A/E Consultant Handbook

Engineering Department

Facilities Engineering Services Section

April 2008

Fermilab

Fermi National Accelerator Laboratory

Office of Science / U.S. Department of Energy

Managed by Fermi Research Alliance, LLC

The primary objective at Fermilab is that operations be conducted in a safe, deliberate and controlled manner. The role of the FESS/E procedures is to provide the best knowledge available in order to accomplish the task.

This A/E Consultant Handbook provides a compilation of the FESS/Engineering policies and procedures specific to the utilization of A/E Consultants.

This A/E Handbook provides guidance for the A/E Consultant services and is intended as a supplement to the A/E subcontract. In all cases the A/E subcontract shall take precedence over the procedures in this A/E Consultant Handbook.

SECTION I **INTRODUCTION**

SECTION II **POLICIES**

FEP 2 – Safety	April 15, 2008
FEP 4 – Sustainability	April 15, 2008
FEP 5 – Tailoring	April 15, 2008
FEP 9 – Consultant Support	April 15, 2008

SECTION III **PROCEDURES**

5.3.5.1 – High Performance Buildings, dated April 15, 2008

7.4.5.1 – AE Consultant Progress Reporting, dated April 15, 2008

8.3.5.1 – Document Reviews, dated April 15, 2008
8.3.2.1 – Construction Document Signoff, dated April 15, 2008
8.3.2.2 – Securing Construction Documents, dated April 15, 2008
8.4.5.1 – AE Quality Assurance, dated April 15, 2008

9.3.5.1 – AE Tasking, dated April 15, 2008

10.3.3.1 – Amendments, dated April 15, 2008
10.3.3.2 – Procurement Period Questions, dated April 15, 2008
10.3.5.1 – Meetings, dated April 15, 2008
10.3.5.2 – Project Correspondence, dated April 15, 2008
10.3.5.3 – Drawing Requirements, dated April 15, 2008

12.4.5.1 – AE Consultant Invoicing, dated April 15, 2008

1.0 Purpose

The purpose of this handbook is to establish basic procedures and technical standards for architectural and engineering (A/E) professional services provided to Fermilab. It is to supplement the Subcontract under which the A/E firm performs its services.

This handbook does not necessarily represent procedures and requirements in all aspects of performing the service. It is intended as a convenient source for FESS/Engineering personnel and the AE Consultant to find procedural and technical direction. The contents will from time to time be supplemented with updated procedures and standards.

This document is comprised of only general procedures and standards that apply to all construction projects at Fermilab. Specific detailed information about individual projects will be issued to the AE Consultant separately for each project

2.0 Definitions

For the purposes of this manual definitions are summarized below but are subordinate to the definitions stated in the A/E Services Subcontract.

2.1 "DOE" shall refer to The United States Department of Energy, the Owner of all facilities at Fermilab and the “Authority Having Jusridiction.”

2.2 The terms "Fermilab Research Alliance, LLC", "Fermi National Accelerator Laboratory”, “Fermi” and "Fermilab" may be used interchangeably and refer to the sole contractor to DOE for all operation and development of facilities at Fermilab.

2.3 The terms “AE Consultant”, "Consultant", "A/E Firm", or "A/E Subcontractor" shall refer to the Architectural/Engineering Subcontractor to Fermilab. Their personnel will be referred to as "representatives" for the purposes of this handbook. The term "Sub-Consultant" shall refer to A/E firms subcontracting to Fermilab's A/E Subcontractors.

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2.4 The "Project" shall mean the Scope of Services required from the Consultant as stated in the Task Order and/or Subcontract.

2.5 The titles "Project Manager", "Subcontract Administrator", "Engineering Department Head", “Project Engineer”, "Project Coordinator", and "Liaison" refer to Fermilab personnel where referenced in this handbook.

3.0 FESS/Engineering Procedures

The FESS/Engineering procedures are an established method of conducting the operation of the department that incorporates the best knowledge available. These procedures are the documented series of steps taken to accomplish the identified tasks.

The maintenance and distribution of the FESS/E procedures is the responsibility of the FESS/E Department Manager.

In order to better align with current Laboratory business practices, the FESS/E procedures incorporate applicable Department of Energy (DOE) and industry standards. While the use of these standards do not represent formal requirements, their use and reference is essential to the establishment of best identified practices in the FESS/E procedures.

The primary objective of DOE Order 413.3, *Program and Project Management For The Acquisition of Capital Assets*, is to provide “project management direction for the acquisition of capital assets that are delivered on schedule, within budget, and fully capable of meeting mission performance and environmental, safety, and health standards.” While the implementation of this order is required for projects with a Total Project Cost exceeding $20 million, FESS/E has chosen to incorporate these general principals in the execution of projects and the development of procedures.

The Project Management Institute (PMI) is a non-profit advocacy association for the project management profession. PMI defines project management as the “application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of a particular project”.” PMI publishes *A Guide to the Project Management Body of Knowledge* (PMBOK) that describes a system of process groups and knowledge areas that provide a framework for the management of projects.

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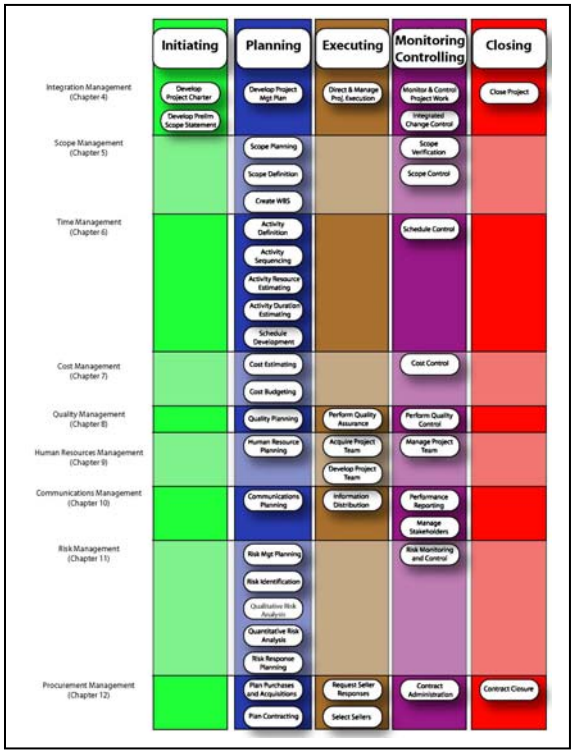
The process groups are:

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

The knowledge areas are:

1. Integration
2. Scope
3. Time
4. Cost
5. Quality Human Resources
6. Communications
7. Risk Management
8. Procurement

PMI combines these processes and knowledge areas into a process chart matrix as shown below.



DOE Order 413.3 utilizes a series

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of Critical Decisions to organize the development and execution of a project. This process, shown in the chart below, serves as the guidance for the organization of the FESS/E procedures.

PROJECT ACQUISITION PROCESS AND CRITICAL DECISIONS

Project Planning Phase		Project Execution Phase			Mission
Preconceptual Planning	Conceptual Design	Preliminary Design	Final Design	Construction	Operations

CD-0	CD-1	CD-2	CD-3	CD-4
Approve Mission Need	Approve Preliminary Baseline Range	Approve Performance Baseline	Approve Start of Construction	Approve Start of Operations or Project Closeout

See Page 2 for CDs on Environmental Restoration and Facility Disposition Projects

CD-0	CD-1	CD-2	CD-3	CD-4
Actions Authorized by Critical Decision Approval				
• Proceed with conceptual design using program funds • Request PED funding	• Allow expenditure of PED funds for design	• Establish baseline budget for construction • Continue design • Request construction funding	• Approve expenditure of funds for construction	• Allow start of operations or project closeout
Critical Decision Prerequisites				
• Justification of mission need document • Acquisition Strategy • Preconceptual planning • Mission Need Independent Project Review	• Acquisition Plan • Conceptual Design Report • Preliminary Project Execution Plan and baseline range • Project Data Sheet for design • Verification of mission need • Preliminary Hazard Analysis Report	• Preliminary design • Review of contractor project management system • Final Project Execution Plan and performance baseline • Independent cost estimate • National Environmental Policy Act documentation • Project Data Sheet for construction • Draft Preliminary Safety Analysis Report • Performance Baseline External Independent Review	• Update Project Execution Plan and performance baseline • Final design and procurement packages (**) • Verification of mission need • Budget and congressional authorization and appropriation enacted • Approval of Safety documentation • Execution Readiness Independent Review	• Operational Readiness Review and acceptance report • Project transition to operations report • Final Safety Analysis Report **After CD-4** **Closeout** • Project closeout report

(**) To the degree appropriate to initiate construction as scheduled.

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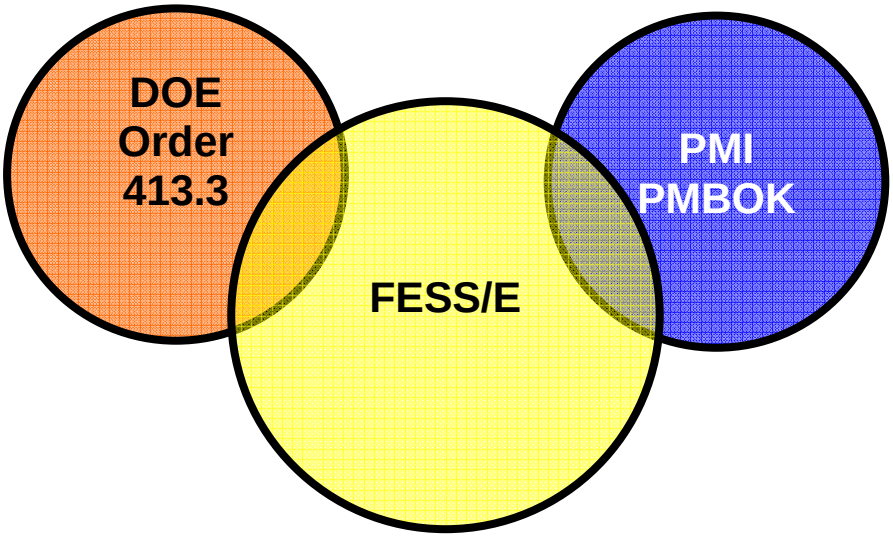
The FESS/E procedures provide a convergence of concepts contained in DOE Order 413.3 and the organizing principals of the PMI's Project Management Body of Knowledge (PMBOK).



4.0 FESS/Engineering Organization

Acting as Fermilab's in-house Architectural/Engineering (A/E) firm, the Engineering department of the Facilities Engineering Services Section (FESS) provides architectural and engineering services for conventional facility design and construction activities and oversees outside A/E Consultants.

The FESS/Engineering vision statement is to:

> *Provide facilities and infrastructure that meet the initial requirements of the physics community, incorporate flexibility to adapt to changing Laboratory programs, maximize uptime, are economical to construct, operate and maintain, are environmentally responsible, and provide for human comfort and a creative workplace atmosphere.*

The FESS/E vision statement supports the FESS mission of:

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> *Our mission is to establish and maintain a dependable base from which high energy physics and other Fermilab programs can be safely accomplished without interruption.*

As part of this mission, FESS/E works with internal customer division/sections to develop and execute projects related tasks in order to support the FESS and Fermilab missions.

FESS/E also provides project management skill sets for others projects (including design, inspection, progress monitoring and payment approval for construction activities).

5.0 Project Phases

Projects are classified by size and complexity according to the necessary phasing of design, production, approvals, bidding and construction. Phasing of projects is done in accordance with the requirements of the U.S. Department of Energy.

The phases described below follow the guidance of DOE Order 413.3

5.1 Project Planning Phase

The project planning phase consists of those activities that describe and document the strategic goals and objectives, safety planning and design. The Project Planning Phase usually consists of two (2) sub-phases as listed below.

5.1.1 Preconceptual Planning

This phase of the project approximates the Programming Phase as described by the American Institute of Architects (AIA) and is tailored to meet specific Fermilab requirements. The integrated project team documents the goals, needs, and function of the project including design expectations, budget and pertinent building code, site restriction and ES&H regulations. The integrated project team prepares a written statement setting forth design objectives, constraints, and criteria for a project, including special requirements and systems and site requirements. The integrated project team also prepares a preliminary estimate of the construction costs based on current area, volume, or other unit costs.

5.1.2 Conceptual Design Phase

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This phase of the project approximates the Schematic Design Phase as described by the AIA and is tailored to meet specific Fermilab requirements. If a project has completed the Preconceptual Planning Phase, the integrated project team reviews the previous documents before proceeding.

It is not unusual for a project to begin with a Conceptual Design phase in which the integrated project team documents the goals, needs, and function of the project including design expectations, budget and pertinent building code, site restriction and ES&H regulations. DOE Order 413.3 defines a Conceptual Design Report as "an integrated systems engineering effort that results in a clear and concise definition of the project." Also in this phase, the integrated project team documents the project requirements and prepares schematic studies, text consisting of a written statement setting forth design objectives, constraints, and criteria for a project, including special requirements and systems and site requirements, drawings and other documents illustrating the scale and relationships of the project components and site impact. The integrated project team also prepares a preliminary estimate of the construction costs based on current area, volume, or other unit costs. DOE Order 413.3 states that the "products produced by this planning phase provide the detail necessary to develop a range of estimates for the project cost and schedule."

5.2 Project Execution Phase

The Project Execution Phase usually consists of three (3) sub phases as listed below.

5.2.1 Preliminary Design

This phase of the project approximates the Design Development Phase as described by the AIA and is tailored to meet specific Fermilab requirements and is also been referred to in the past as the Title 1 phase. In this phase, the integrated project team prepares more detailed drawings and finalizes the design plans, showing correct sizes and shapes for spaces. The design plans indicate significant equipment and experimental apparatus, staging areas, and related ancillary spaces. Of key concern is the documentation of the design process including notes, sketches and calculation that detail the evolution of the design. Also included is an outline of the construction

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specifications, listing the major materials to be used, appropriate construction cost estimate and preliminary construction schedule.

5.2.2 Final Design Phase

This phase of the project approximates the Construction Document Phase as described by the AIA and is tailored to meet specific Fermilab requirements. In the past, this phase has been referred to as Title 2. In this phase, the integrated project team will produce the drawings, Exhibit A and Exhibit B (specifications) that set forth the detail requirements for the construction of the project. Also included are the detailed construction cost estimate and construction milestones.

5.2.3 Construction Phase

This is the Construction Phase of the project and has been known previously as Title 3. In this phase, the integrated project team provides professional engineering and architectural support for the construction of the project.

6.0 Fermilab Provided Services

Fermilab will provide the following services and information to support the A/E Consultant during the execution of the work.

6.1 Safety

The Consultant shall observe all Fermilab safety rules, regulations and procedures. Entry to any areas not open to the public must be arranged through FESS/E Contact. For on-site work where the Consultant will not be escorted by Fermilab employees, a Subcontractor Orientation Class and identification badging must be attended prior to beginning work. Other safety training specific to Fermilab may be provided by Fermilab.

Identification of required training will be established at the beginning of each project. The FESS/E contact will arrange for training specific to Fermilab as listed below:

- Subcontractor Orientation Class: This half-hour class consists of a video and retention of a card by each A/E

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Consultant employee to verify that the training has occurred. The training expires after 2 years.

- General Employee Radiation Training: This class may be required to enter certain areas of the Laboratory.
- Oxygen Deficiency Hazard: This one-hour class is required, along with a medical exam performed by Fermilab, for entry into areas where there is a potential for oxygen deficiency.
- Radiation Worker: This eight-hour class is necessary for entry into the Fermilab accelerator tunnels and other radiation areas.

Any standard construction industry training, such as confined space, OSHA, lockout-tagout, etc., shall be the responsibility of the A/E Consultant.

6.2 Access to Fermilab Documentation

FESS/Engineering has significant records on the facilities constructed at Fermilab. This information may include:

- Original design drawings;
- Shop drawings and related submittals;
- Monument and benchmark data;
- Vicinity and location plans;
- Underground utility data;
- Aerial Photos.

This documentation will be made available to the A/E Consultant at the beginning of a project. FESS/Engineering personnel will assist the A/E Consultant in locating information in project files and will provide existing raster or AutoCAD electronic files as the need is identified.

6.3 Soil Borings

FESS/Engineering has a large database of existing soil borings and reports from past projects, which will be made available to A/E Consultants on an as-needed basis.

As a project is initiated, the Project Engineer will decide with the A/E Consultant and the FESS/E Contact whether the existing soil information is adequate for a project. If additional information is

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needed, Fermilab will arrange for its geotechnical consultant to perform the necessary sampling, testing, and reporting, using design criteria developed from Fermilab and the A/E Consultant.

6.4 CAD/GIS Standards

It is expected that all drawings produced for Fermilab with comply with the FESS CAD and GIS standards. The intent of the CAD and GIS standards is to maintain uniformity in the creation of quality design and construction documents. The CAD and GIS standard documents are a FESS/E organizational asset that will be provided to the AE Consultant upon request.

6.5 Coordination

At the beginning of a project, the A/E Consultant and the FESS/E Contact shall together decide what information may be necessary to research a project. The A/E Consultant should plan to have its staff do some research in the FESS/E archives to aid in the identification of appropriate information. The FESS/E Contact will assist in copying and sending to the A/E Consultant any identified Fermilab documentation.

7.0 A/E Consultant Responsibilities

This section outlines responsibilities A/E Consultants may have when working on projects at Fermilab in addition to basic architectural and engineering design. As detailed below, some are applicable to all projects, while others may be required as part of the project specific tasking request.

7.1 All Projects

These services should be included as part of all projects:

7.1.1 Project directory: The A/E Consultant shall prepare and issue a project directory at the beginning of the project listing the members of the integrated project team including the FESS/E Contact, BSS/Procurement Contract Administrator, Project Coordinator, and representatives of the A/E Consultant and any Sub-consultants participating in the project. The Project Directory is to be distributed to all personnel listed.

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7.1.2 Research of existing files: The A/E Consultant shall utilize the Fermilab construction document archives with assistance from FESS/E Contact. The A/E Consultant shall advise Fermilab in writing of any additional information regarding existing conditions required for the project which are not available in the FESS/E records.

7.1.3 Field survey of existing conditions: The A/E Consultant shall make site visits as necessary to become familiar with the existing conditions. Such visits must be scheduled through FESS/E Contact. The A/E Consultant shall be responsible for making field measurements required to complete construction documents.

7.1.4 Meetings: The need for effective communication is identified as a key component for successful project. The A/E Consultant should include the provision for participating in project meetings in all proposals.

7.2 Project Specific Requirements

The following services may be necessary for some projects. If required, the Request for Proposal shall request the services:

7.2.1 Safety plan and hazard analysis: On projects that entail inspection or construction-type activities, the A/E Consultant shall provide a Safety Plan and Hazard Analysis of the work activities. Past projects that have required these include structural inspections and special testing where the A/E Consultants acts a prime consultant with other consultants acting under them.

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The complete FESS/Engineering procedures reside in the FESS/Engineering Policy Manual. The policies specific to the use of A/E Consultant services are contained within this handbook. All FESS/Engineering policies are available on request.

The A/E Consultant specific polices are listed below:

FESS/Engineering Policy 2 – Safety
FESS/Engineering Policy 4 – Sustainability
FESS/Engineering Policy 5 – Tailoring
FESS/Engineering Policy 9 – Consultant Support

FESS/Engineering Policy

Policy Name: **Safety and Environmental Protection**

Policy Identifier: FEP 2

Effective Date: April 15, 2008

Objective
FESS/E will perform design and construction in a safe and environmentally sound manner.
Applicability
Design, construction, and project management work under the direction of FESS/Engineering.
Policy Statement
FESS/E will systematically integrate excellence in environment, safety and health (ES&H) into the management and work practices of all activities at all levels so that safety is achieved while protecting the public, the workers, and the environment.
Responsibilities
All FESS/E employees shall fully comply with all procedures, instructions and directives contained in the Fermilab Environmental Safety and Health Manual (FESHM) in order to reduce or eliminate hazards in the workplace. FESS/E Department Head shall review procedures to ensure that FESS/E integrates environment, safety and health protection into all aspects of our work, utilizing the principles and core functions of the Integrated Safety Management System. FESS/E employees shall ensure that all required training is kept current. FESS/E supervisors shall ensure that all direct reports are current on all lab and departmental training requirements and that these requirements are documented in the ES&H Training database. FESS/E Department Head shall ensure that training requirements for all FESS/E employees are kept current and that training deficiencies are kept to a minimum.

References
Director's Policy Manual: http://www.fnal.gov/directorate/Policy_Manual.html Fermilab Integrated ES&H Management Plan: http://www-esh.fnal.gov/FIESHM_Plan/IESHM_113006.pdf Fermilab ES&H Manual: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=800 FESS Engineering Policy 5 - Tailoring
Other
None noted

FESS/Engineering Policy

Policy Name: **Sustainability**

Policy Identifier: FEP 4

Effective Date: April 15, 2008

Objective
Provide adequate stewardship of DOE assets.
Applicability
Design and construction work under the direction of FESS/Engineering.
Policy Statement
Fermilab incorporates sustainable design principals into the planning, design and construction of projects. This direction is taken from the Fermilab Director's Policy 3. Sustainability is broadly defined as the design and implementation of projects to simultaneously minimize their adverse environmental impacts, maximize occupants' health and well-being, and improve bottom line, life cycle, economic performance. The concept of sustainability is a desirable approach to development that recognizes that resources are limited, and that there is a responsibility of the present generation to preserve resources for future ones. The United States Green Building Council (USGBC) has developed the Leadership in Energy and Environmental Design (LEED) standard to provide guidance for builders who wish to incorporate sustainable elements into their projects. LEED for new construction (and remodeling) is a set of specific and quantifiable measures, each of which confers a credit towards certification of a project as a "LEED-certified" building. While Fermilab projects are generally not intended to become LEED certified, the project processes and each project element will be evaluated during the final design phase to reduce their impact on natural resources without sacrificing program objectives. The project design will incorporate maintainability, aesthetics, environmental justice and program requirements to deliver a well-balanced project. For General Plant Projects and other projects as appropriate, the implementation of guidelines is accomplished by the use of the LEED checklist throughout the life of the project.
Responsibilities
FESS/E Project Engineer will lead the implementation of this policy.

References
Director's Policy #3: http://www.fnal.gov/directorate/Policy_Manual.html#No_3 Executive Order 13423: http://www.whitehouse.gov/news/releases/2007/01/20070124-2.html Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding http://www.energystar.gov/ia/business/Guiding_Principles.pdf U.S. Green Building Council: http://www.usgbc.org/
Other
None noted

FESS/Engineering Policy

Policy Name: **Tailoring**

Policy Identifier: FEP 5

Effective Date: April 15, 2008

Objective
Provide a flexible approach to the level of detail applied to procedures based on the scale, complexity and particular nature of the activity.
Applicability
All FESS/E policies, procedures and standards that are not specifically mandated by law, DOE Order, or Fermilab Policies, except as provided by its self contained tailoring policy.
Policy Statement
Adjustments or applicability to the adherence of FESS/E policies and procedures shall reside at the level of authority and responsibility as determined by the organizations, documents and customs. In the tailoring approach, requirements are applied to a level of detail based on the size, risk, complexity or duration of the task. However, the tailoring is in the degree of detail, not in omitting the requirements altogether. Tailoring of policies and procedures shall be uniform for like or similar applications. Reasonableness standards shall be applied to adjudicate the appropriateness of tailoring.
Responsibilities
FESS/E Department Head will perform self assessment reviews on a tri-annual (or as necessary) basis to confirm consistency of tailoring within the department.
References
None noted
Other
None noted

FESS/Engineering Policy

Policy Name: **Consultant Support**

Policy Identifier: FEP 9

Effective Date: April 15, 2008

Objective
Establish fair and uniform guidelines for work with consultant firms.
Applicability
Design and construction work under the direction of FESS/Engineering.
Policy Statement
The following polices statements apply to the use of consultant architectural/engineering firms utilized to supplement the in-house FESS/E staff. 1. Selection and tasking of firms will be done in compliance with Business Services Section procedures. 2. Consultant firms selected by FESS/E will be managed by FESS/E. 3. FESS/E will not compete consultant firms on the basis of price.
Responsibilities
FESS/E Department Head will provide oversight and periodic review of use of consultant firms.
References
BSS/Procurement A/E Selection Procedure: http://bss.fnal.gov/procurement/A_E_Selection_Procedure.doc
Other
None noted

The organization of the FESS/E procedures is divided into two (2) general groups. The first group is the operational policies of the department listed below:

1. Purpose
2. FESS/E Personnel Procedures
3. Organization Assets

The operational polices include such things as job descriptions, organization chart, work priorities, training and record keeping, self assessments, etc.

The second group contains the policies related to the management of tasks and project. These sub-groups, based on the Project Management Institute's (PMI) Knowledge Areas are listed below:

4. Integration
5. Scope
6. Time
7. Cost
8. Quality Human Resources
9. Communications
10. Risk Management
11. Procurement

The management group contains five (5) process categories based on the PMI process groups as listed below:

1. Initiating
2. Planning
3. Executing
4. Monitoring and Controlling
5. Closing

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The chart below indicates the organization of FESS/E procedures.

FESS Engineering Procedure Organization					
1 FESS/E Purpose and overview items, mission, vision, prupose of procedures					
FESS/E Personnel 2 Policies	org chart, job desriptions, Responsibility matrix, work priorities and assignemtns, safety training and records, self assesment, staff meetings, group budgeting and accounting, procurements, chargeback, project reporting, correspondence, computer equipment and usage, presonnel, outside support				
Documentation and 3 design Standards					
Management Group	.1 Initiating	.2 Planning	.3 Executing	.4 Monitoring and Controlling	.5 Closing
4 Integration					
5 Scope					
6 Time					
7 Cost					
8 Quality					
9 Human Resource					
10 Communications					
11 Risk Management					
12 Procurement					

A further breakdown of each process category incorporates the phasing as described in DOE Order 413.3

x.x.0 - CD-0 – Those procedures related to CD-0 activities
x.x.1 – Those procedures related to CD-1 activities
x.x.2 – Those procedures related to CD-2 activities
x.x.3 – Those procedures related to CD-3 activities
x.x.4 – Those procedures related to CD-5 activities
x.x.5 - Those procedures related to all phases

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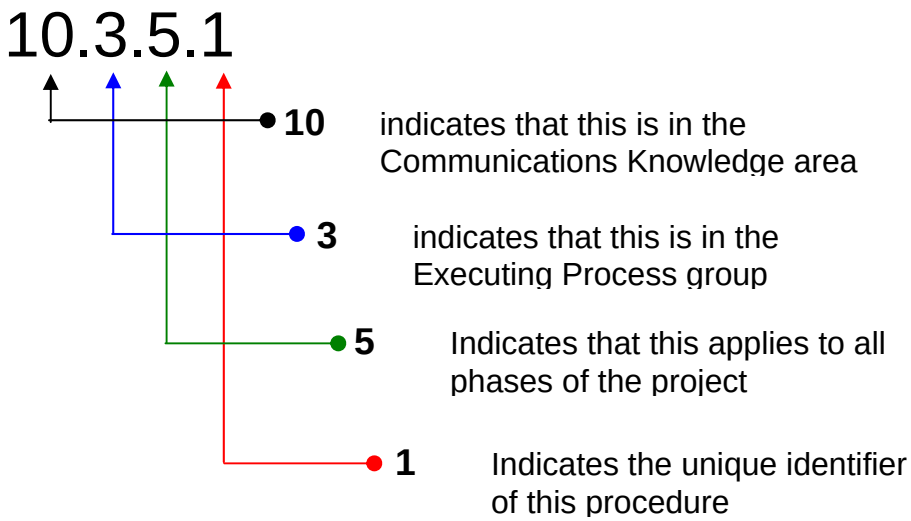
An example of this nomenclature is shown below for the procedure for Meetings with the identifier of 10.3.5.1



The FESS/Engineering procedures specific to the A/E Consultant support are contained within this handbook.

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Standard OperatIng Procedure

SOP Identifier: 5.3.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **High Performance Building Checklist**

I Applicability

This procedure applies to projects designated as suitable for incorporation of sustainable design principals. Generally, this applies to General Plant Projects.

The United States Green Building Council (USGBC) has developed the Leadership in Energy and Environmental Design (LEED) standard to provide guidance for builders who wish to incorporate sustainable elements into their projects. LEED for new construction is a set of specific and quantifiable measures, each of which confers a credit towards certification of a project as a "LEED-certified" building.

This checklist serves as the template for the FESS/E process. The checklist is completed and included in the development of a Conceptual Design Report. The checklist is reviewed when the project is issued for proposals and again at the completion of the project. This review allows the project team to measure the design against the baseline objectives developed at the Conceptual Design stage.

II Responsibilities

The following responsibilities have been identified:

Fermi Project Director
- Participate in evaluation process;

FESS/E Project Manager
- Assembly review team;
- Chair review meetings;
- Transfer project documentation to project file.

FESS/E Project Coordinator
- Participate in reviews

III Procedure

1.0 Initial Review

The initial review of the project occurs during the development of the Conceptual Design Report and is used to document the sustainable design objectives for the project. As a minimum, the review team consists of the following:
- Fermilab Project Director;
- Project Manager;
- Project Coordinator.

1.1 Using the LEED checklist modified with FESS/E specific information, the review team examines the documents and determines the applicability of the LEED credits to the specific project.

1.2 The completed checklist is included in the Conceptual Design Report.
1.3 The completed checklist is stored in the project file.

2.0 Final Design Review
The integrated project team examines the final design documents that are issued for proposals to understand the changes to the baseline objectives that were documented in Step 1.0 above. The results of this review are retained in the project file.

3.0 Construction Complete Review
The integrated project team examines the project documents at the conclusion of the construction to understand the changes to the baseline objectives that were documented in Step 1.0 and Step 2.0 above. The results of this review are retained in the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 4, Sustainability

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of FESS/E specific LEED Checklist

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

1.0 Example of FESS/E specific LEED Checklist.

LEED

Project Checklist

NOvA Project
FESS/Engineering Project No. 15-1-3
October 2006

			Project Stage			
			CDR	Title II	B.O.	CDR Notes/Assumptions
Sustainable Sites		14 Points				
Prereq 1	**Erosion & Sedimentation Control**	Required	X			
Credit 1	**Site Selection**	1	X			
Credit 2	**Urban Redevelopment**	1				
Credit 3	**Brownfield Redevelopment**	1				
Credit 4.1	**Alternative Transportation**, Public Transportation Access	1				
Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1				
Credit 4.3	**Alternative Transportation**, Alternative Fuel Vehicles	1				
Credit 4.4	**Alternative Transportation**, Parking Capacity	1	X			Size parking lot for ten vehicles
Credit 5.1	**Reduced Site Disturbance**, Protect or Restore Open Space	1				
Credit 5.2	**Reduced Site Disturbance**, Development Footprint	1				
Credit 6.1	**Stormwater Management**, Rate and Quantity	1	X			Provide detention pond to collect and control stormwater discharge from roof and parking areas
Credit 6.2	**Stormwater Management**, Treatment	1				
Credit 7.1	**Landscape & Exterior Design to Reduce Heat Islands**, Non-Roof	1				
Credit 7.2	**Landscape & Exterior Design to Reduce Heat Islands**, Roof	1	X			Reflective roof membrane
Credit 8	**Light Pollution Reduction**	1	X			Utilize cut-off style lights
		Subtotal	5	0	0	
Water Efficiency		5 Points				
Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1	X			No irrigation
Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1	X			No potable water for irrigation
Credit 2	**Innovative Wastewater Technologies**	1	X			Waterless urinals
Credit 3.1	**Water Use Reduction**, 20% Reduction	1	X			Reduced usage fixtures and faucets
Credit 3.2	**Water Use Reduction**, 30% Reduction	1	X			Reduced usage fixtures and faucets
		Subtotal	5	0	0	
Energy & Atmosphere		17 Points				
Prereq 1	**Fundamental Building Systems Commissioning**	Required	X			
Prereq 2	**Minimum Energy Performance**	Required	X			
Prereq 3	**CFC Reduction in HVAC&R Equipment**	Required	X			
Credit 1.1	**Optimize Energy Performance**, 15% New / 5% Existing	1	X			Goal is optimize energy performance for service building
Credit 1.2	**Optimize Energy Performance**, 20% New / 10% Existing	1	X			
Credit 1.3	**Optimize Energy Performance**, 25% New / 15% Existing	1	X			
Credit 1.4	**Optimize Energy Performance**, 30% New / 20% Existing	1	X			
Credit 1.5	**Optimize Energy Performance**, 35% New / 25% Existing	1	X			
Credit 1.6	**Optimize Energy Performance**, 40% New / 30% Existing	1	X			
Credit 1.7	**Optimize Energy Performance**, 45% New / 35% Existing	1	X			
Credit 1.8	**Optimize Energy Performance**, 50% New / 40% Existing	1	X			
Credit 1.9	**Optimize Energy Performance**, 55% New / 45% Existing	1				
Credit 1.10	**Optimize Energy Performance**, 60% New / 50% Existing	1				
Credit 2.1	**Renewable Energy**, 5%	1				
Credit 2.2	**Renewable Energy**, 10%	1				
Credit 2.3	**Renewable Energy**, 20%	1				
Credit 3	**Additional Commissioning**	1				
Credit 4	**Ozone Depletion**	1	X			
Credit 5	**Measurement & Verification**	1				
Credit 6	**Green Power**	1	?			Verify with Northstar Electric
		Subtotal	9	0	0	
Materials & Resources		13 Points				
Prereq 1	**Storage & Collection of Recyclables**	Required	X			
Credit 1.1	**Building Reuse**, Maintain 75% of Existing Shell	1				
Credit 1.2	**Building Reuse**, Maintain 100% of Shell	1				
Credit 1.3	**Building Reuse**, Maintain 100% Shell & 50% Non-Shell	1				
Credit 2.1	**Construction Waste Management**, Divert 50%	1	X			
Credit 2.2	**Construction Waste Management**, Divert 75%	1	X			
Credit 3.1	**Resource Reuse**, Specify 5%	1				
Credit 3.2	**Resource Reuse**, Specify 10%	1				
Credit 4.1	**Recycled Content**, Specify 25%	1	X			Structural steel
Credit 4.2	**Recycled Content**, Specify 50%	1	X			
Credit 5.1	**Local/Regional Materials**, 20% Manufactured Locally	1	X			Concrete aggregate
Credit 5.2	**Local/Regional Materials**, of 20% Above, 50% Harvested Locally	1	X			Concrete aggregate
Credit 6	**Rapidly Renewable Materials**	1	X			Specify RRM for finishes in occupied spaces
Credit 7	**Certified Wood**	1				
		Subtotal	7	0	0	

NOvA Project

U.S.G.B.C. LEED Ver. 2.1 1 of 2

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard OperatIng Procedure

LEED

Project Checklist

NOvA Project
FESS/Engineering Project No. 15-1-3
October 2006

			Project Stage			
			CDR	Initial II	B.O.	CDR Notes/Assumptions
Indoor Environmental Quality		**15 Points**				
Prereq 1	**Minimum IAQ Performance**	Required	X	X		
Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required	X	X		
Credit 1	**Carbon Dioxide** (CO_2) **Monitoring**	1	X			
Credit 2	**Increase Ventilation Effectiveness**	1	X			Utilize ecomonizer cycles
Credit 3.1	**Construction IAQ Management Plan**, During Construction	1	X			
Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1	X			
Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1	X			include in specifications
Credit 4.2	**Low-Emitting Materials**, Paints	1	X			include in specifications
Credit 4.3	**Low-Emitting Materials**, Carpet	1	X			include in specifications
Credit 4.4	**Low-Emitting Materials**, Composite Wood	1	X			include in specifications
Credit 5	**Indoor Chemical & Pollutant Source Control**	1	X			
Credit 6.1	**Controllability of Systems**, Perimeter	1	X			for occupied spaces only
Credit 6.2	**Controllability of Systems**, Non-Perimeter	1				
Credit 7.1	**Thermal Comfort**, Comply with ASHRAE 55-1992	1	X			
Credit 7.2	**Thermal Comfort**, Permanent Monitoring System	1				
Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1	X			for occupied spaces only
Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1	X			for occupied spaces only
		Subtotal	13	0	0	
Innovation & Design Process		**5 Points**				
Credit 1.1	**Innovation in Design**: High Expansion Foam Supression System	1	X			Reduction from 500,000 gals to 50,000 gals
Credit 1.2	**Innovation in Design**: 100% Scintillator Containment	1	X			10%-25% normal recommendation
Credit 1.3	**Innovation in Design**:	1				
Credit 1.4	**Innovation in Design**: Specific Title	1				
Credit 2	**LEED™ Accredited Professional**	1	X			
		Subtotal	3	0	0	
Project Totals		**69 Points**				
Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points			42	0	0	

U.S.G.B.C. LEED Ver. 2.1 *NOvA Project* 2 of 2

Standard Operating Procedure

SOP Identifier: 7.4.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **A/E Consultant Progress Reporting**

I Applicability

The review of A/E Consultant progress allows for timely reporting of A/E usage and earned value. This procedure applies to projects managed by FESS/E.

II Responsibilities

The following responsibilities have been identified:

A/E Consultant

- Provide progress reporting data to FESS/E Project Engineer.

FESS/E Project Engineer

- Reviews progress data for reasonableness;
- Forwards progress data to FESS/A Budget Office
- Transfer documentation to project file.

BSS/Procurement Contract Administrator

- Reviews progress data for reasonableness.

III Procedure

1.0 Develop Progress Report

The A/E Consultant shall submit a monthly progress status report that contains that contains, as a minimum, the following information:

- Activities completed in the reporting period;
- Activities planned for the coming period;
- Task summary including planned versus earned information;
- Task summary percentage complete;
- Variance analysis;
- Issues and concerns.

The progress report should use the project status information contained in the task proposal as a baseline for tracking purposes.

2.0 Forward Progress Report

The A/E Consultant shall forward the progress report to the FESS/E Project Engineer and the BSS/Procurement Contract Administrator. The transmittal can be in the form of electronic mail or as agreed upon.

3.0 FESS/E Project Engineer Review

3.1 The FESS/E Project Engineer reviews the A/E Consultant Project Status Report for reasonableness.

3.2 The FESS/E Project Engineer forwards the cost data to the FESS/A Budget Office for incorporation into the Task Accounting System.

3.3 The FESS/E Project Engineer transfers the documentation to the project file.

4.0 BSS/Procurement Contract Administrator Review

The BSS/Procurement Contract Administrator reviews the A/E Consultant Project Status Report for reasonableness.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 9.3.5.1 – AE Tasking
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance
- FESS/Engineering Standard Operating Procedure 12.4.5.1 – AE Invoicing

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of Baseline Data Submitted with A/E Consultant Proposal
2.0 Example of Typical A/E Consultant Progress Status Report

1.0 Example of Baseline Data Submitted with A/E Consultant Proposal

HOWARD ROARK ARCHITECTS, LLP

March 10, 2008

Project Information:
Project: SuperDuper Upgrade
FESS/Engineering Project No. 6-8-99
Project Coordinator: Hugh Jacz

Description: Professional A/E services for the SuperDuper upgrade project.

Baseline Data:

	Hours	Dollars
Data Collection	40	$3,800
Develop Design Recommendations	35	$3,325
Develop Project Definition Report	40	$3,800
Issue Project Definition Report		$200
Develop Final Design	140	$13,300
Issue Final Design Documents for Review		$400
Complete Final Design Documents	80	$7,600
TOTAL	**335**	**$32,425**

Planned Profile	
Month 1 - Issue PDR for Review	$11,125
Month 2 -Develop FD Documents	$13,300
Month 3 - Complete FD Documents	$8,000
TOTAL	**$32,425**

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PHONE: 555-1212 • FAX: 555-1221

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard OperatIng Procedure

2.0 Example of Typical A/E Consultant Progress Status Report

HOWARD ROARK ARCHITECTS, LLP

Project Information:
Project: SuperDuper Upgrade
FESS/Engineering Project No. 6-8-99
Project Coordinator: Hugh Jacz

Description: Professional A/E services for the SuperDuper upgrade project.

Progress Data:
Reporting Period – March 1, 2008 through April 1, 2008

Activities Completed in the Reporting Period:
- Data Collection
- Develop Design Recommendations
- Develop Project Definition Report
- Issue Project Definition Report for Fermilab Review

Activities Planned for the Next Period
- Begin development of Final Design Documents

Cost Information

	% Complete	This Reporting Period				Project To Date			
		Planned		Earned		Planned		Earned	
		Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars
Data Collection	100%	40	$3,800	32	$3,040	40	$3,800	32	$3,040
Develop Design Recommendations	100%	35	$3,325	30	$2,850	35	$3,325	30	$2,850
Develop Project Definition Report	100%	40	$3,800	40	$3,800	40	$3,800	40	$3,800
Issue Project Definition Report			$200		$200		$200		$200
Develop Final Design									
Issue Final Design Documents for Review									
Complete Final Design Documents									
TOTAL		**115**	**$11,125**	**102**	**$9,890**	**115**	**$11,125**	**102**	**$9,890**

Variance Analysis
- None noted

Issues and Concerns
- Require Fermilab concurrence on design approach contained in Project Definition Report prior to start of Final Design Documents.

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Standard OperatIng Procedure

SOP Identifier: 8.3.2.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Construction Document Signoff**

I Applicability

This procedure applies to projects managed by FESS/E. The signoff of construction documents indicates that the documents are ready to be issued for procurement and that they meet the technical requirements of the project.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer
- Develop sign-off sheet;
- Obtain signature sheet from A/E Consultant (if applicable);
- Transfer documentation to project archives at completion of project.

AE Consultant (if applicable)
- Complete signature sheet;
- Forward signature sheet to FESS/E Project Engineer.

FESS Signatories
- Ensure that project document meets the requirements of FESS;
- Sign sheet.

Client Signatories
- Ensure that the project meets the minimum technical requirements for the project;
- Sign sheet.

III Procedure

1.0 Develop Signature Sheet

The FESS/E Project Engineer develops a signature sheet for the project with, as a minimum, the following signature slots:

- FESS/E Project Coordinator
- FESS/E Project Engineer
- FESS/E Department Head
- FESS Head
- Division/Section/Resource Center Project Contact

2.0 A/E Consultant Letter (if applicable)

The A/E Consultant shall develop a signature sheet that indicates that the project was design in accordance with applicable codes, standards and regulations as required. The letter should be on the A/E Consultant letterhead and be signed and sealed.

This letter should be forwarded to the FESS/E Project Engineer with the deliverables of the Final Design phase.

3.0 Obtain Signatures

The signatories should be contacted and signatures obtained on the signature sheet.

4.0 Documentation

Once the signatures are obtained, the FESS/E Project Engineer transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Policy 9 – Consultant Support
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of Signature Sheet
2.0 Example of A/E Consultant Signature Sheet

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

1.0 Example of Signature Sheet

Fermilab

Engineering
Facilities Engineering Services Section
630.840.8501 (phone)
630.840.4980 (fax)

Memorandum

November 13, 2007

To: File

From: S. Dixon

Subject: Signature Sheet
GCC Computer Room C
FESS/Engineering Project No. 8-4-104

This signature sheet replaces the drawing signature requirements for the above listed project issued for proposals:

M. Olson – Task Coordinator

S. Dixon – Project Engineer

E. Crumpley – FESS Engineering Manager

R. Ortgiesen – FESS Head

G. Bellendir – Computing Division Project Manager

cc: Project File 8-4-104

Fermi National Accelerator Laboratory / Kirk Road and Pine Street / P.O. Box 500 / Batavia, IL 60510 / 630.840.3000 / www.fnal.gov / fermilab@fnal.gov
Office of Science / U.S. Department of Energy / Managed by Fermi Research Alliance, LLC

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

2.0 Example of A/E Consultant Signature Sheet

ARCHITECTURE
INTERIORS
ENGINEERING
PLANNING
CONSULTING
DESIGN/BUILD

OWP/P

September 13, 2007

Mr. Steve Dixon
Senior Project Administrator
Fermi National Accelerator Laboratory

Mail Station 214 (WH5E)
P.O. Box 500
Batavia, Illinois 60510-0550

Re: Seal and Signature for GCC Computer Room C Project, FESS #8-4-104

Dear Mr. Dixon:

This letter serves to document the State of Illinois Professional Engineer license seal and my signature for the GCC Computer Room C project.

Sincerely,

Steven W. Roys
MEP Senior Engineer, Associate

13 SEP 07
STEVEN W. ROYS
62-053542
REGISTERED
PROFESSIONAL
ENGINEER
OF
STATE OF ILLINOIS
Exp 11/30/07

C: Merle Olson, FESS Engineering, merleo@fnal.gov

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Standard Operating Procedure

SOP Identifier: 8.3.2.2
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Securing Construction Documents**

I Applicability

The proper securing of construction documents during the procurement phase of the project ensures that inadvertent changes to the documents do not occur. This procedure applies to projects managed by FESS/E.

II Responsibilities

The following responsibilities have been identified:

AE Consultant (if applicable)

- Produces an electronic set of the construction documents;
- Forwards construction documents to FESS/E Project Engineer.

FESS/E Project Engineer

- Transfer construction documents to project archives.

III Procedure

1.0 A/E Consultant (if applicable)

1.1 The A/E Consultant develops a set of documents (drawings, specifications, exhibit A, etc.) that represent the state of the construction documents that will be issued for solicitation. This should include the signature sheet for the project (see FESS/Engineering Standard Operating Procedure 8.3.2.1 – Construction Document Signoff).

1.2 The electronic form of the construction documents should be provided in an Adobe Acrobat (www.adobe.com) format.

1.3 In addition, the electronic set of the construction documents should be provided in the following format:

- Drawings: AutoCAD native format;
- Specifications: Microsoft Word native format;
- Exhibit A: Microsoft Word native format;

1.4 The A/E Consultant forwards the electronic version of the construction documents to the FESS/E Project Engineer. Preferably, the electronic documents should be provided in a CD-ROM media.

2.0 Transfer Electronic Files

The FESS/E Project Engineer shall move the electronic version of the construction documents to the Archive area of the FESS server.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Policy 9 – Consultant Support
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance
- FESS/Engineering Standard Operating Procedure 8.3.2.1 – Construction Document Signoff

V Revision History

Version Number	Date	Author	Change Summary

VI Other

Standard OperatIng Procedure

SOP Identifier: 8.3.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Document Reviews**

I Applicability

This procedure applies to document reviews for projects managed by FESS/Engineering and is intended to provide a framework for the review and distribution of design and construction documents with the following goals:

- Agreement and documentation of Customer requirements and FESS/E response to those requirements;
- Review of developing designs by Fermilab divisions and sections for:
    - Appropriateness of proposed systems;
    - Impacts on existing systems and operations;
    - Specific technical requirements to be incorporated into the design;
    - Compliance with best and required practices of authority having jurisdiction.
- Notification of affected Fermilab divisions and sections when a project is released for Bid.

For the purposes of this procedure definitions are summarized below:

- "Fermilab" is Fermi National Accelerator Laboratory;
- "FESS/E" is Facilities Engineering Services Section, Engineering department;
- "Customer" is the Fermilab group that tasked FESS/E to develop the design and construction documents.
- "SPOC" is the Single Point Of Contact.
- "Building modifications" are defined as any modification which modifies any structural element of the building, adds or removes additional interior walls, or modifies any of the existing high voltage electrical, HVAC, fire protection, sanitary sewer, potable water, or industrial water services.
- "Construction" is any combination of engineering, procurement, erection, installation, assembly, or fabrication activities involved in creating a new facility or altering, adding to, or rehabilitating an existing facility. It also includes the alternation and repair (including dredging, excavating and painting) of buildings, structures, or other real property, as well as any construction & excavation activities conducted as part of environmental remediation efforts.

II Responsibilities

The following responsibilities have been identified:

Division/Section/Resource Center Head

- Appoint a Single Point of Contact (SPOC);

Division/Section/Resource Center (D/S/R) SPOC

The Single Point of Contact within each D/S/RC will be responsible for the following:

- Controlled distribution of documents to be reviewed within each Division/Section;
- Ensuring that the documents to be reviewed are routed to the correct groups or individuals within the Division/Section/Resource Center;

- Reviewing the documents to determine the appropriate internal Division/Section/Resource Center routing, considering the specific Division/Section/Resource Center requirements to ensure that the appropriateness of the proposed systems, impacts on existing systems and operations and specific technical requirements in the design is acceptable.
- Ensuring that internal D/S/R comments are reviewed for appropriateness and internal conflict resolution prior to being entered into the comment database;
- Coordinating submission of review comments into the tracking database.

FESS/E Project Engineer

- Establishing the number and type of reviews based on the project requirements;
- Establishing distribution list;
- Coordinate the development of the distribution cover sheet;
- Coordinate the establishment of an electronic file;
- Issuing a review notification;
- Coordinating the response to comments received;

III Procedure

1.0 Establish Review Criteria

The review criteria will be tailored to each specific project and be driven by the project requirements. Listed below are general guidelines for reviews:

1.1 Review Types

Reviews commonly used are listed below

1.1.1 A Comment and Compliance Review (CCR) is used to determine the appropriateness of the proposed systems, impacts on existing systems and operations, specific technical requirements to be incorporated into the design and compliance with best and required practices of the authority having jurisdiction.

1.1.2 Other reviews, driven by project specific requirements may be undertaken. The type, distribution and length of these reviews should be based on the project specific requirements.

1.2 Number of Reviews

At least one (1) CCR is generally required for each phase of the project. For example, a General Plant Project (GPP) usually has a review during the Conceptual Design phase and another during the Final Design Phase. One (1) CCR may be appropriate for smaller scale projects. In the event that a project is not subject to a CCR, documentation should be included in the project file noting the circumstances surrounding this decision.

1.3 Review Timing

The review should occur when a project is sufficiently developed to a point where reviewers are able to determine the impacts on existing systems and operations.

1.4 Review Length

In general, a CCR is ten (10) working days in duration. In the event that a shorter time is provided by project driven requirements, documentation should be included in the project file noting the circumstances surrounding this decision.

2.0 Distribute Review Documents

In general, review documents are distributed, reviewed and commented upon electronically. Listed below are the steps to create and distribute the review documents

2.1 Create Distribution List

The distribution list for reviews should contain, as a minimum, the following:

2.1.1 FESS/Engineering
FESS/E Quality Control Representative
Project Engineers

2.1.2 FESS
Section Head
Department Heads
Senior Safety Officer
Budget Officer
Site Services Group Head
Operations Engineering Group Head
Wilson Hall Building Manager

2.1.3 Accelerator Division
Division Head
Deputy Head
Operations Department Head
Senior Safety Officer
Radiation Safety Officer

2.1.4 Business Services Section
Deputy Head
Telecommunication Department Head
Fire Chief
Battalion Chief
Lieutenant

2.1.5 Single Point of Contact
Computing Division
ES&H Section
Workforce Development and Resources Section
Particle Physics Division
Technical Division
Directorate Chief Operating Officer

2.1.6 Integrated Project Team
Customer Contact
Project Engineer/Project Manager
Project Coordinator
BSS/Procurement

2.2 Create Electronic File
The electronic review files should consist of the documents to be reviewed and the distribution cover sheet in an Adobe pdf format. These documents should be located in the Review area of the FESS Archive server in order to be accessible to reviewers outside of FESS.

2.3 Issue Review Notification
Electronic notification of a review should be issued via e-mail and should contain, as a minimum, the following information

- Project Name;
- FESS/E Project Number;
- FESS/E Contact;
- Review Start Date;
- Review End Date;
- Project Description;
- List of Review Documents.

3.0 Comment Collection
Comments that result from reviews are entered by the reviewer into an electronic comment database. This database is a FileMaker Pro database and is currently titled Review Comments.fp5 and is located on fesserver1.

3.1 The comment form will contain, as a minimum, the following information

- Reviewer Name;
- Comment Date;
- FESS/E Project Number;
- Drawing or Specification Reference;
- Comment.

3.2 Reviewers are encouraged to enter “No Comment” in the database for projects reviewed without any exception taken in order to document the review process.

4.0 Comment Response
The integrated project team will respond to comments entered into the electronic database.

5.0 Issue Construction Phase Notification
When a project is sent out for proposals during the construction phase notification is sent to the distribution list that received the reviews. This notification is done via e-mail and is similar to the process described in section 2.0 above.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 9, Consultant Support

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of distribution list
2.0 Example of Review Notification Form
3.0 Example of Comment Form

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

1.0 Example of distribution list with names as of February 2008.

	NAME		M/S	REVIEW PHASE PDF
FESS/E	R. Alber		214	1
	E. Crumpley		214	1
	S. Dixon		214	1
	C. Federowicz		214	1
	R. Foutch		214	1
	L. Hammond		214	1
	E. Huedem		214	1
	T. Lackowski		214	1
	P. Lahn		214	1
	M. Martinez		214	1
	J. Niehoff		214	1
	T. Trout		214	1
	M. Olson		214	1
	G. Van Zandbergen		214	1
FESS	B. Shull	Ops	303	1
	A. Schmitt	Ops	311	1
	M. Bonkalski	ES&H	214	1
	J. Kent	Services	232	1
	R. Ortgiesen	Head	214	1
	K. Collins	SS	214	1
	A. Flowers	SS	232	1
	P. Lesiak	Admin	214	1
	R. Walton	Admin	214	1
	M. Becker	S/R&G	320	1
ACCELERATOR	R. Dixon	Head	306	1
	P. Czarapata	Deputy Head	340	1
	B. Mau	Op Dept Head	306	1
	J. Anderson	ES&H Head	371	1
	M. Gerardi	RSO	371	1
BSS	J. Irvin	BSS	211	1
	N. Larson	BSS	228	1
	J. Steinhoff	BSS/FD	302	1
	N. Dal Cerro	BSS/FD	302	1
	C. Williams	BSS/FD	302	1
OTHERS	G. Bellendir	CD	369	1
	esh_admin@fnal.gov.	ESH	119	1
	J. Hawkins	LSS	322	1
	K. Schuh	PPD	355	1
	R. Sood	TD	316	1
	B. Chrisman	Directorate	110	1
PROJECT TEAM	BSS/Procurement		210	
			TOTAL	40

2.0 – Example of Review Notification Form

Comment and Compliance Review

Please review the attached information for appropriateness of the proposed systems, impacts on existing systems and operations, specific technical requirements to be incorporated into the design and compliance with best and required practices of authority having jurisdiction

Project: **Main Injector Neutrino Upgrade (MINU)**
FESS/E Project No. 6-6-49
Review Start Date: Tuesday, November 20, 2007
Review End Date: Tuesday, December 4, 2007

Project Description:
The Main Injector Neutrino Upgrade (MINU) project will provide new service buildings to house new power supplies and new kicker magnet support equipment to support the future increase of the NuMI beam power from 400kW to 700 kW. The use of the accumulator ring for the stacking of protons is made possible as well. The project will require construction of two new service buildings around the Main Injector, MI-14 and MI-39, and one small addition at MI-60 to house an anode power supply.

Review Attachments: (Note: Files can be viewed from a FNAL computer only)
Drawings
Exhibit B Specifications

This review is being issued in electronic format. If you'd like a different format, please contact Maria Martinez x6598

4.0 Example of Comment Form

Fermilab
FESS/Engineering

Please ensure that your review included a review of the project for appropriateness of the proposed systems, impacts on existing systems and operations and specific technical requirements to be incorporated into the design

PLEASE ENTER THE FOLLOWING INFORMATION

Reviewer:
Ayres, Dukes, Miller, Peterson

Project Number: **15-1-3**

UIP ECP (If applicable):

Project Phase:
Comment and Compliance

Comment Date:
September 11, 2007

Print | Duplicate | Main Menu

COMMENT

Drawing Reference:
E-6

START WITH PAGE NUMBER FIRST FOLLOWED BY SECTION OR DETAIL REFERENCE. Example: A-1, Detail 4

Specification Reference:

PROVIDE SPECIFICATION SECTION AND PARAGRAPH IF APPLICABLE.
Example: 02070 1.5.D.2 (Page 02070-2)

Comment

Notes field shows emergency lighting and "night" lights remain on continuously. Must be able to shut-off "night" light for light leak tests.

RESPONSE

Project Contact Response:

Disagree for Reasons Noted Below

Comment:

Code required emergency lighting can not be on a switched leg. Switching of night lights requires further investigation

Date Printed: 2/22/2008

FESS 05/01

Standard OperatIng Procedure

SOP Identifier: 8.4.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **A/E Consultant Quality Assurance**

I Applicability

Project execution requires quality control measures to ensure that the project requirements and goals are achieved.

The A/E Consultant shall implement its own Quality Control program applicable to the services provided to Fermilab. To dovetail with Fermilab's Quality Assurance Program the A/E Consultant shall submit their corporate Quality Assurance Plan. These measures may vary depending on the complexity of the project but should provide means of insuring sound engineering decisions early in the design process, interdisciplinary cross-coordination and minimized errors and omissions.

The A/E Consultant shall submit a Project Specific Quality Control Plan for approval by Fermilab for each tasking purchase order. This may be done by reference to the A/E Consultant's Corporate Quality Assurance Plan, with additional project specific measures stated.

During the course of the performance of services the A/E Consultant shall submit written documentation that the measures proposed in the Project Specific Quality Control Plan have been executed.

II Responsibilities

The following responsibilities have been identified:

AE Consultant

- Submit Corporate Quality Control Plan;
- Include Project Specific Quality Control Plan with tasking proposal;
- Transmit to Project Engineer records of the implementation of quality control measures.

FESS/E Project Engineer

- Review Project Specific Quality Control Plan submitted with tasking proposal;
- Transfer documentation to project archives at completion of project.

III Procedure

1.0 Corporate Quality Control Plan

The AE Consultant submits the Corporate Quality Control Plan to BSS/Procurement prior to the establishment of a master subcontract.

2.0 Submit Project Specific Quality Control Plan

The AE Consultant shall include with tasking proposals a Project Specific Quality Control Plan that contains the methods to ensure that quality controls measures are in place for the execution of the task. This document should be tailored to the specific tasking and may reference the Corporate Quality Control Plan.

3.0 Review Project Specific Quality Control Plan

As part of the review of the AE Consultant proposal, the Project Engineer will review the Project Specific Quality Control Plan. Any irregularities/changes should be coordinated with the AE Consultant.

4.0 Documentation

4.1 At the closeout of the project tasking, or as appropriate, the AE Consultant shall submit written documentation that the measures proposed have been executed.

4.2 Upon receipt of the documentation, the Project Engineer shall review and transfer the documentation to the project archives.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Policy 9 – Consultant Support
- FESS/Engineering Standard Operating Procedure 9.3.5.1 – AE Tasking
- FESS/Engineering Standard Operating Procedure 10.3.5.2 - Meetings

V Revision History

Version Number	Date	Author	Change Summary

VI Other

Standard OperatIng Procedure

SOP Identifier: 9.3.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Architectural/Engineering Consultant Tasking**

I Applicability

This procedure applies to the establishing tasking purchase orders under a master subcontract with architectural and engineering (A/E) consultant firms.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer

- Develop scope, schedule and budget criteria with the Customer contact;
- Prepare Request for Proposal memorandum to BSS/Procurement;
- Review A/E Consultant proposal;
- Prepare and circulate purchase requisition.

BSS/Procurement Contract Administrator

- Issue Request for Proposal to A/E Consultant
- Review A/E Consultant proposal;
- Issue purchase order.

III Procedure

1.0 Develop Memorandum

The FESS/E Project Engineer is responsible for meeting with client and developing an understanding of the scope, schedule and budget requirements for the project. This information shall be incorporated into a memorandum to Business Services Section, Procurement Department (BSS/P).

The FESS/E Project Engineer will develop a memorandum to BSS/P that requests that a formal Request for Proposal (RFP) be issued to an A/E Consultant. The RFP should, as a minimum, contain the following information:

- Project Description;
- Scope of Services;
- Expected Delieverables;
- Preliminary Schedule;
- Cost;

This memorandum should be addressed to Contract Administrator of BSS/P with copies to the Project File, Division/Section/Research Center Client contact and FESS/E Department Head.

2.0 Issue Request For Proposal

BSS/Procurement will issue a formal letter-format RFP to the A/E Consultant.

3.0 Proposal Preparation

Upon receiving a written request for proposal from BSS/Procurement the A/E Consultant is responsible for preparing a proposal that accurately reflects the cost and schedule implication of the scope of services described in the RFP.

During the proposal preparation, the A/E Consultant may contact the Project Engineer to answer technical questions and to arrange site visits. All contractual issues shall be directed to the BSS/Procurement Contract Administrator.

Unless otherwise specified in the RFP, all proposals shall be submitted within ten (10) business days after receipt.

Fee Proposals shall be sent to the BSS/Procurement Subcontract Administrator with a copy to the FESS/E Project Engineer.

The A/E proposal shall include, as a minimum, the following information:

- Project description, describing the A/E's understanding of the program requirements of the task.
- Scope of Services, listing the services and the deliverables offered by the A/E for the fees quoted. Itemize variations, if any, to the requirements stated in this handbook and the A/E Services Subcontract.
- Schedule, proposing the time the task or each phase of the task will take to complete, indicated in days or weeks. The time should start from a “NTP” date and not actual dates.
- Cost, providing a detailed labor hour and rate breakdown of the proposed fee maximum by phase and task, listing personnel titles as they appear in the A/E Subcontract. Supplement this detail with the submittal of a completed Consultant Price Summary. Include a proposed cap cost for reimbursable expenses if allowed by the A/E Subcontract.
- Baseline Progress Reporting Requirements, for the tasking that includes, as a minimum, the following information:
  - Logical, sequential listing of tasks;
  - Expected cost associated with task (including both labor and reimbursables)
  - Monthly projection of expected costs
- All other requirements required by the A/E Subcontract or RFP.

4.0 Proposal Review

Upon receipt of the A/E proposal, the BSS/P Contract Administrator will forward the proposal to the FESS/E Project Engineer for review and action. If acceptable, a purchase requisition will be written.

5.0 Purchase Requisition

After completing the review of the proposal, the FESS/E Project Engineer develop a purchase requisition and circulates it for signatures.

6.0 Issue Purchase Order
Upon receipt of the approved purchase requisition, the BSS/P Contract Administrator will issue a purchase order for the task. The issuance of the purchase order signifies that point at which the A/E may begin work on the task.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 9 - Consultant Support
- FESS/Engineering Policy FEP 5 - Tailoring
- FESS/Engineering Standard Operating Procedure 8.4.5.1 – AE Quality Assurance
- FESS/Engineering Standard Operating Procedure 7.4.5.1 – AE Progress Reporting
- FESS/Engineering Standard Operating Procedure 12.4.5.1 – AE Invoicing

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of memorandum to BSS/P
2.0 Example of RFP memo to A/E firm
3.0 Example of A/E proposal

1.0 Example of memorandum to BSS/P

Fermilab

Engineering Department
Facilities Engineering Services Section
630.840.8501 (phone)
630.840.4980 (fax)

Memorandum

October 5, 2007

To: B. Cibic, BSS/Procurement

From: S. Dixon, FESS/Engineering

Subject: Request for Professional Services
Lab BEG Lighting Upgrade
FESS/Engineering Project No. 8-2-151C

Please request a Not-To-Exceed proposal for professional A/E services from Crawford Murphy & Tilly Inc. (CMT) for engineering services for the Lab BEG Lighting Upgrade project.

Description:
The existing interior lighting at the Lab BEG Connection is based on unit fixtures intended for an industrial setting. Recent analysis and client input has determined that a more conventional lighting arrangement is preferred. Such a system was included in the original design, but removed as part of a value management exercise. This task will investigate the possibility of removing the existing system and installing the original design.

Scope:
The tasking should request engineering support for the following phases:

Phase 1 – Investigation
This phase will evaluate the existing electrical systems and develop a recommendation for replacement fixtures. In addition, budget cost estimates will be provided for the proposed upgrades. Specific tasks include:

1. Meetings at Fermilab;
2. Field visits to inspect existing conditions;
3. Investigation of proposed upgrades;
4. Development of budgetary cost estimates;
5. Report preparation

Phase 2 – Title 2 Documents
This phase will prepare the construction documents suitable for competitive bidding purposes. Specific tasks include:

1. Meetings at Fermilab;
2. Development of drawings;
3. Development of specifications;

Deliverables:
The following is the minimum expected deliverables:

Phase 1: Summary report of investigation/evaluation results
Phase 2: Construction documents

Schedule:
Start Task: November 2007
Complete Phase 1: Start Date + 4 weeks
Complete Phase 2: Start Date + 8 weeks

Bob, could you please forward this proposal to CMT and ask that they contact me to discuss this request for proposal in greater detail. Please request that they return their proposal by October 22, 2007

Please contact me at x8501 with questions.

Cc: E. Crumpley, FESS/E
E. McHugh m/s 355
J. Niehoff, FESS/E
Project File 6-7-16

2.0 Example of RFP memo to A/E firm

Fermilab

Fermi National Accelerator Laboratory
P.O.Box 500 • Batavia, Illinois • 60510-0500
Phone: 630/840-4255FAX 630/840-2907
Procurement, Mail Station 210

October 8, 2007

Mr. Bernard D. Held, P.E.
Crawford, Murphy & Tilly, Inc.
600 North Commons Drive, Suite 107
Aurora, IL 60504

Subject: Request for Professional Services
Lab BEG Lighting Upgrade
FESS/Engineering Project No. 8-2-151C

Dear Mr. Held:

Please submit a Not-To-Exceed proposal for professional A/E services for engineering services for the Lab BEG Lighting Upgrade project.

Description:
The existing interior lighting at the Lab BEG Connection is based on unit fixtures intended for an industrial setting. Recent analysis and client input has determined that a more conventional lighting arrangement is preferred. Such a system was included in the original design, but removed as part of a value management exercise. This task will investigate the possibility of removing the existing system and installing the original design.

Scope:
The tasking should request engineering support for the following phases:

Phase 1 – Investigation
This phase will evaluate the existing electrical systems and develop a recommendation for replacement fixtures. In addition, budget cost estimates will be provided for the proposed upgrades. Specific tasks include:

1. Meetings at Fermilab;
2. Field visits to inspect existing conditions;
3. Investigation of proposed upgrades;
4. Development of budgetary cost estimates;
5. Report preparation

Phase 2 – Title 2 Documents
This phase will prepare the construction documents suitable for competitive bidding purposes. Specific tasks include:

1. Meetings at Fermilab;
2. Development of drawings;
3. Development of specifications;

2

Deliverables:
The following is the minimum expected deliverables:

Phase 1: Summary report of investigation/evaluation results
Phase 2: Construction documents

Schedule:
Start Task: November 2007
Complete Phase 1: Start Date + 4 weeks
Complete Phase 2: Start Date + 8 weeks

Please submit your proposal by close of business October 22, 2007. Also, please contact Steve Dixon at (630) 840-8501 to discuss this RFP in greater detail.

If you have any questions please feel free to contact me at (630)840-4255.

Sincerely,

Thomas R. Powers
Procurement Administrator

cc: Steve Dixon, MS 214
Bob Cibic, MS 210
File

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

3.0 Example of A/E proposal

CMT
AVIATION
HIGHWAYS & BRIDGES
WATER & WASTEWATER
LAND DEVELOPMENT

Crawford, Murphy & Tilly, Inc. Consulting Engineers

October 22, 2007

Thomas R. Powers
Procurement Administrator
Fermilab
PO Box 500, Mail Station 210
Batavia, IL 60510

Dear Mr. Powers:

Re: Fermilab -- Lab BEG Lighting Upgrade
FESS Engineering Project Number: 8-2-151C

This letter is our response to the October 8 request for proposals for the Lab BEG Lighting Upgrade project. Our proposal is based on a site visit made by CMT's [redacted], as well as the information provided in the RFP.

Background Information:
The existing interior lighting at the Lab BEG Connection is based on unit fixtures intended for an industrial setting. Recent analysis and user input suggests that a more conventional lighting arrangement would better serve the buildings use. This project will investigate the possibility of replacing the existing lighting system with a lighting system that conforms with Fermi conventional lighting systems. As a part of this project, CMT will be available for general electrical questions related to the facility.

Project Approach:
CMT intends to perform this project with personnel from our Aurora office. [redacted] will provide the engineering services with AutoCAD assistance from CMT Aurora office technicians. Our staff is familiar with Fermi design and drafting standards and will follow them for this project. It is our understanding that this project requires an investigative phase to evaluate the existing system and determine requirements for a replacement lighting system, and estimate the costs of replacement. A summary report of these findings will be presented that would conclude Phase 1 (the investigative phase). Fermilab will then determine if the project will proceed. If so, in Phase 2, CMT will design the replacement system, prepare plans, specifications and estimates for the project. CMT will not proceed with Phase 2 without authorization by Fermilab's project manager.

Schedule and Cost:
CMT is prepared to perform this project in substantial conformance with the schedule proposed in the RFP. We understand that a notice to proceed will be issued in November, 2007 with Phase 1 to be completed in four (4) weeks. Once authorized, Phase 2 would follow in approximately eight (8) weeks. We estimate the effort and cost of this project to include 112 man-hours at a cost of [redacted] Phase 1 would be approximately 33% of the total effort or [redacted]

Please call if you have any questions.

Sincerely,
CRAWFORD, MURPHY & TILLY, INC.

Bernard D. Held, P.E.
Sr. Vice President

Items in green redacted for confidentiality purposes

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

FERMILAB CONSULTANT PRICE SUMMARY

DATE 23-Oct-07

CONSULTANT NAME: CRAWFORD, MURPHY & TILLY, INC.

CONTRACT NO.:

TASK ORDER NO.:

PROJECT NAME: **Lab BEG Lighting Upgrade**

PERSONNEL DESCRIPTION*	HOURS	CONTRACT RATE*	ESTIMATED COST (ALL PHASES)
PRINCIPAL	4	[redacted]	[redacted]
SENIOR PROJECT ENGINEER	2	[redacted]	[redacted]
PROJECT ENGINEER	78	[redacted]	[redacted]
SENIOR ENGINEER	0	[redacted]	[redacted]
ENGINEER	0	[redacted]	[redacted]
TECHNICAL MANAGER	0	[redacted]	[redacted]
PLANNER	0	[redacted]	[redacted]
REGISTER LAND SURVEYOR	0	[redacted]	[redacted]
SENIOR ENGINEERNG TECHNICIAN	0	[redacted]	[redacted]
ENGINEER TECHNICIAN	28	[redacted]	[redacted]
ENGINEER ASSISTANT	0	[redacted]	[redacted]
CLERICAL	0	[redacted]	[redacted]
TOTAL LABOR			[redacted]
LABOR BY PHASE:	STUDY OR CDR		
	TITLE I		
	TITLE II		[redacted]
	BIDDING		
	TITLE III (Constr. a		
COMPUTER CHARGES (Attach Detail)			$0.00
REIMBURSABLE EXPENSES ESTIMATE			[redacted]
TOTAL MAXIMUM FEE	**(rounded)**		[redacted]

[redacted] Items in green redacted for confidentiality purposes

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

CONTRACT ATTACHMENT / EXHIBIT: A - PROFESSIONAL SERVICES COST ESTIMATE
CLIENT: FERMILAB
PROJECT DESCRIPTION: Lab BEG Lighting Upgrade
CMT PROJECT NUMBER: TBD
CRAWFORD MURPHY & TILLY, INC. CONSULTING ENGINEERS

Prep By	AB
DATE	10/23/07
Apprvd	BDH
DATE	10/23/07

TASK NO.	TASKS \ CLASSIFICATIONS	PRINCIPAL	SR PROJECT ENGR / TECH MGR / ARCH	PROJECT ENGINEER	SR ENGINEER / TECHNICAL MGR	ENGINEER	SR TECHNICAL MGR	PLANNER	LAND SURVEYOR	SR TECHNICIAN	TECHNICIAN	TECHNICIAN ASSISTANT	CLERICAL	MAN HOURS & LABOR SUMMARY	
	2006 - 2008 HOURLY RATES														TOTAL
1	Kick-off Meeting with Fermi Staff			4											4
2	Field collection of existing condition data			6											6
3	Review, analyze and prepare photometrics			6											6
4	Prepare Report with Exhibits and budgetry cost estimate			12								4			16
5	Report review meeting with Fermi Staff			4											4
6	Prepare pre-final plans, specs and estimate			24								16			40
7	Pre-final plans review meeting			4											4
8	Prepare final plans, specs and estimate			12								8			20
9	QA/QC	2	2	2											6
10	Project Management	2		4											6
11															
12															
13															
14															
15															
	TOTAL MAN HOURS	4	2	78								28			112
	SUBTOTAL - BASE LABOR EFFORT														

	TASKS (CONTINUED)	TOTAL LABOR EFFORT	DIRECT EXPENSE & REIMBURSABLES											TOTAL FEE
			TRAVEL MILEAGE	MEALS & LODGING	PRINTING	EQUIP-MENT	MISC	SURVEY MTL	SUBS	OTHER EXP	OTHER EXP	OTHER EXP	TOTAL EXPENSE	
1	Kick-off Meeting with Fermi Staff		$10										$10	
2	Field collection of existing condition data		$10										$10	
3	Review, analyze and prepare photometrics													
4	Prepare Report with Exhibits and budgetry cost estimate				$50								$50	
5	Report review meeting with Fermi Staff		$10										$10	
6	Prepare pre-final plans, specs and estimate				$100								$100	
7	Pre-final plans review meeting		$10										$10	
8	Prepare final plans, specs and estimate				$100								$100	
9	QA/QC													
10	Project Management													
11														
12														
13														
14														
15														
	TOTALS													

TIME PERIOD OF PROJECT	2004	2005	2006	2007	TOTAL	EST % OF OT HRS INCLUDED ABOVE		MULTI-YEAR + OT
PERCENTAGE OF WORK TO BE PERFORMED BY YEAR			100%		100%	AVERAGE OVERTIME RATE PREMIUM		MLTPLR & AMT
WEIGHTING FACTOR FOR 3% ANNUAL ADJUSTMENT			1.0609		1.0609	OT ADJUSTMENTFACTOR		1.0609
ESTIMATED CONTINGENCY								5%
ROUNDING								
TOTAL FEE								

Lab BEG Lighting Upgradel eng fee_10-22-07.xls TAB: ESTIMATE OF ENGINEERING FEE 1 OF 1 10/23/2007 8:21 AM

Items in green redacted for confidentiality purposes

Standard OperatIng Procedure

SOP Identifier: 10.3.3.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Amendments**

I Applicability

This procedure applies to projects managed by FESS/E. An Amendment is a document that is issued to the offerers during the proposal period prior to the receipt of proposals. An Amendment is used to clarify or modify the scope a project.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Coordinator
- Assembles amendment documents (text, drawings, etc,);
- Develops Amendment memo.

FESS/E Project Engineer
- Reviews Amendment documents for project impact.

Division/Section Client
- Reviews Amendment documents for project impact.

BSS/Procurement Administrator
- Determines if Amendment impacts the request for proposal period;
- Issues formal Amendment to Offerers.

III Procedure

1.0 Develop Amendment Documents

The FESS/E Project Coordinator develops the Amendment documents that describe in text and/or drawings the modified scope of work. This documentation should include a document with, as a minimum, the following information:

- Amendment Identifier;
- FESS/E Project Name;
- FESS/E Number;

The Amendment documents are reviewed by the FESS/E Project Engineer.

2.0 Distribute Amendment

The Amendment documents are forwarded to the BSS/Procurement Administrator. Copies are provided to the Division/Section/Research Center Client, the FESS/E Project Engineer and the FESS/E Department Head.

3.0 Issue Amendment of Solicitation
The BSS/Procurement Administrator issues the Amendment of Solicitation to the Offerers.

4.0 Documentation
The FESS/E Project Engineer transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 10.2.5.3 – Drawing Requirements

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of Amendment Document
2.0 Example of Amendment of Solicitation issued by BSS/Procurement Administrator

1.0 Example of Amendment Document

AMENDMENT NO. 1
To the construction documents for:

GCC COMPUTER ROOM-B
FESS/Engineering Project No. 8-4-98D

Fermi National Accelerator Laboratory
Batavia, Illinois

Amendment Date March 08, 2006

Changes/Clarifications to the Drawings:

1. Drawing E-24

Delete this drawing **"CARD ACCESS/SECURITY".**

Changes/Clarifications to the Specifications:

1. Addendum-A, Page 7

Add item 13 under "Demolition"

Provide a dust enclosure for the concrete saw cutting, floor removal, ICW pipe removal, excavation, etc. for the installation of new electrical duct bank into the existing Electrical Equipment Room. Enclosure is to ensure that no dust gets into the existing electrical equipment.

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

2.0 Example of Amendment of Solicitation issued by BSS/Procurement Administrator

AMENDMENT 0F SOLICITATION

AMENDMENT NO. 1	DATE OF AMENDMENT: March 9, 2006
SOLICITATION NO. FESS-181875-RWC/REDESIGN	DATE ISSUED: February 13, 2006
PROJECT NO. 8-4-98D	OPENING DATE: March 13, 2006
TITLE OF PROJECT: GCC Computer Rom B	

Bidders must acknowledge this Amendment prior to the hour and date set forth in the solicitation by one of the following methods:

1. By completing the Representations, Certifications and Acknowledgements (Form FL-6)
2. By separate telegram or letter.

If by virtue of this Amendment you desire to change a bid already submitted, such change may be made by telegram or letter, provided such telegram or letter makes reference to the Solicitation and this Amendment and is received prior to the time set for opening.

The above reference Solicitation is amended as follows:

Reference – Drawing No.E-24, "Card Access/Security."
All Planholders are to delete this drawing and the requirements contained therein as Non-applicable to this solicitation.

Reference – Addendum "A" to Exhibit "A", Page 7.
Add Item 13, under "Demolition," as follows:

"Provide a dust enclosure for the concrete saw cutting, floor removal, ICW pipe removal, excavation, etc. for the installation of new electrical duct bank into the existing Electrical Equipment Room. Enclosure is to ensure that no dust gets into the existing electrical equipment."

Solicitation Opening Date: Remains at March 13, 2006 (4:30 p.m., Local Prevailing Time).

All other terms and conditions remain unchanged.

Fermi National Accelerator Laboratory P.O. Box 500 Batavia, Il 60510 M.S. 210	Ron W. Cypret Ron W. Cypret Senior Procurement Administrator 630/840-3839 FAX 630/840-2907

RECEIVED
MAR 10 2006
FESS/ENGINEERING

FESS/Engineering
DISTRIBUTION
8-4-98D
Project File

Standard OperatIng Procedure

SOP Identifier: 10.3.3.2
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Procurement Period Questions**

I Applicability

This procedure applies to projects managed by FESS/E.

A Bid Period Question is a communication between a potential Offerer and a member of the integrated project team that occurs while the project is out for solicitations but prior to receipt of proposals.

II Responsibilities

The following responsibilities have been identified:

Project Team Member

- Responds to question from Offerers ;
- Documents conversation;
- Forwards conversation documentation.

FESS/E Project Engineer

- Reviews Bid Period Question documentation for project impact;
- Consults with BSS/Procurement Administrator to determine if Amendment to Solicitation is required;
- Transfers documentation to project file.

Division/Section/Resource Center Client

- Reviews Bid Period Question documentation for project impact.

BSS/Procurement Administrator

- Consults with FESS/E Project Engineer to determine if Amendment to Solicitation is required;

III Procedure

1.0 Bid Period Question

The member of the integrated project team that response to a bid period question documents that question and response to the potential Offerrer. The documentation includes, as a minimum, the following information:

- FESS/E Project Name;
- FESS/E Number;
- Date;
- Contact Name;
- Contact Company;
- Contact Telephone Number;

- Question;
- Response.

2.0 Distribute Documentation

The Bid Period Question documentation is, as a minimum, forwarded to the following:

- BSS/Procurement Administrator;
- FESS/E Project Engineer;
- FESS/E Project Coordinator;
- FESS/E Manager;
- Division/Section/Resource Center Client.

3.0 Documentation

The FESS/E Project Engineer transfers the documentation to the project file.

IV References

The following references have been identified:

- FESS/Engineering Policy 5 – Tailoring
- FESS/Engineering Standard Operating Procedure 10.2.5.3 – Drawing Requirements
- FESS/Engineering Standard Operating Procedure 10.3.3.1 – Amendments

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of Bid Period Question form

1.0 Example of Bid Period Question form

Bid Period Question

Project: GCC Computer Room C
FESS/Engineering Project No. 8-4-104

Date: January 24, 2008
Contact: Cindy, West Elsdon Electric
Phone: 1-815-761-3388

Question:
Are the jumper cables between the batteries included in the Fermi-provided batteries for the UPS

Response:
Yes, the battery to battery connections are part of the batteries supplied by Fermilab for installation by the ssubcontractor. The cables from the batteries to the disconnect switches are not supplied by Fermi and are supplied and installed by the subcontractor.

Steve Dixon
FESS/Engineering
Fermi National Accelerator Laboratory
Phone: (630) 840-8501
Fax: (630) 840-4980
E-Mail: steveo@fnal.gov

Standard OperatIng Procedure

SOP Identifier: 10.3.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Meetings**

I Applicability

Project execution requires various types of meetings to review progress discuss issues and share information. This procedure provides guidelines for improving the effectiveness and efficiency of meetings and gatherings

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer

- Determine the need for meetings
- Act as or designate Meeting Facilitator;

Meeting Facilitator

- Ensure meeting follows the agenda;
- Takes, prepares and distributes meeting minutes;
- Ensures meeting schedule and timing rules are followed.

Meeting Participants

- Arrive on time;
- Attend and contribute to meeting discussions.

III Procedure

1.0 Plan Meeting

The Meeting Facilitator completes the activities listed below:

1. Determine meeting type;
2. Determine what must occur prior to the meeting to make it successful;
3. Determine what must be accomplished for the meeting to be completed;
4. Determine who should attend the meeting;
5. Determine what material the participants need ahead of time;
6. Schedule meeting location.

2.0 Announce Meetings

The Meeting Facilitator completes the activities listed below:

1. Issue agenda;
2. Date, time and location of the meeting;
3. Special instruction, if required, in preparation of the meeting;
4. Forward pertinent documentation that should be reviewed prior to the meeting.

3.0 Conduct Meeting

The Meeting Facilitator performs the activities listed below:

a. Ensure adequate facilities, room arrangement, and that all equipment is operational;
b. Identify room specific exiting, emergency instructions, bathroom locations and related items;
c. Pass around a sign-in sheet or roster, if appropriate;
d. Summarize roles, goals, objectives, agenda;
e. Ensures meeting schedule and timing rules are followed;
f. Takes meeting minutes that include, as a minimum, the following information:
    - Date;
    - Time;
    - Meeting Location;
    - Project Information (Name, FESS/E Project Number);
    - Attendee information (Name, Affiliation);
    - Topic;
    - Appropriate description of meeting content;
    - Identification of action items including assignment and schedule for completion.

4.0 Follow Up

The Meeting Facilitator issues meeting minutes to the project team, usually within five (5) working days of the meeting.

Meetings with detailed and/or complex issues may require the issuance of draft meeting minutes to confirm factual accuracy. The Meeting Facilitator issues the draft meeting minutes. Upon receiving comments, the final meeting minutes should be issued within five (5) working days to the project team.

5.0 Revisions

When appropriate, revisions to final meeting minutes should be issued. The revised meeting minutes should be sent to all recipients of the original meeting minutes.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 5, Tailoring
- FESS/Engineering Policy FEP 9, Consultant Support

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Examples of meeting minutes

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

Steve Dixon

From: "Steve Dixon" <steveo@fnal.gov>
To: "Russell J. Alber" <ralber@fnal.gov>; "Ronald Jedziniak" <jedziniak@fnal.gov>; "Ron W. Cypret" <rcypret@fnal.gov>; "Michael P. Michalak" <michalak@fnal.gov>; "Merle L. Olson" <merleo@fnal.gov>; "Louis D. Weller" <lweller@cmtengr.com>; "John D. MacNerland" <jak@fnal.gov>; "James H. Niehoff" <niehoff@fnal.gov>; "Gerry J. Bellendir" <gerryb@fnal.gov>; "Gerald E. Halm" <jhalm@cmtengr.com>; "Emil Huedem" <huedem@fnal.gov>; "David J. Ritchie" <ritchie@fnal.gov>; "Charles A. Federowicz" <chuckf@fnal.gov>; "Gary Van Zandbergen" <gvanz@fnal.gov>
Cc: "Victoria A. White" <white@fnal.gov>; "Robert S. Tschirhart" <tsch@fnal.gov>; "Gregory B. Mitchell" <gmitchel@fnal.gov>; "Edward Crumpley" <crumpley@fnal.gov>; "David L. Nevin" <nevin@fnal.gov>; "Bernard D. Held, P.E." <bheld@cmtengr.com>; "Amy Pavnica" <pavnica@fnal.gov>
Sent: Tuesday, May 10, 2005 8:18 AM
Subject: GTR - Meeting Minutes 10MAY05

MEETING MINUTES

No meeting was held on 5/10, but this message will include recent information for the project team

GCC Tape Robot Room

FESS/Engineering Project No. 8-4-100
Date: May 10, 2005

Objective: Provide infrastructure to support Robotic Tape Storage functions in the Grid Computer Center.

Attendees:

- Computing Division - G. Bellendir, J. MacNerland, D. Ritchie
- FESS/E - R. Alber, G. Van Zandbergen, C. Federowicz, M. Olson, R. Jedziniak, R. Walton, S. Dixon

This weekly meeting will discuss progress on developing a set of subcontract documents for the adaptive reuse of the existing space into space suitable for robotic tape storage.

The scope of this project includes:

1. The conversion of the existing North Computer Room.
2. The connection of the two (2) existing CRAC units in Computer Room #1
3. The connection of the existing CRAC unit in the UPS Room.
4. The upgrade of the entrance to the building.

DISCUSSION TOPICS
Listed below are the discussion topics for this project:

Tape Robot Room

1. E. Heudem has reviewed the computing equipment planned for the TRR in order to verify if one (1) 30 Ton CRAC unit is adequate. Here's the assumptions:
   - Computing equipment loads from the tape robots and mover nodes is less than 53 kW;
   - Tape Robot: Temperature of 75 degrees F and 45% relative humidity +/- 10%
   - UPS Equipment: Temperature of 77 degress F and 0%-95% relative humidity.

2. Based on the analysis and assumptions, one (1) 30 ton CRAC unit is adequate.
3. There was a request to develop a budgetary cost estimate for installing a 100 kVA standby generator for the Tape Robot Equipment, Mover Nodes and Network Equipment supporting the TRR. Listed below is a summary of the estimatedcost for that work:

125 kVA Diesel Generator	$50,000
Concrete Pad w/Containment	$5,000
Ductbank with conductors (150 LF)	$20,000
New Panelboards (2)	$12,000
Rework Existing Circuits	$15,000
Subtotal	$102,000
Suggested Contingency	$26,000
Total	$128,000

The above estimate is based soley on equipment and expected installation costs and will change as the design is refined. These estimates DO NOT include EDIA or Indirect Cost multipliers that will have to be applied in the event that this work becomes part of a GPP project.

Contingency Analysis
The following is a listing of the scope changes identifed during the design phase of the project:

Description	Add	Deduct	Balance	Notes
Contingency per CDR			$83,000	Includes EDIA and Preprocured
Demolish Fence at Entry		$1,500	$84,500	Done by others
Provide Opening at Gas Bottle Room		$2,000	$86,500	Done by others
Install Door at Gas Bottle Room	$1,200		$85,300	
Infill Opening at Old Entry	$500		$84,800	
Humidifier in Network Room	$14,217		$70,583	Average of Offers
Increase Size of UPS (20->40)	$17,000		$53,583	
Provide For Future 40 kVA UPS	$15,000		$38,583	Breaker, conduit and disconnect
Floor Tile in Network Room	$3,500		$35,083	Patch and install new over existi
Floor Tile In Lobby	$1,500		$33,583	Patch and install new over existi
Light Fixtures in TRR (8)	$1,600		$31,983	Assumed use of salvaged fixture
	$54,517	**$3,500**		

Baseline Estimate of Construction	$377,000
Contingency Usage	$49,417
Revised Estimate of Construction	$426,417
Available Contingency	8%

For reference, the recently completed HDCF Conversion project required 38% contingency for construction alone.

ACTION ITEMS
The following action items have been identified

FESS/E

Steve Dixon

From: "Steve Dixon" <steveo@fnal.gov>
To: "Travis Barta" <tbarta@burnsmcd.com>; "Russell J. Alber" <ralber@fnal.gov>; "Ronald Jedziniak" <jedziniak@fnal.gov>; "Rodney Walton" <rwalton@fnal.gov>; "Merle L. Olson" <merleo@fnal.gov>; "Lee Hammond" <lhammond@fnal.gov>; "Lackowski, Thomas W" <tomski@fnal.gov>; "John R. Steenken" <jsteenken@burnsmcd.com>; "John J. Santic" <santic@fnal.gov>; "James H. Niehoff" <niehoff@fnal.gov>; "Gary Van Zandbergen" <gvanz@fnal.gov>; "Emil Huedem" <huedem@fnal.gov>; "Charles A. Federowicz" <chuckf@fnal.gov>; "Karen Stelling" <kstelling@burnsmcd.com>
Cc: "Keith W. Schuh" <schuh@fnal.gov>; "Bill Miller" <Miller@soudan.umn.edu>; "Earl Peterson" <eap@physics.umn.edu>; "Edward Crumpley" <crumpley@fnal.gov>; "James L. Priest" <priest@fnal.gov>; "John W. Cooper" <jcooper@fnal.gov>; "Marvin L. Marshak" <marshak@umn.edu>; "Ronald E. Ray" <rray@fnal.gov>
Sent: Tuesday, January 23, 2007 10:41 AM
Attach: PLAN@1232-2.pdf; PLAN@ 1222-10.pdf
Subject: NOvA - T1 Meeting Minutes 22JAN07

MEETING MINUTES

NOvA Project

FESS/Engineering Project No. 15-1-3
University of Minnesota Project No. 896-06-1711
Burns & McDonnell Project No's. 44261 (Chgo) & 44267 (KC)
Date: January 22, 2007

Attendees:
Fermilab: M. Olson, G. VanZandbergen, J. Niehoff, S. Dixon
Burns and McDonnell: K. Stelling, P. Terry, J. Steeken, J. Rehak

Meeting Topic: Title 1 Progress Meeting - Architectural Issues

DISCUSSION TOPICS
Listed below are the discussion topics:

1. Proposed Plan Revisions
   - There was a review of two (2) plans prepared by BMD for the Service Building and surrounding area (copies attached)
   - Both plans were well received and incorporated refinements to the original scheme.
   - The plan at 1232-2 provided better maintenance access to the generators. The concept is a louvered panel that could be removed for the installation of the generators. In addition, the panel could be removed in the event that the generators had to be serviced/replaced.
   - The entry vestibule on both plans could be reworked with the interior doors opening to the east to allow the offices to slide to the north and provide a bit more space for the control room space.
   - The consensus was to proceed with the scheme identified as Plan@1232-2 since it offered the benefits of less excavation, better access to the Level 7 walkway at elevation 1240'-4" and took advantage of the views to the southwest portion of the site.
2. Fire Protection
   - The Fire Protection Room is approximately 20' x 22'
   - The current scheme is to provide water storage in interior water tanks in the space shown as the "Water Tank" room.
   - The Fire Protection design will assume that the water tanks are installed and piped to the pump.
   - The roof of the Water Tank Room could match the height of the adjacent Detector Enclosure and provide a clear height of ~30 feet.

- 60,000 gallons of water is needed for fire protection purposes.
- This configuration would likely require a centrifugal pump for the foam suppression system.
- The following walls would be 2-hour rated: generator rooms, mechanical room, water tank room.
- The two hour walls could be 8' high cmu for durability topped by metal studs/gyp board to the underside of the ceiling
- The walls around the Computer Room will be 1 hour rated.
- NFPA-850 should be consulted for transformer distances from the building
- NFPA-30 should be consulted for propane storage.

3. Shielding
   - The barite fill on the roof should extend outward of the Detector Enclosure walls.
   - Several walls in the Service Building were originally indicated as being constructed of barite-enhanced concrete. The current configuration should be reviewed with the experimenters to determine the required shielding.
   - Typical building sections through the Detector Enclosure and Service Building should be developed for the review.
4. Follow up - These comments were discussed offline after the meeting
   - If possible, there should be access from the Service Building to the Level 5 walkway (1222'-10"). This looks possible in the Plan@1232-2 scheme
   - If needed, the Mechanical Room can fill the space shown as Fire Protection Equipment. This Fire Protection Room could then take up space near the Water Tank Room, allowing a direct access to the exterior for installing and maintaining the equipment.

ACTION ITEMS
The following action items have been identified

FESS/E

1. Follow up with shielding

WBS 2.9
None identified

Burns and McDonnell

1. Develop plan.
2. Provide cross section for shielding review

SCHEDULE

The following preliminary milestones have been discussed.

- Progress Meeting: To Be Determined
- Comment and Compliance Review: mid-February 2007
- Quality Assurance Review: late-March 2007
- Title 1 Complete: late-April 2007
- Director's Review for CD-2/3A - To be scheduled ~ May 2007
- DOE Review for CD-2/3A: To be scheduled ~ July 2007

Standard OperatIng Procedure

SOP Identifier: 10.3.5.2
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Project Correspondence**

I Applicability

Project execution requires various types of project correspondence. This procedure provides guidelines for documenting the project related correspondence.

Correspondence related to a project shall be retained and transmitted to Fermilab at the end of each phase of the project or task. Such correspondence shall be treated as design calculations and includes telephone conversations, fax messages, meeting minutes, vendor meeting minutes and other related correspondence.

II Responsibilities

The following responsibilities have been identified:

FESS/E Project Engineer

- Determine the required documentation;
- Transfer documentation to project archives at completion of project;

Participants

- Document correspondence;
- Transmit to Project Engineer.

III Procedure

1.0 Document Conversation

The Participant completes documentation of conversations and vendor meetings with notes that contain the following the activities listed below:

1. Date;
2. Project Information;
3. Participant Information
    a. Name;
    b. Affiliation;
4. Contact Information
    a. Name
    b. Company
    c. Telephone/Fax numbers
5. Topic;
6. Design Impact.

2.0 Transmit Information

The Participant shall forward the completed correspondence documentation to the FESS/E Project Engineer in a timely manner based on the topic discussed and project impact.

IV References

The following references have been identified:

- FESS/Engineering Standard Operating Procedure 10.3.5.2 - Meetings

V Revision History

Version Number	Date	Author	Change Summary

VI Other

Standard OperatIng Procedure

SOP Identifier: 10.3.5.3
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **Minimum Drawing Requirements**

I Applicability

This procedure applies to drawings produced for FESS/E projects.

II Responsibilities

The following responsibilities have been identified:

Drawing Initiator

- Create drawing with required information.

III Procedure

1.0 Create Drawing

All drawings should have, as a minimum, the following information:

- Identification of FES section and Engineering department;
- Name of drawing initiator;
- Date;
- Project name;
- Project number;
- North arrow (of appropriate)
- Scale.

IV References

None noted

V Revision History

Version Number	Date	Author	Change Summary

VI Other

Standard OperatIng Procedure

SOP Identifier: 12.4.5.1
Version Number: 1.0
Effective Date: April 15, 2008

Subject Matter Expert: S. Dixon (steveo@fnal.gov)

Title: **A/E Consultant Invoicing**

I Applicability

This procedure applies to the reviewing and approving invoices for purchase orders under a master subcontract with architectural and engineering (A/E) consultant firms.

II Responsibilities

The following responsibilities have been identified:

A/E Consultant Contact

- Prepare invoice in accordance with master subcontract and purchase order;
- Submit invoice;

FESS/E Project Engineer

- Review invoice;
- Approve invoice;

III Procedure

1.0 Prepare Invoice – A/E Consultant

The A/E Consultant shall prepare an invoice with the following information contained as a minimum:

- Master Subcontract Number;
- Tasking Purchase Order Number;
- Unique A/E Invoice Number'
- Billing Period;
- FESS/E Project Name;
- FESS/E Project Number;
- FESS/E Project Engineer Name;
- Description of Services;
- Financial Summary Information;
- Percentage of Fee Expended;
- Percentage of Work Completed;
- Remaining Fee Amount.

2.0 Submit Invoice – A/E Consultant
The A/E Consultant shall submit the invoice to the following address:

Fermi National Accelerator Laboratory
M/S 112
Post Office Box 500
Batavia, Illinois 60510
Attention: BSS/Accounting

3.0 Review Invoice – FESS/E Project Engineer

3.1 Upon receiving an A/E Consultant invoice, the Project Engineer shall review the invoice to determine if the invoice accurately reflects the scope of work completed during the invoice period.

3.2 If the invoice is correct, the "OK To Pay" Invoice box on the invoice approval sheet should be checked, the sheet signed and dated.

3.3 If the invoice is incorrect, the A/E Consultant should be contacted for clarification/correction. A disapproved invoice should be marked with "DISAPPROVED – PLEASE REMOVE FROM SYSTEM" notation

3.4 Upon completion of the above, the invoice should be forwarded to the FESS Budget Office for tracking as required.

IV References

The following references have been identified:

- FESS/Engineering Policy FEP 9, Consultant Support

V Revision History

Version Number	Date	Author	Change Summary

VI Other

1.0 Example of A/E Invoice
2.0 Example of Invoice Approval Sheet

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

1.0 Example of invoice containing required information.

HOWARD ROARK ARCHITECTS, LLP

---INVOICE---

February 19, 2008

FERMILAB
M/S 112
Post Office Box 500
Batavia, Illinois 60510
Attn: BSS/Accounting

Billing Information:
Master Subcontract Number: 561245
Purchase Order Number: 517772
Invoice Number: 517772-1
Billing Period: August 01, 2008 through August 31, 2008

Project Information:
Project: SuperDuper Upgrade
FESS/Engineering Project No. 6-8-99
Project Coordinator: Hugh Jacz

Description: Professional A/E services related to Title 2 services for the SuperDuper upgrade project.

Billing Summary:

	Purchase Order Limit	Billings This Period	Previous Billings	Total To Date	Remaining
Labor	$40,000.00	$23,796.00	$5,000.00	$28,796.00	$11,204.00
Direct Costs	$4,000.00	$822.62	$0.00	$822.62	$3,177.38
TOTALS	$44,000.00	$24,618.62	$5,000.00	$29,618.62	$14,381.38

Percent Expended to Date: 70.4%
Percentage of Task Complete: 80%

TOTAL AMOUNT DUE THIS INVOICE: $24,618.62

1234 MIES VAN DER ROAD • WRIGHTSVILLE, ILLINOIS • 60001
PHONE: 555-1212 • FAX: 555-1221

Master Subcontract Number
Purchase Order Number
Invoice Number
Billing Period

Project Name
FESS/E Project Number
FESS/E Project Coordinator

Description of services performed

Indicate percentage of fee expended and percentage of task completed

Invoice amount

Provide backup data on separate attachment indicating personnel job classification, billing rates, hours expended and subtotaled for each classification and direct costs

Fermilab

Engineering Department
Facilities Engineering Services Section

Standard Operating Procedure

2.0 – Example of Invoice Approval Sheet

FERMI NATIONAL ACCELERATOR LABORATORY
ACCOUNTS PAYABLE AUTHORIZATION
INVOICE APPROVAL

PLEASE SIGN & RETURN TO:
Jim Berg
jberg@fnal.gov
Mail Stop: **112**
Ext.: **2922**
Fax: **2528**

Payment Due Date: **2/17/2008**

Please Return Before: **2/14/2008**

COPY

TO: **POWERS, THOMAS R** **210**
DIXON, STEVEN J MAIL STATION: **214**

VENDOR: **RJN GROUP**

PURCHASE ORDER NUMBER: **574174**

INVOICE NUMBER: **11-2101-07-11**

CURRENT PAYMENT AMOUNT *Redacted*

COMMENTS:

☑ **OK to Pay Invoice** ☐ **Hold Invoice**

REASON (If Hold)

REQUISITIONER/TECHNICAL: DATE: 2/14/08
DENOTES: "GOODS AND/OR SERVICES ARE SATISFACTORY AND MEET SPECIFICATIONS."

PROCUREMENT/CONTRACTS: DATE:
DENOTES: "INVOICE CONFORMS TO ALL PRICES, TERMS AND CONDITIONS OF PURCHASE ORDER/SUB-CONTRACT."

ISSUED: 2/7/2008 ***Record #: 2978***