



Future Homes Gedling Green

Trudie McCormick – Technical Development Director



Lambley Lane Gedling – Future Homes Demonstration Project

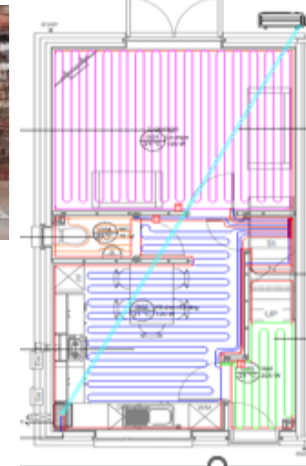
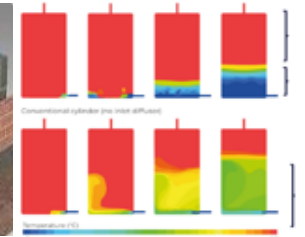
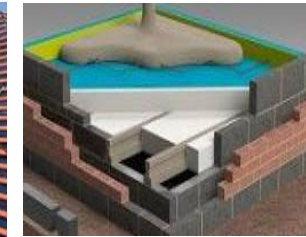
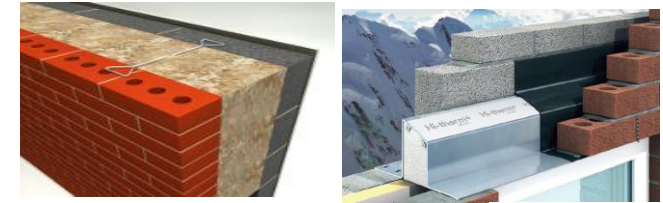


Project Focus

- **Future Homes - high value, low carbon affordable homes.**
 - All Electric, Zero carbon ready
 - Achieve 75% carbon reduction from 2013 standards
 - Efficient running /maintenance /replacement costs
 - Designed to prevent overheating and offer a healthy & comfortable environment – easy to control
 - EV Car charging as standard
 - 1Gb broadband connectivity
- **Learnings to support future implementation plans - (independently verified – Birmingham City)**
 - Perform in line with design intent
 - Post occupational feedback from customers
 - Scalable solution
 - Design
 - Cost / Value
 - Delivery
 - Embedded carbon analysis
 - Warrant /insurance implications
 - Pre-occupational fabric performance testing
 - Water usage
 - Review anticipated loads v actual peak loads

Carbon Reduction Target 75% on 2013 standards

- Improved Fabric Efficiency
 - 150mm cavity mineral wool (0.19 W/m²K)
 - Floor build-up (0.11 W/m²K)
 - Double Glazing (1.3 W/m²K)
 - 450mm loft insulation (0.10 W/m²K)
 - Thermally broken lintels
 - Thermal bridging
 - Air tightness 4.0
- Decentralised continuous running fans dMEV
- Dynamically modelled for Part O Compliance TM49
- PV (4-6 panels)
- Airsource heat pump
- Smart cylinder
- Underfloor heating



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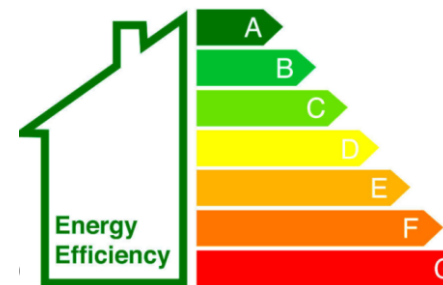
Training Suite





Learnings /Outcomes

- **Whole House Design** in the context of the site constraints and local design guide requirements
- **Interdependencies** between space heating / hot water / ventilation / water usage
- **Specification selection /controls /commissioning**
- **Training requirements** for the business, designers, consultants, supply chain and regulators
- **Challenges** around maintenance
- **Public awareness** of the benefits a new home delivered to FHS can offer
- **Customer journey & impact** on operational behaviours
- **Grid coordination**
- **Collaborative approach** to the development of new regulations /HEM
- **Wider strategic support**



EPC -93 A
DER/TER 89.98%

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► Much more detailed level of inputs

- Orientations & Location (Weather)
- Measuring zones (entering walls and thermal bridges between zones or fully within zones etc.)
- Perimeter and Pitch
- Distant shading
- Base heights
- Window shading
- Duct lengths
- Primary and secondary pipework
- Wet distribution
- Eco design control class



Convactor Radiator Input Estimator for Home Energy Model
This workbook should be used to provide indicative values for wet distribution inputs for the Home Energy Model interface. This workbook should not be used when more detailed information is available or for any other purpose.

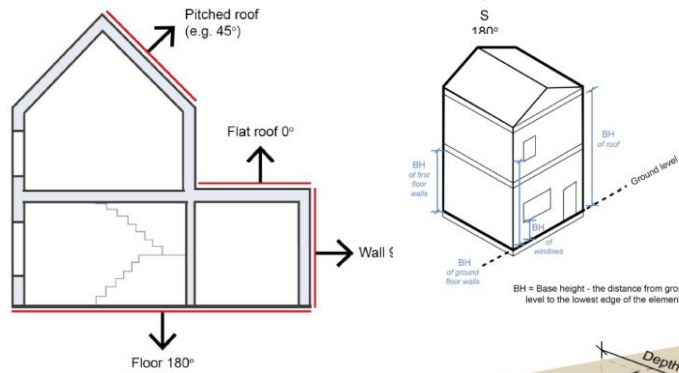
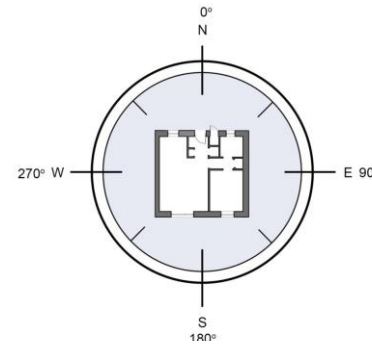
USER INPUT: Input total dimensions for each Panel Type within zone

Panel Type	T11	T21	T22	See notes below
Average Radiator Height*	<input type="text"/>	<input type="text"/>	<input type="text"/>	mm
Total Radiator Length	<input type="text"/>	<input type="text"/>	<input type="text"/>	mm
Emitter Temperature Difference Design	<input type="text"/>			deg C

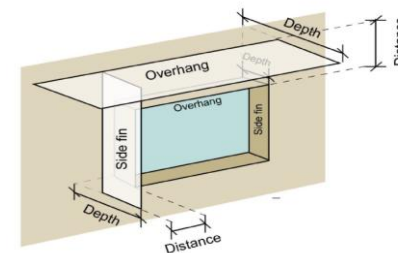
*Estimate based on available options

Convactor radiator panel types are as follows:

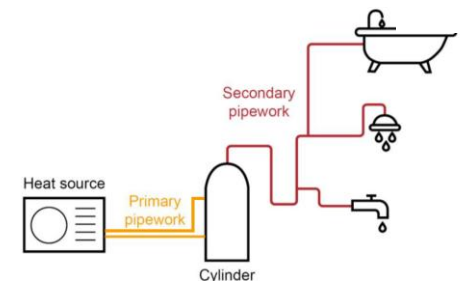
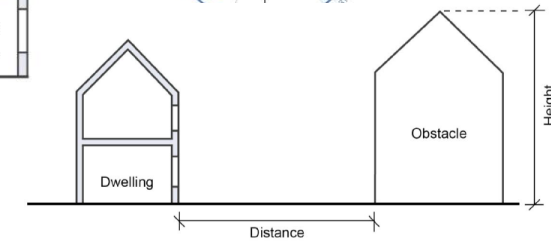
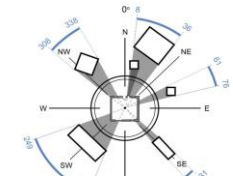
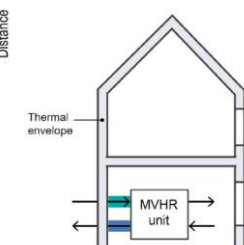
T11	Single panel with 1 set of convactor fins	
T21	Double panel with 1 set of convactor fins	
T22	Double panel with 2 sets of convactor fins	



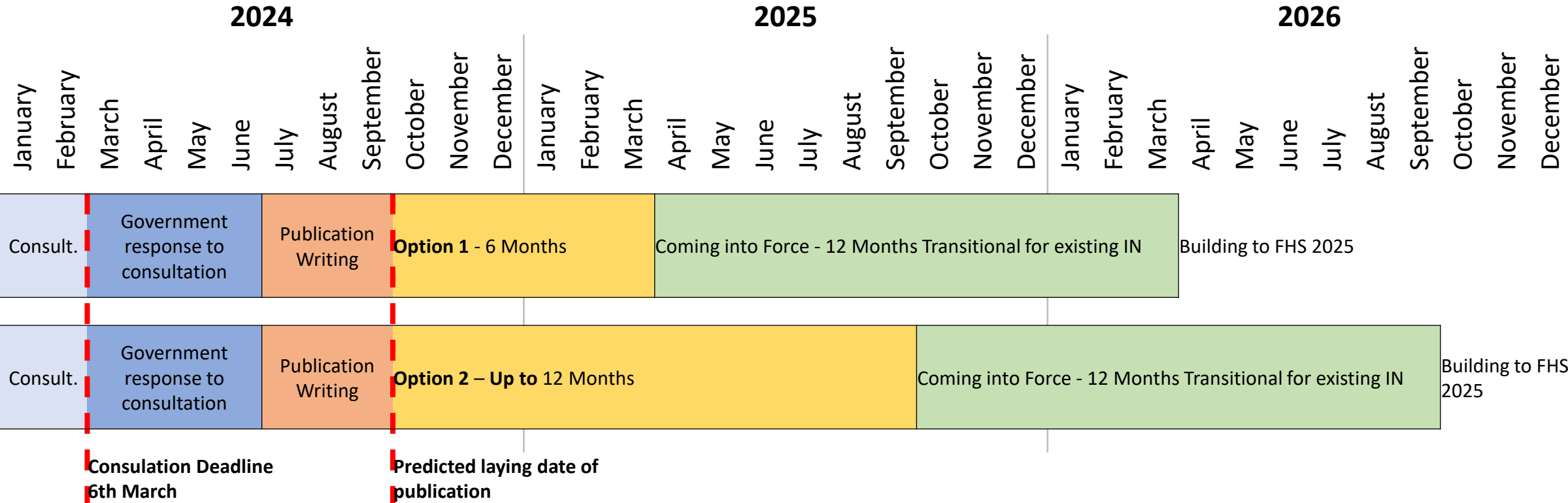
— External surface of elements
 → Direction/pitch of external surface



- Zone 1 - living area**
- Area of floor and ceiling
 - External wall associated with zone 1 (minus doors and windows from this area)
 - ⋯ Internal wall face associated with zone 1
 - Window or solid/glazed door in wall associated with zone 1
- Zone 2 - rest of dwelling**
- Area of floor and ceiling
 - External wall associated with zone 2 (minus doors and windows from this area)
 - ⋯ Internal face of wall associated with zone 2 (each face entered separately)
 - Window or solid/glazed door in wall associated with zone 2



Lambley Lane Gedling – Future Homes Demonstration Project – Transitional arrangements



HEM publication is critical to achieving scalable solutions and at pace transition.



National Low Carbon Developments

- Northbridge, Glasgow
- Stoneyburn, Glasgow



- Parkway, Newcastle
- Cramlington SWS
- Scotswood 3, Newcastle
- Bowesfield, Stockton
- Ingleby, Barwick



- WHEM 6, Coventry
- Jessop Park, Bristol
- Steart Farm, Cheddar
- Park View, Bristol
- Parklands, Weston-Super-Mare
- Kingswinford 2, Dudley
- Moredon, Swindon
- Evercreech, Evercreech
- The Steadings, Cirencester
- Beaconside, Stafford



Ground Source Heat Pumps handed over
– 350 units

Air Source Heat Pumps handed over
– 116 units

- Driffield, Doncaster



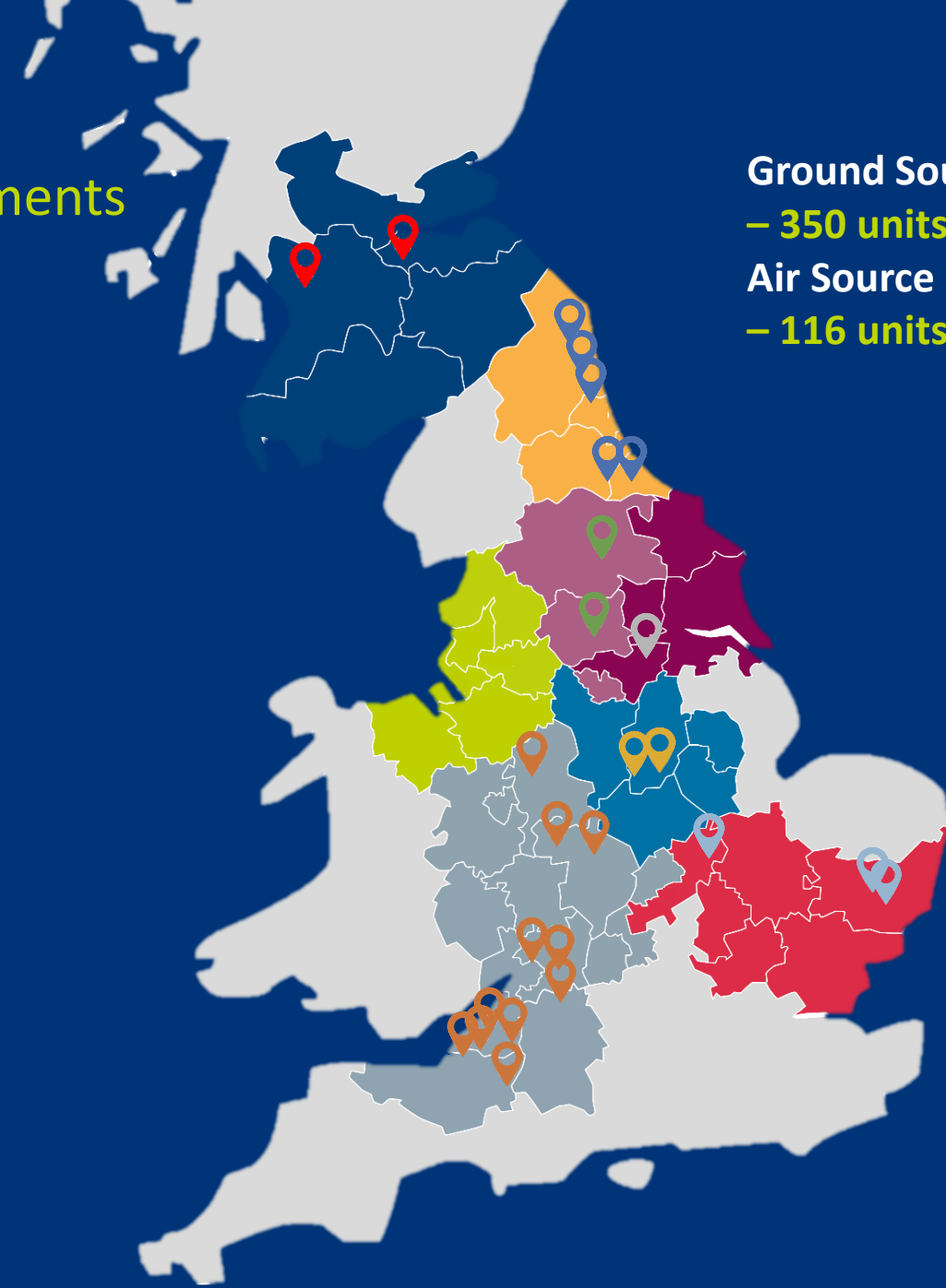
- Malthouses, Sheffield
- Blind Lane, Bedale



- Lambley Lane, Nottingham
- Boots, Nottingham



- Church Road, Old Newton
- Finningham Road, Old Newton
- Tattenhoe Park, Milton(phase 5) Keynes



Thank you