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**UHPC Innovations for Durability  
and Resiliency**

ACI Fall 2013 Convention  
 October 20 - 24, Phoenix, AZ

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WEB SESSIONS

**V.H.(Vic) Perry, FEC, FEIC, FCSCE, M.A.Sc., P.E.**, received his Bachelor of Civil Engineering with Distinction in 1978 and his Master of Applied Science in Structural Engineering in 1984 from Dalhousie University in Nova Scotia, Canada. Mr. Perry also completed Executive Management Programs and Graduate Studies at the University of Western Ontario, the University of Toronto and Duke University. Over the past 30 years Mr. Perry has gained experience in Industry, Business, Consulting Engineering and Trade Association Affairs through various positions in George Brandy's & Associates, the Portland Cement Association, Vaughan Engineering and Lafarge throughout Canada, the USA and Europe. Mr. Perry is a Fellow of the Canadian Society of Civil Engineers, Engineers Canada and the Engineering Institute of Canada. Mr. Perry is a Past-President of the Canadian Society for Civil Engineering, a member of the US Department of Homeland Security's Advanced Material Council, a member of ACI Committee 239, UHPC, and a member of the University of Calgary's Civil Engineering Industry Advisory Board. Since 1997, Mr. Perry has been involved in the development of Ductal®, initially as Director Marketing – Ductal®/UHPC for the Lafarge Group located in Paris France and more recently as Vice-President & General Manager Ductal® Lafarge North America, located in Calgary, AB, Canada.

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WEB SESSIONS

  
**UHPH Troughs for a Waste Water  
Treatment Plant – Edmonton, AB**

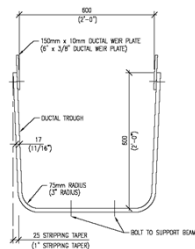
## Overview

### Precast Elements

- **Fabricator:** Lafarge Precast
- **Designer:** Stantec Architecture Ltd
- **Owner:** City of Edmonton, AB, CAN
- **Project Completion:** December 2006
- 41,000 sq foot WWT Plant.
- 36 precast Columns,
- 33 precast Beams,
- 324 Hollow-core,
- 202 load Bearing Wall Panels
- 192 UHPC Clarifier Troughs



## UHPC Troughs



LAFARGE

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## Material Properties for Design

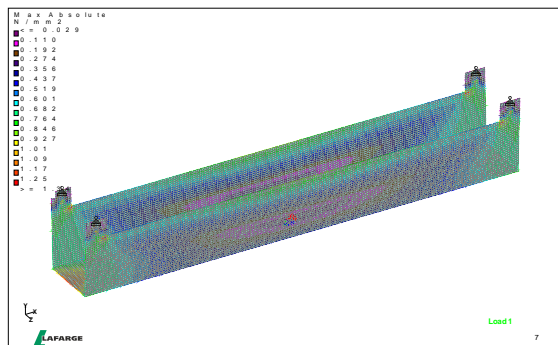
Formulation: Ductal BS1000

Stress(MPa)	Characteristic Values for Design*		
	Test Data		
	Mean	I.S.D.	Char. Value
Compression (MPa)	180	12	160
Flexural (MPa)	35	4.5	--
E-Modulus (GPa)	57	2	55
Direct Tension (MPa)	$f_{tj}$	10	1
	$\sigma_{15k}$	12	2
			8

\*Post Thermal Treatment

LAFARGE

## Design



## Fabrication

Manufacture, Shipping and Installation



## Fabrication

Manufacture, Shipping and Installation

