National Environment Agency
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CLARIFICATIONS ON SITING OF KITCHEN EXHAUST OUTLETS AND COOLING TOWERS

Reference: NEA-SCD-OM-CIR-ENVHYG-009
Date : 1 March 2024

CIRCULAR TO PROFESSIONAL INSTITUTIONS

Who Should Know
Agencies, Developers, Architects, Engineers, Contractors, and Builders

Dear Sir/ Madam,

The Code of Practice on Environmental Health (COPEH) was last revised in September 2021. We have since received feedback seeking clarity on the following:

i. Section 3 Ventilation, Ducting and Kitchen Exhaust Systems in Food Shop: minimum separation distance between kitchen exhaust outlet and the building it is facing; and

ii. Section 4 Cooling Tower: acceptable structural measures;

[Clarification] Minimum Separation Distance of Kitchen Exhaust (KE) Outlet from Nearby Buildings

2 On the design requirement in Section 3.2(a) of the COPEH, NEA has established the minimum separation distances between a KE outlet and the building, which the KE would be facing, to better guide the industry on siting of KE. The minimum separation distance is based on the type of building to clarify the term "adjacent" in the COPEH. Please see **Table 1** for the criteria.

> Section 3.2(a): The fumes from the kitchen exhaust system shall be exhausted above the roof and not face in the direction of **adjacent buildings**. Where it is not practical to exhaust the fumes at or above the roof, an alternate location of the discharge point in the outdoors may be selected, and not face in the direction of **adjacent buildings**.

3 The minimum separation distance is measured horizontally from the edge of the KE outlet to the facade of the building the KE outlet is facing. (Please refer to **Appendix A** for illustrations.)

Table 1: Criteria of Minimum Separation Distances

Building Types	**Separation distance between kitchen exhaust outlet and building it is facing (metres)**
Buildings with high possibility of immuno-compromised occupants or occupants who may have long-term / perpetual exposure to kitchen exhaust: a. Residential buildings, including dormitory (workers quarters) and school hostels b. Health-care facilities, excluding clinics unless they are standalone c. Nursing homes d. Standalone childcare / pre-school centres	Minimally 20m

e. Primary & secondary schools	
Other types of buildings	Minimally 10m

4 KE outlets should be routed to the roof for effective dispersion. The aforementioned requirements are applicable for all proposed kitchen exhaust outlets regardless of location.

[Clarification] Acceptable Structural Measures for Cooling Tower (CT) Siting Requirement

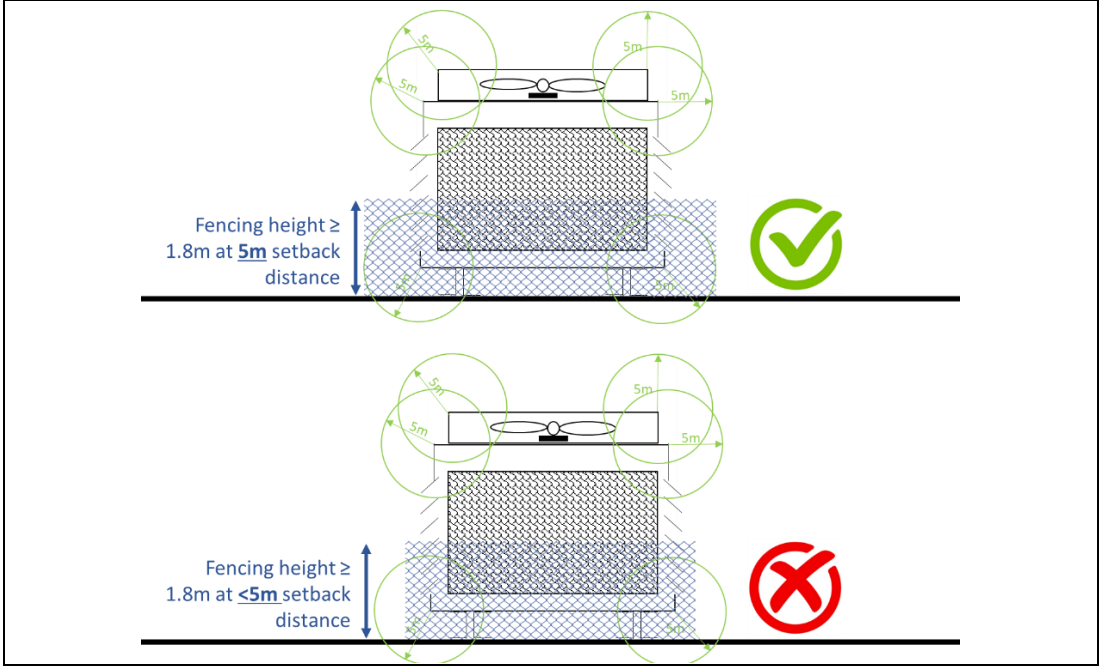
5 In order to comply with the COPEH requirement of siting CT at least 5m from occupied areas, pedestrian thoroughfare, trafficable areas and any other areas where access is not restricted to trained CT maintenance staff, the following structural measures shall be implemented.

a. All accesses (doors, gates, etc.) to the 5m setback areas of the CT shall be restricted by locking and be accessible only by maintenance staff who understand the risk of *Legionellosis* and will work in accordance with their safe work procedures based on the risk assessment done.

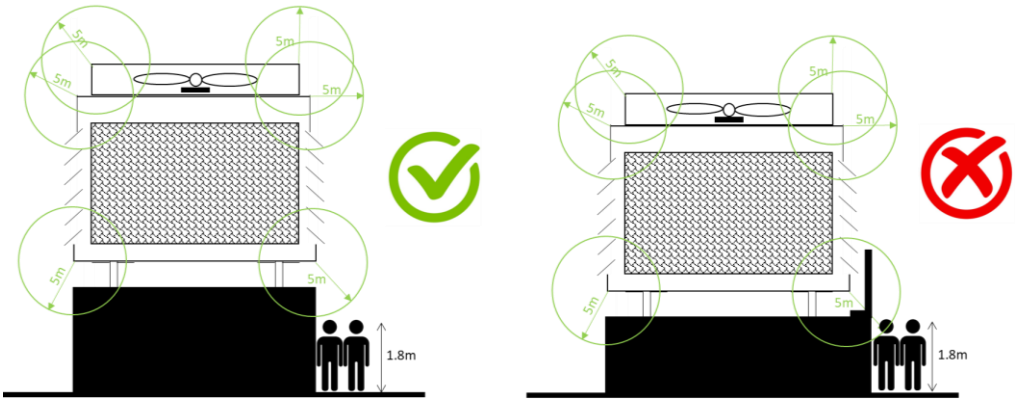
b. If the CT is in an area where non-maintenance staff (including employees) can gain access to (especially at the ground floor), structural measures are required and the following can be considered.

i. A structural barrier such as a wall or fence of minimum height of 1.8m will need to be built around the CT, at a distance of at least 5m from the CT, to restrict access to the 5m setback areas of the CT; or

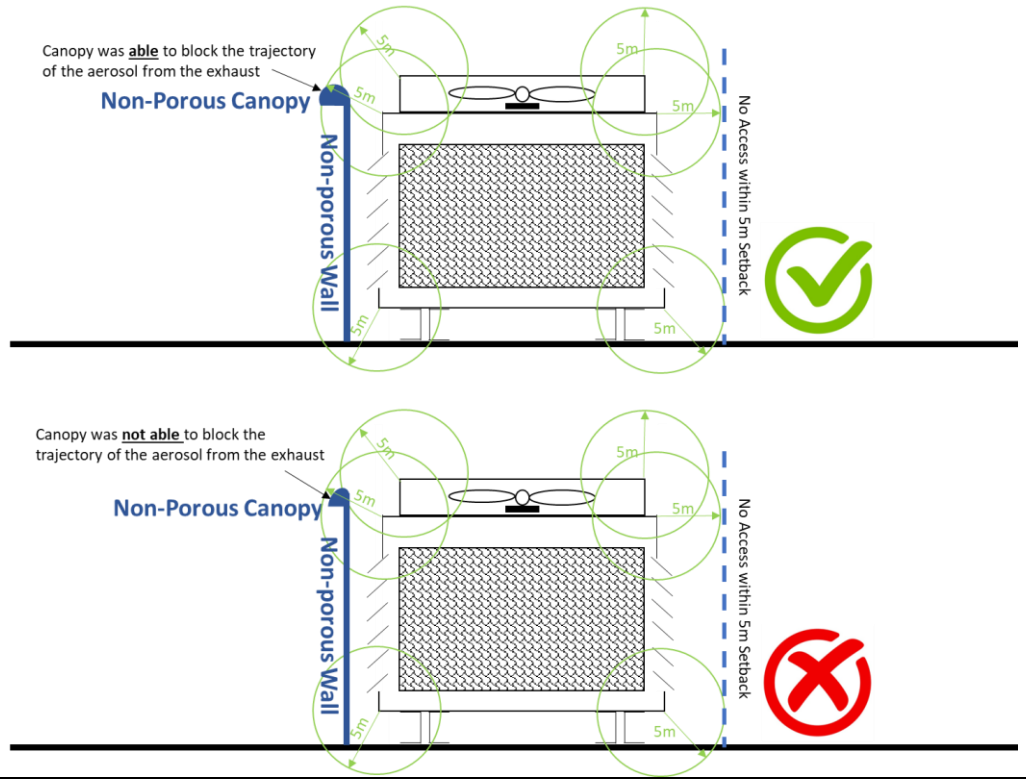
1.8m fence at the boundary of the 5m setback



ii. A structure used to elevate the cooling tower such that its base is 6.8m high (5m setback + 1.8m adult height); or

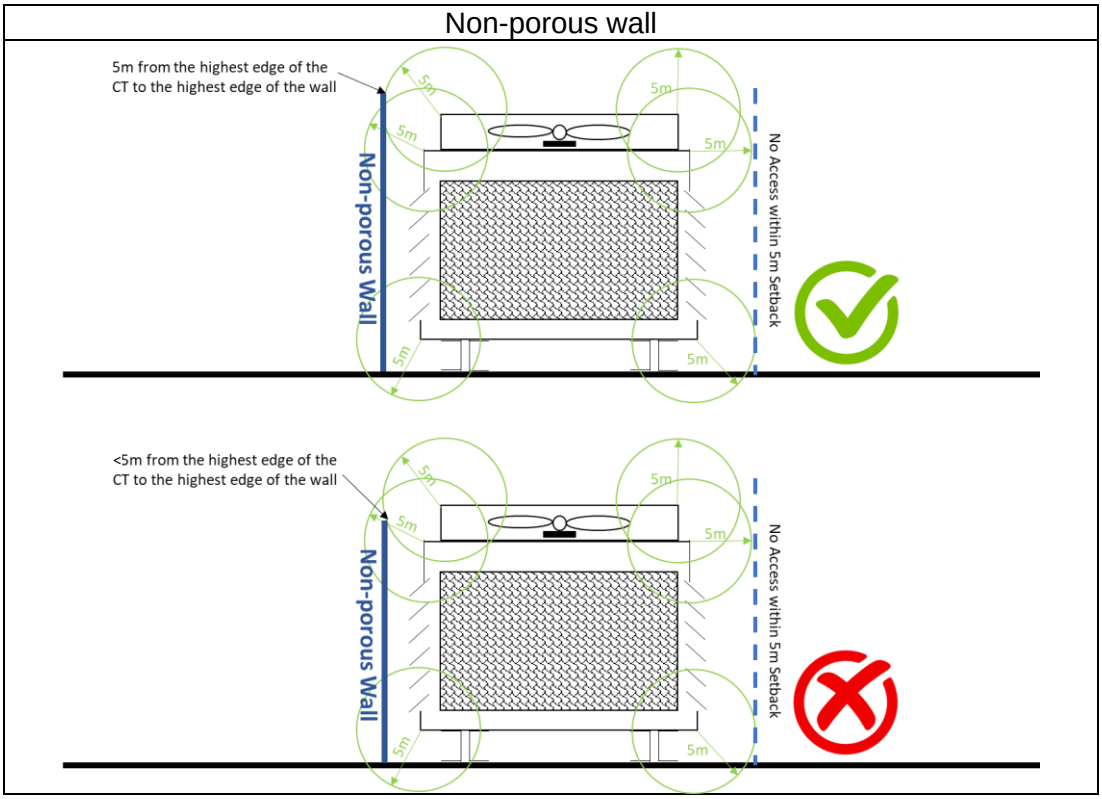
Elevate the cooling tower such that its base is 6.8m high


iii. A non-porous wall with a non-porous canopy will need to be built, with the canopy extending to at least 5m (where necessary) from the nearest edge of the CT if the non-porous wall is not of sufficient height to block the 5m plume radius from edge of CT; or

Non-porous canopy


iv. A non-porous wall with the highest edge of the wall at least 5m from the nearest edge of the CT

Non-porous wall



6 If any air circulating and ventilating inlet, openable window, kitchen exhaust discharge outlet, air handling system or other areas where nutrients conveyed from these systems could assist in the growth of *Legionella* bacteria in the cooling tower system are located within the 5m setback area of the CT, the above-mentioned structural measures of (b)(iii) or (b)(iv) are required to be installed between the CT and the sensitive receptor.

Further clarifications

7 Should you require further clarification on the above, please let us know through the Online Feedback Form available on the NEA website, or via the myENV or OneService mobile applications.

Thank you.

Yours Faithfully,

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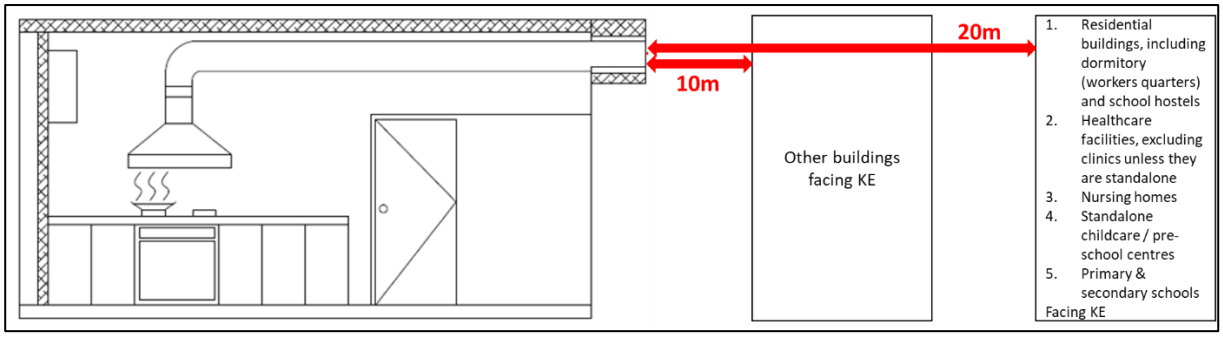
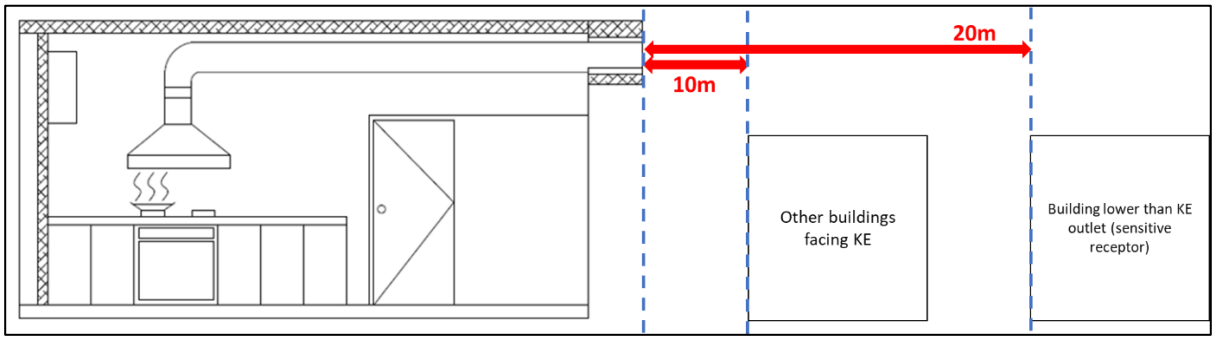
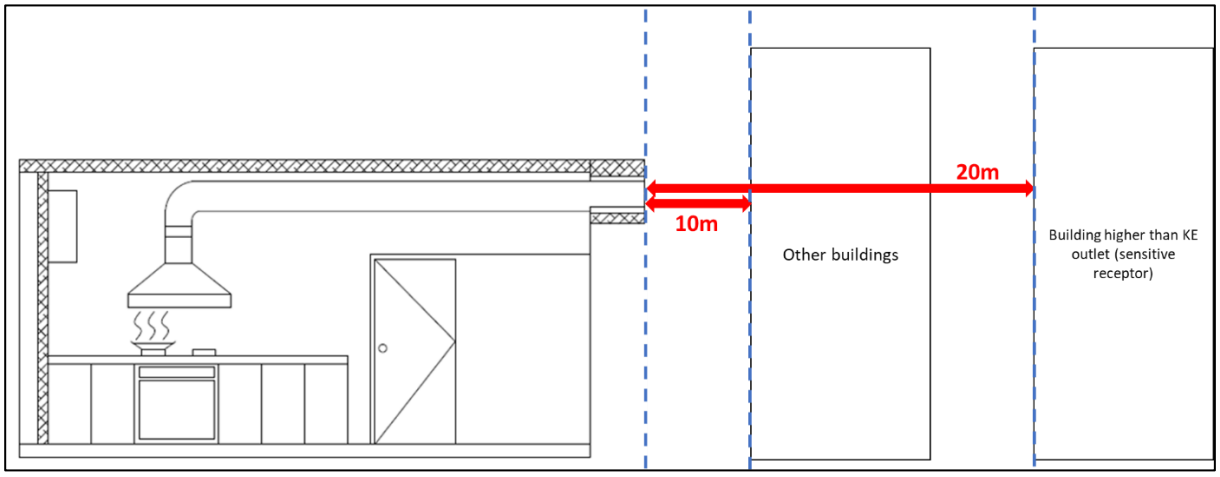
Appendix A: Illustrations of Minimal Separation Distance from Kitchen Exhaust Outlet to the Building it is facing

S/N	Illustrations of minimal separation distance
1	Separation Distance of 10m from kitchen exhaust outlet to the nearest buildings (other buildings); Separation distance of 20m from kitchen exhaust outlet to the nearest building (buildings with high possibility of immuno-compromised occupants or occupants who will have long-term / perpetual exposure to exhaust); 
2	Neighbouring building lower than kitchen exhaust outlet 
3	Neighbouring building higher than kitchen exhaust outlet