

# CITY OF CAPE TOWN

## ENERGY EFFICIENT WATER HEATING BY-LAW

V15 draft 2009

*To regulate the incorporation of energy efficient water heaters for the production of sanitary hot water in buildings in the City of Cape Town; and to provide for matters connected therewith.*

### PREAMBLE

The objectives of this By-law are to -

- improve energy security and improve energy risk management;
- reduce the use of electricity;
- reduce the national contribution to environmental impacts associated with the burning of fossil fuels, such as carbon dioxide (CO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and nitrous oxide (NO<sub>3</sub>) emissions;
- improve the quality of life through the provision of hot water; and
- create jobs in the solar water heater industry.

**Now therefore be it enacted** by the Council of the City of Cape Town, as follows:-

### DEFINITIONS

1. In this By-law -

**“Aperture area”** means the area in a collector cover through which unconcentrated solar radiant energy is admitted to the absorber as defined in SANS 1307.

**“Authorized official”** means the Director Environmental Resource Management, the Director: Planning and Building Development Management, or a person delegated by either of them to perform this function

**“Building”** means a building as defined in section 1 of the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977).

**“City”** means the City of Cape Town, established by Provincial Notice No.479 of 2000 in terms of section 12 of the Local Government: Municipal Structures Act No. 117 of 1998, and includes any employee or agent thereof, acting in connection with this By-Law by virtue of a power vested in the City and duly delegated to such Person.

**“Developer”** means the person or organisation which is building or developing a property with a view to sell or rent out when completed and **“development”** has a corresponding meaning.

**“Domestic solar water heater”** means a solar water heater used by an individual or a household for domestic purposes.

**“Multi-storey”** means a building with 3 or more floors

**“Exemption”** means a formal document signed by an authorized official setting out the manner and conditions of exemption of a particular building from the requirements of this By-law;

**“Owner”**, in relation to a building means the person in whose name the premises or land on which such building was or is erected is registered in the deeds office in question: Provided that if—

such person is absent from the Republic or if his whereabouts are unknown, any person who, as agent or otherwise, undertakes the management, maintenance or collection of rentals or other moneys in respect of such building or land or who is responsible therefor;

shall be deemed to be the owner of such premises, building or land.

**“Permanent shading”** means shading caused by unsuitable orientation or by existing buildings, mountains, and other similar obstacles.

**“Solar collector”** means a device that contains or incorporates an absorber and a means for transferring thermal energy from the absorber to a fluid passing through it as defined in the SANS 1307.

**“Solar contribution”** means the energy input to a hot water tank from a solar collector or collectors.

**“Solar water heater (SWH)”** means a complete operating system that uses energy from the sun to produce hot water and that comprises one or more collectors, hot water tanks and includes all the necessary interconnecting pipes and functional components as defined in SANS 1307.

## **CERTIFICATION OF ENERGY EFFICIENT HOT WATER SUPPLY TO NEW BUILDINGS BEFORE PLANS APPROVAL AND ON COMPLETION**

2. Other than those new building developments referred to in subsection 2.(3) below, no person shall receive building plan approval for alterations or new building work for any rooms requiring hot water supply, without first providing details of compliance with the requirements for incorporation of energy efficient water heaters for the production of sanitary hot water in buildings in terms of this By-Law.

- (1) This By-law applies to all new buildings in the City which are in the process of construction or alteration, other than those exempted in subsection (3).
- (2) This By-law applies to all alterations and additions to existing buildings which will require the use of hot water including but not limited to bathrooms, sculleries and kitchens other than those exempted in terms of subsection (3).
- (3) This By-law does not apply to the following cases:
  - (a) Buildings used exclusively for industrial purposes where hot water requirements exceed that which can be reasonably obtained through solar or other energy efficient water heating; and
  - (b) Any residential building which has no water heating system of any sort.
- (4) The City may exempt the owner or developer of alterations or additions to historical buildings or parts of buildings with an acknowledged heritage status from the obligations of this By-law if there are valid reasons for such an exemption, such as –
  - (a) The fitment of Energy Efficient Water Heating equipment will detract from the heritage value of the building;
  - (b) The fitment of Energy Efficient Water Heating equipment will compromise the structural integrity of the building;
  - (c) A system based on technology other than electrical, which is of historical significance, is to be fitted.
- (5) Multi-storey buildings are required to have energy - efficient water heating systems installed, provided the capital cost of the installation per housing, office or other unit is comparable to that of a stand alone building. The owner or developer thereof may apply for an exemption from the provisions of this By-law upon providing satisfactory proof that the cost of energy efficient water heating per unit is not comparable as stated. .
- (6) No exemption will be valid unless given in writing and signed by an authorized official.
- (7) All water heating installations within the area of jurisdiction of the City must, in addition to complying with this By-Law, comply with all other legislation pertaining thereto.

### **REQUIREMENTS FOR BUILDING PLAN APPROVAL**

3. (1) An application for building plan approval must state the type and location of the energy efficient water heating system to be installed in compliance with this By-law. If solar water heating is used, building plans shall show the position of the solar water heater panel, noting the orientation and inclination to the horizontal, as well as that of the conservancy tank on or in the building.

- (2) Prior to granting building plan approval, the owner shall submit to the City a written guarantee from a registered South African Bank, provided in the name of the person to whom approval is to be granted. The costs of such guarantee shall be for the applicant's account. Such bank guarantee shall be for an amount determined by the Director: Planning and Building Development Management from time to time. Such guarantee is to be provided to the City within 30 days of the submission of an application for building plan approval to the City, failing which the formal application shall be deemed to have been withdrawn. The guarantee will be returned upon issue of the occupation certificate, which shall only be issued upon compliance with Section 9(2) hereunder. .

## **APPROVALS, REFUSALS AND PROHIBITIONS**

4. In those cases where the City requires or has requested the submission of additional information or documentation as a requirement for building plan approval, for example a Heritage Impact Assessment, it shall not be obliged to commence considering the building plan approval application, including insofar as it relates to the this By-law, until the additional documentation or information this has been provided to it.
  - (1) The City may refuse any formal application for building plan approval on account of non-compliance with this By-law, or approve any such application, subject to any condition that it considers appropriate.
  - (2) All decisions by the City taken to enforce compliance with this By-law, including refusal or conditional approval of applications for building plan approval shall be communicated to the applicant in writing, provided that in the case of an unconditional approval the City may notify the applicant thereof by way of an appropriate rubber stamp endorsed on the building plans. .
  - (3) In the event of a co-ordinated process of approvals taking place, the City may pend its decision in respect of determining whether this By-law has been complied with until such time as all other applicable approvals required from the City or other statutory authorities have been obtained.
  - (4) The following criteria may be applied by the City as grounds for refusal of building plan approval on account of non-compliance with this By-law:

Unless specifically permitted elsewhere in this By-Law, no form of water heating may be installed which

    - (a) will constitute a danger to any person or property; or
    - (b) will unduly compromise any view, scenic rural vistas, adjacent residential properties or diminish the heritage values of an area; or
    - (c) will be detrimental to or have a negative aesthetic impact on the environment or amenity of a neighbourhood, area or building by reason of either its size, or locality; or
    - (d) will have significant detrimental impact on the architectural design or features of a building; or
    - (e) does not integrate with the existing landscape and locality.

For any installation larger than 600 litres capacity proposed in a heritage or conservation area, the City may, in its discretion, also require the submission of a Heritage Assessment confirming that no undue detrimental impact in respect of heritage resources is envisaged.

## **WITHDRAWAL AND AMENDMENT OF APPROVALS**

5. ( ( In the event of a water heating device being installed:
- (a) in contravention of the a building plan approval granted in respect of the relevant property in in terms of this By-Law, or
  - (b) which constitutes or may constitute a danger to any Person or property; or
  - (c) based on false or misleading information submitted in the formal application;

the City may, after calling for and considering representations, if any, made by the person to whom the approval was granted pertaining to the proposed decision, withdraw the approval so granted or amend any condition or impose a further condition in respect of such approval.

## **APPEALS**

### **6.**

Any person aggrieved by a decision taken by the City in terms of this By-law shall be entitled to appeal against such decision in terms of the provisions of the Municipal Systems Act. No. 32 of 2000.

## **STANDARDS**

### **7. Solar Water Heating**

- (1) A domestic solar water heating system and its sub-components shall comply with either SANS 1307 or accepted international standards. Compliance has to be declared in writing.
- (2) The solar collector shall be positioned in such a manner as to obtain a minimum of 80% of its optimal output, given the constraints of the building geometry and orientation. For Cape Town, orientation and inclination constraints are as follows:
  - (a) For E – W (passing through N):  $5^{\circ} < \text{inclination} < 40^{\circ}$
  - (b) For ENE – WNW:  $40^{\circ} < \text{inclination} < 60^{\circ}$noting that a true north orientation and an inclination of the collector of  $30^{\circ}$  to the horizontal are optimal'
- (3) The installation of the solar water heating system shall be done according to national codes of practice SANS 10106,
- (4) The installer shall complete the installation certificate which shall as a minimum contain the following information:

- (a) The unit aperture area; where an aperture area which will provide a minimum of 0.167MJ of energy per litre of water per day under conditions specified in SANS 1307 Section 14.13.1 is deemed the minimum acceptable;
  - (b) whether the SWH is freeze resistant or not freeze resistant;
  - (c) for domestic solar water heating, a signed declaration on compliance of the SWH with SANS 1307 in terms of section 4(2)(e) from manufacturer or distributor;
  - (d) a declaration including the rated daily output according to SANS 6211-1 or SANS 6211-2.
  - (e) the name of the installer and the installing company.
- (5) The manufacturer shall give a minimum 5 year performance warranty declaration in writing on the solar water heating system.

A service contract is encouraged and should include, as a minimum –

- (a) a commitment from installer to perform a commissioning check within one month after installation, handing over the commissioning check list according to national code of practice SANS 10106 to the owner. This commissioning check shall be included in the price of the system; and
  - (b) a commitment from installer to perform an annual service check at a reasonable fixed price stated in the contract, for a period of at least the two first years.
- (6) Heat Pumps
- (a) A domestic heat pump system and its sub-components shall comply with either SANS or accepted international standards. Compliance has to be declared in writing.
  - (b) The installation of the heat pump system shall be done according to national codes of practice SANS 10106.
  - (c) The manufacturer shall give a minimum 5 year performance warranty declaration in writing for the heat pump system
- (7) Other Efficient Water Heating Technology
- (a) The owner may install other forms of efficient water heating technology, provided the owner can provide proof to the satisfaction of the Director: Planning and Building Development Management or his or her appointee, that the technology bears the

SABS mark of approval, and has independent tests from a recognized authority proving reduction in electrical energy levels at least equal to or better than 60% when compared to an equivalent conventional electric geyser.

- (b) The energy efficient water heating system to be installed shall bear a manufacturer's performance warranty declaration valid for minimum 5 year period in writing.

## **APPEARANCE AND DESIGN**

- 8. (1) The City shall be entitled to require changes in the proposed design and appearance of a building in order to minimize the visual impact of a solar water heater. Design and appearance shall comply with the guidelines in Annexure A of this bylaw.
- (2) Where possible, hot water cylinders shall be installed within the roof space or internally -
  - (a) in areas of frost prevalence to address insulation concerns; and
  - (b) for aesthetic reasons in sensitive contexts such as –
    - (i) buildings older than 60 years; and
    - (ii) in heritage areas.

## **OWNER'S OBLIGATIONS**

- 9. (1) The owner, or in the case where transfer to a final owner has not yet taken place the developer, of a building in which an energy efficient water heater system is installed, is responsible for compliance with this By-law.
- (2) An Energy Efficient Water Heating Installation Completion Certificate attesting to the completed installation of the energy efficient water heating system in the form of Schedule A attached and issued by the installation plumber, shall be provided by the responsible person under 7 (1) above to the building inspectorate before a certificate of occupancy may be issued.
- (3) The owner of the energy efficient water heating system is responsible for maintenance and repairs necessary to keep it in good repair and functioning adequately.

## **ENTRY, MONITORING AND INSPECTIONS**

- 10. (1) The City shall be entitled to enter into and upon any property or premises at a reasonable time for the purpose of carrying out any enforcement, monitoring and inspection necessary for the proper administration and enforcement of the provisions of this By-Law.

- (2) The City may by written notice require an owner of a building to provide, within a reasonable period, any information it may need to give effect to this By-law.
- (3) If such information is not provided within the time stated in the notice, the City may carry out an inspection of the building at the owner's cost to check compliance with the requirements of this By-law.

(b)

## **RESPONSIBLE PERSONS**

**12.** Any Person who is:

- (a) alone, or jointly with any other person, responsible for the development of a premises or building to which non-compliant water heating equipment is being or has been fitted shall be deemed, until the contrary is proved, to have knowingly done so;
- (b) the owner of any land or building to which any non-compliant water heating equipment is being or has been fitted in contravention of this bylaw, shall be deemed, until the contrary is proved, to have knowingly done so, or caused or allowed it to be so done.

## **CONTRAVENTIONS**

**13.** The following conduct or omission is prohibited in this By-law:

- (a) installation of an electro-resistive heating element equipped conventional water heating system in contravention of an authority issued under this By-law; and
- (b) failure to maintain the efficient water heating system according to requirements of this By-law; and
- (c) failure or refusal to provide information or give access to buildings as provided for in section 8 of this By-law.

## **COMPLIANCE NOTICES**

**14.** (1) When the City or agent thereof finds that a provision of this By-law is contravened by an applicant or that a condition has arisen that has the potential to lead to a contravention of this By-law, such authorised official may issue a compliance notice to the applicant or the person in charge of the energy efficient water heater.

(2) A notice issued in terms of subsection (1) must state –

- (a) the provision of the By-law that has been contravened or will be contravened if the condition is allowed to continue;
  - (b) the measures that must be taken to rectify the condition;
  - (c) the time period in which the notice must be complied with.
- (3) If a person on whom notice was served in terms of subsection (1) fails to comply with the requirements of the notice, the City may take such steps as may be necessary to rectify the condition at the cost of the applicant or owner of the energy efficient water heater.
- (4) In the event of the City having to remove or alter a water heating installation in terms of the provisions of this By-Law, the City shall give notice to the applicant or owner of the equipment in question, if those details are easily ascertainable, of the removal and if applicable, that the equipment may be collected from the City subject to the payment of any prescribed fees and the costs of removal.
- (5) Any equipment which has been removed and is being stored by the City which is not claimed within 60 days of the date of removal, irrespective of whether notice has been sent in terms of section (b) above, may be disposed of by the City in its sole discretion.
- (6)

## **PROOF OF SERVICE OF NOTICES**

- 15.** Where any notice or other document is required by this By-Law to be served on any Person, it shall be deemed to have been properly served:
- (a) if served personally on him/her, or any member of his/her household, apparently over the age of 16 years, at his place of residence, or on any Person employed by or with him at his place of business, or
  - (b) if posted by registered post to such Person's residential or her business address, as it appears in the records of the City, or
  - (c) if sent by telefax, and a transmission verification report indicating that such fax has been successfully transmitted, or
  - (d) If such Person is a company, close corporation or a trust, if served on any Person apparently employed by that company, closed corporation or trust, at the registered office or main place of business thereof, or sent by registered post to such office.

## OFFENCES AND PENALTIES

16. Any Person who:

- (1) Installs a water heating system which contravenes or fails to comply with any provision of this By-Law or any condition of approval pertaining thereto ; or
- (2) Installs an energy efficient water heating system in contravention with requirements in this By-law; or
- (3) fraudulently replicates copies or forges any document or other form of authorisation issued by the City in terms of this By-Law,
- (4) contravenes or fails to comply with any requirement set out in a notice served on him in terms of this By-Law; or
- (5) Knowingly makes a false statement to the City in any documentation provided to the City in terms of this By-Law;

shall be guilty of an offence and liable:

- i. upon conviction of a first offence, to a fine not exceeding R5000,00 as adjusted in terms of the Adjustment of Fines Act No. 101 of 1991 from time to time, or, in default of payment, to imprisonment for a period not exceeding 6 months;
- ii. in the case of a continuing offence, to a further fine not exceeding R1000,00, as adjusted in terms of the Adjustment of Fines Act No. 101 of 1991 from time to time, for every day during the continuance of such offence;
- iii. upon conviction of a second or subsequent offence in terms of this By-Law to a fine not exceeding R10000,00 as adjusted in terms of the Adjustment of Fines Act No. 101 of 1991 from time to time or in default of payment, to imprisonment for a period not exceeding 12 months.

## AUTHORITY TO ADMINISTER THE BY-LAW

17. The administration of this By-Law is delegated to the Director: Planning and Building Development Management, who may sub-delegate these powers to employees, duly authorised agents, contractors, contracted non-profit bodies or contracted volunteers under his/her control, or under the control of another departmental head in terms of a service level agreement.

## DATE OF ENACTMENT

18. All applications for building permissions received by the authorities of the Building Plans Department of the City after **Day of Month YEAR** must comply with this By-law.

## **SHORT TITLE**

- 19.** This By-law is called the City of Cape Town: Energy Efficient Water Heater By-law, 2009.

## ANNEXURE A

### *Estimation of consumption*

Knowledge about the hot water consumption is needed when estimating/calculating the optimal size of an energy efficient water heater.

Values from table 1 below may be used for estimation of the hot water usage if not known from previous surveys or other means.

**Table 1:** Estimation of hot water usage in different cases-

Case	Amount of hot water used Per day	Unit
individual households High/Middle income sector	50	litres/person
Low income sector	25	litres/person
apartments	30	litres/person
hospitals and clinics	60	litres/bed
old people's homes	40	litres/person
day schools	5	litres/pupil
factories and workshops	20	litres/person
Offices	5	litres/person
camp sites	60	litres/site (occupied)
Hotels	100	litres/bedroom (occupied)
plus	8	litres/meal (sold)
college	30	litres/student
laundries	5	litres/kilo of clothes
restaurants	8	litres/meal (sold)

**SCHEDULE A**

**ENERGY EFFICIENT WATER HEATING INSTALLATION CERTIFICATE**

**Name of Building Owner** .....

**Address of Installation** .....

**Type of Water Heating Equipment installed** .....

**Make** .....

**Model** .....

**Country of Origin** .....

**Water Capacity (litres)** .....

**Maximum Electrical Demand** .....

**COP Factor (Heat Pump)** .....

**Collector Area ( Solar Water Heater)** .....

**Daily Output (SANS 6211-1 &-2)**.....

<b>Freeze Resistant</b>	<b>Yes/No</b>
<b>SANS 1307 Compliant?</b>	<b>Yes/No</b>

**Name and Registration Number of Installer** .....

**Name of Firm** .....

**Address of Firm** .....

**Signed** ..... **Date** .....

**SCHEDULE B**

**NOTICE**

1. **Provision of the By-law that has been contravened or will be contravened:**

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2. **Measures that must be taken to rectify the condition:**

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3. **Time period in which the notice must be complied with:**

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4. **Issue Date of this Notice:**

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5. **Name and Registration Number of Installer**

.....

6. **Name of Firm**

.....

7. **Address of Firm**

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.....  
.....

**Signed** ..... **Date** .....