

NORTHSTONE

# Northstone *Climate Risk Assessment.*

V1.0 2023





**Through our sustainability focussed schemes, ambitious targets and conscious approach to construction, we go the extra mile to ensure we have a positive impact on our residents, local communities, and the environment, both now and in the future.**



The impacts of climate change that affect housing directly, or the occupants within homes, are increasing in frequency and severity over time. (CCRA3 Evidence Report 2021).

Assessing the climate resilience of our developments allows us to identify climate related risks and necessary adaptation measures to ensure our developments are climate resilient and fit for the future.

### **How do we assess climate risk?**

Climate risk assessments help us to:

- Identify climate-related risks associated with our homes.
- Design homes to ensure we adapt to the changes in climate we are likely to experience in the future.

We are taking actions to reduce risk levels, by making informed design choices to mitigate the climate-related risks we will face in the future.



# Climate Indicators.



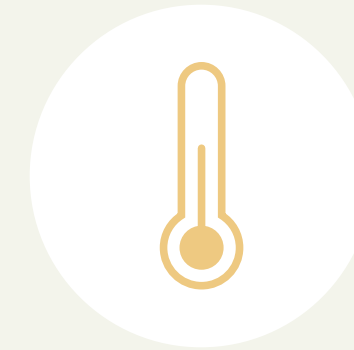
## Mean winter precipitation

Heavy rainfall seeping into a building can cause corrosion of the internal structure.



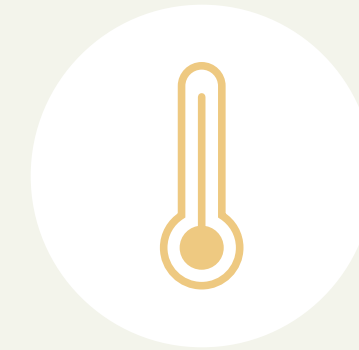
## Change in precipitation on the wettest day

Increased rainfall can cause flooding of a building.



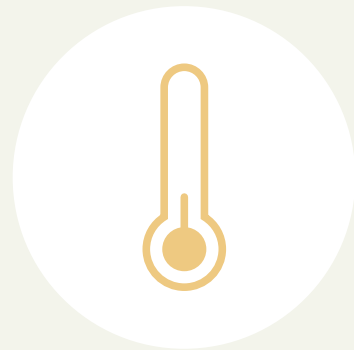
## Mean summer temperature

High temperatures can lead to the warping of a roof, reducing watertightness



## Mean summer max. temperature

Extreme heat can put a strain on air conditioning systems and cause discomfort to occupiers



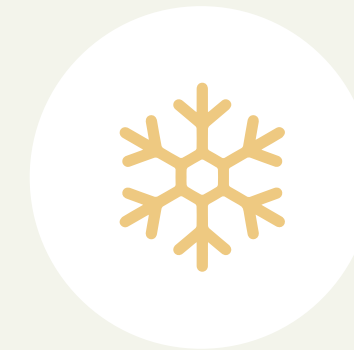
## Mean winter min. temperature

Cold temperatures can cause freezing and damage to pipes



## Wind

Extreme wind can cause damage to the building envelope



## Snow

An accumulation of snow can become heavy causing roof damage.

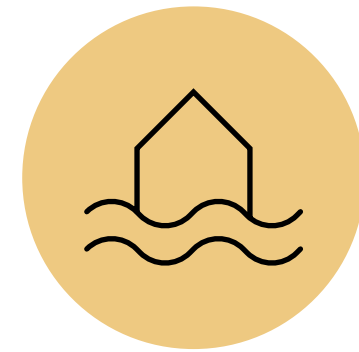


## Desiccation of exterior landscaping and natural elements

An excessive drying out of plants occurring when more water evaporates from leaves than is sucked up by roots.

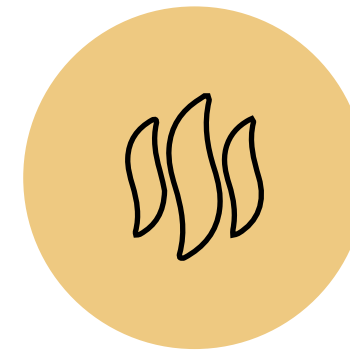
# Focus areas.

## Flood risk



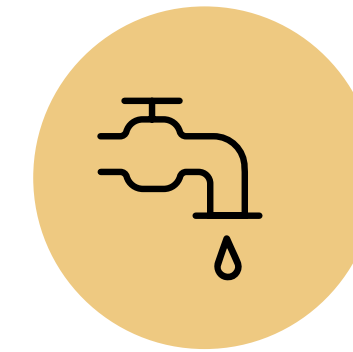
Flooding is a severe risk to UK housing and is projected to increase in frequency and severity with climate change. Building fabric can also be affected by damp due to flooding and intense rain.

## Thermal comfort



Household heating demand in the winter is likely to increase with colder winters and household cooling demand in the summer is likely to increase due to hotter summers.

## Water stressed areas



A higher incidence of water scarcity will occur in the future due to increasingly warm summers.

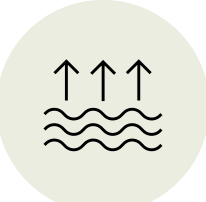
# Adaptation measures of a *Northstone home*.



Wondrwall technology: a self-learning system that adapts your home heating, lighting, and security according to your routine to create more energy efficient lifestyles.



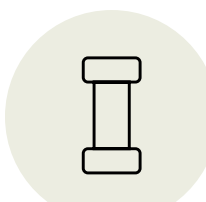
Pedestrian led developments to decrease car dependency.



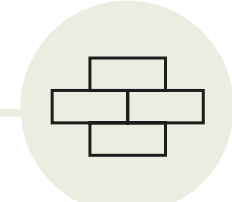
Wastewater heat recovery: utilising the energy from wastewater to pre-heat water entering the boiler system via simple heat exchange. Reducing the homes heating demand and cost to occupier.



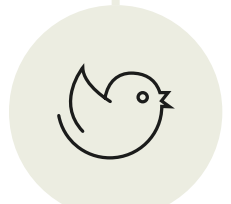
Thermal efficiency and airtightness to ensure energy efficiency.



Centrally run bathroom and utility (lootility) ensuring all pipework runs from a central core to reduce the length of plastic required in each home.



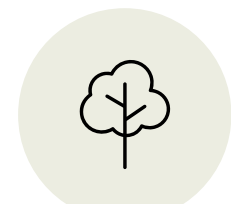
All homes built to exact brick dimensions to reduce the resource intensity of the build.



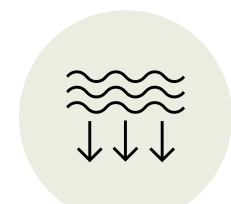
Wild features: Green Infrastructure is a key asset in mitigating climate-related risks, incorporating features such as bird and bat boxes contributes to increasing biodiversity.



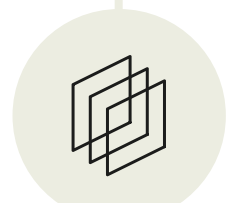
Site specific travel plans prepared and distributed at every scheme to encourage sustainable and active travel.



Detailed Landscape Design Code for the community, to bring more natural capital into the area, improving climate resilience.



Integrate Sustainable Urban Drainage Systems (SUDs) and use of vegetation on site to reduce surface run off from heavy rainfall.



Triple-glazed windows and thermal insulation, result in a 25% cost saving to provide heat and power, in comparison to other homes.

2023

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