Evaluation of Position Description

Labor Category/FLSA: Exempt

_____**Current Position Description**
__X__**Proposed Position Description**

Date Prepared: 10/09/03

Approving Official: Name: Sheryl A. Wheeler **Signature:** _____
Title: HR Specialist

Position Title/Series/Grade: Interdisciplinary Position: Architect, GS-808-13/General Engineer, GS-801-13/Civil Engineer, GS-810-13/Mechanical Engineer, GS-830-13/Electrical Engineer, GS-850-13

ORGANIZATION: Division of Property Management (DPM) , Construction Management Branch (CMB)

REFERENCED STANDARDS: Handbook of Occupational Groups and Families, definitions for Engineering and Architecture Group, GS-800, dated 1/99; Architect Series, GS-808, dated 10/86; Civil Engineering Series, GS-810, dated 12/64; Mechanical Engineer Series, GS-830, dated 6/77; General Engineer, Electrical Engineer Series, GS-850, dated 2/71; Engineering Group, GS-800, dated 3/90; Equipment Development Grade Evaluation Guide, Part II, Project Management Engineering, GS-800, dated 8/66 & 6/68

SERIES AND TITLE DETERMINATION

The incumbent of this position serves as Project Manager for one or more design, construction, and/or alteration project(s). As such, he/she assumes full responsibility for the management and coordination of the project(s), serving as the liaison between ORFDO and the Institute or Center (IC), acting as the technical advisor, and ensuring quality assurance and code enforcement of the construction project. The incumbent is responsible for planning, coordinating, implementing, monitoring, and evaluating all aspects of the management of a project. Typically, these management functions include, but are not limited to: budget, contract, procurement, and human resource management, as well as managing the activities and work performance of many subcontractors who are performing a broad range of activities in support of the project(s), to include assuring the highest level of quality control of resulting products and services. The incumbent serves as the project's advocate, playing a pivotal role in assuring that all aspects of the project are completed and in the most effective way possible, assuring the highest quality work.

The incumbent coordinates the work with the ongoing NIH programs and other contractors, including developing interim phasing and making arrangements for space availability, relocations, and outages of services. He/she serves as the liaison and, at times, mediator, between the contractor and the architect as well as other trades and crafts involved with various aspects of the project, resolving disputes and disagreements as necessary to the successful achievement of the project. The incumbent evaluates the technical feasibility and economics of proposed modifications to the work brought about by changed program requirements. He/she negotiates with the contractor and the NIH programs on these modifications to determine a definite program of requirements for the modification, including impact on completion time and appropriate compensation for the contractor or the in-house shop.

Subject position requires a thorough knowledge of principles, concepts, and practices of a field of engineering or architecture; knowledge of the architectural/engineering needs of the field of medicine and a working knowledge of related disciplines such as civil, electrical, and mechanical engineering. Also required is the ability to extend and modify existing architectural and/or engineering techniques; and to assist in developing, revising, and maintaining agency specifications and criteria as well as technical handbooks and other written guidance. The incumbent must possess a professional knowledge of the theories, principles, practices, and techniques of facilities planning, design, construction, and project management as well as knowledge of Federal contract management and administration regulations, policies, procedures, and practices, and of the NIH contracting process.

Several series were reviewed to determine the appropriate series for subject position. The Contracting Series, GS-1102, was reviewed for its applicability. This series includes positions that have direct responsibility for such areas of contract management as soliciting, evaluating, negotiating, and awarding contracts; administering contracts by assuring compliance with the terms and conditions of contracts, including resolution of problems concerning the obligations of the parties; terminating contracts by analyzing, negotiating, and settling claims and proposals; analyzing and evaluating cost or price proposals and accounting systems data; planning, establishing, or reviewing contracts, programs, policies, or procedures; formulating and administering policies and procedures to insure achievement of Federal socioeconomic goals; developing acquisition strategies and directing or managing procurements; and providing staff advisory services. Although the incumbent is involved in varying aspects of contract administration such as assuring compliance with the terms and conditions of the contract and developing Statements of Work, these responsibilities are from a different perspective than is being addressed in the Standard. Therefore, subject position is not appropriately classified in this series.

Because of the requirement within subject position for a thorough knowledge of the principles, concepts, and practices of a field of engineering or architecture, along with knowledge of the architectural/engineering needs of the field of medicine and a working knowledge of related disciplines such as civil, electrical, and mechanical engineering, various professional A/E series were also reviewed. Based on this review, it was then determined that subject position fits most

appropriately within a number of these professional A/E series and should, therefore, be classified as Interdisciplinary.

According to the Office of Personnel Management's (OPM's) Introduction to the Position Classification Standards, an interdisciplinary professional position is a position involving duties and responsibilities closely related to more than one professional occupation. As a result, the position could be classifiable to two or more professional occupational series. The nature of the work is such that persons with education and experience in either of two or more professions may be considered equally well qualified to do the work. Such is the case with subject position. Therefore, when filled by someone meeting the qualifications for one of the following series, subject position will be classified within that series:

GS-801 -- General Engineering Series

This series includes all classes of positions the duties of which are to advise on, administer, supervise, or perform research or other professional and scientific work of a special or miscellaneous character which is not specifically classifiable in any other engineering series, but which involves the application of a knowledge of such engineering fundamentals as the strength and strain analysis of engineering materials and structures, the physical and chemical characteristics of engineering materials such as elastic limits, maximum unit stresses, coefficients of expansion, workability, hardness, tendency to fatigue, resistance to corrosion, engineering adaptability, engineering methods of construction and processing, etc.; or positions involving professional work in several branches of engineering.

When filled with an individual meeting the qualifications for this series, subject position will be classified as General Engineer, GS-801.

GS-808 -- Architecture Series

This series includes positions the duties of which involve professional architectural work which requires knowledge of architectural principles, theories, concepts, methods, and techniques; and an understanding and skill to use pertinent aspects of the construction industry, engineering and the physical sciences related to the design and construction of new or the improvement of existing buildings.

When filled with an individual meeting the qualifications for this series, subject position will be classified as Architect, GS-808.

GS-810 -- Civil Engineering Series

This series included professional positions in the field of civil engineering, typically requiring application of such specialized knowledges as the theory of structure, strength of materials, and

surveying. Positions in this series have responsibility for management, supervision or performance of planning, designing, constructing, and/or maintaining structures and facilities.

When filled with an individual meeting the qualifications for this series, subject position will be classified as Civil Engineer, GS-810.

GS-830 -- Mechanical Engineering Series

This series includes professional positions in the field of mechanical engineering typically requiring the application of thermodynamics, mechanics, and other physical, mathematical and engineering sciences to problems concerned with the production, transmission, measurement, and use of energy, especially heat and mechanical power.

When filled with an individual meeting the qualifications for this series, subject position will be classified as Mechanical Engineer, GS-830.

GS-850 -- Electrical Engineering Series

This series includes professional engineering positions which require primarily application of knowledge of the physical and engineering sciences and mathematics, electrical phenomena, and the principles, techniques, and practices of electrical engineering. The work pertains primarily to electrical circuits, circuit elements, equipment, systems, and associated phenomena concerned with electrical energy for purposes such as motive power, heating, illumination, chemical processes, or the production of localized electric or magnetic fields.

When filled with an individual meeting the qualifications for this series, subject position will be classified as Electrical Engineer, GS-850.

GRADE DETERMINATION

Although most of the above identified series have classification standards which provide grade determining criteria, a more suitable match was desired, as these positions are not purely engineering but also have an overriding component involving project management. During the course of reviewing various classification standards and guides, it was discovered that Part II, Project Management Engineering, of OPM's Equipment Development Grade Evaluation Guide seemed to capture the major components of project management.

According to Part II of this Guide, project management involves managing the combined effort of contractors and Government agencies in support of a particular project to assure that the end product meets established cost, schedule, and performance requirements. Typically, project management responsibilities include the following functions:

- participate with key personnel responsible for defining the goals for the project, and work with them in preparing a master plan for accomplishing these goals;
- prepare engineering and support cost estimates to achieve the goals of the master plan;
- prepare schedules for the complete project and establish a system to review, control, and report on project status;
- negotiate with other organizations of the agency and other Government agencies for research, design, test, and other services as necessary;
- determine what phases of the project will be performed by contractors; and participate in the review of bids, contractor's proposals, contract specifications, etc.;
- participate in design reviews, contract negotiations, and technical and business discussions with contractors;
- review and assess the effectiveness of contractors in meeting the technical and administrative requirements of the contract;
- monitor project reviews and, based on these reviews, readjust money, schedules, and work for accomplishing the project;
- resolve any relationship problems or conflicts that impede progress; insure that contractor and Government staffs work effectively toward timely completion of projects.

According to Part II of the Guide, project management positions require the following knowledge and abilities:

- knowledge of the basic techniques, processes, and procedures established within the agency for managing designated projects, and the ability and willingness to use them;
- knowledge of Government and agency contractual and funding rules, regulations, relationships and administrative processes involved in developing and procuring hardware, research, studies, engineering services, etc.;
- knowledge of the scientific and engineering fields involved and the type and nature of work being pursued in advancing the state of the art;
- ability to plan and organize the work to accomplish a variety of concurrent activities performed in a variety of organizations (in-house, contractors, other agencies, task forces, study groups);

- ability to analyze situations, identify problems, probe causes, and suggest courses of action for technical and functional specialists to pursue;

- ability to accomplish work effectively through others, to maintain harmonious relationships among all parties, to achieve appropriate and timely support, and to reconcile divergent viewpoints;
- ability to gauge the effort required to the situation at hand, to be selective in what to do and how to proceed, and to recognize the resulting impact in terms of schedule, costs, risks involved, tradeoffs necessary, etc.;

- ability to communicate effectively in writing and in person to-person contacts.

Thus, Part II of this Guide is determined to be the best fit for grade level determination. It uses four evaluation factors to determine grade level. Each will be discussed separately.

Factor I, Scope of the Assignment

The scope of the assignment directly reflects the level of difficulty and responsibility an engineer encounters in performing these tasks:

-- defining technical requirements and characteristics; and,
-- planning and coordinating the various facets of the assignment to achieve an acceptable product on time within a specified budget.

At Degree A, assignments involve a major subject matter or functional area consisting of a variety of equipment systems performing various functions and purposes. These areas are mutually interdependent and represent a homogeneous grouping for which similar knowledge, skills, processes and techniques are applicable. Typically, the assignment involves the participation of several contractors and in-house groups pursuing different portions of the development activities.

Degree C assignments differ from Degree A in that they involve a wide range of independent activities or broad critical areas of concern. Engineers may manage the major elements of the project as they relate to a specific function, or manage the various phases of the development effort for several major subject-matter areas of the project. This degree is represented by a wide variety of combinations of elements and functions, and those areas that may be critical in achieving acceptable performance.

Degree E differs from Degree C in that assignments involve managing overall development efforts. In projects involving development of a specific end product, this degree is represented by the position of the Chief Engineer for the project. For projects involving several different end products which are not separately managed or the accomplishment of operational missions, this

degree is represented by positions responsible for major subject-matter entities of extensive scope and variety, such as all electronic and electrical systems for a variety of manned spacecraft.

Within subject position, the incumbent serves as Project Manager for one or more design, construction, and/or alteration project(s). As such, he/she assumes full responsibility for the management and coordination of the project(s), serving as the liaison between DES and the IC, acting as the technical authority, and ensuring quality assurance and code enforcement of the construction project. He/she is responsible for planning, coordinating, implementing, monitoring, and evaluating all aspects of the management of a project. In consultation with the Program Manager, who is also the Team Leader, the incumbent determines the most appropriate method for project execution.

At the GS-13 level, the projects with which the incumbent is involved are often new and unique and therefore few guidelines or precedents are available for reference. These projects or assignments frequently involve the development and/or renovation of laboratory and/or clinical space for which the incumbent must be able to accommodate the installation of technical, sophisticated state-of-the-art equipment and systems, such as equipment in the area of nuclear medicine or radiological scanning devices.

The scope and complexity of work conducted requires the use of judgment in clearly identifying and then either personally solving or determining which resource to utilize to provide solutions to the unique problems presented by the NIH environment. Assignments are further complicated due to the range of functions performed to plan, develop, maintain, and complete a complex project. Much of the effort encountered focuses on the management aspects of a project which are in addition to the technical requirements presented by the assignment. The incumbent may be responsible for more than one management function critical to the effective completion and final delivery of a project. The incumbent is responsible for planning, coordinating, implementing, monitoring, and evaluating all aspects of the management of a project. Typically, these management functions include, but are not limited to budget, contracting, procurement, and human resource management, as well as managing the activities of several subcontractors who are performing a range of activities in support of the project.

Subject position therefore exceeds Degree A, as that level the projects involve a major subject matter or functional area consisting of a variety of equipment systems performing various functions and purposes; however, these areas are mutually interdependent and represent a homogeneous grouping for which similar knowledge, skills, processes and techniques are applicable. Subject position goes beyond this level as the incumbent manages projects which involve a variety of stages and aspects of engineering. This is comparable to Degree C, at which level Engineers may manage the major elements of the project as they relate to a specific function, or manage the various phases of the development effort for several major subject-matter areas of the project. The incumbent has full responsibility for the management of the projects, which involve a full range of functions and subject matter areas. Subject position does not meet Degree E as this degree is represented by positions responsible for major

subject-matter entities of extensive scope and variety. At such levels, the position would be considered the Chief Engineer on the project. This is not the case in subject position as the projects are not quite as complex or difficult as those assigned to GS-14 level staff. In addition, there is always a program manager at a higher level than the incumbent with final authority for the successful completion of the project.

Therefore, subject position meets Degree C of this factor and is assigned 6 points.

Factor II, Technical Complexity of the Assignment

This factor deals with the degree of complexity introduced by the technical environment and requirements of the product. The technical complexity or level of technology used affects the kind and level of technical judgment and variety of knowledge required for formulating approaches; guiding, directing, and evaluating the efforts of others; solving problems and resolving controversies; selecting among alternative courses of action; achieving compromises among conflicting requirements; and controlling schedules and costs, and redirecting nonproductive efforts.

Degree A assignments involve the modification, adaptation, and extension of engineering principles and guidelines which are within the available technology. At this degree, assignments represent the next logical development step in the improvement of products based on explored and exploited knowledge. A variety of technological problems require engineering compromises and changes in various performance and design aspects of the equipment and engineering processes involved to achieve greater efficiency and reliability and enhanced capabilities.

Degree C differs from Degree A in that assignments require the application of engineering and scientific principles to technical problems in significant areas of applied research or development for which no closely related precedents exist. Engineering requirements relate to the application of design principles from any engineering area to new developments that are considered to be within the state of the art. Some major portions or critical areas of the assignment require application of new concepts and approaches to capitalize on engineering knowledge of advanced science or technology. However, the essential application normally involves managing development efforts within available or near available technology rather than beyond the state of the art.

Degree E differs from Degree C in that assignments involve rapidly advancing technology and science for which application has been primarily confined to laboratory simulation and study. These efforts provide approaches and concepts for new and novel products which are largely unproven and for which feasibility must be established. This level represents a pioneering effort or one for which significant technological breakthroughs and advances in the basic theoretical premises are being sought. The successful solution of the assignments' technical problems will have wide application for future development programs.

Within subject position, as stated earlier, the incumbent is quite often involved in the handling of situations which are new and unique and therefore little guidelines or precedents are available for reference. Assignments are complex in nature, due in large part to the nature of the NIH mission and the uniqueness of the facilities which are essential in achieving that mission. The research and clinical effort carried out at NIH demands state-of-the-art facilities and engineering supporting systems such as those involved in the production and distribution of utilities across the campus.

Subject position therefore exceeds Degree A, which involves working on assignments which require modification, adaptation, and extension of engineering principles and guidelines which are within the available technology. It is more comparable to Degree C, as that level describes work for which some projects involve application of new concepts and approaches requiring knowledge of advanced science or technology. However, the essential application normally involves managing development efforts within available or near available technology rather than beyond the state of the art. This is more descriptive of subject position as the majority of projects or assignments handled by the incumbent at the GS-13 level involve the development and/or renovation of laboratory and/or clinical space for which the incumbent must be able to accommodate the installation of technical state-of-the-art equipment and systems, such as new equipment in the area of nuclear medicine or radiological scanning devices. Subject position does not meet Degree E, as that level is descriptive of projects involving rapidly advancing technology and science for which application has been primarily confined to laboratory simulation and study. These efforts provide approaches and concepts for new and novel products which are largely unproven and for which feasibility must be established. This level represents a pioneering effort. Although the incumbent may need to accommodate state-of-the-art equipment and facilities, the work is not of a pioneering effort nor it is largely unproven.

Therefore, subject position meets Degree C of this factor and is assigned 6 points.

Factor III, Authority and Responsibility

This factor relates to the degree of freedom and the extent of accountability which the engineer has within the overall organizational framework involved in the project. The degree of authority and accountability delegated to individual positions are affected by these types of considerations:

-- the criticality of the assignment to the overall project or mission;
-- interrelationships among assignments;
-- sharing of responsibility with other participating organizations;
-- authority and responsibility vested in review boards and panels;
-- legal aspects and restrictions;
-- the reliance placed on the engineer because of his/her professional stature;
-- terms of contracts with contractors and among contractors;
-- layering of review and control in the Project Management Office.

At Degree A, Engineers primarily have responsibility for assessing progress and maintaining liaison between the various activities engaged in the engineering work involved in his/her particular assignment. The engineer provides an effective channel for obtaining and relaying information between participants and insuring that good engineering practices are being pursued, that schedules are being maintained, and that difficulties which create bottlenecks and problems are being brought to proper source attention. Some typical responsibilities are:

- -- ascertaining that plans are being carried out, schedules maintained, and documentation accomplished;
- -- ascertaining that problems and difficulties are being identified and steps are being taken to investigate and seek resolutions;
- -- investigating and recommending appropriate action to higher project authority;
- -- reporting project status and providing background information as needed;
- -- interpreting agency and project procedures and requirements to others.

Degree C differs from Degree A in that the engineer has responsibility for managing and concluding action involved in the various functions and processes to achieve the specified goals and objectives of his/her assignment. The administrative framework involved in accomplishing overall project goals has been established by higher authority. This includes overall basic patterns of organization, delegation of authority and responsibility, operating policies and procedures, long-range plans and patterns of resources allocations. Within this framework, the engineer is delegated responsibility and authority for day-to-day activities and decisions. He/she is relied upon to provide continuity of management throughout all phases of the development process. Some typical responsibilities are:

- -- achieving appropriate staffing levels to accomplish the engineering work, i.e., obtaining support from in-house organizations, insuring that the contractor carries out work efficiently and effectively, etc.;
- -- making intermediate and short-range plans;
- -- allocating resources at his/her disposal;
- -- resolving problems involving his/her assignment;
- -- presenting, defending and interpreting to top officials in Government and contractor activities those policy and program aspects involved in his/her assigned area.

Degree E differs from Degree C in that full reliance is placed by the project manager or higher authority on the Engineer as a recognized management authority in overall program definition, organization, direction, and emphasis throughout the development cycle. Typical responsibilities may include:

- -- making substantial contributions to the project in establishing overall operating policies, priorities, procedures and long and short-range plans;

-- exercising broad authority regarding programing of effort, delegation of authority and responsibility, allocation of overall resources, insuring of functional support, approval of critical actions and changes, and continuing managerial appraisal of progress coupled with authority to require appropriate corrective actions;
-- serving as an authoritative source for decisions and guidance concerning compromises and changes in program objectives relating to management of the total project effort. Such determinations are reviewed for the purpose of keeping higher levels of management informed on the status of the project.

The incumbent is responsible for planning, coordinating, implementing, monitoring, and evaluating all aspects of the management of a project. Typically, these management functions include managing the activities and work performance of many subcontractors who are performing a broad range of activities in support of the project(s), to include assuring the highest level of quality control of resulting products and services. In consultation with the Program Manager, the incumbent determines the most appropriate method for project execution. In all cases, he/she acts as the Project Manager, ensuring appropriate and satisfactory completion of the project, from beginning to end.

Subject position therefore exceeds Degree A, which is more descriptive of positions which are involved in assessing progress and maintaining liaison between the various activities engaged in the engineering work involved in his/her particular assignment but not necessarily involved in the resolution of problems but rather referring them to others. Subject position goes beyond this and meets the criteria outlined under Degree C, which also includes insuring that the contractor carries out work efficiently and effectively, etc.; allocating resources at his/her disposal; resolving problems involving his/her assignment, etc. At the GS-13 level, the incumbent of subject position anticipates and resolves a myriad of problems and conflicts that may arise during the course of the project, many of which may be related to unsafe working conditions and thus may be a potential threat to the safety of life and property, deferring to a more senior staff member any questions or concerns, as appropriate. He/she scrutinizes the proposed progress schedule to determine if it is practiced, complies with the requirements and constraints, and ensures that proper consideration is given to unexpected future equipment deliveries and space availability. He/she also examines the schedule of prices and compares with the engineering estimates to assure it is realistic. Therefore, subject position is comparable to Degree C, at which level, the engineer is delegated responsibility and authority for day-to-day activities and decisions, and is relied upon to provide continuity of management throughout all phases of the process.

Subject position does not meet Degree E, as that level describes a situation in which full reliance is placed by the project manager or higher authority on the Engineer as a recognized management authority in overall program definition, organization, direction, and emphasis throughout the development cycle. Such authority includes exercising broad authority regarding programing of effort, delegation of authority and responsibility, allocation of overall resources, insuring of

functional support, approval of critical actions and changes, etc. The incumbent of subject position has been delegated full and final authority as that rests with the Program Manager.

Therefore, subject position meets Degree C of this factor and is assigned 6 points.

Factor IV, Technical and Managerial Demands

This factor is concerned with the degree of technical and managerial knowledge and abilities, mature judgment, and leadership qualities required and applied in positions covered by this standard. A number of elements operate to differentiate the degree of difficulty imposed by technical and managerial demands affecting an assignment. Some such elements are as follows:

-- the extent to which the engineer provides leadership to the agency, participating organizations, contractors, and others in creating and proving feasibility of concepts, in defining requirements, and in directing and controlling the development efforts;
-- the relative impact of the project on the public, industry, and Government functions; and the degree of interest (or lack thereof) in accomplishment;
-- the relative urgency and importance to other programs and missions; and,
-- the relative scope, complexity, novelty, and technical risks involved in the development effort;
-- the relative number, size and nature of involvement throughout the agency and the magnitude and uniqueness of agency and contractor effort required;

At Degree A, technical and managerial demands stem from the difficulties typically encountered in coordinating a range of functions, subject matter, and development processes involved in achieving improved products. The practices, procedures and techniques involved in managing are applied to these types of complexities:

-- assignments normally comprise a wide variety of concurrent activities; deviations from the customary engineering practices and processes are susceptible of partial substantiation before major resources are allotted, or alternative approaches can be undertaken concurrently;
-- design criteria, engineering specifications, precedent designs, and simulation techniques are generally available and may be adapted, modified, or extended to provide a basis for management planning and evaluation and making engineering determinations;
-- when advanced or new techniques, technology, processes, and equipment are used, they can be assessed by known methods and procedures; similarly, the time and cost schedule can be adjusted to permit analysis and investigation on which to base design assumptions and management decisions.

Degree C differs from Degree A in that a variety of unusual factors, pressures, and complexities create a technical and managerial situation that results in a substantial element of uncertainty and

risk as to the foreseeable outcome of the development efforts. Typically, substantial uncertainty and risk may arise when the assignment is extensively affected by advances in technology. Similarly, a high degree of uncertainty and risk may be encountered when the technical objectives to be achieved are largely undefined in complex areas of concern. These technical and managerial demands require the engineer to provide direct leadership in bringing complex innovations to fruition and in resolving critical difficulties. Examples are as follows:

-- The assignment presents a dynamic situation in regard to planning and organizing the work to be accomplished. Some activities are pursued in the usual manner following established precedents and processes. However, vital aspects of the assignment present a clear-cut need to develop new approaches to problems; use unusual and unorthodox methods; and plan and pursue alternative courses of action both at the outset and throughout the development cycle.
-- Positive pressures to achieve specified and rigorous goals exist because of the criticalness of the assignment to major objectives of projects, or the impact on the public or on other programs. These and similar circumstances require competent technical judgment and managerial skill. The successful accomplishment is also critical in that it provides essential building blocks and knowledge for future programs, purposes and missions.

Degree E differs from Degree C in that the successful outcome of the total development effort is jeopardized by a variety of exceptionally difficult and complex factors. These factors impose a clear requirement for creative leadership and outstanding managerial competence throughout the development process. Typically, the technical and managerial demands require the direct authoritative participation of the engineer in organizing and controlling the effort to establish (a) the feasibility of various concepts, and (b) the means by which to achieve advancements beyond the state of the art. Situations which create a necessity for the exercise of extensive managerial skills, mature technical judgment, and creative leadership result from an interplay of most of the following typical factors:

-- The assignment requires that primary project direction and coordination be exercised by the engineer rather than the contractor. This situation frequently exists because the development activities are fragmented among many internal and external organizations. Accomplishment is further complicated by the wide coverage, diversity, and specialization of subject matter, functions, and processes.
-- Factors of urgency exist to such an extent that the development processes are greatly telescoped. A high degree of resourcefulness is required to meet the restrictive time factors, which are usually accompanied by equally stringent cost factors. This requires recommending or taking action which involves considerable risk and may jeopardize the satisfactory outcome of the assignment and, in turn, major programs and purposes.

-- Significant major advancements in technology, new theoretical premises and/or breakthroughs to achieve project objectives are being independently pursued by various contractors and activities.
-- The newness of the development effort (previously untried) or the conflicting nature of requirements and objectives requires outstanding leadership to achieve a productive, competent, and creative climate.

Within subject position, the facilities and systems to be built or renovated under the projects assigned to the incumbent are typically complex and often unique to the NIH research setting, requiring specialized knowledges and skills in dealing with unique requirements. Projects are typically extensive in scope and importance to the NIH mission. Examples of the types of projects assigned include research laboratories, clinical facilities, diagnostic laboratories, bio-safety laboratories, auditoria, conference spaces, computer facilities, industrial functions such as shops and laundry, animal holding and surgery, offices, and spacing to house miscellaneous specialized research instrumentation such as magnetic nuclear resonance imaging, cyclotron, etc. Projects may be one or more years in duration and may involve construction costs falling within the million dollar range, involving application of a variety of architectural and engineering theories and practices. Overall success of these projects is of critical importance to the NIH mission.

Subject position goes beyond that described at Degree A, which includes assignments for which engineering specifications, precedent designs, and simulation techniques are generally available and may be adapted, modified, or extended. The types of projects with which the incumbent is involved are more complex than this as they may involve new technologies and equipment for which little precedents are available. Projects for which the incumbent makes decisions and takes action may be valued in the million dollar range and require more than one year to complete.

Subject position therefore meets Degree C, as at that level, substantial uncertainty and risk may arise when the assignment is extensively affected by advances in technology. Similarly, a high degree of uncertainty and risk may be encountered when the technical objectives to be achieved are largely undefined in complex areas of concern. Most of the projects with which the incumbent is involved are complex and urgent. The technical and managerial demands at Degree C require the Engineer to provide direct leadership in bringing complex innovations to fruition and in resolving critical difficulties. Within subject position, the quality of the clinical and research facilities and reliability in performance of support systems with which the incumbent is involved are of critical importance to the NIH medical and research mission. The advice provided by the incumbent may impact future construction criteria for these facilities. This fits in well with the example provided at Degree C, for which there exist pressure to achieve specified and rigorous goals because of the criticalness of the assignment to major objectives of projects, or the impact on the public or on other programs, with the successful accomplishment of the project may also provide knowledge for future programs, purposes and missions.

Subject position does not meet Degree E, as that level of projects involve a variety of exceptionally difficult and complex factors. Demands placed at this level require the Engineer to establish the feasibility of various concepts, and the means by which to achieve advancements beyond the state of the art. Decisions to be made involve considerable risk and may jeopardize the satisfactory outcome of the assignment and, in turn, major programs and purposes. At the GS-13 level, the incumbent works in conjunction with the Program Manager in conducting feasibility studies and in developing a project plan. The projects assigned to the incumbent are not consistently of a level of uniqueness and complexity that match the criteria at this degree.

Therefore, subject position meets Degree C of this factor and is assigned 6 points.

CONCLUSION

By reference to the Guide, the preceding analysis yields a total point value of 24 points. See attached chart for specific point values for each factor. According to the Guide, a total of 24 points falls between the point range of 16-22 for the GS-13 level and 26-32 for the GS-14 level. According to guidance provided in the Guide, the determination as to whether to convert to the next lower or the next higher grade should be based on application of general classification principles, with consideration of (a) the relative weakness or strength of the position compared to other positions in the organization, and (b) aspects of the position which may not have been fully covered in arriving at the point values.

In the case of subject position, it is management's intent for this position to be the lower level within a short career progression for Project Managers to progress from the GS-13 to the GS-14 level. Therefore, is determined that subject position is appropriately classified as Interdisciplinary Position: Architect, GS-808-13/General Engineer, GS-801-13/Civil Engineer, GS-810-13/ Mechanical Engineer, GS-830-13/Electrical Engineer, GS-850-13.

Equipment Development Grade Evaluation Guide
Part II, Project Management Engineering, GS-800

Factor	Degree	Points Assigned
I. Scope of the Assignment	C	6
II. Technical Complexity of the Assignment	C	6
III. Authority and Responsibility	C	6
IV. Technical and Managerial Demands	C	6
TOTAL POINTS		24*
GRADE CONVERSION	POINT RANGE: 16 - 22*	GRADE: 13*

*In accordance with guidance found in this classification guide

Interdisciplinary Position:
Architect, GS-808-13
General Engineer, GS-801-13
Civil Engineer, GS-810-13
Mechanical Engineer, GS-830-13
Electrical Engineer, GS-850-13

INTRODUCTION

This position is located in the Office of Research Facilities Development and Operations (ORFDO), Office of the Director (OD), National Institutes of Health (NIH), Department of Health and Human Services. The ORFDO employs a staff of approximately 602, including professional, scientific, administrative, technical, trades, and support positions. The ORFDO is primarily responsible for planning and directing services that provide master planning; capital facility project management; real property management, including architecture and engineering, maintenance, space and facility management; and, the acquisition of architecture and engineering services, leasing, construction, and facility maintenance and operations related services. In addition to its main campus covering over 300 acres in Bethesda, Maryland, NIH has research facilities throughout Montgomery County, MD; in Baltimore and Frederick, MD; in Research Triangle Park, NC; and, in Hamilton, MT. The types of facilities used by NIH are diverse and consist predominantly of special purpose space such as hospitals, multi-disciplinary clinics and biomedical research laboratories, and facilities that house computers, animals, unique testing devices, as well as general office and support space.

The Construction Management Branch (CMB), Division of Property Management (DPM), ORFDO provides architectural, engineering and construction management services required for planning, designing and constructing, altering, renovating, improving and repairing NIH facilities through in-house resources or contracts with A/E and construction firms. Responsible for monitoring and reporting progress of projects under its purview against approved programs of requirements, budgets, and schedules. Responsible managing projects under its purview to successful completion by implementing project controls and risk management strategies to minimize variance from approved programs of requirements, budgets, and schedules.

The incumbent is a professional Architect or Engineer who serves on one of the multi-disciplinary project management teams within CMB, each of which is responsible for providing planning, design, and construction services on multi-million dollar construction projects in support of the NIH mission. The facilities and systems to be built or renovated under these projects are typically complex and often unique to the NIH research setting, requiring specialized knowledges and skills in dealing with unique requirements.

Projects are typically extensive in scope and importance to the NIH mission. Examples of the types of projects assigned include research laboratories, clinical facilities, diagnostic laboratories, bio-safety laboratories, auditoria, conference spaces, computer facilities, industrial functions such

as shops and laundry, animal holding and surgery, offices, and spacing to house miscellaneous specialized research instrumentation such as magnetic nuclear resonance imaging, cyclotron, etc. Projects may be up to five or more years in duration and may involve construction costs in excess of millions of dollars, involving broad application of architectural and engineering theory and practice. Overall success of these projects is of the utmost importance to the NIH mission.

MAJOR DUTIES AND RESPONSIBILITIES

Serves as Project Manager for one or more design, construction, and/or alteration project(s). As such, assumes full responsibility for the management and coordination of the project(s), serving as the liaison between ORFDO and the IC, acting as the technical advisor, and ensuring quality assurance and code enforcement of the construction project.

Is generally assigned to a project for the length of its duration and, depending upon the amount of time needed to manage a project, may be handling more than one project at any given time. As each project is completed, is continually assigned new projects. Projects managed cover a wide expanse of subjects and areas.

Responsible for planning, coordinating, implementing, monitoring, and evaluating all aspects of the management of a project. Typically, these management functions include, but are not limited to: budget, contract, procurement, and human resource management, as well as managing the activities and work performance of many subcontractors who are performing a broad range of activities in support of the project(s), to include assuring the highest level of quality control of resulting products and services. Serves as the project's advocate, playing a pivotal role in assuring that all aspects of the project are completed and in the most effective way possible, assuring the highest quality work.

In consultation with the Program Manager, who is also the Team Leader, determines the most appropriate method for project execution. Such decisions may result in the project being directed to the Branch for planning and execution or parts or all of the project may be accomplished by contract. In all cases, acts as the Project Manager, ensuring appropriate and satisfactory completion of the project, from beginning to end.

Works with customers in performing preliminary surveys to establish the scope, parameters, and requirements for the project. Surveys the existing site conditions to determine space problems and system needs and confers with research scientists to determine the scope of the project. Coordinates with other engineers and architects and with NIH environmental engineers, industrial hygienists, and safety specialists to ensure that all environmental and safety issues are considered.

Conducts feasibility studies to determine the most economical and effective course of action to achieve the project objectives within the time, budget, regulatory, and policy limitations and customer needs. Develops a project plan, in consultation with the Program Manager, which

usually consists of several phases including assignment of project staff, development of project scope, selection of an architect/engineering (A/E) contractor or in-house design, design development, construction, and final acceptance of finished project according to government requirements.

Provides an analysis and recommendations to the Program Manager, identifying the most efficient and effective method of construction. Alternatives include formal lump-sum contract, task order, delivery order contract, 8(a) program set-aside, and in-house shops. Works with the IC to see that proper funding is available to support the project. This involves recommending budgetary strategies and construction phasing to clients so that limited resources, including facility space, are used in the most efficient means possible.

Assists the Program Manager in the selection of the A/E consultants, including advising interested firms on the scope of the project and developing necessary criteria for selection of firms. May, at times, serve as a member of the official A/E selection board.

Reviews plans and specifications prepared either by in-house designers or A/E firms at various stages of the design. Ensures proper coordination of the various aspects of the project, reviewing design plans to determine if they are feasible, if they can be constructed efficiently, if they will accomplish what is intended, and if phasing is included in the document as necessary to accomplish the project. Defers to a more senior staff member any questions or concerns, as appropriate.

Maintains close surveillance over the progress and status of the project. Scrutinizes the proposed progress schedule to determine if it is practiced, complies with the requirements and constraints, and ensures that proper consideration is given to unexpected future equipment deliveries and space availability. Examines the schedule of prices and compares with the engineering estimates to assure it is realistic.

Reviews submittals by the contractor or in-house shop to determine if equipment items, materials, techniques, etc., proposed for use will meet the specifications. Approves or rejects these submittals, or forwards them for review by either in-house or A/E firm designer. Responsible for the coordination of submittals from various trades.

Coordinates the work with the ongoing NIH programs and other contractors, including developing interim phasing and making arrangements for space availability, relocations, and outages of services. Serves as the liaison and, at times, mediator, between the contractor and the architect as well as other trades and crafts involved with various aspects of the project, resolving disputes and disagreements as necessary to the successful achievement of the project.

Evaluates the technical feasibility and economics of proposed modifications to the work brought about by changed program requirements. Negotiates with the contractor and the NIH programs on these modifications to determine a definite program of requirements for the modification,

including impact on completion time and appropriate compensation for the contractor or the in-house shop. Performs the same functions on changes due to construction site conditions.

Resolves problems and conflicts that may arise during the course of the project, many of which may be related to unsafe working conditions and thus may be a potential threat to the safety of life and property. Must apply judgment in the application of policies, regulations, guides and instructions. Many of the problems or issues found at the actual construction site level do not conform clearly to most available guides. In addition, many situations require an immediate decision in order to keep work moving on schedule and to conserve valuable resources. If disputes arise regarding design or construction contract issues (e.g., payment or claims), consults with the Program Manager in determining the most favorable course of action for the IC program and the Federal government.

May serve on committees and workgroups as necessary, such as various building renovations committees, A/E task forces formed to look at such issues as rate proposals, occupancy committees, guidelines committees, etc.

May participate in reviewing, developing, writing, and updating guidance documents to cover new, complex, and/or precedent-setting situations for use within and outside of NIH.

Keeps current with the latest developments in architecture and engineering, related disciplines, and the medical profession by reviewing technical literature, attending conferences or professional society meetings, and discussions with industry representatives. Evaluates new materials and equipment and design or construction processes and techniques, recommending the adoption of those that would improve efficiency or economy.

FACTORS

Factor 1 - Knowledge Required by the Position

Thorough knowledge of the mission and structure of NIH and its various research ICs, along with their mission and goals. Comprehensive knowledge of the ORFDO and ORS organizational structures, goals, objectives, programs, and policies, as well as an understanding of the critical relationships between ORS, ORFDO, and the ICs.

Comprehensive knowledge of Federal contract management and administration regulations, policies, procedures, and practices, and of the NIH contracting process to plan, coordinate, and evaluate activities of support services contracts, to coordinate contract administration activities, to develop technical specifications for Statements of Work, to assist in negotiating contracts, and to serve as Project Manager.

Knowledge of the methods and techniques of engineering and the construction, application, properties, operation, and limitation of engineering systems, processes, structures, machinery,

devises, and materials, to serve as a technical advisor in the planning, design, construction, and maintenance of complex health care and biomedical research facilities.

Knowledge of related engineering fields such as architectural and structural engineering, to include facility infrastructure.

Knowledge of the architectural/engineering needs of the field of medicine and a working knowledge of related disciplines such as civil, electrical, and mechanical engineering.

Comprehensive knowledge of Federal, state, and county building and fire codes and a range of criteria that may include those from the Association for Assessment and Accreditation of Laboratory Animal Care (AALAC); Joint Commission on Accreditation of Health Care Organizations (JCAHO); American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE); as well as various plumbing, electrical, and design and construction guidelines which cover unique NIH administrative, laboratory, clinical and animal holding facilities.

Knowledge of the theories, principles, practices, and techniques of facilities planning, design, construction, and project management, to serve as the project manager for complex construction and/or alternation projects.

Knowledge and skill sufficient to apply developments in building design and construction in solving problems and/or in determining the appropriate resource to contact for the resolution of such problems as carrying out construction activities near highly sensitive experimentation research without risk of contamination or compromise to the safety of life.

Ability to adapt and modify existing architectural and/or engineering techniques and to assist in revising and maintaining agency specifications and criteria as well as technical handbooks and other written guidance.

Knowledge of the federal budgetary process and skill in overseeing the budgetary planning and monitoring process for the design and construction of large scale projects which may reach into the multi-million dollar range.

Comprehensive knowledge of the federal procurement process to include contract administration and, in particular, the construction contract process and related documentation.

Skill in the use of interpersonal communication techniques, to include the exercise of tact and diplomacy, as well as finesse and resourcefulness in providing advice and assistance to senior ORFDO and IC management officials.

Skill in analyzing problems and making recommendations in a variety of areas which can have significant impact on NIH programs.

Skill in written communications, including the ability to prepare guidance, reports, and position papers.

Factor 2 - Supervisory Controls

Works under the general direction of the Team Leader/Program Manager, who establishes broad goals, objectives, and allocation of resources. Based on technical competence, independently plans, designs, and carries out projects and feasibility studies, and resolves most conflicts/problems encountered, adapting methods as appropriate. Operates on a daily basis with little, if any, oversight and is expected to bring only the most complex issues or questions to the supervisor's attention. Results of the work are considered technically correct and are normally accepted with little or no change. Performance is evaluated by demonstrated professionalism through the effective accomplishment of projects and success in meeting the NIH mission, goals, and objectives.

Factor 3 - Guidelines

Guidelines include sources such as Illuminating Engineering Society (IES) publications; JCAHO; AAALAC; NIH design policies, specifications, and technical data such as the Building 10 Laboratory Guidelines; ASHRAE; as well as various plumbing, electrical, and design and construction guidelines which cover unique NIH administrative, laboratory, clinical and animal holding facilities. These guides are often vague, requiring considerable judgment in their application. Further, the guidance available is broadly written and usually in the form of Federal and state regulations and policy documents, such as various Federal, state, and county building and fire codes. Considerable judgment must be exercised in the application of policies, regulations, guides and instructions. Many of the problems or issues found at the actual construction site level do not conform clearly to most available guides. In addition, many of these situations require an immediate decision in order to keep work moving on schedule and to conserve valuable resources. The incumbent serves as the technical advisor and is looked to by many, both on and off the construction site, to solve problems, make decisions, and be a technical resource to those needing guidance. The incumbent also participates in developing, reviewing, and writing guidance documents to cover complex and/or precedent-setting situations for use within and potentially outside of NIH.

Factor 4 - Complexity

Assignments are complex in nature, due in large part to the nature of the NIH mission and the uniqueness of the facilities which are essential in achieving that mission. The research and clinical effort carried out at NIH demands state-of-the-art facilities and engineering supporting systems such as those involved in the production and distribution of utilities across the campus. The work involves the handling of situations which are often new and unique and therefore few guidelines or precedents are available for reference. These projects or assignments frequently involve the development and/or renovation of laboratory and/or clinical space for which the

incumbent must be able to accommodate the installation of technical, sophisticated state-of-the-art equipment and systems, such as equipment in the area of nuclear medicine or radiological scanning devices.

The scope and complexity of work conducted requires the use of judgment in clearly identifying and then either personally solving or determining which resource to utilize to provide solutions to the unique problems presented by the NIH environment. Assignments are further complicated due to the range of functions performed to plan, develop, maintain, and complete a complex project. Much of the effort encountered focuses on the management aspects of a project which are in addition to the technical requirements presented by the assignment. The incumbent may be responsible for more than one management function critical to the effective completion and final delivery of a project. The incumbent is responsible for planning, coordinating, implementing, monitoring, and evaluating all aspects of the management of a project. Typically, these management functions include, but are not limited to budget, contracting, procurement, and human resource management, as well as managing the activities of several subcontractors who are performing a range of activities in support of the project.

Factor 5 - Scope and Effect

The purpose of the work is to provide technical advice and direction for new construction and renovation projects of NIH facilities and support services. Projects for which the incumbent makes decisions and takes action may be valued in the multi-million dollar range and may require years to complete. The quality of the clinical and research facilities and reliability in performance of support systems are of the utmost importance to the NIH medical and research mission. The advice provided by the incumbent may impact future construction criteria for these facilities..

Factor 6 - Personal Contacts

Personal contacts include NIH and IC management and senior staff to include managers, administrators, and research scientists; architects and engineers from private consulting and design firms; other ORFDO architects and engineers; industrial hygienists, environmental engineers, and safety specialists within and outside NIH; executives, engineers, and field personnel with construction contractors; manufacturers' representatives; and administrative, financial, and program offices and managers within individual ICs, as necessary.

Factor 7 - Purpose of Contacts

The purpose of contacts is to provide advice and consultation in the area of project management as they relate to the design and construction of biomedical research facilities. Contacts are for the purpose of planning and coordinating all phases of a construction and/or alternation project, discussing requirements with clients and other architects and engineers, and providing information regarding scheduling and budgetary issues. Contacts are also to resolve issues and

problems on the construction site, to explain alternatives, and to negotiate agreement among displeased clients, or refer them to the appropriate personnel. Other contacts are with architects and engineers of in-house shops or A/E contracting firms, to advice them on adopting alternative methods or procedures which are more advantageous to the NIH community, and to ensure that all environmental and safety issues are satisfactorily resolved.

Factor 8 - Physical Demands

Work is primarily sedentary, but requires participation in site surveys and field investigations of construction conditions involves a considerable amount of walking, climbing, and other forms of physical exertion. May also require travel to participate in off-site meetings.

Factor 9 - Work Environment

Work is generally performed in an office setting, with site visits to laboratory and animal areas where biohazard exposure is common; to equipment rooms and power plants where exposure to noise, high voltage current, and moving parts can be expected; and to "hard hat" construction sites with attendant overhead, terrain, and equipment hazards. The incumbent uses safety glasses and other forms of protective gear as needed when visiting field installations and research or support facilities.