British Iron and Steel Federation (BISF) steel frame permanent house

Peter Lobner, 15 June 2020

The British Iron and Steel Federation (BISF) was formed in 1934 to help coordinate UK steel production. Frederich Gibberd and Donovan Lee designed the BISF house as an easy to construct steel frame, two-story permanent house with a lifespan similar to a conventionally constructed brick house. In 1941, the UK Government placed a guaranteed order with BISF for 30,000 units. These BISF houses were not part of the UK Government's 1944 Emergency Factory Made (EFM) temporary housing program.

In 1944, two prototype BISF houses were constructed in Northolt in the London Borough of Ealing. One model, known a the Type A1 design, was selected for production. The firm British Steel Homes erected BISF houses around the UK starting in 1946, with peak production in 1947 and 1948, and production continuing until 1952. Most were built as semi-detached duplex properties. A total of 31,516 BISF steel-frame permanent houses were built.

The use of a standard design and preformed steel components gave the BISF houses a recognizable, distinct appearance wherever they were built in the UK. Unlike the temporary EFM bungalows, the BISF houses were not prefabricated into large modules at a factory and then delivered to a site for simple assembly. Instead, the BISF house is a steel framed, non-traditional house incorporating a number of prefabricated materials during stages of construction. The steel frame was manufactured in a factory. Unlike the EFM prefabs, the BISF house was constructed piece by piece on site. However, the BISF house was highly regarded for the speed at which it could be constructed and the need for fewer skilled tradesmen to do so.

The load-bearing structure of the house is steel column framing spaced to take standard metal windows between the columns. Tubular steel columns support the main beams for the upper floor. The external walls of the ground floor are metal lath with a cement-ash render applied to the surface like stucco. The upper floor is clad in vertical profiled galvanized sheet steel fixed to rails and bolted to

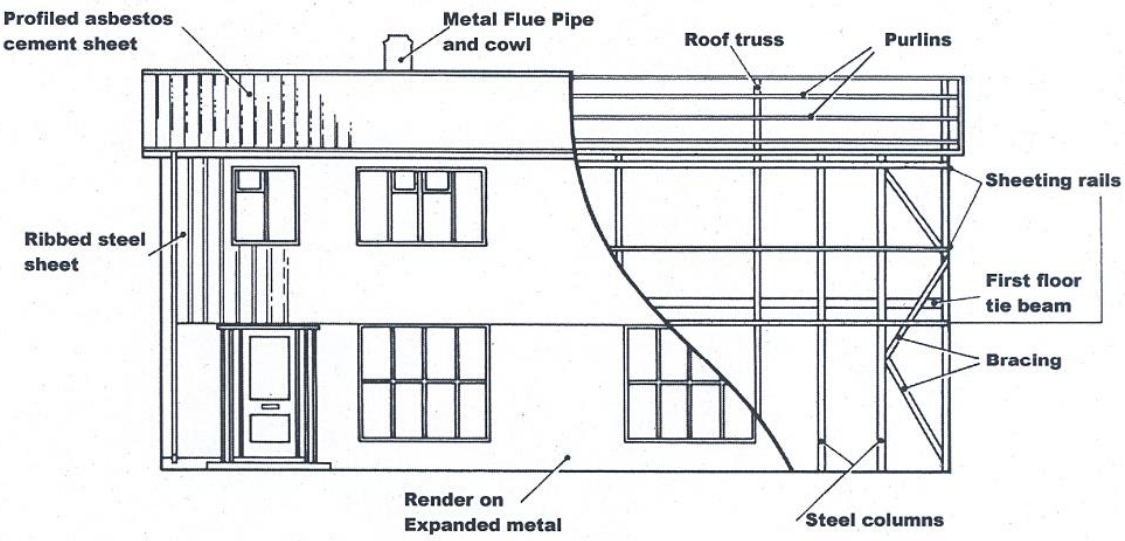
the steel column frame of the house. The inner wall cladding and the room partitions are constructed of timber framing faced with plasterboard. Floors are timber and the ceilings are finished with plasterboard.

Typical BISF duplex.
Source: https://www.whatdotheyknow.com/request/262687/

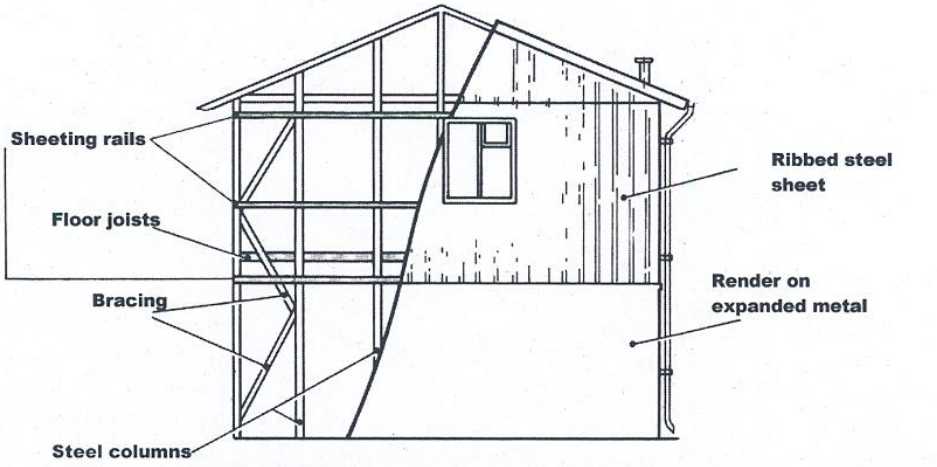
BISF duplex "Scottish" variant in Glasgow. Source: https://www.theglasgowstory.com/image/?inum=TGSA00785

Steel frame BISF house under construction in 1946. Source: Historic England Archive/John Laing Photographic Collection/PA

Close-up of steel frame structure of a BISF house during renovation. Source: https://www.pinterest.co.uk/pin/832532681090205638/



Front Elevation indicating main structural elements

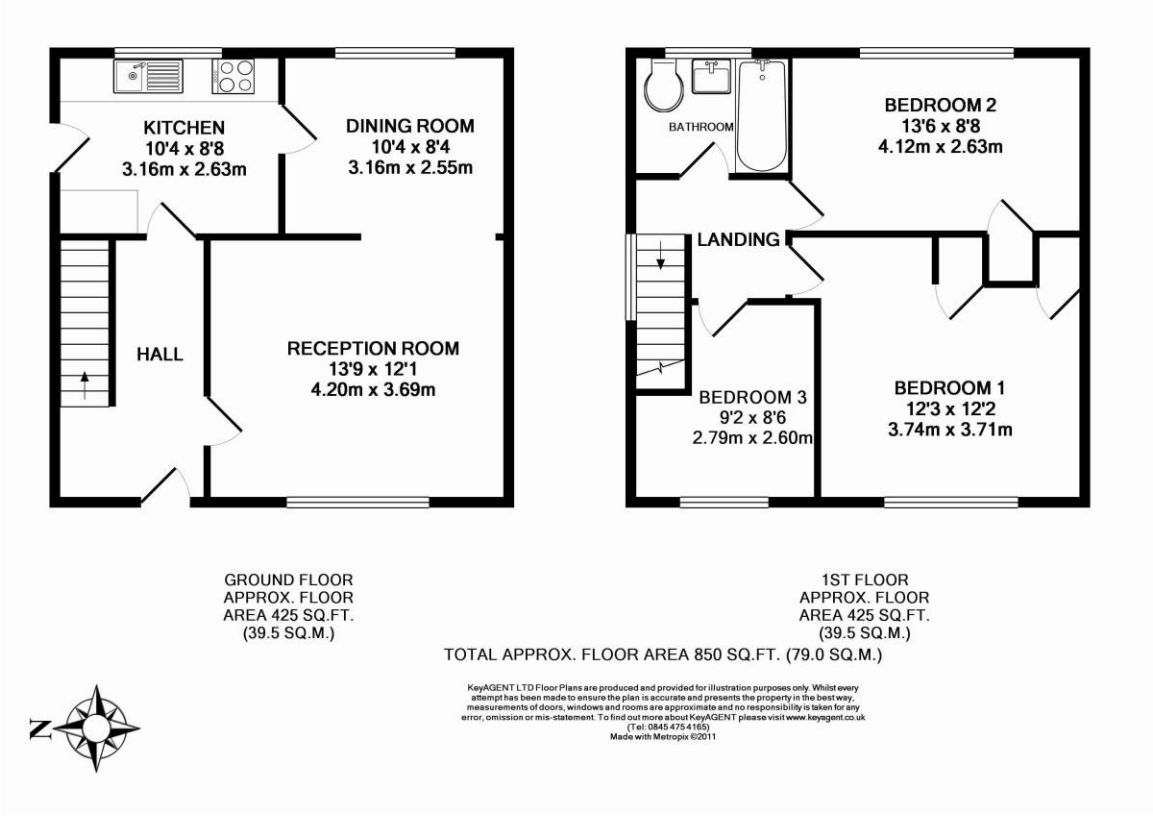


Gable Elevation indicating main structural elements

BISF duplex front and side elevation drawings.
Source: https://www.whatdotheyknow.com/request/262687/

Different types of roof material are found on BISF houses, the most common being corrugated asbestos cement panels. Some BISF houses have profiled aluminum sheet roofs. Most of the properties built in England and Wales had individual chimneys for each unit in a duplex. A “Scottish” variant had a central chimney, making that house somewhat longer than a standard BISF duplex. Some Scottish BISF houses were subdivided into four apartments.

The floor space for each unit in a typical BISF duplex has been reported variously as 850 to 960 ft^2 (79 to 89 m^2). This is about half again as large as any of the temporary bungalows built under the UK's EMF housing program. Each unit has an entry hall, living room, dining room and kitchen on the ground floor and three bedrooms and a single bathroom on the upper floor.



Floor plan of a BISF duplex unit. Source: http://www.sladesestateagency.co.uk/propertydetails.asp?ID=899

One unit in a BISF duplex cost the local council about £1,307 ($5,267 U.S. @ $4.03 USD/£ in 1947), not including the cost of the slab foundation. At the time, a typical conventionally constructed house in the UK cost about £1,170 ($4,715 U.S. in 1947), almost £150 less than a BISF unit.

Modern day interiors of a BISF house.
Source: Screenshots from BISF House YouTube videos listed below.

For more information, see the following resources:

- BISF houses and their known problems: https://www.yeshomebuyers.com/bisf-house-problems
- BISF Houses, BISF Renovation Services: https://www.bisf-houses.co.uk/bisf-houses/
- BISF Houses – BIG Energy Upgrade Briefing Sheet: https://www.sheffield.ac.uk/polopoly_fs/1.392787!/file/British-Iron-and-Steel-Federation-Houses.pdf
- BISF Permanent Houses – Not Temporary Prefabs, BISF House: https://web.archive.org/web/20120515082238/http://bisfhouse.com/bisf-houses-not-temporary/

Unfortunately the bisfhouse.com website closed in early 2020. Some of their video content is still available on YouTube.

Videos:

- "Steel Framed Housing" (4:34 minutes), 22 April 2014: https://www.youtube.com/watch?v=DQtkhbpbi2Q
- "BISF Living Rooms" (7:20 minutes), BISF House, 22 June 2013: https://www.youtube.com/watch?v=CU-jmneh6Js
- "BISF House Kitchen Living" (3:58 minutes), BISF House, 27 June 2013: https://www.youtube.com/watch?v=kKgtDgaf6K4