

Quarterly Progress Report:

Project Number and Title: C7.2018: Alternative Cementitious Materials (ACMs) For Durable and Sustainable Transportation Infrastructures

Research Area: New Materials for Longevity and Constructability

PI: Professor Eric N. Landis, Ph.D., University of Maine

Postdoctoral Research Associate: Hosain Haddad Kolour, Ph.D., PE, University of Maine

Reporting Period: Apr 2021 to Jun 2021

Submission Date: 30 Jun 2021

Overview: (Please answer each question individually)

Summary of activities during the reporting period:

- All done with tests. Now we are working on interpreting the results and writing the report.
- Monthly Zoom Meeting with Maine DOT engineers
- Our abstract to the 11th Advances in Cement-Based Materials Conference (Cements 2021) titling “Combined effects of slag and CO₂ curing on mechanical and transport properties of concrete” accepted for presentation. We explained our research in a 15 minutes prerecorded presentation and 5 minutes live Q&A on Wednesday June 23.

During last three months, abstract of our research titled “Combined effects of slag and CO₂ curing on mechanical and transport properties of concrete” has been accepted to the 11th Advances in Cement-Based Materials Conference (Cements 2021). We worked on interpreting the results and preparing the presentation for Cements 2021. On Wednesday June 23, it was presented as a 15 minutes prerecorded presentation and 5 minutes live Q&A. Also, we had a monthly Zoom meeting with Maine DOT engineers. Now, we are done with all tests and we are working on completing interpretation of results and writing the report.

Table 1: Task Progress			
Task Number	Start Date	End Date	% Complete
Task 1: Selection of ACM with desired workability and strength	06/01/2019	12/31/2019	100%
Task 2: Shrinkage	01/01/2020	01/01/2021	100%
Task 3: Durability performance	10/01/2019	06/31/2021	100%
Task 4: Life cycle analysis	10/01/2020	06/31/2021	100%

Table 2: Budget Progress		
Project Budget	Spend Amount	Spend Percentage to Date
\$83,238 (from UTC)	Information is coming soon	

Describe any opportunities for training/professional development that have been provided...

One postdoctoral research associate is working in this project. It will be a great opportunity for him to learn about writing proposals, preparing reports, participating in meeting, attending conferences, and working with professionals in UTC, UMaine Advanced Structures and Composites Center, and MaineDOT.

Seven undergraduate students have been involved in this project. It will be a great experience for them to be familiar with ASTM tests and standards. They will learn how to conduct the experiments, how to follow the standards, and how to work in a team in a real project.

Participants and Collaborators:

Use the table below to list all individuals who have worked on the project.

Table 5: Active Principal Investigators, faculty, administrators, and Management Team Members			
Individual Name	Email Address	Department	Role in Research
<i>Professor Eric N. Landis</i>	<i>landis@maine.edu</i>	<i>Civil and Environmental Engineering</i>	<i>PI</i>
<i>Dr. Hosain Haddad Kolour</i>	<i>hosain.haddad@maine.edu</i>	<i>Civil and Environmental Engineering</i>	<i>Perform the experiments and analysis the results</i>

Use the table below to list all students who have participated in the project during the reporting. (This includes all paid, unpaid, intern, independent study, or any other student that participated in this project.)

Table 6: Student Participants during the reporting period				
Student Name	Email Address	Class	Major	Role in research
Parry Seddiqi		senior	Civil and Environmental Engineering	Help in performing the experiments
Kelsey Weir		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Madison Ala		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Nicholas Tiner		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Alexander Baur		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Tanner Laflamme		sophomore	Civil and Environmental Engineering	Help in performing the experiments
Emma White		sophomore	Civil and Environmental Engineering	Help in performing the experiments

Use the table below to list organizations have been involved as partners on this project and their contribution to the project.

Table 8: Research Project Collaborators during the reporting period						
Organization	Location	Contribution to the Project				
		Financial Support	In-Kind Support	Facilities	Collaborative Research	Personnel Exchanges
University of Maine	Maine	X	X	X		

Who is the Technical Champion for this project?

Name: *Michael.Redmond*

Title: *Concrete Quality Specialist at MaineDOT Bridge Program*

Organization: *MaineDOT*

Location (City & State): *Augusta, Maine*

Email Address: *Michael.Redmond@maine.gov*

Changes:

Professor Eric N. Landis is the new PI of this project since January 1st 2020. Both old PI (Dr. Warda Ashraf) and her graduate student (Mohammad Rakibul Islam Khan) moved to a different university.

Planned Activities:

Interpreting the results. Preparing and writing the report.