



The "Retrofit First" Mandate

Strategic Decarbonisation through Structural Retention

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A Fundamental Transformation in Real Estate Development

The real estate development paradigm is undergoing a fundamental transformation. **The traditional "demolish and rebuild" approach is giving way to a "Retrofit First" mandate**—a strategic shift that **prioritizes the retention and upgrade of existing building structures over new construction.**

Embodied carbon—the emissions generated through **material extraction, manufacturing, transportation, and construction**—represents a significant and often overlooked component of a building's total carbon footprint. For corporate real estate developers and asset owners, **addressing embodied carbon is no longer optional; it's a strategic imperative driven by regulatory pressure, investor expectations, and competitive differentiation.**

The evidence is compelling: **retrofit-first approaches can reduce upfront embodied carbon by up to 60% while delivering superior financial returns and accelerated project timelines.**

The Embodied Carbon Imperative: Beyond Operational Energy

The Critical Frontier

For new construction projects, embodied carbon can represent 50-70% of total lifetime emissions over a 60-year period—a proportion that increases as operational efficiency improves.

"By retaining the existing structure, we will lower the upfront embodied carbon by 60% compared with a typical building as set by the Greater London Authority."



Material Production

Cement and steel manufacturing alone account for approximately 16% of global CO₂ emissions



Construction Waste

UK construction waste exceeds 100 million tonnes annually



Upfront Impact

Embodied emissions are locked in at construction—no opportunity to retrofit after deployment



Carbon Budget

Limited remaining carbon budgets to achieve 1.5°C targets make upfront emissions critical



Evolving Policy Frameworks and Strategic Imperatives



GLA Mandates

Greater London Authority now mandates whole-life carbon assessments for major developments



UK Green Building Council

Established ambitious benchmarks with embodied carbon reduction targets becoming standard



European Leadership

Leading European cities implementing carbon caps on new construction

- Strategic Imperative:** Embodied carbon must be integrated into project feasibility assessments, design decisions, and investment criteria with the same rigor applied to operational energy performance.

Structural Retention: The 60% Carbon Reduction Opportunity

Retaining existing building structures represents the **single most impactful strategy for reducing embodied carbon** in development projects. The structural frame—**typically concrete or steel**—embodies the majority of upfront carbon in a building, making its preservation transformative for carbon performance.

60%

Carbon Reduction

Upfront embodied carbon reduction achieved through structural retention

50-70%

Lifetime Emissions

Embodied carbon's share of total emissions in new construction over 60 years

16%

Global Impact

Share of global CO₂ emissions from cement and steel manufacturing alone

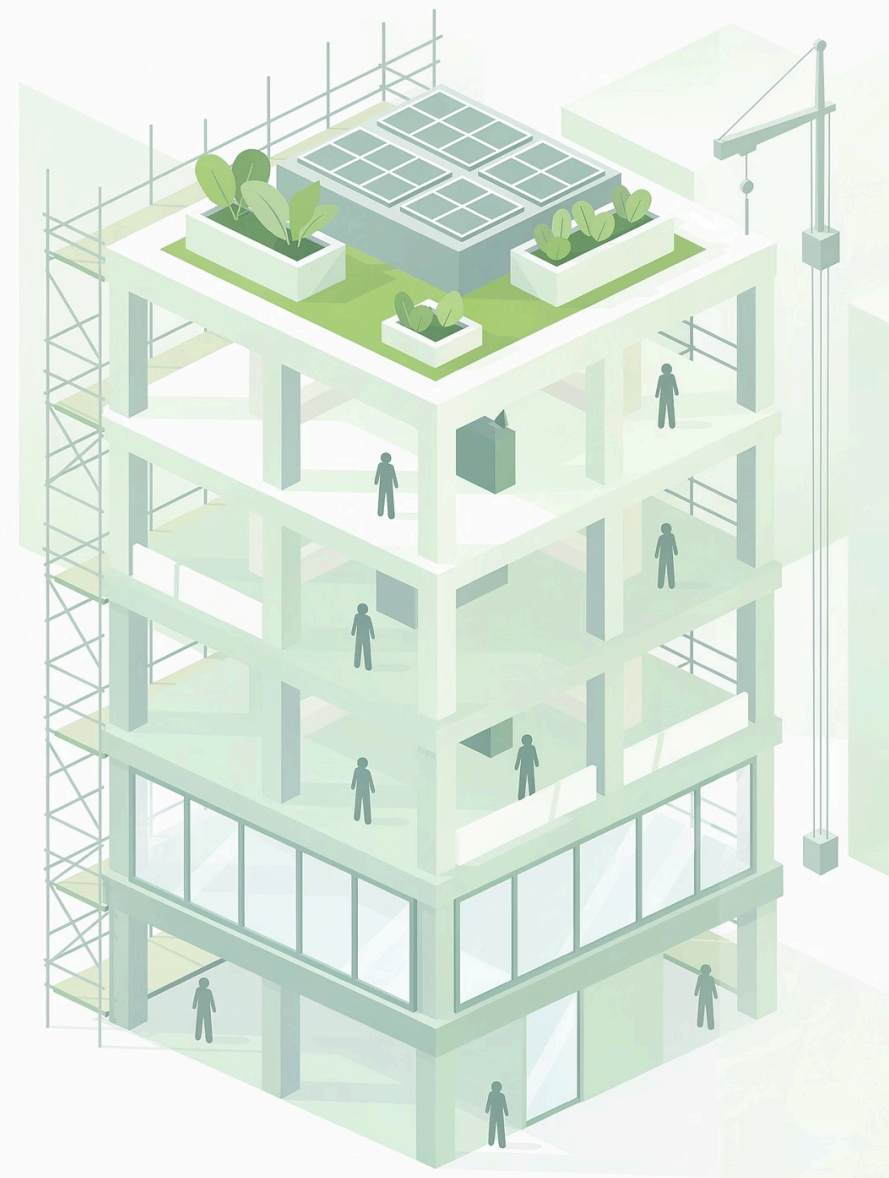
Thirty High, London: Exemplifying Retrofit-First

The Project

The Thirty High development in London exemplifies the retrofit-first approach. **By retaining the existing structure, the project is designed to lower upfront embodied carbon by 60% compared to a typical new build**, as benchmarked by the Greater London Authority.

Key Strategies

- 01
Structural frame retention, avoiding demolition and replacement carbon costs
- 02
Façade upgrade and thermal enhancement of existing envelope
- 03
Internal reconfiguration and modernization without structural replacement
- 04
Integration of low-carbon building services and renewable energy systems



Financial and Operational Benefits

Beyond carbon savings, structural retention delivers compelling financial advantages that strengthen the business case for retrofit-first approaches.



Reduced Capital Costs

Avoiding demolition and new structural construction typically reduces capital expenditure by 15-30%



Accelerated Timelines

Retention strategies can reduce project delivery schedules by 6-12 months, bringing forward rental income



Risk Mitigation

Proven structural performance reduces technical and delivery risks versus new construction



Planning Advantage

Retrofit projects often benefit from more favorable planning treatment and reduced policy requirements

Internal Carbon Pricing: Financing the Transition

Leading real estate firms are implementing internal carbon pricing mechanisms to create dedicated funding streams for retrofit and decarbonisation programs. These schemes embed carbon considerations into investment decision-making while generating capital for portfolio-wide sustainability upgrades.

Price Signals

Creates incentives that favor low-carbon design solutions in development projects

Predictable Funding

Generates consistent capital for portfolio-wide sustainability upgrades

Strategic Alignment

Aligns new development carbon costs with existing asset improvement needs

Investor Confidence

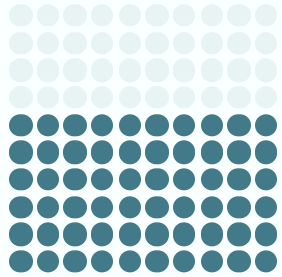
Demonstrates corporate commitment to whole-portfolio decarbonisation



Industry Leaders: British Land and Landsec

British Land: Transition Vehicle Model

British Land has established a sophisticated internal carbon levy system, charging **£60-90 per tonne of embodied carbon** on new development projects. Revenues are directed to a dedicated "Transition Vehicle"—a ring-fenced fund for retrofitting the existing standing portfolio.



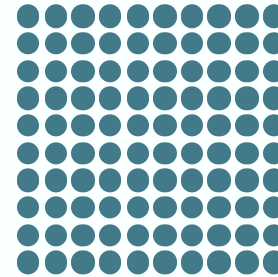
£60-90

Per Tonne Levy

Carbon pricing on new developments

Landsec: Strategic Capital Commitment

Landsec has **committed £135 million to its Net Zero Transition Investment Plan** (NZTIP), focusing on heating electrification and energy efficiency improvements across its portfolio. This represents approximately 2-3% of portfolio value—a benchmark signaling serious commitment to sustainability transition.



£135M

Investment Plan

Committed to NZTIP program

- ❑ **Implementation Considerations:** Key design parameters include carbon price level setting, revenue allocation mechanisms, governance frameworks for fund deployment, and integration with existing capital planning processes.

Materials Passports and Reuse Protocols

The circular economy paradigm **keeping materials in use for as long as possible and designing out waste**, is being operationalized through digital tools and materials management systems. Materials passports represent a breakthrough innovation enabling systematic reuse and recycling at portfolio scale.



Material Types

Detailed catalogues of structural elements, finishes, MEP systems, and fixtures



Quantities & Locations

Precise volumes and spatial locations within buildings



Embodied Carbon Data

Carbon coefficients for all major material categories



Reuse Potential

Assessment of material condition and suitability for future reuse



Disassembly Instructions

Documentation enabling future deconstruction and material recovery

The business case for materials passports extends beyond sustainability credentials. Firms report that material reuse can reduce construction costs by 10-20% while supporting waste reduction targets and enhancing corporate ESG performance metrics.

European Leadership: Case Studies

European markets are leading the retrofit-first transition, with multiple flagship projects demonstrating the viability and financial attractiveness of structural retention and circular economy approaches.



Paris: Reinventing Paris

The Morland Mixité Capitale development

transformed a 1960s office building into a mixed-use destination through comprehensive structural retention, achieving **70% reduction in embodied carbon versus new build alternative while creating 63,500 sqm of hospitality, retail, and residential space.**



Berlin: Haus der Statistik

This flagship project represents circular construction and community-led retrofit in Germany. The transformation of a socialist-era office complex demonstrates how **structural retention can support adaptive reuse at scale while embedding circular economy principles throughout the value chain.**



Netherlands: Portfolio Strategies

Dutch institutional investors have pioneered portfolio-wide retrofit programs, with major pension funds committing billions to structural retention strategies. **These programs demonstrate that retrofit-first approaches can be implemented systematically across diverse holdings.**



Technical Implementation: Assessment and Upgrade Pathways

Structural Condition Assessment

Comprehensive structural surveys are essential prerequisites, evaluating:

- Load-bearing capacity and potential for enhanced loading from façade upgrades or floor additions
- Concrete carbonation, steel corrosion, and material degradation assessments
- Seismic performance and compliance with current building codes
- Foundation adequacy and soil-structure interaction for potential vertical extensions

Performance Enhancement

Typical upgrade pathways include:

01

Façade Replacement: High-performance envelopes achieving Passivhaus or similar standards

02

Services Modernization: Complete MEP system replacement with heat pumps and advanced controls

03

Spatial Reconfiguration: Floor plan optimization to meet contemporary occupier requirements

04

Vertical Extensions: Adding floors where structural capacity permits

60-70%

Retrofit Viability - Percentage of existing commercial buildings with adequate structural integrity to support comprehensive retrofit programs

Planning Policy: Regulatory Drivers and Incentives

The planning system is evolving rapidly to **incentivize retrofit-first approaches and penalize high-carbon demolition and rebuild**. **Understanding the emerging policy framework is essential for developers navigating project approvals and securing planning consents.**

Greater London Authority Requirements

- Submission of detailed embodied carbon calculations using standardized methodologies
- Justification of demolition decisions versus retention alternatives
- Demonstration of circular economy principles and materials reuse strategies
- Benchmarking against GLA embodied carbon targets with clear reduction pathways

National Policy Evolution

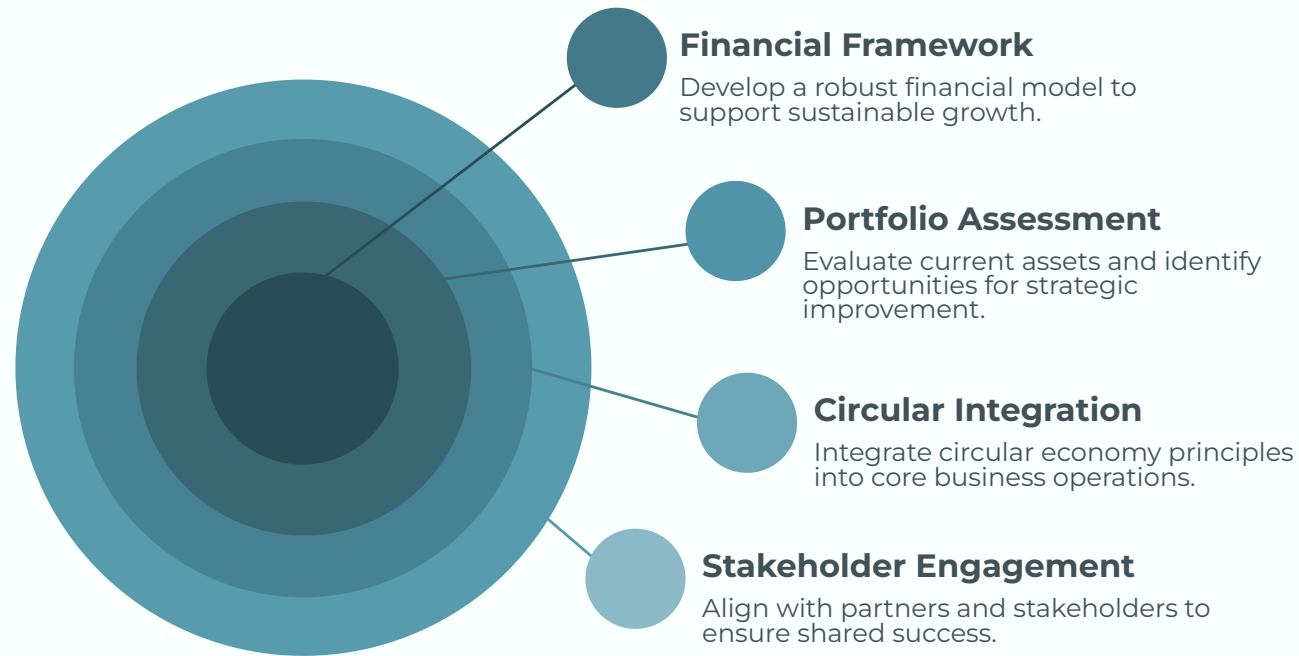
The UK government is consulting on embodied carbon regulations for building control, with proposals including mandatory lifecycle assessments and carbon caps for new construction.

Leading industry bodies are advocating for retrofit-first presumptions in national planning policy.

- ☐ **Strategic Implications:** Projects demonstrating ambitious embodied carbon reduction through structural retention benefit from more favorable planning treatment, faster approvals, and reduced Section 106 obligations. Conversely, high-carbon demolition proposals face increasing scrutiny and potential refusal.

Implementation Roadmap: Portfolio Transformation

Transitioning to a retrofit-first approach requires coordinated action across development, asset management, and sustainability functions. The following framework provides a structured pathway for implementation.



- 1 Phase 1: Portfolio Assessment**
Conduct systematic evaluation of all assets to identify retrofit potential, prioritizing holdings by structural condition, location, and rental value. Commission detailed embodied carbon assessments to baseline current performance and quantify improvement opportunities.
- 2 Phase 2: Financial Framework**
Establish internal carbon pricing mechanisms aligned with regulatory carbon costs. Create dedicated transition investment funds with multi-year capital commitments. Develop financial modeling tools that capture the full value of embodied carbon reduction.
- 3 Phase 3: Circular Economy Integration**
Implement materials passport systems across the portfolio, documenting material inventories and reuse potential. Establish partnerships with specialist contractors and materials brokers to facilitate materials recovery and reuse.
- 4 Phase 4: Stakeholder Engagement**
Communicate retrofit-first commitments to investors, demonstrating leadership in embodied carbon reduction. Engage design teams and contractors early to embed circular principles in project delivery. Collaborate with planning authorities to streamline approvals.

Leading the Retrofit-First Transition

The shift to a retrofit-first development paradigm represents a fundamental transformation in real estate strategy. This transition is driven by regulatory imperatives, investor expectations, and the unavoidable reality of embodied carbon's impact on climate targets.



First-Mover Advantage

Capture advantage in planning approvals and policy compliance



Cost Reduction

Reduce development costs and accelerate project timelines



ESG Leadership

Enhance ESG credentials and investor appeal



Future-Proof

Protect portfolios against tightening embodied carbon regulations

The evidence is compelling: structural retention can deliver 60% reductions in upfront embodied carbon while generating superior financial returns through reduced capital costs, accelerated delivery, and enhanced asset values.

Implementation requires **coordinated action across multiple workstreams**—from portfolio assessment and financial framework development to circular economy integration and stakeholder engagement. But the firms that move decisively now will define the next generation of sustainable real estate development and **establish competitive positioning that will endure for decades.**

The Opportunity to Lead

The retrofit-first mandate is not a constraint—it's an opportunity to lead the industry's transformation toward net-zero while delivering superior returns and lasting value.

60%

Carbon Reduction

Achievable through structural retention strategies

15-30%

Cost Savings

Reduction in capital expenditure versus new build

6-12

Months Faster

Accelerated project delivery timelines

Strategic Positioning

Firms that move decisively now will define the next generation of sustainable real estate development

Competitive Advantage

Establish positioning that will endure for decades in a rapidly evolving regulatory landscape

Value Creation

Deliver superior returns while advancing climate goals and meeting investor expectations

