Decoding the residential interiors of architect Norman Eaton through Lefebvre's spatial triad

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Submitted in fulfilment of part of the requirements for the degree
Master of Interior Architecture
in the Department of Architecture
Faculty of Engineering, Built Environment and Information Technology
The University of Pretoria

Pretoria
November 2019

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Declaration

I, the undersigned author, declare that the applicable research ethics approval has been obtained for the research described in this work and that I have observed the ethical standards required in terms of the University of Pretoria's Code of Ethics for Researchers and the Policy Guidelines for Responsible Research.

This dissertation is submitted in fulfilment of part of the requirements for the degree Master in Interior Architecture at the Department of Architecture in the Faculty of Engineering, Built Environment and Information Technology at the University of Pretoria.

I declare that this is my own work and that no part thereof has already been, or is currently being submitted for any other degree at this or any other tertiary institution.

The text of this dissertation amounts to **54 271** words,
with an additional **9 865** words in appendices.

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November 2019

Abstract

This study explores the potential of using Henri Lefebvre's spatial triad as a qualitative decoding tool for architect-designed residential interior spaces. Five selected residential case studies by South African architect Norman Musgrave Eaton are decoded according to the three domains of this triad, namely Representations of Space, Spatial Practice and Representational Space. The spatial triad also organises the methodological triangulation of archival sources, photographic analysis, the phenomenological coding of resident interviews and questionnaires.

The theoretical framework and historical context introduce the study, specifically focusing on the relationship between the spatial triad, Pretoria Regionalism as it relates to Eaton, and the components of interior architecture. Each domain of the spatial triad is explored as a separate chapter starting with the Representations of Space as the architect's intent; Spatial Practice as the physical space; and finally, Representational Space as the user-interpreted experience. In these chapters the components of interior architecture in the associated data set are identified, examples of the identified components are compiled into a graphic compilation and subsequently themes and textures are deduced. It concludes with a summary of Eaton's approach to residential interior space with associated examples of the components of interior architecture, as it relates to specific domains.

The study confirmed that Lefebvre's spatial triad can be used to decode architect-designed residential interior spaces, where each domain of the triad highlights unique spatial aspects not identifiable in the other domains. It emphasises that the components of interior architecture comprise the parts that make up an interior space, where the spatial triad has the power to define the relationship between the parts. The analysis of Eaton's work also provides examples of regional translations of the universal components of interior architecture.

Key words
components of interior architecture; Norman Eaton; Pretoria Regionalism; residential interiors; spatial textures; spatial triad; spatial themes.

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~ Thank you

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CHAPTER 1

THE PROBLEM AND ITS SETTING

1.1 BACKGROUND

As argued in Pienaar's dissertation, 'The Norman Eaton Legacy: a critical architectural appraisal of the documentation of his domestic *ouvre'* (2013), Norman Eaton's work holds heritage, cultural and design value both nationally and internationally. Just as Eaton's work holds value for architects of the present, so does his work carry equal value for interior architects.

1.2 EATON - A PERSONAL ENCOUNTER

My first encounter with Eaton was on one summer afternoon in 2005 in the cosy faculty library, which is fondly named the Reading Room. I was in-between classes and looking for a quiet spot to sit and sketch concept ideas for our latest first-year brief. While meandering through the space, I happened upon a set of hand-drawn plans. The age of the drawings was hard to determine at first as the paper was yellowed and slightly weathered on the edges, but the pencil marks were crisply detailed - the date on the drawings showed 1938. Stunned that something almost 70 years old could be in such good condition and show attention to detail that I did not think was possible, I eagerly enquired about the signature - N.M. Eaton.

The plans were those of House Van Wouw (Fig. 1.1), of which both the plans and the physical building were donated to the University of Pretoria. It turned out that the House Van Wouw was also close to campus, which prompted an inquisitive drive-by viewing. Seeing the house delighted even further, as the timber sash windows were strongly reminiscent of the window types in my childhood home in Cape Town, combined with the thatch roof and face-brick I had come to fondly associate with residential architecture in Pretoria since relocating here in my early teens (Fig. 1.2).

My next significant encounter with Eaton was with the Netherlands Bank and Polley's Arcade in the Pretoria CBD in 2007 whilst completing an observational drawing exercise. We were encouraged to walk through the Pretoria Central Business District (CBD) in small groups and observe interesting architectural and spatial details through sketching.

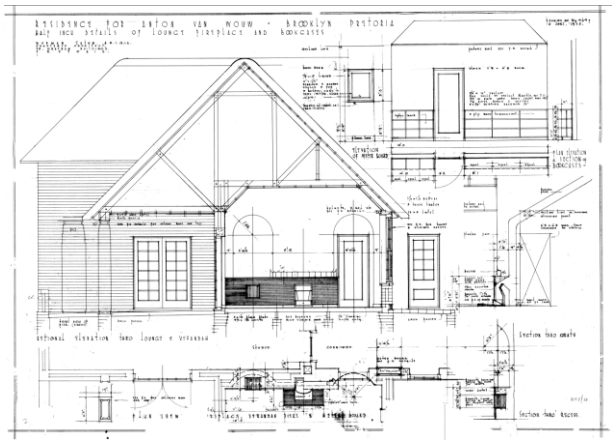


Fig. 1.1 House Van Wouw original drawings

Fig. 1.2 House Van Wouw entrance

The Pretoria CBD has a north-south orientated grid-based layout where each city block has multi-storey buildings seemingly built as one continuous plane, forming an impenetrable block of built fabric. It has multiple pedestrian-focused public spaces within walking distance of one another and the majority of sidewalks are covered by the purposefully designed overhangs provided by each building. The city offered a typical mixed-use approach of smaller retail on the bottom level, or sometimes two levels, with either office or residential spaces on the remaining levels above, often each typology would have its own entrance, carefully designed into the ground level facade. Whilst exploring we noted multiple unique and detailed facades, one of which was the Netherlands Bank with it's beautiful textured facade and brass detailing (Fig. 1.3). We also discovered a series of shopping arcades that cut through city blocks, effectively forming an alternative pedestrian experience of the city. One arcade in particular, Polley's Arcade, sparked my interest as it had the most unique use of materials for the floor and wall finishes in the most intricate patterns which at first glance seemed modern and abstract, but also hinted at an African reference (Fig. 1.4). The space itself offered an experientially interesting one-and-a half volume entrance on the one street entrance, moving up a double circular staircase into another one-and-a half volume with shops on all sides, some not occupied, and also included public facilities such as toilets. The staircase feature offered a beautiful floor inlay best viewed from the platform entrance to both sides of the stairs. I distinctly remember making a mental note of how comfortable the stair riser's heights were, allowing the user to focus on the experience instead of focusing on physically navigating the ascent and descent. There was a coffee shop nestled underneath one of the stair-runs, with tables and chairs situated within this feature.[1]

Fig. 1.3 Netherlands Bank street view

Fig. 1.4 Polley's Arcade - original: left; current: right

1 Subsequent investigations into the origin and design of Polley's Arcade showed that at the time of our visit temporary alterations had closed off a portion of the ground level that continued underneath the staircase to more shops.

After these significant encounters, Eaton became one of my main sources of architectural inspiration. His work has been a continuous source of delight and inspiration throughout the years, for whilst travelling through Pretoria one inevitably finds projects that catch your eye, which upon further inspection often turn out to be an Eaton-designed project: the Unisa Little Theatre (Fig. 1.5) in Nana Sita (formerly Skinner) Street in the Pretoria CBD and the 1949 House Anderssen in the Willows suburb (Fig. 1.6).

As an interior architect with a love for atmosphere and keen interest in the details, the work of an architect seems an unlikely source of inspiration. The academic outline and course structure at the University of Pretoria's Department of Architecture, my alma mater, split the architecture and interior architecture specialisations while allowing for a shared first year which resulted in an explicit separation in the major areas of specialisation for each discipline.

Despite the differentiation there are obvious overlaps in areas as these are both built environment specialists, such as construction, functional systems and shaping of space. Our job as individual specialists are to mediate between one another's ideas, site, client needs, budget, available construction methods and materials, in order to create a coherent whole, as proposed in the Arts and Crafts era - a *Gesamtkunstwerk* (Erlhoff & Marshall 2008:30-32). Eaton's belief in the *Gesamtkunstwerk,* or total work of art, derived from the Arts and Crafts focused education and influences of his mentor, Gordon Leith (refer to chapter 2). This focus on designing all the aspects and details of a project demonstrates Eaton's sensitivity to whole-project design - therein lies the appeal as an interior space's source of inspiration.

Fig. 1.5 Unisa's Little Theatre

Fig. 1.6 1949 House Anderssen

1.3 RESEARCH FOCUS AND QUESTIONS

Eaton's residential work has not been analysed from an interior architecture perspective, despite a sufficient body of data stored within the Eaton Collection of the Architectural Archives of the University of Pretoria.

1.3.1 Problem

Investigating how professional architects in South Africa addressed the elements of interior architecture before interior architecture became a separate field of study and discipline, with specific focus on the exemplary work of the Pretoria Regionalist architect Norman Eaton.

1.3.2 Main research question

The main research question for this study asks:

- How does the architect, Norman Eaton, address interior architecture in residential projects?

1.3.3 Sub-questions

The study's sub-questions elaborate on the main research question:

- Which components of interior architecture can be identified in the architectural drawings of Eaton-designed residential interior spaces; can Eaton's intention for the design of interior spaces be deduced and summarised from the architectural drawings?
- Which components of interior architecture be identified in the old and/or new photos of Eaton-designed residential interior spaces; how do the physical characteristics of the space relate to Eaton's spatial intent?
- Which components of interior architecture are residents of Eaton-designed residential interior spaces aware of; what are the characteristics of their respective holistic experiences of the interior space?

1.4 RESEARCH GOALS, OBJECTIVES AND IMPORTANCE OF THE STUDY

The overall goal of the study is to establish whether an urban spatial theory can be used as an interdisciplinary model to investigate pertinent aspects of interior spaces, which were designed before the interior architecture/interior design discipline in South Africa existed as a separate entity with formal training.

The study objective is to determine if Lefebvre's (1991) spatial triad can be used as a viable decoding tool to analyse selected residential interior spaces designed between 1937 and 1964 by South African Pretoria Regionalism architect Norman Eaton.

The importance of the study lies in studying the unexplored approaches to residential interior architecture of regional architects from the shared era. It is especially significant as these approaches, and their resulting visual resolution of design elements could readily serve as regionally specific examples of global interior architecture elements, specific to residential design.

The study focuses on selected residential work by Eaton, as his approach to interior architecture in a residential context has not yet been studied from an academic interior architecture perspective. This lack of study is partly due to a portion of unexplored information in the Architectural Archives of the University of Pretoria, specifically photographic documents, which is currently unavailable to off-site researchers.

The completion of the study should thus yield:

- The decoding of the interior aspects of architect-design interior spaces.
- The confirmation and analysis of Eaton's conscious engagement of interior architecture elements in his residential projects.
- The identification and analysis of regionally specific design examples of interior architecture and interior architecture elements.
- The cataloguing and analysis of additional primary data, among others current interior photos of a selection of Eaton's completed residential projects.

1.5 LIMITATIONS AND DELIMITATIONS

Literature studies are limited to the English and Afrikaans languages. For the purpose of this study the terms 'interior architecture' and 'interior design' are deemed one and the same and are used interchangeably - refer to Addendum C: Terminology List.

Eaton generated a large body of work throughout his lifetime, where a large portion of the work is available as part of the Architectural Archives of the University of Pretoria's Eaton Collection. The problem statement limits the project typology within the residential category. The case studies are carefully selected as seminal examples representative of Eaton's three domestic periods as identified by Pienaar (2013) - refer to case study selection criteria on pages 37-38. The project selection is also influenced by the availability of data sources for that case study, such as architectural drawings and photos. Where the sources are limited, the investigation acknowledges and accommodates for it during the analysis process.

1.6 ASSUMPTIONS

Eaton's residential work has not been critically analysed from an academic interior perspective. There is a sufficient body of data stored within the Eaton Collection in the Architectural Archives of the University of Pretoria, to analyse Eaton's approach to the interior elements of residential design. The elements of interior architecture are identifiable in the work of shared era architects.

1.7 RESEARCHER'S NORMATIVE POSITION

The normative position of the researcher follows as the overall research approach and point of view regarding research within the design field, based on a scale of predisposition as formulated by Laubscher (2011:15) - also refer to Table 1.1 Researcher's Paradigm. The normative position should also be considered in the context of the introductory subjective account in part 1.2 of this chapter to allow further insight into the influences, experiences and possible interpretive biases of the researcher. The background information contextualises the researcher's normative position.

The researcher believes that in most cases a researcher's point of view towards reality is influenced by individual-specific belief systems, culture, previous experiences, personality development, therefore reality and researcher are interdependent and cannot be separated. Knowledge has both objective and subjective qualities. Some aspects of reality remain constant regardless of the observer or observation, whereas other aspects of reality and knowledge are only truly known through a personal perspective. The research object has both separate and incorporated qualities. Some qualities are present and observable irrespective of the researcher who is doing the research. The incorporated qualities arise when researchers engage with possible meaning, motivations or reasons behind observed qualities. The main research method comprises of case studies of specific work, and phenomenological studies to infer possible and probable experiences of these case studies. Interpretation of research is based on previous experience, dependent on an ontological reality where truth is dependent on personal interpretation and inferred patterns of meaning. The validity of knowledge is based on evaluation criteria determined and derived from credible and dependable academic sources. The reliability of knowledge is based on interpretive awareness of the researcher's subjectivity.

Table 1.1: Researcher's Paradigm (based on Laubscher 2011:15)

RESEARCHER'S PARADIGM							
	POSITIVISM Sandberg and Pinnington (2009), Weber (2004) **+**	**Predisposition of the researcher on continuum scale**					**INTERPRETIVISM** Sandberg and Pinnington (2009), Weber (2004) **~**
Meta-Theoretical assumptions	**Alternative terms:** Quantitative, scientific, experimental, hard, reductionist, prescriptive, psychometric, etc.	**Strongly agree**	**Agree**	**Neutral**	**Agree**	**Strongly agree**	**Alternative terms:** Qualitative, soft, non-traditional, holistic, descriptive, phenomenological, anthropological, naturalistic, illuminative etc.
Ontology	Detached Experience: Person (researcher) and reality are separate				■		Integrated Experience: Person (researcher) and reality are inseparable
Epistemology	Objectivity: Objective reality exists beyond the human mind			■			Subjectivity: Knowledge of the world is intentionally constituted through a person's lived experience
Research Object	Separate: The research object has inherent qualities that exist independently of the researcher			■			Incorporated:The research object is interpreted in the light of the meaning structure of the person's (researcher's) lived experience
Research method	Content analysis through statistics: Preferred research methods include laboratory experiments, field experiments, surveys etc.				■		Content analysis through interpretation: Preferred research methods include case studies, ethnographic studies, phenomenological studies, ethnomethodological studies etc.
Theory of Truth	Statement - Truth > Objective reality: Establishing a direct relationship between the research statements and reality				■		Initial Interpretation - Truth > Confirms a Meaning: truth as intentional fulfilment; interpretations of research object match lived experience of subject
Validity	Certainty: The data truly measures reality: A direct relationship exists between measurements + phenomena				■		The knowledge (claim) is defensible: Evaluation criteria include credibility, transferability, dependability, and the ability to confirm
Reliability	Replicability: Research results can be reproduced by the researcher or other researchers to achieve a consistent result.				■		Interpretive awareness: Researchers recognise and address the implications of their subjectivity

1.8 APPROACH AND METHODOLOGY

The study follows a qualitative approach within an interpretivist paradigm of empirical phenomenological research, where comprehensive, thick descriptions are generated from human experiences as proposed by Moustakas in 'Heuristic Research' (1994:12). Creswell in 'Qualitative Inquiry and Research Design' (2013) and Nesbitt in 'Theorizing a New Agenda for Architecture' (1996:28-30, 412-455) propose that phenomenology can be used as a method of enquiry which explores the lived experience of people. Moustakas (1994:12) provides a definition of the empirical phenomenological research approach as focusing on "experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience".

This study focuses on selected holistic multiple case studies of completed residential projects designed by Eaton, as proposed by Yin in 'Case study research: design and methods' (2009:20, 46). According to Yin (2009:20, 46, 50-53), a holistic case study investigates a single element or idea within one case study as opposed to an embedded case study which investigates multiple elements or ideas - also refer to Addendum D.

Mixed methods are employed, specifically the methodological triangulation of archival research, photography, resident interviews and questionnaires as proposed by Groat and Wang (2013:86).

In the 'The Production of Space' Henri Lefebvre (1991) proposes that space comprises a triple-layered entity of the creator's intention, sensory-based physical components, and user-interpreted experience, which all link to its specific historical context. In this study, Lefebvre's spatial triad is used to organise the mixed method research design. The triangulation of data and methods provided by the spatial triad contributes to the "validity of multiple sources" (Yin 2009:20, 45). Each avenue of triangulation is explored within Lefebvre's (1991 :38-41) spatial triad of conceived space, lived space and perceived space respectively. Depending on the availability of data for each case study, each aspect of the triad will be weighed accordingly.

1.9 RESEARCH OVERVIEW

This document is structured into six chapters, where chapter one introduces the problem and its setting. The study investigates the phenomenon of architect-designed interior spaces, from the perspective of an interior architect, by analysing selected case studies by architect, Norman Eaton through the lens of Lefebvre's spatial triad.

Chapter two outlines the theory selected for this investigation, specifically Henri Lefebvre's (1991)

spatial triad as investigated in the 'The Production of Space', as well as the fundamental components that comprise an interior space as outlined by Francis Ching and Corky Bingelli in the well-known textbook 'Interior Design Illustrated' (2012, 1987).

Chapter three investigates the first domain of Lefebvre's spatial triad, namely Representations of Space, which focuses on the architect's intent for the space. The data set associated with the architect's intent, specifically the architectural drawings of the selected case studies, are analysed to determine the themes and textures associated with the Representations of Space related to Eaton's approach to the components of interior architecture.

Chapter four explores the Spatial Practice or physical space of the selected Eaton case studies, as the second domain of Lefebvre's spatial. The associated data set consists of old and new photographs of the five selected case studies. The analysis of the data sets focus on themes and textures associated with the Spatial Practice domain, with the aim of identifying Eaton's approach to the physical manifestation of the components of interior architecture.

The Representational Space domain is the third and final domain of Lefebvre's spatial triad and comprises the contents of chapter five. The Representational Space uses semi-structured phenomenological interviews and questionnaires as its data set, with the aim of identifying everyday user's experiences associated with the components of interior architecture.

Chapter six summarises and concludes the study and highlight future research recommendations.

The order of the domains represented in chapters three to five are intentionally arranged on a spectrum ranging from predominantly objective to more subjective, specifically referring to the researcher's approach to the domain's associated data set. The Representations of Space domain links to the architectural drawings data set which can be objectively read as a set of symbols with agreed upon meaning as per draughting conventions. The Spatial Practice domain's photographic data set analysis combines a perceptive activity with previous topic experience of the reader into a balanced subjective-objective approach. The Representational Space domain's experience-based data set is the most subjective. This order also represents the order in which a space is realised, first in concept, then in physical creation or construction, and thereafter in experience.

1.10 CONCLUSION

Chapter 1 introduced the phenomena under investigation and elaborated on its setting. Chapter 2 outlines the principle theory and investigative lens used for this study, as well as the context the investigation considers vital to understanding the phenomena.

CHAPTER 2

LEFEBVRE'S SPATIAL TRIAD AND INTERIOR ARCHITECTURE

2.1. INTRODUCTION

Chapter 1 introduced the problem and its setting.

Chapter 2 outlines the principle theory used for this study, specifically Henri Lefebvre's spatial triad, which informs the investigative lens through which Eaton's residential projects are examined as case studies in chapter three to five.

2.2. HENRI LEFEBVRE'S SPATIAL TRIAD

Being a French metaphilosopher and social theorist with a keen interest in urbanism, geography and politics, Henri Lefebvre's (1901 - 1991) writing *ouvre* included more than 60 texts spanning a wide variety of topics, where the majority of his later works focused on the city and the nature of space (Stoffberg 2015:12, Stanek 2011:vii, Harvey in Lefebvre 1991:432-434). His expansive areas of interest and deep understanding of each topic allows the reader access to transdisciplinary insights on the nuances of space.

In 'The Production of Space' Lefebvre (1991) put forward that space exists as a triple-layered entity consisting of, firstly the creator-architect's intention, secondly the sensory-based physical components, and thirdly the user-interpreted experience - which all function within its specific historical- and social contexts (Stanek, 2011:vii, Stoffberg, 2015:12). Lefebvre (1991:33) proposes a theory of space that integrates these three core spatial ideas or domains[1] into categories, namely **Representations of Space**, **Spatial Practice** and **Representational Space**[2] to form a "conceptual triad", also more commonly referred to as Lefebvre's spatial triad.

The main theory referred to for this study is Lefebvre's 'The Production of Space' (1991), which was originally published in 1974 in French as '*La production de l'espace'*. The publication of the 1991 translation of the text provided English-speaking readers with the opportunity to revise their ideas and understanding about the nature of space. This is known as the spatial turn, in other words a return to or revision of a person's ideas about space. The spatial turn initiated a review of the Descartian concept of space, where space was perceived as an abstract universal entity that exists separately from the social complexity of everyday life, into an enriched understanding of space as a dynamic contextually embedded entity with multiple components - refer to Figure 2.1 for a summary of the details comprising the spatial triad (Lefebvre 1991:14-16, 21).

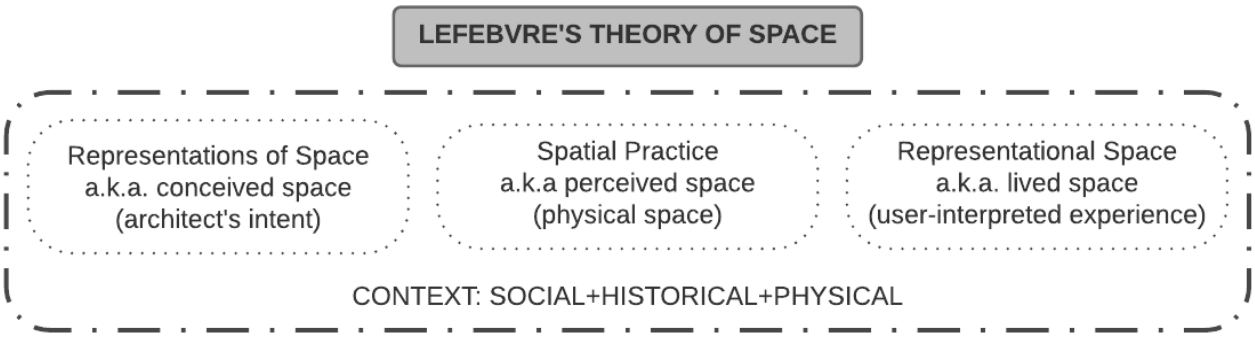


Fig. 2.1 Lefebvre's (1991) theory of space

1 In this study, domain refers to knowledge fields (Lefebvre 1974:11, Merrifield 2006:104).

2 RoS, SP and RS are acronyms for the three spatial triad categories that are commonly referred to in literature.

Lefebvre (1991:11-13, 20-21, 88) and Merrifield (2006:104) emphasises that it is necessary to understand space not as fragmented fields of knowledge , but as a unitary theory where each field is understood to be an integral component representing the overall hypercomplexity of space - likened to the saying that the whole is more than the sum of its parts.

This unitary approach is elaborated on by Hays (1998:182) where he concludes that Lefebvre's spatial theory "...describes and analyses textures...", where the term 'textures' is used as a metaphor to represent the complexities and layers inherent in space as a whole. These textures comprise of individual elements, but by using the spatial triad, multiple 'wholes' can be identified. Lefebvre (1991:132) and Hays (1998:182-183) both emphasise that "texture implies a meaning" to the inhabitants of the lived space. Meaning is initiated by the recognition of the space's individual characteristics or elements and the realisation that each characteristic implies an associated function within the space. This process of recognition and association has the potential to synthesise the individual spatial elements, associated function and associated lived experience within the inhabitant on a "conceptual level", where ultimately conceptual synthesis leads to meaning (Hays 1998:182-183).

Similarly, a contemporary social urbanist Edward W. Soja (1996:6,31,63,66) proposes that all space should be understood in relation to the user's activities and experience, a concept he calls Thirdspace, which relates to Lefebvre's Representational Space domain. He also refers to First and Second space which relate directly to Lefebvre's domains of Spatial Practice and Representations of Space respectively. He emphasises that the categories of First and Second space only attain value and meaning when understood in relation to Thirdspace but cautions that time should also be an integral consideration when analysing space. Soja's Thirdspace therefore also advocates for a holistic understanding of space.

The spatial triad is considered appropriate for this study as it provides a concrete framework within which to investigate and understand the different aspects of interior space. This is achieved by representing each domain of the triad as a different lens through which to observe the same elements or components which comprise an interior space. Specifically, the Representations of Space lens explores the architectural intention for the interior space, the Spatial Practice lens investigates the physical aspects of the interior space and the Representational Space lens examines a user's experience of an interior space.

Lefebvre (1991:17) proposes "that an already produced space can be decoded, can be *read*" [original emphasis]. In using his spatial triad to analyse a space, one is able to read or decode the spatial elements, functions and lived experience intrinsic to that space. The decoding process allows for associations between each of these aspects to be established. Evaluating and reviewing the resulting associations offer insights into possible 'textures' inherent within that space.

Ultimately this leads to the identification of meanings associated with the 'textures', and therefore the space. In other words, the inherent meaning of a space can be decoded using the spatial triad. It is, however, important to differentiate between abstract meaning and meaning that would contribute to the enrichment of the inhabitants' lives, as these spaces are ultimately designed for them, as illustrated in the following statement:

> This space was produced before being read; nor was it produced in order to be read and grasped, but rather in order to be lived by people with bodies and lives in their own particular urban context. (Hays 1998:183)

2.3. LEFEBVRE, EATON AND REGIONALISM

This section focuses on the context needed to decode the spatial order resulting from the architect's approach to creating spaces. Specifically, it establishes and defines Lefebvre's views on architecture and how it links to Architectural Regionalism. It then highlights different types of regionalism internationally and in South Africa, whereafter it explores Pretoria Regionalist architect Eaton's views on architecture. The relationship between space, architecture, and interior architecture is summarised in order to highlight the relevance of investigating an architect as a research topic within the interior architecture specialisation.

2.3.1 Lefebvre on Designing Space

Stoffberg (2015:22) summarises Lefebvre's definition of space as, "the measurable and incalculable, conceived and perceived of lived reality, both in the past, present and imagined future, thus situated between all the dimensions of time". This definition of space highlights the physical and symbolic qualities of space, the relationship between space and reality and space being embedded in time.

According to Lefebvre (1991:33, 41-42), conceiving or designing a space is a systematic process that requires the architect to consider, integrate and communicate the following points:

- reference previous knowledge
- embody ideologies and symbolism
- understand and reference context
- organise spatial relationships
- incorporate building codes
- explore construction methods
- solve the multiple functions and functional systems required by the space

The result of the systematic process is then communicated in an architectural language of signs and codes in the form of architectural drawings. The Representations of Space domain specifically

investigates the *order* that is a consequence of the systematic and informed creation of space (Lefebvre 1991:33). This study focuses on decoding the spatial order so as to gain insight into the approach followed by the architect.

Lefebvre (1991:42) further stresses that designed spaces and associated building should not be approached as a stand-alone object but should aim to be contextually relevant and spatially integrated.

2.3.2 Architectural Regionalism

Lefebvre's focus on contextual integration and interconnectedness strongly relates to the approach closely followed by the architectural regionalism approach.

Barker (2015:19) argues that a regional response to architecture necessitates that the architect integrates a deep and informed understanding of place, socio-cultural context, and practical geographical regional knowledge. He elaborates on the knowledge aspect by noting examples such as "...climate, topography and building traditions, which include available materials and technologies". Canizaro (2007:12) and Colquhoun (2007b:147-155) both argue that a regionalist approach must encourage the connections between place and people while responding to local needs, as opposed to applying superficial visual references.

The architectural regionalism approach or response should not be confused with the closely related vernacular tradition which Frampton (1983:148) argues was "spontaneously produced by the combined interaction of climate, culture, myth and craft". He emphasises the contrast between the spontaneous nature of the vernacular approach and the conscious critical engagement with the context of the regional approach to architecture. He further elaborates on Lefaivre and Tzonis' 1981 definition[3] of Critical Regionalism as "a dialectical expression" that purposefully draws from the abstracted principles of modernism that are locally relevant and combines it with local indigenous elements and paradigms (Frampton 1983:149).

Barker argues that the regionalist approach to architecture is relative in terms of how it responds to the influence of the vernacular, which he illustrates on a scale ranging from conservative to radical responses as it has progressed over time (refer to Figure 2.2).

The middle section of the spectrum of relative regionalism is classified as the mediated approach and is defined as a reactionary regionalism which consolidates the vernacular and technological advancement, or tradition and modernity. This consolidation is achieved by mediating between the

3 The term critical regionalism was first used by Lefaivre and Tzonis in the 1981 article 'The grid and the pathway, but Frampton (1983) is more widely read.

tacit vernacular condition and the explicit complexities of technological advancement, by specifically focusing on the most desirable aspects of both, which includes the vernacular's contextual integration and connection to local heritage and the advancements offered by global technological progress (Barker 2012:111, 114-116).

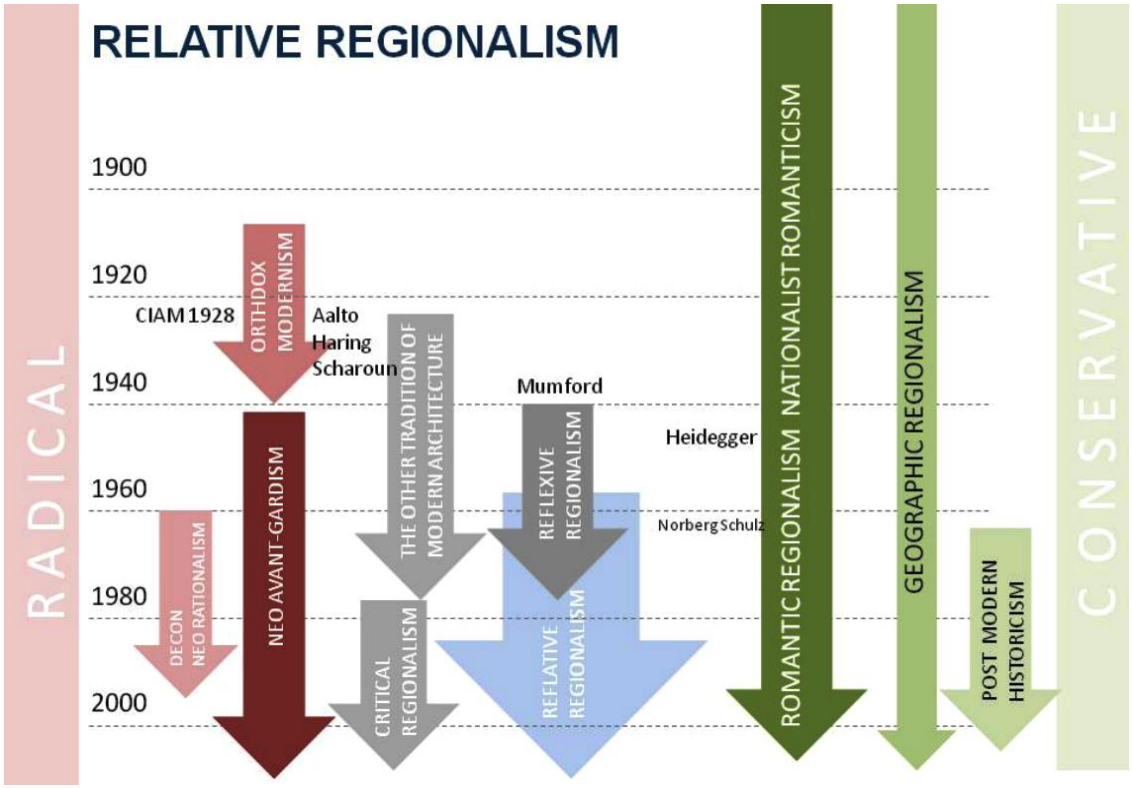


Fig. 2.2 20th century regionalist approaches (Barker 2012:112)

2.3.3 Architectural Regionalism in South Africa

Examples of regionalist approaches ranging from responsive, reactionary and resistive are readily distinguished within South Africa's architectural professionals and practices (Barker 2012:117-118). Responsive-conservative regionalism's most notable South African example is British architect, Sir Herbert Baker (1862-1946), who practised architecture here from 1892 to 1913 during which South Africa was a British colony. Baker's work draws from multiple historical references including the English and Mediterranean vernacular, the Old Cape Dutch tradition, the Italian Renaissance and the Arts and Crafts movement (Harrop-Allin 1975:13, Barker 2012:117, Pienaar 2013:199-200). Baker' also founded the Baker Scholarship[4] in 1911 that funded the study of ancient Greek and Roman architecture for the top student at the University of the Witwatersrand (Pienaar 2013:199-200, Harrop-Allin 1975:13-15).[5]

4 The Baker Scholarship to the British School at Rome was awarded from 1912 to 1961 (Kotze 2019).

5 The University of the Witwatersrand's detailed lineage can be found at Artefacts (2019b).

Other noteworthy South African examples of responsive regionalists include friends Gerard L.P. Moerdijk [1890-1958] and G.E. Gordon Leith [1886-1965] (Pienaar 2013:206 quoting Roodt 1977:622–624, Barker 2012:117). Leith worked under Baker during the Union Buildings project and was the first recipient of the Baker Scholarship in 1912, whereas Moerdijk was the second recipient in 1914, but due to World War II (1939-1945) he never went to Rome (Kotze 2019, Pienaar 2013:199-200, 204, Harrop-Allin 1975:14). Leith lectured part-time at the University of the Witwatersrand before and after World War II. Eaton was Leith's apprentice during his studies from 1922 to 1928, helping him run the Pretoria branch of the practice (Harrop-Allin 1975:19-20, 24). After his studies in 1929, Eaton became the fifth recipient of the Baker Scholarship (Kotze 2019, Harrop-Allin 1975:24).

The work of South-African architect Norman Eaton is cited as embodying the goals of Reactionary-mediated Regionalism, by placing equal emphasis on contextual integration, connection to local heritage and global architectural trends, specifically of Modernism (Barker [2012:118] quoting McTeague). Eaton's approach, therefore, places him squarely in the Reactionary-mediated regionalism area of the spectrum while acknowledging the Responsive-conservative regionalist approach of his mentors, Baker and Leith, forming what is described as the Baker-Leith-Eaton lineage (Fisher 1997:70-71, Harrop-Allin 1975:19-24).

2.3.4 Regionalism

Eaton is advocated as being "...the progenitor - and still the most important representative - of what has come to be called Pretoria Regionalism..." (Fisher 1997:68). Fisher's (1998:122-147) definition for Pretoria Regionalism echoes the previously discussed definition for the Reactionary-mediated Regionalism, and he proposes that Pretoria Regionalism is South Africa's Third Vernacular movement in the text 'Architecture of the Transvaal'. To reiterate, Reactionary-mediated Regionalism is defined as the mediation between the vernacular's contextual integration and connection to local heritage and visionary technological advancements integrated with emerging architectural paradigms (Barker 2012:111, 114-116).

Pretoria Regionalism is defined as having four main features that correlate with Regionalism in general and is listed below with examples specific to Pretoria Regionalism and Eaton[6]:

- Contextual integration:
    - Use of local materials and artisans: whitewashed stock bricks, face brick, clinker brick, corrugated iron, thatch, gum poles, slate flooring (Fisher 1997:69,79, Pienaar 2013:17,221);
    - Architectural form and articulation that mitigates local climatic conditions: small windows and deep eaves and verandahs (Fisher 1997:69).

6 Definition and examples based on Harrop-Allin (1975), Fisher (1997:69, 1998:123), Barker (2012:47,107-118, 2015:19-20) and Pienaar (2013:17,157-160,221).

- Connection to local heritage:
  - Space planning and building forms that reference local tradition: traditional plan forms such as Eaton's village typology (Fisher 1997:69, Pienaar 2013:160);
  - Translation of the language of local craft and building techniques into material expression and patterns: for example Eaton translated traditional African textures, weaving craft and stone building techniques into brick patterns (Pienaar 2013:150-155).

- References to other architectural paradigms:
  - References to the advocated global architectural paradigm of the time, specifically through incorporating the ideals of that paradigm and translating it into a locally relevant architectural language: Eaton's work referenced the global architectural paradigm of the International Style and Modernism with the emphasis on planes and volumes, strip windows, flat roofs, flexible open-plan interior spaces, plan typologies based on principal geometric shapes such as prisms and rectangles (Fisher 1997:69, Pienaar 2013:157-160), Barker [2015:20] quoting McTeague);
  - References to historic architectural paradigms: plan typologies based on Cape Dutch letter typology, references to the Art and Crafts movement, Greek and Roman architecture, Italian Renaissance (Harrop-Allin 1975:24, Pienaar 2013:144-145,158);
  - Willingness to explore the architectural paradigms of other countries and cultures: Eaton's travels often influenced the conceptual expression of materials and detailing, for example Brazilian and Finnish Architecture, work by Frank Lloyd Wright (Pienaar 2013:140-143,150-155), his trip to Japan that resulted in the inclusion of paper screens and lanterns in House Van Den Berg, where the use of 'paper' as a material was translated into the locally available gum poles and raffia (also refer to Addendum D: Dramatis Domus_House van den Berg).

- Innovative translation of the latest technological advancements:
  - Creatively incorporating the latest technological systems: Houses Brown and Van Den Berg both included built-in music systems in the living room (also refer to Addendum D: Dramatis Domus_House van den Berg);
  - Using some form of standardised, mass-produced building materials and products: Eaton's work skilfully included standardised, mass-produced windows and bricks that informed the layout grid and proportions (Pienaar 2013:101).

In summary, Eaton's work demonstrates a multitude of historical and contemporary international references translated into a new contextually appropriate architectural language of local materials and spatial planning with a sensitively informed response to the local climate and physical context.

2.3.5 Eaton on Architecture

Pretoria-born Norman Eaton spent the first 12 years of his life living in Pretoria, after which attending high school in Rondebosch (Cape Town) up until 1921. Following high school, he attended the School of Architecture at the University of the Witwatersrand in Johannesburg part-

time, where he was allocated to Gordon Leith as an apprentice. In 1923, Leith sent Eaton to manage a newly opened office branch in Pretoria. Eaton was to call Pretoria his home up until his death via car crash in 1966 (Harrop-Allin 1975:19, 22).

Eaton's association with Pretoria was much more than a lifelong place of residence, as he had high hopes for the South African capital city. In 1958, Eaton presented an idealistic city planning vision of the 'Pretoria of the Future' that emphasised the importance of connecting all spaces with nature and providing cultural-recreational spaces throughout the city, as both are necessary to improve the quality of life for city residents (Eaton 1958:11-19).

In a 1960 article titled 'Art and Architecture' for the *Fontein* publication, Eaton emphasises the artistic nature of architecture as the "...mother of Arts…", and places it alongside painting and sculpting in its aim to communicate truths about life in a visually accessible format (1960:16). According to Fisher (1997:72), Eaton's relationship towards the fine arts was an extended and intimate one, where many of his friends were prominent sculptors and painters in the South African Arts community, specifically sculptor Anton van Wouw (1862-1945), and artists J.H. Pierneef (1886-1957) and Alexis Preller (1911-1975).

The same article also uses the metaphor of music, poetically stating that "architecture is frozen music … [that] results from the proper 'orchestration' of all the instruments of function and beauty that combine ... to give visual and emotional pleasure and instruction to the observer" (Eaton 1960:16). Eaton also advocates that buildings can only become architecture if it satisfies "...the physical and metaphysical - the concrete and the abstract…" needs of a human by "...the fusing or harmonising of 'architecture' with 'living'..." (Harrop-Allin [1975:59] quoting Eaton). This stance demonstrates a deep understanding of the need to solve architecture on multiple levels, as well as Eaton's sensitivity towards how others perceive spaces.

Eaton's frank opinion about what is required to create good architecture, is embodied by the statement that, "No God-given talent will survive its first promise without the sweat and labour, the disappointments and above all the discipline and self-criticism which this will involve and which is a necessary preparation for the deep satisfaction your work will ultimately give to others" (Harrop-Allin [1975:63] quoting Eaton). The focus on hard work extends to his intense focus on the details of a project, documented across multiple personal diaries, which manifests both during the observation of other's work and his design process (Pienaar 2013:23).

Fisher (1997:83) succinctly summarises Eaton as being, "...a fatalist, a moralist, a romantic, a minimalist, conservationist [and] visionary", and based on the aforementioned characteristics, one could add hardworking, human-centred, detail-oriented, reflective, artist-at-heart.

2.4. THE RELATIONSHIPS BETWEEN EATON, ARCHITECTURE AND INTERIOR ARCHITECTURE

Eaton was mentored as part of the regionalised Arts and Craft paradigm. One of the main concepts that resulted from the Arts and Craft movement, around World War II was the idea of the *Gesamtkunstwerk* or "total work of art [that advocated the] integration of multiple art forms" (Erlhoff & Marshall 2008:28, 231) and the design of all the aspects of a project. The *Gesamtkunstwerk* approach was supported and advocated by architects such as Frank Lloyd Wright and Mies van der Rohe, which resulted in architect-designed interiors.

During the time of Eaton and Wright, Königk (2010:13) argues there was no formal distinction between the disciplines of architecture and interior architecture as it is currently defined. He further shows that after World War II, the two disciplines emerged as separate entities internationally, each focusing on separate but interlinked design topics and areas of technical expertise.

Although interior architecture was not a separate discipline during the time of Eaton, interior decorating was already present in South Africa from as early as March 1919 with the publication of the lifestyle magazine *Die Boerevrou* [The Farmer's Wife] (Fisher & Le Roux 1989). The Transvaal University Kollege [TUKS], also known later as the University of Pretoria [UP], initiated their first diploma in *Huishoudkunde* [Home Economics] in 1927 (UP 1960:141-142). In comparison, the first course in architecture at the University of Pretoria only started in 1931, when the three-year diploma offered at the Pretoria Technical College was reworked into a five-year diploma and moved to the University of Pretoria (UP 1960:142).

The first reference to the term interior architecture is quoted as originating in the 1970s (Königk [2010:42] quoting Kurtich & Eakin). The disciplines of architecture and interior architecture are currently offered at the University of Pretoria as separate disciplines where each is awarded a separate qualification, namely BSc (Architecture) and BSc (Interior Architecture), as undergraduate examples. The courses have multiple interdisciplinary projects illustrating the complementary relationship between architecture and interior architecture.

Eaton's work spans across the time preceding and during the unfolding of the disciplines of architecture and interior architecture (Pienaar, 2013: 27). The placement of his work highlights Eaton as an interdisciplinary-appropriate example of the harmonious relationship between architecture and interior architecture.

This study focuses on decoding architect-designed interior spaces to gain insight into the approach followed by the architect Norman Eaton.

2.5. INTERIOR ARCHITECTURE AND CHING

The following section investigates and compares the components of interior architecture as proposed by Ching and Binggeli (2012) in the widely used textbook 'Interior Design Illustrated', to determine appropriate categories within which to explore and analyse architect-designed interior spaces.[7]

Ching's first edition of the textbook 'Interior Design Illustrated' defines and illustrates a summary of the scope of work of interior architects at the time of publication. In the first edition, Ching (1987:159-275, 277-309) identifies and elaborates on two main categories that comprise the components of interior architecture, namely interior building elements with ten subcategories and interior environmental systems with four subcategories, for a total of fourteen topics specific to the design of interior spaces as it relates to the time around 1987.[8]

The third edition of the same textbook keeps the two categories from the first edition, with nine subcategories for the interior building elements and five subcategories for the interior environmental systems (Ching & Binggeli 2012:147-218; 219-246). They reorganise the overall contents to allow for three additional categories, namely lighting and acoustics with two subcategories (2012:247-286), finishing materials with six subcategories (2012:287-316), and furnishings with eight subcategories (2012:317-352). The third edition proposes a total of thirty topics specific to the design of interior spaces as it relates to the time around 2012.

A comparison between the contents of the categories in both editions clearly illustrates areas and topics of significant growth which include lighting, finishing and furnishing, and new areas of expertise which include, among others, mechanical circulation aids and fire suppression systems (refer to Addendum F). The comparison process demonstrates the shifts and areas of growth within the interior architecture discipline over 25 years, highlighting the flexible and emerging nature of the interior architecture discipline.

The comparison process also allows for the contents of the categories to be organised and refined into proposed subcategories. This study collates the components of interior architecture from both editions, as mentioned earlier into four main categories within the components of interior architecture. The following subcategories are proposed within each category: **interior building elements** (which include planes, openings, circulation); **interior environmental systems** (which

7 Refer to Addendum F: Tabled comparison between Ching's 1987 [first edition] and Ching and Binggeli's 2012 [third edition] components of interior architecture.

8 Both texts also cover topics not elaborated on in this study, but pertinent to the discipline of interior architecture or the relationship between architectural and interior spaces, "translating programmatic needs and requirements into three-dimensional design decisions" (Ching & Binggeli 2012:v), general elements and principles of design.

consist of temperature control, water systems, electrical systems, lighting systems, acoustics and fire suppression systems); **finishing materials** (which include floor finishes, wall finishes, and ceiling finishes; **furnishings** (which consist of furniture, storage, window treatments and accessories/decor) - refer to Table 2.1 Collated components of interior architecture.

Table 2.1: Collated components of interior architecture (based on Ching 1987; Ching & Binggeli 2012)

Collated components of interior architecture as based on Ching; Ching and Binggeli (2012,1987)			
Interior building elements	**Interior environmental systems**	**Finishing materials**	**Furnishing**

• **Planes:**
  ○ Floors
  ○ Walls
  ○ Ceilings
• **Openings:**
  ○ Windows
  ○ Doors
• **Circulation**
  ○ Manual: stairs, ramps
  ○ Mechanical: elevators, lifts and escalators
	• **Temperature control:** Heating such as **fireplaces**, ventilation and cooling such as air-conditioning; passive systems
	• **Water system:** Water supply and sanitary drainage systems
	• **Electrical systems**
	• **Lighting systems**
	• **Acoustics**
	• **Fire suppression systems**
		• **Floor finishes**
		• **Wall finishes**
		• **Ceiling finishes**
			• **Furniture**
			  ○ Built-in furniture: seating, tables
			  ○ Loose furniture: seating, tables
			  ○ Feature furniture: bed headboard
			• **Storage**
			  ○ Built-in storage: kitchen and bedroom
			  ○ Loose storage
			  ○ Feature storage: display niches
			• **Window treatments**
			  ○ Exterior
			  ○ Interior
			• **Accessories**
			  ○ utilitarian
			  ○ decorative

The collated components of interior architecture are used in the following three chapters as areas of focus for the investigation into the selected residential interior spaces designed by Eaton, where the components form the foundation of what is observed in each case study.

2.6. A SELECTION OF EATON CASE STUDIES

The study aims to reach an understanding of how Eaton approaches interior architecture in residential projects, using a selection of case studies situated in Pretoria, where the majority of his work is located. This section discusses the process and criteria used to select the Eaton-designed case studies, as well as the substantiation for each of the final selected case studies.

2.6.1 Selection process and selection criteria

The selection process starts with a familiarisation phase exploring the topic of Eaton's residential body of work, his domestic *ouvre*, as arranged and categorised by Pienaar (2013:27-130,184-197). Pienaar (2013:127-130) identifies three periods within Eaton's domestic body of work, namely the pre-war period (1930-1940), the war period (1941-1945) and the post-war period (1946-1966). The identified periods define the time parameters of this study, whereby the selected case studies should span across all three periods for a holistic overview of Eaton's approach, with at least one case study per period.

Viewing Eaton's hand-drawn architectural drawing sets, available as the Eaton Records in the Architectural Archives of the University of Pretoria, also forms part of the familiarisation phase. The exploration of the archival documents offers an opportunity to view a set of plans for Eaton's own house *Cul de Sac,* also known as House N.M. Eaton, donated to the University of Pretoria after the publication of Pienaar's dissertation, which only includes the mention of two photos for this project that was available at that time (2013:116). The inclusion of this project within this study is significant as an exploration of the creator's mind and is invaluable due to the opportunity to contribute additional data and analysis to Eaton's residential body of work. The date marked on the drawings for House N.M. Eaton is 21-6-'44, placing this project in the war-period (1941-1945).

The emphasis on Eaton's approach to residential projects initiated the decision to investigate projects where the design is of an entire residence only, which means no projects are included that are alterations or additions to another architect's work and no public projects are included. From the researcher's work experience in residential design, it has been noted that there is a marked difference between designing a residence from the ground up and doing alterations to another designer's work. The same argument, therefore, applies to alterations to Eaton's work, as alterations to an existing project alter the authenticity of the 'reading' of the original architect's intent. The selection is further limited to projects as close to 'pristine condition' as possible. The most common rooms subject to frequent renovation are kitchens and bathrooms, which have been excluded from the classification of 'pristine condition' due to its widespread practice.

The parameters set by Lefebvre's spatial triad, specifically the aspect of the Representations of Space as the architect's intent, necessitates that the selected projects should primarily be based on the availability of architectural drawings. Lefebvre's emphasis on the holistic view of space requires that some form of Spatial Practice as physical space and Representational Space as user-interpreted experience be available for investigation additionally.

The above parameters firstly point towards House Van Wouw as an good example project to include in this study as it complies with all the criteria as mentioned earlier. The original drawings for this project are in possession of the Architectural Archives of the University of Pretoria,

providing access to the Representations of Space aspect under investigation. In 1973 funds to purchase the property were donated to the University of Pretoria (De Kamper 2018:145). The property was acquired in the same year and has remained the property of the University. This allows for access to the site to explore the Spatial Practice and Representational Space aspects of the project. The 1937 date on the drawings places this project in the pre-war period (1930-1940).

A change of ownership to House Brown allowed the opportunity to incorporate a project not previously included in Harrop-Allin (1975) or Pienaar's (2013) overview of Eaton's residential body of work. The date on the plans place this project in 1956, in the post-war period (1946-1966). Two projects from the post-war period, namely House Greenwood, dated 1948, and House Van Den Berg, dated 1964 are included in this study due to their overall significance and contribution to Eaton's residential body of work (Pienaar 2013:97-103, 123-125).

The final selected set of case studies are seminal examples that show a good representational spread across Eaton's residential body of work, at approximately ten-year intervals: 1937 House Van Wouw (Fig. 2.3), 1944 House N.M. Eaton (Fig. 2.4), 1948 House Greenwood (Fig. 2.5), 1956 House Brown (Fig. 2.6) and 1964 House Van Den Berg (Fig. 2.7).

Fig. 2.3 House Van Wouw

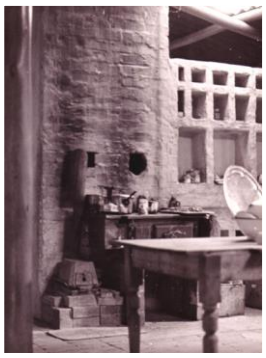


Fig. 2.4 House Eaton

Fig. 2.5 House Greenwood

Fig. 2.6 House Brown

Fig. 2.7 House Van Den Berg

2.6.2 Five selected case studies designed by Eaton

The final set of case studies are selected based on their overall contribution to Eaton's residential body of work as well as their individual significance, with the emphasis on good representational spread over time. This section introduces each case study in a consistent format to allow a baseline understanding of comparable features.

Each introduction includes a project summary, notable project features, current use, overall project importance listed as categories of heritage significance and concludes with a visual summary (refer to Tables 2.2-2.6). The project summary includes the date of the project on the drawings, project name, location of the project, relevant Eaton period, the main reason for inclusion in this study. The notable project features highlight plan typology and associated architectural styles as proposed by Pienaar contextualising these projects within Pienaar's work (2013). The current use is noted to contextualise the case study in the present. Overall project importance is indicated as falling into applicable heritage significance categories, which includes Architectural or style significance [A], Economic significance and reusability [E], Physical condition good or easily restorable [F], Historical significance via association with persons or events or age (older than 50 years) [H], Contextual significance to street or as part of a group [K], Landmark (visual or perceived) [L], Significant Architect or Creator [S], Typological significance [T], Strong contribution to the street edge which marks, defines, or accentuate open spaces or streets [W].[9]

The 1937 House Van Wouw is located in Clark Street, Brooklyn, Pretoria and is significant to the study as an good example of Eaton's pre-war Period work. Notable features include a letter-type plan typology and design details influenced by the Arts and Crafts and Romanticism movements (Pienaar 2013:62-63). It is currently used as an occasional art exhibition space for the University of Pretoria. As an indicator of project importance, the applicable categories of Heritage significance include architectural significance [A], economic significance [E], physical condition is good [F], historical significance via association with a person, such as the sculptor Anton van Wouw and historical significance via age (over 50 years old) [H], and a significant architect [S] (refer to Table 2.2 for a visual summary of the case study and Addendum D).

The 1944 House N.M. Eaton is located in what was initially called Garstfontein farm 428 (currently called the Waterkloof Ridge) and is significant to the study as a residence designed and built for himself during the war-period. This project provides a unique example of Eaton's personal view on residential design without the additional preferences of a client, contributing a genuine version of

9 The 'General Heritage Significance' categories are based on and translated from the categories proposed by Le Roux and Botes (1993) in volume 3 of 'Plekke en Geboue van Pretoria' [Places and buildings of Pretoria]. Discrepancies between category letter allocations and descriptors are due to the translation from Afrikaans to English, where the original Afrikaans category letter was kept.

the architect's intent or the Representations of Space. Notable features include a centralised prism-type plan typology and references to Le Corbusier's 1935 Mathes House (Pienaar 2013:65, 91, 158). Applicable categories of Heritage significance include architectural significance [A], a significant architect [S], and typological significance [T] (refer to Table 2.3 for a visual summary of the case study and Addendum D).

The 1948-1953 House Greenwood is located in The Willows, Pretoria, and is significant to the study as "...one of the masterpieces of Eaton's career" from the post-war period where "...Wrightian modern meets Brazil meets Africa." (Pienaar 2013:97,228). Notable features include an additive rectangle-type plan typology (Pienaar 2013:97,160). It is currently used as a private residence. Applicable categories of Heritage significance include architectural significance [A], economic significance [E], physical condition is good [F], historical significance via age (over 50 years old) [H], and a significant architect [S] (refer to Table 2.4 for a visual summary of the case study and Addendum D).

The 1956 House Brown is located in The Silver Oak Street, Waterkloof, Pretoria and is significant to the study as a previously excluded case study from the post-war period. Notable features include an additive rectangle-type plan typology, with Modern Movement principles translated into Pretoria Regionalism expression (based on Pienaar 2013:160). It is currently used as a private residence[10]. Applicable categories of Heritage significance include architectural significance [A], economic significance [E], physical condition is good [F], historical significance via age (over 50 years old) [H], and a significant architect [S] (refer to Table 2.5 for a visual summary of the case study and Addendum D).

The 1964 House Van Den Berg is located in Clearwater road, Lynnwood Glen, Pretoria and is significant to the study as one of the last houses completed before Eaton's death in 1966 and falls into the post-war period. Notable features include an additive rectangle-type plan typology, with Modern Movement principles translated into Pretoria Regionalism expression (Pienaar 2013:160). It is currently used as a private residence. Applicable categories of Heritage significance include architectural significance [A], economic significance [E], physical condition is good [F], historical significance via age (over 50 years old) [H], and a significant architect [S] (refer to Table 2.6 for a visual summary of the case study and Addendum D).

10 The residents of House Brown provided the researcher with a copy of the original plan for inclusion in the Architectural Archives of the University of Pretoria, and their appointed architects shared their survey photos with the researcher.

Table 2.2: 1937 House van Wouw case study summary

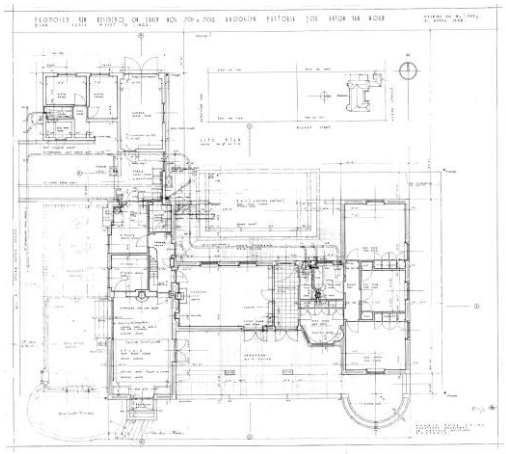
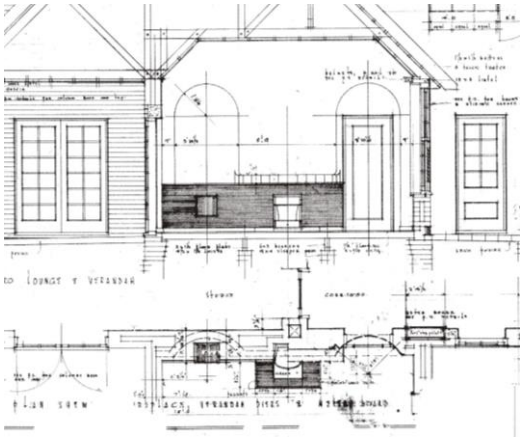
<table>
<tr><td>1937</td><td>House Van Wouw</td><td colspan="9">Heritage Significance</td></tr>
<tr><td colspan="2">Location: Clark Street - Brooklyn - Pretoria</td><td colspan="9" rowspan="4">Key (based on Le Roux & Botes 1993)
<u>*applicable features indicated as a filled grey block</u>
A: Architectural/style significance
E: Economic significance and reusability
F: Physical condition good or easily restorable
H: Historical significance via association with persons or events or age (older than 50 years)
K: Contextual significance to the street or as part of a group
L: Landmark (visual or perceived)
S: Significant Architect / Creator
T Typological significance
W: Strong contribution to the street edge which marks, defines, or accentuates open spaces or streets</td></tr>
<tr><td colspan="2">Eaton Period: 1930-1940 Pre-War Period
(Pienaar 2013:27, 127-129)</td></tr>
<tr><td colspan="2">Plan typology: Letter-type
(Pienaar 2013:62, 158)</td></tr>
<tr><td colspan="2">Architectural styles: Pretoria Regionalism, ‘Afrikaanse Woonhuis’ [Afrikaans home], Romanticism, Arts and Crafts (Pienaar 2013:63)</td></tr>
<tr><td colspan="2">Current use: Occasional art exhibition space for the University of Pretoria</td><td>A</td><td>E</td><td>F</td><td>H</td><td>K</td><td>L</td><td>S</td><td>T</td><td>W</td></tr>
<tr><td colspan="2"> 
Fig. a: Plan</td><td colspan="9"> 
Fig. c: Entrance view</td></tr>
<tr><td colspan="2"> 
Fig. b: Callout of fireplace section</td><td colspan="9"> 
Fig. d: Living room (Scheffer)</td></tr>
<tr><td colspan="2">Study Significance</td><td colspan="9">An good example of Eaton’s pre-war period work.</td></tr>
</table>

Table 2.3: 1944 House N.M Eaton case study summary

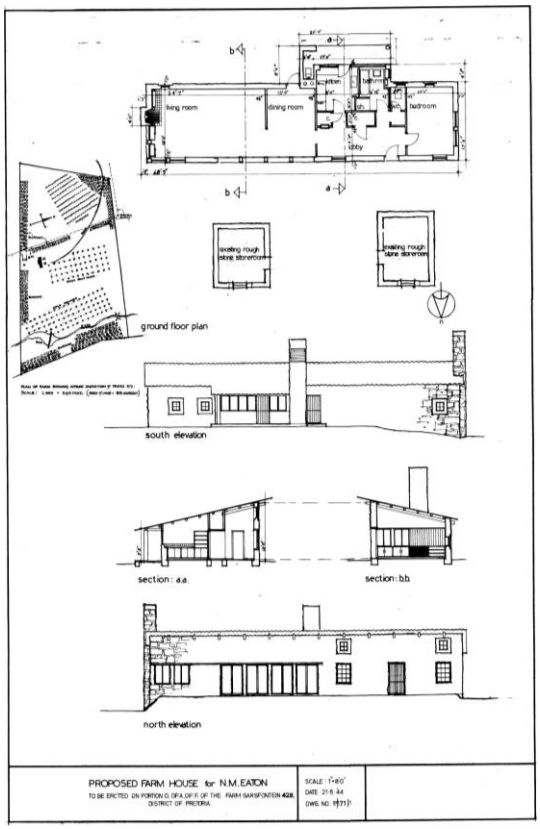
<table>
<tr><td>1944</td><td>House N.M. Eaton</td><td>Heritage Significance</td></tr>
<tr><td colspan="2">Location: Garstfontein 428 portion D of A of F</td><td rowspan="4">Key (based on Le Roux & Botes 1993)
<u>*applicable features indicated as a filled grey block</u>
A: Architectural/style significance
E: Economic significance and reusability
F: Physical condition good or easily restorable
H: Historical significance via association with persons or events or age (older than 50 years)
K: Contextual significance to the street or as part of a group
L: Landmark (visual or perceived)
S: Significant Architect / Creator
T Typological significance
W: Strong contribution to the street edge which marks, defines, or accentuates open spaces or streets</td></tr>
<tr><td colspan="2">Eaton Period: 1941-1944 War Period
(Pienaar 2013:27, 94, 129)</td></tr>
<tr><td colspan="2">Plan typology: Centralised prism-type
(based on Pienaar 2013:158, 163)</td></tr>
<tr><td colspan="2">Architectural styles: ‘Afrikaanse Woonhuis’ [Afrikaans home] (based on Pienaar 2013:55)</td></tr>
<tr><td colspan="2">Current use:
DEMOLISHED</td><td>A | E | F | H | K | L | S | T | W</td></tr>
<tr><td colspan="2"> 

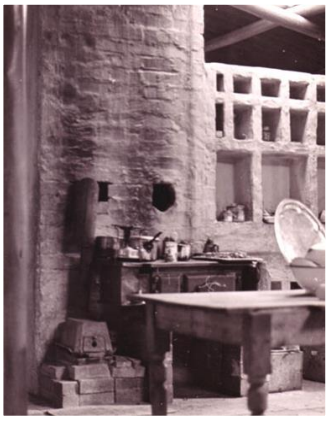
Fig. a: Building plans, elevations and sections</td><td> 
Fig. b: Stone Outbuildings
 
Fig. c: Living room
 
Fig. d: Backdoor view</td></tr>
<tr><td colspan="2">Study Significance</td><td>A unique example of Eaton’s view on residential design, without additional client preferences - a genuine version of the architect’s intent as Representations of Space</td></tr>
</table>

Table 2.4: 1948 House Greenwood case study summary

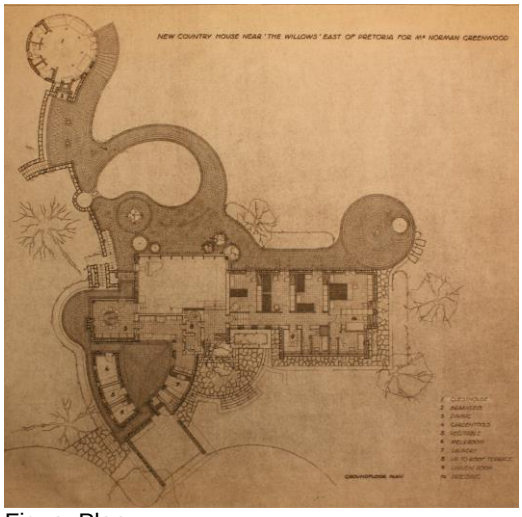
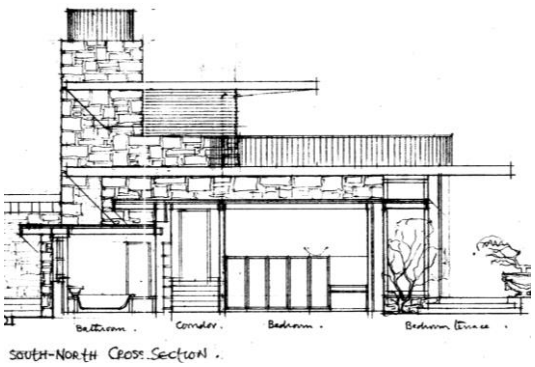
<table>
<tr><td colspan="2">1948 House Greenwood</td><td>Heritage Significance</td></tr>
<tr><td colspan="2">Location: The Willows - Pretoria</td><td rowspan="4">Key (based on Le Roux & Botes 1993)
*applicable features indicated as a filled grey block
A: Architectural/style significance
E: Economic significance and reusability
F: Physical condition good or easily restorable
H: Historical significance via association with persons or events or age (older than 50 years)
K: Contextual significance to the street or as part of a group
L: Landmark (visual or perceived)
S: Significant Architect / Creator
T Typological significance
W: Strong contribution to the street edge which marks, defines, or accentuates open spaces or streets</td></tr>
<tr><td colspan="2">Eaton Period: Post-War Period
(Pienaar 2013:27, 94, 129-130)</td></tr>
<tr><td colspan="2">Plan typology: Additive rectangle
(Pienaar 2013:62)</td></tr>
<tr><td colspan="2">Architectural styles: Pretoria Regionalism, Third Vernacular, Brazilian influences, African influences (Pienaar 2013:97)</td></tr>
<tr><td colspan="2">Current use:
PRIVATE RESIDENCE</td><td>A | E | F | H | K | L | S | T | W</td></tr>
<tr><td colspan="2"> 
Fig. a: Plan
 
Fig. b: Section</td><td> 
Fig. c: Entrance (Pienaar)
 
Fig. d: Living room</td></tr>
<tr><td colspan="2">Study Significance</td><td>“...one of the masterpieces of Eaton’s career” where the “Wrightian modern meets Brazil meets Africa” (Pienaar 2013:97, 228)</td></tr>
</table>

Table 2.5: 1956 House Brown case study summary

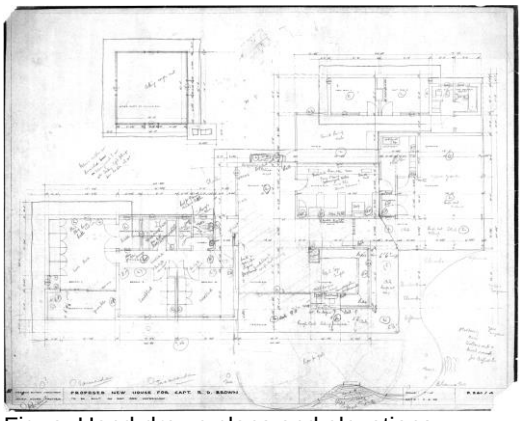
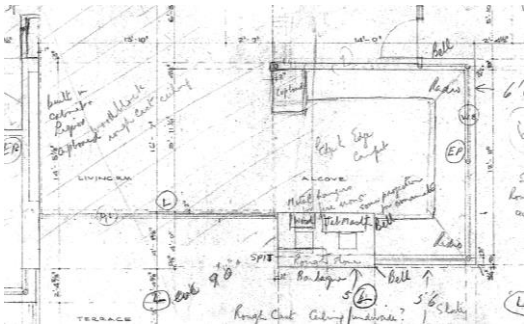
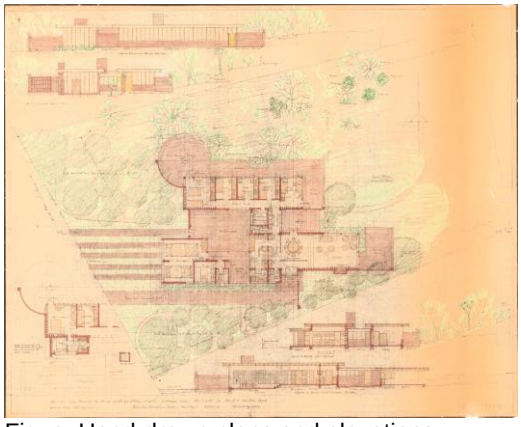
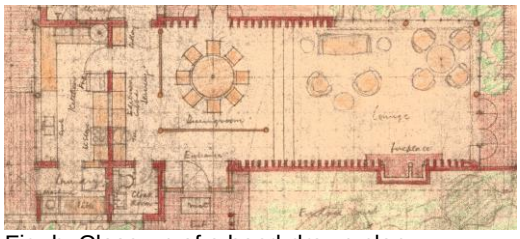
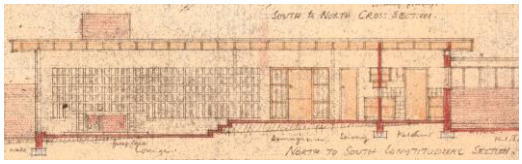
<table>
<tr><td>1956</td><td>House Brown</td><td>Heritage Significance</td></tr>
<tr><td colspan="2">Location:
Silver Oak Street - Waterkloof - Pretoria</td><td rowspan="4">Key (based on Le Roux & Botes 1993)
<u>*applicable features indicated as a filled grey block</u>
A: Architectural/style significance
E: Economic significance and reusability
F: Physical condition good or easily restorable
H: Historical significance via association with persons or events or age (older than 50 years)
K: Contextual significance to the street or as part of a group
L: Landmark (visual or perceived)
S: Significant Architect / Creator
T Typological significance
W: Strong contribution to the street edge which marks, defines, or accentuates open spaces or streets</td></tr>
<tr><td colspan="2">Eaton Period: Post-War Period
(Pienaar 2013:27, 94, 129-130)</td></tr>
<tr><td colspan="2">Plan typology: Additive rectangle
(Pienaar 2013:160, 164)</td></tr>
<tr><td colspan="2">Architectural styles: Modern Movement, Pretoria Regionalism (Pienaar 2013:123)</td></tr>
<tr><td colspan="2">Current use:
PRIVATE RESIDENCE</td><td>A | E | F | H | K | L | S | T | W</td></tr>
<tr><td colspan="2"> 
Fig. a: Hand-drawn plans and elevations</td><td rowspan="2"> 
Fig. c: Outside view (Anthrop Architects)</td></tr>
<tr><td colspan="2"> 
Fig. b: Close-up of a hand-drawn plan</td></tr>
<tr><td colspan="2"></td><td> 
Fig. d. Living room (Anthrop Architects)</td></tr>
<tr><td colspan="2">Study Significance</td><td>A case study from the post-war period previously excluded from the works of Harrop-Allin (1975) and Pienaar (2013).</td></tr>
</table>

Table 2.6: 1964 House Van Den Berg case study summary

<table>
<tr><td>1964 | House Van Den Berg</td><td>Heritage Significance</td></tr>
<tr><td>Location: Lynwood Glen - Pretoria</td><td rowspan="4">Key (based on Le Roux & Botes 1993)
*applicable features indicated as a filled grey block
A: Architectural/style significance
E: Economic significance and reusability
F: Physical condition good or easily restorable
H: Historical significance via association with persons or events or age (older than 50 years)
K: Contextual significance to the street or as part of a group
L: Landmark (visual or perceived)
S: Significant Architect / Creator
T Typological significance
W: Strong contribution to the street edge which marks, defines, or accentuates open spaces or streets</td></tr>
<tr><td>Eaton Period: Post-War Period
(Pienaar 2013:27, 94, 129-130)</td></tr>
<tr><td>Plan typology: Additive rectangle and Village-type (Pienaar 2013:160, 164)</td></tr>
<tr><td>Architectural styles: Modern Movement, Pretoria Regionalism (Pienaar 2013:123)</td></tr>
<tr><td>Current use:
PRIVATE RESIDENCE</td><td>A | E | F | H | K | L | S | T | W</td></tr>
<tr><td> 
Fig. a: Hand-drawn plans and elevations
 
Fig. b: Close-up of a hand-drawn plan
 
Fig. c: Close-up of a hand-drawn section</td><td> 
Fig. d: Outside view (Scheffer 2019)
 
Fig. e: Living room (Scheffer 2019)</td></tr>
<tr><td>Study Significance</td><td>House Van Den Berg is one of the last houses completed before Eaton’s death in 1966.</td></tr>
</table>

2.7. SPATIAL TRIAD AS A DECODING TOOL FOR RESIDENTIAL CASE STUDIES

In the text 'The poetics of space' Gaston Bachelard (1958:3) proposes that "the house, quite obviously, is a privileged entity for a phenomenological study of the intimate values of inside space, provided, of course, that we take it in both its unity and its complexity".[11] Both Lefebvre (1991:121,166,172,184,298) and Ching (2012) reference Bachelard's text, highlighting the phenomenological foundation of the spatial triad and the textbook approach to the interior architecture discipline.

Bachelard (1958:3) emphasises that the study of space should combine the individual parts into a cohesive vision of the whole, supporting the study aim of a holistic analysis and decoding of residential spaces. The analysis focuses on the three domains of space as proposed by Lefebvre, namely the **Representations of Space** as the architect's intent, **Spatial Practice** as the physical space and **Representational Space** as the lived experience of the space. The table below (Table 2.7) summarises each domain and organises the terms belonging to each domain into related sets. The table also contextualises and highlights how the study approaches each domain of Lefebvre's spatial triad.

Table 2.7: Summary of Lefebvre's (1991) spatial triad and study approach

Lefebvrian term	**Representations of Space**	**Spatial Practice**	**Representational Space**
Common Acronym	RoS	SP	RS
Lefebvrian term in French	*l'espace conçu*	*l'espace perçu*	*l'espace veçu*
related terms - *set 1*	mental space	physical space	social space
related terms - *set 2*	conceived space	perceived space	lived space
related terms - *set 3*	ideal space	concrete space	symbolic space
Description	architect's intent or idea for the space	what is perceivable by the senses of the user	what the space means or symbolises to the user, when considering activities or social rituals
Elements of investigation	Ching's (2012) components of interior architecture	Ching's (2012) components of interior architecture	Ching's (2012) components of interior architecture
Approach used to explore the Lefebvrian domain in this study	Analysis of the architect's drawings	Analysis of old and new photos	Phenomenological interviews of residents

11 The original text was published in French as '*La Poetique de l'espace'* in 1958. The first english translation by Maria Jolas was published in 1964 and it was republished in 1994.

Representations of Space explores the domain of the architect's intent through the analyses of the components of interior architecture observable in the architectural drawings - refer to chapter three.

Spatial Practice explores the physical space through the analyses of the components of interior architecture observable in original and current photos - refer to chapter four.

Representational Space explores the lived experience through the analyses of the components of interior architecture as a lived experience, using mixed methods including phenomenological interviews of residents - refer to chapter five.

Themes are drawn from each of the three aforementioned domains in chapter six.

2.8. CONCLUSION

The goal of the study is to reach a holistic understanding of how Eaton approaches interior architecture in residential projects by using the domains of Lefebvre's spatial triad as a spatial decoding tool on selected case studies.

The preceding sections introduce Lefebvre's spatial triad as the investigative lens through which to decode spaces, proposes four main features of regionalism and provides examples specific to Pretoria Regionalism and Eaton. Thereafter it elaborates on Eaton's personal approach to architecture, establishes the relationship between Eaton, architecture and interior architecture and defines the components of interior architecture according to Ching. It further delineates the process and criteria used to select the Eaton-designed case studies and substantiates the selection of the final set of five case studies.

The section concludes with a summary of how the spatial triad is applied as a decoding tool for residential case studies and outlines the methodology for the three chapters to follow: Chapter 3 Representations of Space as Architect's Intent, Chapter 4 Spatial Practice as Physical Space, Chapter 5 Representational Space as Lived Experience.

CHAPTER 3

REPRESENTATIONS OF SPACE AS ARCHITECT'S INTENT

3.1. INTRODUCTION

Chapter two introduces the principle theory used for this study, namely Henri Lefebvre's spatial triad as the investigative lens through which to decode the selection of five residential case studies designed by Eaton.

Each domain of the spatial triad focuses on a unique aspect of space which should be understood separate from and in relation to the other domains to ensure the complexity of space is addressed. Chapters three, four and five each explore the same components of space through a specific lens or domain at a time. The Representations of Space domain explores the architectural intention for the interior space, the Spatial Practice domain investigates the physical aspects of the interior space and the Representational Space domain examines the user's experience of the interior space.

Chapter three investigates the Representations of Space domain as the first aspect of the spatial triad. This section specifically focuses on the architect's intent for the interior spaces of the selected Eaton case studies by firstly, verifying the presence of the components of interior architecture in the architectural drawings across the five case studies. Secondly, providing a visual compilation of the confirmed components of interior architecture across the five case studies. Lastly proposing the textures or meaning associated with Eaton's Representations of Space as it relates to interior architecture.

3.2. REPRESENTATIONS OF SPACE AS ARCHITECT'S INTENT

Representations of Space is the domain in Lefebvre's spatial triad that focuses on the architect's intent for a space. The original French term allocated to this domain is "*l'espace conçu"* where *conçu* translates as conceived, imagined or designed (Lefebvre 1988:section 2.14).

Architectural drawings provide an good source from which to deduce the architect's intent.[1] According to Ching (2015:49), "multiview drawings", also known as technical drawings, "...establish two-dimensional fields on which we are able to study formal and spatial patterns as well as scalar and proportional relationships in a composition..." and that technical drawings communicate "...the graphic information necessary for the description, fabrication, and construction of a design" .[2] Based on Ching's description, this study continues from the premise that architectural drawings are based on an encoded system of symbols used to communicate multiple layers of information and instructions by the architect.

3.3. DATA SET: ARCHITECTURAL DRAWINGS

A large selection of Eaton's architectural drawings is available digitally on the online repository called UPSpace (UP 2019). The digital data sets are also available as hard copies, accessible from the Architectural Archives of the University of Pretoria. The physical archives have additional relevant items, not yet catalogued or included on the digital repository.[3] For every case study, the full set of available architectural drawings is collected from both repositories to ensure the most comprehensive data set possible for the analysis. The section that follows elaborates on the availability, production dates and content range of the technical drawings for each case study.

House Van Wouw has eight technical drawings available from the UPSpace digital repository, with dates ranging from 31 March 1938 to 16 June 1938 (Eaton 1938-03-31a to e, 1938-06-16).[4] The set includes one sketch plan and one general plan, sections AA to DD, and elevations from all the cardinal directions. Detailed construction is communicated using a roof plan, a site plan and a

1 The ideal source from which to deduce the architect's intent would be an interview, but if an interview is not possible, due to for example the passing away of the architect, architectural drawings are a good alternative.

2 The 'we' referred to is the person generating the drawing, such as the architect or interior architect.

3 The relevant documentation from the physical archives not yet catalogued or available digitally at the start of this study, is processed and catalogued as part of the study conclusion, resulting in UPSpace as the only reference for the architectural and photographic documentation.

4 For all overall case study references refer to Addendum Part 8: Case Study References on UPSpace.

foundation plan. The details of the lounge fireplace and bookcases conclude the set.[5] Refer to Addendum D House van Wouw for a detailed list of drawing numbers and dates.

House N.M. Eaton only has one available technical drawing sheet on UPSpace from the sketch phase, with 21 June 1944 noted as the date (Eaton 1944-06-21 - refer to footnote 19).[6] The sheet shows a plan with two nearby rough stone outbuildings, site plan, two elevations and two sections. The sketch plan itself shows some dimensions, room names, basic annotations and minimal material hatches (refer to Addendum D House N.M. Eaton).

House Greenwood has a large set of thirty-nine technical drawing sheets on the UPSpace repository ranging from the sketch plan phase during May 1949, to the working drawings phase which stretches from 16 January 1950 to 19 June 1951 (Eaton 1949-08, 1950-03-03, 1950-04-05a to c, 1950-04-29, 1950-04a to b, 1950-05-04a to c, 1950-05-05a to b,1950-09-25, 1950-10-20, 1951-02-17, 1951-03-15, 1951-06-19, n.d. - refer to footnote 19). Six preliminary drawings from the sketch plan phase include a site and tree survey, three sketch plan variations, and two sets of sketch elevations and sections. The working drawing set consists of thirty-one drawing sheets. The drawing sheets specifically relevant to the study of interior spaces include nineteen sheets in total, consisting of two floor plans, one section, one drainage plan, two roof plans, and six sheets showing a selection of window and door details. The set also includes eight sheets detailing a variety of furniture and storage units, such as the kitchen, the bedroom's built-in cupboards, the fireplace and staircases[7] (refer to Addendum D House Greenwood).

House Brown only has two drawings in the digital set, which includes a general plan dated 11 April 1956 and a sheet for council submission of the drainage installation (Eaton 1956-04-11, 2019 - refer to footnote 19). The 1956 plan shows a draughted base plan with multiple hand-written notes about floor and ceiling finishes, as well as the position and specification of electrical points and lights. This plan is reminiscent of a note-taking plan taken to a site meeting to discuss finishing options and positions with the client. The council submission drainage sheet shows no drawing creation date, but the two approval stamps are noted as 17 November 1964 and 20 November 1964 (refer to Addendum D House Brown).

5 House Van Wouw also has a set of drawings available on the repository for a proposed addition which was never built. This set is not included in the analysis.

6 House Eaton, also known as 'Cul de Sac', has two additional drawing sheets which detail the residences for the two farm workers and their families, Dick and Enos - this set is not included in the analysis

7 House Greenwood also has a set of two drawings for the addition of a guest *rondawel*, with the plan date is 5 August 1953, and the window schedule is on 4 September 1953 - this set is not included in the analysis

House Van Den Berg's presence on UPSpace consists of a set of ten technical drawing sheets dating from January 1964 to June 1964 (Eaton 1964-02a to b, 1964-04a to e, 1964-x-24 - *refer to footnote 19*). The set includes a site survey, two sketch plans, a working drawing plan, elevations and multiple sections, electrical plan and roof plan. The details of the lounge fireplace, kitchen, bathroom and custom light design conclude the set (refer to Addendum D House Van Den Berg).

3.4. REPRESENTATIONS OF SPACE APPROACH AND METHODS

Baptiste (2001:3) proposes that qualitative data analysis has three phases, namely "...defining the analysis, classifying data, making connections between and among categories of data".

The Representations of Space analysis forms part of the phase classifying data, which Baptiste (2001:10) clarifies as having two activities, namely "... 1) tagging data, and 2) grouping tagged data". The tagging of data allows for the identification of the parts of data deemed important for the study. This study focuses on verifying the presence of the components of interior architecture in the architectural drawings across the five case studies, where the verification process scrutinises each set of plans for any annotations or details relating to the categories of the components of interior architecture.[8] The allocated data tags correspond with the categories and subcategories of the components of interior architecture, namely the interior building elements, the interior environmental systems, finishing materials, and furnishing.

To ensure the credibility and quality of the data, Groat and Wang (2013:86) propose the use of multiple sources and methods to achieve triangulation of data. Due to this section's focus on the architectural drawings as the data set for the architect's intent or Representations of Space, triangulation is achieved through the use of multiple grouping methods, namely a text-based tabled format and a graphic-based format. Each category of the components of interior architecture is compiled as a separate tables, across the five selected case studies, with the aim of identifying patterns in the analysis phase.

The first grouping activity translates the identified[9] data tags into a table format using a binary coding format where a '1' allocation indicates a positive identification of the topic in the data set and a '0' (zero) indicates a non-identification, or that the topic is not observable in the data set. The result for each category is interpreted as a fraction, where the first number represents the categories present in the case study and the second number represents the subcategories that are

8 The results from the verification process is dependent on how comprehensive each available drawing set of technical drawings sourced from both repositories is.

9 For the exact references to the drawings from where the identification originates from, refer to Addendum D.

relevant to that case study. Some categories are not applicable to all case studies and are indicated as ‘n/a’ (not-applicable) to the case study. Examples of not applicable categories include: the circulation (staircase) subcategory not being applicable to a single storey residence with no level changes, or the technical resolution of the electrical or drainage on a sketch plan phase drawing. The not applicable subcategories are omitted from the fraction-format calculation. Thereafter the fraction is converted into a total percentage for each case study for that category, where the percentage is a qualitative representation of the extent of the architect's intent for the interior space. The first grouping activity confirms the subcategory’s viability for inclusion and further investigation during the second grouping phase. When a category is allocated as not applicable to the case study, that subcategory is omitted from the calculation.

The second grouping activity summarises the tagged data into a graphic composition. The graphic format visually mimics the tabled results from the first grouping phase in that positive identification is communicated as a visual example, and a non-identified subcategory is indicated as a filled grey block. The verified visual examples consist of enlarged visual callouts sourced directly from the plan or plans, with exact references to the specific plan in the accompanying text descriptions (also refer to Addendum D of each respective case study).

The analyses phase compares the summarised tables with the graphic compositions across the five case studies to determine and elaborate on the underlying themes and textures inherent in the architectural drawings (Baptiste 2001:10, Hays 1998:182, Lefebvre 1991:132). To reiterate: textures suggest meaning through the recognition of the parts, the association of the parts with the function and experience of those parts, and finally the conceptual synthesis of the associative relationships into a new meaningful understanding of the space (refer to chapter 2).

3.5. VERIFICATION OF THE REPRESENTATIONS OF SPACE AS COMPONENTS OF INTERIOR ARCHITECTURE

The first grouping activity identifies the presence of the components of interior architecture in the architectural drawings across the five case studies, focusing on the categories of the components of interior architecture: interior building elements, interior environmental systems, interior finishing material, and interior furnishing.

3.5.1 Interior Building Elements

The interior building elements category has three subcategories, namely planes, openings and circulation (based on Ching & Binggeli 2012:148-214). The verification phase highlights the findings that follow. Both the planes and openings subcategories are addressed in all five case studies ranging from 1938 to 1964. The circulation category, that includes components like

staircases, is addressed in four of the five case studies. House Eaton is a single storey residence with no internal level differences requiring circulation design, rendering the circulation category as 'not applicable' to this case study. Overall, there is a complete and consistent presence across the five case studies of all three subcategories in the interior building elements category - refer to Table 3.1 Presence of the components of interior architecture: Interior Building Elements.

Table 3.1: Presence of the components of interior architecture: Interior Building Elements

Presence of the components of interior architecture: Interior Building Elements in the architectural drawings of the five selected case studies						**KEY** present = 1 not present = 0
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Building Elements	Planes: a) floors b) walls and partitions c) ceilings	1	1	1	1	1
	Openings: a) windows b) doors: front door, internal doors	1	1	1	1	1
	Circulation a) stairways/balustrades b) ramps c) mechanical *not common in residential projects	1	n/a	1	1	1
Presence in each subcategory		3/3	2/2	3/3	3/3	3/3
TOTAL % verified Components of Interior Architecture: Interior Building Elements		100%	100%	100%	100%	100%

3.5.2 Interior Environmental Systems

The interior environmental systems category has six subcategories, namely temperature control, water systems, electrical systems, lighting systems, acoustics and fire suppression systems (based on Ching & Binggeli 2012:215-286).[10] The verification phase reveals the findings that follow for the interior environmental systems category. The temperature control mechanisms are addressed in all five case studies. The water systems are addressed in four of the five case studies, excluding

10 Although Ching and Binggeli includes fire suppression systems in this category it is not commonly addressed in the residential design of South Africa. It is therefore included as a subcategory, but marked as 'not-applicable' for all case studies and is also removed from the final percentage calculation.

House Eaton.[11] The electrical systems are verified in three of the five case studies, excluding Houses Eaton and Greenwood.[12] The lighting systems are addressed in three of the five case studies, excluding Houses Van Wouw and Eaton. The acoustics category is only explicitly specified in House van Wouw. Spanning the categories of both electrical systems and acoustics, Eaton includes built-in sound systems in both Houses Brown and Van Den Berg. Overall, there is a complete and consistent presence in the architectural drawings for two of the five subcategories, namely the temperature and water systems. Where the remaining three categories of electrical, lighting and acoustics are each missed once. Refer to Table 3.2 Presence of the components of interior architecture: Interior Environmental Systems.

Table 3.2: Presence of the components of interior architecture: Interior Environmental Systems

Presence of the components of interior architecture: Interior Environmental Systems in the architectural drawings of the five selected case studies						**KEY** **present = 1** **not present = 0**
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Environ-mental Systems	Temperature control: a) heating: fireplace, b) ventilation: airbricks c) cooling: active/passive	1	1	1	1	1
	Water systems a) water supply b) drainage system	1	n/a	1	1	1
	Electrical systems a) outlets and switches	1	n/a	0	1	1
	Lighting systems a) lighting fixtures b) daylighting	0	n/a	1	1	1
	Acoustics	1	n/a	0	1	1
	Fire suppression systems *n/a for residential design	n/a	n/a	n/a	n/a	n/a
Presence in each subcategory		4/5	1/1	3/5	5/5	5/5
TOTAL % verified Components of Interior Architecture: Interior Environmental Systems		80%	100%	60%	100%	100%

11 House Eaton is marked as 'not applicable' for the water, electrical, lighting, and acoustics categories as only sketch plans are available for verification, which usually do not indicate this level of technical resolution.

12 This is due to a lack of access to complete drawing sets for these case studies, as per what is available from the Architectural Archives of the University of Pretoria.

3.5.3 Interior Finishing Material

The interior finishing material category has three subcategories, namely floor finishes, wall finishes, and ceiling finishes (based on Ching & Binggeli 2012:287-316). The verification phase shows that all three categories are addressed in all five case studies. The interior and exterior floor finishes were meticulously addressed, with a variety of floor finishes in each residence and also a variety ranging from one residence to the next. In later works such as House Van Den Berg, there is no distinction between exterior and interior floor finishes, which forms a visual continuation that softens the boundary between indoors and outdoors. Eaton addresses both general, and feature wall finishes across the board, often translating textures that inspired him during his travels to Africa (Pienaar 2013:23, 28,103,125). Ceiling finishes are specified across all five case studies and is conceptualised either as part of the roof construction, or where the roof structure is exposed to double as the ceiling finish. Overall there is a complete and consistent presence across the five case studies of all three subcategories in the interior finishing material category. Refer to Table 3.3 Presence of the components of interior architecture: Interior Finishing Material.

Table 3.3: Presence of the components of interior architecture: Interior Finishing Material

Presence of the components of interior architecture: Interior Finishing Material in the architectural drawings of the five selected case studies						**KEY present = 1 not present = 0**
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Finishing Material	Floor finishes a) general floor finishes b) feature floor finishes	1	1	1	1	1
	Wall finishes a) general wall finishes b) feature wall finishes	1	1	1	1	1
	Ceiling finishes a) general ceiling finishes b) feature ceiling finishes	1	1	1	1	1
Presence in each subcategory		3/3	3/3	3/3	3/3	3/3
TOTAL % verified Components of Interior Architecture: Interior Finishing Material		100%	100%	100%	100%	100%

3.5.4 Interior Furnishing

The interior furnishing category has four broad subcategories, namely furniture, storage, window treatments and accessories (based on Ching & Binggeli 2012:317-352). Each subcategory of the

interior furnishing category is listed with example topics as based on the proposal by Ching and Binggeli, which include items such as the furniture and storage subcategories which both include built-in, feature, and loose variations on the topic (2012:317-352). The subcategory of window treatments includes both external and internal window treatments. The topics associated with the accessories subcategory includes utilitarian and decorative accessories, where examples of decorative accessories include artwork or picture rails, collection or display niches and indoor plants (2012:350-351). The verification phase demonstrates that all four categories are consistently addressed across the case studies, except for the window treatments, which was only included in House Van Wouw and House Greenwood. Refer to Table 3.4 Presence of the components of interior architecture: Interior Furnishing.

Table 3.4: Presence of the components of interior architecture: Interior Furnishing

Presence of the components of interior architecture: Interior Furnishing in the architectural drawings of the five selected case studies						**KEY** present = 1 not present = 0
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Furnishing Category	Furniture: a) Built-in furniture: seating, tables, servery b) Feature furniture: bed headboard c) Loose furniture: seating, tables	1	1	1	1	1
	Storage: a) Built-in storage: kitchen, bedroom, bookshelf b) Feature storage display niche c) Loose storage: armoires	1	1	1	1	1
	Window treatments: a) Exterior: shutters b) Interior: curtain rails	1	n/a	1	0	0
	Accessories a) utilitarian b) decorative: artwork, picture rails, collections display niches, plants	1	n/a	1	1	1
Presence in each subcategory		4/4	2/2	4/4	3/4	3/4
TOTAL % verified Components of Interior Architecture: Interior Furnishing		100%	100%	100%	75%	75%

To summarise, the grouping activities identify the presence of the components of interior architecture in the architectural drawings across all five case studies. The first and second grouping activities respectively verify 'if' and 'how many of' the components Eaton addresses in his residential projects. The results of the first grouping activity verify the presence of the Representations of Space for the interior spaces of each case study. Due to the span of the case studies, the verified presence is also confirmed across the three periods of Eaton's domestic body of work: the pre-war period [1930-1940], the war period [1941-1945] and the post-war period [1946-1966] (Pienaar 2013:127-130). The first grouping activity, therefore, provides an affirmative response to the sub-question of whether the components of interior architecture are observable in Eaton-designed interior spaces. The second grouping activity aims to holistically demonstrate the extent of the interior Representations of Space with detailed visual references to the architectural plans of each case study.

3.6. GRAPHIC COMPILATION OF THE REPRESENTATIONS OF SPACE AS COMPONENTS OF INTERIOR ARCHITECTURE

The second grouping activity demonstrates the visual presence of the components of interior architecture in the architectural drawings across the five case studies by summarising the tagged data into a graphic composition. The graphic format visually represents the results of the first grouping phase. The format communicates a positive identification as a visual example, a non-identified subcategory is indicated as a light grey colour block fill, and a not applicable category is indicated as a text 'n/a' and a block filled with a dark grey colour. The verified visual examples consist of enlarged visual callouts sourced directly from the plan or plans. Each category of the components of interior architecture is compiled as a separate set of graphic compositions across the five selected case studies, with the aim of identifying patterns in the analysis phase.

3.6.1 Interior Building Elements

The interior building elements category has three subcategories, namely planes, openings and circulation (based on Ching & Binggeli 2012:148-214). As per the first grouping activity, the planes, openings and circulation subcategories are consistently present in the architectural drawings of all five case studies. To contextualise the following section, refer to Table 3.5 The visual presence of the Representations of Space as components of interior architecture: Interior Building Elements.

3.6.1.1 Planes

The planes subcategory consists of floors, walls and partitions, and ceilings. Eaton explores variations of the internal floor levels of the living areas and adjacent spaces in Houses Greenwood, Brown and Van Den Berg. These three case studies have open plan living areas with minimal

vertical boundaries between spaces, where an increase in the internal spatial volume signals the arrival in the main living area. In these examples, Eaton's use of higher interior volumes for the living areas help to demarcate the spaces and also provides a subtle indication of an intended change in use from one space to the next (Eaton 1949-08, 1956-04-11, 1964-04e). House Brown explores an alternative approach to volume variations with the inclusion of a raised, rough finish concrete slab with clerestory windows above the living area, where the levels of the floor plane remain unchanged (Eaton 1956-04-11).

Room divider screens are included in the dining area and main bedroom of House Van Den Berg. The screens are designed with openings at the top and bottom allowing the user to perceive the continuation of space beyond but providing visual privacy as both these areas have circulation routes that terminate in the space (Eaton 1964-02a, 1964-04c, 1964-04d). The room dividers are constructed out of gum pole frame with raffia string infill, a unique selection for indoor materials, but complementary to the natural palette of the brick 'carpet' floor finish, brick niche wall texture and timber slatted ceiling (REF)

3.6.1.2 Openings

The openings subcategory consists of windows and doors, specifically the front door and internal doors. Window examples include large timber sash windows with timber louvres in House Van Wouw (Eaton 1938-03-31c, 1938-03-31d). House Eaton's elevations show four different window types, which is a wide variety for a small dwelling of approximately 130 square meters (Eaton 1944-06-21). House Greenwood's windows consist mostly of timber-frame sash windows (Eaton 1950-04, 1950-05-04a, 1950-05-04b). Houses Brown and Van Den Berg showcase Eaton's use of a standard steel window as a modular unit to determine interior spatial proportions in the bedrooms and bathrooms (Eaton 1964-02a, 1964-04e).

Interesting front door examples include a stable-type front door in Houses Van Wouw and Eaton (Eaton 1938-03-31c, 1938-03-31d), an intricate timber slat and dowels design for House Van Den Berg's "entrance bay" (Eaton 1964-04e). House Greenwood's custom detailed front entrance with a slatted timber surround and glazing infill where the pattern is reminiscent of the brick niche texture commonly associated with Eaton-designed spaces (Eaton 1950-05-05b).

Internal door designs include a fanlight type in Houses Greenwood and Brown (Eaton 1949-08, 1950-04, 1956-04-11), and louvred windows and sliding doors that reach up to the underside of the soffit in House Van Den Berg (Eaton 1964-04e).

3.6.1.3 Circulation

The circulation category comprises of stairways, balustrades and ramps.[13] Examples from the case studies include a variety of construction methods and materials, including brick and timber, where the same set of materials are explored in different application types and combinations. Eaton explores different types or shapes of stairs such as straight runs in Houses Van Wouw and Van Den Berg (Eaton 1938-03-31b, 1964-04e), and a spiral type staircase where the stair treads are stacked to become a balustrade in House Greenwood (Eaton 1950-04-05c).

On the following pullout-page:

Table 3.5: The visual presence of the Representations of Space as components of interior architecture: Interior Building Elements

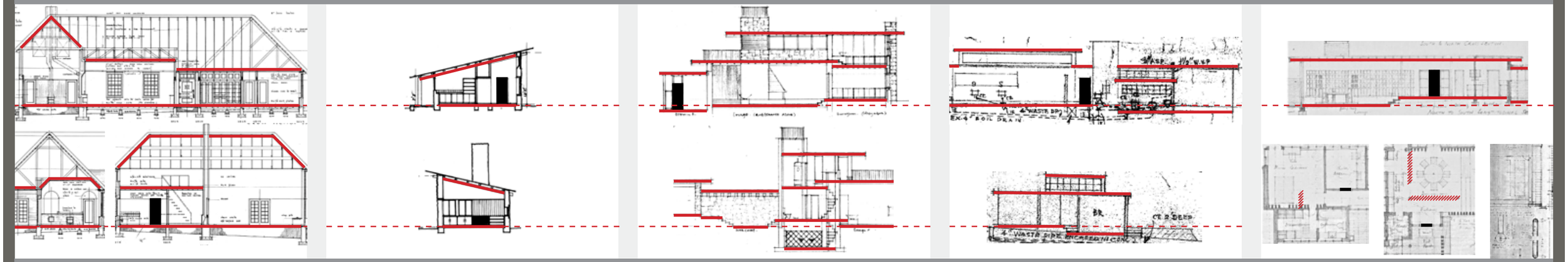
13 The circulation category also includes mechanical options such as escalators and elevators, even though elevators were in use during Eaton's time, these were very rarely used in residential projects and is therefore excluded from the list and the overall category relevance.

fold out here

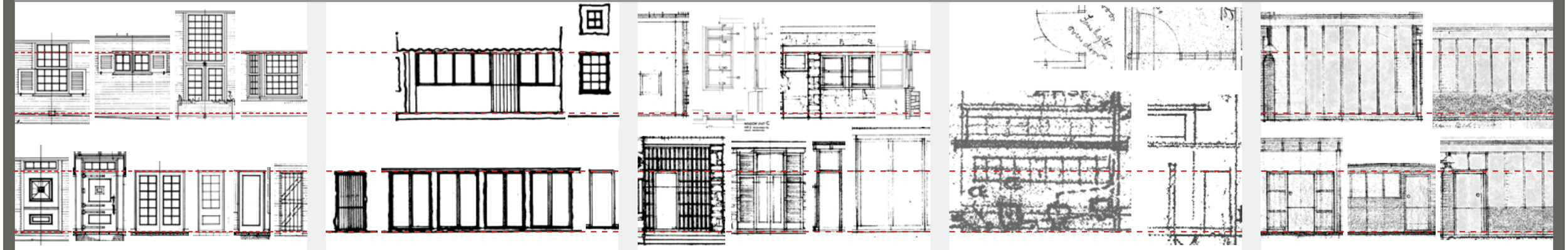
Interior Building Elements as Representations of Space

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

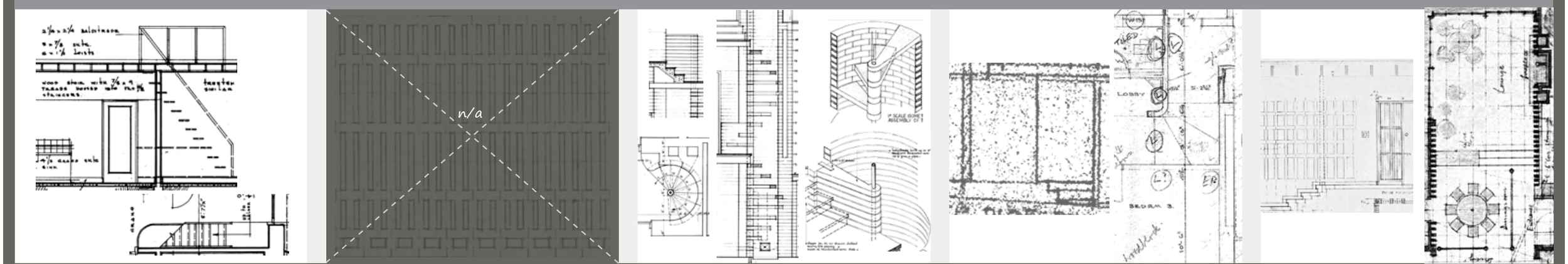
A. Planes: floors - walls and partitions - ceilings



B. Openings: windows - doors (front door & internal doors)



C. Circulation: stairways and balustrades - ramps



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3.6.2 Interior Environmental Systems

The interior environmental systems category has five relevant subcategories, namely temperature control, water systems, electrical systems, lighting systems and acoustics (based on Ching & Binggeli 2012:215-286). The results of the first grouping activity are summarised as follows. The temperature control and water systems subcategories are consistently present in the drawings of all five case studies. The electrical and lighting systems subcategories are present in the drawings of three of the five case studies, with acoustics being explicitly present in the drawings of only one of the case studies, namely House Van Wouw. Additional acoustic considerations have been incorporated in Houses Brown and Van Den Berg with the strategic application of materials.

To contextualise the following section, refer to Tables 3.6 and 3.7 Visual presence of Representations of Space as components of interior architecture: Interior Environmental Systems (Part A and Part B).

3.6.2.1 Temperature control

The temperature control subcategory consists of heating, ventilation and cooling. Typical heating examples include fireplaces in the living rooms of all five case studies (Eaton 1938-03-31a, 1944-06-2, 1950-04-05c, 1950-05-05a, 1950-09-25, 1956-04-11, 1964-02a and 1964-04e). House Van Wouw shows an “electric heater” annotation in the workroom, equipment that is not repeated in any of the other subsequent case studies (Eaton 1938-03-31a).

Ventilation examples include the specification of air bricks or “breeze brick” as annotated by Eaton in House Van Den Berg (Eaton 1964-04c), fanlights above the internal doors in Houses Greenwood and Brown (Eaton 1949-08, 1950-04, 1956-04-11), as well as louvred windows in House Van Den Berg (Eaton 1964-04e).

Eaton addresses cooling using the passive method of deep roof overhangs to shield openings from sun exposure and the resulting heat gain, best illustrated in Houses van Wouw, Brown and Van Den Berg (Eaton 1938-03-31a, 1950-04-05b, 1956-04-11, 1964-02a and 1964-04e).

3.6.2.2 Water systems

The water systems subcategory includes the water supply and drainage systems. Water supply examples include water storage tanks that are located in “tank towers”. These towers protrude above the roofline in a similar visual language as the fireplace chimney, as can be seen in the drawings of House Greenwood, House Brown, and House Van Den Berg (Eaton n.d., 1964-04e).[14]

14 House Eaton also has the secondary tower that is located above the service core of the building, but there is no annotation on the sketch plan to confirm that it is meant to house a water tank

Drainage systems vary from a standard sewage connection to the municipal sewer connection in Houses van Wouw and Brown (Eaton 1938-03-31a, 1956-04-11), to a combination of a “septic tank” with a “french drain” in House Greenwood (Eaton 1950-03-03), to a “sewage conservancy tank” in House Van Den Berg (Eaton 1964-04e).

3.6.2.3 Electrical systems

The electrical systems subcategory consists of electrical outlets and switches such as light switches, telephone points and bells. House Brown shows multiple “EP” (electrical plug) annotations, as well as a specification for “Italian switches” in a “burnished silver finish” (Eaton 1956-04-11). The most notable example is in House Van Den Berg, where Eaton meticulously includes the electrical plug types and positions in all of the general sections as well as on the electrical plan, elevations and sections (Eaton 1964-04c, 1964-02b). House Van Den Berg’s electrical drawing set also shows an extensive electrical legend with symbols, descriptions, quantities and prices per unit, as well as a list of provisional allowances for the “electrical cable connection”, and electric equipment such as an “electric stove”, “electric refrigerator” and “electric washing machine”.

3.6.2.4 Lighting system

The lighting systems subcategory consists of lighting fixtures and the integration of daylighting control mechanism into the interior space. The lighting fixtures subcategory is preceded by a lighting design strategy which includes ambient lighting, focal lighting such as task and accent lighting, and feature lighting where the fixture itself is a focal point in the design (Ching & Binggeli 2012:268-277).

In the drawings of House Greenwood, Eaton includes a task light fitting under the top cabinetry in the kitchen which is annotated as “el. light fitting to soffit”, which would illuminate the work surface below (Eaton 1950-05-04c). House Brown’s architectural plans show multiple “L” (light) annotations placed as both ambient lighting and task lighting, as well as a specification for “all electric light fittings” in a “burnished silver finish”, which matches the electrical switches (Eaton 1956-04-11). The same plans for House Brown also includes notes for “tube lights” and “double tube” lights placed close to the walls in the kitchen.

Feature lighting fixture examples include two custom lighting details, one exterior and one interior for House Van Den Berg (Eaton 1964-x-24, 1964-04c). The exterior custom lights have conically shaped shades with a built-in brick base, which Eaton annotates as “special pier lights” (Eaton 1964-02b, 1964-04c).

The interior custom light has a separate detail drawing page which includes a full-size elevation of the wire frame and annotations that specify a “shade of raffia covered wire cone”, where the raffia relates to the interior screen included in the same room (Eaton 1964-x-24).

Eaton uses passive methods for daylighting control which include roof overhangs that double as shading, used for multiple openings, and window-specific overhangs just above lintel height as can be seen in House Greenwood (1950-04-05b). Eaton also uses exterior and interior window treatments for additional daylighting control (refer to the Window Treatments section to follow).

3.6.2.5 Acoustics

The acoustics subcategory is only explicitly annotated in the first case study, namely the 1937 House van Wouw, with the specification of “Dona Conna” ceiling boards (Eaton 1938-03-31b). Donna Conna boards are well known and used in Canada and the USA for its acoustic properties, but it is not currently a commonly used product in South Africa (DDC 2019).

3.6.2.6 Entertainment System

Spanning the categories of both electrical systems and acoustics, Eaton incorporates an entertainment systems with a built-in sound systems in both Houses Brown and Van Den Berg (Eaton 1956-04-11, 1964-04e). Both case studies have similar, but inverted, finishing materials for the floor and ceiling in the location of the sound systems. The combination of timber and concrete/brick is applied, where presumably the timber plane is included to assist with improving the interior acoustics. House Brown also annotates an additional “edge to edge carpet” in the area of the built-in sound system, which would contribute to the overall acoustic performance of the space (Eaton 1956-04-11).

On following pullout pages:

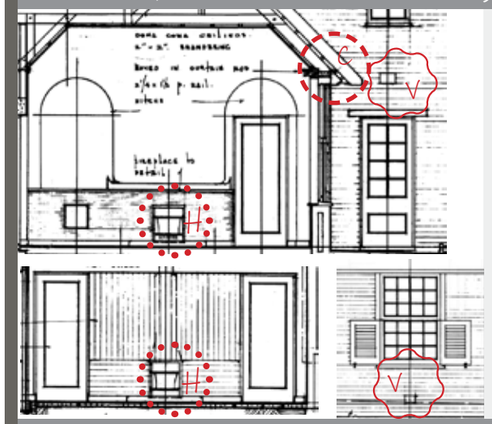
Table 3.6: Visual presence of Representations of Space as components of interior architecture: Interior Environmental Systems (Part A), and
Table 3.7: Visual presence of Representations of Space as components of interior architecture: Interior Environmental Systems (Part B).

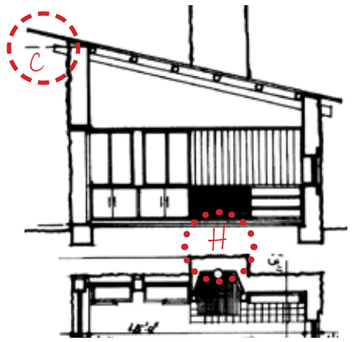
Interior Environmental Systems as Representations of Space

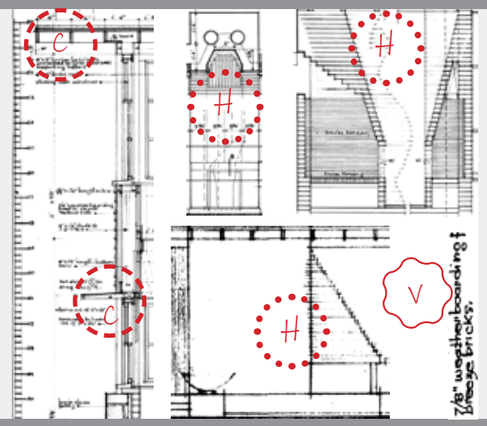
part A

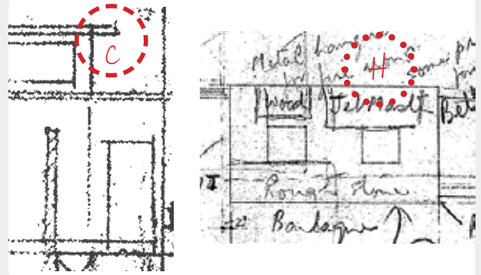
1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

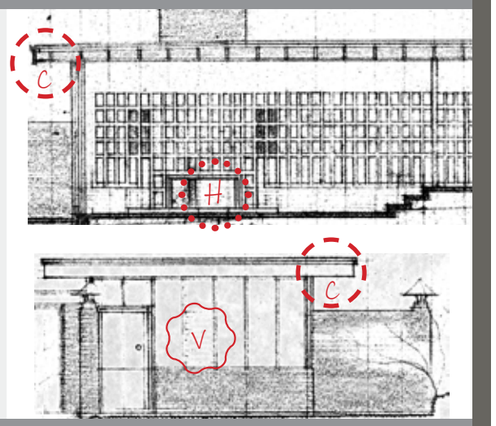
A. Temperature control: heating (H)- ventilation (V) - cooling (C)





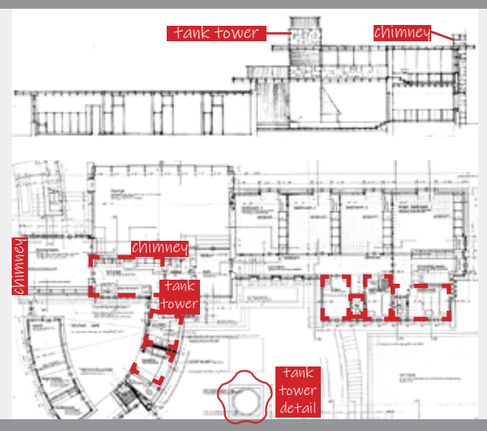


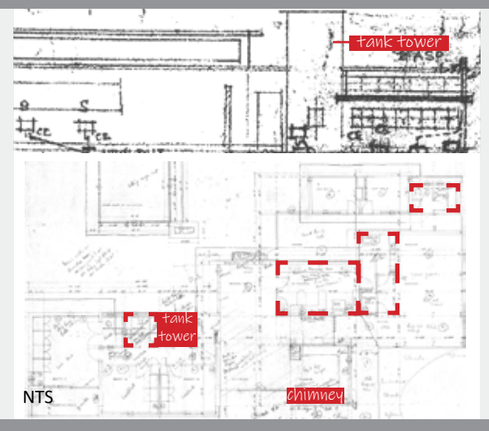


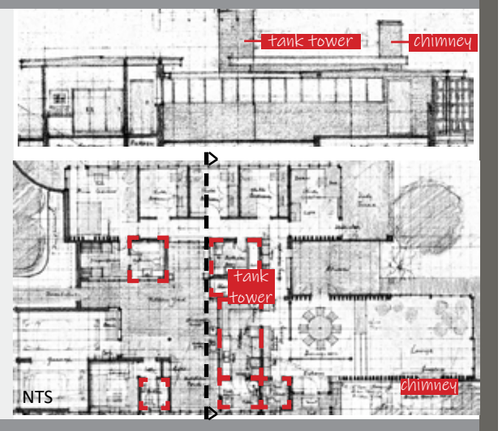


B Water systems: water supply - drainage systems

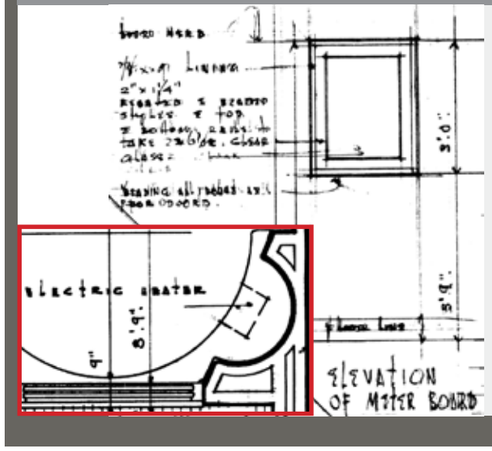
n/a
*no drainage plan or annotations







C. Electrical systems: outlets - switches



n/a

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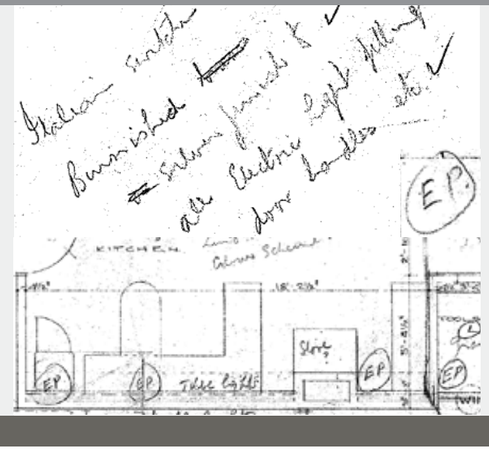

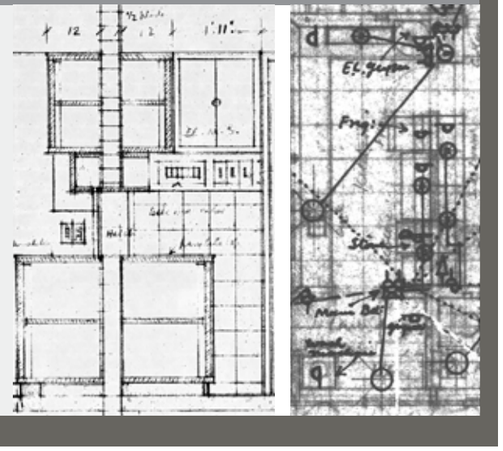

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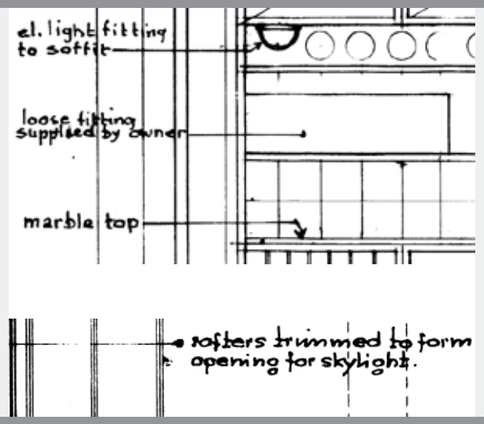
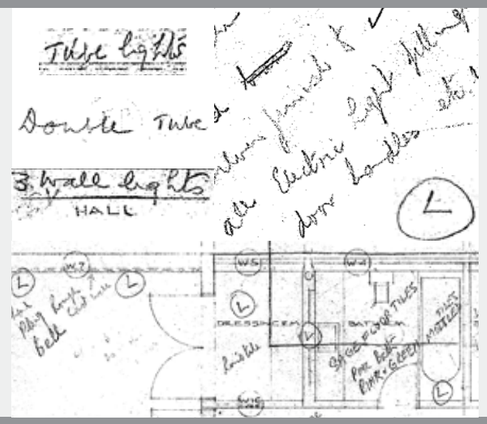
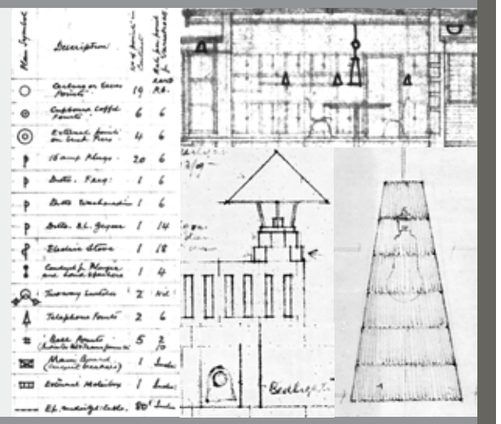
Interior Environmental Systems as Representations of Space

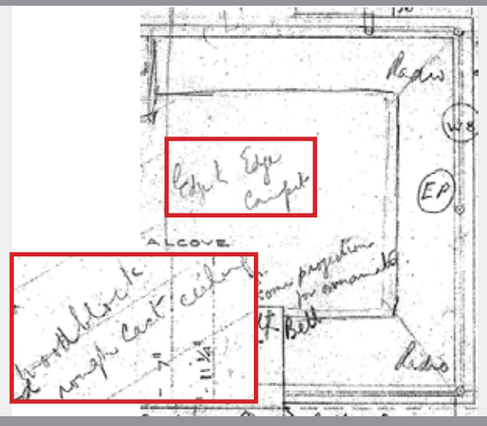
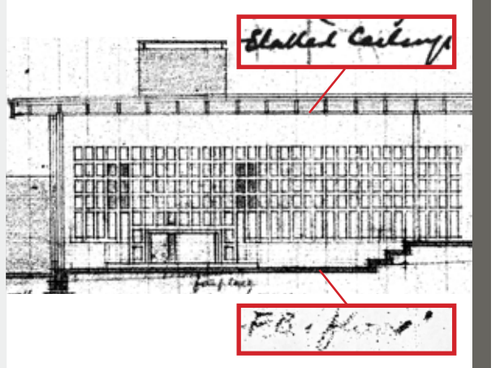
part B

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

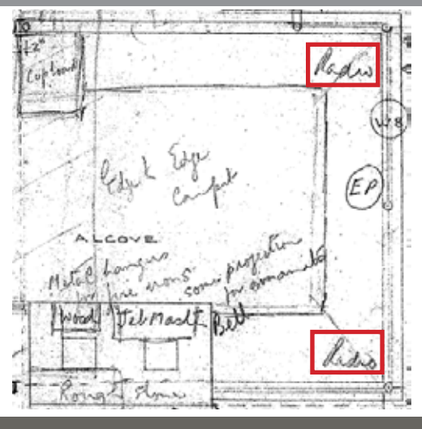
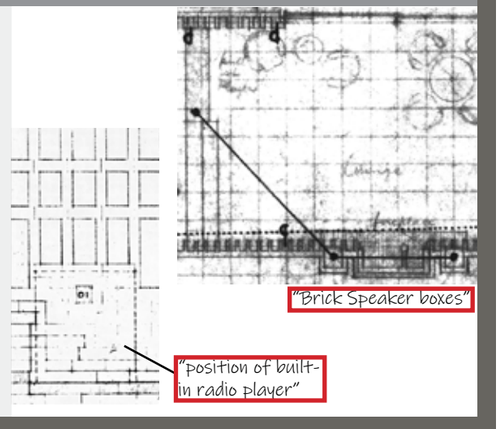
D. Lighting systems: lighting fixtures - daylight control

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964
"0" (not present)	n/a			

E. Acoustics

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964
	n/a	"0" (not present)		

F. EXTRA: Entertainment System

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964
combined category	combined category	combined category		

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3.6.3 Interior Finishing Material

The interior finishing material category has three subcategories, namely floor finishes, wall finishes, and ceiling finishes (based on Ching & Binggeli 2012:287-316). As per the first grouping activity, the subcategories of floor finishes, wall finishes, and ceiling finishes are consistently present in the architectural drawings all five case studies.

To contextualise the following section, refer to Tables 3.6 and 3.7 Visual presence of Representations of Space as components of interior architecture: Interior Environmental Systems (Part A and Part B).s of Space as components of interior architecture: Interior Finishing Material.

3.6.3.1 Floor finishes

The floor finishes subcategory shows that the interior and exterior floor finishes are meticulously addressed, with a variety of floor finishes in each residence and variety ranging from one residence to the next.

Floor finishes for the living areas include various timber floors, such as raised “timber” flooring in House Van Wouw, “knotty pine” timber floors in House Greenwood and timber parquet in House Brown (Eaton 1938-06-16, 1950-05-05a, 1956-04-11). Floor finishes for the service areas, specifically the kitchen, vary from project to project and include “grano” floors, handmade clay “quarry tiles”, “grey floors [in] lino tile, and a “blue lino floor” in Houses Van Wouw, Greenwood, Brown and Van Den Berg respectively (Eaton 1938-06-16, 1950-05-05a, 1956-04-11, 1964-04e). The majority of bathroom floors are tiled, except for House Van Den Berg, where the “blue lino floor” is also specified in the bathrooms (Eaton 1964-04e). Another interesting colour choice can be found in House Brown where there is an annotation in the bathroom for “sage floor tiles”, with white tiles in the adjacent shower (Eaton 1956-04-11).

House Van Den Berg has a unique floor finish strategy that consists of a stacked bond pattern in sealed face brick in the living areas that extend into the corridors and bedrooms, and continue on the outside patio (Eaton 1964-04c, 1964-04d).

The progression of materials and patterns from project to project shows Eaton’s unique design approach and experimentation with flooring materials. He creatively applies patterns commonly associated with one material, such as brick, to another material such as timber parquet blocks, commonly associated with only a few unique patterns. An example of this experimental progression includes a mosaic pattern parquet floor inlay in a “grano” concrete floor in House van Wouw (Eaton 1938-03-31a), a stacked bond brick pattern created with parquet timber pieces in House Brown (Eaton 1956-04-11) and the same stacked bond pattern in sealed face brick in the living areas of House Van Den Berg (Eaton 1964-04c, 1964-04d).

3.6.3.2 Wall finishes

The wall finishes subcategory consists of general, and feature wall finishes.

The general wall finish applied in areas such as the living room, corridors and bedrooms, include a bagged brick finish that is painted white, as annotated in Houses Van Wouw and Van Den Berg (Eaton 1938-03-31b, 1964-04e). The walls of service spaces such as bathrooms, kitchens and laundries are all tiled, with the exact specification, colour and finished height varying somewhat from case study to case study. House Van Wouw's kitchen only has splashbacks behind the kitchen sink, House Greenwood's kitchen and scullery have full-height "6x6 white glazed tiles", and House Van Den Berg where the tiles run from the floor to just above sill height (Eaton 1938-03-31b, 1964-04e). The majority of the colour specifications in the case studies are white, as can be seen from the "6x6 white Johnson tiles" as noted in Houses Greenwood and Van Den Berg. There is also an interesting colour variation for the bathroom tiles in House Brown, annotated as "pink and green mottled tiles" (Eaton 1956-04-11).

In the selected case studies, Eaton often applies feature wall finishes around the fireplaces. Material examples include a smooth "plaster face" combined with brick slips laid on edge in House Van Wouw (Eaton 1938-06-16),[15] and a combination of a standard brick and "brick klompjes" in House Greenwood (Eaton 1950-04-05c, 1950-09-25). A unique feature wall finish not seen in any of the other case studies include luxurious timber panelling in House Greenwood (Eaton 1950-09-25).

The most notable wall finish is undoubtedly the brick niche texture that has become synonymous with Eaton's work, which Harrop-Allin (1975:88, 81) describes this texture as "repetitive wall recesses" and "rectangular wall recess, arranged in repetitive ranks". The brick recess detail is generously explored as a bagged and painted, white wall finish in House Van Den Berg. The use of the brick recess texture to the longer parallel walls of the narrow rectangular living room blurs the perceived line between a feature wall finish and a general wall finish (Eaton 1964-04e).

3.6.3.3 Ceiling finishes

The ceiling finishes subcategory illustrates Eaton's unique approach to the ceiling design of the cases studies in that the roof construction is often exposed to the interior spaces, doubling as the ceiling finish, or that the ceiling finish is seamlessly integrated into the roof construction. The majority of case studies have a primary ceiling finish applied throughout the living areas, occasionally having different ceiling finishes in other area types such as the service spaces.

15 The facing or cladding material 'brick slips' was previously referred to as 'brick faggots' and is noted as such on the architectural plans of House Van Wouw.

In House Van Wouw, a roof constructed of gum pole and thatch is exposed and visible only from the double volume studio space and loft space, while white-painted “Dona Conna” and “treetex” finishes are specified for the remaining ceilings (Eaton 1938-03-31b). House Eaton’s sections show an exposed gum pole and s-curve corrugated sheet metal roof with no additional ceiling (Eaton 1944-06-21). House Greenwood has intricately detailed drawings which include axonometric drawings of the exposed double timber beams specified for the ceiling finish of the entire residence (Eaton 1950-04-05a). House Brown notes a “rough cast ceiling” throughout the residence, but includes no ceiling annotations in the bedrooms and bathroom areas (Eaton 1956-04-11).

House Van Den Berg showcases a unique ceiling finish of timber slats with thin openings in between, that was designed to form part of the roof construction (Eaton 1964-04b). The slatted finish of the underside of the outdoor roof overhang extends into the interior spaces, resulting in a continuous visual texture from inside to outside. Harrop-Allin (1975:86) quotes Eaton who describes the timber slat ceiling finish as a “mushroom ceiling”, where the finish presumably resembles the underside of a mushroom.

The case studies reveal Eaton’s ability to resolve multiple roof construction types and to use the inherent aesthetics of theses construction methods to enhance the interior spaces in a spatial expression unique to Eaton.

On following pullout page:

Table 3.8: Visual presence of Representations of Space as components of interior architecture: Interior Finishing Material

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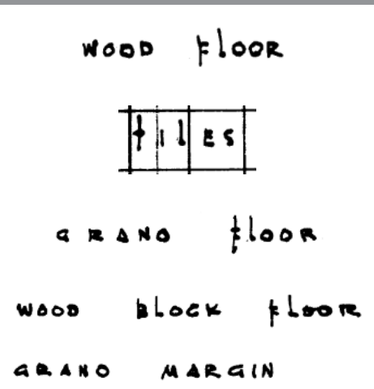
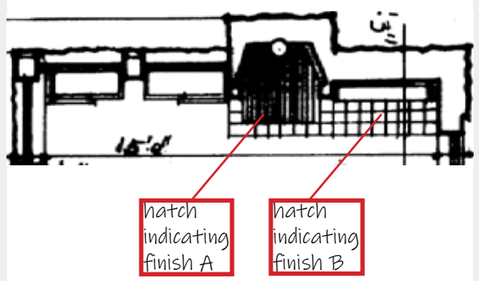
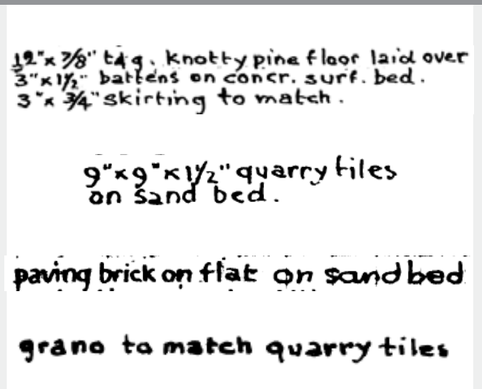
Interior Finishing Material as Representations of Space

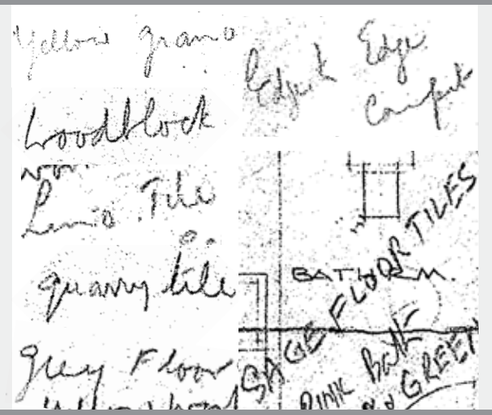
1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

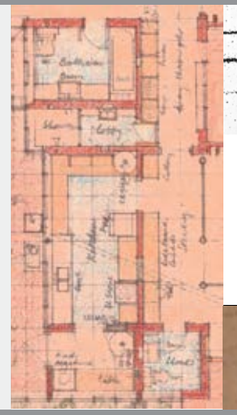
A. Floor Finishes: general floor finishes - feature floor finishes

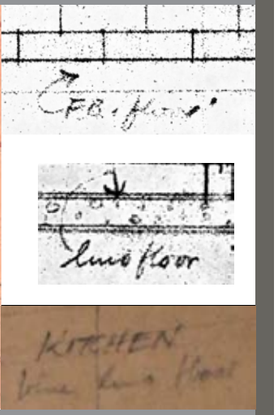




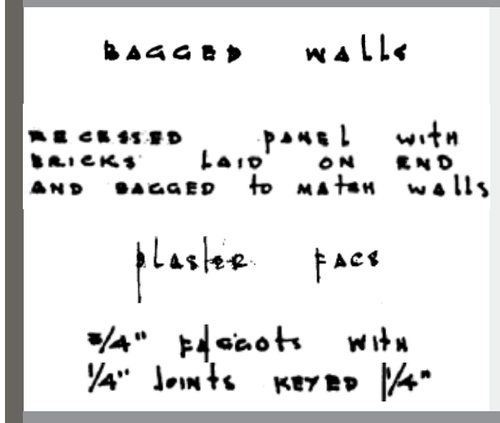


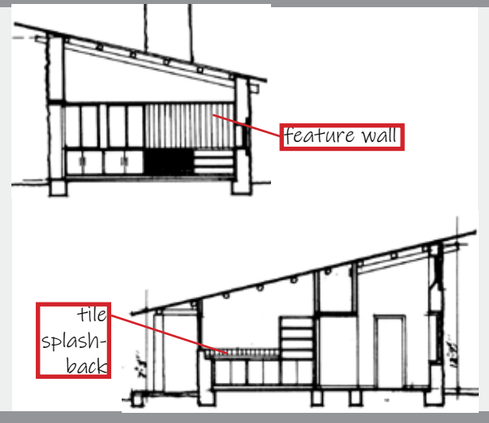


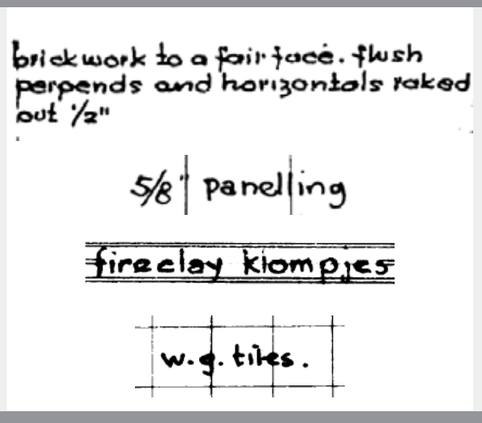


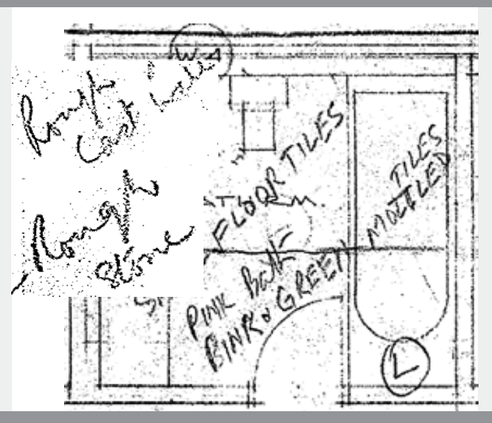


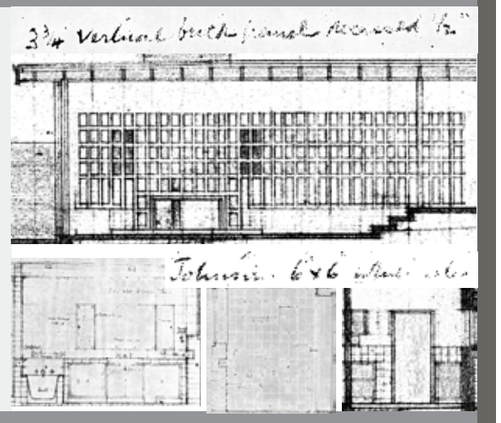
B. Wall Finishes: general wall finishes - feature wall finishes



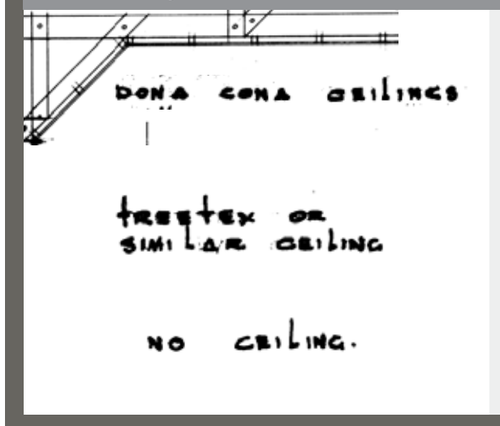


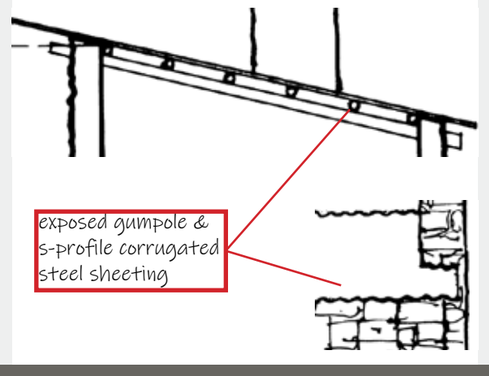


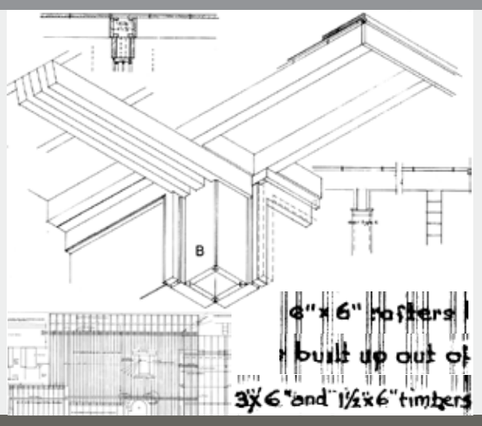


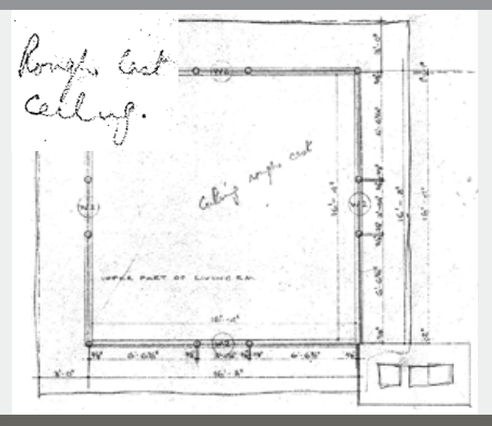


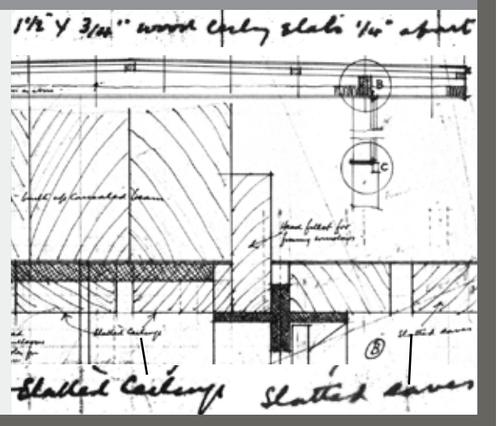
C. Ceiling Finishes: general ceiling finishes - feature ceiling finishes











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3.6.4 Interior Furnishing

The interior furnishing category has four subcategories, namely furniture, storage, window treatments and accessories (based on Ching & Binggeli 2012:317-352). As per the first grouping activity, all of the categories are consistently addressed Representations of Spaces the case studies, except for the window treatments where only House Van Wouw and House Greenwood shows explicit annotations included in the drawing set (refer to the window treatment section to follow). To contextualise the following section, refer to Tables 3.9 and 3.10 Visual presence of Representations of Space as components of interior architecture: Interior Furnishing (Part A and Part B).

Ching and Binggeli (2012:318-345) propose that each furnishing subcategories be organised according to furniture type, such as seating or tables, or according to its place of use or room, such as bedrooms or offices. Interior furnishing is most often shown in meticulous detail in the project's sections, or "detailed sections", as Eaton refers to it (1964-04c, 1964-04d). Eaton also compiles detail drawings for specific rooms, as can be seen in drawing names such as "kitchen fittings", "bedroom fittings" and "diningroom & study panelling & fittings" (Eaton 1950-05-04c, 1950-04-29, 1950-09-25). Following Eaton's integrated approach of compiling drawing details for a specific area or room, this study organises the analysis of the furnishings subcategories according to room type. The interior spaces Eaton most often details include the kitchen, bathrooms, bedrooms, living areas and study.[16]

3.6.4.1 Furniture

The subtopics of the furniture subcategory include built-in furniture, feature furniture and loose furniture. The built-in furniture subtopic is discussed per the room types identified above: kitchen, bathrooms, bedrooms, living areas, and study if that section is applicable. Feature furniture and loose furniture is included on a case by case basis.

Examples of Eaton's built-in kitchen furniture can be seen in all the case studies. Drawings showing the kitchen details range from a single plan, as in House Brown, a plan and as part of an overall section, as in Houses Van Wouw, Eaton and Van Den Berg, to a full set of detail drawings, as found in House Greenwood. Kitchens fall under the subtopics of both furniture and storage.

The House Van Wouw drawings show a basic kitchen layout, only annotating the fixed equipment such as the sink and stove, but not indicating any cabinetry (Eaton 1938-03-31b). House Eaton shows the kitchen in more detail than House Van Wouw, by including different types of cabinetry, such as shelves and low-level cabinets, outlined in the plans and sections (Eaton 1944-06-21).

16 Based on the available drawing sets for all the case studies, where some case studies focus more on some spaces than others

The set of detail drawings for House Greenwood includes what Eaton refers to as a “kitchen fitting” drawing. This set contains an intricately detailed page, showing two internal elevations, four plans cutting through the cabinetry at different heights, and ten detailed sections through cabinetry, or “kitchen dresser” as per Eaton’s notes, as well as an additional drawing detailing the working mechanisms of the “flourbins in kitchen” (Eaton 1950-05-04c, 1951-03-15). The plan of House Brown shows an interesting kitchen layout with annotations for a “work table” and parallel worktop, both protruding into the kitchen’s centre floor space, demarcating different work zones on the plan (Eaton 1956-04-11). House Van Den Berg’s built-in kitchen drawings demonstrate Eaton’s distinct attention to detail and practical solutions to space planning, storage and workflow. The most compelling example is a bin insert with a lid, sunk into the countertop, accessible from the outdoor service courtyard to allow the removal of the contents from outside (1964-04c). Eaton includes a detail for a circular cutout grip-type door handle specified for both kitchens of Houses Greenwood and Van Den Berg, which is also used in the bathroom of House Van Den Berg (Eaton 1950-05-04c, 1964-04c, 1964-04d).

Examples of Eaton’s built-in bathroom furniture are evident in the plans of all the cases studies, but only the drawings of House Van Den Berg show this area in section (1964-04d). House Van Den Berg’s callout plan and detailed sections are very thorough, showing, for example, the built-in vanity with a tiled top and surround, while also annotating the majority of built-in features such as the “w.h. basin” and recessed “med[icine] cabinet” with a “mirror” front (1964-04d).

Built in bedroom furniture examples include dressing tables included in Houses Greenwood, Brown, and Van Den Berg, where these are often specified as forming part of a bedroom’s wardrobe unit (Eaton 1950-04-29, 1956-04-11, 1964-04d). It is interesting to note that the dressing tables are included in every bedroom, as opposed to only being included in the main bedroom. The most notable built-in-furniture specific to a living area includes a built-in seat in an “alcove” surrounding the fireplace of House Brown, that is integrated with the design of a feature furniture piece of a built-in record player (Eaton 1956-04-11).

The built-in furniture for the study area varies from case study to case study, as the studies vary in size and intended use. Variations in approach seem to reflect the personal needs of the client. For example, House Van Wouw’s study is referred to as a “work room” and includes a curved window sill terminating in a display niche, with an electric heater in a niche below, features that are well-suited to a sculptor (Eaton 1938-03-31a). House Eaton does not have a study but does have a large, open plan living area that could easily accommodate a drafting table from where an architect could continue his work from home (1944-06-21). House Greenwood has an expansive second storey study which includes a fireplace, access to a rooftop terrace and due to its elevation and ample windows, allows the residents access to expansive views (Eaton 1950-05-05a, 1950-09-25). House Brown does not have an allocated study area (Eaton 1956-04-11). The study area of House

Van Den Berg doubles as a guest room, resulting in a large loose desk being included in the room (Eaton 1964-04e).

Feature furniture pieces are located throughout each case study and often fall under the built-in furniture category. Examples include built-in record players in both Houses Brown and Van Den Berg. In House Brown, the speakers are incorporated into the built-in seating arrangement (Eaton 1956-04-11). Whereas in House Van Den Berg, the speakers are incorporated into the feature brick niche wall (Eaton 1964-04c).

Multiple built-in pieces function as both feature furniture and storage pieces, for example, a built-in servery in Houses Van Wouw and Greenwood (Eaton 1950-05-05a, 1950-09-25, 1938-03-31a), and a built-in liquor cabinet in House Brown (Eaton 1956-04-11). One of the more unique feature furniture installations includes a feature headboard design in House Van Den Berg, constructed out of Eaton signature brick niche texture (Eaton 1964-04c).

There are no loose furniture examples in the drawing sets of the selected case studies, but Eaton definitively engages with furniture design as can be seen in the examples in Figure 3.1 (Eaton .

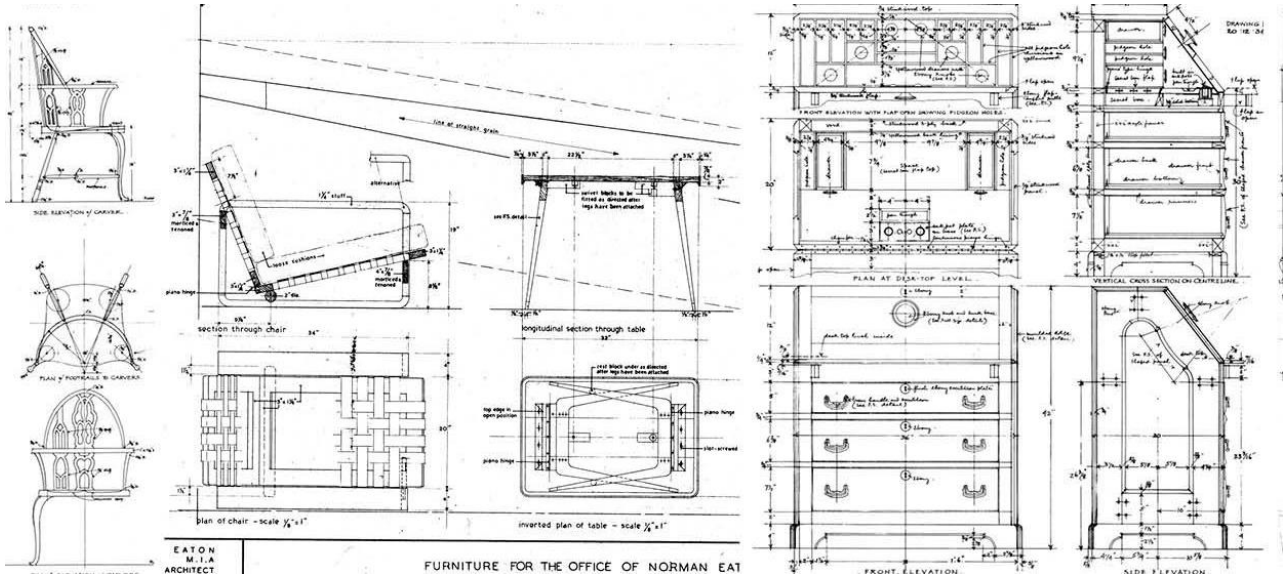


Fig. 3.1 Examples of loose furniture and storage designed and technically detailed by Eaton (Eaton 2019-09-12)

3.6.4.2 Storage

The storage subcategory includes built-in storage, feature storage, and loose storage. Each of the subtopics is discussed per room: bathrooms, bedrooms, living areas and study, if that section is applicable. Refer to the previous section, built-in kitchen furniture, for kitchen storage.

All the case studies include recessed, built-in mirror cabinets in the bathrooms, the built-in storage units for the bathrooms. The cabinets are easily identified on the general plans of each case study, except House Greenwood (Eaton 1938-03-31a, 1944-06-21, 1956-04-11, 1964-04e).

Cupboards or “wardrobes” are included as the built-in bedroom storage in all case studies except House Eaton. Houses Greenwood, Brown and Van Den Berg showcase separate dressing rooms adjacent to the main bedroom (Eaton 1950-05-05a, 1956-04-11, 1964-04e). House Greenwood has a detailed drawing for the “bedroom fittings” as Eaton annotated it, detailing thirteen variations of the built-in cupboards for the main bedroom (Eaton 1950-04-29).

Built in storage examples for the living room include built-in bookshelves which also fall under the feature storage category. Bookshelves are incorporated into the fireplace design of Houses Van Wouw and Eaton (Eaton 1938-06-16, 1944-06-21). House Van Wouw includes lower bookshelves in the living room, allowing space for pictures to be hung above (Eaton 1938-03-31a, 1938-03-31b). House Eaton’s living room showcases a feature storage unit where shelves and cupboards are integrated into the feature fireplace design (Eaton 1944-06-21). House Greenwood’s living room does not have any feature storage units, but large bookcases are included in the study and dining room (Eaton 1950-09-25). House Van Den Berg also does not have a built-in storage unit in the living room, but the brick niche texture in the space is easily used as a bookshelf (1964-04c).

There are no loose storage examples in the drawing sets of the selected case studies, but as discussed previously, Eaton did engage with loose furniture and storage design (refer to Fig. 3.1 p58).

3.6.4.3 Window treatments

In the subcategory of window treatments,[17] Ching and Binggeli (2012:346-349) include exterior window treatments, such as external shutters, awnings, overhangs and trellises, and interior window treatments, such as interior shutters, blinds, draperies, curtains and shades.[18]

17 It is important to note that in the interior architecture discipline, window treatments are included in the design by making provision for it as part of other design elements, as opposed to designing it as an object.

18 The inclusion of exterior window treatments result from the industry practice where interior architects often do renovations for existing buildings, without the inclusion of an architect, where some projects require an external solution for windows in terms of privacy, light and/or heat control and aesthetics.

Eaton includes external timber shutters for windows in House Van Wouw (Eaton 1938-03-31c, 1938-03-31d). House Greenwood showcases external timber shutters included as part of a double door construction detail for each bedroom (Eaton 1949-08, 1950-04a, 1950-04b). House Greenwood also shows overhangs above the windows in the sections (Eaton 1950-04-05b).

Houses Van Wouw and Greenwood again feature when looking at the internal window treatments, where Eaton details and annotates a “boxed in curtain rod” and “pelmet” in House van Wouw (Eaton 1938-03-31b, 1938-06-16), and a set of thorough technical sections showing timber beams that obscure the top fixing mechanism of a “venetian blind, aluminum [sic] slats” and an annotation instructing to leave “space for curtain tracks” (Eaton 1950-05-05a). Another drawing shows a detail for a blind in the main bedroom, performing the same function as a temporary screen, that provides privacy from the main bedroom space as required (Eaton 1950-04-29). Significantly, interior window treatments were no longer addressed in the later case studies, Houses Brown and Van Den Berg, while the other interior furnishing subcategories continue to be addressed.

3.6.4.4 Accessories

The subcategories associated with the accessories category includes utilitarian and decorative accessories, where Ching and Binggeli (2012:350-351) suggests “...cooking, dining and bathroom accessories...” as examples of utilitarian accessories, and decorative accessories are listed as “...artwork, collections [and] plants”.

Built in utilitarian accessories in the bathrooms include items such as ceramic “soapdish” or “s.d.”, toilet paper holders (“T.P. holder”) and built-in towel rails, included in Houses Van Wouw, Greenwood and Van Den Berg (Eaton 1938-0331a, 1950-05-05a, 1964-04d).

House Van Wouw also showcases how Eaton made provision for decorative accessories such as paintings by adding picture rails in the living area (Eaton 1938-03-31b, 1938-06-16). Collection or display niches, as well as built-in plinths can be seen in all case studies and is often integrated into the feature fireplace design in the living areas (Eaton 1938-06-16, 1944-06-21, 1950-05-05a, 1956-04-11, 1964-04c, 1964-04e). Intriguingly, Eaton draws the occasional ornament in the sections, such as large bowls in the sketch sections of House Greenwood. House Van Den Berg shows multiple examples such as a clock in the kitchen section, a small figurine in the niche above the fireplace and “bedlights” in the headboard detail in the main bedroom (1964-04c).

On following pullout pages:

Table 3.9: Visual presence of Representations of Space as components of interior architecture: Interior Furnishing (Part A), and

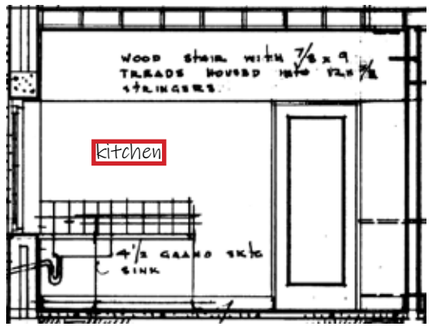
Table 3.10: Visual presence of Representations of Space as components of interior architecture: Interior Furnishing (Part B)

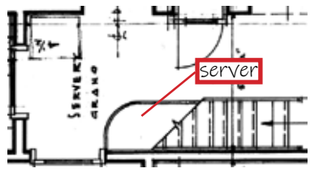
Interior Furnishing as Representations of Space

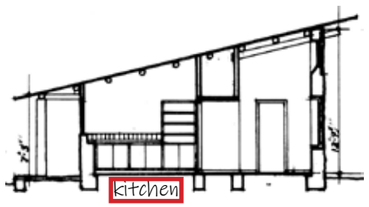
part A

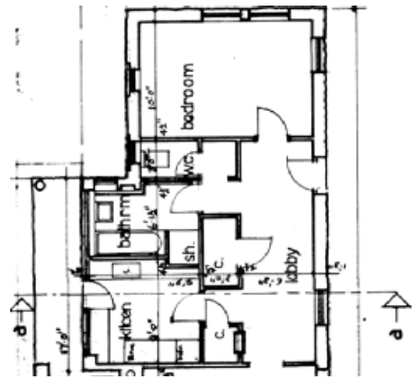
1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

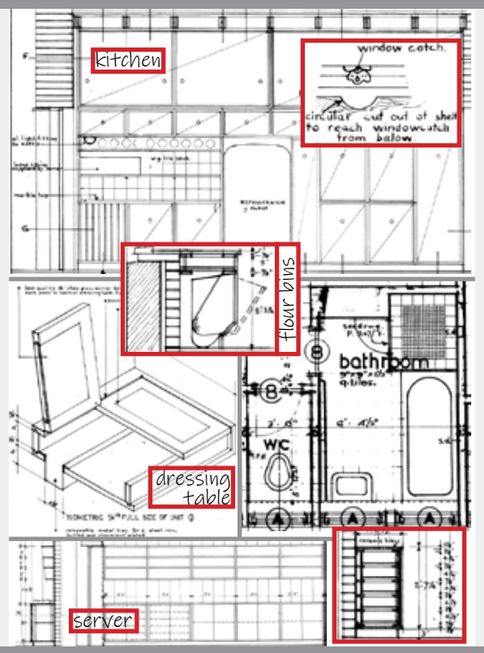
A. Furniture: built-in furniture - feature furniture - loose furniture

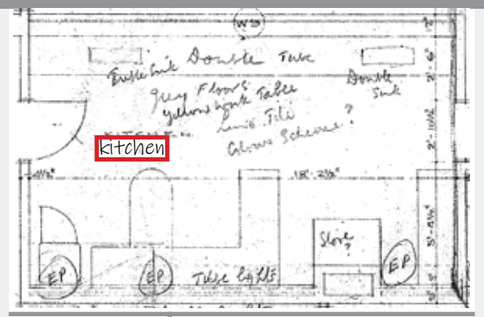


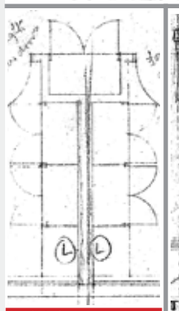


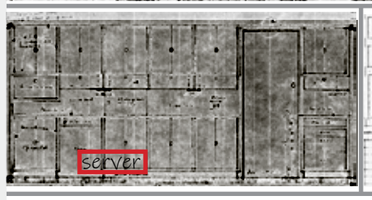


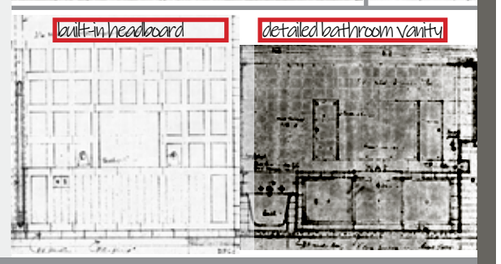




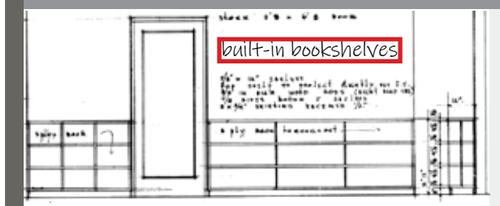


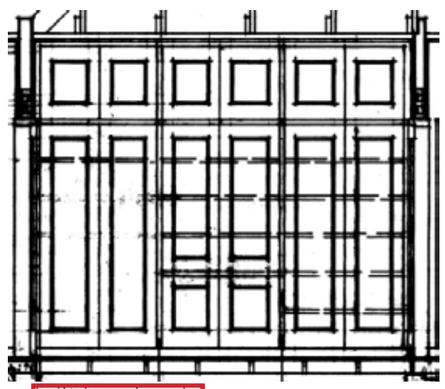


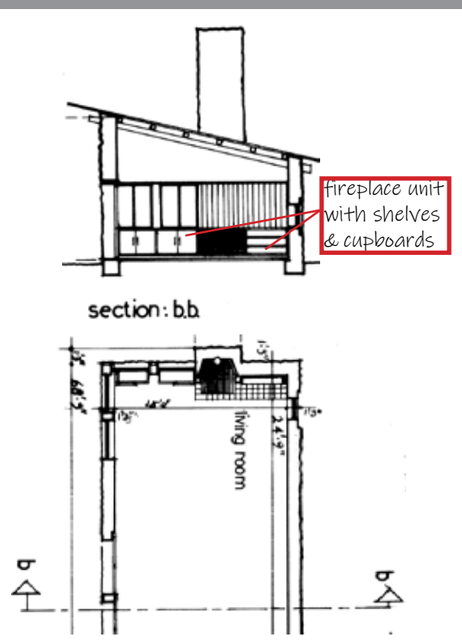


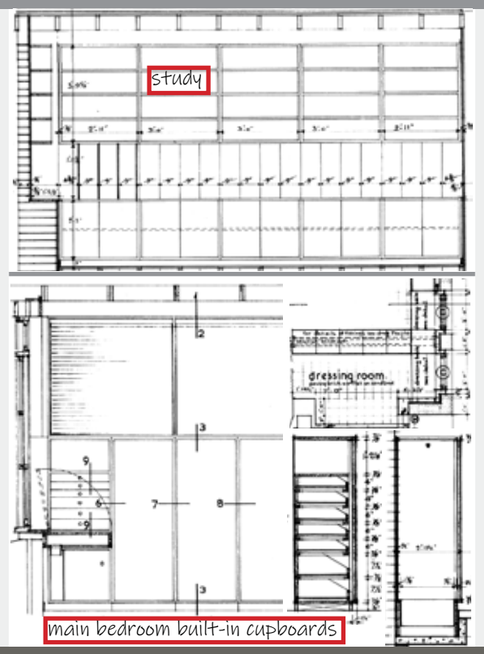


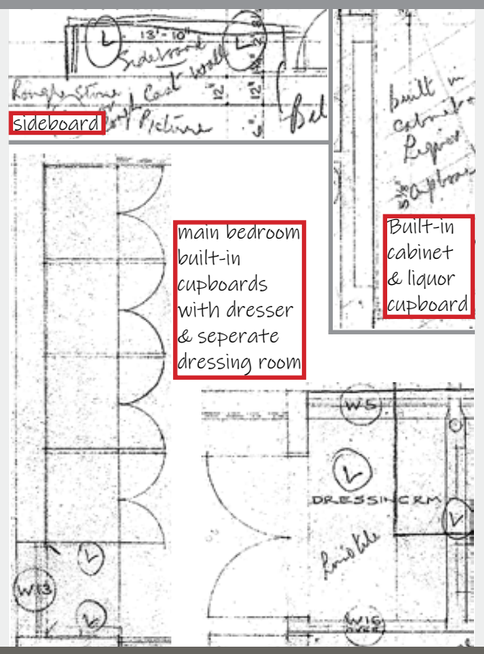
B. Storage: built-in storage - feature storage - loose storage

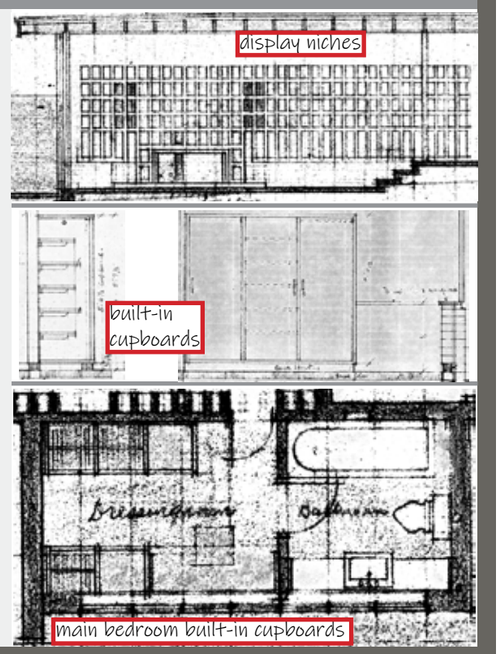












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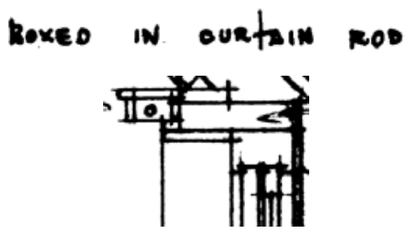
Interior Furnishing as Representations of Space

part B

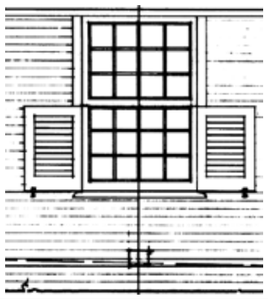
1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

C. Window Treatments: exterior - interior

internal



external



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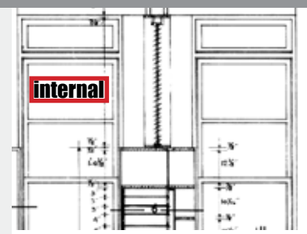

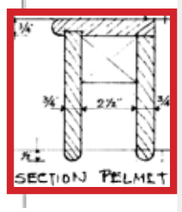

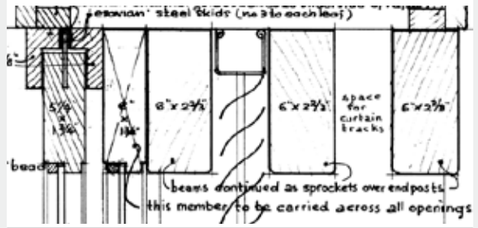

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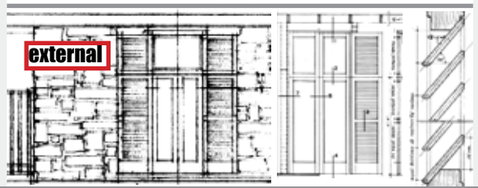

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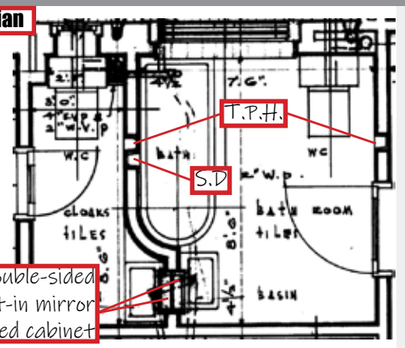

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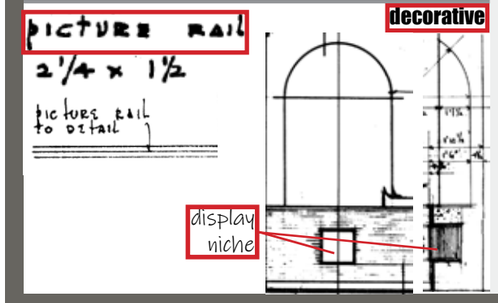

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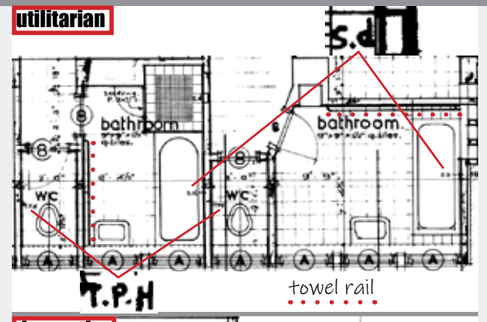

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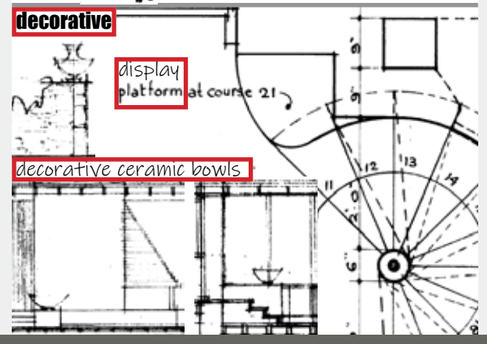

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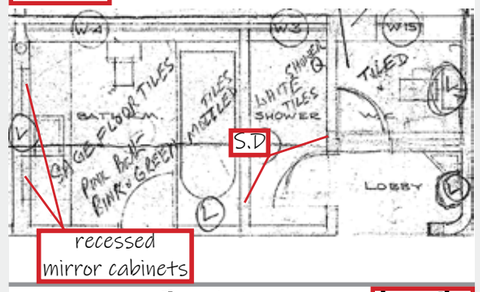

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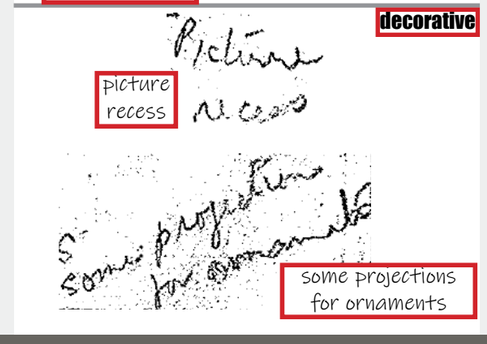

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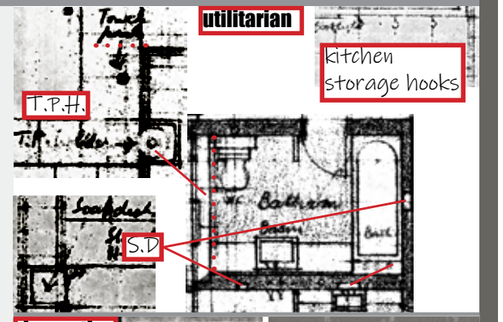

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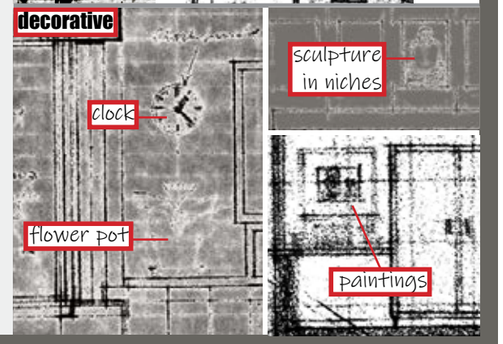

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This section concludes the qualitative visual representation of the Representations of Space based on the architectural drawings of the five case studies. The verification and analysis of the architectural drawing sets compiled by architect Norman Eaton, confirms the presence of the categories of the components of interior architecture as proposed by Ching and Binggeli (2012).

In summary, Eaton meticulously and intentionally addresses the categories of interior building elements, interior environmental systems, interior finishing material, and interior furnishing across all five of the selected case studies.

3.7. REPRESENTATIONS OF SPACE THEMES

Baptiste (2001:3,13) proposes that the third and final phase of qualitative data analysis is “making connections between and among categories of data”, where the analysis results in “themes, variables, [or] categories”, but emphasises that the relationship between themes is what should be explored to determine the “cohesive whole”. Baptiste’s stance echoes that of Hays (1998:182) and Lefebvre (1991:132) who uses the term “textures” to describe the interrelationship between the layers of space that make up meaningful “wholes”.

The following section investigates the textures and layers of meaning inherent in the architectural drawings, which is observable as a result of the grouping activities, as a means to uncover the architect's intent for the components of interior architecture.

3.7.1 Initial Themes

The first grouping activity identifies the presence of the components of interior architecture in the architectural drawings across the five case studies, focusing on the categories of interior building elements, interior environmental systems, interior finishing material, and interior furnishing. The initial identification process results in four themes that correspond with each category. The initial themes indicate the extent to which Eaton engages with the components of interior architecture.

The first theme relates to the interior building elements category, which consists of the three subcategories of planes, openings and circulation. The first grouping activity confirms there is a complete and consistent presence of all three subcategories of the interior building elements, across all five case studies.

The five subcategories of the interior environmental systems inform the second theme. The first grouping activity confirms a complete and consistent presence of two of the five subcategories, namely the temperature control and water systems. The remaining three categories of electrical systems, lighting systems and acoustics are each not addressed once. The lighting systems

cannot be verified in the earliest case study, House Van Wouw. The electrical systems and acoustics subcategories are not represented in the drawings of House Greenwood, despite a large volume of data available for analysis.

The third theme is based on the interior finishing material category, which includes the three subcategories of floor finishes, wall finishes and ceiling finishes. The first grouping activity confirms that across all five case studies, there is a complete and consistent presence of all three subcategories of the interior finishing material.

The interior furnishing category informs the fourth theme, where three of the four subcategories are completely and consistently present across the five case studies. The three represented subcategories include furniture, storage and accessories. The window treatments subcategory is present in two of the earlier case studies but is no longer included in the last two case studies.
The initial themes form an initial texture which demonstrates that all four categories are consistently addressed across the case studies, except for the subcategory for window treatments, which is omitted during the later period of Eaton's career, as represented by the case study selection.

3.7.2 Emerging Themes

The second grouping activity highlights visual examples of the previously verified components of interior architecture, sourced directly from the architectural drawings. The compilation of visual examples allows textures to emerge from the initial four themes that correspond with each of the categories of the components of interior architecture. The resulting emergent themes illustrate which components of interior architecture Eaton intentionally engaged with designing.

3.7.2.1 Interior Building Elements

The first theme explores the interior building elements by compiling and analysing examples of the subcategories of planes, openings and circulation.

The highlighted plane examples show that Eaton uses the horizontal placement of planes and the resulting changes in interior volumes, to communicate changes in room use or activity. Vertical screens are used to provide areas of increased privacy and to control or direct views.
The openings subcategory consists of windows and doors. The window examples demonstrate Eaton's use of multiple window types and arrangements to achieve a variety of design outcomes. Examples range from expansive stretches of glazing that blurs the threshold between inside and outside, to intentionally placed openings to accentuate an interior activity, such as a garden view while being seated at a dressing table. Eaton's most thought-provoking use of openings is the use of a standard size steel window as a modular unit, which dictates the interior spatial proportions.

Eaton's approach to circulation elements varies from project to project, where he experiments with different materials and construction methods for the staircases. The earliest staircase example emphasises functionality and is made exclusively of timber. The staircase in the following project is a centrally placed, feature staircase made from modular precast concrete profiles, which is an unusual material to use in a residence. In the last two projects, Eaton seems to have reached a subtle and more mature middle ground where the staircases are integrated with the floor finish, only facilitating access to the adjacent level, while allowing the user to experience the change in volume of the interior space fully.

3.7.2.2 Interior Environmental Systems

The second theme examines the interior environmental systems, which include the subcategories of temperature control, water systems, electrical systems, lighting systems and acoustics.

Eaton's temperature control strategies include the subcategories of heating, ventilation and cooling. Fireplaces are included as the main heating mechanism in all the case studies, while also serving as a feature or focal point of the living areas. Ventilation strategies are exclusively implemented as passive methods with the use of air bricks, fanlights and louvred windows. Passive methods are also used in the cooling strategy, with the inclusions of deep roof overhangs.

The subcategories of the water systems are water supply and drainage systems. Eaton places the water supply in a practical, yet concealed location within a water "tank tower" which visually mimics the design of the fireplace chimneys from the outside. The placement of the water tanks is in close proximity to the interior service spaces. Eaton's placement of the water systems has a direct implication on the layout or grouping of the interior spaces, resulting in service space cores which are all located in close proximity to the water supply. For the drainage systems, Eaton uses a rather standard approach, based on the site's access to the municipal sewer system. The approach to the drainage system does not directly influence the interior spaces, as the location of the drainage system is a direct result of the water supply system.

The electrical systems include the subcategories of electrical outlets and switches. The last two case studies demonstrate how Eaton integrates the light switches and electrical plugs into the overall design, where the exact placement within the space is a direct consequence of the intended use in the area. In the last case study, the placement location and heights above finished floor level also take into consideration the module of the exposed brick niche texture, where Eaton places the plugs and switches within the modular voids dictated by the rhythm of the niche pattern.

The drawings of the case studies demonstrate an increase in the attention paid to the lighting systems category, especially when considering the lighting design strategy represented by the lighting fixtures subcategory. When Eaton first includes lighting, he only includes the most

functional category of task lighting, and while the drawing shows a specific shape of light, the annotation is generic and indicates no intended material selection. The case study that follows sees the inclusion of both ambient and task lighting, as well as an annotation specifying a finishing material for the lighting fixtures. The drawings for the last case study, include manufacturing drawings for custom-made feature lighting fixtures, which incorporate the material palette and design language of the space it is situated. The subcategory of daylighting controls is consistently addressed as exterior or architectural features such as large roof overhangs and window shutters, or as interior window treatments such as blinds.

Eaton addresses the acoustics subcategory as a specified material in the drawings of the first case study, with no further explicit references to acoustics. In the last two case studies, Eaton includes a built-in sound system, or entertainment system, in the living room. The material application on the floors and ceilings of the living room areas include a combination of one hard, reflective surface and one softer, more absorbent surface. The material combinations point to a deliberate selection which accommodates and improves the acoustic conditions in these spaces (Ching & Binggeli 2012:280).

3.7.2.3 Interior Finishing Material

The interior finishing material category is the topic of the third theme and includes the subcategories of floor finishes, wall finishes and ceiling finishes.

The floor finishes subcategory shows that Eaton meticulously addresses the interior floor finishes, using a variety of floor finishes in each project, while also varying the materials from project to project. Eaton's unique design approach to floor finishes is characterised by the experimentation and transference of patterns and applications commonly associated with one material to another unrelated material. The range of materials specified across the case studies, demonstrate a selection ranging from in-situ to premade, hand-made to modular, and traditionally applied as a floor to not commonly seen as a floor finish material. Based on the overall material palette across the case studies, Eaton does seem to favour materials that are natural or natural-derivatives. Eaton is also equally comfortable exploring a variety of colour palettes, including neutral colours, natural colours and even bright accent colours.

The drawings of the case studies highlight that the general wall finishes are predominantly white in colour with a subtle grid-like texture, allowing a neutral backdrop which is still visually interesting. Eaton specifies a bagged brick for the general interior spaces, where the resulting texture is an uneven, almost organic-looking grid due to the nature of the bagging application process. The bathroom areas showcase a more disciplined grid with the use of a square glazed tile, specified to combat the presence of moisture, but due to the white grouting, the texture is less emphasised in the smaller space. The feature wall finishes emphasise the creative application of different clay

products, usually as a fireplace surround. Eaton's most distinctive wall finish is the repetitive brick recess texture, which he applies across large wall areas, effectively blurring the line between a feature and a general wall finish.

Eaton has two unique approaches to ceiling finishes, firstly exposing the roof construction to the interior space as a feature finish, and secondly integrating the intended ceiling finish into the roof construction section, so it is indistinguishable as a separate layer or surface finish. Eaton's choice of different roof and ceiling construction methods are carefully selected to suit or complement the intended character of the interior spaces.

3.7.2.4 Interior Furnishing

The fourth theme focuses on interior furnishing, which consists of furniture, storage, window treatments and accessories.

The furniture subcategory includes built-in and feature-furniture, as well as loose furniture. The case studies demonstrate that Eaton progressively pays more attention to the built-in furniture of the kitchen and bathroom areas and that the bedroom and study areas are consistently addressed. Eaton most notably personalises the design features of the study area according to the needs and characteristics of the client. Significant examples of feature furniture include a built-in record player in the last two case studies, further demonstrating Eaton's increased attention to the interior spaces, adding levels of complexity within space. Even though no loose furniture examples are included in the architectural drawing sets of the case studies, the cited examples show that Eaton's skill set included loose furniture design.

Examples from the cases studies demonstrate that Eaton consistently addresses the built-in storage units of the bathrooms, bedrooms, living areas and study areas. It is interesting to note that feature storage units, such as bookcases, are often integrated into the design of interior focal points or visual features such as the fireplace. Again, the previously cited examples show that Eaton's skill set included loose storage design.

In the earliest case study, Eaton follows a more traditional approach to the interior window treatments, by accommodating for curtain rails. In one of the later case studies, he accommodates for venetian blinds, which is commonly perceived as being a more modern window treatment than curtains. Significantly, the interior window treatments were no longer addressed in the last two case studies, while all the other subcategories in the interior furnishing category continue to be addressed. Exterior window treatments are continuously included, except for in the last case study. The decline in the use of both interior and exterior window treatments demonstrate a change in Eaton's approach to outside-to-inside privacy, as curtains or blinds traditionally provided privacy.

Eaton replaces window treatments with exterior architectural elements such as solid brick screen walls that block views from neighbours, as in House Van Den Berg (Harrop-Allin 1975:89).

Eaton uses the same approach and resolution to the utilitarian accessories across all the case studies, most noticeably in the bathrooms. Design solutions for the utilitarian bathroom accessories and the bathroom as a whole are very well-resolved, where many of the fixtures are ingeniously built-in or integrated. This bathroom design repeats across all the case studies with no variations, except for the colours used in House Brown (Eaton 1956-04-11). The repetitive use of a previously resolved bathroom design is also found in the work of contemporary architects. The repetitive approach results in a purely functional and generic space, disconnected from the overall design due to the design intent and project language, not continuing into the details and finishes of the bathrooms. This approach differs from contemporary interior architects, who often design these intimate spaces to convey the project intention on a personal, detailed and experiential level by using the same design language as the rest of the project's interior spaces.

It is thought-provoking that Eaton accommodates for the display of decorative accessories such as paintings, pottery and ornaments across all the case studies. This inclusion may well be due to Eaton's view on the relationship between architecture and the arts where he emphasises their shared purpose of communicating the truths about life in a visually accessible format for the user (Eaton 1960:16).

3.8. REPRESENTATIONS OF SPACE TEXTURES

The initial themes demonstrate that all four categories are consistently addressed across the case studies, with the exception of the subcategory for window treatments which is omitted during the later period of Eaton's career, as represented by the case study selection. The resulting four emerging themes illustrate which components of interior architecture Eaton intentionally engages with and how it is applied to the design of interior spaces.

The interior building elements category indicates that Eaton uses the placement of horizontal planes at different heights to communicate changes in the use of a space, where vertical planes are used for levels of privacy and to control views. Variations in opening sizes are used to accentuate different types of relationships to nature. Larger openings are frequently used, where the large expanses of visual openness diminish the threshold between inside and outside, allowing the interior spaces to become a sheltered extension of the outside spaces. The larger openings encourage the perception of an uninhibited, respectful connection with nature. Smaller opening sizes are used less often, and due to its small focus area, it emphasises specific views to the outside while speaking to an observer-observed type relationship between humanity and nature.

The use of a modular window as a measuring element is also significant. Eaton approaches the design of circulation elements as unique pockets of experiences or ensures that it is so integrated into the experience that it becomes a subtle facilitator of a larger spatial experience.

The interior environmental systems category sees Eaton preferring to use passive systems for temperature control and ventilation, where the water systems are exclusively solved by using active systems. Eaton's approach to the water supply being placed in a "tank tower", results in the water supply system acting as an organising element for the service spaces. The increase in attention given to the placement and integration of the electrical systems mimics the increase in the care taken with the lighting systems and fixtures, where Eaton puts in progressively more effort towards the end of his career to integrating these systems into the experience of the interior spaces. He also works toward adding additional layers of experience to the space, by manipulating the auditory elements of music and acoustics with the application of different materials and integration of an entertainment system. The increased resolution of the electrical, lighting and acoustic aspects of the interior space, points towards a progressive engagement with more aspects of interior architecture over time.

With the interior finishing materials, Eaton approaches the floor finishes as an area to experiment with known perceptions and expectations of the observer, by the inventive resolution of the floor finishes. The wall finishes continue this experimental approach by exclusively focusing on a single material type and testing a variety of applications, patterns and finishes of that material, specifically focusing on clay products. The ceiling finishes are used to demonstrate the inherent beauty of the art of building, where two opposing strategies are used, namely exposing the construction method or seamlessly integrating the ceiling finish and the roof construction. Both strategies are applied to the interior ceiling and exterior eaves, subtly blurring the perceivable threshold between inside and outside.

The furniture and storage subcategories of the interior furnishings category demonstrate Eaton's sensitivity to his client's needs and insight into the customisation of interior space to accommodate individual client preferences. Eaton skilfully adapts the complexity of the detailing and material choices to the project budget and scale. The change in how Eaton resolves privacy and views from outside to inside, from earlier uses of interior window treatments such as curtains to later uses of exterior screen walls, points to Eaton's willingness to adapt his way of thinking about how to resolve spatial complexities. Eaton's exceptional attention to detail and emphasis on functional performance of space is revealed by the extent of the built-in utilitarian accessories. Whereas the consistent effort to accommodate a variety of artworks into the interior spaces reminds us of Eaton's views that art and architecture should teach us about the truths of life.

The only interior space where Eaton does not demonstrate the mastery of the contemporary approach relating to interior architecture is in the design of the bathrooms. Eaton's approach to bathroom design is exceptionally functional and immaculately detailed but lacks the contemporary approach of the continuation of the concept and experiential qualities of the rest of the residence into the bathroom on an intimate scale.

3.9. EATON'S REPRESENTATIONS OF SPACE OF INTERIOR ARCHITECTURE

The initial and emerging themes, with the examples from the drawings of the five selected case studies, clearly demonstrates Eaton's deliberate engagement with the components of interior architecture. The combination of initial and emerging themes relate to one another to form an initial texture of meaning which shows an intentional, sensitive and layered engagement with the components of interior architecture - summarised in Figure 3.2.

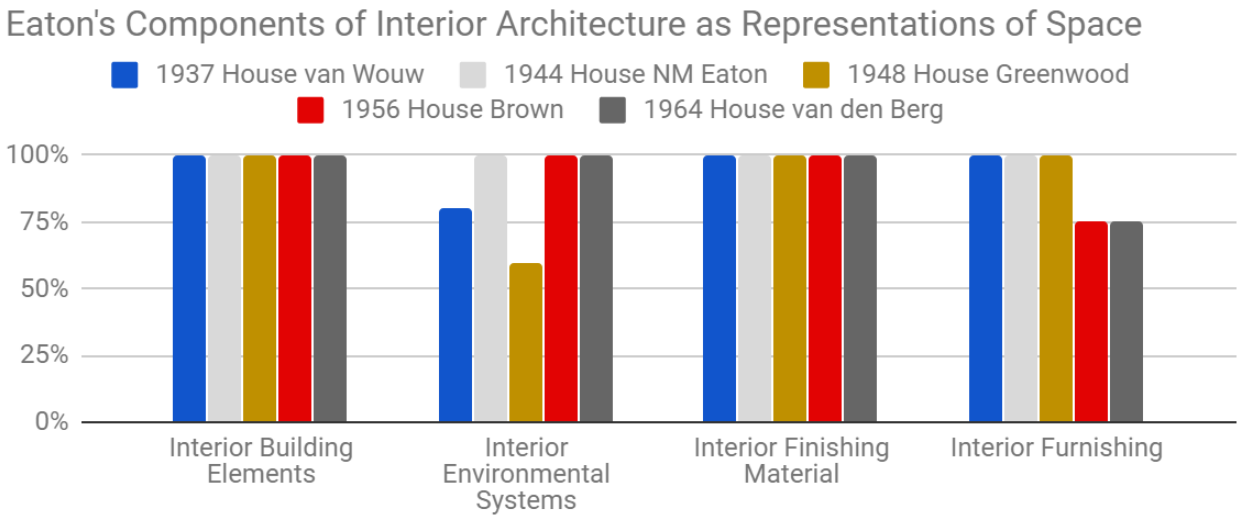

Fig. 3.2 Summary of the components of interior architecture as Representations of Space across five case studies

The culmination of Eaton's approach to interior architecture is comparable to contemporary, South African interior architects, where the following points characterise his approach:

- Interior building elements:
  - Different heights and volumes are used to communicate changes in the types of activities in the interior space;
  - Variations in opening sizes used to accentuate different types of relationships to nature, with the focus on larger proportions, emphasising an unhindered relationship with nature;

  - Modular objects such as standard steel windows and clay bricks are used to inform the dimensions and proportions of the interior space, on plan and section respectively;
  - Circulation elements are used to emphasise specific experiences of the interior space.
- Interior environmental systems
  - The main water supply feature (tank tower) is used as a central organising element for the service spaces;
  - The use of passive systems for heating, ventilation and cooling;
  - The integration of environmental systems such as electrical, lighting, acoustics and entertainment systems, into the design to allow for a layered and functional experience of the interior space.
- Interior finishing materials
  - The experimental and inventive application of multiple floor finishes, prompting a questioning of the known perceptions and expectations of the viewer;
  - The experimental approach to wall finishes, focusing on the variety of applications possible with a single material, such as clay products;
  - The ceiling finishes as homage to the art of building and construction.
- Interior furnishings
  - A sensitive approach to client preferences and needs,
  - A mature ability to adapt the complexity of a design to suit the project budget and scale,
  - A willingness to evolve as a designer,
  - The approach to utilitarian accessories is highly functional and well-detailed, but the bathroom design as a whole did not develop to the point where it is comparable with the approach of contemporary South African interior architects,
  - The accommodation and inclusion of a variety of artwork in the interior space, emphasising the relationship between architecture and art.

3.10. CONCLUSION

Chapter three investigated the Representations of Space domain as the first aspect of the spatial triad by focusing on the architectural drawings as a representative of the architect's intent.

The data set consists of the architectural drawings of the five selected case studies. Baptiste's (2001:10) phases of qualitative data analysis informed the steps used to classify the data, namely the tagging of data and the grouping of tagged data. Ching and Binggeli's (2012) components of interior architecture direct the classification process, where the first grouping activity verified the

presence of the components in the data set and the second grouping activity provided visual examples of the verified components from the data set. The two grouping activities culminate into the final phase of qualitative data analysis as proposed by Baptiste (2001:10), namely identifying the connections between categories to form themes, forming initial and emerging themes respectively. The identified themes relate to one another to form textures, specifically the textures relating to Eaton's specific Representations of Space as it relates to interior architecture.

Chapter four Chapter 4 investigates the Spatial Practice domain as the second aspect of the spatial triad by specifically focusing on the physical aspects of interior spaces of the selected case studies, which is based on photographic evidence.

CHAPTER 4

SPATIAL PRACTICE AS PHYSICAL SPACE

4.1. INTRODUCTION

Chapter three investigated the Representations of Space domain as the first aspect of the spatial triad, where Eaton's architectural drawings were analysed to allow the identification of interior architecture themes. The relationship between the identified themes related to one another as textures, which represent Eaton's Representations of Space as it relates to interior architecture.

Each domain of the spatial triad focuses on a unique aspect of space which should be understood separate from and in relation to the other domains to ensure the complexity of space is addressed. Chapters three, four and five each explore the same components of space through a specific lens or domain at a time. The Representations of Space domain explores the architectural intention for the interior space, the Spatial Practice domain investigates the physical aspects of the interior space and the Representational Space domain examines the user's experience of the interior space.

Chapter four investigates the Spatial Practice domain as the second aspect of the spatial triad. This section specifically focuses on the physical aspects of interior spaces of the selected Eaton case studies by firstly, verifying the presence of the components of interior architecture in old and new photos across the five case studies. Secondly, by providing a visual compilation of the confirmed components of interior architecture across the five case studies and lastly proposing the textures or meaning associated with Eaton's Spatial Practice as it relates to interior architecture.

4.2. SPATIAL PRACTICE AS PHYSICAL SPACE

Spatial Practice is the domain in Lefebvre's spatial triad that focuses on the physical aspects of a space, or more specifically, the physical aspects of space that can be perceived by the senses. The original French term allocated to this category is "*l'espace perçu*", where *perçu* translates as perceived, sense, or discern (Lefebvre 1988:section 2.14).

Lefebvre (1991:34) clarifies that "spatial practice is lived directly before it is conceptualized". In other words, space is perceived or observed before it is understood or experienced. The spatial triad theory accommodates for both types of interaction with the space, where the initial moment of spatial perception falls under the Spatial Practice domain. The users interpreted experience which results from the initial observation forms part of the Representational Space domain, which is the topic of Chapter five.

Due to the physical and material nature of the Spatial Practice domain, it is crucial to include everything of a physical nature related to the space, not only what is experienced by an observer. This includes the hidden physical systems that are integrated into the space. For example, the electrical systems consist of multiple wires, couplings and fittings of which the majority is hidden in the built fabric. An observer would only be able to identify this system in a completed space by the outlets or distribution box, as opposed to breaking down the constructed space to otherwise gain access to the hidden systems. In this example, the outlets become a visual representation of the hidden system.

For the purpose of this study, photos of the case studies are used to observe and document the physical space, specifically focusing on the four categories of the components of interior architecture.

4.3. DATA SET: PHOTOS

The data set for the Spatial Practice domain consists of photos of the case studies from different periods, some close to the date of the project completion and others taken recently for the purpose of this study.

The main research question stipulates that the investigative focus is on Norman Eaton's approach to interior architecture.[1] The research focus necessitates that preference is given to the older photos due to their proximity to the project's original manifestation. By implication, the older photos

1 Restated hereafter for reference: how does the architect, Norman Eaton, address interior architecture in residential projects?

provide a clearer visual example of the architect's intent for the project, while being more likely to exclude later changes not made by the architect. Where the original built-in components are identifiable in the current photos, recent photos are also included. The identification of the original components is established by cross-referencing the previously scrutinised plans with the photos.

House Van Wouw's collected photo set has 146 photos in total, which includes 86 interior photos. The set includes one external view of the "northern garden terrace" (Harrop-Allin 1975:32) and fifteen photos retrieved from the UPSpace repository, with only one photo showing the interior space. A total of 130 full-colour photos were taken for the purpose of the study and include 85 photos of the interior spaces.

House Eaton has only three black and white interior photos and has no photos of the exterior of the residence.[2] This set is retrievable from the UPSpace repository (Unknown, 2019).

House Greenwood has a total of 45 photos, with seven photos being of interior spaces.[3] The set includes nine colour photos from 1967 with one interior photo (Latimer 1967). Six black and white photographs of the exterior form part of the publication by Harrop-Allin (1975:73-76), with fifteen black and white photos, one of the interior, from the Unisa archives which form part of Harrop-Allin's (1975) collection. Two black and white photos of the living room are included. Thirteen photos taken of the residence in 2012 include two interior photos (Pienaar 2012).

House Brown has 240 photos in total, which includes 114 interior photos. A site survey in 2016 by an architecture firm yielded 141 photos, where 54 of the photos are of the interior spaces (Anthrop Architects 2016). A previous owner provided three interior photos taken during a recent renovation of the lounge. A total of 96 full-colour photos which were taken for the purpose of the study and include 57 interior photos.

House Van Den Berg' photo set has 175 in total and includes 112 photos of the interior space. UPSpace has nine photos which include two interior photos. Three black and white exterior photos in Harrop-Allin's (1975:87-88) publication, with 17 extra including three interior photos, from the Unisa archives which form part of Harrop-Allin's collection. The current owner of House Van Den Berg provided fifteen interior photos including that of the living room and the bathrooms taken before the renovations. A total of 131 full-colour photos were taken for the purpose of the study and include 92 interior photos.

2 Due to the demolition of the residence, no additional photos of the current condition could be taken.

3 The researcher was not granted access to the site to take photos of the current condition.

4.4. SPATIAL PRACTICE APPROACH AND METHODS

The Spatial Practice analysis forms part of the second phase of qualitative data analysis called *classifying data*, which has two activities, namely "... 1) tagging data, and 2) grouping tagged data" (Baptiste 2001:10). Baptiste further elaborates on the data tagging process which allows for the identification of important aspect of data relevant to the study, where the tags correspond to the categories of the components of interior architecture as previously elaborated upon. The Spatial Practice data tagging process involves the scrutinising of photos to verify the visual presence of the categories of the components of interior architecture across the five case studies. Due to this section's exclusive focus on the photos as the data set for the physical aspects of space, or Spatial Practice, triangulation is achieved through two grouping methods summarised in a table format and a graphic format. Each category of the components of interior architecture is compiled as a separate table and a graphic compilation of images respectively, across the five selected case studies, to identify patterns in the analysis phase - refer to Tables 4.1, 4.2, 4.3 and 4.4.

The first grouping activity is similar to the first grouping activity in chapter three, where the identified[4] data tags are translated into a table format where a '1' allocation indicates a positive identification and a '0' (zero) indicates a non-identification. The result for each category is interpreted as a percentage allocated to each case study, where the percentage is a qualitative representation of the extent to which the components of interior architecture can be observed as a physical visual manifestation in the space.

As in chapter three, the second grouping activity summarises the tagged data into a graphic composition which visually mimics the tabled results from the first grouping phase. The verified examples are included as enlarged visual callouts sourced directly from the photos and a non-identified subcategory is indicated as a filled grey block annotated as '0 (not present in photographs)'. A text description accompanies the verified examples (also refer to Addendum D of each respective case study).

The analysis phase follows the grouping phase and compares the summarised tables with the graphic compositions across the five case studies. The comparison allows for the deduction and discussion of the underlying themes and textures inherent in the photos (Baptiste 2001:10, Hays 1998:182, Lefebvre 1991:132). To reiterate, the texture-creation process is made meaningful by the recognition and associations between the parts, their function, and the experience of those parts. The meaning-generating process results in the conceptual synthesis of the associations

4 For exact references to the drawings from where the identification originates from, also refer to Addendum D of each respective case study.

between the relationships of the parts and ultimately provides a new meaningful understanding of the space.

4.5. VERIFICATION OF SPATIAL PRACTICE AS COMPONENTS OF INTERIOR ARCHITECTURE

The first grouping activity identifies the presence of the components of interior architecture in the photos across the five case studies, focusing on the categories of the components of interior architecture: interior building elements, interior environmental systems, interior finishing material, and interior furnishing.

4.5.1 Interior Building Elements

The interior building elements category has three subcategories, namely planes, openings and circulation (based on Ching & Binggeli 2012:148-214).

The verification phase highlights that the planes and openings subcategories are both consistently addressed across all five case studies. The circulation category, specifically the staircases, is addressed in four of the five case studies, due to House Eaton's single storey character which requires no circulation design. Overall when looking at the photo data set, there is a complete and consistent presence across the five case studies of all three subcategories in the interior building elements category. Refer to Table 4.1 Presence of the components of interior architecture: Interior Building Elements.

Table 4.1: Presence of the components of interior architecture: Interior Building Elements

Presence of the components of interior architecture: Interior Building Elements in the photos of the five selected case studies						**KEY** present = 1 not present = 0
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Building Elements	Planes: a) floors b) walls and partitions c) ceilings	1	1	1	1	1
	Openings: a) windows b) doors: front door, internal doors	1	1	1	1	1
	Circulation a) stairways/balustrades b) ramps c) mechanical *not common in residential projects	1	n/a	1	1	1
Presence in each subcategory		3/3	2/2	3/3	3/3	3/3
TOTAL % verified Components of Interior Architecture: Interior Building Elements		100%	100%	100%	100%	100%

4.5.2 Interior Environmental Systems

The interior environmental systems category has six subcategories, namely temperature control, water systems, electrical systems, lighting systems, acoustics and fire suppression systems (based on Ching & Binggeli 2012:215-286).[5]

The verification phase reveals that the temperature control mechanisms and lighting systems are discernible in all five case studies. It also shows the water systems and electrical systems are present in four of the five case studies, excluding House Eaton. As discussed in chapter three, House Van Wouw is the only case study which explicitly specifies the use of an acoustic material which is recognisable in the photos. The acoustics category is therefore analysed from a material application perspective, where four of the five case studies use the material application to mitigate the negative interior acoustics. The photo sets of Houses Brown and Van Den Berg both shows the built-in sound systems.

5 Although Ching and Binggeli include fire suppression systems in this category it is not commonly addressed in the residential design of South Africa. It is therefore included as a subcategory, but marked as 'not-applicable' for all case studies and is also removed from the final percentage calculation.

Overall, there is a complete and consistent presence in the architectural drawings for two of the five subcategories, namely the temperature and lighting systems. Where the remaining three categories of water, electrical and acoustics are each missed once. Refer to Table 4.2 Presence of the components of interior architecture: Interior Environmental Systems.

Table 4.2: Presence of the components of interior architecture: Interior Environmental Systems

Presence of the components of interior architecture: Interior Environmental Systems in the photos of the five selected case studies						**KEY** **present = 1** **not present = 0**
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Environ-mental Systems	Temperature control: a) heating: fireplace, b) ventilation: airbricks c) cooling: active/passive	1	1	1	1	1
	Water systems a) water supply b) drainage system	1	0	1	1	1
	Electrical systems a) outlets and switches	1	0	1	1	1
	Lighting systems a) lighting fixtures b) daylighting	1	1	1	1	1
	Acoustics	1	0	1	1	1
	Fire suppression systems *n/a for residential design	n/a	n/a	n/a	n/a	n/a
Presence in each subcategory		5/5	2/5	5/5	5/5	5/5
TOTAL % verified Components of Interior Architecture: Interior Environmental Systems		100%	40%	100%	100%	100%

4.5.3 Interior Finishing Material

The interior finishing material category has three subcategories, namely floor finishes, wall finishes, and ceiling finishes (based on Ching & Binggeli 2012:287-316).

The verification phase shows that all three categories are addressed in all five case studies, despite the minimal interior photos available for Houses Eaton and Greenwood. The photos demonstrate Eaton's creatively practical selection of floor finishes, as well as the experimentation and transference of patterns across material mediums. The consistent engagement with both the general and feature wall finishes is confirmed across all the case studies. The African-inspired feature wall textures, as discussed by Pienaar (2013:23, 28,103,125), can be seen as early as the 1944 House Eaton and can be seen again in the 1964 House Van Den Berg. Visual, photographic examples of the ceiling finishes confirm Eaton's approach to the ceiling finish formed either as part of roof construction, or where the roof structure is exposed to double as the ceiling finish.

Overall there is a consistent presence across the five case studies of all three subcategories in the interior finishing material category when referring to the photographic data set. Refer to Table 4.3 Presence of the components of interior architecture: Interior Finishing Material.

Table 4.3: Presence of the components of interior architecture: Interior Finishing Material

Presence of the components of interior architecture: Interior Finishing Material in the photos of the five selected case studies						**KEY present = 1 not present = 0**
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Finishing Material	Floor finishes a) general floor finishes b) feature floor finishes	1	1	1	1	1
	Wall finishes a) general wall finishes b) feature wall finishes	1	1	1	1	1
	Ceiling finishes a) general ceiling finishes b) feature ceiling finishes	1	1	1	1	1
Presence in each subcategory		3/3	3/3	3/3	3/3	3/3
TOTAL % verified Components of Interior Architecture: Interior Finishing Material		100%	100%	100%	100%	100%

4.5.4 Interior Furnishing

The interior furnishing category has four broad subcategories, namely furniture, storage, window treatments and accessories (based on Ching & Binggeli 2012:317-352).

For the broad subcategories, the verification phase shows that the furniture, storage and accessories can be identified in the photos of four of the five case studies, which excludes House Greenwood[6]. The window treatments subcategory is present in four of the five case studies, two more than was identified in the Representations of Space analysis phase. The detailed verification of the topics within each subcategory forms part of the descriptive text analysis in the next section. Refer to Table 4.4 Presence of the components of interior architecture: Interior Furnishing.

Table 4.4: Presence of the components of interior architecture: Interior Furnishing

Presence of the components of interior architecture: Interior Furnishing in the photos of the five selected case studies						**KEY** **present = 1** **not present = 0**
Category	**Subcategories**	**1937 House van Wouw**	**1944 House NM Eaton**	**1948 House Greenwood**	**1956 House Brown**	**1964 House van den Berg**
Interior Furnishing	Furniture: a) Built-in furniture: seating, tables, servery b) Feature furniture: e.g. bed headboard c) Loose furniture: seating, tables	1	1	0	1	1
	Storage: a) Built-in storage: kitchen, bedroom, bookshelf b) Feature storage display niche c) Loose storage: armoires	1	1	0	1	1
	Window treatments: a) Exterior: shutters b) Interior: curtain rail	1	0	1	1	1
	Accessories a) utilitarian b) decorative: artwork/picture rails, collections/display niches, plants	1	1	0	1	1
Presence in each subcategory		4/4	3/4	1/4	4/4	4/4
TOTAL % verified Components of Interior Architecture: Interior Furnishing		100%	75%	25%	100%	100%

6 The lack of identified elements in House Greenwood is most likely due to the minimal amount of interior photos available for analysis

The first grouping activity confirmed which of the subcategories of the components of interior architecture are visible in the photos of the selected case studies, where the photos represent physical space or the Spatial Practice domain. Due to the timeline of the case studies, the physical manifestation of the components of interior architecture is also confirmed across the three periods of Eaton's domestic body of work: the pre-war period [1930-1940], the war period [1941-1945] and the post-war period [1946-1966] (Pienaar 2013:127-130). The first grouping activity of the Spatial Practice domain further answers the study's first sub-question, by documenting which of the components of interior architecture can be visually observed in each case study's physical space. The second grouping activity consists of the graphic compilation of images sourced from the photo data sets, which correspond with the categories of the components of interior architecture. The graphic compositions are accompanied by text descriptions to demonstrate the physical details highlighted by the visual sheets.

4.6. GRAPHIC COMPILATION OF SPATIAL PRACTICE AS COMPONENTS OF INTERIOR ARCHITECTURE

The second grouping activity for the Spatial Practice domain summarises the results of the first grouping activity into a graphic composition based on the photos of the five case studies. The composed graphic is visually similar to the tabled results of the first grouping phase and includes visual callouts of confirmed topics, a light grey filled block annotated as '0 (not present in photographs)', and a filled dark grey block for not applicable categories. Each category of the components of interior architecture is compiled as a separate set of graphic compositions across the five selected case studies, to identify patterns in the analysis phase.

4.6.1 INTERIOR BUILDING ELEMENTS

The interior building elements category has three subcategories, namely planes, openings and circulation (based on Ching & Binggeli 2012:148-214). As per the first grouping activity, the planes, openings and circulation subcategories are consistently present in the photos of all five case studies.

To contextualise the following section, refer to Table 4.5 Visual presence of Spatial Practice as components of interior architecture: Interior Building Elements.

4.6.1.1 Planes

The planes subcategory consists of floors, walls and partitions, and ceilings. The photo data set demonstrates a variety of volumetric compositions resulting from the placement of the floors, walls and ceilings.

House Van Wouw showcases the archetypal house-shaped volume made up of a square shape at the base with a triangle placed on top. The house-shaped volume is observable from the interior spaces due to the thatch and gum pole roof construction, left exposed in the higher volumes of the dining area and accentuated with portions of angled ceiling board in the more intimately volumed living area.

The 13,5-degree mono-pitch roof of House Eaton exposes the gum pole and s-profile sheeting to the interior space. The angled roof plane's highest point is slanted towards the northern side, which also accommodates all the living areas, resulting in living areas of a much higher volume than the service spaces to the south. The orientation of the angled plane is further accentuated by the wall planes which stop at a level height in line with the lowest wall plate, leaving an open void above. House Greenwood's photos show an expansive volume in the main living area, stepping up into a slightly more intimate volume for the dining room. The ceiling plane is highly articulated with an intricate timber beam construction which draws one's eye upward, accentuating the higher volume. When viewed as an enclosed volume, the textured and darker colour of the ceiling resting on a white wall plane results in a plane perceived as lower than it is. The full-height glazing plane lends openness to the space, dissolving the threshold between inside and outside.

House Brown explores a new plane composition with a raised level over the living area. The plane horizontality is accentuated by a perceived floating effect created by the clerestory windows on all its sides. The unbound overhead planes combined with a vertical plane of full-height glazing renders the threshold between inside and outside almost invisible, as previously seen in House Greenwood.

In House Van Den Berg, Eaton continues the horizontal emphasis of the roof planes combined with the vertical glazed planes as previously seen in Houses Greenwood and Brown. In this case study, the roof plane is kept at a consistent height towards the entrance, and the floor plane gently steps down to a lower level towards the two glazed wall planes meeting in the corner. The horizontality is further emphasised by the dark timber slat finish being applied to both the ceiling and eaves. The vertical planes receive special attention in House Van Den Berg, as Eaton extends the outermost vertical plane from the interior to the exterior to form screen walls and visually sheltered outdoor spaces. Eaton also includes vertical partitions for the first time in the case studies, using the screens to control views and to provide pockets of privacy in an open plan living area. The effect of this composition is a deeply sheltered and layered space, similar to being on the edge of a dense forest looking out over a sunlit clearing.

4.6.1.2 Openings

The openings subcategory consists of windows and doors, specifically the front door and internal doors.

The glass pane module dictates the size of the window openings of House Van Wouw as it fits into a timber sash window, ranging from two, four and five panes across to two, six or nine panes high. All the doors to the outside, except the custom front door design, also adhere to the glass pane module of two panes wide by six panes high. The stable-type front door design shows a custom-crafted cast iron door knocker in an ivy leaf design and a monogrammed spyhole latch cover. The interior doors vary between obscured glass section doors for semi-private spaces such as the study and solid timber doors for private areas such as the bedroom and bathrooms.

In House Eaton, no window openings are discernible from the available photos. The photo showing the door opening to in House Eaton has a painted timber frame, but no door design or finish can be discerned due to the door opening to the outside and being out of sight. The door opening looks to be protected by the roof overhang. The scale of the door is of standard width, as can be seen by the eight 110mm wide bricks which fit into the door opening.

House Greenwood's window openings show a variety of window types made solely of timber, ranging from corner-type windows to visually continuous window strips which stop at handrail height. One of the longer sides of the living room consists of full-height glazed panel timber doors. Door openings are often paired with an openable fanlight or glazed fixed panel above it, and the bedroom doors to the outside all have full height timber louvres. The front door shows a unique timber and glass panel designed as an extension of the front door, where the pattern is reminiscent of the brick niche textures as seen in House Eaton.

House Brown showcases continuous horizontal compositions of steel windows and doors that reach to the underside of the concrete soffit. Clerestory windows are included in the living room, on the south side of the corridor which provides access to all the bedrooms, and also on the southern wall of the main bedroom, behind the head of the bed. The internal doors of the north-facing bedrooms, along the central corridor, each has a fanlight above it, allowing additional light into the corridor.

The window and living area door openings of House Van Den Berg are similar to the horizontal openings of House Brown, with the added feature of openable louvre window inserts. The horizontal glazing composition in House Van Den Berg is unique in that the glazing is arranged adjacent to corners, where previously it was applied as one-dimensional planes. The front door is a further interpretation of the front door designs of Houses Greenwood and Brown, where a grid-

based design is implemented around the front door using timber construction. The corner concept is again explored here, as the timber and glass grid forms a protruding entrance bay.

4.6.1.3 Circulation

The circulation category comprises of stairways, balustrades and ramps.

House Van Wouw has an open tread, straight run timber staircase. The balustrade has a very simple design with a one-sided handrail and minimal support balusters. The timber used for the staircase matches the timber of the server installed below the staircase.

The photos showing the staircase in House Greenwood includes the outside staircase to the study, as well as the three integrated timber steps leading from the living room to the dining room, both of which are straight staircase types. Unfortunately, there are no photos available which show the spiral-type precast concrete staircase as shown on the architectural plans in chapter three.
The staircase in House Brown only consists of three winder steps. The step finish is the same timber block floor as the floors above and below it, where the pattern orientation rotates along with each winder. The winders are arranged around a portion of curved wall feature, which is the only curved wall of its kind in that entire case study. The House Brown staircase does not have a balustrade or handrail.

House Van Den Berg's staircase is a straight run of two steps adjacent to a built-in furniture piece. Eaton experiments with the material application for the interior finishes by using face brick. The House Van Den Berg staircase does not have a balustrade or handrail.

On following pullout page:
Table 4.5: Visual presence of Spatial Practice as components of interior architecture: Interior Building Elements

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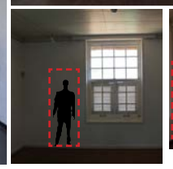
Interior Building Elements as Spatial Practice

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

A. Planes: floors - walls and partitions - ceilings



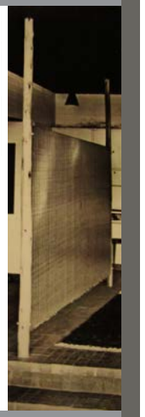




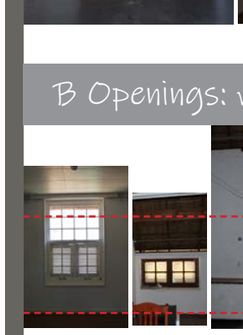


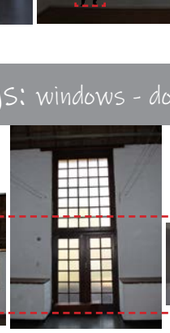
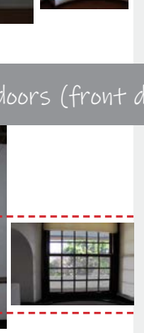




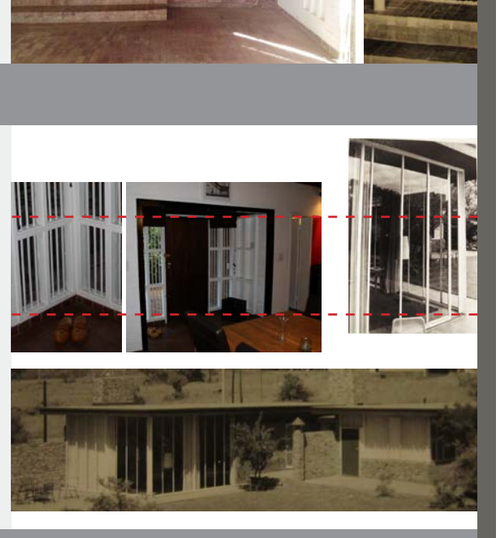
B Openings: windows - doors (front door & internal doors)



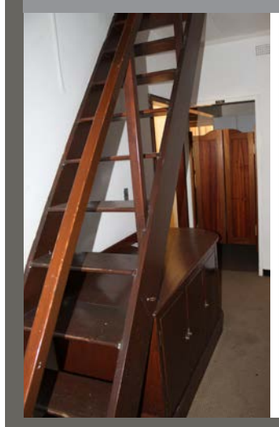



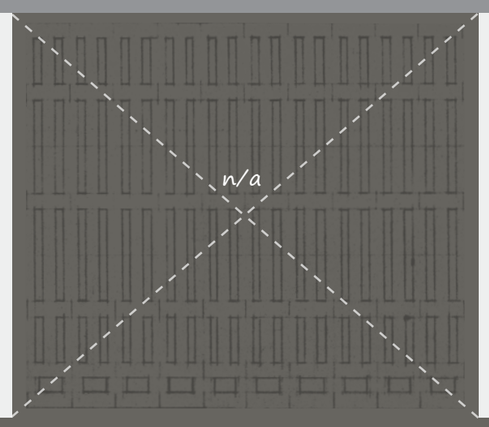


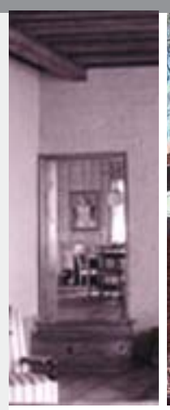
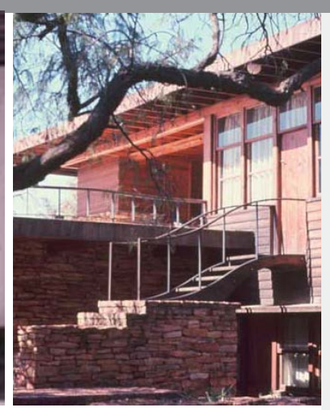
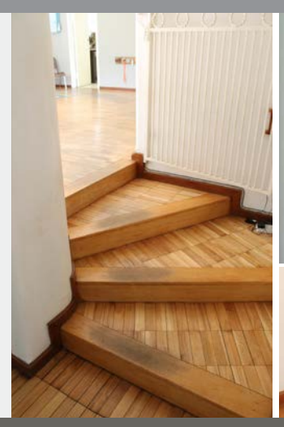


C. Circulation: stairways and balustrades - ramps





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4.6.2 INTERIOR ENVIRONMENTAL SYSTEMS

The interior environmental systems category has five relevant subcategories, namely temperature control, water systems, electrical systems, lighting systems and acoustics (based on Ching & Binggeli 2012:215-286).

The first grouping activity based on the photo data sets shows that the temperature control mechanisms and lighting systems can be seen in all five case studies and that the water systems, electrical systems and acoustics are present in four of the five case studies.

To contextualise the following section, refer to Tables 4.6 and 4.7 Visual presence of Spatial Practice as components of interior architecture: Interior Environmental Systems (Part A and Part B).

4.6.2.1 Temperature control

The temperature control subcategory consists of heating, ventilation and cooling.

House Van Wouw demonstrates all three topics of temperature control. Eaton specifically includes fireplaces in both living areas for heating, which also serves a double function as interior focal points. Ventilation is addressed by the inclusion of modular ceramic air bricks, often installed underneath a window, below the floor level of the timber floor construction. Air bricks are also added at ceiling height to allow rising hot air to escape. Passive methods are used for cooling, in the form of deep roof overhangs which shade window openings.

The photos of House Eaton show vertical open slots at ceiling height, allowing for ventilation. Cooling is addressed with the inclusion of deep roof overhangs shading the door opening. House Greenwood's photos include a fireplace in the centre of the living area which provides the heating for the space. The same room also has a very deep roof overhang to protect the glazed plane from direct sunlight, assisting in the cooling of the space.

House Brown's temperature control systems include details for heating, ventilation and cooling. The fireplace in the living room assists with heating. Modular ceramic air bricks and fanlights above the bedroom doors assist with internal ventilation. Eaton again uses the passive cooling method of deep roof overhangs to protect glazed facade sections from direct sunlight.

The temperature control systems in House Van Den Berg include all three aspects of heating, ventilation and cooling. A fireplace is the main heating element in the living area. Ventilation is accommodated by the inclusion of air bricks, called 'breeze bricks' by Eaton, as well as a new variant of ventilation control with the addition of louvred windows as part of the glazed openings.

4.6.2.2 Water systems

The water systems subcategory includes the water supply and drainage systems.

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The photos of House Van Wouw show a galvanised steel water storage tank in the roof void, visible from the loft space. The water tank is the water supply for the service areas on the western side of the residence, such as the kitchen and scullery. The bathrooms show exposed drainage system pipes below the hand washbasins.

The water supply systems and drainage systems in House Eaton are not discernible from the available photo data set. This category is therefore marked as not available.

External photos of House Greenwood show two stone-clad towers extending through the roof plane. A galvanised steel water storage tank is visible at the top of the one tower. Another tower is visible in the photos, mimicking the water storage tank tower in material finishes and height. The second tower's proportions a more slender than the water tank tower, due to the second tower being a chimney. The drainage systems are not discernible from the available photo data set. House Brown has four towers protruding above the roofline, all built up to the same level and constructed out of the same clinker brick. The photos demonstrate two wider-proportioned towers, where the interior photos confirm that the easternmost tower has as a water tank storage space. The second tower is located close to a set of service spaces and bathrooms away from the proximity of the confirmed water supply tank, most likely being another water tank tower. The third and northernmost tower is a chimney stack. Interestingly, the last tower shows a small steel plate-covered opening or hatch on the side of the tower, which is big enough for roof access. The hand wash basin for the guest WC shows an exposed drainage system below, but the main bathroom basin's drainage is concealed in a built-in vanity unit.

House Van Den Berg has two protruding towers, one being a tank tower and the other being a chimney which is visually similar to the tank tower. The hand washbasins in the guest WC, and separate shower shows an exposed drainage system below. The hand wash basins in the full bathrooms have the drainage systems concealed in a built-in vanity unit.

4.6.2.3 Electrical systems

The electrical systems subcategory consists of electrical outlets and switches such as light switches, telephone points and bells.

House Van Wouw has a unique low-level niche in the study with an electrical outlet at the back, where this niche is annotated on the plans as housing an electrical heater. The photos also show multiple light switches in a decorative bronze finish. The distribution box has a custom-designed

timber frame and door, where the timber type and colour match that of the staircase and server unit in the same room.

The electrical systems in House Eaton are not discernible from the available photo data set. This category is therefore marked as not available.

The interior electrical systems in House Greenwood are not discernible from the available photo data set. The partially covered outdoor patio which is adjacent to the second storey study shows an electrical outlet, installed in the timber construction portion of the wall.

The photos of House Brown show multiple examples of electrical outlets and light switches. Both switch-types can be found in the “burnished silver” finish as specified on the plans. The outlets are unique in that they can accommodate standard South African socket fittings, as well as round four-pronged Italian electrical fittings. House Brown has two, steel door distribution boxes finished in a textured silver to match the other electrical outlets on site. The photos also reveal an electric bell system in the kitchen.

House Van Den Berg shows a practical and considered inclusion of the electrical outlets and switches, where the resolution of how the outlets or switches present is based on the modularity of the wall finish where it is placed. The electrical outlet boxes located on the bagged brick wall each replace a brick in the brick grid. With the outlets or switches within the brick grid niche texture, each outlet is centred vertically and horizontally in a niche section, and the infill is set back slightly to keep the visual rhythm of the grid texture.

4.6.2.4 Lighting system

The lighting systems subcategory consists of lighting fixtures and the integration of daylighting control mechanism into the interior space. Ching and Binggeli (2012:275-277) outline the three categories of light in a space as ambient lighting, focal lighting, accent lighting and “sparkle”. These are also known in the industry as general, task, feature and mood lighting, where a feature light is also decorative.

The lighting system in House Van Wouw includes a set of ornate bronze lighting fixtures consisting of a feature pendant light and an accent wall light with its switch right below it. The photos also include a half-round white glass task light installed on the wall above the built-in vanity mirror. However, this light does not visually match the design language of bronze light fixtures, as identified earlier. Due to the non-presence of lighting on the architectural drawings, Eaton’s involvement in the selection of the aforementioned lights cannot be confirmed. The daylighting control mechanisms include deep roof overhangs and timber louvred-shutters which fit across the bottom panel of each ground floor sash window and completely closes the upper-level windows.

The photo data set for House Eaton shows no discernible electrical lighting system examples. The photos show an opening in the roof sheeting similar to a skylight, which allows sunlight into the interior space. It is unclear if the skylight is intentionally built-in or if the roof sheet was removed for the purpose of the photos, as there are no fixings or hinge mechanisms visible in the photos. House Eaton applies the passive daylighting control method of deep overhangs over the door opening, angled to optimise the changing sun angle throughout the year.

House Greenwood's photos include a feature pendant in the entrance hall of the residence, showcasing a suspended, round fixture with a white glass shade. No other discernible electrical lighting system examples can be found in the photos. Eaton uses passive daylighting control methods of deep overhangs and timber shutters.

House Brown shows a new technology added to Eaton's lighting repertoire, namely fluorescent tube lamps. Eaton explores multiple new areas of application for the fluorescent lamps such as under-cabinet tubes in the kitchen, recessed lighting integrated into the art display recesses, and tube lamps installed above the hand washbasins of the guest WC and the bathroom vanity. Fluorescent lights are also included behind the open timber strip pelmet in the living room, which results in the light washing over the curtain window treatment while also lighting up the raised soffit above. Recessed light fittings form the main lighting fixture for the underside of the soffit of the covered exterior walkway. The daylighting control methods are addressed as deep roof overhangs.

The photo data set of House Van Den Berg shows the two feature lights in their physical interior context. The first detail light is a custom-detailed exterior steel light with a conical shade, made out of steel sheeting. The second custom-detail light is placed above the dining room table and consists of a steel ring frame with a raffia infill. The materials of the raffia feature light match the room divider screen adjacent to the dining room.

4.6.2.5 Acoustics

The acoustics category looks for visual examples in the case study photos of acoustic materials which were previously identified on the architectural plans, or where the combination of floor and ceiling finishes mitigate the negative interior acoustics.

The "dona cona ceilings" [sic] annotation from the architectural drawings of House Van Wouw highlights the specification of an acoustic material as a ceiling finish. Eaton combines the acoustic ceiling material with timber flooring in the living room and study, and with tiles in the entrance lobby and bathrooms. The other ceiling type used in House Van Wouw is an exposed gum pole and thatch ceiling, which is an acoustically absorbent material. The thatch finish is paired with an acoustically reflective granolithic floor finish in the double volume dining room.

House Eaton's drawings show no annotations or specifications for any acoustic materials. The material combination of a brick floor finish and an exposed gum pole and steel sheet roof would not perform very well acoustically due to the reflective nature of both materials. The 13,5-degree angle of the roof plane in relation to the floor plane resulting in a splayed surface could help to mitigate some of the negative acoustic environment. However, without softer, more acoustically absorbent materials or soft furnishings, the space would experience acoustic echoes (Ching & Binggeli 2012:280).

The one-and-a-half high volume living area of House Greenwood combines a timber floor with a timber ceiling, which would contribute to a positive acoustic environment. The entrance lobby also has the timber ceiling but is paired with a quarry tile in this space. The combination of one reflective and one more absorbent material would perform reasonably, but the double timber combination would perform better.

House Brown combines one reflective material with one absorbent material, where the ceiling finish is a roughcast concrete slab, and the floor finish comprises of woodblocks, respectively. The roughcast concrete slab is a continuous ceiling finish throughout the residence. The woodblock floor finish extends into the corridor and bedrooms, thereby extending the acoustic performance into these areas. The guest WC, shower and bathroom have a tiled floor paired with a concrete slab's soffit as ceiling, but in these spaces, the slab is significantly lower than in the areas finished in timber. The bathroom's material combination of the two reflective surfaces would result in poor acoustic performance, when compared to the living area combinations of one reflective and one absorptive material.

The ceiling finish in House Van Den Berg is a custom-designed timber slat ceiling that is installed throughout the residence. The timber slats extend to the underside of the soffit or underside of the roof structure. The timber slat ceiling is paired with a sealed face brick finish with flush joints as the floor finish in the living areas, corridors and bedrooms. The guest WC, shower and bathroom has a tiled floor paired with the timber slat ceiling, currently painted in gloss white. The timber and brick pairing should perform reasonably well. The combination of the more reflective materials, such as face brick and tiles, with the more absorbent material such as the slatted timber ceiling, results in an acoustically more comfortable space.

4.6.2.6 Entertainment system

Eaton synthesises the electrical systems and acoustics subcategories into an entertainment system subcategory in Houses Brown and Van Den Berg with the inclusion of built-in sound systems with built-in speakers. As with the previous acoustics section, the material application in the space is included in the observation.

House Brown showcases a unique example of a built-in carpentry entertainment unit which combines seating, a bookshelf above the backrest of the seat, display surfaces and a built-in record player with associated built-in speakers. This built-in entertainment unit is orientated towards the fireplace, emphasising it as the space's focal point. The turntable is placed into a custom corner space with an openable lid and ventilation holes below. When the lid is in the closed position, the lid acts as a side table for the built-in seat. The turntable is connected to two speakers which are built into the modularity of the timber bookshelf. The original floor finish of the entertainment nook is no longer present but was originally specified on the plans as an edge-to-edge carpet. The entertainment nook is adjacent to the open plan living area which has the woodblock floor finish, where both areas have the roughcast concrete slab ceiling. The combination of the concrete slab and the carpet would perform well acoustically, and the adjacent space's timber floor finish would help optimise any acoustic interference in the area.

House Van Den Berg's plans annotate a built-in radio player in the living area, which is custom made to fit into the space between the staircase and the wall, acting as a spatial divider between the dining room on the upper level and the living room on the lower level. The plans specified brick speaker boxes adjacent to the fireplace which can still be seen today, where the size of the boxes is translated into the proportions of the brick niche module. The speaker boxes have been renovated into timber-clad display boxes with integrated spotlights. The material application in the living area includes a face brick floor combined with a timber slat ceiling finish, where the material combination would have reasonable acoustic performance. The space also features the brick niche texture on opposing walls and two gum pole and raffia room partitions which would both help to mitigate any internal echoes in the space.

On following pullout pages:

Table 4.6: Visual presence of Spatial Practice as components of interior architecture: Interior Environmental Systems (Part A), and

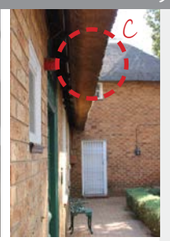
Table 4.7: Visual presence of Spatial Practice as components of interior architecture: Interior Environmental Systems (Part B)

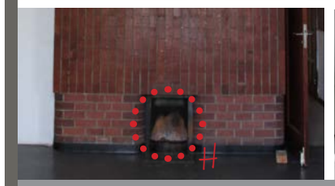
Interior Environmental Systems as Spatial Practice

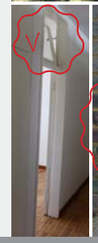
part A

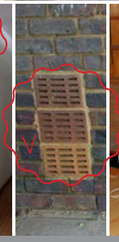
1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

A. Temperature control: heating (H)- ventilation (V) - cooling (C)







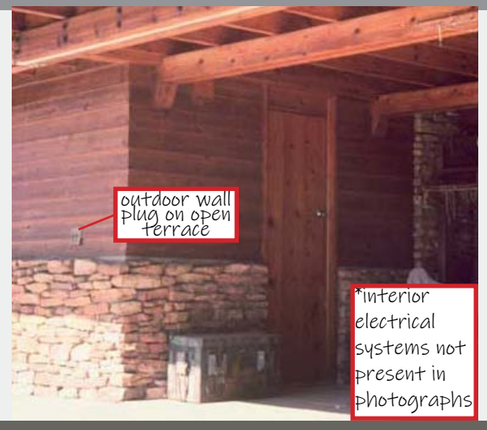


b. Water systems: water supply - drainage systems

"0"
(not present in photographs)

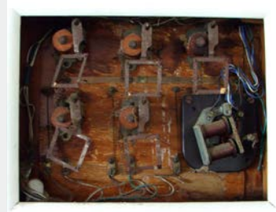
C. Electrical systems: outlets - switches

"0"
(not present in photographs)



*interior electrical systems not present in photographs

italian switches in burnished silver finish



electric bell system in kitchen

DB boards

allowance made for plugs in niches and in brick grid (fittings were recently replaced)

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Interior Environmental Systems as Spatial Practice

part B

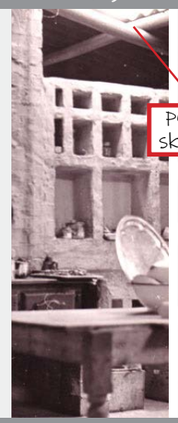
1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

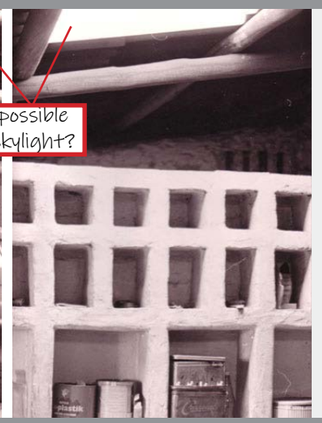
D. Lighting systems: lighting fixtures - daylight control


feature pendant

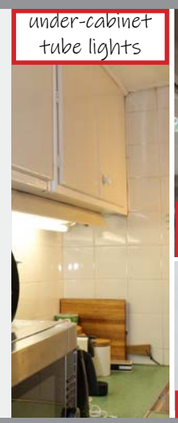

accent wall light with switch


task lighting

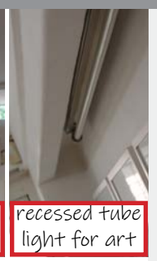



possible skylight?

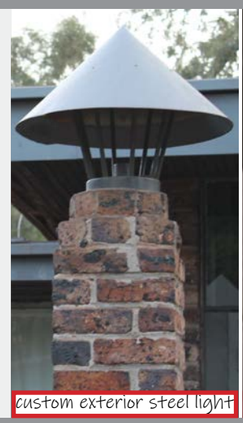

feature pendant


under-cabinet tube lights


combined curtain rail & tube light

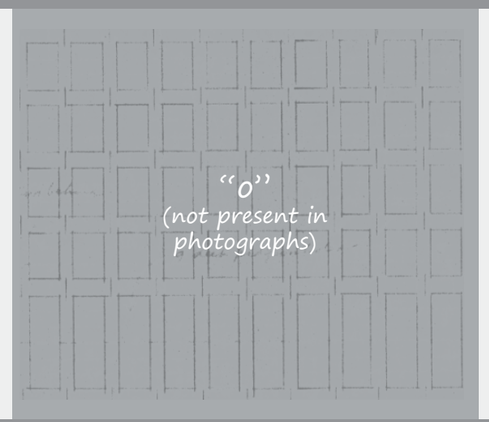

recessed tube light for art

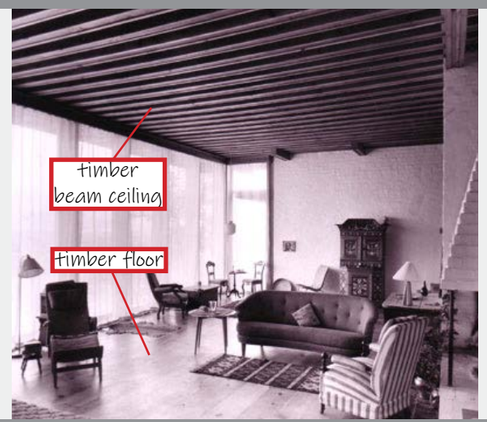

recessed light fitting cast in slab


custom exterior steel light


custom interior raffia light

E. Acoustics


"0"
(not present in photographs)


timber beam ceiling
timber floor


rough cast concrete ceiling
timber floor


"slatted ceiling"
"facebrick floor"

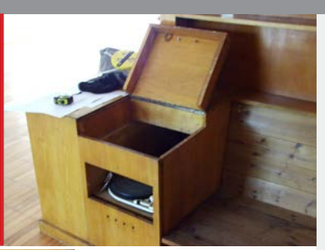
F. EXTRA: Entertainment System

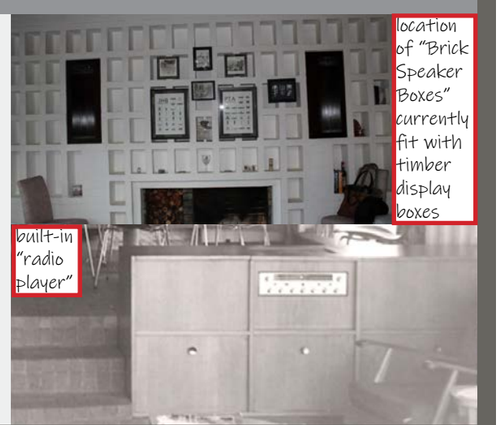
combined category

combined category

combined category


turntable / record player by British brand Garrard, integrated into built-in timber seating and shelving with built-in speakers





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4.6.3 Interior Finishing Material

The interior finishing material category has three subcategories, namely floor finishes, wall finishes, and ceiling finishes (based on Ching & Binggeli 2012:287-316). As per the first grouping activity, floor finishes, wall finishes and ceiling finishes are all identifiable in the photo data sets of all five case studies.

To contextualise the following section, refer to Table 4.8 Visual presence of Spatial Practice as components of interior architecture: Interior Finishing Material.

4.6.3.1 Floor finishes

The floor finishes subcategory includes general floor finishes and feature floor finishes. The general floor finishes in House Van Wouw includes quarry tiles in the entrance lobby, a grano floor in the service spaces and a wooden floor in the living area, study area and bedrooms. Eaton includes a feature floor finish in the dining area where the “wood block floor” or in other words a timber parquet insert with a “grano margin”.

House Eaton shows only one general floor finish in the photo data set, namely a brick finish in a stretcher bond layout. The bricks look to be quite worn with imperfect shapes, possibly pointing to the sourcing and use of imperfect or rejected bricks, as Eaton did for the marble off-cut strips used for the floors in Polley’s Arcade (Harrop-Allin 1975:104).

The photos for House Greenwood illustrates Eaton’s implementation of clay quarry tiles in the entrance foyer as a general floor finish. The feature floor finish includes a knotty pine floor in the main living area, which also continues up the staircase into the dining room.

House Brown includes a woodblock floor as the feature floor finish, as can be seen in the living areas, corridors, staircase and bedrooms. The yellow-tone woodblocks, otherwise known as parquet flooring, have been arranged in a stacked bond pattern, a pattern usually reserved for bricklaying. The “sage floor tiles” in the bathrooms are a unique colour choice for Eaton, as he usually specifies the 6x6 white Johnson tiles. House Brown’s service areas and covered parking area include a “yellow grano” floor finish.

The feature and general floor finishes visible in the photos of House Van Den Berg are the same face brick floor with flush joints in a stacked bond layout, which is installed in all the living areas, corridors and bedrooms. The blue lino floors specified on the plans were replaced during a previous renovation.

4.6.3.2 Wall finishes

The wall finishes subcategory consists of general, and feature wall finishes. The general wall finish in House Van Wouw is a white bagged brick finish with a concave joint pattern which can be found in the living areas, bedrooms and service spaces. The bathrooms only have a general wall finish of a 6x6 white Johnson tiles or in metric measurements a 150 x 150mm tile. Feature walls in House Van Wouw combine a highly textured finish with a neutral general finish. For example, the fireplace feature wall in the living room has the fireplace surround clad in textured ceramic brick slips and a smooth plaster face above. The other fireplace in the dining room follows a similar strategy where the fireplace surround is clad “with bricks laid on edge”, and the wall section above that is finished in the bagged wall finish.

House Eaton’s general wall finish can be identified as the same white bagged brick finish with a concave joint pattern as in House Van Wouw. Eaton uses the brick grid niche texture for the first time as a feature wall in this case study.

The general wall finish in House Greenwood is also the white bagged brick finish with the concave joint pattern as in the previous two case studies. The feature wall finish includes a staggered brick fireplace surround with raked horizontal joints and flush vertical joints, resulting in visually continuous horizontal strips. The fireplace surround is also finished in a white bagged brick finish. The photos of House Greenwood show a timber cladding feature wall which is a flat surface on the exterior of the study and based on the architectural drawings, where the same finish continues to the interior as full-height bookcases.

House Brown’s general wall finish is a smooth plaster wall in the living areas, corridors and bedrooms. The feature wall finish of the fireplace surround is a dark and richly textured sealed clinker brick, which Eaton annotated as rough stone on the architectural plans. The general finish in the kitchen, shower and guest WC is the 6x6” (150x150mm) white Johnson tile. Though Eaton almost exclusively uses the white Johnson tile on the walls of the case study bathrooms, in House Brown he specifies a very trendy colour choice for the time, as “pink and green mottled tiles” for the feature wall finish in the bathroom.

The photo data set of House Van Den Berg confirmed that the general wall finish applied is the white bagged brick finish in the living areas, corridors, and bedrooms. The vertical brick recesses or niche texture is applied as a fireplace surround, extending across the entire wall and also on the wall parallel to the fireplace. The niche texture is applied on such a scale that blurs the line between a general wall finish and a feature wall finish. The 6x6 (150x150mm) white Johnson tile is once again used a general wall finish in the guest WC, shower and bathrooms.

4.6.3.3 Ceiling finishes

The ceiling finishes subcategory includes general ceiling finishes and feature ceiling finishes. Eaton demonstrates a unique approach to ceiling designs, where the structural components of the roof are often exposed to the interior spaces as a feature ceiling finish. Due to the roof construction being present throughout the entire residence, the feature ceiling finish is therefore also continuously present in all the spaces. The consistent application of a feature finish results in the feature ceiling finishes also acting as a general ceiling finish.

House Van Wouw showcases a feature ceiling finish and another specification for the general ceiling finish. The feature ceiling finish in the double volume dining area is an exposed gum pole and thatch roof construction, which is open to the first-storey loft space overlooking the dining area. The general ceiling finish is the Dona Cona ceiling boards which are painted white and can be found in the entrance lobby, living room, study, bedrooms, bathrooms and kitchen area. House Van Wouw is the only case study where the general ceiling finish differs from the feature ceiling finish.

House Eaton's roof is constructed out of exposed gum pole beams and s-profile corrugated steel sheeting. The construction is visible throughout the interior space, making this both a feature ceiling finish and a general ceiling finish.

The interior photos of House Greenwood showcase an intricately detailed exposed timber beam construction that features in the living area and entrance lobby. The red-toned timber used as the ceiling finish is repeated as the external wall cladding on the upstairs study.

House Brown's roof consists of modernist-inspired concrete slabs which visually float as planes above the ground plane. The annotation on the architectural plan specifies the ceiling finish as a "rough cast ceiling", which can easily be identified in the photographs as a white painted soffit. The roughcast finish is applied to all the interior spaces and the underside of the deep roof overhangs.

House Van Den Berg's roof construction incorporates an intricate layering of roof components, seamlessly integrating the interior ceiling finish into the assembly. The interior finish is a dark-stained timber slat ceiling which acts as both the feature ceiling finish and the general ceiling finish. The timber slats, or "wood slatted" ceiling as annotated by Eaton, extends from the interior spaces to the underside of the deep roof overhangs or "eaves".

On following pullout page:

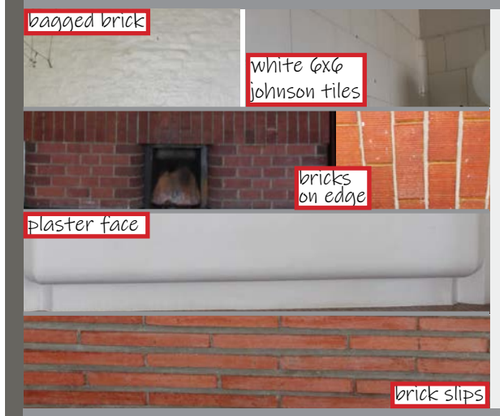
Table 4.8: Visual presence of Spatial Practice as components of interior architecture: Interior Finishing Material

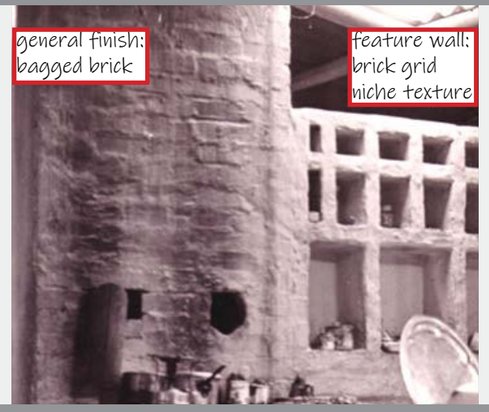
Interior Finishing Material as Spatial Practice

1937 House Van Wouw | 1944 House NM Eaton | 1948 House Greenwood | 1956 House Brown | 1964 House Van Den Berg

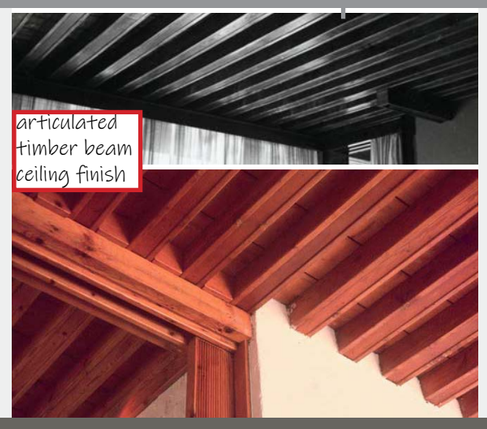
A. Floor Finishes: general floor finishes - feature floor finishes

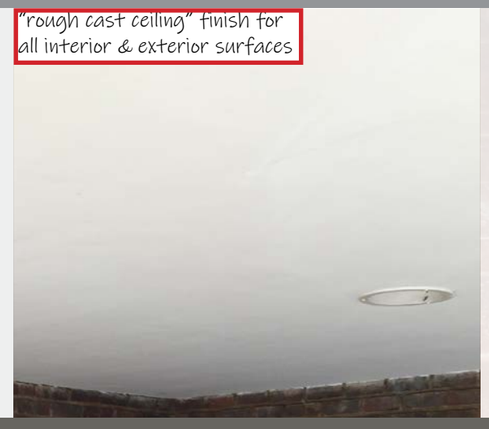
B. Wall Finishes: general wall finishes - feature wall finishes

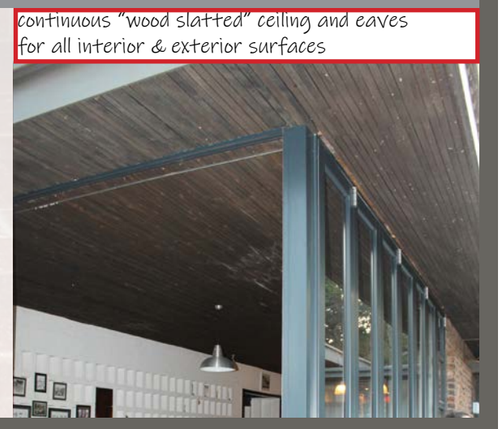




C. Ceiling Finishes: general ceiling finishes - feature ceiling finishes







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4.6.4 Interior Furnishing

The interior furnishing category has four subcategories, namely furniture, storage, window treatments and accessories (based on Ching & Binggeli 2012:317-352). As per the first grouping activity, the furniture, storage and accessories subcategories can be identified in the photos of four of the five case studies. The window treatments subcategory is present in three of the five case studies, one more than was identified in the Representations of Space analysis phase. As per the approach followed in chapter three, the furnishings subcategories are organised according to room type: kitchen, bathrooms, bedrooms, living areas and study.

To contextualise the following section, refer to Table 4.9 and 4.10: Visual presence of Spatial Practice as components of interior architecture: Interior Furnishing (Part A and Part B).

4.6.4.1 Furniture

The subtopics of the furniture subcategory include built-in furniture, feature furniture and loose furniture. The built-in furniture subtopic is discussed per the room type: kitchen, bathrooms, bedrooms, living areas, and study if that section is applicable. Feature furniture and loose furniture is included on a case by case basis.

The built-in kitchen units are visible in the photos of Houses Van Wouw, Eaton and Brown. House Van Wouw's kitchen is a utilitarian type kitchen, where the design is restricted to the functional resolution of the design details. The small kitchen features a steel above-counter cabinets, and a 6x6 white Johnson tile splashback surrounds behind the stainless steel sink. The sink has a double plate hob with control knobs and ventilation cutouts as part of a seamless unit. House Eaton's kitchen shows a cast-iron coal stove and the brick niche texture which serves as the storage units. House Brown's kitchen has a unique layout, where the scullery forms part of the kitchen area as a continuous counter below a strip of windows that run the full length of the room. The kitchen also has two worktops that protrude into the centre of the room, effectively dividing the room up into zones such as the cleaning zone, preparation zone and cooking zone. House Brown's also has modular steel cabinetry with integrated ventilation discs built into each cabinetry door below the sinks.

The photos of Houses Brown and Van Den Berg showcase built-in bathroom vanities. Both examples show a fully tiled countertop, a basin placed half-sunken into the countertop and a carpentry unit below, with painted timber doors. The vanity of House Brown has a fixed vertical timber slat insert at the front of the cupboard opening. The photos of the built-in vanity in House Van Den Berg, show the same built-in concept for the bathroom vanity and includes the custom round finger grip detail as proposed by Eaton in the architectural drawings. The shower vanity is a narrow floating unit, tiled in the 6x6 white Johnson tile with no cupboards below.

Houses Brown and Van Den Berg show different types of built-in bedroom furniture. House Brown includes a built-in dresser with four drawers, placed at the northernmost end of a built-in cupboard run. The dresser unit has its own made-to-fit window above the countertop and a wall-mounted light fitting directly above the window. House Van Den Berg showcases a built-in headboard design using the brick niche texture in a mirrored composition.

The built-in furniture for the living areas is present in the photo data set of Houses Van Wouw, Brown and Van Den Berg. House Van Wouw has a built-in server unit installed underneath the open-riser staircase made of the same timber specification and colour. An interesting feature is that the top of the third step lines up perfectly with the countertop of the server, creating the illusion of a continuous, integrated surface, despite the change in the orientation of the timber grain. There is a built-in seating nook in House Brown that is oriented towards the fireplace. The built-in seat combines a seating surface with a backrest, a bookcase with adjustable shelves and display niches above the backrest, and an end unit for storage and a built-in music player with built-in speakers. House Van Den Berg includes a built-in server in between the kitchen and dining area and a built-in radio unit in the living area. The built-in server unit has additional storage cabinets below and above the serving counter, as well as a kitchen pass through with a sliding door. Eaton applies the custom round finger grip detail which is also used in the kitchen and bathrooms, instead of cupboard door handles.

In the previously discussed architectural drawing set, no loose furniture designs were allocated to the selected case studies; therefore the loose furniture category is excluded from the second grouping activity. The furniture visible in the photographs would most likely not be of the clients choice and not from Eaton himself, most likely with the exception of his own residence. In House Eaton, the loose furniture visible in the photos is a dining room table made entirely of an unfinished solid timber with simply designed turned table legs.

4.6.4.2 Storage

The storage subcategory includes built-in storage, feature storage, and loose storage. Each of the subtopics is discussed per room: bedrooms, living and study areas and study if that section is applicable. Refer to the previous section for kitchen storage and bathroom storage.

The built-in bedroom storage units include built-in cupboards and feature brick niche storage, which are discernible in the photos of four of the five case studies. Built-in cupboards (BICs) are included in Houses Brown and Van Den Berg where each set is currently painted white but has their own unique features. House Brown’s built-in cupboards are 18 brick courses high, or 1530mm, with internal shelves mounted on the doors of the cupboard to house smaller clothing items. The shelf fronts are constructed out of four horizontal parallel dowels which link visually to

the internal slats of the built-in bathroom vanity. House Brown also has a walk-in cupboard space or dressing room with a lighting fixture inside. The 21 brick courses high, or 1785mm, guest room built-in cupboards in House Van Den Berg refines the design previously seen in House Brown by placing the built-in cupboards on a base made of a single face brick that matches the floor finish, thereby allowing the brick base to also act as a skirting. The built-in cupboards in House Brown's kids' bedrooms, as well as House Van Den Berg's main and kids bedrooms, are full-height.

Feature storage in the living areas includes built-in bookshelves in House Van Wouw, shelving built into a wall niche in House Eaton, and a combined unit of a built-in cabinet with liquor cupboard in House Brown. The liquor cabinet finishes include a timber cabinet with a top in black sheet-glass. Eaton's feature brick niche storage can be found in both Houses Eaton and House Van Den Berg. The built-in cupboards in the study in House Van Wouw are of rosewood, with glass interior shelves and brass ironmongery that matches that of the built-in server.

Original loose storage units are not visible in the photographs of the selected case studies.

4.6.4.3 Window treatments

The window treatments subcategory includes exterior window treatments and making provision for interior window treatments.

House Van Wouw's photo data set shows both exterior and interior window treatments, specifically as white painted shutters on the outside of the timber sash windows, and white painted pelmets with hidden integrated curtain rails.

The photos of House Eaton do not show any visible window openings, neither inside nor outside, from which to determine that the window treatments were considered.

The photographic data set for House Greenwood shows both the internal and external window treatments. Full-height external timber shutters can be seen as part of the doors of the bedroom terrace. The internal window treatments are integrated into the timber roof construction. The continuous visual effect of the curtain rail integrated into the ceiling construction results in the curtain visually disappears behind the timber beam, giving the illusion that curtain extends much farther upward.

Contrary to the outcome of the grouping activities of the architectural drawings, the window treatments are distinguishable from the photos of House Brown. In the living area, Eaton places a built-in pelmet with the curtain rail hid behind it. He also includes multiple fluorescent tube light above the curtain rail, but still hidden behind the pelmet. The effect of this placement is that the light will visually wash down onto the curtain, as well as up onto the raised roof slab, resulting in a soft mood lighting for the space.

Photos of House Van Den Berg's living room shows a discrete single curtain rail, which was not annotated on the architectural plans. Photos of the rest of the residence confirm that curtains have been installed in all the bedrooms, but not in the corridor, despite windows being present. Both the kitchen and bathrooms have been renovated, and no photos are available of those areas close to the occupation date, so a positive identification of window treatments in the kitchen and bathroom can not be determined.

4.6.4.4 Accessories

The subcategories associated with the accessories category includes utilitarian and decorative accessories.

Houses Van Wouw, Brown and Van Den Berg all have confirmed visual examples of the utilitarian accessories, which can be found in the bathroom of each case study. Examples of the utilitarian bathroom accessories include a built-in recessed mirror cabinet, a built-in towel rail, a built-in soap dish, and a built-in toilet paper holder in the bathrooms. Built-in mirror cabinets are recessed one brick width into the wall it is placed on, where the mirror front is mounted onto a timber backboard allowing a wide enough edge from which the vanity door can be opened. The built-in soap dish and built-in toilet paper holder for each residence come from the same modular ceramic range and has the same 6x6 proportion as the white Johnson tile. The visual details for the built-in equipment do progress over time, where the design language changes slightly over time.

House van Wouw's design features that accommodate for decorative accessories include display niches in the living room and the study (refer to Figures 4.9 and 4.10), which is especially appropriate, as the client is a sculptor.

The photographic data set for House Eaton does not show any built-in utilitarian accessories. However, decorative accessories are displayed in the brick niche texture located in the kitchen and dining room area.

In the available photographic data set, House Greenwood shows no indication of utilitarian accessories or that Eaton accommodated for decorative accessories.

House Brown accommodates for decorative accessories with the inclusion of white-painted timber display niches in the kids' bedrooms and a natural finish timber display shelf by the staircase. House Brown also shows a unique design feature where the artwork is accommodated in its own large scale niches in the living area, where a fluorescent tube light is incorporated into the top portion of the niche to illuminate the artwork on display.

The decorative accessories in House Van Den Berg have a vast area where it can be displayed due to the extensive application of the brick niche texture to two of the walls of the living area. The niche texture can also be seen in the main bedroom headboard, as well as the feature wall in the guest bedroom.

On following pullout pages:

Table 4.9: Visual presence of Spatial Practice as components of interior architecture: Interior Furnishing (Part A), and

Table 4.10: Visual presence of Spatial Practice as components of interior architecture: Interior Furnishing (Part B)

fold out here

Interior Furnishing as Spatial Practice

part A

1937 House Van Wouw

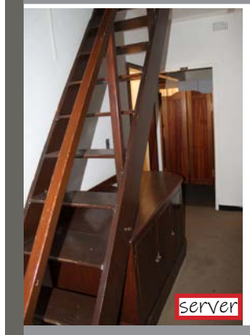
1944 House NM Eaton

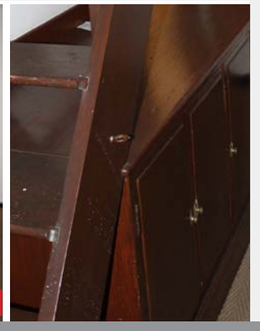
1948 House Greenwood

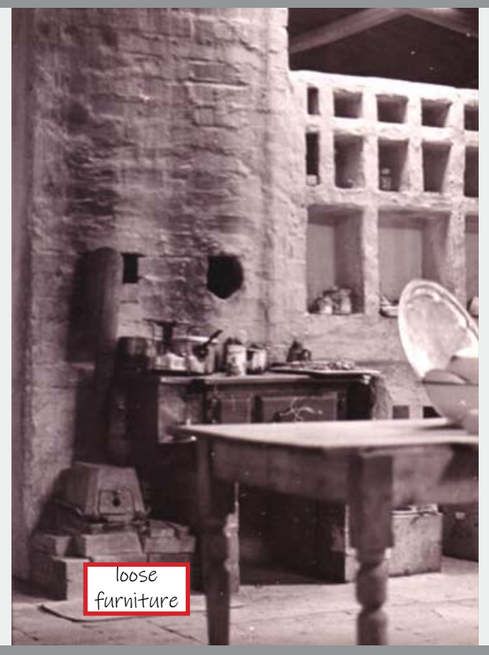
1956 House Brown

1964 House Van Den Berg

A. Furniture: built-in furniture - feature furniture - loose furniture







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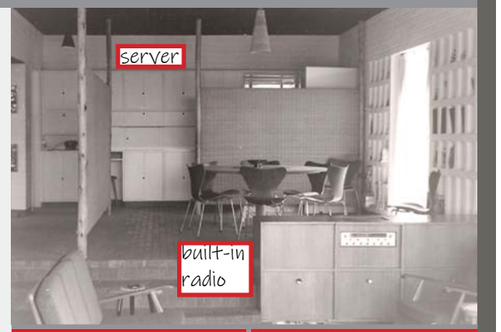
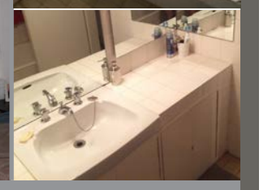
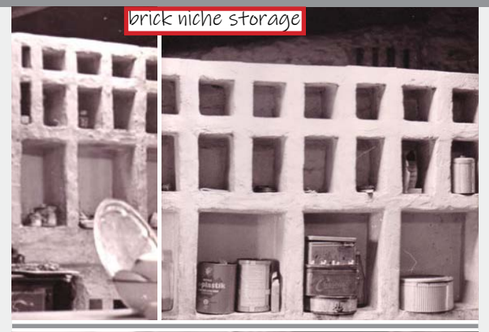




B. Storage: built-in storage - feature storage - loose storage



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Interior Furnishing as Spatial Practice

part B

1. House Van Wouw 1937	2. House NM Eaton 1944	3. House Greenwood 1948	4. House Brown 1956	5. House Van Den Berg 1964

C. Window Treatments: exterior - interior

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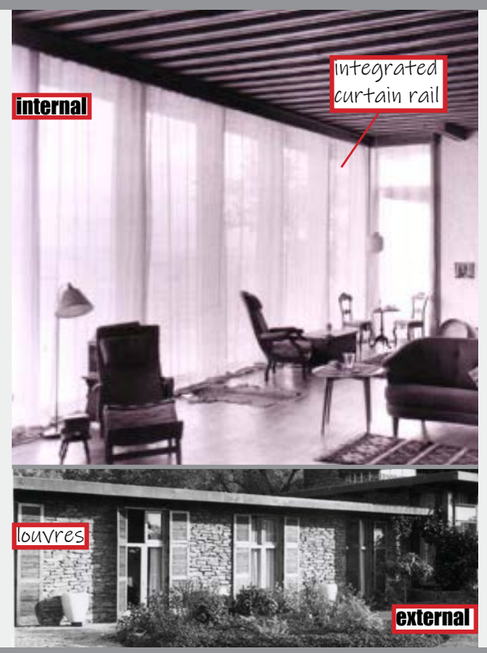

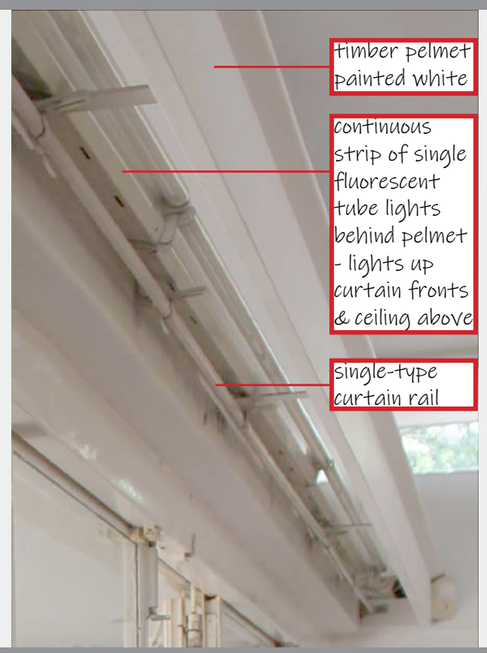

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D. Accessories: utilitarian - decorative

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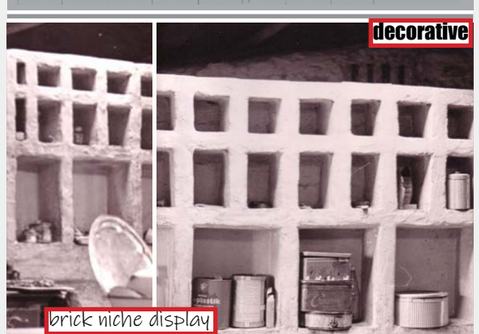

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4.7. SPATIAL PRACTICE THEMES

In the previous section, the tagging process and two grouping activities identified the components of interior architecture in the photographic data sets of the five case studies (Baptiste 2001:10; Hays 1998:182, Lefebvre 1991:132). The results were summarised in a tabled and graphic format, respectively. A comparison between the categorised data sets allows for the identification of initial themes as it relates to the categories of the components of interior architecture. The initial themes are further compared and analysed as part of the emerging themes category.

4.7.1 Initial themes

The four categories of the components of interior architecture are verified by the scrutinizing of the photographic examples from the case studies. The initial themes are based on the results from the first grouping activity, where the four categories correspond with the four initial themes. The initial themes are elaborated on, with examples in the emerging themes section to follow. The Spatial practice themes focus on the physical manifestation of the architect's intent.

The interior building elements comprise the first theme of which the subcategories include planes, openings and circulation elements. All five of the case studies show evidence that Eaton addresses all three of the subcategories.

The second theme is based on the five subcategories of the interior environmental systems, namely the temperature control, water systems, electrical systems, lighting systems and acoustics. Photographic evidence shows the presence of all five subcategories in four of the five case studies. Due to the limited photo data set of the interior spaces of House Greenwood, the water systems, electrical systems and acoustics subcategories could not be verified from the photographic analysis.

The interior finishing material category informs the third theme. The scrutinisation process found photographic evidence of all three subcategories, namely floor finishes, wall finishes and ceiling finishes.

The fourth theme relates to the category of interior furnishing, which includes four subcategories. The subcategories of furniture, storage and accessories are present in the photos of four of the five case studies, where House Greenwood shows minimal examples due to the limited number of interior photos. Photographic evidence of the window treatments subcategory is confirmed for four of the five case studies. Only House Eaton’s photos do not show any window treatments, as the three available interior photos do not include any visual examples of a window.

The four initial themes point to an initial texture that three of the five case studies showcase photographic examples of all fifteen subcategories of the components of interior architecture. The photos of House Eaton do not contain evidence for water systems, electrical systems, acoustics and window treatments, which is due to the very small data set of three interior photos.[7] House Greenwood's small data set of seven interior photos, does not show any examples of three of the five subcategories of the Interior Furnishings category, namely furniture, storage and accessories.

4.7.2 Emerging themes

The physical manifestation of the four categories of the components of interior architecture is illustrated during the second grouping activity, using a selection of photographic examples from the case studies. The four initial themes identified in the previous section are elaborated upon in the upcoming section as emerging themes, exploring the textures or layers of meaning that can be found in the details of the thematic exploration.

4.7.2.1 Interior Building Elements

The interior building elements form the topic of the first theme, where the photographic examples and initial themes are explored under the subtopics of planes, openings and circulation.

The examples drawn from the photos demonstrate an exploration of volumes through the different compositions, height placement and materials applications of the different planes such as floors, walls and partitions, and ceilings. Compositions between planes are used to manipulate volumes and explore the relationship between inside and outside spaces, as well as between semi-public and private spaces. Higher volumes are most often allocated to more public living areas, where private spaces often have lower volumes. Different combinations of materials are applied to different plane compositions but are elaborated upon in the interior finishing material category.

The second grouping activity demonstrates Eaton's use of standard window frames as a modular spatial proportioning element. The composition, placement and grouping of multiple windows are used in conjunction with the planes to create entire glazed planes or portions of planes, which visually translate as non-planes or planar voids. Window openings are also applied as single, independent elements to focus views from the interior, or to emphasise specific activities in the interior space, for example, the dressing table. Special attention is given to the front door designs, especially in the last three case studies, where the front door is designed as part of an entire entrance plane. In these examples the entrance opening is surrounded by a grid-proportioned plane where the material application visually disintegrates the entrance plane into a timber and glass lattice with either a solid plane centre when the door is closed, which emphasises a barrier-

7 The data set of three photos is very small in comparison to for example the 114 interior photos available for House Brown

like threshold, or a central opening when the door is open, resulting in the effect of the entrance visually opening up, softening the perceived presence of a threshold.

Eaton demonstrates his ability to resolve the circulation elements as befits the project intention, where design solutions range from functional circulation elements to a staircase as a design feature. Eaton also skillfully uses staircases as discreet circulation elements between changing levels, where the staircase becomes an extension of the floor plane.

4.7.2.2 Interior Environmental Systems

The second theme explores the interior environmental systems to determine the emerging themes which fall under the subcategories of temperature control, water systems, electrical systems, lighting systems and acoustics.

Heating, ventilation, and cooling all fall under the temperature control subcategory. All the case studies heat the living areas using a fireplace, which also acts as a visual focal point or design feature. The link between the fireplace and the hearth as the centre of a home is appreciable. Passive ventilation and cooling methods are used exclusively in the selected case studies, pointing to design solutions that are responsive to the local or regional climate.

The water systems consist of the water supply and drainage. The photographic examples show that the majority of case studies have a water storage tank housed in a tank tower protruding from the roof level, that visually mimics the design language of the chimney. The service areas are often arranged around the tank towers, resulting in the water systems supply point acting as an organisational node for the service spaces.

There is an increase in the attention Eaton pays to the placement and design presentation of the interior electrical systems over the period represented by the case studies. In the most considerate example, the points of use linked to the electrical systems, such as electrical outlets and light switches, are placed to facilitate activities included or anticipated as part of the space planning. The photographic evidence confirms the Representations of Space observation of Eaton's additional consideration for the brick construction module, where the electrical points of use are integrated into the module dictated by the structure.

The second grouping activity and initial themes highlighted Eaton's increased interest and willingness to experiment with electrical lighting systems and a consistent approach to the daylighting control mechanisms across the five case studies. The photographic evidence of the first case study shows a natural sensibility towards the placement of task lighting in the locations where additional lighting would be required to fulfil tasks successfully, which continues into the last case study. Ambient lighting is included but is often specified as wall lights. Feature lighting is

incorporated from the first case study, but only in the last case study does Eaton custom design his own feature pendant luminaire to match the conceptual approach and design language of the space where it is placed. In House Brown, Eaton shows an enthusiasm to explore lighting like in none of the other case studies, both in the specification of fluorescent tube lights and in the application areas. In House Brown, the task lighting continues to be sensibly included in close proximity to intended and anticipated activities. The areas where feature pendants or wall lights are specified in the other case studies is where Eaton proposes integrated lighting that is screened from direct view while using design elements such as pelmets and niches. The combination of lighting and screening design elements, resulting in diffused lighting, which contributes to the overall mood of the space. Daylighting control mechanisms are included as timber shutters for both windows and doors, as well as deep roof overhangs or separate window overhangs that protect openings from direct sunlight.

Eaton's main strategy for the acoustic performance of a space is using the material application on the horizontal planes, where one material is acoustically absorbent, and the opposing plane's material is acoustically reflective. Examples of these combinations include grano with thatch or timber with brick.

In the last two case studies, Eaton includes an entertainment system consisting of a built-in sound system with built-in speakers in the living areas, possibly due to his reverence for the arts and its ability to enrich the lives of those that interact with it.

4.7.2.3 Interior Finishing Material

The third theme's topic is the interior finishing material category, where the emerging themes relating to the floor finishes, wall finishes and ceiling finishes are derived from the photographic evidence from each case study.

Eaton's overall approach to floor finishes includes practical material selections for the intended use of the areas, as well as the specification of locally available materials. Feature floor finishes include variations of timber flooring such as "wood" planks, parquet timber blocks in a basket weave pattern, knotty pine planks and a woodblock (parquet) in a stacked bond pattern. In his own house, he installed a rough brick floor in a stretcher bond pattern, and in the last case study, Eaton applies a face brick floor in a stacked bond pattern. In House Greenwood, the feature floor of the living areas are timber, but brick floors are used in all the bedrooms. If the entrance foyer flooring is not the feature flooring, clay quarry tiles are used instead. Floor finishes of the service areas and bathrooms include grano, sage-colour floor tiles, and linoleum in different colours, such as grey and blue. The photographic examples confirmed the Representations of Space emerging theme observations regarding the transference of patterns between materials, as well as the preference for natural materials.

The wall finishes include both general and feature wall finishes. The most often specified general wall finish is the white bagged brick finish with a concave joint, where there is only one case study that uses a smooth plaster wall instead. Feature wall finishes are mostly variations of the clay brick and include finishes such as brick slips, bricks laid on edge, a grid-patterned brick niche texture, a staggered brick finish with raked horizontal joints, and a sealed clinker brick finish. One of the case studies shows a timber cladding as a feature wall finish. Wall finishes in the bathrooms of three of the five case studies are the 6x6 white Johnson tiles, with only one case study showing a coloured and patterned tile, specifically pink and green mottled tiles. The kitchens and other services spaces usually have the same 6x6 white Johnson tiles as in the bathrooms. The emerging theme for the wall finishes points towards Eaton's preference for white grid-patterned general wall finishes and feature wall finishes of brick or brick-derivatives.

Eaton approach to ceiling finishes are unique in that the roof construction is exposed to the interior where it doubles as the interior ceiling finish, or alternatively, the ceiling finish is completely integrated with the roof construction. Eaton's most often used ceiling strategy is to use the same ceiling finish as a general and a feature finish throughout the entire residence.

4.7.2.4 Interior Furnishing

The interior furnishing category informs the fourth emerging theme with the furniture, storage, window treatments and accessories as focal points of the photographic evidence and analysis.

The examples of the furniture subcategory from the second grouping activity include the built-in and feature-furniture, as well as loose furniture that is all included in the kitchen, bathrooms, bedrooms, and living areas of the case studies. The identified examples show that the design of the built-in kitchen units become increasingly more detailed with layouts in the later examples incorporating more of the work triangle zones. The bathroom vanities are only present in the photos of the last two case studies where the design and finishes are replicated between the two, except for the custom finger-grip detail which is unique to the last case study. The built-in bedroom furniture shows a consistent inclusion of built-in dressers and a unique built-in bed headboard feature in the brick niche texture. The living areas showcase a wide selection of built-in server units, built-in seating units and built-in music players. The loose furniture in House Eaton shows a preference for selecting simple timber pieces.

The storage subcategory consists of built-in storage, feature storage, and loose storage, as can be seen in the bedrooms, living, and study areas. The examples show a consistent inclusion of the general and feature built-in storage, with no photographic examples of loose storage units. The most common storage units present in the bedrooms of all of the case studies, except House Eaton, is the general built-in storage of the built-in cupboards. Eaton's feature storage units are

incorporated in the living areas and include built-in bookcases and storage facilitated by the brick niche wall texture. The bookcase-type feature storage units are often incorporated into the focal points of the living areas, for example as part of the fireplace surround. Unique or once-off feature storage units are also present in the living area of House Brown, specifically a “built-in cabinet with liquor cupboard” made of timber cabinetry with a black glass shelf used as a top, with a set of built-in rosewood cupboards which includes internal glass shelves, in the study of House Van Wouw.

The window treatments subcategory consists of interior window treatments and exterior window treatments. As observed in the Representations of Space phase, the photographic examples confirmed that Eaton’s approach to interior window treatments progressed over time from a more traditional solution of timber pelmets for curtains in the first case study, to a considered combination of curtains and blinds in the third case study, to an intricate window treatment design which combines the pelmet and curtain rail with a continuous installation of fluorescent lights which result in diffused mood lighting in the fourth case study. The layering of different types of window treatments links to the idea of thresholds, as the scale of application makes it comparable to a plane. The last case study shows a curious phenomenon, where a discreet but visible single curtain rail is added on top of the integrated roof and ceiling structure detail. The lack of integration of the rails into the ceiling detail possibly points to someone else adding the rail. Alternatively, it could also be a request by the client at a much later stage of the construction. The last case study is also one of two examples where the exterior window treatments or shutters, are not included in the design as a privacy element. This could be due to the inclusion of a Frank Lloyd Wright-inspired detail of horizontally extending solid brick screen walls that provide visual privacy from the gaze of the neighbours (Harrop-Allin 1975:89).

The accessories subcategory has utilitarian and decorative aspects that were confirmed in the second grouping phase. The utilitarian accessories are primarily located in the bathrooms and are permanent built-in features, examples of which include a recessed mirror cabinet, towel rail, soap dish, and toilet paper holder. The visual language for the utilitarian elements remains constant from the first to the last case study. Visual examples where Eaton accommodates for the display of decorative accessories, such as painting and ornaments, are available for four of the case studies. The design element that is easiest to identify as one that can accommodate for decorative accessories is the brick niche wall texture, present in Houses Eaton and Van Den Berg. Larger variations and alternative shapes of niches can be found as display recesses in Houses Van Wouw and Brown, which aims to accommodate for sculptures and paintings respectively. House Brown demonstrates an interesting hybrid furniture piece in the children’s bedrooms that combine a timber bookshelf with the opening proportions of the brick niche texture.

4.8. SPATIAL PRACTICE TEXTURES

In order to deduce and discuss the Spatial Practice textures, or layers of meaning inherent in the photos, the previously identified initial and emergent themes are summarised and analysed (Baptiste 2001:10; Hays 1998:182, Lefebvre 1991:132). The first grouping activity in conjunction with the initial themes confirmed the presence of all four categories of the components of interior architecture in the selected case studies, with the exception of four categories in House Eaton and three categories in House Greenwood. The topics not visually present in the photographs of House Eaton include water systems, electrical systems, acoustics and window treatments. House Greenwood's unconfirmed topics include the furniture, storage and accessories.

The emerging themes from the interior building elements category show that the compositions, relationships between the planes and resulting volumes are informed by a theoretical or philosophical stance translated into spatial form. The openings relate to the concepts of planar voids, modularity, the relationship between inside and outside, the framing of views and activities, and the experience of the entrance threshold. The manifestation of the circulation elements is subservient to the project intention or concept.

The textures relating to the interior environmental systems category suggests the inclusion of a fireplace as the symbolic hearth of the home. A preference for passive ventilation and cooling systems speaks to an in-depth understanding of the local or regional climate. The water systems are included as active systems, while the water storage tank functions as an organisational node for the service spaces. The space planning and activities act as the organisational driver for the electrical systems, as the points of use are placed to facilitate intended and anticipated activities, while seamlessly integrating the electrical system with the structure for a visually appealing design solution. Lighting design should ideally incorporate for all four types of lighting, which includes ambient lighting, task lighting, feature lighting and mood lighting, of which Eaton includes all four types. His ambient and task lighting strategy uses the same approach as electrical systems, where the space planning dictates the placement. The mood and feature light placement is also dependent on the space planning but is further influenced by the project's conceptual intention, which drives the decisions around the visual language and type of luminaire. Deep roof overhangs and overhangs are included as passive daylighting control features, where timber shutters provide additional control. The interior acoustics is managed by the material application, most often as the ceiling and floor finishes. The acoustic material application strategy pairs one acoustically reflective material with another acoustically absorbent material. Based on Eaton's previously identified belief in the enriching effect art has on a person's quality of life, art forms such as music is incorporated as part of the entertainment system of the living areas in the form of built-in music players.

The interior finishing materials category relate to the photo floor, wall and ceiling finishes visible in the photos of the case studies. The feature floor finish textures show that feature floor finishes are most often included as timber, where the sizes, finishes, colour and patterns are varied in and between case studies to achieve visual variety. In two cases studies brick floors are applied throughout the entire residence, barring the services areas, and in another, the entire bedroom suite floor is finished in brick. The service areas most often include grano and tiles as the preferred floor finish. However, technologically advanced finishes of the time, such as linoleum, were also included in the last two case studies. The feature and general wall finishes in the cases studies are all variations of brick or clay products, following a similar strategy to the floor finishes, where the same material used with variations in sizes, finishes, colours and patterns. The consistent effort to rejuvenate and experiment with a preferred palette of materials for each plane is a testimony to Eaton's creative problem-solving ability. Ceiling finishes are exposed roof construction elements that is visible throughout the entire project.

Overall there is a continuous progression in the design resolution of the built-in furniture and storage units. The design becomes more detailed and considered, with more custom-designed carpentry features added as time progresses. Interior layouts also become more considered as the workflow or activities happening in the space are optimised and are spatially supported by integrated services such as electrical and lighting points. The standardised visual language of the bathrooms has the benefit of suiting the taste of a bigger group of people, providing the space with design longevity and a less frequent need for renovations due to style. Built-in feature furniture and storage units can be found in all the case studies, where art display niches, built-in bookcases and the brick niche texture are included most frequently. The brick niche texture is often used by residents as a bookcase or as display spaces, emphasising the idea of personalisation.

The solutions for the interior window treatments gain in complexity over time, where a single design element of a pelmet is redesigned to integrate with other design features, to accommodate for multiple layers of window treatment or thresholds, or to perform multiple design roles, such as being a source of mood lighting. The exterior window treatments are used as privacy elements and are included in all but the last two case studies. The strict delineation between inside being private space and outside being public space is emphasised by the use of the exterior window treatments, specifically shutters. The lack of shutters in the last two examples expresses a change in the conceptualisation between public and private space where more nuanced subcategories, such as semi-private space, is accommodated for with the application of other design elements, such as outdoor screens.

Built-in utilitarian accessories demonstrate that the space planning and activities in the space are deeply understood and all the spatial support is provided to complete the intended activities. All the case studies accommodate for the display of decorative accessories such as paintings, sculptures

and ornaments. The niche is the design element most often used to accommodate for decorative accessories and is used as a single application of a large feature niche, or as a group or planar compositions, as can be seen in the brick niche texture. The display of decorative accessories is often located as part of a design focal area or in close proximity to it. The focal areas in the selected case studies include fireplaces, feature furniture such as bookcases and the art display niches, and even the built-in music players with speakers. This composition links the idea of the hearth or hearth of the home (fireplace), with a source of knowledge (bookcase), a place to revisit your memories and to be inspired by art (decorative accessories).

4.9. EATON'S SPATIAL PRACTICE OF INTERIOR ARCHITECTURE

The initial and emergent Spatial Practice themes from the previous section are based on the analysis and summary of the photographic examples from the five case studies. The theme categories directly relate back to the categories of the components of interior architecture, which include the Interior Building Elements, the Interior Environmental Systems, Interior Finishing Material and the Interior Furnishing. From the comparison between the themes, the textures or layers of meaning relating to the Spatial Practice are deduced.

The Spatial Practice domain is the physical manifestation of the Representations of Space or architect's intent, where the Spatial Practice analysis provides visual examples or equivalents of what was observed in the architectural drawing sets. The Spatial Practice analysis confirmed details of features identified in the architectural drawing sets, while also identifying features and details which were not observed - summarised in Figure 4.1.

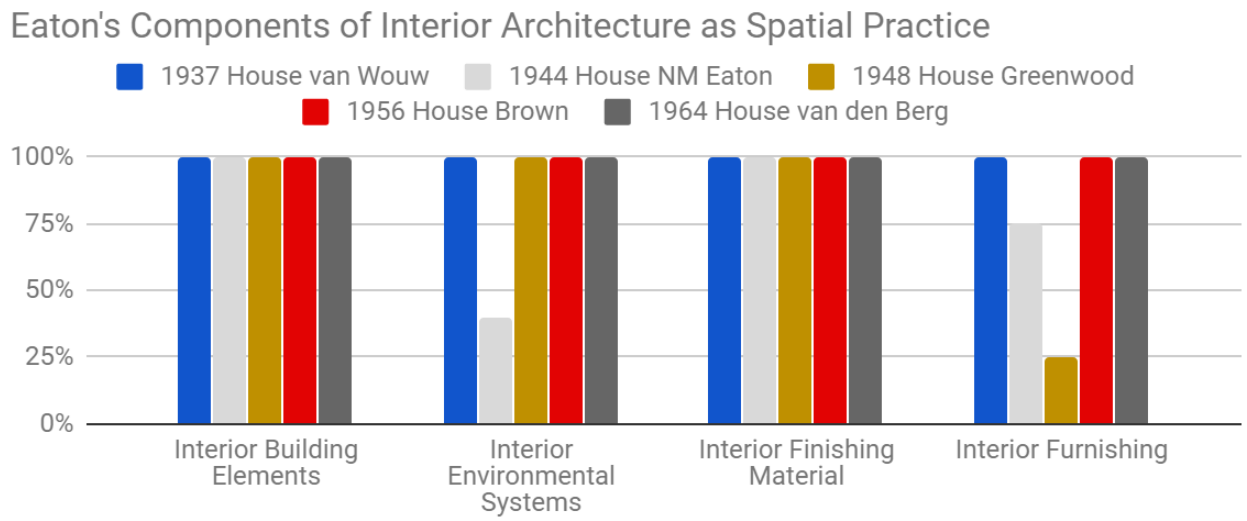


Fig. 4.1 Summary of the components of interior architecture as Spatial Practice across five case studies

The additional information allows for an interpretive deduction of the textures or meaning represented by the identified features:

- Interior building elements
  - The relationships between the planes and resulting volumes are informed by a theoretical or philosophical stance translated into spatial form;
  - The openings relate to the concepts of planar voids, modularity, the relationship between inside and outside, the framing of views and activities, and the experience of the entrance threshold;
  - Circulation elements emphasise the project intention or concept.
- Interior environmental systems
  - The fireplace is included as the symbolic hearth of the home;
  - The use of passive systems for ventilation, cooling and daylighting control;
  - The main water supply, the tank tower, is used as a central organising node for the service spaces;
  - The space planning acts as the organisational driver for the points of use of the electrical systems, while seamlessly integrating and complementing the design of the host structure;
  - The space planning dictates the placement of the ambient and task lighting;
  - The mood and feature light placement depends on the space planning,but the project's conceptual intention influences the visual language and the luminaire type;
  - The acoustics is managed by the material application strategy which pairs one acoustically reflective material with another acoustically absorbent material;
  - Access to a range of art forms are encouraged, for example built-in music players are included as part of the entertainment system.
- Interior finishing materials
  - The experimental and inventive application of a standard palette of materials, applied in a variety of sizes, finishes, colours and patterns, where each plane has its own associated material palette;
  - The ceiling finishes as homage to the art of building and construction.
- Interior furnishings
  - A custom and personalised approach to client activities and needs;
  - A detailed, neutral but standardised design, ensures design longevity;
  - Detailing and integrating one design element to perform multiple functions;
  - Using design elements such as window treatments as a representative for the relationship between public and private spaces.
  - space planning and activities in the space is deeply understood and all the spatial support, such as the utilitarian accessories, is provided to complete the intended activities;

- The accommodation and inclusion of a variety of artwork in the interior space, emphasising the relationship between architecture and art
- The composition of the interior focal areas links the idea of the hearth (fireplace), with a source of knowledge (bookcase), a place to revisit your memories and to be inspired by art (decorative accessories)

4.10. CONCLUSION

Chapter four investigated the Spatial Practice domain as the second aspect of the spatial triad by focusing on the physical aspects of the interior spaces of the selected, Eaton-design case studies. In the first step, the presence of the components of interior architecture was verified in the old and new photos of the case studies, as representative of the Spatial Practice, or the physical space. The second step created a visual compilation of the components confirmed in the previous step, whereafter the themes associated with the collated visual examples were proposed. The final step included the deduction of textures or underlying meaning associated with Eaton's Spatial Practice as it relates to Interior Architecture.

Chapter five investigates the Representational Space domain as the third aspect of the spatial triad and specifically focuses on the lived experience of the interior spaces of the selected Eaton case studies.

CHAPTER 5

REPRESENTATIONAL SPACE AS LIVED EXPERIENCE

5.1. INTRODUCTION

Chapter four investigated the second aspect of the spatial triad, namely the Spatial Practice domain which encompasses the physical aspects of the Eaton-designed interior spaces. The section focused on using the old and new photos of the case studies, as representative of the Spatial Practice, or the physical space. The presence of the components of interior architecture was verified and illustrated with a visual compilation; themes were identified; whereafter the underlying patterns and associated meanings were distilled into representative textures. The resulting textures reveal Eaton's Spatial Practice as it relates to Interior Architecture.

Each domain of the spatial triad focuses on a unique aspect of space which should be understood separate from and in relation to the other domains to ensure the complexity of space is addressed. Chapters three, four and five each explore the same components of space through a specific lens or domain at a time. The Representations of Space domain explores the architectural intention for the interior space, the Spatial Practice domain investigates the physical aspects of the interior space and the Representational Space domain examines the user's experience of the interior space.

Chapter 5 investigates the Representational Space domain as the third aspect of the spatial triad. This section specifically focuses on the lived experience of the Eaton-designed interior spaces by firstly, verifying the presence of the components of interior architecture in the resident's experience of the space. Secondly, highlighting the confirmed components of interior architecture in a visual compilation, and lastly extrapolating and proposing textures or meanings associated with Eaton's Representational Space as it relates to interior architecture.

5.2. REPRESENTATIONAL SPACE AS LIVED EXPERIENCE

Representational Space is the category in Lefebvre's spatial triad that focuses on the lived space, or more specifically a user's experience of a space. The original French term allocated to this category is "*l'espace veçu*", where *veçu* translates as a personal experience, to live or to participate (Lefebvre 1988:section 2.14).

The study's third sub-question aims to explore the lived experience of Eaton-designed interiors:

- Which components of interior architecture are residents aware of in Eaton-designed residential interior spaces;
- What are the characteristics of the resident's holistic experiences of the interior space?

Pallasmaa (2014:230) explains that spatial qualities and characteristics cannot be understood by exclusively focusing on the visual aspects, as it is a "complex multi-sensory fusion of countless factors which are immediately and synthetically grasped as an overall atmosphere, ambience, feeling or mood". Lefebvre's spatial triad accommodates the layered quality described by Pallasmaa by including Spatial Practice as perceived space, and Representational Space as experienced space.

Both Creswell (2013) and Nesbitt (1996:28-30, 412-455) propose that phenomenology can be used as a method of enquiry to explore the lived experience of people. Moustakas (1994:12) provides a definition of the empirical phenomenological research approach as focusing on "experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience". Using this phenomenological approach results in thick descriptions of the cases studies which are generated from human experiences. The value of including the experiential qualities of a space is encapsulated in the following quote:

> Buildings do not merely provide physical shelter or facilitate distinct activities. In addition to housing our fragile bodies and actions, they must also house our minds, memories, desires and dreams. (Robinson & Pallasmaa 2015:52)

This section of the study focuses on the resident or long-term user's experience, as the architectural intent for a residential space will naturally be focused on accommodating and enriching the resident's experience and activities.

5.3. DATA SET: INTERVIEWS AND QUESTIONNAIRES

The data set associated with the long-term user's spatial experience includes semi-structured interviews and a questionnaire compliant with the demands of research ethics (refer to Addendum B Interview documentation). Residents who are currently living in one of the selected case studies are requested to conduct both an interview and a questionnaire.[1] Only two case studies have residents willing to conduct interviews, namely House Brown and House Van Den Berg, and both these residents also agreed to complete the questionnaire. Both residents have stayed in their residence for more than two seasonal cycles which allow for a good baseline experience of the changes in spatial experience and performance, with House Brown's resident having more than two years' experience and House Van Den Berg's resident having more than five years' experience.

House Brown's data set consists of a 44 minute recorded interview with the resident, which is transcribed at a later date, as well as a questionnaire completed by the resident immediately after the interview.

House Van Den Berg's data set consists of field notes made by the researcher during the interview of the resident, as well as recollections of provided answers, both formalised as a text document within two hours of completion of the interview. The data set includes a completed questionnaire, given to the resident immediately after the interview, completed within a week of the interview.

5.4. REPRESENTATIONAL SPACE APPROACH AND METHODS

The approach, documentation and analyses of the user experience follows a phenomenological method of enquiry to gain insight into the lived experience of the everyday. The researcher acknowledges the potential differences in the lenses between the everyday user as a probable layman to the concepts of the built environment and the researcher-interviewer being a trained professional of the built-environment.

5.4.1 Lived experience of the everyday user

The first data gathering method is a semi-structured interview based on the phenomenological interviewing method as proposed by Bevan (2014:142-143), who emphasises the importance of a systemic approach to the interview, focusing on accurate descriptions and the identification of experiential themes. He proposes structuring the interview in three parts "contextualizing experience, apprehending the phenomenon, and clarification of the phenomenon".

1 Refer to Addendum B: interview documentation

In order to contextualise the experience, initial questions encourage the respondent to describe the context of the experience, whereafter alternating questions requiring descriptions and clarification focuses the respondent's attention on the phenomena under investigation. The respondent should be encouraged to use "imaginative variation" to clarify unclear statements about the phenomena (Bevan 2014:139-143). Analysis of the transcribed data comprises the final clarification step.

The questionnaire is the second data gathering method for the everyday user. It relates to the descriptive and clarifying aspects of the interview, by specifically focusing on the resident's experience of the spatial qualities of the case study. The qualitative data analysis technique used in the Representations of Space and Spatial Practice chapters remains applicable to the data analysis of the Representational Space, as Baptiste's (2001:3) second phase of classifying qualitative data is comparable to Bevan's (2014:142-143) clarification phase. To reiterate, the two activities characterising Baptiste's (2001:10) classification phase include data tagging and grouping.

Transcription of the interviews allows for the data tagging of the contents in the Atlas.ti software program.[2] Using the software, the first cycle of data tagging scrutinises the transcribed text of the interview, field notes and questionnaires for keywords and concepts relating to Lefebvre's spatial triad and the components of interior architecture, to confirm its presence in the data set. The identified keywords are tagged and labelled or 'coded' as per the software's terminology. A code is defined as "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldana 2015:4). Saldana elaborates that codes are symbolic ideas generated by the researcher to represent the underlying concepts of the data. The results of the tagging or coding activity are summarised in a table format, where a positive identification is shown as a '1', a '0' is allocated for a non-identified category and a 'n/a' as a category that is not applicable, as per the first grouping activity used for the previous two chapters. He refers to this coding method as provisional coding, where a list of codes is predetermined by the researcher based on previous investigations (Saldana 2015:297).

2 Atlas.ti is a "qualitative data analysis & research software" (Atlas.ti 2019).

The second grouping activity mimics the corresponding grouping activities and visual representation of the previous chapters, where examples substantiating the allocation of the identified and non-identified categories from the first grouping activity, are compiled into a graphic composition. Examples include, where possible, direct quotes from the interviews, field notes and questionnaires, as well as codes generated from the analysis of this data set.

For the Representational Space domain, a third grouping activity is included where the data set is coded a second time for codes or concepts present in the data, but which does not originate from the previously identified theory. The third grouping activity uses a combination of in vivo coding and descriptive coding, where in vivo coding is characterised by the use of direct quotes from the respondent as codes, and descriptive coding assigns topics as codes (Saldana 2015:292, 294-295). The purpose of including a third grouping activity is to reduce the researcher's bias towards the concepts inherently present in the data, as provisional coding can be overly exclusive due to its predetermined set of codes.

5.5. VERIFICATION OF REPRESENTATIONAL SPACE AS COMPONENTS OF INTERIOR ARCHITECTURE

The first grouping activity for the Representational Space domain identifies the presence of the components of interior architecture in the everyday user experience across the five case studies, To reiterate, the categories of the components of interior architecture include the interior building elements, the interior environmental systems, interior finishing material, and interior furnishing.

5.5.1 Interior Building Elements

The three subcategories for the interior building elements category includes planes, openings and circulation (based on Ching & Binggeli 2012:148-214).

The verification phase highlights that both residents of Houses Brown[3] and Van Den Berg[4] makes reference to the planes and openings subcategories. Both residents also do not mention anything related to the circulation subcategory. Refer to Table 5.1 Presence of the components of interior architecture: Interior Building Elements to follow.

Table 5.1: Presence of the components of interior architecture: Interior Building Elements

Presence of the components of interior architecture: Interior Building Elements in the lived experience of the everyday user			***KEY*** ***present = 1*** ***not present = 0***
Category	***Subcategories***	***1956 House Brown***	***1964 House van den Berg***
Interior Building Elements	*Planes*: a) floors b) walls and partitions c) ceilings	1	1
	Openings: a) windows b) doors: front door, internal doors	1	1
	Circulation a) stairways/ balustrades b) ramps c) mechanical *not common in residential projects	0	0
Presence in each subcategory		2/3	2/3
TOTAL % verified Components of Interior Architecture: Interior Building Elements		67%	67%

3 (HB Resident 2018, personal communication, 28 September 2018)

4 (HVdB Resident, personal communication, 13 August 2018)

5.5.2 Interior Environmental Systems

The six interior environmental systems subcategories include temperature control, water systems, electrical systems, lighting systems, acoustics and fire suppression systems (based on Ching & Binggeli 2012:215-286).[5]

The verification phase for the interior environmental systems confirms that the temperature control, water systems, electrical systems and lighting systems are present in both data sets related to the experience of the everyday user (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August). The acoustics subcategory is not present in neither House Brown nor House Van Den Berg. Refer to Table 5.2 Presence of the components of interior architecture: Interior Environmental Systems.

Table 5.2 Presence of the components of interior architecture: Interior Environmental Systems

Presence of the components of interior architecture: Interior Environmental Systems in the lived experience of the everyday user			***KEY*** ***present = 1*** ***not present = 0***
Category	***Subcategories***	***1956 House Brown***	***1964 House van den Berg***
Interior Environmental Systems	*Temperature control:* a) heating: fireplace, b) ventilation: airbricks c) cooling: active/passive	1	1
	Water systems a) water supply b) drainage system	1	1
	Electrical systems a) outlets and switches	1	1
	Lighting systems a) lighting fixtures b) daylighting	1	1
	Acoustics	0	0
	Fire suppression systems *n/a for residential design	n/a	n/a
Presence in each subcategory		4/5	4/5
TOTAL % verified Components of Interior Architecture: Interior Environmental Systems		80%	80%

5 As in the previous chapters, the fire suppression systems are included as a subcategory, but marked as 'not-applicable' for all case studies and is also removed from the final percentage calculation.

5.5.3 Interior Finishing Material

The floor finishes, wall finishes, and ceiling finishes for the subcategories of the interior finishing material category (based on Ching & Binggeli 2012:287-316).

The data set representing the experience of the everyday user shows the presence of all three interior finishing material subcategories, namely floor finishes, wall finishes, and ceiling finishes, in both Houses Brown and Van Den Berg (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August). Also refer to Table 5.3 Presence of the components of interior architecture: Interior Finishing Material.

Table 5.3: Presence of the components of interior architecture: Interior Finishing Material

Presence of the components of interior architecture: Interior Finishing Material in the lived experience of the everyday user			**KEY** **present = 1** **not present = 0**
Category	***Subcategories***	***1956 House Brown***	**1964 House van den Berg**
Interior Finishing Material	*Floor finishes* *a) general floor finishes* *b) feature floor finishes*	1	1
	Wall finishes *a) general wall finishes* *b) feature wall finishes*	1	1
	Ceiling finishes *a) general ceiling finishes* *b) feature ceiling finishes*	0	1
Presence in each subcategory		2/3	3/3
TOTAL % verified Components of Interior Architecture: Interior Finishing Material		67%	100%

5.5.4 Interior Furnishing

The four broad subcategories of furniture, storage, window treatments and accessories comprise the interior furnishing category (based on Ching & Binggeli 2012:317-352).

The verification phase confirmed the presence of the furniture, storage and accessories subcategories in both House Brown and Van Den Berg, whereas the window treatments have only been confirmed in House Brown (HB Resident 2018, personal communication, 28 September; HVdB Resident 2018, personal communication, 13 August). Refer to Table 5.4 Presence of the components of interior architecture: Interior Furnishing.

Table 5.4: Presence of the components of interior architecture: Interior Furnishing

Presence of the components of interior architecture: Interior Furnishing in the lived experience of the everyday user			**KEY** **present = 1** **not present = 0**
Category	**Subcategories**	**1956 House Brown**	**1964 House van den Berg**
Interior Furnishing	Furniture: a) Built-in furniture: seating, tables, servery b) Feature furniture: bed headboard c) Loose furniture	1	1
	Storage: a) Built-in storage: kitchen, bedroom, bookshelf b) Feature storage: display niche c) Loose storage	1	1
	Window treatments: a) Exterior: shutters b) Interior: curtain rails	1	1
	Accessories a) utilitarian b) decorative: artwork/ picture rails, collections/ display niches, plants	1	1
Presence in each subcategory		4/4	4/4
TOTAL % verified Components of Interior Architecture: Interior Furnishing		100%	100%

5.6. GRAPHIC COMPILATION OF REPRESENTATIONAL SPACE AS COMPONENTS OF INTERIOR ARCHITECTURE

The Representational Space domain's second grouping activity summarises the results of the first grouping activity into a graphic composition. Substantiating examples from the everyday user's data set forms the basis of the graphic composition and includes direct quotes from the interviews, field notes and questionnaires, as well as codes generated from the analysis of this data set. As in chapter three and four the composed graphic is visually similar to the tabled results of the first grouping phase, where confirmed topics are represented by visual callouts, a non-present category is shown as a light grey filled block annotated as '0 (not present in user experience data set)', and a filled dark grey block is used for categories that are not applicable.

5.6.1 Interior Building Elements

As per the first grouping activity of the interior building elements, the planes and openings subcategories are confirmed present in the data set of both Houses Brown and Van Den Berg, where the circulation category is not mentioned in either case study (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August) – refer to Table 5.5 Visual presence of Representational Space as components of interior architecture: Interior Building Elements.

5.6.1.1 Planes

In House Brown the everyday user's lived experience of planes, focus only on the ceilings, commenting on changes in ceiling heights, with specific mention of how higher ceilings create a more positive experience than rooms with lower ceilings. A singular comment on a feature curved wall concludes the vertical planes or walls subcategory. No mention is made by the everyday user of the floor planes, despite the house's distinct separation between the pavillion for the living spaces and the lower bedroom pavillion (HB Resident 2018, personal communication, 28 September).

House Van Den Berg has multiple mentions of different vertical planes, predominantly commenting on alterations done and also on the spatial relationships between inside and outside. Horizontal planes are mentioned only as the roof element, but includes an in-depth understanding of the architect-intended character that the flat roof-type lends to the residence. Specific mention is made of a desire to keep the original design intention, despite roofing professionals advising otherwise for practical and maintenance reasons. House Van Den Berg's respondent noted the separation between the living spaces pavillion and the bedroom pavillion (HVdB Resident 2018, personal communication, 13 August).

5.6.1.2 Openings

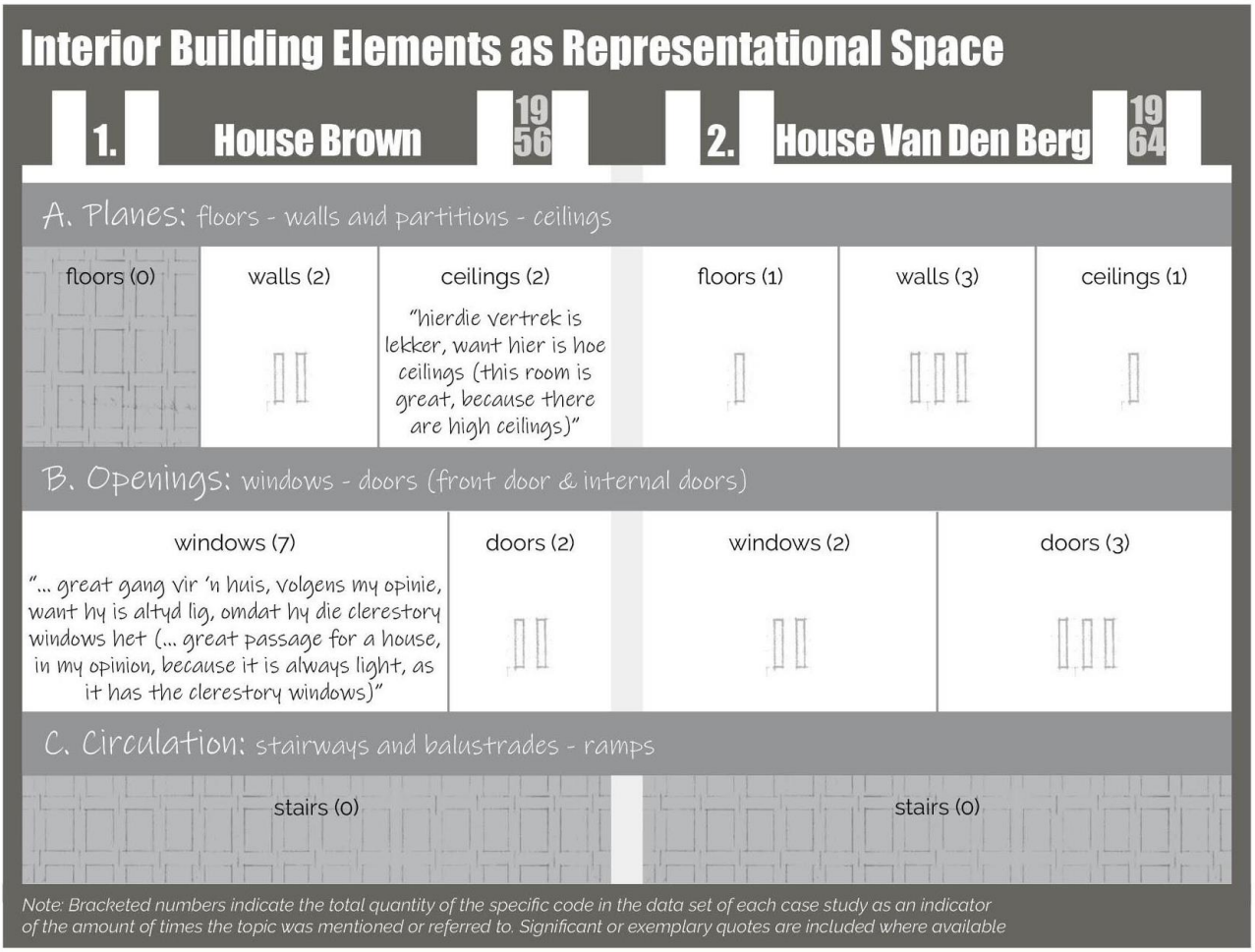
House Brown discusses both windows and doors, where windows are mentioned more than four times more frequently than doors. Comments around the windows centres mostly around how the original steel windows will be replaced by more modern products, as well as frequent positive connections made between window openings and the quantity of natural light in the interior space. Living area doors are mentioned as still being original and being made of steel, but no mention is made of the front door (HB Resident 2018, personal communication, 28 September).

House Van Den Berg includes window and door openings in the data set, with equal attention given to both topics. Comments on window openings centre around the replacement of louvre windows with aluminium windows, due to it not sealing properly which made the house colder in winter. The steel sliding doors were also replaced by aluminium sliding doors, where the respondent mentioned the goal was to mimic the original door proportions, but it was not possible due to the material constraints of the aluminium. Extra mention was also made of the new timber garage doors (HVdB Resident 2018, personal communication, 13 August).

5.6.1.3 Circulation

Neither House Brown or House Van Den Berg includes circulation, despite the changes in floor levels in both case studies (HB Resident 2018 personal communication, 28 September, HVdB Resident 2018 personal communication 13 August).

Table 5.5: Visual presence of Representational Space as components of interior architecture: Interior Building Elements



5.6.2 Interior Environmental Systems

As highlighted in the verification phase of the interior environmental systems, the subcategories of temperature control, water systems, electrical systems, and lighting systems are confirmed present, whereas the acoustics subcategory is absent from the everyday user experience of both Houses Brown and Van Den Berg (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August) – refer to Table 5.6 Visual presence of Representational Space as components of interior architecture: Interior Environmental Systems.

5.6.2.1 Temperature control

The resident of House Brown makes reference to the residence's heating and cooling aspects with the mention of the fireplace and deep roof overhangs (refer to Table 5.6 column 1, row A). A modification to the fireplace niche to accommodate a wall-mounted TV, renders the fireplace unusable. Air conditioners installed by the respondent has not been used for heating or cooling, even after staying in the residence for two years at the time of the interview. No comments were made on the ventilation features or aspects of the residence (HB Resident 2018, personal communication, 28 September).

Comments made by house House Van Den Berg's resident does address the heating aspect but focuses more on the lack of heat, than the heating that is provided with the house, namely the fireplace (refer to Table 5.6 column 2, row A). The comments further elaborate on how the new electrical heating mechanism is included in a recent addition of a tv area. Comments on ventilation and cooling are also included (HVdB Resident 2018, personal communication, 13 August).

The fireplace in both residences is not being used, where House Brown opted to use the area for a TV installation instead. House Van Den Berg mentions using the fireplace very selectively due to (refer to Table 5.6 column 1, row A) the non-optimised cleaning process. Each resident includes comments on the deep roof overhangs, but highlights opposing experiences of it. House Brown cites a consistently comfortable interior temperature throughout the seasons. House Van Den Berg notes that the summer is cool and the winter is cold, necessitating the installation of an electrical heating device. Ventilation comments by House Van Den Berg's resident only refers to the openable window louvres, which also contributes to the low interior temperatures in winter.

5.6.2.2 Water systems

House Brown's transcripts include references to the water supply with the mention of both a "*donkie"* (donkey boiler or steam donkey) and a "*windpomp"* (wind pump), but contains no mention of drainage systems specifically. Additional comments that relate to the water systems only includes references to room functions or uses such as bathrooms or toilets, but does include a value judgement when referring to the shower room which is designed as a wet room, stating that it is "*nogal"* (rather) "quite unique" (HB Resident 2018, personal communication, 28 September).

The data set for House Van Den Berg's includes the water supply topic with references to the geyser replacement due to it being made of asbestos and the installation of an additional geyser. Comments about the drainage is present. Additional topics covered that relate to the water supply and drainage topic include a lack of gutters and stormwater management on site, as well as layout changes made by the previous and current owners which include the laundry being turned into scullery and the laundry moved to the outside bathroom (HVdB Resident 2018, personal communication, 13 August).

5.6.2.3 Electrical systems

Comments on the outlets and switches for House Brown include the specific mention of electrical plugs, telephone points and electric bells used for service staff. Critique includes that having only one plug per room or area is not sufficient, especially when considering the size of the room (HB Resident 2018, personal communication, 28 September).

House Van Den Berg's only comments on the electrical systems include that the cover plates of all the outlets and switches in the residence have been replaced (HVdB Resident 2018, personal communication, 13 August).

5.6.2.4 Lighting system

House Brown's resident commented on the lighting topic 16 separate times during the 44 minute interview, the second highest ranking topic of all components of interior design present in the data set. Comments included twelve mentions of artificial light and four of natural light, pointing out different types of luminaires as well as mentioning how easy or difficult each is to upgrade with more energy efficient lamps, such as Light Emitting Diodes (LEDs). Descriptive terminology, such as "hidden lights" is used to describe the recessed lights of the art display niches in the living area, the recessed light of the living room pelmet, as well as the kitchen's undercounter lights. Despite the frequent comments in the artificial light observable throughout the interview, the resident specifically notes that, "*ek weet nie wat die idee met die beligting was nie*" (I don't know what the idea with the lighting was) and also that there are very few lights in the house. Frequent comments on daylighting, especially regarding how rooms with more natural light are preferable to rooms with less natural light or are dark. Some of the suggested alterations were substantiated by the need for more natural light in the interior spaces (HB Resident 2018, personal communication, 28 September).

Both artificial lighting and natural lighting are included as part of the data set for House Van Den Berg. Artificial lighting comments are limited to the replacement of old fixtures or luminaires with new luminaires. The daylighting topic receives slightly more attention that the artificial lighting, but

is mostly linked to room types such as the living room and guest bedroom (HVdB Resident 2018, personal communication, 13 August).

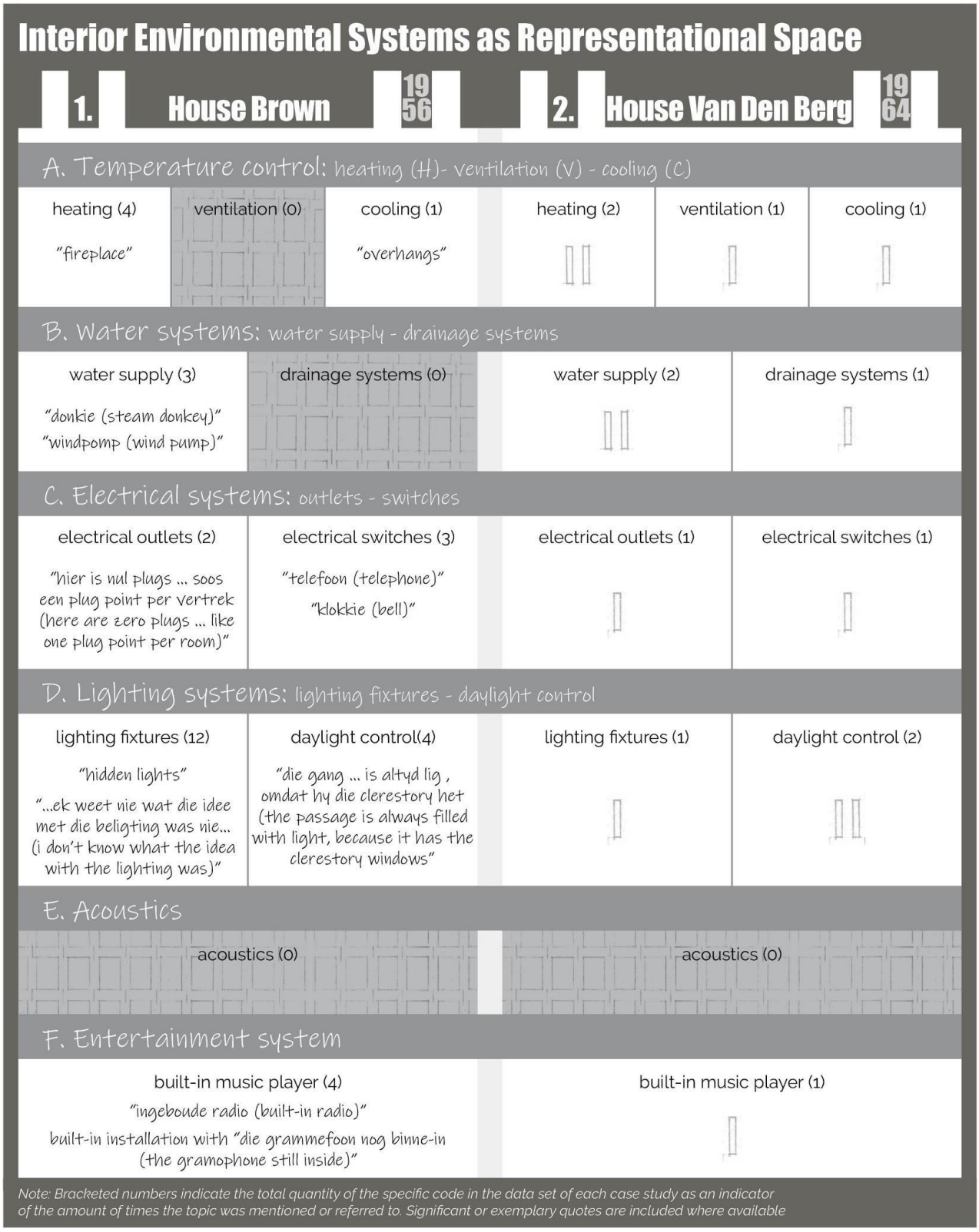
5.6.2.5 Acoustics

Neither residents of House Brown or House Van Den Berg made any mention of the acoustic performance of the interior spaces, but both specifically mentioned and elaborates on the built in music player - please refer to the next section (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August).

5.6.2.6 Entertainment system

Both Houses Brown and Van Den Berg give details on the built-in music players as well as the built-in speakers. The resident of House Brown specifically mentions removing the built-in furniture, which includes a built-in seat and and integrated music player and speakers, due to the negative influence it had on the amount of perceived light in the space. House Van Den Berg's music player and speakers were removed before the current owner bought the property, removing any chance of direct experience of it, but the interviewed resident mentioned paying homage to the original music player by placing a loose feature furniture piece in the original location, gleaned from access to the original hand-drawn plans (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August).

Table 5.6: Visual presence of Representational Space as components of interior architecture: Interior Environmental Systems



5.6.3 Interior Finishing Material

The floor finishes, wall finishes and ceiling finishes comprise the subcategories of the interior finishing category (based on Ching & Binggeli 2012:287-316). The first grouping activity revealed that the floor and wall finishes are present in the data sets of both case studies, but that only House Van Den Berg includes the ceiling finishes (HB Resident 2018, personal communication, 28 September, HVdB Resident 2018, personal communication, 13 August) – refer to Table 5.7 Visual presence of Representational Space as components of interior architecture: Interior Finishing Material.

5.6.3.1 Floor finishes

The resident of House Brown comments that the timber parquet feature floor finish in the grid-like pattern is “quite a unique pattern”, but that due to the wear over the years the timber pieces have moved off the grid (refer to Table 5.7 column 1, row A). To avoid the non-alignment of the pieces, the resident proposed that the timber pieces will be reused and packed into a herringbone pattern instead. The bathroom floor tiles were mentioned to still be original (HB Resident 2018, personal communication, 28 September).

House Van Den Berg’s resident comments on the interior floor finishes were limited to new floor finishes relating to the upgrading of the bathrooms (refer to Table 5.7 column 2, row A). Additional comments were made about the reusing of brick pavers on the exterior as part of the stormwater maintenance and the tv room addition (HVdB Resident 2018, personal communication, 13 August).

5.6.3.2 Wall finishes

House Brown’s resident mentioned the feature timber panelling that was part of the entrance lobby and nook in the living area (refer to Table 5.7 column 1, row B). Due to the timber panelling being integrated with the built-in furniture, it was removed along with the feature built-in seat to mitigate the perceived darkness of that specific space (HB Resident 2018, personal communication, 28 September).

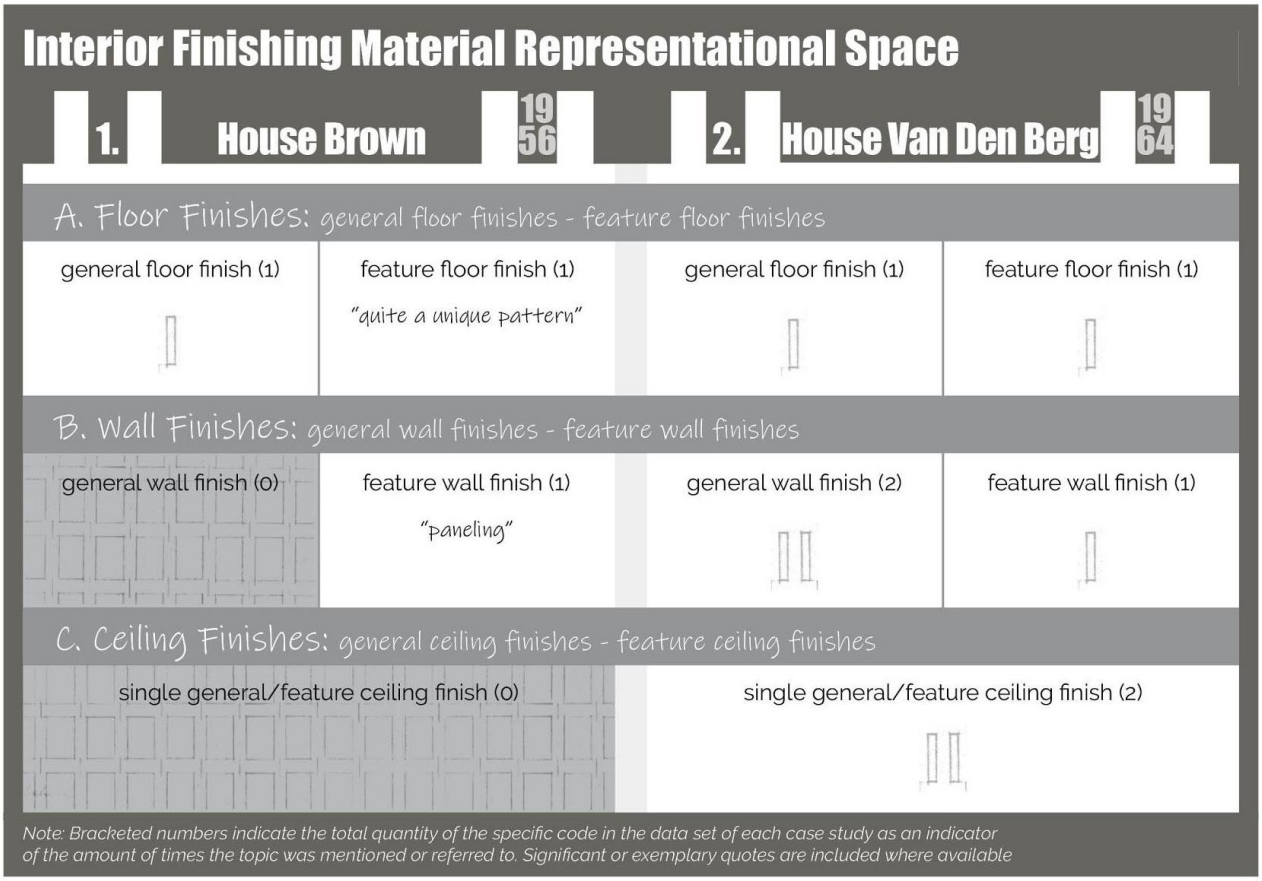
House Van Den Berg’s resident comments on the wall finishes focus on upgrades to wall finishes, such as in the bathroom, a change in paint colour of the brick niche texture in the main bedroom from white to medium grey (HVdB Resident 2018, personal communication, 13 August). Refer to Table 5.7 column 2, row B.

5.6.3.3 Ceiling finishes

House Brown's resident includes comments on differences in ceiling heights of multiple areas, but not on the ceiling finishes specifically (HB Resident 2018, personal communication, 28 September). Refer to Table 5.7 column 1, row C.

The resident of House Van Den Berg references to the ceiling finishes subcategory includes mentions of the original ceilings and bathroom upgrades, during which the original ceiling of the bathrooms was painted white (HVdB Resident 2018, personal communication, 13 August). Refer to Table 5.7 column 2, row C.

Table 5.7: Visual presence of Representational Space as components of interior architecture: Interior Finishing Material



5.6.4 Interior Furnishing

The four subcategories of furniture, storage, window treatments and accessories make up the interior furnishings category. According to the first grouping activity all these subcategories are present in the data sets of both Houses Brown and Van Den Berg. Refer to Table 5.8 Visual presence of Representational Space as components of interior architecture: Interior Furnishing.

5.6.4.1 Furniture

The furniture subcategory sees House Brown's Representational Space data set including intricate feature furniture examples in the living area (refer to Table 5.8 column 1, row A). Examples include a built-in timber installation combining seating, adjustable shelving and an integrated music player with built-in speakers, which is described by the resident as a "*hout installasie* of note" (timber installation of note) (HB Resident 2018, personal communication, 28 September). The resident also highlights a built-in dresser or "make-up *hoekie"* (corner) in the main bedroom.

House Van Den Berg's references by the resident to the furniture subcategory only comment on knowledge of previously included built-in furniture, currently no longer in the residence, as well as planned future inclusions or additions of furniture (refer to Table 5.8 column 2, row A). Specific mention is made of the built-in music player and speaker boxes, removed before the interviewed resident moved in, of which knowledge was gained through the study of the original plans by the resident. The placement of a loose furniture piece pays homage to the removed built-in music player furniture piece, being painted in the residence's signature blue accent colour and place in the same location in the living room.[6] Future conditions were also discussed as part of the 'imaginative variation' aspect of the interview as proposed by Bevan (2014:139-143). This includes the perceived ease with which study desks can be included in the children's bedrooms in a space left open in between the built-in cupboards and the window (HVdB Resident 2018, personal communication, 13 August).

5.6.4.2 Storage

The resident of House Brown's comments on the built-in storage subcategory includes references to the "*oorspronklike kombuis"* (original kitchen) with a "*dubbel eiland"* (double island) feature, with specific mention of not having enough storage space (refer to Table 5.8 column 1, row B). The data set also mentions the "dry racks" in the laundry, a built-in laundry "hamper" in the bathroom, custom built-in cupboards and a walk-in cupboard in the main bedroom. The living area also includes a liquor cabinet as a feature storage unit (HB Resident 2018, personal communication, 28 September).

6 The original hand-drawn plans show the blue accent colour was applied to the bathroom and kitchen floors as a blue linoleum finish (refer to chapter three), as well as to the steel, outside access doors (recently painted by the interviewed resident in a warm charcoal grey colour).

House Van Den Berg's resident storage-related comments include examples of storage units altered by previous residents and changes made by the current residents (refer to table 5.8 column 2, row B). Previous residents completed an entire kitchen renovation, changing the layout from an enclosed kitchen to an open plan kitchen with new finishes that complement the existing finishes. For example, the kitchen island base is finished in a white bagged brick and has two integrated display niches that match the renovated speaker box niches. Changes made by the current residents include the relocation of the existing built-in storage units, such as the walk-in closets, during the renovation of the master bathroom which also included the renovation of the bathroom vanities (HVdB Resident 2018, personal communication, 13 August).

5.6.4.3 Window treatments

References to the window treatments in House Brown include nothing on exterior window treatments, most likely due to none being included in the design of this residence (refer to Table 5.8 column 1, row C). Interior window treatments are included with specific references to the built-in pelmets in the bathrooms and living areas (HB Resident 2018, personal communication, 28 September).

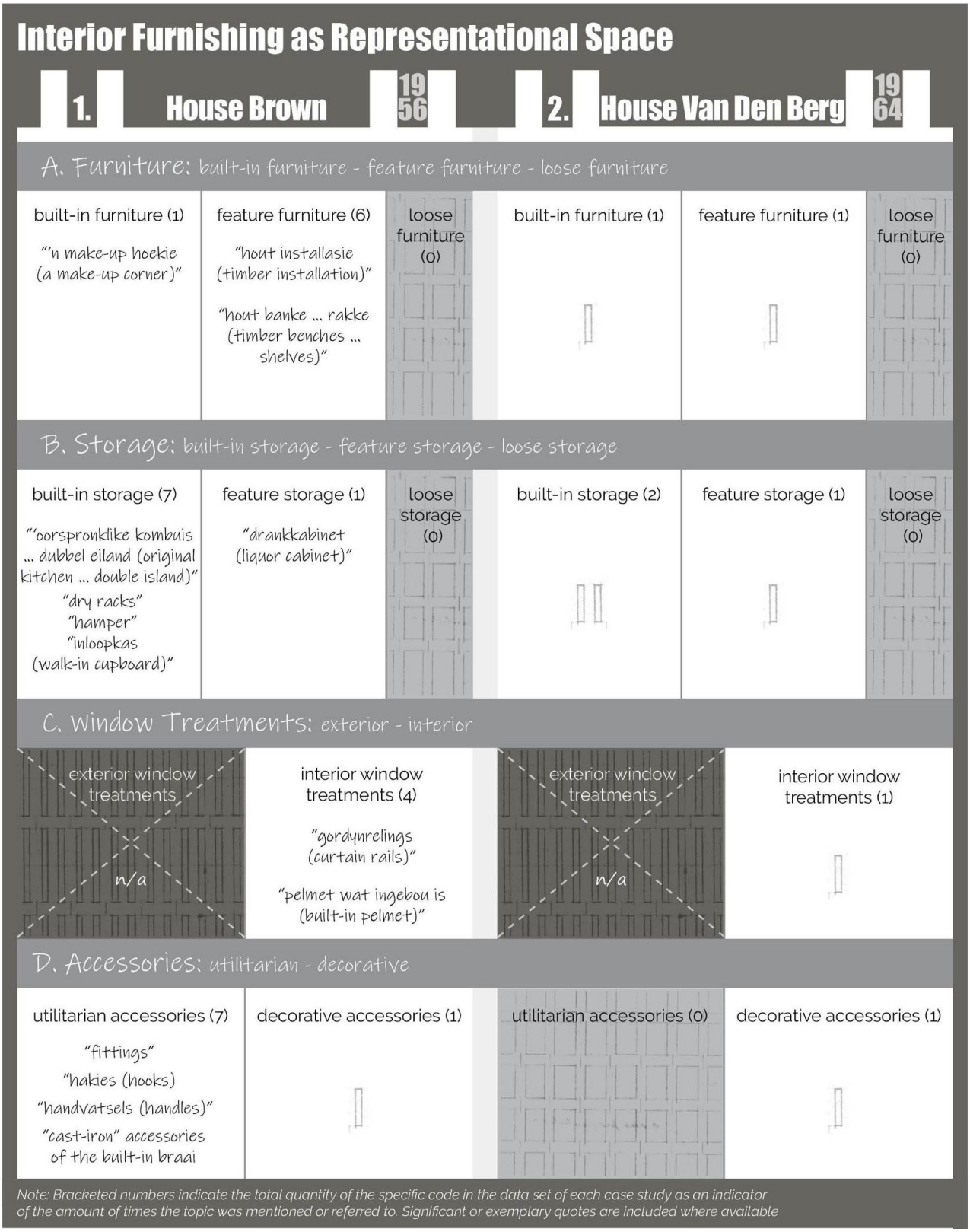
House Van Den Berg also has no exterior window treatments and therefore makes no mention of it (refer to Table 5.8 column 2, row C). The closest reference to window treatments are of the timber window sills in the bedrooms that match the timber lining the niches originally used for the built-in speakers, which was made by the previous owners. This excludes the window treatments from the experiential data set of House Van Den Berg (HVdB Resident 2018, personal communication, 13 August).

5.6.4. Accessories

House Brown lists a wide variety of utilitarian accessories (refer to Table 5.8 column 1, row D), namely "fittings", "*hakies"* (hooks), "*handvatsels"* (handles), and the "cast-iron" accessories of the built-in braai, specifically mentioning regret as these items were stolen in the transition between the previous residents moving out and the interviewed resident moving into the house. Decorative accessories are not referred to (HB Resident 2018, personal communication, 28 September).

There is no mention of any specific utilitarian accessories in the data set for House Van Den Berg (refer to Table 5.8 column 2, row D), but references to the full renovations of the bathrooms are made. References to how the residence accommodates for decorative accessories, only include mentions of the timber niche inserts installed by the previous resident (HVdB Resident 2018, personal communication, 13 August).

Table 5.8: Visual presence of Representational Space as components of interior architecture: Interior Furnishing



5.6.5 Experiential features of Representational Space

The second grouping activity for the Representational Space domain scrutinised the data sets for codes based on Lefebvre's spatial triad theory.[7] A third grouping activity reviews the data set to identify codes inherent in the data set which still relates to the topic under investigation, but which is not derived directly from the theory. The following section highlights the additional codes identified in the data sets of Houses Brown and Van Den Berg as inherent experiences of Representational Space. Refer to Table 5.9 Visual presence of experiential features relating to Representational Space and interior architecture.

5.6.5.1 Inherent experiences of House Brown

Inherent experiences derived from the data set of House Brown include topics such as design longevity, space planning and alterations. The topic of alterations occurs frequently, with references to functional and aesthetic alterations. References to Eaton are also included.

The resident motivates that the decision to buy the property was due to its design longevity, explaining that the residence "*lyk soos 'n huis wat laasjaar gebou is*" (looks like a house that was built last year). The descriptive statement is repeated during the interview as, "*hy is baie modern. Hy's dalk nou oud, maar dit lyk of hy laasjaar gebou is"* (he is very modern, he may be old now, but it looks like he was built last year) (HB Resident 2018, personal communication, 28 September).[8]

The resident of House Brown includes comments on internal space planning and includes positive experiences of the open plan living areas that accommodates for family activities and space for children to play.

The concept of alterations is included as a code, as it is deemed representative of the perceived aspects of the residence that are no longer optimally contributing to the long-term resident's experience. The topic of alterations is mentioned 12 times during the 44 minute interview, where comments range from alterations made by the previous owner, alterations already completed, as well as plans for future alterations and additions. Significantly each phase of alterations mentioned is reported to be motivated by different goals, for example the previous owner's alterations are reported to have been security-motivated and include a palisade fence added to enclose the property and burglar bars added to the living area doors. The alterations completed by the respondent included functional and aesthetic alterations completed while living in the residence. Functional alterations include the replacement of some of the old steel-frame windows with new aluminium windows. Aesthetic alterations include the painting of an internal brick wall, exposed during the removal of a built-in furniture installation. An aesthetic future alteration includes the

7 Codes can be keywords or quotes, where the act of coding is also known as "tagging data" (Baptiste 2001:10).

8 the residence

removal, repurposing and reinstallation of the woodblock floor finish, changing the pattern from the original stacked bond type to a more trendy herringbone pattern (HB Resident 2018, personal communication, 28 September).

For future major alterations and additions to the residence, a built-environment professional is appointed with the instructions to preserve and modernise the residence according to the client needs, encapsulated by the quote, "*so ons probeer so min as moontlik aan die huis te verander, maar ons probeer nogsteeds in die 2000's te wees … ons het ook* 'needs' *(sic)*" (so we are trying to change the residence as little as possible, while also aiming to be in the 2000's … we also have needs). The resident's motivation for appointing the professional includes "e*k wil nie hê dit moet lyk of dit aangelap is nie, dit moet lyk of dit so van die begin af is"* (I don't want it [the renovation] to look like an add-on, it should look like it was like that from the beginning) (HB Resident 2018, personal communication, 28 September).

The resident confirms knowing that the residence was designed by Eaton before buying the property, but explicitly stated that the designer's identity was not a contributing factor to the decision due the resident not being an "architect buff", or in other words an expert on architects.

5.6.5.2 Inherent experiences of House Van Den Berg

House Van Den Berg's data set revealed the inherent experiences of the resident with codes that correlate with those of House Brown, which include design longevity, space planning and alterations. Like in House Brown the alterations topic includes references to functional and aesthetic types, but also includes the category of maintenance alterations. Codes unique to House Van Den Berg include the relationship between inside and outside, architectural style, as well as references to the architect's intent or Representations of Space (HVdB Resident 2018, personal communication, 13 August).

House Van Den Berg's resident uses the term timeless design when referring to the design longevity of the residence, which is given as one of the reasons for purchasing the property. The design longevity as purchasing motivator relates to similar comments made by House Brown's resident (refer to the previous section).

Additional reasons given by the resident for originally purchasing the residence relates to the open plan character of the space planning, the distinct separation between the living areas and sleeping areas as separate pavilions, as well as the relationship between the inside and outside spaces and how they connect with one another.

The 27 codes related to the alterations topic include alterations motivated by functional, aesthetic and maintenance goals. Alterations are further differentiated by those completed by the previous owners and the ones completed by the interview respondent. Where the previous owners reportedly focused on functional and aesthetic alterations, the current owner focuses on all three.

Functional changes by the previous residents include space planning changes such as turning the laundry area into the scullery, relocating the laundry to the domestic worker's bathroom in which the bath had to be removed to accommodate for an additional wall-mounted geyser. The wall between the domestic worker's quarters and the garage was removed to create a double garage. The external brick screen wall in between the living area and the study was also demolished. The biggest reported change to the interior space made by the previous owner is the renovation of the kitchen from the originally enclosed-type kitchen to an open plan-type kitchen, which is both a functional and an aesthetic alteration. Functional additions by the current owner includes the addition of a tv room which is located in the place where a courtyard was allocated originally. Further changes include a new braai area to the east of the open plan living area, renovations of all the bathrooms, the replacement of the steel frame sliding doors with aluminium frame doors, as well as the relocation of the walk-in closets of the master bedroom. A future functional alteration includes the replacement of the louvre windows with aluminium frame windows, as it does not seal properly when closed which causes the house to be cold in winter (HVdB Resident 2018, personal communication, 13 August).

Aesthetic alterations by the previous owners reportedly include the kitchen renovation as previously stated, where the feature material combines a dark red mahogany timber with a white bagged brick that matches the existing walls. The same dark red mahogany is used for timber box inserts with integrated lighting that line the niches previously used for the built-in speakers, as well as two display niches integrated into the kitchen counter. The same red timber is used as interior window sills in the bedrooms. The aesthetic alterations done by the current owners include the replacement of the old electrical points with new lighting fixtures or luminaires, as well as new electrical face plates. The bathroom renovations fall under both the functionals and aesthetic alterations, where the renovation of the garage doors fall under the categories of aesthetics and maintenance alterations. Minor aesthetic alterations include the painting of the feature brick niche wall in a medium grey paint, as well as replacing the feature blue paint of the steel doors with a dark warm grey paint which compliments the rest of the house's neutral colour palette (HVdB Resident 2018, personal communication, 13 August).

Comments on maintenance alterations refer exclusively to the current owners and includes the replacement of an old asbestos geyser with a new geyser, as well as maintenance of the roof structure. The roof construction is noted as being intricate and custom-designed, which is expensive to perform maintenance on. The roof structure also has no gutters as part of the construction, which led to the current owner installing floor drains in the paving (HVdB Resident 2018, personal communication, 13 August).

The House Van Den Berg resident also noted that the estate agent had informed them that the house was designed by Eaton, but due to not knowing the background or historical significance of the architect it was not a deciding factor in purchasing the property.

Two additional codes present in the data set of House van Den Berg shows specific references made to the residence's architectural style and the architect's intent. The architectural style is noted as vernacular architecture, where the resident immediately links the style with the previously mentioned connection between inside and outside. A strong consideration of the architect's intent is also present in this data set, including references to attempts to keep the original sliding door proportions and the original flat roof construction while doing functional and maintenance alterations, despite professional advice suggesting otherwise (HVdB Resident 2018, personal communication, 13 August).

Table 5.9: Visual presence of experiential features relating to Representational Space and interior architecture

Experiential Features of Representational Space

1. House Brown 1956		2. House Van Den Berg 1964	
Inherent experiences - miscellaneous			
design longevity (2) "Ik soos 'n huis wat laasjaar gebou is (looks like a house that was built last year)" "hy is baie modern. Hy's dalk nou oud, maar dit lyk of hy laasjaar gebou is (he is very modern, he may be old now, but it looks like he was built last year)"		design longevity (1)	
space planning (1)		space planning (2)	
inside-outside connection (0)		inside-outside connection (4)	
architectural style (0)		architectural style (1) vernacular architecture	
architect's intent (4) "die hout wat ons uitgehaal het, het nog Eaton op geskryf (the wood we took out still had Eaton written on it)" "kon die hele projek hanteer van begin tot einde (could handle the whole project from start to finish)"		architect's intent (1)	
Inherent experiences - alterations			
previous residents	*current residents*	*previous residents*	*current residents*
functional alterations (0)	functional alterations (8)	functional alterations (6)	functional alterations (5)
aesthetic alterations (0)	aesthetic alterations (2) "re-purpose [the wood blocks into a] herringbone pattern"	aesthetic alterations (4)	aesthetic alterations (2)
maintenance alterations (0)	maintenance alterations (0)	maintenance alterations (0)	maintenance alterations (5)
safety alterations (2) "palisade" "diefwering (burglar bars)"	safety alterations (0)	safety alterations (0)	safety alterations (0)

Note: Bracketed numbers indicate the total quantity of the specific code in the data set of each case study as an indicator of the amount of times the topic was mentioned or referred to. Significant or exemplary quotes are included where available

5.7. REPRESENTATIONAL SPACE THEMES

The components of interior architecture have been identified in the everyday user experience data sets of Houses Brown and Van Den Berg, specifically during the tagging or coding activities and the three grouping activities (Baptiste 2001:10, Hays 1998:182, Lefebvre 1991:132). The results of the coding activity was outlined in a table format, while the grouping activities was summarised in a graphic format. In order to identify initial themes from the coding and grouping phase, comparisons between the aspects of the grouped data is necessary. Emerging themes can be deduced from the comparison and analysis of the initial themes with the second and third grouping phases.

5.7.1 Initial themes from the everyday user experience

The verification process entails the scrutinizing of the data sets related to the everyday user-experience of Houses Brown and Van Den Berg. The first grouping activity's results inform the four initial themes that directly correlate with the four categories of the components of interior architecture. The initial themes form the basis of the emerging themes elaborated on in the next section. The Representational Space domain focuses on the everyday user and the first-time user's experience of the components of interior architecture.

The first theme sees both Houses Brown and Van Den Berg make reference to the interior building elements in the data sets. The subcategories of planes and openings are included in the everyday user experience of both case studies, but the circulation subcategory is mentioned in neither.

The environmental systems comprise the second theme and confirms the presence of four of the five subcategories in the everyday user experience, namely the temperature control, water systems, electrical systems and lighting systems. The acoustics subcategory is mentioned by neither everyday user, but both mention and elaborate on the built-in sound system.

The third theme comprises of the interior finishing material category which includes floor finishes, wall finishes and ceiling finishes as the subcategories. Both case studies reference the floor and wall finishes as part of the everyday experience, but only House Van Den Berg includes any reference to the ceiling finishes.

The interior furnishing category forms the fourth theme and includes four subcategories of furniture, storage, window treatments and accessories. The furniture, storage and accessories subcategories are present in both data sets of the everyday user, whereas the window treatments category is only included in House Brown.

The four initial themes relate to the four categories of the components of interior architecture by forming the initial textures of the everyday user experience. The data sets for the everyday user experience shows evidence of eleven of the fifteen total subcategories present in both case studies. Both case studies show an additional category included, namely the window treatments in House Brown and the ceiling finishes in House Van Den Berg, for a total of twelve subcategories present in each data set. Only the categories of circulation and acoustics are not included in either case study's everyday user experience.

5.7.2 Emerging themes from the everyday user experience

The emerging themes are based on the second grouping activity that consists of descriptive examples of the everyday user's experience of the components of interior architecture in Houses Brown and Van Den Berg. As the second grouping activity elaborates on the first grouping activity, and emerging themes elaborates on the four initial themes. The emerging themes explore the inherent textures or meaning found in the user experience data set.

5.7.2.1 Interior Building Elements

The first theme relates to the interior building elements category, where the everyday user's experience is discussed in relation to the subtopics of planes, openings and circulation.

When drawing from the user experience data set, both users make reference to the planes subcategory. Comments include the planes identified in the Representations of Space and Spatial Practice domains as focal areas for the design of the associated case study, namely the horizontal planes in House Brown and the vertical planes in House Van Den Berg. House Van Den Berg also links the relationship between inside and outside with the planes category. Interestingly, both everyday users comment on the distinct separation between the living areas and the bedroom spaces due to the design's separated pavilions for each. For example, House Brown shows horizontal separation of the two pavilions with a change in level. House Van Den Berg shows an arrangement of vertical separation with the two offset parallel pavilions connected with a service core.

The residents of Houses Brown and Van Den Berg both mention the window openings and door opening subcategories with exclusive references to the upgrading or replacement of the existing products, specifically the replacement of the steel frame windows or doors with a more modern and more energy efficient version, such as aluminium frame windows or doors.

Neither House Brown or House Van Den Berg mention the circulation elements, despite both case studies having changes in floor levels with discreet staircases of only a few steps, where the floor finish continues from one level onto the steps and continues on the adjacent level.

House Van Den Berg Interior Building Elements category relates to most references made to architect's intent, with specific mention of keeping true to the architect's intent when doing maintenance upgrades or alterations.

5.7.2.2 Interior Environmental Systems

The emerging themes related to the Interior Environmental Systems are derived from the results of the second grouping activity, specifically focusing on the subcategories of temperature control, water systems, electrical systems, lighting systems and acoustics. The second grouping activity identified the inclusion of an additional category, an entertainment system, forming a hybrid between the electrical and acoustic subcategories.

Both Houses Brown and Van Den Berg include heating and cooling aspects of the temperature control systems, where only House Van Den Berg discusses the ventilation aspects. Similar conditions with different experiences are raised regarding the heating and cooling aspects. The first experience reports on the passive systems, specifically the deep roof overhangs, working so effectively that additional heating mechanisms such as the fireplace and air-conditioners are not used, despite being available. The other reported experience confirms that the passive systems work very well in summer for cooling purposes, but that the house needs mechanical heating in winter.

The water systems subcategory includes water supply and drainage topics, where both data sets have multiple references to a variety of water supply equipment pieces. The only comment on the drainage systems is from House Van Den Berg which only refers to stormwater management on site and is therefore not included as part of the interior component analysis.

The electrical systems topics include outlets and switches, which is present in both data sets. Each respondent shows awareness of a variety of outlets and switches, where one critiqued the amount of supply points per room and the other's comments focused on the replacement of the face plates of the supply points.

The subcategory of lighting systems includes artificial and natural lighting, which are both included in the data set of the two case studies. House Brown's resident provided many references to and examples of artificial lighting in the residence, but specifically notes that the lighting implementation strategy has not been understood. House Brown's lighting topic refers primarily to the replacement of old fixtures in the form of alterations and maintenance. The natural lighting topic includes references to the preference for higher natural lighting levels from House Brown, as well as associating specific room types with preferable natural lighting levels, such as in House Van Den Berg.

References to or examples of the acoustics subcategory is not included in either data set of Houses Brown or Van Den Berg.

The additional entertainment system subcategory is derived from the data sets for House Brown and Van Den Berg. The two respondents both included this topic, as both case studies have built-in music players with their associated built-in speakers in the living areas.

5.7.2.3 Interior Finishing Material

The Interior Finishing Material category has three subcategories, namely floor finishes, wall finishes and ceiling finishes. The emerging themes of the Interior Finishing Material is based on the results of the second grouping activity.

Comments on the floor finishes refer to both feature floor finishes and general floor finishes and predominantly talk to the intended renovation or repurposing of the floor finishes. For example, House Brown's resident acknowledges that the feature floor finish is a unique pattern for a parquet timber block floor, but aims to repurpose the blocks while changing it to a trendier pattern, such as a herringbone pattern timber block floor.

References to the wall finishes subcategory is limited to completed and planned renovations in both Houses Brown and Van Den Berg.

Only House Van Den Berg's resident comments on the ceiling finishes, where the ceiling finishes are not present in the experiential data set of House Brown. Feedback specifically looks at the roof and ceiling maintenance aspect, as Eaton's design integrates the roofing materials and structure with the ceiling design.

5.7.2.4 Interior Furnishing

The emerging themes of the interior Furnishing category is based on the results of the second grouping activity. The subcategories of furniture, storage, window treatments and accessories are present in both case studies. The loose furniture and loose storage categories are excluded from the Representational Space analysis, as no Eaton-designed loose furniture or storage was included in either residence.

The furniture subcategory sees that the first-hand experience of built-in feature furniture pieces is only present in House Brown, which specifically includes the built-in feature seating nook with a built-in dresser. House Van Den Berg notes the existence of previously installed feature built-in furniture, such as the built-in radio unit, which is no longer present in the space.
The storage subcategory shows evidence of built-in storage and feature storage. A variety of built-in storage units are included in the first-hand experience of both House Brown and Van Den Berg.

Both Houses comment on the kitchen and the built in cupboards, albeit House Van Den Berg's comment does refer to a kitchen renovation done by the previous residents. House Brown includes multiple references to custom built-in storage details, a well as a built-in feature storage unit in the living room, such as the liquor storage unit. The resident of House Van Den Berg also discusses a recent relocation of the master bedroom's walk-in closet.

The Window Treatments subcategory consists of both exterior and interior window treatments, where both Houses Brown and Van Den Berg's data sets include no mention of any exterior window treatments. Interior window treatments vary from built-in pelmets in House Brown, to no mention of interior Window Treatments in House Van Den Berg.

The Accessories subcategory includes both utilitarian and decorative types, where each case study makes reference to only one type. The data set of House Brown makes multiple references to only the utilitarian accessories topics, but none to the decorative accessories topic. House Van Den Berg only refers to the decorative accessory type, but no utilitarian accessories are included.

5.7.2.5 Shared experiences

The third grouping activity identified additional topics that form part of the everyday user experience where three topics were shared by both case studies: design longevity, space planning, different types of alterations and references to Eaton.

Design longevity motivates both residents decision to purchase the property, with specific references made to the residence having desirable contemporary characteristics despite its age.

Both residents' space planning comments refer to positive experiences of the open plan spaces. House Van Den Berg's comments include the space planning as an additional purchasing motivator, specifically referring to the separate living and bedroom pavilions.

Houses Brown and Van Den Berg both include multiple references to the alterations topic, where the functional alterations and aesthetic alterations are shared across the data sets of both case studies. The functional alterations performed by both residents include replacing the steel frame windows with aluminium frame windows. Both residents also performed functional alterations and additions to allow for a tv to be included in the living areas. Shared aesthetic alterations include the painting of some of the white bagged brick walls in a contemporary warm medium grey colour.

References to Eaton can be found in the data set of both case studies, with similar comments from both residents regarding not knowing who the architect, Norman Eaton was before buying the residence. Both residents confirmed that the architect was therefore not a purchasing motivator.

5.7.2.6 Unique experiences

Some of the additional topics identified in the third grouping activity are unique to each case study and include different alteration types for safety or maintenance, spatial relationships, architectural style and specific mention of the architect's intent.

House Brown mentions safety alterations conducted by the previous owner, which is a unique type of alteration not seen in the other case study. House Van Den Berg's data set makes specific reference to performing multiple maintenance alterations. House Van Den Berg also elaborates on the spatial relationship between inside and outside, which is attributed to the architectural style noted as vernacular architecture.[9]

House Brown specifically mentions that any alterations or changes to the residence aims to be seamless or indistinguishable from the original structure and design. House Van Den Berg's data set emphasises that the original architect's intent as used as the controlling measure when completing any alterations or making any changes.

9 It is worth noting that House Van Den Berg's resident is not a built-environment specialist, but does have a keen interest in the residence.

5.8. REPRESENTATIONAL SPACE TEXTURES

The Representational Space textures, or layers of meaning are based on the initial and emerging textures found within the everyday user's experience. The first grouping activity and the initial themes confirmed the overall presence of all four categories of the components of interior architecture, where the subcategories of circulation and acoustics are not present in either Houses Brown or Van Den Berg. The analysis of the user experience data set in the third grouping activity yielded additional topics that do not directly stem from the selected theory, but which are still relevant to the topic. Additional topics are introduced and discussed in the experiential features section and include design longevity, space planning, spatial relationships, architectural style, the architect's intent and alterations. The alterations types include functional, aesthetic, maintenance and safety alterations.

In the interior building elements category, the residents demonstrate an awareness of the conceptual focus for the planes specific to that case study, as well as spatial relationships between spaces. Acknowledgements are made of the separation between the living and bedroom units as separate pavilions. Window openings and large sliding stacking doors are the most often mentioned as needing to be replaced with a more efficient contemporary product. A lack of awareness of the circulation element is noted in both case studies. The most direct comment relating to Lefebvre's spatial triad appears in this category, with the mention of the architect's intent or Representations of Space by House Van Den Berg's resident.

Both residents show awareness of the heating and cooling aspects of the interior environmental systems category, with the ventilation aspect being included only in House Van Den Berg. The thermal performance is included in both residences as opposing experiences, where House Brown notes a positive experience and House Van Den Berg shows a negative experience. The passive cooling systems and building orientation for both case studies are similar enough to be comparable, which could imply an additional factor may be responsible for the thermal performance differences of the cooling and heating aspects. The most likely contributing factor being the presence of multiple large trees on House Van Den Berg's site which could impede the winter sun angle penetration of the roof overhang. References to the water systems focus on the water supply in both case studies, which is mentioned in relation to the existing water supply equipment and on the topic of maintenance. A single comment by House Brown's resident acknowledges the uniqueness of the wet-room-style seperate shower. Comments on the electrical systems are minimal for both residences, where House Brown critiques the ratio of electrical supply points to floor area and House Van Den Berg's comments centre around maintenance upgrades. The lighting systems' subtopics of artificial light and natural light form part of both Houses Brown and Van Den Berg's commentary. In House Brown the frequency of comments on artificial lighting do not correlate with the qualitative comments of there being very little lights in the

house. The lighting strategy in House Brown consists of multiple recessed or undercounter fluorescent luminaires combined with a single ceiling or wall-mounted luminaire per room where the recessed lighting would provide the majority of the ambient lighting. The current common practice for residential lighting strategies includes multiple ceiling downlighters for ambient lighting. It is possible that the comparison and differences between the contemporary strategy and the house's strategy results in the resident perceiving the inherent strategy as insufficient. The natural lighting category is found in both residences with comments indicating that a room is perceived more positively when it has more access to natural light. The acoustics category or comments on the acoustic performance of the space is not included in either case study, which most likely indicates good acoustic performance of the space, as bad acoustic performance is easier to identify. The entertainment systems category is not originally part of Ching and Binggeli's (2012) components of interior architecture, but is identified as a relevant additional category during the interview process. Both Houses Brown and Van Den Berg include the entertainment category with references to a built-in music system, which includes a music player or radio and built-in speakers.

The floor and wall finishes subcategories of the interior finishing materials category is included in both case studies, whereas the ceiling finishes is only present in House Van Den Berg's data set. Feature- and general floor finishes are present in both case studies Brown and Van Den Berg respectively, with comments focusing mostly on alterations. References to the feature wall finishes are present in both residences, where House Van Den Berg makes the only references to general wall finishes. The wall finish comments, like the floor finishes, centre around alterations. Only House Van Den Berg's resident refers to ceiling finishes, again in the context of alterations.

Both houses Brown and Van Den Berg's data sets include the interior furnishing category. The furniture and storage subcategories include references to built-in and feature types for each, but no loose furniture is present, which correlates with the results from the Representations of Space and Spatial Practice domains. Textures in the furniture and storage categories of House Brown highlight specific furniture and storage pieces, where the majority of comments relate to completed or planned alterations. The interior window treatments are included in the comments of Houses Brown and Van Den Berg. The exterior window treatments are not applicable to these case studies, as they are not included in the architectural drawings. A lack of comments on the exterior window treatments could also indicate that the passive design of the roof was so successful that residents did not feel the need to add additional exterior window treatments when considering future alterations. Minimal references to the accessories subcategory is included in both case studies, where House Brown only refers to the utilitarian accessories and House Van Den Berg to decorative accessories. House Van Den Berg's resident does emphasise the feature brick niche wall and its role in accommodating for decorative displays.

The experiential features section includes the topics of design longevity, space planning, spatial relationships, architectural style, the architect's intent and alterations. There are only four topics that are present in the experiential features data sets of both case studies, namely design longevity, space planning, functional alterations and aesthetic alterations. Both Houses Brown and Van Den Berg refer to the residence's design longevity as one of the primary purchasing motivators. Residents report having positive associations with open plan approach to the interior space planning and the separation between living spaces and bedroom spaces, where House Van Den Berg also adds the inside-outside spatial relationship originating from the self-identified vernacular architectural style.

Multiple references are made to areas requiring alterations or changes, which includes four subtopics functional upgrades, aesthetic upgrades, maintenance upgrades and security upgrades. The residents explicitly make a distinction between alterations performed by them personally and alterations done by previous residents. It is noteworthy that references to alterations are directed at components within all four primary categories, namely Interior Building Elements, Interior Environmental Systems, Interior Finishing Material and Interior Furnishing. Significantly, House Van Den Berg's resident explicitly mentions referring to the architect's original intent when considering how to approach substantive alterations.

5.9. EATON'S REPRESENTATIONAL SPACE OF INTERIOR ARCHITECTURE

The textures of the Representational Space domain elaborate on the insights gained and the relationships between the initial and emergent themes that is based on the user experience data set. The Representational Space domain explores the user's experience of the space, where this study focuses on the user's experience of Eaton-designed interior spaces using the components of interior architecture.

Allowances have been made to include experiential features that are related to interior spaces but not directly based on the components but are derived from themes inherent in the data set. The following summary provides the experiential qualities associated with each category of the components of interior architecture and the inherent experiential features, respectively summarised in figures 5.1 and 5.2.

- Interior building elements
  - Differences in spatial heights using changes to ceiling and floor levels evoke a positive experience in the user, for example higher ceiling planes in living areas in relation to other areas are deemed as positive;
  - The openings category is experienced as one of the more frequent areas that require alterations due to advances in technology;
  - The lack of reported user experience of the circulation elements relates to the original Representations of Space intention, where in both case studies the circulation element is a non-focal transition area.
- Interior environmental systems
  - The temperature control systems show mixed experiential responses. The provided fireplace is not utilised as a heating mechanism in either case study, where one resident experiences the passive heating and cooling as sufficient therefore deeming the fireplace as not necessary. The other resident experiences the passive heating as insufficient and opts to use a more efficient electric heating mechanism, whereas the experience of the passive cooling methods is positive. The passive ventilation systems show similar opposing experiences, with one resident does not include any mention of it, and the other resident experiencing it as a focus for intended renovations due to non-optimal performance;
  - Experience of the water systems centre around alterations and upgrading to more efficient systems;
  - The residents' experience of the electrical systems is mixed. It includes critique on the supply required by modern day standards from one resident and is only linked to maintenance alterations by the other resident;
  - Artificial lighting systems are experienced paradoxically within one residence and differently on both residences. In the one residence the artificial light topic is mentioned numerous times and include the identification and description of multiple lighting features, but the topic of artificial lighting is experienced as not being sufficient. The other resident's experience of the artificial lighting is limited to aesthetic and maintenance alterations. Daylighting systems and access to natural light are linked to positive experiences by both residents;
  - The acoustics category is not included in the experiential data set of either resident, most likely due to its optimum functioning;
  - References to the entertainment systems are included by both residents and elaborate on the built-in music players. One resident experienced the space where the entertainment system was installed as being too dark, removing the built-in entertainment system in favour of more light. The other resident has no first-hand experience of the built-in music players, but intentionally pays homage to it with a loose feature furniture piece.

- Interior finishing materials
    - References to the floor finishes are included by both residents, but only one resident comments on the original floor finish. Opposing ideas are raised as the finish pattern is identified as unique, but is then immediately linked to a planned alteration which changes the pattern into something more contemporary;
    - Wall finishes are mentioned by both residents in the context of aesthetic alterations;
    - Ceiling finishes are included by only House Van Den Berg's resident in the context of maintenance alterations.
- Interior furnishings
    - Built-in and feature furniture is included by both case studies as examples highlighted or pointed out by the resident. The furniture examples are mostly situated in the living areas, such as the built-in music player unit which is present in both case studies. Feature furniture units include a built-in seating and bookcase installation in the open plan living area of House Brown;
    - Both case studies elaborate on built-in storage units located throughout each residence. One resident highlights many detailed features, likely due to this specific residence having been minimally altered at the date of the interview. Feature storage units include custom-crafted pieces such as a liquor cabinet built into a large brick niche in the open plan dining area. The other resident mentions built-in storage in the context of previous and planned alterations;
    - References to window treatments in both case studies are limited to interior window treatments, where one resident highlights and elaborates on the built-in feature and the other resident makes only passing comments. The detail level of the references made by the residents correlate with the level of detail included in the design;
    - In the accessories subcategory, one resident includes only utilitarian accessories while the other resident briefly discusses the utilitarian and decorative accessories.

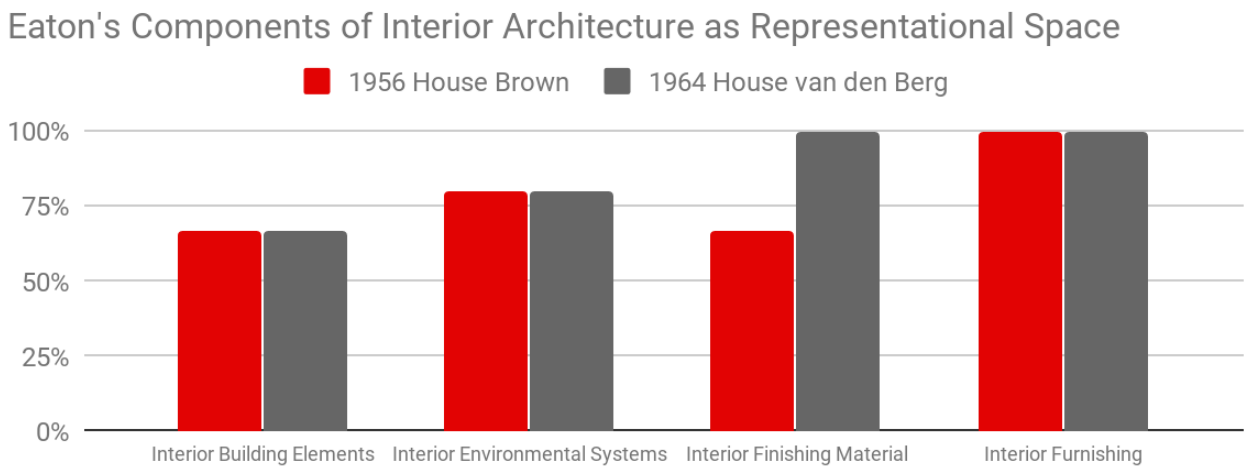


Fig. 5.1 Summary of the components of interior architecture as Representational Space across two case studies

- The experiential features
    - Both residents refer to the residence's design longevity as a motivating factor when purchasing the property and highlight the contemporary character, despite its age.
    - Both residents communicate positive associations with the open plan spaces. House Van Den Berg's resident also emphasises the spatial connection between inside and outside.
    - References to the architectural style is limited to House Van Den Berg, where the resident mentions the house belonging to the 'vernacular architecture' category.
    - House Van Den Berg's resident makes a direct reference to the architect's intent when considering and approaching any alterations.
    - The topic of alterations include four subtypes, namely functional, aesthetic, maintenance, and security. Both residents elaborate on this topic and make explicit distinctions between alterations done by previous residents and alterations completed by themselves.

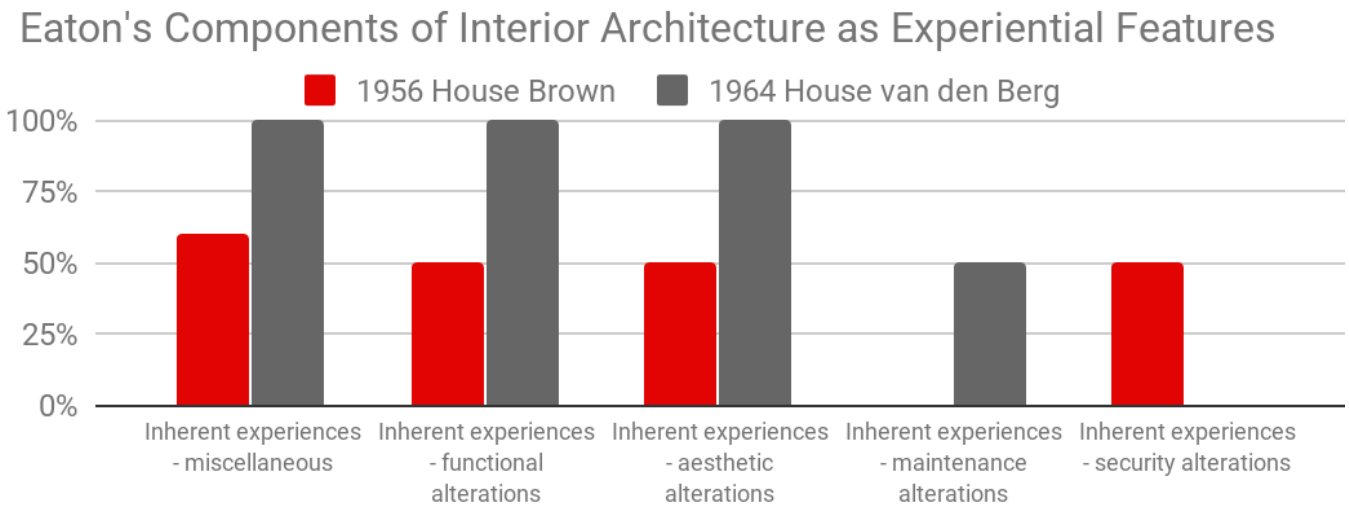


Fig. 5.2 Summary of the Experiential Features across two case studies

5.10. CONCLUSION

The Representational Space domain is investigated as the third aspect of the spatial triad in Chapter five. Its focus was on the everyday user's lived experience of the interior spaces of two selected Eaton-designed case studies. The presence of the components of interior architecture was identified in the user experience data set and compiled into visual sheets that communicated frequency of the discussed topic, as well as significant quotes related to the category. Additional topics related to the experience of the Eaton-designed interior space were identified and elaborated upon. Finally, the textures based on the data analysis were deduced and summarised as experiential qualities associated with each category of the components of interior architecture, as well as the inherent experiential features

Chapter six reviews the study and provides conclusions and recommendations for further study.

CHAPTER 6

RECAPITULATION, CONCLUSIONS AND RECOMMENDATIONS

6.1. RECAPITULATION

The topic of investigation centred around understanding the phenomenon of architect-designed interior spaces, from the perspective of an interior architect.

Due to the present-day distinction between the disciplines of architecture and interior architecture, the differences in the design approach of each are mostly discipline-specific, albeit with personal and theoretical nuances. In the time before the disciplinary distinction became prominent, architects were most often responsible for the design resolution of the interior spaces as well, resulting in architect-designed interior spaces. The lack of formal or specialised training on the interior architecture subject matter did not result in marginally designed interior spaces, especially when looking at the work of Arts and Crafts trained architects who believed in the *Gesamtkunstwerk,* or total work of art.

The study focused on one of South Africa's Arts and Crafts trained architects, Norman Eaton, who was one of the figureheads of Pretoria Regionalism and also an accomplished residential designer. Selecting Eaton as the subject matter afforded the opportunity to combine the aspects of architect-designed interior spaces, Pretoria Regionalism and residential design to achieve the research goal of decoding the interior components of architect-designed spaces. Moreover, it allowed insight into a Pretoria Regionalist approach to residential interior architecture with regionally specific examples of universal interior architecture elements.

The main research question asked:

- How does the architect, Norman Eaton, address interior architecture in residential projects?

The study explored the context of the question in **Chapter two** by starting at the fundamental idea of, *what is space?* Looking to spatial theories for a definition, Henri Lefebvre's spatial triad, provided the necessary complexity, explanatory power and organisational approach needed for the study. The domains of the spatial triad, which include the Representations of Space, Spatial Practice and Representational Space also provided a framework within which to structure the investigation, resulting in the chapter topics corresponding with the three spatial triad's domains. Architectural Regionalism forms the link between Lefebvre and Eaton, and the history and types of regionalism are discussed to provide background and context for the design approach of a Pretoria Regionalist context would have. The relationship between Eaton, architecture and interior architecture established the foundation for the study. To ensure an informed set of criteria was included for the analysis of the interior spaces, a collection of categories was established for the components of interior architecture, whereafter it was necessary to substantiate the selection of the case studies. The study goals of using the spatial triad as a spatial decoding tool conclude chapter two and introduce the chapters to follow.

Chapter three investigated the first set of sub-questions, which included:

- Which components of interior architecture can be identified in the architectural drawings of Eaton-designed residential interior spaces;
- Can Eaton's intention for the design of interior spaces be deduced and summarised from the architectural drawings?

The third chapter defined the nature of the Lefebvrian domain called Representations of Space, which is the aspect of space dealing with the architect's intent. The data set comprised of the architectural drawings for each case study. The approach and methods section clarified the details of the analysis activities that followed, namely the verification and graphic compilation phases. From the analysis, themes were identified and related to one another which formed the textures or meaning associated with the Representations of Space.

The Representations of Space textures summarises Eaton's approach to the design of the components of interior architecture, which is based on the analysis of the architectural drawings of the case studies. The analysis of the data set for the Representations of Space domain or architect's intent, show that the categories of Interior Building Elements and Interior Finishing Materials are constantly present in Eaton's work. The Interior Environmental Systems sees an alternating pattern of inclusion and the Interior Furnishing shows a decline towards the last two case studies - refer to Figure 6.1.

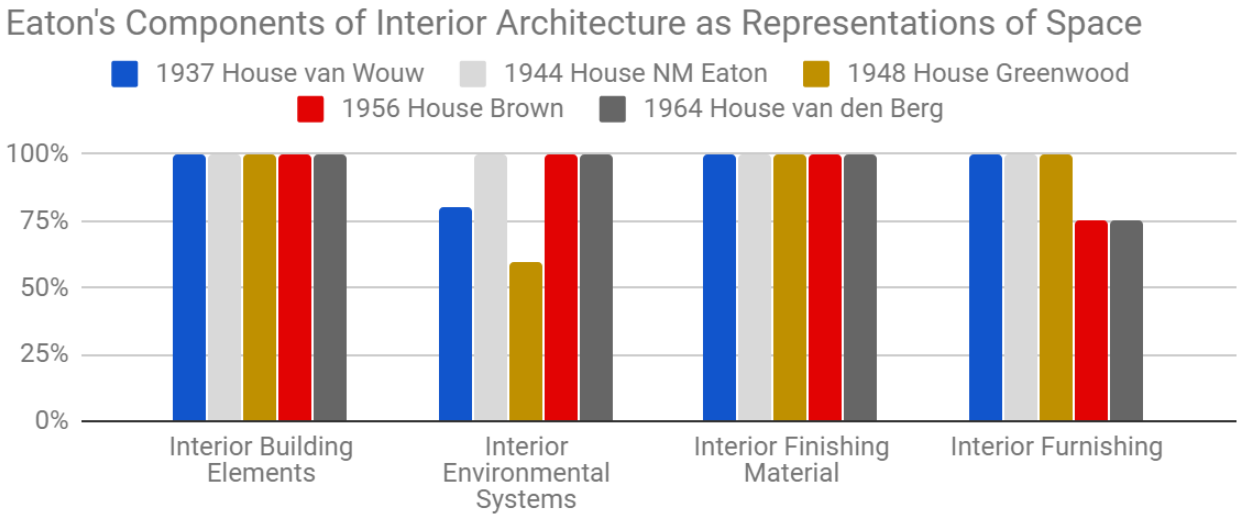


Fig. 6.1 Summary of the components of interior architecture as Representations of Space across five case studies

Chapter four investigated the second set of sub-questions, which included:

- Which components of interior architecture can be identified in the old or new photos of Eaton-designed residential interior spaces;
- How do the physical characteristics of the space relate to Eaton's spatial intent?

The fourth chapter explores Lefebvre's domain of Spatial Practice which focuses on physical space. The data set includes old and new photographs of the selected case studies. The approach and methods section include the analysis activities in the verification phase and graphic compilation phase. Based on the analysis, themes were identified, and the interrelationships elaborated on. The relationship between the themes informed the meaning or textures related to the Spatial Practice domain. Based on the analysis of the photographic data set of the case studies, the Spatial Practice textures details the physical resolution of the approach used by Eaton when addressing the components of interior architecture.

The Spatial Practice data set analysis relates to the physical space and shows a pattern similar to the Representations of Space, where the categories of Interior Building Elements and Interior Finishing Materials are continuously present in all five case studies and therefore across Eaton's three periods of domestic work. The Interior Environmental Systems category is present in four of the five case studies, with only the second residence, House Eaton, showing a low score. The Interior furnishing category shows a concave pattern that is low in the middle but fully present in the first and last two case studies. The three areas showing low scores are from Houses Eaton and Greenwood, which is due to the minimal photographic data available for these two case studies (refer to Fig. 6.2).

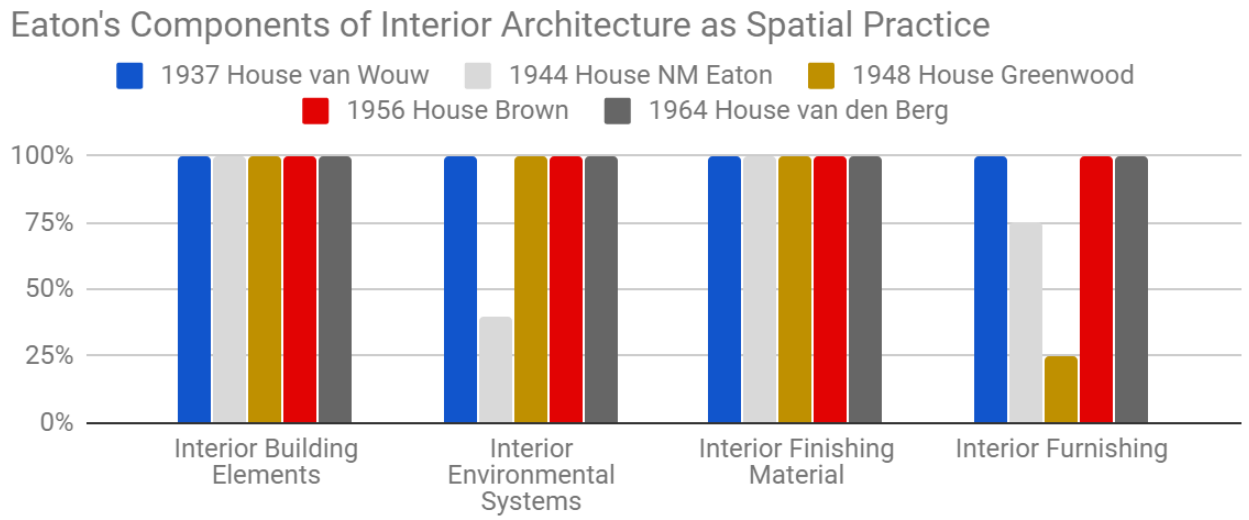


Fig. 6.2 Summary of the components of interior architecture as Spatial Practice across five case studies

Chapter five investigated the third sub-question, which included:

- How do residents experience the components of interior architecture in Eaton-designed residential interior spaces?

The Representational Space domain forms the topic for the fifth chapter and is the aspect of space dealing with the user's experience of the space. The experiential data set comprises of semi-structured interviews and questionnaires completed by the residents of two of the selected case studies, namely Houses Brown and Van Den Berg. The analysis activities are detailed in the approach and methods section and include the verification phase and graphic compilation phase. Themes are deduced from the analysis phase and inform the textures associated with the Representational Space domain. The textures relating to Representational Space summarises the detailed user experiences as it relates to the Eaton-designed components of interior architecture.

The analysis of the Representational Space (user experience) in relation to the other two domains, Representations of Space (architect's intent) and Spatial Practice (physical space), shows three patterns in the users' experience of the components of interior architecture:

1. where the architectural intent and the physical space are fully present, but the user experience is less that what is there, for example in the Interior Building Elements and the Interior Environmental Systems of both Houses Brown and Van Den Berg, as well as the Interior Finishing Material in House Brown;
2. where the user experience and the physical space are fully present, but the architectural intent (in other words, the architectural plans) show less of a presence, for example the Interior Furnishing in both Houses Brown and Van Den Berg;
3. where all three domains of the architect's intent, physical space and user experience all show a full presence of the components of interior architecture, for example the Interior Finishing Material in House Van Den Berg.

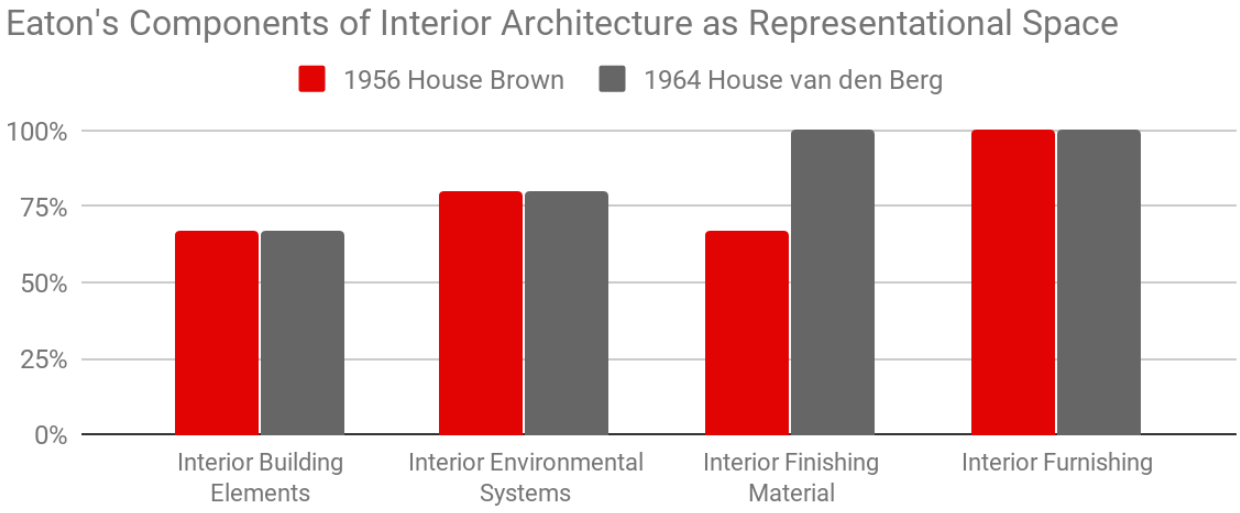


Fig. 6.3 Summary of the components of interior architecture as Representational Space across two case studies

The analysis of the user experience data set revealed additional experiential categories as miscellaneous experiences, and alterations (refer to Fig. 6.4). The miscellaneous experiences include design longevity, space planning, inside-outside connections between spaces, the architectural style and the architect's intent. House Van Den Berg's resident refers to all five subcategories in the data set, where House Brown's resident only refers to three subcategories. The alterations category consists of functional alterations, aesthetic alterations, maintenance alterations and security alterations. House Brown's resident does not refer to alterations as often as the resident of House Van Den Berg, but exclusively includes references to security alterations. Whereas House Van Den Berg exclusively addresses maintenance alterations multiple times.

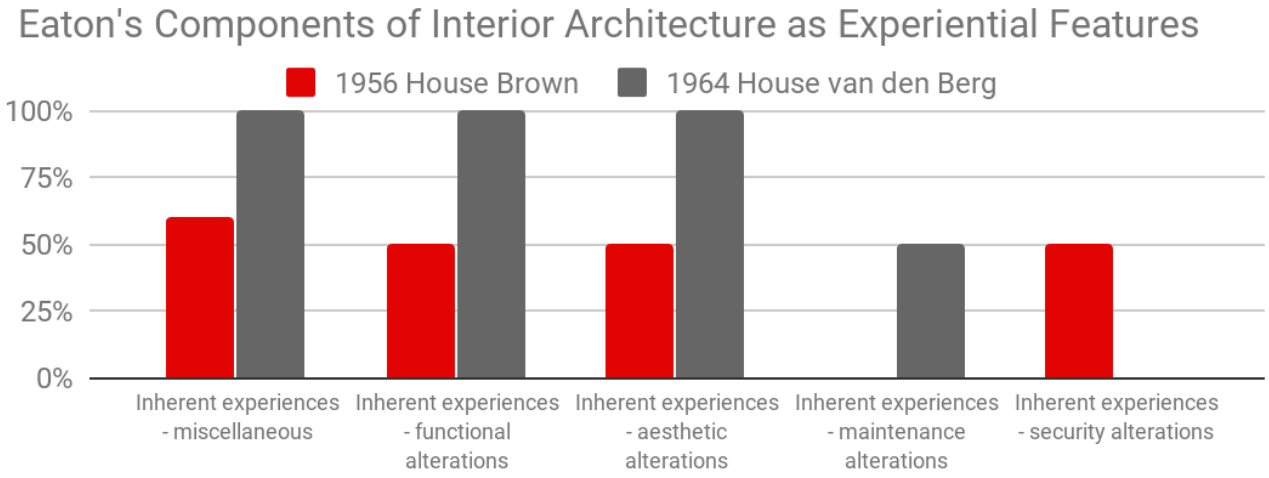


Fig. 6.4 Summary of the Experiential Features across two case studies

6.2. CONCLUSION

This study combines the organisational theory of Henri Lefebvre's spatial triad (1991) with the seminal textbook by Ching and Binggeli on the components of interior architecture (2012) into a qualitative decoding tool and applies it to architect-designed residential interior spaces by Norman Eaton. The combination of an organisational theory with a seminal text provides the parameters within which to methodically investigate case studies from a theory-based perspective, where the seminal text delineates the parts being investigated and the organisational theory defines the relationships between the parts. The study concludes that Lefebvre's spatial triad can be implemented successfully as a decoding tool for architect-designed residential interior spaces.

The three domains as proposed by Lefebvre, namely Representations of Space, Spatial Practice and Representational space, provide the researcher with a tool or investigative lens through which to understand the different characteristics of an interior space. The study has demonstrated that

each domain elaborates on aspects unique to that domain, which points to the possibility that each domain can be investigated separately if the intention is to investigate a specific phenomena within that domain. The benefit of combining the investigations into Representations of Space, Spatial Practice and Representational Space lies in its potential to illuminate the relationships between the three domains of space. Investigating the selected case studies, spread across an Eaton's body of work identified changes over time to themes and trends as it relates to each domain of Lefebvre's spatial triad and to the categories of the components of interior architecture.

The investigation into Representations of Space is used to determine the extent to which architect, Norman Eaton, addresses the components of interior architecture in selected residential case studies. The decoding process provides technical examples of the architect's intent for the design resolution of the components of interior architecture. The investigation into Representations of Space results in a summary of the approach followed by Eaton, or the architect's intent for the interior spaces.

The Spatial Practice domain is used to determine how the architect's intent is realised during the building process. The decoding process offers photographic examples of the design realisation of the components of interior architecture, while also providing visual examples of manifestations and regional variations of the interior components. The Spatial Practice analysis outcome summarises Eaton's physical resolution of the interior spaces.

Representational Space can be used to investigate the user experiences and awareness of the architect's intent in the physical space. It can also propose connections between the user experience and the physical resolution of an interior space. The Representational Space decoding process provides examples of user experiences as it relates to the Eaton-designed components of interior architecture.

6.3. CONTRIBUTIONS

The viability of the spatial triad as a decoding tool for interior architecture of residential case studies has been confirmed. Each domain of Representations of Space, Spatial Practice and Representational Space has been shown to have specific explanatory power for the associated topic, namely the architect's intent, physical space and user experience respectively. The study has shown that employing all three aspects of the triad in one triangulated investigation, the relationships between the domains and components can be determined.

Research questions have been answered in Eaton's Spatial triad of interior architecture in the previous sections and is summarised as a collated list of categories and approaches used by Eaton when addressing the interior spaces:

- For Eaton's Representations of Space approach to interior architecture (refer to pp84-85);
- For Eaton's Spatial Practice approach to interior architecture (refer to pp129-131);
- For Eaton's Representational Space approach to interior architecture (refer to pp129-131).

6.4. RECOMMENDATIONS

Recommendations for Eaton-specific areas of future research include:

- Investigating the spatial triad as a decoding tool for Eaton-designed public interior spaces.
- Investigating Eaton's approach to the alteration of his own work, as well as to the work of other architects.
- Investigating the components of interior architecture of each Eaton residential period separately with the aim of identifying nuanced differences between case studies.

Recommendations for general areas of future research include:

- Investigating the spatial triad as a decoding tool for residential and public interior spaces that have undergone alterations.
- Investigating the longevity of architect-designed interior spaces by focusing on the resident's experiences of the space, motivations and context provoking the changes.

Investigating selected case studies using Lefebvre's spatial triad as a decoding tool spread across an architect's body of work can be used to facilitate the identification of trends or changes over time to themes and textures inherent in the data.

Depending on the length of time in between the construction finalisation and the investigation, the combined textures of Representations of Space, Spatial Practice and Representational Space provides the opportunity to investigate the design longevity of the physical resolution of the interior space in terms of functional and technical performance, as well as the user experience or perception of the performance.

The recommendations for future study below arose during the contextual study and case study selection process respectively:

- How changes to the curriculum of one discipline, for example architecture, could allow for the emergence of another discipline, such as interior architecture.
- Rediscovering lost or demolished architectural artefacts utilising three-dimensional (3D) modelling and virtual reality (VR).

6.5. FINAL THOUGHTS

The study provided the researcher with the opportunity to explore the interdisciplinary nature of the built environment by showing that a spatial theory originally intended for an urban scale can be used to decode a space on an intimate scale. The study has also provided the opportunity to investigate how architects approach the design of interior spaces, but specifically how one of South Africa's regional architectural icons was also an accomplished interior architect. The study highlighted what regional interior architecture in South Africa could potentially entail. Ultimately, the study has facilitated a deeper level of understanding into the complexities and approaches related to spatial design, with the lenses or diversity of approaches afforded by Lefebvre's spatial triad.

Part 7 Appendices

- Addendum A: Ethics
- Addendum B: Interview Questions and Questionnaire
- Addendum C: Terminology List
- Addendum D: Dramatis Domus
- Addendum E: Extracts from Examiner's report and Student's Response
- Addendum F: Miscellaneous

Addendum A: Ethics Approval

Addendum A and Addendum B includes all the relevant information to prove compliance with the demands of the research ethics of the Faculty of Engineering, Built Environment and Information Technology of the University of Pretoria.

Documents included in Addendum A:

- the conditional approval letter from the Faculty Committee for Research Ethics and Integrity

On the next page: Letter of approval by the Faculty Committee for Research Ethics and Integrity

Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

Reference number: EBIT/20/2018 9 May 2018

Mrs L Scheffer
Department of Architecture
University of Pretoria
Pretoria
0028

Dear Mrs Scheffer

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

Conditional approval is granted.

This means that the research project entitled "Norman Eaton, interior designer: A study of the residential interiors of Norman Eaton" is approved under the strict conditions indicated below. If these conditions are not met, approval is withdrawn automatically. The applicant is not required to submit an updated application.

Conditions for approval

1. Approved under condition that the dissertation be evaluated by the EBIT Ethics Committee upon completion to determine whether a possible embargo from UP's e-theses repository might be necessary.

This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Ethics Committee.

If action is taken beyond the approved application, approval is withdrawn automatically.

According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.

The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof JJ Hanekom
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

Addendum B: Interview Documentation

Addendum A and Addendum B includes all the relevant information to prove compliance with the demands of the research ethics of the Faculty of Engineering, Built Environment and Information Technology of the University of Pretoria.

Documents included in Addendum B:

- Informed consent pp.1-3
    - Informed consent form pp 1-2
    - Informed consent Addendum A
- Semi-structured interview questions
- Questionnaire
    - Questionnaire Addendum pp 1-2

Informed consent form

1. Project information

1.1. Title of research project

Norman Eaton, Interior Designer: A study of the residential interiors of Norman Eaton.

1.2. Researcher details

Leana Scheffer
Student ID: 24233928
Department of Architecture, University of Pretoria
Email: leanascheffer@gmail.com
Mobile: 082 4122071

Supervisor details

Marguerite Pienaar
Email: marguerite.pienaar@up.ac.za

1.3. Research study description

Postgraduate research conducted for a '*Master of Interior Architecture by Research*' degree.

1.3.1. Project description and project objectives

This study investigates selected residential case studies designed by Norman Eaton. The objective of the study is to analyse how Eaton approached the design of interior spaces in his residential projects.

The interview and questionnaire focuses on how residents/occupants perceive, experience and react to interior spaces designed by Eaton, or in other words: *how residents/occupants experience Eaton-designed interior spaces.*

1.3.2. What will be asked of you?

As an occupant of a residence designed by Norma Eaton, you will be asked to:

- To respond to interview questions
- To complete a questionnaire directly after the interview; total time for both the interview and questionnaire is expected to take 45 to 60 minutes
- To give permission for the researcher or field assistant to take photos and/or videos of the residence; total time involved is expected to take 90 minutes
- To participate in follow-up interview(s) of approximately 30 minutes each, expected to take place within 2-6 weeks of the first interview

Refer to the table in 2.4 on the following page for specific and detailed permission topics.

PLEASE NOTE: You are under no obligation to participate in the study. All participation is voluntary and you can withdraw at any time.

1.3.3. Possible risks

The data collected on the case study, i.e. your residence, will be used in the dissertation required of a Masters by Research. This final dissertation will be proofread by external examiners and made available on the University of Pretoria's online repository. The data could also be included as part of a peer-reviewed journal article that must be submitted for publication, as part of the prerequisites for a Masters by Research qualification. Both the repository and the journal article are part of the public domain, thereby possibly disclosing details of your residence to the public.

To safeguard the privacy of residents/occupants, you may indicate if any item(s), room(s) or area(s) should be treated as confidential or excluded from the study. *Refer to table in 2.4 on the following page for confidentiality indications.*

1.3.4. What will you get for participating in the study?

PLEASE NOTE that participants/occupants will receive NO monetary compensation, or any other benefits to participate in the study.

Participation in the study does not guarantee that the information provided will be published.

Informed consent form

2. Informed consent

2.1. I, _____ hereby voluntarily grant my permission for participation in the project as explained to me by **Leana Scheffer.**

2.2. The nature, objective, possible safety and health implications have been explained to me and I understand them.

2.3. I understand my right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for the purposes of publication, but does not guarantee publication.

2.4. The following questions list specific permissions and consent:

Specific permissions and consent	**Please mark the appropriate answer**	
I want a copy of the signed consent form *(this form)*, *If **Yes**, please indicate how you want to receive it:* *Physical copy*_____ *Phone:*_____ *Email:*_____	Yes	No
I grant permission to record the audio of the interview	Yes	No
I am willing to participate in follow-up interviews within approximately 2-6 weeks of this interview	Yes	No
I grant permission for a field assistant / researcher to take photos of my residence **If **Yes**, please refer to and complete table in 2.5 below*	Yes	No
I grant permission for a field assistant / researcher to take video recordings of my residence **If **Yes**, please refer to and complete table in 2.5 below*	Yes	No

2.5. *If applicable, fill in table below.*

Regarding the *documentation of the residence*, the following area(s), room(s), area(s) or other information that should be treated as confidential OR should be excluded from the study	**Please mark the appropriate answer:**	
not applicable		
	confidential	exclude
	confidential	exclude
	confidential	exclude

*Continue on Addendum A should more lines be required*_____**(Y / N)**

2.6. Upon signature of this form, the participant agrees to participate in the study as per details above

Participant (Signature): _____ Name (print): _____ Date: _____

Witness (Signature): _____ Name (print): _____ Date: _____

Researcher (Signature): _____ Name (print): _____ Date: _____

Informed consent form

ADDENDUM A

Regarding the *documentation of the residence*, the following area(s), room(s), area(s) or other information that should be treated as confidential OR should be excluded from the study	**Please mark the appropriate answer:**	
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude
	confidential	exclude

_____ _____ _____
Participant Initials Witness Initials Researcher Initials

Date _____

Semi-structured Interview Questions

1. **Regarding the residence in question, do you know when it was built and who the architect was or anything else about him? Please provide details.**
   Example follow up questions
   a) What were the (two) main reasons you selected this house? Please elaborate
   b) Were there any reasons you did not want to select this house? Please elaborate
   c) Does the architect's identity influence the value of the property in terms of resale value? How? Please elaborate
   d) Does the architect's identity influence the value of the property in terms of value to you as resident? How? Please elaborate

2. **How long have you been living/lived in the residence?**
   Example follow up questions
   a) Has the residence been able to accommodate changes to the family size and circumstances? How well? Was it easy to adapt?

3. **When thinking of aspects such as mood, material use or architectural details, what is your favourite interior space(s) or room(s) in the residence and why?**
   Example follow up questions
   a) Can you recall any specific features that you think influence this opinion?
   b) Do you know if the identified spaces/rooms in their original state or if they have been altered or updated?

4. **When thinking of aspects such as mood, material use or architectural details, what is your least favourite interior space(s) or room(s) in the residence and why?**
   Example follow up questions
   a) Can you recall any specific features that you think influence this opinion?
   b) Do you know if the identified spaces/rooms in their original state or if they have been altered or updated?

5. **Which interior space or room in the residence do you use the most and why?**
   Example follow up questions
   a) Do you know if the identified spaces/rooms in their original state or if they have been altered or updated?

6. **Which interior space or room in the residence do you use the least and why?**
   Example follow up questions
   a) Do you know if the identified spaces/rooms in their original state or if they have been altered or updated?

7. **Whilst staying in this residence, have you upgraded, altered or improved on any of the interior spaces, and why? Please provide details.**
   Example follow up questions
   a) If no, does the original condition of the residence have an impact on the perceived value of the residence: resale value and value to you as resident?
   b) If yes, have the original kitchen and bathrooms been altered/upgraded? Do you know why? Please provide details.
   c) Any other rooms? Do you know why? Please provide details.
   d) Any other specific features e.g.
      1. floor finishes
      2. wall finishes
      3. ceiling finishes
      4. lighting fixtures
      5. built-in features e.g. fireplaces /

   Do you know why? Please provide details.

Questionnaire

1. In which of the Norman Eaton residences do you live? Refer to addendum A and mark the applicable box below:

A: House Anderssen 1939	B: House Anderssen 1949-1950	C: House Greenwood 1948-1953	D: House Van Den Berg 1964	E: House Brown 1960's	F: House Van Wouw 1937-1938

2. Identify the room or space which **most feels like** or matches the spatial qualities below. The same room can be allocated to more than one category:

Best daytime mood	Best night time mood	Most comfortable in summer	Most comfortable in winter	Best views of the landscape
Most appealing combination of materials and textures	Least appealing combination of materials and textures	Least comfortable in summer	Least comfortable in winter	Best natural lighting for daytime use
Feels the most public	Feels the most intimate or private	Most architectural detail	Least architectural detail	*Other – please be specific*

Questionnaire – Addendum A

In which of the Norman Eaton residences do you live? Indicate the applicable picture by marking the letter on the questionnaire

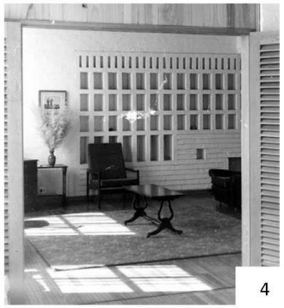
A House Anderssen 1939


1


2

B House Anderssen 1949-1950


3

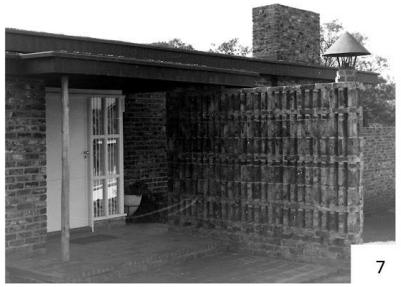

4

C House Greenwood 1948-1953


5


6

D House Van den Berg 1964


7


8

E House Brown 1960's


9

F House and Studio Van Wouw 1937-1938


10


11

Image references on reverse

Questionnaire – Addendum A

Image References

Figure 1: Pienaar, Morne. (2009-01-07). 000025.jpg [external view from garden]. JPEG image. Accessed 2018-03-10 from <https://repository.up.ac.za/bitstream/handle/2263/14653/000025.JPG?sequence=4&isAllowed=y>

Figure 2: Pienaar, Morne. (2009-01-07). 000021.jpg [external view of front door]. JPEG image. Accessed 2018-03-10 from <https://repository.up.ac.za/bitstream/handle/2263/14653/000021.JPG?sequence=3&isAllowed=y>

Figure 3: Unknown. (n.d.). Front of house with large sliding doors.JPEG format. Accessed 2018-03-10 from <https://www.artefacts.co.za/main/Buildings/image_slide.php?type=2&bldgid=3876&rank=0>

Figure 4: Unknown. (n.d.). Interior towards living area. JPEG format. Accessed 2018-03-10 from <http://www.artefacts.co.za/main/Buildings/image_slide.php?type=2&bldgid=3876&rank=13>

Figure 5: Pienaar, Morne. (2012). House entrance from parking area. JPEG format. Accessed 2018-03-11 from < https://www.artefacts.co.za/main/Buildings/image_slide.php?type=2&bldgid=9417&rank=9>

Figure 6: Pienaar, Morne. (2012). House entrance from parking area. JPEG format. Accessed 2018-03-11 from <https://www.artefacts.co.za/main/Buildings/image_slide.php?type=2&bldgid=9417&rank=15>

Figure 7: Unknown. (n.d.). ETN00028V [main entrance]. PDF format. Uploaded 2007-08-21. Accessed 2018-03-11 from <https://repository.up.ac.za/bitstream/handle/2263/3324/ETN00028V.pdf?sequence=2&isAllowed=y>

Figure 8: Unknown. (n.d.). ETN00035V [view of living area and kitchen]. PDF format. Uploaded 2007-08-21. Accessed 2018-03-11 from <https://repository.up.ac.za/bitstream/handle/2263/3324/ETN00028V.pdf?sequence=2&isAllowed=y>

Figure 9: Google. (2013-10). Silver Oak Avenue Street View. Accessed 2018-03-12 from <https://www.google.co.za/maps/@-25.7806667,28.2373398,3a,75y,63.13h,101.72t/data=!3m6!1e1!3m4!1sHnOtyOB1dlTOY83sDmDQOw!2e0!7i13312!8i6656>

Figure 10: Borisgorelik. (2008-09-01). Antonvanwouwhouse. JPEG image. Accessed 2018-03-10 from <https://en.wikipedia.org/wiki/Van_Wouw_Museum#/media/File:Antonvanwouwhouse.jpg>

Figure 11: Ross, David. (2011-02-09). 24 hours in Pretoria : House van Wouw. JPEG format. Accessed 2018-03-11 from <https://www.visi.co.za/files/gallery/124/802_original.jpg>

Addendum C: Terminology List

Architectural Archives of the University of Pretoria (AAUP)
An archival storage facility for the hard copy documents owned by the University of Pretoria's Department of Architecture.

Case Study
An "empirical inquiry that investigates a phenomenon or setting, within its real-life context" (Yin 2009:18).

Eaton Collection
The Norman Eaton documents that are electronically available on the University of Pretoria's digital repository, as well as physical documents stored in the Architectural Archives of the University of Pretoria.

Empirical Phenomenological Research
Research based on "experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience" (Moustakas 1994:12).

Interior Architecture
Interior architecture is most simply defined as a field which "encompasses both visual and functional design, as well as basic knowledge of building materials, construction, and technology" (Ching & Binggelli 2012:).

A similar but more detailed definition is given by Weinthal (2011:11,15) who emphasises that interior architecture "synthesizes a vast array of elements, from architecture to decoration … [which] seeks to reconcile these different identities so that they can coexist" in a "…captivating design". This synthesis also includes additional elements such environmental strategies, accommodating for user activities, material expression, and considering the passage of time. She also emphasizes that the design of an interior spaces exists and responds in the context of themes that are pertinent to the discipline, specifically mentioning themes such as: "body and perception, clothing and identity, furniture and objects, color [sic] and surfaces, mapping the interior, private chambers, public performance, [and] bridging the interior and exterior" (Weinthal 2011:10).

Interior Design
refer to *'Interior Architecture'*

Addendum D: Dramatis Domus

I. Introduction

The Dramatis Domus addendum elaborates on the relationship between the components of interior architecture and the architectural data set, which is used as reference for the Representations of Space analysis. It includes the five selected case studies selected for this study in chronological order as they appear in this document, namely:

- House Van Wouw 1937
- House NM Eaton 1944
- House Greenwood 1948
- House Brown 1956
- House Van Den Berg 1964

A summary sheet of each case study showing general details and heritage significance can be viewed on pages 27 – 31, respectively.

The detailed methodology used in the first grouping activity, scrutinised the architectural documentation for drawings, details or annotations that correspond with each category and related subcategories of the components of interior architecture. Due to the qualitative nature of the study, if a detail or annotation is identified the entire category is deemed as being addressed, in principle (as opposed to a quantitative study which would look at how many of the categories are addressed). The allocation of the binary ones and zeros are based on this approach and are elaborated on in each section, in table format.

II. 1937 House Van Wouw

Table a: Architectural documentation sources of the Interior Building Elements of House van Wouw

House Van Wouw **Interior Building Elements**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Planes: a) floors b) walls c) ceilings	a, b and c) same sources - ar001pap_etn.0003; - ar001pap_etn.0007; - W4 440p.	1
Openings: a) windows b) doors: front door and internal doors	a) ar01pap_etn.0003, 00638-04; b) ar001pap_etn.0007 section AA	1
Circulation a) stairways and balustrades b) ramps c) mechanical	a) ar01pap_etn.0007 section BB b) zero c) n/a	1

Table b: Architectural documentation sources of the Interior Environmental Systems of House van Wouw

House Van Wouw **Interior Environmental Systems**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Temperature control: a) heating (fireplace), b) ventilation (airbricks) c) cooling (aircon / passive = shutters)	a) ar01pap_etn.0002; ar01pap_etn.0007; 00638-05 section cc; 06946-02 b) 06946-02 (no anno, only drawing) c) ar01pap_etn.0006	1
Water systems a) water supply b) sanitary drainage system	00638-05 section BB; 06946-02	1
Electrical systems a) outlets and switches	06946-02	1
Lighting systems a) lighting fixtures b) daylighting	none	0
Acoustics	ar01pap_etn.0007; 00638-05 section AA, BB, CC	1
Fire suppression systems	not applicable	n/a

Table c: Architectural documentation sources of the Interior Finishing Material of House van Wouw

House Van Wouw **Interior Finishing Material**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Floor finishes	ar01pap_etn.0003; 00638-05 AA; 06946-02	1
Wall finishes	00638-05 section AA 313_8	1
Ceiling finishes	ar01pap_etn.0007; 00638-05 section AA, BB, CC	1

Table d: Architectural documentation sources of the Interior Furnishing of House van Wouw

House Van Wouw **Interior Furnishing**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Furniture: Built-in furniture: (seating, tables, sound-system) Loose furniture Feature furniture	ar01pap_etn.0003	1
Storage: a) Built-in storage (kitchen, bedroom, bookshelf) b) Loose storage c) Feature storage (display niche)	a&c) ar01pap_etn.0002; 00638-05 section AA, BB; 06946-02 c) ar01pap_etn.0007; 00638-05 section BB, CC	1
Window treatments: a) Exterior (shutters) b) Interior (curtain rail boxes)	b) ar01pap_etn.0007; 00638-05 section AA, CC	1
Accessories a) utilitarian b) decorative: artwork (picture rails), collections (display niches), plants	b) 00638-05 section AA; 06946-02	1

III. 1944 House NM Eaton

Table a: Architectural documentation sources of the Interior Building Elements of House NM Eaton

House NM Eaton **Interior Building Elements**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Planes: a) floors b) walls c) ceilings	ar001pap_etn.0201	1
Openings: a) windows b) doors: front door and internal doors	ar001pap_etn.0201	1
Circulation a) stairways and balustrades b) ramps c) mechanical	single level so not applicable	n/a

Table b: Architectural documentation sources of the Interior Environmental Systems of House NM Eaton

House NM Eaton **Interior Environmental Systems**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Temperature control: a) heating (fireplace), b) ventilation (airbricks) c) cooling (aircon / passive = shutters)	ar001pap_etn.0201	1
Water systems a) water supply b) sanitary drainage system	sketch plan so not applicable	n/a
Electrical systems a) outlets and switches	sketch plan so not applicable	n/a
Lighting systems a) lighting fixtures b) daylighting	sketch plan so not applicable	n/a
Acoustics	sketch plan so not applicable	n/a
Fire suppression systems	sketch plan so not applicable	n/a

Table c: Architectural documentation sources of the Interior Finishing Material of House NM Eaton

House NM Eaton **Interior Finishing Material**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Floor finishes	ar001pap_etn.0201 tile-like hatch on plan at fireplace	1
Wall finishes	ar001pap_etn.0201 section aa&bb	1
Ceiling finishes	ar001pap_etn.0201 exposed gumpole/beams & sheetmetal (no annos)	1

Table d: Architectural documentation sources of the Interior Furnishing of House NM Eaton

House NM Eaton **Interior Furnishing**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Furniture: Built-in furniture: (seating, tables, sound-system) Loose furniture: (seating, tables) Feature furniture: (bed headboard)	ar001pap_etn.0201	1
Storage: a) Built-in storage (kitchen, bedroom, bookshelf) b) Loose storage c) Feature storage (display niche)	ar001pap_etn.0201	1
Window treatments: a) Exterior (shutters) b) Interior (curtain rail boxes)	sketch plan so not applicable	n/a
Accessories a) utilitarian b) decorative: artwork (picture rails), collections (display niches), plants	sketch plan so not applicable	n/a

IV. 1948 House Greenwood

Table a: Architectural documentation sources of the Interior Building Elements of House Greenwood

House Greenwood **Interior Building Elements**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Planes: a) floors b) walls c) ceilings	a) ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950; ar001pap_etn.0029____et_hg_p207.25_new guest rondawel_5 Aug1953 b) ar001pap_etn.0015____et_hg_p207.8_roofplan over 1st floor & section_4.5.1950; ar001pap_etn.0031___et_hg_p207.32_slab&WI rail to watertank_19.6.51 'louvres over wardrobe fittings in main bed'; ar001pap_etn.0029____et_hg_p207.25_new guest rondawel_5 Aug1953 c) ar001pap_etn.0015____et_hg_p207.8_roofplan over 1st floor & section_4.5.1950 *ar001pap_etn.0029____et_hg_p207.25_new guest rondawel_5 Aug1953 thatch (exposed)	1
Openings: a) windows b) doors: front door and internal doors	ar001pap_etn.0036__et_hg_p207.25A_windowdetails_4.9.53 ar001pap_etn.0019__et_hg_p207.12_window details door 10_4.50; ar001pap_etn.0020__et_hg_p207.13_windows B&C door 11&12_4.5.50; ar001pap_etn.0021__et_hg_p207.14_windows D-J & details_4.5.50; ar001pap_etn.0015__et_hg_p207.8_roofplan over 1st floor & section_4.5.1950 ar001pap_etn.0013__et_hg_p207.5_ground & first floor plan_5.5.1950 ar001pap_etn.0032__et_hg_p207.33_no drawing name_misc details_19.6.51 'slidingdoor handle detail' ar001pap_etn.0029__et_hg_p207.25_new guest rondawel_5 Aug1953 b) ar001pap_etn.0017____et_hg_p207.10_doors and details_April 1950 ar001pap_etn.0018____et_hg_p207.1_entrance door & sliding screens_5.5.1950	1
Circulation a) stairways and balustrades b) ramps c) mechanical	ar001pap_etn.0015___et_hg_p207.8_roofplan over 1st floor & section_4.5.1950; ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950 ar001pap_etn.0016____et_hg_p207.9_staircase details_4.5.1950	1

Table b: Architectural documentation sources of the Interior Environmental Systems of House Greenwood

House Greenwood **Interior Environmental Systems**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Temperature control: a) heating (fireplace), b) ventilation (airbricks) c) cooling (aircon / passive = shutters)	a) ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950 b) ar001pap_etn.0014___et_hg_p207.7_roof plan_4.5.1950 'breeze bricks'	1
Water systems a) water supply b) sanitary drainage system	ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950; ar001pap_etn.0012___et_hg_p207.3_drainage plan_H&C water services_3.3.1950	1
Electrical systems a) outlets and switches	none	0
Lighting systems a) lighting fixtures b) daylighting	ar001pap_etn.0022__et_hg_p207.15_kitchen fittings_4.5.50 'north wall elev',, section AA&BB	1
Acoustics	none	0
Fire suppression systems	not applicable	n/a

Table c: Architectural documentation sources of the Interior Finishing Material of House Greenwood

House Greenwood **Interior Finishing Material**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Floor finishes	ar001pap_etn.0015____et_hg_p207.8_roofplan over 1st floor & section_4.5.1950, ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950	1
Wall finishes	ar001pap_etn.0015____et_hg_p207.8_roofplan over 1st floor & section_4.5.1950 ar001pap_etn.0022__et_hg_p207.15_kitchen fittings_4.5.50	1
Ceiling finishes	ar001pap_etn.0022__et_hg_p207.15_kitchen fittings_4.5.50 'false metal ceiling inside'=south wall elev	1

Table d: Architectural documentation sources of the Interior Furnishing of House Greenwood

House Greenwood **Interior Furnishing**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Furniture: Built-in furniture: (seating, tables, sound-system) Loose furniture: (seating, tables) Feature furniture: (bed headboard)	ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950	1
Storage: a) Built-in storage (kitchen, bedroom, bookshelf) b) Loose storage c) Feature storage (display niche)	ar001pap_etn.0015____et_hg_p207.8_roofplan over 1st floor & section_4.5.1950 ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950 ar001pap_etn.0022__et_hg_p207.15_kitchen fittings_4.5.50 ar001pap_etn.0031___et_hg_p207.32_slab&WI rail to watertank_19.6.51 'cupb in main bath', 'full size detail of cupb door constr', 'hat&blouse cupb', 'diningr cupbs' ar001pap_etn.0032___et_hg_p207.33_no drawing name_misc details_19.6.51 'basement sect AA, BB ar001pap_etn.0023____et_hg_p207.16_bedroom fittings_29.4.1950 unit A-P ar001pap_etn.0039____et_hg_p207.29_flourbins in kitchen_15.3.1951	1
Window treatments: a) Exterior (shutters) b) Interior (curtain rail boxes)	a) overhangsar001pap_etn.0015____et_hg_p207.8_roofplan over 1st floor & section_4.5.1950; ar001pap_etn.0041____et_hg_p207.43_pelmits and venetian blinds to bathrooms_nd b) ar001pap_etn.0013___et_hg_p207.5_ground & first floor plan_5.5.1950 ar001pap_etn.0023____et_hg_p207.16_bedroom fittings_29.4.1950 'plan over cipb showing pelemets, unit L-O with ven. blind surround	1
Accessories a) utilitarian b) decorative: artwork (picture rails), collections (display niches), plants	a) ar001pap_etn.0033___et_hg_p207.27_stainless steel fitting_17 February 1951	1

V. 1956 House Brown

Table a: Architectural documentation sources of the Interior Building Elements of House Brown

House Brown **Interior Building Elements**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Planes: a) floors b) walls c) ceilings	et_b001	1
Openings: a) windows b) doors: front door and internal doors	et_b001 = 'fan light above doors' (bedrooms)	1
Circulation a) stairways and balustrades b) ramps c) mechanical	et_b001	1

Table b: Architectural documentation sources of the Interior Environmental Systems of House Brown

House Brown **Interior Environmental Systems**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Temperature control: a) heating (fireplace), b) ventilation (airbricks) c) cooling (aircon / passive = shutters)	et_b001	1
Water systems a) water supply b) sanitary drainage system	et_b002	1
Electrical systems a) outlets and switches	et_b001 'EP'	1
Lighting systems a) lighting fixtures b) daylighting	et_b001 = 'L' "3 wall lights, tube lights; double tube	1
Acoustics	et_b001	1
Fire suppression systems	not applicable	n/a

Table c: Architectural documentation sources of the Interior Finishing Material of House Brown

House Brown **Interior Finishing Material**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Floor finishes	et_b001 = woodblock, quarry tile, sage floor; white tiles; edge to edge carpet; grey floor lino tile; yellow grano	1
Wall finishes	et_b001 = rough stone, rough cast	1
Ceiling finishes	et_b001 = rough cast ceiling	1

Table d: Architectural documentation sources of the Interior Furnishing of House Brown

House Brown **Interior Furnishing**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Furniture: Built-in furniture: (seating, tables, sound-system) Loose furniture: (seating, tables) Feature furniture: (bed headboard)	et_b001	1
Storage: a) Built-in storage (kitchen, bedroom, bookshelf) b) Loose storage c) Feature storage (display niche)	et_b001	1
Window treatments: a) Exterior (shutters) b) Interior (curtain rail boxes)	none present	0
Accessories a) utilitarian b) decorative: artwork (picture rails), collections (display niches), plants	et_b001	1

VI. 1964 House Van Den Berg

Table a: Architectural documentation sources of the Interior Building Elements of House Van Den Berg

House Van Der Berg **Interior Building Elements**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Planes: a) floors b) walls c) ceilings	a) et_hvdB_313.26_working drawing plan_February 1964_rev 6.3.64 b) et_hvdB_313.2_sketch plan_february1964 'screens', brick niche walls'; et_hvdB_313.11_Cupboards & Fittings_june 1964 anno 'wood screen', screen detail; et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964 c) et_hvdB_313.11_Cupboards & Fittings_june 1964;	1
Openings: a) windows b) doors: front door and internal doors	b) et_hvdB_313.26_working drawing plan_February 1964_rev 6.3.64 'stabled oor in guest bed); et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964 'front door detail'	1
Circulation a) stairways and balustrades b) ramps c) mechanical	et_hvdB_313.2_sketch plan_february1964; et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964	1

Table b: Architectural documentation sources of the Interior Environmental Systems of House Van Den Berg

House Van Der Berg **Interior Environmental Systems**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Temperature control: a) heating (fireplace), b) ventilation (airbricks) c) cooling (aircon / passive = shutters)	a) et_hvdB_313.11_Cupboards & Fittings_june 1964 'fireplace detal'; b) et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964 'air brick' section of south wall & kitchen	1
Water systems a) water supply b) sanitary drainage system	a) et_hvdB_313.2_sketch plan_february1964, et_hvdB_313.26_working drawing plan_February 1964_revised 6.3.64 'el. geyser', 'water meter position' b) et_hvdB_313.26_working drawing plan_February 1964_revised 6.3.64	1
Electrical systems a) outlets and switches	et_hvdB_313.4_electrical plan_February 1964_revised 6.3.64_completed 16.3.64; et_hvdB_313.11_Cupboards & Fittings_june 1964 'el. plug'; et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964	1
Lighting systems a) lighting fixtures b) daylighting	et_hvdB_313.12_electric light diningrm shade_24.x.64; et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964; et_hvdB_313.4_electrical plan_February 1964_revised 6.3.64_completed 16.3.64;	1
Acoustics	et_hvdB_313.4_electrical plan_February 1964_revised 6.3.64_completed 16.3.64; et_hvdB_313.11_Cupboards & Fittings_june 1964;	1
Fire suppression systems	not applicable	n/a

Table c: Architectural documentation sources of the Interior Finishing Material of House Van Den Berg

House Van Der Berg **Interior Finishing Material**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Floor finishes	et_hvdB_313.11_Cupboards & Fittings_june 1964 'brick floor', 'lino floor' - kitchen&bathrooms; et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964	1
Wall finishes	et_hvdB_313.11_Cupboards & Fittings_june 1964, '6x6 white johnson tile'; et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964 '6x6 white johnson tile'	1
Ceiling finishes	-et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964	1

Table d: Architectural documentation sources of the Interior Furnishing of House Van Den Berg

House Van Der Berg **Interior Furnishing**	Archive document name	Key: 1 = present zero = not present n/a = category not applicable
Furniture: Built-in furniture: (seating, tables, sound-system) Loose furniture: (seating, tables) Feature furniture: (bed headboard)	a) et_hvdB_313.26_working drawing plan_February 1964_rev 6.3.64; et_hvdB_313.11_Cupboards & Fittings_june 1964; b) c) et_hvdB_313.26_working drawing plan_February 1964_rev 6.3.64 'headboard', built in record player & speaker boxes'; -et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964	1
Storage: a) Built-in storage (kitchen, bedroom, bookshelf) b) Loose storage c) Feature storage (display niche)	a) et_hvdB_313.26_working drawing plan_February 1964_rev 6.3.64; et_hvdB_313.11_Cupboards & Fittings_june 1964; b) c)	1
Window treatments: a) Exterior (shutters) b) Interior (curtain rail boxes)	none	0
Accessories a) utilitarian b) decorative: artwork (picture rails), collections (display niches), plants	et_hvdB_313.8_Detailed Section thro lounge & bedr showing brick pigeon holes_June 1964 'decoration drawn into niche'	1

Addendum E:

Extracts from Examiner's report and Student's Response

This appendix highlights comments received by the external and internal examiners, as well as the candidate's responses. Thank you to both examiners for the insightful and constructive feedback.

29 January 2020

EXTERNAL EXAMINER

Dr Raymund Königk, College of Arts, University of Lincoln, Lincoln, United Kingdom

GENERAL

The study is structured well, professionally presented, and rigorous. The research, specific the data collection and analytical protocols are thorough and clearly communicated.	Feedback noted with appreciation.
The candidate illustrated the ability to identify, plan, initiate, execute, and manage a rigorous investigation in the discipline, at an appropriate level. However, I do feel that the scope was excessive (for a masters thesis) and the candidate could have produced less work, but improve the academic standard.	
The promise of the initial subjective register and first person account was relevant for the study and the discipline, however, this was not maintained. There is inconsistency in the thesis between an objective and subjective register, which detracts from the coherence of the project.	The study used the strategy of juxtaposing the subjective lens with the objective lens to allow the reader a balanced insight into each topic. This strategy was employed in the introduction of the researcher, i.e. the subjective introduction versus the normative position. It was also used in the ordering of domains and data sets represented by chapters three to five. Feedback is noted with appreciation and a more explicit description of the strategy has been included in the final document.

FIELD OF STUDY (INTERIOR DESIGN vs. INTERIOR ARCHITECTURE)

The candidate was not clear about the title of the discipline, at times treating 'interior design' and 'interior architecture' as discrete entities, at others, claiming that these terms are synonyms. This is a current and contentious issue for the discipline(s) and clarity here would have been welcome. This is especially relevant as the candidate chose to study the work of an architect. Some of the literature referred to, could provide greater clarity on this aspect (e.g. Konigk, Kurtich & Eakin, etc.). This is a missed opportunity.	The current ‘interior design’ and ‘interior architecture’ debate was not a deliberate focus area for this study. The aim of the study was to explore how interior spaces were designed before the interior design discipline in South Africa existed as a separate entity with formal training. Feedback is noted with appreciation and the definition in the Terminology List of the final document has been elaborated upon to be more informative regarding the researcher's understanding and interpretation of the terms.

RESEARCH DESIGN AND METHODOLOGY

Although rigorous, for a master's thesis, the range of methods are excessive and many of the methods mentioned are not critically evaluated and applied (e.g. heuristic research). If the project was more clearly delimited this could have been avoided and would have limited the scope of the study.	Feedback noted, with appreciation.
The student uses research nomenclature in an inaccurate manner, e.g. a discussion on 'research design' (pp. 9-10) is an overview of the thesis text; and the ·research goals, objectives and importance of the study' is discussed as a single section.	Sections amended to reflect corrections in the final document.
The thesis would be more elegant if the research questions corresponded to a research aims, and the list of research sub-questions corresponded to a set of research objectives.	Thank you for the suggestions.
Interviews - what determined criteria for inclusion? Why are interviews included at all? If only two residents were willing to participate in interviews, do the interviews provide enough evidence? Or, could the subquestion (p. 118) be addressed in another manner? The persistence of using this method, especially the attempts to quantify the responses (pp. 122 - 125) indicates discomfort of the researcher with subjective and qualitative approaches. However, the conclusion reached, is the result of a rigorous application of the methods selected, and the data collected. Further, the candidate does not overstate the contributions of the thesis.	The study's intention was to establish whether the spatial triad can be used as a model to investigate pertinent aspects of interior space, in other words to test the viability of the model overall as opposed to the precise method used. Both the interviews and questionnaire were selected as possible methods to use when investigating the Representational Space domain, primarily due to the experiential nature of the domain and the access to experiential accounts that the aforementioned methods provide.

LITERATURE REVIEW / SOURCES

The literature review is architecturally biased, this influenced the approach to the discipline, and arguments about the status of the discipline. Further, the literature is narrowly focussed on the Pretoria School (of Architecture)- this may be relevant for Eaton, but is not relevant for interior design. This could have been more acceptable, if the thesis was properly delimited.	Feedback noted, please refer to response in the FIELD OF STUDY section.

It is in the nature of interior design to be both commercially focused in the public domain, and to be a globalising discipline. The candidate was not clear on why the decision was made to study the domestic interior and a specific regional approach.

The deciding factors around the focus on domestic interiors included the availability of archival material by Eaton, the opportunity to bring this archival material into the public realm, and the opportunity to investigate and contribute to the existing archival material, specifically with reference to the architectural drawings and photos of House Brown.

ACADEMIC RIGOUR

The limitations and delimitations p. 6 does not really serve the study and are not critically assembled; it is my suspicion that the delimitations did not serve to define a substantive area of an appropriate scope, but that they did in fact limit the study and placed constraints on it which hampered its potential. Ironically, the response was to assemble too many methods and approaches.

Feedback noted, with appreciation.

The work presented is professional and of appropriate quality. The candidate understands the use of academic convention and largely applies its use in a mechanical manner. This yields work of relevant standard, but lacking in critical creativity - this is especially evident in the introduction and recapitulation.

CONCLUSION

At the conclusion of the study I am left with the impression that the candidate did not fully address the discipline of interior. It is my opinion that the episteme in which the study was conducted was not interior - and the creative potential of the discipline could not be fully exploited. This is evident in the list of references which does not include enough relevant recent interior theory.

Feedback noted, with appreciation.

The provided conclusions to the research are either logically inevitable, or a likely result of the evidence, insights and reasoning outlined in the research, but this is all that was achieved. The work is extensive and thorough, but I do not believe the candidate reached the level of critical engagement

required to achieve a distinction. Different results and conclusions could be reached, specifically deeper and more nuanced conclusions, if the methods and documentation techniques were chosen with more circumspection.

That said, however, this clearly is a competent piece of work. It is thorough, it is presented professionally, and indicates that the candidate has reached the required competency of a master's qualification (that is to identify an appropriate and viable study, to plan and execute it, to synthesise defendable insights, and to present it in an academic manner). I congratulate the candidate and her supervisors on a good piece of work.

INTERNAL EXAMINER

Annika van Aswegen, Department of Architecture, University of Pretoria, Pretoria, South Africa

FIELD OF STUDY

The field of study provides opportunities for independent, reflexive and self-directed Research. The research question promotes an interdisciplinary investigation that aligns with the design approach and ethos of the Department of Architecture.

It is however interesting that the candidate uses the terms interior design and interior architecture interchangeably, when reference is made to Konigk's master's dissertation (2010), titled Interior design as architecture's 'Other' that states a case for interior design and architecture as related, but separate disciplines. A stronger motivation would have contextualised this view in relation to current discourse in the first chapter and terminology list, clarifying the candidate's understanding and interpretation.

Feedback is noted with appreciation and the definition in the Terminology List of the final document has been elaborated upon to be more informative regarding the researcher's understanding and interpretation of the terms.

RESEARCH DESIGN AND METHODOLOGY

The qualitative method and interpretive approach to the study is supported by the variety of data consulted. Each provides an opportunity for analysis and interpretation according to the research questions. The tools and techniques for analysis show competence in handling a large data set, ranging from architectural drawings and photographs, to interviews and questionnaires. The scope of analysis is commendable.

Noted, with appreciation.

The research questions guiding the investigation describe the focus and are clear. However, for a study based on one theoretical framework, a stronger alignment between questions and theory is required - to be more representational of the theoretical focus as set out in Lefebvre's spatial triad. If the study is based on this theoretical framework, then sub-question two should include the aspect of sensorial perception (perceived space), and not only record the interior architectural elements from photographs to confirm the architect's intent. The researcher as expert has the

The study's intention was to establish whether the spatial triad can be used as a model to investigate pertinent aspects of interior space, in other words to test the viability of the model overall as opposed to the precise method used. Feedback and suggestions are noted with appreciation and have been dealt with and expanded on in the text of the final document, specifically in chapter two and at the start of chapters three to five.

knowledge and expertise to interpret the photographs in this sense and support the findings theoretically from an expanded literature review (potential additional sources below in section 2). Sub question three then follows with a stronger synthesis of the interpretation of a holistic and integrated lived experience. At present, the elements remain considered in isolation throughout the document. Although the individual elements are addressed in detail, a relation between them should be established to support the reference to Lefebvre and Hays describing 'textures' defined as "metaphor to represent the complexities and layers inherent in space as a whole" (page 13 of dissertation).

Since this is a visual study - visual analysis of data - more emphasis on the visual communication or representation would have assisted the reader to contextualise individual elements. The study is weighted heavily on the findings in the data, as thick descriptions that are extensive, which outbalance the theoretical grounding. The inclusion of one pertinent photograph per case study, displaying the elements in relation to another and marked onto / into the image, would have supplemented the textual account.

Feedback is noted with appreciation. The thick descriptions and longitudinal analysis were deemed important for the study, where the collated visual data was seen as supplementary to the text.

LITERATURE REVIEW/SOURCES

The literature review outlines the areas of investigation: interior architectural elements, regional architecture and spatial domains of Lefebvre's triad in chapter 2. Chapters 3 to 5 introduce the theoretical aspects for each respective investigation to support the analyses of the specified dataset.

One seminal text omitted in the study, is Edward Soja's Thirdspace (1996). Soja explains the spatial argument and complexity of the spatial triad of Lefebvre by connoting ‘spatial practice’ or ‘perceived space’ to first space; ‘representation of space’ or ‘conceived space’ to second space; and ‘representational space’ or ‘lived space’ to third space. Thirdspace contextualises the domains of the triad in a different, but related way, emphasising the social, political and spatial forces at play. A deeper understanding of the

Feedback and suggestions are noted with appreciation and have been addressed and expanded on in the text of the final document.

domains, and their relation to another would benefit the study that relies on one theoretical grounding as basis for analysis. Soja should be integrated in the introduction, regardless if Thirdspace is considered in the chapters to follow or not.	
Interesting to note then, is that the sequence of the domains is different to the sequence used in the study. By engaging with the full context of the spatial triad, the candidate can motivate for the structure of the dissertation as presented here.	The study used the strategy of juxtaposing the subjective lens with the objective lens to allow the reader a balanced insight into each topic. This strategy was employed in the introduction of the researcher, i.e. the subjective introduction versus the normative position. It was also used in the ordering of domains and data sets represented by chapters three to five. Feedback is noted with appreciation and a more explicit description of the strategy has been included in the final document.
Other sources in support of the discourse on interior architectural elements from the perspective of interior are listed below. The use of Ching and Bingelli as seminal source for interior architectural elements are relevant, however, the discourse on interior design has evolved and through engagement with these sources, others could emerge. They could also have shed more light on the interior design and architecture debate. - The handbook of interior architecture and design (2017) by Brooker and Weinthal (eds) - Intimus: interior design theory reader (2006) by Taylor and Preston (eds) - Toward a new interior: an anthology of interior design theory (2011) by Weinthal	The current ‘interior design’ and ‘interior architecture’ debate was not a deliberate focus area for this study. The aim of the study was to explore how interior spaces were designed before the interior design discipline in South Africa existed as a separate entity with formal training. Feedback is noted with appreciation and the definition in the Terminology List of the final document has been elaborated upon to be more informative regarding the researcher's understanding and interpretation of the terms.

PRESENTATION

The literary and typological presentation of the document is of a high standard. The structure and unfolding of the methodology communicate the intent of the study.	Noted, with appreciation.
Some suggestions regarding the visual communication of findings, as mentioned in point 2 above: the visual communication of the findings could benefit from a varied approach to demonstrate the spirit of the relevant domain as described by Lefebvre (and as captured in the varied format types of the original data).	In the absence of related case studies to inform this specific study, the detailed feedback is much appreciated.

For example, chapter 3 (Representation of space) is a documentation of which interior architectural elements are present (record and show). The tabled representation is very effective to demonstrate across the five case studies, and across the various periods of Eaton's work.

Chapter 4, with emphasis on perceived space and sensorial experience (as noted in Lefebvre's spatial triad and study approach on page 32 of the dissertation), would benefit from the inclusion of one pertinent photograph per case study to represent the ·perceived space' and its related sensorial experience. These could be marked on the image to extend and contextualise the thick descriptions.

Chapter 5 highlights the 'lived experience' of the users as representational space, where an emphasis on relational conditions and synthesis, especially with the spatial textures. Here, the tabled visuals are not effective in communicating the spirit of the domain. According to Soja's explanation of 'third space' as lived or social space, it also contains aspects of the other two domains to represent space holistically. In this light, the visual graphic representation to formulate a relation between the architect's intent (RoS), the perceived space (SP) and the lived experience (RS) is required. Even if the reference to Soja is not made in the discussion, this approach could still benefit chapter 5 and the study as a whole.

In addition, where a regionalist architectural consideration is important, the analysis that follows cannot be contextualised without an analysis per case study, detailing the climatic conditions and orientation. This would inform the discussions in chapters 3 to 5. At present, some of the findings are unclear as this is not included.

In my opinion, these aspects have already been covered by Pienaar (2013) in her Master of Archtiecture dissertation.

ACADEMIC RIGOUR

Academic rigour is limited to the two main sources (Lefebvre and Ching & Bingelli), which is dealt with on the surface. The complexity and weighting of the literature review should support the data analysis and findings. At present, chapters 3 to 5 rely heavily on the data discussion (without much theoretical support).	
The reference and in-text citations to Lefebvre's, The production of space, details the first publication in French (1974). It seems strange that this version is cited, except if the candidate is fluent in French. According to Harvard Referencing, sources consulted in the research are recorded (although it might be a translated source) and should be captured correctly. The widely available version is the 1991 translation, which is not in the reference list; however, it appears as a citation. This needs to receive urgent attention.	Where possible references have been included according to the Abridged Harvard Method in the formats outlined in Bibliographic style & reference techniques by the Department of Library Services from the University of Pretoria (2017). Feedback noted, with appreciation. Corrected in the final document.
Academic rigour in the context of this study would also make a relation between the tables presented in chapter 6. The study considers the use of the triad as tool for analysis. Lefebvre notes the importance of a holistic approach and as such, the tables cannot remain isolated.	
Subjective terms from page 32 in this chapter to be replaced ('excellent', 'impressive', 'beautiful').	Feedback noted, with appreciation. Subjective terms replaced in final document.
Incorrect calculation in table 4.3 page 80.	Feedback noted, with appreciation. Corrected in final document.
Understanding of phenomenology beyond one quotation on page 118 can be extended in the discussions, expanding the experiential and lived conditions inscribed in the data.	Feedback noted, with appreciation.
The discussions in chapters 4 and 5 require an interpretive interior lens in the description of the perceived experience and lived conditions. (The study approach and methodology on page 9 sets out to follow a qualitative approach and interpretivist paradigm.) For example, the interior environmental systems, temperature control, water systems, electrical systems, lighting systems, acoustics, entertainment, furniture and accessories contain much more detail. These are visible in the photos and	The seemingly endless options for interpretation of the same spaces is why the study as a whole appealed to me. That being said, the research remains at a distance. The availability and nature of the data in chapters four and five determined the extent to which findings could be deduced.

potentially present in the interview data, which speak to sensory experience, daily rituals and interface.	
The engagement with data remains on a technical, maintenance and reporting level, and the discussions repeat findings in various ways between the 'themes' and 'textures' without adequate integration. It would be assumed that a study that addresses the domains of the triad in relation to interior architecture elements would focus more specifically and concludes a synthesis that speaks of the complexity of the discipline of interior architecture, practiced in the 'lived space·.	Feedback and suggestions are noted with appreciation and have been addressed and expanded on in the text of the final document.

ETHICS

The study appears to have followed an ethics approval process with documents included in the addenda. However, no mention is made of that in the study and does not appear in the table of contents as a dissertation section for discussion and explanation. Private spaces are the focus of the investigation and ethical approvals and considerations must be made clear. This omission is problematic.	Feedback and suggestions are noted with appreciation and have been addressed and expanded on in the text of the final document.

GENERAL

The research topic brings a new focus to the current knowledge related to Eaton's body of work in the collection of the Department of Architecture archives. This is important for the archive, especially the new data that was collected as part of this investigation. It makes a big contribution.	Feedback noted, with appreciation.
A direct alignment between the research questions, literature focus and methodology would strengthen the discussion between the areas of investigation - spatial triad of Lefebvre, Pretoria regionalist architecture and the interior architecture elements. In a study where the final aim is for consideration of space as a whole through a conceptual synthesis, the dynamic condition of the interior becomes the canvas.	
Thank you for an interdisciplinary study that brings the micro scale within the macro of residential architecture.	

Addendum F: Miscellaneous

- Table F1.1 Tabled comparison between Ching's components of interior architecture as it evolved over time (Ching 1987, Ching & Binggeli 2012)

Table F1.1: Tabled comparison between Ching's components of interior architecture as it evolved over time (Ching 1987, Ching & Binggeli 2012)

Components of interior architecture (Ching 1987 - first edition)	**Components of interior architecture (Ching & Binggeli 2012 - third edition)**	**Collated components of interior architecture used for this study**
Interior design elements (pp.159-275) ● **Floors**: types and construction, includes **floor finishes** (pp.162-175) ● **Walls**: structural and non-structural walls, freestanding walls and partitions includes **wall finishes** (pp.176-191) ● **Ceilings**: types and shapes, includes **ceiling finishes** (pp.192-203) ● **Windows**: views and types, includes window treatments (pp.204-219) ● **Doors**: designs, construction and types, includes **frame trims** (pp.220-227) ● **Stairs**: shapes, construction, balustrades (pp.228-235) ● **Fireplaces**: types, visual treatments/finishes (pp.236-239) ● **Furniture**: ergonomics, space planning, loose furniture, built-in furniture, furniture types: chairs, tables, workstations, beds, storage (pp.240-265) ● **Lighting**: fixture types (pp.266-271) ● **Accessories**: utilitarian, incidental, and decorative: artwork, collections and plants (pp.272-276)	Interior building elements (pp.147-218) ● **Floors**: structure, construction (pp.150-151) ● **Walls**: construction, load-bearing walls, nonbearing walls, freestanding partitions, forms, openings, articulation, texture, colour (pp.152-163) ● **Ceilings**: suspended ceilings, height and scale, forms, ceilings and light, ceilings and acoustics (pp.164-174) ● **Windows**: scale, framing and filtering views, interior glazing, window operation (types), construction, frames, daylighting, natural ventilation, solar heat gain, windows and space planning (pp.175-189) ● **Doors**: sizes and designs, operation, construction, frames, doorways and space planning (pp.190-199) ● **Stairs**: dimensions, plan types, construction, railings, stairways and space planning (pp.200-209) ● **Ramps**: slope, handrails, landings (pp.210-211) ● **Elevators**, **lifts and escalators:** types (pp.212-24) ● **Fireplaces**: sizes, dimensions and construction, types (pp.215-218)	Interior building elements ● **Planes:** ○ Floors ○ Walls ○ Ceilings ● **Openings:** ○ Windows ○ Doors ● **Circulation** ○ Manual: Stairs, Ramps ○ Mechanical: Elevators, lifts and escalators
Interior environmental systems (pp.277-309) ● **Heating and air-conditioning systems**: types of heating and air-conditioning or cooling systems (pp.280-281) ● **Water supply and sanitary drainage systems**: hot and cold water supply, fixtures, drainage (pp.282-283) ● **Electrical and lighting systems**: drawing symbols, electrical outlets and switches, lighting factors, types of light sources lighting calculations (pp.284-307) ● **Acoustics and noise control**: influence of room shapes on sound, sound transmission of different wall constructions (pp.308-309)	Interior environmental systems (pp.219-246) ● **Heating, ventilation and air-conditioning**: natural ventilation, mechanical ventilation, passive heating systems, passive heating systems, air-conditioning types (pp.220-230) ● **Water supply and sanitary drainage systems:** hot and cold water supply, fixtures, drainage (pp.230-236) ● **Electrical systems:** types, electrical circuits, outlets and switches, drawing symbols (pp.237-241) ● **Fire suppression systems:** awareness that this system links to water supply and electrical systems (pp.242-243) ● **Standards and codes** (pp.244-246) Lighting and Acoustics (pp.247-286) ● **Lighting**: light types, lighting and vision, brightness, contrast, glare, diffused light, light colour, daylighting, lighting principles,	Interior environmental systems ● **Temperature control:** Heating such as Fireplaces, ventilation and air-conditioning, passive systems ● **Water system:** Water supply and sanitary drainage systems ● **Electrical systems** ● **Lighting systems** ● **Acoustics** ● **Fire suppression systems**

	light source types, fixture types, lighting design and types, measuring light and illumination (pp.247-279) ● **Acoustics**: sound, noise reduction, transmission loss, discontinuous construction, sound absorption, sound in offices (pp.280-286)	
*Refer to interior design elements above	Finishing materials (pp.287-316) ● Selection criteria (pp.288-289) ● **Finish flooring**: types, installation, structure (pp.289-302) ● **Wall finishes**: type, installation, structure (pp.303-302) ● **Paint finishes**: types, light reflectance, decorative paint finishes (pp.311-312) ● **Ceiling finishes:** types, installation, structure (pp.313-315) ● **Decorations and trims:** fire regulations relating to decor and trims (pp.316)	Finishing materials ● **Floor finishes** ● **Wall finishes** ● **Ceiling finishes**
*Refer to interior design elements above	Furnishings (pp.317-352) ● Ergonomics, layout, and materials (pp.320-323) ● **Seating**: dimensions, materials, types includes loose and fixed seating (pp.324-329) ● **Tables**: materials, construction, dimensions, styles and uses, workstations, systems furniture, includes loose and fixed tables (pp.330-335) ● **Beds**: components, types, dimensions (pp.336-337) ● **Bedroom furniture**: built-in furniture, loose furniture (pp.338-339) ● **Storage**: dimensions, components, forms of storage, construction, countertops materials and construction, types include loose and fixed storage units (pp.340-345) ● **Window treatments**: exterior treatment types, interior treatment types (pp.346-349) ● **Accessories**: utilitarian, decorative: artwork, collections, plants (pp.350-351)	Furnishings ● **Furniture** ○ Built-in furniture: seating, tables ○ Loose furniture: seating, tables ○ Feature furniture: bed headboard ● **Storage** ○ Built-in storage for example kitchen and bedroom ○ Loose storage ○ Feature storage: display niches ● **Window treatments** ○ Exterior ○ Interior ● **Accessories/Decor** ○ utilitarian ○ decorative

Part 8 References

- Cited References and Sources
- Case study references on UPSpace

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SCHEFFER, WS. 2018b. House Brown photos. Documents to be catalogued: Norman Eaton Collection. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria.

SCHEFFER, WS. 2018c. House Van Den Berg photos. Document to be catalogued: Norman Eaton Collection. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria.

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UNKNOWN. 2019a. Three black and white interior photos of House N.M. Eaton. Norman Eaton Collection: House N.M. Eaton. To be catalogued.

UNKNOWN. 2019b. Two black and white exterior photos of House N.M. Eaton. Norman Eaton Collection: House N.M. Eaton. To be catalogued.

UNKNOWN. 2019-04-03a. Polley's arcade. [Online] Available from https://i.pinimg.com/originals/59/62/f7/5962f7be54e2b7c995f5d4aff3e8035c.jpg [Accessed 2019-04-03].

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8.2 Cited Case Study References of Architectural Drawings on UPSpace: Digital Institutional Repository

1937 House van Wouw

Project name as noted on drawings:
Residence for Anton Van Wouw Brooklyn Pretoria

Eaton, N.M. 1938-03-31a. *Plan*. (W4 439p). [Architectural drawing]. Norman Eaton Collection: House Van Wouw. File name: ar001pap_etn.0003. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2008-10-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7461

Eaton, N.M. 1938-03-31b. *Sections*. (W4 440p). [Architectural drawing]. Norman Eaton Collection: House Van Wouw. File name: ar001pap_etn.0007. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2008-10-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7461

Eaton, N.M. 1938-03-31c. *North and South Elevations*. (W4 441p). [Architectural drawing]. Norman Eaton Collection: House Van Wouw. File name: ar001pap_etn.0006. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2008-10-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7461

Eaton, N.M. 1938-03-31d. *East and West Elevation*s. (W4 442p). [Architectural drawing]. Norman Eaton Collection: House Van Wouw. File name: ar001pap_etn.0008. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2008-10-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7461

Eaton, N.M. 1938-03-31e. *Roof plan and Site plan*. (W4 443p). [Architectural drawing]. Norman Eaton Collection: House Van Wouw. File name: ar001pap_etn.0004. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2008-10-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7461

Eaton, N.M. 1938-06-16. *Residence for Anton Van Wouw, Brooklyn Pretoria: Half inch details of lounge fireplace and bookcases*. (W4 464p). [Architectural drawing]. Norman Eaton Collection: House Van Wouw. File name: ar001pap_etn.0002. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2008-10-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7461

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

1944 House N.M. Eaton

Project name as noted on drawings:
Farm House for N.M. Eaton to be ercted [sic] on portion: D of A of F of the farm Garstfontein 428, district of Pretoria

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Eaton, N.M. 1944-06-21. *No drawing name [ground floor plan, south elevation, section a.a, section b.b, north elevation].* (P171.1). [Architectural drawing]. Norman Eaton Collection: House Eaton, Garstfontein, Pretoria. File name: ar001pap_etn.0201. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-04-15. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9618

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

1948 House Greenwood

Project name as noted on drawings:
New country house on ptn 36 of the farm Hartebeespoort no. 304 near Pretoria for Mr. Norman Greenwood

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Eaton, N.M. 1949-08. *Preliminary plans [east-west longitudinal section, south-north cross section, north elevation, west elevation, south elevation, south north cross-section, east elevation]*. (P207/6). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0045. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/7648

Eaton, N.M. 1950-03-03. *Drainage plan hot & cold water services*. (P207/3). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0012. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9239

Eaton, N.M. 1950-04-05a. *Roof plan*. (P207/7). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0014. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9239

Eaton, N.M. 1950-04-05b. *Roofplan over 1st floor, sections*. (P207/8). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0015. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9245

Eaton, N.M. 1950-04-05c. *No drawing name [detailed staircase plans, sections, tread and balustrade axonometric drawings, fireplace plans and section]*. (P207/9). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0016. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9245

Eaton, N.M. 1950-04-29. *Bedroom fittings*. (P207/16). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0023. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9241

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

Eaton, N.M. 1950-04a. *Doors and details* (P207/10). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0017. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9245

Eaton, N.M. 1950-04b. *Windows and details & door type 10*. (P207/12). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0019. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-11. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9230

Eaton, N.M. 1950-05-04a. *Windows type 'B', 'C' & doors type 11 & 12*. (P207/13). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0020. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-11. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9230

Eaton, N.M. 1950-05-04b. *Windows type 'D,E,F,G,H,J' and details*. (P207/14). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0021. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-11. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9230

Eaton, N.M. 1950-05-04c. *Kitchen fittings*. (P207/15). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0022. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-11. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9230

Eaton, N.M. 1950-05-05a. *Ground & first floor plans*. (P207/5). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0013. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9239

Eaton, N.M. 1950-05-05b. *Entrance door & sliding screens*. (P207/11). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0018. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9245

Eaton, N.M. 1950-09-25. *Diningroom & study panelling & fittings*. (P207/17). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0025. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9241

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

Eaton, N.M. 1950-10-20. *Shelving and tabletops*. (P207/21). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0027. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9243

Eaton, N.M. 1951-02-17. *Stainless steel fittings*. (P207/27). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0033. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9231

Eaton, N.M. 1951-03-15. *Flourbins in kitchen*. (P207/29). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0039. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9244

Eaton, N.M. 1951-06-19. *No drawing name [detailed basement cellar plans and sections]*. (P207/33). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0032. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9231

Eaton, N.M. n.d. *Pelmets and venetian blinds to bathrooms*. (P207/34). [Architectural drawing]. Norman Eaton Collection: House Greenwood. File name: ar001pap_etn.0041. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-03-12. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9244

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

1956 House Brown

Project name as noted on drawings:
Proposed new House for Capt. R.D. Brown to be built on erf 599 Waterkloof

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Eaton, N.M. 1956-04-11. *No drawing name [plan].* (P261.4). [Architectural drawing]. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Eaton, N.M. n.d [20-11-1964]. *Drainage installation [council submission: south elevation, plan, section, north elevation]*. No project number. [Architectural drawing]. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

1964 House Van Den Berg

Project name as noted on drawings:
Proposed new residence to be built on stand 488, Lynwood Glen, Pretoria for Mr. J.P. Van Den Berg.

Eaton, N.M. 1964-02a. *Sketch plan.* (P313.2) [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Eaton, N.M. 1964-02b / 1964-03-06 (revised) / 1964-03-16 (completed). *Electrical plan.* (P313.4) [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Eaton, N.M. 1964-04a. *Sketch plan.* (P313.5) [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. Ar001pap_etn.0137. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-04-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9461

Eaton, N.M. 1964-04b / 1964-03-06 (revised). *Sketch plan.* (P313.5). [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Eaton, N.M. 1964-04c. *½ Scale detailed sections thro [sic] lounge and bedroom blocks showing brick pigeon holes, cupbs etc.* (P313.8). [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Eaton, N.M. 1964-04d. *½ Inch scale sections thro [sic] various rooms showing elevation of built in cupboards and other fittings.* (P313.11). [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).

Eaton, N.M. 1964-04e / 1964-03-06 (revised). *Working drawings [north elevation, eastern elevation, plan, west elevation, section, south to north cross section, north to south longitudinal section.* (P313.24). [Architectural drawing]. Norman Eaton Collection: Van den Berg house, Lynnwood Glen, Pretoria. File name: ar001pap_etn.0137. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria. 2009-04-06. Last accessed 2019-08-23, available from http://hdl.handle.net/2263/9461

Eaton, N.M. 1964-x-24. Electric light diningroom shade of raffia covered wire cone. (P313.12). [Architectural drawing]. Document to be catalogued: Norman Eaton Collection: House Brown. File name: to be confirmed. UPSpace Institutional Repository (digital): University of Pretoria, Pretoria

Architectural drawing reference format:
Author(s). (Year, Month Day). Project name: *Title of drawing [description /list of contents if more than one drawing on sheet].* (Drawing/Plan No. ##, if provided). [Architectural drawing]. Collection Name/ Number. Box/ Folder/ Filename/ Number. Archive/Library, City. Upload date. Access date, available from (URL of drawing if online).