

The Dome

The difficulties that attended the construction of Rattenbury's dome — which delayed the building's completion date and contributed to the escalation in cost — began with the fact that Specification was short on detail.¹ It stated that the

whole of the dome is to be rendered in and finished in Keen's polished [marble] in the best manner, except only to the four large wall panels. . . .

The domed ceiling and large cornice will be furred out in concrete by the Fireproofers. . . .

The plasterer should examine the Fireproofing Specification carefully. . . .

It said the dome was to be executed in concrete to "the thickness shewn on Plan" and strongly reinforced. Unlike other parts of the roof, it was not to be covered entirely with copper.

In July 1908, the Vancouver architects in charge of Rattenbury's project wrote to F. C. Gamble, their government supervisor, that the capping of the rotunda was about to proceed:

We have made tracings of the necessary drawings which the contractors are forwarding to Portland, Ore. to prepare complete details for dome which will be submitted to your department as soon as possible.

Contractors will also submit details for floor of gallery over inner dome for which no detail is shewn on contract steel work drawings.

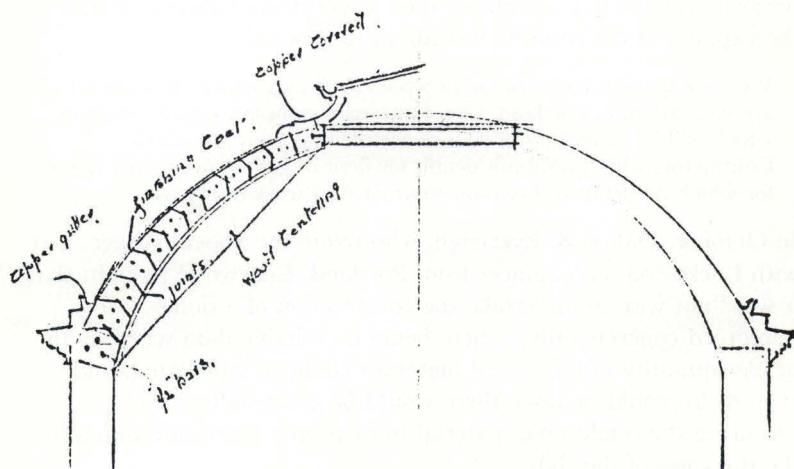
In October, Dalton & Everleigh, who wrote the above passage, met with Lockwood, an engineer from Portland. Lockwood thought that it was "not wise to undertake the construction of a dome . . . in reinforced concrete only," there being no reliable data whereby the proper quantity of reinforced materials could be calculated, and even if this could be done there would be great difficulty in "securing the reinforcing material in its proper place in relation to the thickness of the slab."

Dalton & Everleigh then requested Lockwood to "prepare a proper plan of light steel upon which a layer of reinforcing fabric could be stretched to receive the concrete, the reinforcing material securely wired to the frame." A drawing for a metal cage was apparently sent to F. C. Gamble for approval. An accompanying letter stated that the steelwork would be made by North Western Bridge Company in Portland because John Coughlan and Company, who had supplied the rest of the steelwork in Vancouver, had "a shop not yet fully equipped for making curved work except by hand." Dalton & Everleigh wrote Gamble that Lockwood's opinion of how the work would be done corresponded with that of other engineers they had consulted. On October 28, the above information was sent along with the notification that a contract to erect the steel frame and dome had already been passed from Gamble's office to Rattenbury's.

According to the Specification document, Rattenbury had to be consulted whenever a deviation from or alteration in the plan occurred. His response was immediate and it eliminated the twenty ton metal cage. Rattenbury stated in his October 29 letter that:

the dome can be readily built as I have seen it done elsewhere, by erecting a centering, and carrying concrete up in consecutive courses 18" in height with $\frac{1}{2}$ " bars as reinforcing.²

He included this sketch as information:



He closed the letter with the remark that he did not foresee any difficulty with waterproofing even if the concrete of the main part of the dome was left exposed, but, if there was a problem, the whole could be sheathed in copper. He requested, finally, further information on the progress of the dome.

On November 3, 1908, Gamble wrote to Dalton & Everleigh that he thought Rattenbury's proposal was worth considering and that it was cheaper. But apparently the architects and their consultants did not agree to this method even after Rattenbury had stressed, in a letter dated December 2, that he had found that

it is possible to obtain qualified reinforced concrete Engineers and Contractors willing to execute and guarantee this work—It is only a question of cost.

By March 27, Dalton & Everleigh were proceeding with the Lockwood proposal; their reasons:

... we had the opportunity of discussing this question with the consulting engineer of American Steel and Wire Co. and are now more firmly convinced that in a public building, no chances should be taken, or experiments made with a doubtful method. ... We therefore strongly advise the acceptance of Messrs. MacDonald Wilson and Snider's tender of \$3750.00... and request that you [Gamble] grant an order for this extra expenditure.

This letter included the statement that the steel work could be done in Coughlan's local shop, but that the curved ribs would still have to be made elsewhere. On March 30, 1910, Dalton & Everleigh requested that the Honourable Mr. Taylor send additional funds to cover the cost of copper to sheathe the entire dome in order to ensure waterproofing.

On March 26, this remarkable request came from Gamble's office:

It has been suggested before building the permanent dome that we should erect a temporary one, so that the effect [from Georgia Street] can be seen before the work is carried out. Kindly see the contractors and ask them to make an estimate of the cost.

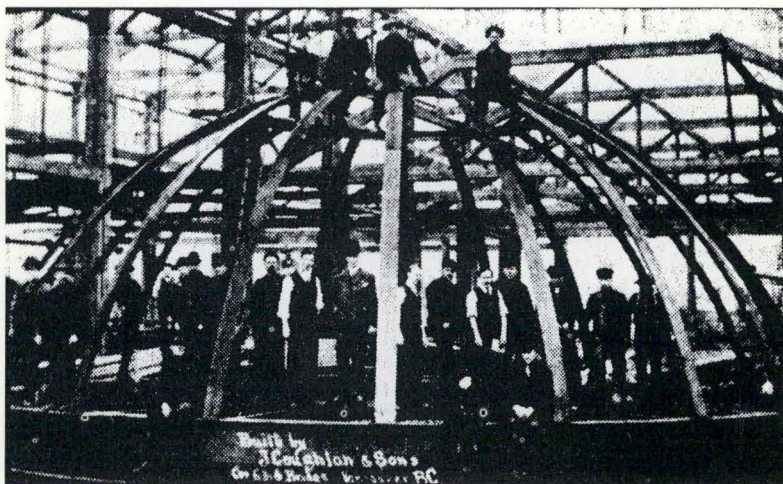
Dalton & Everleigh's reply on March 30 set

the cost of putting up a temporary frame and two ribs to give the outline of the dome at about one hundred and fifty dollars.

On working out the view line from Georgia Street, we are of the opinion that it will take from about five to eight feet extra masonry according to whether you take the north or the south side of the street as the point of view.

At the height as shown in the drawings, only the cornice below the spring of the dome will be seen from the street.

By April, contractors were at work facilitating this visual amendment for which the government was sent a bill of 4,600 dollars for "extra work in all the trades . . . the cost of the stone and brickwork taken at a higher [than usual rate] owing to the cost of handling materials at this height." On April 25, Dalton & Everleigh were forwarding estimates for the ninety feet of "lead and wire" glass necessary for the dome's fireproofing, and so the project was near completion. It is an amusing historical fact that by the time the dome was erected, J. Cougлан & Sons had the capability of constructing its inner metal cage.



NOTES

- ¹ Specification for a Court House is available at the City of Vancouver Archives. Hofar's previous Courthouse, located at Victory Square, is illustrated on p. 36.
- ² For the letters, etc. referred to in this section consult the Provincial Archives of British Columbia, in Victoria, BC.

IMAGES

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- 20 Provincial Archives of British Columbia.
22 City of Vancouver Archives.