

NatHERS Technical Note V1.2 Update for use with software using Chenath engine V3.13

Assessor Questions and Answers:

Issue 1 – Zoning

Q1: Why can't we have daytime or night-time zones with no occupancy or internal heat loads?

These are 'unconditioned zones' and their description, selection and use is clearly defined in the Technical Note. In non-regulatory mode assessors can test any range of modelling options they wish but in regulation mode assessors must apply the agreed protocols in the Technical Notes that have been approved by all states and territories.

Q2: Why are we now required to model small spaces as separate zones, even though they don't have external surfaces and external openings?

This is not correct; they don't need to be modelled as separate zones. Small spaces would normally be included in the zone that they are accessed from – clause 7.6 describes the zoning of small spaces.

Q3: What should an assessor do if there is no unconditioned zone at all in the dwelling?

All dwellings must be modelled with at least one unconditioned zone, which would normally be a bathroom, toilet or laundry. If you have a design where there are ducted heating and cooling vents into all these rooms then the smallest room should be selected as the unconditioned zone.

Q4: But how can a compulsory unconditioned zone be technically correct where 100% of a dwelling is in fact conditioned?

It is important for quality assurance purposes that the zoning rules are consistently applied across all assessments, which overrides the minor technical impact of this scenario. It is also not technically correct that all parts of a dwelling are conditioned.

Q5: Can ensuites with no windows still be combined with the bedroom as the Technical Note suggests they must now be separate night time zones?

No, they are separate zones as detailed in Table 2.

Q6: Occasionally I come across underfloor or ducted heating in bathrooms and laundries. If the Cond/Uncond buttons are removed how do you specify them as conditioned zones?

Easy – you would follow the Tech Note, if there is no other unconditioned zone then make the smallest of these zones the unconditioned zone. Remember that underfloor heating is treated as a plug-in appliance and not the same as a reverse-cycle air conditioning vent.

Q7: Is a bedroom without a built-in wardrobe always zoned as a study?

No – if the plan says 'bedroom' then you would zone as a bedroom.

Q8: Table 3 - floor type 4 - States the other side of wall to be modelled adjacent to Garage. If the adjacent zone is also a neighbouring garage, is this a neighbour adjacent zone or treated as external wall?

If it is a neighbouring garage and not a fully enclosed garage for the unit's exclusive use then the zoning specified in this component of the Clause does not apply.

Q9: Can you zone an indoor swimming pool?

Yes – They are clearly covered in Table 2 as a day-time zone.

Q10: If a 3 bedroom house has no built-in robes, would it be rated without any bedroom zones?

No – if the plan shows them as bedrooms then it has 3 bedrooms.

Q11: Can the new "neighbour" shared wall to stairs/lifts be used immediately?

If you are using a V3.13 software version then 'yes'.

Q12: To expand on my question about walls between apartments and lifts. The current protocol has this wall as "air-tight" which forces added insulation in most cases.

The revised requirements in Technical Note 1 only apply when using V3.13 versions of the software.

Q13: Can you combine unconditioned zones such as laundry, bathroom and WC zones that are all unconditioned, same orientation and have windows all on the same orientation?

No. They are separate zones.

Q14: Pantries are generally considered to be a "cool" place to store food and would not be heated, why not class it as unconditioned?

It is important for quality assurance purposes that the zoning rules are consistently applied across all assessments. The small size of these features means that either way the impact in the final rating would be very small so they remain as day-time zones, or treated as small air spaces, as outlined in Technical Note 1.

Q15: BERS Pro has a "corridor" zone that can be conditioned or unconditioned - can this be used for hallways or do we have to use the "other day-time"

This zone type will not appear in V3.13 software releases. The Technical Note will apply i.e. 'day-time zone'. In the current software you should be using daytime conditioned.

Q16: If a walk-in pantry has no door and just a permanent opening will it still be zoned as day-time or part of the kitchen zone?

If the pantry can be walked into apply a permanent opening in the zone boundary wall and zone as 'day-time'.

Q17: Which zone do I use for a void. Surrounded by walls, no openings or vents into this area?

It may change depending on what zone it is in or accessed from – the two storey dwelling zoning example makes it clear how it could be treated.

Q18: Why is a walk-in robe modelled as a separate zone?

Because it wouldn't have one or two people sleeping in it and the loads associated with the occupancy of the bedroom.

Q19: What zone does a Gallery come under?

Regardless of the name of a space on the plan, assessors should zone the space in accordance with the Technical Note. Without sighting a plan, 'day-time' would be the most logical.

Q20: If the space under the stairs is a walk-in pantry then what zone is it?

As per Clause 7.6.2, the same zone as the stair case BUT common sense should prevail and the Technical Note does not cover every possible design situation.

Q21: Why are basement car spaces dealt with differently in class 1 and 2 buildings when the thermal performance characteristics are the same? For example a 2 car space under 2 townhouses vs a 6 car garage under a mansion. It is most likely that the garage door in the 6 car garage will be opening and closing more often than the 2 car facility.

The current response for Class 2 dwellings is an interim measure until more zones are developed.

Q22: How do you zone a situation where you have a solid wall in the kitchen/meals zone that runs next to kitchen but doesn't completely enclose it?

As per the definition of a zone if this is a permanent boundary with or without a permanent opening then the kitchen and the adjacent space may be zoned separately. If the wall has thermal mass then it should also be modelled using the correct construction type.

Q23: I have an open plan house - literally no partitions between living and bedroom. The bathroom and laundry and WC are all separate (externally located) from the building. How do I model this? It is only a kitchen zone, there is no unconditioned zone anywhere.

The rule for bedsits in clause 7.9 would apply and common sense would be used to allocate space. The interesting matter is how you are addressing the presumably detached unconditioned areas. A separate assessment using DTS elemental provisions would apply.

Q24: In relation to clause 6.2, modelling of additions, what if the addition had multiple zones outlined in clause 7.4.1 i.e a kitchen, bedroom and an unconditioned zone?

You would still rate the entire house.

Issue 2 – Ceiling Penetrations

Q25: Ceiling penetrations – if the plans note that appropriate covers are to be installed to allow insulation to be installed closely to the fitting, would this remove the need for a revised rating if downlights are installed.

No. If insulation is installed "close" to a fitting there is still a loss of ceiling insulation and this must be calculated.

Q26: Will Building Surveyors check the number of ceiling penetrations?

The question should be what would happen to my documentation if they did – would it be correct or incorrect. Assessors have an obligation to apply the Technical Notes correctly. Once the Universal Certificate has been introduced by all software products then an information campaign about its features will be undertaken with Building Surveyors and Council staff.

Q27: How do we cover wall exhaust fans?

You include them – wait until your particular software is available and this will become obvious.

Q28: If I have to add ceiling penetrations between floors in a two storey dwelling, how is the de-rating of insulation done when there is no loss of ceiling insulation to model?

The software has this capability – if the zone has no additional insulation added then no loss needs to be automatically calculated.

Q29: Are penetrations for ducted heating and cooling vents required to be inputted?

No, the BCA requires them to be insulated so currently these are not noted. You may wish to make this note in the “additional notes” section of the certificate if you think it will be an issue with the building surveyor.

Q30: Evaporative cooling vents - penetrations?

No – as above.

Q31: What do you do with the exhaust fan from the WC or powder-room that you have just combined into the joining zone? (ie WC or Powder Room under the stairs.)

If the exhaust fan is in a ceiling then it is modelled as an exhaust fan in an insulated or uninsulated ceiling as appropriate. If is ducted other than through the ceiling, ie the stairs form the ceiling, then it is modelled as an exhaust fan in the zone that it is included in.

Q32: Chimney - what size of penetration. Estimate shelf?

If you are referring to an open fireplace, then yes, you would estimate the opening.

Q33: Vents - Does this include air-conditioning/heating ducts? Sometimes we are unaware of what heating/cooling is to go into the house.

No – see Q29.

Q34: Do you have to nominate downlights if you note that fire proof covers are to be used therefore ceiling insulation can be placed over the top.

Most if not all fire proof covers are 1 hour fire rated and cannot have insulation applied over them, refer to the cover manufacturer for more information. Most LEDs have their warranty voided if covered, so you need to do your homework.

Q35: Why are we asked to model loss of ceiling insulation in uninsulated ceilings? And how is this to be done? Or has it been fixed?

The universal certificate will note the total amount of ceiling penetrations, if there are more than this in the project, then the assessment becomes invalid and will need to be re-done. Contact your software provider for how these are entered.

Q36: Will we be able to add heating and cooling vents to bathrooms & laundries?

They would then be modelled as daytime zones but these features must be noted on the plans. Only the designer/client can amend plans and ‘add’ items. The requirement for one unconditioned zone would still apply as per the Technical Note.

Q37: Heat recovery systems are increasing in popularity but aren't simply a hole in the wall. Do we need to consider them?

Only if they have a penetration in the ceiling.

Issue 3 – Building Code/NCC questions/Jurisdictional variations

Q38: Does NCC table 3.12.1.1b adjustment of minimum r value for loss of ceiling insulation apply to a rating that has less than 0.5% uninsulated ceiling space in regards to including down lights in the rating?

You are confusing the deemed to satisfy prescriptive requirements with the modelling requirements – ignore this requirement and follow the Technical Note.

Q39: Can you please confirm that in NSW if there is no ventilation to any bathroom/laundry areas we will still not call it an unconditioned zone.

If the BASIX protocol contradicts the Technical Note then the BASIX protocol would have precedence as far as that requirement is concerned.

Q40: If inconsistencies exist between Technical Note 1 and NCC/BCA, which instrument takes precedence?

If you are meeting compliance used the NatHERS modelling method then you follow the modelling method as set out in the Technical Note.

Issue 4 - Universal Certificate and general certification questions

Q41: Will we end up with one stamp and one certificate?

The stamping requirements are outlined in Technical Note 1 - any additional stamping is at the discretion of your AAO. The universal certificate is called that because it will become 'universal' across all NatHERS software.

Q42: How is it possible that a 'un' accredited assessor could produce a certificate – very concerning!

They have always been able to produce a certificate – for the first time the universal NatHERS software certificate will clearly show the client and building surveyor if the assessor is accredited or unaccredited. Unaccredited energy raters are not allowed to use the NatHERS logo.

Q43: Under Queensland Development Code section 4.1 the minimum allowable star rating for a class 2 dwelling is 4.0 stars (project average is 5.0 stars) before any concessions are claimed.

The certificate suggests that 6 stars is the minimum allowable (bottom, middle right, below the +/- 10% SHGC results), which is incorrect.

The certificate states clearly "...the required rating" – it is not designed to have 8 different responses for each jurisdiction, so there is no error. It clearly can apply to the Queensland situation, as it can in NSW and NT.

If you think this may cause confusion for building surveyors I would recommend adding notation to the "Additional Notes" section at the end of the certificate.

Q44: How do you do a QR code stamp for clients who do not provide plans electronically for stamping?

The plan would need to be scanned and then stamped.

Q45: Class 2 buildings - currently the drawings are stamped with the average rating and the "multiple dwellings" box is ticked on that stamp.

If you are referring to the BDAV stamp then consult BDAV on this. If you are referring to the current FR5 process - that will change.

Q46: Will the NatHERS stamp be sent as an .dwg file?

You will need to ask your portal provider about available formats.

Q47: Clauses 8.6 and 8.8 have been omitted from the new Technical Note. Are Insect screens and Holland blinds still the default settings to be used?

In new dwelling mode, they are now applied within the software. No assessor involvement is required. They can only be modified in non-regulatory mode.

Issue 5 – Waffle Pod and insulated slabs

Q48: Can the new waffle-pod values be used immediately?

The new software versions will have these values inbuilt into the insulation libraries. The Technical Note 1.2 comes into play with versions of the software using Chenath engine 3.13, so up until your software of choice is using that engine you would use the figures from addendum 1.1 2013.

Q49: Why have you not used the CSIRO values that are in their report for waffle pods (CSIRO 3D modelling report)?

CSIRO figures were used. This work was completed on a solid block of foam, and their revised figures took into account every possible combination of air cavities. Not all the work and work that occurred after the report was released has been included into a revised report.

Q50: I have a number of clients wanting a conventional raft slab with foam board under the raft panels. If the foam board has a rating of say R2.5, what system rating can I apply, keeping in mind that internal slab beams are at 4m max. centres?

Insulation inputs into NatHERS software are actual product R values not system values. The process for manufacturers to get their NATA certified values into the software are clear and available on the NatHERS website. Directions on how to use your software product are provided by your software provider.

Your own modelling will show if insulation that has gaps in the coverage is of benefit to the result or not. Whether this is correctly modelling a foam board insulated slab with gaps in the insulation may be an issue that your AAO can pass on to the National Administrator to consider if it is worthwhile CSIRO investigating further.

Q51: Has slab edge insulation modelling been fixed?

Testing on this product has not been completed to a satisfaction to resolve the matter. Currently you would follow your software developer's advice on this matter.

Issue 6 – General Matters

Q52: What is the website to find out the true north?

<http://yourhome.gov.au/passive-design/orientation>

Q53: What is the difference between "in reality" ventilation sharing through permanent openings and combining zones? They should give the same results for zones of the same type. This is important for correct modelling of cross-flow ventilation.

Any opening in a wall that forms a boundary between zones must be correctly modelled; this ensures the correct modelling of cross flow ventilation. For example, if there is a half wall or a wall with permanent openings then this needs to be modelled and the model is representing reality.

Q54: Building Surveyors require a lighting plan to check Watts/m² anyway, so why isn't the electrical penetrations required to be on the plans?

This is a good point and it may be a requirement in the future. Currently assessors should include it in their list of requirements before accepting a job as a desired requirement for documentation.

Q55: Bendigo is zone 6 but 66 (7) using software

You are confusing BCA zones with NatHERS climate zones. They are different.

Q56: How do you model a front door as a door and include glazing. Not many designers will include a properly drawn example of the front door which probably hasn't been selected yet.

You would model the glazing as clear or tinted in a timber window frame and then deduct this area from the area of the door. The openability of the door and the window are to have the same values.

Q57: Table 5 shows Awning to be 90% openable. This seems way too high as almost all awnings have a limiting winder. Clause 10.11 gives the restricted chain opening only a 10% opening. Surely an awning window would be closer to this, not 90%?

Follow the openability requirements as outlined in Technical Note 1. This is further explained in the new AFRC Windows training Module 4.

Q58: Is there anything about the amount of wall types that can be used in the one rating. Currently it only allows 10 which sometimes is not sufficient.

The Chenath engine used in the V3.13 software versions has the ability to have up to 20 lines of constructions (16 wall types and 4 doors – for external walls), refer to your software supplier for further information.

Q59: Does the Uw and SHGCw values need to be noted on the plans if the window manufacturer is unknown?

With the universal certificate, these values will be noted on the certificate based on the default window selected. The plan does not need to have these values included.

Q60: Does the free source house design include the rating / certificate?

Yes all variations are given a rating. The software files are not released. All of this material should be available on the YourHome website in a few weeks with a link on the NatHERS site.

Q61: If you rate a display home with a sales office in the garage and the garage has a central heating duct should it be zoned as a garage conditioned space

If the sales office and its central heating unit and I presume any windows which replace the garage door are to be removed on sale to a new owner and the sales office is to be converted to a working Garage as part of this process, then it is modelled as a Garage. If this information is not available then it is modelled as a daytime zone.

Q62: Would the tables for the assumptions of loadings be available?

These are available on the NatHERS website and the CSIRO website. They are also listed in the Roadshow presentation that is on the NatHERS website. Have a look at the requirements for accrediting a new piece of software – this protocol contains most of the assumptions.
<http://nathers.gov.au/sites/prod.nathers.gov.au/files/files/pdf/NatHERS-SoftwareAccreditationProtocol-20120626.pdf>

Q63: If the building surveyor doesn't know he's downstairs...maybe he will have difficulty counting the downlights. We seem to be allowing for their lack of training

His/her abilities are the responsibility of their professional bodies not ours.

Q64: If a NatHERS assessor considers that Technical Note 1 lacks a broad enough vision for the multiplicity of building design solutions encountered in the construction industry, is it reasonable to use initiative based on thermal performance first principles to exercise individual judgement

The short answer is 'no', although Clause 1.4 allows some professional judgement for areas not covered by these Notes.

In the first instance you would refer any queries to your AAO Technical Support Service who may contact the Administrator for guidance. Your AAO or state building regulator will pass on any comments and suggestions NatHERS assessors have for future revisions. The new Technical Notes have been reviewed by many current assessors and amended following assessor feedback.

Clause 1.4 should cover your concerns and the opportunity always exists to support and demonstrate your reasoning for change through your AAO.

Q65 With a FR5 assessment which I believe will not have options for custom windows for a while will I not need to specify U_w and $SHGC_w$ values on the plans even when the window manufacturer is known? This would make it easier for the designers who have no idea how to find manufacturers' window performance values."

The NatHERS universal certificate will detail the U_w and $SHGC_w$ values and the product description of all window products used in the rating. The ability of a particular software package to allow the use of custom window files is at the software developer's discretion.

Q66 For stamping with the NatHERS stamp, does the minimum design documentation need to include a section plan and electrical plan if they have ceiling/wall penetrations and anything else specific to these plans noted elsewhere?

The overriding position is if the plan contains information used in the rating process, then it should be included and 'stamped'. The Section page would certainly qualify as a 'principal page' relating to the assessment; the electrical plan would be at the assessor's discretion.

Q67 Are the supplier's window codes their WERS ID codes?

That is the intention, but this will be confirmed by AFRC when all the custom window files are released.

Q68 Does the opening percentage need to be noted on the plans or just the opening sections on the windows?

This figure is for your modelling procedure and does not need to be on the plans.

Q69 Does the foil emittance need to be specified on the plans when manufacturer is unknown?

If the manufacturer is not known at the time of doing the rating then the default would be the "worst case" emissivity ie a non-reflective air gap, therefore the figure you have selected to model needs to be on the plan.

Q70 Do exhaust fans and downlight sizes need to be specified on the plans?

Yes.