

Position Classification Standard for Construction Analyst Series, GS-0828

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SERIES DEFINITION

This series includes positions which involve technical work requiring the application of a practical knowledge of both architectural design and construction practices for housing. This work includes the examination of drawings and specifications for compliance with standards and verification that construction complies with these standards; the estimation of costs of construction, extension, alteration, remodeling, or repair of housing; and the collection, analysis, and development of basic cost information on housing construction.

This revision of the single-agency standard published in February 1963 has been issued principally to clarify the nature of cost analysis functions performed by construction analysts. To accomplish this, grade-level descriptions include more specific discussion of the characteristics that distinguish between levels of difficulty in cost analysis work. Also, the material under Common Characteristics of Construction Analyst Positions has been revised to indicate more clearly the specific knowledge and considerations that apply to cost analysis. One other change of some significance is the deletion of discussion of construction inspection, which is not an integral part of construction analysts' functions. A number of minor editorial changes are also reflected in this revision in the light of experience in applying the previous standard.

EXCLUSIONS

1. Positions requiring the application of a professional background in architecture or engineering are classified in the appropriate professional series of the [Engineering and Architecture Group, GS-0800](#).
2. Positions the duties of which are to manage and direct the operation and maintenance of one or more buildings and their surrounding grounds, such as Federally-owned and operated housing projects, developments, or medical institutions and hospitals, are included in the [Facility Operations Services Series, GS-1640](#).
3. Nonprofessional positions in which the principal duties are maintaining surveillance over, inspecting, or supervising the construction of Federally-owned or sponsored housing, public works, military structures, grounds and minor appurtenances are classified in the [Facility Operations Services Series, GS-1640](#), or the [Construction Control Series, GS-0809](#), as appropriate.

Note: The inspection performed in positions included in the [Construction Control Series, GS-0809](#) is primarily concerned with checking the materials, workmanship, and finished product for adherence to designs and specifications, and for use of acceptable construction trade practices. In contrast, the construction analyst is concerned with whether proposed plans reflect compliance with minimum property standards for insurance, and whether the buildings as constructed conform to those standards, rather than whether construction conforms to design blueprints and specifications.

- 4 Nonprofessional positions which are concerned primarily with the preparation of drawings, specifications, or estimates of materials and costs for the construction, extension, alteration, remodeling, maintenance, or repair of structures and facilities other than housing (buildings, bridges, docks, dams, roads, etc.) are classified in the [Engineering Technician Series, GS-0802](#), or the [Engineering Drafting Series, GS-0818](#), as appropriate.
- 5 Positions concerned with appraising, investigating, and classifying real estate, buildings, and personal property for relocation, tax, rental, acquisition, or mortgaging purposes are classified in the [Appraising Series, GS-1171](#).
- 6 Positions primarily assigned duties such as planning, estimating, scheduling, coordinating, or controlling trade or craft work are excluded from coverage by the Classification Act of 1949, as amended, if trade or craft knowledge and experience are paramount requirements for successful performance.

COMMON CHARACTERISTICS OF CONSTRUCTION ANALYST POSITIONS

Virtually all of the positions currently included in this series have duties related to the technical underwriting phases of the mortgage insurance programs of the Federal Housing Administration and the Loan Guaranty Program of the Veterans' Administration. The incumbents of these positions apply design principles, methods, and techniques and become quite expert in the specialized technical problems related to the design and construction of housing. Positions at the full performance levels require a background of practical experience in building construction activities, supplemented by mathematical or graphic skills and the ability to meet and deal with contractors, architects and others interested in the housing industry.

In order to assure reasonable architectural bases for mortgage insurance and to assure quality housing, standards and other criteria are established which prescribe the minimum architectural qualities which properties must meet in order to qualify for insured mortgages. These standards are stated in broad terms and are intended to provide maximum freedom for private initiative in design and construction, and yet assure present and continuing utility, durability, and desirability as well as meet basic safety and health requirements. In addition to such considerations as the size (area), numbers and types of rooms and appurtenances, they cover the types of construction and kinds of materials used, site improvements, visual appeal, livability, natural light and ventilation, structural quality, resistance to the elements and use, and suitability of mechanical equipment.

The minimum property standards used in this work are not in any sense a building code. The considerations in mortgage insurance determinations are broader in scope than those covered by most codes. Codes are primarily concerned with factors of health and safety and not the many aspects of design and use which are included in the standards.

In addition to reviewing drawings and specifications for houses proposed for insurance coverage to insure compliance with minimum property standards, analysts estimate replacement costs of such housing. In preparing this estimate the analysts recognize and reflect in the costs those technical aspects which will result in increased marketability of the property, or which will reduce maintenance or need for replacement of equipment.

The characteristic responsibilities of construction analyst positions are as follows:

1. Applying a practical knowledge of construction techniques and procedures, good housing design, and a detailed knowledge of agency requirements and regulations to the analysis of existing housing or housing proposed for construction.
2. Recommending acceptance or rejection of mortgage insurance for housing after analysis of drawings and specifications and/or inspection.
3. Developing cost handbooks and serving as an expert source on the basic costs of construction operations and materials, which are used by the agency in making cost estimates.
4. Furnishing information on the agency's requirements or procedures to architect-engineer firms, construction contractors, builders, lending agencies, and others.
5. Conferring with manufacturers, municipal and State officials, and representatives of other government agencies both to give and obtain information on problems affecting the agency program and operations.
6. Preparing and/or reviewing cost estimates from drawings and specifications.

They apply knowledge of construction practices, labor costs, and shortcuts in construction, plus a good knowledge of the uses and costs of materials. In preparing estimates they consider the component parts of a project, such as excavation, backfill, structural steel, etc., further breaking these various components into the on-site working phases; for example, excavation may entail consideration of the cost of the heavy equipment used to drive timbers or steel sheeting to support the sides of trenches. In preparing these estimates analysts are guided by previous experience in the area with similar projects. Incumbents work from drawings and specifications, constructing the building in their mind's eye, visualizing each step from excavation to landscaping. Simultaneously with cost, they consider the design from the standpoint of visual appeal, livability, natural light and ventilation, structural quality, resistance to the elements and use, and suitability of mechanical equipment. They note deficiencies in design and offer suggestions for improvements in design or savings in cost.

Some construction analysts serve as specialists in basic construction costs for a particular geographic area, with responsibility for collecting, weighing, analyzing, tabulating, and maintaining cost data to be used by the agency in developing individual estimates for housing construction.

The current unit costs are obtained through periodic personal contacts with area builders, subcontractors, building material and equipment supply dealers, representatives of labor unions, and others. After they are analyzed and tabulated in handbook format, the data become a basic tool of construction analysts and other employees concerned with mortgage insurance underwriting operations.

Compilation of cost data for high rise and other nonconventional structures presents complexities which cannot be adequately treated by reference to standard handbook criteria. The analyst must, therefore, perform detailed and thorough analyses of plans, specifications, and cost estimates furnished with each project submission and conduct special cost surveys specifically related to features of the construction.

In performing cost data collection and analysis, incumbents apply a thorough knowledge of construction materials and methods as well as of the procedures used in making estimates, of trade price practices, and of practices in general contracting, subcontracting, and material supply activities. In addition, they exercise tact and ingenuity in selecting suitable sources of information which will produce current confidential prices of cost data from both small and larger concerns. They apply judgment in analyzing and weighing the information they collect, particularly judging the reliability of their sources.

It is important that employees in this work have the confidence of the people in the industry, so that information will be valid and freely furnished. The disclosure of the sources of information could result in a substantial advantage to competitors.

TITLES

Construction Analyst is the prescribed title for nonsupervisory positions in this series.

Supervisory Construction Analyst is the prescribed title for positions in this series which involve supervision over others of such significance that supervisory qualifications are required.

Note: Supervisory classes are not described in this standard. The [General Schedule Supervisory Guide](#) should be used in classifying supervisory construction analyst positions.

CLASSIFICATION FACTORS

The work of incumbents of this series is measured for grade-level purposes by the following factors:

1. Technical complexity -- the scope of problems assigned and the nature and complexity of the buildings;

2. Responsibility for technical decisions and recommendations, and the volume and variety of such decisions;
3. Responsibility for contacts and negotiations; and
4. Supervisory review and control of the work.

CONSTRUCTION ANALYST, GS-0828-05

This is the basic trainee level. Construction Analysts GS-5 may receive formal classroom instruction as well as initial on-the-job training in the principles, concepts, work practices and processes, laws, rules and regulations, and technical reference materials fundamental to the agency's program. On-the-job training assignments provide a practical understanding and initial introduction to the organization, program, policies, and objectives of the agency, as well as furnish preliminary experience in the application of principles, procedures and work techniques related to the actual operating situation. Instructors and supervisors give specific instructions and guidance, and critically review and evaluate the work and the potential of analysts.

A typical assignment involves participating in the examination and correction of drawings and specifications for compliance with applicable minimum property requirements. The incumbent makes the more or less mechanical computations of area and quantities of materials, checks for discrepancies in drawings to incorporate amendments and prepares a simple estimate of replacement cost of minor improvements.

CONSTRUCTION ANALYST, GS-0828-07

At this level, construction analysts typically are still undergoing development although positions characteristically involve limited performance assignments for other than training purposes. Assignments are designed to increase the analysts' knowledge of the agency's policies and procedures, and of construction practices. For development purposes they may work on projects typical of the GS-9 level under close supervision. They apply specific standards and procedures, and exercise judgment in reaching conclusions independently. All work is reviewed and incumbents generally have no responsibility for final decision.

Typical assignments are to analyze drawings, specifications and other exhibits submitted with applications for mortgage insurance covering typical homes to determine whether the proposals meet standards. Analysts at this level indicate normal compliance inspection coverages to be made and other specific conditions to be met, prepare estimates of replacement costs, and prepare tentative ratings of physical security. (A Physical Security Rating is an estimate of the degree to which deficiencies in the drawings and specifications will affect the permanency of construction and the sustained marketability of a dwelling -- hence contribute to risk in a mortgage transaction. In making the estimate, various factors relating to visual appeal, livability, structural integrity, and durability of materials are considered, with the assumption that

construction will be completed in accordance with the approved exhibits, applicable conditions, and acceptable standards of workmanship.) Although analysts at the GS-7 level do not make final decisions, they are encouraged to reach conclusions which they discuss with the supervisor.

CONSTRUCTION ANALYST, GS-0828-09

Technical complexity

GS-9 analysts normally work on applications for conventional type housing involving commonly used construction methods and techniques, or assist higher-level analysts responsible for more complex projects, by examining and reviewing segments involving only minor adaptations in procedures.

Typical assignments are to examine plans and specifications for detached, semidetached, row and end-row houses, and projects of four or five houses where the individual houses are of minor diversity, to determine that the construction and design will conform to market demands (i.e., desirability, marketability) and the minimum planning and construction requirements established by a Federal agency engaged in insuring mortgage loans. Where necessary, they review plans for individual water supply or sewage disposal systems.

Some assignments at this level may involve existing or partially completed houses. The analyst visits the site and examines the property, listing improvements or additional construction necessary to effect compliance with standards and requirements. He prepares reports that incorporate (a) comments on any unusual characteristics that would affect the physical security or the mortgage value of the property in question; (b) estimates of replacement costs on either new or existing construction including the cost of any required alterations, additions, or repairs which may be necessary; and (c) statements on the compliance inspection coverage to be required before final approval of the mortgage loan.

Some analysts at this level gather and analyze basic cost data that are used to determine allowable amounts of mortgage insurance commitments. The cost data secured relates primarily to a limited variety of single family dwellings, small subdivisions, and row and end-row houses or similar structures. In this work they periodically contact builders, subcontractors, building material and equipment supply dealers, and others for the purpose of developing current unit building cost data for an assigned geographic area. The size of the geographic area in itself is not significant; it may include a city, several cities, a State or a portion thereof, or portions of two or more States. Typically, there are several different market areas within the geographic area for which cost data are selected, analyzed, and maintained. Analysts maintain a continuing surveillance of the market areas for new or changed construction bidding practices such as use of prefabricated roof trusses and prefabricated or precut stairs. They conduct periodic cost change surveys within their respective geographic areas and determine average percentage adjustments to be applied to costs of completed structures for base and key cities.

Technical decisions

Applying judgment and knowledge of construction practices in their review of plans and specifications, analysts change drawings to eliminate minor problems or errors and other deficiencies that would affect compliance with the applicable standards and requirements. They consider such factors as livability, durability, and construction trends. In the case of major deficiencies they determine unacceptability and recommend rejection, based upon a thorough knowledge of minimum standards and their application. They are expected to make suggestions that will improve the design or construction of housing. Such suggestions may improve the physical security rating, or marketability.

Analysts who specialize in cost data make decisions principally pertaining to whether specific costs are representative and should be included in construction cost handbooks and construction cost indices.

Supervisory review and control

Except when analysts are in the field, supervisors are available for advice and consultation during the progress of their work, and the work is reviewed for compliance with office policies, completeness, and accuracy.

Contacts and negotiations

Personal work contacts involve primarily the exchange of information and coordination of the work with that of people in related activities. Some contacts are made with other organizational components, and with contractors and architect-engineer firms in order to clear up doubtful points, to advise on discrepancies found, and to consider substitutions. Analysts receive supervisory guidance in planning contacts outside the organization with respect to selection of sources of information.

Analysts who specialize in cost data have frequent contacts with builders and suppliers in eliciting construction cost data.

CONSTRUCTION ANALYST, GS-0828-11

Construction Analysts GS-11 are assigned work that requires them (a) to select and apply the full range of an agency's technical requirements and standards for housing construction, and (b) to have a good knowledge of the practices and procedures of the construction industry in order to make sound decisions and judgments on a variety of complex problems.

Technical complexity

Assignments at this level are more difficult than those at GS-9 because of the wider variety of complicating characteristics associated with more complex proposals. Assignments include review or other technical work for one or more of the following types of housing: subdivisions; walkup or garden-type apartments; one and two story nursing homes; and housing for the elderly.

GS-11 analysts constructively criticize plans, designs, use of material, mechanical equipment, methods of construction, etc. They must be capable of considering the larger relationships -- not only the component parts in the individual structure but the relationship of that structure to the construction site and to other structures being erected, for example, in a subdivision or a garden-type apartment project. They must have a knowledge of design principles and of the characteristics of the residential area as well as a knowledge of marketability, based on results which have been achieved with various types of plans and designs. To do this, analysts must keep up with realty values and trends. They not only evaluate drawings and specifications from the standpoint of meeting standards and requirements, but recommend further improvements in drawings to enhance attractiveness and marketability.

Other assignments involve the examination of older properties for structural soundness, needed repairs and estimated cost for older homes or for houses of atypical design, so that valuers can fix value of such properties for mortgage purposes. In urban projects, incumbents examine the structures in a block and make determinations on the extent of rehabilitation and renovation necessary, whether it is feasible to bring structures up to acceptable standards and, if so, make appropriate recommendations.

Analysts who specialize in cost data are responsible for establishing standard unit cost data for a geographic area where the construction involved relates to a variety of conventional dwellings and includes, for example, approximately 10-15 basic types of single family structures and row houses. Also included are conventional walkup type apartments which require special cost studies as described at the GS-12 level; however, at the GS-11 level the complexities are significantly less principally due to the size of the buildings, amounts of mortgages, and the attendant lack of more advanced architectural and engineering features. The development and revision of cost data for rehabilitation of the above conventional dwellings is also included in the GS-11 class.

Technical decisions

Construction analysts at this level apply judgment and a personal knowledge of construction practices and methods with respect to conventional structures, and determine acceptability of design, construction methods, and materials. They consider such factors as durability, freedom from excessive maintenance, and values and trends in construction. They are expected to recognize precedent-setting decisions which should be passed on to higher-level management for resolution.

Assignments require interpretation of standards and criteria. Original thinking is required to analyze and make sound and acceptable recommendations on problems. Considerable reliance is placed on the technical accuracy and judgment of the analysts, and their determinations and decisions are usually accepted as the basis for final action.

Analysts specializing in cost data additionally consider complicating factors inherent to the wider variety of construction types dealt with in arriving at appropriate unit cost determinations. For example, determination of unit costs requires consideration of quantities involved (e.g., quantity buying, whether in refrigerators or structural steel, may substantially reduce the basic unit purchase and in-place costs). Alertness to the relationship of cost factors to various stages of construction is required (e.g., costs initially proposed for excavation and disposition of earth and rock may be considered in subsequent cost estimates for backfill). Characteristics of the geographic area serviced present additional considerations in the determination of unit price. For example, such conditions as traffic congestion within a downtown construction area severely restrict (a) the number of loads of concrete which can be delivered by one truck in a day, (b) the availability of supply and material storage, (c) and the erection of elevators and conveying devices.

Supervisory review and control

Within their area of specialization (architectural processing or cost analysis) analysts are expected to proceed independently in carrying out assigned work, referring to supervisor only controversial questions or those requiring professional resolution. Work is normally not checked in process; rather, completed work is reviewed in terms of overall objectives of assignments.

Contacts and negotiations

GS-11 analysts represent their agencies in contacts with, as applicable, architects, suppliers, contractors, lending agencies, and others, to explain the purpose of various planning and construction requirements or to secure cost data. After clearance within the office, they make counter-proposals and suggestions to improve structures and to explain both immediate and long-range aims of their agency's program. They participate in preapplication and preliminary conferences with mortgages, builders, sponsors and their architects, and other representatives on proposed projects.

CONSTRUCTION ANALYST, GS-0828-12

Construction Analysts GS-12 are recognized as highly-trained specialists in technical aspects of reviewing housing proposals and housing construction costs. This represents the expert level in operational construction analyst positions; advice, decisions, and recommendations furnished by GS-12 analysts are considered authoritative.

Technical complexity

Analysts reviewing drawings and specifications deal with projects incorporating complex design features, unusual building materials, or advanced building techniques. Such projects would typically involve elevator-type apartments constructed of steel or reinforced concrete, high-rise housing for the elderly, multistory nursing homes, and urban renewal projects involving the rehabilitation of existing multistory steel, reinforced concrete, or masonry structures. All such projects present diversified and novel problems. Frequently, established criteria and technical precedents do not apply. In many cases, the controversial nature of the problems requires a ready grasp of their impact on construction costs, land-use, traffic patterns, marketability, and other factors relating to the soundness of the mortgage risk. Incumbents are called upon to deal extensively with sponsors and builders on design and technical construction requirements affecting insurance commitments, and to offer for their consideration advice and recommendations on the problems encountered.

Analysts specializing in construction costs are responsible for areas with substantially greater diversity and activity in the construction industry than is characteristic of areas served by GS-11 level analysts. Incumbents are relied upon as experts on cost data for such areas, usually comprising one or more major metropolitan areas. The types of housing construction involved include nonconventional high rise, elevator-type multifamily structures, or equivalent other nonconventional buildings. Such structures may include such nonconventional aspects as rooftop swimming pools, air rights, inclusion of commercial facilities, underground parking garages, unusual design configurations, very large central heating and air-conditioning plants, and the use of exposed concrete, glass, aluminum, and stainless steel in substantial amounts as structural elements in the building.

As compared with similar positions at the GS-11 level, GS-12 positions are concerned with considerable fluctuations and diversities in labor and material costs because of construction practices, building codes, labor union practices, and the like. This requires mature judgment in analyzing and weighing the conflicting information obtained, and in determining its validity in relation to the reliability of sources.

Technical decisions

GS-12 construction analysts are normally concerned with very large projects that have the unusual and complicated construction features and processes discussed above, and that cost many millions of dollars. These conditions require the application of highly critical and informed judgments about such matters as (1) the adequacy and practicability of construction proposals, (2) whether the contractor's schedule of payment breakdowns is realistic in terms of sequence of completion of various phases of work, (3) the accuracy of the bases upon which unit costs have been determined, and (4) whether the property will produce income that will support the mortgage financing required. The analyst cannot rely on precedent or standard data in making judgments and decisions about projects of GS-12 complexity -- each is unique in terms of materials and construction methods.

Supervisory review and control

Incumbents carry out their work with considerable freedom, frequently selecting the approach to be used in the resolution of complex problems. Their work is reviewed for adequacy in terms of meeting the broad technical objectives, and for compliance with agency policies and regulations. They are expected to render technical decisions or make recommendations in the case of recognized controversial issues, which are rarely changed by higher authority except for reasons of policy, public relations, or budgetary considerations.

Contacts and negotiations

Incumbents have more frequent and wider contacts than those at preceding levels, commensurate with their authority for decision and the scope of the project handled.

They are expected to be particularly skillful in handling public contacts. In addition to liaison work with other agencies, contractors, utility companies, State and local government authorities on specific projects, analysts are called upon to address meetings of business organizations interested in the housing industry to give information on agency programs and policies.

They participate with other specialists in the agency in meetings and negotiations with sponsors, builders and architects in the negotiation of crucial matters which involve large amounts of money, may result in unwarranted bonuses to sponsors or builders, may render an economically unfeasible, any or all of which would require the assumption of additional contingent liability by the agency.