



Welcome to Sustainable House Day 2020! It's an event unlike any of its predecessors, and with the exciting advantage of being able to explore homes from all over Australia, thanks to technology.

Macedon Ranges Sustainability Group's Sustainable Homes Action Group set out to create a "treasure map" to support local residents participating in this year's event. We've drawn on our experiences as Sustainable House Day visitors and hosts to compile a list of ideas of things to look at, and to ask about, as you explore the virtual tours and the Q&A sessions with owners. You can use your observations and notes to develop ideas for your own space.

The "treasure map" focuses on design and operational aspects of homes that contribute to achieving a home that is comfortable and cheap to run. We also offer some talking points on process, because we know that the gap between intention and execution can sometimes seem impassable. The opportunity to learn from others who've been there is too good to miss.

To get the most from your SHD experience this year, we suggest you focus on homes from the same Climate Zone as the Macedon Ranges. **Climate Zone 7** is characterised by four distinct seasons, cold to very cold winters with the majority of annual rainfall in winter, and high diurnal temperature range (difference between daytime and nighttime temperature). It is referred to as a heating climate, where the priority is to maximise the use of the sun's energy in winter, and avoid loss of heat from the home to outside.

Maps identifying Climate Zones throughout Australia can be found at:

[abcb.gov.au/Resources/Tools-Calculators/Climate-Zone-Map-Australia-Wide](http://abcb.gov.au/Resources/Tools-Calculators/Climate-Zone-Map-Australia-Wide)

Scroll to the bottom of the linked page for state-by-state maps, which can be downloaded. (Climate Zone 7 is shaded in dark blue). A map on the home page of the Sustainable House Day website ([sustainablehouseday.com](http://sustainablehouseday.com)) will help you locate homes participating in SHD 2020.

And so ... to the map!

## 1. 'X' factor

What attracted you (the visitor) to this particular house?

What is it that *the occupants* love about their home?

## 2. Size

***Unused spaces come with a bunch of associated costs – the cost to build them, furnish, heat and maintain them. A house in which the occupants use every part, every day, is sustainable.***

How big is the house? Number of bedrooms, living areas, bathrooms? Does it have a separate dining room? Are there spaces that serve multiple uses? What makes that possible?

How does the outdoor space contribute to the space available for living? Where is it located? How has it been sheltered from the elements? When do the occupants use the outdoor space, and for what purpose?

### 3. Design

*Suited for location and climate, and to enable long-term occupation of the home.*

Does the home have a star rating? Which rating system was used? (NatHERS and BASIX are common for new homes, and Residential Efficiency Scorecard – also known as Scorecard – for existing homes). What is the score?

How do the occupants find the comfort of the house and affordability of energy bills? What makes it work for them?

#### **Orientation, wind shelter, solar gain and shading**

Windows: Which direction do they face? What proportion of the wall area do they occupy? What framing and glazing have been used? Which suppliers were used? What cost? What alternatives were explored?

What window coverings have been used – externally and internally? Are there other shading devices? How have the windows been placed to support ventilation?

#### **Insulation**

What insulation has been used? Where, and how much? Where the house has been renovated, were there any special challenges with installing insulation?

#### **Lighting**

What alternatives to high-energy, low insulation, recessed downlights have been selected for lighting? How do they contribute to the home's ambience?

#### **Zoning**

Can the house be divided into smaller compartments to keep warm or cool? Where are the separations, and what form do they take (Doors? Screens? Flexible walls? Heavy curtains? Other ...)

What are the entrances like? Is there a separate entry zone? What is in the entry zone(s)?

If the house is two storeys, are the upstairs and downstairs separated? Are there features specifically intended to redistribute heat or coolth between the levels?

#### **Thermal Mass, Floor, Flooring**

What sort of floor does the house have? Is it insulated? How?

Are there floor coverings in the house? What sort and where?

Does the house use thermal mass in any places other than the floor? How does it work?

#### **Ventilation**

What strategies are used to ventilate the house? How do the strategies differ seasonally?

### **Long-term occupancy**

How has the house been designed to accommodate a range of physical abilities, including for ageing-in-place?

Have any specific design features been selected as a way of minimising maintenance?

## **4. Energy**

***Heating and cooling consumes approximately 40% of household energy use in Australia, and in Climate Zone 7 this is predominantly for heating. Hot water consumes approximately 20% of household energy use.***

***The ideal arrangement for a sustainable home is all electric, powered by renewable energy. Electricity can be generated onsite (eg with solar panels) or purchased (green power).***

### **Selection of appliances**

Look especially at appliances that provide alternatives to gas use (gas is not a renewable source of energy and significant cost increases are forecast for the next 5-10 years). Also look at heating, cooling and hot water generation appliances because these functions contribute significantly to home energy use.

How is the home heated? Where are the outlets? Which heating units have been selected? Why? Are the owners happy with them? Do they make the home warm enough? Are they noisy? Anything the owners would do differently if they were starting over?

How is hot water generated? Where is the hot water service relative to points of use? Which hot water service(s) has been selected? Why? Are the owners happy with them – water hot enough and in sufficient supply? Anything the owners would do differently if they were starting over?

### **Water efficient appliances**

This contributes to reduced energy bills by reducing water use. Does the house have low flow tapware? What flow rate? How do the owners find the lower flow? What's a very low flow shower like?

### **Clothes drying**

How does the household dry clothes during winter?

### **Renewable energy**

If the house has solar panels: how big is the solar system? How did the homeowners choose size, suppliers, equipment? Does the household try to fuel its home energy use from the solar system – and if so, how? Did the house require electrical preparation for the installation of solar? How did the owners find out about that?

Does the household use electricity from the grid? Which supplier is used, and why?

Does the household have an electric vehicle? What impact has charging made on the household's energy use? Does the solar system generate enough to charge the car?

Does the house have a battery? Why did the owners want one? What challenges were involved with selection and installation? How were they resolved? Has the battery delivered what the owners wanted? Anything they'd do differently? Where is the battery located?

## 5. Process

Did the owners engage any specialists in creating their sustainable home? Who? When? How much did it cost? Was it value-for-money? How did they find their specialists?

Any tips on finding and working with builders?

Is the finished home different from how the owners imagined it would be? In what ways? Why? Would that influence their approach if they were starting the project again?

**Reference:** “Your Home” Australian Government Department of the Environment and Energy, 2017. Available online at [www.yourhome.gov.au/](http://www.yourhome.gov.au/)

**For further information or advice, please contact the Macedon Ranges Sustainability Group via our website [mrsg.org.au](http://mrsg.org.au)**

**If you found this guide helpful, let us know! You can reach us at [susthomes@mrsg.org.au](mailto:susthomes@mrsg.org.au)**

