



**Concrete  
Thinking**  
for a sustainable world



Portland Cement Association

*2010 Spring TTCC/NCC*

# **Report for TTCC/NCC Task Force on C595 and C1157 Cements**

*John Melander*

# TTCC/NCC Task Force on C595 and C1157 Cements

- Why form a task force?
- Who is on the task force and what do we want to do?
- How do we proceed?

# Why a Task Force?

To develop an electronic forum for documenting and exchanging information about the performance characteristics of ASTM C595/AASHTO M240 and ASTM C1157 cements in concrete for paving and transportation structures.

# WHY?

# Key Issues Driving Change



**C595 and C1157 Can Increase Concrete's Sustainability**



# Task Force Members

Peter Taylor (NCPTC)	Tommy Nantung (Indiana DOT)
John Melander (PCA)	John Staton (Michigan DOT)
Al Innis (Holcim US)	Tyson Rupnow (Louisiana DOTD)
Nick Popoff (St Marys)	Mehdi Parvini (California DOT)

# Intended Outcomes

- Establish resource on the NCC website
  - Share C595/M240 and C1157 project testing, data, and experience
  - Post or link to relevant research
  - Develop and post FAQ resource
- Identify technology transfer needs and meet those needs
- Report to TTCC/NCC with recommendations

# Getting Started

## ■ Guidelines

- Keep it simple
- Provide statement of purpose and brief background
- Start with published reports
- Link to information when possible
- Organize to facilitate easy access

# Getting Started

- Examples of information to share
  - “Use of Performance-Specified (ASTM C1157) Cements in Colorado Transportation Projects: Case Studies” – T Van Dam and B Smartz, TRB 2010
  - “Field Trials of Concrete Produced with Portland Limestone Cement” – M D A Thomas, D Hooton, K Cail, B A Smith, J de Wal, and K G. Kazanis, Concrete International -Jan 2010



# TRB Paper – Three Case Studies

## All Used C1157 Cement Containing 10% Limestone

- 40<sup>th</sup> Avenue, Denver, 2007
  - Used with 20% Class C FA, Recycled Aggregate
- US HWY 287, Lamar, 2008-2009
  - Used with 20% Class F FA
- I-25, Castle Rock, 2008-2009
  - Used with 20% Class F FA

# ACI Paper – Field Trials, 8 Concretes

## Cements = CSA A3001 PC and PCL (12% limestone)

- Blended SCM = 33% FA, 67% Slag

- Replacement levels = 0, 25, 40, 50

- Tests

- Cast specimens - compressive strength (ASTM C39), rapid chloride penetration (ASTM C1202), rapid freeze/thaw (ASTM C666), microscopic air void analysis (ASTM C457), deicer scaling (C672),

- Cored - strength (ASTM C42), chloride penetration (C1202), chloride diffusion (ASTM C1556)

# Next Steps

- Forward information to Peter Taylor for posting
- Task force to review suggestions
- NCPTC communications staff to set up web site



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A close-up photograph of concrete aggregate. On the left, there is a pile of light-colored sand or fine aggregate. In the center and right, there is a larger pile of dark brown, coarse aggregate. A clear glass jar is placed on the left side, partially filled with the light-colored aggregate. The background is a dark, textured surface.

**Questions/Suggestions/Comments**