Building Projects, Support Services
Imperial College London

Third Generation Framework Information Pack

December 2008
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Foreword

Welcome to the Third Generation Framework of Imperial College London. In the past year we have reviewed the achievements of the Second Generation Framework, measuring our performance as well as our framework partners. Through interviews with existing framework companies and consultation with our peers in Higher Education, we have found our framework arrangement to be very successful and we believe it is crucial to delivering high quality projects at Imperial College London.

The Second Generation Framework has delivered £204 million of building projects over the past four years, many of which have been technically challenging and set against the backdrop of a complex university environment. We applaud the enthusiasm with which you have embraced the framework ethos in the regular forums and the innovation on projects which has been achieved. Our focus for this generation is to reward good performers; to ensure we cover the range and speciality focus of all potential projects (we have added a speciality group); and to inject new blood into strategic areas. We look forward to the next four years of framework partnerships and continuing to lead the way in project delivery.

For our new partners, and as a reminder to the rest, this pack provides an outline to the framework, our policies and procedures and sources for further information.

Steve Howe, Director of Building Projects
1.0 Introduction

Imperial College London uses a framework of approved consultants and contractors to deliver all projects between the values of £100,000 and £15 million. The Framework is renewed on a four year basis, with the current Third Generation Framework running from November 2008 to November 2012. The partners covered under the current agreement are:

- Project Managers
- Cost Consultants
- Architects
- Structural Engineers
- Mechanical and Electrical Engineers
- CDM Coordinators
- Building Contractors
- Mechanical and Electrical Contractors
- Approved Inspectors
- Asbestos Management
- Lighting Suppliers

In addition to these main disciplines there is a Specialist Supplier group.

Projects under £100,000 are managed by an approved supplier list for minor works. Projects over £15 million will be tendered on an individual basis.

This pack aims to assist you in working with the College to deliver projects. It is not a comprehensive guide but hopefully will point you in the right direction for further information. When sourcing information such as Technical Policy Statements, Forms or Specification please refer to our website for the latest documentation.

If you have a general question about the Framework contact the Framework Manager, Zoë Mulholland on +44(0)20 7594 9680.
2.0 Third Generation Framework Structure

The Third Generation Framework is structured to allocate the appropriate framework partner to the appropriate net build cost band. This structure reflects framework partner’s preferred price range specialism.

2.1 Third Generation Framework Partners (Main)

<table>
<thead>
<tr>
<th>Net Build Cost</th>
<th>SMALL Up to £2m</th>
<th>MEDIUM £2m to £5m</th>
<th>LARGE £5m to £15m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortimer Isaacs Consultancy, Turner and Townsend</td>
<td>EC Harris</td>
<td>EC Harris</td>
<td>Turner and Townsend</td>
</tr>
<tr>
<td>COST CONSULTANTS</td>
<td>Gleeds, Davis Langdon LLP</td>
<td>Henry Riley, EC Harris</td>
<td>Mortimer Isaacs Consultancy, Gleeds</td>
</tr>
<tr>
<td>ARCHITECTS</td>
<td>Sheppard Robson</td>
<td>Swanne Hayden Connell Ltd</td>
<td>Swanne Hayden Connell Ltd</td>
</tr>
<tr>
<td>STRUCTURAL ENGINEERS</td>
<td>Curtins Consulting Engineers Plc</td>
<td>Curtins Consulting Engineers Plc</td>
<td>Adams Kara Taylor</td>
</tr>
<tr>
<td>MAIN CONTRACTORS</td>
<td>ISG InteriorExterior Plc, 8Build</td>
<td>Hoare Lea, Troup, Bywaters &amp; Anders</td>
<td>ISG InteriorExterior Plc</td>
</tr>
<tr>
<td>M &amp; E ENGINEERS</td>
<td>Crofton Design</td>
<td>Crofton Design</td>
<td>Hoare Lea</td>
</tr>
<tr>
<td>MAIN CONTRACTORS</td>
<td>ISG InteriorExterior Plc, Parkeray Lite, Quest Interiors, Russell Cawberry, Vivid Interiors</td>
<td>ISG InteriorExterior Plc, Parkeray Lite, Quest Interiors, Russell Cawberry, Vivid Interiors</td>
<td>Leadbitter, Modus Interiors Ltd, Parkeray, Wallis Kier</td>
</tr>
<tr>
<td>M &amp; E CONTRACTORS</td>
<td>Elecro Ltd, Gratte Brothers (Special Services Team), ISS Advance, Longcross Group Ltd, T Clarke Plc, W &amp; L Installations Ltd</td>
<td>Gratte Brothers (Special Services Team), ISS Advance, Longcross Group Ltd, T Clarke Plc, W &amp; L Installations Ltd</td>
<td>Axima Building Services Ltd, Imtech Meica, Longcross Group Ltd, T Clarke Plc, W &amp; L Installations Ltd</td>
</tr>
<tr>
<td>CDM COORDINATORS</td>
<td>Construction Project Services UK Ltd, Heery International Ltd, PCM Safety Management Ltd</td>
<td>Construction Project Services UK Ltd, Heery International Ltd, PCM Safety Management Ltd</td>
<td>Heery International Ltd, Heery International Ltd, PCM Safety Management Ltd</td>
</tr>
<tr>
<td>ASBESTOS MANAGEMENT</td>
<td>MLM Building Control Ltd</td>
<td>MLM Building Control Ltd</td>
<td>MLM Building Control Ltd</td>
</tr>
<tr>
<td>LIGHTING SUPPLIERS</td>
<td>Thorn Lighting Ltd, Whitecroft Lighting Ltd, Quantum Teknik Ltd</td>
<td>Thorn Lighting Ltd, Whitecroft Lighting Ltd, Quantum Teknik Ltd</td>
<td>Thorn Lighting Ltd, Whitecroft Lighting Ltd, Quantum Teknik Ltd</td>
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<tr>
<td>BMS CONTRACTORS</td>
<td>Powell Systems Engineering Ltd, Quantum Teknik Ltd</td>
<td>Powell Systems Engineering Ltd, Quantum Teknik Ltd</td>
<td>Powell Systems Engineering Ltd, Quantum Teknik Ltd</td>
</tr>
</tbody>
</table>
2.2 Third Generation Framework Partners (Specialist)

The Third Generation Framework now incorporates a Specialist Supplier category for those framework partners who have particular expertise in laboratory design and other niche areas.

<table>
<thead>
<tr>
<th></th>
<th>NAME</th>
<th>DISCIPLINE</th>
<th>SPECIALISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>SPECIALIST</td>
<td>Gardiner &amp; Theobald</td>
<td>Infrastructure</td>
</tr>
<tr>
<td></td>
<td>Tilney Shane Ltd</td>
<td>Project Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interior Design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Walter Lilly &amp; Co Ltd</td>
<td>Main Contractor</td>
<td>Specialist Laboratories</td>
</tr>
<tr>
<td></td>
<td>The Austin Company</td>
<td>M&amp;E Engineer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mechanical Services Ltd</td>
<td>M&amp;E Contractor</td>
<td>Specialist Laboratories</td>
</tr>
</tbody>
</table>

For the full list of contact details visit the website contacts page.

2.3 Framework Management Group

2.3.1 The Framework Management Group (FMG) was set up to encourage good communication amongst framework partners and to provide feedback to the College. One Framework Manager from each consultant and contractor group will represent their discipline raising issues and reporting on best practice initiatives.

2.3.2 Membership

Imperial College: Zoë Mulholland (Chair), Steve Howe, Angus Stephen, Roy Dickerson, Chris Cook and Dan Curtis.

Framework Partners
- Project Managers: Mike Joshua, Arup
- Architects: Roger Stretton, Berman Guedes Stretton
- Cost Consultants: Chris Boyce, Davis Langdon
- M & E Engineers: Chris Dunlop, Troup, Bywaters & Anders
- Structural Engineers: John Caine, Curtins Consulting
- Building Contractors: Paul Fitzpatrick, Parkeray
- M & E Contractors: Geoff Jacob, W&L Installations
- CDM Coordinators: Paul Yazdabadi, PCM Safety Management
- Lighting Suppliers: Mark Vincent, Future Designs

The membership will be reviewed and renewed periodically.
2.3.3 FMG Calendar
Chair: Zoë Mulholland, Imperial College London
- Tuesday, 13 January 2009
- Tuesday, 24 March 2009
- Wednesday, 17 June 2009
- Tuesday, 22 September 2009
- Tuesday, 8 December 2009

All meetings will be held at 2.00pm in Estates, Meeting Room 1, Sherfield Building, South Kensington campus.

2.4 Framework Sub Groups

Prior to the FMG framework representatives hold a Sub Group meeting with their contemporaries. The FMG meets quarterly with each discipline’s Sub Group meeting held two weeks in advance of the FMG.

2.4.1 Project Managers’ Group Calendar
Chair: Mike Joshua, Arup
- Thursday, 8 January 2009
- Monday, 16 March 2009
- Monday, 8 June 2009
- Monday, 14 September 2009
- Monday, 30 November 2009

2.4.2 Architects’ and Structural Engineers’ Group Calendar
Chair: Roger Stretton, Berman Guedes Stretton
- Monday, 8 December 2008
- Tuesday, 15 March 2009
- Wednesday, 10 June 2009
- Tuesday, 15 September 2009
- Tuesday, 1 December 2009

2.4.3 Cost Consultants’ Group Calendar
Chair: Chris Boyce, Davis Langdon
- Wednesday, 7 January 2009
- Wednesday, 18 March 2009
- Wednesday, 10 June 2009
- Wednesday, 16 September 2009
- Wednesday, 2 December 2009
2.4.4 M &E Engineers’ Group Calendar
Chair: Chris Dunlop, Troup, Bywaters & Anders
- Tuesday, 16 December 2008
- Thursday, 12 March 2009
- Thursday, 4 June 2009
- Thursday, 3 September 2009
- Thursday, 26 November 2009

2.4.5 Building Contractors’ Group Calendar
Chair: Paul Fitzpatrick, Parkeray
- Friday, 9 January 2009
- Tuesday, 10 March 2009
- Wednesday, 3 June 2009
- Tuesday, 8 September 2009

2.4.6 M & E Contractors’ Group Calendar
Chair: Geoff Jacob, W&L Installations
- Monday, 12 January 2009
- Monday, 23 March 2009
- Tuesday, 16 June 2009
- Monday, 21 September 2009
- Monday, 7 December 2009

2.4.7 CDM Coordinators’ Group Calendar
Chair: Paul Yazdabadi, PCM Safety Management
- Friday, 12 December 2008
- Tuesday, 10 March 2009
- Wednesday, 3 June 2009
- Tuesday, 8 September 2009
- Tuesday, 24 November 2009

2.4.8 Lighting Suppliers’ Group Calendar
Chair: Mark Vincent, Future Designs
- Friday, 9 January 2009
- Tuesday, 3 March 2009
- Wednesday, 3 June 2009
- Wednesday, 2 September 2009
- Wednesday, 11 November 2009
3.0 Support Services Structure

3.1 College Organisation Chart

Below is the College Organisation Chart. Research and teaching are organised and delivered within three Faculties (Engineering, Medicine and Natural Sciences), plus the Imperial College Business School and Humanities. There are a number of Administrative Divisions that provide the operational services to support research and teaching at the College. Many of these fall within the Support Services Division and include Building Projects, Commercial Services, Facilities Management, Finance, Human Resources, Information and Communication Technologies, and Property Management. The Support Services Division is led by the Chief Operating Officer, Dr Martin Knight.

http://www3.imperial.ac.uk/pls/portallive/docs/1/49953725.PPT

3.2 Building Projects Organisation Chart

Building Projects consists of four sections (Project Management, Engineering, Procurement and Knowledge Management) which are shown on the organisational chart. Each section has responsibility for various aspects of the project process.
3.3 Roles and Responsibilities

3.3.1 Director of Building Projects
The Director of Building Projects is responsible for all Capital Works; a portfolio in excess of £100m per annum. Major Projects that he has a particular focus on include Eastside Student Accommodation, and the South East Quadrant project on Exhibition Road. Responsibilities also include overseeing of Procurement, Quantity Surveying, Engineering and Information and Liaison functions as well as Management responsibility for all Department staff.

3.3.2 Assistant Director of Building Projects
The Assistant Director of projects is responsible for all project management functions within the department as well as Health and Safety and Planning. This includes day to day project management and overseeing of Framework Projects between £3.5m and £20m. Responsibilities also include management of Block ‘L’ at Hammersmith Campus, external Project Managers and managing stakeholders’ expectations.

3.3.3 Internal Project Managers
The in-house Senior/Project Managers work across all departments and facilities managing projects from inception to completion, assisting with client briefing, design standards, interface with college maintenance and duty holders and oversees on site activities. They also act in an advisory capacity with Building Managers on managing small projects.

3.3.4 Building Projects Planning Manager
The Building Projects Planning Manager’s role is to:
- Draft the approved Major Projects Programme.
- Draft the resource programmes for: Architects, M & E Consultants, Consultant QS, Main Contractor, M & E contractors.
- Draft sundry project programmes – generally minor works (projects worth less than £250k).
- Maintain and monitor the Long Term Maintenance Programme.
- Coordinate the Project Approval Meeting.
- Liaise with the College Project Management Office.
- Administer Building Project Procedures
- Be Gateway ‘Keeper’.
- Maintain the Imprest Projects Database.

3.3.5 Construction Safety Manager
The Construction Safety Manager’s role is to:
- Advise those responsible for construction works on the legal compliance for undertaking the work to comply with the construction (Design and Management) Regulations 2007 (CDM) and all other construction related legislation.
- Act as a nominated project “Technical Advisor” responsible for reviewing designs at key stages to ensure safety issues are adequately dealt with and designs generally comply with College policies.
- Monitor the role of the Framework CDM Co-ordinators and develop working practices to ensure compliance with the CDM Regulations and industry best practice.
• Undertake Safety Induction meetings with contractors, prior to works commencing.
• Undertake site safety inspections as part of a monitoring process of contractor’s safety management performance.
• Investigate serious construction related accidents and incidents and over 3 day “Reportable” accidents and report to the Assistant Director on the outcomes.
• Agree a strategy with the Framework Partners to systematically monitor, audit and review construction related safety management processes and on-site activity, with a view to developing best practice procedures in line with HSE guidance.

3.3.6 Engineering Manager
The Engineering Team, under the direction of the Engineering Manager, develops services strategies and establishes mechanical and electrical engineering services standards for the College. In addition, the Engineering Team’s functions include:

• Review consultant and contractor designs for technical compliance.
• Attend design team and site meetings.
• Advise on technical issues (external designers, project managers, contractors, and maintenance).
• Carry out site inspections.
• Provide technical assistance to Building Managers and others carrying out projects.
• Project Manage infrastructure services upgrade projects for the College.
• Liaise with Maintenance, Fire, Security, ICT and Energy departments to develop co-ordinated strategies and strengthen lines of communication.

In addition, the CAD Team is responsible for:
• Managing all the Computer Aided Drawings (CAD) across the College for all campuses.
• The CAD Team uses electronic record drawings received from completed projects to update the main College Drawing Database.
• Drawing up the plans for the monthly ‘South Kensington and Hammersmith Co-ordination Meeting’ and assist with co-ordinating the activities across the site with contractors.
• Producing the College Project Notices warning of impending and current works.
• Providing technical support to the Engineering Team through the production of Technical documents.
• Pythagoras and AutoCAD, to keep an up to date record of College buildings.

3.3.7 Knowledge Management
The Building Projects support functions are performed by the Knowledge Management Section. Support functions include:

Administration Support. Administration support includes assisting with project planning; producing post project reviews; arranging meetings; drafting correspondence, minutes and reports; and maintaining various departmental databases.

Communications. The Project Information Manager is responsible for the editing and issue of all department communications which include Framework Bulletins, Project Fact Sheets and Major Project Signboards. Other responsibilities include publication and content management of the website.
Framework Management and Reporting. The Framework Manager will issue and update information on the Framework Management Group, collate and analyse information for Key Performance Indicators and issue the Framework newsletter.

Records Management. All project and building information is managed by the Archives Assistant (Projects) and can be produced in various formats from our archive. Advice can also be given on manual production, the department’s records management policy and the procedures to be followed for delivery of information at project end.

3.3.8 Procurement
The purpose of the Procurement function is to identify the best procurement strategy and then the best framework consultant team and contractor tender list to construct a building project; thereafter to ensure that College procurement regulations are respected.

The Procurement Manager has particular responsibilities for commercial matters, procurement and cost management in connection with the built environment; together with all framework arrangements, design standardisation and supply chain integration.

This includes:
- Quantity Surveying duties pre and post contract for smaller projects
- Checking/approval of orders and invoices.
- Opening and reviewing tenders.
- Cost estimating.
- Checking contract documents for sign off.

The Assistant Quantity Surveyor works within the Procurement function to:
- Assist with the provision of cost estimates for construction work in Support Services.
- Assist Support Services project managers in providing pre and post contract QS services for smaller projects.
- Assist in developing and maintaining a cost database for projects.
- Assist in the development and management of a Small Works Framework.

The Procurement Assistant supports purchasing within Building Projects by:
- The entering of online orders as requested by Project Managers.
- Checking invoices received; ensuring that purchase order stated is correct.
- Tracking and chasing of orders and invoices through the approvals procedure as required.
- Acting as first point of contact between Estates, Accounts Payable and Suppliers in case of query or dispute.

The Procurement Assistant also has responsibility for the following:
- Obtaining a College Identity (CID) number for new Project Managers and Estates Finance Staff.
- Setting up access for new Project Managers on to the College’s finance system, ICIS (Imperial College Information Systems).
- Setting up access to new cost centres/activity codes for Project Managers on ICIS.
- Arranging ICIS training for Project Managers and Estates Finance Staff, and giving day-to-day user advice on the College’s online ordering system “iProc” and ICIS.
- Compiling Estates Building Projects encumbrance reports (i.e. Purchase Orders only)
Should you have any other Procurement query please contact the Procurement Assistant, Susan Goss (s.goss@imperial.ac.uk), who will be happy to help.

3.3.9 Finance
Building Projects, Facilities Management and Property Management Divisions were previously collectively known as Estates. The (Estates) Finance Section supports all three divisions with their current spend of circa £160m per annum.

The team currently consists of:
- Estates Finance Manager – Maria Knight
- Operational Accountant – Adrien Laure
- Capital Accountant – David Langman
- Assistant Accountant – Capital and Operations (appointment to be confirmed)

The Capital Projects annual budget is currently £115m. The main tasks that (Estates) Finance are responsible for:
- Attending the monthly Portfolio Review Board (PRB) meeting to provide financial support.
- Allocation of Project Account Codes once a Project has been properly authorised by either PRB or Council.
- Calculation of monthly Finance Accruals that are posted into the Finance System in order to portray the latest estimate of Value of Works Completed on Projects.
- Production of Monthly Management Accounts for Central Finance for inclusion within Management Board Papers.
- Production of Monthly Project Manager Reports to provide a record of all Financial Activity on the Projects. These Reports are currently being updated to include Purchase Order Activity. It is hoped that these Reports help the Project Managers to identify any issues so that remedial action can be taken where necessary before the Project completes.
- Liaison with Building Projects Director & Assistant Director to ensure that Finance always have the latest view of Total Project Outturn in order that any potential overspends are identified early and correctly accounted for in the Capital Forecast.
- Production of the Annual Capital Budget, regular Forecasting and Five Year Strategic Plan for Central Finance.

The Operational Accounting area supports the three divisions and looks after a substantial part of the day-to-day expenditure. The main tasks covered are:
- Production of Monthly Reports for the Budget Holders regarding Actual Operating Expenditure versus Budget/Forecast highlighting areas at risk of overspending and advising on any necessary corrective action.
- To produce the Annual Operational Budget, Half Year Forecast and 3 Year Strategic Plan.
- Implementation and development of Performance Analysis and Reporting for all areas of Facilities Management.
3.3.10 Facilities Management
Facilities Management provides day to day support for all College users and the smooth running of all facilities.

Senior Facilities Management Organisation (Chart 1)
Below you will find the Senior Facilities Management organisation chart.

Building Operations Organisation Chart (Chart 2)
Kevin Cope heads Building Operations. The organisation chart lists the Building Managers and Assistant Building Managers.
Maintenance Organisation (Chart 3)
The Maintenance team led by Chas Guirey provide and manage a building maintenance service for all College users, students and staff. The Maintenance structure by Building/Campus can be found below.

Maintenance Structure

3.3.11 Technical Advisors
Technical Advisors are key professional staff within the College who must be consulted on the design proposals and options for all projects managed by the Building Projects and Facilities Management Divisions. The current College Technical Advisors are as follows:

- Energy Manager
- Maintenance Manager
- Construction Safety Manager
- Engineering Manager
- Disabilities Officer
- Network & Infrastructure Manager (ICT)
- Security Officer
- Fire Officer
- Safety Director
3.3.12 Building Managers

**Sir Alexander Fleming (SAF), Flowers, RCS1, Chemistry or Wolfson Buildings**
Anna McDadd – Building Manager
Zia Rahman – Assistant Building Manager

**Royal School of Mines (RSM), Bessemer, Mechanical Engineering, Tanaka, Princes Gate Buildings**
Guy Fairhurst – Building Manager
Zia Rahman – Assistant Building Manager

**Electrical Engineering, Skempton, Sherfield, Library, Faculty Buildings and Boiler House**
John Grover – Building Manager
Wilson Rios – Assistant Building Manager

**Huxley, Blackett, ACE, William Penney, Roderic Hill, Union Shop**
Peter Schreiber – Building Manager
Wilson Rios – Assistant Building Manager

**Commercial Services, 170 Queens Gate, Prince’s Gardens**
Joanna Fownes – Building Manager
Richard Pasola – Assistant Building Manager

**Hammersmith Campus, Burlington Danes**
Christine Hobbs – Building Manager
Darsi Wickham – Assistant Building Manager

**Brompton, St Mary’s, Charing Cross, Chelsea & Westminster Campuses**
Sara Muir – Building Manager (Brompton, Charing Cross, St Mary’s)
John Barnes – Assistant Building Manager (Brompton, Charing Cross, St Mary’s)

**Silwood Park Campus**
Julie Pinhorne – Building Manager
Richard Pasola – Assistant Building Manager

**Wye Campus**
David Traske – Building Manager
Richard Pasola – Assistant Building Manager
4.0 Procurement

4.1 Form of Contract

All framework partners in all disciplines sign a Framework Agreement with the College based on NEC2 form (ECC for contractors, PSC for consultants) with some amendments. This agreement forms a template for all construction works under the Framework; for each project, the project specific details, contract data and both parties’ sign up are entered into the set template. Terms and conditions are all pre-agreed.

The ethos of Imperial College London is that the contractor has as much information as possible at tender to fully appreciate the scope of works and that, post contract all changes are agreed promptly on a rolling final account basis. To expedite this, feasibility studies and extensive surveys are conducted prior to design and the design is taken to Stage E plus for tender. Where possible, occupants are decanted and areas stripped out first to present the contractor with a clean space. Residual risk can then be assessed by means of a budget risk register. The College seeks to minimize risk and transfer risk at the appropriate time. With NEC2 all changes with time and cost implications are agreed and closed out in a timely manner through the currency of the project.

It really is important to the College that all changes with time, cost and quality implications are dealt with and agreed as the build progresses. Building Projects deliver projects to programme and budget; time and cost claims stored for the end of a project are unacceptable.

For Minor Works (i.e. £50,000 to £500,000 build costs), a simpler form of contract is often used, especially where there is minimal design input, for example redecoration of residences.

4.2 Project Tendering

Once a project is approved after feasibility, it is discussed internally how best to resource the design. This boils down to who are the best consultants for the project, who has experience of the building and the staff available at the time. We try to build the best consultant team for the project.

4.3 Mini Tenders

With contractors, a mini tender list is chosen that presents a good fit between the project requirements and the contractor’s capabilities, being also mindful of workload across the Framework. Typically three main contractors and three M&E contractors will be shortlisted and we check to ensure that the contractors have the resource to take on the build. On larger projects main contractors and M&E contractors are invited to attend a briefing at Stage D, where the designers present the scheme and identify the particular challenges. An edited Stage D report is issued at the meeting. The intent here is to engage interest ahead of the Stage E plus tender, so that tenderers can assess how the build can be resourced and programmed.
At Stage E plus, tenders go out simultaneously from the cost consultants to the main contractors and M&E contractors. M&E contractors return tenders to the main contractors AND the cost consultant. This is done to give visibility of pricing and to ensure that tenders are reasonably complete and compliant. Ultimately, it is the contractor’s choice who they partner with, the returned tender from the contractor is fully compliant, with all additions for attendances, BWIC and OHP.

4.4 Fast Track Tenders

Mini tenders are carried out where time permits, however, sometimes projects can be very programme driven, or there is much to be gained from early contractor inputs. In this case, tender action with the most appropriate contractor may be the chosen route. Again it is down to a mix of who has the resource available, who is already working in the vicinity, and who is most capable at the type of fast track refurbishment. Budget costs are given at the start of the project and negotiated as the works progress.

4.5 Design and Novation

After tender at Stage E plus, the contractor takes on all design responsibility (including Stages A-E). This was achieved on earlier projects using Employers’ Works Information, Contractors’ Works Information and novation. Also the designer would be appointed supervisor post contract. The College has reviewed the feedback from the framework and reappraised the novation principles as set out below.

On projects in the range £2m to £10m, as a general rule the architect and structural engineer are novated but the services engineer is not. All three consultants are retained also as supervisors post contract. If the contractor wishes to work with the services designer post contract to develop production drawings, then this is fine, albeit as a domestic consultant rather than novated designer. The College has now put in place a consultant to contractor warranty in cases where design is not novated. As noted on smaller projects, the College tenders on more basic design, using the Small Works Form, with contractor design inputs as required. Imperial College London strives to be fair, open, honest, reasonable and accountable. The College strongly embraces the collaborative working ethos. The best projects are built by the best teams!

4.6 Payment System

Once the contract has been awarded the next Procurement stage is to arrange for payment. At Imperial this is done through the issuing of a purchase order.
4.6.1 Purchase Orders
The Project Manager is responsible for ensuring that all Purchase Orders are raised in good time. All works and fees undertaken by framework partners should be paid by purchase order. The purchase order will state the College project reference (i.e. ABCD1234), project manager name (including telephone number and email address), an appropriate delivery address, and concise instructions regarding the works requested.

The use of purchase orders ensures that works are charged to the appropriate project-specific account codes within the College. At Imperial College London, account codes are made up of three major segments: cost centre, activity code and analysis code.

In the case of Building Projects:
- Cost centre: indicates where project funding has been obtained.
- Analysis code: indicates whether a project is classified as a Capital (a.k.a. “Z Code”) or Revenue (a.k.a. “N Code”) project, as per the College’s asset register.

4.6.2 Invoicing Procedure
The other main aspect of the College’s payment system to note is Imperial’s invoicing procedure. In a nutshell the following details are worth noting:
- If you have no purchase order number, please chase the project manager.
- All companies have 25 day payment terms.
- All invoices for the College should be sent to:
  Accounts Payable
  3rd Floor, Sherfield Building
  Imperial College London
  Exhibition Road
  London SW7 2AZ

- Invoices relating to Building Projects should identify the:
  a. Project Manager.
  b. Project Reference Number.
  c. Purchase Order Number.

Following the above procedure ensures that invoices can be tracked, authorised, and paid within our terms of payment.

4.6.3 Payment Queries
The first point of call for payment queries is the Building Projects Procurement Assistant. The Procurement Assistant works as the Building Projects’ Purchasing and Accounts Payable liaison and currently has responsibility for the following:
- Processing of all Estates Building Projects invoices over £10k (i.e. ensuring they are signed-off and correctly matched against purchase orders, which in turn must be correctly coded).
• Processing of all Estates Building Projects invoices under £10k where there is a problem with coding/purchase orders.
• The amending of purchase orders for external Project Managers (internal Project Managers should be able to amend their own orders).
• The cancelling/closing of purchase orders for all Project Managers (currently Project Managers are not able to do this themselves).

The processing of invoices and purchase orders via the Building Projects Procurement Assistant is a guarantee that they will be processed correctly, on time and with an audit trail. All financial paperwork is hand delivered/collected by the Procurement Assistant throughout the college.
5.0 Project Management

The College’s senior management has prioritised the establishment of effective, professional, and standardised project management procedures. It has been agreed that standardised terminology and procedures be applied to all major projects and others where such an approach is helpful. The Building Projects website provides guidance on the practices, tools and available resources to support effective project management at Imperial.

5.1 Project Process Map

Project Management procedures have been developed for use on Building Projects schemes by a team of senior Building Projects staff and external specialists with experience from a wide variety of building and engineering projects. The procedures are based on Atkins Group guides incorporating best practice from industry and research initiatives. They also reflect the requirements of the Office of the Government and Commerce (OGC) Gateway Process and BS6079: 2000 Project Management as well as PRINCE2 methodologies.

The Project Process Map (shown below) can be found via the Project Procedures page on the Building Projects website. The map provides guidance as to College requirements for the development of projects with each dialogue box acting as a hyperlink that leads to the appropriate detailed project process. These procedures require Gateway Reviews to be undertaken at the end of four key stages in the project lifecycle or ‘gates’ through which the project must pass. The Project Board provides approval for the project to proceed through the gateway while the gateway at the end of the Project Appraisal Stage requires approval from the Imperial College Portfolio Review Board (PRB) for capital funding.

Project Management procedures reflect the current Building Project Division practice of employing framework partners to deliver the majority of projects with a construction cost of less than £15m.
The Project Stages align in general terms with the RIBA Stages as shown below:

<table>
<thead>
<tr>
<th>ICL Project Stage</th>
<th>RIBA Stage</th>
<th>Task / Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Appraisal A &amp; B</td>
<td>A &amp; B</td>
<td>Inception, Funding and Design</td>
</tr>
<tr>
<td>Project Proposals C</td>
<td>D &amp; E</td>
<td>Development</td>
</tr>
<tr>
<td>Project Design</td>
<td>G &amp; H</td>
<td>Tender Documentation and Tender Action</td>
</tr>
<tr>
<td>Construction Phases F, J, K</td>
<td>Delivery</td>
<td></td>
</tr>
<tr>
<td>Post Construction L</td>
<td></td>
<td>Post Construction</td>
</tr>
</tbody>
</table>

The following eight Project Processes apply to all Imperial College Building Projects with a value over £5,000: Development Management, Evaluation and Approval, Design Management, Cost Management, Procurement Management, Health and Safety, Implementation and Control, and Commission and Handover. It is important that all framework partners take the time to review these processes and fully understand their requirements as important information is contained here that is required for successful completion of projects.

5.2 Revised Project Processes

The following processes have recently been revised:

5.2.1 Technical Advisors Group

For the last few years the College has reviewed the quality of projects using the Duty Holders Review Process. This is currently being updated slightly to create a more proactive forum for the review of projects. There will be a Technical Advisor Group (TAG) Meeting every few weeks attended by all the Technical Advisors (previously known as Duty Holders) or their representatives where projects will be presented to the TAG by Project Managers and their project teams. More details of this revised process will be issued and posted on the website soon.

5.2.2 Post Project Reviews

Turner & Townsend have developed this process as part of the second generation Initiatives and this will be posted on the Building Projects website soon. Essentially every project is required to undergo a Post Project Review (PPR) with the aim of generating lessons learnt. These lessons will then be collated and disseminated through the framework to seek to promote collective learning and continuous improvement of the project process.

5.3 M&E Supervisor Role

The framework M&E Engineer’s Supervisor duties have been amended in a number of areas, including the following:

- The duties commence on appointment of contractor.
- Managing the activities of the Independent Validation Engineer.
- Taking the lead in driving the commissioning and completion of the engineering services
For all projects with a College appointed design team, the appointment of an M&E Engineering Supervisor is to be regarded as the default position. The Supervisor will be selected from one of the framework M&E Engineering companies. For each project, the College reserves the right to appoint the M&E Company responsible for the original design (to College Stage ‘E’) to undertake the role of M&E Supervisor.

Subject to fulfilling the conditions set out below, the company responsible for undertaking the M&E Supervisor role may be appointed by the contractor to complete the post tender design development.

- The M&E company proposing to undertake the dual Supervisor/design development role, has submitted for approval to the Director of Building Projects, an organisation chart that sets out the separate reporting and organisational arrangements that will be applied to the project.
- The reporting and organisational arrangements include separate reporting structures up to and including director and senior management level for personnel designated to each of the design and Supervisor roles.
- Confirmation to proceed with the dual role has been received from the Director of Building Projects.

5.4 Independent Validation Engineer Role

The Independent Validation Engineer’s (IVE) Scope of Duties has been revised to align these with the M&E Engineer Supervisor duties. The duties have been issued and are now available on the Building Projects website (Bulletin Number: S/08/009). The Scope of Duties describes the duties and responsibilities of the IVE who will witness, certify and document the commissioning performance testing of the building services engineering systems. The document also includes an amended appointment and reporting procedure.

5.5 RAG Reviews

The College reviews its framework partners on a quarterly basis using a red, amber, green scoring system (RAG Report). These scores are based on a company’s performance in terms of time, cost, quality and resource allocation across all its work at the College. The score will be marked using a traffic system, where:

- Green: Meets or exceeds expectations with comments only being added to highlight best practice.
- Amber: Areas for concern and action is required to bring up to satisfactory level. Framework Managers would be encouraged to discuss the comments with the College. If a company remains on amber for four quarters in a row it will be converted into a red.
- Red: Significant performance issues; immediate action required. A meeting will be arranged with the director of the company.
Two additional categories exist to highlight exceptional performance:

- Green Star: outstanding project performance or contribution to the Framework.
- Black: Used only where there has been an incident or cause to suspend a company from the Framework until further review.

The results table will be published with only the traffic light scoring in an email Bulletin to all framework partners; the commentary will be sent by letter to the individual Framework Managers. By conducting the reviews on a quarterly basis, we hope lessons learned can be fed back into live projects to allow time for continuous improvement during the life of a project.

5.6 Health and Safety

Imperial College London considers Health and Safety of primary importance and during the Second Generation Framework has introduced the requirement for everybody who attends site to be Construction Skills Certification Scheme (CSCS) qualified. Also every site manager needs to have successfully completed the Construction Industry Training Board (CITB) Five Day Site Managers Safety Course and every supervisor should hold a CITB Two Day Safety Certificate. To ensure all those working on College sites have achieved a recognised level of Health and Safety awareness, the College insists that from 1 January 2009, all persons working on site must have registered and hold an appropriate card issued by the CSCS organisation. All framework partner contractors and those undertaking Minor Works must be registered with the Contractors Health and Safety Assessment Scheme (CHAS) or a similarly approved quality and competence monitoring organisation. This requirement is noted in the Safety Code of Practice (Construction) 2007 under Contractors Competence. For further information please refer to Framework Bulletins: A/07/002: CDM 2007 – The New Regulations Explained and A/08/005: Safety Code of Practice (Construction) 2007 on the Building Projects website.

Applying this requirement provides evidence that those organisations, who successfully register, have a working knowledge of current legislation and how it should be applied to their organisations day to day tasks. Registration with CHAS allows the College to develop and maintain an “approved contractors” list and reduces the bureaucracy involved in the pre-qualification process. The costs are minimal being £90 plus VAT for those employing less than five persons, and £160 plus VAT for organisations employing more than five persons. CHAS registration can be contacted through their website at: www.chas.gov.uk.
5.6.1 Accident Statistics and Key Performance Indicators
Currently the good work that the Building Contractors’ Group has been doing in controlling the levels of serious and minor injuries is not being captured and used to learn lessons, or to set targets for annual reviews. This is set to change and the Construction Safety Manager will be meeting with the contractors in December to agree the arrangements for monthly returns to commence end of January 2009. The discussions will review the merits of adopting either the annual “injury incidence rate” (based on the rate of accidents per 100,000 persons employed) or the “injury frequency rate” (based on the rate of accidents for every 1,000,000 hours of work undertaken) as the unit of measurement. Further information on these measures can be found in Health and Safety Executive’s document HSG65: Successful Health and Safety Management.

5.6.2 Inductions
The Day One Safety Induction is a college wide safety policy aimed at any member of staff, student or contractor who may expect to be on site for more than five days. The induction will be performed by a competent member of staff from the department concerned. The Building Projects contact is Denis Murphy djmurphy@imperial.ac.uk +44(0) 207 594 9626. A College identity card will only be issued on presentation of a completed Safety Induction Form, authorised by the competent member of College staff.

Prior to any contractor taking control of College property and commencing construction work, a project specific safety induction is undertaken by Building Projects’ Construction Safety Manager. Where construction work is considered to be straightforward and of low risk, the Project Manager may undertake this induction in consultation and agreement with the Construction Safety Manager. In all cases those attending should represent the contractor’s on-site management team, the College’s Building Manager and any other member of the College’s staff who may have a role to play during the construction period. These may include for example, representatives from the Building Maintenance Team, the College’s ICT, Fire and Security Departments. A standard agenda is utilised and those attending are obliged to sign an Induction Certificate that is subsequently held as a record of the meeting within the project file.

5.7 Project Documentation
The Knowledge Management section manages all project filing; building fabric manuals; operation and maintenance manuals; and drawings. This information must be delivered where necessary to the Archives Assistant (Projects) and is available on request.

5.7.1 Project Filing
All project managers are obliged to follow the Process Map Based Filing System which is available at www.imperial.ac.uk/buildingprojects/formsandtemplates. All projects have an electronic project file created on the College system. External project managers may use their own company filing system however information highlighted on the Process Map Based Filing System must be made available during the project on request. At project completion delivery of all highlighted documents must be delivered to the Archives Assistant (Projects) in CD format.

5.7.2 Building Fabric Manuals, Operation & Maintenance Manuals and Drawings
At project completion building fabric manuals; operation & maintenance manuals; and relevant as-built/as-installed drawings must be delivered to the Archives Assistant (Projects) within one month. These are all to be produced in compliance with College guidelines and the CAD strategy. The Archives Assistant on receipt is the final point of acceptance for the College.
6.0 Engineering

The College Engineering Team is formed of mechanical, electrical, controls and fire/security engineers, together with technical and drawing office support. The Engineering Team has a core role to develop and monitor the engineering strategies and standards for the College.

6.1 Technical Standards

Technical standards are developed in consultation with the Director of Projects and Director of Facilities Management. They include component standards and engineering performance specifications issued in the form of Technical Policy Statements (TPS), categorised as follows:

- Electrical
- Energy
- Fire
- Mechanical
- Security
- General

Component standards cover mechanical, electrical, fire and security services, and in addition, building fabric. If, on an individual project, it is considered that circumstances may prevent the application of one or more of these standards, the project manager must submit an Exceptions Report to the Engineering Manager and the Head of Maintenance for approval explaining the grounds for the deviation. No deviation is permitted without an authorised Exceptions Report.

6.2 Infrastructure Strategies

To address the requirement for a reliable and robust services infrastructure, the Engineering Team develops strategies to renew and improve where necessary. The replacement or upgrading of services infrastructure that is integral to individual buildings is generally identified and undertaken in conjunction with a partial or complete refurbishment of the building. The replacement or upgrading of services infrastructure that is common to a number of buildings is generally undertaken as a separate project, managed through the Engineering Team. The Engineering Team takes an active lead in ensuring that quality and reliability is built into the initial installations, and in their ability to be adequately and safely maintained.

6.3 Design Reviews

All designs, whether generated from within the College, or by external parties, are required to be submitted for technical review by the Engineering Team in accordance with the Project Process Map.
6.4 Technical Supervision
To enable the quality and consistency of the College’s engineering services to be controlled, all issues of a technical nature in connection with the College’s engineering services are referred to the Engineering Team. External consultants appointed by the College are encouraged to discuss and agree technical issues with the Engineering Team as they progress their designs.

6.5 Drawing Management
Drawings for all projects must adhere to the CAD standards. The standards are developed and maintained by the College CAD Team and can be found on the policy and standards pages of the Building Projects website, under CAD Strategy. The CAD Team also compiles and maintains an architectural drawing database and maintains all drawings on a space database known as Pythagoras. In addition, the CAD Team develops and prepares building, mechanical and electrical drawings for minor projects and conduct measured surveys to incorporate minor works changes.
7.0 Sustainability

Imperial College London, as a world class university, continually seeks to lessen its impact on the environment. To this end, the College has developed the following policies on energy, sustainability and site waste management.

7.1 Energy

The continued expansion and redevelopment of College sites and adoption of new technologies has lead to an increase in the College’s energy requirement. However, the College has a responsible approach to energy management, and seeks to meet this increased demand through energy efficient design which our framework partners are required to incorporate into their fabric and services design. The Energy Group, comprised of representatives from the College and our framework partners, meets regularly to develop the College’s energy policy and technical guidance. Up to date information on Energy Policy and Technical Policy Statements can be found on the Building Projects website.

One major aspect of energy efficient design is the adoption of renewable energy sources; the College is either currently using or considering the use of the following as part of all new build and large refurbishment projects:

- Absorption Cooling
- Combined Heat and Power
- Fuel Cells
- Grey Water Recycling
- Ground Source Cooling Systems
- Solar Water Heating
- Wind Power

7.2 Sustainable Design Practices

The College is committed to reducing its carbon footprint through the application of sustainable design practices and as part of this sustainability strategy has produced a specification and design “toolkit” for use by framework partners. The strategy champions the following:

- The utilisation of materials from a sustainable source.
- The reuse of existing materials wherever possible.
- The evaluation of new material’s carbon impact.
- The adoption of Life Cycle Reviews to ensure that the whole life energy performance of components and materials is factored into their selection.

The College seeks to achieve Building Research Establishment Environmental Assessment Method (BREEAM) Excellent on new build projects along with an A rated Display Energy Certificate (DEC). For refurbishment projects a minimum DEC rating of C is required.
7.3 Site Waste Management Plan Regulations 2008

The Regulations launched in April 2008 are the UK Government’s response to rising European concerns regarding the volume of construction waste ending up in landfill sites. The Regulations introduce the concept of good practice in Waste Minimisation and Management (WMM). Adoption of the waste hierarchy to reduce, reuse, recycle, recover and dispose makes good business sense for the College and its framework partners. A critical component for delivering good practice in WMM is the formulation and implementation of a Site Waste Management Plan at an early stage of a project to assisting planning approvals and set achievable targets for contractors. The College policy on Site Waste Management Plans has been approved and will be issued shortly.

The initial targets being set for all projects with a net construction value of £300k and above aims to ensure that 85% of all materials for disposal are either reused or recycled. Building Projects have worked closely with Turner and Townsend to develop a bespoke administration tool that will record the information being provided at tender stage and this tool will be made available to all framework partners involved in the process. The Building Projects Waste Management Coordinator will update the information provided from the contractor’s reports and will record the final outcomes, noting any differences between the initial targets set and those achieved.
8.0 Communications

Imperial College is a complex organisation and with over 40 framework partners good communication is essential. There are a number of ways this information is disseminated to the College and partners. These are:

- Website
- Framework Bulletins
- Project Fact Sheets
- Major Project Signboards
- Newsletter

8.1 Website

The website should be the first point of call for the most up to date information on construction projects at Imperial College London. The site contains information on each of the four sections that make up the Building Projects Division, their contacts, and areas of responsibility. The latest forms, documents, policy and procedures to be used with the projects can be sourced here as can links to relevant project areas. News articles on the Framework and project fact sheets can also be located within the website. The website is at: www.imperial.ac.uk/buildingprojects

8.2 Framework Bulletins

The Framework Bulletin system is used so that Framework partners may be kept informed of College, Divisional and construction project related changes and developments. The content for each Bulletin follows a standard format which is e-mailed to all framework partners and all relevant personnel. The Bulletins are uniquely referenced and created in four main categories:

- College and Statutory Requirements
- Project Management
- Specifications and Design
- Contract, Commercial and Cost Management

These will be issued by the Building Projects Division but all framework partners will have the opportunity to initiate Bulletins. The issuing officer will be the Project Information Manager, Trevor Watt and is identified on the Bulletin.
8.3 Project Fact Sheets

Through each stage of the project process the Building Projects Division ensures that the wider College community and general public are made aware of major projects currently being undertaken across the College campuses. These are published as the project commences and are then updated as the project progresses through each of the project management stages. The Fact Sheet contains project details such as information on the project team, location, start and end dates, and the main Framework participants involved in the project.

8.4 Major Project Signboards

With certain projects that have a greater impact and are more visible to the general College and local communities, Signboards are installed on the site hoardings to inform them about the works undertaken. The Signboards are only displayed after agreement at departmental Business Meetings and for projects that meet certain criteria. The Signboards contain information on the project and then advertises the main design team companies included.

8.5 Newsletters

On a quarterly basis Building Projects publishes a Newsletter to all Framework Partners. The Newsletter is aimed at providing information and highlighting construction industry, Imperial College, Building Projects and Framework Partner initiatives, developments and noteworthy project involvement. Although not a requirement, all Framework Partners are invited to submit an article which can be approximately 200-300 words which will give scope for editing and publishing. The Newsletter is your chance to promote your involvement in Framework and with other significant contributions you are making to the industry as a whole. Newsletter articles can be forwarded to Raj Sandhu r.sandhu@imperial.ac.uk +44(0)20 594 8959

The Information Team is managed by Trevor Watt trevor.watt@imperial.ac.uk +44(0)20 7594 8985.