SRI LANKAN CONSULTING ENGINEER

Newsletter of the Association of Consulting Engineers, Sri Lanka

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KEEP IN TOUCH WITH THE ASSOCIATION OF CONSULTING ENGINEERS, SRI LANKA

Presendent's Message

Eng. (Mrs.) T.D. Wijewardena
President (ACESL)

I am extremely honoured to have been elected as the president of ACESL 2022/2023. This is a huge privilege, but also a very big responsibility.

I want to take this opportunity to thank the newly elected members of the Council. I would also like to thank the council members who have agreed to continue in their roles this year, and those who have accepted new roles for the year following. My special thank to the outgoing President Eng. Anura Gamage for his services and I also look forward to his continued support in the next council. Further, I would like to acknowledge the involvement of past members, thank you very much for your significant contribution.

I am also extremely confident that the new Council will work together harmoniously and effectively.

More than ever, we need to reach out and serve our profession in whatever way we can. I firmly believe that when we spend sufficient time planning events as a council, our members will benefit and prosper from what we can offer. Due to the dearth of projects in the country and striving hard to revive the local construction industry in collaboration with other stakeholders, we are very conscious of the effects on our members and are committed to helping them where we can. ACE is taking the initiative to help our members to engage in overseas projects.

I alongside the Council, hope to provide support to our profession and add value to all our members through a wide range of live events and social gatherings.

Annual General Meeting

The Annual General Meeting of the Association of Consulting Engineers, for the year 2022 was held at Royal Ballroom, Grand Monarch, Thalawathugoda and at 6 pm . on the 13th December 2022

Council Decisions

I. Social & CSR Activities

Engineer Mrs. S Gamage suggested the introduction of a charitable initiative in the Katuwapitiya area, and the proposal will be submitted

II. Professional Development

Two seminars were arranged to be held on August 29, 2023, and September 22, 2023. as initiated by Vice President

The following names were proposed and approved by the Council to represent for the following committees.

Committee Member	Committee
Eng. Anura Gamage (03.08.2023 resigned) Eng. (Mrs.) T.D. Wijewardena (28.08.2023)	Board of Management - CIDA
Eng J Karunaratne Eng. (Mrs.) T.D. Wijewardena (Resigned 15.06.2023)	CIDA Credential Committee
Eng. Nawarathnaraja (Resigned 10.03.2023)	
Eng R.Rupasignhe	
Eng R P Lokuratne	National Advisory Council on construction

Council for the Year 2022/23

The 1st Council Meeting was held on the 27th of January at 35/, Obawatta Road, Madiwela with the President as the chair.
The Members of the new Council and the Office Bearers elected at the 1st Council Meeting are;

Post	Name
President	Eng (Mrs) T D Wijewardena
Vice President	Eng (Dr) P D Dharmaratne
Hon. Secretary	Eng K Navarathnarajah (Resigned)
Hon. Secretary (New)	Eng (Mrs) Seneviratne
Hon. Treasurer	Eng K G Dayananda
Hon. Assistant Secretary	Eng M G Hemachandra (Resigned)
Hon. Assistant Secretary (New)	Eng (Mrs) Samannthika Gamage
Hon. Assistant Treasurer	Eng S S C M Petersz
Editor	Eng K D C F Siriwardane
Immediate Past President	Eng A W Gamage
Coordinator of Young Professional Forum	Eng Himalka
Council Member	Eng R Rupasinghe
Council Member	Eng P C jinasena
Council Member	Eng R P Lokuratne

Events Organized by ACESL

1.0 Evening Lectures

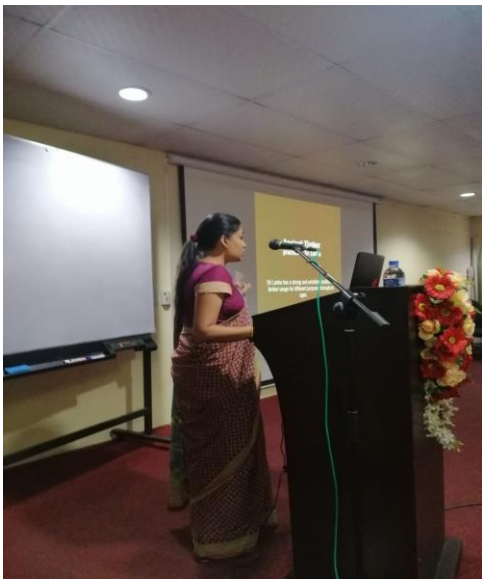
I. Presentation on "FIDIC Conditions of Contracts-Suspension & Termination"

Date : 24 May 2023
Venue : Center for housing planning and building (CHPB)
Resource Person : Eng. Wijitha Fernando
Participants : Members of ACESL

Eng Wijitha's Evening lecture

II. Presentation on "Reinventing a timber preservation technology for construction industry"

Date : 29th August 2023
Venue : Center for housing planning and building (CHPB)
Resource Person : Dr Malsha S. Mendis
Participants : Council and YPF members



Dr Malsha's Evening Lecture

Participants

Refreshmants

III. Presentation on "Cement quality and testing of cement"

Date : 31st Octomber 2023
Venue : Center for housing planning and building (CHPB)
Resource Person : Eng Ruwan Geeganage
Participants : Council and YPF members

Eng Ruwan's Evening lecture

Dr Dhammika's Wellcome speech

Paticipant

2.0 Webinars

I. Presentation on "Data and regulation related to roads planning and design Baharain"

Date : 20th September 2023 via ZOOM
Resource Person : Eng Wasantha Kahaduwa
Participants : Council and YPF members

II. Presentation on "Cost-effective eco friendly road base material"

Date : 10th Octomber 2023 via ZOOM
Resource Person : Eng. Ruchtha Mendis
Participants :Council and YPF members

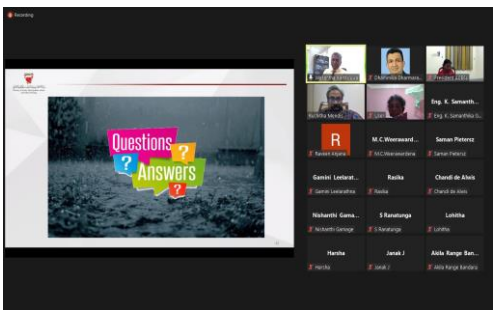


Figure 1 Eng Wasantha's online webinar

Technical Paper

SEPARATION OF CLAY FROM SOIL BY WASHING FOR BUILDING MATERIALS PRODUCTION

Dr. S.N. Malkanthi, Faculty of Engineering, University of Ruhuna
Prof. A.A.D.A.J. Perera, Faculty of Engineering, University of Moratuwa

Earthen materials have been used by global Civil Engineering constructions in different forms, such as mud, adobe, rammed earth, soil blocks, bricks, roof tiles, etc. Soil with a lower clay percentage is ideal for making soil blocks. Clay is used primarily in the manufacture of bricks and roof tiles. Because raw materials for the production of bricks and roof tiles are scarce, several alternatives for walling materials have been investigated. Clay extraction from clayey soil via washing may be a viable option for obtaining adequate materials for the construction of soil blocks, bricks, and roof tiles. If clay can be removed from soil that has high clay content, that soil would be preferred for Compressed Stabilized Earth Blocks (CSEB) production. Extracted clay can be used for bricks and roof tiles production with some modifications such as adding fly ash and rice husk ash. The whole idea of the study can be illustrated in Figure 1.

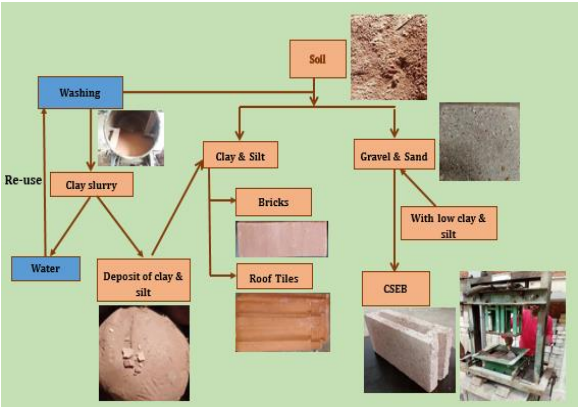


Figure 2 Concept of the Study

Manual soil washing was done to check the feasibility of separating clay through washing. Then the commercially available concrete mixer was used for soil washing. Figure 2 shows the use of a concrete mixer for soil washing. Figure 3 shows the used soil, separated finer and gravel part.

Figure 3 Use of Concrete Mixer for Soil Washing

Figure 4 Used soil, Separated Finer and Gravel

This process was done by changing the mixer rotation time and the number of washing cycles. Results revealed that washing twice for one to two minutes rotation time gave an optimum yield of clay. To make the sedimentation process of clay accelerate, Alum was used in this context. The optimum Alum dosage also was determined by performing a Jar Test. After soil washing, the clay slurry was separated into a container while the gravel part was put for drying under the Sun. The Jar test revealed that, after 30 minutes, the initial sedimentation of finer parts was fulfilled hence water could be re-used. Therefore, after 30 minutes, water was separated for re-use and the thick clay slurry was put to a cloth which was made as a filter. Further, experimental investigation proved that 60% of the water used for the first washing can be used for the second time.

It is important to note that while washing can effectively remove clay from soil, it's a labor-intensive process and may not be suitable for large-scale projects. Additionally, some soil's properties might change due to washing, so it's recommended to perform soil tests before and after the process to ensure that the resulting soil meets the intended requirements.

This experimental investigation focused on producing CSEB, burnt bricks and roof tiles with fly ash addition. After removing part of the clay from the original soil through washing, the clay content was reduced to 7.5%. With 8% cement stabilization, the prepared CSEB with the size same as industrially available cement blocks, the 28 day dry compressive strength was 6.23 N/mm^2 while the wet compressive strength was 3.75 N/mm^2. Results reported that the water absorption ratio was 9.82%. These values guaranteed that the prepared soil blocks satisfy the requirements of both Compressed Stabilized Earth Blocks and Cement Blocks as given in SLS 1382: *Specification for Compressed Stabilized Earth Blocks: Part 1 Requirements* and SLS 855: *Specification for Cement Blocks: Part 1- Requirements* respectively. The study also proved that conventional cement block-making machines can be used to produce soil blocks.

Performance of burnt clay bricks and roof tiles made with extracted clay by adding 25% of fly ash by weight are met with the relevant Sri Lankan standard SLS 39: *Specification for Common Burnt Clay Building Bricks* and SLS 2: *Specification for Clay Roofing Tiles*. Figure 4 shows these three soil-based building materials.

Figure 5 Innovative soil-based products

Furthermore, significant cost savings in the production of these building materials are possible. This study proposed an efficient method of utilizing waste and abundant soil while reducing environmental impact.

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