



BUILDERS

ENGINEERING COLLEGE

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EBET Knowledge Park, Nathakadaiyur, Kangeyam, Tirupur - 638 108, Tamil Nadu, India.



CREA

DEPARTMENT OF CIVIL ENGINEERING
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CREA is published for the Alumni, Friends, and Peers of the Department.

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About the Institution

Builders Engineering College (Formerly known as Erode Builder Educational Trust's Group of Institutions) was established by Erode Builder Educational Trust (EBET) in the year 2009 as an integrated campus and presently functioning as a technical campus. It offers six UG Programmes (BE - Civil, CSE, ECE, EEE, Mechanical, B.Tech AI&DS) with an intake of 330 students and four PG Programmes (ME - CEM, STR, CSE and MBA) with an intake of 114 students. Stepping into the fourteenth year of service, the Management, CEO, Principal and faculty members are committed to elevating the lives of budding rural aspirants through academics and research. The Chief Patrons are the pioneers in the field of infrastructure and construction all over India.

Vision

To be the most preferred knowledge provider.

Mission

Builders Engineering College endeavors to prepare rural students for successful career through academic and applied research.

About the Department

- The Department of Civil Engineering, started in the year 2009, offers BE (Civil Engineering), ME (Construction Engineering & Management) & ME (Structural Engineering).
- The department activities are planned with dual inputs from Industry and reputed academic bodies in the state.
- The department strengthens its core activities periodically with inputs from industry, civil engineers and contractors, some of whom are trustees of the Institution.
- In addition to regular academic activities, the department strives to transform students into a pragmatic Civil Engineer by involving them in solving field problems with needed guidance from faculty members.

Vision

To be a human and technical resource centre to meet the needs of the construction industry.

Mission

- Impart students the knowledge of principles and practices of civil engineering and shape them to meet the expectations of the industry.
- Encourage practical learning through collaboration with industry.
- Nurture social responsibility and leadership skills by inculcating ethical and moral values.

Program Educational Objectives (PEOs)

- Graduates will achieve recognition in Civil Engineering profession as practicing Engineers and consultants. Provide technical services to leading organizations in diverse areas promoting professional and moral ethics.
- Graduates recognized for their professional and technical competence to provide sustainable solutions to societal problems.
- Graduates are nurtured to engage in continued learning through professional development and cognizant of emerging issues.

How to Reduce Air Pollution Effectively

by *Mr. V. Satheeshkumar, Assistant Professor*

Air pollution poses a severe threat to public health and the environment, necessitating urgent and comprehensive strategies for mitigation. This abstract provides an overview of effective measures to reduce air pollution, emphasizing a multi-faceted approach that encompasses regulatory frameworks, technological innovations, public awareness, and international cooperation. By addressing both stationary and mobile sources of pollution, these strategies aim to create a cleaner and healthier atmosphere for current and future generations. Air pollution, driven by industrial activities, vehicular emissions, and other anthropogenic sources, has become a global environmental challenge. The detrimental impacts on human health, ecosystems, and climate demand immediate and concerted efforts to reduce air pollution. This introduction outlines key sources and consequences of air pollution, setting the stage for an exploration of effective strategies to mitigate this pressing issue.



Sources and Consequences:

Air pollution arises from various sources, including industrial facilities, transportation systems, agricultural practices, and residential activities. Common pollutants such as particulate matter (PM), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and volatile organic compounds (VOCs) contribute to respiratory diseases, cardiovascular problems, and environmental degradation. The urgency to address this crisis calls for comprehensive solutions that target diverse pollution sources.

Effective Strategies to Reduce Air Pollution:

Stringent air quality standards and emissions regulations play a pivotal role in controlling pollution. Enforcing emission limits for industries, mandating cleaner technologies, and setting emission standards for vehicles are critical regulatory measures.



Promotion of Clean Energy:

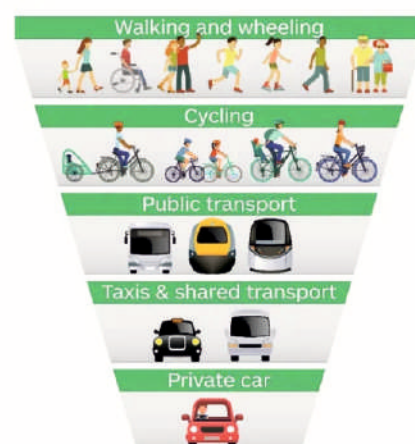
Transitioning to clean and renewable energy sources, such as solar and wind power, reduces reliance on fossil fuels and curtails emissions. Incentivizing the adoption of green technologies and phasing out coal-fired power plants contribute to cleaner air.



Public Transportation and Sustainable Mobility:

Encouraging the use of public transportation, promoting cycling and walking, and investing in sustainable urban planning alleviate the burden of vehicular emissions. Efficient public transit systems and the development of electric and hybrid vehicles are pivotal in reducing air pollution from the transportation sector.

Prioritising Sustainable Transport



Reforestation and Green Spaces:

Planting trees and creating green spaces contribute to improved air quality by absorbing pollutants and releasing oxygen. Urban forestry initiatives and the preservation of natural habitats enhance the overall air purification capacity of the environment.



Technological Innovations:

Advancements in pollution control technologies for industries and the development of cleaner-burning engines contribute to reducing emissions. Continuous research and investment in innovative solutions are essential for staying ahead of emerging pollution challenges.



International Collaboration:

Air pollution transcends national boundaries, necessitating international cooperation. Collaborative efforts in research, data sharing, and the development of global agreements contribute to a unified approach in addressing air quality issues. The battle against air pollution requires a combination of regulatory measures, technological innovations, public participation, and international collaboration. As we strive to reduce emissions from diverse sources, it is imperative to prioritize sustainable practices, invest in clean energy solutions, and raise awareness about the collective responsibility to safeguard the air we breathe.

Women in Construction Field

by *Ms. D. Nithya, Assistant professor*

The construction industry has historically been male-dominated, but there is a growing recognition of the invaluable contributions of women in this field. This abstract explores the presence and roles of women in construction, highlighting the challenges they face and the positive impacts they bring to the industry. By promoting gender diversity and inclusivity, the construction sector can harness the full potential of its workforce, fostering innovation and sustainable growth. The construction industry, characterized by its robust and dynamic nature, has traditionally been marked by a notable gender imbalance. Historically, women's participation in construction has been limited, with stereotypical gender roles prevailing. However, in recent years, there has been a paradigm shift, with increasing acknowledgment of the importance of women in the construction workforce. This introduction sets the stage for an exploration of the evolving roles of women in construction, addressing both the challenges and opportunities presented by this transformative trend.



Women entering the construction sector often encounter a range of challenges, including gender bias, limited representation in leadership roles, and a lack of support networks. Stereotypes and preconceived notions about gender roles can create barriers to entry and hinder career progression for women. Overcoming these challenges is crucial for realizing the industry's full potential and creating a more inclusive and diverse work environment.

Positive Impacts of Women in Construction:

Despite the challenges, the presence of women in construction brings numerous benefits. Women contribute diverse perspectives, problem-solving skills, and collaborative approaches to project teams. Their inclusion fosters creativity and innovation, leading to more dynamic and resilient construction practices. Moreover, gender diversity enhances the industry's ability to address complex challenges and

adapt to evolving trends, contributing to the overall sustainability and success of construction projects.

Initiatives Promoting Inclusivity:

Recognizing the need for change, various initiatives and organizations are actively promoting gender inclusivity in construction. Efforts to eliminate gender bias, provide mentorship programs, and establish supportive networks for women in the industry are gaining momentum. These initiatives aim to create a more equitable and inclusive construction sector that leverages the strengths of a diverse workforce.

As the construction industry undergoes transformation, the active participation of women is not just a matter of diversity and inclusion but a strategic imperative. By overcoming gender-based challenges, fostering a culture of equality, and providing opportunities for professional growth, the construction sector can tap into the vast potential of women in driving innovation, efficiency, and sustainability. The conclusion emphasizes the importance of collective efforts to break down gender barriers, ensuring that women have equal opportunities to contribute to and lead in the construction industry. In doing so, the industry can truly thrive as a diverse, dynamic, and forward-thinking field, ready to meet the challenges of the future.

Environmental Monitoring of Ecological Safety in Construction

by *Mr. B. Faizal – III Year*

Ecological safety in construction is a paramount consideration in the contemporary built environment, as sustainable practices become imperative for mitigating environmental impact. This abstract delves into the concept of ecological safety in construction, outlining its significance, exploring sustainable construction methods, and emphasizing the need for a holistic approach to ensure a harmonious coexistence between urban development and the natural environment. The construction industry, vital for societal progress, has historically been associated with environmental degradation. In response to growing environmental concerns, the concept of ecological safety in construction has emerged as a guiding principle. This introduction provides an overview of the importance of incorporating ecological safety measures in construction practices to minimize negative impacts on ecosystems, biodiversity, and overall environmental health.

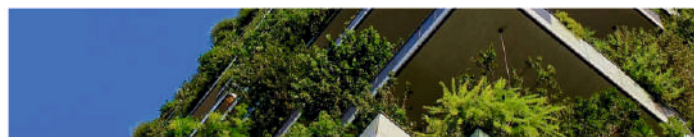


The Significance of Ecological Safety in Construction: Ecological safety in construction encompasses a range of strategies and principles aimed at reducing the ecological footprint of built structures. As urbanization accelerates, it is crucial to adopt construction practices that prioritize environmental preservation, resource conservation, and sustainable development. This section explores the broader implications of ecological safety, emphasizing its role in achieving a balance between human development and ecological well-being.

Sustainable Construction Methods: To ensure ecological safety, sustainable construction methods have gained prominence. Green building practices, energy-efficient designs, and the use of eco-friendly materials are integral components of sustainable construction. This section

provides a comprehensive exploration of these methods, detailing how they contribute to minimizing environmental impact, optimizing resource use, and enhancing the overall ecological safety of construction projects.

Holistic Approach to Ecological Safety: Achieving ecological safety in construction requires a holistic approach that considers the entire lifecycle of a building. From the planning and design stages to construction, operation, and eventual demolition, each phase must align with principles of sustainability and ecological responsibility. This broad explanation emphasizes the interconnectedness of these stages and underscores the importance of integrated, ecologically conscious decision-making throughout the construction process. The ecological safety in construction is not merely a trend but an essential paradigm shift towards a more sustainable and responsible built environment. As the global population urbanizes, the construction industry holds the key to fostering ecological harmony. Embracing sustainable construction methods, adopting green building practices, and prioritizing ecological safety are critical steps toward creating resilient, environmentally friendly structures. The conclusion



emphasizes the industry's collective responsibility to champion ecological safety, shaping a future where construction not only meets human needs but also respects and preserves the delicate balance of our natural ecosystems.

Largest Airports in the World – A Review

by *Mr. A. Madhan, Assistant Professor*

King Fahd International Airport – 299 Square Miles

Located in Dammam, Saudi Arabia, the King Fahd International Airport is nearly 300 square miles and is the largest airport in the world. The airport was once a U.S. airbase during the Gulf War, but commercial flights began operating in 1999. While it is the largest by size in Saudi Arabia, it is the third largest by passenger volume, receiving around 10 million passengers annually. King Fahd has two runways and three terminal buildings, one for employees, one for mainstream passengers, and one for the Saudi royal family. The busiest route is to and from Dubai. The main terminal features gift shops, restaurants, cafeterias, and banks. The royal terminal is lavishly furnished, although rarely used.



Denver International Airport – 53 Square Miles

Denver International Airport, or DIA, is the second-largest airport in the world and the largest in the United States. It is over 33,000 acres (53 square miles) and features one of the longest runways on earth, with a length of 16,000 feet (three miles). You will find this massive airport in Denver, Colorado, where it is the largest employer in the state and serves over 69 million passengers each year. DIA is also one of the busiest airports in the world and an international hub, serving 25 airlines and offering flights to over 215 destinations. You will find an underground train connecting three concourses, along with art pieces, views of the Rocky Mountains, lounges, massage parlors, and over 150 stores and restaurants.



Dallas/Fort Worth International Airport – 26 Square Miles

The Dallas Fort Worth International Airport (DFW) serves the North Texas region and is the third-largest airport in the world. It is also the second-busiest airport worldwide and the largest hub for American Airlines, which is headquartered in the area. DFW is over 17,000 acres (26 square miles) and has its own zip code and emergency services. You can travel to 260 destinations from 28 different airlines. In 2022, there were over 73 million passengers flying in and out of this airport. This inside feels like a mall, featuring spas, lounges, business clubs, and numerous shops and restaurants. There are also two hotels on the airport property.



Orlando International Airport – 20 Square Miles

Located six miles southeast of Downtown Orlando, the Orlando International Airport is the fourth largest in the world and the seventh busiest in the United States. The airport is 20 square miles, or over 11,000 acres, and is an operating base for several airlines, including JetBlue, Southwest, Spirit, and Avelo. It features 44 airlines in total and produces an average of 850 daily flights. And there are abundant amenities inside the airport. You will find a Hyatt Hotel with an expansive lobby, bars, and restaurants. Outside of the hotel, there are over 120 shops and restaurants, including casual quick bites and fine dining.



Dulles International Airport – 18 Square Miles

Located 26 miles west of Downtown Washington, D.C., the Dulles International Airport serves the Mid-Atlantic region of the United States. It is the fifth-largest airport in the world and the fourth-largest in the United States, featuring 18 square miles. Dulles is one of three airports that serve the Washington-Baltimore area and is the 28th-busiest airport worldwide. This international hub serves 60,000 passengers every day, taking them to more than 139 destinations. Dulles features a plethora of dining and shopping options, from grills and taprooms to gourmet markets and luxury designer stores. There are also lounges, nursing rooms, pet relief areas, and kid's play areas.



Recent Trends in Construction Industry

by *Ms. R. Kaviyaa (IV Year)*

Recent trends in construction reflect a dynamic landscape driven by advancements in technology, sustainability concerns, and changing societal needs. From the integration of digital tools like Building Information Modeling (BIM) to the emphasis on eco-friendly materials and practices, the industry is evolving rapidly. Key trends include modular construction methods, the adoption of smart technologies for energy efficiency and safety, and the revitalization of existing structures through adaptive reuse. As construction continues to embrace innovation and respond to global challenges, these trends shape the future of building practices, promoting efficiency, sustainability, and resilience.



Sustainable Construction: There's a growing emphasis on eco-friendly building materials, energy-efficient designs, and green construction practices to minimize environmental impact.

Modular and Prefabricated Construction: Prefabrication and modular construction techniques are gaining popularity due to their efficiency, cost-effectiveness, and ability to reduce construction timelines.

Digitalization and Building Information Modeling (BIM): BIM technology is revolutionizing the construction industry by improving collaboration, project management, and design accuracy. It enables stakeholders to visualize projects in a virtual environment before construction begins.

3D Printing: 3D printing technology is being used to create building components, prototypes, and even entire structures. It offers cost savings, design flexibility, and the ability to create complex geometries.

Smart Buildings: The integration of IoT (Internet of Things) devices and sensors into buildings enables better monitoring, management, and optimization of energy usage, security, and maintenance.

Virtual and Augmented Reality: VR and AR technologies are being utilized for design visualization, project planning, and client presentations, enhancing communication and decision-making processes.

Emphasis on Safety and Wellness: There's an increased focus on implementing safety protocols and designing spaces that prioritize occupant health and well-being, especially in response to the COVID-19 pandemic.

Adaptive Reuse and Renovation: Rather than building new structures, there's a trend towards repurposing existing buildings and spaces for different uses, promoting sustainability and preserving architectural heritage.

Offsite Construction: Offsite construction methods, including modular building and prefabrication, are becoming more prevalent due to their efficiency, quality control, and ability to reduce construction waste.

These trends highlight the industry's evolution towards more sustainable, efficient, and technology-driven construction practices aimed at meeting the demands of the modern world.