QUALITY MANUAL

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QUALITY MANUAL

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INTRODUCTION

To establish and control in working approach, the procedures defined in Fittons are implemented at all times. Individual members of staff are expected to contribute both experience and flair in performing their tasks, whilst ensuring that the basic procedures are followed:

The Quality System defined in the following documents:

a) Quality manual
b) Project Quality Plans

The co-ordination of the maintenance of the Quality System is the responsibility of the Resident Manager. The Resident Manager monitors the performance of the Quality System on behalf of the Managing Director and ensures that the procedures operated are effective in maintaining a high standard in service provided to clients. He keeps audit programmes for both job and system and records of all quality plan, contract reviews and audit undertaken and reviews the findings of audits on a regular basis.

The Quality System represented by the Quality Manual and its Quality Procedures is regularly reviewed and updated as necessary to ensure that the required level of effectiveness is maintained. There shall be an Annual Review Meeting called by the Resident Manager to review the Quality System. He shall prepare an agenda to include audits, client’s complaints, feedback, etc.

Quality Plans are produced for every project undertaken. The quality plan will include:

a) A general description of the project and its key parameters.
b) The main functions of the competed project.
c) Quality requirements
d) The scope of services to be provided
e) Statement of any outside technical services to be used.
f) A programme of work to be achieved.

ISSUE, REVISION AND COPY CONTROL

In accordance with Policy, this Manual together with the associated Procedures is subjected to periodic review to re-affirm adequacy and conformity to the current requirements placed on Fittons.

Revisions to the Quality System are carried out to reflect current methods and controls. A revision to any section results in the re-issue of the Quality Manual.

A new issue of the Quality Manual is identified by a change in the Revision Number and each revision supersedes and replaces the previous issue. Following revision, the new Quality Manual is issued to each of the identified copy holders.
INTRODUCTION

A reference list of official recipients of the Quality Manual is maintained by the Resident Manager. The specified holders of the documents are responsible for ensuring that staff are familiar with changes that have been made.

HEALTH AND SAFETY

The Managing Director of Fittons shall appoint a Health and Safety Manager who shall be responsible for all aspects of health and Safety.

All staff are required to take care for their own safety and for that of others who may be put at risk by their actions or omissions.

When a member of staff visits or is located at a job site, the health and safety requirements prevailing at the site shall be complied with.
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1.0 SCOPE

This procedure details the organisation of Fittons which lists the responsibilities of individuals within the organisation.

2.0 ORGANISATION

The organisation of Fittons is shown in the Organogram following this procedure.

3.0 RESPONSIBILITY

The responsibilities of the individuals detailed in the organisation charts are as follows:

3.0 Managing Director

The Managing Director has overall responsibility for:

- The overall achievement of quality
- Defining company quality policy
- Resolving all quality related disputes brought to his attention which cannot be resolved by the Resident Manager.
- Maintaining all staff personnel records.
- Identifying and implementing training.

3.1 Resident Manager

Responsible to Managing Director for organising and supervising Project Managers, Engineers, Architects and Technicians in their group to achieve the following:

- Selecting the project manager and ensuring that a contract review is carried out.
- To supervise staff in the production of estimates, calculations, drawings and reports as required for enquiries and contracts.
- To ensure that quality system detailed in the Quality Manual is implemented and maintained in the areas of their responsibility.
- To control the Quality Manual and its periodic review.
- To identify the need for quality procedures, organising their preparation, issue and revisions as necessary.
- To chair the Annual Quality Management Meeting.
- To prepare the internal audit programme for system audit.

3.2 Quality Controller
Reports directly to the Resident Manager and is responsible for the day-to-day running, monitoring and control of the quality system. The particular responsibilities are as follows:

- To ensure that the quality system is implemented.
- To distribute “controlled” copies of the Quality Manual from the Resident Manager.
- To prepare internal audit programme for job audits.
- To undertake or arrange audits of jobs in accordance with their requirements. To ensure that corrective actions are undertaken.
- To maintain quality records.
- To attend the Quality Management Meeting.
- To endorse the approval of the Quality Plans that are approved by the Resident Manager.

3.3 **Project Manager**

A suitable senior member of staff selected by the Resident Manager. Responsible for assisting the Resident Manager to carry out the Contract review, preparing, implementing and co-ordinating control of the Quality Plan and for the control of the project at all stages.

3.4 **Project Engineers and Architects**

Responsible to the Project Manager for design work on the project including the leading of Junior Engineers and Architects and Technicians.

3.5 **Administration Manager**

Responsible to the Resident Manager for the administration of all the costs and accounts Fittons specifically as follows:

- The organisation and management of the administration department
- Appointing personnel to the functional positions of responsibility in the administration department.
- Ensuring the quality system detailed in the Quality Manual is implemented and maintained within the administration department.
- Identifying and implementing training needs for staff in the administration department.
- Retaining the originals of all Contracts and Legal documents within the office.
- To undertake all the invoicing on each project as directed by the Project Manager and to ensure that the invoices are paid on time.

3.6 **Computer Systems Manager**

Responsible to the Resident Manager for the up-keep of all office computers and specifically for:

- Maintaining a file of computer programmes available in the office
- Ensuring all systems are well maintained and running at all time.
- Producing and issuing AutoCAD manual in conjunction with the Resident Manager.
- Producing and maintaining back up systems in particular at the end of each phase of project in conjunction with the project Manager.

### 3.7 Document Control Officer

Responsible to the Project Manager for the control and administration of all documentation of a project. He shall be responsible specifically for:

- Ensuring that proper records and copies of all project correspondence (and all attachments) are maintained at all times.

- Despatch and receipt of all project correspondence.

### 3.8 Authorities Liaison Officer

Responsible to the Project Manager for the purpose of submitting, following up and obtaining all the necessary approvals from local authorities for the purpose of:

- Compliance of design with local codes and regulations

- Obtaining “No objection certificates”.

QUALITY PROCEDURE – ORGANISATION

QUALITY MANUAL

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QUALITY PROCEDURE – CONTRACT REVIEW

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1.0 SCOPE

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1.0 SCOPE

All work undertaken by Fittons is the result of a contract or order being placed with the Company by a client. The procedure outlines the mechanism to be adopted for reviewing the requirements of each contract or order to ensure that any queries are resolved before entering the project planning phase.

2.0 RESPONSIBILITY

Resident Manager

Responsible for ensuring that the Contract Review is carried out and the Contract review Form completed.

Project Manager

Responsible for providing specialist input as required by the Resident Manager.

3.0 DEFINITIONS

Resident Manager

Appointed by the Managing Director for the efficient operation of the office. Ensures that all obligations to the client are fulfilled.

Project Manager

Appointed by the Resident Manager and responsible for all aspects of the project.

Client

The organisation by whom Fittons is employed.

Contract

An order placed with Fittons for its services by a client.

4.0 PROCEDURE

4.1 General

A contract shall be registered as incoming correspondence and directed to the Resident Manager who will be primarily responsible for the project.

NO WORK SHALL COMMENCE ON A PROJECT WITHOUT COMPLETION OF A CONTRACT REVIEW FORM
4.2 Evaluation of Contract Requirements

The Resident Manager shall consider the nature of the project to be undertaken and designate a suitable senior member of staff to be Project Manager.

The Resident Manager and Project Manager shall review the details of the contract requirements embodied in the client’s instructions and compare them with the Fittons offer document.

Should the client’s brief not agree with the Fittons offer document then the Resident Manager and the Project Manager will consult with the client so that there is complete agreement before work commences. Such agreement shall be clearly stated in writing.

When the contract review is completed the Resident Manager shall enter the job number on the Form and forward it to the Office Administration Manager together with the completed job Memorandum form and Sub Job Form so that a job number can be obtained.

The Office Administration Manager shall enter the job number on the Forms and issue them to the appropriate persons including the Resident Manager, the Project Manager and the Quality Controller.

The Resident Manager shall agree with the Project Manager the financial aspects of the contract relating to the fee basis and shall establish the anticipated profit margins and contingencies to be used.

The Resident Manager and the Project Manager shall agree the level of construction supervision necessary within the contract and define the construction team requirements for this aspect of the work.

Should there be any changes proposed to the Contract and the brief revised then the Resident Manager and the Project Manager shall agree with the client the proposed changes in writing. A revised contract review Form, marked Rev 1, shall be prepared and re-issued.
QUALITY PROCEDURE – QUALITY PLANS

AUTHORISED BY: GERRY MCGUIRE
(Managing Director)  DATE: 10th October 2008

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1.0 SCOPE

All contracts undertaken by FITTONS are controlled by a Quality Plan. This procedure describes how quality plans are compiled and controlled.

2.0 RESPONSIBILITY

Resident Manager

Responsible for ensuring that the Quality Plan fulfils the requirements of the FITTONS Quality System.

Project Manager

Responsible for the preparation, implementation, co-ordination and control of the Quality Plan for a project.

Quality Controller

Responsible for the day to day running, maintaining and control of the quality system in the office.

3.0 DEFINITIONS

Quality Plan

Document prepared for a project as part of the Quality System to ensure that the project quality is controlled.

4.0 PROCEDURE

4.1 General

The Project Manager shall prepare a Quality Plan for the project in conjunction with the Design Manager and the Resident Manager for approval. Following approval, the Project Manager will issue the plan to members of the Project Team and the Design Manager in accordance with a distribution list.

It is not necessary to re-write the Quality Manual as part of the Quality Plan. Suitable references to the appropriate quality procedure numbers are quite sufficient unless it is necessary to describe a procedure, which is different from or in addition to the Quality Manual.

NO WORK SHALL COMMENCE ON A PROJECT WITHOUT THE COMPLETION OF A QUALITY PLAN

When a client places an order for a term contract, a general Contract Review Form and Quality Plan can be issued but all jobs subsequently received must have details of the brief prepared for each separate commission.
4.2 Control of Quality Plans

The Project Manager is responsible for keeping in the job file a list of Quality Plan recipients. The copies must be signed for on receipt. In addition, the list shall include the names of those who must read a copy and sign that they have done so.

To keep copies to a minimum it is not necessary to issue copies to staff who work together in the same department.

The Resident Manager shall receive updated copies of all quality plans from every Project Manager.

Each copy holder shall be responsible for their copy and shall ensure that unofficial copies are not taken. Any unofficial copies found shall be destroyed.

The need for additional or replacement copies shall be referred to the Project Manager.

When necessary the preparation of a revised quality plan shall be undertaken and issued accordingly. The Project Manager shall ensure that original recipients are clearly instructed to return superseded documents. Except for the job file copy and the copy held by the Resident Manager, all superseded copies shall be destroyed. The revised quality plan shall be marked with a revision number and issue shall be according to the original signature list, amended as necessary to suit the current phase of the project.

4.3 Quality Plan Content

Project Brief

The Project Brief shall outline the requirements of the Client on the project and shall include:

- Project title and location
- General description of the project indicating key parameters
- Main functions of the completed project
- Pertinent directives regarding quality
- Detailed description of the scope of services to be provided
- Statement of any outside technical services to be used
- Programme of work to be achieved

Project Team

The Project Team organisation shall be defined. For each member of the Project Team, the capabilities and experience shall be checked by the Project Manager to ensure that they are compatible with the functions to be carried out.
Role of Participants

The Quality Plan shall state the names and addresses of other companies participating in the project and with whom FITTONS can be expected to interface. In each case, key contact names and addresses shall be given.

For each external participant, the Quality Plan shall identify the functions and responsibilities to be undertaken. This statement shall include as appropriate:

- The client (including any of his subsidiary departments)
- Nominated outside professional organisations with whom FITTONS are involved in carrying out project work.
- Outside organisations other than professional, i.e., manufacturing or process plant etc.

A diagram should be included to show inter-relationships if appropriate.

Any specific statement on approval of schemes and layouts or provision of design information shall be included.

Quality Procedures

The Quality Plan should state that all work will be carried out in accordance with the Quality Manual or reference made to the particular procedures which will be necessary for the project.

Client’s Requirements

Should the Client have any specific additional requirements on the project then these shall be clearly stated in the Quality Plan.

Schedule of Internal Audits

A schedule of Internal Audit dates, party/process to be audited and audit team members.
QUALITY PROCEDURE - DESIGN CONTROL

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4.11 Technical Reports
1.0 SCOPE

This procedure applies to the control of all the design work undertaken by Fittons on behalf of clients. In response to special requirements by clients, additional controls shall be defined in the Quality Plan.

2.0 RESPONSIBILITY

Resident Manager

Responsible for the project.

Project Manager

Responsible for ensuring that the controls required for design activities within a project are clearly specified for all staff involved.

Project Engineer/Architect

Senior Engineer or Architect working on the design under the control of the Project Manager.

Junior Engineer

Engineers and Architects carrying out design tasks under the direction of Project Engineers and Architects.

Technicians

Qualified drawing production staff carrying out drawing and scheduling work under the direction of the Project Engineers/Architects.

3.0 DEFINITIONS

Design Programme

Prepared by the Project Manager which sets out the plan for the work to be undertaken for the project and defines the manpower resources necessary.

Project Brief

Established by the Project Manager to clearly define the work to be undertaken by his team.

Design Concept

The Project Manager and Project Architect and Engineers shall agree the conceptual design approach to the project before detailed design commences.
4.0 PROCEDURE

4.1 General

For each project undertaken by Fittons the overall control be the responsibility of the Resident Manager. The Project Manager assigned to the project shall take responsibility for the implementation of all the design required on the project.

The design control procedures shall be operated by all staff to ensure that the design process incorporates planning, verification and evaluation at appropriate stages.

4.2 Design Programme

Once a contract has been agreed, the Project Manager shall prepare the programme for the design work. When applicable, the relationship between the design and the other activities within the project shall also be defined.

4.3 Project Brief

Following the award of a contract, the appointed Project Manager shall clearly establish the project brief. The design parameters shall be considered to ensure that the agreement with the client is unambiguous. Special attention shall be given to the definition of interfaces, lines of communication and the interaction of the design programme with other activities.

The Project Manager shall ensure that clear instructions are given to staff who work on the project in order that each is aware of the responsibility in any task.

Each member of staff shall ensure that they understand the limits of the responsibility allocated and the requirements of the work.

The Project Manager shall ensure that adequate resources are available to meet the programme requirements of the project. The Project Manager shall also ensure that the resources allocated have the technical capability to complete the work to a standard which will meet the client’s requirements.

4.4 Design Concept

The main design concept shall be agreed between the Project Engineers/Project Architects and the Project Manager.

The Project Manager shall ensure that the client requirements are identified and where possible confirmed. This shall include the purpose for which the finished project will be used.

4.5 Architectural/Engineering Design Considerations

The Project Architect/Project Engineers, assisted and advised as necessary by the Project Manager shall:

a) Establish and develop the brief in consultation with the designated client contacts as necessary to fully ascertain the client’s requirements.
b) Establish the constraints under which the work to be carried out embodying the following:
- Site restrictions and conditions.
- Services availability.
- Town and country planning requirements/building regulations.
- Other statutory requirements including fire precautions.
- Legal and other obligations.
- Practical and aesthetic consultants.

c) Liaise with other appointed consultants.

At all times endeavour to satisfy the principles of firmness, commodity and delight.

4.6 Codes, Standards and Regulations

In carrying out project design work, the Project Team shall use specified standards unless authorised by the Project Manager.

The Project Manager shall ensure that all British or International Standards, Codes of Practice, Statutory Regulations, Technical Papers or Computer Programmes used in the design work are the latest issue, authenticated and referenced in the documents.

In the event that a technical specification is created for a specific project, then its implementation shall be approved by the Resident Manager before issue. Such a document shall be referred to only as a technical specification and not as a standard.

4.7 Preparation of Calculations

All calculations shall be presented on a Calculation Sheet. Completion of each Sheet shall show:
- Sheet number.
- The section of the design being undertaken.
- Date of design.
- Initials of the Designer and the Checker.

All calculations shall include the following:
- Index
- Design Concept
- Reference to the British Standards and Codes of Practice applicable to the design.
4.8 Checking of Calculations

The Project Manager shall ensure that all calculations are checked to ensure:

- Correctness of concept.
- Numerical accuracy.
- Final approval.

The Project Manager shall ensure that process of checking is carried out by suitably experienced staff. As a guide:

a) Checking of concept and principal design parameter must be carried out by a Senior Engineer of Chartered Engineer. This should be carried out before the detail design is undertaken.

b) Checking numerical accuracy may be carried out by a Senior Engineering Technician or Junior Engineer.

4.9 Use of Computer Programs

The Computer Systems Manager is responsible for maintaining a file on computer programmes containing the following:

a) A list of computer software.

b) An information sheet on each item.

c) Validation either external or in house for each item.

d) A list of Authorised Users.

The Project Manager shall identify the Computer Programmes to be used in carrying out the project work.

In the event that an in-house prepared item of software is proposed, the Project Manager shall ensure that it has been quality assured before use on the project.

Copies of the final computer output sheets shall be retained with the calculations.

4.10 Design Interfaces

Project Team Internal

The Project Manager shall establish and implement a system which ensure that communication and
co-ordination within the project team are satisfactory.

The Quality Plan shall identify the Project review points and these will be used for progress monitoring. When progress meetings are held, the Project Manager shall ensure that Minutes are prepared for inclusion in the project records.

**Project Team External**

The Project Manager shall ensure that communication and co-ordination procedures are established and implemented in order that the work of the project team is integrated with associated project work being carried out by other parties. The systems shall also include the particular requirements of the client. When information, data or instructions are received from or provided an external party, then project records shall identify the item concerned and any consequential communication.

The Project Manager shall ensure that Minutes are taken at formal meetings held with the client or any other external party in order that actions required and decisions arrived at, are recorded and made available to project staff.

**4.11 Technical Reports**

Reports for the client shall be prepared by personnel as directed by the Project Manager and checked by staff of suitable experience before issue to the client.

Any report should contain sufficient information to identify its purpose, the results of any analysis carried out and how conclusions have been arrived at. Technical information should be embodied in an Appendix. Background material used in compiling a report should be clearly referenced.

The front sheet of the report shall contain the name of the client, name of project, title of report, and the date. Each page shall be individually referenced and numbered, e.g. 1 of 6 etc.

A marked check copy of the report shall be kept on file giving the names of the author of the report and the checker. This would usually be the final draft copy.
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1.0 SCOPE

This procedure applies to the general administration of drawings produced by Fittons and outlines the basic controls to be applied under normal circumstances. Any special requirements will be defined in the Quality Plan.

2.0 RESPONSIBILITY

Resident Manager

Responsible for ensuring that the drawing control procedure is followed and that the list of drawings is satisfactory.

Computer System Manager

Responsible for ensuring that computer generated drawings are produced, backed up and archived.

Project Manager

Responsible for the production of the list of drawings that are necessary drawings for the project.

Project Engineer or Architect

Responsible to the Project Manager for sub-sections of the project and ensuring that all drawings are completed and checked.

Technician

Produces drawings on the project as directed by the Project Engineers and Architects.

3.0 PROCEDURE

3.1 General

The correct control of drawings of fundamental importance to the successful performance of the work undertaken. No drawings shall be issued for authorities review and approval, tender, construction or manufacture without being checked, signed and authorised.

3.2 Drawings and Drawing Reference

Drawing Size:

Shall normally be standard Fittons drawing film sizes A0 to A1 as shall be agreed by the Project Manager with the Client.
QUALITY PROCEDURE - DRAWING CONTROL

AUTHORISED BY: GERRY MCGUIRE
(Managing Director)

DATE: 10th October 2008

Drawing Number Allocation

<table>
<thead>
<tr>
<th>Project Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Design</td>
<td>P</td>
</tr>
<tr>
<td>Detailed Design</td>
<td>G</td>
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</table>

<table>
<thead>
<tr>
<th>Sub-division</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>Fire</td>
<td>Fire</td>
</tr>
<tr>
<td>Lighting</td>
<td>Light</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Power</td>
</tr>
<tr>
<td>Public Address System</td>
<td>Public</td>
</tr>
<tr>
<td>Telephone &amp; Intercom</td>
<td>Tel.</td>
</tr>
<tr>
<td>Air-conditioning</td>
<td>AC</td>
</tr>
<tr>
<td>Drainage</td>
<td>Dra</td>
</tr>
<tr>
<td>Water Supply</td>
<td>Water</td>
</tr>
</tbody>
</table>

The Drawing Number shall be structured as follows:

Project Status / Job Number / Dept. of Origin / Number of Drawing

for example: G / B360 / Arch / Plans / A2-03

3.3 Drawing Register

All drawing produced by Fittons shall be registered on a Drawing Register Form. For each drawing the register shall include:

a) Job Number

b) Drawing Title and Number

c) Current Revision Letter

d) Relevant Dates of all issues

The Drawing Register Form is the only document which has the history of all drawing issues. Drawing register shall be maintained at all times by the Document Control Officer.
3.4 Preparation of Drawings

The Project Manager and the Project Engineers / Architect shall together decide the minimum number of drawings that will be required to satisfy the needs of the project.

The Project Manager shall ensure that those who prepare the drawings are suitably experienced.

Within the context of a project, any special client requirements on scales, size of drawing etc. shall be observed by all staff. Sections and details must be correctly cross referenced. Setting out information and North points are vital importance and should be on all drawings.

Completed drawings shall bear the initials of the member of staff who prepared the drawing.

The drawing number shall be added at the start of the drawing and the Drawing Register Form completed at the same time.

Computer produced drawings when completed shall have a hard copy plot taken which will become the master copy from which all issues will be made.

3.5 Checking of Drawings

The Project Manager shall ensure that all completed have a check print taken which is checked for the following:

- Concept and reflection of the design intent.
- Dimensional accuracy.
- Interface with other related drawings.

The Project Manager shall be the first recipient of the check print. He will stamp it with the circulation stamp. He shall carry out the first review and add the names of team members that are required to check it.

The checking of drawings shall be undertaken by the Project Engineers / Architect or other staff, as appropriate. The following is a guide:

a) Check of design concept- carried out by the designer responsible for the calculations on which the drawing is based.

b) Dimensional accuracy and references to other related drawings for the calculations on which the drawing is based.

c) Final approval to be carried out by the Project Manager who shall also check that the drawing is correctly signed off and the purpose of issue completed. The Resident Manager or in his absence, Project Manager or his nominated deputy shall sign the Authorisation Box.

For all computer produced drawings information from the signed check print and the Purpose of Issue, Authorisation and Checked Boxes shall be transferred onto the master and copy disks.
Marked up check prints shall be returned to the originator who shall agree with the Project Manager the necessary action and the timetable for incorporation of comments.

The originator shall carry out the corrections as marked up by the Engineers and Architects. Drawing to be completed and returned to the Project Manager.

All drawings shall be issued by the Document Control Officer, who shall be responsible for maintaining records of issue.

3.6 Drawing Issue

Before issue of drawings for any reason each drawing shall be:

Initialled and dated by the originator.

Signed and dated by the checker.

Signed as authorised for issue by the Resident Manager or in his absence, the Project Manager.

Drawings shall be issued with a Transmittal Note addressed to the recipient. The Transmittal Note can replace the need for a letter and includes space for comments.

A copy of the Transmittal Notes shall be filed by the Document Control Officer and the Drawing Register Form completed.

3.7 Drawing Modification

When a drawing to be modified, the following procedure will be adopted:

a) A detailed description of the modification to be recorded by the Project Engineer / Project Architect in the form of file note. The file note shall have drawing number, revision number and date clearly mentioned. The file note shall be reviewed by the Project Manager prior to filing. The detailed description may be replaced by a marked up hard copy of the drawing.

b) A brief description of the modification is added to the revision box by the technician. Computer produced drawings will be modified on the computer and hard copy plot taken which will supersede the last hard copy plot in the drawing cabinet.

c) The modification is checked by the Project Engineer or Architect signed and dated.

3.8 Incoming Drawings

All incoming drawings to be processed by the Document Control Officer.

All incoming drawings shall be date stamped and marked with job number on receipt and checked against the associated transmittal. Receipt shall be registered on a Drawing Received Register Form that is maintained at all times by the Document Control Officer.
3.9 **Drawing Filing System**

Drawing filing system shall be carried out by the Document Control Officer or under his direct supervision.

All original drawings shall be filed by hanging vertically in Vertifile type storage cabinets. The exceptions are A3 and A4-size negatives which shall be stored in lever arch type files.

Incoming drawings (printed paper form) shall be filed in plan chests or vertically hung in open vertifiles. Otherwise the drawings shall be folded to A4-size and stored in filing cabinets.

When drawings are produced on a computer, and authorised for issue, a computer-based copy will be stored on a central computer to be defined by the Computer System Manager. The Computer System Manager will make back-up copies of all drawings on CD-ROM, when appropriate. All such CD-ROMs will be held centrally and will be clearly marked with the job number and contents. An up-to-date hard copy of the drawing from the computer shall be filed in the vertifile cabinet using a hanger. Any out of date hard copies shall be destroyed. All computer information shall be backed up as described within the CAD Manual.

A system of cross references between the drawings on the computer disks and the hard copies in the vertifile must be clearly shown in the comments column on the drawing register.

3.10 **AutoCAD Manual**

The Project Manager and the Computer System Manager shall be the responsible for the implementation of procedures described within the CAD Manual.
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3.10 Project Reference Numbering

3.11 Filing

3.12 Packaging / Delivery
1.0 SCOPE

This procedure describes the controls applied to key documents used or generated by Fittons.

2.0 RESPONSIBILITY

Resident Manager

Responsible for the control of Quality System documents and associated Quality Records.

Project Manager

Responsible for documents received or generated during the performance of a project.

Document Control Officer

Responsible for the administration of issuing, receiving and filing all the documents of a project within the office.

3.0 PROCEDURE

3.1 General

The Project Manager shall ensure that documents, which are vital to the effective performance of projects, are controlled in order to minimise the risk of jeopardising the satisfactory conclusion of work on behalf of Clients.

The Document Control officer shall be the administrative tool for the document control procedure.

3.2 Quality System Documents

Quality Manual

The Quality Manual provides the basic description of the Quality System procedures. It is structured as a compilation of separate procedures. Each procedures is presented in a standard style and current status is indicated by the Revision Number and Date.

The Resident Manager shall ensure that the ‘Master’ copy of each procedure is retained secure from unauthorised copying. Any requirement for additional copies which is for issue other than for official copy recipients, shall be addressed to the Resident Manager who shall ensure that copies are prepared and stamped in red as “Uncontrolled”.

Official issue copies of each procedure are recognised by the “Copy Number NN” on the front page of the document. The Document Controller shall keep a register and ensure that the correct numbered copy is issued to the defined recipient.
When a revision of the Manual is superseded, the Document Controller shall ensure that all copies of the superseded revision are withdrawn and destroyed. Likewise, any unofficial copy found shall be immediately destroyed and taken action to prevent recurrence.

3.3 Standard Forms

Standard forms, which are contained in Appendix 1, are controlled documents. Master copies are maintained by the Document Controller, their current status being indicated by revision number.

3.4 Quality Plan

The Project Manager is responsible for preparing the Quality Plan for a project. The Project Manager shall control the issue of a Quality Plan and shall maintain it for the duration of the project. At the conclusion of the project, the ‘Master’ of the Quality Plan shall be included in project records.

The Project Manager shall define the official copy distribution list for a Quality Plan and this shall include the Quality Controller who shall receive a copy of every Quality Plan prepared. Each official issue copy of a Quality Plan shall be marked “Copy Number NN” and the Project Manager shall ensure that the correct number copy is issued to the recipient and a receipt signature obtained. The Project Manager shall circulate the file copy to the members of the project team and obtain their signature to demonstrate that they have read the Quality Plan.

The Quality Controller shall maintain a Register of Quality Plans including Quality Plan references, status, generation date and Project Manager.

Any copy of a Quality Plan, which is additional to the official issue, shall be destroyed.

When a Quality Plan is revised, the Project Manager shall ensure that all superseded copies are withdrawn and destroyed except for the file copy and the copy held by the Quality Controller, which shall be marked “supersede” but held in their files. The Project Manager shall circulate the file copy to the members of the project team and obtain their signature to demonstrate that they read the revised Quality Plan.

3.5 Technical Reference Documents

A range of Technical Reference documents shall be maintained as necessary for the office. Use can be made of external reference libraries.

3.6 Incoming Correspondence

Initial Sorting

All mail not marked ‘Confidential’, ‘Private’ or completed ‘Tender Documents’ shall be opened by the Receptionist.

The Receptionist or delegated person shall sort the incoming mail and register it on the Incoming Mail Form.
If drawings are received, without a letter or enclosure, then the drawings shall not be stamped but passed to the Project Manager who will ensure that they are registered in the Incoming Drawing Register and date stamped.

The drawings register shall be maintained by the Document Control Officer at all times.

Any mail/documents/drawings handed to members of staff and not received through the post shall follow the same procedure as if it had been received in the post.

Invoices in the incoming mail shall be separated and stamped and registered as normal correspondences but shall be passed to the Administration Department via the Resident Manager. The Office Administration Manager will be responsible for the distribution and action associated with the invoices.

Special mail categories shall be dealt with as follows:

a) **Personal and Confidential Letters**

   Envelope handed unopened to the addressee. For official letters the addressee shall advise the Receptionist of the details for the Incoming Mail Form and obtain the unique number for the correspondence.

b) **Tender Documents**

   Envelopes shall be registered in, number stamped and handed unopened to the appropriate Project Manager who will arrange for inclusion of appropriate details on the Incoming Mail Form.

**Other Mail: Magazine etc: (Not to be registered)**

The Receptionist shall issue magazine etc., directly to the addressees and if appropriate, a circulation list shall be attached to the front cover.

Incoming mail between the offices of Fittons shall be treated as general Incoming Mail.

**Resident Manager Responsibility**

On receipt of the incoming mail, the Resident Manager, or his nominated deputy, shall:

a) Deal with the mail promptly each morning

b) Specify the distribution.

3.7 **Outgoing Correspondence**

**Project Outgoing Correspondence**

Copies of all outgoing correspondence are to be held in the department/office filing system managed by the Office Administration Manager.
All correspondence to the Client either letter or fax, which refer to matters associated with the brief or fees, shall be signed by the Resident Manager or, in his absence, the Project Manager.

3.8 Telephone Calls

Telephone calls associated with the project shall be recorded by the recipient/originator and distributed and filed in the general project correspondence. When associated with a project, a copy shall be copied to the Project Manager. Depending upon the nature of the matters raised, a decision shall be made concerning the need for written confirmation of the telephone conversation.

3.9 Fax Messages

The receipt or sending of Fax Messages shall be dealt with in a similar manner to other incoming / Outgoing Correspondence.

Outgoing faxes shall be prepared on the standard form. The Originator shall ensure that the item is correctly addressed and shall ensure that the appropriate references are shown as well as the Originator’s name and date. The authority to sign faxes shall be as for other out-going correspondence.

When drawing information is transmitted by fax in parts then each part shall be numbered using the correct drawing number and appropriate revision.

3.10 Project Reference Numbering

Each project undertaken by Fittons shall be allocated a main Job Number, which uniquely identifies the project. According to the particular requirements of the project, a series of sub-numbers shall be defined to identify specific activities within the main job. A Register of Sub Job Numbers with brief details of the work to be booked against the sub-number shall be maintained by the Office Administration Manager. The Project Manager shall complete Sub Job Forms as necessary and pass to the Office Administration Manager for distribution.

The Project Manager shall arrange for sub numbers for the time sheet bookings.

A multiplicity of sub numbers for small projects shall be avoided and for a small project a single sub number per department will suffice.

3.11 Filing

During the process of carrying out the requirements of a project, the Project Manager jointly with the Document Control Officer shall ensure that documents are identified to the project and filed in a structured manner so that retrieval is efficient. The extent of the filing system and the range and volume of documents that are involved will be directly affected by the size and scope of each individual project. The Project Manager shall ensure that all staff involved in the project are familiar with the requirements for project document control. The Office Administration Manager will be responsible for the day to day operation of the general filing system in conjunction with the Document Control Officer.
Depending upon the specified requirements of the Client concerned, the completion and filing of project specific documents shall be incorporated into the normal systems, e.g., Minutes of Meetings etc.

Before filing, the Project Manager and Document Control Officer shall ensure that documents which are subject to checking and/or approval, e.g., Drawings, Calculations etc. are correctly referenced, signed off and dated.

All letter files shall be held in the central filing system. No letters shall be finally filed and until the “Action” box has been annotated appropriately and initialled.

3.12 Packaging/Delivery

Documents and drawings shall be suitably protected for safe transit by post or other carriers.
QUALITY PROCEDURE – DESIGN CHANGE CONTROL

AUTHORISED BY: GERRY MCGUIRE (Managing Director) DATE: 10th October 2008

CONTENTS

1.0 SCOPE

2.0 RESPONSIBILITY

3.0 PROCEDURE

3.1 Authority

3.2 Implementation
1.0 SCOPE

This procedure establishes the method of control by the Project Manager when a design change is imposed by the Client or by a member of the project team after the work has already commenced.

2.0 RESPONSIBILITY

Project Manager

Responsible for the implementation of design changes on a project after the works has commenced.

3.0 PROCEDURE

3.1 Authority

The Project Manager is responsible for the implementation of design changes and he shall liaise with the Client regarding the implication of such changes. No changes will be implemented until the approval of the Client has been obtained in writing or the Client is informed in writing that the changes will be implemented.

3.2 Implementation

If the client proposes a design change the Project Manager will discuss with the Client and the Resident Manager the implications.

The Project Manager will be responsible to ensure that all participants on the project (including any outside technical services) are made aware of the design changes as early as possible and that, if appropriate, a revised Design Brief is issued to all parties.

A revised Quality Plan may be necessary.

The project Manager should arrange for new sub numbers so that any additional work can be identified.

The project Manager shall co-ordinate a thorough review of the change proposals. This review shall fully evaluate the implications of initiating the changes before any work is done as a consequence. As appropriate the Project Manager shall discuss the implications with involved parties both internally and externally to the project team. Points of issue shall be raised with the client. All discussion and actions decided upon shall be documented for inclusion in project records.

The project records shall provide a complete and unambiguous history of each change proposed and processed, and of all the consequences that have resulted. If necessary a separate file may be need to be maintained.
QUALITY PROCEDURE – PURCHASING

AUTHORISED BY: GERRY MCGUIRE
(Managing Director)
DATE: 10th October 2008

CONTENTS

1.0 SCOPE
2.0 RESPONSIBILITY
3.0 GENERAL
4.0 PROCEDURE FOR TENDER ENQUIRIES
1.0 SCOPE

This procedure applies to the following purchasing activities:

- Tender enquiries on behalf of a Client.

2.0 RESPONSIBILITY

Resident Manager

Responsible to see that all purchasing activities do not cause the Client or Fittons unforeseen risks.

3.0 GENERAL

Members of the project team are not permitted to directly purchase items of equipment or services.

Where clients have their own procedures and documentation and they differ from this procedure then the Client’s requirements shall prevail and this shall be clearly stated on the Quality Plan.

4.0 PROCEDURE FOR TENDER ENQUIRIES

The Project Manager will arrange the preparation of the enquiry document for issue to tenderers on a list agreed with the client. Where competitive tendering is required the tender document is sent to a minimum of three tenderers. Where approval has been given by the Client for single tender action the above procedure is restricted to the nominated tenderer. The enquiry document shall, as required, include:

- Instructions to tenderers
- List of contents
- Form of tender
- Conditions of Contract (Terms of Payment)
- Special requirements (programme requirements)
- Maintenance Requirements including manuals
- Technical Specification (including British Standards if appropriate) and Appendices
- Preamble to Bills of Quantities
- Bills of Quantities
- Drawings
- Tender Return Envelopes

The completed tenders will be returned in the envelopes provided to the addressee stated within the tender document at the time and date specified.
Tenders returned to the Client will be actioned by the client and if appropriate forwarded to FITTONS Project Manager for evaluation where they will be logged in.

Tenders returned direct to FITTONS shall be logged in and lodged in a secure place until the designated opening time. The tenders are opened by the Project Manager or his deputy and a witness independent of the Project Team. The total price of each tender and any qualifying conditions will be noted on the Tenders received form.
THE SITE ENGINEER

The size and type of building is itself likely to warrant the appointment of a Site Engineer.

The number of foreseen problems that will arise on site is likely to be in direct proportion to the type and complexity of the project. Many of these problems require decisions or supplementary instructions from one or other of the consultants, all of whom can be expected to engage site representatives: the Engineer must be responsible for co-ordinating their activities.

Even with the most complete and comprehensive set of contract documents, further information will inevitably be required by the contractor during the course of construction. An Engineer can ensure that the problems are properly analysed and defined and that solutions are forthcoming.

The Engineer’s position is, of course, open to abuse. Not only will the contractor often attempt to off-load some of his responsibilities, but the Project Architect and his team may also be tempted to leave unresolved problems ‘to be sorted on site’ on the misguided assumption that the Engineer exists for this purpose.

1.0 INTRODUCTION

1.1 Scope of Document

This Job Description has been written for the prospective Engineer engaged to control the quality of the contractor’s work and/or to resolve technical problems which will arise during construction. The document:

• Outlines the reasons for his appointment
• Gives a guide to responsibilities and duties
• Explains site procedures and an Engineer’s method of working
• Describes the contractual context within which the Engineer has to perform and forewarns of possible problems.

Arming a prospective Engineer with a job description is not, of course, a substitute for employing the right type of person - someone who is self motivated, tenacious and hawk-eyed, who has the patience of a saint and nerves of steel, is methodical, conscientious, honourable and energetic, with a sense of humor and an undeflatable morale - an ideal personality profile which would be very difficult to match!

1.2 The engineer’s role

The amount of inspection work a project demands will be dictated by it’s size, the complexity of the construction and the rate of progress. Monitoring the progress and checking the quality of work are, only part of the Engineer’s duties, he will also have to answer the contractor’s queries and sort out the site technical problems.

1.3 Consultancy’s point of view
The Engineer is almost always a member of a consultancy’s professional staff for who’s actions the consultancy is fully liable. When the Engineer is on site, he is considered to be the consultancy’s representative.

The main advantage for the consultants in having an experienced Engineer to inspect the work, is that building failure, caused by faulty construction or inadequate detailing, is less likely to occur since it is sometimes easier for the Engineer to identify potential problems in reality than on paper. Although the contractor will obviously have a great deal of practical experience, his main preoccupation will be with construction management rather than the theory of building design, so the Engineer can bring to site an understanding of building construction that is otherwise missing.

2.0 CONTRACT INFORMATION

2.1 Preparation

For an Engineer to carry out his work proficiently, he must have a through knowledge of the contract information, a sound understanding of the principles of building construction, and suitably equipped premises from which to work.

Through familiarisation with the contract documentation is no mean task, and even those with an exceptionally good memory will be unable to do it all at once: the Engineer will therefore have to study the relevant information as the work proceeds.

Having a sound understanding of the principles of building construction will enable the Engineer to appreciate the reasoning behind the proposed construction and help him to exercise discretion and judgement in commencing on the contractor’s work.

Although the Engineer will not be expected to be an expert on the technique of all building trades, he should have a general knowledge of their basic skills.

The Engineer must appreciate the reasoning behind the form of the building and have a vision of the end product in mind to sustain his interest and enthusiasm for the project through the difficulties and discomforts of working on site.

Ideally he will have been involved in the preparation of the design drawings, specifications and details for the scheme.

2.2 Aids to Memory

When out on site it is obviously not always possible to remember the contract information in detail and the Engineer will therefore have to relay instead of commonsense, technical knowledge and aids to memory he has prepared to take with him. If in doubt however he must take and check in his office what he has seen on site.

The Engineer should prepare a checklist ‘tailor-made’ to the job and based on standard lists such as that in list ‘A’ attached.

3.0 QUALITY CONTROL

3.1 General Inspections and Architect’s Visits
The Engineer is the Project Architect’s eyes and ears on site, so he must have a detailed knowledge of what is going on. The daily site inspections are alright in themselves, but a much more detailed Quality Control must be instituted.

The Engineer will be supported by the Project Architect as well as other members of the consultancy team, who will visit site and give the Engineer their support. The Engineer should, for reasons of courtesy and morale, be the first person the architect speaks to when the visits the site. It adds to the Engineer’s credibility and authority on site, if the contractor sees he has the architects confidence and backing.

3.2 Samples of Workmanship and Tests

When a trade is starting on site it might be a good idea to get the contractor to dismantle a section of work to see the quality, it will impress on the contractor that he will not get away with sub-standard work. Samples are expensive and must either be billed or the client must approve any costs involved.

3.3 Inspection Method 1

The best way to control quality of workmanship is to check the work in progress. Correcting faults after completion can be expensive and often impracticable. Inspections should include the element of surprise, so that tradesmen never know when the Engineer can be looking over their shoulder. This is particularly important in the early days of the contract, and will give the contractor a guide as to the standards expected of him.

3.4 Inspection Method 11

Another way of controlling the quality of workmanship is by inspecting the building at predetermined stages of construction (see checklist ‘A’). This method is only workable if the contractor gives the Engineer at least 24 hours notice of his intention to cover up work or remove access. Must be covered in the Bill otherwise claims will result.

3.5 Contractor’ Supervision Responsibilities

It is the contractor’s responsibility to construct the building in accordance with the contract information. If the Engineer is not careful the contractor will allow him to do his supervision work for him. The problem can be side stepped by only carrying out spot checks at random and assuming, quite reasonably, that the findings are typical. By spot checking in small areas the Engineer can be very through.

3.6 Inspection Priorities

- Technically important items, if not correct could result in costly failure. Foundation excavation, services under building, fixing external cladding or tiling.
- Work which will be covered up, such as underground services and DPC’s.
- Work which it is difficult to correct once it has been completed, such as work in mass or reinforced concrete.
Minor setting out mistakes are frequently the cause of remedial work being required later. Although the contractor is responsible for setting out under the contract the Engineer should satisfy himself by making spot checks. Protection is better than making good later, see Bills.

3.7 Observation

The effectiveness of the Engineer directly relates to his powers of observation. He must be methodical in his search and must think about the implication of what he sees.

Does it make sense?

Can the next stages of construction work?

How will it look at completion?

Will it function as designated?

Do the cartons and cans lying about confirm the right material?

3.8 The Engineer’s Authority

Report any defects in the work to the contractor, never to his work force. If no response is received from the contractor the Engineer must put the matter in writing (i.e. site instruction).

Any verbal instructions must be confirmed and if no action is taken must be raised and minuted in site meetings. If the Contractor still persists the Project Architect must consult the QS and possibility withhold payments. The Engineer must be sure of his facts and reasoning, with the Contract documents being the basis of his authority.

3.9 Contractor’s Method of Working

The architect has powers to dictate on matters of safety and he must act accordingly.

4.0 PROBLEM SOLVING

4.1 Design Responsibility

The Engineer does not normally have the authority to answer or make design decisions of any consequence without first referring them back to his office. It is important he knows the limit of his discretion and that all instructions are immediately copied back to the architects office.

4.2 Being to Accessible

The Engineer can easily be put a position of mainly answering contractors queries and interpret the contract information. That is what the contractor would like him to do, to keep him in his hut and not making inspections. The contractor has the same information as the Engineer, if he requires clarification he must contact the Project Architect’s office. It is not the Engineer’s function to act as a middle man. A procedure must be agreed to control the number and type of questions being asked. If all questions must be in writing the contractor will end to reduce the numbers as the records would indicate delay on his part due to non study of the contract information.
Written questions and replies on special forms would be very useful and provide an excellent record against claims. The Engineer must be well informed as to what is and what is not the architects problem.

4.3 The Problem Solving /role

Engineer is a filter between the contractor and architects office. When all relevant facts and possible solutions have been sorted out, they can ten be passed to the architect for a final decision.

The Engineer should never allow himself to be pressured into giving on the spot decisions unless he is absolutely sure of his ground. Problems that arise during construction are invariably better resolved in consultation with the office: ‘site observation’ can then be blended with the ‘design factors’ which the architect’s office will be more aware of.

4.4 Stage Inspections

Checklist ‘A’ identifies some of the stages of construction when work, which is important to get right, will either become covered up, become difficult to correct or from which access will be removed.

5.0 RECORDS AND REPORTS

5.1 Essential Facts

In trying to determine what information should be recorded, the following should be considered:

- On what does the progress of the work depend?
- On what grounds will claims be made for extension of time or for loss and expense?

Factors that normally effect the progress of the work include:

- lack of and discrepancies in information
- availability of materials
- availability of the right kind of labour
- availability of plant, water and power
- forward planning and co-ordination
- access on to and around the site
- deployment of materials and labour
- communication of information on site
- on accurate setting out of the works
• lack initiative in resolving problems
• level of morale, attitude and skill of the contractor’s site management and men
• the weather

The grounds on which the contractor can make claims for extra time and/or money will be contained in the conditions of contract but could include.

• lack of information (time and money)
• discrepancies in the information (time and money)
• variations resulting in delay (time and money)
• postponement of any part of works (time and money)
• opening up which turns out to be OK (time and money)
• delay in gaining full possession of site (time and money)

5.2 Contractor’s Site Records

• Dayworks Sheets

The daywork sheet is record of the facts. It is to be signed only to certify that the work has been done and that the layout and materials indicated on it are correct. It should be made clear to the contractor that the signing of a daywork sheet does not constitute an instruction for the work to be carried out nor an acceptance of the cost implications or the method of valuation.

Formalise with appropriately worded rubber stamp under signature.

• Plant and Labour Returns

To be issued weekly by contractor to include level of supervision. The Engineer will be expected to comment on the deployment of plant and labour and say if they are being used to best effect.

• Notices of work ready for Inspection

Useful record in the contractor’s own hand when work has carried out.

• Confirmation of oral instructions

Carried out without a written instructions is at his own risk. It is best that the Engineer instructs that no oral instructions are given or accepted on site.

5.3 Site Records and Reports by Engineer

• Site Diary
- a brief description of work carried out, including samples and tests.
- a full description of situations which could relate to claims. i.e. unforeseen underground problems, delay due to lack of information.
- dayworks: note man-hours, material and equipment.
- plant: main items of mechanical equipment brought on to or taken off site.
- temporary accommodation brought on or taken off site.
- materials: relating to claims or progress.
- labour: note of any head count made.
- accidents
- weather conditions: i.e. extra high temperatures, or excessive humidity.

• Inertia

Leaving condemned work uncorrected for weeks, even months, in the hope that the Engineer will get tired of asking about it and will finally forget about it.

• Unfinished

For example, the reason for insulation and fixings being missed is because it is ‘unfinished’. Could be a prelude to another tactic, cover up.

• Cover-Up

A dilemma for the Engineer! Covering up correct work and assuring the Engineer that it is done. If it’s opened up and found to be OK the Engineer will have lost credibility.

• It’s impossible

Site agent states it’s impossible to carry out a certain instruction. Can be very obstructive as the contractor is the building expert and, unless the Engineer can demonstrate how it can be done, he has a problem. This type of behaviour illustrates an arrogant obstructive attitude, and if it persists may mean the agents removal.

• An extra

The standard of workmanship being demanded by the Engineer was not allowed for in the tender, if the Engineer insists in making these demands there will be an extra.

• Promises, Promises

Promising that everything will be ‘all right on the night’, when clearly it will not. This tactic plays on the Engineer’s basic optimism and usually relates to the standards of finishes.
• Inability

Inability to see the obvious and the invention of ludicrous excuses for poor workmanship.

• Attrition

Using up the Engineer’s time, energy and patience by asking him to inspect work which is not ready for inspection. This often occurs with final snagging but at this stage the Engineer is in a strong position as being practically complete.

• ‘Trust me’

“Why do you want to inspect my work, don’t you trust me?” Whether the Engineer trusts the contractor or not is beside the point: the client is employing him to see for himself that the work is correct, or not to sit in his hut and take the contractor’s word for it.

• Buck-passing

Asking the Engineer what to do instead of looking at the contract information.

• Bribery

The Engineer must not accept favours of any kind from the contractor. He will not be able to do his job impartially and he will leave himself open to blackmail. Any attempt at bribery should be reported to the architect.

• Intimidation

Trying to frighten the Engineer into turning a blind eye, must not be tolerated. A sense of humor can be very useful in defusing tense situations.

• By-pass

Contractors sometimes try to avoid having to carry out remedial work by ignoring the Engineer and appealing directly to the architect with a half truth. Assuming the Engineer is in the right the architect must not undermine his authority.
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4.8 Review of the Quality System
1.0 SCOPE

This procedure establishes the method to be adopted for the performance of Audits within the Quality System, both to provide objective verification of compliance with all aspects of the Quality System and to determine its effectiveness.

2.0 RESPONSIBILITY

Resident Manager

Responsible for the planning and performance co-ordination of internal audits carried out on the quality system.

Project Manager

Responsible for the planning and performance, co-ordination of internal audits carried out on the individual projects.

3.0 DEFINITIONS

Quality Audit

A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively.

Quality System Review

A formal evaluation by management of the operation and adequacy of the quality system carried out annually.

Auditor

An individual suitably qualified to organise and direct a quality assurance audit and report audit deficiencies or findings.

Non-conformity

This is a departure from approved procedures.

4.0 PROCEDURE

4.1 Initiating an Audit

The resident Manager shall initiate an audit either in accordance with the two defined Programmes of Audits (project audits and system audits), or when quality-related conditions indicate the need for a special audit, including:

a) A significant change in the Quality System such as a major procedure Revision.
b) A need to verify implementation of required corrective action.

c) An indication that deficiencies exist in the Quality System which could result in sub-standard quality.

4.2 Selecting the Auditor

The Resident Manager shall determine the resources needed to perform a specific audit.

The personnel selected shall have suitable training and experience to satisfactorily carry out the audit process.

4.3 Audit Planning

Audits shall be initiated by the Resident Manager and notice given to the Auditee of its implementation.

The Resident Manager may nominate an Auditor and when necessary suitable personnel shall be selected to support him.

The Resident Manager shall provide the Auditor with the necessary information about the audit, i.e. Project/System to be audited, date, scope, requirements and participants.

4.4 Audit Preparation

The Auditor shall review the control documentation available relating to the Project/System, e.g. Quality Plan, procedures and the results of previous audits.

The Auditor shall use an Audit checklist and this shall cover all areas to be included in the scope of the Audit.

4.5 Conducting the Audit

The Auditor shall carefully manage the Audit to ensure that the objectives are achieved.

In noting the answers to the Checklist questions, he shall make relevant records of the objective evidence available, e.g. documents and records examined and details of non-conformance(s) found.

4.6 Reporting

The Auditor shall:
Prepare the written report of the Audit using the standard Audit Report Form.

The Report shall be signed by the Auditor and distributed as follows:
- Resident Manager
- Project Manager

Details of the audit completed shall be added to the Register of Audits held by the Quality Controller.
4.7 Documents and Records

Documents and records shall be compiled by the Quality Controller and retained on file including:

a) Audit programmes
b) Audit reports
c) Correspondence on matters relating to the Audits

4.8 Review of the Quality System

The Quality System Review shall be carried out annually and its timing shall be detailed on the Internal Audit Programme.

The Review shall be undertaken by the Resident Manager and shall establish that the Quality Manual:

a) Properly reflects the current methods of operation within the company
b) Covers the company’s activities
c) Correctly shows the current organisation structure.

Findings from the review including recommended revisions to the Manual shall be recorded on a Quality System Review Report Form.
QUALITY PROCEDURE – CORRECTIVE ACTION

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QUALITY PROCEDURE – CORRECTIVE ACTION

1.0 SCOPES

This procedure defines the method of undertaking corrective actions as a result of carrying out Quality Audits.

2.0 RESPONSIBILITY

Resident Manager/Quality Controller

Responsible for ensuring that Corrective Actions are progressed through all stages as defined in this procedure.

Auditee

Responsible for receiving, agreeing and implementing appropriate Corrective Actions to solve the immediate problem and to prevent recurrence.

3.0 DEFINITIONS

Non-Conformity

This is a departure from approved procedures.

Corrective Action

The means taken to correct the non-conformity and to avoid recurrence.

4.0 PROCEDURE

4.1 Initiating Remedial Actions

When the Audit Report Form identifies non-conformities which have occurred, the Auditor shall discuss with the Auditee the details of the deviations and agree a time scale for corrective actions.

The Auditee shall take the following actions:

a) Review the findings by the Auditor

b) Investigate the root causes of the deviations

c) Carry out the necessary corrective actions within the time scale agreed.

To ensure that the corrective actions have been implemented the Auditor will carry out a check audit and sign off the appropriate section of the Audit Report Form and return it to the Quality Controller.
The Quality Controller will ensure that copies of the Audit Report highlighting the deviations and remedial actions, together with associated correspondence are filed in the records.

If the auditee fails to respond to deviations as directed by the Quality Controller then a written reminder will be issued by the Resident Manager and copies to the Managing Director.

4.2 Formal complaints from the Client

Following a formal complaint received from a client, the Project Manager shall inform the Resident Manager, and the Quality Controller by circulating a completed Customer Complaint record giving details of the complaint.

The Resident Manager shall conduct an investigation into the complaint and after due consultation take the appropriate corrective action and fully advise the client of such findings.
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1.0 SCOPE

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3.4 Personnel and Training
1.0 SCOPE

This procedure describes the method by which the business activities of Fittons are recorded and filed.

2.0 RESPONSIBILITY

Project Manager

Responsible for defining and implementing the controls which apply to a specific project.

Document Control Officer

Shall ensure that records are complete, clear and in accordance with requirements.

3.0 PROCEDURE

3.1 Quality System

The Resident Manager shall ensure that all records compiled during the development, implementation and maintenance of the Quality System are retained in a manner which allows ease of reference. Records shall be retained for 5 years.

Records include written comment on procedure documents, document transmittals, written proposals for procedure change, audit records, corrective action requests, system review reports and various register used for ease of reference. Filing shall be secure but accessible.

3.2 Project Records

Each project shall be assessed by the Project Manager responsible and the records controlled in accordance with the methods defined for the project and reflected in the Quality Plan.

When external organisations are utilised for their particular skills, the Project Manager shall instruct such organisations to provide full records of activities undertaken.

All records shall be reviewed and approved during the course of a project to ensure that any post contract queries can be objectively answered using the records retained.

3.3 Filing

Correspondence Files and Records

These shall be held at all times in the central filing system of the office and filed under the job number. They should be clearly identified and remain on file for a period of 6 years when they will be achieved.

Original Drawings

Valid drawings shall be hung in vertifile cabinets for a period of 6 years when they will be archived.
Superseded drawings shall be achieved as instructed by the Project Manager.

**Calculations and the contents of the Job File**

The original calculation sheets and the job file are held for a period of 6 years when they will be archived.

**As Built Drawings**

Following the completion of the construction phase a project these shall be transferred to the office filing system, folded and filed in cabinets and held until the maintenance period is over. The originals of As Built Drawings shall be handed to the Client. Copies shall be retained in hard copy for 6 years and also in electronic format.

**Check Prints**

Check prints of drawings, calculation sheets, programmes reports shall be retained by the Project Manager until the work is completed on the project in the office and then they can be destroyed.

**Computer Calculation Output**

This shall be retained in the office with the calculations until the end of the maintenance period. The Project Manager will then decide if it needs too be held in the archives or destroyed.

**3.4 Personnel and Training**

Personnel records shall be the responsibility of the Resident Manager. These documents shall be kept confidential. The Resident Manager is responsible for the training records of all his staff. The training records shall be kept by the Resident Manager.
QUALITY PROCEDURE - TRAINING

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1.0 SCOPE

2.0 RESPONSIBILITY

3.0 PROCEDURE

3.1 Appraisal

3.2 Quality Induction

3.3 Training Records
1.0 SCOPE

This procedure applies to all staff employed by Fittons and outlines the system adopted to ensure that adequate training is provided.

2.0 RESPONSIBILITY

Resident Manager

Responsible for appraising staff and for identifying training needs. Also responsible for ensuring training is provided where agreed as necessary.

All Staff

Responsible for identifying personal objectives in skills which need developing.

3.0 PROCEDURE

3.1 Appraisal

The application of a system of regular Management Appraisal shall be the main formal vehicle for assessing training requirements for individual members of staff. The standard Performance Appraisal Form shall be used.

The appraisal procedure allows members of staff to express a view on training required, while the Resident Manager shall consider and confirm specific training required for individual members of staff.

When a training course is completed by an individual member of staff and where the course has included some form of examination, the results attained be filed in personnel records. Examination results or certificates obtained shall wherever possible identify the standard attained.

The Resident Manager shall ensure that all new staff are interviewed within a few days of their commencement of employment. The appropriate induction form will be used and the Resident Manager must ensure that all the aspects of induction listed are achieved by the new member of staff. The completed forms shall be signed by the new member of staff when the induction is completed and shall be retained in the individual’s personal file held by the Resident Manager.

Training may be provided either through the attendance of staff on in-house courses, or through attendance of recognised courses provided by external organisations.

3.2 Quality Induction

All new staff employed by Fittons shall be instructed by the Quality Controller on the need for compliance with Company procedures as part of the induction training process. This shall also apply when any contract staff are taken to provide additional manpower resources.

At the commencement of each new project undertaken by the Company, the Project Manager shall ensure that project staff are made fully conversant with the objectives and the controls to be
implemented.

3.3 Training Records

The Resident Manager shall keep a complete set of records of employees for ten years which shall comprise of the following:

1. Date of commencement of employment.
2. Starting Job Title.
3. A copy of their Curriculum Vitae.
4. Education, training and experience gained during employment with Fittons.
5. Promotions and dates of implementation.
6. Date of leaving.
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5.0 DRAWINGS

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5.3 Schedule of Standard Details

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5.5 Saving and Shutting Down
1.0 SCOPE

This procedure applies to the production, labelling and electronic filing system of all computer generated drawings undertaken by Fittons. In response to special requirements of a specific project, additional procedures shall be defined in the quality plan. It is of paramount importance that each person of the team recognises that his role in the process of drawing production control relies upon him working closely with the rules set out in this manual.

2.0 RESPONSIBILITY

Resident Manager

Responsible for the operation of the office and the project.

Computer System Manager

Responsible to the Resident Manager for the up-keep of all office computers and specifically for:

- Maintaining a file of computer programmes available in the office.
- Ensuring all systems are well maintained and running at all time.
- Producing and issuing AutoCAD manual in conjunction with the Resident Manager
- Producing and maintaining back up systems in particular at the end of each phase of each project in conjunction with the Project Manager.

Quality Controller

Reports directly to the Resident Manager and is responsible for the day-to-day running, monitoring and control of the quality system. The particular responsibilities are as follows:

- To ensure that the quality system is implemented.
- To distribute “Controlled” copies of the Quality Manual from the Resident Manager.
- To prepare internal audit programme for job audits.
- To undertake or arrange audits of jobs in accordance with their requirements. To ensure that corrective actions are undertaken.
- To maintain quality records.
- To attend the Quality Management Meetings.
- To endorse the approval of the Quality Plans that are approved by the Resident Manager.
PROJECT MANAGER

Responsible for the production of the necessary drawings for the project and for the compliance of the project production team with this procedure.

PROJECT ENGINEERS/ARCHITECTS

Responsible to the Project Manager and shall ensure that drawings are completed and checked.

3.0 COMPUTER SYSTEM

3.1 Computer Hardware

At present the Abu Dhabi office has a range of IBM compatible workstations. Generally each station contains a fixed hard drive and a 3½” high density floppy disk drive. Various computers are equipped with CD ROM drives. Where possible, the hard drive is partitioned into two drives “C” and “D”. The “C” drive shall be solely used for the storage of programs and the “D” drive shall be used for storing all data / drawings.

The current plotter is an ink-jet HP750C. This plotter can plot drawings and images in black and white and colour up to A0 in size.

Stations are linked together by means of a Windows 95 Workgroup Network. This enables users to rapidly exchange files, view files and share resources with other users.

Users are required to run fortnightly disk de-fragmentation over the lunch-hour to ensure that computers are working at optimum speed.

3.1 Computer Software

All computers run on the Windows 96 operating system. AutoCAD R14 is the current drawing tool used. Other software available includes Winzip, Adobe Photo Shop, 3D Studio Viz and MS Office. The programs are not run from a server over the network but as stand-alones.

No software shall be loaded or modified without the approval of the Computer System Manager.

4.0 DIRECTORY / FILE MANAGEMENT

It is essential to maintain drawings within their correct folders and with correct file names as described below.

It is the responsibility of each user to ensure that multiple copies of a drawing ARE NOT created on his computer and that temporary working files are deleted as soon as possible. When a drawing file is passed to another user to work on, the copy must be deleted from the original computer. The drawing history form is to be fully completed and passed over to the new user at the same time as the CAD file.

Audits will be carried out on a regular basis to ensure that appropriate file management is being adhered to.
4.1 Drawing History Form

Each Drawing to be produced shall have a drawing history form. These forms record when and how has worked on a particular drawing.

The drawing history forms shall be located with each discipline head, in a project file labelled ‘Drawing History Forms’. Each person who creates or modifies a drawing is responsible for completing this form prior to and on completion of his work.

The ‘entitles’ column should be used to confirm that when the person starts editing a drawing, the drawing he possesses is the same as the one that was last edited.

4.2 Floppy Disks

Floppy disks shall only be used where deemed absolutely necessary. Drawings should NOT be worked on whilst located on a floppy disk. The reason for this is that the drawing file may expand by a factor of five times its original size on the floppy disk, i.e., if the drawing file is 500,000 bytes then the required free space would need to be 2,500,000 bytes which is beyond the floppy disk capacity and will cause the computer to stop working.

For security reasons, desktops shall be kept free from ‘loose’ disks.

4.3 Back-up of Files

Power loss during CAD operation could result in irretrievable damage to a drawing file.

Each workstation has a network link to a unique backup folder located on a central computer by use of the ‘send to’ option from Window Explorer. It is the responsibility of each user to backup drawings on completion of major phases and at least at the end of each week. Files on the backup drive will be copied to a CAD ROM when deemed necessary.

Only ‘files’ are to be sent to the backup drive and no folders / sub-folders should be included in order to minimise file duplication.

Files are not to be backed up using Winzip, MS Backup or in any other form except in the prescribed manner.

4.4 Computer Virus Problems

Computer viruses have become an increasingly serious threat to computer data, software and hardware. Viruses may be introduced into the office via the Internet or infected floppies and CD ROM disks.

All data of any form brought into or sent out of the office must be logged and virus checked by the document controller.
5.0 DRAWINGS

5.1 Drawing Scale

All drawings shall be drawn in millimetres. Drawings shall be drawn at 1:1 scale, and then the plotting scale should be adjusted to suit.

5.2 Drawing Layers and Blocks

Proper layer control is a vital part of good drawing practice. The following establishes a simple approach to the issue of ensuring a standardised system is achieved for all projects.

Associated with each layer is an AutoCAD colour number, which relates to a particular pen thickness for when the drawing is plotted. No variances to the standard pen assignments and colours are permitted without the approval of the Computer Systems Manager.

The system adopted is open to constant improvement and change according to specific requirements, but will only gain strength through it’s consistent application by all disciplines. The ad hoc creation of layers must not take place. Where the need for a new layer is identified it should be brought to the attention of the Computer Systems Manager who shall arrange for the update of this manual.

The following is a set of guidelines that should be followed in order to maintain good drawing practice:

• All entities must be drawn in and reside in their appropriate layer as listed in the following tables for each discipline.

• All entities must have a ‘By Layer’ colour and line type property.

• Standard blocks must not be exploded.

• Blocks must not be re-Blocked in any manner. Note that using the ‘copy-paste’ command in the edit pull down menu to copy items from one drawing to another automatically converts items into block.

• Block names shall remain as existing within the standard block folders.

• All blocks must be created on ‘Zero’ layer.

• Approval must be obtained from the Computer System Manager prior to creating any new block.

• The bottom left corner of the drawing sheet must be maintained as having a 0,0,0 co-ordinate and be maintained as the ‘Base’ for the drawing.

• Drawings shall be purged as necessary to reduce drawing size.
• A standard title block shall be created for each project as defined within the Project Quality Plan. The standard title block must NOT be exploded or modified. Text size, font style and position should not be altered; only the width factor may be slightly adjusted where absolutely necessary. For each new drawing, the title block (as for other blocks and standard details), must be obtained from the standard blocks folder for the project on the designated computer.

• The use of CAD functions such as x referencing, paper space, model space etc. should be used where possible to enhance efficiency and minimise inconsistency errors.

5.3 Schedule of Standard Details

All Standard Details for all disciplines shall be located on a designated computer. All details and blocks shall only be obtained from this location.

The senior technician is responsible for creating, updating and maintaining the folder structure and blocks within. No modification whatsoever to such blocks shall be made without the approval of the senior technician. A list of available standard details, standard blocks and their location will be available in notepad format. Each project shall have its own collection of blocks created.

The directory structure on the designated computer will be as follows:

5.4 Drawing Plotting

Plotter cartridges are expensive. Keep the number of plots to a practical minimum, possibly using A3 or similar sheets and operating drawing draft rather than final copy quality where appropriate.

Users must run the spell check (English: British) facility in AutoCAD prior to sending drawings to plot.

5.5 Saving and Shutting Down

Saving of the current drawing at frequent intervals is very important. It should be done at intervals of 20-30 minutes. Should a power cut occur in the middle of creating a drawing, it is possible to retrieve the drawing. The file will be located in the Windows\temp folder and will be named Auto?.bak. In order to retrieve the drawing, the file extension will have to be renamed to .dwg.

It is also necessary to save before you:

i) leave the workstation

ii) plot a drawing

It is important that you completely shut down the CAD program before you switch off the computer, if you do not, the hard disk will eventually fill with temporary Swap files. It is also vital to shut down the computer in the correct manner.
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1.0 SCOPE

This procedure described how suppliers and sub-contractors are to be assessed and the actions to be taken in the event of deteriorating quality performance.

2.0 RESPONSIBILITY

The Resident Manager, in consultation with the Project Manager is responsible for the approval of suppliers/contractors.

3.0 SELECTION OF APPROVED SUPPLIERS/CONTRACTORS

The selection of Approved Suppliers/Contractors shall be carried out as follows:

Before approval is given, the potential supplier/contractor shall demonstrate its capability to furnish suppliers or services which can meet the requirements of the Technical Specification. The method for establishing this capability shall be based on one or more of the following:

a) Certification to a National Third Party Accreditation Scheme.

b) Assessment and evaluation of the supplier’s/contractor’s capability and/or Quality System.

c) Supplier/Contractor Quality Questionnaire.

d) Past History.

e) Industry Recommended.

3.1 Appraisal of Potential Suppliers / Contractors

The Resident Manager shall review any information about companies held by Fittons including historical records for the supply of products prior to the introduction of this procedure. He shall make decisions as follows depending on the historical information available:

a) If historical information exists for the previous supply of products/services, include the company as an Approved Supplier/Contractor.

b) If historical information is unsatisfactory, carry out further assessment by visit.

c) Where additional assessment undertaken in (b) above proves satisfactory, include the company on as an Approved Supplier/Contractor.

Where authorisation is withheld for approval as an Approved Supplier/Contractor, the reasons are to be recorded.

In all cases where a company is assessed as an Approved Supplier/Contractor the Resident Manager will complete a supplier/contractor Assessment Form and keep them on file.
3.2 **Action in the event of unsatisfactory performance by an Approved Supplier/Contractor**

If the performance of an Approved Supplier/Contractor falls below the standard set by Fittons they shall be warned by the Resident Manager. This warning shall be recorded and if future performance of supply does not improve they shall not longer be an Approved Supplier/Contractor.

3.3 **Authorisation, and control of Approved Suppliers/Contractor**

The Resident Manager is responsible for keeping records of Approved Suppliers/Contractors up to date.

3.4 **Suppliers recommended by Clients**

If clients recommended the use of suppliers/contractors not authorised as Approved Suppliers/Contractors, the wishes of the client shall be respected. Experience gained from the transaction may be used to update the approval of the Supplier/Contractor.

3.5 **Record of Supplier/Contractor Usage**

Each time a Project Manager uses a Supplier/Contractor on an enquiry or to supply a product or service on a contract, a record shall be kept referencing the enquiry/job number and comments on performance. This information may then be used for future contracts.