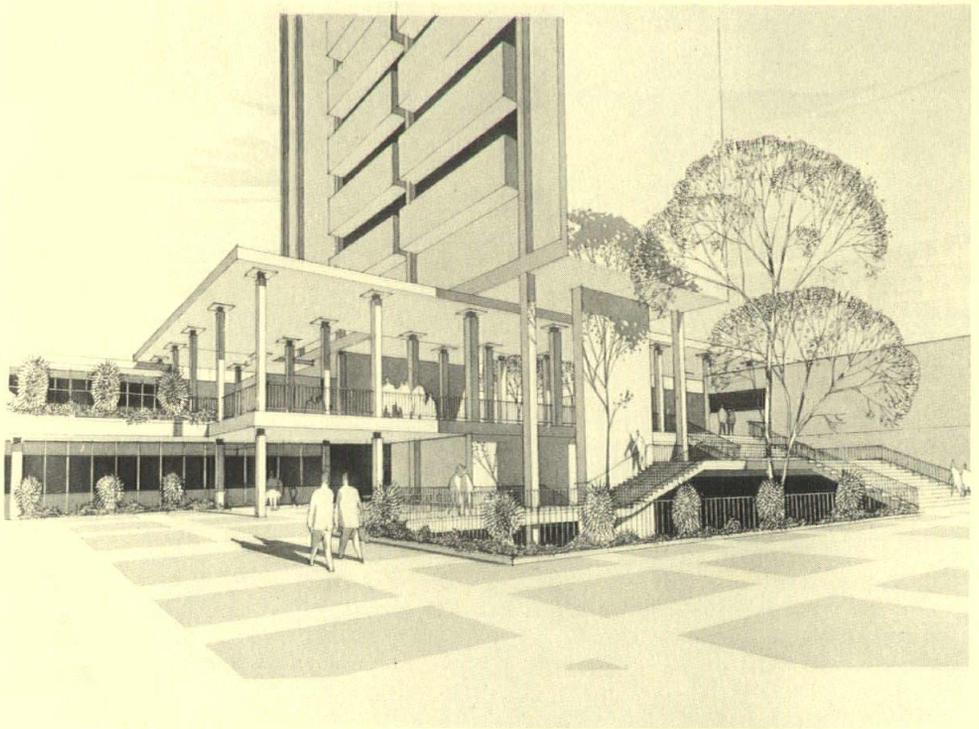
This is indeed an age of remodeling our cities — at any cost. The charm of some of our historic streets needs protection against plain modernity. We should judiciously guard these architectural features which deserve preservation.

The Church is to be complimented for the restoration of the Beehive House. This structure is important to the Church and its tradition. But who is responsible for the tradition of the city? The distinctive facade of ZCMI clearly expresses the store's heritage. But it expresses the city's heritage as well. We should not fool ourselves into thinking that a clever flashing sign could express this heritage as well.

If we are ashamed to ask that the facade be preserved in the name of beauty, then let us ask for it to be preserved in the name of tradition. Being a champion of tradition is less embarrassing than being a champion of beauty.



*PUBLIC SAFETY BUILDING Salt Lake City  
Harold K. Beecher & Associates  
E. Joe Ruben, Delineator*





## CONFUSION IN ARCHITECTURE

HENRY HILL, A.I.A.  
*San Francisco, California*

Recently our national publications have pointedly pointed out to us the confusion in architecture we are now facing . . . which is, of course, only of our own making. We owe serious thanks to our spokesmen and to the serious remarks of our own observers for emphasizing to us the obvious which we seemingly ignore.

A few are making strong, positive three-dimensional statements in architecture; there are others — though more quietly — making many valid statements of conviction. But

so many more have become unaware of the great potential of what their work may be. It is to them that I make a most serious appeal.

Need we not question ourselves to find out what we are doing — thus to gain understanding?

Is there even one truly valid reason for the confusion we are in general now making?

I do not believe so — it simply does not make sense.

I do not believe that the architect has given real thought to what

*Sketch by Gary Pickering*

he is doing. He seems to have either forgotten or deliberately ignored the basis of his work — the basic principles of his profession. Outward forms or methods of expression may change, but do the *principles*?

There must be recognition of the principles, and each must find his personal definition, before we can make a truly three-dimensional statement. But now the architect is no longer governed and disciplined by the fundamentals, or even considers them. How hollow our work becomes when there is no substance.

If the architect continues in this, he is abdicating his already questionable position as an Architect, and continues in mimicing what others have done . . . not even questioning whether the original is bad or good, and why. He is disregarding the fact that what the others have done is only *their* solution, to *their* problem, on *their* site, within *their* budget.

We are not playing a game of blindly "following the leader" or even worse, "copy cat"; it is not a question of "what is being done", what is a "trend", what is a "fashion"; if this is so, why not stop the pretense of trying to be an Architect?

Have we come to the point when we can blissfully ignore reason — or are we so good that we dare to defy it?

We have so much technical and material development at our disposal to use — and to use well. We have the opportunity to develop a

new concept of space — which has been given to us during the past 50 to 75 years — and to participate and realize in this concept. So often now we use materials for themselves rather than for what they can do for us; we contrive displays for their own sake rather than to allow development from the instance; we consider forms rather than the SPACE which form defines. We ignore fundamental logic = of course there is confusion!

Our fundamentals are so simple: orientation, use, circulation, proportion, and scale. We must express them with thought and with sensitivity; then we shall have an ordered architecture . . . and not the order of cold precision, but the order of knowledge. Above all, we have an understanding of the human individual. We must express this understanding to the extreme limit of — and even beyond — our individual ability; and then we can arrive at a *great* Architecture.

Principles when taken for granted are, in turn, mistreated. When they are overlooked, ignored or forgotten, our Architecture becomes meaningless. If we have been, and are ignoring the fundamentals, we can only continue to surround ourselves and our fellow beings with the mediocre.

It is within our capacity to point the way — and what waste if we do not! We have the ability, through understanding and sensitivity, to create order . . . and thus, beauty.

## SECOND CENTURY PLAN

The downtown planning project proposed by the Utah Chapter at a breakfast meeting last September to property owners and businessmen is now underway.

Elected as officers at the December meeting were: James E. Hogle, president; Wendell B. Mendenhall, vice president; John N. Krier, treasurer and chairman of the finance committee; Stanford P. Darger, secretary and Eric C. Aaberg, chairman, executive committee. The corporate name of the organization will be DOWNTOWN PLANNING ASSOCIATION, INC., and the project will be known as Salt Lake City's 2nd Century Plan.

Executive committee members in addition to Mr. Aaberg are: Mr. Mendenhall, vice chairman, Mr. Krier, Mr. Hogle, Harry E. Carlson, Gus P. Backman, John W. Gallivan, Dr. O. Preston Robinson, Harold J. Steele, Walker Wallace, Jules Dreyfous and Kendell D. Garff. Nelson W. Aldrich has been named coordinator.

Finance committee members are being selected as Utah Architecture goes to press and by the time of publication the committee should be finalized.

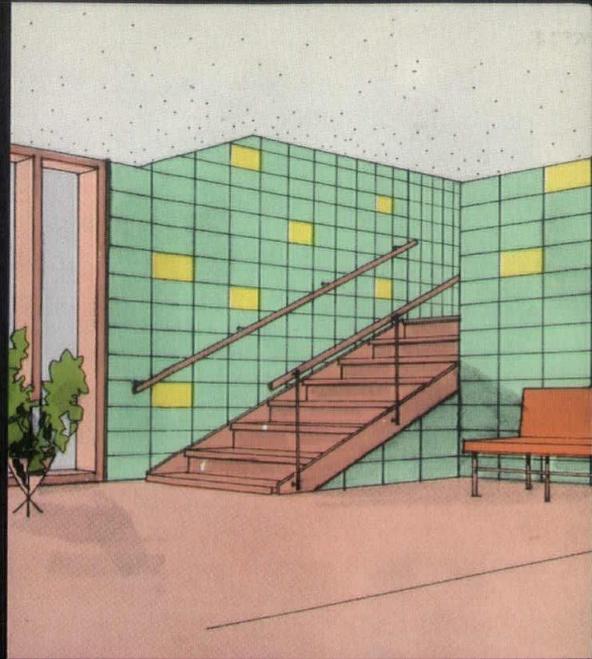
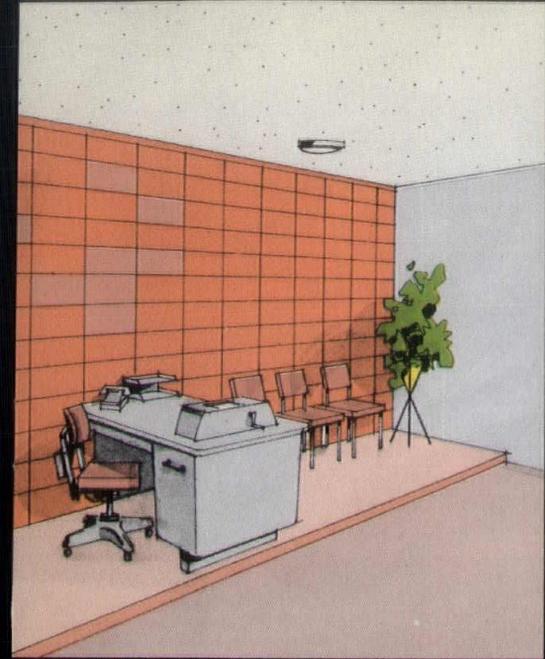
At a meeting May 25th, the executive committee approved a budget for the project of \$35,000 which the finance committee will seek from downtown property owners on a con-

tribution formula previously approved. Mr. Backman generously offered space at the Chamber of Commerce offices, rent free. Suitability of the space is being investigated.

The Utah Chapter's committee on the Salt Lake downtown master plan is meeting weekly. Initial task will be to collect existing useful information and data and to determine criteria for the plan. Members of this committee are: George Cannon Young, John W. Sugden, Don H. Panushka, Martin C. Brixen, Richard B. Stringham, R. Lloyd Snedaker and Dean L. Gustavson, chairman.

Time between now and October 1st will be devoted to program determination and the period from then to April 1st, 1962 will be used in actual planning, preparation of a model and auxiliary activities. The pledges of individual architects to devote free time to this important project will be utilized during the planning stage.

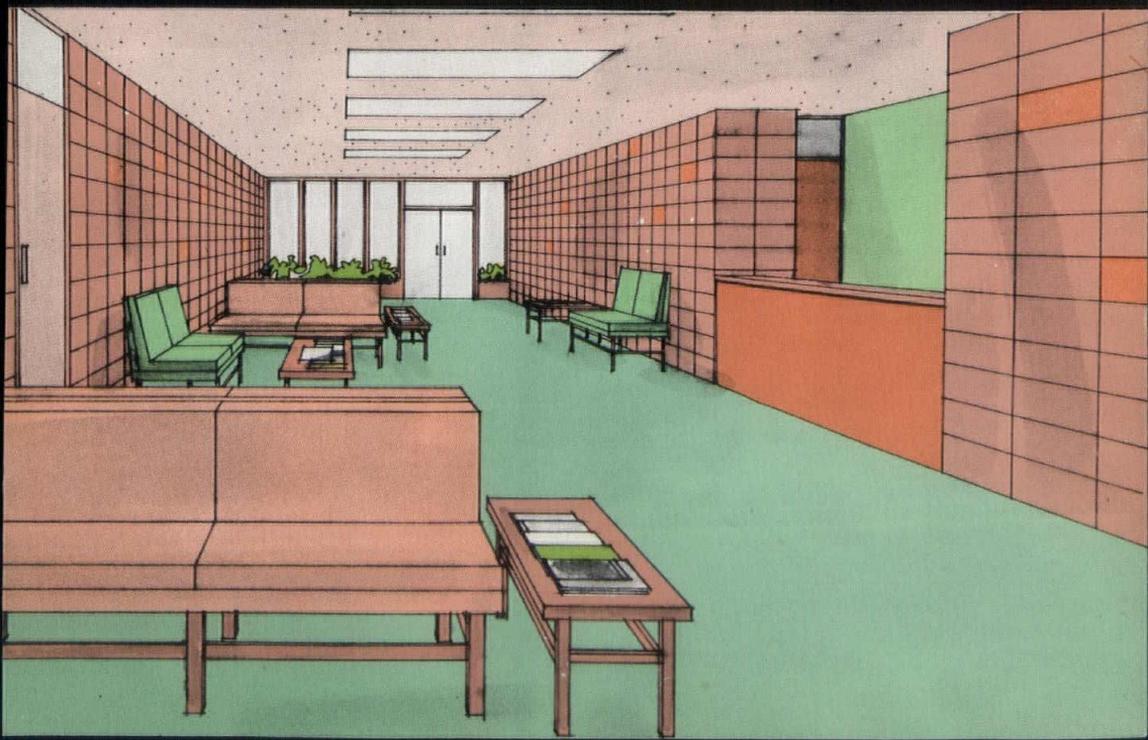
The offer by the Utah Chapter and the generous pledges of individual architects to give professional time and talent will constitute a major contribution to the future of Salt Lake City. Enthusiasm for the project is high among the board of directors of the Downtown Planning Association. Board members are all leading businessmen and property owners with a reputation for genuine interest in the City's future.

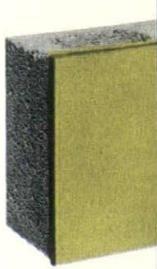


*Spectra-Glaze*®

CONCRETE MASONRY UNITS

A NEW DIMENSION  
IN ARCHITECTURAL DESIGN  
AND COLOR DYNAMICS





*Spectra-Glaze* units are structural, lightweight VOL-VI-HI Concrete Masonry units, face-glazed with a permanent, colorful, smooth finish.

*Spectra-Glaze* provides a load-bearing wall using block construction - with a ready-finished interior wall surface of unusual beauty and striking color.

*Spectra-Glaze* is approximately 25% lighter than conventional structural masonry.

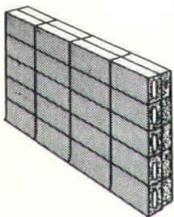
For the Full Story  
 a load-bearing 8"x16" glazed masonry unit

*Spectra-Glaze*

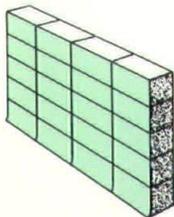
EACH UNIT IS LOAD-BEARING WIDTH • MODULAR  
 IS CHEMICAL AND STAIN RESISTANT  
 THE FACE OF EACH *Spectra-Glaze*

*Spectra-Glaze*

ELIMINATES BACK-UP WALL



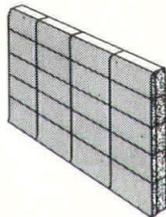
4" Structural Facing Tile and 4" Block for 8" Wall  
 Average in the wall cost \$2.50 to \$2.75 per square foot



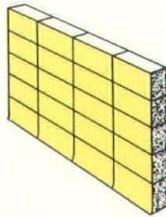
LEFT:  
 8" Spectra-Glaze unit  
 Average in the wall cost \$1.90 to \$2.15 per square foot.

*Spectra-Glaze*

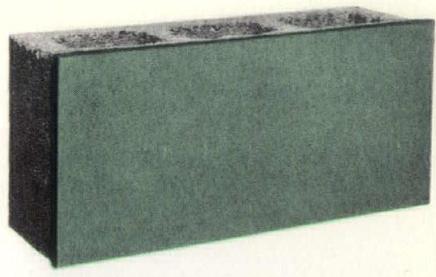
PARTITION WALLS (one wall - not two)



LEFT:  
 2" Structural Facing Tile, and 4" Block for 6" Wall  
 Average in the wall cost \$2.25 to \$2.50 per square foot



LEFT:  
 6" Spectra-Glaze unit  
 Average in the wall cost \$1.75 to \$1.90 per square foot



saves approxi-  
mately 1/2  
the wall cost as  
compared to  
conventional  
glazed materials.

*Spectra-Glaze* is dramatically versatile in application with a wide range of satin gloss colors readily available. Exposed mortar joint is 1/4" in regular 8" course.

*Spectra-Glaze* meets Glazed Tile specifications A.S.T.M. C-126 for opacity, imperviousness and chemical resistance of finish.

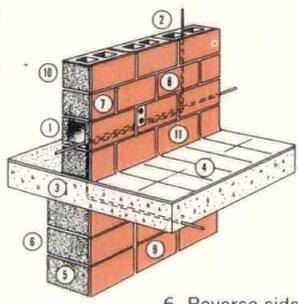
**SAVES TIME -**  
*Unit in a wide selection of beautiful colors*

- CONCRETE MASONRY UNITS
- HAS PERMANENT COLOR • STRAIGHT, TRUE EDGES
- LIGHTWEIGHT • HAS LOVELY SATIN FINISH
- EACH UNIT IS A HEAT-TREATED GLAZE



FOR BEAUTY, UTILITY, LOW COST

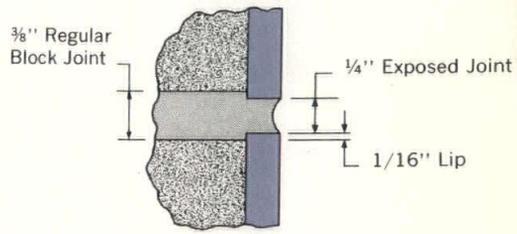
ELEVEN  
WAYS  
BETTER



1. Bond beam units accommodate wiring or plumbing.
2. Vertical cores simplify electrical work.
3. Base eliminates expensive recess - allows lighter floors.
4. Base designed for all flooring materials, including resilient tile.
5. Thru-wall units eliminate back-up wall. Thicknesses 2" to 12".
6. Reverse side of glazed units provides finished block wall.
7. Lighter weight units - lighter walls.
8. Range of 54 colors available.
9. Exact faces permit exact stack bonding.
10. Protection of established fire ratings for concrete units.
11. All units modularly dimensioned, nominal 8"x16" face standard.

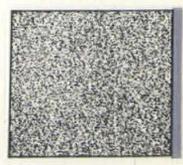


1/4" EXPOSED MORTAR JOINT



FIRE RATED WALLS

- 4" Spectra-Glaze Block with One-Hour Rating
- 6" Spectra-Glaze Block with Two-Hour Rating
- 8" Spectra-Glaze Block with Four-Hour Rating



Only Spectra-Glaze Blocks give you fire rated walls and still meets A.S.T.M. C-126 for imperviousness, opacity and resistance to fading.

# *Spectra-Glaze* CONCRETE MASONRY

## Manufacturer's Specifications

1. **BASE BLOCK:** Vol-Vi-Hi Concrete Masonry units to be glazed are top grade units conforming with the latest revision of A.S.T.M. Specifications for Concrete Masonry Units.
2. **TOLERANCES OF FACING:**
  - a. Permissible Variations in Face Dimensions from Standard Dimensions:  $\pm 1/16''$ .
  - b. Permissible Variations in Bed Depth Dimensions from Standard Dimensions:  $\pm 1/16''$ .
  - c. Maximum Permissible Face Distortion:  $\pm 1/16''$
3. **COLOR:** As with any manufactured item, a minor variation in shade or color is to be expected. SPECTRA-GLAZE has reduced this to a minimum. The color of the surface shall conform to an approved sample consisting of five stretcher units fully representing the range of shade and color.
4. **QUALITY:** The glazed surface shall be free from chips, cracks, pinholes and other imperfections detracting from the appearance of the finished wall when viewed at a distance of 5 feet.

G

C

P

## GLAZED CONCRETE PRODUCTS, Inc.

*A Division of Utah Concrete Pipe Company*

105 17th STREET, OGDEN, UTAH • TELEPHONE EXport 9-1171

AUTHORIZED MANUFACTURING DISTRIBUTOR FOR *Spectra-Glaze*  
FOR UTAH, IDAHO, NEVADA

## Architect's

## Specifications

1. **BLOCK:** The Vol-Vi-Hi Masonry Units used for Concrete for SPECTRA-GLAZE conforms to latest revision A.S.T.M. Specifications for Concrete Masonry Units.
2. **GLAZING:** Glaze units with SPECTRA-GLAZE COMPOUND Type B, of the Burns & Russell Company of Baltimore, Maryland, applied in accordance with their instructions.
3. **SIZE:** Except as otherwise noted, SPECTRA-GLAZE units shall be nominal 8"x16" face size.
4. **PACKAGING:** Each SPECTRA-GLAZE Unit is individually carton-protected for shipping.

## Guarantee

If it can be established within one year that any material does not conform to the standards and tolerances listed herein, the manufacturer will replace defective units. The total measure of responsibility after units have been installed will be the supplying of replacement units to the site without charge, but no charge for reinstallation or damage occasioned thereby will be allowed. The manufacturer neither assumes nor authorizes any other person to assume for him any other liability. No replacement will be made of units chipped on job or after installation.

# ITEMS...

## EXAMINATION

The Architect's licensing examination for 1961, will be conducted beginning September 18, 1961. The Utah State Department of Business Regulation should be consulted for the place and for other conditions which much be fulfilled.

## NEW OPPORTUNITY

The Concrete Industries Horizon Home Program is well underway in Utah according to Alan C. Carter, District Engineer for the Portland Cement Association. Three AIA Architect-designed homes are in the planning or construction stage in Utah, and more than 150 others are being built across the country.

Utah's Horizon Homes were designed by AIA members John N. Clawson for Alan E. Brockbank of Salt Lake City; by Dixon, Knell, and Long for Leland J. Wells in Lehi; and by L. Don Frandsen for Lew Westenskow in Roy. Designing a Horizon Home automatically enters the architect in a nationwide contest. The architect who presents the most interesting, well-planned, and appropriate home, as judged by a jury of architects and concrete products producers, will win a trip anywhere in the world for himself and his wife. There will also be regional awards.

The objectives of the Horizon Home Program are threefold: To show builders the advantages of original, competent design by registered architects; to develop and publicize new and exciting uses of concrete and concrete masonry in housing; and to interest public in new home building.

The Horizon Homes in Utah are being sponsored by local members of the National Concrete Masonry Association and the National Ready Mixed Concrete Association.

## WHAT IT TAKES TO BE AN ARCHITECT

During a panel discussion at the Yosemite convention, Charles Luckman outlined 20 professional and 28 administrative services necessary for an architect to perform in operating his own firm.

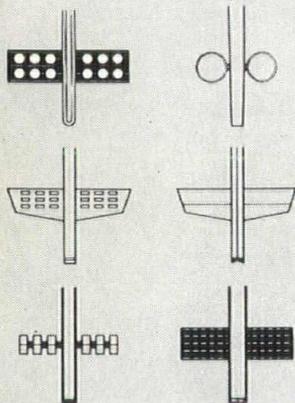
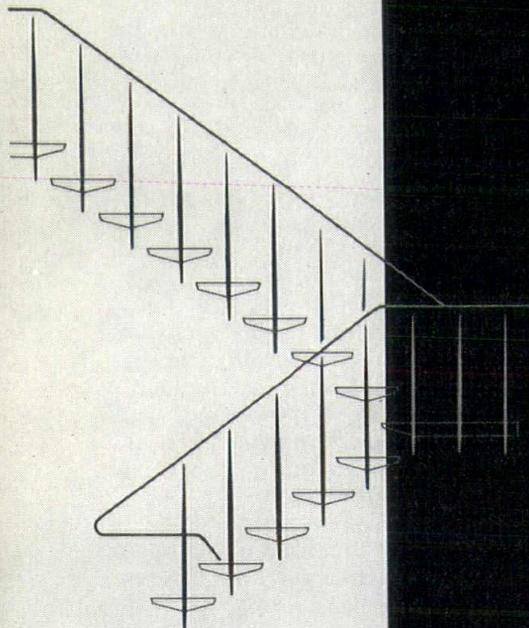
### PROFESSIONAL SERVICES

1. Design
2. Engineering
3. Schematic, preliminary, working drawings
4. Approval of shop drawings
5. Construction supervision
6. Selection of materials
7. Selection of colors
8. Selection of engineering and other consultants
9. Building code checks
10. Local and national government building reputations
11. City ordinance considerations
12. Project personnel detailing
13. Consultant contacts
14. General contractor liaison
15. Client contacts
16. Client relationships
17. Staff supervision
18. Cost estimating and control
19. Specification writing
20. Material samples cataloging and storage.

### ADMINISTRATIVE SERVICES

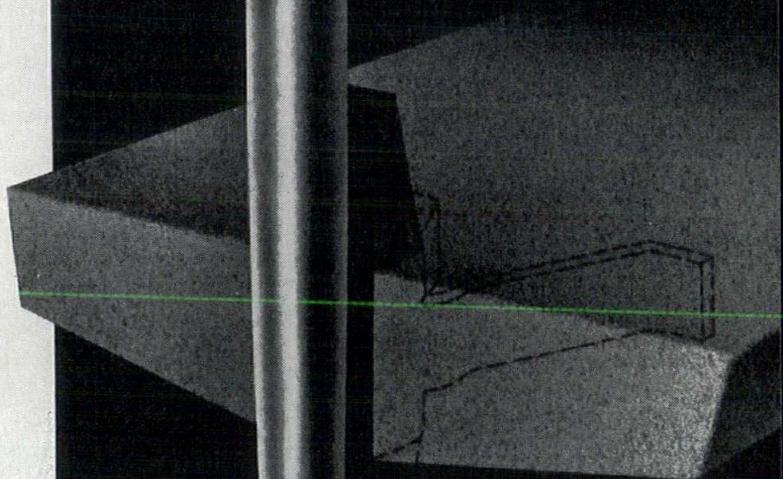
1. Recruiting
2. Interviewing

3. Hiring
4. Salary reviews
5. Morale functions
6. Terminations
7. Personnel practices
8. Business practices
9. Legal matters
10. Accounting
11. General correspondence
12. Tax computations
13. Deductions
14. Reports
15. Filing
16. General housekeeping
17. Production budget financing
18. Overhead control
19. Maintenance
20. Public Relations
21. Exhibits
22. Publication preparation
23. Contract preparation
24. Client invoice preparation
25. Bid preparation
26. Client contract maintenance
27. Job meetings
28. Technical library maintenance



ABOVE TRIM AVAILABLE  
FOR ALL BLUMCRAFT POSTS

**NEW TREATMENT  
FOR PRE-CAST TREADS  
STAIR RAIL MOUNTINGS  
WITH BUILT-IN STEEL  
ANCHOR ASSEMBLY**



**Blumcraft**

OF PITTSBURGH

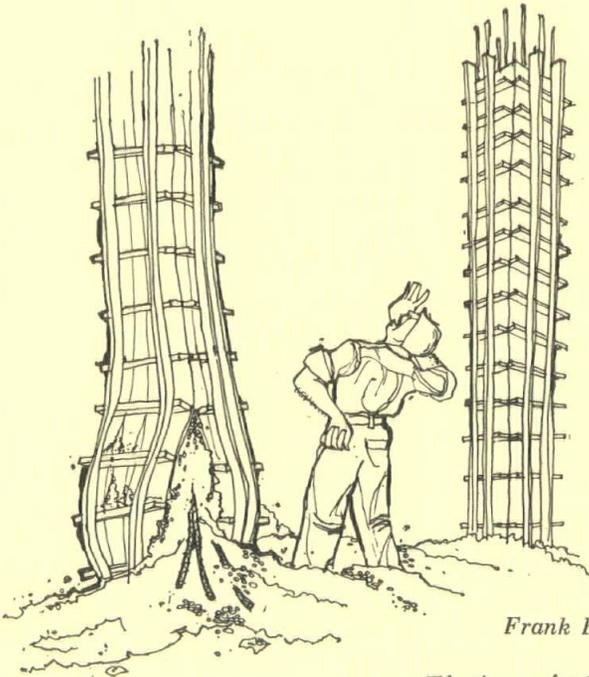
SEND FOR COMPLETE GENERAL CATALOG OF ALUMINUM RAILINGS AND GRILLS  
COPYRIGHT 1960 BY BLUMCRAFT OF PITTSBURGH • • 460 MELWOOD ST., PITTSBURGH 13, PENNSYLVANIA  
PERMANENT DISPLAY, ARCHITECTS BUILDING, 101 PARK AVENUE, NEW YORK

## ART BARN DIRECTOR

We are pleased to welcome to Salt Lake City, Jim Haseltine, recently appointed as Director of the Art Barn. Mr. Haseltine was graduated from Reed College, Portland, Oregon, and was formerly a member of the Board of Directors of the Portland Art Museum.

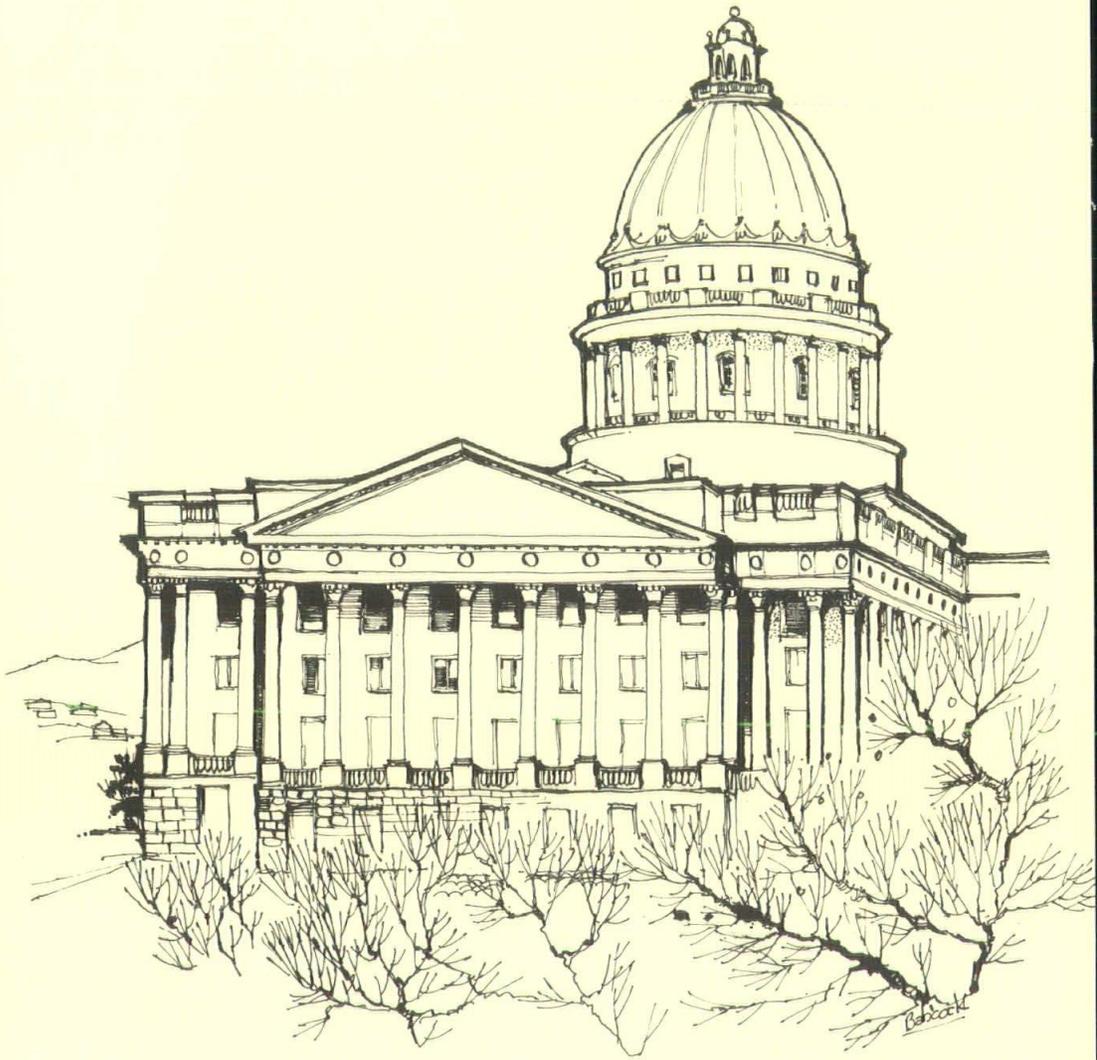
He has already scheduled a number of traveling exhibitions and is planning a series of one-man shows and a photographic exhibit of early Utah Architecture.

We look forward to Mr. Haseltine's contributions and offer him our support in his new undertaking.



*Frank Ferguson*

*That's perfect, Charley,  
now what's that about  
last night?*



*Fred Babcock*

*UTAH STATE CAPITOL  
Salt Lake City, Utah*

### RICHARD KLETTING

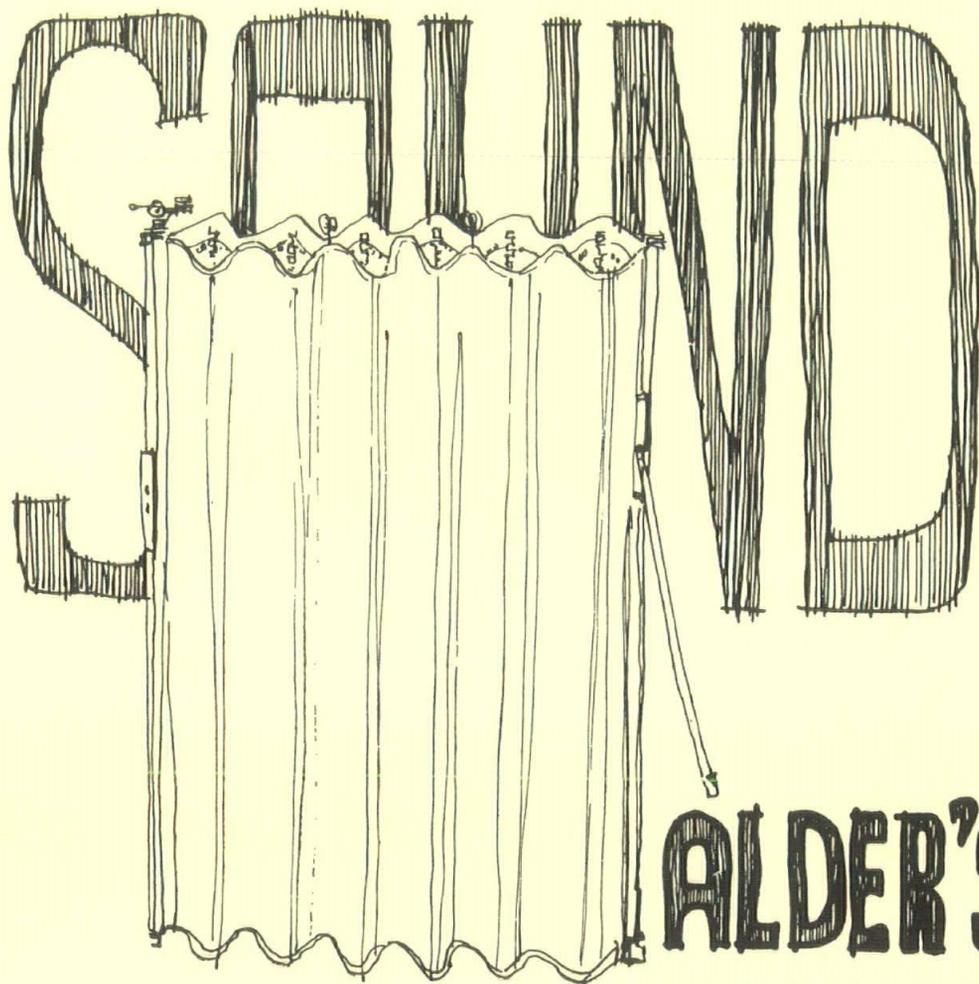
Utah architecture at the turn of the century had a rare example of the transitional architect. In an era of great technical advancements, Utah's architectural roots were still buried in historical translations. Few men possessed the insight and acumen necessary to give both the historical and the advanced technology a proper form. Richard Kletting was one of the few.

When he arrived in this country from Germany in 1887, Mr. Kletting already had the foundations for the successful and respected career he subsequently attained, having worked on the Sacre Coeur at Montmartre, Paris, as well as other noted structures in Europe.

He decided to settle in Utah, and in the next 54 years produced many of the noteworthy buildings in the region.

Many of his structures in Salt Lake City prior to 1900 pioneered reinforced concrete, and the McIntyre Building (1909) was the first all-reinforced concrete fireproof building west of the Mississippi. The Wall Mansion (1904) incorporated steel framing and reinforced concrete behind its classical facade. The first electric elevator in the West was installed in his Cullen Hotel in 1891.

Mr. Kletting's most ambitious and acclaimed work was certainly the Utah State Capitol Building in Salt Lake City. This structure must be considered one of the most monumental achievements in the State.



## TESTING CONCRETE

ALAN C. CARTER  
*District Engineer,  
Portland Cement Association*

Ordinarily when we think of tests for concrete, we visualize compressive strength tests of standard 6 inch diameter by 12 inch cylinders. Cylinder strength tests are a valuable aid in designing concrete mixtures and providing a record of the potential quality of concrete that went into a job, but they are not necessarily a part of concrete construction procedures. Our primary objective during construction should be to maintain uniformity of concrete delivered to the job, and the standard slump test is more important for this purpose than the cylinder strength test.

### CONCRETE SPECIFICATIONS

Specifications for concrete should include provision for adequate testing to assure obtaining desired results for work to be performed at minimum cost. One should avoid requirements within a specification which are contradictory, for in-

stance, specifying a minimum compressive strength value impossible to attain with a specified concrete mix design. This type of conflict can be eliminated by deciding in advance of preparing specifications whether the quality of concrete will be the responsibility of the supplier or the specifying agency. Since the concrete producer has little control over conditions affecting final results after concrete is delivered, it is usually more practical for the consumer to assume responsibility to mix proportions and to perform the testing necessary to maintain control of concrete quality.

### MATERIALS TESTS

In specification of a concrete mix design, the various materials are usually required to meet standard tests which as a basis for acceptance set forth upper and lower limits to variations in physical or chemical properties.

The standard specification for portland cement is ASTM C 150 and for air-entraining portland cement ASTM C 175. Testing includes a chemical analysis to insure that percents of principal compounds are within allowable limits.

Aggregates for most purposes should meet the requirements of the "Specifications for Concrete Aggregates" (ASTM C 33). These specifications cover requirements as to grading, strength, and soundness and also place limits on permissible amounts of deleterious substances.

Mixing water should be free of acids, alkalis, oils and particularly organic matter which may interfere with setting of the cement. Usually any water that is fit to drink is satisfactory for use in concrete.

#### MIX DESIGN TESTS

In design of a mix, the plastic concrete should be tested to determine the following physical properties: consistency, air content, and unit weight.

Consistency or workability of the concrete should be based on job requirements for ease and method of placement. The slump test (ASTM C 143) is usually employed, although other measures of consistency such as the ball penetration test (ASTM C 360) may be specified.

The amount of air purposely entrained should be known, especially for concrete which will be exposed to freezing weather. Three methods of measuring entrained air in fresh concrete have been standardized by the American Society for Testing Materials: pressure method (ASTM C 231), volumetric method (ASTM C 173), and gravimetric method (ASTM C 138).

The unit weight of fresh concrete, also measured in accordance with

ASTM C 138, is a very useful value for verifying weights of materials assumed in mix design computations and for accurately determining the cost of concrete mixtures.

To establish the relationship between compressive strength and the proportions of materials that have been selected, concrete cylinders should be cast as the final step in designing a mix. Cylinders should be made in the laboratory in accordance with ASTM specification C 192 and tested in accordance with ASTM C 39.

Design and testing of concrete mixes is usually carried out by the ready mixed concrete producer because he has laboratory facilities available and first-hand knowledge of and considerable experience with his own sources of materials. Generally the ready mixed concrete supplier has a number of different concrete mixes designed to meet the needs of his customers.

#### ORDERING CONCRETE

It is quite important that the engineer or contractor ordering concrete from a ready mix company understand the properties of different mixes and how to specify the correct mix for his job requirements. This knowledge can sometimes be gained from experience, but preferably from authoritative publications on the subject such as the American Concrete Institute's "Recommended Practice for Selecting Proportions for Concrete" or the Portland Cement Association's "Design and Control of Concrete Mixtures." Assuming that the user has decided to take responsibility for concrete quality control, he should order concrete by specifying:

1. Water-cement ratio in gallons per sack. This factor determines the

potential durability and strength of the concrete after hardening. Once selected for exposure conditions or strength requirements, the water-cement ratio should be held constant.

2. Maximum size of coarse aggregate. Use of the largest size practical for dimensions of structure and amount of reinforcement insures maximum economy.

3. Slump in inches. Selection of the lowest slump practical for location and method of placement is necessary. Stiffer mixes are more economical and less subject to shrinkage.

4. Air content in percent. Entrained air is essential for all exposed work and should be 5 percent plus or minus 1 percent for concrete with 1½ inch maximum sized coarse aggregate.

If responsibility for concrete quality is to be assumed by the supplier, item No. 1 should be specified as the compressive strength of the concrete in pounds per square inch, usually at 28 days, in accordance with ASTM C 39. Since durability and strength are both related to the water-cement ratio, a strength requirement should be selected which is adequate for exposure conditions.

#### JOB CONTROL TESTS

A successful and economical concreting operation will invariably result when concrete quality is carefully controlled during mixing, placing, and finishing sequences. When concrete is delivered to the job, three basic tests should be made at frequent intervals to insure that specification requirements are being met and that uniformity is being maintained.

1. Slump test. Maintaining a constant slump and uniform cement con-

tent will result in uniform quality of concrete. Standard test procedures (ASTM C 143) should always be followed so that test results can be compared. If any changes in slump occur, adjustments in mix proportions should be made immediately at the batch plant. Water alone should never be added to concrete at the job because the change in water-cement ratio will seriously impair durability and strength.

2. Air test. Resistance of concrete to freezing and thawing depends on adequate entrained air content. The percent of air may vary with changes in temperature and aggregate characteristics and should be checked periodically.

3. Strength tests. Standard cured cylinders should be tested with a follow-up check on potential quality of concrete delivered. Job cured specimens are sometimes needed to ascertain the correct times to remove shoring and forms, to discontinue curing, or to safely impose loads on a new structure.

Standard procedures in molding, curing, and handling test cylinders should be followed. Inadequate curing and rough handling can seriously reduce test results.

All of the tests described above should be performed by independent testing laboratory technicians or inspection personnel who are trained in correct procedures and are furnished with the proper equipment for making tests. Testing should be the responsibility of the owner or his agent; adequate results are seldom obtained by requiring the contractor to perform testing.

#### ENFORCEMENT OF STRENGTH REQUIREMENTS

Sometimes strength tests are the basis for acceptance of concrete con-

struction. Specifications for Ready Mixed Concrete (ASTM C 94) require that the average of all strength tests (3 specimens) shall be equal to or greater than the specified minimum and that no test (average of 3 specimens) shall have an average value less than the specified strength. Variations in test results follow the laws of probability, and the spread of test result values above and below the design strength is a function of quality control maintained during construction.

When strength tests fall below minimum requirements and there is doubt as to the quality of concrete in a structure, core tests in accordance with ASTM C 42 or load tests outlined in ACI 318 may be required.

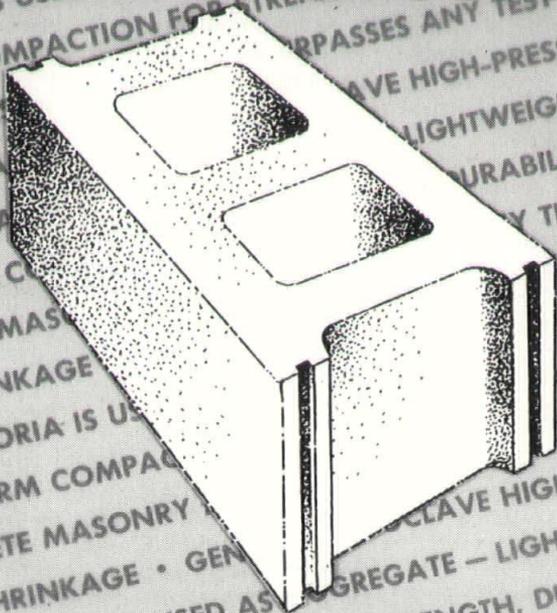
#### HAMMER TESTS

A quick non-destructive test of hardened concrete can be made with a spring loaded, rebound type hammer. While not a standard test, this method is useful in comparing quality of concrete in different parts of a structure.

Proper mix design and controlled testing are becoming increasingly important. Today's structures with slabs and post-tensioned girders are requiring even greater strength concrete than thought possible a few years ago. Thin shells, domes, and hyperbolic paraboloids are finding increasing favor and require greater control to insure uniformity. By preparing adequate specifications and requiring the necessary job control tests, the owner will receive a structure that is of adequate strength to match the design specified, and yet costs no more than is necessary.

This article previously appeared in *Utah Engineering & Science*.

**VOL-VI-HI**  
*Genuine* **AUTOCLAVE**  
**CONCRETE MASONRY**



**THE FINEST MASONRY  
 UNITS MONEY CAN BUY —  
*yet* THEY COST NO MORE!**

Manufactured Exclusively by



**UTAH CONCRETE PIPE CO.**

OGDEN — 1949 WALL AVENUE PHONE: EXport 2-7513  
 SALT LAKE — 1501 SO. REDWOOD RD. PH.: HUnter 4-7638  
 PROVO — 1550 SPRINGVILLE RD. PHONE: FRanklin 3-6670  
 LOGAN — CACHE VALLEY BANK BUILDING PHONE: 660

**UTAH CULVERT CO.**



CORRUGATED METAL PIPE — SAME OFFICES and PHONES

## ARCHITECTURE AND ETHICS

Ethics, like morals, often seem to be meant for others rather than ourselves. Yet both have been found necessary for civilized man for the continuation of not only the group, but for the perpetuation of an ideal. They form the basis for all interrelationships between individuals and groups. Codified ethics become the written law, practical ethics become the common law. They are enforced by man for his protection and for the security of the community. There are many in our world who believe that the end justifies the means.

The man who sees not the real value in the conduct of an ethical life, or cares not, will not likely be influenced by these remarks. Nor will he be moved by the deep concern that our community feels about unethical practices as shown by the White House conference on business ethics, by Mr. Henry Ford's recent public statements, by editorials in our newspapers, or the warnings of our religious leaders who see the decay of the individual — like the "Picture of Dorian Gray" — not only as an individual erosion, but as a social malady.

The disregard of ethics is a danger which is particularly significant to the professional man for his life is ordinarily devoted to the service of others — not the service of himself through a special knowledge, training, or privilege. Not only do physicians take the Hippocratic Oath, but their professional organization maintains an Ethics Committee to enforce an ethical standard for the protection of the public. Each professional organization finds that it has — and must — establish ethics for the benefit of the public and the perpetuation of a high standard of performance. The A. I. A. has faced this problem on a national and local level.

The following statement is published in the "Obligations of Good Practice":

*The profession of architecture calls for men of the highest integrity, judgment, business capacity, and artistic and technical ability. An Architect's honesty of purpose must be above suspicion; he acts as professional adviser to his client and his advice must be unprejudiced; he is charged with the exercise of judicial functions as between client and contractors and must act with entire impartiality; he has moral responsibilities to his professional associates and subordinates; he is engaged in a profession which carries with it grave responsibility to the public. These duties and responsibilities cannot be properly discharged unless his motives, conduct and ability are such as to command respect and confidence.*

This is a clear statement of the character which the prospective client has a right to expect from his architect. How can a man who competes on the basis of fee, maligns another skillfully, or represents himself falsely — even, on occasion, as an architect — comply with this statement. Has he not proven at the outset by the inability to honor his profession, that he cannot respect his client or represent his best interest?

These remarks are, in part, for the client. If he permits unethical procedures in himself or in those he employs, he compromises his family, his employees, his stockholders, or the public. The best assurance of the success of the building — architecture's end product — lies in the integrity of its planner, for a good building itself is honest in concept, expression, material, and function.

Each of us will always be faced with the individual decision regarding the character of our conduct; and these are difficult decisions for the great majority of them lie in the vast grey area between black and white. Regardless of the complexity, we cannot assign or transfer the responsibility for these decisions nor their ultimate consequences, for self-respect is still a product of our own acts. We can speak out naively but firmly for the right — the ethical — the privilege of being a gentleman and a good architect.

ED.

## CENTRAL UTAH VOCATIONAL SCHOOL, Provo, Utah

Architect: Dixon, Knell & Long

General Contractor: Bettilyon's, Inc.

Keeping pace with the advancements in modern industry, the Central Utah Vocational School is faced with Buehner Mo-Sai curtain wall units. As functional as they are beautiful, the lightweight panels have two inches of styrofoam insulation cast integrally in each unit. Exposed river pebbles provide the school building with color and texture. A relief plaque depicting the tools of industry was repeated in the Mo-Sai curtain wall over the school entrance. The panels are welded to steel plates cast in the concrete double T floor slabs that are supported by precast concrete structural columns. The vertical columns also perform a design function.



OTTO BUEHNER  
**Buehner**

640 WILMINGTON AVE.



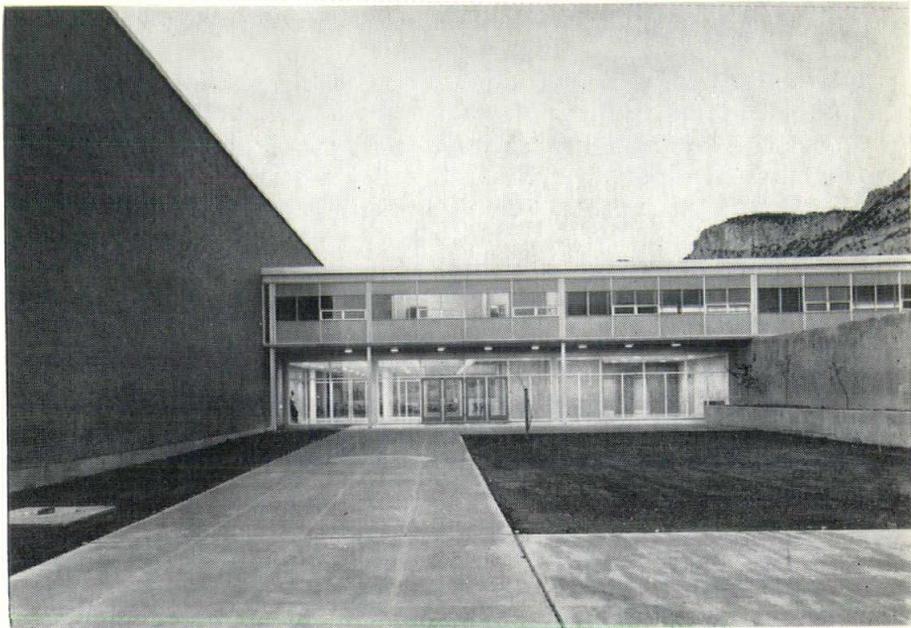
AND COMPANY

**Concrete**

SALT LAKE CITY, UTAH

Newsletter Memo  
1735 New York Ave., N.W.  
Washington 6, D. C.

BULK RATE  
U. S. Postage  
**PAID**  
Permit No. 1504  
Salt Lake City, Utah



*East Carbon High School . . . Edwards & Daniels - Architects*

Yes, indeed, when it comes to constructing school buildings, brick builds better for less. Walls properly constructed of brick and clay tile are rain-proof and damp-proof, provide outstanding insulating qualities and are fire safe. They offer the best possible protection from all sorts of weather. And of course brick has no equal as far as strength and durability are concerned. It cannot be decayed or corroded by moisture, nor can termites or other wood borers damage it. Interstate Brick Company can supply brick to suit any type of construction, to meet any architectural requirement. You build better for less when you specify Interstate Brick!

*Manufacturers of*  
**INTERSTATE**



*Burned Clay Products*  
**BRICK CO.**

3 1 0 0   S O U T H   1 1 0 0   E A S T

S A L T   L A K E   C I T Y ,   U T A H