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Research article

POST-OCCUPANCY EVALUATION OF UNIVERSAL DESIGN IN INSTITUTIONAL BUILDINGS: A SCOPING REVIEW OF METHODS AND USER-CENTERED METRICS

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ABSTRACT

Institutional buildings, such as universities, schools, hospitals, government offices, libraries and museums, are collectively funded and used by people with widely varying mobility, sensory and cognitive needs, yet post-occupancy evaluation (POE), the primary tool for checking whether a building performs as intended once occupied, has rarely been extended in a systematic way to universal design (UD) and accessibility outcomes; the resulting literature is fragmented, with studies using different instruments, different definitions of performance, and rarely reporting metrics that can be compared across building types or countries. This review sets out to map how POE has been applied to universal design in institutional buildings, to identify the methods and instruments researchers rely on to capture user experience, and to surface the metrics that come closest to a genuinely user-centred account of accessibility. Following a structured screening process, 78 studies were retained from an initial pool of 100 records identified across eleven academic databases and repositories, published between 2016 and 2026, and coded thematically by building type, method and reported metric. Three patterns emerged: mixed-method survey and walkthrough protocols dominate data collection; validated, accessibility-specific instruments remain scarce; and empirical work concentrates heavily in higher-education campuses relative to healthcare and civic buildings. The review also traces the emergence of structured audit tools, notably the Inclusion, Diversity, Equity and Accessibility (IDEA) framework, as an attempt to formalise what has largely been an ad hoc evaluation process. The review concludes that institutional POE has not yet developed a shared, user-centred vocabulary for measuring universal-design outcomes, and proposes five metric categories, physical accessibility, sensory and cognitive inclusion, participation, psychological comfort, and institutional and policy indicators, that future studies could adopt to make cross-study comparison possible.

KEYWORDS

post-occupancy evaluation; universal design; institutional buildings; accessibility; user-centred metrics; scoping review

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INTRODUCTION

Institutional buildings occupy an unusual place in the built environment. They are commissioned to serve everybody who walks through the door, yet the record shows they are rarely evaluated with that everybody in mind. Universities, schools, hospitals, libraries and government offices are meant to be among the most publicly accountable structures a society builds, funded collectively and used by people whose bodies, senses and cognitive profiles vary enormously. Whether these buildings deliver on that promise once construction is complete is a question only a return visit can answer, and that return visit has a name: post-occupancy evaluation.

POE describes the systematic assessment of a building's performance after it has been occupied and used for some time, gathering the views and measured experience of the people who inhabit the space rather than relying solely on the intentions recorded in a design brief (Li, Froese, & Brager, 2018). Roberts et al. (2019) traced the practice back several decades and noted that, despite its long history, POE has struggled to move from an academic curiosity into a standard stage of the project lifecycle. That struggle is compounded when the object of evaluation is not simply comfort or energy performance but the harder question of whether a building is genuinely usable by a wheelchair user, a visually impaired student, or an older visitor with limited stamina.

Universal design, as a design philosophy, asks architects to plan for the widest possible range of human variation from the outset rather than retrofitting accommodations after the fact. When universal design is folded into a POE study, the evaluation stops asking only whether a building is comfortable and starts asking whether it is usable, dignified and safe for the person who uses a cane, the person who cannot read small print, or the person

who becomes disoriented by complex wayfinding. This is a considerably harder question to answer with a five-point satisfaction scale, and the literature reviewed here shows the field is still working out how to answer it well.

This paper reviews 78 studies, drawn from a wider pool of 100 records, that reported POE or universal-design evaluation in institutional buildings. The aim is threefold: to map where and how this research has been conducted, to identify the methods and instruments researchers rely on to capture user experience, and to surface the metrics that come closest to a genuinely user-centred account of accessibility. The review closes with a proposed set of metric categories intended to help future studies speak a common language.

LITERATURE REVIEW

Post-occupancy evaluation: concept and development

Post-occupancy evaluation, as a formal practice, is often dated to the 1960s and 1970s, when architects and behavioural scientists began systematically returning to completed buildings to ask whether they worked as intended (Li, Froese, & Brager, 2018). Roberts et al. (2019) traced this history in detail and noted that, despite five decades of development, POE has repeatedly struggled to embed itself as a routine stage of the project lifecycle rather than an occasional academic exercise. Schoenefeldt (2018) pushes the timeline back further still, arguing that something recognisably like POE was already operating informally at the Palace of Westminster between 1854 and 1941, long before the term itself existed, which suggests the underlying impulse, architects and institutions checking their own work, is older than the discipline built around it.

Conceptually, POE had never settled on a single definition of what it is measuring. Boissonneault and Peters (2022) reviewed the concept of "performance" across the POE literature and found the term used to mean technical building performance, occupant satisfaction, organisational effectiveness and, less often, social or inclusive outcomes, frequently within the same body of work. Günaçar and Erbil (2022) reached a related conclusion from a bibliometric angle, cataloguing a decade of POE publications and confirming the method's versatility across building types while noting that this same versatility has left the field without a standard toolkit. Wener et al. (2016) attempted to draw a common thread through the confusion, arguing that usability, environmental controllability and thermal comfort function as reasonably stable proxies for performance across almost any building type, a claim this review returns to in the results.

Universal design and institutional buildings

Universal design sits at a distance from the compliance-driven language that has historically dominated accessibility regulation. Where a building code asks whether a ramp meets a minimum gradient, universal design asks whether the building as a whole can be used, without adaptation or assistance, by the widest practicable range of people, regardless of age, size or ability. Hope (2019) frames this distinction as a matter of institutional posture: universal design treated as a campus-wide value reduces dependence on individual accommodation requests, whereas accessibility treated as a compliance checklist tends to produce buildings that are technically passable but not genuinely inclusive.

Institutional buildings make this distinction unusually consequential, because unlike a private home or a commercial premises, an institutional building is generally obliged, by charter or by public funding, to serve anyone with a legitimate reason to use it. Raheja and Hajela (2021) argued that accessibility planning on institutional campuses cannot be lifted from a generic template, because the historical layering of buildings, the specific student or patient population, and local infrastructure all shape what universal design has to solve for in a given setting. Gelpiet et al. (2019) connected this obligation explicitly to the Sustainable Development Goals, framing accessible institutional buildings as a precondition for genuine participation in public life rather than an optional design enhancement. Yadav et al. (2021) added a caution that recurs throughout this review: institutions that focus their universal-design efforts on physical, mobility-related access routinely leave the sensory and cognitive dimensions of disability unaddressed, even where wheelchair access is well provided.

Existing frameworks and metrics for universal-design evaluation

A small but growing strand of literature has tried to move universal-design evaluation from informal judgement toward a structured, repeatable instrument. The most developed of these efforts is the Inclusion, Diversity, Equity and Accessibility (IDEA) audit, introduced by Zallio and Clarkson (2022) as a post-occupancy method intended

to sit alongside, rather than replace, conventional compliance checklists. Zallio et al. (2024) and, in a separate application, Erkiş (2011) tested the framework in practice and reported that it helps design teams surface accessibility issues earlier than compliance review alone typically allows, though both sets of authors cautioned that the tool had not yet been validated across a wide enough range of building types or cultural contexts to be considered general-purpose.

Watchorn et al. (2022) and Watchorn et al. (2026) approached the same problem from the practitioner's side, interviewing and surveying professionals who conducted universal-design evaluation, and found a consistent tension: checklist-based tools are valued for consistency and ease of use, but are widely seen as unable to capture the lived, relational experience universal design is ultimately meant to protect. This tension between structure and lived experience, more than any single missing statistic, is the gap this review sets out to map across the wider POE literature, and it motivates the aim, objectives and screening approach set out in the following section.

METHODOLOGY

The records reviewed here were retrieved from eleven academic databases and repositories between 17th May and 30th July 2026: Google Scholar (searched 17th and 24th May), ScienceDirect (18th May), Taylor & Francis Online (24th May), SAGE Journals (22th May), JSTOR (25th May), Semantic Scholar (25th and 31st May), ResearchGate (18th May), Springer Nature Link (25th May), MDPI (30th July), Wiley Online Library (18th and 22th May), and Dimensions (24th May). Each database was searched using the same combined string, adjusted only for that platform's own phrase-matching and Boolean syntax: ("post-occupancy evaluation" OR "POE") AND ("universal design" OR "inclusive design" OR "accessibility") AND ("university" OR "campus" OR "hospital" OR "school" OR "government building" OR "library" OR "museum").

Deduplication was carried out on 31st July 2026, removing records that appeared more than once across the eleven sources and any record published before 2016. This left an initial pool of 100 records spanning publication years 2016 to 2026, the later date reflecting a number of in-press and online-first items not yet assigned a final volume.

Screening then proceeded in two further stages. The first was a topical-relevance pass across each record's title and abstract, checking that the record addressed post-occupancy evaluation, universal design, or institutional buildings in some combination. The second applied three substantive eligibility criteria to every record that passed the first: the building under study had to be institutional in character, meaning a facility serving an educational, healthcare, governmental, civic or cultural function rather than a purely residential or commercial one; the study had to report either an empirical POE, an accessibility or universal-design audit of a building, or a methodological review whose findings bear directly on how such evaluations should be conducted; and the study needed to describe, even briefly, the data-collection method used. Exclusions at this stage fell into ten recurring types: studies of residential buildings, non-institutional historic buildings, urban open space, residential public housing, private or commercial buildings, general office buildings, mass housing, industrial parks, urban public squares, and buildings of mixed private/public use where institutional status could not be established, alongside one record on institutional leadership that used "institution-building" in an organisational rather than architectural sense. Twenty-two records were excluded on these combined grounds, leaving 78 for full review. Figure 1 sets out this process as a PRISMA-ScR-style flow diagram, following the reporting conventions for scoping reviews rather than the standard PRISMA checklist built for effectiveness-focused systematic reviews.

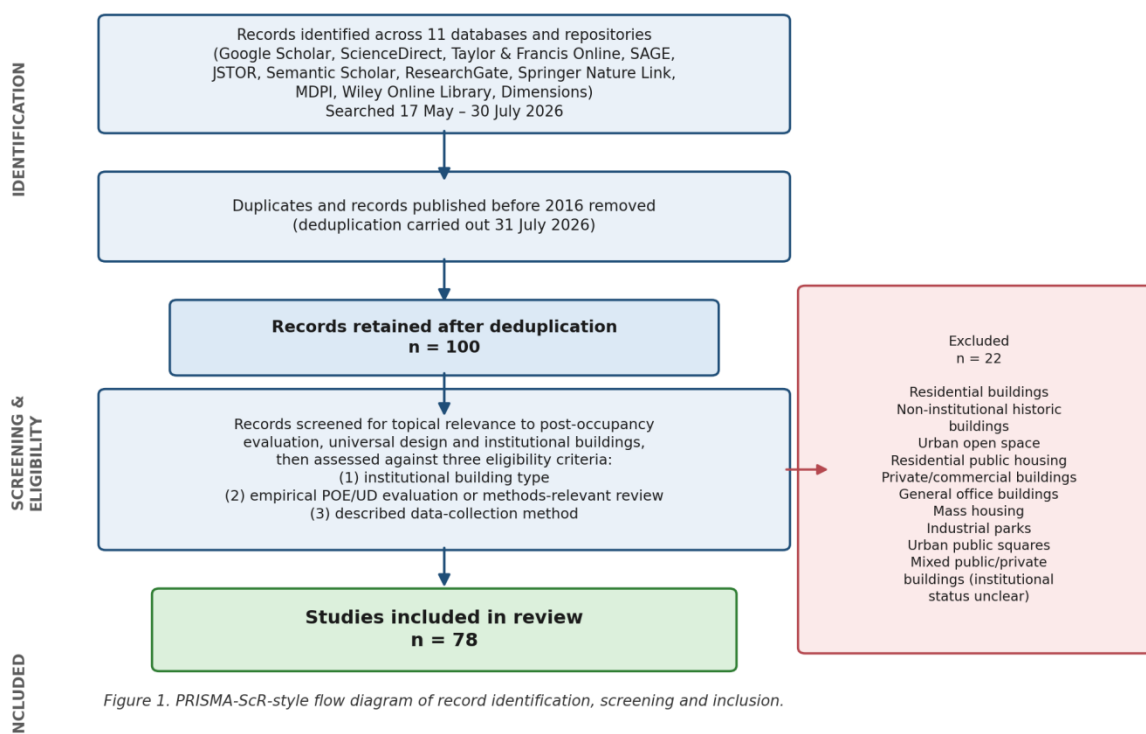


Figure 1. PRISMA-ScR-style flow diagram of record identification, screening and inclusion.

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Because the review draws on a curated bibliography rather than a live, tool-logged database search, the counts above reflect the reviewer's own search and screening records rather than an automated PRISMA export; the record-by-record decision for every one of the 100 records, including the specific reason for each exclusion, is documented in full in Appendix A and available at the end of the article. Each retained study was read in full for its stated aim, objectives, method, key findings and identified research gaps, and these were coded manually into the thematic categories presented in the following section.

Coding, at both the screening stage and the later thematic and metric-category stage described in Section “Derivation of the five-category framework”, was conducted by a single reviewer. No second coder classified the records independently alongside the first, so no formal disagreement-resolution procedure between coders was needed or used; every classification in this review reflects one reviewer's judgement against the criteria and codebook stated, not a consensus reached between multiple people. This is a material limitation, addressed further in Section “Limitations of the review”, and it means the category assignments reported here should be read as a first, reviewer-coded pass rather than a fully independently verified classification.

A reliability check was nonetheless carried out on the five-category user-centred metric framework introduced in Section “Derivation of the five-category framework”, to test how far a fixed codebook could be applied consistently. The same reviewer coded all 78 included studies twice: once with full access to each study's reported methods and findings, and once, separately, from the study title alone. Comparing the two passes gave 64.1 per cent raw agreement and a Cohen's kappa of 0.497, conventionally interpreted as moderate agreement. This is best understood as single-coder test-retest (intra-rater) reliability rather than genuine inter-rater reliability, since both passes were produced by the same reviewer rather than two independent people; true inter-rater reliability was not established for this review. The full codebook, the study-by-study coding for both passes, the disagreement analysis, and a blank column prepared for an independent second coder to complete are provided as a companion coding and reliability workbook, are attached to this review.

RESULTS AND DISCUSSION

Overview of the included literature

The 78 studies spanned a wide geographic range, though the distribution is uneven. Saudi Arabia and Nigeria each contribute a notably large cluster, largely through the sustained programme of POE work led by Hassanain and colleagues in the Gulf (Hassanain et al., 2023, 2024; Sanni-Anibire & Hassanain, 2016; Sanni-Anibire et al., 2016) and a parallel body of Nigerian scholarship on universal-design compliance on university campuses (Buba et al., 2025; Sholanke et al., 2020; Sholanke et al., 2019; Sholanke et al., 2016). The United Kingdom, China, Brazil and the United States each supply a smaller but still substantial share. Very little work originates from Latin America outside Brazil, from most of continental Europe, or from Southeast Asia beyond Bangladesh, a distributional gap several reviewed authors note explicitly (Attakora-Amaniampong et al., 2026; Kumar & Khan, 2023).

Consistent with a scoping review's remit to map a field rather than pool evidence from primary studies alone, the 78 included sources were not uniformly empirical. Coding carried out for the reliability check described in the methodology classified 55 of the 78 as reporting an empirical primary outcome measure for a specific building, and the remaining 23, close to three in ten, as literature reviews, critiques, proposed frameworks, or tool- and method-validation studies with no primary outcome measure of their own. This composition is itself a finding: it shows a field where roughly a quarter to a third of the available writing is spent proposing or arguing about how POE and universal-design evaluation should be done, rather than reporting what was found when it was actually done, and it is one reason this review synthesises the literature thematically rather than attempting to pool or rank findings across studies.

Methodologically, mixed-methods designs dominate, appearing in slightly more than half of the reviewed studies. These typically pair a structured, often Likert-scaled questionnaire with a walkthrough or observational component and, in a smaller number of cases, physical measurement of indoor environmental conditions. Purely quantitative designs form the next largest group, followed by qualitative and literature-review designs. Günaçar and Erbil (2022) catalogued a decade of Turkish and international POE publications and concluded that the method is versatile enough to be applied to almost any building type, but that architects still lacked a systematic map of how to act on its results once collected. Few studies report a fully validated instrument; most build survey items from earlier POE protocols and adapt them to the building at hand, a practice Boissonneault and Peters (2022) argued has left the field without a stable, shared definition of what "performance" even means.

POE in higher-education institutions

Universities and colleges are, by a wide margin, the most heavily studied institutional type in this literature. Campuses are large, varied, relatively easy for academic researchers to access, and populated by a captive and cooperative respondent base. Within this cluster, several sub-themes emerge.

A first group focuses on physical accessibility and compliance with universal-design standards at building entrances, staircases, ramps and lifts. Sholanke and colleagues have produced a sustained line of work at Covenant University in Nigeria, finding repeatedly that ramps, staircases and lifts fall short of universal-design benchmarks and that main entrances in particular fail to achieve full compliance (Sholanke et al., 2016, 2019, 2020). Similar compliance gaps, driven by funding shortfalls, weak institutional awareness and thin policy frameworks, are reported across other Nigerian faculty buildings (Buba et al., 2025) and echoed in India, where Raheja and Hajela (2021) argued that accessibility on higher-education campuses cannot be planned from a single generic template but must respond to the specific historical and spatial context of each institution. Gelpi et al. (2019) documented a comparable pattern on a Brazilian campus, tying limited accessibility provision explicitly to the Sustainable Development Goals and to the campus's role in enabling continued participation in higher education for people with disabilities. Adedeji, Fadamiro, and Odeyale (2020) pushed this diagnostic work one step further, translating open-space evaluation findings across six federal Nigerian universities directly into a reusable design toolkit rather than stopping at diagnosis alone.

A second group looked past compliance checklists toward the experience of learning and working environments themselves. Charkas et al. (2016) developed a user-centred POE framework for educational buildings in Egypt intended to classify evaluation techniques by their degree of user involvement, an ambition also visible in Wang et al.'s (2026) integration of space-syntax analysis with POE to explain why some informal learning spaces

attract use and others do not. Studio and laboratory environments receive their own dedicated attention: Ezz et al. (2025), Dibi et al. (2022), and Hassanain et al. (2019) each evaluated how well design-studio and laboratory facilities support creativity, productivity and technical work, generally finding moderate satisfaction alongside recurring complaints about lighting, ventilation and equipment adequacy. Jurković and Lovoković (2021) made the advocacy case explicitly, arguing that higher-education buildings are the sector where POE is most urgently needed precisely because the long-term value it offers architects and institutional investors is so rarely realised in practice.

A third group turned to environmental performance on campus. Zhao and Yang (2022) found that occupant satisfaction with design, indoor quality and thermal comfort in UK higher-education buildings sits below established benchmarks in both green and conventional buildings alike, complicating any simple assumption that certification alone secures a good user experience. Niknia et al. (2023) reached a comparable picture in two large academic buildings in the United States, reporting indoor conditions mostly within acceptable ranges but flagging background noise and humidity as consistent complaints. Similar environmental clusters appear in hot and humid climates (El-Darwish & El-Gendy, 2018; Hussain, Adhikary, & Ahmed, 2025), in France, where Bourdeau, Guo, and Nefzaoui (2018) isolated occupancy patterns and equipment use, rather than the thermal regulations a building was designed under, as the primary driver of electricity consumption, and in Iraq, where Mustafa (2017) linked occupants' satisfaction scores directly to measured architectural-department performance criteria. Ikediashi, et al. (2020) added a useful counterpoint from Nigeria, finding that a university administration building scores well on technical criteria such as sound levels and lighting quality, a reminder that campus-wide accessibility problems can coexist with strong performance in other, more conventionally measured domains. Asojo and Tian (2025) and Bortolini and Forcada (2021) extended the comparison to certified-versus-conventional buildings more broadly, and Lawrence and Keime (2016) showed, in Sheffield, that giving occupants more control over their immediate environment improves comfort perceptions without a corresponding rise in energy use, which suggests user agency, not only technical specification, belongs on the list of things POE should measure.

Student housing forms a fourth, closely related cluster. Studies from Saudi Arabia (Sanni-Anibire & Hassanain, 2016; Sanni-Anibire et al., 2016), across Africa more broadly (Attakora-Amaniampong et al., 2026), India (Kumar & Khan, 2023) and the Gulf (Umar, Mohammed, & Kanu, 2025) converged on a similar profile: residents are broadly satisfied with the basic provision of accommodation but consistently flag noise control, lighting, washroom facilities and study-space adequacy as weak points. Several authors noted that POE in student housing remains treated as an isolated academic exercise rather than something institutions build into ongoing facilities management (Attakora-Amaniampong et al., 2026).

POE in healthcare institutions

Healthcare buildings feature less prominently than campuses but produce some of the methodologically richest studies in the set, partly because clinical settings demand a precision a general satisfaction survey cannot supply. Kim et al. (2025) evaluated a maternity-unit redesign using structured observation, ambient-noise measurement, focus groups and staff surveys, and found that decentralised nursing stations improved responsiveness and proximity to patients while quietly eroding the informal peer communication staff had relied on under the previous layout, a trade-off a single satisfaction score would have missed entirely. Jalalianhosseini et al. (2024) applied a comparative pre- and post-occupancy design to a cancer infusion centre, directly measuring how a shift to a pod-based layout changed patient privacy and staff efficiency against a documented baseline, a design few other studies in this review managed to replicate.

Altizer et al. (2019) tested whether a standardised POE tool built around evidence-based design principles can be applied consistently to a hospital bed tower, concluding that it can, but that doing so without prior institutional experience of POE is genuinely difficult. Al-Khraishi and Alshamrani (2021) extended the healthcare conversation into facilities management, integrating occupant and maintenance-staff feedback into a single model for allocating hospital maintenance budgets, while Jiang, Staloch, and Kaljevic (2018) turned to the therapeutic landscape rather than the ward, finding that hospital gardens, however well planted, tend to remain visual amenities rather than places people actually use, held back by poor visibility and weak physical connection to the buildings they serve.

POE in government, civic and cultural institutions

Government offices, museums, libraries and other civic buildings form a smaller but revealing cluster. Schoenefeldt (2018) offered the longest historical lens in the review, tracing the post-occupancy history of the House of Commons from 1854 to 1941 and arguing that early, informal versions of what we now call POE were already helping Parliament build a working knowledge base about its own building's performance, decades before the term existed. Subhasingha and Disaratna (2026) and Subhasingha et al. (2025) brought the discussion into the present, examining Sri Lankan government offices and finding thermal comfort and accessibility to be the two factors most consistently associated with occupant satisfaction, while noting that POE has yet to become standard public-sector practice.

Weber and Gatlin (2025) applied POE to a Child Advocacy Center in the United States, an unusually sensitive setting in which the physical layout of a room can shape a vulnerable child's willingness to disclose information to staff, finding that spatial design measurably affects an organisation's capacity to deliver its core service, not merely the comfort of the people working there. Khasawneh (2024) evaluated visitor satisfaction and design quality at the Jordan Museum, finding that ease of wayfinding and layout simplicity outweigh even the aesthetic reception of the building's stone facade in shaping visitor judgement. Zhao and Bunyasakseri (2025) extended the civic-cultural cluster to halls built for ethnic cultural transmission in China, finding through survey, observation and expert interview that younger visitors overwhelmingly prefer interactive workshops and immersive exhibition formats over static display, with direct implications for how such halls should be spatially organised. Fathipour et al. (2024) applied a detailed inclusive-design checklist to three libraries in Shiraz and report scores of roughly one-third against their own accessibility benchmark, signalling substantial room for improvement in a building type whose entire purpose is open public access to knowledge.

Universal design and accessibility-specific metrics

Running across the building-type clusters above is a smaller but conceptually central group of studies that treat universal design and accessibility as the primary object of measurement rather than a secondary consideration folded into a broader satisfaction survey. Watchorn et al. (2026) and the related study by Watchorn et al. (2022) surveyed and interviewed practitioners directly involved in evaluating universal design, and both reported a similar tension: professionals value checklist-based tools for their consistency and ease of use, yet recognise that a checklist cannot capture the holistic, lived experience universal design is ultimately meant to protect. Hope (2019) made the broader institutional case for universal design as a campus-wide advocacy position rather than a building-by-building compliance exercise, arguing that inclusive design reduces reliance on individual accommodation requests and benefits the entire student body, not only those who formally register a disability.

The clearest attempt to resolve that tension in this literature is the Inclusion, Diversity, Equity and Accessibility (IDEA) audit framework developed by Zallio and Clarkson (2022) and piloted in practice by Zallio et al. (2024) and, separately, by Erkiliç (2011) in a Turkish context. The IDEA framework attempts to move accessibility assessment beyond binary compliance questions toward a structured, multi-dimensional audit a design team can apply repeatedly across a building's life cycle, and its six-month pilot with a London-based design firm suggests it can genuinely accelerate design decision-making, though its authors are candid that further validation across building types and cultural contexts is still needed.

Elsewhere, universal-design evaluation continues to rely heavily on observational and content-analysis methods rather than standardised metrics. Yadav et al. (2021) found that even where institutions provide basic wheelchair access, the more varied requirements of students with sensory or cognitive disabilities are routinely left unaddressed, a finding echoed by Asaad et al. (2025), who audited Saudi university floor plans against national accessibility codes and paired that with stakeholder surveys, concluding that physical retrofits alone cannot achieve equitable learning environments without matching investment in staff training.

Methods and instruments in use

Across the 78 studies, five instrument families recur. The questionnaire survey, usually Likert-scaled and often adapted from earlier POE protocols, is close to universal, appearing either alone or alongside other methods in the large majority of the reviewed work. The structured walkthrough or observational audit is the second most common tool, used to physically verify conditions a survey alone cannot capture, such as ramp gradients, door widths or lighting levels. Physical environmental measurement, covering temperature, humidity, illuminance,

noise and air quality, appeared in a smaller but still substantial subset, concentrated in the studies most concerned with indoor environmental quality (Kim et al., 2022; Strelets et al., 2016; Tang, Ding, & Singer, 2020). Pereira and Villa (2026) added a life-cycle dimension rarely attempted elsewhere, developing standardised POE tools aimed specifically at adaptability and long-term maintenance planning for Brazilian university buildings, validated through a walkthrough-based case study.

A fourth family, less common but methodologically ambitious, applies statistical or computational modelling to POE data once collected. Lin et al. (2025) compared linear regression, random forest and support vector machine models to establish the relationship between design-quality indicators and post-occupancy satisfaction across Taiwanese campus buildings, while Ilbeigi et al. (2025) used a conditional generative adversarial network to combine POE-derived comfort preferences with energy simulation in school design. The fifth and least developed family concerns digital infrastructure for managing POE data itself. Afolabi et al. (2019) built a web-based electronic POE reporting system for a Nigerian university, and Patlakas, Musso, and Larkham (2021) went further, proposing a digital curation model for POE data intended to solve the practical problem that most POE datasets, once collected, are never stored, archived or reused in any structured way.

A smaller pedagogical strand treats POE itself as something to be taught rather than only practised. Cranz et al. (2016) described a collaborative student POE project at Berkeley's David Brower Center, using it to compare multiple data-collection methods side by side within a single teaching exercise, a structure that doubles as a rare head-to-head test of method reliability within one building. Wener et al. (2016) offered one of the few genuinely method-focused papers in the set, setting standard POE and behavioural-mapping techniques side by side and arguing that usability, environmental controllability and thermal comfort function as the through-line connecting almost every other study in this review, whatever building type it happens to examine. Hamida and Hassanain (2020) rounded out this section with a reminder that building history matters to method choice: their evaluation of a Saudi building converted from student housing into office use shows that adaptive reuse in an institutional setting carries its own distinct set of technical and functional performance issues, separate from those found in either original building type.

School buildings, as distinct from university campuses, form a smaller but coherent cluster of their own. Whitem et al. (2022) reviewed the feedback available to architects on school buildings and concluded that neither research literature, sustainability rating schemes nor existing POE protocols adequately capture physical externalities, community services, socialisation or a sense of place, leaving architects with a thinner feedback loop than almost any other institutional type. Cole and Hamilton (2019) tested one of the underlying assumptions behind "green school" design directly, comparing a teaching green building against a conventional one, and found that students' environmental behaviour is shaped more by school programmes and teaching practice than by the building fabric itself. Ahmed et al. (2021) examined UK school refurbishment projects and found that building users consistently ask for more manual control over heating, lighting and ventilation, pushing back against the industry's growing enthusiasm for fully automated building systems. Mba et al. (2024) traced a more specific design variable, showing that classroom plan shape in Nigerian primary schools significantly affects natural ventilation performance and, by extension, thermal comfort, while Shehata et al. (2025) drew these environmental and functional threads together into a single multi-dimensional POE framework for Saudi primary schools. Garde et al. (2017) folded post-occupancy indoor-environmental-quality assessment into a wider net-zero-energy verification protocol at a French engineering school, treating occupant comfort and energy performance as inseparable rather than sequential concerns. Tian et al. (2025) closed this cluster by evaluating a new-built campus in Shenyang from planning, external-environment and architectural-space perspectives together, a rare attempt in this review to hold all three spatial scales in view within a single POE study.

Discussion: cross-cutting patterns and proposed metric categories.

Three patterns stood out once the 78 studies were read together rather than singly. The first is a persistent methodological gap that almost every author, regardless of building type or country, names explicitly in some form: there is no shared protocol for institutional POE, and each research team effectively builds its instrument from scratch. Li, Froese, and Brager (2018) made this point at scale, comparing 146 POE projects and sixteen established protocols and concluding that the field remains fragmented, largely one-off and academically rather than industry driven. Lolli et al. (2022) reached a similar conclusion specifically for indoor environmental quality.

The second pattern is a translation gap between what occupants reported and what architects can act on. Durosaiye et al. (2019) stated this most bluntly, arguing that UK architects routinely struggle to convert subjective user feedback into language that can inform a design brief, and that POE remains underappreciated within the profession as a result. Roberts et al. (2021) reached a related finding for the same national context, mapping POE decision-making across the UK higher-education sector and concluding that implementation is inconsistent and compliance with existing industry guidance remains low. This translation problem becomes sharper once universal design enters the picture, because accessibility needs are heterogeneous by definition; a metric that satisfies a wheelchair user may say nothing useful about a visually impaired one, and a checklist built for physical access says little about sensory or cognitive inclusion. The IDEA framework (Zallio & Clarkson, 2022) and the co-design work of Watchorn et al. (2022, 2026) represented the most serious attempts in this literature to address that heterogeneity directly, by building structured but multi-dimensional tools rather than single compliance scores.

The third pattern is geographic and typological concentration. Higher-education buildings, and within that category Saudi Arabian, Nigerian and Chinese campuses in particular, are studied far more often than government offices, libraries or museums, and almost never through the same instrument twice. This has a practical consequence for anyone trying to build an evidence base for institutional design guidance: findings from a well-resourced Gulf university campus may not transfer cleanly to a Sri Lankan government office (Subhasingha & Disaratna, 2026) or a Shiraz library (Fathipour et al., 2024), yet the absence of comparable metrics across these settings makes it difficult to know how far the findings do or do not transfer. Lima et al. (2023) made the most explicit attempt in this literature to close that gap directly, building a single POE model spanning schools, basic health units and light-frame buildings together through a design-science-research approach, a direction the metric categories proposed below are intended to support.

Taken together, these three patterns point toward a practical recommendation rather than a purely academic one. If institutional POE is to mature into something genuinely user-centred, its metrics need to move beyond satisfaction scores and compliance checklists toward categories that can travel across building types. Five such categories emerge from the literature reviewed here, even where individual studies do not name them explicitly. Physical accessibility indicators cover the measurable features audited by Sholanke and colleagues and others, such as ramp gradients, door clearances and signage legibility. Sensory and cognitive inclusion indicators remain the least developed category, and the one Yadav et al. (2021) argued is most neglected. Participation and social indicators capture whether a space supports or excludes informal interaction, in the spirit of the trade-off Kim et al. (2025) documented in their maternity-unit study. Psychological comfort and dignity indicators, implicit throughout the co-design and IDEA literature, matter as much as physical measurement even though they are harder to quantify. Institutional and policy indicators track whether an organisation has built POE into routine facilities management or treats it, as Attakora-Amaniampong et al. (2026) put it, as an isolated exercise.

Derivation of the five-category framework

The five categories were not imported wholesale from a single existing model; no study in the corpus proposes a complete, ready-made taxonomy of user-centred metrics for institutional POE, which is itself part of the gap this review identifies. Instead, the framework was built through a hybrid inductive-deductive process that ran alongside the thematic coding described in literature review. During full-text reading, every instrument, indicator or outcome measure reported by the 78 studies, whatever the authors called it, was logged against the study's aim and building type. This produced a long, ungrouped list: ramp gradients, door widths, noise-level readings, satisfaction scores, stakeholder interview themes, policy-compliance checks, and dozens more. These items were then sorted inductively through axial coding, grouping measures that answered a similar underlying question about the user's experience, rather than measures that simply used a similar data-collection technique. A ramp gradient and a door-clearance width, for instance, were grouped together because both answer the question "can the body physically pass through or move within this space", even though one might be measured by tape and the other inferred from a walkthrough checklist.

The resulting clusters were then checked deductively against the conceptual material already present in the corpus, rather than against frameworks external to it, to keep the categories grounded in what this literature itself treats as meaningfully distinct. Three cross-checks did the most work. First, the IDEA audit (Zallio & Clarkson, 2022; Zallio et al., 2024; Mualla, 2022) already separated accessibility from the broader constructs of inclusion,

diversity and equity, which supported splitting a single undifferentiated "accessibility" cluster into the physical, sensory-cognitive, and participation-oriented categories used here. Second, Boissonneault and Peters' (2022) findings that "performance" is used inconsistently to mean technical, functional and experiential outcomes justified keeping physical accessibility separate from psychological comfort, since collapsing them would have reproduced the very conflation their review criticises. Third, Watchorn et al.'s (2022, 2026) practitioner interviews, which described a persistent tension between checklist-based tools and the lived, relational experience they fail to capture, mapped directly onto the boundary drawn between the physical-accessibility category and the psychological-comfort-and-dignity category. The institutional and policy category emerged last and separately, from a cluster of studies that measured not the building but the organisation behind it, whether POE recurs, whether it is budgeted, whether staff are trained, a distinction Attakora-Amaniampong et al. (2026) and Roberts et al. (2023) made explicitly when they described POE as an isolated exercise rather than embedded institutional practice.

Two boundary decisions are worth stating plainly because they were not obvious from the coding alone. Sensory and cognitive inclusion was kept as its own category, rather than folded into physical accessibility, specifically because Yadav et al. (2021) and Fathipour et al. (2024) both reported institutions that score adequately on mobility access while leaving sensory and cognitive needs almost entirely unaddressed; merging the two categories would have hidden that gap rather than exposed it. Participation and social indicators were kept separate from psychological comfort, even though both are experiential rather than physical, because the underlying unit of measurement differs: participation measures what people do (dwell time, informal contact, engagement with a space), documented directly by Kim et al. (2025) and Wang et al. (2026), while psychological comfort measures how people feel while doing it, documented by Weber and Gatlin (2025) and the co-design literature. Table 1 sets out this derivation study by study, listing the included studies that anchored each category and the representative measures drawn from them.

Table 1. Derivation of the five-category user-centred metric framework, linking each category to its conceptual basis, anchoring included studies, and representative measures.

Category	Conceptual / empirical basis for the category	Representative anchoring studies	Representative measures reported
Physical accessibility	Consolidates the compliance-focused literature, where accessibility is operationalised as measurable dimensions of the building fabric rather than a felt experience; grounded in the IDEA audit's separation of "accessibility" from broader inclusion constructs (Zallio & Clarkson, 2022).	Sholanke et al. (2016, 2019, 2020); Buba et al. (2025); Raheja & Hajela (2021); Asaad et al. (2025)	Ramp gradient and length; door and corridor clearance widths; lift and entrance availability; tactile and visual signage legibility; compliance scoring against national building codes
Sensory and cognitive inclusion	Kept distinct from physical accessibility because studies report institutions that pass mobility-access checks while leaving sensory and cognitive needs almost entirely unaddressed; the category names a gap the literature itself flags as neglected.	Yadav, Kumar, & Karmakar (2021); Erkiş (2011); Zallio et al. (2024); Fathipour et al. (2024)	Presence of tactile/braille wayfinding; acoustic clarity and background-noise control; visual contrast and lighting-legibility standards; accessibility of information format and content load
Participation and social	Derived from studies measuring what people do in a space, not only whether they can enter it; grounded in the design trade-off documented by Kim et al. (2025) between spatial redesign and informal social contact.	Kim et al. (2025); Wang et al. (2026); Tourinho et al. (2021); Zhao & Bunyasakseri (2025)	Observed frequency/duration of informal social contact; behavioural mapping of space use and dwell time; staff or peer communication frequency; visitor engagement with interactive versus static content
Psychological comfort and dignity	Separated from participation because it measures how people feel while using a space rather than what they do; grounded in Boissonneault and Peters' (2022) critique of conflated performance definitions and Watchorn et al.'s (2022, 2026) checklist-versus-lived-experience tension.	Weber & Gatlin (2025); Watchorn et al. (2022, 2026); Khasawneh (2024)	Self-reported sense of privacy and dignity; stakeholder-rated comfort and stress during use; qualitative interview themes on autonomy and control; visitor-reported ease or anxiety in wayfinding
Institutional and policy	Emerges from a distinct cluster of studies measuring the organisation behind the	Attakora-Amaniampong et al. (2026); Roberts et al. (2023);	Existence of a formal POE or accessibility policy; frequency of

Category	Conceptual / empirical basis for the category	Representative anchoring studies	Representative measures reported
	building rather than the building itself; grounded in explicit calls to treat POE as embedded practice rather than an isolated exercise (Attakora-Amaniampong et al., 2026; Roberts et al., 2023).	Subhasingha & Disaratna (2026); Durosaiye et al. (2019)	repeat POE cycles; budget allocation for accessibility retrofits; staff training provision on universal design

LIMITATIONS OF THE REVIEW

This review followed a documented, dated search and screening process across eleven databases, but it was conducted and screened by a single reviewer rather than the two or more independent screeners a fully PRISMA-ScR-compliant scoping review would use, so some relevant work, particularly outside the databases consulted, will inevitably have been missed. Reliance on secondary databases such as Google Scholar and ResearchGate also means the sample skews toward English-language, open-access-adjacent literature, likely understating work published in other languages or held behind paywalls the search did not reach. Grey literature, including institutional POE reports never formally published, is almost certainly under-represented as a result, despite being where a great deal of practical POE knowledge probably resides. As a scoping rather than a systematic review, this study also does not appraise the methodological quality or risk of bias of individual included sources, consistent with PRISMA-ScR guidance for mapping reviews; the findings above describe the breadth and shape of the literature rather than the strength of its evidence, and should not be read as a pooled or quality-weighted estimate of what works.

A related limitation concerns the currency of a small number of sources. Six of the 78 included studies carry a 2026 publication date, close to the year in which this review's own search was conducted. Following the bibliography update, all but one of these are now fully resolved, finalised citations with an assigned volume, issue and page range, including Pereira and Villa (2026), whose book chapter carries a confirmed page range (pp. 681–702) despite its recent publication date. One exception remains: Watchorn, Tucker, Hitch, and Frawley (2026) is explicitly listed by its publisher as “Vol. ahead-of-print, No. ahead-of-print,” meaning it has not yet been assigned to a final issue. For this source only, the version cited here could in principle differ in minor ways, such as final pagination, from the version that eventually appears in print.

The single-reviewer design also limits how much confidence can be placed in the thematic and metric-category coding described in the methodology. Without a second, independent coder, there was no disagreement to resolve and no consensus-building step of the kind multi-coder reviews normally report; the closest available check is the test-retest exercise summarised in Section “Derivation of the five-category framework”, which found moderate ($\kappa = 0.497$) rather than substantial or near-perfect agreement even within one reviewer's own repeated judgement. That result should be read as an upper bound on, not a substitute for, genuine inter-rater reliability. Before the five-category framework or the study classifications in Appendix A are relied on for further research or publication, an independent second coder should apply the codebook to the full set of 78 studies and a properly calculated multi-rater kappa should replace the intra-rater figure reported here.

CONCLUSION

Post-occupancy evaluation has clearly found a home in institutional buildings, and the 78 studies reviewed here showed a field that is active, geographically expanding and increasingly willing to ask hard questions about who a building actually serves. What the field has not yet found is a shared vocabulary for measuring universal-design outcomes with the same rigour it already applies to thermal comfort or energy performance. The instruments in wide use, chiefly surveys, walkthroughs and physical measurement, were built for general satisfaction and adapted, often awkwardly, to accessibility questions they were not originally designed to answer. Structured audit tools such as IDEA represent a genuine step toward closing that gap, but their authors are the first to admit the work of validation is far from finished. Until institutional POE settles on user-centred metrics that travel reliably from a university library in Shiraz to a government office in Colombo to a museum in Amman, the field will keep producing valuable but isolated snapshots rather than the cumulative evidence base that universal design in institutional buildings genuinely needs.

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APPENDIX A — SCREENING DECISIONS

Full record-by-record inclusion/exclusion decisions for the 100 records identified, supporting Methodology of "Post-Occupancy Evaluation of Universal Design in Institutional Buildings: A Scoping Review of Methods and User-Centered Metrics"

Of the 100 records screened, 78 met all three inclusion criteria (institutional building type; empirical POE, UD/accessibility audit, or methods-relevant review; and a described data-collection method) and were retained for full review. 22 records were excluded, principally for not concerning an institutional building (residential, commercial-office, or urban open-space studies), for not involving any occupant evaluation, or for using "institution" in a non-architectural sense.

S/N	First Author	Title	Year	Decision	Reason for exclusion
1	Adriana Gelpi et al.	Post - Occupancy Evaluation focused on Accessibility: Experience of Participation in the University Community.	2019	Included	—
2	C.J. Roberts et al.	Post-occupancy evaluation: a review of literature	2019	Included	—
3	Mohammad A. Hassanain et al.	Design quality assessment of campus facilities through post occupancy evaluation.	2023	Included	—
4	Niknia et al.	Post-Occupancy Evaluation through University Campuses: Case Studies of Two Large Academic Buildings	2023	Included	—
5	G Güvenbaş et al.	Post-occupancy evaluation: A diagnostic tool to establish and sustain inclusive access in Kyrenia Town Centre.	2021	Excluded	Not institutional — urban open space (town-centre upgrade), not a building
6	Hassan Hassan Umar et al.	A post-occupancy performance evaluation study on user satisfaction with university student housing facilities	2025	Included	—
7	Tanaphoom Wongbumru et al.	Post-occupancy evaluation of user satisfaction: a case study of “old” and “new” public housing schemes in Bangkok.	2016	Excluded	Not institutional — purely residential public housing
8	Ebru Günaçar et al.	AN ANALYSIS ON POST OCCUPANCY EVALUATION METHOD IN BUILDINGS	2022	Included	—
9	Joseph Adeniran Adedeji et al.	Design toolkits for campus open spaces from post-occupancy evaluations of federal universities in South-west Nigeria	2020	Included	—
10	Daniel Obokhai Uduokhai et al.	Modeling User Experience and Post-Occupancy Satisfaction in Government-Sponsored Housing Projects	2023	Excluded	Not institutional — government-sponsored residential housing
11	Mohamed Elsayed et al.	Post-occupancy evaluation in residential buildings: A systematic literature review of current practices in the EU.	2023	Excluded	Not institutional — residential buildings systematic review (EU)
12	Marwa N. Charkas et al.	Towards Environmentally Responsive Educational Buildings: A Framework for	2016	Included	—

S/N	First Author	Title	Year	Decision	Reason for exclusion
		User-Centered Post Occupancy Evaluation (POE)			
13	Mohammad A. Hassanain et al.	An assessment of users' satisfaction with a smart building on university campus through post-occupancy evaluation	2024	Included	—
14	Lan et al.	Development and Application of a Sustainable Post-Occupancy Evaluation Model for the Regeneration of Non-Designated Historic Buildings.	2026	Excluded	Not institutional — historic building regeneration; building type not institutional
15	Ana Clara Carvalho Tourinho et al.	Post-occupancy evaluation of outdoor spaces on the campus of the Federal University of Juiz de Fora, Brazil	2021	Included	—
16	Elvis Attakora-Amaniampong et al.	Institutionalizing post-occupancy evaluation in African universities: a framework for student-centered housing governance	2026	Included	—
17	Yuanhong Zhao et al.	A Post-occupancy Evaluation of Occupant Satisfaction in Green and Conventional Higher Educational Buildings.	2022	Included	—
18	Saleh Baharetha et al.	Evaluating workplace performance through post-occupancy evaluation: a case study of open-plan office buildings in Saudi Arabia	2026	Included	—
19	Hao Tang et al.	Post-occupancy evaluation of indoor environmental quality in ten nonresidential buildings in Chongqing, China.	2020	Included	—
20	Göçer et al.	Exploring mobility & workplace choice in a flexible office through post-occupancy evaluation	2017	Excluded	Not institutional — private/commercial flexible office building
21	Alexandra Boissonneault et al.	Concepts of performance in post-occupancy evaluation post-probe: a literature review.	2022	Included	—
22	Henrik Schoenefeldt et al.	The House of Commons: a precedent for post-occupancy evaluation.	2018	Included	—
23	Wang et al.	Evaluating the performance of informal learning spaces in higher Education: an integrated methodological framework combining Space Syntax and Post-Occupancy Evaluation	2026	Included	—
24	Daejin Kim et al.	Evaluating Innovative Design Strategies in a Maternity Unit: A Post-Occupancy Evaluation Approach.	2025	Included	—
25	Mahshid Jalalianhosseini et al.	Design of a Cancer Infusion Center: Results from a Pre- and Post-Occupancy Evaluation.	2024	Included	—
26	Hanfei Lin et al.	Guiding campus building design and renovation through design quality indicators and Post-Occupancy evaluations	2025	Included	—
27	Živa Kristl et al.	Sustainability and universal design aspects in heritage building refurbishment	3 April 2020,	Excluded	Not institutional — heritage building refurbishment, non-institutional type
28	Barnabas Ekpo Buba et al.	Assessing the barriers to implementing universal design strategies in faculty buildings in Nigerian universities.	2025	Included	—
29	Vanessa Whitem et al.	How comprehensive is post-occupancy feedback on school buildings for architects? A conceptual review based	June 2022	Included	—

S/N	First Author	Title	Year	Decision	Reason for exclusion
		upon Integral Sustainable Design principles			
30	Isaiah Oluremi Durosaiye et al.	A critique of post-occupancy evaluation in the UK.	2019	Included	—
31	Kseniya Strelets et al.	Post Occupancy Evaluation (POE) and Energy Conservation Opportunities (ECOs) Study for Three Facilities in SPbPU in Saint Petersburg	2016	Included	—
32	Meenal Kumar et al.	Post-occupancy assessment of student housing facilities in an educational campus: case study of Visvesvaraya National Institute of Technology Nagpur, India	2023-08-10 00:00:00	Included	—
33	Mohammad A. Hassanain et al.	Post-occupancy evaluation of research and academic laboratory facilities	2019-10-11 00:00:00	Included	—
34	Shiro Arata et al.	Key office environment items from post-occupancy evaluation data using item response theory.	2025	Excluded	Not institutional — general office environment (IRT methods paper)
35	Abdelkrim Benammar et al.	Open-plan office post-occupancy evaluation: inquiring Algerian gender specificity	2018-10-16 00:00:00	Excluded	Not institutional — private/commercial open-plan office
36	Jing Zhao et al.	A review of Comprehensive Post-Occupancy Evaluation feedback on occupant-centric thermal comfort and buildings energy efficiency.	2024	Excluded	Not institutional — residential buildings systematic review
37	Joan Hope et al.	Advocate for universal design across campus	2019-12-18 00:00:00	Included	—
38	Chenhao Zhu et al.	Autonomous universal access A conceptual framework to guide neighbourhood development supporting universal access to autonomous mobility	2026	Excluded	Not a building POE — neighbourhood-scale autonomous-mobility policy framework
39	A H Kalro and Ekta Sharma et al.	Institution Building in Higher Education: IIMK&AU Experiences	October 2016	Excluded	Off-topic — organisational/leadership "institution-building", not architectural POE
40	Gaurav Raheja and Amit Hajela et al.	Accessibility Planning for Higher Education Campuses in India: A Contextual Approach to Universal Design	July 7, 2021	Included	—
41	Peter Weber et al.	The Built Environment as Organizational Capacity: A Post-Occupancy Evaluation of a Child Advocacy Center	2025-06-30 00:00:00	Included	—
42	Kailai Zhou et al.	Climate-adaptive and sustainability-driven passive design prototypes: Healthy natural ventilation strategies for university teaching buildings in high-density urban areas of China	2026	Excluded	No POE conducted — pure CFD/simulation study, no occupant evaluation
43	Ranald Lawrence & Charlotte Keime et al.	Bridging the gap between energy and comfort: Post-occupancy evaluation of two higher education buildings in Sheffield.	2016	Included	—
44	Zack Altizer William J. Canar Dave Redemske Francis Fullam Mike Lamont et al.	Utilization of a Standardized Post-Occupancy Evaluation to Assess the Guiding Principles of a Major Academic Medical Center	2019-01-09 00:00:00	Included	—

S/N	First Author	Title	Year	Decision	Reason for exclusion
45	Galen Cranz et al.	Teaching Through Doing: Post-Occupancy Evaluation Of Berkeley's David Brower Center	March 2016.	Included	—
46	A. Sholanke et al.	Compliance of high-rise buildings vertical accessibility components with universal design strategies: A case study of Covenant University, Ota, Nigeria	2020	Included	—
47	F. Khasawneh et al.	Design quality assessment and investigation of visitors satisfaction of the Jordan Museum using Post-Occupancy Evaluation.	2024	Included	—
48	Gláucia Trindade Pereira et al.	Post-occupancy Evaluation as a Tool for Promoting Sustainability in the Operation and Maintenance of University Buildings	01 May 2026	Included	—
49	Abimbola O. Asojo et al.	Occupants Perception of Indoor Environmental Quality Factors: A Comparison of a LEED Versus Non-LEED Certified Campus Building	2025-04-03 00:00:00	Included	—
50	Ahmad Nizar Al-Khraishi et al.	Maintenance Budget Allocation Assessment Model Based on Integrated Post-occupancy Evaluation of Hospital Buildings.	2021-06-02 00:00:00	Included	—
51	Young Ki Kim et al.	Indoor Environmental Quality Assessment and Occupant Satisfaction: A Post-Occupancy Evaluation of a UAE University Office Building	2022	Included	—
52	M. Ezz et al.	Post occupancy evaluation of architectural design studio facilities	2025	Included	—
53	Hamad Ahmed et al.	Post Occupancy Evaluation of School Refurbishment Projects: Multiple Case Study in the UK	2021	Included	—
54	D. Ikediashi et al.	Post-occupancy evaluation of University of Uyo buildings	2020	Included	—
55	F. Mustafa et al.	Performance assessment of buildings via post-occupancy evaluation: A case study of the building of the architecture and software engineering departments in Salahaddin University-Erbil, Iraq	2017	Included	—
56	Mathieu Bourdeau et al.	Buildings energy consumption generation gap: a post-occupancy assessment in a case study of three higher education buildings	2018	Included	—
57	A. Afolabi et al.	Post-occupancy Evaluation of Building Facilities in a University Community Using an Electronic Platform	2019	Included	—
58	I. El-Darwish et al.	Post occupancy evaluation of thermal comfort in higher educational buildings in a hot arid climate	2018	Included	—
59	Anthony Babatunde Sholanke et al.	DESIGN SOLUTIONS CREATING BARRIERS TO ACHIEVING UNIVERSAL DESIGN COMPLIANCE OF ACADEMIC BUILDINGS IN UNIVERSITIES IN NIGERIA	2019	Included	—
60	Masoud Rahbari OghaniHossein KarimiEghbal Shakeri et al.	Developing an integrated framework for post-occupancy housing quality evaluation in mass housing: a user-centered IPA-gap-Kano approach	2026	Excluded	Not institutional — mass housing (residential)
61	Richard E. Wener et al.	Did that Plan Work? Post-occupancy Evaluation.	2016	Included	—

S/N	First Author	Title	Year	Decision	Reason for exclusion
62	Valerie Watchorn et al.	Enhancing universal design through do-design: perceptions of practice process and outcomes.	2026	Included	—
63	A. Sholanke et al.	Evaluation of Universal Design Compliance at the Main Entrance of Selected Public Buildings in Covenant University, Ota, Ogun State.	2016	Included	—
64	Anja Fleten Nielsen & Iratxe Landa-Mata et al.	Expanding the understanding of universal design beyond technical solutions and physical environment – 8 policy intervention areas	2025	Excluded	Not a building POE — municipal-level UD policy analysis, not a building evaluation
65	Priyanka Yadav et al.	Inclusive Design in Higher Educational Institutes for People with Disability.	2021	Included	—
66	Marjan Ilbeigi et al.	Integrating post occupancy evaluation energy performance metrics using conditional generative adversarial networks for intelligent school design.	2025	Included	—
67	Francois Garde Professor et al.	Monitoring and post-occupancy evaluation of net ZEBs	2017	Included	—
68	Shan Jiang et al.	Opportunities and barriers of using hospital gardens: Comparative Post Occupancy Evaluations of Healthcare Landscape Environments	2018	Included	—
69	Laura B. Cole et al.	Can a Green School Building Teach? A Pre- and Post-Occupancy Evaluation of a Teaching Green School Building	2019	Included	—
70	Himasha Subhasingha & P A P V D S Disaratna et al.	Integration of Post-Occupancy Evaluation into Government Office Buildings to Enhance User Satisfaction	2026	Included	—
71	Ahmed M Shehata et al.	Post-Occupancy Evaluation of School Building Performance	2025	Included	—
72	Md. Sadat Hussain et al.	Thermal Comfort and Usage Patterns of Outdoor Seating in a Tropical University Campus: A Post-Occupancy Evaluation at CUET	2025	Included	—
73	Yu Tian et al.	Post-Occupancy Evaluation of Campus Space Characteristics in New University Campuses in Northeast China: A Case Study of Shenyang Jianzhu University Hunnan Campus	2025	Included	—
74	H.D. Subhasingha et al.	Post occupancy evaluation (POE) in government office buildings: a literature review	2025	Included	—
75	Emeka J. Mba et al.	Impact of Building Plan Shape on Natural Ventilation Efficiency for Thermal Comfort in Educational Facilities: A Post-occupancy Evaluation	2024	Included	—
76	Xing Zhao et al.	Optimization of the space design of the ethnic cultural transmission hall based on post-occupancy evaluation.	2025	Included	—
77	Hongyang Li et al.	Stakeholder impact analysis during post-occupancy evaluation of green buildings – A Chinese context	2018	Excluded	Building type unspecified/general green buildings — not institution-specific
78	Erkılıç, M.	Conceptual Challenges Between Universal Design and Disability in Relation to the Body, Impairment, and the Environment / Where Does the Issue of Disability Stand in the Philosophy of UD?	2011	Included	—

S/N	First Author	Title	Year	Decision	Reason for exclusion
79	Candace I.J. Nykiforuk et al.	Universal accessibility policies across municipalities in Canada: Cities for all people	2026	Excluded	Not a building POE — municipal accessibility policy analysis across Canadian cities
80	Peixian LiThomas M. FroeseGail Brager et al.	Post-occupancy evaluation: State-of-the-art analysis and state-of-the-practice review.	2018	Included	—
81	Francesco Lolli et al.	Post-Occupancy Evaluation's Applications for Improving Indoor Environmental Quality	2022	Included	—
82	Patlakas et al.	A digital curation model for post-occupancy evaluation data.	2021	Included	—
83	Mohammad B. HAMIDA & Mohammad A. HASSANAIN et al.	Post Occupancy Evaluation of Adaptively Reused Buildings: Case Study of an Office Building in Saudi Arabia	2020	Included	—
84	Muizz O. Sanni-Anibire et al.	Quality assessment of student housing facilities through post-occupancy evaluation	2016	Included	—
85	Xiaowei Chen et al.	Post-Occupation Evaluation of Industrial Heritage Transformation into a Mixed-Mode Park Within the Context of Urban Renewal: A Case Study of Hebei, China.	2025	Excluded	Not institutional — industrial heritage park (urban park), not an institutional building
86	Emilie Patricia Dam-Krogh et al.	Scoping review of post occupancy evaluation of office buildings with focus on indoor environmental quality and productivity	2024	Excluded	Not institutional — commercial office buildings scoping review
87	Rafaela Bortolini & Nria Forcada et al.	Association between Building Characteristics and Indoor Environmental Quality through Post-Occupancy Evaluation	2021	Included	—
88	Muizz O. Sanni-Anibire et al.	Holistic Postoccupancy Evaluation Framework for Campus Residential Housing Facilities.	2016	Included	—
89	M. Asaad et al.	Through Institutional Change: College experiences for students with disabilities using universal design for learning.	2025	Included	—
90	Chunyi Dibi et al.	Post-Occupancy Evaluation of Architecture Design Studio Facilities of Abubakar Tafawa Balewa University Bauchi.	2022	Included	—
91	Anis Fathipour et al.	Applying Post-Occupancy Evaluation (POE) to Investigate Inclusive Design in Library Spaces.	2024	Included	—
92	Stfani Ferreira dos Santos de Lima et al.	Post-occupancy Assessment of Building Performance: A Unified Approach	2023	Included	—
93	Matteo Zallio et al.	Exploring Inclusion, Diversity, Equity, and Accessibility in the Built Environment: A Case Study	2024	Included	—
94	eljka Jurkovi & Danijela Lovokovi et al.	Post-occupancy Evaluation of Higher Educational Buildings Purpose, Obstacles and Benefits.	2021	Included	—
95	Valerie Watchorn et al.	Evaluating universal design of built environments: an empirical study of stakeholder practice and perceptions.	2022	Included	—
96	Shufang Chen et al.	Post-Occupancy Evaluation of Industrial Heritage Parks Based on User Perception: A Comparative Study of Three Parks in Changsha, China.	2026	Excluded	Not institutional — industrial heritage park (urban park)

S/N	First Author	Title	Year	Decision	Reason for exclusion
97	Stephen Ikpendu Nwankwo & Chidiuto Victoria Nwankwo et al.	Post-occupancy evaluation of public and private building architectural design performance in the tropical rainforest climate of Owerri, Southern Nigeria.	2025	Excluded	Building type mixed public/private, not clearly institutional
98	Wibisono Bagus Nimpuno et al.	POST-OCCUPANCY EVALUATION: THE APPLICATION OF UNIVERSAL DESIGN IN HAYRETTIN PAŞA SQUARE, ISTANBUL.	2017	Excluded	Not a building POE — urban public square, not an institutional building
99	Chris Roberts et al.	POST-OCCUPANCY EVALUATION: PROCESS DELINEATION AND IMPLEMENTATION TRENDS IN THE UK HIGHER EDUCATION SECTOR.	2021	Included	—
100	Zallio et al.	The Inclusion, Diversity, Equity and Accessibility Audit: A Post-Occupancy Evaluation Method to Help Design the Buildings of Tomorrow	2022	Included	—