

TECHNICAL SPECIFICATION

For the construction of a

SINGLE-FAMILY HOUSE WITH A STEEL STRUCTURE FOR RESIDENTIAL USE (nearly zero-energy house).

Foreword

About LGS structures

Constructing and renovating buildings with LGS (Light Gauge Steel) structures is a modern method offering low weight, speed and precision. It is ideal for modernising existing buildings or creating extensions, while aligning with current energy standards (RE2025, CPE) through good insulation performance and durability. Such work often involves preliminary assessments, the selection of suitable materials and careful execution to ensure energy efficiency and regulatory compliance, with support from experienced professionals.

Advantages of LGS structures in renovation

Low weight: Reduces the load on existing foundations, making it ideal for older structures or additional storeys.

Speed: Prefabricated components allow faster, less invasive construction.

Precision: Custom manufacturing ensures high dimensional accuracy.

Energy performance: Facilitates the incorporation of high-performance insulation meeting new regulatory requirements.

Durability: Galvanised steel withstands corrosion and weathering, extending the building's service life.

Types of work covered

Extensions and additional storeys: Construction of new levels or lightweight extensions.

Modernisation: Renovation of interior or exterior spaces to improve appearance and functionality.

Major refurbishment: Replacement of damaged structural components or improvement of the thermal envelope.

Key factors for a successful project

Assessment: A preliminary study is essential to assess the building's condition and define requirements.

Regulations: Compliance with local standards.

Professionals: Carried out by a company specialising in LGS structures and renovation, with support from other local parties.

Choice of materials: Choose insulation and cladding solutions suited to your objectives.

In summary, construction and renovation with LGS structures is an effective, modern solution for transforming a building while respecting current technical and environmental constraints.

Description of the specification

Chapter 1 FOUNDATIONS

Building site

The building site will always be examined beforehand to establish its physical conditions. This means that vegetation, slope, soil type and level relative to the adjoining road will be known before a quotation is prepared and work begins.

A soil investigation is always carried out beforehand to establish the soil's bearing capacity and determine the foundation system.

Below-ground construction

Possible foundation systems, as discussed with the client:

Building without a basement:

1. A system based on strip footings supporting masonry upstands made of heavy concrete blocks, subsequently pointed and either rendered in smooth grey cement or covered with asbestos-free fibre-cement board, grey as standard or another colour chosen by the client.
2. A system based on cast reinforced-concrete basement walls, which always remain visible.

Building with a basement:

1. A system based on a cast reinforced-concrete crawl space with non-load-bearing internal concrete-block walls, subsequently pointed. In this case, the concrete structure always remains visible externally.
2. A system of concrete walls covered with grey asbestos-free fibre-reinforced concrete panels, with a height varying according to ground level. Only the part visible above ground will therefore be covered. The client may choose another colour at an additional cost.

The soil investigation costs are always charged when the quotation is prepared. However, the client may use this report at any time to assess the foundation system, including when choosing a different construction system.

Chapter 2 ENCLOSED STRUCTURAL SHELL

FLOOR CONSTRUCTION

From the crawl space/basement towards the interior of the dwelling, the sequence is as follows:

- Asbestos-free fibre-cement board, 18 mm thick;
- A light-gauge galvanised steel frame whose height varies according to the span and the required insulation value of the lower envelope;
- Rockwool thermal insulation, with a variable thickness from a minimum of 10 cm to 22 cm, depending on the insulation value requested by the client.
- An OSB board at least 18 mm thick is placed on the steel trusses;
- An XPS/EPS insulation board at least 50 mm thick is then laid on top;
- Followed by a 60 to 70 mm screed;
- The underfloor heating pipes are installed in the screed;
- Finally, ceramic tiles chosen by the client are laid on the screed as the finish. The quotation allows a purchase price of EUR 15 per m² for the tiles.

The client's final selection will determine the correct final purchase price.

The resulting amount will then be added or deducted.

FLAT ROOF CONSTRUCTION

From the living spaces towards the outside, the construction is as follows:

- Plasterboard, 10 mm thick;
- OSB board, 18 mm thick;
- Rockwool thermal insulation, at least 100 mm thick, depending on the required insulation level;
- A light-gauge galvanised steel frame at least 220 mm high;
- Asbestos-free fibre-cement board or OSB board, 18 mm thick;
- XPS/EPS thermal insulation, 50-100 mm thick;
- Asbestos-free fibre-cement board or OSB board, 18 mm thick;
- EPDM roof covering, 1 to 5 mm thick.

EXTERNAL FACADE CONSTRUCTION

From the outside towards the inside, the construction is as follows:

- Facade finish in hard render, 10 mm thick, or facing bricks, as chosen by the client. Render is the standard finish;
- XPS/EPS insulation board, 50-100 mm thick;
- Asbestos-free fibre-cement board or OSB board, 18 mm thick;
- Rockwool thermal insulation, 100-150 mm thick;
- A light-gauge galvanised steel frame, 100-150 mm thick;
- OSB board, 15-18 mm thick;
- Plasterboard finish, 10 mm thick.
- Finishes such as wallpaper and/or painting are the client's responsibility.

INTERNAL WALL CONSTRUCTION

- Plasterboard, 10 mm thick;
- OSB board, 15-18 mm thick;
- A light-gauge galvanised steel frame, 100 mm thick;
- OSB board, 18 mm thick;
- Plasterboard, 10 mm thick;
- Finishing both sides of the wall is the client's responsibility.

INTERMEDIATE FLOOR CONSTRUCTION

From the ceiling towards the floor:

- Plasterboard, 10 mm thick;
- OSB board, 15-18 mm thick;
- Rockwool thermal insulation, 100-1500 mm thick;
- A light-gauge galvanised steel frame, 100-150 mm thick;
- Asbestos-free fibre-cement board or OSB board, 18 mm thick;
- XPS/EPS thermal insulation board, 50 mm thick;
- Screed, 60-70 mm thick, incorporating underfloor heating pipes;
- Floor finish in ceramic tiles or another material chosen by the client, 10 mm thick.

EXTERNAL WINDOWS AND DOORS

The standard external windows and doors are PVC, cream-coloured throughout. Five-chamber profiles are always used, with double glazing meeting PEB requirements.

The door and door panels will also meet PEB insulation standards.

The client is always free to choose another colour or to opt for timber or aluminium external windows and doors.

Chapter 3 BUILDING SERVICES

Energy

The house is insulated and ventilated according to standard requirements. However, if the client wishes, its energy performance can be improved through an adjustment to the quotation. This could, for example, result in a nearly zero-energy house (QNE).

The energy performance standard currently in force in Flanders is E70 and K40.

To achieve this standard, the house is constructed as follows:

Maximum U-values: roof = 0.24; external wall = 0.24; floor exposed to outside = 0.30; frames = 1.80; glazing = 1.10; doors and gates = 2.00; party wall, if applicable = 1.00.

The house will also be airtight to obtain a better E-level in the airtightness test. The cost of an airtightness test will be invoiced separately and is therefore not included in the contract unless agreed beforehand.

A PEB assessor is always included in the contract as standard.

A PEB CERTIFICATE is always issued.

Hygienic ventilation

A C+ system will be incorporated.

This system is manufactured according to the standard in force when the building permit application is submitted. Fresh air enters dry rooms through window vents, then circulates through all rooms via gaps beneath internal doors, before being extracted through a ventilation unit in wet rooms.

A D system may be installed at the client's request, but a C+ system is always provided as standard.

Central heating

The house is heated by an air-to-water heat pump, always combined with underfloor heating. The pipe layout is always calculated by the supplying company according to local heat losses.

Sanitary installations

A solar water heater is always provided as standard. This is one of the three possible additional mandatory renewable energy sources that is always included.

Standard fixtures:

Toilet:

Geberit WC and hand basin.

Bathroom:

A single inset washbasin with a tall cabinet on one side and a mirror.

A walk-in shower with a tempered-glass screen is always provided.

Electrical installation

This work is always carried out in accordance with the RGPT. An inspection certificate is always issued by an approved inspection body.

Included as standard:

Facades:

Doorbell and lighting points at the front and rear facades.

Interior:

One central lighting point per room, controlled by two switches;

Living room: three sockets and an Internet connection, television cable and telephone cable.

Bedrooms: two sockets and an Internet connection in one bedroom;

Bathrooms: one socket;

Entrance hall: one socket.

General: meter fully installed in accordance with the planned electrical diagrams.

Sewerage network

The private underground sewerage network is always installed up to the front boundary of the plot or to any existing connection sleeve at the public sewer. The final connection will always be carried out at the client's expense by the municipal service or its appointed company.

The mandatory inspection certificate is handed to the client at provisional acceptance.

Safety coordination

Appointment of a safety coordinator is always included in the contract as standard.

The coordinator will ensure that the work is carried out safely, in accordance with applicable legally required standards.

A post-intervention file is handed to the client at provisional acceptance.

Additional and omitted work

The client may request additional or omitted work during construction. Such changes will only be carried out after an agreement has been signed for approval.

Provisional and final acceptance

The final keys to the house are always handed over after all parties concerned have signed the binding provisional acceptance document.

At provisional acceptance, the parties always agree on a period within which the remaining work will be carried out and the final account prepared.

Final acceptance will take place one year after provisional acceptance.