

# Introduction to Condensation Management

## Q&A

*The following answers have been provided to questions asked during the Introduction to Condensation Management webinar on 31 August 2023.*

*The answers provided are correct as of 12 September 2023.*

### **Where can I find a copy of the presentation slides?**

A copy of the presentation slides and recording of the webinar are available from the [VBA website](#).

### **I have a house with double glazing and condensation runs over the aluminium sill and onto the MDF timber surround, which is rotting. Is there an easy way to rectify this situation?**

As outlined in the webinar, condensation is water vapour caused by humans and normal daily activities. As our buildings are becoming more sealed, there is little place for the water vapour to escape, so it collects where warm and cold surfaces meet. To resolve this, you need to provide as much ventilation as needed to release or dry out the water vapour. This could be done by openings, such as windows or by exhaust fans vented to outside air, that run for a period at least ten minutes after a bathroom or sanitary compartment is used.

### **As a building surveyor, do I now have to ask what sort of clothes dryer they are going to install? What about their fridges and what stars they are going to get, or maybe a heat pump dryer? What if they don't know?**

Yes, the relevant building surveyor (RBS) will need to know whether a dryer that is required to be ducted to outside air is to be installed, prior to issuing of a building permit, so that they can assess whether the condensation management requirements have been met. This will entail requesting specification of the type of dryer being installed, specification of the exhaust fan for flow rate and the exhaust system discharge requirements being documented in the plans and specifications. It may be worth suggesting that an exhaust duct is installed to outdoor air with a wall socket, so that any future users of the building can connect a dryer duct to the wall socket for the requirement to be met.

### **What is the definition of "kitchen" in Clause F8D4(1)? Does "kitchen" only apply to commercial kitchens or both domestic and commercial kitchens? Clause F8D5 (2) differentiates kitchens from kitchen rangehoods. Also, is this considered a required mechanical ventilation and thus, buildings are not required to meet J5D2(c)?**

As discussed during the webinar, F8D4 applies to exhausts in kitchens, including rangehoods in Class 2 & 4 parts of buildings, not commercial type buildings. The requirements relate to condensation management, which is in addition to the ventilation requirements under part F6. They would be considered a mechanical ventilation system, however J5D2(c) only provides an exemption from the sealing of exhaust systems, where there is sufficient pressurisation to prevent outdoor air infiltration back into the room or space through the exhaust system. This is because part J5 requires



all exhausts to be self-closing to prevent outdoor air infiltration back into the building. To be able to get this exemption, you would need to have supporting evidence that sufficient pressure exists, so that air will not infiltrate back inside.

**With ever-increasing energy efficiency and insulating requirements of buildings, has there been any talk, now or for the future, of introducing HRV systems to exchange fresh air from the outside to the inside of buildings, without having to open windows and doors for ventilation and moisture purposes?**

There has not been any talk about introducing heat recovery ventilation systems in buildings. However, there is no reason why these systems could not be incorporated into a building where desired.

**What if the dwelling is an investment property and is going to be rented out, how do you know what clothes dryer will be used?**

With respect to the requirements for Class 1 buildings and the requirement for where a venting clothes dryer is to be installed, regardless of whether the building is to be a rental property or not, the designer will need to specify whether a venting dryer is proposed on being installed. The RBS will need to assess the plans to determine if it will be ducted to outdoor air. If it is a rental and the owner cannot be sure if one will be used, then it may be best to provide an exhaust duct to outside air that has a wall socket that a venting dryer could be connected to. This will allow the tenants using a venting dryer to use the wall socket duct to vent their dryer and prevent the owner's home from being damaged by excessive condensation from the dryer.

**What use is a vapour permeable membrane if you are directly fixing cladding to a frame?**

Using a vapour permeable membrane with a direct fix cladding system is mandatory under the National Construction Code (NCC) Deemed-to-Satisfy (DtS) provisions for Victoria. Many manufacturers will also not guarantee their products if a vapour permeable membrane is not used, as water vapour or moisture may become trapped between the membrane and the back of the cladding and can deteriorate these elements. Furthermore, having a direct fix cladding system without a membrane would allow condensation to get to the water sensitive materials, which with no cavity to assist in drying is likely to result in the risk of mould or the deterioration of building elements. If you do not wish to use a vapour permeable membrane, you must provide a drained cavity with no membrane under the DtS provisions or formulate a performance solution to satisfaction of the RBS.

**Vapour permeable membranes don't work well without a ventilation cavity (between wrap and cladding). Is this still not a requirement?**

No. It is only a requirement under NCC 2022 for a drained cavity to be provided where a vapour permeable pliable building membrane is not used.

**What happens when the light is not required or switched on by the user?**

Where a room is naturally ventilated in accordance with part F6 of the NCC, this is not required. However, where not naturally ventilated and an exhaust does not run continuously, it must be interlocked with the light switch. The NCC requirement is to interlock the exhaust with the light switch, regardless of whether the occupants will use the light switch and it does not contemplate the behaviour of occupants. It is in the best interests for occupants to use the light switch and run the exhaust, as it will assist in mitigating excessive condensation in the building.



**Is it correct to say that there should be no ventilation allowed into a roof space and it should all be vented to outside? All roof spaces I have seen that is vented have mould. What are the requirements around it?**

The requirement for NCC 2022 is for all exhaust systems to be discharged to outdoor air, unless otherwise exempt. The requirement for roof ventilation is a separate mandatory requirement if using the DtS provisions, in addition to exhausts to outdoor air.

**How do you ventilate a roof space if there are no eaves?**

There are different types of proprietary vent systems currently available on the market. There are some that have the same profile as roof tiles but with a vent in them, fascia vents and other low level ventilation systems. You would have to contact the manufacturer for specific requirements on the minimum opening area for each respective system to determine what is appropriate for each installation.

**Class 2 Low Rise Multi Level Apartments with a suspended concrete balcony above a habitable room is a huge problem. The concrete substrate gets cold, the hot air from below pushes up and the cavity basically starts raining. What is the requirement for this?**

There are no requirements to address this issue under NCC 2022. However, the Australian Building Codes Board (ABCB) are still conducting research as part of the condensation management project, so this may be addressed in future NCC versions if the ABCB deem necessary.

**Where roof ventilation is not applicable (e.g. FZ roofs), does it mean the only pathway is a Performance Solution, or does it mean there is no need for roof ventilation?**

DtS clause F8D1(1) states that compliance with performance requirement F8P1 is satisfied by complying with DtS provision F8D2 to F8D5. Therefore, as clause F8D5(2)(c) provides an exemption for roofs subject to BAL FZ requirements under AS 3959, there are no ventilation requirements if using the DtS provisions for a roof subject to BAL FZ requirements.

**The exception to condensing dryers also contradicts the requirements of AS1668.2-2012 via F6 where condensing dryers require 20 L/s/room - which takes precedence? AS1668.2 requires exhaust ventilation to be ducted outside.**

Clause A4G2 of the Governing Requirements of the NCC (which is mandatory) states that the NCC overrules any primary referenced document. Therefore, the NCC provisions override AS 1668 requirements where there is a difference in their provisions.

**When a builder is engaged on a build only contract, on a multistorey apartment project, and there is no provision for make up air within the Building Permitted documents, where does liability sit when the building 12 months post Cert of Occupancy has excessive condensation?**

If the project is subject to the NCC 2022 condensation management requirements (from 1 May 2024) and the requirements for condensation management are not shown on the plans or specifications, then you should contact the RBS for further advice. The RBS is responsible for assessing the application for building permit against the *Building Act 1993* (the Act), Regulations and NCC. However, it may be the case that Section 10 of the Act was applied permitting NCC 2019 provisions to be used, there was a performance solution or the area in question was naturally ventilated instead using an exhaust for compliance. In terms of a builder's liability in relation to defects where the condensation management provisions were required but was not documented on the approved plans or specifications, you can contact [Consumer Affairs Victoria](#) for advice.



**The webinar mentioned that under F8D4 ventilation to the outside must be installed by a licensed plumber. Can you please expand on this?**

Installation of flexible or rigid ductwork is regulated plumbing work under the *Plumbing Regulations 2018*. This work is required to be carried out by a licensed plumber in the class of mechanical services or restricted mechanical services. A plumbing compliance certificate will be required to be provided by the plumber where the cost of the work is more than \$750.

**Does a heat pump dryer require the mandatory ventilation?**

If the heat pump appliance is being used to satisfy the laundry facility requirements under part F4 of the NCC, then a space to duct the appliance is required to be provided. The best way to deal with this provision where clothes drying appliance is being used to comply is to provide a duct to outdoor air within the wall, with a wall socket for future occupants to connect clothes drying appliance to.

**Can we use whirlybirds? Usually, one can provide ventilation to 100m<sup>2</sup> of roof space.**

Whirlybirds can be used to ventilate the roof space; however, you need to take into account the minimum amount of opening area of the whirlybird (the openings between the whirlybird blades), which really does not give you much open area to work with. Therefore, there would most likely be too many required to achieve the minimum requirements under the DtS provisions. Alternatively, whirlybirds could be used as a performance solution if you can justify compliance with the performance requirement. **If the building doesn't have eaves, or only to the front façade, how is the venting achieved evenly around the dwelling for compliance?**

As discussed in the webinar Q&A, a performance solution is required to be formulated where a building does not have eaves and would also be due to only having an eave at the front as it cannot meet the DtS provisions.

**If we have different eave lengths, then won't using the number of eaves to determine the total number of vents required result in un-even spacing of eave vents to each eave?**

If there are different eaves lengths, yes, it's possible it will result in uneven ventilation. Common sense must prevail when calculating the required ventilation for the eaves. The example in the webinar was a very basic example of a gable end roof that had the same length eaves and was an example calculation only, to demonstrate how it is to be carried out. The same principles apply; however, each specific building design will need to be given consideration as to the number and length of the eaves, in order to ensure that vents are evenly distributed.

**The example the VBA presenter used to demonstrate evenly distributed eave vents included an eave at the front and rear of the building. Vents were not shown within the front or rear eave. Why?**

The figure used in the webinar to demonstrate the roof ventilation calculation was an example of a gable end roof, with the gable ends at the left and right side of the figure. The design in the example has no eaves/roof space access at the gable ends. Therefore, the requirement was met by evenly distributing the vents at the boxed eaves at the top and bottom of the figure. This will not be applicable to a typical gable roof that has boxed eaves right around the building and attention must be given to each particular design, in order to achieve compliance with the roof ventilation requirements.

**Would you need high-level vents in a roof if the sarking does not overlap the ridge battens? Lysaght claim a standard ridge on corrugated roof sheeting can ventilate 8000mm<sup>2</sup> per metre. Obviously, in a Bal rated zone mesh could be used to prevent embers entering the roof space.**

The roof ventilation requirements under the DtS provisions call up an amount of free open area for high level openings. If the minimum ventilation requirement can be achieved for high level openings through the gaps in the corrugations and using mesh for BAL requirements, and if this can be



demonstrated to the RBS, then these openings may be used to achieve the high-level roof ventilation requirement.

**Although you may not be required to provide a space for a clothes dryer but choose to provide such a space, then do you require both an exhaust fan for the laundry room as well as a dedicated exhaust system for the future clothes dryer?**

For a Class 2 or 4 part of a building there is no additional exhaust system required if providing a space for a ducted drying appliance and a space for ducting the exhaust to outdoor air. It is best to include an exhaust wall socket within laundries so that occupiers can connect a ducted drying appliance if they wish to, to mitigate against excessive condensation, as you may not know whether future owners will use a dryer.

**Regarding the 10-minute run time for a bathroom exhaust fan, if I walk in and wash my hands and not use the shower, it is still required that the fan run for 10 minutes?**

Yes. The fan is interlocked with the light switch, therefore whenever the light switch is activated, the fan will run for 10 minutes after it is switched off, regardless of whether a shower is used or only washing hands.

**With regards to roof ventilation, this will have an impact on the corrosivity category to a space inside the building envelope, as it is possible for external airborne moisture (and indeed salts etc) to enter the roof space. In practice this is often ignored or not realised with regard to corrosion protection requirements for steelwork and steel brackets/fasteners/fixtures etc. What guidance can VBA provide on this issue?**

The condensation management requirements are separate to that for durability and do not take into account the corrosive nature of the environment. However, there are other requirements under specific Australian Standards that apply to the durability of materials and the exposure category. For example, metal roofing has different categories based on the vicinity of the building to the ocean.

**Most apartments have euro laundry spaces or dedicated laundry rooms, with space provision for a washing machine and a clothes dryer. In this application, the room will be provided with ventilation in accordance with AS 1668.2 (i.e. 40l/s minimum where a clothes dryer may be installed). In this application, when the room is ventilated, do we also need to allow the space for a dedicated exhaust route from the clothes dryer to outside?**

If the laundry in a Class 2 or 4 part of a building is using AS 1668.2 for ventilation in lieu of natural ventilation, then yes, a dedicated exhaust must be provided for a ducted drying appliance in addition to the laundry ventilation system that was installed to satisfy part F6.

**Who designs the building to satisfy the provisions? Is it the draftsman/architect who must show measures taken in plans? Or will there be a document (i.e like an energy rating report) that shows calculations/measures? Or will it be falling to building surveyors to spot if something's missing and request plan amendments/written clarification as required?**

It is the designer who must design the condensation management requirements, whether it be an architect, draftsman or the builder. The specific details should be in the plans and specifications, and specific evidence of suitability will be required to be provided to the RBS for approval. The RBS will then assess the documentation for compliance with the NCC prior to the issue of a building permit.

**In a building with no eave and no ridge, is there a calculation tool for ventilation system**

There is no calculation method under the DtS provisions for this scenario. It will need to be a Performance Solution in accordance with clause A2G2.





**If no Eaves, then can't a fascia vent operate in lieu of an eaves vent? Without a performance solution.**

No. As the only requirements under the DtS provisions apply to eaves vents. Where there are no eaves, a performance solution must be formulated.

**So, all box gutter/parapet roof ends it will need a Performance Solution?**

Correct. All parapet type roofs will be required to be a performance solution where eaves vents are required under the DtS provisions.

**How do you prevent condensation in an energy efficient, airtight home in a cold climate? (e.g. Kyneton, Central Victoria).**

preventing condensation is all about ventilation. As moisture can accumulate within a building due to normal everyday activities, the moisture needs to be released so that excessive condensation does not occur, hence why the NCC is progressively introducing condensation management provisions as more research becomes available.

**Do we have a specific requirement when the property change of use?**

Regulation 229 of the *Building Regulations 2018* sets the requirements when changing the use of a building and requires that the building is brought into conformity with the current Regulations. However, the municipal building surveyor or a private building surveyor appointed to issue an occupancy permit may exempt the building from any of the Regulations applicable to the new use, but must take into account the structural adequacy, health, safety and amenity of the people using the building and the spread of fire when making this decision. An application may be made to the building surveyor applicable, however the decision is completely at their discretion.

**If as a builder you follow all DtS Condensation provisions, but the building still does get condensation, and then mould/deterioration, is the builder liable?**

It depends on what is causing the condensation. For example, are the occupants causing excessive condensation? Complying with the requirements does not guarantee that condensation won't occur. Liability will need to follow the defects process outlined in the [Consumer Affairs Victoria website](#), which may require involvement of the Domestic Building Dispute Resolution Victoria.

**With regards to space provided for exhaust to a clothes dryer, is this separate to the exhaust system already provided to the laundry enclosure? Do we need to allow for dedicated exhaust to the laundry enclosure and a dedicated space for exhaust direct from the clothes dryer?**

For a SOU in a Class 2 (unit in apartment building) F4D2(1)(b) of the NCC 2022 Volume One states that you need to provide space for clothes dryer or a clothes line or hoist. You are not required to provide a space for a clothes drying appliance if you are providing one of the other clothes drying options under F4D2(1)(b).

**What is the DtS solution for "low-level" ventilation for a building that does not have eaves?**

If eave vents are required because the roof pitch is equal or greater than 10 degrees and the building does not have eaves, this means that a Performance Solution is required as the DtS Provisions cannot be complied with due to the design of the building.



*For further information or clarification please contact the Technical and Regulation Team via [technicalenquiry@vba.vic.gov.au](mailto:technicalenquiry@vba.vic.gov.au)*

**Copyright**

*© 2021 Victorian Building Authority (VBA). This publication must not be copied, reproduced, published, adapted, or communicated by any person without the VBA's prior written consent or as permitted by the Copyright Act 1968 (Cth)*

**Disclaimer**

*The information set out in the VBA's resources is for general information purposes and guidance only. It is a reader's responsibility to obtain independent advice in respect of the application of legislation, a technical instruction or industry standard relevant to their circumstances. A person's use of the VBA's resources is not a substitute for obtaining independent advice.*

*While we have made every attempt to ensure our resources contain correct information at the date of publication, the VBA makes no warranty or representation that its resources are error free. To the extent permitted by applicable laws, the VBA, its employees, agents and consultants exclude any and all liability whatsoever for any direct, indirect, incidental, special or consequential loss or damage a person may suffer arising out of or in connection with the access and use of the VBA's resources (including any third-party material included in these resources).*