

**DEPARTMENT OF ARCHITECTURE**

**BSc.(Hons) IN ARCHITECTURAL TECHNOLOGY**



**FINAL YEAR DISSERTATION**

**BRIEF AND GUIDANCE NOTES**

**WATERFORD INSTITUTE OF TECHNOLOGY 2012/2013**

## **BRIEF AND GUIDANCE NOTES**

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## **1. INTRODUCTION**

The dissertation is an integral part of the final year of the Architectural Technology Programme. It is an opportunity for the student to explore particular areas within the industry.

The work required will be an individual dissertation. The dissertation will relate to a stated hypothesis to be formally stated by the student and presented to the Course Director for approval.

## **2. REGISTRATION OF DISSERTATION TOPIC**

Students must submit their proposed topic in the form of a research proposal, to include title, sub-title, aims and objectives, research question, literature review and references.

### **2.1 Topic, title and synopsis**

The subject of the dissertation should be in the broad area of Architectural Technology with a particular emphasis on either Building Conservation or Building Sustainability. Students should provide a title, indicating the general topic area. A supervisor will then be allocated to help the student to develop his/her dissertation.

Candidates are required to prepare the following:

- a draft title
- aims and objectives
- the context and setting of the proposed research
- a theoretical framework with literature references (which relate the theoretical principles of the subject)
- a research question
- an indication of the methodology to be used (eg. Case study, visits, questionnaires, interviews)

## **2.2 Approval of Topic and Allocation of Supervisor**

The student's topic submission needs to be formally approved (possibly following consultation and adjustment) and a supervisor allocated. Approval of submission must be obtained before proceeding with the detailed investigation.

## **2.3 Dissertation Topics**

Students may propose a topic in which they have a particular research interest relevant to the course.

# **3 PROGRESS AND SUPERVISION OF DISSERTATION**

## **3.1 Revised Research Proposal (*if required*)**

Following discussion with the dissertation supervisor, the revised research proposal is to be submitted to the supervisor by Jan 20th, 2012

## **3.2 Weekly Review Meetings**

A schedule of weekly meetings for supervision will be prepared by the Course Director. Meetings for supervision will take place in a location agreed by the Tutor and student at a time that suits all parties. Meetings will be on a weekly basis and attendance is mandatory.

## **3.3 Table of Contents, Literature Review, Methodology**

The table of contents, literature review and outline of research methodology, was submitted to the Research Methodologies Tutor (Jane Russell-O'Connor) as final submission of Continuous Assessment for the research Methodologies module in semester 7.

Any revisions to this must be presented to your tutor by **Friday, January 25<sup>th</sup>, 2013**

### 3.4 Submission of Dissertation.

Two copies of the finished softbound dissertation must be delivered, by hand or by recorded delivery, to the School of Engineering office by **Week 12 of Semester 8. Exact day and time to be confirmed**

**The dissertation will be assessed on the basis of this final softbound copy.**

The hardbound copy shall be submitted by **Week 15, time to be confirmed**. The hardbound copy **and** the corrected softbound copies will be retained and become the property of W.I.T. It is recommended that other copies be produced for retention by the student.

## 4 STRUCTURE OF DISSERTATION

### 4.1 Aims and Objectives

Dissertations should demonstrate a high level of academic attainment, critical analysis and optimum use of information.

A well-structured dissertation will be evidenced by:

- **clearly stated aims and objectives.**
- **identifying the central proposition of the work which is developed through the supporting evidence to the conclusion and recommendations.**
- **A strong research methodology, with the results of the research data analysed and presented to their maximum effect.**
- **A strong technical and management content as appropriate**
- **Well developed academic argument**
- **Good presentation including use of computer software graphics, tables, charts and photographs.**

### 4.2 Length of Dissertation

Dissertations should be **approximately 8-12,000 words in length, not including appendices**. There must be only very restricted direct quotation from other sources within this total length. It is intended that the dissertation should be the student's own work.

### **4.3 Clarity of Presentation of Dissertation.**

Emphasis is placed on good report writing ; **marks will be deducted for poor syntax, misspelling and unsatisfactory presentation, indexing and referencing.**

The total number of words must be shown on the first page of the dissertation. The student is obliged to apply a project management package to the project and include output documents. Computer printouts, drawings no bigger than A3 must all be properly bound and folded (no loose sheets in pockets). Photocopies of other documents are not to be inserted in the project or its appendices.

### **4.4 Data gathering/literature search.**

The dissertation brief will need to indicate that you have made the necessary literature search by identifying the appropriate articles, books etc, and then summarising the main ideas, theories, concepts and business (construction/engineering/architecture) practice from these sources. This summary should provide the essential foundation to your work and will cover both the academic and industry related literature. You will not, of course, have completed your reading phase when you come to submit your brief but you should be in a position to briefly summarise some key aspects for incorporating into your theoretical framework. Some of the questions you will need to ask are:

1. Is your investigation related to current issues, problems or practices within Architectural Technology?
2. Have you identified the main ideas, principles and authors in the area?
3. Have you discussed the benefits and possible limitations to such ideas and principles?
4. Have you identified any controversies that need discussing or clarifying?
5. What problems have you identified from the literature?

## **4.5 Methodology**

This means how you intend to investigate the problem: which methods and techniques you are going to use to produce the information needed to test the hypothesis and prepare the report. You should also explain the rationale behind these – why you have chosen these particular methods and techniques. You should give a brief summary of the procedure, sample size, method of selection, choice of variables etc.

You will need to make it clear in your dissertation brief, just what primary data is needed, how you will obtain it, what time scales are likely to be involved and then how the data will be analysed.

Also, you should identify how you propose to obtain the information from your sources, e.g. sample size, nature of your sources (e.g. type of companies/person contacted), how you will identify these sources, criteria for choice etc.

If you are conducting in-depth interviews then you may be able to reduce the sample size and develop these as case studies. The required programme is part of your methodology, i.e. what sequence of events must be executed and what key ‘milestones’ (events) you must achieve and by when.

Both the literature review and research methodology are an integral part of the research process (see Figure 4.1) and require careful consideration prior to conducting primary research.



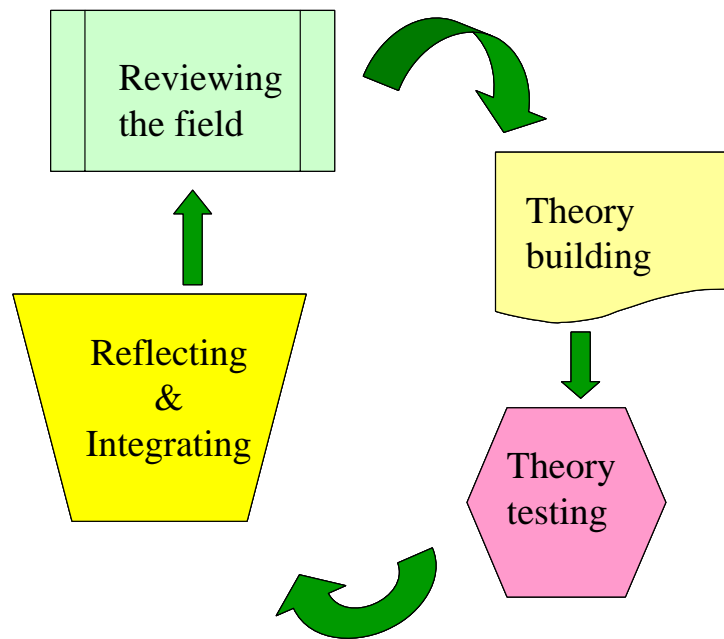


Figure 4.1: The research process

## 5 ASSESSMENTS & MEETINGS

### 5.1 Assessment Marks Breakdown

The dissertation forms a single examination subject **with 200 marks**. This is broken down as follows:

<b>(Revised) Research Proposal:</b>	<b>10</b>
<b>Weekly Review Meetings:</b>	<b>20</b>
<b>Literature Review etc.:</b>	<b>20</b>
<b>Dissertation (Report Submission):</b>	<b>100</b>
<b>Research Poster: (Week 14)</b>	<b>25</b>
<b>Dissertation Interview (Week 14)</b>	<b>20</b>

### 5.2 Quality

The assessment of the students' work will be based on the **quality** (rather than quantity) of the context and presentation.

Emphasis is placed on evidence of **evaluative work and rigorous research** of the topic. The student is expected to be able to condense and summarise information and keep the number of words to a minimum. **A penalty may be imposed for exceeding the 12,000 word limit.**

Appendix A gives an indicative breakdown of the supervisor's approach to assessing.

### 5.3 Meetings.

Attendance at scheduled tutorial meetings is mandatory, and the quality of student's participation in each of these meetings will also be part of the assessment procedure, with marks allocated at each meeting. Evidence of work planning/control, in the form of a one page description of work carried out and tasks to be undertaken in the next period. Supervisors will keep records of attendance, performance and presentation of progress notes for all scheduled meetings between the student and the project supervisors.

A schedule will be devised on a weekly basis by the tutor and the student that shows the times for these regular tutorial meetings. Supervisors will act in a consulting role in addition to monitoring progress. Supervisors will be available at appointed times only.

Students are encouraged to give great attention to the formulation of letters seeking information from various sources, in order to ensure that they successfully communicate what exactly they wish to outline and/or to ask. At each tutorial meeting, drafts of any such letters can be presented for inspection (prior to forwarding).

Each student is also asked to record the minutes of every tutorial they attend. These minutes are to be presented, in typed format, to the tutor at the beginning of the next scheduled tutorial. The tutor will review the minutes, comment and then sign. All records of minutes are to be submitted with softbound copy of dissertation as an Appendix.

## 5.4 Key Dates

### First Semester

- Literature Review – **November 2013** (*JRO`C*)

### Second Semester

- Softbound Submission – **Week 12, Time to be confirmed**
- Research Poster – **Week 14, Time to be confirmed**
- Hardbound Submission – **Week 15, Time to be confirmed**
- Dissertation Interviews – **Week 14, Time to be confirmed**

## 5.5 Finishing the Dissertation

Upon submission of the softbound dissertation, the document will be assessed by two lecturers (the student's supervisor and a second reader), with 3 possible outcomes:

- 1 Make suggested **minor changes**, prior to submitting the final hardbound version.
- 2 Make **substantial changes** to the dissertation, and submit a revised softbound document, which will be re-assessed. Once the dissertation has been completed to the required standard a maximum mark of 40% will be awarded and the student will then be asked to submit the final hardbound version.
- 3 **Fail the Dissertation module**, which will require the student to **repeat and attend** during the following academic year.

## 6 GUIDELINES FOR PRESENTATIONS

### 6.1 Layout and Divisions of the Dissertation.

The entire work, including references and appendices, should be numbered consecutively from the first page of the first chapter. Preliminaries such as table of contents, abstract and acknowledgements, which obviously cannot be completed until the main work and its pagination is finished, should be numbered in lower case Roman numerals (i, ii, iii etc). Page numbers should be located centrally at the bottom of the page 20 mm above the bottom edge of the paper.

Dissertations should be of the highest quality that you can achieve. The script must be typed, and on one side of the page only. The main body of the work should be in 'one and a half' spacing.

***You must proofread your typescript !***

Make sure that all corrections are done and proofread it again. If there are any mistakes in the typing, they will be your responsibility, not the typist's. **Dissertations are to be A4 'portrait' format** (as opposed to landscape format). Margins need to be a minimum of 40 mm on the left hand edge of the page, and 20 mm on the other three edges. Maps, plans and drawings should normally be reduced to A4 size or folded to A3 for binding in. Photographs should be actual photographic prints, not photocopies, unless you judge that the quality of the copy is sufficiently good to be as clear as a photograph.

The final hardbound copy should be printed on good quality **white** paper (at least 90g/m<sup>2</sup>) and the cover should be in dark green cloth. The front cover of the thesis should contain the title of the dissertation and the student's name. The side binding of the dissertation should contain the Degree awarded, year of the award and the student's name e.g.

BSc.(Hons)	2011	John A. O'Neill
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## **6.2 Style of Dissertation.**

### **6.2.1 English**

The literary style adopted must be suitable for your purposes. **Avoid the use of first person.** For example, 'I investigated the following points'...should be phrased as 'The following points were investigated...' It is also modern practice to avoid the automatic adoption of the masculine pronoun for genderless roles.

### **6.2.2 Sentence Length**

Ideally you should be concise and informative. Above all, you should aim to be clear. Clarity is often lost by using long sentences or inappropriate words. Sentences should rarely exceed 30 words, the ideal being 18 – 28 words. Try to keep your sentences within these limits, but at the same time use flexible and varied sentence lengths to prevent the style becoming stilted.

Further guidance on this topic will be found in the recommended books at the end of these notes.

### **6.2.3 Signposts in the text**

Headings and sub-headings should be used as guides so that the reader can quickly find a particular paragraph or section. They also aid concentration by reminding the reader of the context of each particular section of the work.

Do not be afraid to ask for guidance when you are writing your dissertation. Find someone who will help you to proofread the typing, because it is difficult to spot mistakes in your own work. Search out constructive criticism from your peers before you submit your work, to help eliminate the worst errors.

The dissertation should be presented in the sequence indicated below:

Title page

Declaration of own work (see Appendix D)

Table of contents

List of tables (if any)

List of figures (if any)

List of other types of materials: maps, photographs, abbreviations etc.

Summary

Acknowledgements

Body of text (from Introduction through to Conclusions and Recommendations)

Bibliography

Appendix or appendices (if any)

### **6.3 Title Page**

The title page should conform to the appropriate format as specified in Appendix B.

### **6.4 Declaration**

See Appendix D.

### **6.5 Table of Contents**

The table of contents contains the headings and sub-headings of the chapters and sections of the report, with the numbers of the pages on which these chapters and sections begin. It is to follow the format indicated in Appendix C. The title page is not entered in the table of the contents and therefore the first item to be listed is the first page of chapter 1.

### **6.6 Lists of tables, figures or other material**

If the report contains charts, figures, maps, tables, photographs or other types of material, each series of these should be listed separately in an appropriate list on the page or pages immediately following the table of contents. Each such list should appear on a separate page.

## 6.7 Abstract

In some ways this is possibly the most important part of the work. It will be read by everyone who wants to know what your work is about, before they decide whether they actually need to read it. It should be concise and informative, preferably on one page. It should give the title and the author again, so that it can be copied and circulated as a document in its own right. **It should emphasise the main findings, conclusions and recommendations.** A separate copy of this one page summary is requested for the Institute's records. Please see Appendix E for a sample Abstract.

## 6.8 Acknowledgements

Not only is it diplomatic to acknowledge people who have helped you with your work, it is also accepted practice.

## 6.9 Body of the text.

The dissertation proper begins with the first page of the first chapter or section. Each chapter or section should represent an important division of the dissertation. It should be given a number (1,2,3 etc) and a short title which generally indicates the content of the chapter. Within each chapter there may be a number of distinct elements, and special care should be given to dividing the text into paragraphs and the use of sub-headings to help the reader.

For these, decimal sub-notation should be used (1.1, 1.2, 1.3 etc). It is advisable not to go to more than three sub-levels. Appendices, if used, are usually given a letter (A, B, C etc) and should also be given a title indicating their contents.

## 6.10 Quotations

The representation of work of any other person, including another course member, member of staff or other institution, must always be fully acknowledged in the text. It must not be presented as original. Where verbatim copying of another's work is included in the text this must be shown within quotation marks. Any quotation of more than a single line should be shown separated from the main text and indented at both margins.

The source of all quotations and other material, must be fully acknowledged and cited correctly, including the page number from which the quotation has been copied. Close paraphrasing of another's work is to be fully acknowledged; this includes simply changing a few words or the order of presentation of a passage. **Large sections of close paraphrasing are not acceptable within the text. Any paraphrasing or quotation extending beyond a paragraph will be treated as plagiarism.**

*NB: It is anticipated that plagiarism detection software will be used by both staff and students throughout the Dissertation process; further direction shall be given on this during the semester.*

## **6.11 Footnotes**

Footnotes may be used in moderation to make short statements of comment, amplification or qualification, which might otherwise disrupt the smooth flow of the text. Long and/or frequent footnotes should be avoided. Bibliographical references should never be put as footnotes. Such references may be considered a vital part of research and candidates are advised to use these throughout their text where applicable.

## **6.12 Abbreviations**

There are a number of abbreviations used in publishing, which are a frequent cause for confusion. For this reason, it is recommended that you avoid their usage altogether. However, for your guidance, their correct usages are as follows:

- **Op cit** is the short form of opere citato (meaning 'in the work cited') and it is used when the author wishes to refer again to a work that has already been given as a full reference. For example, a second reference to the book by Hague given above would appear as: Hague DC, op cit p.100
- **Ibid** is the abbreviation for ibidem (meaning 'in the same place') used to indicate that the reference given is identical to the immediately preceding reference.
- **cf** means 'compare with'.
- **ff** means 'and in the following pages'.
- **p** means 'page number' (for a single page)
- **pp** means 'page numbers' (for a series of consecutive pages)



### **6.13 Reference List/ Bibliography**

This is an important section, which can demonstrate the breadth of material researched.

The **Reference List** should generally contain only the works consulted and found relevant and thus cited by the author in the dissertation. The inclusion of an irrelevant item is as much a defect as the exclusion of a relevant one. Each item should be a full reference in the standard order as per the Harvard Referencing System.

The Bibliography is a list of items that have been useful in preparing the dissertation but have not been referred to directly in the text. Again, Texts and other publications should be listed firstly, followed by web-based sources. Only include material that has directly contributed to the work.

### **6.14 Appendices**

The principal purpose of an appendix is to keep the text of the dissertation from being interrupted or cluttered with supplementary minor and illustrative material. The text of pertinent documents, tables that present extensive data (or data of minor or ancillary importance), the text of legal decisions or laws, very lengthy quotations, excerpts from diaries, transcripts or minutes, forms of documents, copies of sample questionnaires and the like, may be included as appendices if they are pertinent to the subject matter of the report and cannot appropriately be incorporated into the body of the text.

Appendices should appear immediately following the bibliography. Each appendix should start on a separate page and contain the title of the Appendix. The appendix pages should continue the regular pagination of the report.

**Do not include in your appendices information that is readily available elsewhere. The requirement that the dissertation should be the course member's own original work applies to appendices as well as to every other part of the work.**

## **7 CONFIDENTIALITY OF DISSERTATIONS.**

Where confidentiality of a dissertation topic is of concern, the Institute will refrain from releasing any information on the dissertation without due reference to and agreement from the author. Candidates are asked to submit notification in writing and dissertations in this category will not be displayed in the library but will be retained by the Course Director.

## **8 SPECIAL NOTE FOR DISSERTATION PROPOSAL.**

It is most important to ensure that the aims and objectives are complementary; they should be closely linked and mutually compatible. Course members should include within the theoretical framework a selection of literature references which incorporate the theoretical principles associated with the declared research question.

## Appendix A

### Supervisor's Assessment Sheet & Marking Scheme

<b>Student Name:</b>	
<b>Dissertation Title:</b>	

Element	% Mark (a)	Weighting (b)	% x Weighting (a) x (b)
<b>General Presentation &amp; Structure</b> <ul style="list-style-type: none"> <li>- Conformance with the brief</li> <li>- Quality of presentation</li> <li>- Logic and detail of structure</li> <li>- Bibliography</li> </ul>		<b>0.1</b>	
<b>Executive Summary</b>		<b>0.1</b>	
<b>Theoretical Framework &amp; Methodology</b> <ul style="list-style-type: none"> <li>- Introduction/overview of research subject</li> <li>- Formulation of proper Hypothesis</li> <li>- Formulation of Research Objectives</li> </ul>		<b>0.1</b>	
<b>Final Literature Review</b> <i>(Note: Interim Lit. Review submitted and assessed separately)</i> <ul style="list-style-type: none"> <li>- Reference to acknowledged authors/theories</li> <li>- Correct and comprehensive referencing system</li> <li>- Review not 'cut &amp; paste' approach</li> </ul>		<b>0.2</b>	
<b>Primary Research</b> <ul style="list-style-type: none"> <li>- Primary Research Methodology</li> <li>- Collection/analysis/presentation of evidence</li> <li>- Detail, clarity of argument</li> <li>- Satisfying of research objectives</li> <li>- Acknowledgement of limitations to research</li> </ul>		<b>0.3</b>	
<b>Conclusion</b> <ul style="list-style-type: none"> <li>- Testing of Hypothesis</li> <li>- Reflection on Research Objectives</li> </ul>		<b>0.1</b>	
<b>Recommendations</b> <ul style="list-style-type: none"> <li>- Logicality and clarity of the proposals</li> </ul>		<b>0.1</b>	
<b>TOTAL</b>	<b>N/A</b>	<b>1.0</b>	

<b>Signed:</b>		<b>Date:</b>	
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## Marking Guidelines

Mark	Knowledge and application of course material (50 marks available)		Presentation, format, layout and coherence (20 marks available)		Evidence of original thinking and creative application of ideas (30 marks available)
<b>40-50</b>	Demonstrates an excellent understanding of course content and supports this with relevant work related examples that show the ability to critically reflect on the subject matter.	<b>16-20</b>	Excellent presentation, use of language and format.	<b>24-30</b>	Highly creative thinking that demonstrates the ability to apply the content in an original manner that would be of practical value in a work environment.
<b>30-39</b>	Demonstrates a good understanding of course content and supports this with some examples of application in a work-related environment.	<b>12-15</b>	Good presentation with good use of language.	<b>18-23</b>	Demonstrates original thinking and some creativity that could be applied in a work setting.
<b>20-29</b>	Demonstrates a limited understanding of course content and its application.	<b>8-11</b>	Average presentation with some errors in use of language and format.	<b>12-17</b>	Demonstrates some evidence of original thinking.
<b>&lt;20</b>	Does not demonstrate an understanding of course content.	<b>&lt;8</b>	Poor presentation and poor use of language.	<b>&lt;12</b>	Does not demonstrate original thinking or application in a work-related environment.

**Appendix B**  
**Layout of Title Page of Dissertation**

(No number on this page)

**ENERGY EFFICIENT LIGHTING**  
(Main title)

**An investigation into the use of LED lighting in Waterford Institute of  
Technology**

**by**  
**Denis O' Neill.**

Dissertation submitted to  
the School of Engineering  
Department of Architecture  
Waterford Institute of Technology

In partial fulfillment of the requirement for  
the Degree of Bachelor of Science (Honours)  
in Architectural Technology.

March 2013

## Appendix C

### Layout of Table of Contents

**Title page**

**Declaration**

**Table of Contents**

**List of Abbreviations/Definitions etc**

	page
<b>Executive Summary</b>	i
<b>Acknowledgements</b>	ii
 <b>1. Introduction</b>	 1
1.1 Overview of Dissertation	1
1.2 Research Aims and Objectives	7
1.3 Title of third major sub-heading	8
1.3.1 Title of first subsidiary sub-heading	8
1.3.2 Title of second subsidiary sub-heading	10
1.5 Title of fourth major sub-heading	23
 <b>2. Literature Review</b>	 31
2.1 Title of first major sub-heading	31
2.2 Title of second major sub-heading	43
 <b>3. Methodology</b>	 45
 <b>4. Results and Analysis</b>	 65
 <b>5. Discussion</b>	 76
 <b>6. Conclusion</b>	 81
6.1 Title of first major sub-heading	82
6.2 Title of second major sub-heading	87
6.3 Title of third major sub-heading	98
  <b>7. Recommendations</b>	  108
 <b>References</b>	 117
<b>Appendix A</b> Title of first appendix	120
<b>Appendix B</b> Title of second appendix etc	122

## **Appendix D**

### **Sample Declaration**

I declare that this dissertation, in whole or in part, has not been submitted to any University as an exercise for a degree. I further declare that, except where reference is made in the text, the contents are entirely my own work. The author agrees that the library may lend or copy the thesis upon request for study purposes, subject to the normal conditions of acknowledgement.

**John M. Atwell**

March 2013

John M. Atwell

## **Appendix E**

### **Abstract**

This dissertation stemmed from the researcher's experience in managing cleanroom projects with one of Ireland's largest construction companies. The lack of knowledge sharing practices in this division was a concern. It was expected that the findings and recommendations would be used by the company to improve their skills in delivering cleanroom projects and to assist in implementing better procedures.

A comprehensive Literature Review was undertaken but the lack of available and specific reference sources to cleanroom projects, particularly in Ireland, was identified. The methodology used in the sourcing of primary data was 'action research' in that it focused on solving a real business problem through a collaborative, cyclical approach between the researcher and practitioners. Data collection methods employed included a number of semi-structured interviews, a focus group and a questionnaire to evaluate the focus group. The participants were senior managers who were actively managing major cleanroom projects for the company.

The research found that there were numerous recurring problems with the procurement and construction of cleanroom projects. The early appointment of a cleanroom contractor was found to be crucial. Similar quality, design and commissioning / validation issues were found to reinforce the recommendations for knowledge management structures to be implemented. Value Engineering was found to be of critical importance. A moderated focus group with a structured agenda is a useful tool for sharing highly-contextual knowledge between staff who are experienced, have a high level of involvement in projects and are committed to the organisation. Recommendations arising out of the focus group should, where appropriate, become part of the organisation's procedures and standard practices. The knowledge sharing focus group should be supplemented by other activities such as site visits, email alerts and documentation of lessons learned at the end of each project. The research concluded by recommending that there is a need for post-project reviews on all projects to capture lessons learned. Other recommendations included the need to train staff in commissioning and in particular validation practices, the increased use of factory-made cleanroom wall panels.