

Built Environment · Urban Design · Public Health

Healthy City by Design

A Built Environment Practitioner's Guide for Healthier Cities, Buildings, and Neighborhoods

6 Pillars · 5 Certification Frameworks · 25 Design Strategies · 5 Case Studies



Where This Started

I didn't set out to write a guide about cities and public health.

I went to Copenhagen and noticed something I couldn't stop thinking about. People were moving — on bikes, on foot, through parks, along waterfronts. Not because they'd scheduled a workout. The infrastructure was built for it. The city had decided, through thousands of design decisions, that movement was a normal part of daily life rather than a special effort.

Then I went to Norway. Healthy behavior wasn't aspirational there. It was structural. The trails connected. The food environments were different. The buildings were built to standards that addressed sleep and air quality and daylight in ways that American construction codes hadn't caught up to.

I came home and looked at the city I live in with fresh eyes. Same chronic disease statistics as everywhere else in America. The knowledge of what produces health was not the problem. The built environment was the problem. That's where this guide comes from.

THE CENTRAL ARGUMENT

The most powerful health intervention available to any city is not a clinical program. It is not a wellness campaign. It is not a public health awareness initiative.

It is the built environment.

Where you put the sidewalk determines whether people walk. Where you put the grocery store determines what people eat. Whether the bedroom is quiet and dark and cool determines whether people sleep. Whether the neighborhood has trees and parks determines whether people recover from the stress of daily life. These are not marginal effects. They are the primary drivers of the chronic disease burden that consumes healthcare systems and shortens lives at scale.

The hospital at the end of the road is the wrong place to start a conversation about health. The road itself is the right place.

THE EVIDENCE

10–20 yrs

Life expectancy gap between wealthy and low-income neighborhoods in the same metro area — driven by built environment factors, not genetics or individual choice.

80%

Of health outcomes are driven by social determinants — the conditions in which people live, work, and age. The built environment shapes nearly all of them.

\$411B

Annual US economic cost of sleep deprivation — driven significantly by urban noise, light pollution, and thermal discomfort. A design problem with design solutions.

WHO THIS IS FOR

Urban planners, architects, landscape architects, building owners, developers, sustainability consultants, green building professionals, public health practitioners, and anyone making decisions about the built environment and wanting to make them better.

The framework applies across every sector and building type where the quality of the built environment determines the health of the people inside it: commercial office, mixed-use residential, parks, schools, universities, healthcare facilities, hospitality, corporate campuses, senior living, and existing building retrofits.

You don't need to read this cover to cover. Each section is self-contained. Start with the pillar most relevant to your current project. Use the design strategy boxes as checklists. Use the certification callouts to find the specific credits that apply.

Six Pillars of Healthy City Design

The six pillars represent discrete domains of health that the built environment can directly influence. Each has its own biology, its own research base, and its own design responses. They are not a checklist. They are a system — and their absence compounds in the same neighborhoods, the same zip codes, the same populations.

01 Movement	The city as gym. Walkability, cycling infrastructure, stair design, active workplaces, parks, and recreational corridors. The most studied pillar and the most consistently underdelivered.
02 Nutrition	The city as nutritionist. Food desert mapping, zoning for food equity, urban agriculture, cafeteria design, vending standards. Food deserts are not a failure of willpower — they are a failure of planning.
03 Mental Health	The city as therapist. Biophilic design, nature exposure, sensory stress reduction, social infrastructure, safety, and perceived security. The built environment is a psychological environment.
04 Sleep ♦	The city as recovery system. Acoustic design, dark sky lighting, thermal comfort, circadian biology. The most overlooked pillar. Cities are systematically disrupting sleep through decisions made with no awareness of the health implications.
05 Self-Care	The city as support system. Restorative spaces, indoor environmental quality, healthcare access, the permission to stop. Self-care is a design challenge, not a lifestyle habit.
06 Prevention	The city as immune system. Legacy contamination, urban heat, air quality, climate resilience, health equity. The upstream pillar — and the one with the longest time horizon.

Sleep is the pillar that distinguishes this guide from most frameworks. It is not a sub-category of mental health. Its design levers — acoustic insulation, dark sky lighting, thermal mass, circadian lighting systems — are specific, well-documented, and too often overlooked. Part V addresses it in full.

HOW THE PILLARS INTERACT

A neighborhood with good active transportation infrastructure tends to also have mixed-use zoning that puts grocery stores within walking distance. Those same walkable neighborhoods tend to have more street life and lower rates of loneliness. Neighborhoods with tree canopy also create cooling corridors that reduce urban heat island effects — which directly affects sleep.

The inverse is equally true. Car-dependent neighborhoods produce sedentary residents, food deserts, social isolation, sleep disruption from traffic noise, and concentrations of environmental health risk — all at once, in the same zip code. Optimizing one pillar without considering the others produces incomplete outcomes. The framework makes the gaps visible.

Five Certification Frameworks

LEED, WELL, Fitwel, SITES, and BREEAM are not interchangeable. Each has a different focus, a different scale, and a different level of rigor. Understanding how they relate to each other and to the six health pillars is more useful than treating them as competing systems.

LEED — Leadership in Energy and Environmental Design

The broadest and most adopted. Covers energy, water, materials, site, and indoor environmental quality. The baseline standard for most commercial green building projects in North America. Its relative limitation as a health framework is that environmental performance and human health are proxies for each other in LEED — not the same thing. Use it as the foundation.

WELL Building Standard

The most health-science-grounded. Its ten concepts — Air, Water, Nourishment, Light, Movement, Thermal Comfort, Sound, Materials, Mind, and Community — map almost directly to the six pillars of this guide. The right framework when human health is the primary objective and budget supports its rigorous documentation requirements. The gold standard.

Fitwel

The most accessible and cost-effective. Developed by the CDC and GSA. Addresses active design, food access, and community health through a straightforward scorecard with no third-party performance testing required. The right entry point for existing buildings and projects where full WELL certification is not feasible.

SITES v2 — Sustainable SITES Initiative

The landscape and site counterpart to LEED and WELL. The framework for projects with significant outdoor scope — parks, greenways, school grounds, campuses, urban plazas. When the outdoor environment is the health intervention, SITES is where the standards live.

BREEAM — Building Research Establishment Environmental Assessment Method

The dominant standard outside North America. For practitioners collaborating with international clients or firms — particularly European and Nordic AEC firms — BREEAM literacy is essential. Its Communities standard is the most comprehensive neighborhood-scale health assessment in any certification system.

PILLAR-TO-FRAMEWORK COVERAGE MATRIX

No single framework covers all six pillars with equal depth. The table below shows where each framework has the strongest guidance. ♦♦ = primary coverage ♦ = secondary ◦ = limited.

PILLAR	LEED	WELL	Fitwel	SITES	BREEAM
Movement	♦	♦♦	♦♦	♦♦	♦
Nutrition	◦	♦♦	♦♦	♦	◦
Mental Health	♦	♦♦	♦	♦♦	♦♦
Sleep	♦	♦♦	◦	◦	♦
Self-Care	♦♦	♦♦	♦	◦	♦♦
Prevention	♦♦	♦	♦	♦♦	♦♦

WELL is the only framework with primary coverage across movement, nutrition, mental health, and sleep simultaneously. Fitwel is the practical entry point for projects where full WELL certification is not feasible. SITES is the outdoor complement — strongest on movement and mental health through landscape design. No single framework produces a whole-person healthy building or neighborhood. The highest-performing projects stack frameworks intentionally.

Design Strategies: Pillar by Pillar

PILLAR 1 — MOVEMENT & PHYSICAL ACTIVITY

The most effective exercise program in the world is one people never have to decide to start.

Copenhagen does not have a cycling culture because Danes are more disciplined than Americans. It has a cycling culture because the city made cycling faster, safer, and more convenient than driving. When the environment changes, behavior follows — not because people made a new commitment, but because the path of least resistance shifted.

Regular physical activity reduces all-cause mortality by 30 to 35 percent. It is more effective than medication for treating mild to moderate depression. The dose required is modest — 22 minutes of moderate activity per day captures the majority of the benefit. The barrier is almost never the amount. The barrier is the environment.

28%

More physically active residents in walkable neighborhoods compared to car-dependent areas — independent of demographics, income, or individual health consciousness (Ewing & Handy, 2009).

HIGHEST-RETURN MOVEMENT INTERVENTIONS

1. Walkable street networks with short block lengths, mixed uses, and pedestrian-priority design. Destination density — the number of useful places reachable on foot — is the primary driver of walking behavior.
2. Protected cycling infrastructure physically separated from motor vehicle traffic. Painted lanes attract experienced cyclists. Physical separation changes who cycles — and that is the population whose health you are changing.
3. Transit-oriented development. Transit riders accumulate 8,500 steps per day vs. 4,800 for car commuters — purely through incidental walking embedded in the commute.

4. Active stair design: locate stairs centrally and visibly adjacent to elevator lobbies, design stairwells with natural light and artwork, and post point-of-decision prompts. Increases stair use 50–150 percent with no other intervention.

5. End-of-trip facilities in workplaces: secure covered bike parking, showers, and lockers. Remove the practical friction and the cycling commuter population expands dramatically.

WELL
Movement — M01
& M07

WELL requires bicycle facilities and end-of-trip amenities as preconditions for the Movement concept. Stair accessibility feature requires stairs to be visually prominent from main building entries.

Fitwel
Active Design —
Stairs

Fitwel awards credits for stair visibility, stair access from the main entrance, and motivational signage at elevators — one of the most cost-effective credits in the scorecard.

PILLAR 2 — NUTRITION & FOOD ACCESS

A neighborhood without a grocery store is not a neighborhood with a food preference problem. It is a neighborhood with a planning problem.

Diet is the single largest contributor to the global burden of disease. Heart disease, type 2 diabetes, stroke — all have dietary patterns as primary risk factors. The research on what constitutes a healthy diet is fairly consistent. None of it is useful to a person who lives in a neighborhood where the nearest option is a convenience store.

39M

Americans live in food deserts — low-income areas more than one mile from a supermarket. The distribution follows income and race lines with striking consistency (USDA, 2021).

HIGHEST-RETURN NUTRITION INTERVENTIONS

1. Zoning strategies: incentives for healthy food retail (tax abatements, below-market land) and restrictions on fast food density in targeted areas. The food environment is a legitimate subject of land use regulation.

2. Corner store conversion programs: grants and technical assistance to expand fresh produce offerings in existing small-format retailers. Faster and cheaper than full supermarket recruitment.

3. Cafeteria behavioral design: salad bar at entrance increases consumption 100–300 percent. Default plate size is the single most effective portion-size intervention. Prominent placement is dietary policy.

4. Healthy vending standards: require 30–50 percent of inventory to meet nutritional criteria. Install water bottle filling stations — the most cost-effective single vending intervention available.

5. Urban agriculture: community gardens produce 3.5x higher fruit and vegetable consumption among participants. Secure land tenure through city ownership or community land trusts is the primary determinant of long-term program survival.

WELL
Nourishment —
N01–N07

WELL requires fresh fruits and vegetables available and prominently positioned in all building food service areas. Features N02–N07 cover nutritional labeling, food advertising standards, and mindful eating environments.

PILLAR 3 — MENTAL HEALTH & STRESS REDUCTION

*Loneliness is as dangerous to health as smoking fifteen cigarettes a day.
Cities are full of people and producing it at scale.*

Sensory stress is chronic, invisible, and cumulative. Noise, crowding, the absence of nature, the presence or absence of social infrastructure — these shape cortisol levels, anxiety, and depression rates. The environment is a psychological environment. Biophilic design, social space, and sensory management are not amenities. They are interventions with measurable outcomes.

8.6%

Reduction in antidepressant prescriptions in neighborhoods with the highest tree canopy coverage vs. lowest — a population-level effect of green infrastructure on mental health (Marselle et al., 2020).

120 min

Weekly nature exposure associated with significantly better health and wellbeing outcomes. Below this threshold, benefits declined sharply (White et al., 2019).

HIGHEST-RETURN MENTAL HEALTH INTERVENTIONS

1. Biophilic design: living plants at meaningful scale, water features, natural materials, views of natural landscapes. A single large mature tree provides cooling equivalent to 10 room-sized air conditioners — and measurably reduces cortisol.
2. Urban tree canopy: a 10 percent increase in neighborhood tree canopy produces health benefits equivalent to being seven years younger or earning \$10,000 more per year.
3. Third places: cafes, parks, libraries, community centers that are neither home nor work. Their elimination through single-use zoning is a primary driver of urban loneliness. Design them with moveable seating, shade, and no commercial pressure to leave.
4. Acoustic quiet zones: in workplaces, libraries, hospitals, and transit stations. The demand for sensory recovery environments increases with urban density. Quiet zones are public health infrastructure.
5. CPTED safety design: natural surveillance, active frontages, adequate lighting, and unobstructed sightlines. Fear of crime is a more effective barrier to physical activity than distance.

<p>WELL Mind — M04 & M05</p>	<p><i>WELL requires that a percentage of regularly occupied spaces have views to natural environments and credits dedicated restorative spaces accessible to building occupants.</i></p>
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<p>SITES v2 Human Health & Wellbeing — 8.3</p>	<p><i>SITES credits the design of spaces for psychological restoration, including seating, shade, water features, and natural elements that invite restorative engagement.</i></p>
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PILLAR 4 — SLEEP & RESTORATIVE ENVIRONMENTS

Every hour of sleep lost is not just an hour of rest missed. It is a biological maintenance cycle interrupted — with consequences that compound nightly across a lifetime.

Sleep is the most biologically active period of the human day. The glymphatic system flushes toxic metabolic byproducts including amyloid proteins associated with Alzheimer's. The immune system consolidates. Memory consolidates. None of this happens adequately in less than seven to nine hours. Cities are systematically preventing it through four environmental mechanisms — all addressable through design.

1 in 3

American adults do not meet sleep recommendations. The urban sleep deficit tracks socioeconomic and racial lines. Low-income neighborhoods experience higher noise levels, more impervious surface, and worse heat island effects.

48%

Higher risk of heart disease associated with chronic short sleep, independent of other cardiovascular risk factors (Cappuccino et al., 2011).

The four urban sleep disruptors — and their design responses:

SLEEP DISRUPTORS AND DESIGN RESPONSES

1. Noise: Traffic, aircraft, and freight noise activate the sympathetic nervous system during sleep even below the threshold of conscious arousal. Response: bedroom orientation away from primary noise sources (zero cost); acoustic glazing in thermally broken frames; mechanical ventilation with heat recovery (MVHR) that allows windows to stay closed without sacrificing fresh air.

2. Artificial light at night: Blue-spectrum LED streetlights suppress melatonin 50 percent more aggressively than the warm-spectrum sources they replaced. Response: 2700K or below color temperature for all exterior lighting; full-cutoff fixtures; adaptive dimming controls after midnight; blackout-capable window treatments as standard specification in all residential bedrooms.

3. Urban heat island: Cities run 5–10°F warmer than surrounding areas on summer nights. Core body temperature must drop to initiate sleep. Response: urban tree canopy (a single large tree provides cooling equivalent to 10 room-sized air conditioners); cool roofs and permeable pavement; passive ventilation design that allows night purge cooling.

4. Stress hypervigilance: Chronic low-grade sympathetic nervous system activation from noise, safety concerns, and housing instability makes sleep onset difficult. Response: address the underlying neighborhood conditions. Sleep hygiene advice to people whose environment is actively working against them is insufficient.

WELL
Sleep — Full
Concept

WELL's Sleep concept is the most comprehensive certification framework for sleep-supportive building design. Addresses all four disruptors through acoustic performance, light at night, thermal conditions, and occupant education.

<p>BREEAM Health & Wellbeing — Hea 05</p>	<p><i>BREEAM sets performance-based acoustic standards for building interiors including maximum ambient noise levels from external sources. Most specific sleep-protective acoustic standard in any certification framework.</i></p>
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PILLAR 5 — SELF-CARE INFRASTRUCTURE

Modern cities are extraordinarily good at stimulation. They have almost no infrastructure for its opposite.

Self-care in this guide means the conditions that allow the human organism to recover from the demands placed on it — rest, quiet, unstructured time, environments that do not require performance or vigilance. People spend roughly 90 percent of their lives indoors. The quality of that indoor environment — air, water, thermal comfort, acoustic performance — is a primary health determinant.

<p>2–5x</p>	<p>Higher concentration of common pollutants in indoor air compared to outdoor air. A persistent finding across residential and commercial building studies (EPA, 2022).</p>
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<p>15%</p>	<p>Improvement in cognitive performance scores associated with doubling ventilation rates from minimum code levels (Allen et al., 2016, Harvard T.H. Chan).</p>
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<p>HIGHEST-RETURN SELF-CARE INTERVENTIONS</p>	
<p>1.</p>	<p>Ventilation at 150 percent of ASHRAE 62.1 minimum for all occupied spaces where cognitive performance matters. The productivity return exceeds the energy cost in almost every building type.</p>
<p>2.</p>	<p>Low-VOC and zero-VOC material specifications for all interior finishes, adhesives, and sealants. The incremental cost over standard products is minimal; the air quality improvement is substantial.</p>
<p>3.</p>	<p>Lead-free plumbing specifications and point-of-use filtration certified to NSF/ANSI Standard 53 at all drinking water outlets in buildings where legacy plumbing cannot be confirmed lead-free.</p>

4. Restorative outdoor spaces with comfortable seating, shade, water features, and natural elements within a 5-minute walk. Twenty minutes in restorative green space produces measurable cortisol reduction.

5. Quiet zones in workplaces, libraries, hospitals, and transit stations. Not just acoustically controlled rooms — spaces with a social norm that protects their function as recovery environments.

WELL
Air — A01–A09

WELL's Air concept is the most comprehensive building certification framework for indoor air quality. Covers ventilation rates, filtration efficiency, VOC limits, combustion prohibition, and moisture management.

PILLAR 6 — PREVENTION & RESILIENCE

Health inequity is not a natural phenomenon. It is a design outcome. And design outcomes can be changed.

Every health disparity documented in this guide has a geographic correlate that tracks race and income. The worst air quality, the least green space, the highest noise levels, the most contaminated soil, the most severe urban heat — these are concentrated in the same neighborhoods that have been systematically excluded from the planning decisions that produced these conditions. This is not coincidence. It is the accumulated consequence of discriminatory zoning, redlining, and disinvestment.

\$6.35

Return for every \$1 invested in green infrastructure for stormwater management — from avoided costs, property value increases, energy savings, and health benefits combined (Trust for Public Land, 2020).

450,000+

Estimated brownfield sites in the United States — former industrial and commercial properties with known or suspected contamination, concentrated in low-income urban communities (EPA, 2023).

HIGHEST-RETURN PREVENTION INTERVENTIONS

1. Extreme heat mitigation: urban tree canopy, cool roofs, permeable pavement, and green infrastructure. Heat kills more Americans annually than all other weather events combined. The urban heat island amplifies severity by 5–15°F.
2. Green infrastructure for climate resilience: rain gardens, bioswales, green roofs, and permeable pavement reduce peak stormwater runoff by 30 percent. Every \$1 invested returns \$6.35.
3. Brownfield remediation before redevelopment. Lead exposure in early childhood produces irreversible neurological damage. There is no safe exposure threshold.
4. Resilience hubs: community facilities hardened against climate hazards with backup power, water, and communications. Serve the most vulnerable populations during events. Communities with strong social networks recover faster from disasters.
5. Health equity mapping: overlay health outcome data with built environment data before making investment decisions. Green gentrification — displacement driven by green infrastructure investment — requires proactive response: community land trusts, tenant protections, community benefit agreements.

LEED BD+C
Sustainable Sites
— Brownfield
Remediation

LEED credits projects built on brownfield sites that have undergone environmental assessment and remediation, recognizing that redeveloping contaminated land is both an environmental and health benefit.

BREEAM
Communities
Climate Change
Adaptation

BREEAM Communities requires assessment of climate risks and the incorporation of adaptation measures — including green infrastructure, flood risk management, and passive cooling design.

Framework Selection and Stacking

No single certification framework covers all six pillars at all scales. The question is not which one to use. It is how to use them together. The table below covers 11 project types with the recommended framework combination and the logic behind each recommendation.

Project Type	Stack	Logic
Commercial Office	LEED BD+C + WELL v2	LEED handles environmental baseline; WELL handles occupant health. 4–7% rental premium documented.
Mixed-Use Residential	LEED + Fitwel + SITES	Cost-effective health scoring with outdoor scope. Add WELL for competitive rental markets.
Urban Park / Greenway	SITES v2 (primary)	Outdoor health is the intervention. Add Fitwel if a community building is included.
K–12 School	LEED for Schools + SITES + Fitwel	Covers building, site, and active design. No WELL documentation burden needed.
Healthcare Facility	WELL v2 + LEED	Patient and staff health is the mission. WELL primary; LEED for operational efficiency.
University Campus	LEED + WELL + SITES	All three scales apply simultaneously. Sleep, mental health, and movement are primary.
Senior Living	WELL v2 + Fitwel	Sleep, thermal, IEQ, and social connection are primary health drivers for this population.
Neighborhood Masterplan	BREEAM Communities + SITES	Most comprehensive neighborhood-scale standard. Add LEED ND for North American markets.
Existing Building Retrofit	Fitwel (primary)	Lowest documentation burden. Add WELL Core where mechanical upgrades are in scope.
Corporate HQ	WELL v2 + LEED + Fitwel	Talent retention framing. WELL verifies performance; Fitwel adds equity dimension for ESG.
Hospitality / Hotel	WELL Core + LEED	Guest sleep environment is a brand differentiator. WELL Core is low burden for operators.

THE COST-BENEFIT REALITY

Certification costs money — typically 0.5 to 2 percent of hard construction cost for LEED or WELL, less for Fitwel. The business case is strong and strengthening.

WELL-certified buildings command rental premiums of 4 to 7 percent over comparable uncertified buildings. LEED-certified commercial buildings show 20 to 30 percent lower energy costs, higher occupancy rates, and stronger resale values. Fitwel certification improves tenant satisfaction and self-reported productivity. The human capital returns — reduced absenteeism, improved cognitive performance — are the largest component of the ROI.

The decision framework is simple: start with the health outcomes you want to achieve, select the certification standards that best measure those outcomes at your project's scale and budget, and treat the certification cost as the audit cost for a health investment — not as the cost of the investment itself.

POLICY: SCALING DESIGN TO CITIES

Design can make healthy buildings. Policy can make healthy cities. The difference in scale is everything.

Health in All Policies (HiAP) governance systematically incorporates health considerations into decisions across all government sectors — transportation, housing, education, economic development. Health impact assessment (HIA) is the most important single tool: a structured process for evaluating the health effects of a proposed policy or project before it is implemented. Studies of completed HIAs consistently find that the cost of conducting the assessment is a small fraction of the health value it generates.

Zoning reform is the upstream policy change on which most of this guide's design strategies depend. Density bonuses — allowing developers to build at higher density in exchange for providing community health benefits — align the developer's financial interest with the community's health interest without public subsidy.

Five Projects. Five Pillars.

Theory without example is incomplete. The following case studies show what the framework looks like when it is actually built — where it succeeds, where it falls short, and what the process of pursuing it looks like from the inside.

Case Study 1 — Mid-Size City Walkability and Transit Overhaul

A city of 300,000 undertakes a comprehensive active transportation program: street network redesign, a new BRT corridor, and a 15-mile protected cycling network.

Outcomes three years post-implementation: 23 percent increase in pedestrian activity on redesigned streets. 31 percent increase in cycling commuters. 18 percent transit ridership gain. Reduced cardiovascular disease admissions in neighborhoods with highest active transportation investment.

The equity dimension: the city prioritized the cycling network through neighborhoods with the lowest car ownership and highest chronic disease rates — reversing the historical pattern of active transportation investment concentrating in affluent neighborhoods. A community land trust funded through tax increment financing protected 200 units of affordable housing from displacement.

Case Study 2 — Mixed-Use District: Stacked WELL + LEED + SITES

A 12-acre brownfield redevelopment pursues LEED BD+C Gold, WELL Core Silver, and SITES v2 Silver across 400 residential units, 200,000 SF of office, 40,000 SF of retail, and 3.5 acres of public open space.

The certifications reinforced each other across scales. LEED's brownfield credit required full site remediation. LEED's transit credits drove cycling infrastructure that also earned WELL Movement credits. SITES' bioswale corridor simultaneously managed 80 percent of site stormwater and provided the nature contact credited in WELL's Mind concept.

Results: triple certification achieved within budget. Combined lease and sale price premium of 8 to 11 percent. Preliminary occupant data at 18 months shows higher physical activity levels, higher social connection scores, and lower self-reported stress compared to equivalent uncertified developments.

Case Study 3 — Underserved Neighborhood Food Access Intervention

A food desert receives a coordinated program: federally subsidized supermarket recruitment, corner store conversion grants, a SNAP-matching farmers market, and a community garden network.

Outcomes two years post-intervention: one new full-service supermarket opened, anchoring a mixed-use development with affordable housing and a community health clinic — three pillars addressed simultaneously. Seven corner store conversions. Farmers market with SNAP matching serving 300–400 shoppers weekly, SNAP comprising 35 percent of revenue. Fruit and vegetable consumption increased 28 percent among residents within a quarter mile of the supermarket.

The community benefit agreement committed the supermarket operator to below-market lease rates for 15 years and employment targets prioritizing neighborhood residents.

Case Study 4 — Corporate Campus Biophilic Retrofit (WELL + SITES)

A 1970s-era 800,000 SF corporate campus pursues WELL v2 certification and SITES v2 Silver.

The WELL retrofit: ventilation upgrades to 150 percent of ASHRAE minimum; low-VOC material replacement; 28 quiet rooms across six buildings; central stair redesign relocating fire egress stairs to visible positions with natural light; end-of-trip facilities for 120 cyclists. The SITES retrofit: 18 acres of managed lawn converted to native meadow; a one-mile campus walking and cycling loop; bioswale system managing the 100-year storm event on site.

Post-occupancy outcomes at 24 months: stair use up 84 percent. Cycling commuters up from 8 to 19 percent. Absenteeism down 11 percent. Employee turnover 18 percent below industry average in the two years following certification.

Case Study 5 — Residential District Sleep Environment Retrofit

A dense urban district adjacent to a major arterial road undertakes a coordinated sleep environment improvement program — the only case study specifically focused on the sleep pillar.

Three interventions: municipal streetlighting upgraded from 4000K blue-spectrum LEDs to 2700K warm-spectrum with full-cutoff fixtures (reducing light trespass by 60 percent); acoustic glazing subsidy program providing rebates up to \$3,000 per household for window replacement within 200 meters of the arterial; neighborhood cool roof and tree planting converting 35,000 SF of rooftop.

Health outcomes tracked via academic partnership: self-reported sleep duration increased 23 minutes per night. Actigraphy data confirms increased slow-wave sleep duration. Blood pressure modestly reduced at 12 months. Nighttime ambient temperature reduced 1.8°F — reducing the frequency of thermal sleep disruption events from 14 to approximately 8 nights per summer.

Unlike many green infrastructure investments, the primary beneficiaries were the long-term residents of the district — people who had been living with elevated noise and light exposure for years without a policy response.

CONCLUSION

What You Know Now. What You Do Next.

Cities are the dominant health intervention of the modern era. Not because anyone designed them that way. Because people spend their entire lives inside them, and every aspect of their physical environment — the street, the building, the neighborhood, the air, the food, the light at night — is either working for their health or against it. There is no neutral.

The knowledge to make cities work for health exists. What has been missing is the synthesis — a framework that connects the evidence across disciplines, maps it to the certification standards that practitioners actually use, and presents it at a level of specificity that makes it actionable in a real project.

KEY CONCEPTS

The vocabulary of healthy city design — the language you need to discuss these problems precisely with clients, colleagues, city officials, and certification bodies.

Built environment	The sum of human-made surroundings — buildings, streets, parks, infrastructure — that determine the conditions of daily life. The primary lever for population health at scale.
Active design	The integration of physical activity into buildings and neighborhoods as a default feature. Stair promotion, walkable streets, cycling infrastructure, end-of-trip facilities.
Food environment	The totality of food retail and access conditions within a defined area. More predictive of diet quality than individual nutrition knowledge.
Biophilic design	Intentional incorporation of natural elements into built environments to produce measurable physiological and psychological benefits of nature contact.
Urban heat island	5–10°F temperature elevation in cities vs. rural surroundings. Disrupts sleep, amplifies heat mortality, disproportionately affects low-income neighborhoods.
Dark sky design	Full-cutoff fixtures, ≤2700K LEDs, adaptive dimming — protecting circadian health while meeting illumination requirements.

Circadian lighting	Interior systems providing high melanopic light during the day and warm, dim light before sleep — supporting the light-dark contrast the circadian clock requires.
Green gentrification	Displacement of low-income residents following green infrastructure investment. Requires proactive response: land trusts, tenant protections, community benefit agreements.
Health in All Policies	Governance approach embedding health impact assessment into decisions across all government sectors.
Third places	Informal public gathering spaces — neither home nor work — that constitute the primary infrastructure of community life and social connection.
Certification stacking	Deliberate combination of multiple frameworks to address the full range of health outcomes at building, site, and neighborhood scale simultaneously.
Passive survivability	A building's ability to maintain habitable conditions without power for 72+ hours. A resilience standard with direct heat and cold mortality implications.

THREE THINGS YOU CAN DO RIGHT NOW

1. Run a health audit on one project.

Take a current or recently completed project and walk through the six pillars. For each one: what does this project do for the people using it? Walk to the nearest grocery store. Check the bedroom facade noise level. Look at the lighting spec through a circadian lens. Two hours. You will know exactly where your gaps are.

2. Get fluent in one framework.

Pick the framework most relevant to your current work and read the actual credits — not the marketing summary. WELL for commercial interiors. SITES for landscape. Fitwel for existing buildings. The specificity of the criteria is the most useful part.

3. Have the sleep conversation with your next client.

Sleep is the pillar most clients have never heard addressed by a design professional. Ask about bedroom orientation relative to noise sources. Ask about the streetlight spec on the adjacent road. Ask whether the facade glazing has been selected with nighttime light trespass in mind. These are not difficult design problems. They are invisible ones — until someone names them. You can be the person who does that.

The built environment is one of the most powerful health intervention available to cities. Use it.

End of Guide