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NEW HAMPSHIRE ARCHITECT

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N. H. CHAPTER A. I. A.
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1960 — 1961

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NEW HAMPSHIRE CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS MEETS AT MANCHESTER, MAY 19

Officers and Directors Elected

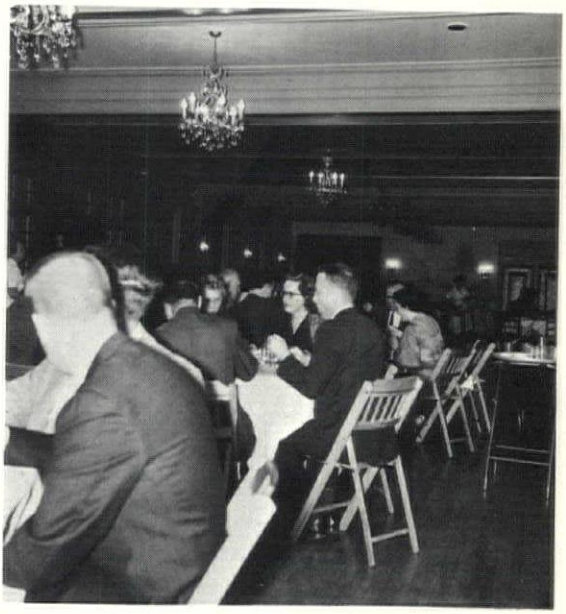
Meeting at the Manchester Country Club, N. H. Chapter American Institute of Architects elected officers and directors for 1961-62, conducted new and old business, enjoyed a social hour and product display with United Glass & Aluminum Company, Manchester, playing the part of host.

Newly elected president of the chapter is Andrew C. Isaak, Manchester, Walter T. Williams, Rochester, the vice president, with George Soule, Manchester, and Frank Kennett, Conway serving as secretary and treasurer respectively. New directors, for one year, Edgar Hunter, retiring president, and John Carter, elected as a director for three years.

The product display, along with narrated colored slides was a feature on Owens-Illinois Thinlite Curtain Wall distributed and erected by United Glass & Aluminum Company.

President Isaak plans an immediate meeting of officers and directors to establish committees on chapter activities, public relations, AIA-AGC committee and other chapter affairs.

Date and location of the summer meeting to be held in August as yet have not been established.



Guests and members, AIA dinner.

New officers and directors of New Hampshire Chapter, American Institute of Architects, left to right: Walter T. Williams, vice president; Andrew C. Isaak, president; E. H. Hunter, director; Robert Snodgrass, George Soule, secretary. Absent were W. Brooke Fleck, director, Frank Kennett, treasurer.

LIGHTWEIGHT AGGREGATES

Numerous questions have been asked in regard to lightweight concrete masonry units. These questions lead to the belief that the construction industry is not fully aware as to when and where they may be profitably used.

The fact of the matter is that they have been used for basements, grade A bearing walls, for backup and partitions and, in general, in every place that the heavier concrete block have been used.

In some respects they are superior to heavyweight concrete masonry units. To fully understand their potentiality, let us discuss their characteristics.

First, let us say that A.S.T.M. specifications permit the use of either lightweight or heavyweight block, anywhere, provided they meet all minimum requirements. These requirements are embodied in: Hollow Load — Bearing Concrete Block designation C-90-52; Solid Load — Bearing Concrete Block C-145-52; Hollow Non-Load — Bearing Concrete Block C-129-52; Concrete Brick C-55-52; similar minimum requirements are contained in Federal Specifications SS-C-621-35 and SS-B-663-32.

The greatest difficulty experienced in manufacturing lightweight concrete masonry units to prevailing specifications involves compliance with moisture requirements. Because of the highly absorbtive nature of lightweight materials compared to heavyweight all exterior walls below grade and unprotected exterior walls above grade, especially where exposed to frost action, should be surfaced or treated. This is considered good practice even for heavyweight concrete units, in single wythe walls, at least. Experience indicates that if leakage should occur, it oftens originates in vertical mortar joints which are difficult to make weather tight, an excellent argument in favor of stackbond. We have no intention of selling heavyweight units short. They are uniquely adapted to certain situations.

Perhaps, some of the best reasons for use of heavyweight units in contrast with lightweight occur where greatest strength is needed for structural reasons. This might happen in the design of piers and pilasters. Also, in the design of small retaining walls, where stability is important, greater weight would be an advantage. Where acoustical isolation is important greater density is important. This would also, be true for nuclear shielding, in which case greater weight is incorporated by use of iron ore for aggregate. Incidentally, in these instances full mortar bedding would be used.

It is often said that one of the shortcomings of lightweight units is their inherent shrinkage. However, it has been pointed out that these materials possess greater extensibility. Thus, the net effect according to many who have had opportunity to inspect numerous masonry projects is that there is no greater incidence of cracking in one than in the other.

Lightweight concrete units are superior to the heavier type in a number of ways. Most lightweight aggregate block are manufactured from materials which are actually products of combustion. Because the cement and the aggregate have been burned, block made from these materials have better fire ratings, based on actual tests at Fire Underwriters Laboratories and elsewhere, than those manufactured from heavy aggregates.

(Continued on page 12)

WALL OF LIGHT

Natural daylight evenly diffused through translucent Kalwall eliminates eye fatigue do to glare in this 20 - room elementary school in northern Maine. Structural Kalwall Panel Units, 5′ wide by 17½′ high, combine translucent and opaque panels, fixed and operating sash, and louvers arranged to the architect's design.

ARCHITECT: Kenneth E. Jackson, AIA, Presque Isle, Maine
CONTRACTOR: Cote Construction Co., Caribou, Maine

Factory preassembled, ready-to-install Kalwall Panel Units are manufactured in sizes up to 20′ high, with components custom arranged. Clamp-tite aluminum head, sill, and panel-to-panel closures reduce installation costs. Translucent Kalwall, weighing only 1.5 pounds per square foot, is an efficient thermal insulator, structurally strong, and shatterproof.

For complete information on the efficient, economical, attractive Kalwall Panel Unit Wall System, write to:

KALWALL CORPORATION

Dept. P-61, 43 UNION STREET, MANCHESTER, NEW HAMPSHIRE

NEW ENGLAND CONCRETE MASONRY ASSOCIATION GUESTS OF DURACRETE BLOCK

PROGRAM OF TOUR, INSPECTION and DINNER

Present at "Open House" on May 16 sponsored by Duracrete Block Company, and pictured above are block manufacturers and representatives from New York, Connecticut, Rhode Island, Massachusetts, Maine and New Hampshire. From Maine Cement Products, Inc., Portland: Ed Smith, Rudy Violette; from New Hampshire: Monadnock Block Company, Keene: Arthur Whitcomb, Al Mott, Bill Head, Ray Hastings; Glazon Corporation, Manchester: Gerry MacKinnon, Ski Schutnick, Joe Cecchetti, John Greatorex, John Jacobson; Duracrete Block Company, Manchester: Dante Donati, the host, Arthur Donati, Bob Glines, Victor Kjellman; Merrimack Block & Gravel Company, Merrimack: Alden Whitney; Lone Star Cement Company, Concord: Bill Linane; National Reinforced Plastics, Incorporated: Bob Dome, Carl Schmocker; from Massachusetts: Cambridge Builders Products, Cambridge: Joe Mazza, G. Rapolli Block Company, Medford: Tel Rapolli; Mass. Cement Block Company, Medford: Jack Freedman, Louis Freedman; Camosse Brothers, Auburn: Geno Camosse, J. Trippi; Ducharme Brothers, Chicopee: Edgar Ducharme, J. Bunyan; Connecticut Valley Block Co. Inc., W. Springfield: Herb Daunheimer; Walter Burse, Secretary-Treasurer, NECMA, Boston, J. Sweeney, Asst. Sec.-Treas.; Portland Cement Association, Portland: Chet Duhamel; Portland Cement Association, Boston: Frank Smith; Indeal Cement Block Company, Watertown: Joe Bourgoyne; Tom Crane, Field Representative, NECMA; Amesbury Block Company, Amesbury: Lionel Maurice, J. Eaton; from Rhode Island: Park Avenue Cement Block Company, Providence: Frank and Joe Pezza; Rhode Island Cinder Products, Incorporated, Providence: Joe Celona; Anthony Corrado, Incorporated, Providence: Carmen Renola; from Connecticut: Genovese Block Company, Stamford: Joe and Rocco Genovese; Milford Concrete Products, Milford: Charles Honek; Connecticut Masonry Institute, Hartford: Al Barrows; Plasticrete Corporation, Hamden: Ralph Paolella; Raybestos-Manhattan Company, Inc., Bridgeport: Paul Passander, Sid Rockwell; from New York: Alco Company, Incorporated, Long Island: Max Salter and J. Agers.

From PCA's $10,000,000 laboratories come great advances in concrete research

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Your local PCA field office is one of thirty-two across the nation—staffed by professionally qualified engineers, architects and farm specialists. Backed by more experts at PCA national headquarters in Chicago, they are here to help you with up-to-the-minute advice and information on every phase of concrete construction.

It's a service made possible by the more than 70 member cement companies who voluntarily support the Portland Cement Association in its research, educational and technical service activities.

Informative literature of every type on modern uses of concrete is yours for the asking. For an authoritative, friendly source of information—call on PCA.

PORTLAND CEMENT ASSOCIATION

142 High Street, Portland 3, Maine

A national organization to improve and extend the uses of concrete

(Continued from Page 8)

To better understand this, let us consider what some of these lightweight materials are. Pumice, scoria and natural ashes are the product of volcanic combustion. Industrial hard and soft coal ashes have been used in the manufacture of cinder block for the past thirty years. Numerous slags are the by-product of the steel industry. Shales and slates were first expanded by Steven Hayde. Hence, since 1917, these have been referred to as Haydites. The latter developed sufficient strengths to be useful for making prestressed and precast concrete and for ready mix. Later, methods of pelletizing clay were developed and these were burned producing slightly heavier but nonetheless satisfactory material. Methods of using flyash are being perfected.

Because lightweight units have, normally, rougher texture a smaller percentage of the sound waves impinging on their surface is reflected into the room. Due to the "softness" of the material as well as the roughness of the surface some of the sound energy is absorbed. (Walls are less likely to become vibrating strings where they are heavier). The net effect is that these units are extremely valuable, acoustically in deadening sound within a room. For greater effectiveness in reducing transmission of sound from room to room through walls, the units can be filled with sand.

Because eight inch lightweight units may weigh some fifteen pounds less than heavyweight, there may be a considerable saving in footing and frame cost of multi story buildings using masonry for backup and partitions. The trowel trades are more amenable to handling the lighter weight units.

Nailability is an economy producing feature of lightweight units making attachments and inserts less expensive. They can be cut or ground on the job less expensively, also. The coarser textures of light block seem to have greater aesthetic appeal even though the smoother surfaces of heavyweight may be less expensively painted. Here too, we should note that color can be incorporated in the heavier while this is only practical with certain of the lightweight aggregates. A considerable amount of the heavyweight materials is used for patio and veneers.

Lightweight units have generally speaking, a greater first cost. However, this is not considered significant in view of the lower cost of hauling and the possible reduced cost of placing these lighter units in the wall. The construction industry occasionally concerns itself more with first costs than with finished costs. In this case the in-the-wall-cost is most important and, even then, such additional items as cost of painting and heating should be considered.

Lightweight blocks have smaller heat losses. In our area heat plants operate some eight months per year. There is a rapid growth in the use of air conditioning too. Therefor, heat losses become significant on a yearly basis Thus with walls having less heat loss, the size of heat plants can be reduced and secondly the cost of maintaining comfortable temperatures throughout the year will be reduced.

Lightweight units are as equally available as heavyweight since each are made from the same mould. The only exceptions which come to mind are split block and ground block which are used as veneer materials.

Regardless, whether they are heavy or light all block should have a low moisture content when laid. Ample consideration should be given to adequate reinforcing Care should be shown in laying out joint systems for control of shrinkage.

Concrete masonry walls using lightweight block filled with dry insulation and painted each side, without the use of conventional furring have been used for housing in N. H. As of this writing these dwellings are two years old and entirely satisfactory, in every way.

The new minister's car broke down just after the morning service, so on Monday he drove it to the local garage for repairs. "I hope you'll go a little easy on the price," he told the mechanic. "After all I'm just a poor preacher."

"I know it," came the answer, "I heard you preach."

* * *


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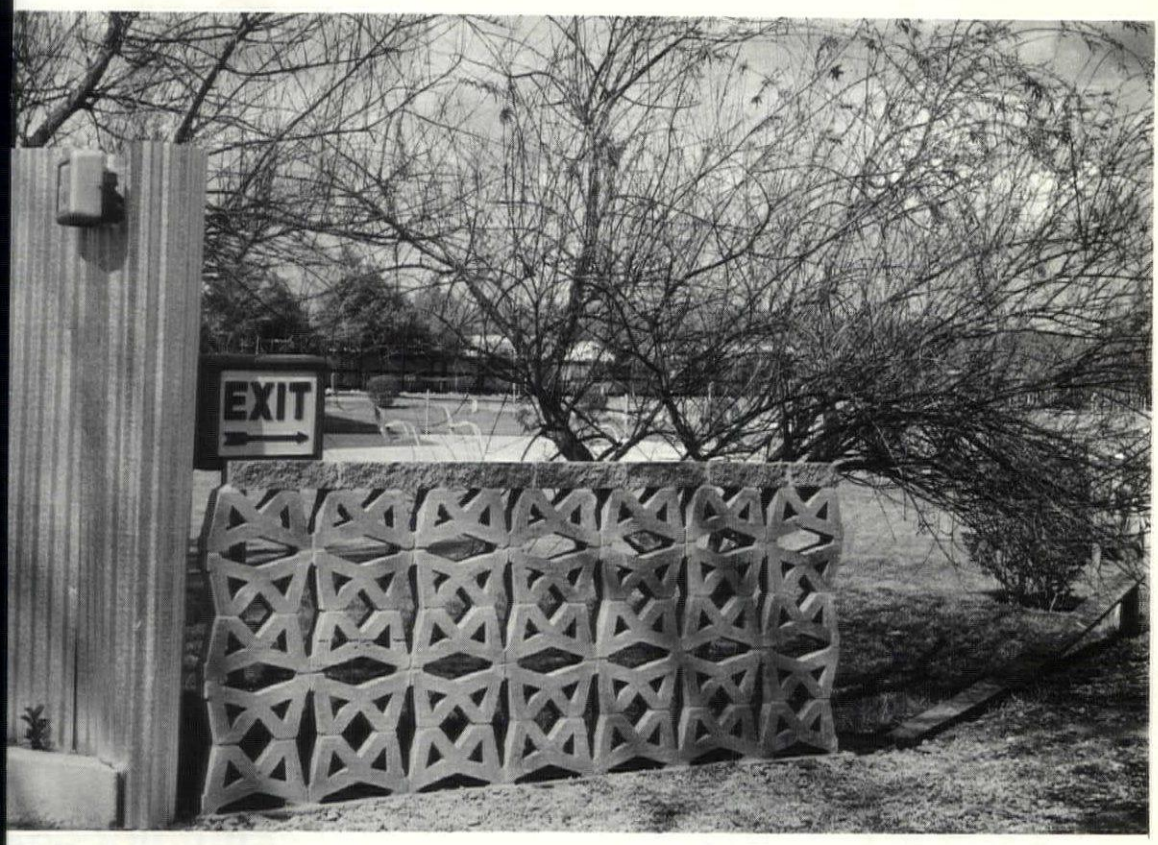
BRICKLAYERS, MASONS and PLASTERERS INTERNATIONAL UNION of AMERICA HOLD SIXTH ANNUAL STATE CONFERENCE at KEENE

Delegates, officers and guests were in attendance for the sixth Annual State Conference of the B M & P I U of America. Scene of the Conference was the American Legion, Keene.

Heading a list of prominent speakers was Robert Duval, Commissioner of Labor, State of New Hampshire, who explained the function of the State Labor Department. Other speakers were John Tracy, tenth vice president, B M & P I U of America, Robert J. Tighe, U. S. Dept. of Labor, Thomas Crane, field representative, Structural Clay Products Institute, and Charles Gannon, U. S. Dept. of Labor, Apprenticeship Training. Bill Head representing Monadnock Blocks and Victo Kjellman of Duracrete spoke to the con ference on the mutual problems of th tradesman and the manufacturer.

The morning session was devoted t reports by the various committees, swear ing in of delegates, resolutions and un finished business. New business, electio and installation of officers, selection o site for 1962 conference occupied th delegates at their afternoon session. A the conclusion of the conference a socia hour was held for delegates and friends A banquet, with Mayor Charles Coolidg as guest speaker, dancing following th banquet was the finale to the 1961 con ference.

Al Barrows, Executive Director of the Connecticut Masonry Institute, and President of The New England Concrete Masonry Association awards a plaque and certificate of merit to Emil Hanslin, Treasurer of the Robert Stone Company of Boston for excellence in realty promotion and development. It was largely through Mr. Hanslin's efforts that the House at 37 Apple Hill Lane was built in Lynnfield, Mass. Dubbed by Good Housekeeping as the House of Tomorrow this structure incorporated all the latest developments in the building field including concrete masonry.



Decorative fence, Saco Drive-In Theatre, Saco, Maine. Maine Cement Products Co., decorative block.

GLAZON EXPANDS TO MEET GROWING DEMAND

Glazon Corporation's Hooksett, N. H. home has already been outgrown; the company will shortly open another new plant in Edison, N. J. This continuing expansion is dictated by the great growth of the Glazon operation in the few years since its founding. The Edison site was selected to conform to a company policy of establishing production units in convenient-to-the-market locations.

The functional and the aesthetic are combined in Glazon, a structural permasurfaced building block, now being used extensivey by architects of public buildings: schools, colleges, and hospitals. In addition to its good looks and durability, Glazon offers economy of installation and maintenance.

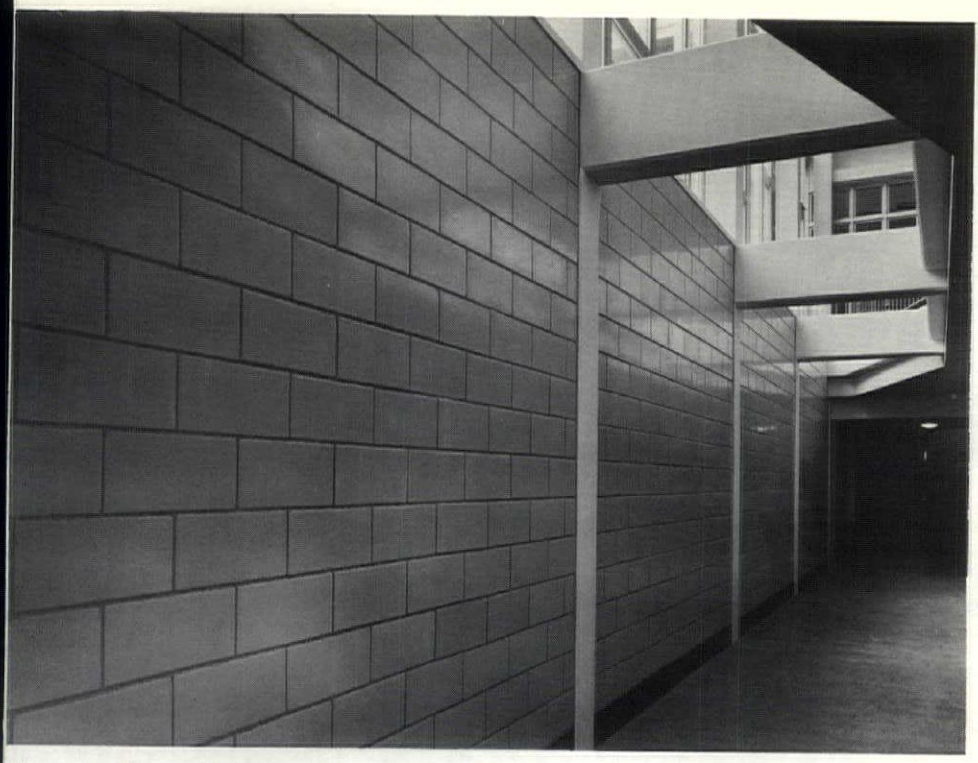
Glazon is a decorative finish of unusual beauty and strength. It is factory applied to the concrete structural units in a wide variety of colors, textures, and surfaces in standard modular units. Glazed lintels, sills, and other custom pre-cast units can be ordered in lengths up to 10 feet. Glazon has many properties which make it ideal for use in hospitals, schools, kitchens, cafeterias, gymnasiums, laboratories, dairies, and other building or rooms where durability and cleanliness must be given consideration equal to that accorded to appearance.

St. Anselm's College in Manchester, designed by Koehler & Isaak, have made extensive use of Glazon. The science building, and the new kitchen and cafeteria, where quick, effective cleaning is essential, are built with large areas of Glazon; indeed, the kitchen and cafeteria employ it for all wall. Locker rooms and shower stall are of Glazon because it is impervious to water. Bright, spacious corridors are built of fire-resistant Glazon.

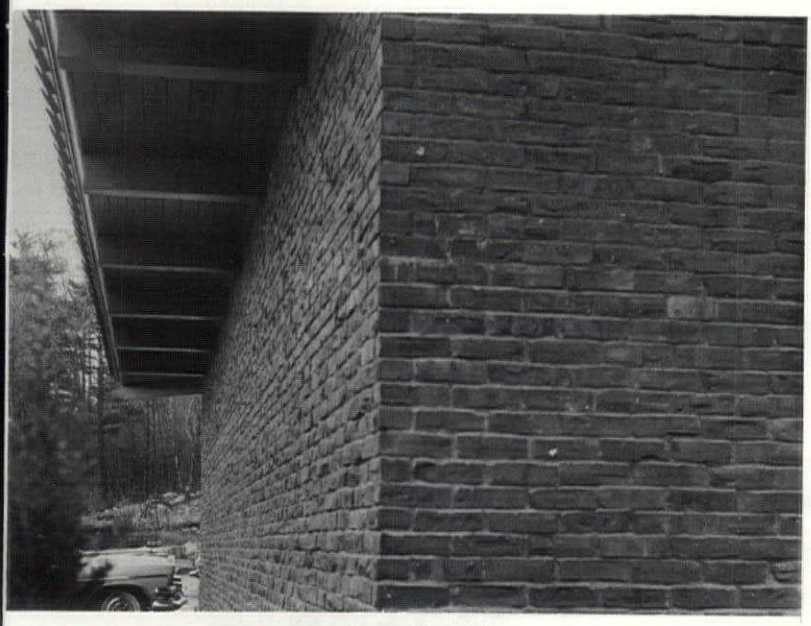
Other new buildings which incorporate extensive use of Glazon are: Gonzaga Retreat House, Gloucester, Mass., designed by D. F. Monell of Gloucester; Colonial Ham, Boston, Mass., designed by Henschein, Everds & Crombie of Chicago; Londonderry School in Londonderry, N. H., designed by Alexander Majeski of Manchester; and Weston Associates, Manchester, designed by George Soule of Man chester. Glazon is in use in new school in Pelham, New Hampton, Laconia, Ray mond, Milford, Hanover, Bedford, Man chester, Lakeport, Berlin, Lisbon, an Goffstown, New Hampshire, as well as i others throughout New England.

Construction economy is another power ful argument in favor of this labor savin medium. The architect selects his decora tive scheme when he selects his struc tural walls; thus building and decoratin are completed in one cost-saving operatio Moreover, maintenance charges are prac tically non-existent, amounting at most t an occasional wipe-off with a damp clot Glazon's colors remain bright and new looking. The finish is rugged . . . resistan to stains and damage from acids, dete gents, solvents, cosmetics, and othe agents which commonly cause disfigurin stains.

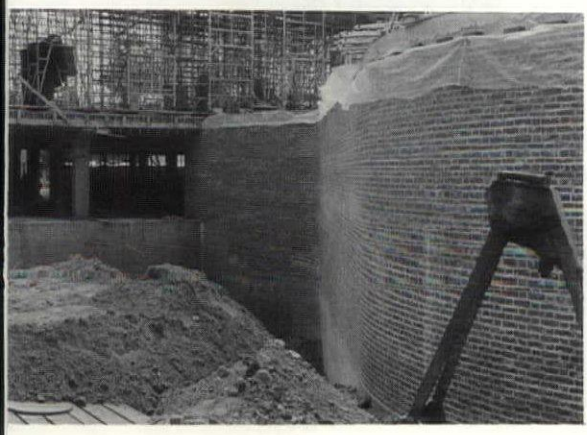
Wherever durability, good looks, an economy are requisites, Glazon can b used . . . in lobbies, stair wells, hall meeting rooms, and the more utilitaria areas of a building, such as kitchens an bathrooms.



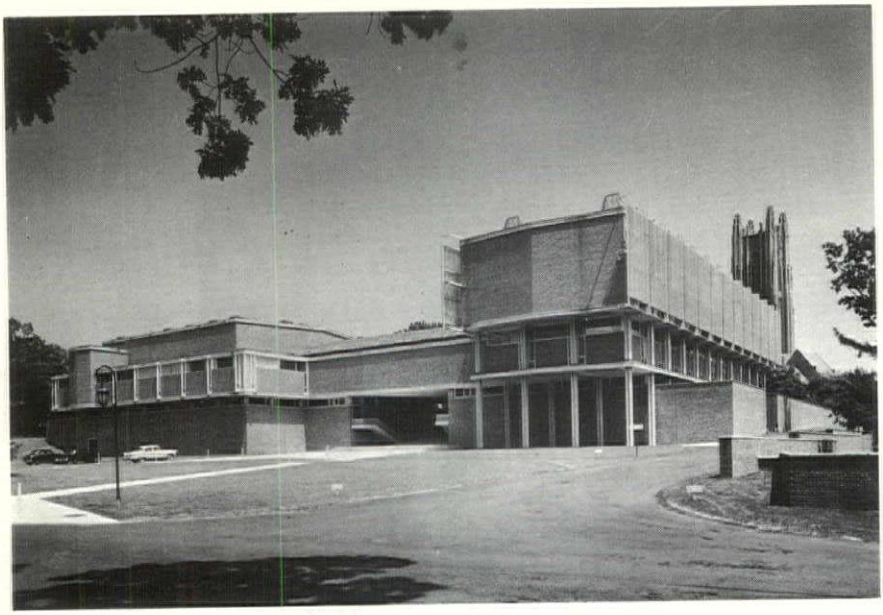
Corridor, Science Building, St. Anselms, Manchester, Koehler-Isaak, Architects.



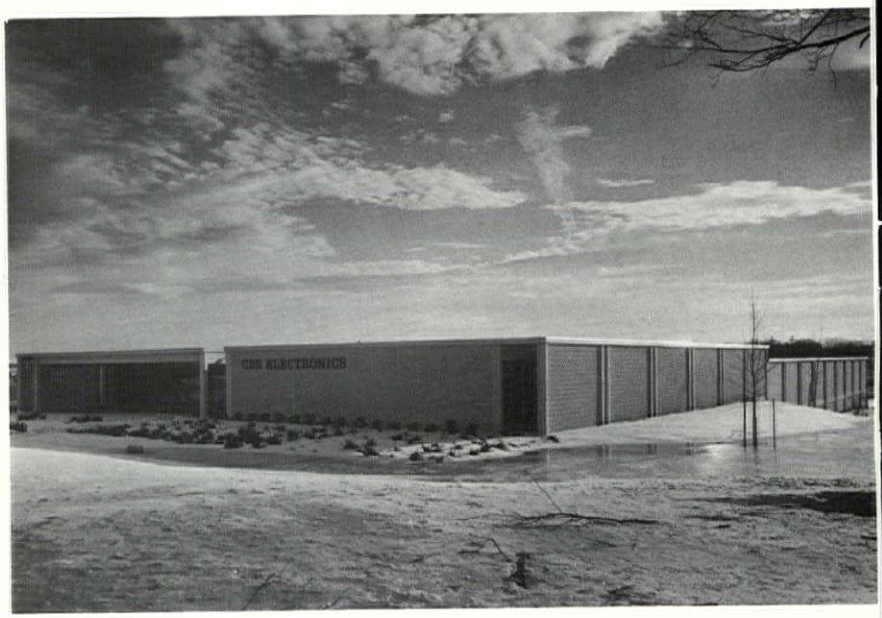
Antique Brick Work — China Dragon, Hooksett. Brick by W. S. Goodrich, Inc.



Section of Serpentine Wall on Hopkins Center, Dartmouth College. Dartmouth colonial water-struck Face Brick by Densmore Brick Co.



Morin water struck Brick—Colby Blend. Art & Music Bldg. Wellesley College. Brick by Spaulding Brick Co.



Claycraft Contemporary Blend. C.B.S. Building — Lowell, Mass. Brick by Spaulding Brick Co.

Morin selected water struck. Wakefield Junior High School, Wakefield, Mass. Brick by Spaulding Brick Co.

LIGHTWEIGHT AGGREGATE MANUFACTURE

The manufacture of Lelite described herewith, will give a little insight into the lightweight aggregate industry and the general problem of availability.

Lelite had its beginning, and research started back in 1929 by the Lehigh Coal & Navigation Company at its Lansford, Pa. Laboratories. This thorough research and testing program lasted twelve years until 1941. A pilot plant was set up on their Lansford Colliery property. The knowledge and know-how gained at this pilot plant led to the erection of our present plant at Tamaqua, Pa., where production began in June, 1948.

At this plant, Lelite is produced by expanding or bloating metamorphic, carbonaceous shale which is mined with anthracite coal in the vicinity of the Lelite Plant. The shale used as raw material is a selected product from sizing and concentrating equipment in the modern preparation plants at these mining operations. It is brought to us each day, by railroad car and truck, from the various collieries, thoroughly cleaned, washed and sized to our specifications.

. . . The raw material is put into large storage piles by a trestle-conveyor. It is withdrawn from the piles and delivered to the furnace plant, as required, by a belt conveyor in a tunnel beneath the storage area. This system insures a continuous supply of raw material to the furnaces, which are operated on a continuous cycle, twenty-four hours a day, seven days a week, fifty weeks per year. We shut down each year for a repair period, and for State Boiler Inspection. This period is the first two weeks in July. We do, however, have our grading plant operating during this period for continuous service to our customers from material on stock.

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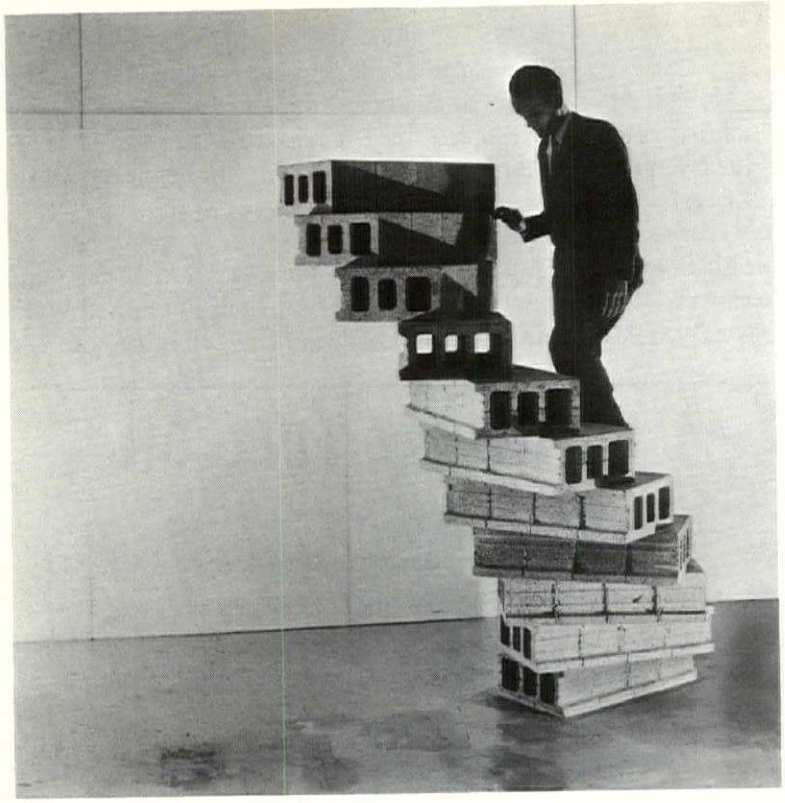
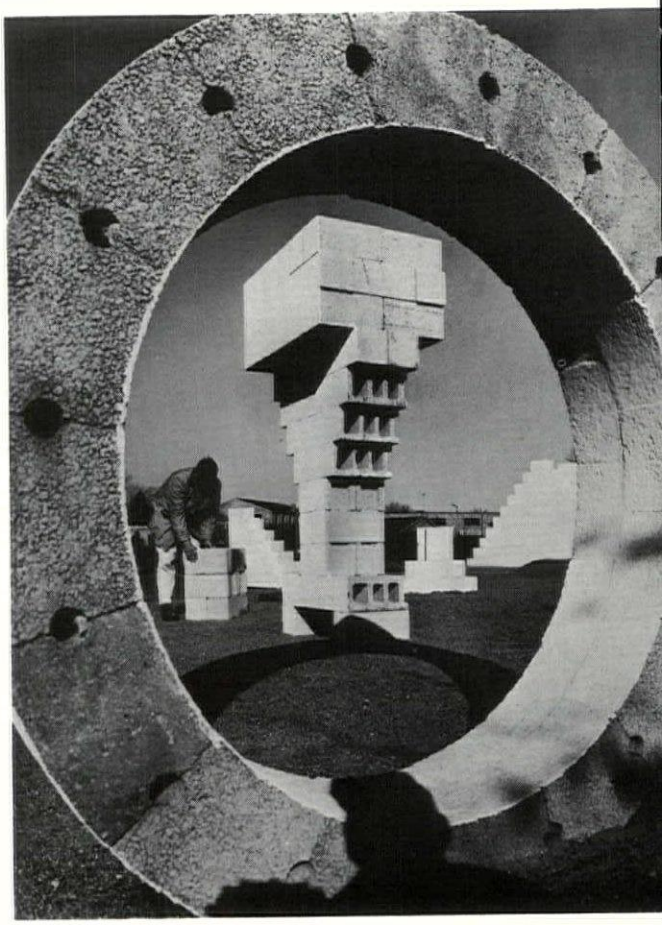


UNSUPPORTED SPIRAL STAIRCASE constructed with concrete block and Raybestos Threadline Mortar, carrying the curve around more than 180 degrees, eleven course high, with four blocks width for each step. This construction, impossible with ordinary mortar because of the tremendous stresses imposed on joints and block, illustrates one of many new building possibilities for masonry products in both home and heavy construction. Threadline Mortar available through Glazon Corporation, Hooksett Rd., Manchester.



WHEEL constructed of formed and unsupported concrete manhole block and Raybestos Threadline Mortar. An impossible construction with ordinary mortar without support, the construction illustrates one of many possibilities in building forms now available to the masonry industry. Threadline mortar available through Glazon Corporation, Hooksett Rd., Manchester.

. . . The process of bloating the shale makes use of a sintering method in furnaces of special design. Each is equipped with an endless traveling grate. At a temperature of approximately 2800° F, the shale is expanded into a structurally strong lightweight aggregate. We have three such furnaces, forty-eight feet long, twelve feet wide and then twenty-six feet of cooling rolls.

. . . The sinter emerges from the rear of each furnace as a continuous cake or slab. This cake is broken into large lumps which are conveyed to a primary crusher where they are crushed to a minus two and one-half inches. The primary crusher product is then elevated by an inclined conveyor from which it is discharged onto a trestle-conveyor and stockpiled. The semi-finished Lelite is withdrawn from the stockpile and conveyed to the grading plant by means of a tunnel belt-conveyor system similar to that used for the raw material.

In the grading plant, semi-finished Lelite is crushed again and screened to produce the gradations specified for its various applications, namely:

	Approx. Wt. Loose, Dry
Structural Graded 3/4" x 3/8"	1100#
Intermediate Graded + 3/8" x − 3/16"	1215#
3/8" Combination Graded − 3/8" x 0	1512#
5/16" Combination Graded − 5/16" x 0	1525#
Sand — Graded 3/16" to 0	1620#

For the past five years, we have produced and sold approximately 150,000 tons of Lelite each year and anticipate doing the same in 1961. Of this tonnage, 90,000 tons will go into lightweight structural concrete and 60,000 tons into block, precast and specialty sizes; which is the breakdown of our present capacity. Thus, at present, for 1961 it looks very much that we will be in short supply on all sizes.

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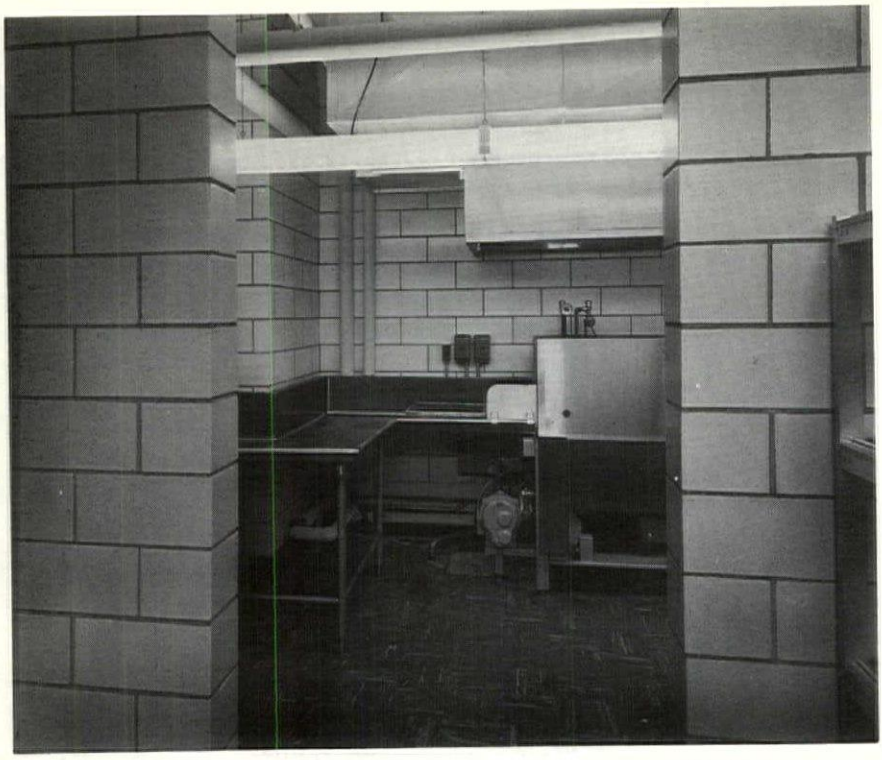
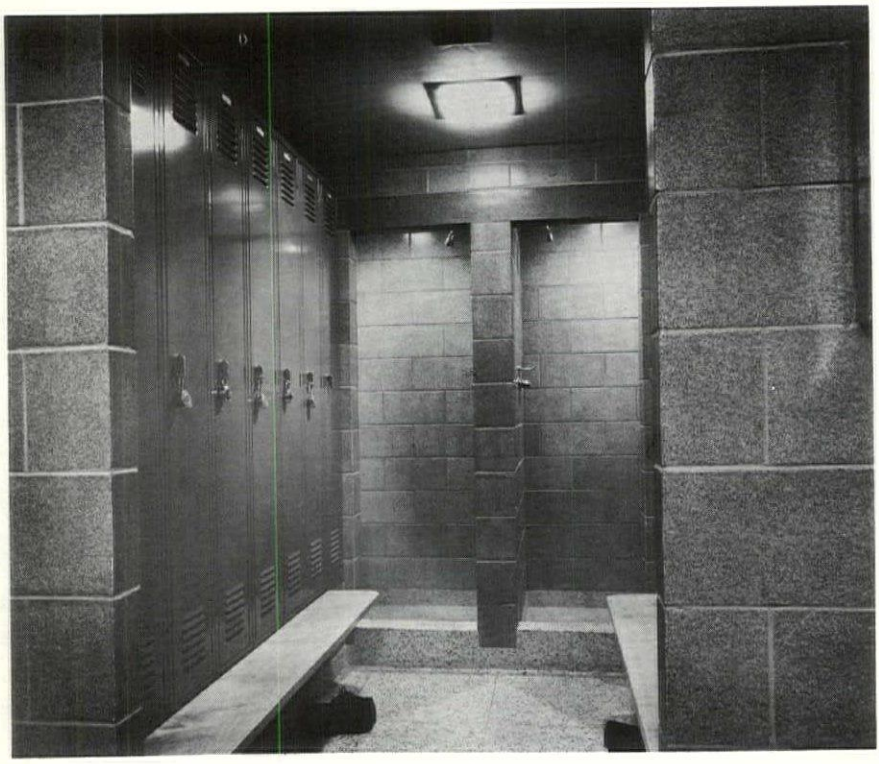
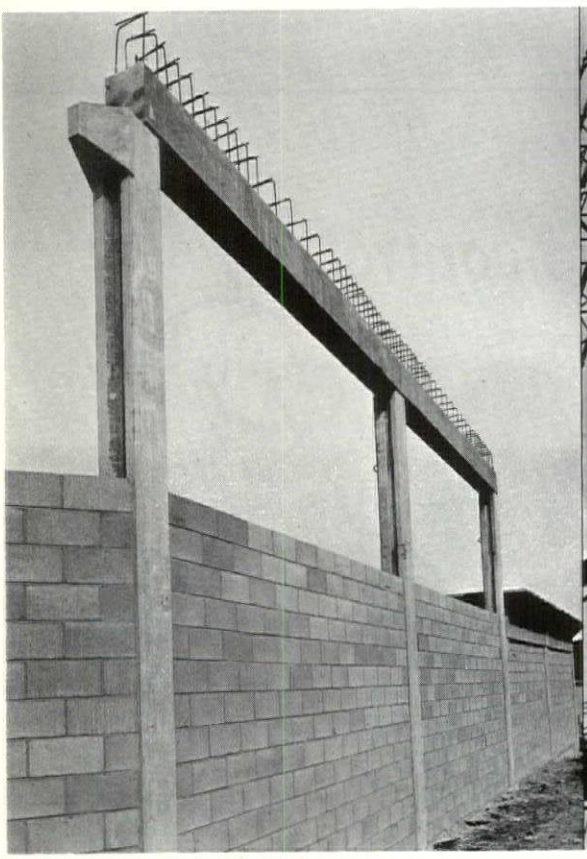


Dish-Washing Room, Cafeteria, St. Anselms, Manchester, Koehler-Isaak, Architects.



Locker and Shower Rooms, Public Service Plant, Bow.

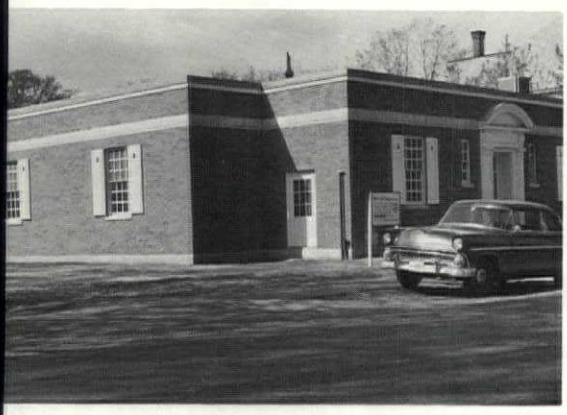
20,000 yards plus, of concrete, is shown going into flood control dam at No. Springfield, Vermont, built by Perini Corp. Arthur Whitcomb, Inc. kept a steady supply of concrete moving to the site.



Masonry curtain wall, precast concrete columns and prestressed composite beams, through Structural Concrete Corp.

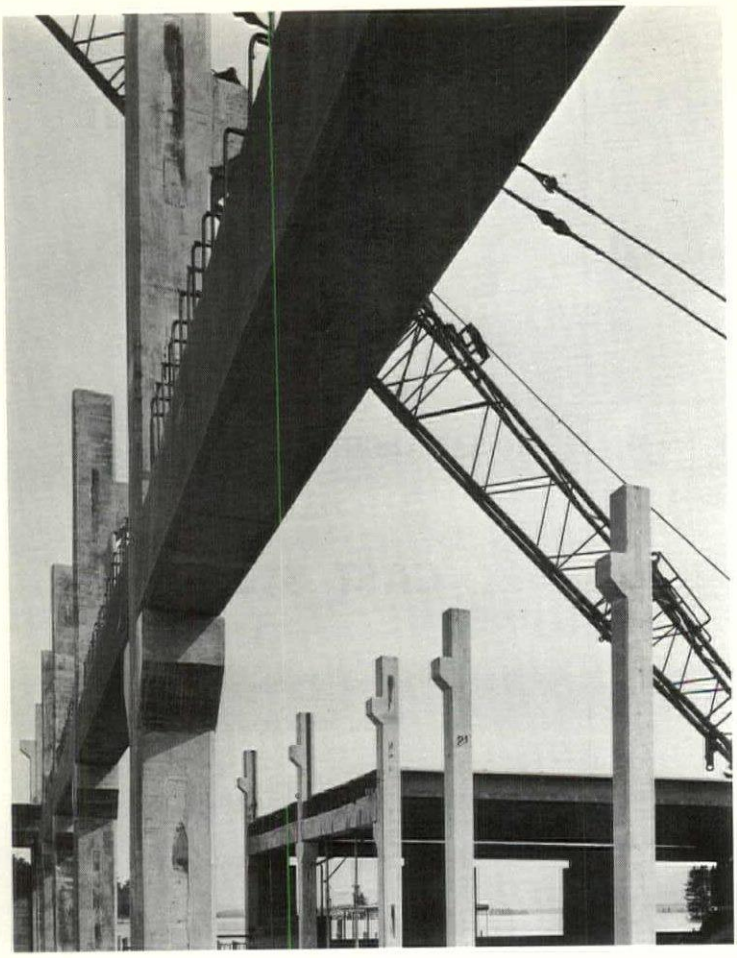
Prestressed concrete going up. A 5′ x 25′ roof slab is being placed on 95′ girders. Reinforcing steel shown protruding from the concrete columns and girders will be welded together and encased in concrete for rigid connections. Laconia Junior High School, Alfred T. Granger Assoc., Architects, Harvey Construction Co., General Contractors. Through Structural Concrete Corp.,

Holy Redeemer Church, West Lebanon. W. Brooke Fleck, Architect. R. E. Bean Construction Co., General Contractor, Royal River Face Brick by Densmore Brick Co.

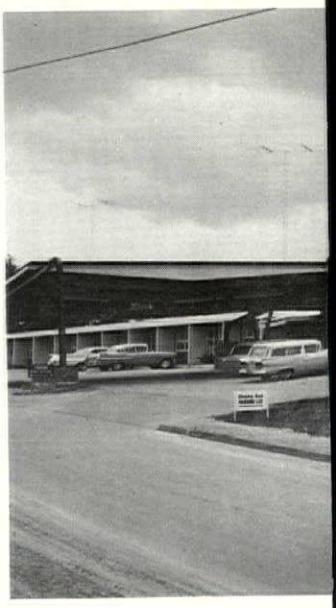


Dial Exchange Building, Lebanon, N. H. A. T. Granger Assoc., Architects, R. E. Bean Construction Co., General Contractor, Cardigan Range Sandstruck Face Brick by Densmore Brick Co.

Medical Science Building, Dartmouth College, Hanover. Masonry Contractor, Jones Construction Co. Dartmouth Colonial Water Struck Face Brick by Densmore Brick Co.

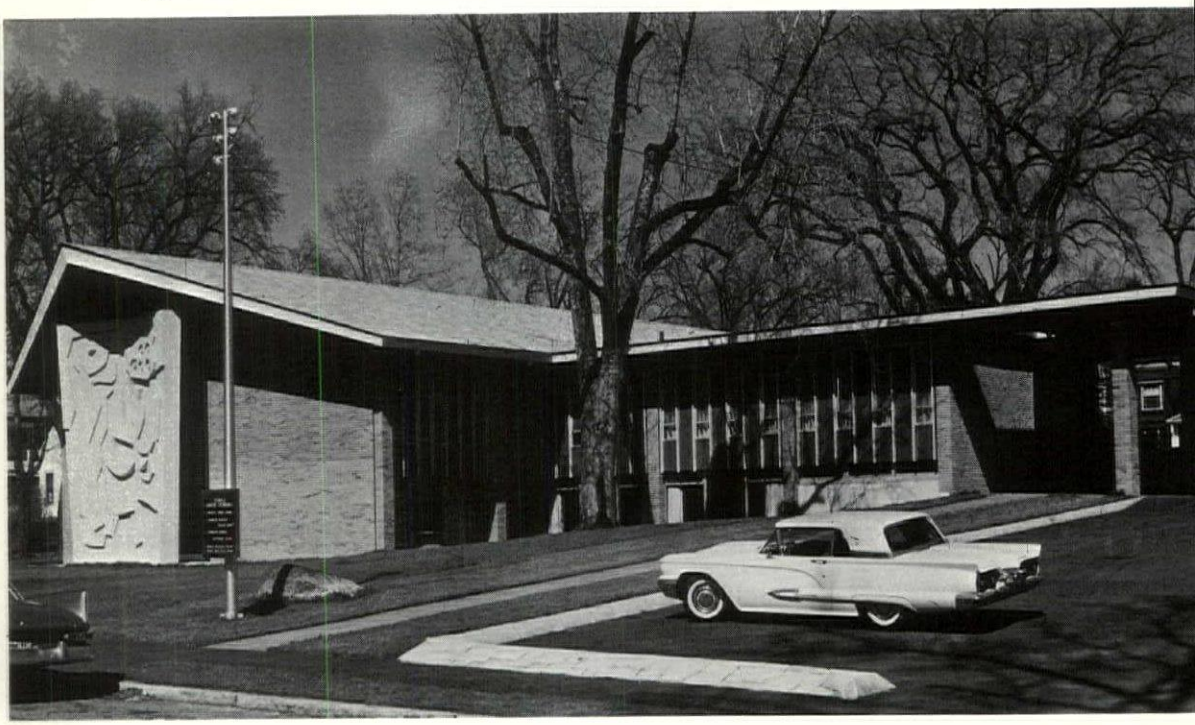


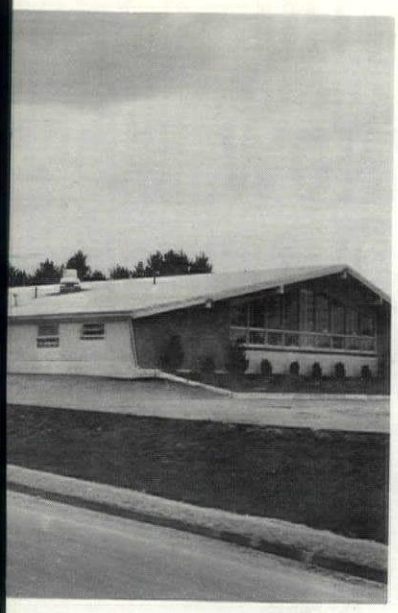
Precast concrete columns, composite beams, and double T's. Through Structural Concrete Corp.



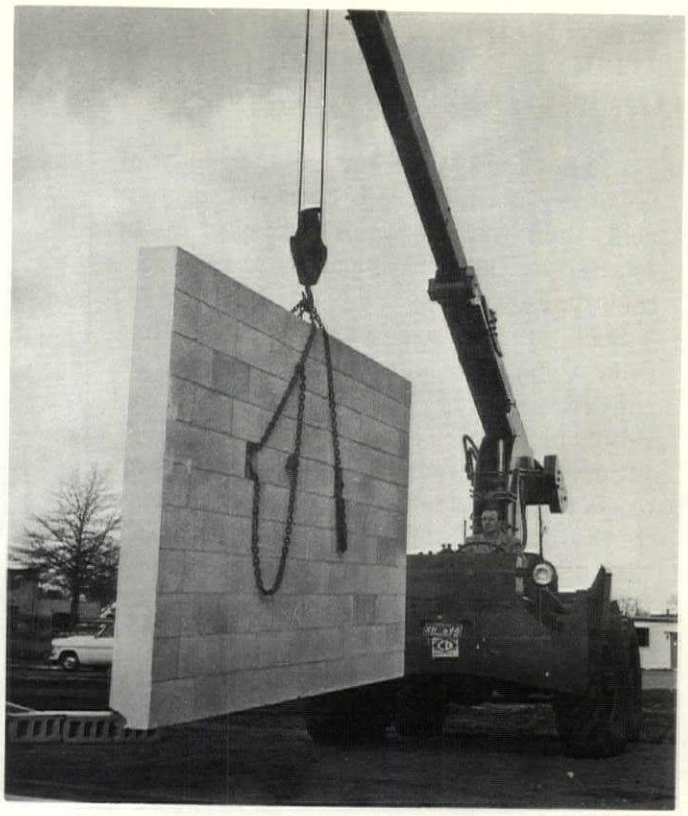
Senator Motel, Augusta Perreton; A.I.A. Contr Maine Cemene Produc Mainelite block.

Below — Temple Adath Yeshurun, Manchester. Percival Goodman, architect, Koehler & Isaak, associate architects. Harvey Construction Co., Inc., general contractor. Brick by Corriveau-Routhier Co.



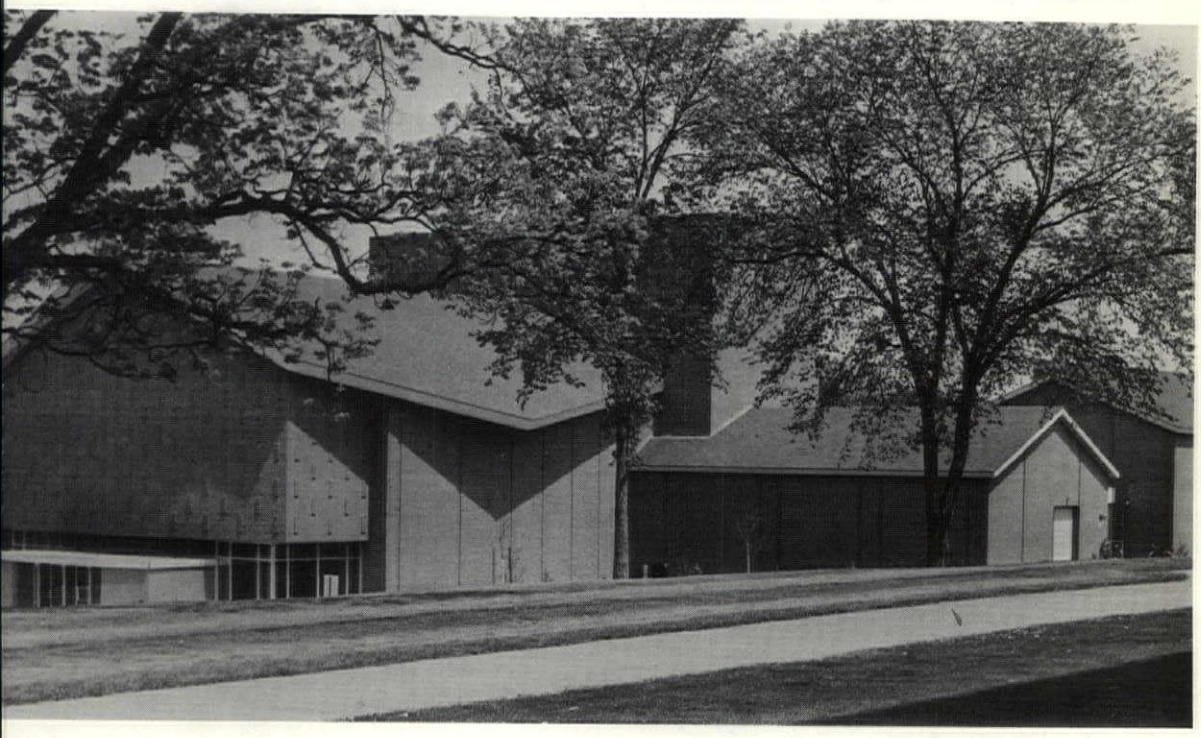


Consulting architect, Arnold
ant Bros., Mermon, Maine.
MAINESTONE facing with



WALL PANEL constructed of concrete block using Raybestos Threadline Mortar. The panel was lifted, subsequently laid down, picked up, and jostled by the crane's boom, trying to break the wall joints. The wall held successfully, demonstrating the wall strength possible using this new product. An identical panel, constructed with ordinary mortar, was destroyed with a slight jolt of the crane's boom. Even with proper care, the ordinary panel could not be transported any distance as the movement of the crane boom and uneven ground caused panel joints to separate. Threadline Mortar available through Glazon Corporation, Hooksett Rd, Manchester.

The Paul Creative Arts Building, University of New Hampshire. Brick by W. S. Goodrich, Inc.



SERVICISED PRODUCTS CORP., APPOINTS CORRIVEAU-ROUTHIER COMPANY AREA DISTRIBUTORS

If you know your business, keep your inventory up, and are progressive in your field, then you are an A1 prospect to be selected by the top companies to represent their lines.

Such is the case with Corriveau-Routhier Company, Manchester, recently appointed to carry the lines of Servicised Products Corp.

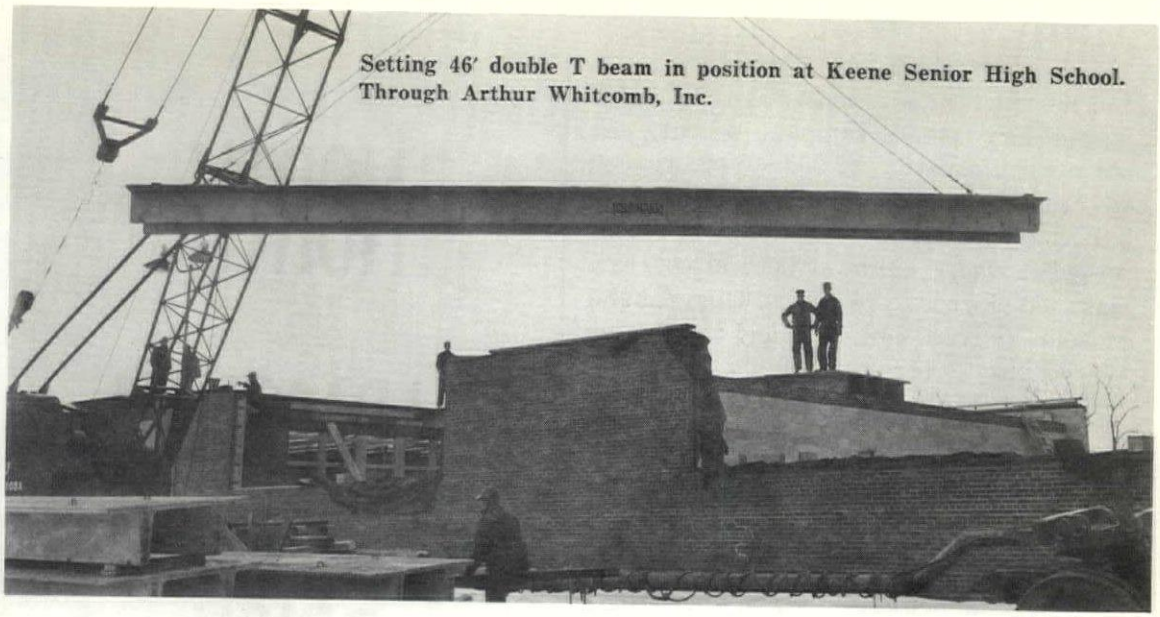
Servicised Products has a history of more than thirty-five years of experience in the deveopment, design and manufacture of asphalt, cork and rubber composition products for the construction industry. Experienced Servicised engineers are always available for consultation with architects, engineers and contractors regarding the application, use or installation of any of their products.

Equipped and ready to serve the area of New Hampshire, Vermont and Maine, Corriveau-Routhier stocks KORK-PAK, a premolded expansion joint, non-extruding, with low moisture absorption and readily handled without breakage, "NO-Trak," a cold applied joint sealing compound for exterior or interior horizontal joints. Also included in stock are KORK-PAK FLOOR UNDERLAY, a perfect base for gymnasium and recreational hardwood floors, available in thickness of ½", ¾" and 1", in panels 36" wide by 5'. Servicised Products also make both rubber and polyvinyl plastic WATERSTOP, in dumbell and serrated types.

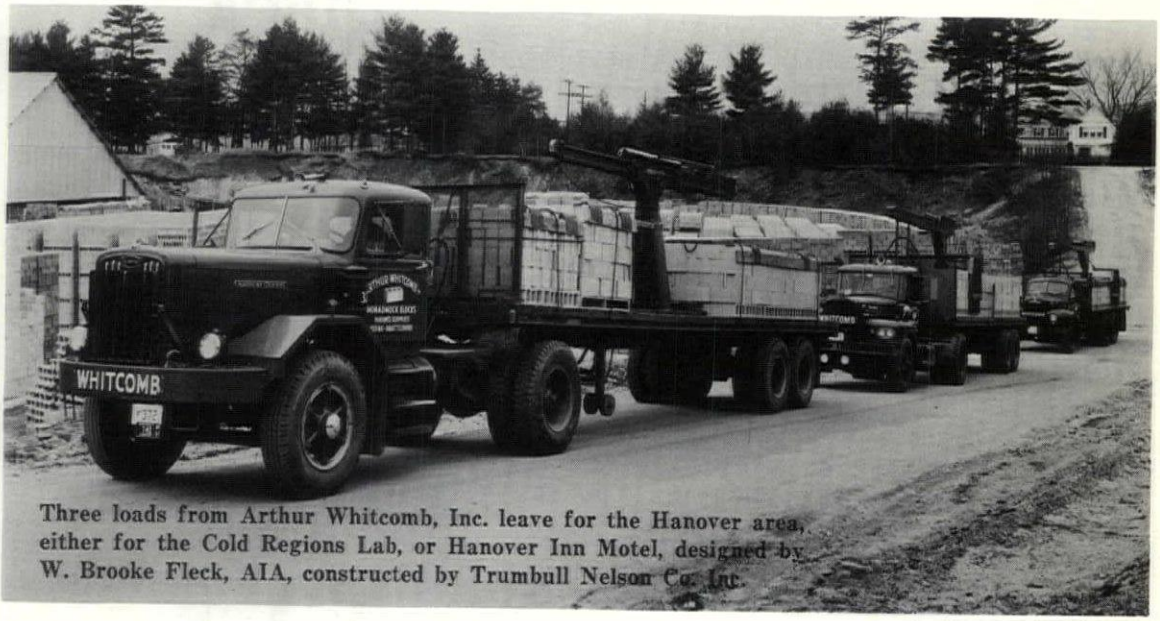
To name a few more items in the well rounded Servicised line there is hot poured PARA-Plastic, cold applied ZERO-LASTIC, EPOXTITE Sealing Compound, Vitriflex Code 5348V, and a multitude of others.

If these names and products are unfamiliar to you they are items you should become acquainted with whether you are designing, estimating or building.

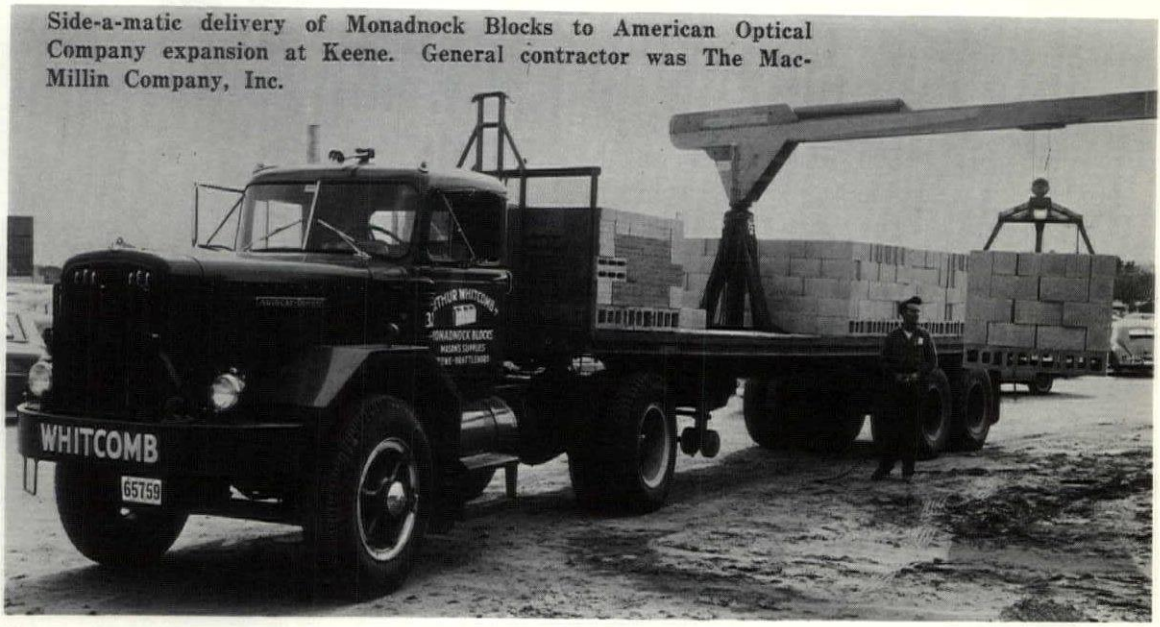
"Dear Editor: Are raw oysters healthy?"
Answer: "We have never known one to complain."



Setting 46′ double T beam in position at Keene Senior High School. Through Arthur Whitcomb, Inc.



Three loads from Arthur Whitcomb, Inc. leave for the Hanover area, either for the Cold Regions Lab, or Hanover Inn Motel, designed by W. Brooke Fleck, AIA, constructed by Trumbull Nelson Co. Inc.



Side-a-matic delivery of Monadnock Blocks to American Optical Company expansion at Keene. General contractor was The MacMillin Company, Inc.

(Continued from Page 21)

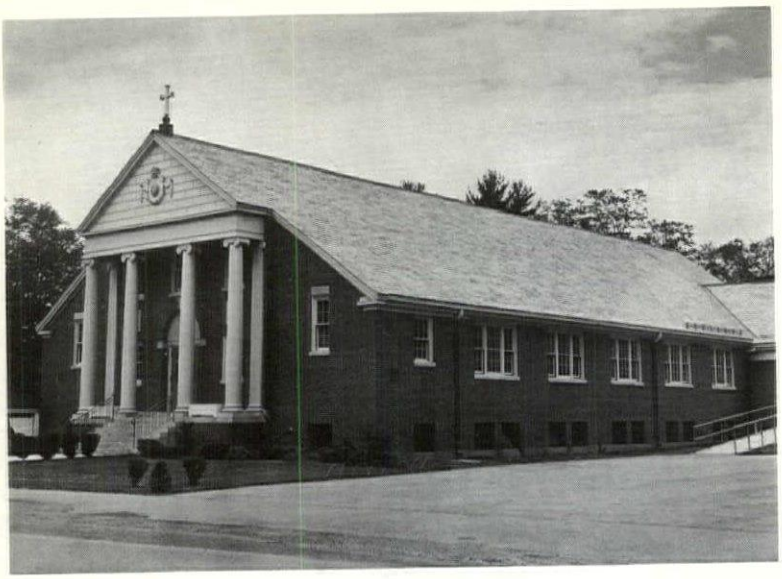
Our structural size material — ¾" x ⅜" is, and has been, a complete sellout. At our present capacity, or 90,000 tons yearly, we are only able to supply less than one-half the demand. Two of the most recent projects, where Lelite structural concrete was employed, are the Guggenheim Museum in New York City and the George Washington Bridge project.

Our Intermediate size,— 3/8" x +3/16" is, and has been, a complete sellout, also. We produce but about 9,000 tons of this material. It is used strictly by precast plants and prestressed plants, in the production of various shapes and forms, such as Channel, and Tongue and Groove Slab, Lintels, Precast industrial building sections, Septic Tanks, etc. Our latest and largest pre-stressed job is the Binghamton, N. Y. Municipal Parking Authority Garage where 154 Lelite T-beams, 54' long, 8' wide, with a 26" leg were employed.

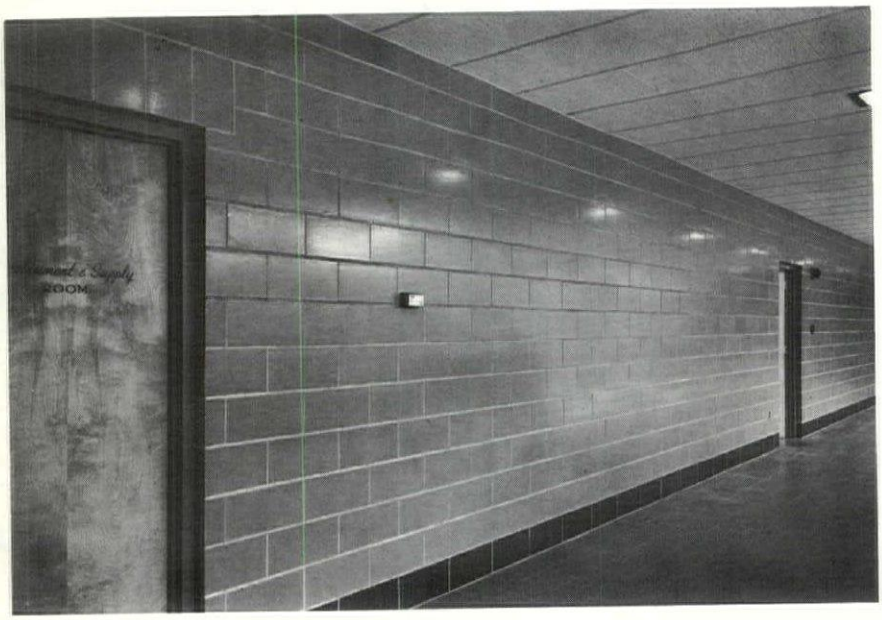
Our next two sizes, and the sizes we would be most interested in today, are our **three-eighth inch** and 5/16" combination. We will produce and sell approximately 36,000 tons in these two sizes this year, the major portion of which will be used in masonry unit production. The more popular of these two combination sizes is our 5/16" combination or block mix, as decided by the majority of our Lelite block producers. It has been proven that we get a more uniform block because of less segregation with this mix and because of the top 5/16" size, rather than top 3/8" sizing a better textured block, without any sacrifice in strength. As per our forecast, as taken from demands of our Lelite block producers the past years, about 25,000 tons of this 36,000 tons which will be produced as combination will be in the 5/16" x 0 sizes. The other 11,000 tons will be in our 3/8" x 0 sizing, which is still called for by other producers, with a small percentage being used as a structural-fireproofing concrete. Lelite gradation is consistent and, in a Lelite block, we give you a strong, uniform, durable unit, with high insulating and acoustical qualities. Weight of a standard 8" Lelite masonry unit varies at our different plants at from 27# to 32#, depending on the amount of natural sand added to the mix, and

Continued on Page 50

Richards Wills, Associate of the firm of Royal Barry Wills, receives a plaque from Victor Kjellman, Regional Vice President of the National Concrete Masonry Association, also, representative of the Duracrete Block Co., Inc. of Manchester. Mr. Wills was cited for his outstanding home design at Lynnfield, Mass., adapting concrete masonry to New England traditional architecture. Some 25 similar projects have materialized from this, as far away as Saudi Arabia. Mr. Tambone, President of the Massachusetts Home Builders is in the foreground.



St. Michael's Church, Exeter, N. H. Brick by Eno Bros. Brick Co.

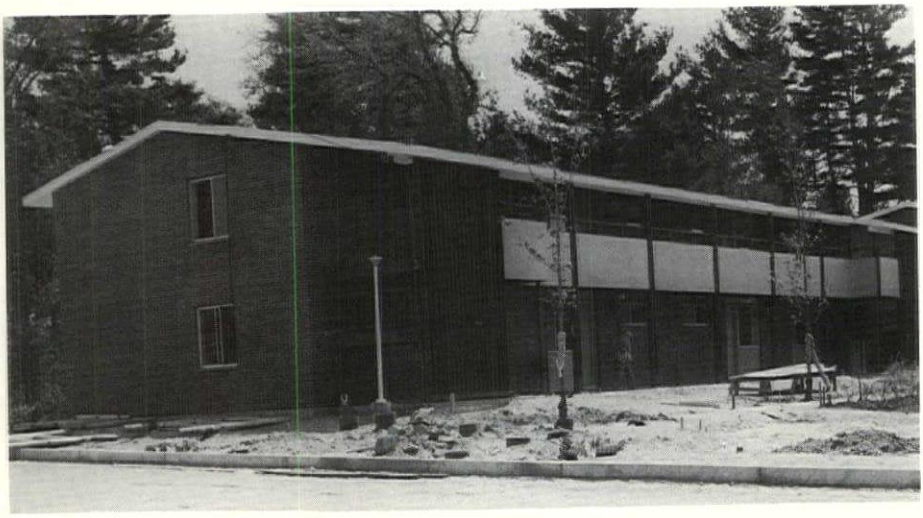


Corridor, Science Building, St Anselms, Manchester, Koehler-Isaak, Architects.

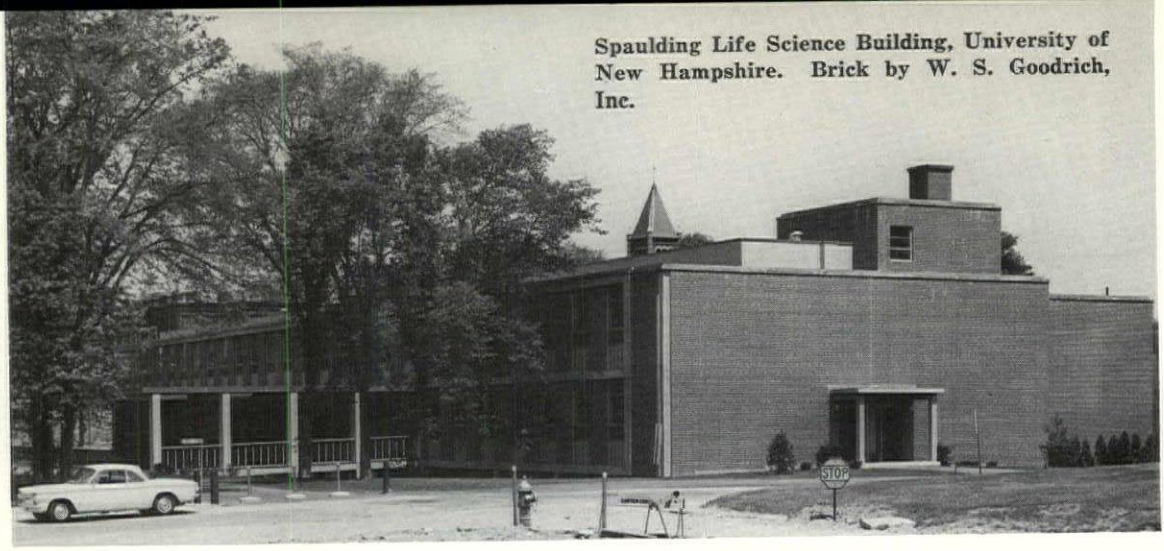
New England's large prestressed concre girders, 95 feet, sp the gymnasium secti of the Laconia Juni High School Pho shows four of the hu girders supported precast columns. T crane is erecting p stressed Double T ro slabs. Architect, Alfr T. Granger Assoc., Ge eral Contractor, Ha vey Construction Co pany. Through Str tural Concrete Corp.

New Dormitory Unit, Dartmouth College, masonry construction, Jones Construction Co. Dartmouth Colonial Waterstruck face brick by Densmore Brick Co.

St. James Church, Portsmouth. Brick by Eno Bros. Brick Co.



Multi-unit Housing Development, University of New Hampshire. Brick by W. S. Goodrich, Inc.



Spaulding Life Science Building, University of New Hampshire. Brick by W. S. Goodrich, Inc.

Below — Brookside Congregational Church, Manchester. William L. White, architect. Blanchard Stebbins, Inc., general contractor. Brick and Masonry by Corriveau-Routhier Co.

HISTORY AND PROPERTIES OF PORTLAND CEMENT

History records that lime was burned 4000 B. C. and that it was used in mortars in those times. Over 2000 years ago the Greeks and Romans were producing hydraulic limes and were making pozzolanic mortars and concrete by using lime, pumice and volcanic ash as the cementing materials. Hydrated limes and natural cements held sway in mortar and concrete until the early part of the 19th century.

Lime mortars harden through the carbonation from the air. Hydraulic limes and natural cements harden through carbonation of lime and by the slow reaction between lime and activated silica and alumina and their compounds. Hydraulic limes and natural cements were burned in upright kilns at temperatures in the range of 1600 to 1800° F. Clinkered materials resulting from overheating were regarded as unsuitable and were discarded.

In 1824 Joseph Aspdin in England burned marls and mixtures of marls and clay at higher temperatures and produced clinkered material and patented the process. He ground the clinker, and called it "Portland Cement" because mortar and concrete made with this cement resembled in color the building stone from the Isle of Portland near the coast of England.

In the field of hydraulic cement, Aspdin's accomplishment was a major breakthrough. Up to his time only the slow-hardening natural cements were available for mortar and concrete. By clinkering the mixtures of calcareous and agillaceous materials chemical compounds which would react relatively fast with water were formed. In present-day Type I cements, mixes are designed to produce clinker containing about 50% of C_3S and 25% C_2S. In early portland cements, lime contents were much lower and even then unsoundness due to uncombined lime was common. Natural cements generally were not troubled with high expansion. For 50 to 75 years after its invention, portland cement had intense competition with natural cement. New York State at one time had about 50 natural cement plants and during the period of 1820 to 1850 the Erie Canal was built with such cements. In this country the first portland cement was produced at Coplay, Pa. in 1870. Clinker burning in rotary kilns started about 1890.

With the introduction of the rotary kiln in 1890, portland cement volume expanded rapidly, quality improved from year to year, and natural cement was largely replaced.

High alumina, high - early - strength cement was first produced in France during World War I. High early-strength portland cement was first produced in this country in 1927.

Important studies on the compounds of cement were made early in this century by Rankin and Wright and by others in Europe. In 1924 the PCA established a fellowship at the Bureau of Standards. Within a period of three years the four major compounds in clinker had been definitely identified and their properties determined. By 1932 Woods, Steinour and Stark at Riverside Cement Co. had determined the heat of hydration of the four major cement compounds and this work was for the forerunner of the Hoover Dam low-heat cement specification. Following the Hoover Dam experience, specifications for five types of cement were developed and adopted by ASTM in 1940. During the past 20 years ASTM and federal specifications have been almost completely equalized. However, minor revisions and improvements are under study continually by these two principal specification-writing agencies.

In portland cement the three principal strength-producing compounds are: C_3A—Produces most of the one-day strength but very little thereafter. C_3S—Produces early strength and most of the strength gain from one to 28 days. C_2S—Produces most of the late strength gain after 28 days.

From the above it is obvious that cement is a well-rounded material because its three major compounds contribute strength at different rates and ages.

In the concrete masonry industry high-quality units are produced economically by careful consideration of the following factors: 1. Select cement most suitable to the aggregates and the available curing conditions. 2. Use a well-graded aggregate. 3. Use of maximum amount of mixing water. 4. Use of a suitable

plasticity or workability agent. 5. Use of proper curing cycle.

During winter months Type I cement and 120 to 130° F. curing temperature followed by several months of yard storage will produce equal or higher strengths and may be the means of lowering production costs. In some cases Type IA may be more economical to use than Type IIIA. In nearly all cases, the use of aggregates in two sizes pays dividends. Adequate coarse and fine sizes in the aggregate will yield maximum density, strength and uniform surface texture.

The use of the maximum amount of mixing water, consistent with good machine operation and desired surface texture, is the one most important item in the production of high-strength blocks. An average increase in weight of one-half pound per block will usually result in at least a 10% gain in strength or permit a like increase in blocks per sack of cement. The curing cycle which is used has a most important bearing on both the early and the ultimate strength of blocks. Two to three hours of pre-cast time are essential and it is quite likely that adding another hour to the pre-set and subtracting it from the high-temperature time would produce the better blocks.

Carbonation of cured blocks has a beneficial affect in reducing shrinkage. Cement must be well hydrated prior to carbonation or further strength gain will be destroyed.

Pozzolanic materials have a useful place in the mix when high pressure steam curing is employed. In lightweight aggregates with adequate fines these pozzolanic materials contribute greatly to strength by combining with the lime which is liberated by the cement.

The story of portland cement since its inception in 1824 has been one of continuous improvement in quality and performance. The record which has been made by portland cement during the past 60 years is impressive. The progress which has been made during the past 30 years by the concrete masonry industry is unmatched by any building material.

Improvements in cement will continue as they will in the concrete masonry industry and continued teamwork and cooperation will result in ever greater mutual benefits.

FIVE TIMES STRONGER BOND WITH THREADLINE MORTAR

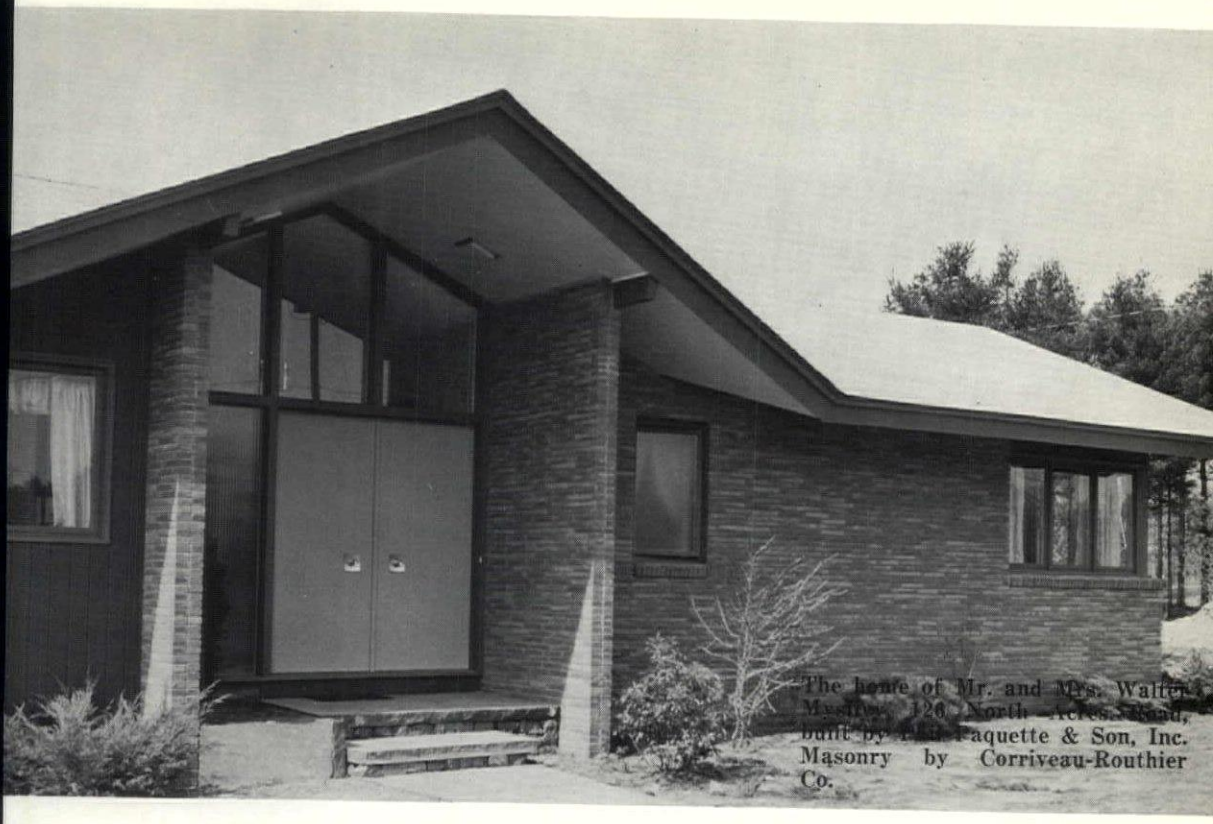
Raybesto Threadline Mortar*, a new unique adhesive for bonding concrete, cinder, and lightweight blocks, has been proved by R/M tests, to be five times stronger than ordinary mortars in bond, flexural, and lateral strength.

- **Increased wall strength**
- **Thin "threadline" waterproof joint**
- **Improved wall appearance**
- **Rapid easy application by trowel or caulking gun**
- **Fast cure**
- **Decreased labor costs**

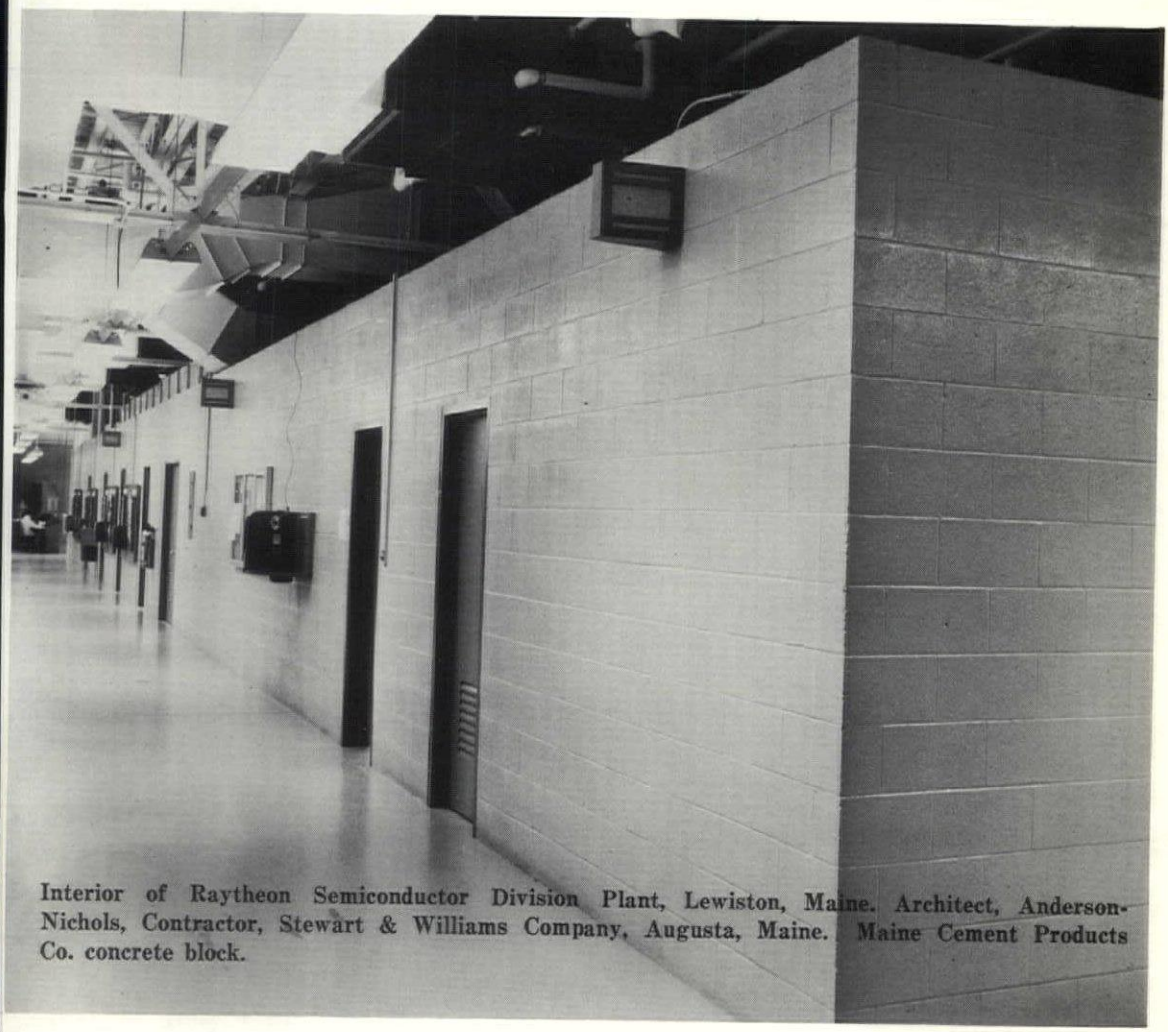
*Now in use with GLAZON masonry units

RAYBESTOS THREADLINE MORTAR
a product of RAYBESTOS - MANHATTAN, INC.

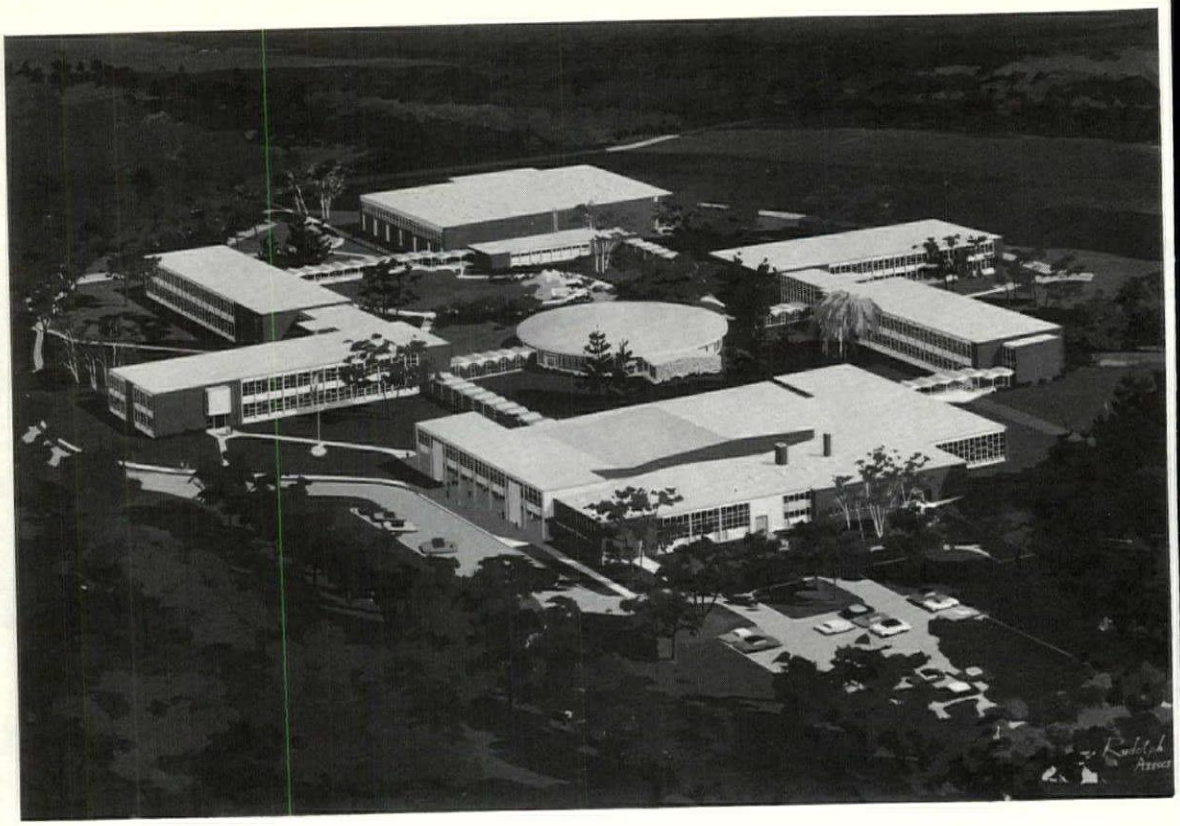
Distributed by **GLAZON CORPORATION**
HOOKSETT, NEW HAMPSHIRE



The home of Mr. and Mrs. Walter A. Mestres, 126 North Acres Road, built by [illegible] Paquette & Son, Inc. Masonry by Corriveau-Routhier Co.



Interior of Raytheon Semiconductor Division Plant, Lewiston, Maine. Architect, Anderson-Nichols, Contractor, Stewart & Williams Company, Augusta, Maine. Maine Cement Products Co. concrete block.



Glen Gery Penntucket Blend, Newton Junior High School. Brick by Spaulding Brick Co.

KORK-PAK®

Code 1321 is a premolded expansion joint developed exclusively by Servicised Products Corporation consisting of a composition of asphalt and granulated cork formed between two sheets of asphalt saturated paper.

"READ ALL ABOUT IT"

THEN GET IT AT

Vitriflex Code 5348V—The standard hot-poured bituminous compound for clay pipe jointing. Designed to meet extreme and adverse underground conditions where a strong flexible filler is required this product remains uniformly tough and flexible. It is quick setting, easily handled and economical.

Rubber Waterstops

Rubber Waterstops, Code 5318S, are designed for use in construction of water purification plants, sewage treatment plants, dams, canal linings, foundation walls, and similar construction work where ground or hydrostatic water pressure is present. Rubber Waterstops manufactured by Servicised Products Corporation will meet all Federal and ASTM specifications.

Polyvinyl Plastic Waterstops

Servicised Polyvinyl Waterstops are available in three standard types to meet all applications. Each type, Dumbbell, Centerbulb and Serrated, provides a self-sealing action that permits full strength and maximum contact with the concrete surrounding the waterstop.

Hot Poured *Para-Plastic*®

Para-Plastic Code 2341 is the *original* hot-poured rubberized asphalt joint sealing compound that forms a resilient, adhesive and effective plastic and maintains bond at sub-zero temperatures.

Epoxtite Sealing Compound

EPOXTITE SEAL CODE 2385-A is a two component, cold applied, epoxy resin joint sealing material, manufactured with Thiokol's Polysulfide Liquid Polymers.

Widely Recommended for—Airfields, Hangars, Ramps, Industrial, Sewage and Water Treatment Plants, Refineries, Service Stations, Food Processing and Meat Packing Plants, Dairies and Sidewalks.

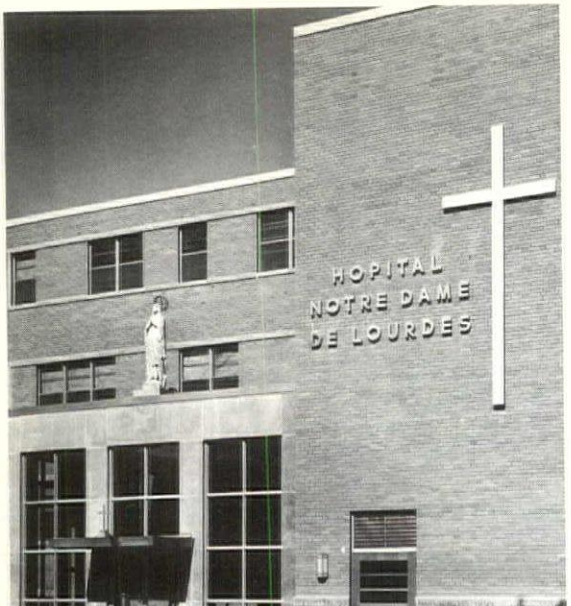
Vertiseal

VERTISEAL with Thiokol Polysulfide Liquid Polymer. The General Purpose, Cold-Applied Joint Sealing Compound For Positive Sealing of All Vertical and Horizontal Joints in Concrete, Masonry and Metal

Complete Masonry Supply Center

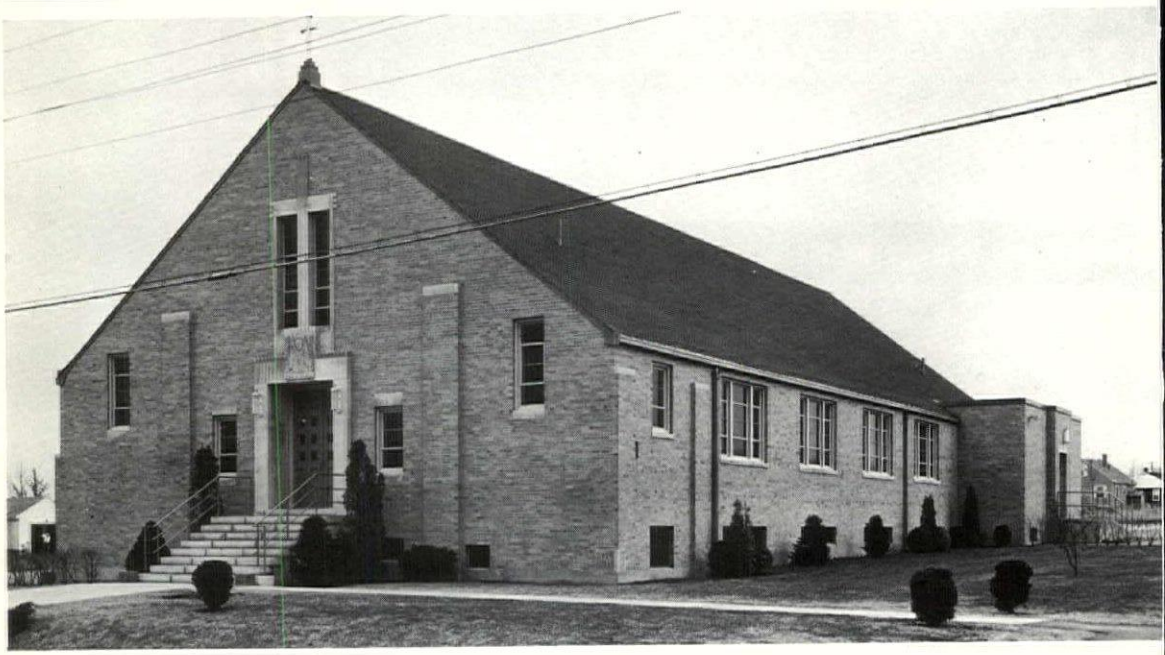
CORRIVEAU-ROUTHIER

266 CLAY STREET MANCHESTER, N. H. NA 3-5293 — 2-3506

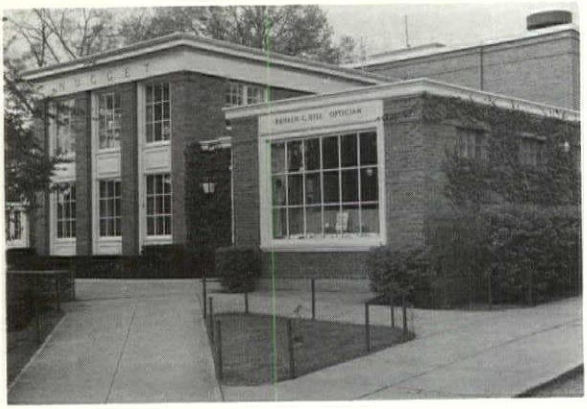


Hospital Notre Dame De Lourdes, Manchester, Le P. Provost, A. I. A. Architect, Harvey Construction Co., General Contractor; Brick by Corriveau-Routhier, Inc.

Saint Pius Catholic Church, Manchester; Caron Construction Co., Manchester, General Contractor; Brick by Corriveau-Routhier, Inc.



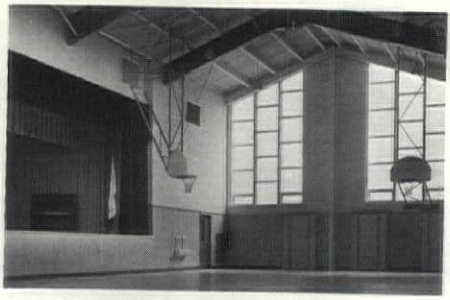
Music Building, Phillips Exeter Academy. Bric by Eno Bros. Brick Co.



Nugget Theater Building, Hanover. General Contractor, Trumbull-Nelson Co., Inc. Brick by Densmore Brick Co.

Densmore Brick

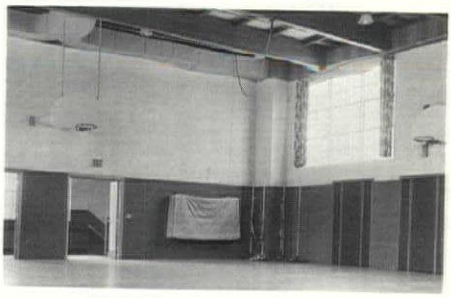
SMART ARCHITECTS BEGIN WITH CONCRETE IDEAS



St. Mary's School, Augusta
Architect: Alonzo H. Harriman Inc. AIA
Contractor: Stewart and Williams Inc., Augusta

Robert Hall Clothing Store, South Portland
Architect: Charles E. Tilton, A.I.A.
Contractor: J. C. Bowser, Scarborough

Morong Bros. Inc., Portland
Architect: John Calvin Stevens AIA
Contractor: Casburage Co. Inc., South Portland

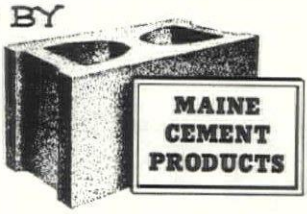


Hodgkins School, Augusta
Architect: Bunker & Savage AIA
Contractor: McKee Construction Co., Pittston

Residence, Brunswick
Designer and Builder: Stanley M. Ball, Brunswick

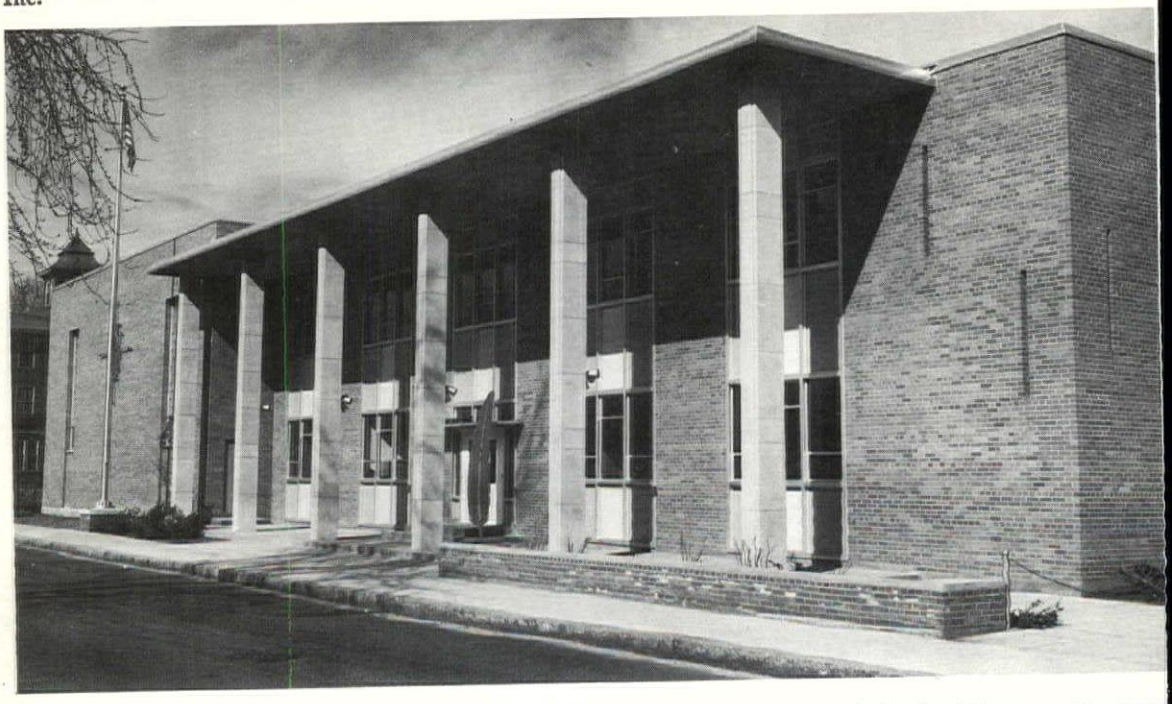
Maine Vocational Technical Institute, Portland
Architect: William O. Armitage
Contractor: Simonds Construction Co., Portland

THE ABOVE BUILDINGS ARE AMONG THE MANY FOR WHICH THE CONCRETE MASONRY HAS BEEN FURNISHED BY

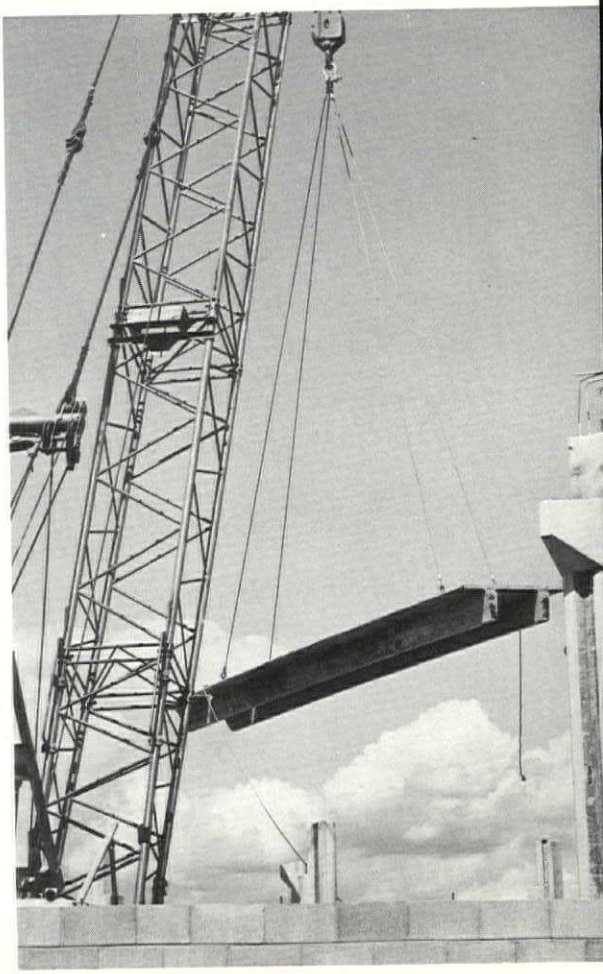


PORTLAND, LEWISTON AND BANGOR

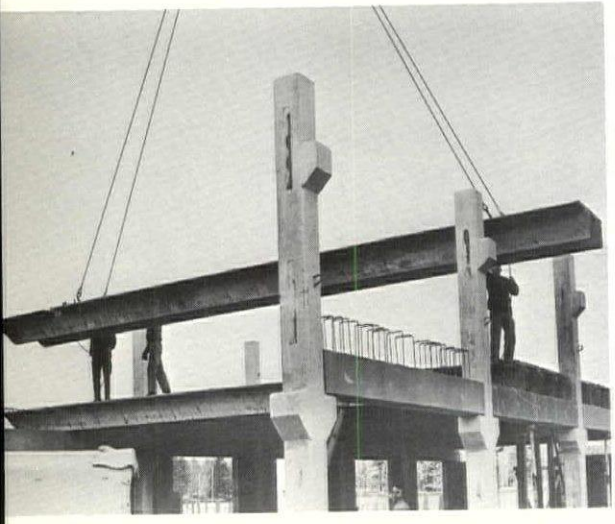
Manchester Boys Club, Manchester, Koehler & Isaac, A.I.A. Architects, Davison Construction Co., General Contractor; Brick by Corriveau-Routhier, Inc.

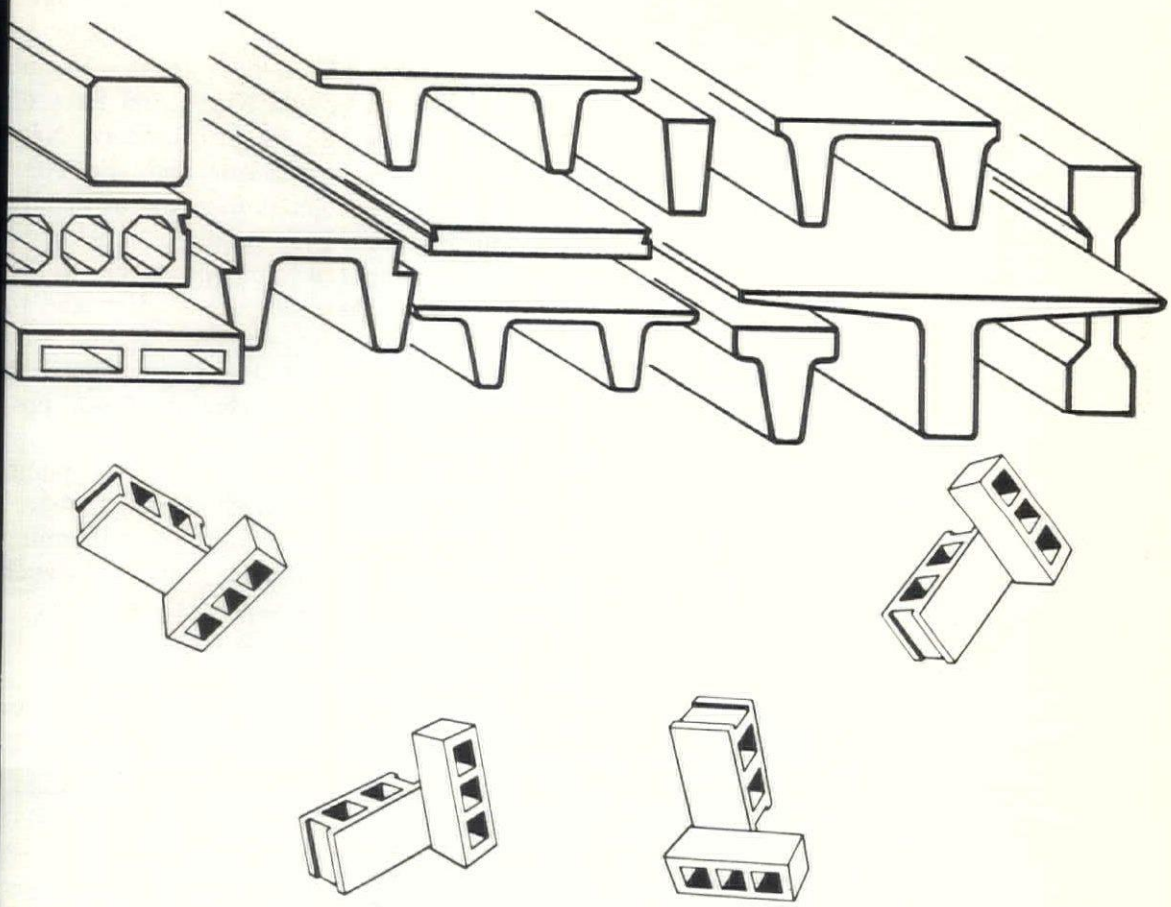


Crane erecting prestressed double T's from Structura Concrete Corp.



Two story continuous precast concrete columns, prestressed composite beams, continuous double T's for 6′ cantilever from Structural Concrete Corp.





Continued from Page 30

whether the individual plant produces two or three core units. With Lelite, producers find strength requirements easily met. With our present output, we are also short on supply of these two sizes, having orders on hand or commitments made which insure selling out. However, our supply shortage on these sizes is not as critical as with our structural size materials.

Our Sand size, or 3/16" x 0 material, which is our smallest sizing and of which we will produce and sell approximately 15,000 tons, is used by precast producers in the production of precast products along with our Intermediate size. We also sell a good quantity of this material for refractory purposes such as, refractory castables and gunite work. When used with Lumnite Cement, Lelite will withstand temperatures up to 2000 degrees F.

Architects have been specifying the use of lightweight aggregate more each year until, at the present, we are faced with the problem of inadequate supply in meeting demands. Even with the starting of production at other new lightweight aggregate plants, there is room for more plants right now.

In conclusion, we at Lelite feel that it is the obligation of the Lightweight Aggregate Industry to insure supply to its producers. At Lelite, about 85% of our production is sold North and East of our plant location, or in Northern New Jersey, New York State and the New England States. On supply, and especially in the Masonry Unit production field, we feel most obligated to our producers in the New England Masonry Association and to our Northern New Jersey Producers, who gave us our start and have continued to use Lelite for their premium block production.

Perhaps the time is ripe for a plant here, in New Hampshire. A recent report published by the New Hampshire Planning & Developmen Commission indicates such an operation would be entirely feasible.

Don't worry about finding your station in life. Somebody will be sure to tell you where to get off.

* * *

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