Walls, Roofs and Structural Elements

Walls, roofs, and structural elements form the backbone of any building, and the systems used within them have a major impact on strength, performance, insulation, moisture control, acoustics, fire resistance, and long-term durability. A good specification needs to look at these elements as complete assemblies rather than as a shopping list of separate products.

Wall systems may include timber frame, steel frame, masonry, drylining, sheathing boards, insulation, membranes, cavity barriers, internal linings, and external finishes. Roof systems may be pitched or flat and can include deck construction, insulation, vapour control, membranes, ventilation strategies, drainage details, and internal ceiling treatments. Structural elements may include joists, rafters, beams, decks, floors, and load-bearing partitions, all of which interact with the layers around them.

One of the biggest mistakes in specification is treating one part of the build-up in isolation. For example, choosing insulation without considering ventilation, selecting a wall lining without checking moisture conditions, or changing a board type without reviewing fire or structural implications. In reality, these elements work together, and the performance of the building depends on the weakest detail just as much as the strongest one.

When reviewing wall, roof, or structural systems, key issues include load, span, support, weather exposure, moisture movement, fire requirements, thermal targets, acoustic needs, and available build-up depth. Refurbishment projects may also need to consider existing construction, access limitations, compatibility with retained materials, and how to improve performance without adding unnecessary weight or thickness.

The right system depends on the building type, the intended use, the stage of the project, and the performance required. A domestic extension, a conversion, a commercial fit-out, and a new-build housing development will all have different priorities.

Strong specifications in this area are built on joined-up thinking. It is not about choosing individual products in a vacuum. It is about making sure the wall, roof, and structural elements work together properly as a complete building system.