Annual Greenhouse Gas (GHG) Emissions Report: Building Products Division (BPD)

According to the Principles of ISO 14064-1

Greenhouse gas emissions resulting from the production of cold rolled products

Executive Summary

Hadley Group Building Products Division is a subsidiary of Hadley Industries Holdings Ltd; a UK based privately owned global company, whose expertise is in the manufacture of cold rolled sections. Hadley Group Building Products Division is based in the West Midlands and manufactures a range of products for the construction industry including: UltraZED® roof purlins and side rails; UltraBEAM® floor beams and Hadley Steel Framing; and cold roll-formed metal sections to customer requirements.

We are committed to act responsibly in our obligations and, to maintain the high standards and principles of our stakeholders, whether customer, supplier or local community.

The environment is an important part of our philosophy, and that can be seen within the manufacture of our products. We seek to reduce, through design, the material content of our products and, employ the Hadley Group patented **UltraSTEEL®** process where practicable. When applied to our products, this delivers equal strength from a lighter gauge material, resulting in a more cost-effective end-product that is stronger and 'Greener by Design'; a model we are proud to promote.

We also recognise the life cycle impacts of our products and carry out an annual assessment of our carbon footprint to monitor our emissions. **2023-24** was the **tenth** year that the Building Products Division has carried this out, with the results continuing to show that our most significant impact is due to the volume of steel used in our manufacturing process. Whilst the direct and indirect (energy) impacts are an important focus for the business, >98% of our carbon emissions are 'embodied' impacts through our raw material use. This is also documented on the Environmental Aspect Evaluation to ensure broader management commitment.

The gradual move towards low carbon steel products, which have been processed through an Electric Arc Furnace, has commenced in other Hadley divisions during the latter part of 2024 and eventually we will see this cascade into the construction products sector.

The construction products sector in the UK and overseas is evolving and there is a greater demand for product transparency from clients, specifiers and contractors alike. Life Cycle Assessment (LCA) results can be helpful in making more informed choices about products and, are increasingly recognised in building level sustainability assessment schemes like BREEAM and LEED. The output of these LCA studies can be presented as an Environmental Product Declaration (EPD) which can be externally verified to give even greater assurance to decision makers. An externally verified EPD has been carried out within Hadley Group during recent months which will provide potential clients with data that supports the decision making process when placing new contracts.

This carbon footprint study has been compiled using life cycle assessment methods and is used to strive for continual improvement of our performance in respect of our life cycle environmental impacts.

1. Introduction

1.1 The company

Building Products Division is a subsidiary of the Hadley Group, a privately owned global company, whose expertise is in the manufacture of cold rolled metal products. The Hadley Group is UK-based, with its global headquarters located in the West Midlands.

Hadley Group Building Products Division (BPD) manufactures a range of construction products.

BPD is covered, as part of the Hadley Group of companies, by an environmental management system (EMS) compliant with ISO 14001 and a quality management system compliant with ISO 9001. The company is also covered by a Health and Safety Policy that applies the principles of ISO 45001.

1.2 The products

The scope of assessment covers the manufacture and supply of cold-formed metal sections to customer requirements and the design, manufacture and supply of cold roll-formed sections as UltraZED® and UltraBEAM® roof purlins, floor beams, steel framing and allied products for the construction industry.

Two operating facilities are included in this assessment:

1. *West Bromwich St, Oldbury, West Midlands*
2. *Gaitskell Way, Smethwick, West Midlands*

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2. Greenhouse gas emissions

Greenhouse gas (GHG) emissions are largely responsible for climate change and as such local, national and international policy has driven many organisations to take responsibility for managing and reducing their GHG emissions. These emissions may occur directly through a company's operations, or indirectly through the use of electricity and/or other sources of purchased power, and in their upstream and downstream supply chains.

BPD conducts an assessment of its GHG emissions for a 12-month period on an annual basis according to the methodology set out in ISO 14064-1 *Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals.* This assessment has enabled BPD to differentiate between direct (scope 1) and indirect (scope 2 and scope 3) emissions that are produced as a result of its production processes, and as such can be used to inform objectives, targets and strategies to further reduce these emissions.

A number of assumptions have also been made with regards to the data; these assumptions are highlighted in each section. Primary data have been used where possible, and much of these data have been sourced from BPD's existing management systems.

3. Scope of Analysis

BPD has conducted a 'cradle-to-gate' assessment of its annual greenhouse gas emissions. This includes all emissions from all processes owned or controlled by the organisation, use of all electricity and gas on site, emissions related to extraction of raw materials, and all processes upstream of the organisation.

3.1 Organisational Boundary

Based on EN 15804, *Sustainability of construction works: Environmental product declarations – Core rules for the product category of construction products*, this study covers modules A1 to A3 as set out in this standard. In relation to the principles of ISO 14064-1 BPD consolidates its facility level GHG emissions through the **equity share** approach. This is due to the co-location of other Hadley Group activities at the Gaitskell Way site in Smethwick, Birmingham. There are seven production bays at Gaitskell Way, all operating in a similar manner and with similar outputs; one of these bays is operated by BPD. Therefore a factor of 1/7 is applied to total site records for gas and electricity as they are metered at a site level. Activities on the Oldbury site are solely attributable to BPD.

- **Direct emissions:** Include all emissions from sources owned and controlled by BPD (scope 1 emissions). This includes all processing and manufacturing activities;
- **Energy indirect emissions:** Use of all electricity on site (scope 2 emissions);
- **Other indirect emissions:** Upstream processes such as raw material extraction and transportation of raw materials to BPD, and other value chain emissions, such as business travel, and waste disposal.

Sources of GHG emissions include energy and fuel streams, embodied impacts of imported materials and other associated sources as identified in section 4.3 to 4.6.

Primary data has been used for direct and indirect emissions data (energy). Appropriate conversion factors have been sourced from credible databases. The calculations and data are shown in spreadsheet BPD 05. Conversion factors have been updated year on year which does make direct yearly comparisons difficult.

The base year for this GHG emissions study was 1st April 2023 – 31st March 2024.

GHG inventory quality management (as per clause 6 of ISO 14064-1) is maintained through the use of primary energy data from supplier invoices. Accurate material usage data is maintained as part of the quality management system.

This is the tenth annual GHG emissions report which has been compiled for BPD. The total, direct, and indirect (energy and others) GHG emissions figures will be made publically available to stakeholders via the Hadley Group website, as in previous years.

4. Data Reporting

Raw data was collected over the course of the period from 1st April 2023 – 31st March 2024. Conversion factors are then applied to the data so that GHG emissions (expressed as tonnes of CO_2 equivalents; tCO_2e) can be derived.

4.1 Raw Materials

All deliveries are transported via road to site (transport emissions calculated under section 4.3).

Table 1: Raw material data.

Raw Material	Material Type	Total purchased (tonnes)	EF/kg	tonnes CO_2e
Steel	General Steel (UK Typical)	15,009	2.59	38,873
Ink	General Ink	0.482	2.1	1.0
Steel	Welded Tube	48.14	2.59	124.7
		15,057	**TOTAL**	**38,998**

4.2 Energy

BPD uses both gas and electricity at each production site. The data for gas and electricity use includes operation of premises as well as use of machinery. Table 2 shows the utility usage and the derived CO_2e emissions by use of conversion factors at BPD sites. These conversion factors were obtained from the Defra UK Government conversion factors for Company reporting Microsoft Excel spreadsheet. This forms part of BPD's scope 3 emissions declaration.

The total amount of CO_2e produced from utility usage is deduced to be **583.54 tonnes.**

Table 2: Energy / Fuel usage.

	Annual Consumption (kWh)	Scope	EF/unit	tonnes CO_2e
Electricity Use (kWh)	820,707	Scope 2	0.20707	169.94
Electricity transmission/distribution	820,707	Scope 3	0.01792	14.71
Natural gas use (kWh)	2,198,701	Scope 1	0.18256	401.39
Gas Total LPG KG	56,946	Scope 3	0.21419	12.20
			TOTAL	**583.54**

4.3 Transport

This section considers emissions resulting from transportation of raw materials to the Hadley sites from UK-based stockholders. Use of transport on site by Building Products Division is considered in the previous section under fuel usage. All deliveries are transported via road to BPD sites and all delivery lorries arrive on site full and leave empty.

The direct emission factor for articulated lorries used in this study is 1.213870kg CO_2e per mile, as stated in DEFRAs annual report.

Some of these materials were delivered by van as opposed to large articulated lorry, and as such emissions for these materials have been calculated by using the emissions factor of the average van (up to 3.5 tonnes; 0.37268 CO2e), as per the Defra factors. These materials are listed in table 4.

The total footprint resulting from road transportation of inbound constituent materials is 14.43 tonnes CO_2e (please see tables 3 and 4 for details). This forms part of BPD's scope 3 emissions declaration.

Table 3: Transport data for Building Products Division (material transported via articulated lorry)

Supplier/Location	Delivery Distance (miles)*	Total journeys	EF KG CO_2 per mile	tonnes CO_2e
Camtrex Ltd	21.2	53	1.213870	1.364
United Steels	18.4	1	1.213870	0.022
Meridian Metal Trading Ltd	8.4	54	1.213870	0.551
Steel & Alloy Processing Ltd	3.4	94	1.213870	0.388
Steel Processing (Midlands) Ltd	36.6	17	1.213870	0.755
The Davro Iron & Steel Co Ltd	11.8	388	1.213870	5.558
USS Ltd	13.2	1	1.213870	0.016
Sherwood Stainless (Free Issue)	18.6	3	1.213870	0.068
Stainless Steel Services	6.6	8	1.213870	0.064
Tata	18.0	110	1.213870	2.403
Stainless International	4.8	1	1.213870	0.006
Anvil	4.4	7	1.213870	0.037
Arcelor	19.6	4	1.213870	0.095
Trident Steels	73.4	1	1.213870	0.089
ACS (Free Issue - Outokumpu)	191.0	13	1.213870	3.014
		755	**TOTAL**	**14.430**

Table 4: Transport data for Building Products Division (material transported by light commercial vehicle)

Supplier/Location	Delivery Distance (miles)*	Total journeys	EF /mile	tonnes CO_2e
Hub Le Bas	4.9	21	0.98263	0.10
Imaje	85.5	5	0.37268	0.16
Xact	95.0	6	0.37268	0.21
ATD	59.5	3	0.37268	0.07
			TOTAL	**0.54**

4.4 Operation of Premises

All emissions relating to the operation of the premises (factory and offices) have been covered in section 4.2, as gas and electricity figures used have already been taken into account.

4.5 Waste

Waste from all processes (including oil changes for plant) is collected by locally based contractors (table 5).

Table 5: Waste collections

Waste Type	Distance (miles)	Visits per Year	EF /mile	tonnes CO_2e produced
General	6.8	92	1.3247	0.83
Metal	2.2	186	1.3247	0.54
Wood	11.6	13	1.3247	0.20
Hazardous Waste	14	54	1.3247	1.00
Sanitary	24.6	13	1.3247	0.42
Paper/Cardboard	6.8	23	1.3247	0.21
			BPD TOTAL	**3.20**

Transport phase

In total, waste contractors visited site a total of 381 times in the period stated in section 4, covering a total distance of 2418 miles to collect the various waste streams generated. The calculations used to derive this figure are based on single and return trips between the waste contractor's depot and the BPD sites, dependent on if the collection is Hadley Group specific or part of round robin type collections.

Using the emissions factor for rigid vehicles <7.5t, 3.20 tonnes of CO_2e was produced. This forms part of BPD's scope 3 emissions declaration.

4.6 Business travel

Emissions related to business travel is inclusive of all mileage by BPD employees, covering air, sea (both scope 3 emissions), and company car travel (scope 1 emissions).

In total, using the emissions factors indicated in the table below (table 6), business travel produces 44.10 tonnes of CO_2e.

Table 6: Business travel

Transport mode	Distance (miles)	Distance (km)	EF/km	tonnes CO_2e
Air travel	21522	34568	0.15573	5.38
Sea travel	0	0	0.12952	0.00
Company car travel (Diesel)	75009	120715	0.15882	19.17
Company car travel (Petrol)	63448	102110	0.19143	19.55
Company car travel (EV)	89912	144699	0.00000	0.00
			TOTAL	**44.10**

4.7 Water

Emissions related to water supply have been used to determine emissions related to the supply of mains water to BPD sites. This forms part of BPD's scope 3 emissions declaration.

Total water used (m3)	EF / kg CO2e per m3	tonnes CO_2e produced
1784	0.149	**0.2659**

5. Final Declaration

The final carbon footprint calculations for steel have been derived using all data discussed in section 4 of this manual. The final figures are stated below:

Overall GHG Calculation			
Scope 1	440.1	tonnes CO_2e	1.110%
Scope 2 (Electricity)	169.9	tonnes CO_2e	0.429%
Scope 3 (FLT Gas)	12.2	tonnes CO_2e	0.031%
Scope 3 (Other)	39,037	tonnes CO_2e	98.431%
Total GHG Emissions	**39,659**	**tonnes CO_2e**	

This organisational footprint is then normalised against a production figure of 14,351 tonnes for the study period to derive a GHG footprint/tonne of output as follows.

Total impact/tonne	2,764	kg CO_2e/tonne
Scope 1 impact/tonne	30.7	kg CO_2e/tonne
Scope 2 impact/tonne	11.8	kg CO_2e/tonne
Remainder	2,721	kg CO_2e/tonne