FAQ'S

New AS/NZS 3000:2018 Wiring Rules

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Are you on top of the changes in the updated AS/NZS 3000:2018 wiring rules?

Q: When will the new standard become applicable?

A: The new standard supersedes AS/NZS 3000:2007 from its date of publication on 26th June 2018. There is a 6 month transition period permitted for work commenced before the publication of the 2018 edition and you should consult the relevant regulatory authority or electricity distributor regarding permission to complete an installation based on the superseded standard. It will be a good idea to get your switchboards installed and signed off as soon as practical to minimise any impact on costs.

Q: Can you drill a weep hole in an IP rated electrical enclosure to manage condensation issues?

A: This is not an acceptable method to manage condensation as it destroys the IP rating of the enclosure. Condensation issues are now to be managed by using suitably IP rated breathing/pressure equalisation valves to assist with changes in humidity and drainage of moisture.

Q: Can you install an IP2X electrical equipment/enclosure outside a building?

A: Yes, but only if the enclosure is installed under the eave, specifically within the 30 degree area covered by the eave (image 1). Electrical equipment/enclosures installed in the shaded area must be at least IP33 rated with the exception of meter panels that are rated to IP23.

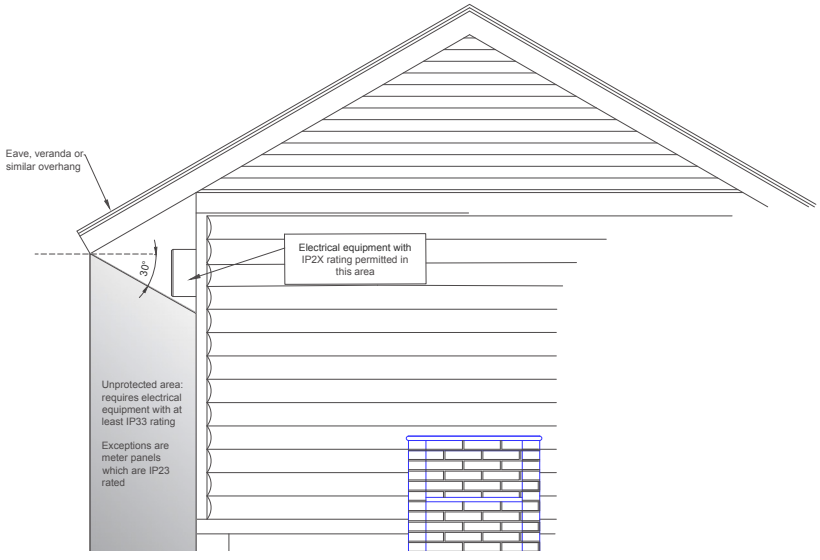

Image -1

Q: If you are adding final sub circuits to an existing switchboard do you need to consider upgrading all the sub circuits with RCD protection?

A: No. However you will have to ensure the compliance to new edition of the standard if you are carrying out alternations. Refer clause 2.6.3.2.5 to ensure the additional protection by RCD's are considered.

Q: Can I run the actives from the main switchboard to a distribution board and run the neutral from another distribution board?

A: No. All conductors of a sub main or a final sub circuit must be connected on one switchboard.

Q: If the installation is supplied with multiple supplies do I need to have main switches for each supply at the main switchboard?

A: You are not required to have main switches for each supply at the main switchboard as long as the main switches for alternative or supplementary supplies are located at any switchboard within the installation, provided these main switches are installed in accordance with AS/NZS 3010 or AS/NZS 4777.1

Q: Do you need to have the supply conductors of a switchboard rated above 800Amps separated using insulation or barriers?

A: No. An IP2X enclosure with bare busbars is acceptable. *Refer clause 2.5.5.1 (3)*

Q: What sub circuits need to be installed with RCD's for domestic and residential installations?

A: Irrespective of the type (lighting, socket outlets, fixed equipment, etc.) and load current ratings (10A, 32A, 1 phase, 3 phase, etc.), ALL final sub circuits must be RCD protected.

Q: Do you need to install RCD's for all sub circuits in non-domestic/non-residential installations?

A: No. You are only required to install RCD's for final sub circuits of lighting,, socket outlets, direct connected hand held electrical equipment and direct connected electrical equipment that represents an increased risk of electric shock up to and including 32A. This is up from 20A and therefore will have an impact on your switchboard circuit designs which may not have previously been designed with RCD's. You will also need to perform a risk assessment on all fixed equipment to determine if those circuits require RCD protection. In the absence of such an assessment, all fixed equipment must be protected by RCD's. *Refer clause 2.6.3.2.3.3*

Q: What are the changes in the new standard that would impact the switch room, electrical cupboard and switchboard sizing to comply with accessibility and emergency exit requirements?

A: Sufficient access and exit facilities shall be achieved by:

1. The distance from all faces of a closed switchboard must be, as a minimum, 1 metre from all faces of the switchboard. In a domestic installation this can be reduced to 0.6 metres. Therefore even if the switchboard is constructed using lift off type doors, the switch room walls must be, as a minimum, 1 metre from all faces of the switchboard to comply with this requirement (image 2).

2. Unimpeded space of at least 0.6 metres around the switchboards with switchboard doors in any position and switchgear fully racked out position (image 2).

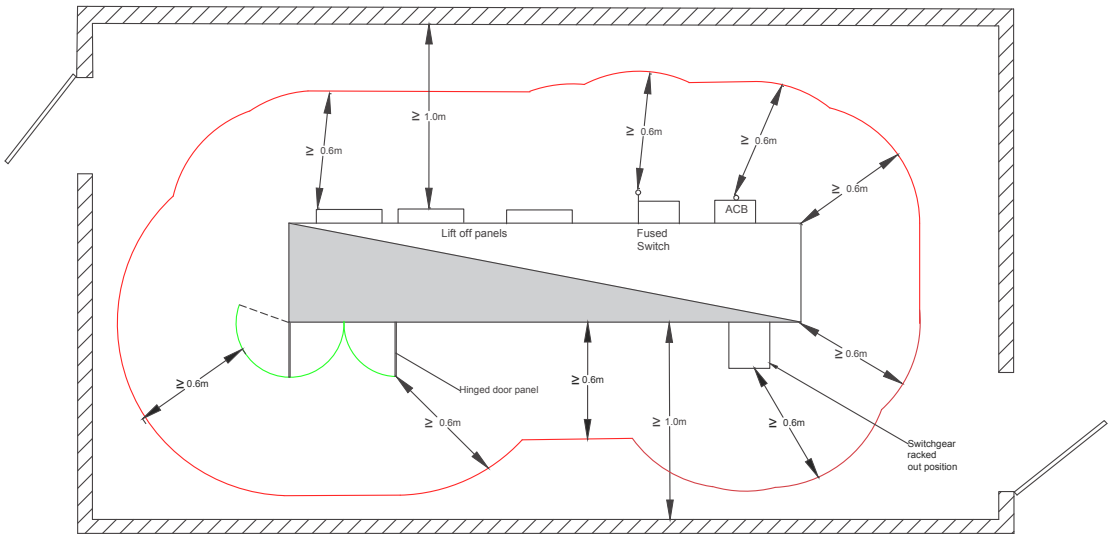

Image -2

3. Where switchboards are located opposite each other, the clearance of 0.6 metres must be measured with all doors in the open position (image 3).

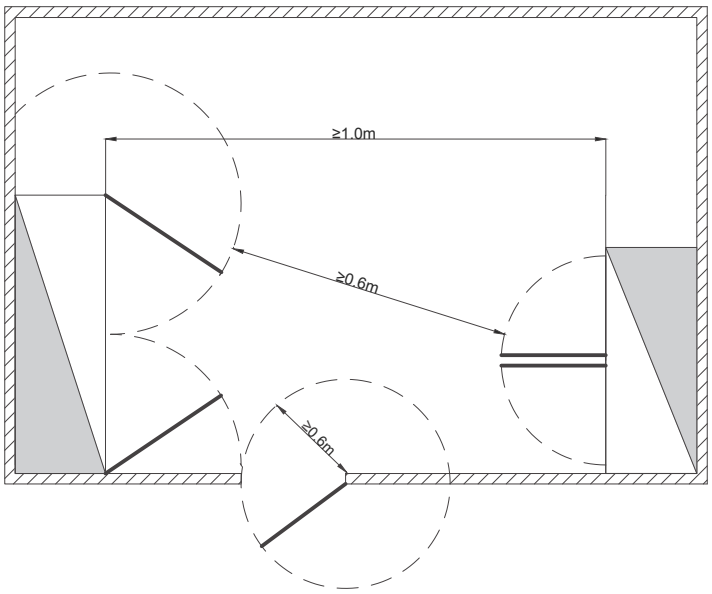

Image -3

4. If the nominal capacity of the switchboard is more than 800A (i.e., a high current switchboard) and/or the length of the switchboard is more than 3 metres, the switch room must have 2 exits spaced well apart (image 4). You may have only 1 exit if there is at least 3 metres of clear space from the switchboard (door open and equipment racked out) (image 5).

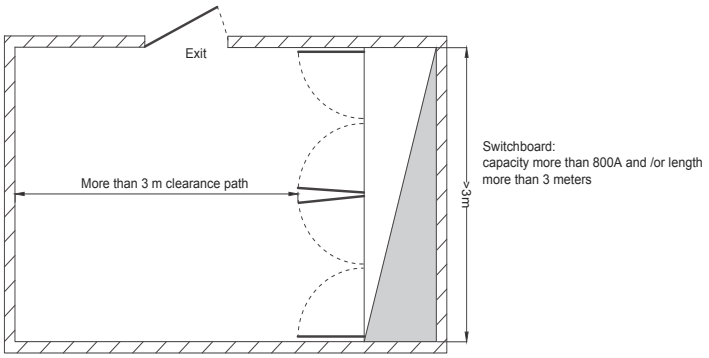

Image - 4

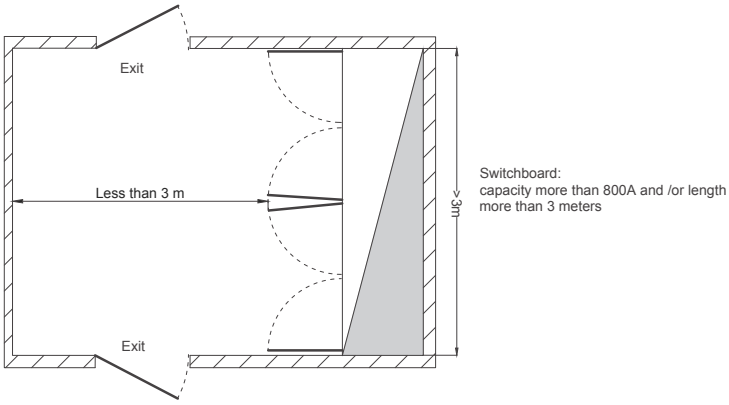

Image - 5

5. Doors of enclosures dedicated to switchboards that open into a passage or narrow access way must be capable of being secured in the open position to prevent workers being inadvertently pushed towards the switchboard.

6. Openings or doorways must be at least 0.9 metres wide by 2.2 metres high.

Q: Do I need to de-rate the cables that go inside the ceilings, walls and under floors?

A: Yes. You need to consider that the cables are completely surrounded by insulation (if the length is more than 400mm) and de-rate the cables as per AS/NZS 3008.1. Wiring systems in domestic installations must be installed on the assumption that thermal insulation in ceilings, walls and under floors, if not currently installed, will be installed in the future. This may lead to using the next cable size up for lighting and power circuits.

Q: Where do we need to use arc fault detection (AFDD's) devices?

A: These devices are used to detect arc faults in sub circuit wiring and not in switchboards. It is recommended to use AFDD's in premises with sleeping accommodation, premises that store materials which pose a fire risk, and locations where combustible construction material is stored. Use of AFDD's is not mandatory, however the use of such devices is considered good practice.

Q: Can you install a solar inverter within 3 metres of a pool?

A: No. Equipment related to a generating system, including engine driven generator sets, stand alone power systems, grid connected inverter systems and battery systems must be installed further than 3 metres from baths, showers, and other fixed containers.

Q: What is the new switchboard standard?

A: The AS/NZS 61439 series published in 2016 is the new switchboard standard. The old standard, AS/NZS 3439 series, is still valid until 2021. AS/NZS 3000:2018 now provides appendix K which references the new switchboard standard.

Q: As per the new switchboard standards do you need to verify the short circuit withstand strength of every switchboard?

A: No. Verification of the short circuit strength is only required for switchboard assemblies that exceed the short circuit current of 10kA rms or 17kA peak.

Q: What are the routine verifications a switchboard manufacturer should undertake as per the new switchboard standard?

A: Verification will comprise of the following categories. Please refer to clauses 11.2 to 11.8 of AS/NZS 61439.1:2016 for more details:

1. Degree of protection of enclosures.
2. Clearances and creepage distances.
3. Protection against electric shock and integrity of protective circuits.
4. Incorporation of built-in components.
5. Internal electrical circuits and connections.
6. Terminals for external conductors.
7. Mechanical operation.
8. Performance (see clauses 11.9 and 11.10 of AS/NZS 61439.1:2016).
9. Dielectric properties, wiring, operational performance and function.

This document only covers answers to questions related to few changes mainly related to switchboards and there are 12 main changes and 200 odd other changes in the new publication in comparison to the 2007 edition of wiring rules. Please refer the new publication to learn about all these changes. Also you may get advice through organisations such as Master Electricians, NECA, NESMA etc if you are a member of such organizations. May be a great reason to be a member of such organisations to get up to date information and assistance to navigate through the transition period into achieving compliance to new edition of wiring rules. You are trusted electrical inspector is your best resource too in guiding you through the new changes and compliance to new edition of wiring rules.

Every Electrician and Electrical Engineer is recommended to carry a copy of this standard (AS/NZS 3000: 2018). The new standard can be purchased through SAI Global https://infostore.saiglobal.com/en-au/Standards/AS-NZS-3000-2018-1974289/









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