

Building Design for People with Dementia:

A Comparative Analysis of Planning Quality in Residential Aged Care Units

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ABBREVIATIONS, ACRONYMS AND SYMBOLS

ADL	Activities of daily living. A range of ordinary daily activities such as bathing, getting dressed, meal preparation or other simple tasks. These kinds of activities are associated with improved functional and mental wellbeing for people living with dementia.
DDAT	<i>Dementia Design Audit Tool</i> (Cunningham <i>et al.</i> , 2008, 2011)
DDP	Dementia design principle. The dementia design evaluations undertaken as part of this dissertation make use of nine out of ten of Fleming <i>et al.</i> 's evidence-based dementia design principles (Fleming, Forbes and Bennett, 2003; Fleming, 2011). Throughout the thesis individual DDPs are referenced by the numbers 1-10, each prefixed with a pound (#) symbol, i.e. DDP#1 (Safety), DDP#2 (Size) etc.
EAT	<i>Environmental Audit Tool</i> (Fleming, Forbes and Bennett, 2003; Fleming, 2011)
NSW	The Australian state of New South Wales. Also, for the purposes of this dissertation, 'NSW' refers to the set of residential aged care units directly recruited from NSW-based aged care organisations. Please note, a set of 'international' exemplars in the study, borrowed from specialist design publications, are named 'international' due to their global significance. Some the units in the international set are physically located in NSW.
Plan-EAT	<i>Plan (based) Environmental Audit Tool</i> . Based on the <i>Environmental Audit Tool</i> (Fleming, Forbes and Bennett, 2003; Fleming, 2011) Plan-EAT was developed during the current research as a method to undertake dementia design evaluations based on building layout drawings for residential aged care units.
TESS/NH	<i>the Therapeutic Environment Screening Survey for Nursing Homes</i> (Sloane <i>et al.</i> , 2002).

This dissertation uses the symbol # as part of the identification of numbered items.

The ten dementia design principles (DDPs) referenced in this thesis (Fleming, Forbes and Bennett, 2003; Fleming, 2011) are signified as follows: DDP#1 Safety; DDP#2 Size; DDP#3 Visual Access; DDP#4 Stimulus Reduction; DDP#5 Helpful Stimuli; DDP#6 Wandering and Outdoor Space; DDP#7

Familiarity; DDP#8 Privacy and Social Interaction; DDP#9 Community Links; DDP#10 Domestic Activity.

Unit layout types are numbered, and the prefixes *INT#* and *NSW#* are used to identify these as being from either the international (INT) or NSW floor-plan sets. For example: INT#1(Alexian Village, Milwaukee, Wisconsin) and INT#2 (Alois Alzheimer's Center, Cincinnati, Ohio, USA); NSW#1 (NSW Study Set - Anonymous); NSW#2 (NSW Study Set - Anonymous); etc. The anonymity of the NSW-recruited units is protected by human ethics approval.

ABSTRACT

International literature consistently reports that more than half of people living in residential aged care have a diagnosis of dementia. Research findings in this field concur that well-designed physical environments can increase independence, enhance quality of life, and provide a drug-free means of improving the behavioural and psychological symptoms experienced by people living with dementia. Despite this, there has been limited research into how well the broad stock of existing residential aged care settings supports the needs of residents with dementia.

This dissertation investigates the design quality of existing residential aged care units, with a focus on the impact of architectural planning layouts on overall dementia design quality. Specifically, the dissertation develops new knowledge in terms of three interconnected research aims.

The first research aim is *to evaluate and compare dementia design quality in the layout planning of NSW-based and international best-practice examples of residential aged care units*. To fulfil this aim, the dissertation uses floor-plan layouts to evaluate the dementia design characteristics of ninety residential aged care units from New South Wales (NSW), Australia, and compares these against the characteristics of ninety-four published international best-practice examples.

The second research aim is *to determine whether the dementia-enabling characteristics of floor-plan layouts for residential aged care units in NSW have improved over the last four decades*. This aim is addressed by correlating the dementia design evaluation scores, from the analyses undertaken as part of the first research aim, against the year of construction for each unit.

The third aim of the research is *to investigate the impact of five spatial planning factors on the dementia design properties of Australian and international residential aged care settings. The five factors are: the unit floor area, number of bed-spaces provided, floor area per resident, storey location, and whether purpose-built for dementia or not*. The research undertaken for this aim builds on the results of the first two aims by undertaking correlation analyses between the identified attributes and the dementia design evaluation scores for each residential aged care unit.

In order to fulfil the three aims of the research, a new evidence-supported dementia design evaluation methodology is developed. This method, derived from Fleming's (2011)

Environmental Audit Tool, forms the basis of evaluations undertaken of the layout planning of the ninety NSW-recruited residential aged care units, and ninety-four international units, considered to be exemplars of dementia design. This new design evaluation approach produces formal scored measures of dementia design quality across nine established dementia design principles. These evaluations help to identify strengths and weaknesses in the layout planning of individual units and allow comparisons of design quality between sets of units.

The results developed in response to the first aim show that the international exemplars tend to provide higher quality building layouts, with NSW evaluation scores falling behind by a significant margin. The results include the findings that both the NSW and international sets perform well under three of nine established dementia design principles, whilst showing that the most significant differences between the sets occur under four of these principles. There is room for improvement across both sets, but especially so for the NSW unit layouts, having achieved, on average, less than half of the available dementia design quality scores for five of nine dementia design principles.

Results from research undertaken to address the second aim show clear improvements in dementia design quality for NSW units over the evaluated period (1970-2016). The most recently constructed NSW units tend to achieve a significantly higher dementia design quality score than those built at earlier dates. International units, assessed for comparison, started at a much higher level of design quality, but also improved significantly over four decades. Analysis of the rate of design improvements between both NSW and international sets show that the dementia design quality of the broad stock of NSW residential aged care units has typically trailed behind the design quality standards of the international exemplars by about twenty years.

Findings developed in response to the third research aim include evidence that higher quality residential aged care units have fewer resident bed-spaces and, possibly because of this, tend to be physically smaller. A more contradictory finding is that high scoring residential aged units tend to provide more overall floor area per resident. Results also show that higher quality dementia design tends to occur in units that are located at ground floor and be amongst those purpose-built for accommodating people living with dementia.

While the three sets of findings in this dissertation provide valuable information for the aged care sector, the methods and approaches developed to investigate the aims of the research

have the potential to be useful for both larger scale evaluations of existing residential care settings, and to inform the design process of future residential aged care settings.

This research was undertaken in accordance with the University of Newcastle's Human Research Ethics Committee Approval No. H-2014-0044.