

**Our Ref:** CD/FSSD/12/02/03/01

**Date : 16 NOV 2017**

Registrar, Board of Architects  
Registrar, Professional Engineers Board  
President, Singapore Institute of Architects  
President, Institution of Engineers, Singapore  
President, Association of Consulting Engineers, Singapore

Dear Sir/Mdm

## **AMENDMENT TO FIRE CODE – INSTALLATION OF HOME FIRE ALARM DEVICE WITHIN RESIDENTIAL HOMES**

Clause 6.3 of the Fire Code 2013 currently exempts the provision of fire alarm devices within residential homes belonging to Purpose Group (PG) I<sup>1</sup> and PG II<sup>2</sup>. However, fire statistics show that residential fires account for over half of fire injuries.

2. A home fire alarm device (HFAD), or also commonly known as a household smoke detector, is a device installed on the ceiling of a home. The device will emit an audible sound to alert occupants in the house upon detection of any fire or smoke. The installation requirements, including the technical details on the acceptable types of devices, can be found in Annex A.

3. To enhance home fire safety, SCDF will require HFADs to be installed within residential homes (PG I and PG II), primarily for new residential homes and existing homes carrying out fire safety works<sup>3</sup>. Such devices provide occupants with early

<sup>1</sup> Purpose Group (PG) I refers to landed private dwelling houses such as bungalows, semi-detached houses, terrace houses, etc.

<sup>2</sup> Purpose Group (PG) II refers to flats, apartments, maisonettes, etc.

<sup>3</sup> Fire safety works are addition and alteration (A/A) works such as installation/re-location of fire doors, installation of roof over open balconies, and works involving walls that separate the residential premises from common areas, etc. If homeowners/residents are unsure of whether their proposed A/A works are considered fire safety works, they can contact SCDF for more information.



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detection and warning of a fire occurring within their homes, and aid in their timely evacuation.

4. This circular shall take effect on 01 Jun 2018. Qualified Persons who are submitting plans to SCDF or other Government agencies on or after 01 Jun 2018 can refer to Table B1 in Annex B to assess whether the above requirement is applicable for their residential project. For residential homes that are not required under this circular to install HFADs, SCDF nevertheless strongly encourages these home owners/occupiers to install HFADs for their own safety.

5. Please convey the contents of this circular to members of your Institution/Association/Board. The circular is made available in CORENET-e-Info: <http://www.corenet.gov.sg>. For any enquiry or clarification, please contact LTC Tong Hong Haey at 68481448 or email him at [Tong\\_Hong\\_Haey@scdf.gov.sg](mailto:Tong_Hong_Haey@scdf.gov.sg).

Yours faithfully,

(transmitted via e-mail)

MAJ Tan Chung Yee  
Fire Safety & Shelter Department  
*for* Commissioner  
Singapore Civil Defence Force

cc

Distribution list

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**SCDF**  
The Life Saving Force

SINGAPORE CIVIL DEFENCE FORCE



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## HOME FIRE ALARM SYSTEM

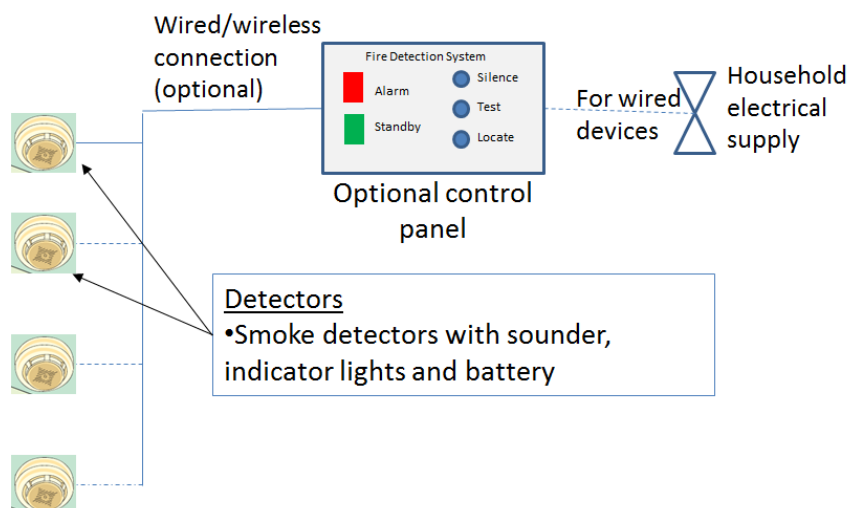


Figure A1: Typical home fire alarm system

A home fire alarm system typically comprises automatic smoke/heat detectors in the living room, kitchen and/or escape routes. Each detector can be considered a home fire alarm device. Simple detection devices are battery operated. For more sophisticated devices, they may be connected together (wired or wireless) and powered by built-in batteries or household electrical supply. The devices can also be connected to an optional control panel, with fault/alarm indicators. Upon fire or smoke detection, the control panel will flash and individual detectors will emit an audible alarm<sup>4</sup> to alert the occupants. This household system also does not need to be linked to a remote alarm monitoring station.

### *Mandatory features of a home fire alarm device (HFAD)*

2 The HFAD required by this circular shall possess the following features and comply with **all** the requirements stated below:

<sup>4</sup> For households with hearing-impaired occupants, alternative fire warning mechanism such as visual alarms may have to be installed in order for the alarm system to be effective.



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## **Annex A**

- 1) Operate on smoke detection technology alone, or have a multi-sensor<sup>5</sup> detector with smoke detection capability;
- 2) Indicator lights to inform users on the status/condition of the device(s);
- 3) Temporary silence/Reset feature to address false alarms;
- 4) Alarm sounder with sound level compliant with any standard listed in item (7);
- 5) Test button to allow the device(s) to be tested/checked periodically;
- 6) To be powered by long-life built-in battery (i.e battery that lasts at least 10 years) with low battery alert capability, or to be wired to household electrical supply;
- 7) Detector design to comply with any of the following standards:
  - EN 14604, AS 3786, UL 217
- 8) Where 2 or more HFADs are installed, all devices shall be interconnected<sup>6</sup> (either wired or wirelessly<sup>7</sup>) if they are installed on 2 or more storeys.
- 9) The HFAD shall be either:
  - Listed by any accredited certification body accepted by SCDF; or
  - Listed by Underwriters Laboratories (UL)<sup>8</sup>; or
  - Listed under the ActivFire Scheme<sup>9</sup>; or
  - CE marked with certification from approved 3<sup>rd</sup> party Notified Bodies, or
  - Listed under BSI Product Directory<sup>10</sup>.

3 Additional independent functions to enhance the operation of the HFAD may be included as optional features<sup>11</sup> of the HFAD, as long as the requirements indicated in para 2 of Annex A are still met.

<sup>5</sup> This refers to a detector with multiple sensors built into the device eg. a smoke and carbon monoxide (CO) detector.

<sup>6</sup> The devices are to be interconnected such that when one of the HFADs is triggered, all connected HFADs shall sound an alarm.

<sup>7</sup> Such wireless connectivity shall comply with IMDA's Technical Specification for Short Range Devices. It is also preferred that the devices adhere to requirements in the TR40 Technical Reference for Sensor Network for Smart Nation (Homes).

<sup>8</sup> <https://www.ul.com/marks/ul-listing-and-classification-marks/>

<sup>9</sup> <https://www.activfire.gov.au/outline.asp>

<sup>10</sup> <https://www.bsigroup.com/en-GB/Product-Directory/>

<sup>11</sup> Such as connection to smart home systems, remote controls, visual alarms, vibrating pads, etc



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## Annex A

### *Requirement for plan submission*

4 There is no need for Qualified Persons (QP) to submit plans to SCDF solely for the voluntary installation of home fire alarm device(s). However, if QPs are submitting plans to SCDF or other Government agencies for other fire safety works carried out for residential homes, then QPs need to indicate the locations of the fire alarm device(s) on the submitted plans.

### *Requirements on HFAD provision*

5 Table A2 states the minimum number of HFAD<sup>12</sup> required for different home types, as well as the locations in which the detectors shall be installed.

Home type	Number and location of detectors (Also refer to Figures A3 and A4)
Single storey homes: <ul style="list-style-type: none"><li>HDB flats</li><li>Apartments/Condominium</li><li>Single storey landed dwellings</li></ul>	<ul style="list-style-type: none"><li>Minimum <b>1</b> smoke detector</li><li>Installed along circulation area<sup>13</sup> / escape route, e.g. living room, corridor</li><li>Optional: Additional detectors can be installed in other spaces for enhanced protection.</li></ul>
Multi-storey homes: <ul style="list-style-type: none"><li>Landed/Non-landed dwellings</li><li>HDB flats</li><li>Apartments/Condominiums</li></ul>	<ul style="list-style-type: none"><li>Minimum <b>1</b> smoke detector per storey</li><li>For storeys with circulation area &gt; 70m<sup>2</sup>, at least <b>2</b> smoke detectors need to be installed on that storey.</li><li>Installed along circulation area / escape route e.g. living room, corridor, and/or staircase landing</li><li>Optional: Additional detectors can be installed in other spaces for enhanced protection.</li></ul>

Table A2: Minimum number of HFAD to be installed for different home types

<sup>12</sup> Smoke detectors should be installed away from kitchens as they can be sensitive to cooking fumes and give rise to false alarms. Heat detectors are more suitable for kitchens instead.

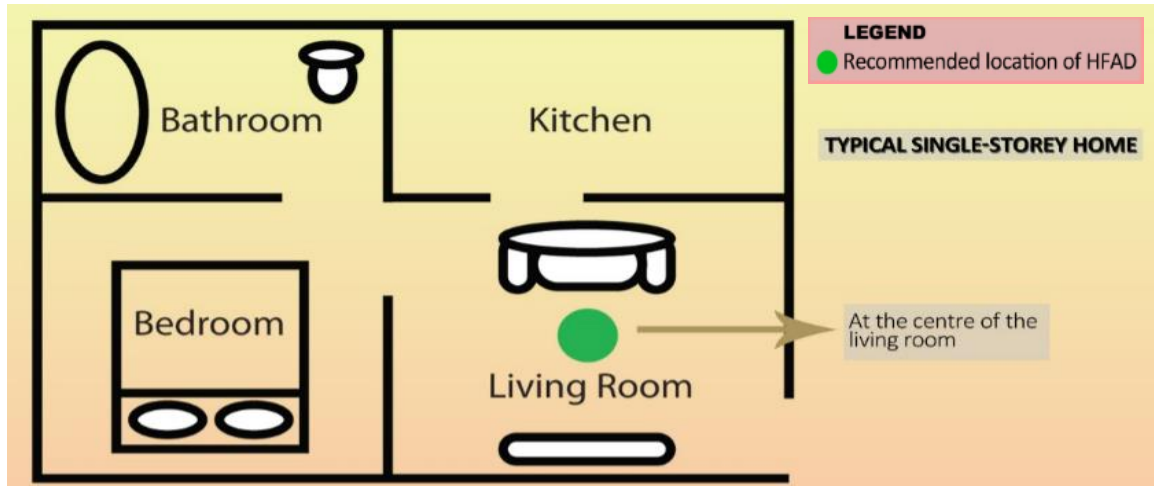
<sup>13</sup> Circulation area refers to common areas such as living room, corridors, dining rooms, or staircase landings. It excludes spaces such as bedrooms, storerooms or bathrooms.



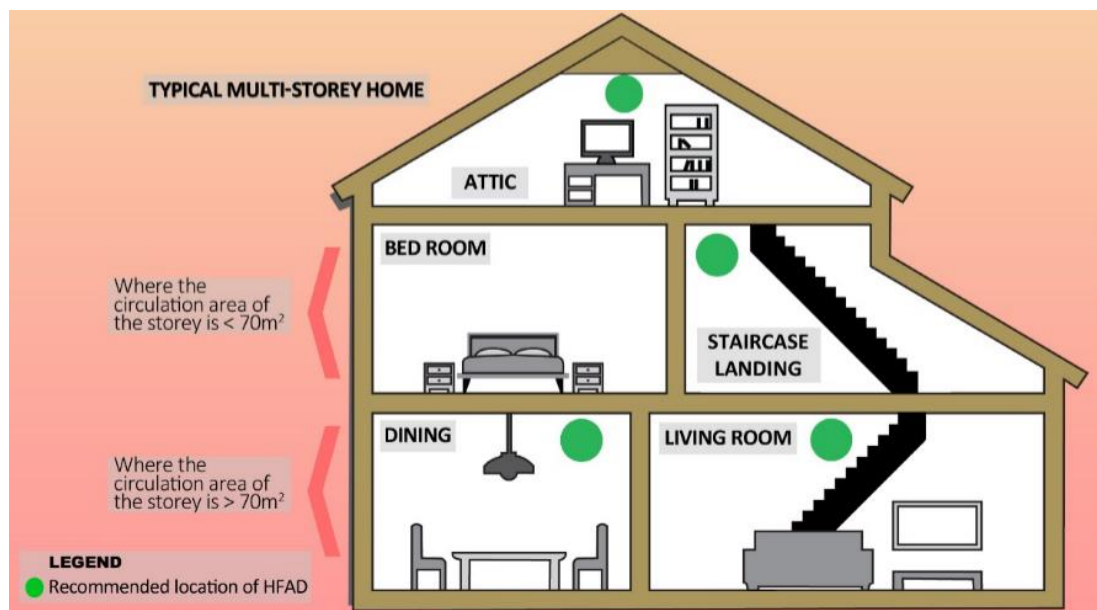
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**Figure A3: Location of HFAD installation in single storey home**



**Figure A4: Location of HFAD installation in multi-storey home**



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## Annex B

Purpose Group	Plan submission to SCDF required (Plans must indicate smoke detector locations)	Plan submission to SCDF exempted under the Fire Safety (Exemption) Order, but fire safety works require plan submission to other government agency (Plans must indicate smoke detector locations)
<b>New Building<sup>14</sup> - from 1 Jun 2018 onwards</b>		
PG I	Home fire alarm device required	Home fire alarm device required
PG II	Home fire alarm device required	Not Applicable <sup>15</sup>
<b>Existing Building – from 1 Jun 2018 onwards</b>		
PG I	Home fire alarm device required	Home fire alarm device required
PG II	Home fire alarm device required for the residential units involved in fire safety works (Home fire alarm device is not required if fire safety works involve common areas <sup>16</sup> only)	Home fire alarm device required for the residential units involved in fire safety works (Home fire alarm device is not required if fire safety works involve common areas only)

<sup>14</sup> QP is reminded to take this requirement into consideration for residential building projects in which URA Provisional Permission is obtained prior to 01 Jun 2018.

<sup>15</sup> Plan submission to SCDF is mandatory for all new PG II buildings.

<sup>16</sup> Common area refers to common property or limited common property, as defined in the Building Maintenance and Strata Management Act.



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