
HISTORY OF THE CEMENT AND CONCRETE CAMPUS



PCA Headquarters (Building A) **Research Building, now CTLGroup** (Building B)

Material Storage (Building C) **Structures Laboratory** (Building D) **Soils Research Lab** (Building F)

1916-2016

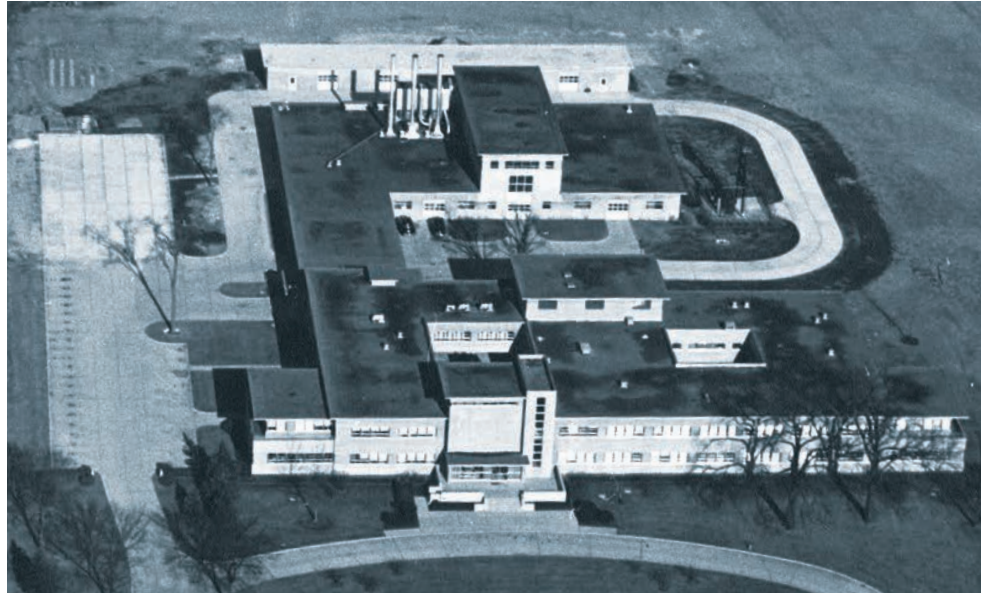
Celebrating 100 Years of Excellence

PCA

America's Cement Manufacturers™

CTLGROUP

PCA Builds a World-Class Research Facility in Skokie (Buildings B and C)



1916

PCA begins operations with a headquarters office in Chicago at Washington and State Streets.



1926

PCA builds new headquarters and research labs at 33 West Grand, Chicago.

1935

PCA purchases 37 acres, the site of current facilities, in unincorporated Niles Township. The North Shore Electric Railway with service to downtown ran along east side of site.

1937

PCA installs a display of precast panels prior to building on site. The panels are now situated in a courtyard between buildings.

1948

Construction begins on a new research facility, which now houses CTLGroup

It was the largest and best-equipped laboratory in the world devoted exclusively to cement and concrete.



Overview

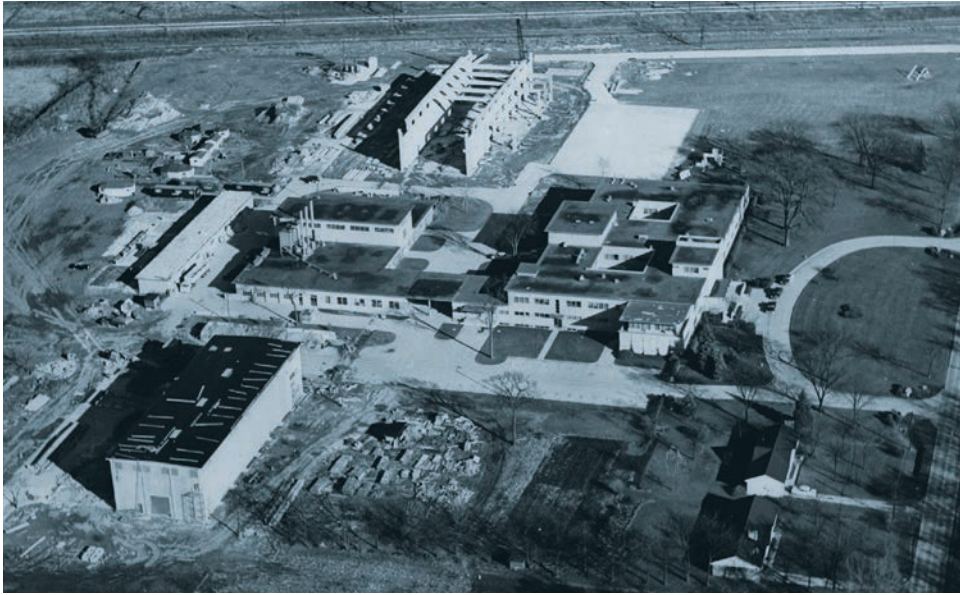
- Building was designed by Carr & Wright, a Chicago architectural firm. The firm had a varied practice, but prospered particularly in building Sears, Roebuck and Company department stores (another Chicago-based firm) across the US. It erected large and impressive Sears stores in Minneapolis, MN, Miami, FL, Detroit, MI, and Boston, MA, to name a few.
- Architecture highlights the use of concrete and concrete block so walls are only decorated by surface painting as the interior finish in most of the building.



- Charles E. Aspdin, great great grandson of Joseph Aspdin, the inventor of portland cement, placed the first concrete for the footing of the new lab on June 30, 1948.
- Size: 57,674 square feet
- Cost: \$3 million
- Employed 150 technicians
- Main building is described in news accounts as looking like a modern country resort hotel with large lobby and picture windows looking out over spacious lawns and the trees of the nearby forest preserve.
- Building C in the rear is a one-story, high-bay building used for material storage and material sorting.

Unique Features

- Original building contained 30 specialized laboratories.
- It houses the only million-pound press in private ownership (capable of one-million pounds compression while still accurate enough to measure the pressure to crack an egg).
- Information developed within the facility was disseminated through PCA's 26 district offices as well as direct contact with engineers, architects, contractors, technical and professional societies, and government agencies.



Structures and Fire Labs Round Out Research (Building D)



1952

Pavement/Soils Research Lab (Building F)

- One-story addition with basement mechanical space behind Buildings B and C
- Size: 4,500 square feet
- Originally used for soils research
- Now functions as covered storage for records and testing rigs

Unique features

- Instead of housing conventional testing machines, the laboratory itself is a giant testing machine, capable of resisting forces of over 10 million pounds.
- 24-inch thick concrete floor pierced with holes spaced 3 feet apart
- Steel rods inserted through holes to hydraulic jacks in the basement

Purpose

- Support new and improved structural applications such as precast frames and bridges, shell structures, folded plates, and space frames.
- Extend knowledge of the structural properties of concrete.
- Advance structural concrete design through improved methods and concepts such as ultimate strength design, yield line theory, shell theory, and limit design.
- Improve structural details in order to facilitate mechanized construction and to reduce costs.



1958

Structures Laboratory

Overview

- Building was designed by Dunlap and Esgar, Chicago architects.
- General contractor was the George A. Fuller Company.
- Cost: \$8 million
- Size: 12,657 square feet
- One-story high-bay facility with basement and adjacent three-story office wing
- Precast concrete, exposed interior and exterior
- Testing of girders, beams, and other shapes of up to 120 feet

1958

Fire Laboratory

Overview

- Building was designed by Dunlap and Esgar, Chicago architects.
- General contractor was the George A. Fuller Company.
- One-story plus basement
- Precast concrete
- Cost: \$8 million
- Demolished in 1998

Purpose

- Conduct fundamental research of the physical properties of concrete and reinforcing materials during exposure to fire.
- Investigate fire resistance of structural elements and assemblies, and ultimately predict methods for fire resistance.
- Conduct full-scale fire tests complying with ASTM E 119-58 requirements.

Unique features

- The facility housed five furnaces of varying size for bench-scale and full-sized tests of beams and girders, columns, floors and slabs, and wall assemblies.
- Assemblies were also tested under load, so furnaces were designed to apply axial and/or bending forces during test procedures, requiring additional strength of the building's floor assemblies.
- The facility included a casting and curing room, where the test components (beams, girders, and other assemblies) could be constructed within a controllable environment.

Administration Building Consolidates Operations (Building A)



1960

Chicago architecture firm Perkins and Will develop a master plan for campus that includes:

- R&D facilities (existing)
- Administration Center (with auditorium)
- Promotion and Engineering Building
- Paving Development Building
- Concrete Casting Plant
- Ancillary Structures for facilities management, storage, etc.
- Elevated walkways between 3 main office facilities.

1968

PCA moves its headquarters to a newly completed general office building (Building A) in Skokie, consolidating operations at what was known at the time as the Cement and Concrete Center.



Overview

- Building was designed by Perkins and Will.
- J.W. Peters and Sons of Burlington, WI, fabricated the building and erected 574 precast elements in 14 weeks.
- Of the 66,000 square feet planned, plus basement, only 32,428 square feet was actually built.
- Cost: \$1.5 million
- White cement, white silica sand, and Romeoville crushed limestone were used to create precast elements.
- 200-seat basement auditorium was not built.
- Light buff-colored precast concrete was described in news accounts as "a move away from the massive structures of yesterday."

Unique Features

- The raised plaza was originally intended to cover a tunnel between Buildings A and B, but the tunnel was never built.
- The design features in-floor distribution for communications and electrical power for maximum office flexibility.
- The sculptured wall in the lobby of Building A (office building) was designed by three students of the School of the Art Institute in Chicago. Their intent was to use the two diverse shapes—a right triangle and curvilinear form—to transform the entire wall into a sculptural element of white portland cement plaster that suggests the beauty and plasticity of concrete as well as its unique versatility and permanence.

