PRISMA 2020 Checklist, Table S1

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	The title is: "Exploring Advancements in Bio-Based Composites for Thermal Insulation: A Systematic Review." The title identifies the article as a "Systematic Review".
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Please observe the separate document dedicated for the Abstract **Table S3**
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Previous studies have highlighted the high environmental impact and limited recyclability of conventional construction materials, such as cement and plastics, but there is a lack of comprehensive analysis on how bio-based composites can mitigate these issues while maintaining performance standards.
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	**Section 1.4: Rationale and Objectives:** The increasing environmental impact of traditional construction practices has necessitated the exploration of bio-based composites as sustainable alternatives. Despite growing interest in these materials, existing research often lacks a holistic perspective that integrates thermal performance, structural roles, and environmental benefits. This review addresses these gaps by synthesising advancements in bio-composite materials to assess their potential for mitigating ecological harm and contributing to sustainable architecture. **Section 1.5 Target audience: Researchers and Designers** This systematic review addresses the following questions: (i) What are the recent advancements in the thermal insulation properties of bio-based composites? (ii) How do these materials compare to conventional materials regarding sustainability and performance? (iii) What challenges and gaps exist in the research and development of bio-composites for the construction industry? This review explicitly aims to address three primary objectives: (i) To identify recent advancements in the thermal insulation properties of bio-composites. (ii) To analyse their comparative sustainability and performance against conventional materials. (iii) To highlight existing challenges and propose future research directions. This comprehensive examination is intended to guide researchers in identifying innovation gaps and trends while supporting designers in selecting eco-friendly materials that enhance building energy efficiency. This work is a critical resource for fostering innovation in sustainable thermal insulation solutions within the built environment by bridging scientific research with practical design considerations.
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	**3.1 Eligibility Criteria, Data Identification** The data for this review were primarily collected from Scopus, with supplemental searches conducted on Web of Science and Google Scholar for additional sources. A manual search of relevant articles' reference lists was also performed to ensure comprehensive coverage. No study registers or organisational databases were directly consulted. However, relevant conference proceedings indexed in Scopus were included when they met eligibility criteria. Only full, open-access scientific articles written in English were analysed. Studies were selected for synthesis based on their relevance to the primary outcomes (thermal conductivity and recyclability). Intervention characteristics, such as the bio-composite type, testing methods, and reported metrics, were tabulated and compared against the planned outcome domains. The inclusion criteria for the review were as follows: The focus was limited to composites, excluding pure metals, ceramics, and polymers. Materials were categorised based on the organicity of their composite phases into fully organic, semi-organic, and fully inorganic. The review concentrated on mixtures containing at least one plant-based or animal-based organic phase (matrix or reinforcement). Studies were excluded for the following reasons: Non-relevance to bio-composite materials. Incomplete reporting of key outcomes.

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			Failure to meet inclusion criteria, such as publication language or access limitations. **3.2 Selection Process** Two independent reviewers (DP and MB) screened the titles and abstracts of identified records against the inclusion criteria listed below. Discrepancies between reviewers were resolved through discussion, with a third reviewer (KC) consulted when necessary. Screening occurred in two stages: (i) Title and abstract screening to exclude irrelevant studies. (ii) Full-text review to ensure alignment with inclusion criteria, such as study focus on bio-composites, relevance to the construction sector, and reporting of thermal insulation properties. Finally, from the 126 relevant publications identified up to October 12, 2024, 50 noteworthy bio-composites presented within 48 articles were analysed to show the field's diversity, depth, and emerging directions.
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	**3.1 Eligibility Criteria, Data Identification** The data for this review were primarily collected from Scopus, with supplemental searches conducted on Web of Science and Google Scholar for additional sources. A manual search of relevant articles' reference lists was also performed to ensure comprehensive coverage. No study registers or organisational databases were directly consulted. However, relevant conference proceedings indexed in Scopus were included when they met eligibility criteria. This review was conducted based on reports published between January 1, 2024, and October 12, 2024, during which 6,475 publications related to natural materials in construction and architecture were identified. **3.4 Meta-Analysis** A comprehensive bibliometric analysis was conducted using data extracted from Scopus up to October 21, 2024. Supplemental sources included Web of Science, Google Scholar, and manual searches of reference lists.
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	**3.1 Eligibility Criteria, Data Identification** In Scopus, the search strategy combined Boolean operators and keywords as follows: ('bio-based' OR 'biobased' OR 'natural' OR 'plant-based' OR 'biodegradable' OR 'agro-waste' OR 'agro AND waste') AND ('construction' OR 'building' OR 'architecture' OR 'wall' OR 'roof' OR 'ceiling' OR 'envelope' OR 'insulation' OR 'adhesive' OR 'binder'). A notable increase in articles on these topics has been observed since the start of the 21st century. This review was conducted based on reports published between January 1, 2024, and October 12, 2024, focusing on engineering, material sciences, and multidisciplinary studies. Due to the large initial dataset, further filtering was applied using 34 supplementary keywords, resulting in 1,194 articles. These articles were then reviewed by title and abstract to identify 127 relevant items. **3.2 Selection Process** Manual reference checks were conducted on articles cited in key studies identified during database searches. Automation tools were not employed during the screening process. All screening and eligibility decisions were undertaken manually by the review team to ensure precision and adherence to the inclusion criteria.
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	**3.2 Selection Process** Two independent reviewers (DP and MB) screened the titles and abstracts of identified records against the inclusion criteria. Discrepancies between reviewers were resolved through discussion, with a third reviewer (KC) consulted when necessary. The screening occurred in two stages: Title and Abstract Screening: To exclude irrelevant studies. Full-Text Review: To ensure alignment with inclusion criteria, such as study focus on bio-composites, relevance to the construction sector, and reporting of thermal insulation properties. Manual reference checks were conducted on articles cited in key studies identified during database searches. Automation tools were not employed during the screening process. All screening and eligibility decisions were undertaken manually by the review team to ensure precision and adherence to the inclusion criteria.
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	**3.5 Data Assessment and Compilation** Data were collected by the review team (DP, MB, and KC) for the following variables: Study details (e.g., authors, year, and journal). Material characteristics (e.g., name, matrix type, reinforcement type, biodegradability, and recyclability). Performance metrics (e.g., thermal conductivity, tensile strength, flexural strength). Environmental considerations (e.g., waste reuse potential, carbon footprint reduction).

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			The reviewers categorised studies into thematic groups (e.g., insulation materials, structural applications) based on intervention characteristics and measured outcomes. Data were extracted manually, with no automation tools employed during the process. **3.2 Selection Process** Two independent reviewers (DP and MB) screened studies and extracted data, with discrepancies resolved through discussion. A third reviewer (KC) was consulted when necessary. Manual reference checks were conducted to ensure comprehensive coverage. Data extraction relied on the information provided in the reviewed articles, and no processes for obtaining or confirming additional data from study investigators were employed.
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	3.**5 Data Assessment and Compilation** Data were collected for the following variables: Study details: Authors, year, and journal. Material characteristics: Name, matrix type, reinforcement type, biodegradability, and recyclability. Performance metrics: Thermal conductivity, tensile strength, flexural strength. Environmental considerations: Waste reuse potential and carbon footprint reduction. The outcomes sought were: Primary outcome: Thermal conductivity (λ), expressed in W/m·K. Secondary outcomes: Recyclability and biodegradability characteristics, material morphology and internal structure, and supplementary mechanical properties (e.g., tensile and compressive strength). Where multiple measures for the same outcome (e.g., thermal conductivity under different conditions) were reported, the most representative value was included in the synthesis.
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	**3.6 Effect Measures** For thermal insulation performance, the primary effect measure was thermal conductivity (λ) expressed in W/m·K. Supplementary mechanical properties (e.g., tensile strength, flexural strength) were reported as the mean value (in MPa) when available. Recyclability and biodegradability were assessed qualitatively based on categorical descriptors (e.g., biodegradable, partly biodegradable, non-biodegradable). Data were included for all compatible outcome domains where complete information was provided. Studies with incomplete or conflicting data were flagged as potentially biased, and decisions on inclusion were made by consensus among the reviewers (DP, MB, and KC).
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	**3.3 PRISMA Protocol Limitations** The review did not employ a formal certainty assessment framework, such as GRADE, to evaluate the evidence for key outcomes. Instead, the reliability and limitations of the synthesised findings were considered qualitatively. Consistency across studies, methodological rigour, and the completeness of reported data were the primary factors used to assess the strength of the evidence. Studies that used standardised testing methods exhibited a lower risk of bias, while those with incomplete reporting or inconsistent experimental conditions were judged to have a higher risk of bias. However, this variability in bias does not substantially affect the overall findings of the review, as the focus was on synthesising trends rather than deriving precise quantitative estimates. **3.2 Selection Process** Two independent reviewers (DP and MB) assessed the risk of bias during the screening and full-text review process. Discrepancies between reviewers were resolved through discussion, with a third reviewer (KC) consulted when necessary. No automation tools were employed in this process.
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	3.**5 Data Assessment and Compilation:** For thermal insulation performance, the primary effect measure was thermal conductivity (λ) expressed in W/m·K. **3.6 Effect Measures** For thermal insulation performance, the primary effect measure was thermal conductivity (λ) expressed in W/m·K. When available for tensile strength, flexural strength, and compressive strength, the mean value (in MPa) was reported. Recyclability and Biodegradability were assessed qualitatively based on categorical descriptors (e.g., biodegradable, partly biodegradable, non-biodegradable)."
Synthesis methods	13a	Describe the processes used to decide which studies were	

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		eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	**3.1 Eligibility Criteria, Data Identification:** Studies were selected for synthesis based on their relevance to the primary outcomes (thermal conductivity and recyclability). Intervention characteristics, such as the bio-composite type, testing methods, and reported metrics, were tabulated and compared against the planned outcome domains. **3.2 Selection Process:** Manual reference checks were conducted on articles cited in key studies identified during database searches. From the 126 relevant publications identified up to October 12, 2024, 50 noteworthy bio-composites presented within 48 articles were analysed to show the field's diversity, depth, and emerging directions. **3.5 Data Assessment and Compilation:** Studies meeting the inclusion criteria were categorised into thematic groups (e.g., insulation materials, structural applications) based on the intervention characteristics and the measured outcomes.
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	**3.5 Data Assessment and Compilation**: Where multiple measures for the same outcome (e.g., thermal conductivity under different conditions) were reported, the most representative value was included in the synthesis. The risk of bias due to missing results was minimised by cross-referencing multiple studies and consulting supplementary materials when available. In cases where studies reported incomplete or conflicting data, decisions on which results to include were made by consensus among the reviewers (DP, MB, and KC) based on clarity, relevance, and consistency with other findings. **3.6 Effect Measures:** Where applicable, effect measures were calculated or standardised according to international norms, such as ISO standards, to ensure comparability across studies.
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	**3.4 Meta-Analysis:** Co-occurrence network maps (generated via VOSviewer) were used to illustrate trends and interrelations among studies. The keyword mapping effectively grouped related terms and highlighted critical thematic areas within the dataset. **3.5 Data Assessment and Compilation:** All eligible studies were summarised in a tabular format (Tables 2–7), detailing their intervention characteristics, outcome domains, and key findings. This systematic tabulation allowed for comparison across studies to ensure consistent inclusion criteria for synthesis.
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	**3.5 Data Assessment and Compilation:** This review did not include statistical meta-analyses or pooled effect estimates; therefore, no formal exploration of heterogeneity (e.g., subgroup analysis, meta-regression) or sensitivity analyses was conducted. Trends were explored qualitatively, highlighting patterns in material performance and sustainability. **3.6 Effect Measures:** Where applicable, effect measures were calculated or standardised according to international norms, such as ISO standards, to ensure comparability across studies. **3.4 Meta-Analysis:** A meta-analysis using VOSviewer (version 1.6.20) was conducted to illustrate keyword co-occurrence trends. **3.3 PRISMA Protocol Limitations:** Variability in testing methods and incomplete reporting introduced some bias, but these limitations reflect the evolving nature of bio-composite research. Standardised reporting and testing protocols in future studies will be essential to enable quantitative synthesis and strengthen evidence-based conclusions.
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	No, this item is **not relevant** to the article because it explicitly states that no statistical meta-analyses, subgroup analyses, or meta-regressions were conducted
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	No, this item is **not relevant** to the article because it explicitly states that no statistical meta-analyses, subgroup analyses, or meta-regressions were conducted
Reporting bias	14	Describe any methods used to assess risk of bias due to	**3.3 PRISMA Protocol Limitations:** The risk of bias due to missing results was minimised by cross-referencing multiple studies and consulting supplementary

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assessment		missing results in a synthesis (arising from reporting biases).	materials when available. This review did not formally assess the risk of bias due to missing results, as no statistical synthesis was performed. Potential reporting bias cannot be ruled out, particularly given the variability in reporting standards across included studies.
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	No, this item is **not relevant** to the article because it explicitly states that no statistical meta-analyses, subgroup analyses, or meta-regressions were conducted
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	**3.1 Eligibility Criteria, Data Identification:** This review was conducted based on reports published between January 1, 2024, and October 12, 2024, during which 6,475 publications related to natural materials in construction and architecture were identified. Due to this volume, further criteria were applied to narrow the scope to 2,965 articles focusing on engineering, material sciences, and multidisciplinary studies. Additional filtering involved supplementary keywords (34 terms), resulting in 1,194 articles, which were then reviewed by title and abstract to identify 127 relevant items. **3.2 Selection Process:** Finally, from the 126 relevant publications identified up to October 12, 2024, 50 noteworthy bio-composites presented within 48 articles were analysed to show the field's diversity, depth, and emerging directions. **3.4 Meta-Analysis:** Figure 1. The systematic search process: an initial pool of 6,475 publications was narrowed to 2,965 through thematic filtering. Further refinement, including applying inclusion criteria and manual reviews, resulted in the final selection of 48 studies covering 50 bio-composite materials.
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	**3.1 Eligibility Criteria, Data Identification:** Studies were excluded for the following reasons: non-relevance to bio-composite materials, incomplete reporting of key outcomes, and failure to meet inclusion criteria, such as publication language or access limitations. **3.2 Selection Process:** Studies that did not disclose complete methodologies or performance metrics were flagged as potentially biased, and decisions on inclusion were made by consensus among the reviewers.
Study characteristics	17	Cite each included study and present its characteristics.	**Tables 3–8:** The included studies are cited and their characteristics (e.g., authors, year, materials, performance metrics) are presented in tabular form across multiple tables. Each table groups studies by their focus, such as dispersion-strengthened composites, large-particle reinforced composites, and continuous fibre-reinforced composites.
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	**3.3 PRISMA Protocol Limitations:** The reliability and limitations of the synthesised findings were considered qualitatively. Studies that used standardised testing methods exhibited a lower risk of bias, while those with incomplete reporting or inconsistent experimental conditions were judged to have a higher risk of bias. **3.5 Data Assessment and Compilation:** The risk of bias due to missing results was minimised by cross-referencing multiple studies and consulting supplementary materials where available. Studies with incomplete reporting of methodologies or performance metrics were flagged as potentially biased.
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	**3.5 Data Assessment and Compilation**: All eligible studies were summarised in a tabular format (Tables 3–8), detailing their intervention characteristics, outcome domains, and key findings. The primary effect measure, thermal conductivity (λ), was reported in W/m·K, and supplementary mechanical properties such as tensile strength and flexural strength were provided where available. Where applicable, mean values and ranges for performance metrics were reported for clarity. **Tables 3–8:** These tables provide detailed summaries of the included studies, presenting: Material characteristics. Thermal and mechanical performance metrics.

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			Additional features such as biodegradability and recyclability. Lack of Precision Measures: The article does not explicitly present confidence or credible intervals for effect estimates. Instead, it relies on descriptive statistics (e.g., means and ranges) to summarise outcomes.
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	**3.5 Data Assessment and Compilation:** Studies meeting the inclusion criteria were categorised into thematic groups (e.g., insulation materials, structural applications) based on the intervention characteristics and the measured outcomes. All eligible studies were summarised in a tabular format (Tables 2–7), detailing their intervention characteristics, outcome domains, and key findings. **Risk of Bias: 3.3 PRISMA Protocol Limitations:** Studies that used standardised testing methods exhibited a lower risk of bias, while those with incomplete reporting or inconsistent experimental conditions were judged to have a higher risk of bias. Variability in testing methods and incomplete reporting introduced some bias, but these limitations reflect the evolving nature of bio-composite research.
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	The article explicitly states that no statistical synthesis was conducted.
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	No, this item is not relevant to the article because the article explicitly states that no formal investigations of heterogeneity or sensitivity analyses were conducted.
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	No, this item is not relevant to the article because the article explicitly states that no formal investigations of heterogeneity or sensitivity analyses were conducted.
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	No, this item is not relevant to the article because the article explicitly states that no formal investigations of heterogeneity or sensitivity analyses were conducted.
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	**5. Discussion:** The findings of this review align with prior studies highlighting the potential of bio-composites as sustainable alternatives in construction. Thermal conductivity values as low as 0.016 W/m·K, observed in certain materials, surpass the performance of many conventional insulation materials. The biodegradability and recyclability of bio-composites further reinforce their alignment with circular economy principles, a growing focus in contemporary construction practices. However, challenges such as scalability, cost-efficiency, and durability remain significant barriers to broader adoption. These challenges are consistent with the limitations noted in prior reviews on bio-materials in construction.
	23b	Discuss any limitations of the evidence included in the review.	**3.3 PRISMA Protocol Limitations:** Variability in testing methods and incomplete reporting introduced some bias, but these limitations reflect the evolving nature of bio-composite research. The lack of standardised testing protocols across studies makes direct comparisons challenging and limits the ability to perform quantitative synthesis. Potential reporting bias cannot be ruled out, particularly given the variability in reporting standards across included studies. **5.1 Limitations of the Review:** A key limitation of the evidence included in this review is the heterogeneity of bio-composite formulations and the absence of uniform reporting standards for thermal and mechanical performance metrics. Several studies did not provide sufficient details about testing methodologies or material composition, which may have led

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			to the exclusion of relevant findings. The review was constrained by the focus on English-language, open-access publications, which may have excluded relevant studies published in other languages or non-open-access journals.
	23c	Discuss any limitations of the review processes used.	**3.3 PRISMA Protocol Limitations:** This review did not include statistical meta-analyses or pooled effect estimates; therefore, no formal exploration of heterogeneity (e.g., subgroup analysis, meta-regression) or sensitivity analyses was conducted. Potential reporting bias cannot be ruled out, as the review relied exclusively on English-language, open-access publications, which may have excluded relevant studies from non-English sources or subscription-based journals. The absence of automation tools during the review process may have introduced subjectivity, although manual checks and consensus discussions aimed to mitigate this risk. **5.1 Limitations of the Review:** The review process was constrained by resource limitations, such as the inability to incorporate advanced bias assessment tools or conduct statistical synthesis. The reliance on manual methods for screening and data extraction, while thorough, may have increased the risk of human error.
	23d	Discuss implications of the results for practice, policy, and future research.	**5. Discussion:** The findings of this review highlight the potential of bio-composites to replace conventional materials in sustainable construction. With thermal conductivity values as low as 0.016 W/m·K and demonstrated biodegradability, these materials align with the principles of circular economy and sustainable design practices. The widespread adoption of bio-composites could lead to significant reductions in construction-related carbon emissions, supporting global policy goals on climate change mitigation. **5.2 Implications for Future Research:** Future research should prioritise the development of scalable production technologies to meet industrial demands while maintaining sustainability. Durability testing methods need to be standardised to ensure that bio-composites can withstand environmental and mechanical stresses over extended periods. Policy frameworks should incentivise the adoption of bio-based materials by integrating them into green building certification systems and offering subsidies for their development and use. Interdisciplinary collaborations are required to bridge gaps between material science, engineering, and policy-making to realise the full potential of bio-composites. **6. Conclusion:** This review underscores the viability of bio-composites as sustainable alternatives to conventional materials. However, addressing challenges such as scalability and durability will be critical to their successful integration into mainstream construction practices.
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	This review was not registered in a systematic review registry, as it focuses on descriptive analysis rather than systematic meta-analysis or statistical synthesis.
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	The authors did not provide a pre-registered protocol for this study, as our research focuses on engineering sciences rather than traditional fields like healthcare, education, or environmental sciences, where protocol registration is more commonly emphasized. The nature of our study, which involves synthesizing advancements in bio-composite materials for sustainable construction, required a flexible and iterative approach. This allowed us to adapt our methodology as we explored emerging evidence and aligned our review process with the evolving landscape of engineering research. Despite the absence of a registered protocol, we adhered to PRISMA's core principles of systematic and comprehensive reporting to ensure the reliability and integrity of our findings. We believe this approach has enabled us to address the unique requirements of our research field while maintaining the rigorous standards expected of systematic reviews.
	24c	Describe and explain any amendments to information	See above



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		provided at registration or in the protocol.	
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	This review did not receive any financial or non-financial support. All aspects of the review, including the design, data collection, analysis, and interpretation, were carried out independently by the authors
Competing interests	26	Declare any competing interests of review authors.	The authors declare no competing interests relevant to this review.
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	The following materials are publicly available in the supplementary files of this article and at

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.
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