# **Project Spotlight**

Manitoba Hydro High Voltage Test Facility



### Manitoba Hydro High Voltage Test Facility

# Lafarge's Chronolia<sup>®</sup>4H reduces costs and labour for cold weather pour.

#### The Opportunity

In 2009, Manitoba Hydro released plans to build a High Voltage Test Facility. Slated for completion in the fall of 2011, the Manitoba Hydro High Voltage Test Facility will be one of only four facilities in Canada that can be used to test 550-kilovolt alternating and 500-KW direct current equipment. The facility will bring all of Manitoba Hydro's high voltage testing under one roof and will greatly expand the company's ability to test equipment before it goes into service.



#### The Challenge

Complications arose when construction for the Manitoba Hydro High Voltage Test Facility was delayed into the winter creating numerous environmental concerns for the contractor, Bird Construction. As the temperature drops, set times for concrete increase; tying up forms, increasing labour costs, and increasing the potential for defects to occur within the concrete.

To reduce the risk of cold weather pours, contractors employ heating and hoarding techniques. However, although necessary for cold weather pouring, heating and hoarding is expensive and uses a great deal of energy. In addition, the project engineer for the Manitoba Hydro High Voltage Test Facility required that the concrete reach 75% design strength before Bird Construction could fly the forms for the stairwells.

To keep from falling further behind in schedule, Bird Construction needed a high early strength concrete that was still strong enough to meet the design requirements of the project.



## **Project Details**

**Owner:** Manitoba Hydro

Location: Winnipeg, Manitoba

Contractor: Bird Construction

Architect / Engineer: Aecom / Hydron / SNC Lavalin

Innovative Products: Chronolia® 4H

Volume of Innovative Products: 500m3

Years of Construction: 2009 - 2011



"Chronolia® 4H allowed us to achieve faster turnaround time with our forms and helped improve the control costs for heating and hoarding."

> -TOM CHOROPITA PROJECT SUPERINTENDANT BIRD CONSTRUCTION

#### The Lafarge Solution

Although it was not part of the original design specification, Lafarge recommended the use of Chronolia® 4H and provided Aecom / Hydron / SNC Lavalin with historical data on the product's performance. In addition, Lafarge also performed trial batches on Chronolia® 4H and submitted strength data to Aecom / Hydron / SNC Lavalin. Aecom / Hydron / SNC Lavalin approved the mix and cast field tests to ensure that the concrete would reach the specified strength.

Chronolia® 4H performed very well for this application. Bird Construction was able to fly their forms 4 days earlier than they would have with conventional concrete - reducing labour costs associated with heating and hoarding concrete. Chronolia® 4H performed so effectively that Bird Construction went on to use Chronolia® 4H for all grade beams in the project as well.



Chronolia® 4H allowed Bird Construction to fly their forms 4 days earlier than they would have with conventional concrete.





To reduce the risks of cold weather concrete pouring. Contractors employ heating and hoarding techniques. However, heating and hoarding can be very expensive. By using Chronolia® 4H, Bird Construction was able to reduce the costs of heating and hoarding.

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