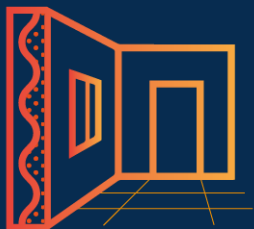


# EEC Technical Specification

## Origin & Impact

Building a Net Zero Scotland - Energy Efficiency Conference and Expo  
May 2022



 *Building Performance*



 *Asset Surveying*



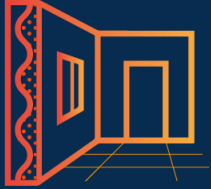
 *Sustainable Design*



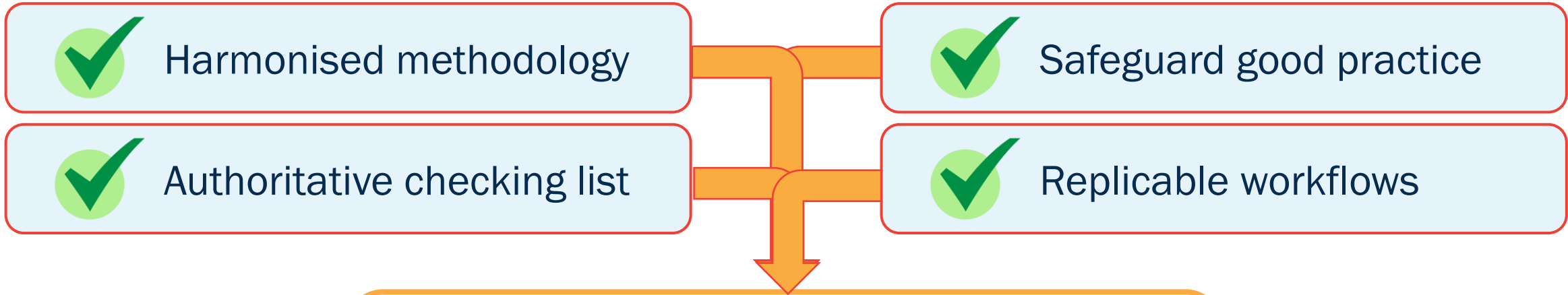
 *Sustainable Communities*

# What I'll be covering:

1. Building the Framework
2. Underpinning Principles
3. Impact & Legacy
4. Questions



# 1. Building the Framework



Tech Spec = Library



Whole buildings retrofit specification



# 2. Underpinning Principles



## Lot 1: Professional Services



### 4 Sub-Lots:

- EE Designer
- EE Coordinator
- EE Assessor
- Managing agent

## Lot 2: Bldg Fabric Measures



### 10 Sub-Lots:

- Roof (n=3)
- Walls (n=4)
- Openings (n=2)
- Floor (n=1)

## Lot 3: HVAC Measures



### 7 Sub-Lots:

- Gas + bio (n=2)
- Elec + HP (n=3)
- Heat distri (n=1)
- Ventilation (n=1)

## Lot 4: Renewable + Storage



### 4 Sub-Lots:

- Energy gen (n=2)
- Energy stor (n=2)



# 2. Underpinning Principles

## Lot 1: Professional Services

by the Contractor to maintain the continuity of the thermal envelope, as far as reasonably practicable. Accredited or approved construction details referenced in the relevant standards, associations and agencies should be used. All construction details should be designed to avoid thermal bridging and surface and interstitial condensation.

The addition of EWI may require a building warrant and appropriate levels of planning permission, the Council will confirm who will be responsible for obtaining the warrant and planning permission, as required. If this is the case, the work may require interim inspections from the planning authority surveyors prior to the submission of a completion certificate, the Costs and timelines/programmes should be drafted appropriately to take this into consideration.

Relevant British Standards and Scottish Building Standards must be adhered to for the performance, selection, and installation of the EWI. The Contractor must ensure that all relevant standards are referenced and followed throughout. This includes adhering to this specification and any guidance or licensing imposed for the protection of animal species in Scotland, e.g. bats and nesting birds. Where targets and best practice values for thermal transmittance and thermal bridging for insulating the walls of existing buildings exist, the Contractor must select values which are appropriate and realistically achievable. This must take into consideration the form and character of the wall, risk of exacerbating condensation, enhancing ventilation heat loss, and trapping the movement of moisture. In all instances, the proposed thermal transmittance and thermal bridging values must not be made worse than those measured or calculated for the existing wall – before retrofit. Where any deviations from relevant standards apply, this must be justified by the Contractor and approved by the Council.

Contractors must provide suitable guarantees as appropriate, providing a level of cover equivalent to this type of retrofit. The following must be considered when designing, specifying, and installing EWI, and ensure that relevant warranties, guarantees, and manufacturer's specifications are not invalidated:

- Nature and condition of external wall, and structural capability of wall to take EWI, including any and all attached vegetation.
- Nature and condition of any existing EWI, which may be repaired or removed.
- Nature and condition of the roof and floor, relationship between EWI and roof and floor insulation for the continuity of the thermal envelope.
- Interface with materials and geometry at and around eaves level, which may require an extension of the roof to cover exposed, protruding EWI.
- Nature and condition of any and all parapets, their effect on the continuity of the thermal envelope.
- Loss of detailing and areas of architectural significance, e.g. quoins, decorative elements, etc.
- Design and clearance for operable windows, doors, and other openings. The provision of EWI or topcoat only to various parts, e.g. mullions, headers (lintels/lintols), sills/cills, reveals, etc.

Page 31 of 101

### General requirements

- Definitions
- Regulatory requirements
- List of Considerations

### Responsibilities

- Contractual information

### Suitability of persons

- Outline of the ideal contractor

### Specification of persons

- List defining the role

### Principles

- Clear responsibilities
- Clear definitions
- Reducing mistakes
- Experience-first approach
- Wholistic views
- Accountability



# 2. Underpinning Principles

## Lot 2, 3, 4: Retrofit Measures

- tion around openings, including safe openable swings for doors and windows.
- ices and fixtures which run along and/or penetrate thermal envelope, e.g. flues, overflow pipes, ventilation (extractor) ducting, downpipes, drainage, satellite dishes, outside tap, energy meters, washing lines, door entry systems, balconies, canopies, fencing and fence posts, handrails, wet or dry riser, official signs including building and street numbers/names, street lighting, etc.
- Ventilation strategy and air movement to mitigate accumulation of moisture for a ventilated solum, and/or ventilated attic, e.g. vent-bricks, soffit vents, weep holes, etc.
  - Hygrothermal behaviour of materials, the movement of liquid and water vapour movement e.g. damp-proof course, breather membranes, guttering, etc.
  - Differential movement and the provision of expansion joints.
  - Party elements, where insulation cannot continue across neighbouring properties, and where the addition of EWI may adversely affect the thermal bridging and temperature factor for uninsulated walls opposite a shared party or partition insulated wall.
  - Party elements, for the provision of acoustic insulation for compliance to relevant noise regulations.
  - Nature and conditions fireplace(s) which may require a chimney balloon or other such insulation to limit ventilation heat loss.
  - All other components such as movement joints, base bellcast, etc.

### Information to be Provided

The Contractor must verify any dimensions and arrangements on site when specifying the system. The Contractor's EWI installation Costs should include the following items:

- Site survey and condition report.
- Design and specification of the particular insulation system proposed.
- Obtaining any necessary permissions and submitting of notices required to carry out the installation of retrofit measure(s).
- Preparations, including the removal of any existing items and/or materials.
- Items for access to the area being treated at the required storey height.
- Fixings as required.
- Installation of insulation.
- Surface finish.
- Labour.
- Guarantees where available.

The list above is not exhaustive. The Contractor is responsible for identifying other components and items which may be necessary to meet the requirements specific to the Council's project scope. A range of additional rates are allowed for preliminary and ancillary items within the Framework Contract Schedule of Rates. The Contractor should allow for all normal surface preparation in the

### General requirements

- Definitions
- Regulatory requirements
- Comprehensive list of Considerations

### Info to be provided

- Itemised costing list
- Further considerations
- Itemised list for specifying the measure

### Building performance testing

- Retrofit energy evaluation method
- Post retrofit performance reporting
- Accountability

### Principles

- Clear responsibilities
- Clear terminology
- Transparency
- Safeguards the buildings
- Closing knowledge gap
- Accountability



# 3. Impact & Legacy



Alignment with Scotland Excel's vision & Goals



Interfaces with Scottish Government's energy efficiency action plans



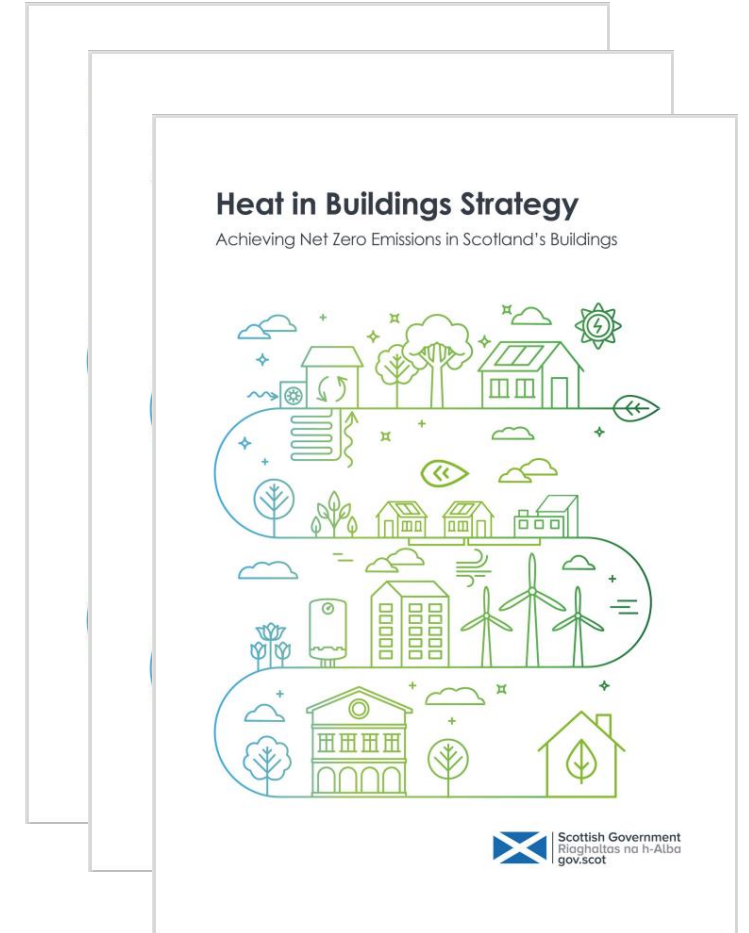
Streamlining the specification process



Generating insightful building information to inform future retrofit modelling/decisions



Optimising performance longer term positives



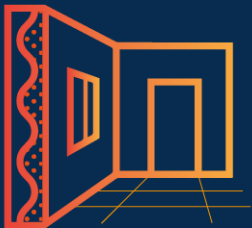
# Thank you

from Building Research Solutions

Jon Stinson

Managing and Technical Director

# Questions?



 *Building Performance*



 *Asset Surveying*



 *Sustainable Design*



 *Sustainable Communities*