

## Comstock

Project: Humber Bay

**Challenge:** This project started with a request to assist Comstock to obtain TSSA Fuels Approvals for five Unilux boilers in the basement of the Humber Bay Waste Water Treatment Facility. The boilers were in the midst of commissioning on natural gas and digester gas.



During the TSSA Fuels Approvals submission task, Arctic Combustion was also asked to corroborate the breeching and chimney design, specifically calculations indicating the ability to draw the flue gasses up the chimney. The project, in its final stages, depended on an existing multi-flue chimney, that was considered small for its proposed use, and restricted the site to have to use only two of the five boilers in specific pairing.

Arctic Combustion engineers corroborated the earlier calculations and then proposed witnessing a test in the hot summer season, as an empirical test of the chimney's draft.

During the test, the existing chimney exhibited leaking, and so a rush project was agreed on by the city of Toronto, SNC and Comstock. In this project Arctic Combustion played a pivotal role, since servicing the stack would mean removing the existing five Unilux boilers from the plant's capacity and therefore needing temporary boiler capacity during the work. As the fall was drawing on, the emergency work would mean getting it done over the Christmas holidays and into the coldest part of the year. This was due to the sites immediate need for boiler capacity due to plant heating requirements.



**Solution:** Arctic Combustion rented and commissioned the temporary hot water boilers to the site. As well, Arctic Combustion redesigned the stack and supplied and installed a new stack liner, optimizing the boiler grouping to match the available flue capacity. The liners final dimensions were approximately 17" D x 118" W x 70' H, and the solution was to break out the existing clay tile liners and insert this 70 foot liner from the top, dropping more than 5 stories through the roof in a space with little cross-sectional clearance. Of course this meant a lift of greater than 130' in the air to clear the top of the existing structure and slide it all the way down.

After the liner was installed, Arctic Combustion supported Comstock in the new commissioning exercise of the original 5 boilers before removing the rented four boilers and turning the operation of the new stack, breeching and boilers back to the City of Toronto.

The result was an ability to use any or all boilers in any combination, giving total flexibility in firing and removing a boiler limiting operational problem.