Other Technical Aspects

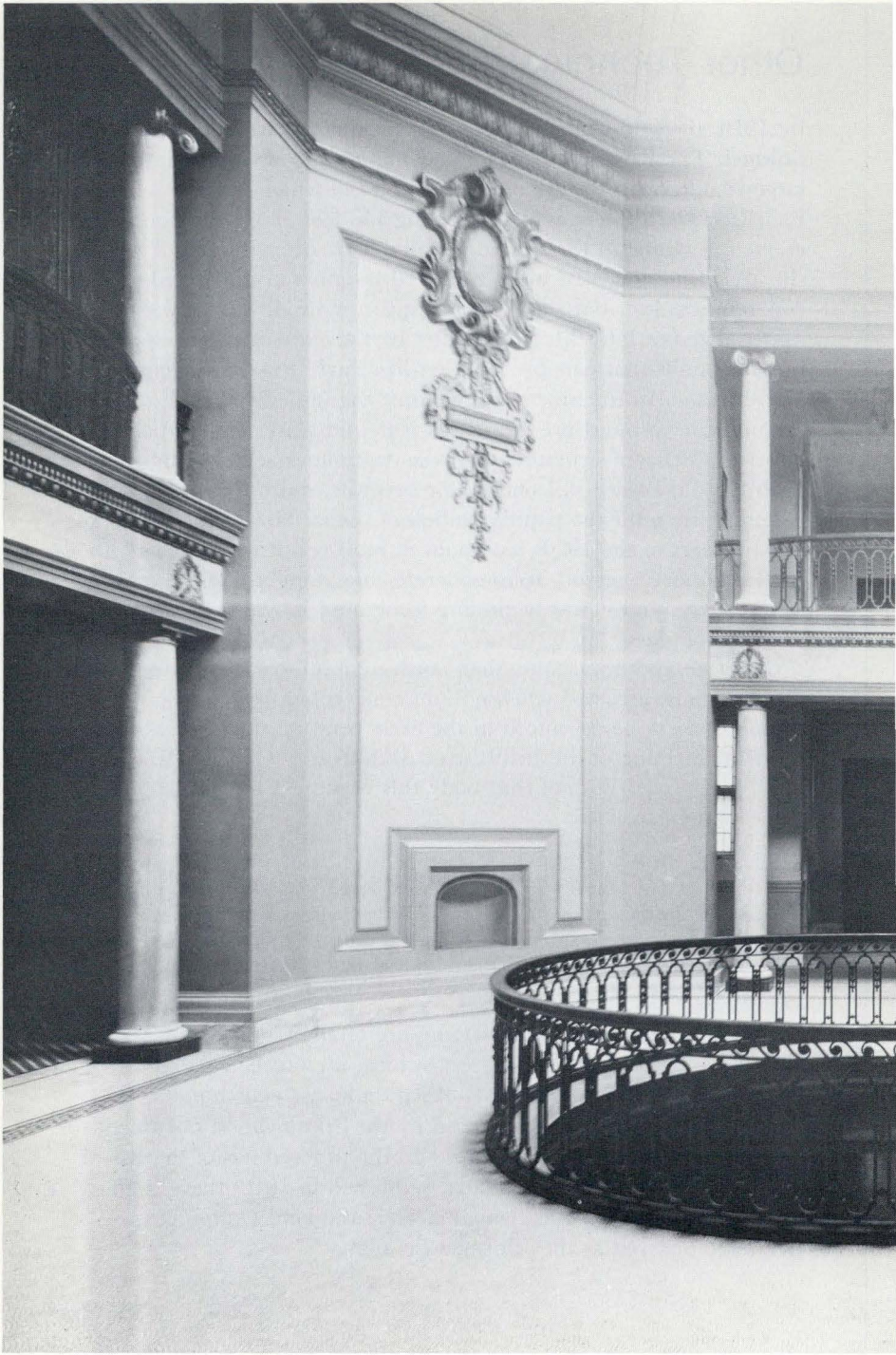
By 1910, the Old Courthouse and its problematical dome were finished. The Romans, using similar methods, constructed much larger vaults than this, the most beautiful of which is the Pantheon's — 146 feet across, hovering 146 feet above the floor — erected in Rome in the second century A.D. After the fall of Rome the art of building vast unencumbered interiors in reinforced concrete was lost, but the desire for gigantic inside spaces was materialized in later Medieval times by the elaborate, rib-supported masonry roofs that canopy churches like Paris' thirteenth century Notre Dame. In the nineteenth century the same Medieval architecture inspired pre-fabricated iron and glass combinations in large and delicate structures. But the techniques achieved by the 1855 Crystal Palace in London, for example, did not come into common use until the popularization of the curtain wall by Bauhaus practitioners in the 1920s took hold in most countries by the 1940s. In Rattenbury's period, ferro-concrete construction was the exciting re-discovery, and it was beginning to be used in consort with large windows of glass.

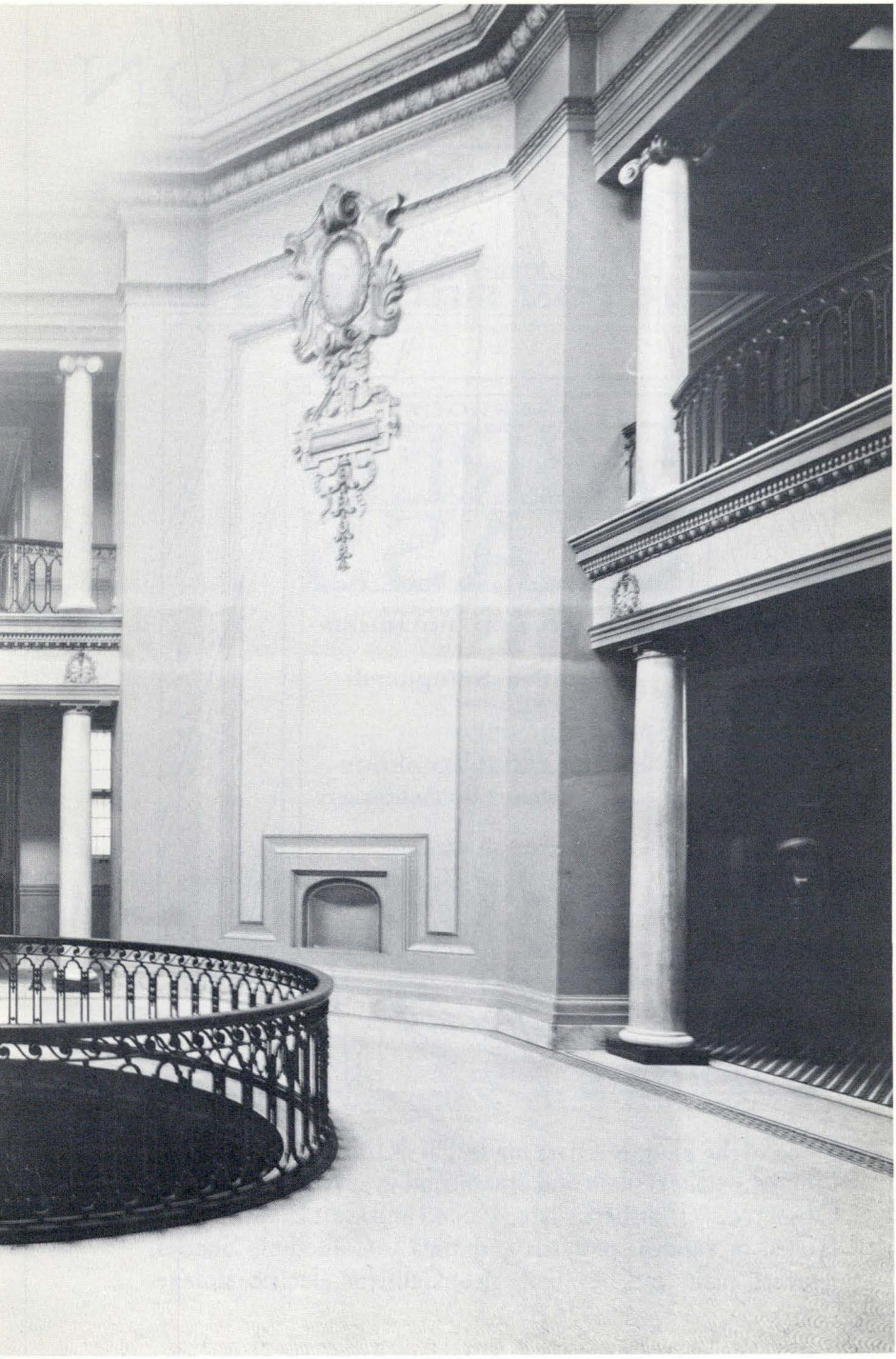
Concrete and iron alone, then concrete reinforced with steel, were the materials discussed when notions concerning fireproofing standards were being voiced in the early century at, for example, the 1907 meeting of the Institute of Architects of Canada. In the published proceedings of that body this argument for public protection was voiced:

> Since fire is the chief destroyer of property, virtually the most contagious of diseases, everything should be done to stop the growth and destruction wrot [sic] by this plague. . . . To prevent destruction a building must perforce be indestructable; to not burn it must be indestructable; to not burn it must be incombustible, and not to be damaged it must be fireproof. (*First* 66)

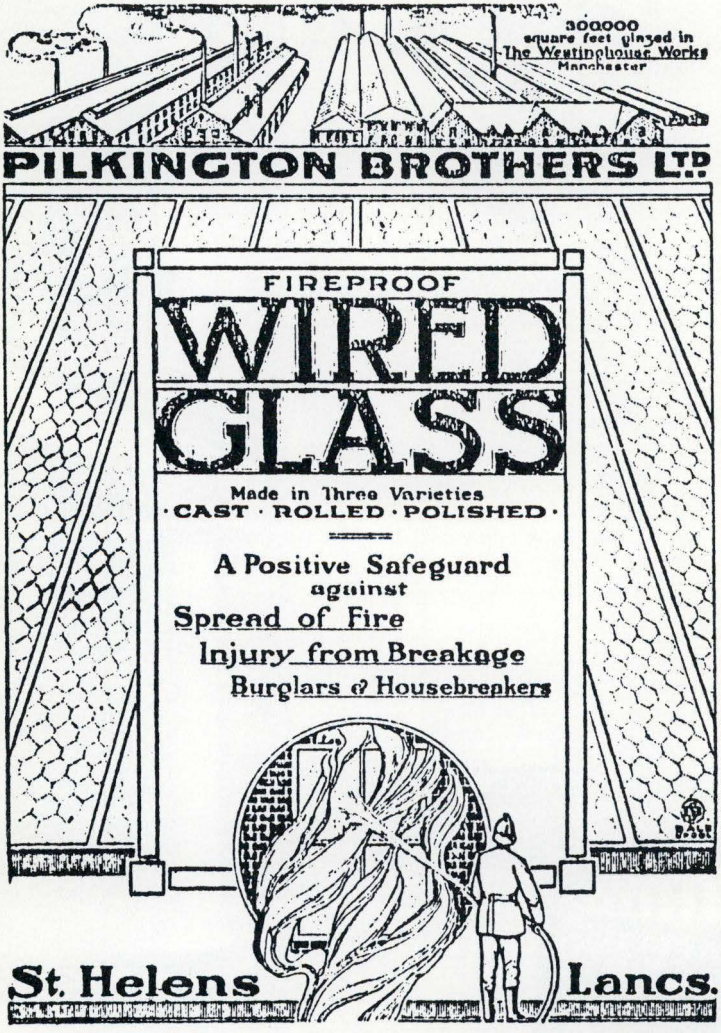
Given Vancouver's own devastating fire of 1886, such deliberations must have been of special interest to local architects, and, as mentioned earlier, certain parts of Rattenbury's courthouse, including the dome, were required by the Specification document to incorporate fireproofing measures.[1] In the proceedings of the Royal Architectural Institute of Canada, published in 1910, there is an illustration for wired glass which is likely the kind Dalton & Everleigh ordered as they finished the dome.

* * *

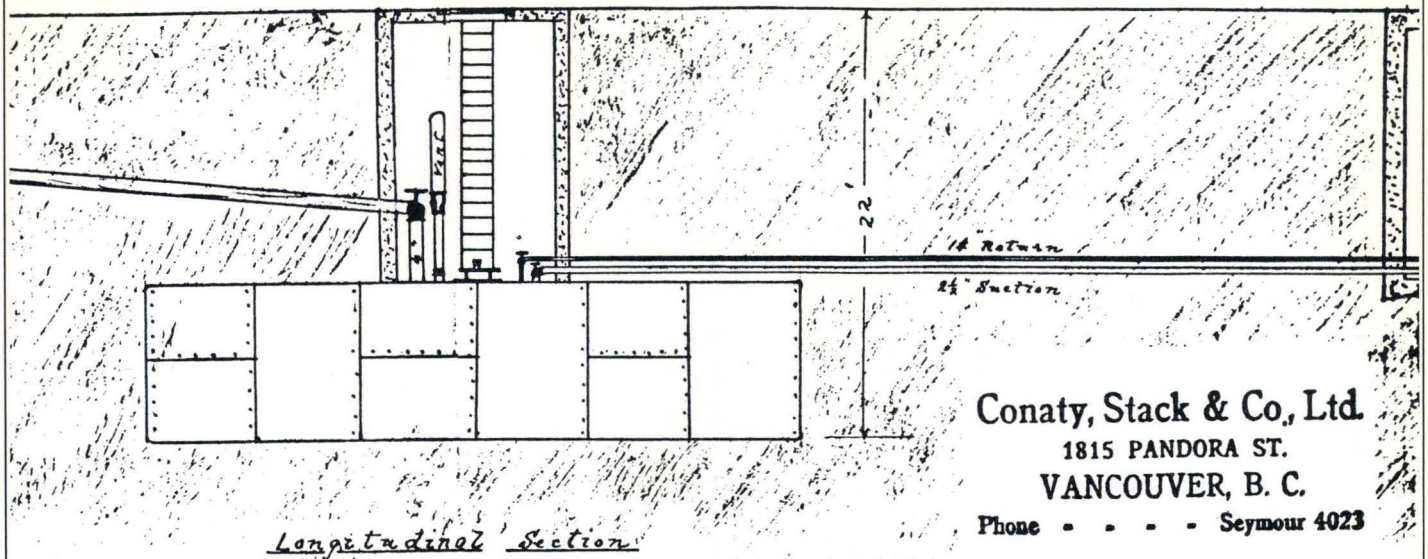




PILKINGTON



Some of the kinds of Glass made PILKINGTON BROS., Limited,—Sheet plain and ornamental in several thicknesses, Obscured. Polished Plate, Rolled and Cast Plate, figured. Rolled in various patterns and tints. Cathedral, Shades, Mirrors plain and bevelled, also Cells for electric storage.



Longitudinal Section

Conaty, Stack & Co., Ltd.
1815 PANDORA ST.
VANCOUVER, B. C.
Phone - - - - Seymour 4023

PROPOSED FUEL OIL INSTALLATION

for

VANCOUVER COURT HOUSE

Scale $\frac{1}{8}$" = 1ft.

In Specification, it is stated that it was the duty of Rattenbury's delegates to check the quality of cement from time to time. Supervision of the steel quality was the job of the contractor; supervision of fireproofing standards was the business of the sub-contractor. Then, as now, a chain of authority and contracts ensured that a building met contemporary standards for public safety.

In Rattenbury's day, the quality of cement was tested in the following way. The contractor had to supply a sample whenever the architect requested it. No fewer than six pounds of the material were taken from each delivery and thoroughly mixed with fresh water at 60 to 70 degrees Farenheit to see if the concrete was of proper quality. If it was not, "the cements of such brands" were rejected and all work done in "such cements" was removed. Steel would be considered acceptable to the contractor only if it had been made by the Bessimer or open-hearth method and did not contain more than 0.08 per cent of phosphorous nor more than 0.06 per cent of sulphur. Further, according to Specification, it had to meet these requirements:

> Ultimate tensile strength 60,000 to 68,000 lbs. per square inch. Elastic limit not less than one-half the ultimate strength. Elongation not less than 20 per cent in 8 inches. Reduction in area not less than 40 per cent at point of fracture. . . .

Fireproof floors, walls and ceilings (as required in the basement, the heating and fuel cellars, the freight elevator pit, the small vaults of the ground floor, and elsewhere) were made of reinforced concrete in "Renobling, Expanded metal or Franklin system of fireproofing." Every structural steel member had to be protected thoroughly by steel mesh and concrete. The "Fireproof Floor Contractor" had to submit his plans for all aspects of his specialized work, and, when finished, he had to guarantee that the floors could withstand a test of 800 pounds per square inch. The nature of the loading for such a test, its location and its duration would be the choice of the architect. The floors, however, had to be tested thirty days after the concrete was poured.

These details are included to demonstrate that any building (and in particular a public building) must respond to the government controlled rules deemed fitting at the time of its creation. Similar data will be supplied for some aspects of the standards that were to be met and some testing that took place during the construction of Erickson's New Law Courts.

Finally, every piece of architecture, especially one conceived on a large scale, has to be concerned with the mechanical systems that bring heat, light, ventilation and plumbing to the structure. In the early century, windows could be opened and shut at whim and doors opened or closed in order to help regulate the temperature. The heating unit of Rattenbury's court was proposed in this initial sketch provided by Conaty, Stack & Co. Ltd. An early design for the ventilation of the New Law Courts can be studied in a sketch in that section of this monograph. It takes into account the fact that all but the major entries to this building will be, according to contemporary custom, sealed and that, unusually, the heat will be regulated by the vast tank of water in the basement and by careful choice of tinted glass in the gigantic roof.

NOTE

[1] For details concerning these tests, consult the City of Vancouver Archives.

IMAGES

PAGE	
24 & 25	City of Vancouver Archives.
26 & 27	Provincial Archives of British Columbia.