Full Database Search Strategies

Study Title: Sustainability-Qualified IEQ Indicators for Academic Buildings: A Systematic Review (2010–2025) and SDG-Aligned Framework

S1. Search Strategy Development

The database search strategy was developed in accordance with the PRISMA 2020 guidelines to ensure transparency, reproducibility, and comprehensive coverage of relevant literature. Search terms were derived from preliminary scoping searches, established Indoor Environmental Quality (IEQ) terminology, and sustainability assessment literature.

The search structure combined three primary concept groups:

1. Indoor Environmental Quality concepts
2. Educational building context
3. Sustainability and SDG concepts

Boolean operators (AND/OR), truncation symbols (*), and phrase searching were applied and adapted to the syntax requirements of each database.

Searches were conducted between January and March 2025, covering publications from 2010 to 2025.

S2. Eligibility Filters Applied to All Databases

The following limits were consistently applied:

- Publication years: 2010–2025
- Language: English
- Document types: Peer-reviewed journal articles and conference proceedings
- Subject scope: Indoor environmental quality or related environmental performance in academic or educational buildings

Grey literature, reports, theses, and non-peer-reviewed publications were excluded during screening.

S3. Google Scholar Search Strategy

Database: Google Scholar
Search field: Full text (default indexing)
Purpose: Broad interdisciplinary coverage and identification of additional peer-reviewed sources not indexed in subscription databases.

Full Search String

("indoor environmental quality" OR IEQ OR "indoor air quality" OR "thermal comfort" OR acoust* OR lighting OR daylight)

AND

(school OR classroom* OR universit* OR "academic building*" OR "educational building*")

AND

(sustainab* OR "sustainable development goals" OR SDG OR sustainability)

Filters Applied

- Custom date range: 2010–2025
- English language
- Manual verification of peer-review status

Records Retrieved

n = 340

S4. Scopus Search Strategy

Database: Scopus (Elsevier)
Search field: Title, Abstract, and Keywords (TITLE-ABS-KEY)

Full Search String

TITLE-ABS-KEY(
("indoor environmental quality" OR IEQ OR "indoor air quality" OR "thermal comfort" OR acoust* OR lighting OR daylight)
AND
(school OR classroom* OR universit* OR "academic building*" OR "educational building*")
AND
(sustainab* OR "sustainable development goals" OR SDG)
)
AND PUBYEAR > 2009
AND PUBYEAR < 2026
AND (LIMIT-TO(LANGUAGE, "English"))
AND (LIMIT-TO(DOCTYPE, "ar") OR LIMIT-TO(DOCTYPE, "cp"))

Filters Applied

- Publication years: 2010–2025
- English language
- Articles and conference papers only

Records Retrieved

n = 52

S5. Web of Science Search Strategy

Database: Web of Science Core Collection
Search field: Topic Search (TS)

Full Search String

```
TS = (
("indoor environmental quality" OR IEQ OR "indoor air quality"
OR "thermal comfort" OR acoust* OR lighting OR daylight)
AND
(school OR classroom* OR universit* OR "academic building*"
OR "educational building*")
AND
(sustainab* OR "sustainable development goals" OR SDG)
)
```

Filters Applied

- Timespan: 2010–2025
- Language: English
- Document types:
    - Article
    - Proceedings Paper

Records Retrieved

n = 48

S6. Additional Identification Methods

To ensure completeness of evidence identification:

- Reference list screening (backward snowballing) was conducted.
- Related-article recommendations were manually reviewed.
- ResearchGate was used only for full-text retrieval of already identified studies and was not treated as a search database.

Additional Records Identified

n = 25

S7. Search Outcome Summary

Source	Records Identified
Google Scholar	340
Scopus	52
Web of Science	48
Manual search	25
Total records identified	365

The search results were exported, merged, and de-duplicated prior to screening, consistent with the PRISMA 2020 workflow presented in the main manuscript.

S8. Reproducibility Statement

The complete search strategies provided above allow replication of the literature identification process. Database-specific syntax adjustments were applied while maintaining equivalent conceptual coverage across platforms to minimize retrieval bias and ensure methodological transparency.