

U-FORM[®]

the high speed, cost effective, energy-efficient, integrated, building construction technology.

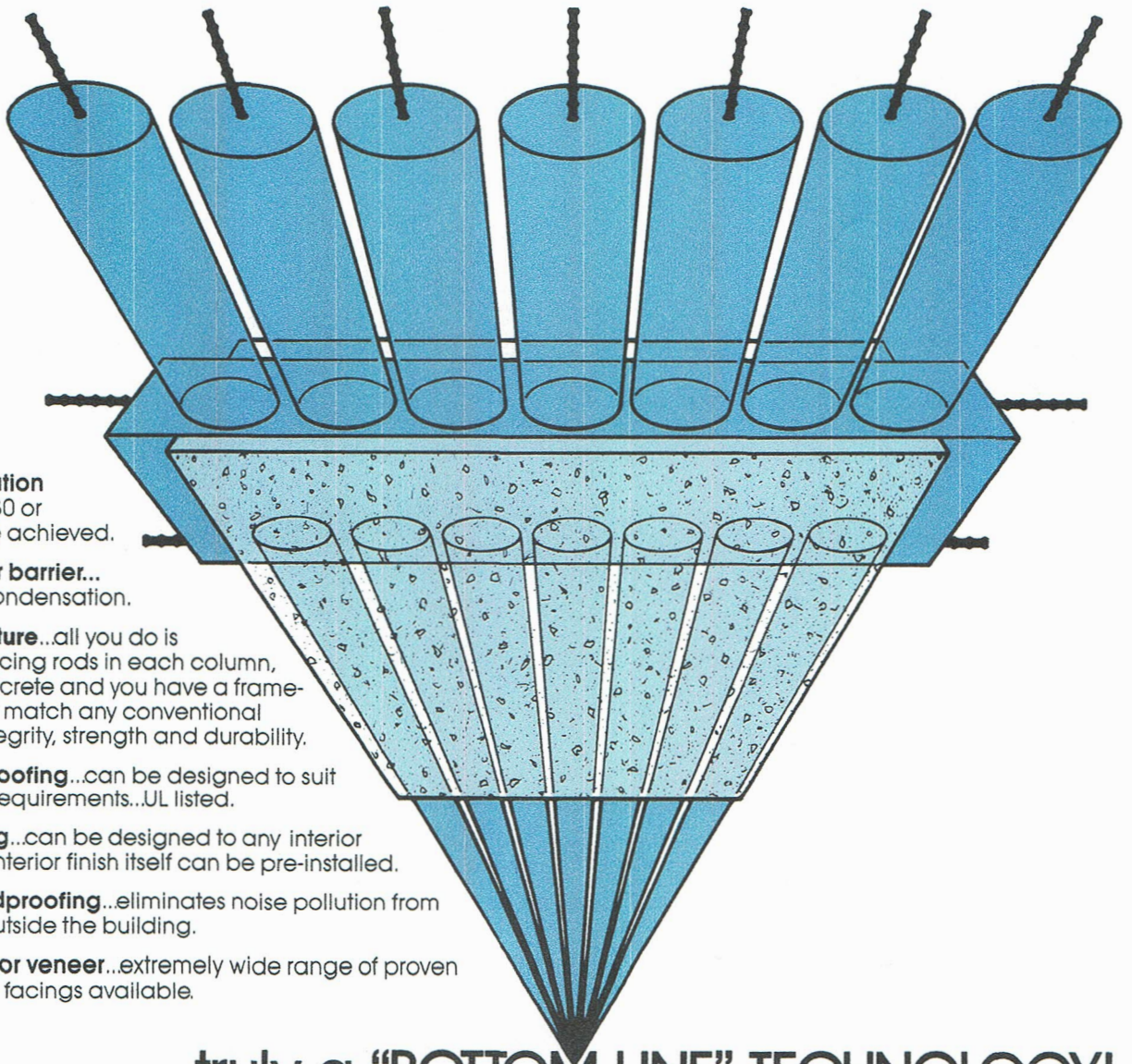


Proposed building for First National City Bank, Paseo De La Reforma., Mexico, D.F., Estudios Y Desarrollos Inmobiliarios, S.A., Sachts Associates, Inc., Architects

U-FORM[®] is the registered trademark of U-FORM Systems and Technology, Inc., Livonia, Michigan

U-FORM[®] is ...

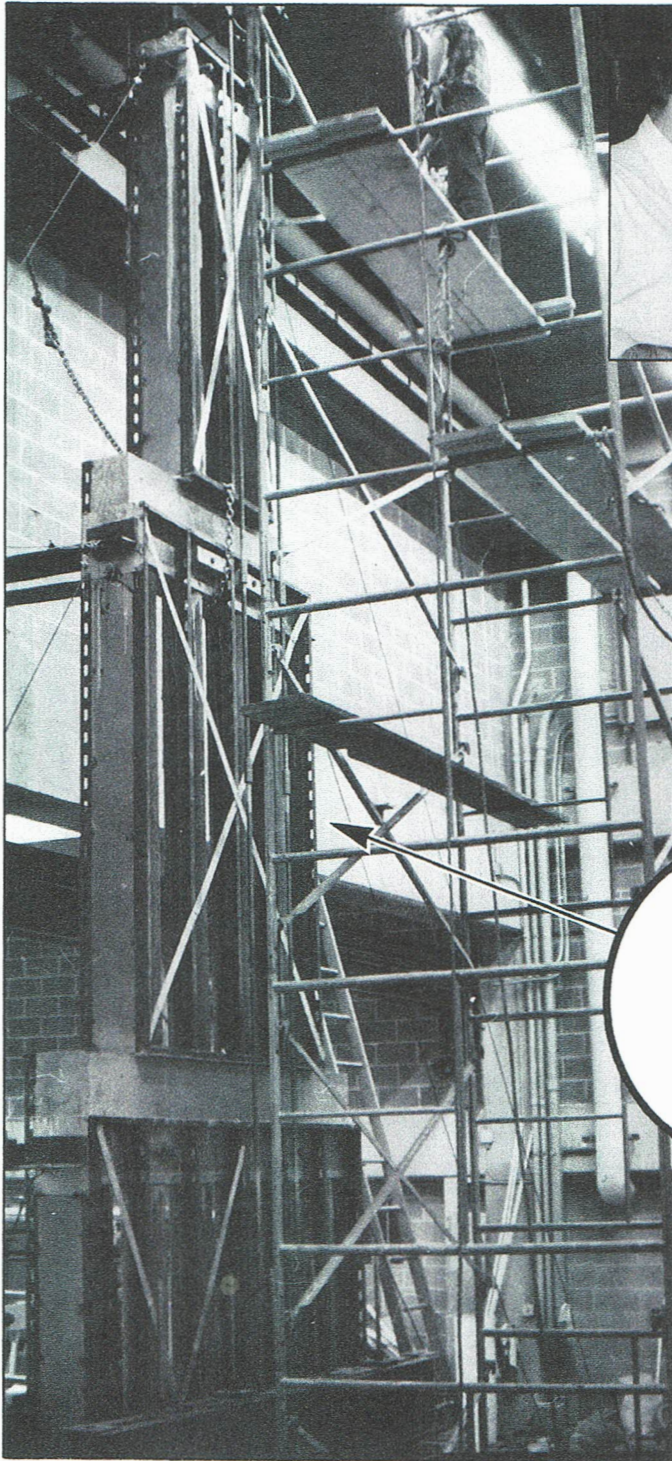
- ...fast
- ...cost effective
- ...energy efficient
- ...a poured-in-place reinforced concrete structure completely surrounded by a fully insulated, pre-veneered, class "A" curtain wall
- ...seven construction procedures combined into one



- 1 Built-in insulation** "R-Value" of 30 or more can be achieved.
- 2 Built-in vapor barrier...** eliminates condensation.
- 3 Built-in structure...** all you do is place reinforcing rods in each column, pour the concrete and you have a framework that will match any conventional system for integrity, strength and durability.
- 4 Built-in fireproofing...** can be designed to suit any project requirements...UL listed.
- 5 Built-in furring...** can be designed to any interior finish or the interior finish itself can be pre-installed.
- 6 Built-in soundproofing...** eliminates noise pollution from within and outside the building.
- 7 Built-in exterior veneer...** extremely wide range of proven architectural facings available.

...truly a "BOTTOM LINE" TECHNOLOGY!

U-FORM'S[®] Structural Versatility...



Strength of the U-FORM structure...



The results of recent full-scale compression and bending tests conducted by independent testing laboratories far exceeded the requirements of the American Concrete Institute (ACI) Code.

U-FORM cores, surrounded by insulation, offer the best field cure for concrete that is

available, without the addition of supplemental heat or the use of "high-early strength" additives. Provides the most out of every concrete mix.

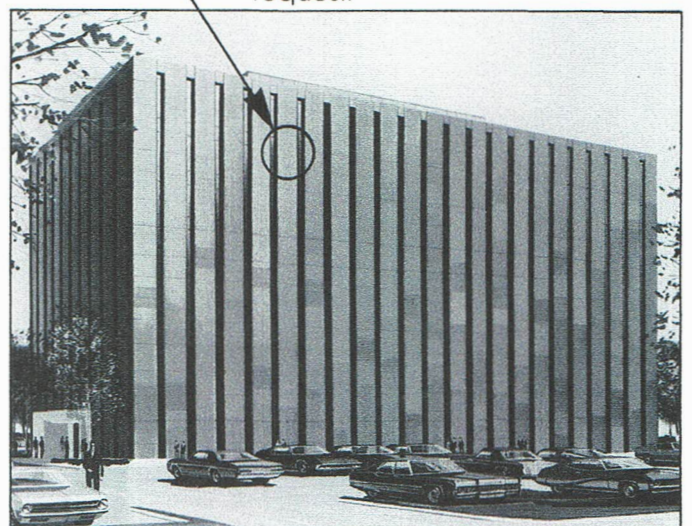
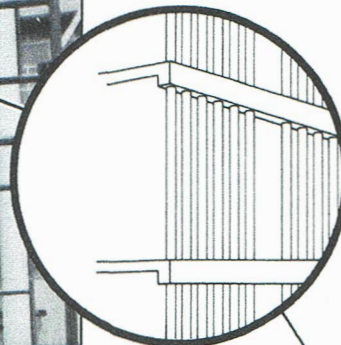
Build-in bond-beam automatically locks walls and floor/ roof structures together, permanently.

The U-FORM structural system is designed in accordance with the American Concrete Institute (ACI) Code and can comply with the requirements of local and regional building codes. Easily adaptable to earthquake design.

The U.S. Department of Housing and Urban Development (HUD) has thoroughly reviewed U-FORM and issued their Structural Engineering Bulletin (SEB) #1020 accordingly. U-FORM has been used on several HUD projects.

Building Officials and Code Administrators International (BOCA) has also issued its Certificate of Compliance, Research Report No. 80-45.

Our national office is developing an easy-to-use manual for licensed structural engineers to use in the design of U-FORM projects. Copies available on request.



U-FORM stands up to the tests...

3-story-high reinforced concrete U-FORM structure undergoes test for load distribution under concentric and eccentric conditions at Wiss/Janney/Elstner research lab in Illinois. Inset shows Don Pfeifer, PE, test project director, and Lev Zetlin, Ph.D., PE., F.A.S.C.E., Internationally renowned structural engineer and consultant, who designed and supervised the tests.

Livonia Pavilion East, Livonia, Mich., 8 story, 120,000 sf general purpose office building.

U-FORM[®]...

A Total Building System Concept

A new technology

U-FORM offers a completely new approach to building construction. No load-bearing masonry... no conventional, independent steel or concrete framing. Instead, in one simple step, U-FORM creates *both* the integrated formwork for a unique poured-in-place structural concrete grid and the total permanent walls. The building goes up quickly, a story at a time, and the selected floor system can be readily incorporated into the total structural design.

How it works

As soon as simple strip footings are in place, installation of U-FORM components begins. Each U-FORM is a story-high portion of the permanent wall... containing exterior finish, superior insulation, sound control, interior veneer, the window frame and accommodation for electrical conduit runs, if desired.

Each U-FORM also contains pre-designed cores into which reinforcing bars are placed and concrete is poured. As soon as the concrete has set, usually overnight, the first floor slab is installed and tied into the structural cores of the U-FORM components to create a totally unique integrated system.

Saving energy

U-FORM structures have exceptional energy saving capability. A typical U-FORM component has the unusually low heat transfer coefficient (U-factor) of .033 (R=30) or better. Therefore, U-FORM structures require significantly less energy for heating and cooling than conventional structures. In addition to reduced energy consumption and utility costs during the entire life of the building, initial cost savings result from the use of smaller, less expensive heating, air conditioning and electrical systems. U-FORM technology is so revolutionary in scope that it

Fabrication

U-FORM components are fabricated to satisfy the aesthetic and structural requirements of each particular building using welded steel stud framing to insure maximum rigidity. The selected exterior facing and insulation are an integral part of the pre-engineered panel along with interior gypsum board, if desired. Also built into each U-FORM unit are the form enclosures which are filled with concrete after the units and the reinforcing bars are set in place. The insulation completely surrounds the poured concrete section creating superior

Increased Safety Factors

Due to U-FORM's unique concrete curing process, design strengths can be achieved within 24 hours, and will continue to rise so that 3 to 4 times design strength will have been achieved within only a few days.

U-FORM lowers initial costs and accelerates the construction cycle, saving money that would ordinarily be spent for job overhead, interim financing, mechanical equipment, OSHA protection, clean-up, etc. In addition, it affords earlier occupancy of the space, giving a greater, faster return on investment capital... at far less risk.

Erection work proceeds quickly and easily without the need for exterior scaffolding. The building grows one full floor at a time in a fast, controlled, repetitive cycle. Because its high insulation protects the fresh concrete during the curing period, U-FORM installation work continues even during winter weather. Since the building is closed in floor by floor, interior trades can begin work much earlier than is possible with conventional construction.

has received a federal grant from the U.S. Department of Energy under the "Energy-Related Inventions Program," to help promote its further development. This unique technology meets the world's critical need to conserve energy as no conventional system can. Combined with the advantages of lower costs and faster completion, the superiority of U-FORM structures in energy conservation makes the system an ideal choice for buildings of all types. It makes solar energy feasible today.

curing conditions even in winter weather. While U-FORM components can be made in a very wide range of sizes and contours, significant savings are obtained through the use of story-high modular components in standard materials widths. A wide range of aggregate and textured finishes are available to meet architectural and aesthetic requirements.

As Dr. Zetlin remarked when his structural test was finished, "*By the way, the U-Form panels that were designed for your 12 story Central Towers Apartments will support a 40-story building.*" Imagine - if U-FORM had been used to build the "Twin Towers", they might still be standing.

U-FORM[®] Buildings Cost Less...

...HARD (building) cost savings	8-10%
...SOFT (financing) cost savings	25-50%
...TOTAL (bottom line) cost savings	18-25% (or more)



**CHIDESTER APARTMENTS
Ypsilanti, Michigan**

Siegal-Toumaala
Associates, Architects

HUD Project # 28-0005-013

NOTE:

The entire building shell for this 8 story, 151 unit apartment building (including all pre-veneered exterior U-FORMs, all interior U-FORMs and all pre-stressed, hollowcore concrete slabs for the floor/roof system) can be erected for less than \$15/sq. ft., current (1983) Metropolitan Detroit, Michigan prices...in only 3 months ..or less.



**BRASHEAR TOWER APTS.
Livonia, Michigan**

Siegal-Toumaala
Associates, Architects

HUD Project #29-0013-043

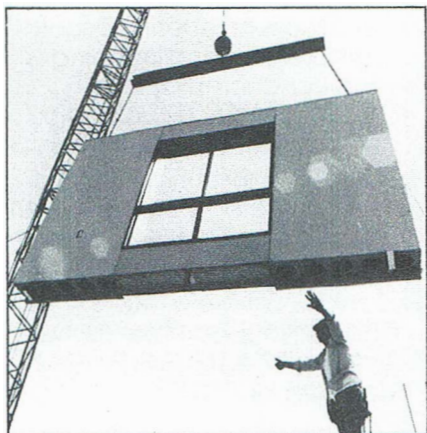
NOTE:

This 9 story, 196 unit apartment building was begun during the first week of March, 1980. It was completed before Christmas, 1980 ...less than 10 months from start to finish...turnkey...and a 2½ month transit mix strike was suffered during construction when no concrete was available..actual construction time - 7½ months.

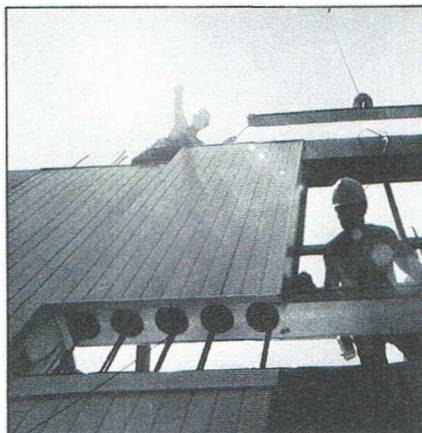
U-FORM'S

Erection Procedure ...

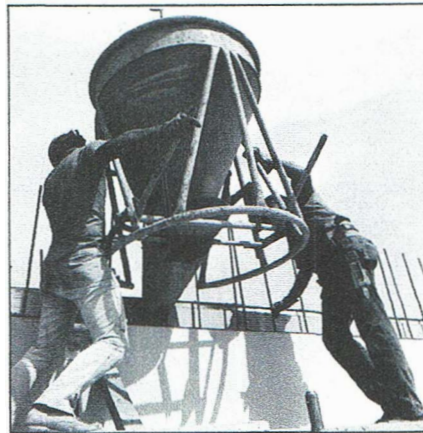
CENTRAL TOWERS APARTMENTS. DETROIT, MICHIGAN. TWIN 12-STORY. 232 UNIT HUD APARTMENT PROJECT NO 044-44375-LD. SACHS ASSOCIATES, INC. ARCHITECTS



The U-FORMS are hoisted ...
 (Note-these 13'-0" wide x 8'-10" U-FORMS contain exterior and interior veneers, insulation, spandrels, window frames, related caulking and electrical outlets.



and set in place over the reinforcing rods.



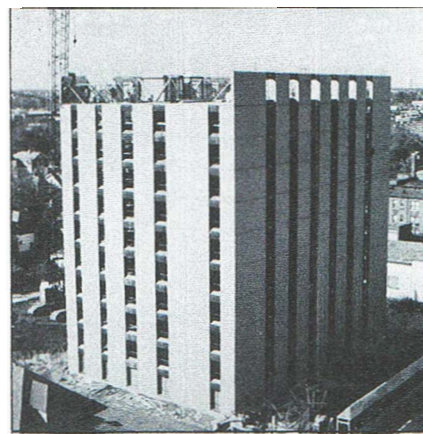
The concrete is poured ...



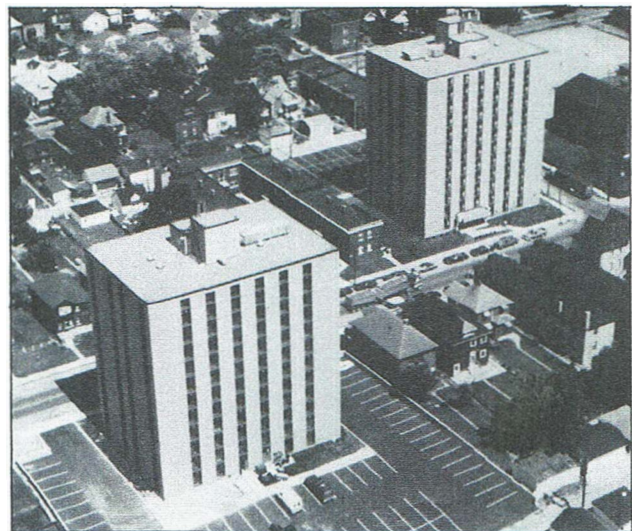
...and vibrated.



The floor system is installed...



..and the building grows quickly, all from the inside... in record time.



Completed Project.

International Licensor:
 U-FORM Systems and Technology, Inc.

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U-FORM is protected by one or more of the following patents:

US Patent Nos. 4098042, 4338759, 4357783
 Canadian Patent No. 1083379
 Australian Patent No. 521037
 Other USA and International Patents Pending.