

Fresh Guidance

for house builders on underfloor heating

New guidance outlining best practice for the installation of underfloor heating has been issued by the NHBC Foundation.

The number of new homes with underfloor heating has increased in recent years because it helps free up wall space and has the energy efficiency advantages. Underfloor heating can also be particularly well suited to retirement housing, where there is a need to maintain constant warm temperature.

However, this is a relatively unfamiliar technology with a range of potential risks. For example, the pipework is concealed, so there is risk of damage from subsequent building work or drilling into the floor should the builder not have accurate information on the layout of the system. Also, installations often undertaken before the residents final furniture layout and preferences for carpets and rugs, have been decided, which might result in restricted heat transfer.

Underfloor heating, a guide for house builders set out a number of recommendations to make sure the underfloor heating is as effective as possible. These range from making sure the pipework distribution is properly planned to maintain an even temperature across each room, to recommending that installation takes

place after external windows and doors have been fitted and once the home is watertight to mitigate the risk of frost damage.

Neil Smith, Head of Research and Innovation at NHBC, said: "Underfloor heating systems offer many advantages in new homes, including improved aesthetics and comfort levels. It also has a part to play in improving energy efficiency, provided the system is correctly designed and installed and set to operate properly.

"This best practice guidance is aimed at helping smaller companies in particular to get things right and ensure that systems deliver all of their advantages in practice whilst avoiding potential problems. We are grateful to the building services industry experts at BSRIA for their support in the development of this guide."

The NHBC Foundation guide is a comprehensive guidance on 'wet' UFH systems installed in various floor constructions. It covers all aspects from design, through installation up to system controls, testing, commissioning and maintenance. It is available to download from www.nhbcfoundation.org.

Features

1. BS EN1264-2[1] limits the maximum temperature of the floor surface to 29°C to protect floor finishes and health of residents. However, for some flooring materials, lower temperature might be required
2. The installer must inform what is the final layout of the UFH to prevent the risk of damage.
3. The responsiveness of the UFH varies depending on the floor finish, for instance in the case of the screed the time of heating might be longer.
4. The installer should make his clients aware that the furniture and additional carpets could limit the performance of UFH.
5. The layout of UFH should take into account the overall design including plumbing, sanitary ware, installations etc. to avoid eventual disruptive works
6. UFH pipework loops running should be avoided under WC as this may result in damage and leakage
7. At the design stage check with the UFH manufacturer the guidance on the proposed floor construction and finishes or the layout and spacing of the heating loops.
8. Locate manifolds for easy access, ideally centrally to enable a layout of supply and return pipework loops. The pipe runs between heating zones, and manifolds should be kept to a minimum.
9. Avoid twisting or bending the pipework loops that leads from/to manifolds to allow the not obstructed flow of water. Use metal formers to achieve 90° bends.
10. To allow access in the case of leaks no joints should be embedded in the screed.
11. Manifolds installation must be securely fastened to a wall in a way that prevents any bends in the pipework loops which could limit the flow.
12. Proper insulation of installation will limit the heat loss (check with the manufacturer for details)
13. Proper labelling of installation will allow identification to which ports of the manifold individual ports are connected.

Source: NHBC Foundation

Summary of content

Introduction

- Explaining underfloor heating, how it works, its contribution to energy efficiency and its benefits, including:
- Compatibility with low temperature heat sources, such as condensing boilers and low carbon heat pump technologies
- Delivering stable/constant temperatures for occupants
- Delivering comfortable temperature profiles in rooms
- Allowing flexibility in interior design of rooms
- Safety: no hot surfaces which might injure children or the elderly
- Maintenance: underfloor heating systems are designed for easy maintenance.

Key considerations

Describes the key components of an underfloor heating system and the main steps in the installation of systems in timber floors and concrete floors.

Heat source

Explains the heat sources that can be used with underfloor heating and considerations for each, including gas, oil and biomass boilers, heat pumps and community heating systems. Considers how systems deliver heating and hot water.

System distribution

Includes guidance on the following:

- Primary pipework
- Manifold assemblies
- Location of manifolds
- Maintaining water flow
- Preventing leaks
- Secure fixing
- Insulation around manifolds
- Labelling of manifolds

The floor as a heat emitter

Making sure that the underfloor heating is effective. This section includes guidance on:

- Layout of pipework loops
- Heat output of emitter/floor
- Insulating the floor

Installation

Includes guidance and illustrations for concrete, timber, floating and acoustic floors.

Programmers and controls

This section explains the Building Regulations guidance for controls and gives guidance on the using controls and settings for programmers.

Testing

How to pressure test the installation and inspect for quality of installation.

Commissioning and maintenance

Includes notes on water treatment and maintenance checks of the manifolds.

Handover

An introduction to what should be included in handover material/user guidance for residents and home owners.

(Source: NHBC Foundation)

Visit
www.nhbcfoundation.org
**to download
the guidance**

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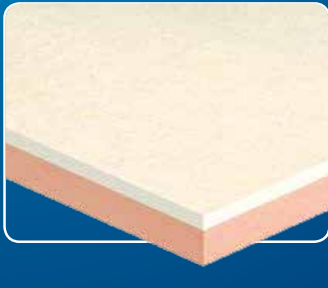
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