

# A Key Strength: Chrysler Engineering and the Chrysler Institute, 1924 - 1942

The single most significant characteristic of the Chrysler Corporation that set it apart from the other contemporary automakers was its strength in automotive engineering as opposed to automotive styling. From the first Chrysler Six of 1924 until the 1960s, Chrysler vehicles incorporated the most advanced automotive engineering in the industry. Chrysler Corporation introduced 45 significant new engineering features on its products from 1924 to 1941. The original Chrysler Six of 1924 alone had seven “firsts” on American cars (a high compression engine, four-wheel hydraulic brakes, oil filter, air cleaner, independent hand brake, a temperature gauge on the dash and an electric fuel gauge on dash).

Outside observers have consistently noted the central position engineering occupied in Chrysler Corporation. The special issue of *Automobile Topics*, published on December 20, 1933, to celebrate Chrysler’s first 10 years, devoted one-third of its 102 pages to Chrysler Engineering. The issue included biographical sketches of Zeder, Skelton, Breer and other engineering staff, along with interviews with most of them; detailed engineering descriptions of the new Airflow cars, the new Plymouth Six and the Dodge line; a nine-page discussion of Chrysler research methods and a description of the Chrysler Institute of Engineering. The section summarizing Chrysler’s success, “A Century of Progress in Ten Years,” shows the firm’s engineering facilities rather than products or leaders and concludes with the observation:

Engineering research has always occupied a prominent place in Chrysler planning. Indicative of this is the unusual size and scope of the Chrysler Engineering laboratories headed by an engineering triumvirate that knows no peer, Zeder, Skelton and Breer.

Similarly, a *Fortune* article on Chrysler’s success, published in December 1940, singled out engineering as the automaker’s greatest competitive strength. Chrysler Engineering flourished because Walter Chrysler was willing to support it with buildings, equipment, staff and funds. The completion of the Engineering Building at the former Maxwell plant in Highland Park in 1928 symbolized that commitment. The four-story building cost \$1 million and provided 960,000 square feet of space for laboratories,

drafting, testing, showrooms and offices.

Chrysler Corporation produced a glossy booklet to celebrate the dedication of the building. Along with a photo of Walter P. Chrysler, the booklet offered the opening comment, “Behind Chrysler’s remarkable success is Chrysler Performance and Chrysler Value. Behind these two main Chrysler attributes is Chrysler Engineering.”

The building had modern laboratories and test facilities, including a “cold room,” which maintained below-zero temperatures, and a “chassis roll” (also called a “Belgian roll”), a machine that subjected the car chassis, frame and body to stress.

The commitment to engineering research, which really meant a commitment to product development, continued even during the Depression years. Breer recounted that Walter Chrysler never questioned corporate spending on facilities or equipment, even where the “payout” was not obvious. In late 1929, following the stock market crash, when Chrysler reportedly called a meeting of all the department heads and ordered them to reduce expenses by 20 percent, he took Breer aside and told him to ignore the order. Walter Chrysler claimed that he never made any cuts in research, for fear of mortgaging the future.

Chrysler Corporation eventually built a large complex of laboratory, design and testing facilities at the Highland Park site. The Engineering Building received a fifth floor in 1929 and a sixth in 1936. Chrysler Engineering also took over two existing buildings next to the new facility — a factory (1909) built for the Gray Motor Company, which became a road test garage, and a three-story “car storage” building (1928), transformed into laboratory space. Later construction included the Dynamometer Building (1939) and North Laboratory Building (1940, 1942).

Chrysler published *New Worlds in Engineering* to mark the opening of the new laboratories in 1940. Nearly half of this colorful, glossy 96-page book was devoted to Chrysler’s manufacturing and assembly operations, where Chrysler Engineering research was applied.

Chrysler established its own “college of engineering” in 1931, when it launched the Chrysler Institute of Engineering. The corporation employed hundreds of engineers but needed to train new men, whether fresh out of college or with prior work experience, in the “Chrysler way” of doing things. In the spring of 1931, Carl Breer established a committee, later called the Educational Board, to launch a “graduate apprenticeship” program to provide well-trained, experienced men for Chrysler Engineering. They chose

John J. Caton, the former head of the automotive engineering department at the University of Detroit, to serve as director of this new program. Caton studied existing programs at Westinghouse, General Electric, Allis-Chalmers, Bell Telephone and General Motors before establishing Chrysler's program.

This began as a graduate program that admitted students with a recent college degree in hand for a two-year postgraduate education with "hands-on" practical experience. Chrysler paid them a starting engineer's salary while they attended classes and completed a total of eight three-month assignments with various departments within the corporation. They would earn a Master of Mechanical Engineering degree.

Caton and his admissions committee accepted 15 applicants (11 came) for fall 1931 and another five in January 1932. The second class, admitted in August 1932, had nine students, selected from more than 500 applicants. With the assistance of Dean Paul Anderson of the University of Kentucky and Dean Mortimer Cooley from the University of Michigan, the Institute received a charter from the State of Michigan that allowed it to grant degrees.

The Institute's educational offerings immediately grew beyond its graduate program. Starting in September 1931, the Institute began offering evening classes to other Engineering employees who wanted additional training in technical subjects, including drafting. At the start, the students in the Graduate Program taught about 50 students at night. In the fall of 1933, Chrysler opened the evening offerings to all Chrysler employees at no cost. The Undergraduate School soon offered courses in mechanical drawing, body drafting, higher mathematics, mechanical engineering and business administration. Enrollments jumped from 354 in 1933 to more than 1,000 the following year. This program granted a diploma but not a degree.

At the first commencement exercises, held on July 11, 1933, the Chrysler Institute of Engineering awarded 14 Master of Mechanical Engineering degrees and 21 undergraduate diplomas. The Institute also granted Walter P. Chrysler an honorary Doctor of Engineering degree. A year later, the Institute awarded 10 graduate degrees, 36 diplomas and honorary degrees of Master of Engineering to Carl Breer and Owen R. Skelton. The ceremonies began with the singing of the "Chrysler Institute March," dedicated to Walter P. Chrysler. At the fifth graduation, held in June 1938, the Institute granted 30 master's degrees and 131 diplomas.

Among the 1938 graduates earning a master's degree was M. Virginia Sink,

admitted in 1936 as the first woman in the program. She had earned a degree in 1936 in Chemical Engineering, with honors, at the University of Colorado, where a Chrysler recruiter encouraged her to apply for admission to the Chrysler Institute. She also appeared in Chrysler Institute of Engineering yearbooks for 1937 and 1938 as a member of the teaching staff. Upon graduation, she managed Chrysler's chemical radiography and spectrographic department. During the Second World War, she served as personnel director of women and supervised 500 laboratory employees. Starting in 1950, Sink worked on various emissions measurement and control projects for Chrysler, and in 1962, she and two other engineers developed Chrysler's Cleaner Air Package. When Sink retired in 1979, she was manager of Chrysler's vehicle emissions certification program.

This educational enterprise had modest beginnings, but became a major source of trained staff for Chrysler. In January 1940, the Institute allowed messenger boys from the drafting room to study drafting, previously restricted to engineers. In March 1942, women were allowed to study drafting, freeing up men to do other design work. Disabled veterans were given the same opportunity in November 1942. During its first 10 years, the Institute held classes all over the Highland Park plant and at Highland Park High School. A new Chrysler Institute Building opened on October 1, 1942, with 20 classrooms, six drafting rooms, six laboratories and an auditorium. The Institute had come of age.