AS/NZS 3003:2011
BODY PROTECTION REQUIREMENTS FOR RESIDENTIAL AGED CARE BUILDINGS
Historical, Current, Proposed Position, and What we can do today.

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Current Industry Concern

Developers of Residential Aged Care Buildings currently under design and/or construction are now being advised (particularly in Victoria, and in some cases in NSW and Qld) that they must install Body Protection to all bedrooms to meet the requirements of AS/NZS 3003. In the recent past, RACBs have not been required to meet that Standard by any electrical contractor or certifier, and as far as we are aware, there have never been any serious electrocution incidents previously encountered that may have "triggered" code change. This is causing a significant concern in an industry which battles for funds, and is already riddled with over-compliance issues. Costs have been indicated as anywhere between $500 to $1500 per bed – up to potentially $150,000 additional cost for a 100-bed aged care project for no apparent safety need or advantage; and the associated legislative signage required is anything BUT home-like.

Historically

AS/NZS 3003:2003 was titled *"Electrical installations – Patient areas of hospitals, medical and dental practices and dialyzing locations"* and "Patient Areas" was defined to apply to those locations accordingly. There was no reference or indication that residential aged care buildings might need the additional safety of Body Protection. No residential aged care buildings installed Body Protection into their homes. There are no known incidences of electric shock causing critical injury.

In April 2011, AS/NZS 3003 was amended and published as *"AS/NZS 3003:2011 Electrical installations – Patient areas",* incorporating a new clause 2.2.3 *"Locations required to be wired as body-protected electrical areas"* which, after a long list of medical and hospital departments / rooms, included "(z) Nursing Homes". This was added into the revised Standard, which had previously only applied to hospitals, medical and dental practices and where dialysis was being undertaken, without any known (aged care) industry consultation, or impact assessment.

An Amendment to AS/NZS 3003 has recently been published in February this year, specifically dealing with medical equipment being used in the home.

Australian Standards are NOT legislation, and to become mandatory must be called up by legislation. The NCC (Building Code of Australia) requires compliance with AS 3000, Electrical Installations, which in turn, following its Amendment No.2 on December 2012, cross referenced a requirement to comply with AS/NZS 3003. Hence from that date compliance with AS/NZS 3003 has required under the NCC. The issue is whether AS/NZS 3003 is currently applicable to RACBs.

Note: In any case, as the NCC is NOT retrospective, any RACB which had its Construction Certificate issued prior to December 2012 is not required under legislation to incorporate Body Protection.

Recent Developments

The Standards Australia HT021 Committee (responsible for amendments to AS 3003) accepted an industry lobby for ACSA and LASA to have representation on that Committee, and I was able to participate in the most recent meeting in Adelaide on 20th and 21st July. We spent about 2/3 of the first day discussing how to address body protection for aged care. At the end of the day it was generally agreed that it was inappropriate for "nursing homes" or RACF / RACBs to be caught up with all the acute health-care services, in the clause listing areas requiring Body Protection, however, the general feeling was that safety aspects still needed to be covered. It will therefore be proposed that aged care facilities be considered as a subset of the Home Care section. This was the last area fully considered by the Committee, and a detailed amendment to the Standard issued in February 2015. Anyone can purchase and download this Amendment from SAI Global and get a general idea of the direction now intended for RACBs.

In this section, all of the peripheral requirements of Body Protection that are an anathema in RACBs in trying to create a residential environment, will no longer apply – i.e. No "This is a Body-Protected Area" signage, no inspection stickers and dates, no coloured GPOs, no requirements for cleaners outlets, or any other outlets 2 or 5m away in corridors to have BP as well. However, most of the medical/electrical/technical experts in the Committee agree that the 10mA trip circuit is essential for added safety for residents who are now more likely to be in electric beds, so a 10mA RCD (instead of a standard 30mA RCD) will be required for bedrooms - but can be installed back at switchboard, and can service as many bedrooms / socket outlets as is technically reasonable / logical.

An exemption might be made from this if NO electric beds will ever be located in the room; or if the electric bed is rated as Class 2, and Type BF applied part. There are some Class 2, however, very few electric beds on the market rated as BF – only some specialist / acute care style. (and presumably costly.)

Time Frame

The Draft is currently scheduled to be published in October for public comment. Committee members are still waiting for the Committee-in-confidence draft amendment to be circulated for comment prior to public release, so the October release time frame may well be delayed. There will be a period of some months for public comment to be made, before the Committee resumes to review comments and finalise the Amendment. So it may well be another 6 months or more before the final amendment is published.

Proposed Position:

If the Draft for Public Comment is issued as anticipated, I recommend that the Aged Care industry gets behind the Draft to support it. I do not believe that there is any opportunity (other than that stated above or alternate "performance" solutions) to go back to having no level of additional electrical protection to bedrooms over and above the standard 30mA RCD. A number of committee members still feel very strongly that full body-protection should be required, but have yielded to the argument for "residential" aged care. If as an industry we don't support the proposed amendment, it could easily have pressure from electrical regulators, health personnel and some of the inspectors' industry to revert to the current requirement, and be tightened so there are no options to avoid a full body-protection.

The anticipated proposal should alleviate a lot of concerns, and still provide added protection for an industry that over the last 10 years or so has become more and more reliant on the use of electric beds to protect staff from patient-handling injuries.

It is worth noting that in moving to 10mA RCD protection to all bedrooms, there is likely to be an increased amount of "tripping" due to the higher level of sensitivity. Whilst providing an additional level of electrical protection, there will also be a need to put procedures in place to deal with nuisance tripping, and to identify real issues.

Whilst not discussed specifically, I believe that it will be wise for aged care providers to also install the same 10mA RCD protection to any "Treatment" or "Consulting" rooms intended for residents to visit for the purposes of any therapy, pre-empting that may also be required, due to the nature of some of the equipment that might be used.

What we can do today:

Until the Amendment is gazetted, the current AS/NZ 3003:2011 stands as is.

The Victorian position as published in EnergySafe document ("AS/NZS 3003:2011 – Questions and Answers" - 20/2/15) stands until such time that the Amendment is gazetted. I have been advised, however, that ***an Exemption application will be supported,*** but it must be based on an outcome of safety, not arguing about definitions. After the Draft is published, the forward position as stated in the Draft may well be used as part of the grounds for Exemption.

In NSW, electrical compliance certifications are required by NSW Dept of Fair Trading, with copies in some instances required to the electricity network providers, and are essentially self-certifying. The onus of compliance with Standards falls upon the Designer and/or Constructor of the electrical work. We suggest that until we are successful in having the Standard suitably amended, the following position may be taken by residential aged care service providers, to be discussed and agreed with electrical consultants, and potential electrical contractors for development projects.

1. Right to Determine

The proprietor or governing body has the right to determine whether Body Protection is required, based on type of procedures and medical electrical equipment proposed. This is clearly set out on the preface of AS/NZS 3003 by reference to AS2500 per the excerpt below:

> *"Advice on whether particular patient areas should be wired as body-protected or cardiac-protected electrical areas is set out in AS/NZS 2500, Guide to the safe use of electricity in patient care. The governing body or* ***proprietor of the heath-care facility*** *should refer to the safe practice code in AS/NZS 2500 for advice on how these decisions should be based on the type of procedures undertaken in each area and the level of protection afforded in the medical electrical equipment available for these procedures."*

When looking at AS 2500, the Foreword indicates that this Standard references highly technical medical equipment and procedures, including dangers because the patient is unconscious or anaesthetised; insulated conductors in direct contact with the heart; physiological electrodes being applied to a patient etc – none of which are applicable to types of care or treatment undertaken in a resident bedroom in a RACB or nursing home, clearly indicating the absence of need for body-protection in these circumstances. It is worthwhile noting that nothing in this cross-referenced Standard suggests that electrically operated beds are deemed to be dangers to be protected against.

In consultation with the electrical consultant, the care-provider may thus determine that Body Protection is not required due to the nature of "procedures" undertaken, or rather, *NOT* undertaken. This should be documented in the electrical design brief, and the project designed in accordance with that determination. The electrical contractor then certifies compliance with the documents and the Standards which are applicable, which do not include AS/NZS 3003:2011.

2. Anomaly in AS/NZS 3003:2011 wording

In 2011, when the Standard was previously amended with the addition of a long list of areas to be body-protected, an anomaly arose. Whilst the terminology "Nursing Homes" is used in clause 2.2.3 (z) of AS/NZS 3003 as an identified location required to be wired as a "body-protected electrical area", that is in conflict with many other areas of the Standard with respect to the functions undertaken where body-protection is required. The list in clause 2.2.3 is of specific-function areas within hospitals and medical-use buildings, whilst a "Nursing Home" is a separate building type, rather than a functional area or department of a hospital or medical building. Due to this complete anomaly in the clause, and that a "Nursing Home" in today's terms is neither a hospital nor a medical-function nor a

"health-care" facility, the Scope and the rest of the Standard must be considered when determining whether body-protection is required or not. Note also that the change in current terminology in the NCC from "Nursing home" to "Residential Aged Care Building" reflects the more current practices of providing care to residents, and not treating them as patients, but transferring them to hospitals or medical centres when medical treatment is required.

At the end of clause 2.2.3 of the Standard, it states that "other locations where it is intended that body-type procedures will be undertaken shall also be wired as body-protected electrical areas." This indicates that the rationale for including items (a) to (z) as defined locations where wiring for body-protection is required, is that they are deemed areas *where it is intended that body-type procedures will be undertaken*. This is **NOT** the case in residential aged care buildings. (See below for definition of "body-type procedures".)

Because the Standard currently has this anomaly of inclusion of the word "Nursing home" where other areas of the Standard exclude residential aged care buildings by means of clarification of functions, and definition, we can also look to Clause 2.1 for guidance:
2. Where there is any doubt about the intended use of a particular location, discussion with the health care facility may be necessary to resolve the question.
This reinforces point 1 – the proprietor's right to determine.

3. Body-type procedures
Body-type procedures are defined in AS/NZS 2500 Clause 4.2.3 as follows:

"Some parts of medical electrical equipment are fastened to the patient in a manner such that the contact resistance is lowered and easy disconnection, either fortuitously or deliberately is not possible……..A patient is considered to be undergoing a body-type procedure when connected to a piece of medical electrical equipment in such a manner that the impedence of the skin is either reduced by electrode paste or gel, or by-passed by the entrance of conducting fluids, metal needles, saline-filled catheters and similar, through natural or artificial openings in the patient's body……"

Such procedures are highly unlikely to be undertaken in nursing homes / residential aged care buildings, and should such procedures be required, the resident would be taken to hospital or a medical centre. Therefore, the risk of electrocution from medical devices in a RACB is exceptionally minimal compared to the risk that may occur in patient-care areas in a hospital, and accordingly a nursing home (or RACB) should not be grouped together with all the other medical treatment areas listed in clause 2.2.3 that require body protection.

4. A bedroom in a RACB is NOT a "Patient Area"
In AS/NZS 3003:2011 Electrical installations – Patient Areas, the Scope of the Standard is set out in Clause 1.1, specifically noting "*Areas other than patient areas are not covered by this Standard, but are covered by the relevant requirements of AS/NZS 3000*." A bedroom, ensuite or other communal resident-use area in a residential aged care building is NOT a "Patient area", **so therefore the requirements of AS/NZS 3003:2011 are not applicable**.

To show that this is the case, we look to the definition firstly of "Patient Area". AS/NZS 3003 defines Patient area as "locations where it is intended that low-voltage medical electrical equipment will be used on a patient".

"Medical electrical equipment" is then defined as "medical electrical equipment as defined in AS/NZS 3200.1.0." (It is also interesting to note that prior to the 2011 amendment to the Standard, the definition of Patient Area was limited to hospitals, medical and dental practices, areas for cosmetic treatments, and locations for dialysis. No "nursing homes" or RACBs.)

So whether an area is to be considered a "Patient Area" or not depends on whether the equipment to be used meets the definition in AS/NZS 3200.1.0, and on the interpretation of "used on a patient."

AS/NZS 3200.1.0 states:

2.2.15 *MEDICAL ELECTRICAL EQUIPMENT (hereinafter referred to as EQUIPMENT)*

Electrical EQUIPMENT, provided with not more than one connection to a particular SUPPLY MAINS and intended to diagnose, treat, or monitor the PATIENT under medical supervision and which makes physical or electrical contact with the PATIENT and/or transfers energy to or from the PATIENT and/or detects such energy transfer to or from the PATIENT.

The EQUIPMENT includes those ACCESSORIES as defined by the manufacturer which are necessary to enable the NORMAL USE of the EQUIPMENT.

If a resident in a residential aged care building requires such "diagnosis, treatment or monitoring under medical supervision" the industry practice is not to undertake that within their bedroom where any medical supervision could only be minimal at best, nor in communal spaces where privacy issues would prevent that, but to transfer them to a hospital or medical centre where suitable medical supervision can be provided. Residential aged care service providers employ mostly carers, with limited staff who might fulfil a medical supervisory role. Some care providers may offer specialist Treatment services within their home, but the services would be provided within a specialist "Treatment Room" which may well be body-protected to suit the treatments offered.

Neither can electrically operated beds be considered to be "used on a patient" - used to support a resident – yes; used to minimise staff OH&S injury – yes; but not used ***on*** a patient, which clearly refers to electrical medical treatment devices.

Additionally, the definition of "Patient" must be considered. Clause 1.4.16 of AS/NZS 3003 defines Patient as: *"Living being (person) undergoing medical or dental investigation or treatment".* In a residential aged care building, the inhabitants are there permanently to live and be cared for by staff, rather than being in the bedroom to undergo medical or dental investigations or treatment. As noted previously, current practice by aged care services is generally to transfer residents to a hospital or medical centre for any investigations or treatment. A few providers may have a Treatment Room and the required medical supervisory staff to undertake some minor forms of treatment on site, and in those circumstances, the Treatment Room would then indeed be defined as a Patient Area, and require body-protection under AS/NZS 3003.

So unless a residential aged care building has a Treatment Room where residents may be taken for Treatments utilising various Medical Electrical Equipment under medical supervision, there are no Patients or Patient areas within a residential aged care building, as such, body-protection is not required. (other than for a specific Treatment Room, if provided.)

5. Is the electric bed a piece of "Medical Electrical Equipment?

It has been interpreted by some parties that an electrically operated bed is considered to be "Medical Electrical Equipment" because it is registered under the Australian Register of Therapeutic Goods, therefore any bedroom with an electric bed must be considered a "Patient Area", and accordingly, be body-protected. Certainly, all medical electrical equipment should be ARTG registered, however there is no code or definition in this Standard or any other, that "reverse-engineers" and determines everything that is ARTG registered must therefore be defined as "Medical Electrical Equipment".

Whilst there may well be other good protective legislation that requires electric beds in residential aged care buildings to also be ARTG registered, that legislation does NOT state that because the beds are ARTG-registered, then they must then be deemed to be "Medical Electrical Equipment".

On the Australian Therapeutic Goods Administrations website, there is a definition on what a "Medical Device" is, (see below) and an electric bed is not listed as an example, and does not meet any of the phrases of "intention" below. The only possible relevance, albeit very tenuous, is the phrase "alleviate or compensate for injury or handicap".

What is a medical device?

A medical device is any instrument, apparatus, appliance, material or other article that is intended by the manufacturer to:

- diagnose, prevent, monitor, treat or alleviate disease
- diagnose, monitor, treat, alleviate or compensate for an injury or handicap
- investigate, replace or modify the anatomy or a physiological process, or
- control conception, and
- does not achieve its principal intended action by pharmacological, immunological or metabolic means.

The term medical device covers a huge range of products, from a simple tongue depressor to a pacemaker that is implanted into the body for long term use.

Examples of medical devices

- dental and surgical instruments
- dental fillings and amalgams
- orthodontics - e.g. braces
- syringes and injection needles
- blood pressure monitors
- catheters and drainage tubes
- condoms
- lubricating eye drops
- Magnetic Resonance Imaging (MRI) scanners
- joint implants.

As an historical note, prior to the 2003 amendment, examples of "Medical Electrical Equipment" were given in AS 3003 as follows:

1 Examples of diagnostic medical electrical equipment are—
(a) electrocardiographs, electro-encephalographs, electromyographs and multichannel polygraphs; and
(b) X-ray, ultrasonic, gamma ray and infrared organ-imaging equipment.
2 Examples of therapeutic medical electrical equipment are—
(a) electrosurgical equipment;
(b) patient heating and cooling devices;
(c) dialysis machines;
(d) electrically powered or controlled respirators;
(e) electrical injections and pumps, to infuse fluids into the patient; and
(f) electrodental equipment

It should be noted that electrically operated beds were NOT included on that list, albeit probably being of greater prevalence in any hospital than any other piece of equipment listed.

We do propose

If the proprietor of a Nursing Home (or residential aged care building) does intend to use any medical equipment or medical devices which involve a "body type procedure" i.e. Dialysis equipment, then under AS/NZS 3003, a Treatment room in a Nursing Home (or residential aged care building) should be nominated for this purpose, and have the required body-protection installed in accordance with AS/NZS 3003.

As forward planning, the aged-care industry may be able to exert some buyer-pressure on electric bed manufacturers and resellers. I have started speaking to various bed-manufacturers about what beds they currently have on the market that meet the proposed requirement for NOT needing to install any additional 10mA RCD protection (i.e. beds that are rated as Class 2, and Type BF applied part). This may be a useful exercise for a care provider procurement officer to take on board, to generate a schedule of beds that will avoid the need for the 10mA protection, and associated costs and potential nuisance-tripping. It may encourage bed manufacturers to upgrade some beds accordingly. At the end of the day, this level of protection built into a bed may push it into the way too expensive category for aged care – I have not delved far enough to make any informed comment as yet.

Management Responsibility

It is the care service provider's responsibility to have a management plan for how various forms of required treatment are administered. In most circumstances, any investigations, treatments and procedures would be carried out off site. It is an operational choice for the care provider as to whether some services might be carried out on site within a Treatment Room, and/or one or more specific "treatment " bedroom/s, and then body-protection would be required to that / those room/s only.

Additionally, it is the care service provider's responsibility to have a safety audit and management plan for all items of equipment which may be used, including power-operated equipment which may not fall under the definition of "Medical Electrical Equipment". I have been advised that a number of care providers have additionally put in place very detailed cable management planning for under electric beds, with quite regular inspections / audits.

To summarise the argument

Importantly, the Proprietor has the right to determine whether body-protection is required of not, based on the type of treatment / procedures intended. In accordance with the current Standard/s, and understanding the nature of the use and operation of a residential aged care service, no areas of a residential aged care building would normally be defined as Patient Areas, nor are body-type procedures usually undertaken. A provider may determine to specifically undertake such treatments or procedures, and then would require a specific Treatment Room or identified bedrooms for such purposes. Electric beds do not fit the definition of Medical Electrical Equipment, nor are they used in such a way to be considered as a "body-type procedure". As such, a residential aged care building, other than any specific Treatment Room that may be provided, does not trigger AS/NZS 3003 requirement for body-protection.

Please note that this argument is based on the current Standard, and that many of the anomalies in the current Standard will be eliminated when the Amendment is eventually gazetted.

With thanks to the following specialist aged care electrical consultants who have assisted me with some advice on the more technical side:

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Disclaimer:
Sue Kenny Architect is neither a medical nor electrical practitioner or professional, and the comments made in this document are not to be construed as recommending that Body Protection of any form should or should not be installed on the basis of increased electrical safety for residents and/or staff.

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