INTERNATIONAL RESEARCH SYMPOSIUM - 2024

(IRS 2024-UOVT)

Vocational Technology Education for a Sustainable Greener Economy

University of Vocational Technology

Sri Lanka

December 2024

ABSTRACT PROCEEDINGS

International Research Symposium - 2024

IRS 2024 - UoVT

DISCLAIMER

The papers published in these proceedings reflect the opinion of the respective authors. Information contained in these proceedings has been obtained by the editors from sources believed to be reliable. Authors of specific papers are responsible for the accuracy of the text and technical data. Neither the publisher nor the editors guarantee the accuracy or completeness of any information published herein, and neither the publisher nor the editors shall be responsible for any errors, omissions, or damages arising out of use of this information. Trademarks are used with no warranty of free usability.

TABLE OF CONTENTS

PROCEEDINGS OF IRS 2024

PREAMBLES

LIST OF REVIEWERS

Dr. K A Lalithadheera	Director-General, Tertiary and Vocational Education Commission (Chairman)
Dr. L.W.S. Kularatne	Dean, Faculty of Education
Ms. T.K. Malwatta	Dean, Faculty of Information Technology
Dr. U.A.S.K. Edirisinghe	Dean, Faculty of Industrial Technology
Dr. Jayalal Wettasinghe	Dean, Faculty of Engineering Technology
Mr. M.G. Dharmasiri	Director General (Covering), University of Vocational Technonlogy
Dr. Kasun Nandapala	Director - Admission, Accreditation & Quality Assurance
Mr. S.C. Jagath	Director-General, Department of Technical Education & Training

EDITORIAL COMMITTEE

Dr. Kasun Nandapala	Director - Admission, Accreditation & Quality Assurance
Mr. T.D. Denagama	Head, Department of Construction Technology
Ms. W.A.I.M. Gunasekara	Head, Department of Industrial Management
Ms. L.H.D.L. Ranasuriya	Head, Department of Language Studies
Ms. Y. S. Manathunga	Head, Department of Education & Training
Mr. P.H.S.S. Wijayarathna	Head, Department of Network Technology
Dr. (Ms.) J.A.E.C. Jayawardena	Acting Head, Department of Agriculture & Food Technology
Mr. P Uruthiran	Acting Head, Department of Software Technology
Prof. Chandana Jayalath	Professor, Department of Quantity Surveying
Dr. D.D.D. Suraweera	Senior Lecturer, Department of Electro-Mechanical Technology
Dr. J.A.D. Jayalath	Senior Lecturer, Multimedia & Web Technology
Dr. (Ms.) T. Somaratne	Senior Lecturer, Department of Agriculture & Food Technology
Ms. A.A. Gunawardana	Senior Lecturer, Department of Language Studies
Ms. J.A.M.B. Karunarathna	Senior Lecturer, Department of Language Studies
Ms. W.C.C. Sumathiratna	Senior Lecturer, Department of Building Services Technology
Ms. K.G. Alahapperuma	Senior Lecturer, Department of Electro-Mechanical Technology
Ms. J.K. Kanthi	Senior Lecturer, Department of Electro-Mechanical Technology

Ms. M. Thenabadu	Senior Lecturer, Department of Agriculture & Food Technology
Ms. U. Sivachelvy	Senior Lecturer, Department of Industrial Management
Ms. B.M.T.D. Jayasekara	Senior Lecturer, Department of Industrial Management
Ms. K .T. P. C. Somarathna	Lecturer (Probationary), Department of Language Studies
Ms. A.A.S.U. Gunarathna	Lecturer (Probationary), Department of Construction Technology
Mr. P.D.S. Ashan	Lecturer (Probationary), Department of Building Services Technology
Mr. H.A. Gayan Madushanka	Lecturer (Probationary), Department of Film & Television Production Technology
Mr. H.N.W. Gunasekara	Lecturer (Probationary), Department of Electro-Mechanical Technology
Mr. A.H.M.S. Siriwardana	Lecturer (Probationary), Department of Construction Technology
Mr. G.A.N. Sampath	Lecturer (Probationary), Department of Film & Television Production Technology
Mr. S.V.R. Gamage	Lecturer (Probationary), Department of Electro-Mechanical Technology
Mr. L.P.S.S. Dissanayake	Lecturer (Probationary), Department of software Technology
Dr. S.A.N Danushka	Teaching Assistant, Department of Education & Training
Ms. T.R. Vidanapathirane	Teaching Assistant, Department of Industrial Management

SYMPOSIUM ORGANIZING COMMITTEE

Advisory Committee

Professor C. Mahesh Edirisinghe	Vice Chancellor
Dr. D.D.D. Suraweera	Former Chair – IRS 2017
Prof. Chandana Jayalath	Former Chair – IRS 2021
Dr. L.W.S. Kularatne	Former Chair – IRS 2022
Mr. H.A. Seneviratne	Former Chair – IRS 2023

Programme Committee

Ms. P.M Perera	Symposium Chair
Ms. Samantha Manawadu	Symposium Co-Secretary
Mr. R.R.M.D.P Rathnayake	Symposium Co-Secretary
Dr. L.W.S Kularatne	Dean, Faculty of Education
Ms. T.K Malwatte	Dean, Faculty of Information Technology
Dr. J. Wettasinghe	Dean, Faculty of Engineering Technology
Dr. U.A.S. Kamal Edirisinghe	Dean, Faculty of Industrial Technology
Dr. Kasun Nandapala	Director, Admission, Accreditation and Quality Assurance
Mr. S.P.A.R.S. Jayathilaka	Director, Human Resource Development Centre
Mr. A.M.C.K Gunathilaka	Director, Media & Information Services
Ms. Dilini Ranasuriya	Head, Department of Language Studies
Ms.Y.S Manathunga	Head, Department of Education & Training
Ms. Indrachapa Gunasekeara	Head, Department of Management Studies
Ms. S.R.M.P Seneviratna	Head, Department of Quantity Surveying
Mr. D.T. Ganegoda	Head, Department of Electro Mechanical Technology
Mr. T.D. Denagama	Head, Department of Construction Technology

Dr. E. C. Jayawardena	Acting Head, Department of Agriculture & Food Technology
Mr. R.M.C.A.B Rathnayake	Acting Head, Department of Network Technology
Mr. P Uruthiran	Acting Head, Department of Software Technology
Ms. S.G Nambuwasam	Acting Head, Department of Multimedia & Web Technology
Professor R.L.W Koggalage	Associate Professor, Department of Electro Mechanical Technology
Dr. S.D.A Sanjeewa	Senior Lecturer, Department of Electro Mechanical Technology
Dr. S.A.N Danushka	Teaching Assistant, Department of Education & Training
Dr. Thikshani Somarathna	Senior Lecturer, Department of Agriculture & Food Technology
Dr. Janaka Jayalath	Senior Lecturer, Multimedia & Web Technology
Mr. M.G Dharmasiri	Director General (Covering) / Senior Assistant Registrar (Establishments and Administration)
Mr. R.D.P.I. Priyadarshana	System Administrator
Mr. T.C Jayamuthuge	Producer

MESSAGE FROM THE VICE CHANCELLOR

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE KEYNOTE SPEAKER

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE GUEST OF HONOUR

Dr. Nadeesha Chandrasena posing with her two awards

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE DEAN, FACULTY OF EDUCATION

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE DEAN, FACULTY OF ENGINEERING TECHNOLOGY

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE DEAN, FACULTY OF INDUSTRIAL TECHNOLOGY

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE DEAN, FACULTY OF INFORMATION TECHNOLOGY

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

MESSAGE FROM THE SYMPOSIUM CHAIR

Dear Participants,

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event. Welcome to the International Research Symposium 2023. We are delighted to have you here and look forward to an engaging and productive event.

Sincerely,
Chairman's Name

TECHNICAL SESSION 1

EDUCATIONAL STRATEGIES FOR SUSTAINABLE TVET

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

TECHNICAL SESSION 2

ENGINEERING TECHNOLOGY FOR GREEN ECONOMY

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

USE OF COCONUT COIR TO IMPROVE STRENGTH PROPERTIES OF DRIED CLAY BRICKS

K. G. Alahapperuma, E. R. Madhushanka, G. T. Madhushani and R. G. P. C. Rajamanthri

Department of Electromechanical Technology, University of Vocational Technology, Sri Lanka
kgalahapperuma@uovt.ac.lk

Abstract: In Sri Lanka, most of the traditional domestic buildings, which include residential houses are based on clay bricks. Production of the traditional clay bricks involves a burning step using firewood, which contributes to deforestation, air pollution, and also emission of carbon dioxide gas. This step contributes to high energy consumption and associated costs as well. This study was mainly aimed at improving the strength characteristics of the unburnt clay cricks by incorporating coconut coir as a reinforcing phase to the same. Since burning of bricks hasn't taken place, all associated disadvantages aren't issues of the study. Visual appearance, density, water absorption, compressive strength, and thermal conductivity were the tested properties. Coir percentage was varied by 0%, 10%, 20%, 30%, 40% and 50% by volume. As outcomes, 10% coconut coir-added bricks were selected as the composition with the highest quality. These bricks show a better compressive strength of 1.761 Nm^{-2} compared to 1.654 Nm^{-2} of the clay bricks with no coir addition. However, none of the brick composition showed a favourable level of water absorption. Bricks with selected composition can be recommended to be applied in non-load-bearing applications where water attack is unlikely.

Keywords: Compressive Strength, Clay Bricks, Coconut Coir, Reinforcing Material, Water Absorption.

.

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

TECHNICAL SESSION 3

DIGITAL TECHNOLOGIES AND CREATIVE INDUSTRIES

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

TECHNICAL SESSION 4

INNOVATION AND ENTREPRENEURSHIP FOR ECONOMIC RESILIENCE

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

TECHNICAL SESSION 5

SUSTAINABLE PRACTICES FOR MULTIFUNCTIONAL GREEN ECONOMY

A REVIEW OF DEVELOPED LEAN CONSTRUCTION FRAMEWORKS IN THE SRI LANKAN CONTEXT

P.L. Perera, S. Kajewski, V. Coffey

School of Architecture and Built Environment, Queensland University of Technology (QUT), Brisbane, Australia
panapitikankanamalage.perera@hdr.qut.edu.au

Abstract: There is a growing necessity to thoroughly review the developed lean construction frameworks within a Sri Lankan context because most of the developed frameworks in this country were introduced at a conceptual level and in a scattered diffused manner across various construction domains. Several scholars have underscored the lack of comprehensive frameworks encompassing the entire construction lifecycle and the absence of industry-validated processes in Sri Lanka from 2012 to 2018. After 2018, a few frameworks emerged, but they exhibit significant limitations, such as insufficient transparency, biases, and reliance on limited mono or bi-evidence case studies on lean tool implementation. This study aims to review existing lean construction frameworks developed from 2012 to 2024, identifying their benefits, shortcomings, issues, and limitations through a comprehensive literature review-based approach. As one of the pioneering review studies in this area, the summarized tabular framework demonstrates the drawbacks and loopholes while providing suggestions to overcome them. The outcomes provide new thinking perspectives for novel framework development that apply in Sri Lanka and other developing countries that share the same level of lean construction maturity and characteristics. This paper will be a foundation for determining future probable areas such as: cost overrun, time delays, quality issues, risk predictability, and stakeholder management to consider in lean construction framework development in the Sri Lankan context.

Keywords: Frameworks Review, Lean Construction, Sri Lanka.

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production

EVALUATING THE THERMAL INSULATION PROPETIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri[1*], R.S. Kumara[1], T. Luckshanth[1], Kasun Nandapala [1]

[1] Department of Construction Technology, University of Vocational Technology,100,Kandawala, Rathmalana, Srilanka.*

**E-mail-ctrm18b131@uovt.ac.lk*

Abstract: The Building Construction Sector is notably resource intensive, with a significant dependence on raw materials. This study investigates the potential of mushroom cultivation waste as a sustainable insulation material to mitigate environmental impact and conserve natural resources. A slab model was developed, incorporating a void filled with mushroom waste and encased in concrete, alongside a conventional concrete slab serving as the control. Following a 12-hour heat simulation, the mushroom waste slab exhibited a thermal conductivity of 0.191 W/m./k, Specific heat capacity of 320 J/ kg.K, Density of 450kg/m^3 , and thermal Resistance of 0.1571m2K/W. The results indicate that the mushroom waste slab outperforms the control slab in thermal performance, highlighting its viability as an effective building insulation materials

Keywords: Thermal resistance, natural insulation, Mushroom production