

**SODIV-TG-1010
APRIL 1996**

TECHNICAL GUIDANCE

FOR

COST ENGINEERING

Prepared by:

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CHARLESTON, SOUTH CAROLINA**

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I. INTRODUCTION

- A. The following instructions with its exhibits provide the general guidelines for preparing cost estimates for construction projects administered by SOUTHNAVFACENGCOM. Submission and format requirements, estimating philosophy, detail and accuracy expectations, and the need for post-bid follow-up are discussed.
- B. The instructions are intended to be sufficiently clear and detailed to enable preparation of reliable estimates in proper format with minimum contact with SOUTHNAVFACENGCOM. However, if project requirements are such that a variance is believed necessary or if there exists some uncertainty not covered by these instructions, the Cost Engineering Division should be contacted for discussion or clarifications. Telephone (803) 820-7470 or 820-7463 (8 a.m. - 4 p.m. Eastern time).
- C. Submittals made for review which do not conform to these instructions will be returned for correction and resubmission. Delays to the project schedule resulting from such resubmittals will be the responsibility of the A/E. The material take-off calculations need not be submitted with the estimate unless requested.
- D. The Government Estimate (GE) is designated "**For Official Use Only**" and only after bids are received and the estimate made public is this designation lifted. As such, access to or disclosure of information concerning the Government estimate shall be limited to those personnel whose official duties require knowledge of the estimate.

II. OBJECTIVE

The objective of the cost engineer is to develop an estimate to reflect the lowest possible price at which the project can be awarded. The lowest possible price is defined as the lowest price at which a responsible Contractor is willing and able to perform the work defined by the contract documents. This requires precise pricing, experienced judgment and accurate assessment of market conditions. "Fattening" of the estimate in either pricing or quantities to be safe will be avoided. It is expected that the final estimate will approximate the low responsive bid within $\pm 10\%$. Estimates that exceed $\pm 15\%$ of the low responsive bid will require an immediate post-bid analysis by the A/E to determine the reason for the variance. A written explanation listing specific areas of difference between the Government Estimate and the bidding Contractors shall be provided to the Cost Engineering Division, Code 077, not later than seven calendar days following notification that a post-bid analysis is necessary. The response shall include an award/reject recommendation based on the findings with full rationale to support the recommendation. The bidders for the contract shall not be contacted by the A/E during the post-bid analysis.

III. GENERAL REQUIREMENTS

A. Format.

1. All estimates shall be formatted using the Work Breakdown Structure (WBS) Systems Descriptions (see Exhibit A). All construction cost estimates for projects with an Estimated Construction Cost (ECC) over \$100,000 require that the estimate be prepared using the SOUTHNAVFAC provided "**SUCCESS ESTIMATING AND COST MANAGEMENT SYSTEM**" computer program. A Sample Final Estimate prepared in this format is furnished as Exhibit B.
2. Where two or more buildings are to be constructed, altered or repaired under one construction contract, a backup estimate for each building is required. Also, where one construction contract involves both an addition and alterations to the same building, a separate estimate will be required for the addition work and for the alteration work.
3. Air Force projects require, at each submission, a Project Cost Estimate Worksheet, AF Form 1178, in addition to the detailed cost estimate. The specific instructions contained in the applicable Air Force Design Instruction shall be followed for completing the AF Form 1178
4. Estimates for construction contracts involving Special Projects require a special cost breakout summary. Special Projects are generally identified on the "Statement of Work" by their project number, (e.g. RC1-96, C3-95, EC4-96). If a construction contract consists of multiple Special Projects a breakout of the estimated construction cost for each Special Project must be provided. Further, if an individual Special Project consists of two or more categories of work (i.e., R-Repair, C-Minor Construction, M-Maintenance or E-Equipment Installation), a breakout of the cost for each category of work must also be provided. A sample breakout summary for a construction contract consisting of Special Projects RC1-96, C3-95, and EC4-96 is as follows:

SPECIAL PROJECT ESTIMATE SUMMARY

RC1-96 =		\$78,000
C-Minor Construction =		(\$25,000)
R-Repair =		(\$53,000)
 C3-95 =		 \$38,000
 EC4-96 =		 \$28,000
C-Minor Construction =		(\$12,000)
E-Equipment Installation =		<u>(\$16,000)</u>
 TOTAL CONTRACT COST		 \$144,000

5. Computer generated estimates other than “**SUCCESS**” are accepted if the ECC doesn't require “**SUCCESS**”; however, the format shall follow the requirements herein. Work Breakdown Structure (WBS) Standard Systems Units of Measure shall be used. Prints of the computer generated estimate must be submitted on 8 1/2 x 11 inch paper and be easily readable. We have available Excel spreadsheets for preparing cost estimates for projects under \$100,000. A blank copy of these spreadsheets is included as Exhibit C.
6. All cost estimates shall be typed or neatly printed. All cost estimates shall be neatly bound; however, do not bind in combination with specifications, design calculations, basis of design, etc.
7. With each submittal the A/E shall provide a brief narrative explanation for the rationale that went into the preparation of the Government Estimate. The rationale shall explain the basis of the estimate and shall address all factors that have a significant impact on the estimate and the various sources of cost data used in the estimate. A sample format for the rationale for the cost estimate is included as Exhibit D.

B. Detail.

1. Material, labor and equipment listings shall be itemized in sufficient detail to enable a reviewer to determine that the full scope of work estimated. Size, material quality, and type of item shall be part of the description to enable unit cost verification without constant reference to drawings and specifications.
2. "Lump Sum", "Job" or similar expressions used as a quantity entry are not appropriate unless no alternative is possible or unless the cost is very minor.
3. Standard units of measure common to the trade involved are to be used. When computing System Unit Costs, the units on the Work Breakdown Structure (WBS) Standard Systems Descriptions (see Exhibits A and B) must be used.
4. The quantity takeoff must be accurate since it is the basis of the estimate. A reasonable allowance for trimming, overlap, waste, breakage, etc., normally experienced should be included where applicable.

- C. Pricing. Pricing should be developed as unit costs following trade practice. Extraordinary expenses such as travel, subsistence, premium pay and similar costs should be included as separate items in field overhead. Major material and equipment costs should be supported by quotes from manufacturers or suppliers and should include anticipated discounts that will prevail at time of bidding due to competition among suppliers. For some items the discount is quite high and should be anticipated at all stages of estimating. Quote prices should be identified in the estimate with material supplier, point of contact, telephone number, and date of quote. The unit prices provided in the UPB95 database, as well as any other data base used, should be modified to reflect quantity discounts, local variation, and project specific

requirements. The A/E is responsible for using unit costs that fit the project specific requirements.

- D. Escalation. The term denotes a probable cost rise resulting from material and wage price increases or other factors associated with inflation. All estimates will be escalated to their assumed estimated bid opening date and include escalation to the mid-point of construction also. The escalation rates to be used for projecting budget cost estimates will be provided by SOUTHNAVFACENGCOM's Cost Engineering Division (see Exhibit E). Cost estimates prepared in support of "DD1391 PLUSs and Parametric Cost Estimates (PCE) shall be projected to an assumed bid opening date of 1 April of the fiscal year in which the project is to be funded for construction (e.g. for a FY-99 project the assumed bid opening date will be 1 April 1999) plus escalation to the mid-point of construction. For construction cost estimates other than budget estimates, the A/E may use the provided escalation rates or they may use whatever escalation rates that they believe are applicable.
- E. For all projects with an estimated construction cost (ECC) over \$100,000, a "**SUCCESS ESTIMATING AND COST MANAGEMENT SYSTEM**" micro-computer estimate is required. The A/E shall be required to run the estimate on his own computer equipment using SOUTHNAVFACENGCOM furnished programs. Hard copies of estimates will be submitted with each submittal. With the final estimate a floppy disk containing the complete estimate shall be submitted. To obtain a copy of the "**SUCCESS ESTIMATING AND COST MANAGEMENT SYSTEM**" computer program the A/E must read and sign a copy of the licensing agreement (Exhibit F). The A/E shall be responsible for preparing, loading, printing and checking the estimate prior to each submission. Contact should be made with the Project Manager (PM) prior to each submission to reconfirm programmed construction costs for the contract. Where the A/E estimate exceeds programmed construction costs, recommendations for cost reduction or proposed bid items should be provided with the schematic, 35% or 100% submission

Minimum computer equipment necessary for running estimates is:

a. Hardware

- (1) Micro-computer (IBM Compatible 486/66 minimum)
- (2) 4 Meg Main Memory (8 recommended)
- (3) Standard Micro-computer Printer
- (4) Fixed Disk (50 megabytes minimum)

b. Minimum Software Requirements

- (1) Microsoft DOS Version 5.0 (or higher)
- (2) Microsoft Windows Version 3.1 or higher

- F. Bid Items. The project should result in a usable facility that conforms to the project requirements outlined in the "Statement of Work" and which can be constructed within the funds available. When a project has an estimated cost in excess of 90% of the funds available,

additive bid items should be recommended for approval. The first additive bid item should be in the range of 5 - 10% of the funds available for construction. Other additive bid items should be in the range of 3 - 5%. The maximum allowable number of additive bid items is four. However, prudent practice should limit this to two additive bid items in most cases. Each bid item must be independent so that award can be made on any combination of additive bid items and base bid. Bid items shall not reduce the project scope unless approval to do so is obtained. If any bid item consists of more than one system, then a separate estimate shall be prepared for that bid item.

G. Quality Control (QC).

1. Quality Control (QC) is a quality inspection and control system established and carried out by the construction contractor to insure compliance with the contract plans and specifications. QC is applicable to all projects with an estimated construction cost (ECC) equal to or greater than \$25,000. A marked-up specification on quality control will be provided to the A/E with the design kit.
2. The cost of QC is funded from project dollars. This cost results predominantly from the quality control staff. The QC staff will normally consist of a minimum of the project superintendent double-hatted as the quality control representative to a maximum of a QC Representative, an Alternate QC Representative, a Submittals Assistant, and Specialized Supplemental Personnel as deemed necessary for each particular project. The exact make up of the quality control staff will be determined by SOUTHNAVFACENGCOM and will be provided to the A/E with the design kit.
3. In order to insure adequate funding for QC, it will be necessary to estimate the cost and include this cost in the estimate as a distributed system.

H. Rounding. The estimate total for each bid item shall be rounded to three significant figures (e.g. \$5,233, rounded to \$5,230; \$174,727 rounded to \$175,000; \$1,324,000 rounded to \$1,320,000; \$17,357,350 rounded to \$17,400,000; etc.).

IV SUBMISSION REQUIREMENTS

A. Budget Estimate Submission.

1. The DD 1391 Plus Submission, when required, shall be prepared utilizing the DD 1391 Plus format. Since no design has been developed, careful attention should be exercised to insure that all major scope requirements are properly considered and evaluated. The DD1391 Plus cost will be based on the latest DOD Guidance Costs and Area Cost Factors. The Supporting Facilities for the project are normally in the range of 15% to 25 % of the Primary Facility cost. If the Supporting Facilities costs are not within this range, then the deviation should be clearly explained in the requirement for the project. An example of a DD 1391 Plus is

included as Exhibit G. This example is for basic format only. Blocks 10, 11, and 12 will be completed based on the project specific requirements.

2. The Parametric Cost Estimate (PCE) Submission, when required, shall be prepared utilizing the “**SUCCESS**” program and the parametric cost models. It is this estimate which formulates the cost data presented in Block 9 of the DD Form 1391 Plus from which Congress authorizes and appropriates construction funds for the project. Appropriate allowances must be made for all features of the project at this stage. Arriving at the project cost consists of three steps:
 - a. Preparation of the Parametric Cost Estimate using the building and site models
 - b. Preparation of the Budget Estimate Summary Sheet
 - c. Preparation of the DD 1391 Plus

The Parametric Cost Estimate (PCE) Submission must provide a breakdown of Primary and Supporting Facilities costs in order to transfer costs to the Budget Estimate Summary Sheet and DD 1391 PLUS. The Primary Facility includes all construction items inside the five-foot line. The five-foot line is an imaginary line around the footprint of the building and all work within this area is considered as building cost. An exception is that special construction features (e.g. special foundations), unique to the building because of the location, are to be included under Supporting Facilities. Supporting Facilities are all construction items outside the five foot line such as utility services, site improvements, roads and parking, building demolition; or special construction features unique to the building because of location, such as special foundations (piling, engineered fill, vibroflotation, etc.), sound attenuation considerations, and contaminated soil removal. An example of a Parametric Cost Estimate (PCE) is included as Exhibit H.

B. Schematic Design Submission.

The Schematic Design Submission Cost Estimate, when required, shall be prepared utilizing the “**SUCCESS**” program and the parametric cost models. Since little design has been developed, careful attention should be exercised to insure all major cost elements are properly considered and evaluated. The Schematic Design Submission Cost Estimate shall include a system quantity and unit cost for every system in the project.

C. Preliminary 35% Submission.

The preliminary 35% Submission Cost Estimate shall be prepared in as much detail as possible. Although the detailed system estimate may lack full definition at this stage, there should be a fully developed listing of the major systems of the project complete with unit costs. It is recognized this estimate is based on preliminary drawings and quotes and that revisions to the cost are likely as the project drawings and specifications are further developed.

D. 100% Submission.

The 100% Submission Cost Estimate shall be developed from complete drawings and specifications. The estimate shall be based on a fully developed and accurate quantity takeoff with current unit prices. The A/E shall provide a brief narrative description of how the Cost Estimate was developed and what sources of pricing data were used in the estimate. The A/E shall provide specific rationale for factors that have a significant impact on the Cost Estimate (i.e. - local market conditions, project size, complexity, etc.). See Exhibit D for an example.

E. Final Submission.

The Final Cost Estimate should normally require only minor revisions to the 100% Cost Estimate. The estimate should reflect any final adjustments in the project cost to assure the estimate is in line with market conditions expected at the bid date and incorporates all changes that result from the 100% submission review. For all projects, the A/E shall provide (with the final submission only) a copy of the estimate on a 3 1/2" floppy disk. A sample final cost estimate is included as Exhibit B.

**EXHIBIT A (WORK BREAKDOWN STRUCTURE (WBS) SYSTEMS
DESCRIPTIONS))**

WBS SYSTEM DESCRIPTIONS

01	SUBSTRUCTURE (SF/SQM)	020203	ROOF DECKS AND SLABS (SF/SQM)
0101	STANDARD FOUNDATIONS (SF/SQM)	020204	CANOPIES (SF/SQM)
010101	WALL FOUNDATIONS (LF/M)	02029X	OTHER ROOF SYSTEMS (SF/SQM)
010102	COLUMN FOUND AND PILE CAPS (EA)	0203	STAIR CONSTRUCTION (FLT/FLT)
01019X	OTHER STANDARD FOUNDATIONS (XX)	020301	INTERIOR STAIR STRUCTURE (VLF/M)
0102	SPECIAL FDN CONDITIONS (SF/SQM)	020302	EXTERIOR STAIR STRUCTURE (VLF/M)
010201	PILE FOUNDATIONS (SF/SQM)	02039X	OTHER STAIR CONSTRUCTION (XX)
010202	CAISSONS (SF/SQM)	03	EXTERIOR CLOSURE (SF/SQM)
010203	UNDERPINNING (LF/M)	0301	EXTERIOR WALLS (SF/SQM)
010204	DEWATERING (SF/SQM)	030101	EXTERIOR SKIN (SF/SQM)
010205	RAFT FOUNDATIONS (SF/SQM)	030102	INSULATION AND VAPOR BARRIER (SF/SQM)
010206	PRESSURE INJECTION GROUTING (SF/SQM)	030103	INTERIOR SKIN (SF/SQM)
01029X	OTHER SPECIAL FOUND CONDITIONS (XX)	030104	PARAPETS (LF/M)
0103	SLAB ON GRADE (SF/SQM)	030105	EXTERIOR LOUVERS AND SCREENS (SF/SQM)
010301	STANDARD SLAB ON GRADE (SF/SQM)	030106	SUN CONTROL DEVICES (EXTERIOR) (SF/SQM)
010302	STRUCTURAL SLAB ON GRADE (SF/SQM)	030107	BALCONY WALLS AND HANDRAILS (LF/M)
010303	INCLINED SLAB ON GRADE (SF/SQM)	030108	EXTERIOR SOFFITS (SF/SQM)
010304	TRENCHES (LF/M)	030109	EXTERIOR FENCING (LF/M)
010305	PITS AND BASES (EA)	03019X	OTHER EXTERIOR WALLS (XX)
010306	FOUNDATION DRAINAGE (LF/M)	0302	EXTERIOR WINDOWS (SF/SQM)
01039X	OTHER SLAB ON GRADE (XX)	030201	WINDOWS (SF/SQM)
0104	BASEMENT EXCAVATION (CY/CUM)	030202	STOREFRONTS (SF/SQM)
010401	EXCAVATION FOR BASEMENTS (CY/CUM)	030203	CURTAIN WALLS (SF/SQM)
010402	STRUCTURE BACKFILL AND COMPACTION (CY/CUM)	03029X	OTHER EXTERIOR WINDOWS (XX)
010403	SHORING (SF/SQM)	0303	EXTERIOR PERSONNEL DOORS (EA)
01049X	OTHER BASEMENT EXCAVATION (XX)	030301	GLAZED DOORS (EA)
0105	BASEMENT WALLS (SF/SQM)	030302	SOLID DOORS (EA)
010501	BASEMENT WALL CONSTRUCTION (SF/SQM)	030303	REVOLVING DOORS (EA)
010502	MOISTURE PROTECTION (SF/SQM)	03039X	OTHER EXTERIOR PERSONNEL DOORS (XX)
010503	BASEMENT WALL INSULATION (SF/SQM)	0304	EXTERIOR SPECIALTY DOORS (SF/SQM)
010504	INTERIOR SKIN (SF/SQM)	030401	OVERHEAD AND ROLL-UP DOORS (SF/SQM)
01059X	OTHER BASEMENT WALLS (XX)	030402	HANGAR DOORS (SF/SQM)
02	SUPERSTRUCTURE (SF/SQM)	030403	BLAST RESISTANT DOORS (SF/SQM)
0201	FLOOR CONSTRUCTION (SF/SQM)	030404	GATES (SF/SQM)
020101	STRUCTURAL FRAME (SF/SQM)	03049X	OTHER SPECIAL DOORS (XX)
020102	STRUCTURAL INTERIOR WALLS (SF/SQM)	04	ROOFING (SF/SQM)
020103	FLOOR DECKS AND SLABS (SF/SQM)	0401	ROOFING (SF/SQM)
020104	BALCONY CONSTRUCTION (SF/SQM)	040101	ROOF COVERINGS (SF/SQM)
020105	RAMPS (SF/SQM)	040102	TRAFFIC TOPPINGS AND PAVING MEMBRANES (SF/SQM)
020106	FLOOR RACEWAY SYSTEMS (SF/SQM)	040103	ROOF INSULATION AND FILL (SF/SQM)
02019X	OTHER FLOOR CONSTRUCTION (XX)	040104	FLASHINGS AND TRIM (SF/SQM)
0202	ROOF CONSTRUCTION (SF/SQM)		
020201	STRUCTURAL FRAME (SF/SQM)		
020202	STRUCTURAL INTERIOR WALLS (SF/SQM)		

040105	ROOFING OPENINGS & SUPPORTS (SF/SQM)	06019X	OTHER WALL FINISHES (XX)
040106	GUTTERS AND DOWNSPOUTS (LF/M)	0602	FLOORING AND FLOOR FINISHES (SF/SQM)
04019X	OTHER ROOFING (XX)	060201	TILE FLOOR FINISHES (SF/SQM)
05	INTERIOR CONSTRUCTION (SF/SQM)	060202	TERRAZZO FLOOR FINISHES (SF/SQM)
0501	PARTITIONS (SF/SQM)	060203	WOOD FLOORING (SF/SQM)
050101	FIXED PARTITIONS (SF/SQM)	060204	RESILIENT FLOORING (SF/SQM)
050102	DEMOUNTABLE PARTITIONS (SF/SQM)	060205	CARPETING (SY/SQM)
050103	RETRACTABLE PARTITIONS (SF/SQM)	060206	MASONRY AND STONE FLOORING (SF/SQM)
050104	INT BALUSTRADES AND SCREENS (LF/M)	060207	ACCESS FLOORING (SF/SQM)
050105	INTERIOR WINDOWS (SF/SQM)	060208	PAINTING AND STAINING FLOORS (SF/SQM)
050106	GLAZED PAR AND STOREFRONTS (SF/SQM)	06029X	OTHER FLOOR FINISHES (XX)
05019X	OTHER PARTITIONS (XX)	0603	CEILING AND CEILING FINISHES (SF/SQM)
0502	INTERIOR PERSONNEL DOORS (LEF)	060301	EXPOSED CONCRETE FINISHES (SF/SQM)
050201	STANDARD INTERIOR DOORS (LEF)	060302	PLASTER CEILING FINISHES (SF/SQM)
050202	GLAZED INTERIOR DOORS (LEF)	060303	GYPNUM WALLBOARD CEILING FINISHES (SF/SQM)
050203	FIRE DOORS (LEF)	060304	ACOUSTICAL CEILING TILES AND PANELS (SF/SQM)
050204	SLIDING AND FOLDING DOORS (SF/SQM)	060305	WOOD CEILINGS (SF/SQM)
05029X	OTHER INTERIOR PERSONNEL DOORS (XX)	060306	PAINTING AND STAINING CEILINGS (SF/SQM)
0503	INTERIOR SPECIALTY DOORS (SF/SQM)	060307	SUSPENSION SYSTEMS (SF/SQM)
050301	OVERHEAD DOORS (SF/SQM)	060308	METAL STRIP CEILINGS (SF/SQM)
050302	GATES (SF/SQM)	06039X	OTHER SPECIAL CEILINGS & CEILING FINISHES (XX)
05039X	OTHER SPECIAL DOORS (XX)	07	CONVEYING SYSTEMS (STY)
0504	INTERIOR SPECIALTIES (SF/SQM)	0701	ELEVATORS (STP)
050401	COMPARTMENTS, CUBICLES, AND TOILET PARTITIONS (EA)	070101	GENERAL CONSTRUCTION ITEMS (EA)
050402	TOILET AND BATH ACCESSORIES (EA)	070102	PASSENGER ELEVATORS (STP)
050403	CHALKBOARDS AND TACK BOARDS (SF/SQM)	070103	FREIGHT ELEVATORS (STP)
050404	IDENTIFYING DEVICES (EA)	07019X	OTHER ELEVATORS (XX)
050405	LOCKERS (EA)	0702	MOVING STAIRS AND WALKS (LF/M)
050406	SHELVING (LF/M)	070201	MOVING STAIRS (LF/M)
050407	FIRE EXTINGUISHER CABINETS (EA)	070202	MOVING WALKS (LF/M)
05049X	OTHER INTERIOR SPECIALTIES (XX)	07029X	OTHER MOVING STAIRS AND WALKS (XX)
0505	CASEWORK (SF/SQM)	0703	MATERIAL HANDLING SYSTEMS (EA)
050501	COUNTERS (LF/M)	070301	CONVEYOR BELT (EA)
050502	CABINETS (LF/M)	070302	OVERHEAD CRANES (EA)
050503	CLOSETS (LF/M)	070303	LIFTS (EA)
05059X	OTHER CASEWORK (XX)	070304	DUMBWAITERS (STP)
06	INTERIOR FINISHES (SF/SQM)	070305	CHUTES (LF/M)
0601	WALL FINISHES (SF/SQM)	070306	PNEUMATIC TUBE SYSTEMS (EA)
060101	CONCRETE WALL FINISHES (SF/SQM)	07039X	OTHER MATERIAL HANDLING SYSTEMS (XX)
060102	PLASTER WALL FINISHES (SF/SQM)	08	PLUMBING (EA)
060103	GYPNUM WALLBOARD FINISHES (SF/SQM)	0801	PLUMBING FIXTURES (EA)
060104	TILE AND TERRAZZO WALL FINISHES (SF/SQM)	080101	WATERCLOSETS (EA)
060105	PAINTING TO WALL (SF/SQM)	080102	URINALS (EA)
060106	WALL COVERINGS (SF/SQM)	080103	LAVATORIES (EA)
060107	ACOUSTICAL TILES AND PANELS TO WALLS (SF/SQM)	080104	SINKS (EA)
060108	SPECIAL COATINGS TO WALLS (SF/SQM)	080105	SHOWERS/TUBS (EA)

080106	DRINKING FOUNTAINS AND COOLERS (EA)	090206	EQUIPMENT THERMAL INSULATION (SF/SQM)
08019X	OTHER FIXTURES (XX)	09029X	OTHER HEAT GENERATING SYSTEMS (XX)
0802	DOMESTIC WATER SUPPLY (EA)	0903	COOLING GENERATING SYSTEMS (TON/KW)
080201	PIPES AND FITTINGS (EA)	090301	CHILLED WATER SYSTEMS (TON/KW)
080202	VALVES AND HYDRANTS (EA)	090302	DIRECT EXPANSION SYSTEMS (TON/KW)
080204	INSULATION & IDENTIFICATION (EA)	09039X	OTHER COOLING GENERATING SYSTEMS (XX)
080205	SPECIALTIES (EA)		
08029X	OTHER DOMESTIC WATER SUPPLY (XX)		
0803	SANITARY WASTE AND VENT SYSTEM (EA)	0904	DISTRIBUTION SYSTEMS (MBH/KW)
080301	WASTE PIPE AND FITTINGS (EA)	090401	AIR DISTRIBUTION, COOLING, AND HEATING (MCF/CUM)
080302	VENT PIPE AND FITTINGS (EA)	090402	STEAM DISTRIBUTION SYSTEMS (MBH/KW)
080303	FLOOR DRAINS (EA)	090403	HOT WATER DISTRIBUTION SYSTEMS (MBH/KW)
080304	INSULATION & IDENTIFICATION (EA)	090404	CHANGE OVER DISTRIBUTION SYSTEMS (MBH/KW)
08039X	OTHER SANITARY WASTE & VENT (XX)	090405	GLYCOL DISTRIBUTION SYSTEMS (MBH/KW)
0804	RAINWATER DRAINAGE SYSTEM (SF/SQM)	090406	CHILLED WATER DISTRIBUTION SYSTEMS (TON/KW)
080401	PIPE AND FITTINGS (LF/M)	090407	EXHAUST SYSTEMS (MCF/CUM)
080402	ROOF DRAINS (EA)	09049X	OTHER DISTRIBUTION SYSTEMS (XX)
080403	INSULATION & IDENTIFICATION (LF/M)	0905	TERMINAL AND PACKAGE UNITS (MBH/KW)
08049X	OTHER RAINWATER DRAINAGE SYSTEM (XX)	090501	UNIT VENTILATORS (EA)
0805	PLUMBING EQUIPMENT (EA)	090502	UNIT HEATERS (EA)
080501	DOMESTIC WATER EQUIPMENT (EA)	090503	FAN COIL UNITS (EA)
080502	SANITARY AND VENT EQUIPMENT (EA)	090504	FIN TUBE RADIATION (EA)
080503	RAINWATER DRAINAGE EQUIPMENT (EA)	090505	ELECTRIC HEATING (EA)
08059X	OTHER SPECIAL PLUMBING EQUIPMENT (XX)	090506	PACKAGE UNITS (EA)
0806	SPECIAL PLUMBING SYSTEMS (EA)	09059X	OTHER TERMINAL AND PACKAGE UNITS (XX)
080601	SPECIAL PIPING SYSTEMS (EA)	0906	CONTROLS AND INSTRUMENTATION (MBH/KW)
080602	ACID WASTE SYSTEMS (EA)	090601	HVAC CONTROLS (EA)
080603	INTERCEPTORS (EA)	090602	INSTRUMENT PANELS (EA)
080604	POOL EQUIPMENT (GPM/L/S)	090603	INSTRUMENT AIR COMPRESSORS (EA)
08069X	OTHER SPECIAL PLUMBING SYSTEMS (XX)	090604	GAS PURGING SYSTEMS (EA)
09	HVAC (MBH/KW)	09069X	OTHER CONTROLS AND INSTRUMENTATION (XX)
0901	ENERGY SUPPLY (MBH/KW)	0907	SYSTEMS TESTING AND BALANCING (MBH/KW)
090101	OIL SUPPLY SYSTEM (MBH/KW)	090701	WATER SIDE TESTING & BALANCING - HEATING & COOLING (EA)
090102	GAS SUPPLY SYSTEM (MBH/KW)	090702	AIR SIDE TEST/BALANCE-HEATING/COOLING/EXHAUST SYS (EA)
090103	COAL SUPPLY SYSTEM (MBH/KW)	090703	HVAC COMMISSIONING (LS/LS)
090104	STEAM SUPPLY SYSTEM (FROM CENTRAL PLANT) (MBH/KW)	09079X	OTHER SYSTEMS TESTING AND BALANCING (XX)
090105	HOT WATER SUPPLY SYSTEM (FROM CENTRAL PLANT) (MBH/KW)	0908	SPECIAL MECHANICAL SYSTEMS (EA)
090106	SOLAR SYSTEMS (MBH/KW)	090801	GENERAL CONSTRUCTION ITEMS (MECHANICAL) (SF/SQM)
090107	WIND ENERGY SUPPLY SYSTEM (MBH/KW)	090802	REFRIGERATION SYSTEMS (TON/KW)
09019X	OTHER ENERGY SUPPLY (XX)		
0902	HEAT GENERATING SYSTEMS (MBH/KW)		
090201	STEAM BOILERS (MBH/KW)		
090202	HOT WATER BOILERS (MBH/KW)		
090203	FURNACES (MBH/KW)		
090204	FUEL FIRED UNIT HEATERS (MBH/KW)		
090205	AUXILIARY EQUIPMENT (MBH/KW)		

09089X	OTHER SPECIAL MECHANICAL (XX)	120205	ELECTRIC HEATING (SF/SQM)
10	FIRE PROTECTION SYSTEMS (SF/SQM)	12029X	OTHER SPECIAL SYSTEMS AND DEVICES (XX)
1001	WATER SUPPLY (FIRE PROTECTION) (EA)	13	EQUIPMENT (SF/SQM)
100101	WATER SUPPLY EQUIPMENT AND PIPING (EA)	1301	FIXED AND MOVEABLE EQUIPMENT (SF/SQM)
1002	SPRINKLERS (EA)	130101	BUILT-IN MAINTENANCE EQUIPMENT (SF/SQM)
100201	SPRINKLER HEADS AND RELEASE DEVICES (EA)	130102	CHECKROOM EQUIPMENT (COA)
1003	STANDPIPE SYSTEMS (EA)	130103	FOOD SERVICE EQUIPMENT (EA)
100301	STANDPIPE EQUIPMENT AND PIPING (EA)	130104	VENDING EQUIPMENT (EA)
1004	FIRE EXTINGUISHERS (EA)	130105	WASTE HANDLING EQUIPMENT (EA)
100401	FIRE EXTINGUISHING DEVICES (EA)	130106	LOADING DOCK EQUIPMENT (DCK)
1005	SPECIAL FIRE PROTECTION SYSTEMS (EA)	130107	PARKING EQUIPMENT (CAR)
100501	OTHER SPECIAL FIRE PROTECTION SYSTEMS (EA)	130108	MISCELLANEOUS COMMON FIXED AND MOVEABLE EQUIPMENT (EA)
11	ELECTRIC POWER & LIGHTING (AMP/AMP)	130109	WAREHOUSE EQUIPMENT (EA)
1101	SERVICE AND DISTRIBUTION (AMP/AMP)	130110	MEDICAL EQUIPMENT (EA)
110101	MAIN TRANSFORMERS (AMP/AMP)	130111	LABORATORY EQUIPMENT (EA)
110102	SECONDARY (AMP/AMP)	130112	MORTUARY EQUIPMENT (EA)
110103	MAIN SWITCHBOARDS (AMP/AMP)	130113	AUDITORIUM AND STAGE EQUIPMENT (EA)
110104	INTERIOR DISTRIBUTION TRANSFORMERS (AMP/AMP)	130114	REGISTRATION EQUIPMENT (EA)
110105	PANELS (AMP/AMP)	130115	LIBRARY EQUIPMENT (EA)
110106	ENCLOSED CIRCUIT BREAKERS (AMP/AMP)	130116	LAUNDRY EQUIPMENT (EA)
110107	MOTOR CONTROL CENTERS (AMP/AMP)	130117	SECURITY AND VAULT EQUIPMENT (EA)
11019X	OTHER SERVICE AND DISTRIBUTION (XX)	13019X	OTHER SPECIALIZED FIXED AND MOVEABLE EQUIPMENT (XX)
1102	LIGHTING AND BRANCH WIRING (SF/SQM)	14	FURNISHINGS (SF/SQM)
110201	BRANCH WIRING (EA)	1401	FURNISHINGS (SF/SQM)
110202	LIGHTING EQUIPMENT (EA)	140101	MODULAR PREFABRICATED FURNITURE (EA)
11029X	OTHER LIGHTING AND BRANCH WIRING (XX)	140102	ART WORK (EA)
12	ELECTRICAL SYSTEMS (SF/SQM)	140103	WINDOW TREATMENT (SF/SQM)
1201	COMMUNICATION, SECURITY AND ALARM SYSTEMS (SF/SQM)	140104	SEATING (EA)
120101	FIRE ALARM SYSTEMS (EA)	140105	RUGS, MATS, AND FURNISHING ACCESSORIES (EA)
120102	NURSE CALL SYSTEMS (EA)	140106	DINING ROOM FURNISHINGS (EA)
120103	TELEPHONE SYSTEMS (EA)	14019X	OTHER FURNISHINGS (XX)
120104	PUBLIC ADDRESS SYSTEMS (SF/SQM)	15	SPECIAL CONSTRUCTION IN CSI MASTERFORMAT DIVISION (SF/SQM)
120105	INTERCOMMUNICATIONS SYSTEMS (EA)	1501	VAULTS (SF/SQM)
120106	CLOCK AND PROGRAM SYSTEMS (EA)	1502	INTERIOR SWIMMING POOLS (SF/SQM)
120107	TELEVISION SYSTEMS (EA)	1503	SPECIAL PURPOSE ROOMS (SF/SQM)
120108	SECURITY SYSTEMS (EA)	1504	PRE-ENGINEERED BUILDINGS (SF/SQM)
12019X	OTHER COMMUNICATIONS AND ALARM SYSTEMS (XX)	1505	WASHRACKS (SF/SQM)
1202	SPECIAL ELECTRICAL SYSTEMS (SF/SQM)	1506	EXTERIOR UTILITY BUILDINGS (SF/SQM)
120201	GENERAL CONSTRUCTION ITEMS (ELECTRICAL) (EA)	159X	OTHER SPECIAL CONSTRUCTION (XX)
120202	EMERGENCY LIGHTING AND POWER (EA)	16	SELECTIVE BUILDING DEMOLITION (LS/LS)
120203	GROUNDING SYSTEMS (SF/SQM)	1601	NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION (LS/LS)
120204	LIGHTNING PROTECTION (EA)	160101	SUBSTRUCTURE & SUPERSTRUCTURE (LS/LS)

160102	EXTERIOR CLOSURE (LS/LS)	170304	FILL & BORROW (CY/CUM)
160103	ROOFING (LS/LS)	170305	COMPACTION (CY/CUM)
160104	INTERIOR CONSTRUCTION & FINISHES (LS/LS)	170306	SOIL STABILIZATION (CY/CUM)
160105	CONVEYING SYSTEMS (LS/LS)	170307	SLOPE STABILIZATION (SY/SQM)
160106	MECHANICAL SYSTEMS (LS/LS)	170308	SOIL TREATMENT (SY/SQM)
160107	ELECTRICAL SYSTEMS (LS/LS)	170309	SHORING (SF/SQM)
160108	EQUIPMENT & FURNISHINGS (LS/LS)	170310	TEMPORARY DEWATERING (SY/SQM)
16019X	OTHER NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION (XX)	170311	TEMPORARY EROSION CONTROL (SF/SQM)
1602	HAZARDOUS SELECTIVE BUILDING DEMOLITION (LS/LS)	17039X	OTHER SITE EARTHWORK (XX)
160201	SUBSTRUCTURE & SUPERSTRUCTURE (LS/LS)	1704	SITE CLEANUP (SY/SQM)
160202	EXTERIOR CLOSURE (LS/LS)	170401	SITE CLEANUP (SY/SQM)
160203	ROOFING (LS/LS)	17049X	OTHER SITE CLEANUP (XX)
160204	INTERIOR CONSTRUCTION & FINISHES (LS/LS)	179X	OTHER SITE PREPARATION (XX)
160205	CONVEYING SYSTEMS (LS/LS)	18	SITE IMPROVEMENTS (SY/SQM)
160206	MECHANICAL SYSTEMS (LS/LS)	1801	ROADWAYS (SY/SQM)
160207	ELECTRICAL SYSTEMS (LS/LS)	180101	BASES AND SUBBASES (SY/SQM)
160208	EQUIPMENT & FURNISHINGS (LS/LS)	180102	DRAINS, INLETS, CURBS, & GUTTERS (LF/M)
16029X	OTHER HAZARDOUS SELECTIVE BUILDING DEMOLITION (XX)	180103	PAVED SURFACES (SY/SQM)
169X	OTHER SELECTIVE BLDG DEMOLITION (XX)	180104	MARKING & SIGNAGE (SY/SQM)
17	SITE PREPARATION (AC/HA)	180105	GUARDRAILS & BARRIERS (LF/M)
1701	SITE CLEARING (AC/HA)	180106	RESURFACING (SY/SQM)
170101	CLEARING (AC/HA)	18019X	OTHER ROADWAYS (XX)
170102	TREE REMOVAL (EA)	1802	PARKING LOTS (SPA)
170103	STUMP REMOVAL (EA)	180201	BASES AND SUBBASES (SY/SQM)
170104	CHIPPING (AC/HA)	180202	DRAINS, CURBS & GUTTERS (LF/M)
170105	GRUBBING (AC/HA)	180203	PAVED SURFACES (SY/SQM)
170106	SELECTIVE THINNING (AC/HA)	180204	MARKING & SIGNAGE (SPA)
170107	DEBRIS DISPOSAL (CY/CUM)	180205	GUARDRAILS & BARRIERS (LF/M)
17019X	OTHER SITE CLEARING (XX)	180206	RESURFACING (SY/SQM)
1702	SITE DEMOLITION & RELOCATION (SY/SQM)	18029X	OTHER PARKING AREAS (XX)
170201	BUILDING MASS DEMOLITION (CF/CUM)	1803	WALKS, STEPS, RAMPS, & TERRACES (SF/SQM)
170202	ABOVE GROUND SITE DEMOLITION (SY/SQM)	180301	BASES AND SUBBASES (SF/SQM)
170203	UNDERGROUND SITE DEMOLITION (SY/SQM)	180302	DRAINS, CURBS & GUTTERS (LF/M)
170204	DEBRIS DISPOSAL (CY/CUM)	180303	PAVED SURFACES (SF/SQM)
170205	BUILDING RELOCATION (SF/SQM)	180304	GUARDRAILS & BARRIERS (LF/M)
170206	UTILITY RELOCATION (LF/M)	180305	RESURFACING (SF/SQM)
170207	FENCING RELOCATION (EA)	18039X	OTHER WALKS, STEPS, RAMPS, & TERRACES (XX)
17029X	OTHER SITE DEMOLITION AND RELOCATION (XX)	1804	SITE DEVELOPMENT (EA)
1703	SITE EARTHWORK (CY/CUM)	180401	FENCING & GATES (LF/M)
170301	GRADING (SY/SQM)	180402	RETAINING WALLS (SF/SQM)
170302	COMMON EXCAVATION & DISPOSAL (CY/CUM)	180403	EXTERIOR FURNISHINGS (EA)
170303	ROCK EXCAVATION & DISPOSAL (CY/CUM)	180404	SECURITY STRUCTURES (EA)
		180405	SIGNAGE (EA)
		180406	FOUNTAINS & POOLS (EA)
		180407	PLAYING FIELDS (EA)
		180408	LINED STORMWTR COLLECTION PONDS/STORAGE STRUCTURES (ACR/HC)
		18049X	MISCELLANEOUS STRUCTURES (XX)
		1805	LANDSCAPING (SY/SQM)

180501	FINE GRADING & SOIL PREPARATION (SY/SQM)	190403	LIFT STATIONS (GPM/L/S)
180502	EROSION CONTROL MEASURES (SY/SQM)	190404	HOLDING TANKS AND SEPARATORS (EA)
180503	TOP SOIL AND PLANTING BEDS (SY/SQM)	190405	TRENCHBOXES (LF/M)
180504	SEEDING & SODDING (SY/SQM)	19049X	OTHER INDUSTRIAL WASTE (XX)
180505	PLANTINGS (EA)	1905	HEATING DISTRIBUTION SYSTEMS (LF/M)
180506	PLANTERS (EA)	190501	OVERHEAD HOT WATER SYSTEMS (LF/M)
180507	IRRIGATION SYSTEMS (SY/SQM)	190502	OVERHEAD STEAM SYSTEMS (LF/M)
18059X	OTHER LANDSCAPING (XX)	190503	UNDERGROUND HOT WATER SYSTEMS (LF/M)
1806	SPECIAL CONSTRUCTION (EA)	190504	UNDERGROUND STEAM SYSTEMS (LF/M)
180601	BRIDGES (SY/SQM)	190505	TRENCHBOXES (LF/M)
180602	RAILROAD SPUR (LF/M)	19059X	OTHER HEATING (XX)
18069X	OTHER SPECIAL CONSTRUCTION (XX)	1906	COOLING DISTRIBUTION SYSTEMS (LF/M)
189X	OTHER SITE IMPROVEMENTS (XX)	190601	OVERHEAD COOLING SYSTEMS (LF/M)
19	SITE CIVIL/MECHANICAL UTILITIES (EA)	190602	UNDERGROUND COOLING SYSTEMS (LF/M)
1901	WATER SUPPLY & DISTRIBUTION SYSTEMS (LF/M)	190603	TRENCHBOXES (LF/M)
190101	WELL SYSTEMS (EA)	19069X	OTHER COOLING (XX)
190102	POTABLE WATER DISTRIBUTION (LF/M)	1907	NATURAL & PROPANE GAS DISTRIBUTION SYSTEMS (LF/M)
190103	POTABLE WATER STORAGE (GAL/L)	190701	GAS DISTRIBUTION PIPING (LF/M)
190104	FIRE PROTECTION WATER DISTRIBUTION (LF/M)	190702	GAS STORAGE TANKS (GAL/L)
190105	FIRE PROTECTION WATER STORAGE (GAL/L)	190703	TRENCHBOXES (LF/M)
190106	NON-POTABLE WATER DISTRIBUTION (LF/M)	19079X	OTHER GAS DISTRIBUTION (XX)
190107	PUMPING STATIONS (GPM/L/S)	1908	BUILDING FUEL DISTRIBUTION SYSTEMS (GAL/L)
190108	PACKAGED WATER TREATMENT PLANTS (GPD/L/S)	190801	FUEL DISTRIBUTION PIPING (LF/M)
190109	TRENCHBOXES (LF/M)	190802	FUEL STORAGE TANKS (GAL/L)
19019X	OTHER WATER SUPPLY (XX)	190803	FUEL DISPENSING STATIONS (EA)
1902	SANITARY SEWER SYSTEMS (LF/M)	190804	TRENCHBOXES (LF/M)
190201	SANITARY SEWER PIPING (LF/M)	19089X	OTHER FUEL (XX)
190202	SANITARY SEWER MANHOLES & CLEANOUTS (EA)	199X	OTHER CIVIL/MECHANICAL UTILITIES (XX)
190203	LIFT STATIONS (GPM/L/S)	20	SITE ELECTRICAL UTILITIES (EA)
190204	PACKAGED SANITARY SEWER TREATMENT PLANTS (GPD/L/S)	2001	SUBSTATIONS (KVA/KVA)
190205	SEPTIC TANKS (GAL/L)	200101	TRANSFORMERS (KVA/KVA)
190206	DRAIN FIELDS (LF/M)	200102	SWITCHGEAR, VOLTAGE REGULATORS & BUSSBARS (EA)
190207	TRENCHBOXES (LF/M)	200103	OVERHEAD ELECTRIC CONDUCTORS (LF/M)
19029X	OTHER SANITARY SEWER (XX)	200104	TOWERS, POLES, CROSSARMS & INSULATORS (EA)
1903	STORM SEWER SYSTEMS (LF/M)	200105	UNDERGROUND ELECTRIC CONDUCTORS (LF/M)
190301	STORM SEWER PIPING (LF/M)	200106	DUCTBANKS, MANHOLES, & HANDHOLES (EA)
190302	STORM SEWER MANHOLES (EA)	200107	LIGHTNING ARRESTING SYSTEMS (EA)
190303	LIFT STATIONS (GPM/L/S)	200108	GROUNDING SYSTEMS (EA)
190304	CULVERTS (LF/M)	20019X	OTHER SUBSTATION (XX)
190305	HEADWALLS & CATCH BASINS (EA)	2002	EXTERIOR ELECTRICAL DISTRIBUTION (LF/M)
190306	EROSION CONTROL MEASURES (SY/SQM)	200201	TRANSFORMERS (KVA/KVA)
190307	TRENCHBOXES (LF/M)	200202	SWITCHES, CONTROLS, & DEVICES (EA)
19039X	OTHER STORM SEWER (XX)		
1904	INDUSTRIAL WASTE SYSTEMS (LF/M)		
190401	INDUSTRIAL WASTE PIPE (LF/M)		
190402	MANHOLES & CLEANOUTS (EA)		

200203	OVERHEAD ELECTRIC CONDUCTORS (LF/M)	33010101	TRANSPORT VEHICLES OWNERSHIP/OPERATION (HR/HR)
200204	TOWERS, POLES, CROSSARMS & INSULATORS (EA)	33010102	DRIVERS (HR/HR)
200205	UNDERGROUND ELECTRIC CONDUCTORS (LF/M)	33010103	MANIFESTS (EA)
200206	DUCTBANKS, MANHOLES, HANDHOLES & RACEWAYS (EA)	33010104	TOLLS (ES)
200207	GROUNDING SYSTEMS (EA)	33010105	PERMITS (EA)
200208	METERING (EA)	33010106	ESCORT VEHICLES OWNERSHIP/OPERATION (HR/HR)
20029X	OTHER ELECTRIC TRANSMISSION & DISTRIBUTION (XX)	33010107	CONSTRUCTION EQUIPMENT OWNERSHIP/OPERATION (HR/HR)
2003	EXTERIOR LIGHTING (SY/SQM)	33010108	EQUIPMENT OPERATORS (HR/HR)
200301	TRANSFORMERS (KVA/KVA)	33010109	INITIAL ASSEMBLY AND SETUP (EA)
200302	OVERHEAD ELECTRIC CONDUCTORS (LF/M)	3301019X	OTHER (USE NUMBERS 90 - 99) (XX)
200303	TOWERS, POLES, CROSSARMS & INSULATORS (EA)	330102	MOBILIZATION OF PERSONNEL (EA)
200304	UNDERGROUND ELECTRIC CONDUCTORS (LF/M)	33010201	RELOCATION OF SUPERVISORY PERSONNEL (EA)
200305	DUCTBANKS, MANHOLES & HANDHOLES (EA)	3301029X	OTHER (USE NUMBERS 90 - 99) (XX)
200306	EXTERIOR LIGHTING FIXTURES & CONTROLS (EA)	330103	PRECONSTRUCTION SUBMITTALS/IMPLEMENTATION PLANS (LS/LS)
200307	GROUNDING SYSTEMS (EA)	33010301	CHEMICAL DATA ACQUISITION PLAN (EA)
200308	SPECIAL SECURITY LIGHTING SYSTEMS (EA)	33010302	SPILL CONTROL PLAN (EA)
20039X	OTHER AREA LIGHTING (XX)	33010303	EROSION CONTROL PLAN (LS/LS)
2004	EXTERIOR COMMUNICATIONS & ALARM SYSTEMS (LF/M)	33010304	ENVIRONMENTAL PROTECTION PLAN (EA)
200401	TELEPHONE SYSTEMS (LF/M)	33010305	SEDIMENTATION CONTROL PLAN (EA)
200402	SOUND SYSTEMS (LF/M)	33010306	POLLUTION CONTROL PLAN (EA)
200403	FIRE ALARM SYSTEMS (LF/M)	33010307	LETTERS OF COMMITMENT (EA)
200404	CABLE TV SYSTEMS (LF/M)	33010308	SITE SAFETY AND HEALTH PLAN (SSHP) (EA)
20049X	OTHER COMMUNICATION & ALARM (XX)	33010309	AIR MONITORING PLAN (EA)
2005	EXTERIOR SECURITY SENSORS & TV MONITORING SYSTEMS (STA/STA)	33010310	TRAFFIC CONTROL PLAN (EA)
200501	CABLES & WIRING (LF/M)	33010311	SITE SECURITY PLAN (EA)
200502	DUCTBANKS, MANHOLES & HANDHOLES (EA)	33010312	CONTAMINATED WATER STORAGE AND TREATMENT PLAN (EA)
200503	TOWERS, POLES, & STANDS (EA)	33010313	GENERAL SITE WORK PLAN (EA)
200504	TV CAMERAS & MONITORS (EA)	33010314	CONSTRUCTION QUALITY CONTROL PLAN (EA)
200505	GROUNDING SYSTEMS (EA)	33010315	MATERIALS HANDLING/TRANSPORTATION/DISPOSAL PLAN (EA)
20059X	OTHER SECURITY SYSTEMS (XX)	33010316	ASBESTOS HAZARD ABATEMENT PLAN (EA)
2006	CATHODIC PROTECTION (LF/M)	33010317	PHASE-OUT REPORT (EA)
200601	SACRIFICIAL ANODE SYSTEM (EA)	33010318	ACCIDENT PREVENTION PLAN (EA)
200602	INDUCED CURRENT SYSTEM (LF/M)	33010319	PHASE SAFETY PLAN (EA)
20069X	OTHER CATHODIC PROTECTION (XX)	33010320	EMERGENCY RESPONSE PLAN (EA)
209X	OTHER ELECTRICAL UTILITIES (XX)	33010321	TRIAL BURN PLAN (EA)
33	HTRW REMEDIAL ACTION (LS/LS	33010322	OTHER TECHNOLOGY PLANS (EA)
3301	MOBILIZATION AND PREPARATORY WORK (LS/LS)	33010323	EXPERIENCE RECORD (EA)
330101	MOBILIZATION OF CONSTRUCTION EQP AND FACILITIES (LS/LS)	33010324	FINANCIAL STATEMENT (EA)
		33010325	SMALL BUSINESS PLAN (EA)
		33010326	SUBCONTRACTING PLAN (EA)
		33010327	CONSTRUCTION SCHEDULING (CPM) (LS/LS)
		33010328	TRAINING CERTIFICATIONS (EA)
		33010329	MEDICAL SURVEILLANCE CERTIFICATIONS (EA)

33010330	LOCAL PERMITS (EA)	33010702	BLOCK (EA)
33010331	STATE PERMITS (EA)	33010703	PRECAST (EA)
33010332	FEDERAL PERMITS (EA)	33010704	ASPHALT (EA)
33010333	PATENT FEES (EA)	33010705	QUARRY CRUSHER/SCREENS (EA)
3301039X	OTHER (USE NUMBERS 90 - 99) (XX)	3301079X	OTHER (USE NUMBERS 90 - 99) (XX)
330104	SETUP/CONSTRUCT TEMPORARY FACILITIES (LS/LS)	33019X	OTHER (USE NUMBERS 90-99) (XX)
33010401	OFFICE TRAILERS (EA)	3302	MONITORING, SAMPLING, TESTING, AND ANALYSIS (LS/LS)
33010402	STORAGE FACILITIES (EA)	330201	METEOROLOGICAL MONITORING (LS/LS)
33010403	OBSERVATION TOWER (EA)	33020101	METEOROLOGICAL MONITORING STATION (EA)
33010404	DECONTAMINATION FACILITIES FOR PERSONNEL (EA)	33020102	INSTRUMENT SHELTERS (EA)
33010405	DECONTAMINATION FACILITIES FOR CONSTRUCTION EQUIP/VEHICLES (EA)	3302019X	OTHER (USE NUMBERS 90 -99) (XX)
33010406	TEMPORARY COVER STRUCTURE OVER CONTAMINATED AREA (SY/SQM)	330202	RADIATION MONITORING (LS/LS)
33010407	LUNCH/BREAK TRAILER (EA)	33020201	AREA MONITORING-ALARM SYSTEMS (LS/LS)
33010408	LAUNDRY FACILITIES (LS/LS)	33020202	PERSONAL DOSIMETRY (LS/LS)
33010409	EMERGENCY MEDICAL TRAILER/FACILITIES (EA)	33020203	PERSONNEL RADIATION COUNTING (LS/LS)
33010410	TOILETS (EA)	33020204	DOSIMETRY SYSTEMS (LS/LS)
33010411	BARRICADES (EA)	33020205	DIAGNOSTICS, QUALITY ASSURANCE, AND CALIBRATION (LS/LS)
33010412	EQUIPMENT MAINTENANCE SHOP (EA)	3302029X	OTHER (USE NUMBERS 90 - 99) (XX)
33010413	WAREHOUSES (EA)	330203	AIR MONITORING AND SAMPLING (LS/LS)
33010414	GOVERNMENT TRAILERS (EA)	33020301	REAL-TIME-PARTICULATE SAMPLING (LS/LS)
33010415	GUARD HOUSES (EA)	33020302	NON-REAL TIME-SOURCE EMISSIONS SAMPLING (LS/LS)
33010416	TRUCK SCALES (EA)	33020303	ASBESTOS-BASELINE AIR SAMPLING (LS/LS)
33010417	WASTEWATER HOLDING TANKS (EA)	3302039X	OTHER (USE NUMBERS 90 - 99) (XX)
33010418	FIRE SUPPRESSION SYSTEMS (EA)	330204	MONITORING WELLS (EA)
33010419	POL DISPENSING STATION (EA)	33020401	DRILL SETUP (EA)
33010420	PHOTOGRAPHIC LABORATORY (EA)	33020402	WELL DRILLING (LF/M)
33010421	HOUSING (LS/LS)	33020403	HANDLING OF CUTTINGS/WATER (LS/LS)
33010422	SHOP FACILITIES (LS/LS)	33020404	CASING (LF/M)
33010423	AGGREGATE SURFACING (TON/KW)	33020405	CASING REMOVAL (LF/M)
33010424	SECURITY FENCING (LF/M)	33020406	GRAVEL PACK MATERIAL (CF/CUM)
33010425	ROADS AND PARKING (SY/SQM)	33020407	GROUT (CF/CUM)
33010426	CULVERTS (LF/M)	33020408	WET WELL (EA)
33010427	WALKS (SF/SQM)	33020409	WELL DEVELOPMENT/TESTING (EA)
33010428	SIGNS (EA)	33020410	WELL SCREEN (LF/M)
33010429	GRADING (SY/SQM)	33020411	CAPPING (EA)
3301049X	OTHER (USE NUMBERS 90 - 99) (XX)	33020412	WELL HOUSE (EA)
330105	CONSTRUCT TEMPORARY UTILITIES (LS/LS)	33020413	WELL PUMP AND CONTROLS/INSTRUMENTATION (EA)
33010501	SITE LIGHTING (LS/LS)	33020414	WELL PIPING, VALVES, FITTINGS (LF/M)
33010502	POWER CONNECTION/DISTRIBUTION (LF/M)	33020415	FLOW METER (EA)
33010503	TELEPHONE/COMMUNICATIONS HOOKUP (EA)	33020416	LYSIMETERS (EA)
33010504	WATER CONNECTION/DISTRIBUTION (LF/M)	33020417	ELECTRICAL (LS/LS)
33010505	SEWER CONNECTION/DISTRIBUTION (LF/M)	33020418	TESTS (EA)
33010506	GAS CONNECTION/DISTRIBUTION (LF/M)	33020419	OPERATION AND MAINTENANCE (LS/LS)
3301059X	OTHER (USE NUMBERS 90 - 99) (XX)	33020420	MONITORING WELL ABANDONMENT (EA)
330106	TEMP RELOCATIONS OF ROADS/STRUCTURES/UTILITIES (LS/LS)	3302049X	OTHER (USE NUMBERS 90 - 99) (XX)
330107	CONSTRUCTION PLANT ERECTION (LS/LS)		
33010701	CONCRETE BATCH (EA)		

330205	SAMPLING SURFACE WATER/GROUND WATER/LIQUID WASTE (EA)	33021106	FIELD TESTS (EA)
33020501	SURFACE WATER (EA)	33021107	SAMPLE SHIPPING AND HANDLING (EA)
33020502	GROUND WATER (EA)	3302119X	OTHER (USE NUMBERS 90 - 99) (XX)
33020503	LIQUID WASTE (EA)	330212	GEOTECHNICAL INSTRUMENTATION (LS/LS)
33020504	TREATMENT PROCESS EFFLUENTS (EA)	33021201	PIEZOMETERS (EA)
33020505	SAMPLE SHIPPING AND HANDLING (EA)	33021202	INCLINOMETERS (EA)
3302059X	OTHER (USE NUMBERS 90 - 99) (XX)	33021203	SETTLEMENT GAUGES (EA)
330206	SAMPLING SOIL AND SEDIMENT (EA)	33021204	TILTMETERS (EA)
33020601	SURFACE SOIL (EA)	33021205	VADOSE ZONE MONITORING (EA)
33020602	SUB-SURFACE SOIL (EA)	33021206	SAMPLE SHIPPING AND HANDLING (EA)
33020603	SEDIMENT/SLUDGE (EA)	3302129X	OTHER (USE NUMBERS 90 - 99) (XX)
33020604	SAMPLE SHIPPING AND HANDLING (EA)	330213	ON-SITE LABORATORY FACILITIES (LS/LS)
3302069X	OTHER (USE NUMBERS 90 - 99) (XX)	33021301	MOBILIZATION (LS/LS)
330207	SAMPLING ASBESTOS (EA)	33021302	RENT/OWN/OPERATE/MAINTAIN DURING CONSTRUCTION (LS/LS)
330208	SAMPLING RADIOACTIVE CONTAMINATED MEDIA (EA)	33021303	LAB EQUIPMENT (LS/LS)
33020801	SURFACE WATER (EA)	33021304	LAB PERSONNEL (LS/LS)
33020802	GROUND WATER (EA)	33021305	DEMobilIZATION (LS/LS)
33020803	LIQUID WASTE (EA)	3302139X	OTHER (USE NUMBERS 90 - 99) (XX)
33020804	SURFACE SOIL (EA)	330214	OFF-SITE LABORATORY FACILITIES (LS/LS)
33020805	SUB-SURFACE SOIL (EA)	33021401	SAMPLE STORAGE/DISPOSAL (EA)
33020806	SEDIMENT/SLUDGE (EA)	3302149X	OTHER (USE NUMBERS 90 - 99) (XX)
33020807	OTHER CONTAMINATED MEDIA (EA)	33029X	OTHER (USE NUMBERS 90-99) (XX)
33020808	SAMPLE SHIPPING AND HANDLING (EA)	3303	SITE WORK (LS/LS)
3302089X	OTHER (USE NUMBERS 90 - 99) (XX)	330301	DEMOLITION (LS/LS)
330209	LABORATORY CHEMICAL ANALYSIS (EA)	330302	CLEARING AND GRUBBING (AC/HA)
33020901	AIR/INDUSTRIAL HYGIENE ANALYSIS (EA)	330303	EARTHWORK (CY/CUM)
33020902	GENERAL WATER QUALITY AND WASTEWATER ANALYSIS (EA)	33030301	ROCK EXCAVATION (CY/CUM)
33020903	PRIORITY POLLUTANT ANALYSIS (ALL MEDIA) (EA)	33030302	EXCAVATION/FILL (CY/CUM)
33020904	BIOMONITORING & BIOASSAY ANALYSIS (EA)	33030303	BACKFILL (CY/CUM)
33020905	HAZARDOUS WASTE (RCRA) ANALYSIS (EA)	33030304	BORROW (CY/CUM)
33020906	MISCELLANEOUS WASTE ANALYSIS (EA)	33030305	HAULING (CY/CUM)
33020907	SOIL AND SEDIMENT ANALYSIS (EA)	33030306	SPREADING (CY/CUM)
3302099X	OTHER (USE NUMBERS 90 - 99) (XX)	33030307	GRADING (SY/SQM)
330210	RADIOACTIVE WASTE ANALYSIS (EA)	33030308	COMPACTION (CY/CUM)
33021001	RAD ANALYTICAL ANIMAL TISSUE/BONE (EA)	33030309	SCARIFICATION (CY/CUM)
33021002	RAD ANALYTICAL AIR (EA)	33030310	HARROWING (CY/CUM)
33021003	RAD ANALYTICAL LIQUID (EA)	33030311	TRACKING (CY/CUM)
33021004	RAD ANALYTICAL URINE/FECES (EA)	33030312	CONTOUR FURROWING (CY/CUM)
33021005	RAD ANALYTICAL VEGETATION/SEDIMENT/SOIL (EA)	33030313	STOCKPILING (CY/CUM)
33021006	RAD ANALYTICAL MISCELLANEOUS (EA)	33030314	TOPSOIL (CY/CUM)
3302109X	OTHER (USE NUMBERS 90 - 99) (XX)	33030315	SETTLEMENT MARKERS (EA)
330211	GEOTECHNICAL TESTING (EA)	3303039X	OTHER (USE NUMBERS 90 - 99) (XX)
33021101	CLASSIFICATION (EA)	330304	ROADS/PARKING/CURBS/WALKS (SY/SQM)
33021102	SHEAR STRENGTH (EA)	33030401	BITUMINOUS SURFACING (TON/KW)
33021103	CONSOLIDATION (EA)	33030402	PRIME COAT/TACK COAT (GAL/L)
33021104	PERMEABILITY (EA)	33030403	AGGREGATE SURFACING (TON/KW)
33021105	GEOSYNTHETIC FRICTION TESTING (EA)	33030404	CONCRETE SURFACING (CY/CUM)
		33030405	BASE COURSES (TON/KW)
		33030406	GEOTEXTILE FABRIC(SY/SQM)
		33030407	GUARD RAILS (LF/M)
		33030408	CURBS AND GUTTERS (LF/M)

33030409	SIDEWALKS (SF/SQM)	3303119X	OTHER (USE NUMBERS 90 - 99) (XX)
33030410	SIGNS (EA)	330312	PERMANENT COVER STRUCTURE OVER CONTAMINATED AREA (SF/SQM)
33030411	STRIPING (LF/M)	3303129X	OTHER (USE NUMBERS 90 - 99) (XX)
33030412	BARRICADES (EA)	330313	DEVELOPMENT OF BORROW PIT/HAUL ROADS (LS/LS)
3303049X	OTHER (USE NUMBERS 90 - 99) (XX)	33039X	OTHER (USE NUMBERS 90-99) (XX)
330305	FENCING (LF/M)	3305	SURFACE WATER COLLECTION AND CONTROL (LS/LS)
33030501	FENCING (LF/M)	330501	BERMS/DIKES (CY/CUM)
33030502	GATES (EA)	330502	FLOODWALLS (LF/M)
3303059X	OTHER (USE NUMBERS 90 - 99) (XX)	330503	LEVEES (CY/CUM)
330306	ELECTRICAL DISTRIBUTION (LF/M)	330504	TERRACES AND BENCHES (CY/CUM)
33030601	RELOCATIONS (LS/LS)	330505	EXCAVATION FOR CHANNELS/WATERWAYS (SOIL/ROCK) (LS/LS)
33030602	POWER DISTRIBUTION (LF/M)	3305059X	OTHER (USE NUMBERS 90 - 99) (XX)
33030603	SITE LIGHTING DISTRIBUTION (LF/M)	330506	CHUTES OR FLUMES (LF/M)
33030604	SITE LIGHTING FIXTURES (EA)	33050601	CONCRETE (CY/CUM)
33030605	TRANSFORMERS (EA)	33050602	BITUMINOUS (TON/KW)
33030606	CONNECTIONS/FEES (EA)	33050603	RIP RAP (TON/KW)
3303069X	OTHER (USE NUMBERS 90 - 99) (XX)	33050604	GABIONS (CY/CUM)
330307	TELEPHONE/COMMUNICATION DISTRIBUTION (LF/M)	3305069X	OTHER (USE NUMBERS 90 - 99) (XX)
33030701	TELEPHONE DISTRIBUTION (LF/M)	330507	SEDIMENT BARRIERS (LF/M)
33030702	COMMUNICATION SYSTEMS (EA)	33050701	SILT FENCE (LF/M)
33030703	ALARMS (EA)	33050702	STRAW BALES (LF/M)
33030704	RELOCATIONS (LF/M)	3305079X	OTHER (USE NUMBERS 90 - 99) (XX)
33030705	CONNECTIONS/FEES (EA)	330508	STORM DRAINAGE (LF/M)
33030730	TESTS (EA)	33050801	PIPE (LF/M)
3303079X	OTHER (USE NUMBERS 90 - 99) (XX)	33050802	STRUCTURES (EA)
330308	WATER/SEWER/GAS DISTRIBUTION (LF/M)	33050803	GABIONS (CY/CUM)
33030801	WATER DISTRIBUTION (LF/M)	33050804	RIP RAP (TON/KW)
33030802	SANITARY SEWER COLLECTION (LF/M)	3305089X	OTHER (USE NUMBERS 90 - 99) (XX)
33030803	GAS DISTRIBUTION (LF/M)	330509	LAGOONS/BASINS/TANKS/DIKES (CY/CUM)
33030804	RELOCATIONS (LF/M)	33050901	EXCAVATION (CY/CUM)
33030805	CONNECTIONS/FEES (EA)	33050902	BERM EMBANKMENT AND COMPACTION (CY/CUM)
33030830	TESTS (EA)	33050903	IMPERVIOUS CLAY LINER (CY/CUM)
3303089X	OTHER (USE NUMBERS 90 - 99) (XX)	33050904	BENTONITE LINER (CY/CUM)
330309	STEAM AND CONDENSATE DISTRIBUTION (LF/M)	33050905	GEONET (SY/SQM)
33030901	STEAM DISTRIBUTION (LF/M)	33050906	GEOTEXTILE (SY/SQM)
33030902	CONDENSATE DISTRIBUTION (LF/M)	33050907	GEOMEMBRANE (SYNTHETIC) (SY/SQM)
33030903	RELOCATIONS (LF/M)	33050908	GEOCOMPOSITE (SY/SQM)
33030904	CONNECTIONS/FEES (EA)	33050909	GRANULAR DRAINAGE LAYER (CY/CUM)
33030930	TESTS (EA)	33050910	SLOPE PROTECTION (LS/LS)
3303099X	OTHER (USE NUMBERS 90 - 99) (XX)	33050911	FLOATING COVER (LS/LS)
330310	FUEL LINE DISTRIBUTION (LF/M)	33050912	INTAKE/OUTLET STRUCTURE (EA)
33031001	FUEL LINE DISTRIBUTION (LF/M)	33050913	SPILLWAY (LS/LS)
33031002	RELOCATIONS (LF/M)	33050914	STORAGE TANKS W/ALARMS (EA)
33031003	CONNECTIONS/FEES (EA)	33050930	TESTS (EA)
33031030	TESTS (EA)	3305099X	OTHER (USE NUMBERS 90 - 99) (XX)
3303109X	OTHER (USE NUMBERS 90 - 99) (XX)	330510	PUMPING/DRAINING/COLLECTION (GAL/L)
330311	STORM DRAINAGE/SUBDRAINAGE (LF/M)		
33031101	PIPE (LF/M)		
33031102	MANHOLES (EA)		
33031103	INLETS (EA)		
33031104	DRAINAGE STRUCTURES (EA)		
33031130	TESTS (EA)		

33051001	PUMPING (LS/LS)	33060114	WELL PUMP AND
33051002	MANHOLES, VALVES, BOXES (EA)		CONTROLS/INSTRUMENTATION (EA)
33051003	PIPING (LF/M)	33060115	WELL PIPING, VALVES, FITTINGS (LF/M)
33051004	HOSE (LF/M)	33060116	FLOW METER (EA)
33051005	DRAINING (GRAVITY) (GAL/L)	33060117	HOLDING TANK (EA)
33051006	HOLDING TANK (EA)	33060118	ELECTRICAL (LS/LS)
3305109X	OTHER (USE NUMBERS 90 - 99) (XX)	33060119	OPERATION AND MAINTENANCE (LS/LS)
330511	TRANSPORT TO TREATMENT PLANT (GAL/L)	33060120	MONITORING WELL ABANDONMENT (EA)
330512	EARTHWORK (CY/CUM)	33060130	TESTS (EA)
33051201	ROCK EXCAVATION (CY/CUM)	3306019X	OTHER (USE NUMBERS 90 - 99) (XX)
33051202	EXCAVATION/FILL (CY/CUM)	330602	SUBSURFACE DRAINAGE/COLLECTION (LF/M)
33051203	BACKFILL (CY/CUM)	33060201	TRENCH EXCAVATION/SOIL/ROCK (CY/CUM)
33051204	BORROW (CY/CUM)	33060202	DEWATERING FOR CONSTRUCTION (LS/LS)
33051205	HAULING (CY/CUM)	33060203	SHEETING AND SHORING TRENCH (SF/SQM)
33051206	SPREADING (CY/CUM)	33060204	DRAIN PIPING, FITTINGS (LF/M)
33051207	GRADING (SY/SQM)	33060205	AGGREGATE FILTER MATERIAL (TON/KW)
33051208	COMPACTION (CY/CUM)	33060206	GEOTEXTILE FABRICS (SF/SQM)
33051209	SCARIFICATION (CY/CUM)	33060207	BACKFILL (CY/CUM)
33051210	HARROWING (CY/CUM)	33060208	SYNTHETIC LINER (SY/SQM)
33051211	TRACKING (CY/CUM)	33060209	MANHOLES (EA)
33051212	CONTOUR FURROWING (CY/CUM)	33060210	OBSERVATION RISERS (EA)
33051213	STOCKPILING (CY/CUM)	33060211	LIFT STATION, PUMPS AND CONTROLS/INSTRUMENTATION (EA)
33051214	TOPSOIL (CY/CUM)	33060212	HOLDING TANK (EA)
33051215	SETTLEMENT MARKERS (EA)	33060230	TESTS (EA)
3305129X	OTHER (USE NUMBERS 90 - 99) (XX)	3306029X	OTHER (USE NUMBERS 90 - 99) (XX)
330513	EROSION CONTROL (AC/HA)	330603	SLURRY WALLS (SF/SQM)
33051301	SEEDING/MULCH/FERTILIZER (AC/HA)	33060301	EXCAVATION (CY/CUM)
33051302	SODDING (SY/SQM)	33060302	BENTONITE SLURRY (CY/CUM)
33051303	EROSION CONTROL FABRIC (SY/SQM)	33060303	SOIL-BENTONITE SLURRY (CY/CUM)
33051304	SHRUBS, TREES, GROUND COVER (EA)	33060304	SLURRY MIXING/CIRCULATION (CY/CUM)
33051305	TOPSOIL (CY/CUM)	33060305	CEMENT-BENTONITE SLURRY (CY/CUM)
33051306	MOWING (AC/HA)	33060306	FILL MATERIAL (CY/CUM)
33051307	MAINTENANCE (LS/LS)	33060307	BACKFILL PLACING (CY/CUM)
3305139X	OTHER (USE NUMBERS 90 - 99) (XX)	33060330	TESTS (EA)
330514	DEVELOPMENT OF BORROW PIT/HAUL ROADS (LS/LS)	3306039X	OTHER (USE NUMBERS 90 - 99) (EA)
33059X	OTHER (USE NUMBERS 90-99) (XX)	330604	GROUT CURTAIN (SF/SQM)
3306	GROUNDWATER COLLECTION AND CONTROL (LS/LS)	33060401	DRILL GROUT HOLES (LF/M)
330601	EXTRACTION AND INJECTION WELLS (EA)	33060402	GROUT TUBE (LF/M)
33060101	DRILL SETUP (EA)	33060403	GROUT INJECTION (CF/CUM)
33060102	WELL DRILLING (LF/M)	33060404	VIBRATING BEAM GROUT INJECTION (CF/CUM)
33060103	HANDLING OF CUTTINGS/WATER (LS/LS)	3306049X	OTHER (USE NUMBERS 90 - 99) (XX)
33060104	CASING (LF/M)	330605	SHEET PILING (SF/SQM)
33060105	CASING REMOVAL (LF/M)	33060501	DRIVEN SHEET PILING (LEFT IN PLACE) (SF/SQM)
33060106	GRAVEL PACK MATERIAL (CF/CUM)	33060502	DRIVEN SHEET PILING (PULLED) (SF/SQM)
33060107	GROUT (CF/CUM)	3306059X	OTHER (USE NUMBERS 90 - 99) (XX)
33060108	WET WELL (EA)	330606	LAGOONS/BASINS/TANKS/DIKES (CY/CUM)
33060109	WELL DEVELOPMENT/TESTING (LS/LS)	33060601	EXCAVATION (CY/CUM)
33060110	WELL SCREEN (LF/M)		
33060111	CAPPING (EA)		
33060112	WELL HOUSE (EA)		
33060113	PITLESS ADAPTER (EA)		

33060602	BERM EMBANKMENT AND COMPACTION (CY/CUM)	33070202	HANDLING OF CUTTINGS/WATER (LS/LS)
33060603	IMPERVIOUS CLAY LINER (CY/CUM)	33070203	CASING (LF/M)
33060604	BENTONITE LINER (CY/CUM)	33070204	WELL SCREEN (LF/M)
33060605	GEONET (SY/SQM)	33070205	DRILLING MUD (CY/CUM)
33060606	GEOTEXTILE (SY/SQM)	33070206	SAND (CF/CUM)
33060607	GEOMEMBRANE (SYNTHETIC) (SY/SQM)	33070207	GROUT CEMENT (CF/CUM)
33060608	GEOCOMPOSITE (SY/SQM)	33070208	WELL HOUSE (EA)
33060609	GRANULAR DRAINAGE LAYER (TON/KW)	33070209	AGGREGATE FILTER MATERIAL (TON/KW)
33060610	SLOPE PROTECTION RIPRAP/STONE/ROCK (TON/KW)	33070210	VERTICAL PIPING, FITTINGS (LF/M)
33060611	FLOATING COVER (LS/LS)	33070211	MONITORING PROBES (EA)
33060612	INTAKE/OUTLET STRUCTURE (LS/LS)	33070212	GAS COLLECTION HEADER/FITTINGS/TANKS (LS/LS)
33060613	SPILLWAY (LS/LS)	33070213	VACUUM BLOWER/COMPRESSOR (EA)
33060614	STORAGE TANKS W/ALARMS (EA)	33070214	FLARE/FLAME ARRESTOR (EA)
33060630	TESTS (EA)	33070215	VALVES, BOXES, MANHOLES (EA)
3306069X	OTHER (USE NUMBERS 90 - 99) (XX)	33070216	GAS CONTROL/SUPPRESSION (EA)
330607	PUMPING/COLLECTION (GAL/L)	33070230	TESTS (EA)
33060701	PUMPING (LS/LS)	3307029X	OTHER (USE NUMBERS 90 - 99) (XX)
33060702	MANHOLES, VALVES, BOXES (EA)	330703	GAS/VAPOR COLLECTION AT LAGOON COVER (SY/SQM)
33060703	PIPING (LF/M)	33070301	FLEXIBLE GAS COLLECTION HOSE (LF/M)
33060704	HOSE (LF/M)	33070302	GAS COLLECTION CHAMBERS/TANK (EA)
33060705	HOLDING TANK (EA)	33070303	VACUUM BLOWER/COMPRESSOR (EA)
3306079X	OTHER (USE NUMBERS 90 - 99) (XX)	33070304	FLARE/FLAME ARRESTOR (EA)
330608	TRANSPORT TO TREATMENT PLANT (GAL/L)	33070305	VALVES, BOXES, MANHOLES (EA)
330609	DEVELOPMENT OF BORROW PIT/HAUL ROADS (LS/LS)	33070306	GAS CONTROL/SUPPRESSION (EA)
33069X	OTHER (USE NUMBERS 90-99) (XX)	33070330	TESTS (EA)
3307	AIR POLLUTION/GAS COLLECTION AND CONTROL (LS/LS)	3307039X	OTHER (USE NUMBERS 90 - 99) (XX)
330701	GAS/VAPOR COLLECTION TRENCH SYSTEM (LF/M)	330704	FUGITIVE DUST/VAPOR/GAS EMISSIONS CONTROL (AC/HA)
33070101	TRENCH EXCAVATION/SOIL/ROCK (CY/CUM)	33070401	SPRAYED CHEMICAL DUST SUPPRESSANTS (AC/HA)
33070102	SHEETING AND SHORING TRENCH (SF/SQM)	33070402	WIND FENCES/SCREENS (LF/M)
33070103	VERTICAL PIPING, FITTINGS (LF/M)	33070403	SYNTHETIC COVERS OVER WASTE PILES (SF/SQM)
33070104	AGGREGATE FILTER MATERIAL (TON/KW)	33070404	WATER SPRAYING (AC/HA)
33070105	BACKFILL (CY/CUM)	3307049X	OTHER (USE NUMBERS 90 - 99) (XX)
33070106	PROTECTIVE TRENCH COVER (LF/M)	33079X	OTHER (USE NUMBERS 90-99) (XX)
33070107	MONITORING PROBES (EA)	3308	SOLIDS COLLECTION AND CONTAINMENT (LS/LS)
33070108	SYNTHETIC MEMBRANE (SF/SQM)	330801	EXCAVATION (CY/CUM)
33070109	GAS COLLECTION HEADER/FITTINGS/TANKS (LS/LS)	330802	WASTE CONTAINMENT, PORTABLE (FURNISH/FILL) (CY/CUM)
33070110	VACUUM BLOWER/COMPRESSOR (EA)	33080201	BULK CONTAINERS/ROLL-OFFS (CY/CUM)
33070111	FLARE/FLAME ARRESTOR (EA)	33080202	DRUMS (EA)
33070112	VALVES, BOXES, MANHOLES (EA)	33080203	BAGS (CY/CUM)
33070113	GAS CONTROL/SUPPRESSION (EA)	33080204	LINERS (EA)
33070130	TESTS (EA)	3308029X	OTHER (USE NUMBERS 90 - 99) (XX)
3307019X	OTHER (USE NUMBERS 90 - 99) (XX)	330803	TRANSPORT TO TREATMENT PLANT (CY/CUM)
330702	GAS/VAPOR COLLECTION WELL SYSTEM (LF/M)	330804	RADIOACTIVE SPEC WASTE CONT (FURNISH/FILL) (CY/CUM)
33070201	WELL DRILLING (LF/M)	33080401	LSA (LOW SPECIFIC ACTIVITY) SHIPPING CONTAINERS (EA)

33080402	MISCELLANEOUS TYPE A CONTAINERS (EA)	330904	TRANSPORT TO TREATMENT PLANT (GAL/L)
33080403	TYPE B SHIPPING CONTAINERS (EA)	330905	RADIOACTIVE SPEC WASTE CONT (FURNISH/FILL) (GAL/L)
33080404	TEMPORARY ON-SITE STORAGE (EA)	33090501	LSA (LOW SPECIFIC ACTIVITY) SHIPPING CONTAINERS (EA)
330805	CAPPING OF CONTAMINATED AREA/WASTE PILE (SY/SQM)	33090502	MISCELLANEOUS TYPE A CONTAINERS (LS/LS)
33080501	GAS COLLECTION LAYER (CY/CUM)	33090503	TYPE B SHIPPING CONTAINERS (LS/LS)
33080502	GAS VENT PIPES (EA)	33090504	TEMPORARY ON-SITE STORAGE SPENT FUEL STORAGE RACKS (EA)
33080503	IMPERVIOUS CLAY LAYER (CY/CUM)	3309059X	OTHER (USE NUMBERS 90 - 99) (XX)
33080504	BENTONITE LAYER (CY/CUM)	330906	PUMPING/DRAINING/COLLECTION (GAL/L)
33080505	GRANULAR DRAINAGE LAYER (TON/KW)	33090601	PUMP AND CONTROLS/INSTRUMENTATION (EA)
33080506	GEONET (SY/SQM)	33090602	STRUCTURES, MANHOLES, VALVES, BOXES (EA)
33080507	GEOTEXTILE (SY/SQM)	33090603	PIPING AND FITTINGS (LF/M)
33080508	GEOMEMBRANE (SYNTHETIC) (SY/SQM)	33090604	HOSE (LF/M)
33080509	GEOCOMPOSITE (SY/SQM)	33090605	DRAINING (GRAVITY) (GAL/L)
33080510	GEOGRID (SY/SQM)	33090606	HOLDING TANK (EA)
33080511	SEEDING/MULCH/FERTILIZER (AC/HA)	33090607	LIFT STATION/CONTROLS AND INSTRUMENTATION (EA)
33080512	EROSION CONTROL FABRIC (SY/SQM)	3309069X	OTHER (USE NUMBERS 90 - 99) (XX)
33080513	SOIL/TOPSOIL COVER LAYER (CY/CUM)	330907	LAGOONS/BASINS/TANKS/DIKES (CY/CUM)
33080514	CRUSHED ROCK (TON/KW)	33090701	EXCAVATION (CY/CUM)
33080515	DRAINAGE/LEACHATE PIPING (LF/M)	33090702	BERM EMBANKMENT AND COMPACTION (CY/CUM)
33080516	MANHOLES/SUMPS (EA)	33090703	IMPERVIOUS CLAY LINER (CY/CUM)
33080517	LIFT STATION, PUMPS AND CONTROLS/INSTRUMENTATION (EA)	33090704	BENTONITE LINER (CY/CUM)
33080518	TEST FILL SECTION (EA)	33090705	CONCRETE LINER (CY/CUM)
33080519	RADON BARRIER (SY/SQM)	33090706	GEONET (SY/SQM)
33080520	ASPHALT/CONCRETE PAVING COVER (SY/SQM)	33090707	GEOTEXTILE (SY/SQM)
33080521	BLAST PROTECTIVE COVER MAT (SY/SQM)	33090708	GEOMEMBRANE (SYNTHETIC) (SY/SQM)
33080530	TESTS (EA)	33090709	GEOCOMPOSITE (SY/SQM)
3308059X	OTHER (USE NUMBERS 90 - 99) (XX)	33090710	GRANULAR DRAINAGE LAYER (TON/KW)
330806	NUCLEAR WASTE DENSIFICATION (DYNAMIC COMPACTION) (CY/CUM)	33090711	SLOPE PROTECTION (SY/SQM)
330807	DEVELOPMENT OF BORROW PITS/HAULROADS (AC/HA)	33090712	FLOATING COVER (SY/SQM)
33089X	OTHER (USE NUMBERS 90-99) (XX)	33090713	INTAKE/OUTLET STRUCTURE (LS/LS)
3309	LIQUID/SEDIMENT/SLUDGE COLLECTION AND CONTAINMENT (LS/LS)	33090714	SPILLWAY (LS/LS)
330901	DREDGING/EXCAVATING (CY/CUM)	33090715	STORAGE TANKS W/ALARMS (EA)
33090101	HYDRAULIC (CY/CUM)	33090730	TESTS (EA)
33090102	MECHANICAL (CY/CUM)	3309079X	OTHER (USE NUMBERS 90 - 99) (XX)
33090103	PNEUMATIC (CY/CUM)	330908	DEVELOPMENT OF BORROW PIT/HAUL ROADS (AC/HA)
3309019X	OTHER (USE NUMBERS 90 - 99) (XX)	33099X	OTHER (USE NUMBERS 90-99) (XX)
330902	INDUSTRIAL VACUUMING (CY/CUM)	3310	DRUMS/TANKS/STRUCTURES/MISC DEMOLITION & REMOVAL (LS/LS)
330903	WASTE CONTAINMENT, PORTABLE (FURNISH/FILL) (GAL/L)	331001	DRUM REMOVAL (EA)
33090301	BULK LIQUID CONTAINERS/ROLL-OFFS (GAL/L)	33100101	MACHINE EXCAVATION (BURIED DRUMS) (CY/CUM)
33090302	DRUMS (GAL/L)		
33090303	LINERS (EA)		
3309039X	OTHER (USE NUMBERS 90 - 99) (XX)		

33100102	HAND EXCAVATION (BURIED DRUMS) (CY/CUM)	3311029X	OTHER (USE NUMBERS 90 - 99) (XX)
33100103	HANDLING (EA)	3311103	LAND TREATMENT/FARMING (SOLID PHASE BIODEGREDATION (CY/CUM)
33100104	CLEANING (EA)	3311039X	OTHER (USE NUMBERS 90 - 99) (XX)
33100105	CRUSHING/SHREDDING (EA)	3311104	IN-SITU BIODEGRADATION/BIORECLAMATION (CY/CUM)
33100106	DRUM OVERPACKS (EA)	3311049X	OTHER (USE NUMBERS 90 - 99) (XX)
3310019X	OTHER (USE NUMBERS 90 - 99) (XX)	3311105	TRICKLING FILTERS (GPD/L/S)
331002	TANK REMOVAL (EA)	3311059X	OTHER (USE NUMBERS 90 - 99) (XX)
33100201	MACHINE EXCAVATION (BURIED TANKS) (CY/CUM)	3311106	BIOLOGICAL LAGOONS (CY/CUM)
33100202	HAND EXCAVATION (BURIED TANKS) (CY/CUM)	3311069X	OTHER (USE NUMBERS 90 - 99) (XX)
33100203	TANK CUTTING/DEMOLITION (LS/LS)	3311107	COMPOSTING (EA)
33100204	HANDLING (EA)	3311079X	OTHER (USE NUMBERS 90 - 99) (XX)
33100205	CLEANING (EA)	3311108	SLUDGE STABILIZATION - AEROBIC (CY/CUM)
33100206	CRUSHING (EA)	3311089X	OTHER (USE NUMBERS 90 - 99) (XX)
3310029X	OTHER (USE NUMBERS 90 - 99) (XX)	3311109	SLUDGE STABILIZATION - ANAEROBIC (CY/CUM)
331003	STRUCTURE REMOVAL (SF/SQM)	3311099X	OTHER (USE NUMBERS 90 - 99) (XX)
33100301	DECONTAMINATION (EA)	3311110	GENETICALLY ENGINEERED ORGANISMS- (WHITE ROT FUNGUS) (CY/CUM)
33100302	DEMOLITION (EA)	3311109X	OTHER (USE NUMBERS 90 - 99) (XX)
3310039X	OTHER (USE NUMBERS 90 - 99) (XX)	3311111	SLURRY BIODEGREDATION (CY/CUM)
331004	ASBESTOS ABATEMENT (LS/LS)	3311119X	OTHER (USE NUMBERS 90 - 99) (XX)
33100401	PREPARATORY ABATEMENT WORK (SF/SQM)	331119X	OTHER (USE NUMBERS 90-99) (XX)
33100402	ABATEMENT (SF/SQM)	3312	CHEMICAL TREATMENT (LS/LS)
33100403	POST-ABATEMENT WORK (SF/SQM)	331201	OXIDATION/REDUCTION (GAL/L)
3310049X	OTHER (USE NUMBERS 90 - 99) (XX)	3312019X	OTHER (USE NUMBERS 90 - 99) (XX)
331005	ORDNANCE REMOVAL (LS/LS)	331202	SOLVENT EXTRACTION (CY/CUM)
331006	RADIOACTIVE SPECIFIC WASTE CONTAINMENT (FURN/FILL) (CY/CUM)	3312029X	OTHER (USE NUMBERS 90 - 99) (XX)
33100601	LSA (LOW SPECIFIC ACTIVITY) SHIPPING CONTAINERS (EA)	331203	CHLORINATION (GAL/L)
33100602	MISCELLANEOUS TYPE A CONTAINERS (EA)	3312039X	OTHER (USE NUMBERS 90 - 99) (XX)
33100603	TYPE B SHIPPING CONTAINERS (EA)	331204	OZONATION (GAL/L)
33100604	TEMPORARY ON-SITE STORAGE SPENT FUEL STORAGE RACKS (EA)	3312049X	OTHER (USE NUMBERS 90 - 99) (XX)
3310069X	OTHER (USE NUMBERS 90 - 99) (XX)	331205	ION EXCHANGE (GAL/L)
331007	MISCELLANEOUS ITEMS (LS/LS)	3312059X	OTHER (USE NUMBERS 90 - 99) (XX)
33100701	PIPING/PIPELINES (LF/M)	331206	NEUTRALIZATION (GAL/L)
33100702	PRESSURIZED GAS CYLINDERS (EA)	3312069X	OTHER (USE NUMBERS 90 - 99) (XX)
3310079X	OTHER (USE NUMBERS 90 - 99) (XX)	331207	CHEMICAL HYDROLYSIS (GAL/L)
33109X	OTHER (USE NUMBERS 90-99) (XX)	3312079X	OTHER (USE NUMBERS 90 - 99) (XX)
3311	BIOLOGICAL TREATMENT (LS/LS)	331208	ULTRAVIOLET PHOTOLYSIS (GAL/L)
331101	ACTIVATED SLUDGE (SEQUENCING BATCH REACTORS) (GPD/L/S)	3312089X	OTHER (USE NUMBERS 90 - 99) (XX)
33110101	PORTABLE UNIT SOLIDS PREPARATION AND HANDLING (CY/CUM)	331209	DEHALOGENATION (CATALYTIC DECHLORINATION) (CY/CUM)
33110102	PERMANENT UNIT SOLIDS PREPARATION AND HANDLING (CY/CUM)	3312099X	OTHER (USE NUMBERS 90 - 99) (XX)
3311019X	OTHER (USE NUMBERS 90 - 99) (XX)		
331102	ROTATING BIOLOGICAL CONTACTORS (CY/CUM)		

331210	ALKALI METAL DECHLORINATION (CY/CUM)	331317	SOLVENT EXTRACTION (GAL/L)
3312109X	OTHER (USE NUMBERS 90 - 99) (XX)	3313179X	OTHER (USE NUMBERS 90 - 99) (XX)
331211	ALKALI METAL/POLYETHYLENE GLYCOL (A/PEG) (CY/CUM)	331318	SUPERCRITICAL EXTRACTION (GAL/L)
3312119X	OTHER (USE NUMBERS 90 - 99) (XX)	3313189X	OTHER (USE NUMBERS 90 - 99) (XX)
331212	BASE-CATALYZED DECOMPOSITION PROCESS (BCDP) (CY/CUM)	331319	CARBON ADSORPTION - GASES (CF/CUM)
3312129X	OTHER (USE NUMBERS 90 - 99) (XX)	3313199X	OTHER (USE NUMBERS 90 - 99) (XX)
331213	ELECTROLYSIS (GAL/L)	331320	CARBON ADSORPTION - LIQUIDS (GAL/L)
3312139X	OTHER (USE NUMBERS 90 - 99) (XX)	3313209X	OTHER (USE NUMBERS 90 - 99) (XX)
33129X	OTHER (USE NUMBERS 90-99) (XX)	331321	MEMBRANCE SEPARATION - REVERSE OSMOSIS (GAL/L)
3313	PHYSICAL TREATMENT (LS/LS)	3313219X	OTHER (USE NUMBERS 90 - 99) (XX)
331301	FILTRATION/ULTRAFILTRATION (GAL/L)	331322	ELECTRODIALYSIS (GAL/L)
3313019X	OTHER (USE NUMBERS 90 - 99) (XX)	3313229X	OTHER (USE NUMBERS 90 - 99) (XX)
331302	SEDIMENTATION (GAL/L)	331323	VAPOR EXTRACTION (CY/CUM)
3313029X	OTHER (USE NUMBERS 90 - 99) (XX)	3313239X	OTHER (USE NUMBERS 90 - 99) (XX)
331303	STRAINING (GAL/L)	331324	SHREDDING (TON/KW)
3313039X	OTHER (USE NUMBERS 90 - 99) (XX)	3313249X	OTHER (USE NUMBERS 90 - 99) (XX)
331304	COAGULATION-FLOCCULATION- PRECIPITATION (GAL/L)	331325	AERATION (CY/CUM)
3313049X	OTHER (USE NUMBERS 90 - 99) (XX)	3313259X	OTHER (USE NUMBERS 90 - 99) (XX)
331305	EQUALIZATION (GAL/L)	331326	ADVANCED ELECTRICAL REACTOR (CY/CUM)
3313059X	OTHER (USE NUMBERS 90 - 99) (XX)	3313269X	OTHER (USE NUMBERS 90 - 99) (XX)
331306	EVAPORATION (GAL/L)	331327	LOW LEVEL WASTE (LLW) COMPACTION (CY/CUM)
331307	AIR STRIPPING (GAL/L)	3313279X	OTHER (USE NUMBERS 90 - 99) (XX)
3313079X	OTHER (USE NUMBERS 90 - 99) (XX)	331328	AGGLOMERATION (CY/CUM)
331308	STEAM STRIPPING (GAL/L)	3313289X	OTHER (USE NUMBERS 90 - 99) (XX)
3313089X	OTHER (USE NUMBERS 90 - 99) (XX)	331329	IN-SITU STEAM EXTRACTION (GAL/L)
331309	SOIL WASHING (SURFACTANT/SOLVENT) (CY/CUM)	3313299X	OTHER (USE NUMBERS 90 - 99) (XX)
3313099X	OTHER (USE NUMBERS 90 - 99) (XX)	331330	FILTER PRESSES (GAL/L)
331310	SOIL FLUSHING (SURFACTANT/SOLVENT) (CY/CUM)	3313309X	OTHER (USE NUMBERS 90 - 99) (XX)
3313109X	OTHER (USE NUMBERS 90 - 99) (XX)	331331	LIGNIN ADSORPTION/SORPTIVE CLAYS (CY/CUM)
331311	SOLIDS DEWATERING (CY/CUM)	3313319X	OTHER (USE NUMBERS 90 - 99) (XX)
3313119X	OTHER (USE NUMBERS 90 - 99) (XX)	33139X	OTHER (USE NUMBERS 90-99) (XX)
331312	OIL/WATER SEPARATION (GAL/L)	3314	THERMAL TREATMENT (LS/LS)
3313129X	OTHER (USE NUMBERS 90 - 99) (XX)	331401	INCINERATION (TON/KW)
331313	DISSOLVED AIR FLOATATION (GPD/L/S)	3314019X	OTHER (USE NUMBERS 90 - 99) (XX)
3313139X	OTHER (USE NUMBERS 90 - 99) (XX)	331402	LOW TEMPERATURE THERMAL DESORPTION (TON/KW)
331314	HEAVY MEDIA SEPARATION (CY/CUM)	3314029X	OTHER (USE NUMBERS 90 - 99) (XX)
3313149X	OTHER (USE NUMBERS 90 - 99) (XX)	331403	SUPERCRITICAL WATER OXIDATION (TON/KW)
331315	DISTILLATION (GAL/L)	3314039X	OTHER (USE NUMBERS 90 - 99) (XX)
3313159X	OTHER (USE NUMBERS 90 - 99) (XX)	331404	MOLTEN SALT DESTRUCTION (TON/KW)
331316	CHELATION (GAL/L)	3314049X	OTHER (USE NUMBERS 90 - 99) (XX)
3313169X	OTHER (USE NUMBERS 90 - 99) (XX)	331405	DETONATION (LS/LS)

3314059X	OTHER (USE NUMBERS 90 - 99) (XX)	33170208	DISPOSAL OF WASTES FROM DECONTAMINATION (LS/LS)
331406	SOLAR DETOXIFICATION (TON/KW)	33170209	DISPOSAL OF COMBUSTIBLE MATERIAL (LS/LS)
3314069X	OTHER (USE NUMBERS 90 - 99) (XX)	33170210	DISPOSAL OF SPENT RESINS (LS/LS)
33149X	OTHER (USE NUMBERS 90-99) (XX)	33170211	DISPOSAL OF OTHER WASTES FROM REACTOR OPNS (LS/LS)
3315	STABILIZATION FIXATION ENCAPSULATION (LS/LS)	33170212	ISOLATION OF POWER EQUIPMENT (LS/LS)
331501	MOLTEN GLASS (TON/KW)	33170213	DECONTAMINATION OF AREAS & EQP IN BLDGS (LS/LS)
3315019X	OTHER (USE NUMBERS 90 - 99) (XX)	33170214	MOTHBALLING (LS/LS)
331502	IN-SITU VITRIFICATION (CY/CUM)	33170215	ENTOMBMENT (LS/LS)
3315029X	OTHER (USE NUMBERS 90 - 99) (XX)	3317029X	OTHER (USE NUMBERS 90 - 99) (XX)
331503	IN-SITU POZZOLAN PROCESS (LIME/PORTLAND CEMENT) (CY/CUM)	331703	PROCUREMENT OF EQUIPMENT AND MATERIAL (LS/LS)
3315039X	OTHER (USE NUMBERS 90 - 99) (XX)	33170301	SITE DISMANTLING EQUIPMENT (LS/LS)
331504	POZZOLAN PROCESS (LIME/PORTLAND CEMENT) (CY/CUM)	33170302	RADIATION PROTECTION AND HEALTH PHYSICS EQUIPMENT (LS/LS)
3315049X	OTHER (USE NUMBERS 90 - 99) (XX)	33170303	SECURITY AND MAINT EQUIPMENT FOR LONG-TERM STORAGE (LS/LS)
331505	ASPHALT-BASED ENCAPSULATION (SY/SQM)	3317039X	OTHER (USE NUMBERS 90 - 99) (XX)
3315059X	OTHER (USE NUMBERS 90 - 99) (XX)	331704	DISMANTLING ACTIVITIES (LS/LS)
331506	RADIOACTIVE WASTE SOLIDIFICATION (GROUTING/OTHER) (CY/CUM)	33170401	DECONTAM. AREA/EQP IN BLDGS- FACILITATE DISMANTLING (LS/LS)
3315069X	OTHER (USE NUMBERS 90 - 99) (XX)	33170402	DRAINAGE OF SPENT FUEL POOL AND DECON. LINING (LS/LS)
331507	SLUDGE STABILIZATION (AGGREGATE/ROCK/SLAG) (CY/CUM)	33170403	ZONING FOR LONG-TERM STORAGE (LS/LS)
3315079X	OTHER (USE NUMBERS 90 - 99) (XX)	33170404	RADIOACTIVE INVENTORY CATEGORIZATION (LS/LS)
33159X	OTHER (USE NUMBERS 90-99) (XX)	33170405	DISMANTLE/TRANSFER CONTAM. MATL- LONGTERM STORAGE (LS/LS)
3317	DECONTAMINATION AND DECOMMISSIONING (D&D) (LS/LS)	33170406	ISOLATION AND SEALING OF CONTAINMENT STRUCTURE (LS/LS)
331701	PRE-DECOMMISSIONING OPERATIONS (LS/LS)	33170407	LAYOUT OF DORMANCY PERIOD CONTROL AREA (LS/LS)
33170101	PREPARATION OF DECOMMISSIONING PLAN (LS/LS)	33170408	REMOVAL OF FUEL HANDLING EQUIPMENT (LS/LS)
33170102	LICENSING (LS/LS)	33170409	DESIGN/PROCURE SPECIAL TOOLS TO DISMANTLE REACTORS (LS/LS)
33170103	RADIOACTIVITY SURVEYS (LS/LS)	33170410	DISMANTLING OPERATIONS ON REACTOR VESSELS (LS/LS)
3317019X	OTHER (USE NUMBERS 90 - 99) (XX)	33170411	REMOVAL OF PRIMARY AND AUXILIARY SYSTEMS (LS/LS)
331702	FACILITY SHUTDOWN ACTIVITIES (LS/LS)	33170412	REMOVAL OF BIOLOGICAL SHIELD (LS/LS)
33170201	PLANT SHUTDOWN AND INSPECTION (LS/LS)	33170413	REMOVAL OF OTHER MATL/EQP FROM CONTAINMENT STORAGE (LS/LS)
33170202	DEFUEL & TRANSFER FUEL TO TEMP SPENT FUEL STORAGE (LS/LS)	33170414	REMOVAL AND DISPOSAL OF ASBESTOS (LS/LS)
33170203	DRAINAGE & DRYING OR BLOWDOWN OF SYSTEMS (LS/LS)	33170415	REMOVAL OF POOL LININGS (LS/LS)
33170204	SAMPLE FOR RADIOACTIVE INVENTORY CHARACTERIZATION (EA)	33170416	REMOVAL OF CONTAMINATION FROM AREAS & STRUCTURES (LS/LS)
33170205	DISPOSAL OF SYSTEM FLUIDS (WATER, OILS,..) (GAL/L)	33170417	RADIOACTIVE WASTE CHARACTERIZATION (L/S/LS)
33170206	DISPOSAL OF SPECIAL SYSTEM FLUIDS (GAL/L)	33170418	RADIOACTIVE WASTE CHARACTERIZATION FOR RECYCLING (LS/LS)
33170207	DECONTAMINATION OF SYSTEMS FOR DOSE REDUCTION (LS/LS)		

33170419	RADIOACTIVE WASTE CHARACTERIZATION-FINAL DISPOSAL (LS/LS)	33170706	DISMANTLE PRIMARY/AUXILIARY SERVICES TO CELL (LS/LS)
33170420	PERSONNEL TRAINING (LS/LS)	33170707	DISMANTLING OF IN-CELL EQUIPMENT (LS/LS)
3317049X	OTHER (USE NUMBERS 90 - 99) (XX)	33170708	TRANSFER OF MATL AND EQP TO AIRLOCK SERVICE (LS/LS)
331705	RESEARCH AND DEVELOPMENT(R&D) - DECONT./RAD MEAS/DISMANT PROC/EQUIP (LS/LS)	33170709	PACKAGING AND PREPARATION OF CELL WASTE IN AIRLOCK (LS/LS)
33170501	LITERATURE REVIEW (LS/LS)	33170710	TRANSFER OF MATERIAL FROM AIRLOCK TO SHIPPING DOCK (LS/LS)
33170502	DATA COLLECTION (LS/LS)	33170711	CELL WINDOW MAINTENANCE AND CLEANING (LS/LS)
33170503	CONSIDERATIONS ON ACTUAL AND FUTURE DISMANTLING (LS/LS)	33170712	CELL WINDOW REPLACEMENT/REFURBISHMENT (LS/LS)
33170504	DECONTAMINATION STRATEGIES/TECHNIQUES (LS/LS)	3317079X	OTHER (USE NUMBERS 90 - 99) (XX)
33170505	STATUS REVIEW-DETERMINE POSITIONS FOR FREE RELEASE (LS/LS)	33179X	OTHER (USE NUMBERS 90-99) (XX)
33170506	DEVELOPMENT OF NEW DISMANTLING EQUIPMENT (LS/LS)	3318	DISPOSAL (OTHER THAN COMMERCIAL) (LS/LS)
33170507	DEVELOP OR USE NEW DECONTAMINATION TECHNIQUES (LS/LS)	331801	STORAGE/DISPOSAL FACILITY CONSTRUCTION/OPERATION (LS/LS)
33170508	DEVELOP ADAPTED MEASUREMENT DEVICES & CALCULATIONS (LS/LS)	33180101	LANDFILL/BURIAL/TRENCH/PITS CONSTRUCTION OF PLANT (LS/LS)
33170509	DEVELOP ADAPTED WASTE TREATMENT AND DISPOSAL (LS/LS)	33180102	ABOVE-GROUND VAULT (EA)
33170510	RESEARCH & DEVELOPMENT REMOTELY OPERATED STORAGE (LS/LS)	33180103	UNDERGROUND VAULT (EA)
33170511	SIMULATION OF COMPLICATED WORK ON MODEL (LS/LS)	33180104	UNDERGROUND MINE/SHAFT (EA)
33170512	ROBOTICS AND MANIPULATORS (R&D) (LS/LS)	33180105	TANKS (EA)
3317059X	OTHER (USE NUMBERS 90 - 99) (XX)	33180106	PADS (TUMULUS/RETRIEVABLE STORAGE/OTHER) (EA)
331706	SPENT FUEL HANDLING (LS/LS)	33180107	STORAGE BLDGS/PROTECTIVE COVER STRUCTURES (EA)
33170601	TRANSFER FUEL-TEMP SPENT STORAGE TO INTERMEDIATE (LS/LS)	33180108	CRIBS (EA)
33170602	INTERMEDIATE FUEL STORAGE (LS/LS)	33180109	DEEP WELL INJECTION (EA)
33170603	DISMANTLE/DISPOSAL OF TEMP FUEL STORAGE FACILITY (LS/LS)	3318019X	OTHER (USE NUMBERS 90 - 99) (XX)
33170604	TRANSFER FUEL- INTERMED. STORAGE TO REPROCESSING (LS/LS)	331802	CONTAINER HANDLING (EA)
33170605	REPROCESSING COSTS (LS/LS)	33180201	HANDLING OF FILLED CONTAINERS (EA)
33170606	TRANSFER AND DISPOSAL OF WASTES FROM REPROCESSING (LS/LS)	3318029X	OTHER (USE NUMBERS 90 - 99) (XX)
33170607	TRANSFER AND CONDITIONING OF SPENT FUEL (LS/LS)	331803	TRANSPORTATION TO STORAGE/DISPOSAL FACILITY (CY/CUM)
33170608	TRANSFER AND DISPOSAL OF SPENT FUEL (LS/LS)	33180301	LOADING/HAULING/UNLOADING OF SOLIDS (LS/LS)
3317069X	OTHER (USE NUMBERS 90 - 99) (XX)	33180302	PUMPING/HAULING OF LIQUIDS/SEDIMENTS/SLUDGES (LS/LS)
331707	HOT CELL CLEANUP (LS/LS)	3318039X	OTHER (USE NUMBERS 90 - 99) (XX)
33170701	RADIOACTIVITY SURVEY (LS/LS)	331804	SORTING (CY/CUM)
33170702	DECON AREA/EQP IN CELL TO FACILITATE DISMANTLING (LS/LS)	331805	SPREADING (CY/CUM)
33170703	DECON AREA/EQP IN CELL TO REDUCE CONTAMINATE LEVEL (LS/LS)	331806	COMPACTING (CY/CUM)
33170704	DECON EQP FOR TRANSFER OR DISPOSAL (LS/LS)	331807	PLACEMENT (CY/CUM)
33170705	CELL EQUIPMENT MODIFICATION (LS/LS)	331808	FINAL CLOSURE (CY/CUM)
		331809	DISPOSAL FEES AND TAXES (CY/CUM)
		33180901	LANDFILL (TON/KW)
		33180902	INCINERATOR (TON/KW)
		33180903	DEEP WELL (CF/CUM)

3318099X	OTHER (USE NUMBERS 90 - 99) (XX)	332006	POST-CONSTRUCTION MAINTENANCE (AC/HC)
331810	MIXED WASTE STORAGE FEES AND TAXES (CF/CUM)	33200601	FURNISH EXTRA CAP MATERIALS (LS/LS)
33189X	OTHER (USE NUMBERS 90-99) (XX)	33200602	STORAGE AREA FOR EXTRA CAP MATERIALS (LS/LS)
3319	DISPOSAL (COMMERCIAL) (LS/LS)	33200603	MOWING (AC/HC)
331901	CONTAINER HANDLING (EA)	33200604	MAINTENANCE (LS/LS)
33190101	HANDLING OF FILLED CONTAINERS (EA)	33200605	CLEAN-UP (LS/LS)
3319019X	OTHER (USE NUMBERS 90 - 99) (XX)	33200606	SIGNS (EA)
331902	TRANSPORTATION TO STORAGE/DISPOSAL FACILITY (TON/KW)	33200630	TESTS (EA)
33190201	LOADING/HAULING/UNLOADING OF SOLIDS (CY/CUM)	3320069X	OTHER (USE NUMBERS 90 - 99) (XX)
33190202	PUMPING/HAULING OF LIQUIDS/SEDIMENTS/SLUDGES (GAL/L)	33209X	OTHER (USE NUMBERS 90-99) (XX)
3319029X	OTHER (USE NUMBERS 90 - 99) (XX)	3321	DEMOBILIZATION (LS/LS)
331903	DISPOSAL FEES AND TAXES (CF/CUM)	332101	REMOVAL OF TEMPORARY FACILITIES (LS/LS)
33190301	LANDFILL (TON/KW)	33210101	OFFICE TRAILERS (EA)
33190302	INCINERATION (TON/KW)	33210102	STORAGE FACILITIES (EA)
33190303	DEEP WELL (CF/CUM)	33210103	OBSERVATION TOWER (EA)
3319039X	OTHER (USE NUMBERS 90 - 99) (XX)	33210104	DECONTAMINATION FACILITIES FOR PERSONNEL (EA)
33199X	OTHER (USE NUMBERS 90-99) (XX)	33210105	DECON FACILITIES FOR CONSTRUCTION EQP/VEHICLES (EA)
3320	SITE RESTORATION (LS/LS)	33210106	TEMPORARY COVER STRUCTURE OVER CONTAMINATED AREA (SY/SQM)
332001	EARTHWORK (CY/CUM)	33210107	LUNCH/BREAK TRAILER (EA)
33200101	ROCK EXCAVATION (CY/CUM)	33210108	LAUNDRY FACILITIES (LS/LS)
33200102	EXCAVATION/FILL (CY/CUM)	33210109	EMERGENCY MEDICAL TRAILER/FACILITIES (EA)
33200103	BACKFILL (CY/CUM)	33210110	TOILETS (EA)
33200104	BORROW (CY/CUM)	33210111	BARRICADES (EA)
33200105	HAULING (CY/CUM)	33210112	EQUIPMENT MAINTENANCE SHOP (EA)
33200106	SPREADING (CY/CUM)	33210113	WAREHOUSES (EA)
33200107	GRADING (SY/SQM)	33210114	GOVERNMENT TRAILERS (EA)
33200108	COMPACTION (CY/CUM)	33210115	GUARD HOUSES (EA)
33200109	SCARIFICATION (CY/CUM)	33210116	TRUCK SCALES (EA)
33200110	HARROWING (CY/CUM)	33210117	WASTEWATER HOLDING TANKS (EA)
33200111	TRACKING (CY/CUM)	33210118	FIRE SUPPRESSION SYSTEMS (EA)
33200112	CONTOUR FURROWING (CY/CUM)	33210119	POL DISPENSING STATION (EA)
33200113	STOCKPILING (CY/CUM)	33210120	PHOTOGRAPHIC LABORATORY (EA)
33200114	TOPSOIL (CY/CUM)	33210121	HOUSING (LS/LS)
33200115	SETTLEMENT MARKERS (EA)	33210122	SHOP FACILITIES (LS/LS)
3320019X	OTHER (USE NUMBERS 90 - 99) (XX)	33210123	AGGREGATE SURFACING (TON/KW)
332002	PERMANENT MARKERS (EA)	33210124	SECURITY FENCING (LF/M)
332003	RE-ESTABLISH ROADS/STRUCTURES/UTILITIES (LS/LS)	33210125	ROADS AND PARKING (LS/LS)
332004	REVEGETATION AND PLANTING (AC/HC)	33210126	CULVERTS (LF/M)
33200401	SEEDING/MULCH/FERTILIZER (AC/HC)	33210127	WALKS (SF/SQM)
33200402	SODDING (SY/SQM)	33210128	SIGNS (EA)
33200403	EROSION CONTROL FABRIC (SQ/SQM)	33210129	GRADING (SY/SQM)
33200404	SHRUBS, TREES, GROUND COVER (EA)	3321019X	OTHER (USE NUMBERS 90 - 99) (XX)
33200405	TOPSOIL (CY/CUM)	332102	REMOVAL OF TEMPORARY UTILITIES (LS/LS)
3320049X	OTHER (USE NUMBERS 90 - 99) (XX)	33210201	SITE LIGHTING (LS/LS)
332005	REMOVAL OF BARRIERS (EA)	33210202	POWER CONNECTION/DISTRIBUTION (LF/M)

33210203 TELEPHONE/COMMUNICATIONS HOOKUP
 (LF/M)
 33210204 WATER CONNECTION/DISTRIBUTION
 (LF/M)
 33210205 SEWER CONNECTION/DISTRIBUTION
 (LF/M)
 33210206 GAS CONNECTION/DISTRIBUTION (LF/M)
 3321029X OTHER (USE NUMBERS 90 - 99) (XX)
 332103 FINAL DECONTAMINATION (LS/LS)
 332104 DEMOBILIZATION OF CONSTRUCTION EQP
 AND FACILITIES (LS/LS)
 33210401 TRANSPORT VEHICLES
 OWNERSHIP/OPERATION (HR/HR)
 33210402 DRIVERS (HR/HR)
 33210403 MANIFESTS (EA)
 33210404 TOLLS (EA)
 33210405 PERMITS (EA)
 33210406 ESCORT VEHICLES
 OWNERSHIP/OPERATION 9HR/HR)
 33210407 CONSTRUCTION EQUIPMENT
 OWNERSHIP/OPERATION (HR/HR)
 33210408 EQUIPMENT OPERATORS (HR/HR)
 33210409 FINAL DISASSEMBLY AND TAKEDOWN
 (LS/LS)
 3321049X OTHER (USE NUMBERS 90 - 99) (XX)
 332105 DEMOBILIZATION OF PERSONNEL (LS/LS)
 33210501 RELOCATION OF SUPERVISORY
 PERSONNEL (EA)
 3321059X OTHER (USE NUMBERS 90 - 99) (XX)
 332106 POST-CONSTRUCTION SUBMITTALS
 (LS/LS)
 33210601 PUNCH LIST (LS/LS)
 33210602 PROJECT ACCEPTANCE (LS/LS)
 33210603 POST-CONSTRUCTION DOCUMENTATION
 (LS/LS)
 33210604 SURVEY INFORMATION (LS/LS)
 33210605 FINAL QA/QC REPORTS (LS/LS)
 33210606 CONSTRUCTION DOCUMENTATION REPORT
 (LS/LS)
 33210607 AS-BUILT DRAWINGS (LS/LS)
 3321069X OTHER (USE NUMBERS 90 - 99) (XX)
 332107 CONSTRUCTION PLANT TAKEDOWN
 (LS/LS)
 33210701 CONCRETE BATCH (EA)
 33210702 BLOCK (EA)
 33210703 PRECAST (EA)
 33210704 ASPHALT (EA)
 33210705 QUARRY CRUSHER/SCREENS (EA)
 3321079X OTHER (USE NUMBERS 90 - 99) (XX)
 33219X OTHER (USE NUMBERS 90-99) (XX)

WORK BREAKDOWN NARRATIVES

<p>01 SUBSTRUCTURE</p> <p>This system includes all work below the lowest floor construction (usually slab on grade) and the enclosing horizontal and vertical elements required to form a basement, together with the necessary mass excavation and backfill.</p>	<p>SF/SQM</p>	<p>Footprint area at grade</p>
<p>01 01 STANDARD FOUNDATIONS</p> <p>Continuous footings, spread footings, grade beams, foundations walls, pile caps, and column piers.</p>	<p>SF/SQM</p>	<p>Footprint area at grade</p>
<p>01 01 01 WALL FOUNDATIONS</p> <p>A. Continuous Footings - Assemblies include excavation, hand shape bottom, compacted backfill, formwork and keyway, reinforcing steel, concrete, and screed finish.</p> <p>B. Foundation Walls - Include work items associated with CIP foundation walls, grade beams, or CMU walls. Assemblies include excavation, compacted backfill, formwork, reinforcing steel, concrete or CMU, and wall finish.</p>	<p>LF/M</p>	<p>Lineal feet/meters of footings and/or wall foundations</p>
<p>01 01 02 COLUMN FOUNDATIONS AND PILE CAPS</p> <p>A. Spread Footings - Individual or part of continuous piers footing. Assemblies include excavation backfill and compaction, formwork, reinforcing steel, and concrete and screed finish. If structural steel columns sit directly on spread footing, anchor bolts are included in this assembly.</p> <p>B. Pile Caps - Assemblies include excavation if required (normally due to installation of piles, the subgrade is at desired level for pile cap), hand shaped bottom, compacted backfill, formwork, reinforcing steel, and concrete and screed finish. If structural steel columns sit directly on pile cap, anchor bolts are included in this assembly.</p> <p>C. Column Piers - Assemblies include</p>	<p>EA</p>	<p>Number of footings, pile caps and/or piers</p>

	formwork, reinforcing steel, concrete or CMU, finish, breakties and patch, and set anchor bolts.		
01 01 9X	OTHER STANDARD FOUNDATIONS Standard foundations not described by the assembly categories listed above.	XX	
01 02	SPECIAL FOUNDATION CONDITIONS All work associated with special foundations including piles, caissons, and any other special foundation situation.	SF/SQM	Footprint area at grade
01 02 01	PILE FOUNDATIONS CIP concrete piles, pre-cast concrete piles, steel pipe piles, steel H piles, step-tapered steel pile, and treated wood piles. Applicable assemblies would include the material for piles, pile driving, and pile cut off if required. The unit of measurement at the assembly level is VLF.	SF/SQM	Footprint area at grade
01 02 02	CAISSONS Drilled Caissons - Assemblies include drilling caissons, steel casing if required, reinforcing steel, bell bottom excavation, concrete, and loading and hauling of excavated material. The unit of measurement at the assembly level is VLF.	SF/SQM	Footprint area at grade
01 02 03	UNDERPINNING Underpinning is the provision of permanent support for existing buildings by extending their foundations to a new, lower level containing the desired bearing stratum. Assemblies include excavation, backfill, and underpinning materials.	LF/M	Lineal feet/meters of underpinning
01 02 04	DEWATERING Dewatering is the removal of water from excavations. The two principle methods of dewatering are by pump or by a system involving the sinking of a series of well points around the area and extracting the water by suction pump. Assemblies would include pumps or well points and all associated dewatering materials and equipment.	SF/SQM	Dewatered area
01 02 05	RAFT FOUNDATIONS Raft foundations or spread foundations	SF/SQM	Area of raft foundation

consist of a solid slab of heavily reinforced concrete covering the entire building footprint area.

01 02 06	<p>PRESSURE INJECTION GROUTING Assemblies provided for injecting cement grout for foundation stabilization.</p>	SF/SQM	Footprint area at grade
01 02 9X	<p>OTHER SPECIAL FOUNDATION CONDITIONS These could include cofferdams, soil compaction foundations, and other special foundations. Assemblies would include all material and labor necessary to perform the work for the special foundation condition.</p>	XX	
01 03	<p>SLAB ON GRADE A slab poured on earth, whether on undisturbed or filled soil.</p>	SF/SQM	Footprint area at grade
01 03 01	<p>STANDARD SLAB ON GRADE Standard slab on grade is supported by compacted earth or gravel fill. The soil bearing capacity is sufficient to support the slab. Assemblies include fine grade, gravel fill, edge forms, termite treatment (interior slabs only), vapor barrier, reinforcing, expansion joints, control joints, and finish and curing. Assemblies are based on thickness of slab.</p>	SF/SQM	Area of slabs
01 03 02	<p>STRUCTURAL SLAB ON GRADE A structural slab on grade is not supported by compacted earth or gravel fill. The soil bearing capacity is insufficient to support the slab. A structural slab is generally a minimum of 8 inches thick and will be reinforced with reinforcing bars rather than welded wire fabric. Assemblies include fine grade, gravel fill, edge forms, termite treatment (interior slabs only), vapor barrier, reinforcing, expansion joints, control joints, and finish and curing. Assemblies are based on thickness of slab.</p>	SF/SQM	Area of slabs
01 03 03	<p>INCLINED SLAB ON GRADE An inclined slab on grade is a slab that is poured on an incline. An example would be an inclined loading dock slab and associated ramps. Assemblies include fine grade, gravel fill,</p>	SF/SQM	Area of slabs

edge forms, termite treatment (interior slabs only), vapor barrier, reinforcing, expansion joints, control joints, and finish and curing. Assemblies are based on thickness of slab.

<p>01 03 04 TRENCHES Cast in place trenches. Assemblies include excavation, hand shape bottoms, compacted backfill, formwork, reinforcing steel, concrete, and concrete finish. Examples include trench drains and dust trenches.</p>	<p>LF/M</p>	<p>Lineal feet/meters of trench</p>
<p>01 03 05 PITS AND BASES Cast in place pits and bases. Assemblies include excavation, hand shape bottoms, compacted backfill, formwork, reinforcing steel, concrete, and concrete finish. Examples include elevator pits, dock leveler pits, oil change pits, and bases for equipment.</p>	<p>EA</p>	<p>Number of pits and bases</p>
<p>01 03 06 FOUNDATION DRAINAGE Foundation drainage directly associated with draining drainage the foundation. This category does not include storm drainage pipe for site. It would include drain pipe or drain tile at foundation or basement for specific purpose of draining foundation or basement. Assemblies would include excavation, hand shape, gravel, compacted backfill, and drain pipe, including accessories.</p>	<p>LF/M</p>	<p>Lineal feet/meters of foundation</p>
<p>01 03 9X OTHER SLAB ON GRADE Slab on grade not described by the assembly categories listed above.</p>	<p>XX</p>	
<p>01 04 BASEMENT EXCAVATION Excavation work associated with constructing a basement.</p>	<p>CY/CUM</p>	<p>Volume of excavation</p>
<p>01 04 01 EXCAVATION FOR BASEMENTS All excavation, stockpiling, and hauling associated with basement excavations are included in this assembly.</p>	<p>CY/CUM</p>	<p>Volume of excavation</p>
<p>01 04 02 STRUCTURE BACKFILL AND COMPACTION All backfill including hauling in of suitable soils and all necessary compaction is included in this assembly.</p>	<p>CY/CUM</p>	<p>Volume of backfill</p>
<p>01 04 03 SHORING</p>	<p>SF/SQM</p>	<p>Contact area of</p>

	This type of shoring is to resist horizontal pressure and not intended to carry vertical loads. Assemblies would include sheet piling or other material and labor used to hold back earth around the perimeter of an excavation.		that which is shored
01 04 9X	OTHER BASEMENT EXCAVATION Basement excavation not described by the assembly categories listed above.	XX	
01 05	BASEMENT WALLS	SF/SQM	Area of wall
01 05 01	BASEMENT WALL CONSTRUCTION This includes work items associated with CIP foundation walls or CMU walls and penetrations. Assemblies include formwork, reinforcing steel, concrete or CMU, and wall finish and curing.	SF/SQM	Area of wall
01 05 02	MOISTURE PROTECTION This assembly would be based on the type and square footage of waterproofing used on the foundation wall.	SF/SQM	Area of wall moisture protection
01 05 03	BASEMENT WALL INSULATION This assembly would be based on the type and square footage of insulation used on the foundation wall.	SF/SQM	Area of wall insulation
01 05 04	INTERIOR SKIN Assemblies include materials used to cover the interior side of exterior walls, i.e., paint, sheetrock, wood, or metal paneling, etc.	SF/SQM	Area of Skin
01 05 9X	OTHER BASEMENT WALLS Basement walls not described by the assembly categories listed above.	XX	
02	SUPERSTRUCTURE This system includes all structural slabs, and decks and supports within basements and above grade. Note that the structural work will include both horizontal items (slabs, decks, etc.) and vertical structure components (columns and interior structural walls). Exterior load bearing walls are not included in this system but in System 03, Exterior Walls.	SF/SQM	Area of supported floors
02 01	FLOOR CONSTRUCTION This construction can be wood,	SF/SQM	Area of supported floors

concrete, CMU, steel frame, etc.

02 01 01	STRUCTURAL FRAME The structural frame could consist of structural steel including columns, beams, joists, and all associated items. It could be a concrete frame utilizing concrete or masonry columns and concrete girders and beams. The structural frame could be wood columns with wood beams or wood trusses. The structural frame could be a combination of the above. For example, concrete or masonry columns with structural steel beams and joists. All associated work items should be included in each assembly. Separate assemblies would be used for different types of construction. The unit of measure at the assembly level is the square footage of the supported area. Decks and slabs are not included in this assembly.	SF/SQM	Area of supported floors
02 01 02	STRUCTURAL INTERIOR WALLS Assemblies would be CIP or CMU walls or other structural interior walls. The assemblies would include the labor and material required to perform the construction tasks associated with the type of wall.	SF/SQM	Area of walls
02 01 03	FLOOR DECKS AND SLABS Slabs above grade should be broken into assemblies according to their particular type of construction (i.e., flat slab, pan slab, pre-cast or pre-stressed slab, four-way slab, slabs on metal or wood decking with concrete fill, etc.). All associated work items should be included in each assembly.	SF/SQM	Area of supported floors
02 01 04	BALCONY CONSTRUCTION Balconies above grade should be broken into assemblies according to their particular type of construction. All associated items including handrails should be included in the assembly.	SF/SQM	Area of supported balconies
02 01 05	RAMPS Ramps above grade should be broken into assemblies according to their particular type of construction. All associated items including handrails should be included in the assembly.	SF/SQM	Area of supported ramps
02 01 06	FLOOR RACEWAY SYSTEMS	SF/SQM	Gross floor area

	Under floor or in-slab conduit including conduit and all associated devices.		
02 01 9X	OTHER FLOOR CONSTRUCTION Any type of special floor construction not included above would fall in this category. All associated work items would be included in the assembly.	XX	
02 02	ROOF CONSTRUCTION This construction is similar to floor construction except that it applies to the framework supporting the roof and roof decks (See also System 04 Roofing).	SF/SQM	Area of supported roof
02 02 01	STRUCTURAL FRAME The structural frame could consist of structural steel including columns, beams, joists, and all associated items. It could be a concrete frame utilizing concrete or masonry columns and concrete girders and beams. The structural frame could be wood columns with wood beams or wood trusses. The structural frame could be a combination of the above. For example, concrete or masonry columns with structural steel beams and joists. All associated work items should be included in each assembly. Separate assemblies would be used for different types of construction. The unit of measure at the assembly level is the square footage of the supported area. Decks and slabs are not included in this assembly.	SF/SQM	Area of supported roof
02 02 02	STRUCTURAL INTERIOR WALLS Assemblies would be CIP or CMU walls or other structural interior walls. The assemblies would include the labor and material required to perform the construction tasks associated with the type of wall.	SF/SQM	Area of walls
02 02 03	ROOF DECKS AND SLABS Roof decks and slabs should be broken into assemblies according to their particular type of construction (i.e., flat slab, pan slab, pre-cast or prestressed slab, four-way slab, slabs on metal or wood decking with concrete fill, etc.). All associated work items should be included in each assembly.	SF/SQM	Area of supported roof
02 02 04	CANOPIES	SF/SQM	Area of supported

	Canopies should be broken into assemblies according to their particular type of construction (i.e., flat slab, pan slab, pre-cast or prestressed slab, four-way slab, slabs on metal or wood decking with concrete fill, etc.). All associated work items should be included in each assembly.		canopies
02 02 9X	OTHER ROOF SYSTEMS Any type of special roof construction not included above would fall in this category. All associated work items would be included in the assembly.	SF/SQM	Area of supported roof
02 03	STAIR CONSTRUCTION All work items associated with interior and exterior stairs. A flight of stairs is considered to be all the treads and risers with landings required to travel from one floor to the next.	FLT/FLT	Number of flights
02 03 01	INTERIOR STAIR STRUCTURE Assemblies include interior stairs. Handrails, finishes, and all associated work items are included in the assembly.	VLF/M	Total Vertical Linear Feet/meters
02 03 02	EXTERIOR STAIR STRUCTURE Assemblies include exterior stairs which are in unheated spaces and exposed to the weather. Handrails, finishes, and all associated work items are included in the assembly.	VLF/M	Total Vertical Linear Feet/meters
02 03 9X	OTHER STAIR CONSTRUCTION Stair construction not described by the assembly categories listed above.	XX	
03	EXTERIOR CLOSURE This system consists of the exterior facing of the facility which includes all vertical and horizontal exterior closure features excluding roof (See System 04, Roof). Load bearing exterior walls will be included here and not in System 02, Superstructure. Structural frame elements at exterior such as columns, beams, spandrels, etc., would be included in Superstructure with only the applied exterior finishes (i.e., paint, stucco, etc.) being included here. Finishes to the inside face of walls which are not an integral part of the wall construction will be	SF/SQM	Area of exterior walls

included in System 06, Interior Finishes.

03 01	EXTERIOR WALLS	SF/SQM	Area of exterior walls
	All material associated with exterior wall construction.		
03 01 01	EXTERIOR SKIN	SF/SQM	Area of exterior walls
	Assemblies would include material contained in exterior closure wall. Materials used for interior finishes on exterior walls are not included in this assembly. For example, if the exterior skin is masonry with brick veneer and the interior side of this masonry wall is sheetrock applied on metal furring strips, the masonry wall is included in this assembly and the furring strips and sheetrock are categorized as Interior Skin 04 01 03.		
03 01 02	INSULATION AND VAPOR BARRIER	SF/SQM	Area of insulation
	Assemblies include all types of insulation associated with the exterior wall. Rigid, batt and poured insulation should be separated into different assemblies.		
03 01 03	INTERIOR SKIN	SF/SQM	Area of interior skins
	Assemblies include materials used to cover the interior side of exterior walls, i.e., paint, sheetrock, wood, or metal paneling, etc.		
03 01 04	PARAPETS	LF/M	Lineal feet/meters of parapets
	Assemblies include materials used in association with parapets. Parapets are low walls or railings usually along the edge of a roof or balcony.		
03 01 05	EXTERIOR LOUVERS AND SCREENS	SF/SQM	Area of louvers and screens
	Assemblies include louvers and screens which are located in exterior walls. The unit of measure at the assembly level is each.		
03 01 06	SUN CONTROL DEVICES (EXTERIOR)	SF/SQM	Area of sun control devices
	Assemblies include awnings, shades, and solar panels attached to exterior of building. A separate assembly should be used for each type of sun control device.		
03 01 07	BALCONY WALLS AND HANDRAILS	LF/M	Lineal feet/meters of walls or handrails
	Assemblies would include materials associated with balcony walls and		

handrails.

03 01 08	EXTERIOR SOFFITS Assemblies would include all associated materials which make up the soffit and supports for the soffit. Typical materials would include wood, aluminum, exterior grade gypboard, stucco, etc.	SF/SQM	Area of soffits
03 01 09	EXTERIOR FENCING Exterior fences used for security purposes immediately adjacent to the building such as fences at a loading dock or used instead of an exterior wall for a covered storage shed. Assemblies would include materials associated with all types of fencing. Note that perimeter fencing that is typically more than 5' from the building exterior is included in sitework rather than in this system.	LF/M	Lineal feet/meters of fence
03 01 9X	OTHER EXTERIOR WALLS Exterior walls not described by the assembly categories listed above.	XX	
03 02	EXTERIOR WINDOWS All windows located in exterior walls or exterior skin.	SF/SQM	Area of windows
03 02 01	WINDOWS Fixed or operable windows located in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking, and other associated work.	SF/SQM	Area of windows
03 02 02	STOREFRONTS Fixed storefronts including associated doors in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking, and other associated work.	SF/SQM	Area of storefronts
03 02 03	CURTAIN WALLS This applies to glass curtain walls and spandrel glass in exterior walls or exterior skin. Assemblies would include frames, glazing, caulking, and other associated work.	SF/SQM	Area of curtain walls
03 02 9X	OTHER EXTERIOR WINDOWS Exterior windows not described by the assembly categories listed above.	XX	

03 03	EXTERIOR PERSONNEL DOORS All doors located in exterior walls or exterior skin.	EA	Number of doors
03 03 01	GLAZED DOORS Assemblies include all glazed exterior doors with glass, frames, hardware, locking devices, and thresholds.	EA	Number of doors
03 03 02	SOLID DOORS Assemblies include all exterior solid doors, hollow metal or wood with frames, hardware, locking devices, and door finish.	EA	Number of doors
03 03 03	REVOLVING DOORS Assemblies include all revolving doors at exterior of the facility.	EA	Number of doors
03 03 9X	OTHER EXTERIOR PERSONNEL DOORS Exterior personnel doors not described by the assembly categories listed above.	XX	
03 04	EXTERIOR SPECIALTY DOORS This includes overhead and special doors in exterior walls or exterior skin.	SF/SQM	Area of doors
03 04 01	OVERHEAD AND ROLL-UP DOORS Overhead and roll-up doors installed in exterior walls or exterior skin. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door.	SF/SQM	Area of doors
03 04 02	HANGAR DOORS Large aircraft doors used on medium and high bay hangars. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. Unit of measure at the assembly level is square feet of door.	SF/SQM	Area of doors
03 04 03	BLAST RESISTANT DOORS Special exterior doors used for blast resistance. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work.	SF/SQM	Area of doors
03 04 04	GATES Any special type gate used in the exterior wall or exterior skin of the building. Assemblies would include	SF/SQM	Area of gates

frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each gate.

03 04 9X	OTHER SPECIAL DOORS Any special type door used in the exterior wall or exterior skin of the building. Assemblies would include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door, or square feet of special doors (i.e., hangar doors).	XX	Area of doors
04	ROOFING	SF/SQM	Gross area of roof
04 01	ROOFING This system includes all waterproof roof coverings and insulation, together with skylights, hatches, ventilators, and all required trim. In addition to roof coverings, the system includes all waterproof membranes and traffic toppings over below-grade enclosed areas, balconies, and the like.	SF/SQM	Gross area of roof
04 01 01	ROOF COVERINGS Assemblies for roof coverings are separate for different type coverings (i.e., shingle, wood shake, built-up, standing seam, elastomeric, etc.).	SF/SQM	Area of roof covering
04 01 02	TRAFFIC TOPPINGS AND PAVING MEMBRANES Assemblies could include any type of walkway or work area different from roof covering. These items are usually for the purpose of providing walkways and work areas for roof top equipment.	SF/SQM	Area of topping or membrane
04 01 03	ROOF INSULATION AND FILL Assemblies include all types of insulation associated with the roof area.	SF/SQM	Area of insulation
04 01 04	FLASHINGS AND TRIM Assemblies include all flashings associated with the roof, i.e., eave flashing, gable flashing, expansion joint covers, parapet flashing, etc. The unit of measure at the assembly level is lineal feet.	SF/SQM	Area of flashings
04 01 05	ROOFING OPENINGS & SUPPORTS All roof penetrations including roof	SF/SQM	Area of openings

hatches, skylights, ventilators, etc.
The unit of measure at the assembly level is each.

04 01 06	GUTTERS AND DOWNSPOUTS Assemblies include all gutters, downspouts, and associated work including splash blocks.	LF/M	Length of gutters and downspouts
04 01 9X	OTHER ROOFING Roofing not described by the assembly categories listed above.	XX	
05	INTERIOR CONSTRUCTION Construction which takes place inside the exterior wall or exterior skin. The system does not include interior structural walls, which are included in System 02, Superstructure.	SF/SQM	Gross floor area
05 01	PARTITIONS Includes all interior partitions.	SF/SQM	Area of partitions
05 01 01	FIXED PARTITIONS Interior fixed partitions include metal or wood studs, sheetrock, masonry, and concrete walls.	SF/SQM	Area of fixed partition walls
05 01 02	DEMOUNTABLE PARTITIONS Assemblies would include all demountable partitions and associated work including tracks and anchoring systems.	SF/SQM	Area of demountable partition walls
05 01 03	RETRACTABLE PARTITIONS Assemblies would include all retractable or folding partitions and associated work including tracks and anchoring systems.	SF/SQM	Area of retractable partitions
05 01 04	INTERIOR BALUSTRADES AND SCREENS Assemblies include balustrades (handrails and the row screens of posts that support them) and screens and associated work including tracks and anchoring systems.	LF/M	Lineal feet/meters of balustrades and screens
05 01 05	INTERIOR WINDOWS Fixed or operable windows. Assemblies include frames, glazing, caulking, and other associated work.	SF/SQM	Area of Windows
05 01 06	GLAZED PARTITIONS AND STOREFRONTS Fixed interior glazed partitions including interior storefronts with doors. Assemblies include frames,	SF/SQM	Area of partitions and storefronts

glazing, caulking, and other associated work.

05 01 9X	OTHER PARTITIONS Interior partitions not described by the assembly categories listed above.	XX	
05 02	INTERIOR PERSONNEL DOORS All interior doors.	LEF/LEF	Number of leaves
05 02 01	STANDARD INTERIOR DOORS Assemblies include all standard interior doors wood or hollow metal with frames, hardware, locks, finish, etc.	LEF/LEF	Number of leaves
05 02 02	GLAZED INTERIOR DOORS Assemblies include all glazed interior doors with glass, frames, hardware, and locking devices.	LEF/LEF	Number of leaves
05 02 03	FIRE DOORS Assemblies include all interior fire doors (B label), including all necessary frames, hardware, closing devices, and alarms associated with door.	LEF/LEF	Number of leaves
05 02 04	SLIDING AND FOLDING DOORS Assemblies include all sliding and folding doors with frames, hardware, locking devices, tracks, and supporting systems. The unit of measure at the assembly level is each.	SF/SQM	Area of sliding or folding door
05 02 9X	OTHER INTERIOR PERSONNEL DOORS Interior personnel doors not described by the assembly categories listed above.	XX	
05 03	INTERIOR SPECIALTY DOORS Includes all interior overhead and special doors.	SF/SQM	Area of doorsf
05 03 01	OVERHEAD DOORS Overhead doors installed in the interior of a facility. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door.	SF/SQM	Area of doors
05 03 02	GATES Any special type gate installed in the interior of a facility. Assemblies include frames, hardware, hoisting devices, and finish and other associated	SF/SQM	Area of gates

work. The unit of measure at the assembly level is each gate.

05 03 9X OTHER SPECIAL DOORS Any special type door installed in the interior of a facility. Assemblies include frames, hardware, hoisting devices, and finish and other associated work. The unit of measure at the assembly level is each door.	XX	Area of doors
05 04 INTERIOR SPECIALTIES Most commonly used speciality items.	SF/SQM	Gross floor area
05 04 01 COMPARTMENTS, CUBICLES, AND TOILET PARTITIONS Assemblies include individual compartments, cubicles, toilet partitions, and urinal screens.	EA	Number of compartments, cubicles, or toilet partitions
05 04 02 TOILET AND BATH ACCESSORIES Toilet and bath accessories. For example, soap dispensers, paper holder, towel receptacles, grab bags, bathroom mirrors, etc.	EA	Number of accessories
05 04 03 CHALKBOARDS AND TACK BOARDS Assemblies include all chalkboards, tack boards, and fastening devices. The unit of measurement at the assembly level is each.	SF/SQM	Area of boards
05 04 04 IDENTIFYING DEVICES Assemblies would include all signs, plaques, traffic markers, etc. Items are placed in assemblies.	EA	Number of identifying devices
05 04 05 LOCKERS Assemblies include all types of lockers, either wood or metal, single or double tier. Special bases used for lockers would be included in this assembly.	EA	Number of lockers
05 04 06 SHELVING Assemblies include all types of shelving with brackets and all supporting materials and finish, if required.	LF/M	Lineal feet/meters of shelving
05 04 07 FIRE EXTINGUISHER CABINETS The assembly would include all types and sizes of fire cabinets extinguisher cabinets. Fire extinguishers are not included in this assembly; they are included in 10 04.	EA	Number of fire extinguisher

05 04 9X	OTHER INTERIOR SPECIALTIES Interior specialties not described by the assembly categories listed above.	XX	Number of specialty items
05 05	CASEWORK Casework items that are permanently fixed in-place.	SF/SQM	Gross floor area by FSA
05 05 01	COUNTERS Assemblies include all counters and counter tops with all necessary brackets and supporting materials and finish, if required.	LF/M	Lineal feet/meters of counters
05 05 02	CABINETS Assemblies include all cabinetry and millwork items with associated accessories and anchoring devices. Cabinet finish is included in this assembly. Metal cabinets should be a separate assembly from wood cabinets or millwork.	LF/M	Lineal feet/meters of cabinets
05 05 03	CLOSETS The assembly includes all built-in closets with all associated work and finishes. These closets are millwork items or prefabricated, i.e., pre-fabricated coat closets for schools and dormitories.	LF/M	Lineal feet /meters of closets
05 05 9X	OTHER CASEWORK Assemblies would include built-in cabinetwork not covered cabinetwork above.	XX	Lineal feet /meters of miscellaneous
06	INTERIOR FINISHES Finishes which are applied to interior surfaces, including the interior skin of exterior walls.	SF/SQM	Area of finished area
06 01	WALL FINISHES Finishes which are applied to interior walls.	SF/SQM	Area of finished walls
06 01 01	CONCRETE WALL FINISHES This assembly would include a concrete finish applied directly to an interior wall surface. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.	SF/SQM	Area of finished walls
06 01 02	PLASTER WALL FINISHES This assembly includes plaster or	SF/SQM	Area of finished walls

stucco applied directly to an interior wall surface. Lath and associated work would be included in this assembly. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.

<p>06 01 03 GYPSUM WALLBOARD FINISHES This assembly includes gypsum wallboard applied directly to an interior wall surface. Furring strips or channels are included in this assembly. This assembly also includes taping, sanding, finishing, and sheetrock accessories. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.</p>	<p>SF/SQM</p>	<p>Area of finished walls</p>
<p>06 01 04 TILE AND TERRAZZO WALL FINISHES This assembly includes tile and terrazzo applied directly to an interior wall surface. Each type of tile would be a separate assembly.</p>	<p>SF/SQM</p>	<p>Area of finished walls</p>
<p>06 01 05 PAINTING TO WALL Assemblies include painting, spackling, and caulking to surfaces of interior walls.</p>	<p>SF/SQM</p>	<p>Area of painted walls</p>
<p>06 01 06 WALL COVERINGS Assemblies include wall coverings and protective strips applied to interior walls.</p>	<p>SF/SQM</p>	<p>Area of wall covering</p>
<p>06 01 07 ACOUSTICAL TILES AND PANELS TO WALLS Assemblies include acoustical tiles and panels with associated work that are applied to interior walls.</p>	<p>SF/SQM</p>	<p>Area of acoustical tiles and panels</p>
<p>06 01 08 SPECIAL COATINGS TO WALLS Assemblies include any special coatings not included in assembly categories 06 01 01 through 06 01 07 which are applied to interior wall surfaces.</p>	<p>SF/SQM</p>	<p>Area of special coatings</p>
<p>06 01 9X OTHER WALL FINISHES Assemblies include finishes to wall types not included above. These include, but are not limited to, different types of shielding and the work and materials associated with each.</p>	<p>XX</p>	<p>Area of other wall finishes</p>
<p>06 02 FLOORING AND FLOOR FINISHES All flooring and floor finishes applied to interior floors.</p>	<p>SF/SQM</p>	<p>Area of finished floors</p>

06 02 01	TILE FLOOR FINISHES Assemblies include ceramic, quarry, and other non-resilient tile floors.	SF/SQM	Area of tile floors
06 02 02	TERRAZZO FLOOR FINISHES Assemblies include terrazzo floors.	SF/SQM	Area of terrazzo floors
06 02 03	WOOD FLOORING Assemblies include wood floors.	SF/SQM	Area of wood flooring
06 02 04	RESILIENT FLOORING Assemblies include resilient floors.	SF/SQM	Area of resilient flooring
06 02 05	CARPETING Assemblies include carpet floors. The unit of measure at the assembly level is square feet.	SY/SQM	Area of carpeting
06 02 06	MASONRY AND STONE FLOORING Assemblies include masonry and stone flooring.	SF/SQM	Area of masonry or stone flooring
06 02 07	ACCESS FLOORING Assemblies include all types of raised flooring, pedestal access floors and other types of access.	SF/SQM	Area of special flooring
06 02 08	PAINTING AND STAINING FLOORS Assemblies include painting and staining of floor surfaces.	SF/SQM	Area of painted and stained floors
06 02 9X	OTHER FLOOR FINISHES Floor finishes not described by the assembly categories listed above.	XX	Area of other floor finishes
06 03	CEILING AND CEILING FINISHES All ceilings and ceiling finishes applied to interiors.	SF/SQM	Area of ceilings
06 03 01	EXPOSED CONCRETE FINISHES Assemblies include concrete finishes applied to interior ceilings. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.	SF/SQM	Area of exposed concrete finish
06 03 02	PLASTER CEILING FINISHES Assemblies include plaster or stucco finish applied directly to an interior ceiling. Lath and associated work would apply to this assembly. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.	SF/SQM	Area of plaster ceiling finish

06 03 03 GYPSUM WALLBOARD CEILING FINISHES	SF/SQM	Area of gypsum ceilings
<p>Assemblies include gypsum wallboard applied directly to an interior ceiling. Furring strips or channels are included in this assembly if they are applied directly to the ceiling surface. If the gypsum board is applied to a suspended ceiling system, the suspended system would be in Assembly Category 06 03 07. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.</p>		
06 03 04 ACOUSTICAL CEILING TILES AND PANELS	SF/SQM	Area of acoustical ceilings
<p>Assemblies include acoustical ceiling tiles and panels. The suspension system, if required, is in Assembly Category 06 03 07. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.</p>		
06 03 05 WOOD CEILINGS	SF/SQM	Area of wood ceiling
<p>Assemblies include wood ceilings. Different types of wood ceilings should be separated into different assemblies. Suspension systems for wood ceilings are not included in this assembly. This assembly does not include items that directly apply to wall finishes covered elsewhere in this subsystem.</p>		
06 03 06 PAINTING AND STAINING CEILINGS	SF/SQM	Area of painted or stained ceilings
<p>Assemblies include painting and staining of finished interior ceiling surfaces.</p>		
06 03 07 SUSPENSION SYSTEMS	SF/SQM	Area of suspension system
<p>This assembly includes any suspension system which is suspended or hung from the structure for the purpose of fastening a ceiling.</p>		
06 03 08 METAL STRIP CEILINGS	SF/SQM	Area of metal ceiling
<p>Assemblies include all metal strip materials applied to ceilings.</p>		
06 03 9X OTHER SPECIAL CEILINGS & CEILING FINISHES	XX	Area of special ceilings
<p>Special ceilings and ceiling finishes not described by the assembly categories listed above.</p>		

07	CONVEYING SYSTEMS This system includes elevators, escalators, pneumatic tube systems, conveyors, chutes, etc. Foundations for these systems are included in System 01, Substructure.	STY	Number of stories
07 01	ELEVATORS	STP	Number of stops
07 01 01	GENERAL CONSTRUCTION ITEMS Includes construction work, other than conveying system work, which must be performed in conjunction with this type of work to complete the system.	EA	Number of items
07 01 02	PASSENGER ELEVATORS The unit of measure at the assembly level is each stop.	STP	Number of stops
07 01 03	FREIGHT ELEVATORS The unit of measure at the assembly level is each stop.	STP	Number of stops
07 01 9X	OTHER ELEVATORS Elevators not described by the assembly categories listed above.	XX	
07 02	MOVING STAIRS AND WALKS The lineal feet of stair or walk is calculated by the length of moving stair or walk plus lift (vertical floor-to-floor height) of escalators. The unit of measure at the assembly level is lineal feet.	LF/M	Lineal feet/meters of stairs or walks
07 02 01	MOVING STAIRS The unit of measure at the assembly level is lineal feet.	LF/M	Lineal feet/meters of stairs
07 02 02	MOVING WALKS The unit of measure at the assembly level is lineal feet.	LF/M	Lineal feet/meters of walks
07 02 9X	OTHER MOVING STAIRS AND WALKS Moving stairs and walks not described by the assembly categories listed above.	XX	
07 03	MATERIAL HANDLING SYSTEMS	EA	Each material handling system
07 03 01	CONVEYOR BELT The unit of measure at the assembly level is lineal feet.	EA	Each material handling system
07 03 02	OVERHEAD CRANES	EA	Each crane

07 03 03	LIFTS	EA	Each lift
07 03 04	DUMBWAITERS The unit of measure at the assembly level is each stop.	STP	Number of stops
07 03 05	CHUTES	LF/M	Linear feet/meters
07 03 06	PNEUMATIC TUBE SYSTEMS The unit of measure at the assembly level is lineal feet.	EA	Number of systems
07 03 9X	OTHER MATERIAL HANDLING SYSTEMS Material handling systems not described by the assembly categories listed above.	XX	
08	PLUMBING The plumbing system's primary function is the transfer of liquids and gases. This system includes all water supply and waste items within the building.	EA	Number of fixtures
08 01	PLUMBING FIXTURES All terminal devices on the domestic plumbing system which have water supplied to the fixture. Hot water heaters, hose bibbs, and special equipment are not counted as a fixture.	EA	Number of fixtures
08 01 01	WATERCLOSETS	EA	No. of fixtures
08 01 02	URINALS	EA	No. of fixtures
08 01 03	LAVATORIES	EA	No. of fixtures
08 01 04	SINKS	EA	No. of fixtures
08 01 05	SHOWERS/TUBS	EA	No. of fixtures
08 01 06	DRINKING FOUNTAINS AND COOLERS	EA	No. of fixtures
08 01 9X	OTHER FIXTURES Fixtures not described by the assembly categories listed above.	XX	No. of fixtures
08 02	DOMESTIC WATER SUPPLY This system provides for human health and comfort. The water supply needed is determined by the number of fixtures attached. Hot water heaters, hose bibbs, and special equipment are not counted as a fixture.	EA	Number of fixtures
08 02 01	PIPES AND FITTINGS	EA	Number of

<p>Assemblies include all pipe, fittings, and associated work with regard to domestic water supply. The unit of measure at the assembly level is number of fixtures.</p>		fixtures
<p>08 02 02 VALVES AND HYDRANTS Assemblies include all valves and hydrants. Hose bibbs are included in this assembly. The unit of measure at the assembly level is number of valves and hydrants.</p>	EA	Number of valves and hydrants
<p>08 02 04 INSULATION & IDENTIFICATION Assemblies include insulation used in association with domestic water supply. The unit of measure at the assembly level is number of fixtures.</p>	EA	Number of fixtures
<p>08 02 05 SPECIALTIES Any other specialty items associated with domestic water supply. All associated work items, including pipes, fittings, valves, insulation, and hook-up should be included in this assembly. The unit of measure at the assembly level is pieces of special equipment.</p>	EA	Pieces of equipment
<p>08 02 9X OTHER DOMESTIC WATER SUPPLY Domestic water supply not described by the assembly categories listed above.</p>	XX	
<p>08 03 SANITARY WASTE AND VENT SYSTEM This system provides for human health and comfort. Fixtures include all terminal devices which have a water supply (except water supply equipment and specialties) and also devices that transfer fluids into the sanitary waste system that do not have a water supply. Floor drains (not hub drains) are included as a sanitary waste fixture.</p>	EA	Number of fixtures
<p>08 03 01 WASTE PIPE AND FITTINGS Assemblies include all pipe, fittings, and associated work with regard to sanitary waste pipe and fittings. The unit of measure at the assembly level is number of fixtures.</p>	EA	Number of fixtures
<p>08 03 02 VENT PIPE AND FITTINGS Assemblies include all pipe, fittings, and associated work with regard to sanitary vent pipe and fittings. The</p>	EA	Number of fixtures

	unit of measure at the assembly level is number of fixtures.		
08 03 03	FLOOR DRAINS Assemblies include all floor drains. Hub drains are considered to be pipe and are not included in this assembly. The unit of measure at the assembly level is number of drains.	EA	Number of drains
08 03 04	INSULATION & IDENTIFICATION Assemblies include insulation used in association with sanitary waste and vent system. The unit of measure at the assembly level is number of fixtures.	EA	Number of fixtures
08 03 9X	OTHER SANITARY WASTE & VENT Sanitary waste and vent not described by the assembly categories listed above.	XX	
08 04	RAINWATER DRAINAGE SYSTEM Roof drainage system. Gutter and downspouts are not included in this subsystem.	SF/SQM	Area of roof
08 04 01	PIPE AND FITTINGS Assemblies include pipe and from the roof drains to the discharge points, including supports and other associated work. The unit of measure at the assembly level is lineal feet of pipe.	LF/NM	Lineal feet/meters of pipe
08 04 02	ROOF DRAINS Assemblies include roof drains. The unit of measure at the assembly level is number of drains.	EA	Number of roof drains
08 04 03	INSULATION & IDENTIFICATION Assemblies include insulation used in association with rainwater drainage system. The unit of measure at the assembly level is lineal feet of pipe insulation.	LF/M	Lineal feet/meters of pipe insulation
08 04 9X	OTHER RAINWATER DRAINAGE SYSTEM Rainwater drainage system not described by the assembly categories listed above.	XX	
08 05	PLUMBING EQUIPMENT	EA	
08 05 01	DOMESTIC WATER EQUIPMENT This is equipment associated with the domestic water supply, including	EA	Pieces of equipment

fittings and specialties required for hook-up. Assemblies include hot water heaters; water treatment equipment, i.e., water softeners, filters, distillers, etc.; pumps directly associated with domestic water supply; and tanks for the potable hot or cold water system. The unit of measure at the assembly level is pieces of equipment.

08 05 02	SANITARY AND VENT EQUIPMENT This is equipment associated with the sanitary waste system, including fittings and specialties required for hook-up. Assemblies include waste treatment equipment, i.e., comminuters, sluice gates, incinerators, etc.; pumps for sewage ejection; and holding tanks for the domestic waste system. The unit of measure at the assembly level is pieces of equipment.	EA	Pieces of equipment
08 05 03	RAINWATER DRAINAGE EQUIPMENT This is equipment associated with rainwater drainage, including all fittings and specialties required for hook-up. Assemblies would include pumps and other associated items for drainage of rainwater.	EA	Pieces of equipment
08 05 9X	OTHER SPECIAL PLUMBING EQUIPMENT Special plumbing equipment not described by the assembly categories listed above.	XX	Number of special fixtures
08 06	SPECIAL PLUMBING SYSTEMS This subsystem includes all special plumbing systems which are not included in 08 01 through 08 05.	EA	Number of special fixtures, interceptors or outlets
08 06 01	SPECIAL PIPING SYSTEMS Assemblies include all special pipe and fittings, excluding acid waste pipe and work with regard to special pipe. Medical gas and vacuum fitting, and associated systems piping are included in this category. The unit of measure at the assembly level is number of special fixtures, interceptors, outlets, or systems.	EA	Number of special fixtures, interceptors, outlets, or systems
08 06 02	ACID WASTE SYSTEMS Assemblies include all pipe, fittings, special acid waste equipment, and other	EA	Number of special fixtures, interceptors, outlets,

	associated work items with regard to acid waste systems. The unit of measure at the assembly level is number of fixtures, interceptors, outlets, or systems.		or systems
08 06 03	INTERCEPTORS Assemblies include all interceptors. The unit of measure at the assembly level is number of interceptors.	EA	Number of interceptors
08 06 04	POOL EQUIPMENT Assemblies include pumps and equipment associated with pools, including specialties required for hook-up. The unit of measure at the assembly level is each.	GPM//L/S	Gallons per minute/liters per second
08 06 9X	OTHER SPECIAL PLUMBING SYSTEMS Special plumbing systems not described by the assembly categories listed above.	XX	
09	HVAC This system includes all equipment, distribution systems, controls, and energy supply systems required by the heating, ventilating, and air conditioning system.	MBH/KW	Total MBH capacity of 09 02 and 09 03
09 01	ENERGY SUPPLY The energy input to the facility (other than electrical) in the form of fuels or hot and cold water distributed from a central base facility. Energy received from wind or solar power is included in this subsystem.	MBH/KW	Total MBH of heating system
09 01 01	OIL SUPPLY SYSTEM Assemblies include storage equipment, transfer equipment, and distribution piping. The unit of measure at the assembly level is each system.	MBH/KW	
09 01 02	GAS SUPPLY SYSTEM This category includes both natural gas and LPG. Assemblies include metering and regulation equipment, storage equipment, transfer equipment, and distribution piping. The unit of measure at the assembly level is each system.	MBH/KW	MBH/KW
09 01 03	COAL SUPPLY SYSTEM Assemblies include storage equipment, transfer equipment, processing equip-	MBH/KW	MBH/KW

ment, and the distribution system.
The unit of measure at the assembly level is each system.

09 01 04	STEAM SUPPLY SYSTEM (FROM CENTRAL PLANT) Assemblies include meters, valves, heat exchangers, fittings, and specialties required for hook-up, and distribution piping, including supports, sleeves, and insulation. The unit of measure at the assembly level is each system.	MBH/KW	MBH/KW
09 01 05	HOT WATER SUPPLY SYSTEM (FROM CENTRAL PLANT) Assemblies include meters, valves, heat exchangers, fittings, and specialties required for hook-up, and distribution piping, including supports, sleeves, and insulation. The unit of measure at the assembly level is each system.	MBH/KW	MBH/KW
09 01 06	SOLAR SYSTEMS Assemblies include collector panels, heat exchangers, storage tanks, pumps, etc., including pipe and fittings required for hookup. The unit of measure at the assembly level is each system.	MBH/KW	MBH/KW
09 01 07	WIND ENERGY SUPPLY SYSTEM Wind is used to turn a generator which generates electricity. This energy is either stored in a battery or used to generate hot water in an electric boiler. Assemblies would include the required devices to make this a total electromechanical system. The unit of measure at the assembly level is each system.	MBH/KW	MBH/KW
09 01 9X	OTHER ENERGY SUPPLY Energy supply not described by the assembly categories listed above.	XX	
09 02	HEAT GENERATING SYSTEMS This subsystem includes steam, hot water, furnace, and unit heater systems. Fuels include coal, oil, gas and electric unless otherwise noted.	MBH/KW	Total MBH/KW of heating system
09 02 01	STEAM BOILERS Assemblies include boilers, expansion tanks, chemical feeders, air separators, pumps, heat exchangers, boiler feed units, etc. This assembly would also	MBH/KW	MBH/KW

include fittings and specialties and the flue stack. The unit of measure at the assembly level is each.

<p>09 02 02 HOT WATER BOILERS Assemblies include boilers, expansion tanks, chemical feeders, air separators, pumps, heat exchangers, boiler feed units, etc. This assembly would also include fittings and specialties and the flue stack. The unit of measure at the assembly level is each.</p>	MBH/KW	MBH/KW
<p>09 02 03 FURNACES This is a system that heats air. Assemblies would include furnace and necessary fittings and specialties required for hook-up, including flue and stack. The unit of measure at the assembly level is each.</p>	MBH/KW	MBH/KW
<p>09 02 04 FUEL FIRED UNIT HEATERS Assemblies would include unit heaters and the energy supply system hook-up (other than electrical) with all necessary pipe, fittings, and specialties required for hook-up. Flue and stack, if required, are included in this assembly. The unit of measure at the assembly level is each.</p>	MBH/KW	MBH/KW
<p>09 02 05 AUXILIARY EQUIPMENT Assemblies would include any other equipment associated with heat generating systems. The unit of measurement at the assembly level is each.</p>	MBH/KW	MBH/KW
<p>09 02 06 EQUIPMENT THERMAL INSULATION Assemblies include insulation of any component in this subsystem. The unit of measure at the assembly level is each.</p>	SF/SQM	Area of insulation
<p>09 02 9X OTHER HEAT GENERATING SYSTEMS Heat generating systems not described by the assembly categories listed above.</p>	XX	
<p>09 03 COOLING GENERATING SYSTEMS Cooling generating equipment of the absorption, centrifugal, reciprocating, and direct expansion types.</p>	TON/KW	Total tonnage/KW of cooling capacity
<p>09 03 01 CHILLED WATER SYSTEMS Assemblies include condensers, compressors, chillers, pumps, cooling towers, etc., including fittings and</p>	TON/KW	Tons/KW

specialties required for hook-up. The unit of measure at the assembly level is each.

<p>09 03 02 DIRECT EXPANSION SYSTEMS Assemblies include condensers, compressors, heat pumps, and refrigerant piping. The unit of measure at the assembly level is each.</p>	TON/KW	Tons/KW
<p>09 03 9X OTHER COOLING GENERATING SYSTEMS Cooling generating systems not described by the assembly categories listed above.</p>	XX	
<p>09 04 DISTRIBUTION SYSTEMS This includes systems that distribute heated and cooled air, ventilating and exhaust air, hot and chilled water, steam, and glycol heating.</p>	MBH/KW	MBH/KW
<p>09 04 01 AIR DISTRIBUTION, COOLING, AND HEATING Assemblies include air handling units, heating coils, cooling coils, and fittings and specialties required for water hook-up. This assembly also includes duct heaters, filters, humidifiers, supply and return duct work, dampers, fire dampers, supply and return grilles, registers and diffusers, turning vanes, sound traps, and all associated insulation. The unit of measure at the assembly level is MCFM.</p>	MCF/CUM	MCFM/CUM
<p>09 04 02 STEAM DISTRIBUTION SYSTEMS Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is MBH.</p>	MBH/KW	MBH/KW
<p>09 04 03 HOT WATER DISTRIBUTION SYSTEMS Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is MBH.</p>	MBH/KW	MBH/KW
<p>09 04 04 CHANGE OVER DISTRIBUTION SYSTEMS</p>	MBH/KW	MBH/KW
<p>09 04 05 GLYCOL DISTRIBUTION SYSTEMS Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is MBH.</p>	MBH/KW	MBH/KW
<p>09 04 06 CHILLED WATER DISTRIBUTION SYSTEMS</p>	TON/KW	Tons/KW

Assemblies include pipe and fitting, including supports, wall and floor sleeves, and pipe insulation. The unit of measure at the assembly level is tons.

<p>09 04 07 EXHAUST SYSTEMS Assemblies include duct work, grilles, registers, diffusers, fans, and all associated work. The unit of measure at the assembly level is each system.</p>	<p>MCF/CUM MCFM/CUM</p>
<p>09 04 9X OTHER DISTRIBUTION SYSTEMS Distribution systems not described by the assembly categories listed above.</p>	<p>XX</p>
<p>09 05 TERMINAL AND PACKAGE UNITS This category includes self-contained heating and cooling units.</p>	<p>MBH/KW MBH/KW</p>
<p>09 05 01 UNIT VENTILATORS Assemblies include the complete terminal unit and wall sleeve with all controls.</p>	<p>EA Number of units</p>
<p>09 05 02 UNIT HEATERS Assemblies include the complete terminal unit and wall sleeve with all controls.</p>	<p>EA Number of units</p>
<p>09 05 03 FAN COIL UNITS Assemblies include the complete terminal unit and wall sleeve with all controls.</p>	<p>EA Number of units</p>
<p>09 05 04 FIN TUBE RADIATION Assemblies include the complete terminal unit and wall sleeve with all controls.</p>	<p>EA Number of units</p>
<p>09 05 05 ELECTRIC HEATING Assemblies include the complete terminal unit and wall sleeve with all controls.</p>	<p>EA Number of units</p>
<p>09 05 06 PACKAGE UNITS Assemblies include complete package units, with integral roof top curbs and all associated devices. Heating system can be selected from hot water, steam coil, or gas furnace and can be a single- or multi-zone system. The unit of measure at the assembly level is each.</p>	<p>EA Number of units</p>

<p>09 05 9X OTHER TERMINAL AND PACKAGE UNITS Terminal and package units not described by the assembly categories listed above.</p>	XX	
<p>09 06 CONTROLS AND INSTRUMENTATION Includes devices such as thermostats, timers, sensors, control valves, etc., necessary to operate the system as designed.</p>	MBH/KW	MBH/KW
<p>09 06 01 HVAC CONTROLS Includes devices such as thermostats, timers, sensors, control valves, etc., necessary to operate the total system. The unit of measure at the assembly level is each system.</p>	EA	Tons/KW
<p>09 06 02 INSTRUMENT PANELS Assemblies include all devices that indicate system condition or status, including on/off devices. The unit of measure at the assembly level is each.</p>	EA	Number of panels
<p>09 06 03 INSTRUMENT AIR COMPRESSORS Assemblies include air compressors, dryers, and distribution tubing (only used with pneumatic control systems). The unit of measure at the assembly level is each.</p>	EA	Number of compressors
<p>09 06 04 GAS PURGING SYSTEMS Assemblies include the removal of contaminated or unwanted gases from a structure or pipe.</p>	EA	Number of systems
<p>09 06 9X OTHER CONTROLS AND INSTRUMENTATION Controls and instrumentation not described by the assembly categories listed above.</p>	XX	
<p>09 07 SYSTEMS TESTING AND BALANCING This includes operation of all systems to determine capacity and adjustment of water flow in chilled water and hot water systems, air flow of air handling units, supply and exhaust fans and supply, and return and exhaust registers.</p>	MBH/KW	MBH/KW
<p>09 07 01 WATER SIDE TESTING AND BALANCING - HEATING AND COOLING Includes operating and testing of pumps, setting of all flow control valves, and determining system capacity. The unit</p>	EA	Number of devices

of measure at the assembly level is each device, ie. boiler, chiller, fan coil, unit heater.

<p>09 07 02 AIR SIDE TESTING AND BALANCING - HEATING, COOLING AND EXHAUST SYSTEMS Includes operating and testing of all air handling devices, adjusting of all fans to set rate of air flow, setting all fan motors at desired operation, setting of air flow at all registers, grilles, diffusers, and louvers to deliver design CFM, and testing and calibrating of thermostats to achieve desired space temperature. The unit of measure at the assembly level is each device.</p>	EA	Number of devices
<p>09 07 03 HVAC COMMISSIONING Final testing of operational system.</p>	LS/LS	Lump Sum
<p>09 07 9X OTHER SYSTEMS TESTING AND BALANCING Systems testing and balancing not described by the assembly categories listed above.</p>	XX	
<p>09 08 SPECIAL MECHANICAL SYSTEMS This subsystem includes special mechanical systems that are not normally included as part of standard HVAC systems.</p>	EA	Number of Systems
<p>09 08 01 GENERAL CONSTRUCTION ITEMS (MECHANICAL) Includes construction work other than mechanical which must be performed in conjunction with the special mechanical system to make the system complete.</p>	SF/SQM	Area of special system
<p>09 08 02 REFRIGERATION SYSTEMS Includes equipment for refrigeration in a cold storage facility. Both low and medium temperature equipment are included. Assemblies include: Condensing and compressor units, evaporator blowers, refrigerant piping and specialties, heat recovery systems (liquid or gas), heat recovery distribution systems (liquid or gas), and system testing and balancing.</p>	TON/KW	Tons/KW of refrigeration
<p>09 08 9X OTHER SPECIAL MECHANICAL Any other mechanical system not defined in other categories. Assemblies would include special systems and special</p>	XX	Area of special system

devices. The unit of measure at the assembly level is each system or device.

10	FIRE PROTECTION SYSTEMS This system includes standard and special fire protection systems. Fire alarm systems are included in 12 01 01.	SF/SQM	Gross floor area
10 01	WATER SUPPLY (FIRE PROTECTION) This subsystem includes the water supply equipment and related piping from the equipment to the sprinkler head.	EA	Number of sprinkler heads
10 01 01	WATER SUPPLY EQUIPMENT AND PIPING Assemblies include alarm valves, flow control valves, pipe and fittings from equipment to sprinkler heads, including all supports and wall or floor sleeves. All equipment including tanks, pumps, and other associated equipment, fittings, and specialties required for hook-up are in this assembly. The unit of measure at the assembly level is each sprinkler head.	EA	Number of sprinkler heads
10 02	SPRINKLERS This subsystem includes sprinkler heads and release devices.	EA	Number of sprinkler heads
10 02 01	SPRINKLER HEADS AND RELEASE DEVICES The fixture, device, or sprinkler head that releases the water to suppress the fire. The unit of measure at the assembly level is each sprinkler head.	EA	Number of sprinkler heads
10 03	STANDPIPE SYSTEMS This subsystem includes the complete standpipe system.	EA	Number of sprinkler heads
10 03 01	STANDPIPE EQUIPMENT AND PIPING Assemblies include standpipe risers and all other piping, fittings, and supports associated with this category. Siamese connections, roof manifolds, cabinets, hoses, racks, and other fire department connections are included in this assembly. All equipment including pumps, tanks, etc. with all required fittings and specialties for hook-up are in this assembly.	EA	Number of sprinkler heads
10 04	FIRE EXTINGUISHERS This subsystem includes fire extinguishing devices.	EA	Number of extinguishers

10 04 01	FIRE EXTINGUISHING DEVICES Assemblies include all types of fire extinguishers, i.e., water, dry chemical, carbon dioxide, soda acid, etc. The brackets, sleeves, and supporting devices are included in this assembly.	EA	Number of extinguishers
10 05	SPECIAL FIRE PROTECTION SYSTEMS This subsystem includes other fire protection systems.	EA	Each system
10 05 01	OTHER SPECIAL FIRE PROTECTION SYSTEMS Assemblies include other fire protection systems such as halon systems, exhaust hood systems, and special chemical suppression systems.	EA	Each system
11	ELECTRIC POWER AND LIGHTING This system is defined by the electric current used or regarded as a source of power.	AMP/AMP	Gross floor area
11 01	SERVICE AND DISTRIBUTION This subsystem provides for all electrical devices that are required to deliver the main source of power to the facility and to distribute this power to subpanels.	AMP/AMP	Gross floor area
11 01 01	MAIN TRANSFORMERS Overhead or underground transformers used for primary electrical service. Assemblies include transformers, pad, trenching, and backfill.	AMP/AMP	Number of transformers
11 01 02	SECONDARY Transformers fed from protection equipment on the building side of primary transformer. Assemblies include transformers, conduit, conduit support, and wire.	AMP/AMP	Gross floor area
11 01 03	MAIN SWITCHBOARDS This includes the protection equipment and metering devices for main distribution. Assemblies include main distribution panel, breaker, fuses, and meters.	AMP/AMP	Gross floor area
11 01 04	INTERIOR DISTRIBUTION TRANSFORMERS This includes the interior step-down or buck boost transformers.	AMP/AMP	Gross floor area

11 01 05	PANELS Branch circuit panelboards. Assemblies include panelboard, breakers, conduit, and wire.	AMP/AMP	Gross floor area
11 01 06	ENCLOSED CIRCUIT BREAKERS Over current protection device enclosed in its own housing. Assemblies include enclosed circuit breaker, conduit, and wire.	AMP/AMP	Gross floor area
11 01 07	MOTOR CONTROL CENTERS This is a cabinet in which motor starters and operation devices are contained. Assemblies include the motor control center cabinet, motor starters, contacts, switches, conduit, wire, and all associated items.	AMP/AMP	Gross floor area
11 01 9X	OTHER SERVICE AND DISTRIBUTION Service and distribution not described by the assembly categories listed above.	XX	
11 02	LIGHTING AND BRANCH WIRING Lighting systems including light fixtures and devices, i.e., switches, receptacles, and equipment connections.	SF/SQM	Floor area
11 02 01	BRANCH WIRING This assembly includes switches, receptacles, equipment connections, conduit, and wire.	EA	Floor area
11 02 02	LIGHTING EQUIPMENT This assembly includes fixtures, conduit wire, and switching devices.	EA	Floor area
11 02 9X	OTHER LIGHTING AND BRANCH WIRING Lighting and branch wiring not described by the assembly categories listed above.	XX	
12	ELECTRICAL SYSTEMS Electrical systems which are not provided for in System 11.	SF/SQM	Gross floor area
12 01	COMMUNICATION, SECURITY AND ALARM SYSTEMS This subsystem includes provisions for communication devices and alarm protection systems.	SF/SQM	Gross floor area
12 01 01	FIRE ALARM SYSTEMS Assemblies include wire, conduit, conduit support or fastening systems,	EA	Number of outlets

fire alarm devices, fire detection devices, safety switches, all electrical connections, and other associated items.

<p>12 01 02 NURSE CALL SYSTEMS Assemblies include conduit, wire, speakers, monitoring devices, amplifiers, switches, power system tie-in devices, and detection devices.</p>	EA	Number of outlets
<p>12 01 03 TELEPHONE SYSTEMS This system would include central switchboards, telephone sets, underground ducts, and manholes. Assemblies include conduit, wire, backboards, cabinets, outlets, and power supply connections.</p>	EA	Number of outlets
<p>12 01 04 PUBLIC ADDRESS SYSTEMS Assemblies include conduit, wire, speakers, monitoring devices, amplifiers, switches, power system tie-in devices, and detection devices.</p>	SF/SQM	Gross floor area
<p>12 01 05 INTERCOMMUNICATIONS SYSTEMS Assemblies include conduit, wire, speakers, monitoring devices, amplifiers, switches, power system tie-in devices, and detection devices.</p>	EA	Number of stations
<p>12 01 06 CLOCK AND PROGRAM SYSTEMS Assemblies include conduit, wire, power systems tie-in, safety switches, control panels, battery back-up devices, clocks, and outlets.</p>	EA	Number of clocks
<p>12 01 07 TELEVISION SYSTEMS Assemblies include wire, conduit, grounding, amplifiers, receivers, video equipment, and outlets grouped according to use.</p>	EA	Number of outlets
<p>12 01 08 SECURITY SYSTEMS Assemblies include wire, conduit, conduit support or fastening systems, security alarm devices, all electrical connections, and other associated items. Intrusion detection systems are included in this category.</p>	EA	Number of system control points
<p>12 01 9X OTHER COMMUNICATIONS AND ALARM SYSTEMS Communications and alarm systems not described by the assembly categories</p>	XX	

listed above.

12 02	SPECIAL ELECTRICAL SYSTEMS Systems not described in subsystem 12 01.	SF/SQM	Gross floor area
12 02 01	GENERAL CONSTRUCTION ITEMS (ELECTRICAL) Includes construction work other than electrical which must be performed in conjunction with the special electrical system to make the system complete.	EA	Gross floor area
12 02 02	EMERGENCY LIGHTING AND POWER Assemblies include fixtures, motors used for power generation, connection, and testing, transfer switches, conduit, wire, battery chargers, batteries, and solar panels.	EA	Gross floor area
12 02 03	GROUNDING SYSTEMS This includes grounding protection systems.	SF/SQM	Gross floor area
12 02 04	LIGHTNING PROTECTION Assemblies include lightning protection devices (air terminals, mounting devices), clamps, ground rods, cadwells, conductors, trenching, backfield, and any other items used to ground metal structural frames with conduit and wire.	EA	Gross Floor Area
12 02 05	ELECTRIC HEATING Items could include baseboard heaters and wall and ceiling heaters. Assem- blies include safety switches, control devices, heaters, conduit, and wire.	SF/SQM	Gross floor area
12 02 06	ENERGY MANAGEMENT CONTROL SYSTEMS Assemblies include wire, conduit, conduit support or fastening systems, sensor devices, and all electrical connections.	PTS	Gross floor area
12 02 9X	OTHER SPECIAL SYSTEMS AND DEVICES Special systems and devices not de- scribed by the assembly categories listed above.	XX	
13	EQUIPMENT This refers to equipment not found in System 05 04 (Interior Specialties).	SF/SQM	Gross floor area
13 01	FIXED AND MOVEABLE EQUIPMENT This equipment is not likely to be used in every building type. Subsystems	SF/SQM	Floor area

05 04 and 05 05 (Specialties) includes those items likely to be found in every building type.

13 01 01	BUILT-IN MAINTENANCE EQUIPMENT The unit of measure at the assembly level is each.	SF/SQM	Floor area
13 01 02	CHECKROOM EQUIPMENT All associated work items including keys, tags, and storage cabinets would be included in this assembly.	COA	Number of coat hanging devices
13 01 03	SEAFOOD SERVICE EQUIPMENT The unit of measure at the assembly level is the total set of equipment needed in the particular functional space area.	EA	Seating capacity per meal based on dining
13 01 04	VENDING EQUIPMENT	EA	Pieces of equip.
13 01 05	WASTE HANDLING EQUIPMENT	EA	Pieces of equip.
13 01 06	LOADING DOCK EQUIPMENT	DCK	Number of docks
13 01 07	PARKING EQUIPMENT	CAR	Pieces of equip.
13 01 08	MISCELLANEOUS COMMON FIXED AND MOVEABLE EQUIPMENT	EA	Pieces of equip.
13 01 09	WAREHOUSE EQUIPMENT	EA	Pieces of equip.
13 01 10	MEDICAL EQUIPMENT	EA	Pieces of equip.
13 01 11	LABORATORY EQUIPMENT	EA	Pieces of equip.
13 01 12	MORTUARY EQUIPMENT	EA	Pieces of equip.
13 01 13	AUDITORIUM AND STAGE EQUIPMENT	EA	Pieces of equip.
13 01 14	REGISTRATION EQUIPMENT	EA	Pieces of equip.
13 01 15	LIBRARY EQUIPMENT	EA	Pieces of equip.
13 01 16	LAUNDRY EQUIPMENT	EA	Pieces of equip.
13 01 17	SECURITY AND VAULT EQUIPMENT	EA	Pieces of equip.
13 01 9X	OTHER SPECIALIZED FIXED AND EQUIPMENT Specialized fixed and moveable equipment not described by the assembly categories listed above.	XX	Pieces of equip.
14	FURNISHINGS	SF/SQM	Floor area

14 01	FURNISHINGS	SF/SQM	Floor area
14 01 01	MODULAR PREFABRICATED FURNITURE	EA	Number of units of prefab furniture
14 01 02	ART WORK	EA	Pieces of art work
14 01 03	WINDOW TREATMENT	SF/SQM	Area of window treatment
14 01 04	SEATING	EA	Number of seats
14 01 05	RUGS, MATS, AND FURNISHING ACCESSORIES	EA	Number of rugs, mats, or accessories
14 01 06	DINING ROOM FURNISHINGS Assemblies include dining room furnishings not covered above.	EA	Number of furnishings
14 01 9X	OTHER FURNISHINGS Furnishings not described by the assembly categories listed above.	XX	
15	SPECIAL CONSTRUCTION Includes all building related items normally specified in CSI MASTERFORMAT Division 12.	SF/SQM	Floor area
15 01	VAULTS This is a built-in-place vault. Prefabricated safes are not included in this assembly. The unit of measure at the assembly level is each.	SF/SQM	Area of vault
15 02	INTERIOR SWIMMING POOLS	SF/SQM	Area of pool
15 03	SPECIAL PURPOSE ROOMS	SF/SQM	Area of room
15 04	PRE-ENGINEERED BUILDINGS	SF/SQM	Floor Area
15 05	WASHRACKS	SF/SQM	Area of washracks
15 06	EXTERIOR UTILITY BUILDINGS	SF/SQM	Area of exterior building
16	SELECTIVE BUILDING DEMOLITION	LS/LS	
16 01	NON-HAZARDOUS SELECTIVE BUILDING	LS/LS	

DEMOLITION

16 01 01	SUBSTRUCTURE & SUPERSTRUCTURE	LS/LS	
16 01 02	EXTERIOR CLOSURE	LS/LS	
16 01 03	ROOFING	LS/LS	
16 01 04	INTERIOR CONSTRUCTION & FINISHES	LS/LS	
16 01 05	CONVEYING SYSTEMS	LS/LS	
16 01 06	MECHANICAL SYSTEMS	LS/LS	
16 01 07	ELECTRICAL SYSTEMS	LS/LS	
16 01 08	EQUIPMENT & FURNISHINGS	LS/LS	
16 01 9X	OTHER NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION Non-hazardous selective building demolition not described by the assembly categories listed above.	XX	
16 02	HAZARDOUS SELECTIVE BUILDING DEMOLITIO	LS/LS	
16 02 01	SUBSTRUCTURE & SUPERSTRUCTURE	LS/LS	
16 02 02	EXTERIOR CLOSURE	LS/LS	
16 02 03	ROOFING	LS/LS	
16 02 04	INTERIOR CONSTRUCTION & FINISHES	LS/LS	
16 02 05	CONVEYING SYSTEMS	LS/LS	
16 02 06	MECHANICAL SYSTEMS	LS/LS	
16 02 07	ELECTRICAL SYSTEMS	LS/LS	
16 02 08	EQUIPMENT & FURNISHINGS	LS/LS	
16 02 9X	OTHER HAZARDOUS SELECTIVE BUILDING DEMOLITION Hazardous selective building demolition not described by the assembly categories listed above.	XX	
17	SITE PREPARATION This system includes assemblies for miscellaneous site work such as clearing and grubbing, demolition and relocation, various earthwork tasks, and other site preparation and cleanup	AC/HA	Total area of site

requirements. Hazardous cleanup is not included but is the subject of another WBS.

<p>17 01 SITE CLEARING This covers the different assemblies and options available for clearing of a site, tree and stump removal, burning, grubbing, chipping, and load and haul assemblies for removal of the cleared material.</p>	<p>AC/HA</p>	<p>Area to be cleared</p>
<p>17 01 01 CLEARING This is the removal of above ground vegetation, including stumps. For a wet site, Low Ground Pressure (LGP) equipment is used.</p>	<p>AC/HA</p>	<p>Area cleared</p>
<p>17 01 02 TREE REMOVAL This is the selective removal of trees on the site. Various options exist for different sizes of trees to be removed.</p>	<p>EA</p>	<p>Each tree</p>
<p>17 01 03 STUMP REMOVAL This is the selective removal of stumps on the site. Various options exist for different sizes of stumps to be removed.</p>	<p>EA</p>	<p>Each stump</p>
<p>17 01 04 CHIPPING Chipping is the process of cutting brush into small pieces. This process reduces the bulking factor of the debris or brush that is to be removed from the site. Assemblies exist for various brush densities.</p>	<p>AC/HA</p>	<p>Area of brush to chip</p>
<p>17 01 05 GRUBBING Grubbing is the removal of sod and other topsoil that contains unsuitable organic material. Various equipment type and size choices exist. Wet grubbing utilizes Low Ground Pressure (LGP) equipment. Hauloff of grubbed material is also included.</p>	<p>AC/HA</p>	<p>Area grubbed</p>
<p>17 01 06 SELECTIVE THINNING This is the selective removal of trees and underbrush without requiring extensive clearing and/or grubbing of the site.</p>	<p>AC/HA</p>	<p>Area thinned</p>
<p>17 01 07 DEBRIS DISPOSAL This is the disposal of the material that has been cleared and grubbed. Loading, Hauling, and dump charges</p>	<p>CY/CUM</p>	<p>Volume of material</p>

are included.

17 01 9X	OTHER SITE CLEARING Site clearing not described by the assembly categories listed above.	XX	
17 02	SITE DEMOLITION & RELOCATION This includes the demolition and/or relocation of structures, pavements, fencing, and underground utilities. Disposal of debris or demolished material, including loading and hauling, is also included.	SY/SQM	Area demolished
17 02 01	BUILDING MASS DEMOLITION This is the complete demolition of buildings or structures. Options include steel, concrete, masonry, and wood structures.	CF/CUM	Interior volume of building
17 02 02	ABOVE GROUND SITE DEMOLITION This is the demolition of pavements, fencing, and other non-building structures on a site. Pavement includes roads, sidewalks, driveways, and curbs. Fencing types include chain link, barb wire, and wood.	SY/SQM	Area to demolish
17 02 03	UNDERGROUND SITE DEMOLITION This is the demolition of underground utilities such as piping, manholes, and other non-building underground structures. The unit of measure at the assembly level for piping is LF and for manholes is CY.	SY/SQM	Area to demolish
17 02 04	DEBRIS DISPOSAL This is the disposal of the demolished material. Loading, hauling, and dump charges are included.	CY/CUM	Volume of material
17 02 05	BUILDING RELOCATION This is the process of dismantling a structure and reassembling it on a different site.	SF/SQM	Area of building to be relocated
17 02 06	UTILITY RELOCATION to remove and reset. This is the removal and relocation of underground utilities such as steel and concrete pipe.	LF/M	Length of pipe run
17 02 07	FENCING RELOCATION	EA	
17 02 9X	OTHER SITE DEMOLITION AND RELOCATION	XX	

Site demolition and relocation not described by the assembly categories listed above.

<p>17 03 SITE EARTHWORK Included are assemblies and options for site work such as grading, excavation, filling, compaction, stabilization, etc.</p>	<p>CY/CUM</p>	<p>Volume of material</p>
<p>17 03 01 GRADING Grading is leveling or flattening of the site in preparation for landscaping or other site construction. Includes unlined stormwater collection ponds.</p>	<p>SY/SQM</p>	<p>Area to be graded</p>
<p>17 03 02 COMMON EXCAVATION & DISPOSAL This is excavation for roads, sidewalks, curbs, and trenching for underground utilities. Excavation may be carried out by a variety of equipment sizes and types. Disposal of the excavated material is also included.</p>	<p>CY/CUM</p>	<p>Volume of material to be excavated</p>
<p>17 03 03 ROCK EXCAVATION & DISPOSAL This is excavation of rock by explosives. Different equipment selections and load and haul are included.</p>	<p>CY/CUM</p>	<p>Volume of rock to excavate</p>
<p>17 03 04 FILL & BORROW This is filling or replacing the material that was removed during excavation. Either the excavated material may be used or soil and sand may be hauled in from off site. Filling to basements and foundations is included in System 01.</p>	<p>CY/CUM</p>	<p>Volume of material to place</p>
<p>17 03 05 COMPACTION Compaction is the process of packing the fill material once it is in place. This may be done by machine or hand. Assemblies exist for both hand and machine compaction of soil, sand, and the excavated material.</p>	<p>CY/CUM</p>	<p>Volume of material to compact</p>
<p>17 03 06 SOIL STABILIZATION This is stabilization of the soil in place by the addition of lime or cement.</p>	<p>CY/CUM</p>	<p>Volume of soil to stabilize</p>
<p>17 03 07 SLOPE STABILIZATION This is stabilization of the soil in place through the use of rip-rap, gabions, slope paving, or other forms of soil armoring.</p>	<p>SY/SQM</p>	<p>Area of slope</p>

17 03 08	SOIL TREATMENT Treatment of soil prior to final construction for insect protection or other purposes.	SY/SQM	Area of soil to treat
17 03 09	SHORING Shoring is the temporary support for existing structures or excavation during construction.	SF/SQM	Area requiring shoring
17 03 10	TEMPORARY DEWATERING This is the dewatering of the site by wellpoints to lower the groundwater table. This will facilitate excavation in areas with high water tables.	SY/SQM	Area to dewater
17 03 11	TEMPORARY EROSION CONTROL Interim measures to minimize erosion during construction.	SF/SQM	Area to be protected
17 03 9X	OTHER SITE EARTHWORK Site earthwork not described by the assembly categories listed above.	XX	
17 04	SITE CLEANUP This includes other site preparation assemblies such as site cleanup that were not covered in the previous subsystems.	SY/SQM	Lump sum
17 04 01	SITE CLEANUP Covered in this assembly category are assemblies for site and area cleanup and pavement sweeping. Disposal of the debris is also included.	SY/SQM	Area of site to clean
17 04 9X	OTHER SITE CLEANUP Site cleanup not described by the assembly categories listed above.	XX	
17 9X	OTHER SITE PREPARATION Any site preparation not covered in the subsystems listed above.	XX	
18	SITE IMPROVEMENTS This includes improvements such as parking lots, sidewalks, roadways, fencing, retaining walls, and landscaping.	SY/SQM	Area of site
18 01	ROADWAYS This subsystem includes options for access, arterial, or interstate roadways. A variety of pavement types and thicknesses are available.	SY/SQM	Area of roadway

18 01 01	BASES AND SUBBASES These are the compacted and prepared gravel or soil layers that are placed prior to the installation of the final surface. The subbase is placed and compacted before the base layer is applied.	SY/SQM	Area of roadway
18 01 02	DRAINS, INLETS, CURBS, & GUTTERS This is the drainage system for the selected roadway type. Options include curb and gutter drains or area drains with grates.	LF/M	Length of drainage piping
18 01 03	PAVED SURFACES This is the material that is placed atop the base layer to provide the driving surface.	SY/SQM	Area of roadway
18 01 04	MARKING & SIGNAGE This includes roadway signage and pavement painting. Assemblies are included for traffic signs and posts and intersection, crosswalk, or other pavement painting or striping.	SY/SQM	Area of roadway
18 01 05	GUARDRAILS & BARRIERS This is any associated guardrails or barriers that are required for the selected roadway type.	LF/M	Length of guardrail or barrier
18 01 06	RESURFACING This is the placement of an asphalt wearing course over the existing pavement surface. Assemblies exist for resurfacing of gravel, concrete, and asphalt roadways.	SY/SQM	Area of roadway
18 01 9X	OTHER ROADWAYS Roadways not described by the assembly categories listed above.	XX	
18 02	PARKING LOTS These are the areas required for vehicle parking and include different surfaces and drainage options.	SPA	# of spaces
18 02 01	BASES AND SUBBASES These are the compacted and prepared gravel or soil layers that are placed prior to the installation of the final surface. The subbase is placed and compacted before the base layer is applied.	SY/SQM	Area of parking lot

18 02 02	DRAINS, CURBS & GUTTERS This is the drainage system of the parking lot. Options include curb drains or area drains with grates.	LF/M	Length of drainage piping
18 02 03	PAVED SURFACES This is the material that is placed atop the base layer. This provides the driving surface for the parking lot.	SY/SQM	Area of parking lot
18 02 04	MARKING & SIGNAGE This is the painting of the parking stalls, signage, etc.	SPA	# of Spaces
18 02 05	GUARDRAILS & BARRIERS Guardrails, barriers, parking stops and other similar devices.	LF/M	Length of guardrail or barrier
18 02 06	RESURFACING This is the placement of an asphalt wearing course over the existing parking surface.	SY/SQM	Area of parking lot
18 02 9X	OTHER PARKING AREAS Parking areas not described by the assembly categories listed above.	XX	
18 03	WALKS, STEPS, RAMPS, & TERRACES This subsystem includes options for sidewalks and other small paved areas.	SF/SQM	Area of pavement
18 03 01	BASES AND SUBBASES These are the compacted and prepared gravel or soil layers that are placed prior to the installation of the final surface. The subbase is placed and compacted before the base layer is applied.	SF/SQM	Area of pavement
18 03 02	DRAINS, CURBS & GUTTERS This is the drainage system of the pavement option chosen. Options are included for curb and gutter drains.	LF/M	Length of drainage piping
18 03 03	PAVED SURFACES This is the material that is placed atop the base layer to provide the walking or driving surface.	SF/SQM	Area of pavement
18 03 04	GUARDRAILS & BARRIERS This is any associated guardrails or barriers that are required.	LF/M	Length of guardrail or barrier
18 03 05	RESURFACING	SF/SQM	Area of Pavement

This is the placement of an asphalt wearing course over the existing pavement surface.

18 03 9X	OTHER WALKS, STEPS, RAMPS, & TERRACES Walks, steps, ramps, and terraces not described by the assembly categories listed above.	XX	
18 04	SITE DEVELOPMENT Included are assemblies for on site construction of fences, retaining walls, playing fields, fountains, and other site improvements.	EA	Each structure
18 04 01	FENCING & GATES This includes installation or construction of security, boundary, or barb wire fencing and all required gates.	LF/M	Length of fence
18 04 02	RETAINING WALLS These are structures used to prevent the flow or lateral movement of soil. Assemblies exist for cast in place concrete retaining walls.	SF/SQM	Area of wall
18 04 03	EXTERIOR FURNISHINGS This includes the addition of such exterior furnishings as benches, planters, etc.	EA	Each furnishing
18 04 04	SECURITY STRUCTURES This includes the construction or addition of security structures such as guard houses.	EA	Each structure
18 04 05	SIGNAGE Signs displayed to convey direction or information such as building function or tenant except for signs included in 18 01 04 and 18 02 04. Does not include Roadway and Parking Signage.	EA	Each sign
18 04 06	FOUNTAINS & POOLS This includes assemblies for swimming pools and decorative fountains.	EA	Each
18 04 07	PLAYING FIELDS Playing fields such as baseball or tennis courts as well as backstops, bleachers, and other playing field requirements are included.	EA	Each
18 04 08	LINED STORMWATER COLLECTION PONDS & OTHER STORMWATER	GAL/L	Gallons/Liters

COLLECTION & STORAGE STRUCTURES

18 04 9X	MISCELLANEOUS STRUCTURES This includes any other miscellaneous structures not found above or in previous sections	XX	
18 05	LANDSCAPING Assemblies are included that improve the appearance of the site by planting, seeding, and sodding.	SY/SQM	Area to be landscaped
18 05 01	FINE GRADING & SOIL PREPARATION Fine grading of the site by hand or machine is required to prepare the soil for planting, seeding, or sodding.	SY/SQM	Area of site
18 05 02	EROSION CONTROL MEASURES Soil erosion or deterioration due to wind, rain or other factors can be controlled or remedied in different ways. This includes slope protection by planting of vegetation or grass and/or placement of manmade geotextiles.	SY/SQM	Area of erosion
18 05 03	TOP SOIL AND PLANTING BEDS Top soil is placed to provide the nutritious soil bed which is required for plants or grass to grow.	SY/SQM	Area of planting bed
18 05 04	SEEDING & SODDING This includes the seeding, sodding, fertilizing, watering, and mowing for the grass required on site.	SY/SQM	Area of site
18 05 05	PLANTINGS This includes the planting of trees, shrubs, and other vegetation for site beautification or improvement.	EA	Each plant
18 05 06	PLANTERS Planters are exterior decorative containers that contain plants or trees.	EA	Each planter
18 05 07	IRRIGATION SYSTEMS This includes the underground installation of irrigation systems required for watering of trees, shrubs, and grass or other vegetation.	SY/SQM	Area of site to be watered
18 05 9X	OTHER LANDSCAPING Landscaping not described by the assembly categories listed above.	XX	
18 06	SPECIAL CONSTRUCTION Heavy construction consists of bridges/	EA	Each

overpasses, railroads, and other large or heavy construction projects.

18 06 01	BRIDGES Bridges included here are typically small spans of overpasses that are not meant to be used to estimate spans over large bodies of water. Options exist for cast in place concrete T beam, precast I beam, precast box, concrete and steel composite, and timber laminated deck bridge structures.	SY/SQM	Area of structure
18 06 02	RAILROAD SPUR Railroad assemblies exist for 110, 115, and 132 lb tracks and ties. Turnouts, roadway crossings, derailleurs, stops, and bumpers are also included.	LF/M	Length of track
18 06 9X	OTHER SPECIAL CONSTRUCTION Any special construction not covered in the above categories.	XX	
18 9X	OTHER SITE IMPROVEMENTS Any site improvements not covered in the subsystems listed above.	XX	
19	SITE CIVIL/MECHANICAL UTILITIES This includes assemblies for water, sewer, storm sewer, and energy distribution systems.	EA	Each utility
19 01	WATER SUPPLY & DISTRIBUTION SYSTEMS This includes installation or construction of water distribution systems and facilities.	LF/M	Length of system
19 01 01	WELL SYSTEMS This includes installation of wells to include drilling and installing casings, pumps, and valves.	EA	Each system
19 01 02	POTABLE WATER DISTRIBUTION This includes construction and installation of underground piping and valve boxes and valves.	LF/M	Length of system
19 01 03	POTABLE WATER STORAGE This includes construction and installation of tanks, both on grade and elevated.	GAL/L	Amount stored
19 01 04	FIRE PROTECTION WATER DISTRIBUTION This includes construction and installation of piping for fire	LF/M	Length of system

protection only.

19 01 05	FIRE PROTECTION WATER STORAGE This includes tanks on grade and elevated for storage of water for fire protection only.	GAL/L	Amount stored
19 01 06	NON-POTABLE WATER DISTRIBUTION This includes construction and installation of water distribution system not for consumption, such as irrigation or hydro electric power generation and from reservoirs to treatment facilities.	LF/M	Length of system
19 01 07	PUMPING STATIONS This includes construction and installation of pumps, valves, and piping.	GPM/L/S	Operating capacity
19 01 08	PACKAGED WATER TREATMENT PLANTS This includes installation of completely assembled water treatment plants.	GPD/L/S	Operating capacity
19 01 09	TRENCHBOXES This includes installation of prefabricated trenchboxes for shoring during installation of piping.	LF/M	Length of trench
19 01 9X	OTHER WATER SUPPLY Water supply not described by the assembly categories listed above.	XX	
19 02	SANITARY SEWER SYSTEMS This includes all assemblies necessary for sewage collection systems.	LF/M	Length of system
19 02 01	SANITARY SEWER PIPING This includes installation of piping for collection of sewage.	LF/M	Length of piping
19 02 02	SANITARY SEWER MANHOLES & CLEANOUTS This includes installation and construction of manholes and cleanouts in sewage collection systems.	EA	Each manhole or cleanout
19 02 03	LIFT STATIONS This includes installation and construction of piping and equipment in lift stations.	GPM/L/S	Operating capacity
19 02 04	PACKAGED SANITARY SEWER TREATMENT PLANTS This includes installation of pre-assembled sewage treatment plants.	GPD/L/S	Operating capacity
19 02 05	SEPTIC TANKS	GAL/L	Volume of tank

	This includes installation of pre-fabricated septic tanks or the construction of septic tanks.		
19 02 06	DRAIN FIELDS This includes construction of drain fields for disposal of effluent from septic tanks.	LF/M	Length of field
19 02 07	TRENCHBOXES This includes installation of pre-fabricated trench boxes for shoring during installation of piping.	LF/M	Length of trench
19 02 9X	OTHER SANITARY SEWER Sanitary sewer not described by the assembly categories listed above.	XX	
19 03	STORM SEWER SYSTEMS This includes construction of storm water collection systems. Storm pond construction is included in 17 03 01 and 18 04 08.	LF/M	Length of system
19 03 01	STORM SEWER PIPING This includes installation of piping for collection of storm water.	LF/M	Length of piping
19 03 02	STORM SEWER MANHOLES This includes construction of manholes for storm water collection systems.	EA	Each manhole
19 03 03	LIFT STATIONS This includes construction of lift stations including piping, pumps, and controls.	GPM/L/S	Operating capacity
19 03 04	CULVERTS This includes construction and installation of culverts for storm water systems.	LF/M	Length of culvert
19 03 05	HEADWALLS & CATCH BASINS This includes construction of headwalls and installation of catch basins for storm water systems.	EA	Each structure
19 03 06	EROSION CONTROL MEASURES This includes construction to control erosion due to runoff.	SY/SQM	Area to control
19 03 07	TRENCHBOXES This includes installation of pre-fabricated trenchboxes for shoring during installation of piping.	LF/M	Length of trench

19 03 9X	OTHER STORM SEWER Storm sewer not described by the assembly categories listed above.	XX	
19 04	INDUSTRIAL WASTE SYSTEMS This includes all systems for collection of contaminated waste requiring special treatment.	LF/M	Length of system
19 04 01	INDUSTRIAL WASTE PIPE This includes construction and installation of all piping for collection of industrial waste.	LF/M	Length of piping
19 04 02	MANHOLES & CLEANOUTS This includes construction of manholes and cleanouts for industrial waste piping.	EA	Each manhole or cleanout
19 04 03	LIFT STATIONS This includes construction and installation of industrial waste lift stations and equipment.	GPM/L/S	Operating capacity
19 04 04	HOLDING TANKS AND SEPARATORS This includes construction or installation of special tanks such as silver recovery tanks or separators such as oil water separators.	EA	Each tank
19 04 05	TRENCHBOXES This includes installation of prefabricated trenchboxes for shoring during installation of piping.	LF/M	Length of trench
19 04 9X	OTHER INDUSTRIAL WASTE Industrial waste not described by the assembly categories listed above.	XX	
19 05	HEATING DISTRIBUTION SYSTEMS This includes overhead and underground hot water, steam, and condensate piping.	LF/M	Length of system
19 05 01	OVERHEAD HOT WATER SYSTEMS This includes installation of overhead hot water supply and return piping.	LF/M	Length of system
19 05 02	OVERHEAD STEAM SYSTEMS This includes installation of overhead steam supply and condensate return piping.	LF/M	Length of system
19 05 03	UNDERGROUND HOT WATER SYSTEMS This includes installation of underground hot water supply and return	LF/M	Length of system

pipng.

19 05 04	UNDERGROUND STEAM SYSTEMS This includes installation of under-ground steam supply and condensate return piping.	LF/M	Length of system
19 05 05	TRENCHBOXES This includes installation of pre-fabricated trenchboxes for shoring during installation of piping.	LF/M	Length of trench
19 05 9X	OTHER HEATING Heating distribution not described by the assembly categories listed above.	XX	
19 06	COOLING DISTRIBUTION SYSTEMS This includes construction and installation of chilled water distribution systems.	LF/M	Length of system
19 06 01	OVERHEAD COOLING SYSTEMS This includes installation of overhead chilled water supply and return piping.	LF/M	Length of system
19 06 02	UNDERGROUND COOLING SYSTEMS This includes installation of under-ground chilled water supply and return piping.	LF/M	Length of system
19 06 03	TRENCHBOXES This includes installation of pre-fabricated trenchboxes for shoring during installation of piping.	LF/M	Length of trench
19 06 9X	OTHER COOLING Cooling distribution not described by the assembly categories listed above.	XX	
19 07	NATURAL & PROPANE GAS DISTRIBUTION SYSTEMS This includes piping and storage tanks for propane systems and piping for natural gas systems.	LF/M	Length of system
19 07 01	GAS DISTRIBUTION PIPING This includes piping for distribution of natural or propane gas.	LF/M	Length of piping
19 07 02	GAS STORAGE TANKS This includes installation of tanks for propane and natural gases.	GAL/L	Volume of tank
19 07 03	TRENCHBOXES This includes installation of pre-	LF/M	Length of trench

	fabricated trenchboxes for shoring during installation of piping.		
19 07 9X	OTHER GAS DISTRIBUTION Gas distribution not described by the assembly categories listed above.	XX	
19 08	BUILDING FUEL DISTRIBUTION SYSTEMS This includes installation of piping and storage tanks for building fuels.	GAL/L	Volume of storage
19 08 01	FUEL DISTRIBUTION PIPING This includes installation of piping for fuel oil distribution.	LF/M	Length of piping
19 08 02	FUEL STORAGE TANKS This includes installation of buried or above ground fuel oil tanks.	GAL/L	Volume of tank
19 08 03	FUEL DISPENSING STATIONS	EA	Each station
19 08 04	TRENCHBOXES This includes installation of pre-fabricated trenchboxes for shoring during installation of piping.	LF/M	Length of trench
19 08 9X	OTHER FUEL Fuel not described by the assembly categories listed above.	XX	
19 9X	OTHER CIVIL/MECHANICAL UTILITIES Any civil/mechanical utilities not covered in the subsystems listed above.	XX	
20	SITE ELECTRICAL UTILITIES This system includes exterior electrical systems and equipment including substations, overhead and underground distribution systems, metering systems and equipment, exterior lighting, lightning protection systems, communication and alarm systems, and cathodic protection.	EA	System Total
20 01	SUBSTATIONS This subsystem includes substation equipment and materials required from the primary power source	KVA/KVA	Total rated capacity
20 01 01	TRANSFORMERS Electric power transformers used in conjunction with electrical substations. May include pole/tower or pad mounted transformers. (See 20 02 01 for other transformers)	KVA/KVA	Total rated capacity

20 01 02	SWITCHGEAR, VOLTAGE REGULATORS & BUSSBARS Includes all components of switchgear, voltage regulators and bussbars used with electrical substations. (See 20 02 for general switches, controls, and devices.)	EA	Number of separate components
20 01 03	OVERHEAD ELECTRIC CONDUCTORS Includes conductors used in conjunction with substations. (See 20 02 for general exterior electrical distribution systems.)	LF/M	Length of conductor
20 01 04	TOWERS, POLES, CROSSARMS & INSULATORS Towers, poles, crossarms, and insulators used in conjunction with the substation. (See 20 02 for towers, poles, etc. associated with exterior electric distribution systems.)	EA	Number of towers and poles
20 01 05	UNDERGROUND ELECTRIC CONDUCTORS Includes conductors used in conjunction with substations. (See 20 02 04 for general underground electrical distribution systems.)	LF/M	Length of conductor
20 01 06	DUCTBANKS, MANHOLES, & HANDHOLES Components used in conjunction with substations. (See 20 02 06 for components used for general underground distribution systems.)	EA	Number ductbanks and access points
20 01 07	LIGHTNING ARRESTING SYSTEMS Lightning arresting systems used to protect substations. Lightning arresting systems for buildings, power distribution, and other electrical systems and subsystems are included with those other systems.	EA	Number of systems
20 01 08	GROUNDING SYSTEMS Grounding systems used in conjunction with substations. Grounding systems for buildings, power distribution, and other electrical systems and subsystems are included with those other systems.	EA	Number of systems
20 01 9X	OTHER SUBSTATION Substation not described by the assembly categories listed above.	XX	
20 02	EXTERIOR ELECTRICAL DISTRIBUTION Exterior electrical transmission and distribution systems including trans-	LF/M	Total length of distribution

formers, conductors, switches, controls and other devices, supporting structures, grounding systems, metering and all other equipment required to support electric power distribution projects.

20 02 01	TRANSFORMERS Electric power transformers used in conjunction with exterior electrical distribution. May include pole/tower or pad mounted transformers.	KVA/KVA	Total rated capacity
20 02 02	SWITCHES, CONTROLS, & DEVICES Includes all components for switches, controls and devices for exterior electrical distribution.	EA	Number of devices
20 02 03	OVERHEAD ELECTRIC CONDUCTORS Includes conductors for overhead exterior electrical distribution.	LF/M	Length of conductor
20 02 04	TOWERS, POLES, CROSSARMS & INSULATORS Includes towers, poles, crossarms, and insulators used in exterior electrical distribution.	EA	Number of towers and poles
20 02 05	UNDERGROUND ELECTRIC CONDUCTORS Includes conductors for underground electrical distribution.	LF/M conductor	Length of conductor
20 02 06	DUCTBANKS, MANHOLES, HANDHOLES & RACEWAYS Includes all components used in conjunction with exterior electrical distribution.	EA	Number of duckbank and access points
20 02 07	GROUNDING SYSTEMS Grounding systems used in conjunction with exterior electrical distribution.	EA	Number of systems
20 02 08	METERING Includes components used in conjunction with exterior electrical distribution.	EA	Number of meters
20 02 9X	OTHER ELECTRIC TRANSMISSION & DISTTIBUTION Includes components used for transmission and distribution of other exterior electrical distribution.	XX	Number of other components
20 03	EXTERIOR LIGHTING This subsystem includes transformers, conductors, poles, lights, ductbanks, grounding systems, and all other equipment required for exterior	SY/SQM	Area of lighted space

lighting.

20 03 01	TRANSFORMERS Includes transformers, pole/tower, or pad mounted used in conjunction with exterior lighting.	KVA/KVA	Total rated capacity
20 03 02	OVERHEAD ELECTRIC CONDUCTORS Includes conductors used for overhead electrical distribution in conjunction with exterior lighting.	LF/M	Total length of conductor
20 03 03	TOWERS, POLES, CROSSARMS & INSULATORS Includes tower, poles, crossarms, and insulators used in conjunction with exterior lighting.	EA	Number of towers and poles
20 03 04	UNDERGROUND ELECTRIC CONDUCTORS Includes conductors used for underground electrical distribution in conjunction with exterior lighting.	LF/M	Total length of conductor
20 03 05	DUCTBANKS, MANHOLES & HANDHOLES Includes all components used in conjunction with exterior lighting.	EA	Number of duct-bank and access points
20 03 06	EXTERIOR LIGHTING FIXTURES & CONTROLS Includes fixtures, controls, and all components used in conjunction with exterior lighting.	EA	Number of fixtures
20 03 07	GROUNDING SYSTEMS Grounding systems used in conjunction with exterior lighting.	EA	Number of systems
20 03 08	SPECIAL SECURITY LIGHTING SYSTEMS Includes all components used for special security lighting.	EA	Number of systems
20 03 9X	OTHER AREA LIGHTING Includes components and equipment used for area lighting.	XX	
20 04	EXTERIOR COMMUNICATIONS & ALARM SYSTEMS This subsystem includes cables, duct banks, manholes, and all other equipment required to support exterior communication and alarm systems.	LF/M	Total length of distribution
20 04 01	TELEPHONE SYSTEMS Includes all components, cables, and equipment used in conjunction with exterior telephone systems.	LF/M	Total length of distribution

20 04 02	SOUND SYSTEMS Includes all components, cables, and equipment used in conjunction with exterior sound systems.	LF/M	Total length of distribution
20 04 03	FIRE ALARM SYSTEMS Includes all components, cables, and equipment used in conjunction with exterior fire alarm systems.	LF/M	Total length of distribution
20 04 04	CABLE TV SYSTEMS Includes all components, cables, and equipment used in conjunction with exterior cable TV systems.	LF/M	Total length of distribution
20 04 9X	OTHER COMMUNICATION & ALARM Includes all components, cables, and equipment used in conjunction with other special communication and alarm systems not defined above.	XX	Total length of distribution
20 05	EXTERIOR SECURITY SENSORS & TV MONITORING SYSTEMS This system includes cables, ductbanks, manholes, poles, cameras, monitors, and all components used in conjunction with exterior monitoring systems.	STA	Number of monitor and view stations
20 05 01	CABLES & WIRING Includes cables, wiring, and equipment used in conjunction with exterior security systems.	LF/M	Total length of conductors
20 05 02	DUCTBANKS, MANHOLES & HANDHOLES Includes ductbanks, manholes, handholes used in conjunction exterior security systems.	EA	Number of duct-bank and access points
20 05 03	TOWERS, POLES, & STANDS Includes towers, poles, stands, and equipment used in conjunction with exterior security systems.	EA	Number of towers poles, and stands
20 05 04	TV CAMERAS & MONITORS Includes cameras, monitors, and components used in conjunction with exterior security systems.	EA	Number of cameras and monitors
20 05 05	GROUNDING SYSTEMS Grounding systems used in conjunction with exterior security systems.	EA	Number of systems
20 05 9X	OTHER SECURITY SYSTEMS Includes all components and equipment	XX	Number of systems

used in conjunction with special security systems not defined above.

20 06	CATHODIC PROTECTION This system includes sacrificial anodes, induced current conductors, and components used in conjunction with cathodic protection.	LF/M	Length of Conductor
20 06 01	SACRIFICIAL ANODE SYSTEM Includes all components required in conjunction with sacrificial anode system.	EA	Number of anodes
20 06 02	INDUCED CURRENT SYSTEM Includes conductor and termination required for cathodic protection.	LF/M	Length of Conductor
20 06 9X	OTHER CATHODIC PROTECTION Includes components and equipment used in conjunction with other cathodic protection systems not defined above.	XX	Number of systems
20 9X	OTHER ELECTRICAL UTILITIES This system includes devices, supporting structures, equipment, and all components required to support special electrical utilities.	XX	

EXHIBIT B (SAMPLE FINAL ESTIMATE)

EXHIBIT C (SAMPLE SPREADSHEETS)

EXHIBIT D (SAMPLE COST RATIONALE)

RATIONALE FOR CONSTRUCTION COST ESTIMATE

PROJECT TITLE :

ACTIVITY & LOCATION :

DATE OF ESTIMATE :

CONSTRUCTION CONTRACT NO. :

COST ENGINEER & PHONE NO. :

1. THE PROJECT SCOPE REQUIRES:

- a.
- b.
- c.
- d.

2. THE DEGREE OF DIFFICULTY OF THIS PROJECT IS
_____ DUE TO
_____.

3. THE SOURCES OF COST DATA USED ARE : (EXAMPLES - MEANS, UPB,
PREVIOUS PROJECT , ETC)

- a.
- b.
- c.

EXHIBIT E (ESCALATION RATES)

NAVFAC CONSTRUCTION COST INDEX

HISTORICAL AND PROJECTED

MARCH 1996

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEP	OCT	NOV	DEC	% INCR (ANNUAL)
1985	2410	2414	2406	2405	2411	2429	2448	2442	2440	2441	2446	2439	1.29
1986	2440	2446	2447	2458	2479	2493	2499	2498	2504	2511	2511	2511	2.95
1987	2515	2510	2518	2523	2524	2525	2536	2557	2565	2569	2564	2589	3.11
1988	2574	2576	2586	2591	2592	2595	2538	2611	2612	2612	2616	2617	1.08
1989	2619	2613	2616	2620	2621	2626	2631	2640	2668	2672	2675	2679	2.37
1990	2673	2674	2684	2684	2697	2725	2725	2721	2729	2728	2730	2719	1.49
1991	2719	2716	2726	2736	2723	2733	2757	2792	2785	786	2791	2784	2.39
1992	2780	2779	2799	2809	2828	2838	2845	2854	2857	2867	2873	2875	3.27
1993	2886	2886	2916	2976	3071	3066	3038	3014	3009	3016	3029	3046	5.95
1994	3071	3106	3116	3127	3125	3115	3107	3109	3116	3116	3109	3110	2.10
1995	3112	3111	3103	3100	3096	3095	3114	3121	3109	3117	3131	3128	0.58
1996	3127	3131	3135	3140p	3145p	3151p	3156p	3161p	3167p	3172p	3178p	3184p	1.79
1997	3189p	3195p	3201p	3207p	3213p	3219p	3225p	3231p	3236p	3242p	3248p	3254p	2.20
1998	3261p	3267p	3273p	3280p	3286p	3292p	3298p	3305p	3311p	3317p	3323p	3329p	2.30
1999	3335p	3341p	3347p	3354p	3360p	3366p	3372p	3378p	3384p	3391p	3397p	3403p	2.22
2000	3409p	3415p	3422p	3428p	3434p	3441p	3447p	3453p	3459p	3466p	3472p	3478p	2.20

Projected Indices are followed by the letter p

$$\text{Escalation Factor} = \frac{\text{Index of the "escalated to" date}}{\text{Index of the "escalated from" date}}$$

HISTORICAL INDICES ARE BASED UPON THE ENGINEERING NEWS RECORD BUILDING COST INDEX. PROJECTED INDICES ARE BASED ON OFFICIAL OASD PROJECTED RATES AS FOLLOWS:

FY	% PER YEAR	% PER MONTH
FY96	2.0	0.167
FY97	2.2	0.183
FY98	2.3	0.192
FY99	2.2	0.183
FY00	2.2	0.183

MORE INFORMATION CONTACT: MR. MOHSEN ATHARI, NAVFAC, CODE 152, DSN 221-0451; COMMERCIAL (703) 325-0451

EXHIBIT F (SUCCESS LICENSING AGREEMENT)

SOFTWARE USER AGREEMENT FOR SUCCESS ESTIMATING and COST MANAGEMENT SYTEM and/or Current Southern Division Databases

Licensed to the Naval Facilities Engineering Command by U.S. Cost Incorporated of Atlanta, Georgia under contract No. N62467-9 -C- and provided to the undersigned for use on the referenced contract.

INSTRUCTIONS: The undersigned shall read, agree to abide by the following conditions, sign, date, and immediately return this agreement to SOUTHNAVFAC CODE 077 .

Southern Division hereby provides the SUCCESS estimating software, Users Manual and/or the current Southern Division databases to be used in the preparation of construction cost estimates under contract No. N62467-9 -C-

With the acceptance of the software SUCCESS Version 3.0 and/or the _____ database(s), the undersigned agrees to uphold the following license agreements:

1. You may use the program, documentation and database(s) for the above referenced contract only. You may not provide the program, documentation or database(s) to others except for use on the above referenced contract. All databases are provided **FOR OFFICIAL USE ONLY** and shall be protected as such. Upon completion of said contract, the program, documentation, and/or Southern Division database(s) shall be returned to SOUTHNAVFACENGCOM, Cost Engineering Division (Code 077), , P.O. BOX 190010, 2155 Eagle Drive, North Charleston, SC 29419-9010

YOU MAY NOT USE, COPY, MODIFY, OR TRANSFER THE PROGRAM, DATABASE(S), OR DOCUMENTATION, OR ANY COPY, EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT.

2. BACKUP AND TRANSFER: You may make one (1) copy of the program solely for backup purposes. You must reproduce and include the copyright notice on the backup copy. Upon completion of said contract, the backup copy shall be destroyed.

3. ACKNOWLEDGEMENT: I THE UNDERSIGNED, AS AN OFFICIAL OF THE CONTRACTOR OF SAID CONTRACT, ACKNOWLEDGE THAT I HAVE READ THIS AGREEMENT, UNDERSTAND IT, AND AGREE TO BE BOUND BY ITS TERMS AND CONDITIONS.

Print Name: _____

Signed: _____ Date: _____

Telephone (____) _____

EXHIBIT G (SAMPLE DD1391 PLUS)

EXHIBIT H (SAMPLE PARAMETRIC COST ESTIMATE - PCE)