

Proposed just transition baseline variables: built environment and construction sector

SYSTRA

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1 Introduction

1.1 Built environment and construction sector – key themes

The discussion paper for a just transition within the built environment & construction sector¹ highlighted priority **themes** that need to be addressed in order to achieve the draft outcomes for a just transition within the built environment & construction sector. These themes form the basis of our analysis of proposed baseline variables, as they have emerged as key themes during the stakeholder engagement and analysis that informed the built environment & construction sector Just Transition Plan (JTP) discussion paper.

The themes within the built environment and construction sector JTP discussion paper are as follows:

- Theme 1: Procurement
- Theme 2: Building a skilled labour force
- Theme 3: An innovative, internationally competitive industry
- Theme 4: Consistent and sustainable standards
- Theme 5: Maximising the manufacturing base in Scotland

Within those themes, a number of **sub-themes** were discussed within JTP discussion paper (and subsequently within this report).

The analysis presented within this report is broken down into the sub-themes.

1.2 Understanding categories of inequalities

Our research framework investigates several dimensions (called “equality groups” in this report) that can be linked to inequalities within the built environment and construction sector’s transition to net zero. These dimensions have been grouped into three key “categories of inequalities”. These categories were developed through stakeholder consultation, as they encapsulate the types of inequalities that can affect different groups of individuals in the context of a just transition. The three key categories of inequalities to investigate that have been identified are:

¹ Scottish Government (2023), ‘Just transition for the built environment and construction sector: a discussion paper’, <https://www.gov.scot/publications/transition-built-environment-construction-sector-discussion-paper/>

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- **Protected characteristics:** The UK Equality Act 2010² lists nine protected characteristics against which it is illegal to discriminate: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. A baseline of inequalities within the built environment and construction sector is needed to understand whether there are existing inequalities related to any of these protected characteristics.
- **Income disparities:** Income inequalities refer to the uneven distribution of income within a population. A baseline of inequalities can assess whether those on lower incomes may experience inequalities in aspects related to the built environment and construction sector.
- **Regional inequalities:** Regional disparities reflect differences between geographic areas in factors such as access to employment opportunities, levels of income, and public services like education or transportation. A baseline of inequalities can investigate whether there are any current regional disparities, comparing urban, rural, and islands communities.

The Fairer Scotland Duty ('the Duty'), set out in Part 1 of the Equality Act 2010, also requires public bodies in Scotland to actively consider how they can reduce inequalities of outcomes caused by socio-economic disadvantage³, when making strategic decisions. People living with socio-economic disadvantages usually experience life on a low income compared to others in Scotland and have low wealth (including not having accessible savings), can experience factors which lead to material deprivation (being unable to access basic goods and services), and they can experience area deprivation (unhealthy living conditions due to geographic location). All of these factors contributing to socio-economic disadvantage have been investigated through our research framework and are captured by the three key categories of inequalities defined above.

1.3 Variables and data sources

For each built environment and construction sector sub-theme, one or more variable is identified to build a baseline for the current "state of the sector" in terms of inequalities, together with data sources suggested to measure it. For each variable we provide:

Notes / commentary on data source(s)

- What the variable measures.
- Why do we need to measure this variable to build a baseline?
- What is the suggested data source / dataset to measure the variable?
- Why we are suggesting to use this dataset and how to use the dataset, including comparing / contrasting with other datasets?

Discussion of the suitability / robustness / limitations of data chosen

- Suggest if the dataset should be included in the baseline. Is the dataset "baseline ready"?
- If yes, explain why it is suitable, robust and complete.
- If it is not ready, explain improvements to make the dataset "baseline ready", e.g., combining different sources? Changing questions? More frequent data collection?

² UK Government (2010), 'Equality Act 2010', <https://www.legislation.gov.uk/ukpga/2010/15/contents>

³ For more details on inequalities of outcomes and socio-economic disadvantage, please see The Fairer Scotland Duty. Guidance for Public Bodies (2021): <https://www.gov.scot/publications/fairer-scotland-duty-guidance-public-bodies/documents/>

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- If the dataset is not considered ready because of gaps in providing information for some equality group, explain:
 - If the gap should be filled and how;
 - If not, why there is no need to fill the gap.
- Mention any other dataset that was considered to build the baseline and explain why that dataset has been discarded.

Variables have been categorised as follows in terms of “baseline readiness”:

- **Green:** the dataset identified to quantify or represent the “state of the sector” can be used as it is to build a baseline.
- **Amber:** a dataset to quantify or represent the “state of the sector” has been identified; however, it is not ready to be used in the baseline as it needs modifications or contains gaps.
- **Red:** a suitable dataset has not been identified to quantify or represent the “state of the sector”. No data can be included in the baseline for such variable.

2 Overview of variables

Section	Theme	Sub-theme	Variable	Data source(s)
3.1	Procurement	Improved spending outcomes (a)	Percentage of building and construction public contracts awarded to small to medium sized enterprises (SME)	Scottish Procurement Information Hub (The Hub)
3.2	Procurement	Improved spending outcomes (b)	Number and percentage of contracts awarded that incorporate circular economy principles, segmented by the size and ownership of the businesses	Public Contracts Scotland portal - The Public Contracts Scotland (PCS) and Scottish Procurement Information Hub (The Hub)
3.3	Procurement	Improved spending outcomes (c)	Number and percentage of contracts awarded that incorporate fair work criteria	Fair Work Construction Inquiry Report, 2022, Fair Work Convention
4.1	Building a skilled labour force	Diverse talent attraction and workforce reskilling (a)	Workforce qualification in the built environment and construction sector across inequality groups	Sectoral skills assessment report (2022) on Construction
4.2	Building a skilled labour force	Diverse talent attraction and workforce reskilling (b)	Enrolment, completion, and drop-out rates for training and apprenticeship programmes in the construction sector	Modern Apprenticeships Statistics (2023/2024) – Skills development Scotland Higher Education Student Statistics, UK (2021/2022), Higher Education Statistics Agency College Statistics 2021-22, Scottish Funding Council
4.3	Building a skilled labour force	Sector workforce equity (a)	Employment data in the Built Environment and Construction sector broken down by equality groups	Census 2021

Section	Theme	Sub-theme	Variable	Data source(s)
4.4	Building a skilled labour force	Sector workforce equity (b)	Income parity data in the Built Environment and Construction sector broken down by equality groups	Annual Survey of hours and earning 2022
4.5	Building a skilled labour force	Sector workforce equity (c)	Types and frequency of barriers encountered by businesses to employ individuals from equality groups	National Construction Equity and Inclusion Plan, Construction Leadership Forum, 2022
5.1	An innovative, internationally competitive industry	Innovation driven growth (a)	Representation of equality groups within teams / departments focused on innovation and R&D in the Construction sector	None
5.2	An innovative, internationally competitive industry	Innovation driven growth (b)	Types and frequency of barriers encountered by businesses owned by individuals from equality groups when entering or competing in the market	None
6.1	Consistent and sustainable standards	Lifelong savings via initial design investment (a)	Distribution of households with any one person in the household falling within any of the equality groups, living in buildings built or renovated according to sustainable standards	Scottish Government Scottish House Condition Survey (SHCS, 2021)
6.2	Consistent and sustainable standards	Lifelong savings via initial design investment (b)	Barriers encountered by households preventing the installation of insulation measures	Scottish Government Scottish House Condition Survey (SHCS, 2021)
6.3	Consistent and sustainable standards	Lifelong savings via initial design investment (c)	Energy Performance Certificates (EPC) ratings of building where households with any one person in the household falling within any of the equality groups live	Scottish Government Scottish House Condition Survey (SHCS, 2021)
7.1	Maximising the manufacturing base in Scotland	Supply chains	Distribution of companies serving the low carbon energy building and construction supply chain across Scotland	Low carbon Energy supply Chain – Detailed Analysis, 2023, Construction Leadership Forum

3 Procurement

3.1 Improved spending outcomes (a)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Percentage of building and construction public contracts awarded to small to medium sized enterprises (SME)	Scottish Procurement Information Hub (The Hub)	<ul style="list-style-type: none"> Green 	Region	Age Sex Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Pregnancy and maternity Income

3.1.1. Notes on data source

This variable gauges the extent of involvement in procurement activities of small to medium sized enterprises (SME).

Whilst this variable does not measure inequality related to individuals within inequality groups, understanding the extent of SMEs participating in public sector procurement processes can be used as a proxy to measure inequalities related to this theme.

SMEs face a number of barriers in participation to public procurement, stemming from factors such as limited resources, lack of experience, and regulatory constraints. New procurement processes aimed at making construction more sustainable may further hinder their participation.

3.1.2. Discussion of the suitability / robustness / limitations of data chosen

Data from the Scottish Procurement Information Hub (The Hub) should be used as the baseline for this variable.

As reported in the [Scottish Government procurement](#) annual report, the data provided on the Scottish Procurement Information Hub ('the Hub') classify suppliers that have delivered work for public sector bodies by size, location, area of business, charity status and other characteristics. Data from the Hub are used in the report to quantify the government public spend with SMEs supplying goods and services.

3.2 Improved spending outcomes (b)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Number and percentage of contracts awarded that incorporate circular economy principles, segmented by the size and ownership of the businesses	Public Contracts Scotland portal - The Public Contracts Scotland (PCS) and Scottish Procurement Information Hub (The Hub)	<ul style="list-style-type: none"> Amber 	Region	Age Sex Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Pregnancy and maternity Income

3.2.1. Notes on data source

This variable measures the prevalence of circular economy principles in built environment and construction sector procurement.

Whilst this variable does not measure inequality related to individuals within inequality groups, it helps understanding the profile of enterprises that are able to participate in circular economy, in terms of size, ownership and geographical spread.

As set out in the [Scotland's Circular Economy and Waste Route Map to 2030](#), a circular economy based on sustainable production and consumption aimed at minimising waste, is essential to power Scotland's transition to a fair, green and sustainable economy. Material consumption and waste are the primary drivers of Scotland's environmental issues, which can have a greater impact on people in equality groups.

3.2.2. Discussion of the suitability / robustness / limitations of data chosen

Data from the Public Contracts Scotland portal, The Public Contracts Scotland (PCS), and Scottish Procurement Information Hub (The Hub) should be used as the baseline for this variable. However, there are currently gaps in the available data, as circular economy principles within Scottish Government procurement are not defined.

As reported in the [Scottish Government procurement](#) annual report, the data provided on the Public Contracts Scotland portal, The Public Contracts Scotland (PCS), and on the Scottish Procurement Information Hub ('the Hub') can be used to get an overview of the Government procurement activities in different sectors, including the building and construction sectors. In the future, when circular economy principles will be a requisite for participating in procurement process, this aspect can be factored in the reported data.

3.3 Improved spending outcomes (c)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Number and percentage of contracts awarded that incorporate fair work criteria	Fair Work Construction Inquiry Report, 2022, Fair Work Convention	● Amber	Age Sex Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Pregnancy and maternity Income Region	N/A

3.3.1. Notes on data source

This variable gauges the extent to which public sector procurement is used to promote fair work practice.

Establishing a baseline using this measurement will help understanding to what extent public authorities in Scotland support fair working practices, moving away from awarding work giving a highest weight to price criteria over quality.

For more information on fair work practice criteria and how these can promote equality in the construction sector, please see the [Fair Work Construction inquiry Report, 2022](#).

3.3.2. Discussion of the suitability / robustness / limitations of data chosen

Data on procurement practice related to fair work criteria included in the Fair Work Construction Inquiry Report (2022), is not considered a fully adequate data source to build the baseline for this variable.

To inform the report, a questionnaire was administered to contracting authorities to understand their practices for including fair work questions and conditions in their construction procurement, and how these are handled. Eight contracting authorities responded to the questionnaire in 2022, and while this only represents a small number of contracting authorities, it covered central government, local government, NHS, government agencies and higher education. Together the respondents were responsible for about £1.5 billion of public sector spend. The exercise was undertaken at four stages of construction procurement, and provided findings that could be used to build a baseline for this variable if the sample size is increased.

As the report is a standalone document, it is recommended that the Scottish Government engages with the Inquiry authors to understand if the survey can be repeated and work with them to expand the sample size.

It is also assumed that the dataset could cover all of the equality groups under consideration as they can be part of the workforce that can benefit from fair procurement practices.

4 Building a skilled labour force

4.1 Diverse talent attraction and workforce reskilling (a)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Workforce qualification in the built environment and construction sector across inequality groups	Sectoral skills assessment report (2022) on construction	● Amber	None	Age Sex Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Pregnancy and maternity Income Region

4.1.1. Notes on data source

This variable would measure the level of education in the Built environment and construction sector workforce, and how the level of education varies across equality categories.

Establishing a baseline using this measurement will help understanding if some equality groups are not represented in the built environment and construction sector job market and if this is linked to their level of education.

*In addition to data on workforce qualification, Sectoral skills assessment report (2022) on construction provides regional statistics on current employment in the energy sector across Scotland and in addition also provides statistics on current job vacancies posted online, within the construction sector.

4.1.2. Discussion of the suitability / robustness / limitations of data chosen

The data contained in the Sectoral skills assessment report (2022) on Construction is not considered a fully adequate data source to build the baseline for this variable.

This dataset cannot be used as it stands to build a baseline, as it does not provide segmentation per the equality categories.

Workforce qualification data in the construction sector could be extracted from the Census 2021; however, the Sectoral Skills Assessment 2022 is deemed more suitable to build a baseline as it provides forecasts that are based on a variety of sector-specific data sources, and not only on Census data analysis.

To fill this data gap, it is recommended that the Scottish Government consults with Skills Development Scotland to understand if information on equality categories can be included in their forecasts.

4.2 Diverse talent attraction and workforce reskilling (b)

Variable	Data sources	Baseline readiness	Data subsets	Data gaps
Enrolment, completion, and drop-out rates for training and apprenticeship programmes in the construction sector	Modern Apprenticeships Statistics (2023/2024) – Skills development Scotland	● Amber	Age Disability Sex Region Ethnicity	Gender reassignment Sexual orientation Religion Marriage and civil partnership Pregnancy and maternity Income
Enrolment, completion, and drop-out rates for training and apprenticeship programmes in the construction sector	Higher Education Student Statistics, UK (2021/2022), Higher Education Statistics Agency	● Amber	Age Disability Sex Region Ethnicity	Gender reassignment Sexual orientation Religion Marriage and civil partnership Pregnancy and maternity Income
Enrolment, completion, and drop-out rates for training and apprenticeship programmes in the construction sector	College Statistics 2021-22, Scottish Funding Council	● Amber	N/A	Age Disability Sex Region Ethnicity Gender reassignment Sexual orientation Religion Marriage and civil partnership Pregnancy and maternity Income

4.2.1. Notes on data sources

This variable would measure the level of education relevant to the construction sector, and how the level of education varies across equality categories.

Establishing a baseline using this measurement will help understanding if some equality groups are not represented in the construction sector job market and if this is linked to their level of education.

The uptake of the following courses and education routes should be considered within this variable:

- Modern Apprenticeships under the “Construction & Related” grouping
- Higher Education Courses in Architecture, building and planning subjects (CAH13)
- College Courses under the “Construction and property (Built Environment)” subjects

Three different datasets should be used to measure this variable, as reported in the [Scottish Construction Industry Dashboard](#).

4.2.2. Discussion of the suitability / robustness / limitations of data chosen

The data contained in the sources mentioned should be used as part of the baseline for the current state of the sector, however, the datasets have some limitations.

[Modern Apprenticeships Statistics](#) provides ‘Number of Modern Apprenticeship Starts’ by occupational grouping per quarter, broken down by age, gender, disability and ethnicity. The data in the “Construction & Related” grouping can be used to understand access to apprenticeship in the sector.

The [Higher Education Statistics Data](#) provides the number of Higher Education students enrolled in Architecture, building and planning subjects (CAH13) in each academic year, broken down by age, gender, disability and ethnicity.

[Scottish Funding Council](#) data provides the number of college students who studied Construction and property (Built Environment) subjects, however, does not provide any breakdown in terms of equality categories. To fill this gap, it is recommended that the Scottish Government consults with Scottish Funding Council to understand if they can collect data on age, gender, disability and ethnicity of enrolled students, to make the data comparable with the Modern Apprenticeships Statistics and the Higher Education Statistics.

All of these datasets present some data gaps in terms of the equality groups considered. It is recommended that the Scottish Government engage with the three data providers to understand if information about income level of students can be gathered, to understand if there is any disparity in access to education related to income. No evidence has been found relating access to education and other missing equality groups (Gender reassignment, Sexual orientation, Religion, Marriage and civil partnership, Pregnancy and maternity), as such it is not deemed necessary to fill this data gap.

4.3 Sector workforce equity (a)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Employment data in the built environment and construction sector broken down by equality groups	Census 2021	<ul style="list-style-type: none"> Green 	Age Sex Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Income Region	Pregnancy and maternity

4.3.1. Notes on data source

This variable would measure the representation of equality categories in the built environment and construction sector job market. This variable needs to be measured to build a baseline to understand possible impacts of changes in the job market on people within different equality groups.

4.3.2. Discussion of the suitability / robustness / limitations of data chosen

Census (2021) data should be used as part of the baseline for the current state of the sector.

The Census provides more granular data than the Annual Population Survey due to its bigger sample size.

Workforce data are broken down by Standard Industrial Classification (SIC) 2007 codes. The classification F: Construction is found to be robust, capturing all key job occupations within the industry.

Census data can be used to monitor longer term impacts as it is collected every 10 years. The Annual Population Survey can be used to monitor impacts on policies which are expected to have a greater impact in the shorter term, as it is collected annually.

As pregnancy and maternity is a short-term status, it may not be cost effective to add a question around this protected characteristic on either the Annual Population Survey or Census, as it may not provide data that are timely and relevant to the baseline. Other sources of information, like dedicated academic studies or reports, could be identified or commissioned to understand if a change in the job market composition of the construction sector can have a negative impact on pregnant women and women returning from maternity leave.

4.4 Sector workforce equity (b)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Income parity data in the built environment and construction sector broken down by equality groups	Annual Survey of hours and earning 2022	● Amber	Age Sex Income	Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Region Pregnancy and Maternity

4.4.1. Notes on data source

This variable would measure the pay parity of equality categories in Built environment and construction sector job market. This variable needs to be measured to build a baseline to understand pay gap of people with different equality groups.

4.4.2. Discussion of the suitability / robustness / limitations of data chosen

Annual Survey of hours and earnings (2022) data source should be used as part of the baseline for the current state of the sector but with improvements.

The Annual survey of hours and earnings provide industry-level statistics of income. However, the granularity of this dataset is limited and it only covers gender and age.

For this data source to be robust, granular income data, by sector, of the equality groups not currently covered by the data would be needed.

Furthermore, as Pregnancy and maternity is a short-term status, it may not be cost effective to add a question around this protected characteristic, as it may not provide data that are timely and relevant to the baseline. Other sources of information, like dedicated academic studies or reports, could be identified or commissioned to understand if a change in the job market composition of the construction sector can have a negative impact on pregnant women and women returning from maternity leave.

*The [National Construction Equity and Inclusion Plan](#) (2022) provides an overview of inequalities in terms of composition of the construction sector workforce using workshops, case studies and interviews to support findings of their data review.

4.5 Sector workforce equity (c)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Types and frequency of barriers encountered by businesses to employ individuals from equality groups	National Construction Equity and Inclusion Plan, Construction Leadership Forum, 2022	<ul style="list-style-type: none"> Amber 	Age Sex Disability Ethnicity Sexual orientation	Gender reassignment Religion Marriage and civil partnership Pregnancy and maternity Income Region

4.5.1. Notes on data source

This variable tries to identify data that could be utilised to understand barriers faced by business to employ individuals from equality groups .

Establishing a baseline through measuring this variable can ascertain barriers encountered by businesses and identify which of the equality groups are more affected.

Given the nature of this variable, a qualitative data source would be suitable.

4.5.2. Discussion of the suitability / robustness / limitations of data chosen

The data collected for the National Construction Equity and Inclusion Plan (2022) should be used as the baseline for this variable; however, the way the data are collected can be enhanced to ensure barriers for every equality group are understood.

The report, through a series of stakeholder workshops, case studies and interviews, identifies barriers faced by business and provides policy recommendations.

The report as a number of limitations, as it does not cover every equality group and it is intended as a stand-alone document, hence the same data collection will not be repeated to track changes in the barriers identified.

It is suggested that a bespoke industry survey or in-depth study using industry interviews, workshops or focus groups could be developed to address this data gap and provide a baseline. Depending on the type of study selected, this could be repeated every 5 to 6 years to understand how barriers change over time.

5 An innovative, internationally competitive industry

5.1 Innovation driven growth (a)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Representation of equality groups within teams / departments focused on innovation and R&D in the construction sector	None	● Red	None	Age Sex Disability Gender reassignment Sexual orientation Ethnicity Religion Marriage and civil partnership Pregnancy and maternity Income Region

5.1.1. Notes on data source

This variable gauges the extent of representation of equality groups within teams across the construction sector.

Establishing a baseline through measuring this variable is essential to ascertain current diversity distribution within teams and to identify if there are any disparities in participation among different equality categories.

5.1.2. Discussion of the suitability / robustness / limitations of data chosen

A complete and robust data source to measure this variable has not been identified.

The Annual Population Survey and Census datasets compile labour market surveys that includes segmentation of workforce by equality categories. However, these data sources do not provide data on diversity within individual businesses.

Additionally, the labour market datasets only provide industry level statistics and do not go into specifics within any industry such as the research and development sector within the construction industry.

A bespoke data collection, such as an industry surveys and interviews with sectors stakeholders is suggested to fill this data gap.

5.2 Innovation driven growth (b)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Types and frequency of barriers encountered by businesses owned by individuals from equality groups when entering or competing in the market	None	● Red	Age Sex Disability Ethnicity Sexual orientation	Gender reassignment Religion Marriage and civil partnership Pregnancy and maternity Income Region

5.2.1. Notes on data source

This variable tries to identify data that could be utilised to understand barriers to entering or competing in the building and construction market.

Establishing a baseline through measuring this variable can ascertain barriers encountered by businesses owned by individuals from equality groups and identify if there are any disparities

Given the nature of this variable, a qualitative data source would be suitable.

5.2.2. Discussion of the suitability / robustness / limitations of data chosen

A complete and robust data source to measure this variable has not been identified.

Whilst literature provides some data to partially help understand barriers that are faced by companies entering construction markets, these studies such as [National Construction Equity and Inclusion Plan](#) (2022) and the [Fair Work Construction Inquiry Report](#) (2022) do not specifically cover businesses owned by individuals from equality groups.

It is suggested that a bespoke industry survey or in depth study using industry interviews, workshops or focus groups could be developed to address this data gap and provide a baseline. Depending on the type of study selected, this could be repeated every 5 to 6 years to understand how barriers change over time.

6 Consistent and sustainable standards

6.1 Lifelong savings via initial design investment (a)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Distribution of households with any one person in the household falling within any of the equality groups, living in buildings built or renovated according to sustainable standards	Scottish Government Scottish House Condition Survey (SHCS, 2021)	<ul style="list-style-type: none"> Amber 	Age Sex Disability Ethnicity Religion Marriage and civil partnership Income Region	Gender reassignment Sexual orientation Pregnancy and maternity

6.1.1. Notes on data source

This variable gauges quantitative data that helps understand distribution of households across equality groups living in built or renovated buildings according to sustainable standards.

There is not a set definition of ‘sustainable building’; as such, to provide a baseline for this variable, insulated houses are used as a proxy for sustainable houses.

Establishing a baseline through measuring this variable can ascertain living standards and identify if there are any disparities among different equality categories.

6.1.2. Discussion of the suitability / robustness / limitations of data chosen

Scottish House Condition Survey (SHCS) data sources on insulation measures should be used as the baseline for this variable; however, the way the data are collected can be enhanced.

Question EE1 of the SHCS, asks people if their home is equipped with some insulation measures, and/or if it is possible to install them. The insulation measures considered include loft insulation, cavity wall insulation, solid wall insulation, and floor insulation. In addition, question EE4 asks respondents what are the barriers preventing them from installing any of these measures.

Given the Survey is now part of the Scottish Household Survey, undertaken annually, responses to these questions can be, in theory, broken down by each inequality group to identify households with any one person in the household falling within any of the equality groups – if the sample size allows for a statistically significant segmentation.

It is to be noted that SHS data do not cover the entirety of the Scottish population. The target sample size for the SHS is 10,450 household interviews with a minimum per-local authority target of 250, which is considered a statistically significant sample.

SHS data do not provide information on Gender reassignment, Sexual orientation, and Pregnancy and maternity groups. To address the lack of data around Gender reassignment and Sexual orientation, we suggest the “gender identity” question of SHS (HA6) to be split into two questions mirroring Q4 (gender reassignment) and Q8 (sexual orientation) of the Census 2021 questionnaire in future SHS surveys.

As Pregnancy and maternity is a short-term status, it may not be cost effective to add a question around this on the SHS. Other sources of information, like dedicated academic studies or reports should be undertaken or identified to understand possible negative impacts on pregnant women of lack of access to energy efficient homes.

6.2 Lifelong savings via initial design investment (b)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Barriers encountered by households preventing the installation of insulation measures	Scottish Government Scottish House Condition Survey (SHCS, 2021)	<ul style="list-style-type: none"> Amber 	Age Sex Disability Ethnicity Religion Marriage and civil partnership Income Region	Gender reassignment Sexual orientation Pregnancy and maternity

6.2.1. Notes on data source

This variable gauges data that helps understanding barriers people from equality groups face to install insulation in their homes, preventing them from living in built or renovated buildings according to sustainable standards.

Establishing a baseline through measuring this variable can ascertain which are the barriers preventing the installation of insulation measures and it helps identify if there are any disparities among different equality categories.

6.2.2. Discussion of the suitability / robustness / limitations of data chosen

Scottish House Condition Survey (SHCS) data sources on barriers to install insulation measures should be used as the baseline for this variable; however, the way the data are collected can be enhanced.

Question EE4 asks respondents what are the barriers preventing them from installing insulation measures. The insulation measures considered include loft insulation, cavity wall insulation, solid wall insulation, and floor insulation, as per question EE1.

Given the Survey is now part of the Scottish Household Survey, undertaken annually, responses to these questions can be, in theory, broken down by each inequality group to identify households with any one person in the household falling within any of the equality groups – if the sample size allows for a statistically significant segmentation.

It is to be noted that SHS data do not cover the entirety of the Scottish population. The target sample size for the SHS is 10,450 household interviews with a minimum per-local authority target of 250, which is considered a statistically significant sample.

SHS data do not provide information on Gender reassignment, Sexual orientation, and Pregnancy and maternity groups. To address the lack of data around Gender reassignment and Sexual orientation, we suggest the “gender identity” question of SHS (HA6) to be split into two questions mirroring Q4 (gender reassignment) and Q8 (sexual orientation) of the Census 2021 questionnaire in future SHS surveys.

As Pregnancy and maternity is a short-term status, it may not be cost effective to add a question around this on the SHS. Other sources of information, like dedicated academic studies or reports should be undertaken or identified to understand possible negative impacts on pregnant women of lack of access to energy efficient homes.

6.3 Lifelong savings via initial design investment (c)

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Energy Performance Certificates (EPC) ratings of building where households with any one person in the household falling within any of the equality groups live	Scottish Government Scottish House Condition Survey (SHCS, 2021)	● Amber	Age Sex Disability Ethnicity Religion Marriage and civil partnership Income Region	Gender reassignment Sexual orientation Pregnancy and maternity

6.3.1. Notes on data source

This variable gauges quantitative data that helps understand distribution of households across equality groups living in built or renovated buildings according to sustainable standards.

There is not a set definition of ‘sustainable building’; as such, to provide a baseline for this variable, EPC rating of buildings are used as a proxy for sustainable houses.

Energy Performance Certificates (EPC) were introduced in January 2009 under the requirements of the EU Energy Performance Building Directive (EPBD). They provide energy efficiency and environmental impact ratings for buildings based on standardised usage.

For more information on how EPC ratings are calculated, please refer to section 2.3 of [Scottish House Condition Survey: 2021 Key Findings](#) report.

Establishing a baseline through measuring this variable can ascertain living standards and identify if there are any disparities among different equality categories.

6.3.2. Discussion of the suitability / robustness / limitations of data chosen

Scottish House Condition Survey (SHCS) data on EPC rating should be used as the baseline for this variable; however, the way the data are collected can be enhanced.

The SHCS consists of an interview with householders and a physical inspection of the dwelling they occupy, which provides a picture of Scotland's occupied housing stock. The physical data about the dwelling is recorded by surveyors trained to collect detailed information on housing characteristics, which is then combined with information about the household collected through the face-to-face social interview.

Given the Survey is now part of the Scottish Household Survey, undertaken annually, responses to these questions can be, in theory, broken down by each inequality group to identify households with any one person in the household falling within any of the equality groups – if the sample size allows for a statistically significant segmentation.

It is to be noted that SHS data do not cover the entirety of the Scottish population. The target sample size for the SHS interview is 10,450 household interviews with a minimum per-local authority target of 250, which is considered a statistically significant sample. However, not every dwelling is surveyed to establish EPC rating. In 2021, 3,174 properties were surveyed. Due to the smaller sample size, there is the risk that statistically significant segmentation would not be possible for some of the equality groups.

The 2021 report, illustrating the data analysis findings, recognises the presence of data limitations due to the change in data collection approach for the 2021 SHCS (caused by Covid-19 restrictions), as surveyors could only undertake external surveys of houses, however standard inspections have resumed in 2022.

SHS data do not provide information on Gender reassignment, Sexual orientation, and Pregnancy and maternity groups. To address the lack of data around Gender reassignment and Sexual orientation, we suggest the “gender identity” question of SHS (HA6) to be split into two questions mirroring Q4 (gender reassignment) and Q8 (sexual orientation) of the Census 2021 questionnaire in future SHS surveys.

As Pregnancy and maternity is a short-term status, it may not be cost effective to add a question around this on the SHS. Other sources of information, like dedicated academic studies or reports should be undertaken or identified to understand possible negative impacts on pregnant women of lack of access to energy efficient homes.

7 Maximising the manufacturing base in Scotland

7.1 Supply chains

Variable	Data source	Baseline readiness	Data subsets	Data gaps
Distribution of companies serving the low carbon energy building and construction supply chain across Scotland	Low carbon energy supply chain – detailed analysis, 2023, Construction Leadership Forum	• Green	Region	N/A

7.1.1. Notes on data source

This variable quantifies the regional spread of companies that form the supply chain covering low carbon energy / heating, technology providers and businesses who support energy efficiency measures which are of interest for the construction sector.

The use of these supply chains by the Scottish construction sector occurs in both domestic and non-domestic buildings at new build and retrofit stages.

Building a baseline using this variable can be used to understand strengths and weaknesses of the existing supply chain and how supply chain benefits are spread at a regional level. Prioritising supply chains at local level where possible is a key part of a circular economy and to enable a construction sector which is waste efficient, optimises materials, is resilient and flexible. The distribution of supply chains ensures the right materials come to the market at the right time.

7.1.2. Discussion of the suitability / robustness / limitations of data chosen

Low carbon Energy supply Chain – Detailed Analysis, 2023 should be used as the baseline for this variable.

The one-off study, primarily based on desk research, identifies the companies of five relevant supply chain:

1. Heat pumps
2. Low carbon electricity generation and storage
3. Sustainable insulation materials
4. Heat storage
5. Mass timber systems and components

These supply chains were agreed with project representatives from BE-ST and the Construction Leadership Forum.

A small sample of industry representatives across the supply chains was engaged to test and validate the supply chain structures and to obtain feedback.

This supply chain mapping clearly identified relevant businesses, their geographical location and their characteristics, enabling an understanding of their geographical distribution.

Given the level of involvement of stakeholders to validate the research result, this dataset is considered adequate to be used as a baseline for this variable.

8 Appendices

Appendix A - List of relevant data sources

1. Scottish Government procurement: Annual report 2021 to 2022 (Scottish Government, 2023)
2. The Public Contracts Scotland (PCS) portal
3. Scottish Procurement Information Hub (The Hub)
4. Fair Work Construction Inquiry Report (Fair Work Convention, 2022)
5. Scottish Construction Industry Data Dashboard
6. Sectoral skills assessment report: Construction (2022)
7. Modern Apprenticeships Statistics 2023/2024 (Skills Development Scotland)
8. Higher Education Student Statistics, UK 2021/2022 (Higher Education Statistics Agency)
9. College Statistics 2021-22 (Scottish Funding Council)
10. Census (2021)
11. Annual Survey of hours and earning (2022)
12. National Construction Equity and Inclusion Plan (Construction Leadership Forum, 2022)
13. Scottish Household Condition Survey (2021)
14. Scottish House Condition Survey: 2021 Key Findings (Scottish Government, 2022)
15. Low carbon Energy supply Chain – Detailed Analysis (Construction Leadership Forum, 2023)

Appendix B – List of stakeholder organisations

1. BE:ST
2. CICV
3. Construction Scotland
4. Disability Equality Scotland

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