

Quiet Corners: A Study of Designing Silent Zones

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Abstract - This paper has a literature based critical review of silent zones, with focus on their design, planning, principles, and implementations. This review synthesizes acoustic performance, design principles, restorative environment theories, and regulatory frameworks associated with quiet public spaces.

The methodology engaged analysis of the reviews, WHO standards, government noise regulations, and design manuals.

Key findings indicate that architecturally designed quiet spaces and silent retreats offer viable, health-promoting alternatives to chronic urban noise exposure for residents in rapidly urbanizing Indian cities. Nevertheless, regulatory gaps, enforcement challenges, and limited public awareness pose significant constraints to widespread adoption.

Key Words: acoustic design, biophilic design, Indian noise regulations, restorative environments, silent retreats, urban noise pollution

1. INTRODUCTION

Urban noise pollution is unwanted or harmful sound in cities, mainly produced by traffic, industry, construction, public gatherings, and dense crowds, which becomes particularly damaging when it exceeds recommended limits, with the World Health Organization treating levels above about 65 dB as pollution, around 75 dB as harmful, 120 dB as painful, and even 30–40 dB at night as enough to disturb sleep and health. The study's objectives are to examine case studies of effective quiet-space interventions, analyse architectural design principles for quiet retreats and quiet zones in urban contexts, assess regulatory frameworks and implementation challenges in Indian cities, evaluate spatial, material, and acoustic strategies for restorative environments, and suggest integrated design guidelines for architects and urban planners. Its concentration on site- and building-level silence rather than broader urban-scale noise sources or

city-wide policy measures limits its reach because results cannot be fully generalized across diverse climates, building types, or user groups. In order to identify common strategies and context-specific variations that can guide future design practice, the methodology entails choosing well-documented examples of silent retreats, meditation centres, and quiet zones in India and overseas, gathering secondary data from books, online sources, and prior theses, compiling information on noise levels, spatial zoning, and material specifications from reports and repositories, and comparing these case studies. (Organization., (2018)) (Board, 2023)

2. LITERATURE STUDY

Reduce disturbance for the local populace, the Roman Emperor Julius Caesar prohibited wheeled carts and chariots from traveling through Rome's city limits at night in 44 BC. Later, major European cities implemented sporadic bans and curfews on street vendors, musicians, and bell ringers during the medieval and early modern eras, even though organized legal frameworks lagged other public health regulations. This is where the historical evolution of noise standards and quiet space recognition begins. The Bennett Act of 1907 in the United States, which resulted from early twentieth-century campaigns by activists like Julia Barnett Rice to limit needless noise from steamboat whistles, the Chicago Zoning Ordinance of 1957, which is frequently cited as the first urban law to specify maximum acceptable community noise levels, and, by the 1960s, the UK Noise Abatement Act, which officially recognized noise as a statutory public nuisance. There is growing evidence that prolonged exposure to noise might have negative consequences on the heart, metabolism, and psyche. The scientific community in the late 1960s began to frame noise as a major public health concern. The World Health Organization established evolving standards for noise levels in workplaces, schools, hospitals, and communities through its Environmental Health Criteria documents of 1980, 1995, and 1999. The 1999 guidelines set a threshold of 50 dB LAeq for significant daytime annoyance and a

40 dB target at night to protect healthy sleep. The 2018 WHO European Region "Environmental Noise Guidelines" further updated these benchmarks with data on chronic illnesses and cognitive impairment in children. The 2000 "Noise Pollution (Regulation and Control) Rules," which separated urban land into four zones—commercial, residential, industrial, and silent—prescribed maximum ambient noise limits for each category, mandated silence zones within 100 meters of courts, hospitals, schools, and places of worship, and prohibited the use of public address systems between 10 p.m. and 6 a.m., marked the culmination of legal progress in the Indian context following the Environment (Protection) Act of 1986 gave the central government the authority to address pollutants, including noise. Even though the Central Pollution Control Board published guidelines for reporting, monitoring, and local government enforcement, ongoing issues with public awareness, enforcement, and monitoring still make it difficult to effectively protect quiet spaces in practice. (Board, 2023) (Organization., 2018) (Commission., 2020)

Since research on meditation and retreat spaces demonstrates that the arrangement of spaces directly affects both acoustic performance and psychological stillness, architectural design concepts for silent retreats pay a heavy emphasis on spatial configuration and layout. Retreat buildings should ideally be located away from commercial activity centres, industrial zones, and major traffic arteries. When urban locations cannot be avoided, orientation, planning, and buffer zones become essential tools for protecting interiors from noise. Integration of courtyards and gardens is equally important because interior courtyards, flagstone gardens, and perforations in the building envelope create interior green spaces that serve as natural sound buffers and visual sanctuaries. Additionally, a consistent relationship between indoor spaces and these planted courts improves the environment's restorative quality. Through layered thresholds like buffer zones, semi-open transitional spaces, and core quiet areas, a carefully planned sequential spatial progression is used to transition users from external urban noise to internal silence, preparing occupants both physically and psychologically for a silent experience. According to this framework, minimalist interior design promotes tranquillity by relying on natural ventilation, straightforward forms, and uncluttered layouts to create spaces that promote inner peace and sustained focus, minimizing circulation and cross-movement, and avoiding electronic devices wherever possible

(ArchDaily., Internal Acoustics: Effective Noise Mitigation Techniques in Architecture, 2022).

To produce serene, well-controlled sound environments, acoustical design solutions for silent rooms integrate passive and active approaches. The goal of passive acoustic measures is to reduce noise before it reaches the listener by modifying the interior finishes and building fabric. Carpets, acoustic ceiling tiles, fabric wall panels, and upholstered furniture are examples of sound-absorbing materials that assist absorb sound waves and lessen reverberation, which is crucial in spaces with lots of hard surfaces. Thick earthen walls, concrete, or dense plasterboard can increase the mass and density of building envelopes and assist block airborne sound from outside sources. Research has also shown that heavy earthen walls provide valuable thermal mass in addition to sound attenuation. The building envelope itself serves as a continuous noise barrier since double-glazed or specially constructed acoustic windows and facades further restrict noise ingress. To improve overall acoustic comfort, noisy service or functional areas are strategically placed away from spaces used for meditation, therapy, or sleeping. This planning is combined with interior materials that absorb sound. This base is then expanded upon by active acoustic design, which uses sound to control sound. Fountains and small waterfalls are examples of water features that produce soft, continuous sound that muffles background noise and produces a psychoacoustic impact that makes undesirable urban sounds less obvious while encouraging contemplation and relaxation. Tree belts, urban forests, green walls, and rooftop gardens are examples of vegetation and green buffers that help by absorbing and dispersing sound waves, lowering noise levels along boundaries, and simultaneously enhancing the microclimate and aesthetic quality. Dense tree planting along site edges can dramatically lower perceived noise while framing quieter interior courts. Lastly, buildings themselves can be used as acoustic shields. Designers employ the building envelope and massing as large-scale sound barriers that minimize direct exposure and promote the experience of silence in important interior and exterior spaces by orienting blocks so that noisy sides face roads or other sources and placing the most quiet-sensitive functions in the acoustic "shadow" of these masses. (Kaplan & Kaplan, 1989) (Ministry of Environment, 2000)

To promote peaceful, grounded experiences, natural textures and components are given priority in the material selection and sensory design of silent retreats. Large window openings framing outdoor views are advised for

retreat and meditation rooms to visually and psychologically extend the interior into the landscape. Natural materials, unprocessed surfaces, planting elements, and water components are emphasized in retreat architecture because they foster harmony, inner peace, and a sense of unity with nature, which is especially important in the interior areas of quiet retreat centres. A. This ambiance is further reinforced by a minimalist design, which employs restraint so that every architectural element communicates tranquillity: walls convey a revitalized sense of calm, arched windows serve as channels for regulated daylight, and muted tones paired with straightforward geometry allow sunlight to move gently across pale stone or similar flooring so that nothing visually "shouts" but everything quietly resonates. These effects are further enhanced by biophilic design integration, as studies reveal that adding natural elements like plants, indoor vegetation, plenty of natural light, and framed views of the outdoors not only enhances sound absorption and softens acoustics but also is aesthetically pleasing and psychologically restorative, supporting both mental health and acoustic performance through a cohesive, nature-connected design approach. (Copernicus., 2018)

When choosing places for spiritual retreat centres, the environment and site conditions are particularly important, and a thorough site study is necessary. Because naturally low ambient noise minimizes the need for expensive acoustic mitigation measures and promotes an innately tranquil ambiance, ideal sites are characterized by less urban activity and traffic. Strong integration with the surrounding bodies of water, topographical variety, and existing vegetation all contribute to the landscape's restorative visual qualities as well as its natural acoustic buffers, which frame serene views and muffle outside sounds. Finally, a successful

Retreat site must strike a balance between seclusion and accessibility. While being far from crowded cities helps maintain tranquillity, visitor access via reasonable travel times and connections is still essential, necessitating a thoughtful balance between quiet seclusion and useful connectivity. (ArchDaily., 2016)

Quiet area regulations are increasingly based on international best practices, with European methods offering significant examples for execution. In order to discover and prepare for regions with good acoustic quality rather than seeing them as spare space, a crucial tactic is quiet area mapping, which uses sophisticated noise mapping techniques to locate both current quiet

green spaces and possible sites for quiet zone development. (Kaplan & Kaplan, 1989)

Building on this, legal designation and protection mechanisms formally recognize specific quiet areas in policy and planning documents, guaranteeing that they receive long-term protection through development restrictions, zoning controls, and dedicated management so that their environmental and acoustic quality is maintained over time rather than progressively deteriorated by nearby urban growth. (Organization., (2018))

3. CASE STUDY

The Dhamma Giri Vipassana International

In Igatpuri, one of the world's largest meditation centers, designed exclusively to promote silent, distraction-free retreats for practitioners.

The central meditation hall, which accommodates over 8,000 people, uses concentric circular planning, thick masonry walls, and layered landscaping to minimize external noise and visual intrusion (Global Pagoda, 1996; Dhamma Giri, 2023).

Design guidelines emphasize isolating meditation cells, buffer zones of planting, and natural materials that promote acoustic absorption and psychological calm (Bamboo Earth Architecture, 2022).

The site demonstrates how spatial arrangement, material choices, and landscape integration collectively foster an environment of deep silence suitable for prolonged meditation retreats. (Bhramanti)

Cubbon Park, Bengaluru (Urban Quiet Zone/Green Refuge)

Cubbon Park, a historic green oasis at the heart of Bengaluru, spans over three hundred acres and demonstrates how careful site planning, dense vegetation, and buffer landscaping can create pronounced zones of quiet within a busy city.

The park's mature canopies, layered planting, and sunken pathways attenuate both vehicular and urban noise, while the spatial zoning allows for true acoustic and psychological respite (Urban Design Lab, 2025; The News Minute, 2025) (Lab).

Specific design elements, such as mounded lawns, water features, and hedged walking trails, further separate

active and passive recreational zones and preserve areas of deep calm. (Lab)

Upper Bhagsunag, Dharamsala, Himachal Pradesh (Mountain Retreat)

Upper Bhagsunag is a hill settlement above McLeodganj and Bhagsu village in Dharamsala, known for its quiet, less crowded character compared to the busy temple-and-waterfall zone below. Perched on forested slopes with deodar and other Himalayan vegetation, it sits slightly away from the main motorable road, so access often involves climbing long flights of stone steps. This separation from traffic, markets, and day-tourist flows makes Upper Bhagsunag attractive for homestays, hostels, and yoga centres that emphasize silence, views, and retreat from city life. The area overlooks the Kangra Valley and Dhauladhar range, giving many small guesthouses and cafés elevated terraces with expansive mountain and valley vistas that support a contemplative atmosphere.

Several yoga and meditation centres highlight Upper Bhagsu's calm atmosphere and "spiritual energy," describing it as largely free from city noise and suitable for deepening practice. Retreat operators and wellness centres note that limited vehicle access and stepped terrain reduce through-movement, creating a naturally quiet acoustic environment dominated by wind, birds, and distant village sounds. At the same time, the settlement remains within walking distance of Bhagsunag Temple and Bhagsu waterfall, allowing visitors to combine pilgrimage and nature walks with relatively undisturbed overnight stays uphill. Tourism-oriented descriptions present Upper Bhagsunag as part of a network of "serene mountain hamlets" (with nearby Dharamkot) that offer calm, small-scale guesthouses rather than large hotels. For an architectural quiet-zone or retreat case study, Upper Bhagsunag thus represents a compact hillside fabric where topography, restricted vehicular access, and dispersed small buildings together support low background noise and opportunities for restorative, silence-oriented uses. (Hosteller)

4. FINDINGS (SYNTHESIS FROM LITERATURE)

Spatial planning, material selection, and acoustic methods must be carefully integrated in order to produce design and acoustic variety in quiet zones and silent retreats that support restorative activities in terms of both sound levels and user experience. According to research published, spaces that are both acoustically quiet and psychologically

serene can be created by combining spatial design aspects including courtyard integration, a sequential spatial development from loud outward edges to calm interior cores, and careful site selection. In terms of acoustic performance, noise levels can be lowered by about 10–15 dB or more by combining passive techniques like sound-absorbing materials, high-mass structures, and acoustic glazing with active techniques like water features, vegetation buffers, and noise-shielding building orientation. This is usually enough to meet suggested criteria for quiet places. Simultaneously, the combination of natural, sound-absorbing finishes and biophilic elements improves material efficacy. This combination not only enhances acoustic comfort but also provides strong psychological and restorative benefits, reinforcing the overall sense of calm that characterizes successful retreat spaces. (Central Holubchak, 2017)

There are substantial, multifaceted advantages for health and wellbeing when one has access to calm, quiet, and restorative areas. By lowering blood pressure, lowering the risk of hypertension, preventing noise-induced hearing loss, and improving the depth and continuity of sleep—all of which lessen long-term load on the body—quiet environments physically support cardiovascular health. Regular time spent in peaceful settings helps reduce stress, enhances focus and attentional control, promotes cognitive recovery following periods of intense concentration, and can boost creativity by allowing the brain more freedom to process information. Social cohesiveness and a sense of shared responsibility for the health of the community are strengthened by well-planned, peaceful public spaces that provide accessible, affordable restorative environments. (Commission., Quiet Areas, Soundscaping and Urban Sound Planning. Directorate-General for Environment., 2020) (Environmental Protection Department, 2024)

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health of the community are strengthened by well-planned, peaceful public spaces that provide accessible, affordable restorative environments. (Kang, 2016) (Aletta, 2018)

5. DISCUSSIONS

Since silent retreats and quiet zones draw on well-known practices of silence and inward focus rather than introducing completely new behaviour, they are culturally consistent with India's strong traditions of meditation, spirituality, and contemplative settings. Innovative architectural solutions, such as rooftop gardens, internal courtyards, vertical green buffers, and acoustically treated facades, are required to carve out peaceful areas within small, noisy developments since increased urban congestion puts strain on land and soundscapes. The need to treat quiet space provision as a public health intervention rather than a luxury is highlighted by documented public health implications of noise, such as high percentages of persons experiencing migraines, hypertension, disturbed sleep, and decreased productivity. As a result, a number of planning and policy suggestions are made. A broader range of quiet areas, such as parks, meditation and retreat centres, and small public quiet corners, with distinct acoustic performance targets—for instance, ambient noise below about 45 dB for meditation interiors and below about 50 dB for silent parks—can be included in the definition of silent zones to strengthen the regulatory framework. Quiet space planning should be incorporated as crucial urban infrastructure in masterplans and development control legislation, and city-scale quiet area mapping should be utilized to find possible new quiet zones and identify existing quiet pockets for preservation. In order to encourage private developments to include publicly accessible quiet areas, implementation support would then include demonstration projects in various urban contexts, professional training for architects, landscape architects, and planners on acoustic and quiet-space design, incentives like tax breaks, recognition programs, or additional FSI, and public awareness campaigns about the health benefits of quiet and expected behaviour in these spaces. Finally, to guarantee that designated quiet areas function as intended, strict enforcement and monitoring are required. This may entail putting in place real-time noise monitoring in quiet areas and making the data available to the public, bolstering enforcement mechanisms with explicit sanctions for infractions and specialized personnel to oversee quiet zones, and carrying out frequent post-occupancy assessments using

acoustic measurements and user satisfaction surveys to improve design parameters and direct subsequent projects.

6. CONCLUSIONS

For Indian areas suffering from chronic noise pollution, architecturally designed quiet retreats and quiet zones offer technically feasible and health-promoting spatial solutions, according to this literature-based review.

The WHO and CPCB requirements for restorative settings can be met by well-planned quiet spaces that incorporate suitable spatial configuration, acoustic methods, material selection, and landscape integration, according to design evidence.

Acoustic studies show that active strategies (vegetation buffers, water features, building orientation) combined with passive strategies (massive construction, sound-absorbing finishes, strategic zoning) can reduce noise exposure by 10–15 dB or more, which is sufficient to create effective quiet zones even in difficult urban contexts. Such areas offer quantifiable health benefits, such as stress relief, better sleep, increased focus, and cardiovascular protection, according to environmental psychology study. Although design and acoustic performance are well-supported, implementation is still constrained by planning integration issues (quiet spaces are peripheral to masterplans rather than essential infrastructure), regulatory gaps (insufficient quiet space typologies in regulations, lack of architectural standards, weak enforcement), and low public awareness of health benefits. Thus, public education, demonstration projects, regulatory improvement, and comprehensive architectural design principles are essential for mainstreaming.

According to available data, quiet zones and silent retreats are both acoustically and architecturally feasible for Indian cities and should be implemented systematically through institutional, policy, design, and community involvement initiatives. Quiet space planning is a crucial public health infrastructure investment that addresses the known effects of noise pollution on majority populations in fast urbanizing contexts.

6. FUTURE RESEARCH SCOPE

Create climate-specific design principles with suitable passive methods for each of India's several temperature zones, such as hot-humid, composite, and hot-dry. Record actual acoustic performance, user happiness, and

design efficacy, conduct post-occupancy assessments of current meditation centres and retreat facilities in Indian cities.

Investigate innovative acoustic building materials and methods that make use of affordable, sustainable, and locally available resources suitable for Indian construction settings.

Examine the best landscaping techniques and spatial arrangements for establishing peaceful areas amid the densely populated urban fabric of Indian cities.

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