



ANATOMY 101: A HUMAN ANATOMY CENTRE AT THE TSHWANE DISTRICT HOSPITAL: PRETORIA

by Janes Botha



ABSTRACT

Abstract

Interior design has a social responsibility. To facilitate the way in which buildings change, thereby allowing the user to retain interest and awareness of buildings. The sensitivity of built fabric with historical value combined with the symbolic nature of institutional buildings justify the need to reinterpret architecture in order to retain its value to future generations

It is the aim of this dissertation to investigate the interior designer's role in altering built fabric by reinterpreting the existing design language. A new perspective should evolve from a well informed

understanding of the elements present on site and provide a new strategy by reacting to it.

The selected project is a Human Anatomy Centre at The Tshwane District hospital that should provide both the academic and non-academic user with the opportunity to reinterpret their understanding of the human body.

Ekserp

Binne-ontwerp het 'n sosiale verantwoordelikheid. Dit fasiliteer die manier waarop geboue verander, en behou gevolglik die gebruiker se belanstelling en onmiddelikke bewustheid van argitektuur. Die sensitiewe natuur van geboue met historiese waarde, gekombineer met die institusionele aard van seker geboue, noodsaak die behoefte om argitektuur te herinterpreteer en gevolglik die waarde daarvan vir die nageslag te behou.

Die oogmerk van hierdie verhandeling is om die binne-ontwerper se rol in die verandering van die bouomgewing deur die herinterpretasie van die bestaande ontwerp-taal. 'n Nuwe perspektief kan slegs volg indien die bestaande daadwerklik nagevors is, en daar 'n strategie daargestel is wat bepaal hoe die navorsing implimenteer kan word.

Die gekose projek is 'n Mens Anatomie Sentrum by Die Tshwane Distriks-hospitaal wat dit ten doel stel om beide die akademiese en nie-akademiese gebruiker die geleentheid te gee om hul kennis van die menslikke ligaam te herinterpreteer.



TABLE OF CONTENT

Chapter 1: Introduction	1
1.1 Site	2
1.1.1 Site Identification	2
1.1.2 Reaction	2
1.2 Background	2
1.3 Aims and Objectives	5
1.4 Anatomy Museums (Centres) In Context	5
1.5 Research Methodology	6
Chapter 2: Design	9
2.1 Problem Statement	9
2.1.1 The Programme	10
2.1.2 The Building	11
2.2 Hypothesis	11
	iii



2.3 Proposal	11
2.4 Theoretical Approach	13
2.5 Pragmatic Response	13
2.6 Client	14
2.7 The Visitor	15
2.7.1 The Academic User	15
2.7.2 The Non-Academic User	15
2.8 Location	16
2.9 Delimitations	16
2.10 Assumptions	16
2.11 Aims and Objectives	18
2.12 Review and Research Methodology	18
2.12.1 Legislation	18
2.13 Context Study	19
2.14 Interviews	19
Chapter 3: Theoretical Discourse	21
3.1 The Notion of Change	21
3.2 Reinterpreting the Existing	23
3.2.1 Circulation	25
3.2.2 Activity Driven Space	27
3.2.3 The Spatial Perspective	29
3.3 The Mind's Image	30



Chapter 4: Design Approach and Application	33
4.1 Application	33
4.2 Approach	35
4.2.1 Alteration Strategy	35
4.2.2 Intervention Strategy	36
Chapter 5: Building Analysis	39
5.1 Conservation Approach	39
5.2 Establishing Cultural Significance	41
5.2.1 The Site	41
5.2.2 The Development of the Hospital	41
5.2.3 The Architect	43
5.2.4 The Administrative Building	44
5.2.5 Connotation to the University Of Pretoria	44
5.3 Statement of Cultural Significance	45
5.4 Building Structural Analysis	46
5.5 Building Systems Analysis	52
5.5.1 Acoustics	52
5.5.2 Climate	52
5.5.3 Light	53
<i>A. Natural Light</i>	53
<i>B. Artificial Light</i>	53
5.5.4 Circulation	54
5.5.5 Colour	54
5.5.6 Materiality	55



Chapter 6: Precedent Studies	57
6.1 Origins Centre – University of the Witwatersrand	57
6.2 Main Building – University of the Free State Campus	60
6.2.1 Alteration to the Building Structure	60
6.2.2 Exposing the Existing	62
6.2.3 Introduction of a New Hierarchy	62
6.2.4 Lighting	63
6.3 //Hapo	63
6.3.1 The Articulation of Services	63
6.3.2 The Manipulation of Natural Illumination	65
6.4 Zurich Art Gallery	65
6.4.1 Ventilation	65
6.5 Mapongubwe Museum – University Of Pretoria Campus, Pretoria	66
6.5.1 The Context	66
6.5.2 Critique	67
Chapter 7: Design Approach	69
7.1 User Requirements	70
7.2 Manifestation of Theory into Design	71
7.3 Conceptual Development	73
7.3.1 Form	75
7.3.2 Movement	77
7.3.3 Colour	79
7.3.3.1 Basic Colour Theory	79
7.3.3.2. The Colour Wheel	80
7.3.3.3 Significance of Colour In A Human Anatomy Centre	80



7.3.3.4 Developing a Colour Palette	80
7.3.4 Light	81
7.3.4.1 Lighting and Mood	81
7.3.5 Material	82
7.4 Final Intervention Proposal	83
Chapter 8: Technical Resolution	85
8.1 Restorative Maintenance	87
8.1.1 Addressing the Problem	87
8.2 Alteration	88
8.2.1 Demolition	88
8.2.2 Retention of Building Components	88
8.3 The Intervention	89
8.3.1 Structural Intervention	89
8.3.2 Flooring	91
8.3.2.2 Dry Sub-Floor	91
8.3.3 Ceiling and Roof Structure	93
8.3.3.1 Ground Floor Ceiling	93
8.3.4 Walls	93
8.3.4.1 Treatment of Existing Walls	93
8.3.4.2 Addition of New Walls	94
8.3.5 Lighting and Electrical Installation	95
8.3.5.1 Control of Natural Light	95
8.3.5.2 Artificial Light	95
8.4 Technical Investigation	96
Chapter 9: Conclusion	99



LIST OF FIGURES



List of Illustrations

Illustration 1.1 Students dissecting a cadaver as part of their medical study in anatomy	3
Illustration 1.2 Plastinated human body on display as part of Body Worlds – The Original Exhibition of Real Human Bodies	4
Illustration 2.1 Entrance to the administrative building of The Tshwane District Hospital indicating the historical nature of the architectural envelope	12
Illustration 2.2 The placement of the site within the Urban setting	17
Illustration 3.1 The reinterpretation of architecture as jewellery	24
Illustration 3.2 A spatial interpretation signifying the impact of activity driven space	28
Illustration 3.3 The degeneration of the Tshwane District Hospital	29
Illustration 3.4 Reinterpretation of the existing through projection	31
Illustration 4.1 Application of design intent	34

Illustration 4.2 The interior of the Castel Vecchio	37
Illustration 5.1 The Volkshospitaal	42
Illustration 5.2 John Cleland	43
Illustration 5.3 Collage depicting building development	45
Illustration 5.4 Exterior wall of The Tshwane District Hospital	47
Illustration 5.5 Interior wall	
Illustration 5.6 Detached Columns	
Illustration 5.7 Pilasters	
Illustration 5.8 Typical Door	
Illustration 5.9 The Floor	
Illustration 5.10 The Tower	
Illustration 6.1 Movement through the Origins Centre	
Illustration 6.2 Intervention detail in the University of the Free State Campus Mail Building	61
Illustration 6.3 Tectonic expression of the //hapo exhibition space	64
Illustration 7.1 Strategic design development engaging the user through activity driven space	72
Illustrations 7.2 The relationship between the new and the existing architectural fabric with specific emphasis on geometric form and materiality	78
Illustration 7.3 Creating mood through light	83
Illustration 8.1 Structural intervention to wall penetration	90
Illustration 8.2 Exposing overhead service tray through removal of first floor ceiling	92
Illustration 8.3 Typical application of interior surface insulation and the resulting moisture entrapment	94

List of Diagrams

Diagram 1.1 Visual interpretation of sub-categories of Human Anatomy	5
Diagram 1.2 The study's proposed research methodology	7
Diagram 3.1 The scale and type of proposed intervention involved in reinterpretation of space	25
Diagram 3.2 How circulation pattern can guide the user in the interior environment.	26
Diagram 7.1 Development from theory to form – the setting out of design parameters	72
Diagram 7.2 The generation of form by establishing new relationships between building elements	74
Diagram 7.3 Intended site movement	76
Diagram 7.4 The route and access of architectural form	77
Diagram 7.5 Colour wheel as presented by Mansel	80
Diagram 7.6 Colour pallet development	81
Diagram 8.1 The technical strategy to the reinterpretation of the Administration Building	86
Diagram 8.2 Typical restorative maintenance section.	87
Diagram 8.3 Articulation of dry sub floor joints	91



List of Tables

Table 5.1 Summary of the application of the 1999 ICOMOS Burra Charter in establishing cultural significance	40
Table 7.1 Assessment of user requirements	70
Table 8.1 Secondary demolition elements	89
Table 8.2 Luminance requirements of interior space	
Table 8.3 Lamp types attributes	