

# **ATTACHMENTS FOR CONTRACT SECTION J**

## **ENGINEERING INSTRUCTIONS**

**Updated August 2006**

## SECTION J

### LIST OF ATTACHMENTS

1. FORMS TO RECEIVE A TEMPORARY PASS. (Pages 3-5)
2. PAYMENT FORMS. (Pages 6-16)
3. Unified Facilities Criteria (UFC 3-700-2A, 1 March 2005), Design: Construction Cost Estimates. (Pages 17-20)
4. DISTRICT CADD GUIDELINES-July 2003 (Pages 21-25) or <http://iss.poa.usace.army.mil/cadd>
5. AE SPECIFICATIONS MANUAL w/attachments listed below. (11 July 2006) (Pages 26-30)
6. ER 1110-345-700 (30 May 97) w/ Appendix A (References), Appendix B, Design Analysis, and Appendix C, Drawings (Pages 31-74)
7. ER 415-1-10(15 April 1997), Contractor Submittal Procedures. (Pages 75-80)
8. ER 1110-1-8155 (10 October 2003), Specifications. (Pages 81-90)
9. SP/100, Specifying for the Federal Government. (Pages 91-99)
10. Electronic Bid Set Manual (2 Aug 2004). (Page 100)
11. EP 715-1-7 (31 Jul 02), AE Contracting, Chapter 6, Performance Evaluation. (Pages 101-109)
12. Fee proposal and profit forms. (Pages 110-111)
13. Uniform Facilities Criteria (UFC 1-200-01, 20 June 2005) – Design: General Building Requirements. (Pages 112-126)
14. Alaska Department of Environmental Conservation (ADEC) coordination. (Pages 127-208)
15. Reference Websites:

Architect-Engineer Contract Administration Support System (ACASS): <http://cpars.navy.mil/acassmain.htm>

Army Technical Manuals – <http://www.usace.army.mil/inet/usace-docs/armytm/>

Technical Information: Facilities Design - <http://www.hnd.usace.army.mil/techinfo/>

Engineering Regulations – [www.usace.army.mil/inet/usace-docs/eng-regs/cemp.htm](http://www.usace.army.mil/inet/usace-docs/eng-regs/cemp.htm)

Engineering Technical Letters – [www.usace.army.mil/inet/usace-docs/eng-tech-ltrs/etl-mp.html](http://www.usace.army.mil/inet/usace-docs/eng-tech-ltrs/etl-mp.html)

Americans with Disabilities Act – <http://www.usdoj.gov/crt/ada/adahom1.htm>

UFAS – <http://www.access-board.gov/ufas/ufas-html/ufas.htm>

Alaska District – <http://www.poa.usace.army.mil/>

Technical Instructions - <http://www.hnd.usace.army.mil/techinfo/ti.htm>

**With the implementation of the Uniform Facilities Guide Specifications (UFGS), all references to the old Corps of Engineers Guide Specifications (CEGS) for Military Construction in any of the above documents are superseded. Updates containing references to the new UFGS will be incorporated as they become available.**

**Note: For any reference to MIL-HDBK-1008C, UFC 3-600-01 shall be considered the correct reference.**

Point of contact in the Alaska District for questions about this document is Stephen Eldridge, CEPOA-EN-ES-CT, (907) 753-5696.

### **Vehicle Pass Information**

To obtain a base pass, please contact the appropriate contract specialist or contracting officer for this contract and request the electronic form (see the following example form). DO NOT submit the form manually (either by fax or mail). Only electronic forms will be accepted.



**A L A S K A D I S T R I C T**

Headquarters, Alaska District  
 U.S. Army Corps of Engineers  
 2204 3rd Street

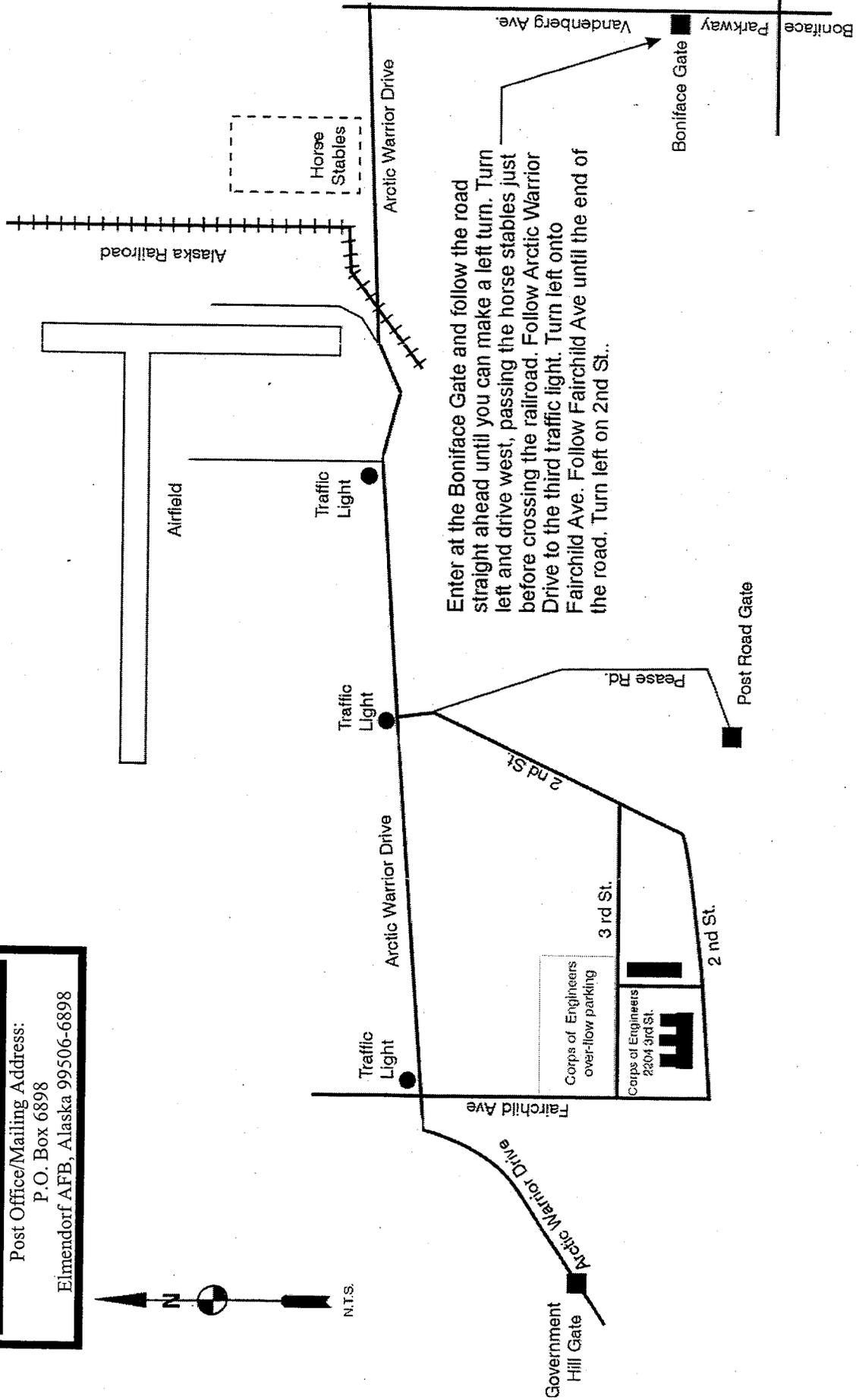
Elmendorf AFB, Alaska 99506-1538

[Above street address effective May 1, 1999]

Post Office/Mailing Address:  
 P.O. Box 6898

Elmendorf AFB, Alaska 99506-6898

**Special Advisory: Most Visitors must use the Boniface Gate to enter Elmendorf Air Force Base. The only exception is for vehicles which have valid Department of Defense vehicle identification stickers, or acceptable military credentials. Base speed limits are strictly enforced.**



# INSTRUCTIONS FOR PREPARING PAYMENT ESTIMATE FORMS (ENG FORM 93)

## 1. Documents which should be available to you:

a. Each award document: Contract, modifications to the contract, task orders and modifications to each task order.

b. Previous payment estimate(s).

## 2. General Guidelines:

a. If possible, pay estimates should not be for less than \$5,000 (excluding final pay requests). See section G, "Contract Administration Data," paragraph 14 entitled, "Method of Payment."

b. Pay estimates may not be submitted more often than every 30 days. See section I, contract clause (52.232-10) entitled, "Payments under Fixed-Price AE Contracts."

c. For indefinite delivery AE contracts (DACA85-01-D-xxxx), submit separate pay estimates for each task order and its modifications. EXCEPTION: Pay estimates on task orders on project specific contracts (DACA85-01-C-xxxx) need not be submitted separately.

d. FINAL PAYMENTS: When the project is complete, your final pay estimate submission **must** be accompanied by an originally signed Release of Claims. The Alaska District may retain a percentage of the final payment to hold the project open for an undetermined time period if it is deemed to be in the best interest of the government.

e. Please submit ONE (1) pay estimate with **original signature** in block 12. Do not submit additional copies of pay estimates and associated documentation. They will be discarded.

f. Please review and ensure that your math is correct.

g. Please use one envelope when sending multiple pay estimates. **Direct all submissions to the following address:**

**U.S. Army Engineer District, Alaska  
ATTN: Engineering Division, Engineering Contract Services Section  
(CEPOA-EN-ES-CT), Room 292  
POB 6898  
Elmendorf AFB, AK 99506-6898**

h. If you have ANY questions, please call: (907) 753-5783; or fax (907) 753-2878.

# INSTRUCTIONS FOR PREPARING PAYMENT ESTIMATE FORMS (ENG FORM 93)

## 3. Hints in Preparing the Pay Estimate:

- a. Payments are based upon the percentage of work that has been completed.
- b. List each modification (and task orders on project specific contracts) as a separate line item. See example entitled, "Basic Award w/Mod."

## **ALWAYS REMEMBER THE SIX P'S OF PAY ESTIMATES**

**PROPER  
PAY ESTIMATE  
PREPARATION  
PROMOTES  
PROMPT  
PAYMENT**

RELEASE OF CLAIMS  
Sole Proprietorship

The undersigned Architect-Engineer under Contract No. \_\_\_\_\_,  
Task Order \_\_\_\_\_ dated \_\_\_\_\_, between the United States of America and  
said Architect-Engineer for \_\_\_\_\_  
located at \_\_\_\_\_, hereby releases the United States, its officers,  
agents, and employees from any and all claims arising under or by virtue of said Contract or any  
modification or change thereof.

Executed at \_\_\_\_\_ on this date of \_\_\_\_\_.

FIRM NAME: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

RELEASE OF CLAIMS  
Corporation

The undersigned Architect-Engineer under Contract No. \_\_\_\_\_,  
Task Order \_\_\_\_\_ dated \_\_\_\_\_, between the United States of America  
and said Architect-Engineer for \_\_\_\_\_  
located at \_\_\_\_\_, hereby releases the United States, its officers,  
agents, and employees from any and all claims arising under or by virtue of said Contract or any  
modification or change thereof.

Executed at \_\_\_\_\_ on this date of \_\_\_\_\_.

FIRM NAME: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

RELEASE OF CLAIMS  
Partnership

The undersigned Architect-Engineer under Contract No. \_\_\_\_\_,  
Task Order \_\_\_\_\_ dated \_\_\_\_\_, between the United States of America and  
said Architect-Engineer for \_\_\_\_\_  
located at \_\_\_\_\_, hereby releases the United States, its officers,  
agents, and employees from any and all claims arising under or by virtue of said Contract or any  
modification or change thereof.

Executed at \_\_\_\_\_ on this date of \_\_\_\_\_.

FIRM NAME: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

This is to certify that the names and signatures of all partners are listed below and that the person who signed this contract had authority to actually bind the partnership pursuant to its partnership agreement. Each individual partner has authority to enter into and execute contractual instruments on behalf of said partnership with the United States of America as noted below:

PRINT TO TYPE NAME	SIGNATURE	AUTHORITY*
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

\*NOTE:  
Full – Full authority to bind partnership.  
Partial – Limited authority (please describe).  
None – No authority.

RELEASE OF CLAIMS  
Joint Venture

The undersigned Architect-Engineer under Contract No. \_\_\_\_\_,  
Task Order \_\_\_\_\_ dated \_\_\_\_\_, between the United States of America and  
said Architect-Engineer for \_\_\_\_\_  
located at \_\_\_\_\_, hereby releases the United States, its officers,  
agents, and employees from any and all claims arising under or by virtue of said Contract or any  
modification or change thereof.

Executed at \_\_\_\_\_ on this date of \_\_\_\_\_.

FIRM No 1. NAME: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

FIRM No 2. NAME: \_\_\_\_\_

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

**PAYMENT ESTIMATE - CONTRACT PERFORMANCE**  
 For use of this form, see ER 37-2-10 and 37-345-10.

		1. DATE			SHEET ___ of ___
2. CONTRACTOR AND ADDRESS		3. CONTRACT NO.		4. DISTRICT	
5. DESCRIPTION OF WORK		6. APPROPRIATION AND PROJECT			
8. LOCATION		9. PERIOD COVERED BY THIS ESTIMATE FROM _____ THRU _____		10. JOB ORDER NO. _____	
		11. ESTIMATE NO. _____			
ITEM NO. a	DESCRIPTION b	QUANTITY AND UNIT c	UNIT PRICE d	AMOUNT e	TOTAL TO DATE
					QUANTITY AND UNIT f
					AMOUNT g
INCLUDES MODIFICATION THRU: _____ \$					
TOTAL CONTRACT → \$					
TOTAL EARNINGS TO DATE → \$					
14. A. PREVIOUS DEDUCTIONS OTHER THAN RETAINED PERCENTAGE**					
B. PREVIOUS RETAINED PERCENTAGE					
C. PREVIOUS PAYMENTS					
D. PREVIOUS EARNINGS (A + B + C)					
E. EARNINGS THIS PERIOD (TOTAL EARNINGS TO DATE MINUS D)					
F. LESS RETAINED PERCENTAGE					
G. LESS DEDUCTION OTHER THAN RETAINED PERCENTAGE FOR					
H. TOTAL DEDUCTIONS FOR THIS PERIOD (F + G)					
I. RETAINAGE REFUNDED					
J. OTHER REFUNDS					
K. TOTAL REFUNDS THIS PERIOD					
L. AMOUNT DUE CONTRACTOR (E - H + K)					
15. RECAPITULATION:					
TOTAL PAID (C + L)					
TOTAL RETAINED PCTG. (B + F - I)					

12. PRESENTED FOR PAYMENT

PAYEE \_\_\_\_\_ PER \_\_\_\_\_

DATE \_\_\_\_\_ TITLE \_\_\_\_\_

13. APPROVED FOR PAYMENT

I CERTIFY that I have checked the quantities covered by this bill or estimate; that the work was actually performed; that the quantities are correct and consistent with all previous computations as actually checked; that the quantities and amounts are wholly consistent with the requirements of the contract or other instrument involved.

SIGNATURE \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONTRACTING OFFICER APPROVAL (Signature) \_\_\_\_\_ DATE \_\_\_\_\_

PAYMENT ESTIMATE - CONTRACT PERFORMANCE (Continuation)		3. CONTRACT NO.		SHEET	OF	
2. CONTRACTOR AND ADDRESS		9. PERIOD COVERED BY THIS ESTIMATE				
		FROM	THRU			
ITEM NO. a	DESCRIPTION b	CONTRACT			TOTAL TO DATE	
		QUANTITY AND UNIT c	UNIT PRICE d	AMOUNT e	QUANTITY AND UNIT f	AMOUNT g

PAYMENT ESTIMATE - CONTRACT PERFORMANCE For use of this form, see ER 37-2-10 and 37-345-10.		1. DATE *Today's Date*		SHEET <u>1</u> of <u>1</u>		
2. CONTRACTOR AND ADDRESS XYZ & Associates, 987 K Street, Anchorage, Alaska, 99501		3. CONTRACT NO. DACA85-02-D-00**		4. DISTRICT Alaska		
5. DESCRIPTION OF WORK Structural Analysis, Building 10-200		6. APPROPRIATION AND PROJECT				
8. LOCATION Elmendorf AFB, Alaska		9. PERIOD COVERED BY THIS ESTIMATE FROM 1 May 02 THRU 31 May 02		10. JOB ORDER NO. 0001		
9. PERIOD COVERED BY THIS ESTIMATE FROM 1 May 02 THRU 31 May 02		CONTRACT		11. ESTIMATE NO. 1		
ITEM NO. a	DESCRIPTION b	QUANTITY AND UNIT c	UNIT PRICE d	AMOUNT e	QUANTITY AND UNIT f	AMOUNT g
1	Task Order #0001	1	JOB	\$30,253.00	25%	\$7,563.00
EXAMPLE		EXAMPLE		EXAMPLE		EXAMPLE
EXAMPLE		EXAMPLE		EXAMPLE		EXAMPLE
INCLUDES MODIFICATION THRU:						
12. PRESENTED FOR PAYMENT		TOTAL CONTRACT		TOTAL EARNINGS TO DATE		
PAYEE	PER	→ \$ 30,253.00		→ \$ 7,563.00		
XYZ & Associates	*Original Signature* James P. Smith	14. A. PREVIOUS DEDUCTIONS OTHER THAN RETAINED PERCENTAGE**				
DATE	TITLE	B. PREVIOUS RETAINED PERCENTAGE				
1 Jun 02	President	C. PREVIOUS PAYMENTS				
13. APPROVED FOR PAYMENT		D. PREVIOUS EARNINGS (A+B+C)				
I CERTIFY that I have checked the quantities covered by this bill or estimate; that the work was actually performed; that the quantities are correct and consistent with all previous computations as actually checked; that the quantities and amounts are wholly consistent with the requirements of the contract or other instrument involved.		E. EARNINGS THIS PERIOD (TOTAL EARNINGS TO DATE MINUS D)		\$7,563.00		
		F. LESS RETAINED PERCENTAGE				
		G. LESS DEDUCTION OTHER THAN RETAINED PERCENTAGE FOR				
		H. TOTAL DEDUCTIONS FOR THIS PERIOD (F+G)				
SIGNATURE		I. RETAINAGE REFUNDED				
TITLE		J. OTHER REFUNDS				
DATE		K. TOTAL REFUNDS THIS PERIOD				
CONTRACTING OFFICER APPROVAL (Signature)		L. AMOUNT DUE CONTRACTOR (E - H+K)				
DATE		15. RECAPITULATION:		TOTAL PAID (C+L)		
		TOTAL RETAINED PCTG. (B + F - I)				

<b>PAYMENT ESTIMATE - CONTRACT PERFORMANCE</b> For use of this form, see ER 37-2-10 and 37-345-10.		1. DATE <b>*Today's Date*</b>	SHEET <u>1</u> of <u>1</u>				
2. CONTRACTOR AND ADDRESS XYZ & Associates, 987 K Street, Anchorage, Alaska, 99501		3. CONTRACT NO. DACA85-02-D-00**					
4. DISTRICT Alaska		5. DESCRIPTION OF WORK Structural Analysis, Building 10-200					
6. APPROPRIATION AND PROJECT		7. REQUIRED COMPLETION DATE					
8. LOCATION Elmendorf AFB, Alaska		9. PERIOD COVERED BY THIS ESTIMATE FROM 1 May 02 THRU 31 May 02					
ITEM NO. a	DESCRIPTION b	QUANTITY AND UNIT c	UNIT PRICE d	AMOUNT e	QUANTITY AND UNIT f	AMOUNT g	
1	Task Order #0001	1	JOB	\$30,253.00	25%	\$7,563.00	
2	Modification #1	1	JOB	\$10,500.00	15%	\$1,575.00	
EXAMPLE		EXAMPLE		EXAMPLE		EXAMPLE	
10. JOB ORDER NO. 0001							11. ESTIMATE NO. 2
12. PRESENTED FOR PAYMENT PER *Original Signature* XYZ & Associates James P. Smith							TOTAL CONTRACT → \$ 40,753.00
13. APPROVED FOR PAYMENT I CERTIFY that I have checked the quantities covered by this bill or estimate; that the work was actually performed; that the quantities are correct and consistent with all previous computations as actually checked; that the quantities and amounts are wholly consistent with the requirements of the contract or other instrument involved.							TOTAL EARNINGS TO DATE → \$ 9,138.00
SIGNATURE _____ DATE _____							14. A. PREVIOUS DEDUCTIONS OTHER THAN RETAINED PERCENTAGE**
CONTRACTING OFFICER APPROVAL (Signature) _____ DATE _____							B. PREVIOUS RETAINED PERCENTAGE
_____							C. PREVIOUS PAYMENTS \$7,563.00
_____							D. PREVIOUS EARNINGS (A+B+C) \$7,563.00
_____							E. EARNINGS THIS PERIOD (TOTAL EARNINGS TO DATE MINUS D) \$1,575.00
_____							F. LESS RETAINED PERCENTAGE
_____							G. LESS DEDUCTION OTHER THAN RETAINED PERCENTAGE FOR
_____							H. TOTAL DEDUCTIONS FOR THIS PERIOD (F+G)
_____							I. RETAINAGE REFUNDED
_____							J. OTHER REFUNDS
_____							K. TOTAL REFUNDS THIS PERIOD
_____							L. AMOUNT DUE CONTRACTOR (E - H+K)
15. RECAPITULATION: TOTAL RETAINED PCTG. (B + F - I)							TOTAL PAID (C + L)

PAYMENT ESTIMATE - CONTRACT PERFORMANCE For use of this form, see ER 37-2-10 and 37-345-10.		1. DATE *Today's Date*	SHEET <u>1</u> of <u>1</u>					
2. CONTRACTOR AND ADDRESS XYZ & Associates, 987 K Street, Anchorage, Alaska, 99501		3. CONTRACT NO. DACA85-02-D-00**	4. DISTRICT Alaska					
5. DESCRIPTION OF WORK Structural Analysis, Building 10-200		7. REQUIRED COMPLETION DATE						
8. LOCATION Elmendorf AFB, Alaska		10. JOB ORDER NO. 0001						
9. PERIOD COVERED BY THIS ESTIMATE FROM 1 May 02 THRU 31 May 02		11. ESTIMATE NO. 3 & FINAL						
ITEM NO. a	DESCRIPTION b	QUANTITY AND UNIT c	UNIT PRICE d	AMOUNT e	QUANTITY AND UNIT f	AMOUNT g		
1	Task Order #0001	1	JOB	\$30,253.00	100%	\$30,253.00		
2	Modifications #1	1	JOB	\$10,500.00	100%	\$10,500.00		
EXAMPLE      EXAMPLE      EXAMPLE		EXAMPLE		EXAMPLE		EXAMPLE		
INCLUDES MODIFICATION THRU:							TOTAL CONTRACT → \$ 40,753.00	TOTAL EARNINGS TO DATE → \$ 40,753.00
12. PRESENTED FOR PAYMENT							14. A. PREVIOUS DEDUCTIONS OTHER THAN RETAINED PERCENTAGE**	
PAYEE XYZ & Associates							B. PREVIOUS RETAINED PERCENTAGE	
PER *Original Signature* James P. Smith							C. PREVIOUS PAYMENTS \$9,138.00	
DATE 1 Jun 02							D. PREVIOUS EARNINGS (A + B + C) \$9,138.00	
13. APPROVED FOR PAYMENT							E. EARNINGS THIS PERIOD (TOTAL EARNINGS TO DATE MINUS D) \$31,615.00	
I CERTIFY that I have checked the quantities covered by this bill or estimate; that the work was actually performed; that the quantities are correct and consistent with all previous computations as actually checked; that the quantities and amounts are wholly consistent with the requirements of the contract or other instrument involved.							F. LESS RETAINED PERCENTAGE	
							G. LESS DEDUCTION OTHER THAN RETAINED PERCENTAGE FOR	
							H. TOTAL DEDUCTIONS FOR THIS PERIOD (F + G)	
							I. RETAINAGE REFUNDED	
SIGNATURE							J. OTHER REFUNDS	
TITLE							K. TOTAL REFUNDS THIS PERIOD	
DATE							L. AMOUNT DUE CONTRACTOR (E - H + K)	
CONTRACTING OFFICER APPROVAL (Signature)							15. RECAPITULATION:	
DATE							TOTAL RETAINED PCTG. (B + F - I)	
							TOTAL PAID (C + L)	

# **UNIFIED FACILITIES CRITERIA (UFC)**

---

## **DESIGN: CONSTRUCTION COST ESTIMATES**



**APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED**

**UNIFIED FACILITIES CRITERIA (UFC)**

**DESIGN: CONSTRUCTION COST ESTIMATES**

Any copyrighted material included in this UFC is identified at its point of use. Use of the copyrighted material apart from this UFC must have the permission of the copyright holder.

U.S. ARMY CORPS OF ENGINEERS (Preparing Activity)

Record of Changes (changes are indicated by \1\ ... /1/)

<b>Change No.</b>	<b>Date</b>	<b>Location</b>

---

**This UFC supersedes EI 01D010, dated 1 September 1997. The format of this UFC does not conform to UFC 1-300-01; however, the format will be adjusted to conform at the next revision. The body of this UFC is the previous EI 01D010, dated 1 September 1997.**

## FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD\(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCEA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request \(CCR\)](#). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following sources:

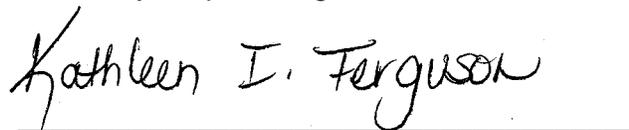
- Unified Facilities Criteria (UFC) Index [http://65.204.17.188//report/doc\\_ufc.html](http://65.204.17.188//report/doc_ufc.html).
- USACE TECHINFO Internet site <http://www.hnd.usace.army.mil/techinfo/index.aspx>.
- NAVFAC Engineering Innovation and Criteria Office Internet site <http://dod.wbdg.org/>.
- Construction Criteria Base (CCB) system maintained by the National Institute of Building Sciences at Internet site <http://www.ccb.org/>.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current.

### AUTHORIZED BY:



DONALD L. BASHAM, P.E.  
Chief, Engineering and Construction Division  
U.S. Army Corps of Engineers



KATHLEEN I. FERGUSON, P.E.  
The Deputy Civil Engineer  
DCS/Installations & Logistics  
Department of the Air Force



DR. JAMES W WRIGHT, P.E.  
Chief Engineer  
Naval Facilities Engineering Command



Dr. GET W. MOY, P.E.  
Director, Installations Requirements and  
Management  
Office of the Deputy Under Secretary of  
Defense  
(Installations and Environment)

**UNIFIED FACILITIES CRITERIA (UFC)**  
**DESIGN: CONSTRUCTION COST ESTIMATES**

The text of this UFC is the previous EI 01D010, dated 1 September 1997. The URL to access the document is:

<http://www.hnd.usace.army.mil/techinfo/ei/EI01D010CostEstimates.pdf>

---

# ALASKA DISTRICT CADD GUIDELINES

## I DRAWING NAME CONVENTION

All drawing names shall be filenames that begin with the project code, abbreviated to five characters, followed by the discipline letter and the sheet number, i.e. FR001A05 for Project FTR001, Architectural sheet A-5, FR171a1\_01 for Project FTR171, Architectural sheet A1.01. The Technical Lead will coordinate the drawing name for each project.

Following is a brief list of abbreviated location codes and typical discipline letters, this list is not complete, but is a guide to the major project locations and disciplines within the Alaska District. Check with the Project Manager for codes not listed here.

<b>Location</b>	<b>Code</b>
Clear Air Station	CR
Elmendorf A.F.B.	EM
Eielson A.F.B.	EE
Earackson A.S.	ER
Ft. Richardson	FR
Ft. Wainwright	FW
Ft. Greely	FG
King Salmon	KL

<b>Discipline</b>	<b>Code</b>
General	G
Location & Vicinity	LV
Survey and Mapping	V
HTRW/Environmental	V
Demolition	D
Civil/Site	C
Civil Works	W
Geotechnical	B
Utilities	U
Landscape Architecture	L
Architectural	A
Interior Design	I
Equipment	Q
Structural	S
Mechanical	M
Plumbing	P
Electrical	E
Fire Protection/Suppression	F
Telecommunications	T
Cathodic Protection	CP
Real Estate	R
Planning	P
Resource	R
Hydrology	H
Other Disciplines	X
Facility Management	N
Contractor/Shop Drawings	Z

## II BORDERS & BACKGROUND DRAWINGS

All projects will use the new border sheet with the vertical border along the right side of the sheet. Sheet size is metric A1(841mm x 594mm) approximately 23" x 33". Civil Works and Master Planning projects have the option of using the metric A0 (1189mm x 841mm) approximately 47" x 33". See Sheet Size chart. There are two orientations for the title block, one for Army projects, one for Air Force and other projects. Coordinate with Project Manager or Technical Lead for correct border.

All changeable text on each of the standard border sheets are attributes and can be edited using DATTE.

A set of AutoCAD© templates is available in various drawing scales in both imperial and metric formats. All border sheets and templates are in the NFM Library COE Standard Drawings and on the ftp site

[ftp://ftp.usace.army.mil/incoming/POA/COE\\_STD\\_DWGS/new\\_borders/](ftp://ftp.usace.army.mil/incoming/POA/COE_STD_DWGS/new_borders/)

These files are self-extracting files.

## III Text

All notes, dimension text, and general text shall be ROMANS. All general text shall have a plotted height of 1/8" or 3mm on a full size plot.

Standard text style for larger text such as titles shall be ROMAND. Title text shall have a plotted height of 1/4" or 6mm on a full size plot.

Keep the styles and fonts to a minimum to minimize the number of fonts. Only standard fonts supplied with AutoCad shall be used, no "third party" fonts shall be used. The District is frequently required to modify and/or plot various drawings created by others and the Contractor is required to use these files for "as built" drawings. Non-standard fonts cause problems opening these files.

## IV Layers

The District is following the standards established by the Tri-Service CADD/GIS Technology Center. The layer naming conventions are based on the recommendations set forth in the American Institute of Architects (1990) publication "CAD Layer Guidelines".

## V Plotting

In order to coordinate plotting, the following drawing colors, pen numbers, and line widths have been standardized. The District plotters have been standardized per the following chart in order to provide uniformity on all plots. The following drawing colors and pen assignments are standard on all District work

Color	Pen #	Line/Pen Width (mm)	Line Type
1 Red	1	.25	Solid
2 Yellow	2	.35	Solid
3 Green	3	.50	Solid
4 Cyan	4	.70	Solid
5 Blue	5	.18	Solid
6 Magenta	6	.35	40% Screen
7 White	7	.35	50% Screen
8 Grey	8	.35	60% Screen
9	9	1.00	Solid
10	10	1.50	Solid
11	11	2.00	Solid

If additional colors are used, all plotter configuration files and a table similar to that above shall be provided in order to ensure that drawings can be plotted with the correct symbology.

## **VI Final Submittal**

Drawing file format: All drawing files submitted to the District shall be Autocad drawing files, \*.dwg extension.

A text file containing a complete list of all sheets with filename, reference number, drawing title, and plotting scale shall be submitted with the drawing files.

All XRefs must be bound to each drawing, not just attached.

Each file shall be a separate drawing. Multiple drawings created in a single file by using various layer schemes shall be converted into separate drawing files.

All drawings using Paperspace & Modelspace shall be in Paperspace mode.

Zoom all drawings to extents.

Drawings shall require no more than a standard version of AutoCAD and the minimum hardware requirements recommended by Autodesk in order to successfully open, manipulate and plot.

If Autodesk or third party extensions are used, drawings must still be provided in a manner consistent with the previous requirement, but they must also be provided with all additional "project" files used by the extension to allow advanced manipulation by others with the same extension.

## **VII Additional Standards and Guidelines**

The Tri-Service CADD/GIS Technology Center has established standards, generic details, and other items of interest concerning use of CADD. The Center can be accessed on the Internet at the following address: <http://tsc.wes.army.mil/>

Various regulations, technical information publications, etc can be accessed on the internet at the TECHINFO page at the following address: <http://www.hnd.usace.army.mil/techinfo/tiindex.html>

All of the standard drawings listed in this document and these standards can be accessed from the District FTP server. Contact the Design Manager for information and permission on use of the FTP server.

## VIII STANDARD SHEET SIZES, SCALES, TEXT SIZES

### METRIC UNIT PROJECTS

#### DRAWING SIZES

Name	Metric Size	Imperial Size	Use
A0	1189 x 841 mm	46.8 x 33.1 inches	Master Planning/Civil Works
A1	841 x 594 mm	33.1 x 23.4 inches	Standard Sheet
A3	420 x 297 mm	16.5 x 11.7 inches	Half Size
A4	297 x 210 mm	11.7 x 8.3 inches	Reports

#### SCALES & TEXT

Metric Scale	Approx. Imperial Scale	Heights for Text		
		Notes and Dimensions	Title Text	Border Dimensions (Limits)
1:200	Close to 1/16"=1'-0"	600 mm	1200 mm	188200 x 118800
1:100	Close to 1/8"=1'-0"	300 mm	600 mm	84100 x 59400
1:50	Close to 1/4"=1'-0"	150 mm	300 mm	42050 x 29700
1:20	Between 1/2"=1'-0" & 3/4"=1'-0"	60 mm	120 mm	16820 x 11880
1:10	Between 1"=1'-0" & 1-1/2"=1'-0"	30 mm	60 mm	8410 x 5940
1:5	Close to 3"=1'-0"	15 mm	30 mm	4205 x 2970
Full Size		3 mm	6 mm	841 x 594

#### UNIT USAGE

For building dimensions use millimeters instead of feet and inches and for large site plans and civil engineering drawings use meters. Unit notations are unnecessary: if there's no decimal point, it's millimeters; if there's a decimal point carried to one, two, or three places, it's meters. Centimeters are not used in construction.

Use only one unit of measure on a drawing. Except for large scale site or cartographic drawings, the unit should be the millimeter(mm).

Delete unit symbols but provide an explanatory note (eg. "All dimensions are shown in millimeters") Whole numbers always indicate millimeters; decimal numbers taken to three places always indicate meters.

Where modules are used, the recommended basic module is 100 mm, which is similar to the 4-inch module used in building construction (4 inches = 101.6 mm).

## IMPERIAL UNIT PROJECTS

### DRAWING SIZES

Name	Imperial Size	Use
A0	46.8 x 33.1 inches	Master Planning/Civil Works
A1	33.1 x 23.4 inches	Standard Sheet
A3	16.5 x 11.7 inches	Half Size
A4	11.7 x 8.3 inches	Reports

### SCALES & TEXT

Imperial Scale	Scale Factor	Heights for Text		Border Dimensions (Limits)
		Notes and Dimensions	Title Text	
1/16" = 1'-0"	192	24"	12"	8064 x 5760
1/8" = 1'-0"	96	12"	6"	4032 x 2880
1/4" = 1'-0"	48	6"	3"	2016 x 1440
1/2" = 1'-0"	24	3"	2"	1008 x 720
3/4" = 1'-0"	16	2"	1.5"	672 x 480
1" = 1'-0"	12	1.5"	1"	504 x 360
1-1/2"=1'-0"	8	1"	.5"	336 x 240
3"=1'-0"	4	.5"	1/8"	168 x 120
Full Size	1	1/8"	1/4"	42 x 30

**ARCHITECT-ENGINEER SPECIFICATIONS MANUAL**  
**US ARMY CORPS OF ENGINEERS, ALASKA DISTRICT**

**July 11, 2006**

Corps Of Engineers, Alaska District  
A-E Specifications Manual  
July 11, 2006

1. **PURPOSE:** This manual is intended for use as the primary guidance document in the preparation of construction specifications for projects under design by Architect-Engineer firms for the Corps of Engineers, Alaska District.
2. **GENERAL:** Each designer shall be responsible for complying with the provisions of this manual, and for coordinating their specifications with their project drawings. In addition, each designer shall be sufficiently familiar with portions of the design prepared by other disciplines to ensure the overall project design is complete and thoroughly coordinated.
3. **REFERENCES:** Construction specifications shall be prepared in accordance with criteria set forth in the following publications.

Military and HTRW Projects

ER-1110-345-700 - Design Analysis, Drawings and Specifications, (copy enclosed)  
(Excluding Appendix D. See ER1110-1-8155 listed below for Appendix D information).

Civil Works Projects

ER 1110-2-1200 - Plans and Specifications for Civil Works Projects (copy enclosed).

All Projects

ER 415-1-10 - Contractor Submittal Procedures (copy enclosed).

ER 1110-1-8155 - Specifications (copy enclosed).

Guidance for the Preparation of the Unified Facilities Guide Specifications for Military Construction (copy enclosed).

Construction Specifications Institute (CSI) Manual of Practice – SP/100 Specifying for the Government (copy enclosed), except as otherwise provided herein.

Other criteria documents specifically designated for the project.

Corps Of Engineers, Alaska District  
A-E Specifications Manual  
July 11, 2006

1. **FORMAT:** Specifications shall be prepared using approved version of Unified Facilities Guide Specifications (UFGS) with Master Format 2004, and SPECSINTACT software. Contact CEPOA-EN-ES-SP for the approved version of SPECSINTACT software. These are available on compact disc from the Construction Criteria Base (CCB), with updates issued quarterly. Annual cost for CCB is approximately \$250. A limited subscription is available at no cost to A-E's under design contracts with the Corps of Engineers. The A-E should prepare a list of technical specifications to be used in the project and coordinate with CEPOA-EN-ES-SP to obtain the approved technical specification data files.
2. **CONTENT:** The specification package shall include a Bid (or Proposal) Schedule and Division 1 through 49 technical specification sections, as applicable. A table of contents for each specification section and a combined submittal register covering all sections shall be included. The Alaska District will incorporate contract administration type Division 1 specification sections into the design.
3. **LOCAL CRITERIA:** The District has developed several "District" guide specs in SPECSINTACT to cover local, repetitive use items. "Addenda" has also been developed for several of the regular UFGS. These items will be provided to the A-E following the concept design stage as applicable for use in preparing specifications for the project.
4. **EDITING:** Each guide specification shall be tailored to meet the specific requirements of the project under design. Non-applicable items shall be consistently deleted throughout the text.

All work by the designer must be precisely delineated in the contract documents (specifications or drawings). Certain requirements in the guide specifications have general applicability to all projects, while other requirements that vary from project to project have blanks to be filled in; alternative words, phrases, or paragraphs to be chosen; or special paragraphs to be added. Where brackets are used to indicate alternative requirements, the parentheses or brackets will be removed from the expression chosen to be a part of the contract specifications.

Final editing tasks shall be performed using the automated features of the SPECSINTACT program including, but not limited to the following:

- a. Renumbering paragraphs to account for added/deleted/text
- b. Checking to ensure bracketed selections have been made
- c. Reconciling standards referenced in the text with those listed in Part 1 of each section

Corps Of Engineers, Alaska District  
A-E Specifications Manual  
July 11, 2006

- d. Checking to ensure that cross-references to other sections are valid (the sections are in fact included in the job)
  - e. Generating a table of contents for each section
  - f. Generating a composite submittal register (ENG Form 4288) with a combined listing of submittals required from all sections.
  - g. Generating reports to confirm that items a. through f. above have been completed.
  - h. Generating a project table of contents.
5. ADDITIONS: If the guide does not cover a feature that is in the project, new sentences and/or paragraphs shall be inserted in the proper locations to adequately cover the feature of work. If a new material is added, it shall be properly referenced in "Applicable Publications" or "References", "Materials," "Submittal," "Tests," and "Installation" paragraphs, as applicable.
6. OTHER REPORTS: The A-E shall submit the following Specsintact reports with each design submittals including 100 percent and Ready to Advertise: Address Verification, Reference Verification, Section Verification, Bracket Verification, Submittal Verification, Submittal Register and any other reports requested by the Corps of Engineers. References shall be reconciled when printing reports. The reports to be submitted for review shall be after the A-E has corrected the errors generated by these reports. From the errors generated by the reference verification reports, fix those errors where there is a discrepancy with the issue date of a publication (i.e., NFPA 70, revise to the latest code requirement). Address, Reference and Submittal Reconciliation shall be completed prior to submittal of the 100 percent design.
7. PRODUCT: Completed specifications shall be provided in both hard copy and on electronic disc in SPECSINTACT. Hard copies of the automated reports referenced in 4g and 6 above shall be included.
8. ALTERNATE SPECIFICATIONS: Where no Unified Facilities Guide Specifications (UFGS) or District specification exists for a required item, the designer shall review other specifications available (Navy, industry, etc.) and, if no appropriate section is found, prepare a new specification title and 5-digit section number shall be created. The new guide specification shall be inserted in the most appropriate division. In accordance with Federal Acquisition Regulation (FAR), use of the "brand name or equal" method of specifying will be allowed only if a more adequate specification or detailed description cannot feasibly be made available by means other than inspection and analysis within the time allotted for

Corps Of Engineers, Alaska District  
A-E Specifications Manual  
July 11, 2006

design. When this method is used, all salient features of the item must be listed. Alternate specifications shall be prepared in the same format as the UFGS (MF 2004).

9. **ATTACHMENT:** Items to be attached to sections of the specifications, such as test reports, boring logs, etc., shall be complete, concise, orderly, and free of contradictions. Portions not germane to the specification shall be so identified and/or excluded, as appropriate. Pages of attachments shall be numbered consecutively as a continuation of the body of the specification section, with the last page of the last attachment marked "End of Section".

10. **CROSS-REFERENCE:** Cross-reference to other paragraphs of the specification by number designation is improper. Reference shall be made to paragraphs by title in lieu of their respective numbers. Cross-reference to other Specification Sections should be made by both number and title.

11. **REFERENCE TO DRAWINGS:** Information noted, "as shown on the drawings", must be correlated with the drawing to assure such information is actually shown on the drawings. Phrases "or as shown on the drawing," "unless otherwise detailed," etc., shall be deleted unless the feature is actually shown or otherwise detailed.

12. **CONFLICTS:** Notes and details on the drawings that conflict with specifications shall be corrected or deleted. Sizes, thicknesses, spacing, etc., must agree with the specifications. Special engineering instructions concerning latest publications and criteria requirements shall take precedence over information furnished in the issued guide specifications. The guide specifications shall be modified accordingly.

13. **AMENDMENTS AND MODIFICATIONS:** Specific instructions shall be obtained from the Alaska District, through CEPOA-EN-ES-SP, on the format to be used in preparing amendments or modifications to the 100 percent design.

14. **ELECTRONIC BID SETS:** On projects to be advertised electronically, coordinate closely with the Project Manager (PM) for additional requirements.

CEMP-EA Regulation No. 1110-345-700	Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000	ER 1110-345- 700  30 May 97
	Engineering and Design  DESIGN ANALYSIS, DRAWINGS AND SPECIFICATIONS	
	<b>Distribution Restriction Statement</b> Approved for public release; distribution is unlimited.	



Regulation  
No. 1110-345-700

30 May 1997

Engineering and Design  
DESIGN ANALYSIS, DRAWINGS AND SPECIFICATIONS

1. Purpose. This regulation provides U.S. Army Corps of Engineers (USACE)-wide consistent criteria and requirements for developing design and engineering documents, such as design analysis, drawings and specifications, necessary for the construction of military construction (MILCON) and/or Hazardous, Toxic and Radioactive Waste (HTRW) projects including EPA Superfund.
  - d. Appendix D, Specifications. This appendix prescribes policy and requirements for the preparation of contract specifications for military and/or HTRW construction projects. It includes USACE guide specifications and project specifications, and procedures for the construction industry to follow when introducing new materials, equipment and methods into HQUSACE guide specifications.
2. Applicability. This regulation is applicable to all USACE Commands having MILCON, and/or HTRW design responsibility.
3. Organization. This regulation is divided into appendices that contain criteria and requirements related to the subject of the respective appendix. Each appendix is structured to provide criteria and requirements applicable to military construction and/or HTRW projects, except as may be otherwise provided for in other Engineer Regulations (ER), design directives or special instructions.
  - a. Appendix A, References. This appendix provides a listing of references used in this regulation.
  - b. Appendix B, Design Analysis. This appendix prescribes requirements and procedures for the preparation of design analysis (basis for design) of military and/or HTRW construction projects.
  - c. Appendix C, Drawings. This appendix prescribes requirements, procedures and drafting standards for the preparation and approval of drawings for military and/or HTRW construction projects. It includes drawings, other than shop drawings, prepared at all stages of design and construction.
4. Distribution. This regulation is approved for public release, distribution is unlimited.
5. General Design Policy. The Commanding General (CG) of the USACE is responsible for design, engineering and construction mission of the Army worldwide. The CG is also responsible for the execution of assigned design and construction programs or projects for other Department of Defense (DoD) agencies, other Federal agencies, and foreign governments. Highest standards of professional skills, experience and management practice are required to support this responsibility. Required facilities and component parts thereof will be carefully sited, designed, and executed so the resulting construction is of the highest quality that could possibly be provided within the cost and time authorized, without sacrificing aesthetics, user requirements, life-cycle

**ER 1110-345-700**

**30 May 97**

economy, energy conservation, environmental protection, or life safety. Additional design policy information is contained in ER 1110-345-100, Design Policy for Military Construction.

6. Proponency. Proponent for this regulation

is the Architectural and Planning Branch, Directorate of Military Programs (CEMP-EA). Comments regarding improvements and/or clarifications should be submitted to the proponent office at HQUSACE, 20 Massachusetts Ave., NW, Washington, DC 20314-1000.

**FOR THE COMMANDER:**

**4 Appendices:**

**APP A - References**

**APP B - Design Analysis**

**APP C - Drawings**

**APP D - Specifications**

**Colonel, Corps of Engineers**

**Chief of Staff**

## APPENDIX A

### REFERENCES

(References used in this regulation)

1. Public Law. Public Law 94-168, Metric Conversion Act of 1975 as amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100-418).
2. Executive Order. Executive Order 12770, 25 July 1991, Metric Usage in Federal Government Programs.
3. Federal Acquisition Regulation.
  - a. FAR, Part 10, Specifications, Standards, and Other Purchase Descriptions. Specifically cited are subparts 10.002, Policy and 10.004, Selecting Specifications or Descriptions for Use.
  - b. Subpart 6.3, Other Than Full and Open Competition.
4. Engineer FAR Supplement. EFARS 14.201-1(a)1, USACE Construction Contract Format.
5. Department of the Army.
  - a. AR 190-13, The Army Physical Security Program.
  - b. AR 190-50, Physical Security for Controlled Medical Substances and Other Medically Sensitive Items.
  - c. AR 200-1, Environmental Protection.
  - d. AR 380-5, Department of the Army Information Security Program Regulation.
  - e. AR 385-60, Coordination With Department of Defense Explosives Safety Board.
  - f. AR 415-1-10, Contractor Submittal Procedures.
  - g. AR 415-11, Air Force Contract Construction.
  - h. AR 415-15, Army Military Construction Program Development and Execution.
  - i. AR 415-17, Cost Estimating for Military Programming.
  - j. AR 415-28, Real Property Category Codes.
  - k. TM 5-802-1, Economic Studies for Military Construction.
6. U.S. Army Corps of Engineers.
  - a. ER 385-1-92, Safety and Occupational Health Document Requirements for HTRW and Ordnance Explosives Waste Activities.
  - b. ER 415-1-10, Contractor Submittal Procedures.
  - c. ER 415-1-11, Biddability, Constructibility and Operability.
  - d. ER 415-345-38, Transfer and Warranties.
  - e. ER 715-1-10, Architect-Engineer Responsibility Management.
  - f. ER 1110-1-12, Quality Management.
  - g. ER 1110-1-263, Chemical Data Quality Management for Remedial Activities.

ER 1110-345-700

30 May 97

h. ER 1110-1-1300, Cost Engineering Policy and General Requirements.

i. ER 1110-1-8152, Professional Registration.

j. ER 1110-3-113, Department of the Army Facilities Standardization Program.

k. ER 1110-3-1300, Military Programs Cost Engineering.

l. ER 1110-3-1301, Cost Engineering Policy and General Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Remedial Action Cost Estimates.

m. ER 1110-345-100, Design Policy for Military Construction.

n. ER 1110-345-122, Interior Design.

o. ER 1180-1-6, Construction Quality Management.

p. ENG Form 3078, Recommended Changes to Engineering Documents.

q. EP 310-1-6, Graphics Standard Manual.

r. EP 1110-1-21, Air Pathways Analysis for Design of HTRW Remedial Action Projects.

s. EP 1110-345-2, Index of Drawings.

t. EM 200-1-2, Technical Project Planning Guidance for HTRW Data Quality Design.

u. Architectural and Engineering Instructions (AEI).

(1) Design Criteria, issued by HQUSACE (CEMP-E). Copies are available from the Huntsville Engineering Support Center (CEHNC-ED-ES-1), P.O. Box 1600, Huntsville, AL 35807-4301.

(2) Medical Design Standards, issued by HQUSACE (CEMP-EM).

(3) Simplified Design Methods, issued by HQUSACE (CEMP-EA).

v. USACE Supplement 1 to AR 190-13, The Army Physical Security Program.

w. USACE Supplement 1 to AR 380-5, Department of the Army Information Security Program Regulation.

#### 7. National Building Codes.

a. International Conference of Building Officials, Uniform Building Code (UBC), 5360 South Workman Mill Road, Whittier, CA 90601.

b. National Fire Protection Association (NFPA) 101, Life Safety Code, Batterymarch Park, Quincy, MA 02269.

#### 8. National Standards Organizations.

a. American National Standards Institute. 28 October 1992. "American National Standard for Metric Practice," ANSI/IEEE 268-1992, IEEE Standards Coordinating Committee 14 on Quantities, Units, and Letter Symbols, New York.

b. American Society for Testing and Materials. 1991. "Standard Practice for the Use of Metric (SI) Units in Building Design and Construction," ASTM E 621-84 (Reapproved 1991), Committee E-6 on Performance of Building Construction, Philadelphia, PA.

c. American Society for Testing and Materials. 1992. "Standard Practice for the Use of the International System of Units (SI) (the Modernized Metric System)," ASTM E 380-92, Committee E-43 on Metric Practice, Philadelphia, PA.

ER 1110-345-700  
30 May 97

d. National Institute of Building Sciences. 1991. "Metric Guide for Federal Construction," Interagency Council on Metric Policy, Washington, DC.

e. MasterFormat™, Construction Specifications Institute (CSI), 601 Madison Street, Alexandria, VA 22314-1791.



## APPENDIX B

### DESIGN ANALYSIS

1. **General.** This appendix prescribes the requirements and procedures for the preparation of design analysis (basis for design) for military and/or HTRW construction projects.

#### 2. Design Analysis Requirement.

a. A design analysis will accompany project drawings and specifications required for all new construction and/or HTRW remedial action projects, and projects involving major alteration or expansion of existing facilities, unless specifically exempted.

b. A design analysis shall be developed by the architect-engineer (design agency in-house or contracted design professional) of record for the military and/or HTRW construction project being designed.

c. The design analysis is developed in coordination with installation or customers, and summarized in a format appropriate for:

- (1) Review, approval and record purposes.
- (2) Revision of designs during construction, as required.
- (3) Use in adapting designs to other sites.
- (4) Operations and maintenance (O&M) enhancement and cost reduction.
- (5) Post-occupancy evaluation.

d. Design analysis shall be prepared in metric. Where computer programs or technical references are used, the metric version of the program or reference is preferred and should be

used. Where metric versions are not readily available or practical, that portion of the design analysis based on non-metric program or reference may use inch-pound (IP) units. In these cases, the final values that are to be placed in the contract documents shall be converted to their metric equivalent in the design analysis prior to use in project drawings or specifications. Unit designations and conversions shall be in accordance with ASTM E 621-84 as modified by the Metric Guide for Federal Construction, unless specifically indicated otherwise.

3. **Definition.** A design analysis is a document that contains written material covering general parameters, functional and technical requirements, design objectives, design assumptions, and provides design calculations applicable to a project's design.

4. **Organization and Content.** The design analysis will be organized into three parts; Part 1 - "General Description," Part 2 - "Design Requirements and Provisions," and Part 3 - "O&M Provisions." Characteristics of the three parts of a design analysis are as follows:

a. **General Description (Part 1).** This part of the design analysis will state the purpose, authorization, applicable criteria and the project description for the project, and provide a summary of the factors influencing the choice of the civil, environmental, architectural, structural, mechanical, electrical, communications, fire protection, physical security systems, and HTRW aspects used in the project along with an indication of how the initial and life cycle costs were considered. Identify all additional utility requirements,

30 May 97

calculate the total requirement, and compare the total existing capabilities. The requirements of the Record of Decision or other decision document will be included for HTRW projects.

b. Design Requirements and Provisions (Part 2). This part of the design analysis will include subparts for each major design discipline and basic project design requirements that should be addressed in the design analysis with justifications to validate the design decisions. Additional facility requirements are provided in Architectural and Engineering Instructions (AEI), Design Criteria, and its appendices, and special medical facility design requirements in AEI, Medical Design Standards.

(1) Civil. This includes soil analysis and survey data, site design, site improvements, planting and landscaping, paving, grading and drainage, water, waste-water and soil treatment, contaminant containment, utilities systems analysis and design, and provisions for airfields, ports and railroads, if required.

(2) Environmental. This includes an impact assessment checklist covering air, water and noise effects from the project and construction; worker health and safety; HTRW remediation cleanup and action levels; transportation and disposal regulation requirements; quality control for chemical sampling/analysis; wetlands determination (tidal and nontidal); special wildlife, plant, and endangered species considerations; ground water, waterway and floodplain protection assessment; pollution prevention control requirements; and design measures to be implemented (i.e., construction site sediment and erosion control requirements by Federal, state and local governments); and hazardous material management, natural and cultural resources, and environmental permits.

(3) Architectural. This includes space allowance, functional layout, interior design, furniture planning, signage, accessibility,

security, energy conservation, space-mass composition, materials used and details with respect to image, safety, maintenance and cost effectiveness.

(4) Structural. This includes foundation, structural, seismic, hardened structure, nuclear radiation and blast protection systems analysis and design.

(5) Mechanical. This includes heating, ventilation and air conditioning systems, refrigeration, plumbing, elevators and cranes, energy conservation, pollution control, noise and vibration control, heating and chilled water distribution, gas distribution, fuel storage and dispensing, and process systems design.

(6) Electrical. This includes power generation, transmission and distribution systems, lighting (interior and exterior), voice and video communications, intrusion detection, utilities monitoring control systems (UMCS), cathodic protection, lightning and static electricity protection systems analysis and design, aviation lighting, and electromagnetic protection.

(7) Fire Protection and Life Safety. This includes building construction, exit requirements, fire extinguishing systems, fire protection water supplies, surge analysis, and alarm and detection systems analysis and design.

(8) Physical Security. This includes fencing, vaults, protective lighting, security systems, locks, arms rooms, controlled substances, entrances, guard facilities, classified material, patrol roads, clear zones, restricted areas, surveillance and penetration resistance.

c. Operation and Maintenance (O&M) Provisions (Part 3). This part of the design analysis will describe the design provisions

made to enhance and to reduce the cost of operating and maintaining the facility when completed.

(1) This part of the design analysis should include the O&M design intentions for the major design disciplines covered in Part 2.

(2) This part of the design analysis will be in a format that can be used separately to supplement the completion records required by Army Regulation (AR) 415-1-10, or to form the basis for assembling a facility user's manual.

d. Special Aspects for HTRW Projects. The design analysis for HTRW projects will include all applicable regulatory, chemical sampling/analytical, safety and occupational health, geotechnical, cost engineering, and process engineering provisions and criteria required by the HTRW guidance references listed in Appendix A and the HTRW examples listed in Appendix B (Part 2).

## 5. Preparation.

### a. Assembly and Identification.

(1) The design analysis should be assembled, when possible, into a single volume with a complete table of contents. When more than one volume is required, each volume should be labeled, numbered sequentially and assembled under a cover page. The cover page should indicate the volume number and the total number of volumes in the design analysis for the project. Likewise, the cover page should indicate the name and location of the project, the project number and fiscal year, and the identification of the design agency. Applicable local file numbers and references to drawings, including Computer Aided Drafting and Design (CADD) file numbers, and specification numbers will be included as appropriate.

(2) Studies performed as part of the design

process, such as life cycle cost analysis, energy use budget and design energy use calculations and simulations, solar feasibility analysis, treatability studies, and hydro geological modeling will be stand alone reports and included in the design analysis as appendices (referenced in the design analysis as appropriate).

### b. Size and Layout.

(1) The table of contents, cover page layout and page layouts, as appropriate, will be guided by the standards prescribed and delineated in this ER. Supplemental guidance may be found in Engineer Pamphlet (EP) 310-1-6.

(2) The design analysis will be clearly and legibly expressed.

(3) All materials will be prepared in relation to a vertically oriented A4 metric, 210 mm x 297 mm (8.3 inches x 11.7 inches) standard page size (8-1/2 x 11-inch when metric paper stock is not available). Larger material may be folded to the standard page size, i.e., when reduction is not feasible, the A3 metric sheet, 297 mm x 420 mm (11.7 inches x 16.5 inches), easily accommodates folding in to the A4 metric sheet as a half-size of a standard A1 metric construction drawing.

(4) When drawings, published data or automated data processing printouts are used, these materials will be trimmed, reduced or folded to conform to the standard page size.

c. Classified Material. Every effort will be made to prepare the design analysis to be an unclassified document with proper references to sources of classified material.

d. Design Calculations. Design calculations will be computed and checked for accuracy and initialed or signed by qualified design professionals, applicable by discipline,

30 May 97

other than the project's designer. The names or initials of these individuals will be indicated on the page, or an insert, carrying the calculation.

(1) All design assumptions, loads and conditions, as applicable, will be clearly indicated and legible with tabulations indicated on the page, or an insert, carrying the calculation, and will be clear and legible with the tabulation. The sources of loading conditions, design assumptions, formulas and references will be identified. Assumptions and conclusions will be explained and cross-referenced.

(2) When a commercial computer program (software) is used:

(a) The program will be named and described to include a flow chart, or other documentation, showing how the program attains the solution. This description must be sufficient to verify the validity of methods, assumptions, theories and formulas, but should not require source code documentation or otherwise compromise any proprietary programs.

(b) The input shall be reviewed for accuracy and initialed or signed by a registered architect or engineer, or design professional as applicable to the input being checked. The output shall be

reviewed to ensure the reasonableness and applicability of the result and initialed or signed by the design professional that reviewed the input.

e. Use of Existing Design Analysis. If a standard design or other design is being site adapted, the design analysis for the new project will include appropriate material from the existing design analysis modified to incorporate site adaptations and other essential requirements.

#### 6. Exceptions to Appendix B Requirements.

- a. Medical Facility Projects.
- b. Family Housing Projects.
- c. Army Reserve Projects.
- d. Non-appropriated Funds (NAF) Projects.
- e. Design-Build Projects.
- f. Simplified Design Method (SDM) Projects.
- g. Defense Environmental Restoration Program, Superfund, and BRAC time critical removal actions (including Ordnance and Explosives projects).

- PART 1 -

GENERAL DESCRIPTION

1. Design Analysis. The design analysis -Part 1- will comprise five (5) sections with subsections as follows:

a. Purpose. A purpose section will be provided with a description of the project's functional purpose and other supporting dialogue from project information prepared by the installation and the organization for which the project is to be designed.

b. Authorization.

(1) Directives. A synopsis of applicable design directives for the project will be included in this part of the design analysis. For HTRW projects, include a discussion of the appropriate Federal and/or state regulations governing the project (RCRA, CERCLA, Clean Water Act, etc.).

(2) Scope of Work. A synopsis of the project authorized under the DD Form 1391 program, A106, FUDS work plan or ROD (record of decision) will be included in this part of the design analysis, to include the authorized project scope of work and programmed amount.

c. Criteria. References will be made to applicable Technical Manuals (TM), ER, AEI, Engineering Instructions (EI), other prescribed criteria, specific studies and minutes of meetings held to define the scope of the project, cost limitations and the character of the design.

d. Project Description.

(1) Project Site. A synopsis will be provided that indicates the general site conditions, project siting requirements, existing utilities available to the site, topography,

wetlands designated areas, unusual environmental characteristics to be impacted by the project, and conformance with the installation master plan.

(2) Functional Objective. The basic functional objective or objectives of the proposed project and the estimated functional life will be described.

(3) Personnel and Equipment. The number of civilian and military personnel and visitors, and the types of service and/or organizational equipment to be accommodated in the project will be described.

(4) Constructibility. The basic construction materials and systems selected, and the estimated structural life of the project will be described.

e. Economic Summary. Economic factors affecting the project will be described, especially those factors influencing the choice of basic materials, and the civil, architectural, structural, mechanical, electrical and fire protection systems selected to include:

(1) Results of economic studies which consider not only the initial construction cost but also costs incurred over the estimated functional life of the project. Applicable requirements in ER 1110-1-1300, ER 1110-3-1300, ER1110-3-1301, and TM 5-802-1 must be adhered to in preparation of cost estimates.

(2) Results of value engineering studies performed on the project design.

(3) Design analysis prepared so that they may be edited using computer systems and

software standards by the design agency.

2. Review and Approval. Review and approval of design analysis will coincide with the review and approval of the project drawings and specifications in accordance with Appendices C and D of this ER including:

a. Project Engineering with Parametric Estimating Design Stage (Code 3). The general summary statement will be in accordance with Architectural and Engineering Instructions (AEI), Code 3 Design.

b. Concept Design Stage (Code 2). The design analysis will cover the progress of all of the design disciplines (refer to Part 2).

c. Final Design Stage (Code 6). All parts of the design analysis, including the O&M provisions (refer to Part 3), will be complete within themselves, without requiring reference back to earlier design analysis. Review and

approval of final design drawings and specifications will be done concurrently with the review and approval of the final design analysis.

d. Drawing Modifications. When modifications of project drawings are authorized, as set forth in Appendix C of this regulation, the design analysis for the changed conditions will be added to the design analysis and the revision date or dates noted.

3. Disposition and Reference Copy. The final design analysis with revisions and the as-built drawings will be transferred to the using service after acceptance of the project. A reference copy of the design analysis will be retained separately by the design agency for possible use in adapting the project design to another site or in evaluating lessons learned. Reference copies of the design analysis will be retained by the design agency for at least two years after the beneficial occupancy date (BOD) of the project.

- PART 2 -

DESIGN REQUIREMENTS AND PROVISIONS

1. Civil.

a. General Parameters. Examples of general civil parameters that need to be addressed are:

(1) Site boundaries controlled and uncontrolled access, limits (boundaries) of contaminated soil and/or ground water, and total area.

(2) Topography and soil drainage characteristics.

(3) Results of geotechnical explorations, laboratory and field testing; soil and rock elevations, classifications and characteristics; and groundwater elevations.

(4) Special considerations, such as dynamic loading, expansive soils, permafrost or dewatering, and precautions during construction.

(5) Prevailing winds, sun angles, design temperatures and precipitation.

(6) Existing structures, parking, vegetation, open spaces and outdoor recreation areas. Functional relationships relative to adjacent facilities, exclusion zone, or decontamination facilities.

(7) Disposition of major utilities, transportation arteries and access roads to include other planned projects by title, fiscal year and line item number.

(8) Proposed facilities, buildings, support buildings, parking, access roads, service areas,

utilities and helipads.

(9) Former use, demolition responsibilities and location (with justification) of borrow pits, disposal areas and contractor plant areas, including HTRW wastes.

(10) Local construction practices, availability of materials, labor and skills, and use of industrialized components.

(11) Installation compatibility, and future use considerations.

(12) Permit requirements, as applicable.

(13) Contaminant characteristics and final treatment parameters

(14) Treatment facilities startup.

(15) Any other civil parameters necessary for special project designs.

b. Functional and Technical Requirements. Examples of civil related functional and technical requirements that need to be addressed are:

(1) Orientation of elements of the project to conserve energy and to reduce site preparation.

(2) Exterior functional areas, relationships and space allowances for operational, storage and support activities.

(3) Accessibility for handicapped (physically impaired or disabled) persons.

(4) Grading, storm drainage and irrigation.

30 May 97

- (5) Landscape design and planting.
- (6) Exterior signage and outdoor furnishings.
- (7) Area and sign lighting.

(8) Sidewalks, retaining walls, fencing, traffic controls and barriers.

(9) Parking, access roads, including haul roads for transport of hazardous material for disposal, and access for service and emergency vehicles, to include paving design, and railroads and airfields.

(10) Service areas for pick-up and deliveries, bulk waste storage or disposal and exterior utility elements (transformer, chillers, etc.).

(11) Building set-backs, spacing of structures and maximum walking distances.

(12) Exterior utility support systems, to include fire protection water and storm drainage.

(13) Heliport and airfield clear approach and landing.

(14) Heliport and airfield illumination, and marking.

(15) Treatment equipment layout and operational flexibility.

(16) Operation, maintenance, and staffing levels at treatment facilities.

(17) Material selection for monitoring and extraction well construction and associated discharge piping.

c. Design Objectives and Provisions. Examples of civil related design objectives and provisions that need to be addressed are:

(1) Vehicular and pedestrian circulation patterns.

(2) Landscape preservation, composition and perception.

(3) Functional relationships of buildings and support facilities, to include off-site facilities and areas impacting on the site design.

(4) Barrier-free design for handicapped (physically impaired) persons.

(5) Utility support and isolation.

(6) Economy of construction and the operations and maintenance of the project relative to life-cycle cost effectiveness in accordance with TM 5-802-1, ER 1110-1-1300, ER 1110-3-1300, and/or ER 1110-3-1301.

(7) Future expansion, if applicable.

(8) Economy of construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1, ER 1110-1-1300, ER 1110-3-1300, and/or ER 1110-3-1301.

(9) Instrumentation requirements at treatment facilities.

(10) Evaluation of construction materials.

d. Calculations. The calculations for civil design elements, such as those listed below, will utilize metric units. If the project is permitted to use inch-pound (IP) units, the calculations shall be performed in normally accepted and recognized IP units.

(1) Soil bearing capacities, settlement analysis, slope stability, erosion control, lateral earth pressures and frost design.

(2) Road, paving, grading and storm drainage design.

(3) Landscape design irrigation systems, if applicable.

(4) Parking allowances for civilian, military and visiting personnel, handicapped (physically impaired) persons and organizational equipment.

(5) Verification of the adequacy of existing and planned utility systems required for complete project support.

(6) Sizing of domestic water and fire protection systems.

(7) Sizing of waste-water collection systems, to include maximum flow rated in liters per second for waste-water and sewage, and the total flow per day.

(8) Railroad design, if applicable.

(9) Cost comparison of competitive designs and materials, in terms of both construction costs, acquisition costs, and life-cycle costs in accordance with TM 5-802-1, ER 1110-1-1300, ER 1110-3-1300, and/or ER 1110-3-1301.

(10) Estimated cost of construction.

(11) Treatment equipment sizing and selection

(12) Treatment facility mass balances for all major process streams.

(13) Aquifer parameter determination, fluid (ground water or air) production rates and/or velocities, extraction/injection well spacings, filter pack design, and documentation of modeling used in system design.

e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:

(1) Siting in accordance with the Major

Army Command (MACOM) approved installation master plan.

(2) Utility service capacities and central plant support.

(3) Water supply and sanitary discharge, including on-site treatment plant discharge.

(4) Demolition and debris disposal.

(5) Fire fighting support.

(6) Bulk trash and non-hazardous waste disposal procedures.

(7) Signage makeup and maintenance.

(8) Construction and other permits, as applicable.

(9) Safety siting approval for explosives-handling facilities as required in AR 385-60 for coordination with the DoD Explosives Safety Board, if applicable.

(10) Waste Manifesting.

## 2. Environmental.

a. General Parameters. Examples of general environmental parameters that need to be addressed are:

(1) Completed Environmental Impact Assessment (EIA) checklist covering the air, water and noise effects of the project on the site and adjacent sites. This is often already completed by the installation, but validation by the design agency or contract Architect-Engineer (A-E) is required.

(2) Identification of wildlife and plants that are adversely impacted by the placement and operation of the project on the site. Rare or endangered species must be identified and

30 May 97

specifically reported.

(3) Maps indicating wetland designations on the site or adjacent sites affected by the project or the construction of the project.

(4) Archeological preservation, to include cemetery identification.

(5) Ground water and waterway locations.

(6) Pollution prevention and control measures during construction and the operation of the project.

(7) A comprehensive environmental permit/regulation analysis which addresses air, water, solid and hazardous waste as appropriate. Examples include Clean Water Act operating permits, storm water and point source discharge permits, hazardous waste storage and treatment permits, emergency planning and community right-to-know (EPCRA) and state and local environmental permits and related issues.

(8) Health and Safety Design Analysis (HSDA) in accordance with ER 385-1-92.

(9) Air Pathways Analysis (APA) in accordance with EP 1110-1-21.

(10) Data Quality Objectives (DQOs) for cleanup verification/process performance chemical sampling and analysis developed in accordance with EM 200-1-2.

(11) Media-specific cleanup levels on ARARs or acceptable residual risk calculations.

(12) Contaminant-specific ambient air action levels for health protection of offsite human receptors.

(13) Substantive elements of the Quality Assurance/Quality Control (QA/QC) program to

be utilized in generation of any chemical analytical data. (Refer to ER 1110-1-263 for QA/QC program elements).

b. Functional and Technical Requirements. Examples of environmental related functional and technical requirements that need to be addressed are:

(1) Project orientation relative to environmentally sensitive areas on or adjacent to the site.

(2) Site modification and storm water runoff affects on ground water, waterways and wetlands.

(3) Discharges relative to the affects on the immediate environs.

(4) Sound and vibration control.

c. Design Objectives and Provisions. Examples of environmental related design objectives and provisions that need to be addressed are:

(1) Functional relationship of the project to the environment.

(2) Roadway and parking areas storm water runoff effects.

(3) Utilities placement relative to environmentally sensitive areas.

(4) Economic aspects for environmental protection measures and methods.

(5) Future expansion possibilities affects on the environs.

(6) Economic aspects of construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1, ER 1110-1-1300, ER 1110-3-1300, and/or ER 1110-3-1301.

(7) For HTRW remediation designs, an evaluation of remediation goals (i.e., projected endpoints) as they relate to proposed remediation goals and the remedial design.

d. Calculations. The calculations for environmental design elements, such as those listed below, will utilize metric units. If the project is permitted to use IP units, the calculations shall be performed in normally accepted and recognized IP units.

(1) Erosion control protection measures and methods.

(2) Ratio of the paved areas and the building area relative to the total site area.

(3) Storm water runoff.

(4) Air, water, HTRW and sanitary discharge, and impacts on receiving media.

(5) Pollution abatement systems and their scopes.

(6) Cost comparison of competitive designs and materials, in terms of both construction costs, acquisition costs, and life-cycle costs in accordance with TM 5-802-1, ER 1110-1-1300, ER 1110-3-1300, and/or ER 1110-3-1301.

(7) Estimated cost of construction.

e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:

(1) Validation (check) of the approved siting relative to the designated areas of the installation for preservation and pollution protection requirements.

(2) Federal, state, and local governmental approvals as required for wetlands and other environmental protection laws.

(3) Storm water runoff.

(4) Air, water, HTRW, and sanitary discharges.

(5) Sediment and erosion control during construction.

### 3. Architectural.

a. General Parameters. Examples of general architectural parameters that need to be addressed are:

(1) Purpose, functions and capacities of the project.

(2) Desired image or visual appearance to include the design of the exterior and interiors of the building, refer to Engineer Regulation (ER) 1110-345-122 regarding interior design.

(3) Number of civilian, military and visiting personnel to use the project.

(4) Types of activities, equipment and vehicles involved.

(5) Anticipated life of the functions to be accommodated.

(6) Type and method of construction; permanent, temporary or relocatable.

b. Functional and Technical Requirements. Examples of architectural related functional and technical requirements that need to be addressed are:

(1) Functional areas, occupant capacities and space allowances.

(2) Exterior and interior finish materials, to include textures, colors and damage resistant.

(3) Equipment, furniture and furnishings, to

30 May 97

include all items required regardless of funding; refer to ER 1110-345-122 regarding funding distinctions.

(4) Directional, informational and motivational signage.

(5) Accessibility for handicapped (physically impaired) persons, barrier free design, and provisions for blind vending areas operated by State agencies.

(6) Energy conservation, to include solar energy applications and energy use budget goals.

(7) Occupational safety and health.

(8) Sound and vibration control.

(9) Interior parking and service areas.

c. Design Objectives and Provisions. Examples of architectural related design objectives and provisions that need to be addressed are:

(1) Adaptation of the building to the size, shape and orientation of the site, to include benefits from natural warming and cooling effects afforded by the site.

(2) Organization of functional spaces to establish workable adjacency relationships.

(3) Building layout to establish convenient circulation flows for people, services, materials and equipment, to include evacuation during emergencies.

(4) Consolidation of spaces into sound-compatible zones and protective construction zones, to include fire, storm and fallout.

(5) Space layout compatible with modular

(structural and environmental) support systems.

(6) Types of construction materials, architectural systems and finishes, to include the basis for their selection.

(7) Composition of masses and spaces, and architectural details to reflect the desired image, and the scale and nature of the activities involved.

(8) Perception of the building details and volumes. Specific provisions made, to include an identifiable sequence of viewing positions for experiencing the architectural and interior design.

(9) Building expandability and changeability.

(10) Energy conservation.

(11) Acoustical design.

(12) Enhancement of materials and systems operations and maintenance.

(13) Economy construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1.

d. Calculations. The calculations for architectural design elements, such as those listed below, will utilize metric units. If the project is permitted to use IP units, the calculations shall be performed in normally accepted and recognized IP units.

(1) Net room areas, occupant capacity and gross building areas. Categorize these areas and capacities under administrative, operational, storage and support requirements.

(2) Ratio of exterior window and room area, where applicable.

(3) Thermal conductance values for each

building section, which should be selected in coordination with the mechanical engineer design professional to satisfy life cycle cost and energy conservation requirements.

(4) Estimated annual unit energy consumption, which is, in coordination with the mechanical engineer, to determine the design energy use and compliance with the energy use budget.

(5) Acoustics, if applicable.

(6) Roof drainage.

(7) Estimated cost of construction.

(8) Cost comparison of competitive designs and materials, in terms of both construction costs, acquisition costs, and life-cycle costs in accordance with TM 5-802-1.

e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:

(1) Blind vending area operations.

(2) Make-up of signage.

(3) Government-furnished furniture and equipment.

(4) Occupational safety and health, as required.

(5) Operations and maintenance support.

#### 4. Structural.

a. General Parameters. Examples of general structural parameters that need to be addressed are:

(1) Foundation characteristics based on geotechnical survey and subsurface

investigation.

(2) Conditions related to possible seismic events, wind, storms and blast.

(3) Size of areas and volumes to be inclosed, and floor loads.

(4) Permanency of construction and expediency of erection.

(5) Apparent competitive structural systems in view of local constructibility parameters to include potential use of building systems fabricated off of the site.

(6) Need for fallout protection or shelter space in accordance with the Installation's Army Survival Measures Plan.

b. Functional and Technical Requirements. Examples of structural related functional and technical requirements that need to be addressed are:

(1) Allowable settlement soil bearing capacity and pile loads, as applicable.

(2) Dead, live, wind, snow and seismic design loads.

(3) Allowances for future loads or expansion.

(4) Dynamic loads, to include weapons effects, as applicable.

(5) Design methods; allowable working stress or strength (load factor).

(6) Design stresses; allowable unit stress or yield stress of materials.

(7) Deflection, to include maximum limits.

(8) Nuclear radiation (fallout) protection.

30 May 97

c. Design Objectives and Provisions. Examples of structural related design objectives and provisions that need to be addressed are:

(1) Foundation design as required by foundation or soil characteristics.

(2) Bay sizes and module spacing for functional requirements and economy.

(3) Seismic protection, to include symmetrical configuration of framing system, where applicable.

(4) Type and fabrication or construction of structural system, to include the basis for selection for at least three competitive systems.

(5) Speed of erection.

(6) Fallout protection or shelter space potential.

(7) Economy of construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1.

d. Calculations. The calculations for structural design elements, such as those listed below, will utilize metric units. If the project is permitted to use IP units, the calculations shall be performed in normally accepted and recognized IP units.

(1) Wind, snow, seismic and dynamic loads, as applicable.

(2) Shears, moments and axial loads, to include stress analysis diagrams and torsional effects, where applicable.

(3) Deflection of members and walls.

(4) Type and sizing of foundations, structural members and connections.

(5) Uplift and stability of the structure.

(6) Expansion and crack control.

(7) Construction or erection limitations.

(8) Structural adequacy of existing structures, where applicable, to account for new functional loads or new criteria.

(9) Fallout protection factors as required, or to identify Protection Factor (PF) 40 and above shelter spaces. Include single line plans showing the location of shelter areas and minimum PF rating.

(10) Cost comparison of competitive designs and materials, in terms of both construction costs, acquisition costs, and life-cycle costs in accordance with TM 5-802-1.

(11) Estimated cost of construction.

e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:

(1) Construction or erection limitations.

(2) Need for fallout shelter space.

## 5. Mechanical.

a. General Parameters. Examples of general mechanical parameters that need to be addressed are:

(1) Temperature extremes and other impacts of climate such as wind, precipitation, sun angles and humidity.

(2) Apparent competitive mechanical systems relative to fuel alternatives, energy use budgets and environmental impacts.

(3) Indoor environmental conditions

including temperatures, humidity, pressurization, ventilation and exhaust requirements.

(4) General Heating, Ventilation and Air Conditioning (HVAC) zones and occupant capacities.

(5) General toilet and sanitation zones, and occupant capacities.

(6) Water supply pressure.

(7) Existing or planned sanitary sewer capacities.

(8) Toxic or hazardous pollutant sources.

(9) Functions and occupancies requiring mechanical lifts, elevators and cranes.

(10) Special waste and drainage systems such as acid waste.

(11) Energy sources and capacities including heating and chilled water distribution, gas distribution, and fuel storage.

(12) Building and related mechanical system commissioning.

b. Functional and Technical Requirements. Examples of mechanical related functional and technical requirements that need to be addressed are:

(1) Design temperatures.

(2) Heating and/or cooling (air conditioning), and humidity control.

(3) Mechanical ventilation (air circulation) and special exhausts.

(4) Energy conservation, to include solar and recovery systems.

(5) Total energy and selective energy systems.

(6) Standby heating and cooling, and emergency environmental systems.

(7) Toilet fixture allocation.

(8) Hot and cold water systems, to include recovery systems.

(9) Heating and chilled water distribution, gas distribution and special liquid storage and distribution systems.

(10) Compressed air and vacuum production components.

(11) Sanitary waste and vent piping.

(12) Acid waste and chemical piping, and neutralization.

(13) Coordination with the connection to site utilities.

(14) Mechanical lifts, hoists and elevators.

(15) Control of airborne-polluting substances within the project.

(16) Control of polluting substances from energy systems.

(17) Treatment and disposal of toxic and/or polluting substances within the project.

(18) Accessibility and features for handicapped (physically impaired or disabled) persons.

c. Design Objectives and Provisions. Examples of mechanical related design objectives and provisions that need to be addressed are:

30 May 97

(1) Impacts and benefits from natural warming and cooling effects afforded by the site and coordination with passive solar design.

(2) Zoning of HVAC by occupancy.

(3) Heating and/or cooling system life cycle cost design, to include the basis for selection of the system. Provide an analysis of each competitive system.

(4) System expandability and feasibility.

(5) Energy conservation.

(6) Vibration and noise isolation and control.

(7) Consolidation of toilet and sanitation facilities.

(8) Supply and waste piping systems.

(9) Connection to utilities.

(10) Mechanical lift, hoist, crane and elevator designs.

(11) Control of polluting substances.

(12) Enhancement of systems operations and maintenance.

(13) Economy of construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1.

(14) Provisions for building and related mechanical system commissioning, and the testing adjusting and balancing of mechanical systems.

d. Calculations. The calculations for mechanical design elements, such as those listed below, will utilize metric units. If the project is permitted to use IP units, the

calculations shall be performed in normally accepted and recognized IP units.

(1) Heating and cooling design loads. Computerized calculations will indicate the basis of all input data.

(2) Estimated annual unit energy consumption (see architectural).

(3) Determine the design energy use and compliance with the energy use budget.

(4) Energy recovery systems.

(5) Total energy and selective energy studies.

(6) Complete system and unit capacities, indicating the dimensions of all equipment.

(7) System vibration and noise isolation and control, safety, security and fire protection.

(8) Allocation of toilet and other fixtures.

(9) Maximum flow rates in liters per minute [gallons per minute] for hot and cold water, and the total flow per day.

(10) Size of hot and cold water supply systems, to include storage tanks inside the building and the supply of water for fire protection.

(11) Size of heating and chilled water distribution, gas distribution, fuel storage, and special liquid, compressed air and vacuum systems.

(12) Size of waste water and sewage drainage systems inside the building.

(13) Sizing of mechanical lifts, hoists and passenger and service elevators. Indicate the peak hour capacities for passenger elevators.

- (14) Energy system pollution abatement.
  - (15) Disposal systems for toxic and/or polluting substances within the project.
  - (16) Outside air, ventilation and exhaust air design.
  - (17) Supply, return and exhaust air duct sizing, and pressures.
  - (18) Acoustic analysis including system noise isolation and reduction.
  - (19) Safety, security and fire protection and suppression.
  - (20) Building and related mechanical system commissioning, and the testing, adjusting, and balancing of mechanical systems.
  - (21) Surge analysis of closed loop systems.
  - (22) HVAC control system parameters and constraints.
  - (23) Cost comparison of competitive designs and materials, in terms of both construction costs, acquisition costs, and life-cycle costs in accordance with TM 5-802-1.
  - (24) Estimated cost of construction.
- e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:
- (1) Total energy and selective energy planning.
  - (2) Operations and maintenance support.
  - (3) Indoor environmental requirements including temperatures, humidity, and outside and exhaust air requirements.

(4) Type, number, schedule and activity level of occupants.

(5) Equipment to be installed along with utility requirements, environmental requirements, and heat release.

(7) Requirements for mechanical lifts, hoists, cranes, and elevators.

## 6. Electrical.

a. General Parameters. Examples of general electrical parameters that need to be addressed are:

(1) Type of occupancies.

(2) Specialized functions and equipment.

(3) Communications support.

(4) Electrical characteristics of the power supply.

(5) Adequacy of the existing system supporting the project site.

b. Functional and Technical Requirements. Examples of electrical related functional and technical requirements that need to be addressed are:

(1) Point of interface between the existing electrical system and the system to be constructed needs to be defined.

(2) Load characteristics including connected load, demand load, diversity factors, power factor, load profiles, nonlinear loads, transformer(s) peak loading and load growth provisions.

(3) Basis for selection of primary and secondary distribution voltages.

30 May 97

(4) Overhead and underground exterior distribution; voltage drop, interrupting requirements, physical characteristics of the circuits including types of conductors, ampacity of service, feeder and branch conductors, pole line and duct bank, conduit, or direct buried equipment characteristics.

(5) Illumination levels, to include general and task lighting, and visual qualities of lighting requirements .

(6) Low and high system voltage.

(7) Low and high voltage switching.

(8) Loads and load factors, to include allowances for future loads.

(9) Installation and equipment standards.

(10) Emergency lighting, distribution, security, communications and standby generation systems.

(11) Power, lighting, communications and security for site elements.

(12) Communications, to include call systems.

(13) Electronic clock systems.

(14) Electronic security, surveillance and Intrusion Detection Systems (IDS).

(15) Audio visual systems, to include central television (TV) systems.

(16) Energy conservation and energy monitoring.

(17) Power generation.

(18) Electromagnetic protection (EMP).

(19) Explosion-proof connections in hazardous environments.

c. Design Objectives and Provisions. Examples of electrical related design objectives and provisions that need to be addressed are:

(1) Electrical feeder and distribution systems.

(2) Spare capacities.

(3) General illumination and task lighting coordinated with interior layouts, safety and security requirements.

(4) Relamping and adjustments.

(5) Nonlinear loads and harmonics.

(6) Communications systems.

(7) Emergency power generation and distribution.

(8) Energy conservation.

(9) Enhancement of systems operations and maintenance, to include systems flexibility.

(10) Economy of construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1.

d. Calculations. The calculations for electrical design elements, such as those listed below, will utilize metric units. If the project is permitted to use IP units, the calculations shall be performed in normally accepted and recognized IP units.

(1) Maintained lux [Foot candle (FC)] levels in all areas. Where areas are similar in size and usage, only a typical calculation is required.

(2) Individual circuit and system loads

tabulated in amperes for each panel board or switchboard.

(3) Transformers, generators, switchboards and feeders indicating all demand, diversity, and ambient-temperature or conductor-grouping factors considered in the selection of equipment or conductor sizes.

(4) Cost comparison of illuminating, power and communication systems.

(5) Nonlinear loads and harmonic contributions, kilowatt rating of transformers, etc.

(6) Ground fault and its circuitry protection.

(7) Selective system protection.

(8) Voltage-drop on all service and feeder circuits, and on worst-case branch circuits supplied by each panel board and switchboard.

(9) Weight, dimensions and electrical characteristics of each major item of equipment supported by manufacturer's names, and catalog and model numbers.

(10) Cost comparison of competitive designs and materials, in terms of both construction costs, acquisition costs, and life-cycle costs in accordance with TM 5-802-1.

(11) Estimated cost of construction.

(12) Short circuit calculations.

(13) Electromagnetic Protection.

e. Coordination with Installation or Outside Agencies, i.e., electrical utility company, and the Installation's electrical distribution organization. Coordination should include, but not be limited to:

(1) Telephone system requirements and availability.

(2) Central TV.

(3) Power requirements of the installation's service and cleaning equipment of the installation.

(4) Provost Marshal or police response to IDS alarms.

(5) AR 190-13 for Army physical security, IDS design approvals, when required.

(6) Incorporation of maintenance and commissioning requirements of the Installation.

(7) Intrusion Detection System (IDS) Center of Expertise, Huntsville Engineer Technical Center, for design assistance.

(8) Utility Monitoring and Control System (UMCS) Center of Expertise, Huntsville Engineer Technical Center, for UMCS/EMCS design assistance.

## 7. Fire Protection and Life Safety.

a. General Parameters. Examples of general fire protection parameters that need to be addressed are:

(1) Types of occupancies.

(2) Hazard classification of specific areas and list of hazards.

(3) Specific criteria; standards and codes.

(4) Type of construction.

(5) Type of fire protection.

(6) Water supply.

30 May 97

b. Functional and Technical Requirements. Examples of fire protection related functional and technical requirements that need to be addressed are:

(1) Fire resistance of building components, to include floor and ceiling assemblies, exterior and interior walls, permanent partitions, shafts, and location of fire separation walls and partitions.

(2) Allowable floor area and building height in accordance with the Uniform Building Code (UBC) based on occupancy classification, construction, separations and fire suppression or protection.

(3) Exit requirements in accordance with NFPA 101, Life Safety Code (LSC). The design and analysis must address exit types, required exit widths, maximum travel distance for exiting, dead-end distances and common exit paths of travel limitations, arrangement of exits, remoteness of exits, discharge from exits, illumination of exits and exit marking.

(4) Flame spread and smoke development rating of interior finishes and insulations.

(5) Building access for local fire department fire fighters.

(6) Building separation and exposure protection.

(7) Smoke control methods.

(8) Automatic extinguishing systems.

(9) Fire alarm evacuation systems.

(10) Fire detection systems.

(11) Fire hydrants and standpipes.

(12) Water supply, to include new or

additional water storage, pumping, and/or water distribution mains.

(13) Special hazards and methods for protection.

c. Design Objectives and Provisions. Examples of fire protection related design objectives and provisions that need to be addressed are testing and field investigation reporting requirements:

(1) Water flow tests at the point of connection for sprinklered buildings.

(2) Existing water supply.

(3) Existing fire hydrants.

(4) Existing fire alarm reporting system information for connection of new fire alarm systems.

(5) Economy of Construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1.

d. Calculations. The calculations for fire protection design elements, such as those listed below, will utilize metric units. If the project is permitted to use IP units, the calculations shall be performed in normally accepted and recognized IP units.

(1) Complete exit requirement calculations based on the LSC.

(2) Allowable floor area and building height calculations based on UBC.

(3) Water supply calculations indicating the adequacy of the design to meet sprinkler and hose stream flow demands. Calculations must be based on residual and static pressures and flow data obtained from water flow tests.

(4) Sprinkler calculations to determine water flow and pressure demands.

(5) Fire alarm system calculations for elements such as, wire sizing, battery, and alarm annunciator sound level.

(6) Complete hydraulic design calculations for detailed sprinkler and Aqueous Film Forming Foam (AFFF) system designs.

(7) Layout and sizing of special fire extinguishing systems, such as carbon-dioxide, halon, and AFFF (low pressure foam system).

e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:

(1) Fire fighting support, to include tie-ins with local fire department alarm and communication systems.

(2) Adequacy of water supply, to include flow tests.

(3) Inspection and testing of systems performance.

(4) Obtain the specific fire alarm type(s), fire protection and central reporting requirements of the Installation's Fire Marshall/Chief.

## 8. Physical Security.

a. General Parameters. Examples of general physical security parameters that need to be addressed are:

- (1) Mission of the project.
- (2) Size of the site.
- (3) Installation threat statement.

(4) Anticipated aggressor tactics.

(5) Personnel and materials being protected.

(6) Activities performed.

(7) Security forces available.

b. Functional and Technical Requirements. Examples of physical security related functional and technical requirements that need to be addressed are:

- (1) Defensible site layout.
- (2) Securable building layout.
- (3) Resistance to aggressor penetration.
- (4) Vandal-proofing.
- (5) Intrusion denial.

c. Design Objectives and Provisions. Examples of physical security related design objectives and provisions that need to be addressed are:

- (1) Maximum security.
- (2) No detracting from mission.
- (3) Cost effective security features.
- (4) Provisions for expansion.
- (5) Efficient security zoning.
- (6) Maximum use of standard designs.

(7) Economy of construction and procurement, and life-cycle cost effectiveness in accordance with TM 5-802-1.

d. Calculations. The calculations for physical security design elements, such as

30 May 97

those listed below, will utilize metric units. If the project is permitted to use IP units, the calculations shall be performed in normally accepted and recognized IP units.

- (1) Time for aggressor to penetrate.
- (2) Time for security force to respond.
- (3) Power requirements for security systems.
- (4) Protective lighting intensities.
- (5) Costs.

e. Coordination with Installation or Outside Agencies. Coordination should include, but not be limited to:

- (1) Conformance to the installation security plan.
- (2) Appropriate local police agencies regarding patrol and alarm responses.

(3) Signal office regarding security communications.

(4) Security office regarding any AR 380-5 for classified material protection requirements.

(5) Protective Design Center of Expertise (Omaha District Engineer Office).

(6) Intrusion Detection System Center of Expertise, Huntsville Engineering and Support Center, for design assistance.

(7) Installation military police regarding any Army physical security of arms, ammunition and explosives, protection requirements.

(8) Intrusion detecting system approval in accordance with Army physical security criteria, when required.

(9) Installation medical office regarding any AR 190-50 requirements.

(10) Facility user regarding any automation security requirements.

- PART 3 -

OPERATION AND MAINTENANCE (O&M) PROVISIONS

1. Using Service Responsibilities For O&M.  
The following are using service responsibilities for O&M that should be considered by the design agency during the design development process:

- a. Control Responsibilities.
  - (1) Parking allowances and assignment.
  - (2) Pavement and floor loadings.
  - (3) Spare parts, equipment, consumables, and miscellaneous storage.
  - (4) Energy use.
  - (5) Site access restrictions.
- b. Service Responsibilities.
  - (1) Access-egress maintenance.
  - (2) Landscape maintenance.
  - (3) Snow and ice removal.
  - (4) Housekeeping, trash collection and disposal.
  - (5) Signage.
  - (6) Mail handling, shipping and receiving.
  - (7) Food service and supply.
  - (8) Health (dispensary) and sanitation.
  - (9) Reproduction (copy) service.

- (10) Vending (state blind agencies and others).
- (11) HVAC systems.
- (12) Electrical and communications services.
- (13) Security and fire protection.
- (14) Shop support.
- (15) Plumbing systems.
- (16) Lifts, hoists, cranes, and elevators.
- (17) Compressed air and vacuum systems.
- (18) Fuel storage and dispensing systems.
- (19) Industrial gas systems.
- (20) Treatment facility operation and maintenance.
- (21) Residuals disposal and manifesting.
- (22) Permit compliance monitoring.
- (23) Extraction/injection remediation system maintenance.
- (24) Worker safety and occupational health.

2. Provisions For O&M Enhancement and Cost Reduction. The following are provisions for O&M enhancement and cost reduction that should be considered by the design agency during the design development process:

a. Control Related.

- (1) Preventive overloading factors.
- (2) Food service efficiency maximizers, preparation, serving, seating and dish washing.
- (3) HVAC efficiency maximizers; sub- and main plant.
- (4) Lighting efficiency maximizers, intensities and switching.
- (5) Communications efficiency maximizers.
- (6) Elevator efficiency maximizers.
- (7) System expandability and flexibility.

b. Service Related.

- (1) Below-grade flood protection.
- (2) Above grade solar, water, and wind protection and resistance.
- (3) Finish materials, textures and colors.
- (4) Window washing provisions.
- (5) Provisions for cleaning equipment.

(6) Vibration and expansion contraction controls.

(7) Energy conservation and pollution control measures.

(8) Access to mechanical systems; HVAC, elevators, plumbing, process and special equipment.

(9) Provisions for building and system recommissioning and testing, adjusting and balancing of mechanical, electrical and communications systems.

(10) Relamping and lighting relocation.

(11) Electrical distribution allowance for future loads.

(12) Emergency power system testing, and monitoring power quality.

(13) Vandalism and intrusion resistance.

(14) Confined spaces reduction/elimination or identification.

(15) Toxic or hazardous pollutant sources and exposure potentials.

## APPENDIX C

### DRAWINGS

1. General. This appendix prescribes the requirements, procedures and drafting standards for the preparation and approval of drawings for military construction and/or HTRW projects. It includes drawings, other than shop drawings, prepared at all stages of design and construction.

2. Standard Drawings. Standard drawings are developed under the guidance and criteria issued by HQUSACE (CEMP-E). A listing of current standard drawings is available from the TECHINFO system accessed through the USACE Home Page on the Internet, <http://www.hnd.usace.army.mil>, or by direct telephone dialing the system data line at (205) 895-1826. The purpose of standard drawings is to aid in project planning and design, and to reduce the cost and time for the preparation of project drawings.

a. Types of Drawings. Types of standard drawings are described as follows:

(1) Standard Design Drawings. Standard design drawings can range in completeness from definitive or sketch level, to completed construction documents with the drawings of sufficient detail as to materials and methods of construction to serve as project construction drawings after the necessary field modifications covering site adaptations and deletion of inapplicable materials.

(a) Standard designs generally provide for site adaptation in widely separated geographical areas with design data for different climatic and seismic conditions, and building materials. Alternate wall sections, details and building elevations are included as required to illustrate

these variations.

(b) These drawings are sometimes accompanied by a standard technical guide specification.

(2) Definitive Design Drawings. Definitive design drawings delineate functional layouts, space allowances, special features or requirements, and the configuration of elements both horizontally and vertically. Definitive design drawings usually recommend basic building systems; materials and construction details; architectural treatments; and structural, mechanical, electrical and fire protection systems with criteria and guidance necessary for making selection. These drawings typically include floor plans, elevations and cross sections with controlling and critical dimensions, gross and net area tabulations. Definitive design drawings also address the most likely and alternative site support facilities and utility requirements for mechanical and electrical systems. These drawings are sometimes accompanied by a design analysis.

(3) Department of the Army (DA) Facilities Standardization Program Standard Design Packages. The drawings in these packages are normally developed to a level of design that is similar to definitive design drawings. The basic DA Standard Design Package includes both standard design drawings and design analysis. Additional requirements and information on the DA Facilities Standardization Program are contained in ER 1110-3-113 and AR 415-15.

(4) Sketch Design Drawings. Sketch designs are usually single-line drawings delineating functional layouts, space allowances

30 May 97

and the basic features of a facility type. These drawings typically include plans, and elevations and cross sections with controlling dimensions and area tabulations.

(5) Design Guide Drawings. Design guides are published and issued in printed form with both narrative and graphic data to describe the functional layout, space allowance and special features of a facility type. Design guides typically include drawings delineating individual space requirements, and drawings showing the organization of spaces into alternative facility layouts and designs. These designs are usually illustrated further by plans, and elevations and cross sections with controlling dimensions and area tabulations. Perspective sketches may be included to illustrate recommended interior designs and exterior design treatments. Drawings are reduced to manual size for publication.

(6) Project Design Drawings from the CADD Library. These drawings are completed facility specific project documents available for site adapt use to reduce cost and time for the preparation of project drawings.

b. Modification of Standard Drawings. The design agency responsible for the development of a project design is authorized to modify standard drawings, except those drawings contained in the DA Facilities Standardization Program standard design packages, to meet local siting, foundation, topographic, climatic and seismic conditions, energy and utility availability, and life cycle cost. Criteria and waiver request procedures for DA Facilities Standardization Program designs are governed under ER 1110-3-113, and DAIM-FDR memorandum, 7 Oct 95, SUBJECT: Request for Waivers from the Use of DA Standard Design and Space Planning Criteria.

(1) Modifications. Modifications to standard drawings are authorized to avoid

unnecessary construction features or costs, to correct errors, and to adapt the drawings to local materials and methods of construction, metric measurements (when originally prepared in IP unit measurement), or CADD techniques.

(2) Directed Modifications. Other modifications may be directed by HQUSACE (CEMP-E) in AEI or design directives. Modifications and changes may be promulgated through Engineer Technical Letters (ETL) or revisions to guide specifications.

(3) Deviations. Modifications that cause deviations from functional and operational requirements, space criteria or cause significant increases in cost shall be avoided. Deviations to the functional and operational requirements contained in DA Facilities Standardization Program standard design drawings are unauthorized.

c. Deficiency Reports and Recommendations. HQUSACE (CEMP-EA) will be promptly informed of any errors or omissions in DA Standard Designs, including drawings. Under the provisions in ER 1110-345-100, ENG Form 3078 may be used for this purpose or the deficiency may be reported directly to HQUSACE (CEMP-EA), Washington, DC 20314-1000.

### 3. Project Drawings.

a. Concept Design Drawings. Concept designs are used to define the functional, technical, and architectural and engineering aspects of a project, and to help verify project costs in order to provide a firm basis upon which to initiate the final project design. Completion of concept design drawings, together with a design analysis, outline specifications and cost estimate, normally represents about one-third of the total design effort. Concept designs will be prepared in accordance with AR 415-15, utilizing the

project requirements documents and applicable standard drawings.

(1) When standard design drawings are used, the drawings for the new project will include appropriate sheets from those drawings modified to depict site adaptations and other essential requirements. Duplication will be avoided except as required for clarity.

(2) Concept design drawings will generally include the following information:

(a) Project site plan showing existing and proposed buildings, roads, parking, landscape planting masses, contours, and the utilities in the immediate vicinity of the project.

(b) Building floor plans, cross sections and elevations showing the functional layout, space configuration and form, and building system characteristics, to include the required properties and/or performance of the construction materials and methods.

(c) Design details of exterior and interior elements; schedule of windows, doors, and finishes and colors; details related to architectural, structural, mechanical, electrical and fire protection systems; and energy usage and other special requirements.

(d) Foundation plans and details showing geotechnical investigation results, boring data, subsurface soil classification, allowable soil bearing capacity, ground water elevations, etc.

b. Final Design Drawings. Final design drawings will be prepared from the approved concept designs. When standard design drawings are used, additional sheets will be incorporated as appropriate. Final design drawings together with a complete design analysis, construction specifications, and a cost estimate covering all technical, architectural and engineering details will form the basis for

construction contracting. The drawings will be sufficient in detail to provide for fair and competitive bids from contractors, and to provide for the construction of the project without additional drawings, except for shop drawings or as may be required to deal with unforeseen conditions encountered during construction.

c. Shop Drawings. These are drawings submitted by a contractor, manufacturer, vendor or others, which show in detail the proposed fabrication and assembly of specific building components or which show the installation details (i.e., form, fit and attachment) of materials or equipment. Preparation, approval and transmittal of shop drawings are outside the scope of this regulation.

d. As-built Drawings. As-built drawings will be prepared as part of the completion records transferred to the using service upon completion of the project. The contract drawings will be revised and corrected to indicate the actual construction of the project, including all change orders. Site plans, building plans, cross sections and elevations, schedules and all other portions of the drawings to include the location of mechanical services, utility lines and outlets, will be revised to provide a clear understanding of the project, as built. As-built drawings, together with as-built construction specifications, final shop drawings and the design analysis will be furnished to the using service in accordance with ER 415-345-38.

4. Drawing Preparation. Drawings will be prepared so as to clearly and adequately delineate the work to be accomplished.

a. Quality. Because of the number of copies of drawings normally required for a project, most drawings are reduced to half-size for reproduction. Original drawings and details; therefore, must be of adequate size, and be

30 May 97

clear and sharp, so that the use of half-size reproducible will result in legible and easy to read copies.

b. **Drafting Standards and Practices.** Format and organization, control data blocks, drawing conventions, schedules and standard details will conform to the requirements and guidance contained in paragraph 5 of this appendix.

c. **Codification.** Drawing sheets will be assigned a drawing code in accordance with the guidance contained in paragraph 10 of this appendix.

d. **Metrication.** The criteria and requirements for the application of metric measurements in drawings were addressed in paragraph 4 of this regulation. The following ANSI and ASTM standards will be used in the preparation of drawings:

(1) American National Standards Institute. 28 October 1992. "American National Standard for Metric Practice," ANSI/IEEE 268-1992, IEEE Standards Coordinating Committee 14 on Quantities, Units, and Letter Symbols, New York.

(2) American Society for Testing and Materials. 1991. "Standard Practice for the Use of Metric (SI) Units in Building Design and Construction," ASTM E 621-84 (Reapproved 1991), Committee E-6 on Performance of Building Construction, Philadelphia, PA.

(3) American Society for Testing and Materials. 1992. "Standard Practice for the Use of the International System of Units (SI) (the Modernized Metric System)," ASTM E 380-92, Committee E-43 on Metric Practice, Philadelphia, PA.

e. **Computer-Aided Design and Drafting (CADD).** Commercially available CADD systems

have demonstrated significant potential for improving the efficiency and quality of drawing production. Standards for USACE CADD application are contained in Tri-Service CADD/GIS Technology Centers Architectural, Engineering and Construction (A/E/C) CADD Standards available at Internet site <http://mr2.wes.army.mil>. Those criteria that meet the quality requirement in the paragraph above are acceptable for use in preparing project and other drawings. Manually prepared drawings will also follow the general guidance in this manual as it applies to general drafting standards.

## 5. Drafting Standards and Practices.

### a. Format and Organization.

(1) Concept and final design drawings, and drawings for standard and definitive designs, will be prepared on standard A1 metric size sheets, 594 mm x 841 mm (23.39 inches x 33.11 inches); an American National Standards Institute (ANSI) "D" equivalent sheet.

(2) When preparing large maps, i.e., installation master plans and drawings for Civil Works projects, the standard A0 metric sheets; 841 mm x 1189 mm (33.1 inches x 46 inches) should be used; an ANSI "E" equivalent sheet.

(3) When preparing half-size drawings for inclusion to booklets such as "Design Analysis," the standard A3 metric sheet; 297 mm x 420 mm (11.7 inches x 16.5 inches) should be used; an ANSI "B" equivalent sheet, that conveniently folds in to the standard A4 metric size; 210 mm x 297 mm (8.3 inches x 11.7 inches), an ANSI "A" equivalent sheet.

(4) The sheet layout, including the standard title and information blocks, for drawings are provided at Figure C-1 and Figure C-2 which depict expanded views of the title, revision and other information blocks on the

standard sheet.

b. Cover Sheet.

(1) Project drawings will have a cover sheet or sheets with the project name, project location, design agency logo and identification, project number and fiscal year. Applicable file numbers will be included as appropriate. The overall sheet layout of title and other information blocks shall follow the theme in Figure C-1 and Figure C-2.

(2) Cover sheets for in-house work shall comply with the requirements of ER 1110-1-8152, paragraph 6 concerning signatures, and will include the following statement:

"This project was designed by the (name of district) District of the U.S. Army Corps of Engineers. The initials or signatures and registration designations of individuals appear on these projects documents within the scope of their employment as required by ER 1110-1-8152."

c. Index Sheets. Project drawings, and drawings for standard and definitive designs, will have an index sheet or sheets. The index sheet or sheets will identify by reference number, date and title, each of the other sheets in the set of drawings, and indicate the total number of sheets in each design discipline group. The overall sheet layout of title and other information blocks shall follow the theme in Figure C-1 and Figure C-2.

d. Legend Sheets. A legend sheet or sheets should follow the index sheet or sheets, or may be combined with the index sheet or sheets. The legend sheet or sheets will include definitions of abbreviations used; legends for materials, mechanical and electrical symbols; a graphic illustration of details and cross section reference indicators; and other information as required for that particular set of drawings. The

overall sheet layout of title and other information blocks shall follow the theme in Figure C-1 and Figure C-2

e. Drawing Sheets. Drawing sheets will follow the cover, index and legend sheets in order of the following design discipline groups: civil to include the site design; architectural to include interior design; structural; mechanical; electrical; and others. The architectural drawings should normally show plans, elevations, cross sections and details in that order. The overall sheet layout of title and other information blocks shall follow the theme in Figure C-1 and Figure C-2.

f. Supplemental Drawing Sheets. When it is required that any drawing sheet for a specific project be redrawn and/or new drawing sheets added, such as in the preparation of as-built drawings or contract modifications, the redrawn or new drawing sheets will be consecutively numbered to follow the last drawing sheet of the design discipline group. The basic sheet that is replaced or supplemented by a supplemental drawing sheet will be retained in its original position with a note in the revision block indicating the sheet number where the changed conditions are shown.

6. Control Data Blocks.

a. Title Blocks. Except for the cover sheet, title blocks will be placed on each individual drawing sheet in the space inside the right hand margin of the drawing sheet, as indicated in Figure C-1, to identify the name of the project, the project number and fiscal year, and the installation where the project is located. Title block data will also include the title of the drawing on the sheet, the sheet reference number, the drawing code assigned in accordance with paragraph 10 of this appendix, applicable local file numbers, and the approval date of the drawing sheet. Local design agency standards may be used for recording in the title

blocks of individual drawing sheets, the names or initials of the person or persons responsible for the design, drawing and checking of each drawing sheet, and for overall review and approval in accordance with ER 1110-1-8152. However, the local design agency standard shall comply with the sheet size standards in the appendix, and the standard configuration at Figures C-1 and C-2.

b. **Authentication Blocks.** Authentication blocks will be placed on the index sheet or sheets to the left of the title block. Authentication blocks will provide spaces for the signatures of those individuals responsible for the preparation, review and approval of the drawings. Approval is required for both technical and functional adequacy. Space will also be provided to indicate the date of approval next to the signature. Use of authentication blocks on other drawing sheets will be at the discretion of the design agency responsible for the design.

c. **Revision Blocks.** Except for the cover sheet, revision blocks will be placed on each drawing sheet above the title block to describe any revision made to the drawings, to indicate the number and date of the revision, and the initials of the official approving the revision; see Figure C-1.

7. **Drawing Conventions.** Methods used for drawing, lettering, dimensioning and cross-referencing must be economical and assure legibility when drawing sheets are reduced to half-size sheets. Lettering styles and sizes should be standardized within a set of drawings regardless of the design discipline involved.

a. **Symbols.** Symbols used in the preparation of civil, architectural, structural, mechanical, electrical and other drawings will reflect usage, for example, established by the American National Standards Institute (ANSI) standards or generally accepted professional

standards.

b. **Abbreviations.** Abbreviations will reflect common usage.

c. **Scales.** Graphic scales will be provided on drawings to allow for measured scaling. Project drawings, standard and definitive designs will generally be drawn to the scales indicated in Table C-1.

Table C-1 Drawing Scales		
Type	SI Metric	Inch-Pound (IP) Customary Equivalent
Site Plan	1:250 /1	(1" = 25')
	1:200	(1/16" = 1'-0")
Floor Plan	1:50 /2	(1/4" = 1'-0")
	1:100	(1/8" = 1'-0")
	1:200	(1/16" = 1'-0")
Roof Plan	1:200	(1/16" = 1'-0")
Exterior	1:10	(1" or 1-1/2" = 1'-0")
Elevation	1:100	(1/8" = 1'-0")
	1:200	(1/16" = 1'-0")
Interior	1:50	(1/4" = 1'-0")
Elevation	1:100	(1/8" = 1'-0")
Boring	1:10	(1" or 1-1/2" = 1'-0")
Logs	1:100	(1/8" = 1'-0")
	1:200	(1/16" = 1'-0")
Cross- Section	1:50	(1/4" = 1'-0")
	1:100	(1/8" = 1'-0")
	1:200	(1/16" = 1'-0")
Wall Section	1:20	(1/2" or 3/4" = 1'-0")
Stair Detail	1:10	(1" or 1-1/2" = 1'-0")

Table C-1  
Drawing Scales, Continued

Type	SI Metric	Inch-Pound (IP) Customary Equivalent
Details	1:5	(3" = 1'-0")
	1:10	(1" or 1-1/2" = 1'-0")

/1 May be necessary for landscape plans

/2 May be used for partial floor plans

d. Keys. All cross-referencing conventions, symbols and abbreviations will be keyed, and shown on the legend and other drawing sheets as appropriate.

e. Revisions. Conventions for describing revisions will include marking of the area of the drawing sheet revised so that the area can be easily located.

#### 7. Schedules.

a. Window Schedules. A tabular schedule of windows will also be included on the drawings. Each type of window will be assigned a number preceded by the letter "W." An elevation drawing of each type of window will be provided along with pertinent details. Every window will be clearly indicated by type on the elevation drawings.

b. Door Schedules. A tabular schedule of doors will be included on the drawings. Every door will be assigned a separate number and this number will be clearly indicated on the plans. Door numbers should be as nearly consecutive as possible, by floor, beginning with the principal building entrance area and progressing counter-clockwise through the plan. An elevation drawing of each type of door, identified by an upper case letter will indicate the material of which the door is made and other pertinent details. Details of each type of

door frame will be shown and each type will be identified.

c. Finish and Color Schedules. A tabular schedule of interior finishes and colors will be included on the drawings. Finish and color schedules should identify by room number the finish materials and colors to be used for the floor to include the base, the walls to include any wainscoting and trim, and the ceiling. The meaning of the abbreviations used in naming the materials and finishes will appear on the legend sheet or on the same sheet as the schedules.

8. Standard Details. The classification and type of standard details on drawings will conform as "CLASS 40" listed in Table C-2. When sequence numbers for standard details, i.e., DET 40-06-04 is Lighting Fixtures, are established; the sequence numbers are obtained from the U.S. Army Engineering and Support Center, Huntsville (CEHNC-ED-ES), telephone (205) 895-1402.

Table C-2

#### Class 40 - Standard Details

Type No.	Type of Detail
01	Architectural Details
02	Structural Details
03	Heating Details
04	Equipment Layouts & Details
05	Legends, Notes, Schedules, and Symbols
06	Electrical Details
07	Water System Details
08	Sanitary Sewer Details
09	Gas System Details
10	Field Survey Details
11	Athletic Equipment Details
12	Railroad Details
13	Plumbing details
14	Air Conditioning Details
15	Fire Protection Details
16	Fence Details
17	Pavement, Curb and Sidewalk Repair Details

**Table C-2**  
**Class 40 - Standard Detail, Continued**

Type No.	Type of Detail
18	Storage Racks, Grounds & Equipment Details
19	Tent Frame Details
20	Storm Water Details
21	Standard Component Layouts and Details
22	Kitchen Equipment Layouts and Details
23	Overhead Carrier System Details
24	Aircraft Arresting Barrier Details

**9. Area Computations and Room Numbering.**

a. Area Computations. Gross area of buildings and net area breakdowns for each floor will be provided on plans and computed in accordance with the method specified in AR 415-17, AEI Design Criteria.

b. Room Numbering. Every room will be assigned a separate number and this number will be clearly indicated on the plans. Room numbers will generally be assigned as shown in Table C-3. Room numbers should be as nearly consecutive as possible, beginning with the principal entry area and progressing counter-clockwise through the plan. Spaces added by revision should be given the number of the primary or nearest room followed by the letter "A," or if more than one additional space "B."

**Table C-3**  
**Room Numbering**

Floor	Numbering Sequence
Basement	01 through 99
First	100 through 199
Second	200 through 299

10. **Drawing Codification.** Drawings will be assigned a drawing code consisting of a letter prefix and three numerical parts as follows:

a. Prefixes. Letter prefixes will be used to differentiate between the various types of drawings, and between drawings prepared for Army, Air Force, and other projects as shown Table C-4.

**Table C-4**  
**Drawing Prefixes**

Drawing Type other	Army Prefix	Air Force Prefix		
Project Drawings	Concept	C	AC	XC
	Final	F	AF	XF
	As-Built	AS-BLT	AS-BLT	AS-
BLT				
Standard Drawings	Standard	STD	AW	XW
	Definitive Design	DEF	AD	XD
	Sketch Design	SK	ASK	XSK
	Design Guide	DG	-	-

b. Class Number. The first numerical part of the drawing code is a class number based on the first three digits of the facility category codes given in AR 415-28, and for Air Force projects obtain the information from the project Air Force command.

c. Type Number. The second numerical part of the drawing code is a type number based on the last two digits of the facility category codes given in AR 415-28 for Army projects, and the last three digits given Air Force Command for an Air Force project.

d. Sequence Number. The third numerical part of the drawing code is a chronological

sequence number to indicate succeeding numbers of drawings for a particular class and type of building or structure prepared within a particular design agency.

(1) Sequence numbers for project drawings will be assigned by the design agency responsible for the project and follow the criteria in this appendix. The first sequence number will be 01 after implementation of the coding system herein.

(2) Sequence numbers for standard drawings will be assigned by HQUSACE (CEMP-EA).

e. Examples. The following subparagraphs show how prefixes and numbers are combined to form a complete drawing code:

(1) To establish the drawing code for a training facility; the class number is 171, training buildings. If the facility is for the Army and for general instruction, the type number is 20; if the facility is for the Air Force and for pilot training, the type number is 213. Assuming this coding is the first design for this type of facility by the design agency since implementation of the coding system herein, the sequence number is 01.

(2) For the above example, the drawing code at the concept design stage becomes C-171-20-01 for an Army project and AC 171-213-01 for an Air Force project. A sequence number once assigned, is henceforth fixed for that particular set of drawings.

(3) During the development of drawings from the concept to final design stage, the numbers are retained but the prefix is changed from C to F. The drawing code at the final design stage becomes F-171-20-01 for an Army project and AF 171-213-01 for an Air Force project.

(4) In the case of an Army project standard design, the drawing code is STD 171-20-01, or AW 171-213-01 for an Air Force project. These drawing codes will be assigned by HQUSACE (CEMP-EA). The drawing code assigned by the design agency in site adapting this standard to an Army project would be F-171-20-01, assuming this was the first set of drawings for this type of facility prepared by the design agency.

(5) When modifying the final drawings to reflect as-built conditions, the numbers are retained but the prefix will be changed from F to AS-BLT. The drawing code becomes AS-BLT 171-20-01 for an Army project and AS-BLT 171-113-01 for an Air Force project (confer with the project's Air Force Command).

(6) If a final project drawing is designated as a standard drawing, the basic class and type numbers are retained, but the sequence number is changed to that assigned by HQUSACE (CEMP-EA). The prefix is also changed from F to FD to indicate designation as a field design.

11. Use of Additional SE Coding or Numbering Systems. No changes will be made in the coding system prescribed herein without prior approval of HQUSACE (CEMP-EA). If a design agency requires a class or type number not clearly covered by the facility category codes in AR 415-28, an appropriate number will be furnished upon request to HQUSACE (CEMP-EA). All requests concerning Air Force definitive numbers and facility nomenclature should be made to the Air Force Civil Engineer Support Agency, Tyndall AFB, FL 32403-53191, and the project's Air Force Command. When a design agency requires an additional coding or numbering system to comply with an existing system, these additional codes or numbers may be included on the drawings.

12. Review and Approval of Project Drawings.

30 May 97

a. **Using Service.** Submittal of drawings to the using service for review and approval of the functional aspects of the design will be compatible with the provisions of AR 415-15 .

b. **Corps of Engineers Design Agency.** Review and approval of drawings by the design agency will be in accordance with the design verification provisions set forth in ER 1110-345-100.

c. **Headquarters, U.S. Army Corps of Engineers (HQUSACE).** Project drawings shall not be submitted to HQUSACE (CEMP-E), except as provided by specific regulations, design directive or other HQUSACE instructions. Review or approval by HQUSACE (CEMP-E), that is directed by regulation or HQUSACE (CEMP-E) instruction, will in no way relieve the design agency of its approval responsibility.

13. **Drawing Authentication.** Approved drawings will be so designated by authentication on an index sheet or sheets that identifies by reference number, date and title, each of the other sheets in the set. This sheet or sheets will bear the signature of the appropriate officials responsible for the preparation, review and approval of the drawings. Drawings will be certified as official

and final, see ER 1110-1-8152.

14. **Modification of Project Drawings After Approval.** The design agency responsible for the project design is authorized to make modifications to the project drawings that have been approved in accordance with paragraph 12 of this appendix to correct errors, omissions and ambiguities, or to meet changes in local conditions occurring during construction.

a. **Modifications after Approval.** Modifications may be undertaken provided that the modifications are necessary or desirable to allow construction to proceed in an efficient and economical manner, and do not alter the quality of construction, general functions, appearance or scope of the project.

b. **Identifying Modifications.** Modification of project drawings will be clearly indicated and identified by date and the office authorizing the change.

15. **A-E Prepared Drawings.** A-E contractor drawings shall comply with Figure C-1 and Figure C-2, and ER 1110-1-8152, paragraph 7. A-E contractor prepared drawings shall not be signed as accepted or approved by Corps of Engineers' personnel.

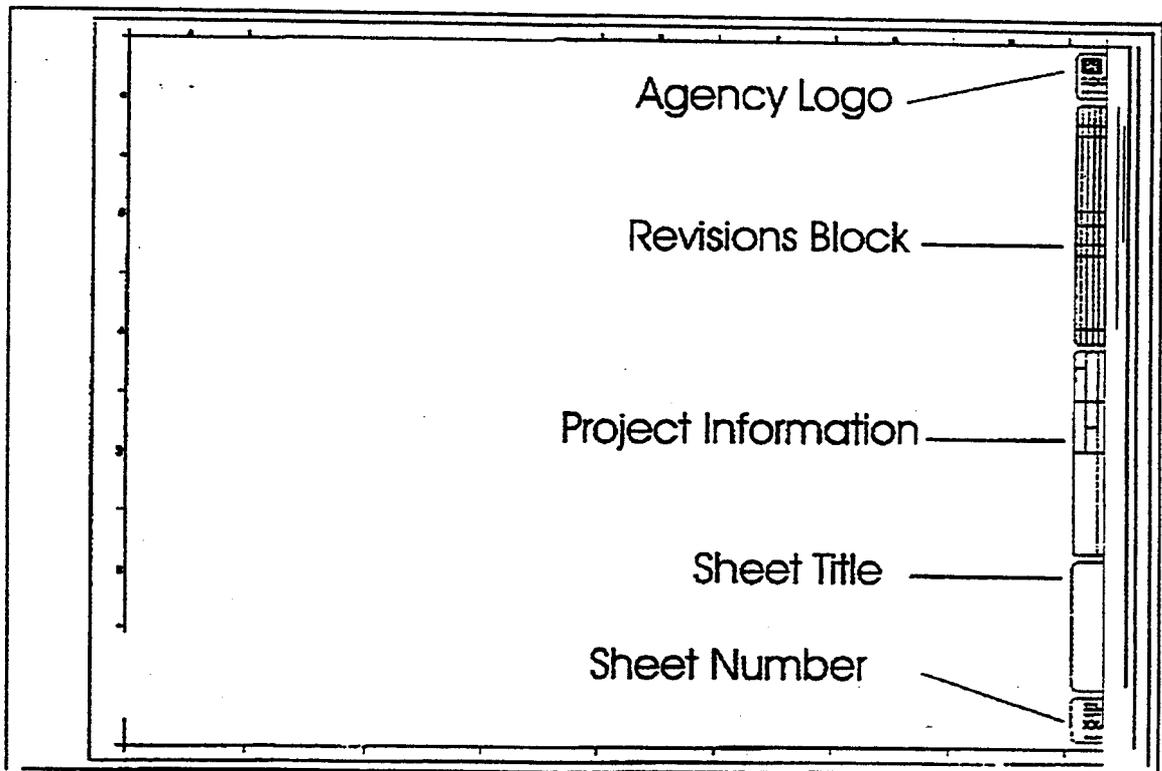


Figure C-1 Metric Sheet with:  
Vertical Title Block



Regulation  
No. 415-1-10

15 April 1997

Construction  
CONTRACTOR SUBMITTAL PROCEDURES

1. Purpose. The purpose of this regulation is to establish a system whereby the contractor can maintain effective scheduling, control and processing of submittals required by the contract in order to regulate the timely flow of materials to be incorporated into the construction.
2. Applicability. This regulation is applicable to all Major Subordinate Commands (MSC) and District Commands (DC) awarding and/or supervising any contracts requiring construction activities and shall be considered in conjunction with, and as a supplement to, ER 1180-1-6 during its implementation.
3. References.
  - a. ER 37-2-10
  - b. ER 37-345-10
  - c. ER 415-1-16
  - d. ER 1180-1-6
  - e. EP 415-1-260
4. General. The submittals referred to in this regulation include all shop drawings, samples, letters of certification, tests and other engineering information that may be required for quality control and assurance. The contractor is required to furnish a specified quality of construction, including materials and equipment to be incorporated in the work. Control of the quality of materials and equipment requires timely review, testing, or other evaluation. All required submittals must be made in time to allow for evaluation, approval, procurement, and delivery prior to the preparatory control phase and before the item is needed in the construction process.
5. Policy. This regulation prescribes standard procedures which are applicable to all contracts containing construction activities. The primary responsibility for the overall

---

This regulation supersedes ER 415-1-10, 30 May 1995

15 Apr 97

management and control of contractor submittals, in context with ER 1180-1-6, lies with the prime contractor. Monitoring of the contractor's quality management control to assure that submittals are timely, appropriately certified, and in compliance with the contract is the responsibility of the government.

6. Submittal Classifications. Submittals are classified as "government approved" or "information only." Submittals which will always require government approval are: extensions of design, critical materials, deviations, O&M manuals or those involving equipment that must be checked for compatibility with the entire system. The number of submittals requiring government approval should be kept to a minimum. All submittals not requiring government approval are for information only. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", government approved submittals are considered to be "shop drawings" whereas information only submittals are not. Examples of extensions of design are fire alarm and sprinkler protection systems, prefabricated buildings, structural steel drawings, standing seam metal roof drawings, coordination studies such as short circuit analysis of contractor selected electrical equipment, etc. Critical materials are defined as materials which must meet specific quality performance standards required by design parameters, the failure of which will have a major impact on the operation, maintenance, quality of life or life safety of the system. Examples of critical materials are coatings for cathodic protection of storage tanks, high pressure piping and controls, acid and hazardous waste systems, or architectural finishes for customer approval. Deviations are any submittal by the construction contractor which varies from the construction contract specifications. Examples of equipment which must be checked for compatibility with existing systems or the entire new system are equipment for sewage treatment and water purification plants, energy management control systems, intrusion detection systems, power generation and distribution systems, etc. The examples provided here are not all inclusive and are used only for illustration purposes.

7. Contractor Responsibilities. The contractor is responsible for total management of his/her work. This includes the scheduling, control, and certification of all submittals. The contractor's responsibilities will be established by the inclusion of properly edited CEGS-01300 in the contract specifications.

8. Government Responsibilities.

a. The designer will prepare a list of submittals required for each contract. This list must be very specific to allow the construction contractor to know exactly what it is that is required to be submitted. This list will be prepared electronically on ENG Form 4288-R (Submittal Register) (Appendix A) and will be limited to columns "d" thru "o". This list will be provided in hard copy and on computer disc which is compatible with the Resident Management System (RMS) software. Prior to advertisement, construction and engineering elements of the FOA will jointly determine what submittals require government approval and what submittals are for information only. This will be noted in columns "p" and "q" on the ENG Form 4288-R. Column "r" will be used to designate the reviewer in accordance with MSC/DC procedures. The information on ENG Form 4288-R will be incorporated into the specifications prior to advertisement. ENG Form 4288-R is authorized for electronic generation in accordance with existing guidelines on electronic generation of forms. Further guidance on electronic generation of forms is available through the local Forms Management Officer (FMO).

b. The appropriate elements of the MSC/DC will review the contractor's submittal control document in accordance with procedures established by the MSC/DC. The review will be coordinated within the MSC/DC to assure that all required submittal schedules, review time, and procurement lead times are reasonable. In addition, the document shall be checked against the Network Analysis System or other approved construction schedule. The master copy of the control document shall be maintained in the Area/Resident Office. Control at this level is necessary to ensure effective management of the contractor and timely response by the government. It is essential that a complete record of all action dates be maintained and that the document reflect current information for each contract. It is important that certifications required after completion of construction, like roofing systems and underground heat distribution systems, be monitored and obtained at the appropriate times. The Area/Resident Engineer should monitor progress at all times and take appropriate action for any delay. Examples of appropriate actions for contractor caused delays include letters advising of delinquency, retainage for unsatisfactory progress, and nonpayment for unapproved materials.

ER 415-1-10

15 Apr 97

c. Submittals will be received from the contractor as directed by the specifications. . . ENG Form 4025 (Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance) will be used as the transmittal document. Review will be as previously determined. The cost for reviewing shop drawings will be charged in accordance with ER 415-1-16, ER 37-2-10 and ER 37-345-10. Approval actions and correspondence with the contractor shall be made by the Area/Resident Engineer Office (ACO/COR) . Government personnel shall perform quality assurance reviews of information only submittals to assure that the contractor's quality control program is properly handling submittals. The number of reviews will be at the DC discretion, however, a minimum of 10 percent of all information only submittals will be reviewed.

9. Implementation. The contract documents will include a section based on CEGS 013~~0~~<sup>3</sup> which will establish contractual procedures for submittals. MSC/DC will establish necessary internal procedures to carry out the intent of this regulation.

FOR THE COMMANDER:

2 Appendices  
APP A - ENG Form 4288-R  
APP B - ENG Form 4025



OTIS WILLIAMS  
Colonel, Corps of Engineers  
Chief of Staff

<p><b>TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b> <i>(Read Instructions on the reverse side prior to initiating this form)</i></p>	<p>DATE</p>	<p>TRANSMITTAL NO.</p>
<p><b>SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS</b> <i>(This section will be initiated by the contractor)</i></p>		
<p>TO:</p>	<p>FROM:</p>	<p>CHECK ONE:  <input type="checkbox"/> THIS IS A NEW TRANSMITTAL  <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____</p>
<p>SPECIFICATION SEC. NO. <i>(Cover only one section with each transmittal)</i></p>	<p>CONTRACT NO.</p>	<p>CHECK ONE: THIS TRANSMITTAL IS FOR <input type="checkbox"/> FID <input type="checkbox"/> GOV'T. APPROVAL</p>
<p>PROJECT TITLE AND LOCATION</p>	<p>CONTRACTOR USE CODE      VARIATION FOR CE USE CODE</p>	
<p>DESCRIPTION OF ITEM SUBMITTED <i>(Type etc, model numbers, etc.)</i></p>	<p>INFO OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <i>(See Instruction no. B)</i></p>	<p>CONTRACT REFERENCE DOCUMENT</p>
<p>ITEM NO.</p>	<p>NO. OF COPIES</p>	<p>SPEC. PARA. NO.      DRAWING SHEET NO.</p>
<p>REMA KS</p>	<p>I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.</p>	
<p><b>SECTION II - APPROVAL ACTION</b></p>		
<p>ENCLOSURES RETURNED <i>(List by item No.)</i></p>	<p>NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY</p>	<p>DATE</p>
<p>NAME AND SIGNATURE OF CONTRACTOR</p>		
<p>EDITION OF SEP 93 IS OBSOLETE.      SHEET ____ OF ____</p>		

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box: on resubmittals, insert transmittal number of last submission well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on I separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications-also written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section L
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section 1, column 1 to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section 1, column g, to each item submitted.

A	Approved as submitted.	E	Disapproved (See I Itached).
B	Approved, except as noted on drawings.	F	Receipt acknowledged.
C	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX	Receipt acknowledged, does not comply as noted with contract requirements.
D	Will be returned by separate correspondence.	G	Other (Specify)
10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

CECW-E

Regulation  
No. 1110-1-8155

10 October 2003

Engineering and Design  
**SPECIFICATIONS**

1. **Purpose.** This regulation prescribes specifications policy and requirements for both Civil Works and Military Construction, incorporates Total Army Quality principles and the Project Management Business Process, implements MIL-STD-3007, "Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications," and enables Headquarters U.S. Army Corps of Engineers (HQUSACE) elements and U.S. Army Corps of Engineers (USACE) commands to produce quality project specifications.
2. **Applicability.** This regulation is applicable to all HQUSACE elements and USACE commands having design or construction responsibilities.
3. **Distribution.** This regulation is approved for public release; distribution is unlimited.
4. **References.** Required and related publications are listed in Appendix A.
5. **Definitions.**
  - a. **Design Agency.** A HQUSACE element or USACE command having military and/or civil works design responsibilities.
  - b. **Specifications Engineer.** An Architect or Engineer within a design agency who is assigned primary responsibility for overseeing the preparation of project specifications and coordination of the specifications with the other construction documents.
  - c. **Designer.** An Architect or Engineer within a design agency who has design responsibility for certain features of a project involving one or more engineering and design disciplines, e.g., architectural, structural, mechanical, electrical.
  - d. **HQUSACE Specifications Proponent.** The individual within HQUSACE designated to address the needs and concerns of design agencies related to the preparation of quality guide specifications and project specifications.
  - e. **MIL-STD-3007, "Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications."** The standard that establishes procedures for the development and maintenance of Unified Facilities Criteria (UFC) and Unified Facilities Guide

---

This regulation supercedes ER 1110-1-8155 dated 24 December 1998 and rescinds ER 1110-2-1200, Plans and Specifications for Civil Works Projects, and the reference to ER 1110-2-1200 in ER 1110-2-1150, Engineering and Design for Civil Works Projects, dated 31 August 1999.

Specifications (UFGS) and prescribes their use by the Army, Navy, Marine Corps, Air Force, Department of Defense (DOD) agencies and DOD Field Activities.

**f. USACE Unified Facilities Criteria (UFC) Technical Proponent.** An individual assigned the responsibility for coordinating the unification and maintenance of a criteria document or UFGS in accordance with MIL-STD-3007.

**g. USACE Unified Facilities Criteria (UFC) Technical Representative.** An individual designated to serve as technical expert for a certain guide specification or criteria document where USACE has been designated the Participating Organization for the UFGS specification or criteria document.

**h. Unified Facilities Guide Specifications (UFGS).** A system of master guide specifications that define the qualitative requirements for products, materials, and workmanship for work features that occur in construction projects on a repetitive basis. The UFGS system is established by MIL-STD-3007.

**i. USACE UFGS Database Manager.** The person responsible for maintaining a master database of UFGS sections for which USACE is responsible.

**j. TECHINFO.** An Internet-based construction criteria information system that is managed for HQUSACE by the U.S. Army Engineering and Support Center, Huntsville (CEHNC-ED-ES).

**k. Construction Criteria Base (CCB).** A database developed by the National Institute of Building Sciences and available in CD-ROM and DVD media and on the Internet. The database contains design and construction documents from federal and private organizations, including Unified Facilities Guide Specifications, and National Aeronautics and Space Administration (NASA) guide specifications.

**l. SPECSINTACT.** A software program, copyrighted by the NASA, mandated for use in producing USACE project specifications and maintaining guide specifications. The software provides state-of-the-art specification automation to users and incorporates a wide range of quality control features. The software is a cooperative effort by Army, Navy, and NASA that provides greater uniformity and better transportability of guide specifications between other departments and agencies. SPECSINTACT software is available from the SPECSINTACT web site and CCB.

**m. Construction Specifications Institute (CSI).** A non-profit organization with members from all areas of the construction and engineering industry that establishes and publishes formats and organization standards for use in the preparation of construction specifications and other construction documents.

**n. CSI Manual of Practice (MOP).** An industry-recognized reference manual that contains recommended methods and practices for preparing, organizing, and formatting construction specifications and other construction documents.

**o. Project Specifications.** Specifications (also known as construction specifications but excluding those produced by a construction or design-build contractor) produced using the CSI format under the oversight of a Specifications Engineer that define construction requirements applying to a specific project. For design-build projects, only those specifications that form a part of

the Request for Proposal (RFP) are project specifications.

**p. Standard Specifications for Military Construction.** Specifications that are developed under direction of HQUSACE (CECW-E) as part of a standard design package that provides unique requirements for facilities intended for site adaptation at several locations, e.g., Petroleum, Oil, and Lubricant (POL) Storage Facilities. Standard specifications are based on UFGS format and are developed in sufficient detail to serve as construction documents after site-specific requirements are incorporated. Standard specifications are packaged with the design drawings to which they apply and are available from the U.S. Army Engineering and Support Center, Huntsville (CEHNC-ED-ES).

**q. Federal Specifications and Standards (FED-SPECS and FED-STDS).** Documents issued or controlled by the General Services Administration (GSA) that are sometimes referenced in UFGS to define requirements. Active FED-SPECS and FED-STDS cited in DOD documents are available from the GSA Federal Supply Service Bureau.

**r. Military Specifications and Standards (MIL-SPECS and MIL-STDS).** Documents issued or controlled by one of the military departments that are sometimes referenced in UFGS to define requirements. Active MIL-SPECS and MIL-STDS are available from the DOD Single Stock Point (DoDSSP).

**s. Reference Standards.** Documents that contain requirements set by authority, custom, or general consensus and are established as accepted criteria. They are published by trade associations, professional societies, standards-writing organizations, governments, and institutional organizations, e.g., the American National Standards Institute (ANSI) and ASTM International (ASTM). These documents are incorporated by reference into UFGS and project specifications to define qualitative and performance requirements for materials, equipment, systems, test methods, and workmanship.

**6. HQUSACE Specifications Proponent.** The HQUSACE specifications proponent uses input from a variety of sources to ensure that specifications issues affecting USACE are addressed at the headquarters level. The specifications proponent maintains a liaison between the Military Programs and Civil Works Directorates at HQUSACE, as well as the specifications proponents from other agencies and DOD departments. The HQUSACE specifications proponent represents USACE specifications concerns and issues in discourse with other agencies and departments as appropriate, e.g., SPECSINTACT enhancements and CCB issues.

**7. Specifications Steering Committee.** The Corps of Engineers Specifications Steering Committee (CSSC) has been established by ER 15-1-41 to provide recommendations for improving UFGS and project specifications.

#### **8. Unified Facilities Guide Specifications (UFGS).**

**a. Purpose.** UFGS provide design agencies and their contractors a set of master guide specifications reflecting DOD technical policy that will enhance productivity, quality, and uniformity of DOD construction. UFGS are revised and reissued periodically to incorporate lessons learned and technological advances.

(1) UFGS promote full and open competition in procurement in accordance with Federal

Acquisition Regulation (FAR) Subpart 11.002 and maximize construction economy consistent with sound functional, aesthetic, environmental, energy conservation, and architectural and engineering practices.

(2) UFGS contain designer notes providing guidance on use of the specifications and the coordination required with the other project specification sections and with the project drawings. UFGS also contain "tailoring options" in many sections that allows SPECSINTACT to globally delete products or requirements with a minimum of effort. Additionally, through the use of "brackets," the guide specifications identify blanks to be filled in and alternative text for selection by Designers.

(3) UFGS used in combination with SPECSINTACT automated processing methods improve project specification production, uniformity, consistency, and overall quality in accordance with DOD policy. Uniformity and consistency of project specifications aid contractors in their preparation of bids, improve quality of construction, and reduce cost to DOD customers.

**b. UFGS Development and Update Process.** UFGS are developed and maintained under the "Department of Defense Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications," MIL-STD-3007.

**c. Recommended Changes.** Design agencies are encouraged to submit proposals for new criteria and UFGS that may have DOD-wide application. Proposals for technical or editorial changes to existing criteria and UFGS that are necessary or desirable for general application or to reflect local availability of materials and construction practice are also encouraged. Such proposals may be submitted to DOD electronically using the Criteria Change Request (CCR) System. Recommended changes may also be presented to CSSC members. A current list of members is provided on TECHINFO.

**d. UFGS Points of Contact.** Questions about an individual UFGS may be directed to the designated technical proponent for the document. A current list of technical proponents and their phone numbers is provided on TECHINFO.

## **9. Project Specifications.**

**a. General Requirements.** Design agencies will ensure that high-quality and concise specifications are prepared, that the preparation of project specifications is fully coordinated with agency construction and contracting representatives, and that the project specifications comply with industry standards for format and content as established by the CSI Manual of Practice. It is recommended that each design agency designate a Specifications Engineer to oversee and coordinate the preparation of project specifications to ensure compliance with these requirements. A Specifications Engineer should have knowledge and experience in developing construction contract documents and project specifications.

**b. Use of Existing Project Specifications.** Where a previous project design is adapted for use on a project, where standard specifications are used for military construction, or where a project design has been completed and held in abeyance for more than six months, the project specifications will be reviewed and revised as necessary.

**c. Use of UFGS.** UFGS provide a set of master guide specifications that shall be used for

developing project specifications (Under Secretary of Defense memo; subject: Department of Defense Unified Facilities Criteria). UFGS must be tailored to fit specific project requirements. The intent and wording of UFGS should be preserved to the extent practicable as they incorporate public laws, federal mandates, DOD policy, industry coordination, and lessons learned.

**d. SPECSINTACT.** The use of SPECSINTACT is mandatory for production of all project specifications, except for overseas area projects designed to host nation standards. Maximum efficiency and quality are obtained when project specifications are prepared using SPECSINTACT and the latest UFGS edited to suit the specific requirements of projects.

**e. Specifications Development During Project Phases.** Project specifications, when combined with the project drawings, must provide a comprehensive set of construction documents that can be bid fairly and competitively and executed without change, except as necessary to resolve unforeseen conditions or changes made during construction. (See ER 1180-1-6 and ER 415-1-11 for guidance on biddability, constructibility, operability, and environmental review.) Design agencies will identify and resolve unusual design or contract administration problems and assure that project specifications comply with technical policy established by HQUSACE. Close coordination between the Specifications Engineer and the Designers is important throughout all design phases to produce complete and accurate project specifications. Specifications Engineering and Designing are distinct professional functions that must be performed during specifications development. In some organizations, a person performing the Specifications Engineering function for a project specification may also perform some Design functions; in other organizations a person may be exclusively devoted to performing the Specifications Engineering function with Design functions being performed by others.

(1) Specifications Engineers should assist Designers in identifying UFGS sections that are to be used in the project, operating the SPECSINTACT software, and incorporating a Designer's technical requirements into the project specifications.

(2) Designers are responsible for the design of technical project features and are responsible for the technical content of the project specifications for those features. Specifications Engineers are responsible for the format of all project specification sections and for ensuring that proper and non-contradictory contract language is used throughout. Specifications Engineers are also responsible for determining the project-specific information that must be inserted into the non-technical provisions and the Division 1 General Requirements sections.

(3) Designers will prepare technical requirements for which no UFGS exists. When a new specification section must be developed for a particular project, the Designer will provide the technical information and technical requirements to be included in the specification section. The Specifications Engineer will work with the Designer to ensure that the section contains proper language and is properly formatted in accordance with the document "Unified Facilities Guide Specifications (UFGS) Format Standard" UFC 1-300-02.

(4) Project Bid Schedules will be prepared in close coordination with Contracting, Counsel, Project Management, Design, Cost Engineering, and Construction. For Civil Works projects, the lump sum and unit-priced items defined for incorporation in the bid schedule must be consistent with the work breakdown structure. Bid schedules will conform to USACE guidance

and all aspects of the FAR (FAR Subpart 36.207).

(5) As part of the routine quality assurance/quality control (QA/QC) process, Specifications Engineers should perform quality checks (e.g., SPECSINTACT reports, visual scan of pages for errors, verification of specification inserts such as the submittal register, etc.) on project specifications prior to advertisement.

(6) Appropriate design staff should make field trips during the construction phase of projects to identify specifications and contract administration problems to be avoided in future project specifications. Corrective action will be implemented to resolve problems identified during all project phases that could have been prevented by improved specifications, e.g., recommend changes in UFGS.

(7) The Resident and Area Engineers should be contacted during the design process and their input solicited, particularly for Division 1 sections.

**f. Specifications Prepared by Architect-Engineer (A-E) Firms.** The requirement to use SPECSINTACT for production of project specifications will be included in all procurement of A-E design services. Design agencies will assist the A-E by providing copies of regulations, manuals, engineer technical letters, and other information not available on TECHINFO and CCB. Design agencies will provide guidance to A-E firms on preparation of Division 1 sections and provide agency-unique information to be incorporated into the Division 1 sections. Previous project specifications may be furnished as samples of the form and content for completed work but should not be used where applicable guide specifications exist.

**g. Construction Documents Format.** Construction contracts shall be prepared in accordance with the HQUSACE format for construction contracts in Engineering FAR Supplement (EFARS) Subpart 14.2, Solicitation of Bids, using the Electronic Contract Solicitation (ECS) process prescribed in ER 715-1-21, unless exempted therein. Specification section numbering will follow CSI MasterFormat (latest edition). The format of the sections within the specifications will be based on the CSI SectionFormat as modified under the "Unified Facilities Guide Specifications (UFGS) Format Standard" UFC 1-300-02.

**h. Reference Publications.** Materials, workmanship, and equipment will be described, where possible, by reference to industry and government standards generally known to the construction community, citing the type, class, or other designation necessary to identify fully the item required. The reference approval date and the dates of any applicable amendment and revisions shall be included in the solicitation (FAR Subpart 11.201a). Reference standards should not be used to describe minor, non-critical items (such as incidental fasteners) when any commercially available product of that nature would be adequate. To the maximum extent practicable, references will be to nationally recognized industry and technical society specifications and standards. If industry documents are unavailable or unsuitable, applicable Commercial Item Descriptions (CID) may be referenced. Publications referenced in project specifications need be no later than the editions cited in the current notice for the corresponding UFGS. Publications not readily available to bidders, such as locally developed policy or guidance, should not be referenced but if referenced shall be furnished with the solicitation (FAR Subpart 11.201b). In accordance with DOD direction, FED-SPECS, FED-STDS, MIL-SPECS, and MIL-STDS shall not to be used in

contracts unless exempted by HQUSACE. These publications cited in UFGS are approved for use. Federal Specifications, Standards, and Commercial Item Descriptions can be found on the GSA Federal Supply Service Bureau WEB Site. Government specifications and standards, and policy can be located through the Defense Standardization Program Office (DSPO) WEB site.

**i. Submittals.** Construction submittals, such as shop drawings, samples, test reports, certificates, and manufacturer's instructions should not be required for non-critical items of relatively low value when the cost of making the submittal exceeds the benefit to the project (see ER 415-1-10). Avoidance of such submittal requirements is particularly encouraged for small projects. Design agencies must keep submittals requiring government approval to a minimum due to funding limitations. Only those submittals that are critical to safety, construction execution, or system or facility operation should be required for government approval. Submittals not requiring government approval should be used when it is important to verify that the contractor is complying with contract requirements. Critical submittals requiring government approval are extensions of design, critical materials, deviations, O&M manuals, or those involving equipment that must be checked for compatibility with the entire system.

**j. Testing.** Ordinarily, testing is the responsibility of the contractor under the Contractor Quality Control (CQC) provisions of the specifications (see ER 1180-1-6). Requirements in the specifications making testing the contractor's responsibility will not be written in such a way as to void the right of the contracting officer to perform confirmation testing and Quality Assurance (QA) testing or to witness testing by the contractor. Specifying testing that will be performed by the government at government expense (i.e. outside of the tests to be performed by the contractor under the CQC procedures) should be kept to a minimum and should be done only when necessary to assure the quality of critical construction.

**k. Warranties.** Warranty requirements extending beyond the normal one-year construction warranty period or such other period required by UFGS will be specified only for materials, equipment, or systems for which longer warranties are normally provided in the industry. The increased cost of the extended warranties and the costs of administering and enforcing such warranties should be evaluated prior to their specification.

**l. New Materials and Methods.** Designers are encouraged to consider the use of new, unusual, or innovative materials, equipment, systems, or methods in designs when evidence shows that such use is in the best interest of the government in terms of value, lower life-cycle costs, and quality of construction. Manufacturers are to prove the merits of their product by certified laboratory results, evidence of satisfactory installation under conditions similar to those anticipated for the proposed construction and compliance with appropriate industry standards, if they exist. For a specific project, where different requirements from those in UFGS are specified, and where the requirements may have application beyond that specific project, design agencies will submit a recommended change using the Criteria Change Request (CCR) web site to report the new, unusual, or innovative items to DOD. The recommended changes will allow DOD to implement changes to criteria.

**m. Brand Names and Proprietary Items.** Specifying items peculiar to one manufacturer (closed proprietary), either by brand name or by peculiar characteristic, is prohibited unless specially justified and approved (FAR, Subpart 11.105). Brand name or equal (open

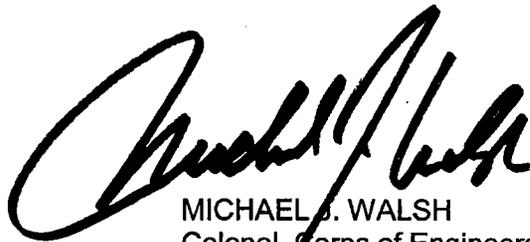
proprietary) descriptions should be used with great care and discretion. Where the brand name or equal description is used, the contract provisions shall include those salient features of the item or items specified upon which equality can be determined (FAR, Subpart 11.104, Subpart 11.107, and Subpart 36.202(c).

**n. Contractor's Options.** Optional materials and methods of construction that are acceptable are included in UFGS as a means of increasing competition and reducing project costs. Project specifications should include all contractors' options contained in UFGS. Additional optional materials and methods may be specified if a study of conditions affecting a particular project shows that other options are consistent with good architectural and engineering practice, are economically justifiable, and provide the best value to the government. Where a contractor's option is specified that is not part of a UFGS section and the specified contractor's option may have application beyond that specific project, the design agencies will submit recommended changes electronically using the Criteria Change Request (CCR) web site.

**10. Training.** Design agency staff involved in preparation of specifications should attend the Proponent-Sponsored Engineer Corps Training (PROSPECT) Course "Specifications for Construction Contracts." Training should also be provided in bidding procedures and the preparation of the non-technical provisions of contract documents, personal computer software, SPECSINTACT, and, if SPECSINTACT is used on a network, in network operation and software. Specifications staff should be encouraged to become certified under the CSI Certified Construction Specifier Program.

**FOR THE COMMANDER:**

1 Appendix  
APP A - References



MICHAEL J. WALSH  
Colonel, Corps of Engineers  
Chief of Staff

## APPENDIX A

### REFERENCES

#### **A-1. Required Publications.**

- a. Federal Acquisition Regulation (FAR), Part 11.
- b. Federal Acquisition Regulation (FAR), Part 36.
- c. MIL-STD-3007, current edition, Department of Defense Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications.
- d. UFC 1-300-02, Unified Facilities Criteria (UFC) Unified Facilities Guide Specifications (UFGS) Format Standard
- e. The Under Secretary of Defense memo dated 29 May 2002, subject: Department of Defense Unified Facilities Criteria.
- f. ER 5-1-11, U. S. Army Corps of Engineers Business Process
- g. ER 15-1-41, Corps of Engineers Specifications Steering Committee (CSSC).
- h. ER 415-1-10, Contractor Submittal Procedures.
- i. ER 415-1-11, Biddability, Constructibility, Operability, and Environmental Review.
- j. ER 715-1-21, Electronic Contract Solicitations
- k. ER 1180-1-6, Construction Quality Management.
- l. Engineering FAR Supplement (EFARS) Subpart 14.2, Solicitation of Bids.
- m. Manual of Practice (MOP), Construction Specifications Institute (CSI), 601 Madison Street, Alexandria, VA 22314.

#### **A-2. Related Publications.**

- a. AR 5-1, Army Management Philosophy.
- b. ER 690-1-414, Proponent-Sponsored Engineer Corps Training (PROSPECT).
- c. ER 1110-1-12, Quality Management.
- d. ER 1110-2-1150, Engineering and Design for Civil Works Projects.
- e. ER 1110-2-1302, Civil Works Cost Engineering.

- f. ER 1110-3-1300, Military Programs Cost Engineering.
- g. ER 1110-345-100, Design Policy for Military Construction.
- h. ER 1110-345-700, Design Analysis, Drawings, and Specifications.
- i. ER 1180-1-9, Design-Build Contracting.

# SP/100

## Specifying for the Federal Government

Many federal agencies administer construction programs and each has different construction document preparation requirements. The first experience with a federal agency client may be awkward and troublesome for an architect/engineer (A/E) whose previous experience has been entirely in the private sector. Many of the practices and procedures to which the A/E has become accustomed must be changed to conform to the requirements of the federal agency client. This chapter will help the A/E to prepare bidding and contract documents for federal agency projects. Many of the principles discussed here will also apply when the client is a city, county, or state government agency, or a school district with specific requirements for the form and content of their construction documents.

*MasterFormat* is often the common link between federal government and private sector specifications. Most government agencies use *MasterFormat* to organize their guide specifications. However, their section numbers and titles may sometimes differ from those in the current edition. Additionally, federal agencies sometimes intentionally deviate from *MasterFormat* to accommodate their unique requirements. For example, the Veterans Administration considers "General Conditions" a Division 1 – General Requirements section.

Most government guide specifications conform to the CSI SectionFormat. However, the method of numbering paragraphs may not always follow the preferred alpha-numeric arrangement in the suggested *PageFormat*. Some agencies number their paragraphs and subparagraphs in a legal style, Arabic numeral format 1.1, 1.1.1, 1.1.2, 1.1.2.1. Rather than specifying procedural matters in the appropriate Division 1 section, some agencies repeat statements concerning general requirements for maintenance information and shop drawings in each Division 2 through 16 section.

### BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT

Federal agencies usually do not require the A/E to prepare all the components of the project manual. In some cases the A/E will write the specifications in Divisions 1 through 16, and the client agency will provide the bidding requirements, contract forms, and conditions of the contract to the A/E for incorporation into the project manual. The A/E must be familiar with these client agency documents before preparing the Division 1 through 16 specifications. This may require persistent requests to the client agency to obtain the documents, and even then the A/E cannot be entirely sure the samples provided will be identical to those finally used in the project manual. When agency-furnished documents are used, the content of Division 1 will vary greatly from a Division 1 prepared for use in the private sector.

The first difference about the general conditions of the contract for a federal project is the name of the document. Comparable to the American Institute of Architects (AIA) Document A201, *General Conditions of the Contract for Construction*, or the Engineers Joint Contract Documents Committee (EJCDC) Document 1910-8, *Standard General Conditions of the Construction Contract*, the federal documents might be titled "General Provisions," "General Standards," "Special Provisions," or "Contract Clauses." They are all based on the Federal Acquisition Regulations (FAR).

There are other significant ways in which federal general conditions differ from their private-sector counterparts.

- A "contracting officer," rather than the A/E, is responsible for administering the bidding and construction phases of the contract. The contracting officer is either a military officer or a civilian employee of the government. Consequently, the A/E does

not exercise the same authority on federal projects that it ordinarily would on projects in the private sector.

- The federal government is both the owner and the primary regulating authority.
- Local building code authorities do not have jurisdiction on federal property, although other federal agencies may have authority.
- The federal government is self-insuring and does not procure commercial insurance for its buildings or their contents. Therefore, federal guide specifications generally contain more stringent requirements for fire protection, safety, and component and construction durability than those in the private sector.
- The means of settling disputes is different from those encountered in the private sector. Although this normally does not directly affect the specifications, it does have a significant impact on administration of the contract.

## SOCIAL VALUE REGULATIONS

Federal government contracts normally include certain "social value" regulations designed to assist particular industries and other special-interest groups. Some examples are wage rates, environmental regulations, preference to American shipping, affirmative action, utilization of small businesses, utilization of businesses owned by women and minorities, labor standards, and accessibility standards.

The "Buy American Act" is another such provision. It gives U.S. manufacturers an advantage by imposing penalties or restrictions on the use of foreign-made products. A product is considered to be a U.S.-manufactured product if it is manufactured in the U.S. and at least 50 percent of its components, by cost, are mined, produced, or manufactured in the U.S. Some materials are exempt from "Buy American" provisions, such as raw materials of which there are limited domestic supplies. Use of most other foreign products is generally prohibited unless the contractor can furnish reliable evidence that the cost of an equivalent U.S.-made product will be more than six percent greater than the cost of the foreign-made equivalent; or if the foreign product is used in a "unique" situation where no domestic product can meet the criteria.

## USE OF MANUFACTURERS' NAMES

It is the policy of most federal agencies to prohibit use of brand names, manufacturers'

names, or other proprietary or restrictive requirements for products. The intention is to encourage unlimited competition consistent with the type and quality of work, and to maximize the use of standard products and current models meeting the functional requirements of the facility. Drawings, specifications, standards, or purchase descriptions for acquisitions should state only the government's actual minimum requirements and describe the supplies or services in a manner that will encourage maximum practicable competition. Brand names may be used in federal government specifications under the following conditions:

- When there is no other feasible way of describing the essential functional or physical characteristics (such as to describe the appearance of stone or the performance of a high-technology product)
- When an agency is extending or connecting to an existing system and the new portion or components must match the existing system
- When specifications include a statement explaining that the brand names are included only to describe stated salient characteristics such as color, pattern, and operational characteristics, and that other products having the same characteristics will not be excluded
- When specifications list a minimum of three products and state specifically that acceptable products are not limited to the manufacturers of those products.

When brand-name descriptions are necessary, the specifications must clearly identify and describe the particular physical, functional, or other characteristics of the brand name items that are considered essential to satisfying the requirement.

In order to eliminate any chance that the use of brand names in specifications might limit competition, the FARs require the following clause to be included in fixed-price contracts:

*Reference in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.*

## FEDERAL SPECIFICATION PRODUCT STANDARDS

There are four classifications of reference standards used for specifying government construction. Listed in the order of preferred usage, they are private sector standards, Commercial Item Descriptions (CID), Federal Specifications (FS), and Military Specifications (MS or MIL).

Federal Specifications were originally established to meet a vital procurement need and many of them have also set standards for industry. However, current government policy encourages development and use of non-government standards to replace Military Specifications and Federal Specifications. Private-sector organizations such as the American Society for Testing and Materials (ASTM), the National Fire Protection Association (NFPA), and the American National Standards Institute, Inc., (ANSI) are now more active in developing standards for construction products, and Federal Specifications are being replaced by these standards, or by "Commercial Item Descriptions," which include references to ASTM, ANSI, and other industry standards. Government policy currently favors the use of such private-sector standards when they exist, and when they meet the needs of the agency concerned. It is also the current Department of Defense policy to convert Military Specifications to private-sector standards or to Federal Specifications when used in non-military construction. Many Federal Specifications have not been updated for years, and they should not be used when more current standards are available.

Federal Specifications are documents issued by the General Services Administration (GSA) Federal Supply Service, and cover a wide variety of items used by the federal government, including some construction products. Federal Specifications generally appear as a reference under PART 2 PRODUCTS of a specification section. Military Specifications are similar, except that they are issued by the Department of Defense and include only a few construction products. Military Specifications are organized with various classifications of type and quality.

Most Federal Specifications are classification documents that include all quality levels of the product described and grade the product in accordance with its physical and functional characteristics. When referencing a Federal Specification, it is usually necessary to state the particular class or grade of the product being specified.

## SPECIFICATION ITEMS FOR CONSIDERATION DURING CONTRACT FEE NEGOTIATION

Preparing a specification for a federal agency will often take more time than a specification for a private-sector owner, including the time required to read agency manuals and other documents containing requirements relating to the project.

Consider the following items when the project fee is being negotiated:

- What is the form of the available master guide specifications (e.g., printed copy that will require complete retyping, CD-ROM requiring special equipment to read optical disks, 9-track magnetic tape that will require some programming to use, or computer text files not compatible with the A/E's word processing system)?
- Who develops or provides specification sections that are not included in the agency-furnished specifications?
- How many reviews are required by the client agency?
- In what form are the specifications to be for each review?
- How many copies are required for submittal at each review?
- Will the agency provide the front-end documents, or will the A/E be required to write them? What effect will this have on preparation of the remainder of the project manual?
- What is the time frame for reviewing submittals and for review by the agency?
- Will the agency's own page format require additional work?
- Will the agency require all sections to be produced in the same typeface (e.g., a mixture of letter quality and dot matrix printing developed by separate disciplines may not be accepted)?
- Will reference documents need to be acquired, and if so, will the client agency provide copies or reimburse their acquisition cost?

## FEDERAL GOVERNMENT AGENCIES' CONSTRUCTION DOCUMENTS POLICIES

Each agency involved in construction has its own policies and procedures for administering construction programs. Each agency also publishes its own construction documents and forms or has combined with other federal agencies to publish common documents. In Divisions 1 through 16, federal guide specifications are tailored to the specific project by the

A/E. Bidding requirements, contract forms, and conditions of the contract are later incorporated into the contract documents by the agency prior to issuance of the project for bidding. *Figure SP/FG-1* illustrates policies followed by several federal agencies in issuing such documents to A/E firms for use in construction contracts.

and 16. The master guide specifications are coordinated with *MasterFormat*. A/Es working on a GSA project should obtain the appropriate front-end documents.

Most other federal agencies involved in construction have developed master guide specifications independently to meet their own particular needs. Various groups and individuals have recommended uniform specifications development to minimize duplication of effort and to make it easier and less costly for contractors, A/Es, manufacturers, and others to do business with the federal government. These recommendations prompted the Federal Construction Council (FCC) to study the feasibility and desirability of developing uniform master guide specifications for all federal construction work. Their

### FEDERAL GOVERNMENT GUIDE SPECIFICATION PROGRAM

The General Services Administration (GSA) and the National Institutes of Health (NIH) have adopted a commercially available master guide specification for use on their projects. GSA uses the complete specification system with the exception of Divisions 1, 15,

**Figure SP/FG-1**  
*This Chart Illustrates the Policies Followed by Several Federal Agencies in Issuing Documents to A/E Firms for Use in Construction Contracts.*

Agency Name	Bidding Requirements, Contract Forms, Conditions of the Contract					
	Divisions 1 - 16					
	Agency Supplies	Agency Supplements	A/E Supplies	Agency Supplies Guide Specs	Agency Approves A/E Specs	Agency Supplements A/E Specs
COE	X			X		
EPA		X			X	
Far. HA	X			X		
FAA		X		X		
FBOP	X					
Fed. Hwy. Admin.			X		X	X
FHA	X			X		X
FS	X			X		
GSA	X			*		
HUD		X			X	
NASA	X			X		
NAVFAC	X			X		
NIH		X		X		
NPS	X			X		
SCS	X				X	
USPS	X				X	X
VA	X			X		X

Acronyms for the definition of abbreviations used in this figure.

COE	Department of the Army, Corps of Engineers	GSA	General Services Administration
EPA	Environmental Protection Agency	HUD	Department of Housing and Urban Development
Far HA	Farmers Home Administration	NASA	National Aeronautics and Space Administration
FAA	Federal Aviation Administration	NAVFAC	Naval Facilities Engineering Command
FBOP	Federal Bureau of Prisons	NIH	National Institutes of Health
Fed Hwy Admin.	Federal Highway Administration	NPS	National Park Service (agency of the Dept. of Interior)
FHA	Federal Housing Authority	SCS	Soil Conservation Service
FS	Forest Service	USPS	United States Postal Service
		VA	Veterans Administration

\* GSA uses a commercially available master guide specification system.

1968 study concluded that complete and mandatory standardization of all agency construction specifications would not be practical or desirable. However, a high degree of uniformity could be achieved, along with most of the benefits of standardization, through a program that would generate high quality interagency master guide specifications.

Given these conclusions, the FCC initiated its Federal Construction Guide Specifications (FCGS) program in 1971. This program was aimed at making available to all federal agencies, for use on a voluntary basis, a series of master guide specifications covering the majority of work items encountered on federal construction projects. Since the advent of the Construction Criteria Base (CCB), however, the FCC no longer sponsors the program, and the FCGS documents are no longer maintained.

### Construction Criteria Base

A recent development that has revolutionized the acquisition and preparation of specifications for federal government projects is the National Institute of Building Sciences (NIBS) Construction Criteria Base. The CCB grew out of a study of problems experienced in disseminating federal master guide specifications for construction. The result is an effort to organize construction criteria into an electronic database on a compact disk read-only-memory (CD-ROM) system.

The system was developed for electronic dissemination of information such as master guide specifications, technical manuals, standards, and other documents. Its objective is to put information at the user's fingertips as quickly and cost effectively as possible. Use of the CCB will improve the quality of construction, decrease overlap and conflicts that exist among criteria, speed introduction of new technology into the construction process, and improve dissemination of master guide specifications and other design and construction documents. Information on the CCB CD-ROM is updated quarterly and is easily transferred to diskette, tape, or other media.

The CCB includes master guide specifications from the Army Corps of Engineers (COE) for both civil works and construction, from the Naval Facilities Engineering Command (NAVFAC), the Veterans Administration (VA), Federal Aviation Administration, Federal Highway Administration, General Services Administration (GSA), and National

Aeronautics and Space Administration (NASA). The system includes specifications processing software called SPECSINTACT. The CCB also includes handicap accessibility regulations, asbestos regulations, Federal Acquisition Regulations, OSHA standards, federal standards, and some private-sector standards.

SPECSINTACT, meaning "specifications kept intact," is an automated system created by NASA for developing construction project specifications. SPECSINTACT features include verification that references listed in the front of each section are actually cited in the document, submittal verification, generation of submittal lists, paragraph renumbering, note deletion, testing requirement report generation, page numbering options, creation of tables of contents, section reference verification, use of multiple specification sources, and on-line help at all times. Once the appropriate specifications have been located and listed, the user can access SPECSINTACT, which will process a specification section tailored to the requirements of the project. SPECSINTACT embeds notes into the body of the specification section. The software includes a feature that will delete the notes during the print process; however, the notes stay in the working file until manually deleted.

Development, improvement, and enhancement of the CCB continues. Some federal agencies may insist that the CCB be used to prepare contract documents for their projects. When this is the case, the subscription cost and necessary equipment should be considered in fee negotiations.

### Obtaining Master Guide Specifications

If only hard-copy master guide specifications are available from the client agency, the A/E's request for copies should be made in the early phases of project development, and selections should be made from the most current list of section titles available from the client agency. The request for copies of master guide specifications should take place after the agency's review and approval of the preliminary design. If requested by the client agency, this first submittal could include outline specifications that were not derived from the agency master guide specifications, or only a listing of proposed specification section titles. Such a listing can serve as a basis for the request for copies of master guide specification sections. As the project design develops, it is often necessary to request additional sections.

The methods of acquiring specifications

from government agencies are varied. In the past, the only option was to obtain a hard copy of the agency specification and have it completely retyped. This is very time consuming, and should be considered during fee negotiation.

A second option for A/E firms doing occasional work for federal clients, or where the client's agency allows use of magnetic media to produce the specifications, is to acquire guide specifications on magnetic media. Guide specifications on magnetic media are usually obtained either directly from the client agency or from its service organizations. The A/E firm normally provides blank diskettes onto which the client agency transcribes the requested data. This method is practical only if the word processing software of the agency and the A/E firm are compatible. Some agency field offices make their master guide specifications available electronically using on-line access by computer modem to download to the A/E firm's computer. The A/E firm is issued a coded password to access the master guide specifications in the agency library and the transfer is done in the American Standard Code for Information Interchange (ASCII) format. This approach takes less time than receiving hard copy and ensures that the A/E is receiving the latest version of each section. However, the text must be converted from ASCII format to the A/E's word processing format, which may involve a considerable amount of time. After the conversion, additional time may be required to further adapt the material to a compatible format by deleting hidden codes within the text.

A third option may be to obtain government guide specifications through service organizations that offer Corps of Engineers Guide Specifications (CEGS), NAVFAC Guide Specifications, and GSA guide specifications on magnetic media and in hard copy form. The service is available in many word processing formats and can be obtained by subscription, with updates.

Whatever method is used, the A/E should verify that the latest update of each section is being used. The latest, and some consider the best option, is to obtain the CCB system.

## USING FEDERAL GOVERNMENT MASTER GUIDE SPECIFICATIONS

Before entering into a design contract with a federal agency, the A/E should determine if the agency has master guide specifications, if their use is required, and

whether copies will be provided free of charge. The time required to produce project specifications from agency guide specifications is subject to many variables. Chief among these is the A/E's degree of familiarity with the required methods of specifying products and systems within the client agency guide specifications (e.g., extensive use of reference standards and general descriptions in lieu of manufacturers' names and model numbers). The greater the differences between the client agency documents and the A/E's office master guide specification, the more time will be required. Difficulties may be compounded if the client agency master guide specifications do not conform with CSI principles and practices, and if the section numbers and titles differ considerably from the current edition of *MasterFormat*. If differences exist between the agency's specifications and *MasterFormat*, the A/E is usually expected to use the numbers and titles defined by the agency.

## Editing Master Guide Specifications

The agency master guide specifications are just that — guides — and must be edited to suit each project. Guide specifications are usually written for new construction and require considerable modification for maintenance, repair, or rehabilitation projects. Where coverage is lacking, the A/E must provide the needed material in an agency-approved form. Individual guide specification sections may often be much more detailed than those to which the A/E is accustomed. For example, some Corps of Engineers Division 15 sections are over 100 pages long, and in electronic form may be issued in several subsections. If help is needed to interpret master guide specifications, most agencies will provide assistance.

A number of guidelines should be followed when editing agency master guide specifications.

- The sections should be tailored to suit the project, not simply copied in their entirety.
- Identification markings should be deleted on the "master" (such as headers or footers with the section number or revision number, and revision notations within the text of the section). If the CCB is used, the software is capable of doing this electronically.
- The sections should be edited to avoid conflicts related to products occurring in

more than one section.

- Additional information should be added as necessary.
  - Paragraphs should not be selected by title alone.
  - The entire section should be read and edited, not just the bracketed text.
  - All required selections should be made and all blanks edited.
  - Applicable requirements from the editing notes should be incorporated.
  - Requirements in the editing notes should be coordinated by the A/E. If the CCB is used, the software is capable of deleting editing notes electronically.
  - The references listed at the beginning of the section should be edited to include only the standards remaining within the body of the edited specification. If the CCB is used, the software is capable of doing this electronically.
  - Each reference listed should indicate the current issue or revision date, unless there is a specific reason to reference an older standard, or unless the agency directs otherwise. For the proper use of reference standards, refer to the chapter "Methods of Specifying" in the "Construction Documents Fundamentals and Formats Module."
  - The written instructions from the client agency should be carefully followed for page format, layout, and placement of the agency's contract number. Most agencies are very explicit concerning these details.
  - All specifications should be proofread; do not depend on client-agency reviewers to find errors and discrepancies.
  - The index in the front of each section should be deleted after the editing process is complete unless the agency requires otherwise. If the CCB is used, the software is capable of producing an index electronically.
  - If the agency requires submittal of the marked-up section:
    - A readable copy of the "original" should be used so that it can be reproduced for the submittal.
    - Use of a highlighter on a review copy should be avoided, as some photocopy solid black.
    - Pencil should be used for additions and deletions, marked dark enough so notations will photocopy clearly. If permitted by the agency, make the insertions and deletions electronically using the "redline" and "strike-out" feature of the word processing software.
- If the client agency does not have a guide specification for a required section, the A/E

must prepare the section using other resources. The new section must conform to the agency standards for format and numbering, and must avoid proprietary or restrictive product requirements. The specifications should permit unlimited competition consistent with the type and quality of work. They should be prepared based on standard products and current models of equipment that meet the functional requirements of the facility.

## THE REVIEW PROCESS

Depending on the agency and the size and complexity of the project, the submittal and review process can either be brief or extend over several years before a project is ready to be advertised for bids. This time frame should be clearly described in the A/E contract with the government agency.

The A/E should review submittal requirements with the agency prior to starting a new phase of the work. During the contract document phase, the agency will often want reviews at milestones of 30 percent, 50 percent, 90 percent, and final completion. Even when following a prescribed format for submittals, an A/E firm working with an agency for the first time often has a submittal totally rejected, or found inadequate, and a resubmittal is required.

The following list outlines what may be expected from the A/E at each of the construction document phase reviews.

- 30 percent review, one of the following:
  - A list of specification sections intended for use on the project. The list should be generated from a master list of section titles furnished by the client agency.
  - An outline specification identifying products to be used. Refer to the chapter "Preliminary Project Descriptions and Outline Specifications" in the "Construction Documents Fundamentals and Formats Module" for more information about outline specifications.
- 50 percent review, one of the following:
  - A pencil or electronically marked-up copy of the complete agency guide specification including specification pages that will be completely deleted.
  - A draft consisting of a pencil or electronically marked-up copy of the agency guide specifications with unnecessary pages deleted.

- A typed or printed rough draft, which may be in dot matrix form.
- 90 percent review, one of the following:
  - Resubmittal of the pencil or electronically marked-up copy of the complete guide specification including all specification pages, even though some will be completely deleted.
  - Resubmittal of the draft consisting of a pencil or electronically marked-up copy with unnecessary pages deleted.
  - Resubmittal of the typed rough draft.
  - Typed copy in final draft form.
  - One section in final form as a sample of the intended product.
- Final review:
  - Typed copy in final form.
  - If the reviewers have no comments, the project will be advertised for bids by the agency.

### Review Comments

Agency reviewers often require changes to the drawings or specifications to make the documents conform to specific government criteria. The A/E should expect comments from the client-agency reviewers after each of the submittals. The A/E is expected to revise the contract documents and incorporate the review comments before the next submittal. There are several aspects of the review process.

- Each of the disciplines involves a different reviewer (e.g., architectural, structural, fire protection, plumbing, HVAC, and electrical), whose comments may result in conflicting requirements. The agency's project manager should resolve conflicting requirements among the various reviewers.
- Reviewers have particular strengths and weaknesses, even within their own area of expertise, and the A/E must diplomatically deal with suggested subjects and allow additional time for research.
- Each reviewer's comments must receive a written response, usually on a form provided by the agency.
- Time schedules for agency review, A/E response time, and subsequent resubmittals should be documented in writing.
- Normally a "compliance check" submittal is required after major changes.
- Adequate time should be allowed in the contract document schedule to make revisions directed by the reviewers.

### Printing for the Review Process

Depending on the terms of the agreement between the A/E and the client agency, either the A/E or the agency may be responsible for printing and distributing review copies of the contract documents. This can be an important item of both time and expense and should be considered when negotiating an agreement.

### REGIONAL VARIATIONS

Some federal agencies administer their construction programs through autonomous regional or district offices. As a result, there are often significant variations in interpretation and enforcement among the various field offices of a given agency. For example, the Corps of Engineers publishes its guide specifications from its Washington D.C. office, but the District offices often supplement and modify the specifications. Additionally, a local military facility may contract directly with a local A/E firm for projects not subject to Corps of Engineer District jurisdiction. In such cases, the local military facility may have its own version of the guide specifications, or may allow use of the A/E office master guide specification. The source of funding for a project may also dictate the procedures to be followed in executing the design contract. The A/E should be aware of possible variations in procedures.

### SUMMARY

Although each federal agency has its own procedures for administering design contracts, there are some similarities among various agencies.

- The use of a five-digit numbering system based on *MasterFormat* is common to most agencies.
- The A/E is prohibited from naming manufacturers or brand names for products except in special circumstances.
- A number of agencies issue guide specifications for use by A/Es when preparing construction documents.
- A number of agencies have combined their resources to publish guide specifications in a common format (SPECINTACT), and to distribute guide specifications quarterly on a CD-ROM called the Construction Criteria Base (CCB).
- Most agencies issue their own bidding requirements, contract forms, and conditions of the contract and require that

---

they be used in the project manual.

- Contract documents are subject to a review process, which can be lengthy, and may require extensive changes and several resubmittals by the A/E.

Preparing specifications for federal government construction for the first time can be an involved and confusing experience if the A/E does not know what to expect. These difficulties are usually the result of having to follow rules and procedures that are very different from similar work in the private sector. The general guidelines in this chapter will help the A/E anticipate and prepare for some of the differences likely to be encountered.

**Alaska District**

# **Electronic Bid Set (EBS) Manual**

**NOTE: This manual is undergoing a comprehensive update and this version will be replaced in the near future. Please contact the Alaska District's POC Mr. Regan Sarwas at 907-753-2632 for further guidance.**

**July 2006**

## **CHAPTER 6 PERFORMANCE EVALUATION**

### 6-1. Principles.

a. Accurate and timely performance evaluations support the USACE objective of continuously improving the quality of A-E services and products.

b. The performance of A-E firms shall be evaluated fairly and objectively. Ratings are ultimately the decision of the Government and are not subject to negotiation with A-E firms. However, overall ratings<sup>1</sup> of "marginal" and "unsatisfactory" may be rebutted by A-E firms in accordance with the procedures herein.

c. A-E firms shall be kept apprised of the quality of their work throughout contract performance and shall promptly be sent copies of completed performance evaluations.

### 6-2. Responsibilities.

a. The Chief of Engineering in each operating command<sup>2</sup> is responsible for the A-E performance evaluation process in the command.

b. Area engineers and resident engineers (AE/RE) are responsible for preparing A-E evaluations after the completion of USACE-managed construction projects.

### 6-3. Regulatory Background. This pamphlet implements<sup>3</sup>:

a. FAR 36.604, which requires that the performance of A-E contractors be evaluated and that files of performance evaluations be maintained for use in selecting firms for A-E contracts,

b. DFARS 236.604, which requires a separate performance evaluation after completion of construction and specifies that all DoD agencies forward completed evaluations to the "central data base" maintained by USACE (ACASS), and

c. EFARS 36.604, which amplifies certain requirements of the FAR and DFARS.

<sup>1</sup> This pamphlet is based on the April 1999 edition of DD Form 2631, Performance Evaluation (Architect-Engineer), which replaced the November 1992 edition. The new overall ratings are "exceptional," "very good," "satisfactory," "marginal" and "unsatisfactory." The 1992 edition of the form had corresponding overall ratings of "excellent," "above average," "average," "below average" and "poor."

<sup>2</sup> See definition in paragraph 2-2.a.

<sup>3</sup> FAR Subpart 42.15, and the supplements thereto, addresses recording and maintaining contractor performance information, but, by its terms, does not apply to A-E services.

6-4. General Procedures.

a. Implementation. The Chief of Engineering will establish written procedures, including a tracking system, to ensure the timely preparation, approval and distribution of all required A-E evaluations in accordance with this pamphlet. (A recommended process is to coordinate completion of the performance evaluation with processing of the final payment.) A-E evaluations shall be scheduled events in the management plan for a project.

b. Contracts Requiring Performance Evaluation. Performance evaluations are required for all contracts<sup>4</sup> and task orders for A-E services in excess of \$25,000, but may be prepared for lesser contracts (FAR 36.604 (a)). Design services provided under a design-build contract are not given an A-E performance evaluation and are not subject to this pamphlet. Instead, the quality of the design services in a design-build contract will be addressed in the remarks section on the construction performance evaluation form (DD Form 2626).

c. Preparation of Evaluations.

(1) A performance evaluation shall be prepared by the engineers, architects and other technical personnel who reviewed and accepted the A-E firm's work, as recommended by FAR 36.604 (a)(1). Sufficient effort must be devoted to this function so that thorough and fair evaluations are completed in a timely manner.

(2) Performance evaluations (except marginal or unsatisfactory) shall be prepared, reviewed, approved and distributed within 60 days of the designated milestones in paragraphs 6-7 and 6-8. Additional time will generally be required for evaluations with an overall rating of "marginal" or "unsatisfactory" if rebutted by the A-E firm (see paragraph 6-10).

d. Evaluation Form. Performance evaluations shall be prepared on DD Form 2631<sup>5</sup> (DFARS 236.604(a)) in accordance with the instructions in Appendix AA. The performance evaluation software provided by the Contractor Appraisal Information Center will be used instead of the actual form to facilitate the preparation and routing of evaluations, as well as the transmittal and entry into ACASS. A hard copy must be printed and signed by the rating and reviewing officials for inclusion in the contract file and for sending to the A-E firm.

e. Assignment of Overall Ratings. The overall rating is based on the ratings in the discipline and attribute matrices. While this is a matter of judgment, general guidance is given below to promote uniformity.

<sup>4</sup> Exclusive of ID contracts, which are evaluated on the basis of individual task orders.

<sup>5</sup> The ACASS software presently conforms to the November 1992 edition of DD Form 2631. This software will continue to be used until it is updated to reflect the current edition of the form

(1) "Exceptional." All or almost all of the significant disciplines and attributes are rated "exceptional." No discipline or attribute should be "marginal" or "unsatisfactory."

(2) "Very Good." A majority of the significant disciplines and attributes are rated "exceptional" or "very good." No significant discipline or attribute should be "marginal" or "unsatisfactory."

(3) "Satisfactory." No significant discipline or attribute should be "unsatisfactory." Quality of final work is acceptable in an overall sense; however, it may have been necessary to get the firm to correct some unacceptable work.

(4) "Marginal." One or two significant disciplines or attributes are rated "unsatisfactory," or all or almost disciplines or attributes are rated "marginal." An unusual amount of extra effort and follow-up on the part of the Government was required in order to get an acceptable product.

(5) "Unsatisfactory." Several significant disciplines and attributes are rated "unsatisfactory." This rating is appropriate for a firm that does not produce acceptable work despite extensive effort by the Government. This rating is required for all contracts terminated for default.

f. Remarks. The remarks in Item 20 of the DD Form 2631 should support and be compatible with the overall rating. A rating of "marginal" or "unsatisfactory" must be fully explained in the remarks. Also, the remarks should not suggest that the firm really did "marginal" work when the overall rating is "satisfactory."

g. Safeguarding Evaluations. Completed A-E performance evaluations are classified as "For Official Use Only" in accordance with AR 25-55. All pages of the evaluation shall be stamped or marked at the top and bottom "For Official Use Only" in accordance with the provisions of AR 25-55, Section 2, Markings. A firm's evaluations will only be given to proper representatives of the firm, to representatives of a Federal agency having a legitimate need for this information, and to ACASS.

h. Contract Negotiation. The performance evaluation form and procedures shall be discussed with an A-E firm during contract negotiation (EFARS 36.604(S-100) and paragraph 4-7.b). The Government will clearly describe its performance expectations, and stress the importance of the performance evaluation in future selections. The PNM will indicate that this discussion took place.

i. A-E Office Location. Enter in Item 6 of the DD Form 2631 the A-E office location that had the lead role in performing the work, which may not be the office that signed the contract. The evaluation will not be useful or relevant in future selections if it does not reflect the actual performing office.

k. Responsible Command. When more than one command is involved in the execution of a project, the command having KO authority for administration of the A-E contract is responsible for preparation of the A-E performance evaluation. The responsibility for the A-E performance evaluation will be included in the overall management plan for the project (see ER 5-1-11).

l. A-E Contracts Awarded for Installations.

(1) This chapter also applies to A-E contracts awarded by USACE for administration by Army installations or other activities. As required by paragraph 5-6.c, the USACE KO will issue instructions to the installation on the preparation of performance evaluations, including preparation of the A-E evaluation after completion of construction when the installation is responsible for managing the construction contract.

(2) If a person at the installation has COR authority for the A-E contract, this person may act as the rating official. Otherwise, the chief of the unit in the Directorate of Public Works or similar engineering office charged with the oversight responsibility for the A-E contract will act as the rating official. The reviewing official will be the Chief, or Assistant Chief, of Engineering of the supporting USACE district.

6-5. Monitoring Performance.

a. General. The quality of an A-E firm's products and services must be adequately documented throughout the performance of the contract and the firm kept apprised of the quality of its work (EFARS 36.604(S-100)). An A-E firm will be notified immediately upon recognition of marginal or unsatisfactory performance as outlined in paragraph 5-9.

b. Appraisals. Operating commands shall establish procedures to appraise the quality of each A-E submittal, using the discipline and attribute matrices on the DD Form 2631. The appraisals will be supplemented as appropriate with narrative that supports the rating and will assist the PM and COR in communications with the A-E on submittal quality. These appraisals will be made by each of the pertinent disciplines. It is particularly important to adequately document any area of unsatisfactory or exceptional performance. These appraisals constitute the basis for interim and final performance evaluations and shall be retained in the contract files.

6-6. Interim Evaluations.

a. General. An interim performance evaluation (FAR and EFARS 36.604(a)(3)) will be prepared under the following conditions, in accordance with the procedures in paragraph 6.7.c:

(1) A cumulative, interim evaluation will be prepared at least annually for a task order or a FP or CR contract with a performance period anticipated to exceed 12 months (EFARS 36.604(S-102))<sup>6</sup>.

<sup>6</sup> A change is pending to EFARS 36.604(S-102) to change 12 months to 18 months.

(2) An interim evaluation will be prepared whenever a project is deferred for more than 3 months if a substantial portion of the work has been completed.

(3) An interim evaluation will be prepared when a firm's performance is "marginal" or "unsatisfactory" (EFARS 36.604(a)(3)) after reasonable steps have been taken by the Government to improve the firm's performance (see paragraph 5-9). An interim evaluation formally puts a firm on notice that its performance is inadequate in order to encourage improvement and to make the information on the firm's performance available to other contracting offices in a timely manner. An interim "marginal" or "unsatisfactory" evaluation provides a very strong basis for a final "marginal" or "unsatisfactory" evaluation (see paragraph 6-10) if a firm's performance does not improve.

(4) At any other appropriate time.

b. Approval and Distribution. Interim evaluations will be approved and distributed in accordance with paragraph 6-9. The basis for an interim "marginal" or "unsatisfactory" evaluation must be well documented. An interim "marginal" or "unsatisfactory" evaluation is subject to the rebuttal process in paragraph 6-10, and will not be distributed until the rebuttal process is completed (EFARS 36.604(a)(4)). Interim evaluations that have been transmitted to ACASS will be replaced by the final evaluation. Fax a copy of the interim evaluation to the CAIC (503-808-4596), with a request that the evaluation be removed. Any interim "marginal" or "unsatisfactory" evaluations and a summary of any actions the firm took to remedy the deficiencies shall be recorded in Item 20, "Remarks" of the final evaluation.

#### 6-7. Evaluation of A-E Performance after Completion of Design or Engineering Services.

a. General. A final evaluation will be prepared for each task order or FP or CR contract exceeding \$25,000 (EFARS 36.604(S-101)). For engineering services not directly related to design, the evaluation shall be prepared after acceptance of the A-E products. For design services, the evaluation shall be prepared after the construction bid opening, provided the bid opening is scheduled to occur within 3 months of design completion. Otherwise, the evaluation will be prepared after completion of the design.

b. Preparation. The final performance evaluation will be based on the appraisals prepared by the technical reviewers and input received from the PM and customer, as well as any interim evaluations. The COR will assign the overall rating and sign the form as the rating official. A copy of the evaluation will be sent to the PM when the evaluation is forwarded for approval.

c. Contract Termination. A performance evaluation shall be prepared for a task order or a FP or CR contract terminated for any reason prior to completion of the work if the value of services completed at termination exceeds \$25,000 or if the contract was terminated for default.

6-8. Evaluation of A-E Performance after Completion of Construction.

a. General. An evaluation (referred to herein as the A-E construction evaluation) shall be prepared after substantial physical completion of each construction project based on an A-E design where the price of the A-E services (performed by task order or FP or CR contract) exceeds \$25,000 (EFARS 36.604(S-101)).

b. Preparation.

(1) During construction, the AE/RE is responsible for assessing the accuracy and completeness of the A-E firm's work and its responsiveness in resolving design problems that arise during construction. Sufficient documentation will be maintained by the AE/RE to support the A-E construction evaluation. Use of the discipline and attribute matrices on the DD Form 2631 can assist in documenting performance during construction and in communicating with the A-E firm on design problems. The AE/RE will coordinate the evaluation with the design COR and PM.

(2) The AE/RE will prepare the A-E construction evaluation, assign the overall rating, and sign the form as the rating official. The evaluation, with any supporting documentation, will be forwarded through the Chief of Construction to the Engineering Division.

c. Review and Approval. Engineering Division will promptly review and approve an A-E construction evaluation after receipt from the Construction Division. No changes will be made in the A-E construction evaluation without the concurrence of the AE/RE, design COR and PM.

(1) Any significant differences in assessment between the design and construction evaluations will be resolved. This may require reevaluation of some aspects of the design by the personnel who reviewed the A-E firm's work during the design phase. Particular attention should be given to discipline or attribute ratings that could possibly reflect a misunderstanding of the A-E firm's responsibility. Any questions of this nature should be discussed with the AE/RE and the construction modification file reviewed if necessary.

(2) As a consequence of the A-E construction evaluation, or other factors, Engineering Division may wish to change some of the ratings given for disciplines or attributes in the design evaluation. If so, the matrices on page 2 of the A-E construction evaluation, applying to design/engineering services, shall be completed and a statement made in Item 20, "Remarks," giving the reason for the change. If Engineering Division wishes to change the overall rating on the design evaluation, a revised evaluation will be prepared and faxed to the CAIC (503-808-4596) in accordance with paragraph 6-9.c(1). A statement shall be made in Item 20, "Remarks," giving the reason(s) for the revision.

e. Review of A-E Liability. The COR will obtain the A-E liability information for Item 11 of the DD Form 2631 from the A-E Responsibility Coordinator (AERC; see Chapter 7). Refer to the instructions in Appendix AA. An updated evaluation will be transmitted to ACASS as specified in paragraph 6-9.c(2) if there is a later change in the A-E liability information. Completion of an evaluation shall not be delayed because liability determinations have not been resolved.

6-9. Approval, Distribution and Revision of Evaluations.

a. Approval. The reviewing official for A-E performance evaluations shall be the Chief or Assistant Chief of Engineering, unless a proposed “marginal” or “unsatisfactory” evaluation is rebutted (see paragraph 6-10). The reviewing official will review the performance evaluation and the supporting documentation to assure that the overall rating is justified. The date of the reviewing official's signature is the official date of the evaluation.

b. Distribution.

(1) The original signed copy of each interim and final performance evaluation shall be placed in the A-E contract file. Performance evaluations will be promptly transmitted electronically to ACASS, except when rebutted by the A-E firm in accordance with paragraph 6-10.

(2) A copy of each interim and final performance evaluation will be promptly sent to the A-E firm. The cover correspondence may be signed by the COR, except for "marginal" or "unsatisfactory" ratings, which shall be signed by the KO.

c. Revisions and Corrections.

(1) A performance evaluation may be changed by the reviewing official, or successor, upon presentation of adequate evidence. However, no changes shall be made in an A-E construction evaluation without concurrence of the AE/RE. A statement must be included in Item 20, "Remarks," describing the change and explaining why it was made.

(2) The revised evaluation, highlighted in colored marker to show the changes, will be sent to the CAIC, accompanied by a memorandum signed by the reviewing official. The revised evaluation will also be sent to the A-E firm and included in the A-E contract file. The CAIC will make the requested changes.

(3) An evaluation may be updated to change factual information (such as Items 9, 10 or 11) or correct obvious clerical errors without the approval of the reviewing official. A copy of the evaluation will be marked-up to show the changes and sent to the CAIC. The updated or corrected evaluation will also be sent to the A-E firm and included in the A-E contract file. The CAIC will make the requested changes.

6-10. Marginal and Unsatisfactory Performance.

a. General. This section implements FAR and EFARS 36.604(a)(4).

b. Documentation. Documentation of marginal or unsatisfactory performance must be adequate to support the performance rating. It is very important to document the steps taken by the Government to get the A-E firm to improve performance (see paragraph 5-9), and the A-E firm's responses. Records should be made of all telephone conversations and meetings with the A-E firm concerning performance. Generally, a final "marginal" or "unsatisfactory evaluation" should have been preceded by an interim "marginal" or "unsatisfactory" evaluation.

c. Preparation and Notification.

(1) A performance evaluation will be prepared documenting the marginal or unsatisfactory performance, but not signed by the rating and reviewing officials. A summary of the deficiencies will be given in Item 20, "Remarks." The KO will send a letter to the A-E firm notifying it of the intended rating and enclosing the proposed evaluation and supporting documentation.

(2) The A-E firm will be advised in the letter that it has 30 days from receipt of the letter to rebut the rating. The A-E firm will be advised of its right to have comments entered in Item 20, "Remarks," of the evaluation form in accordance with FAR 36.604(a)(4). If the A-E firm does not respond in writing within the allotted time, the evaluation will be finalized and distributed.

d. Rebuttal Process.

(1) If an A-E firm rebuts a rating, a meeting will be scheduled with the District Commander or Deputy District Commander. The firm will be advised of the fact-finding nature of this meeting and provided with the evidence that will be submitted to the Commander for consideration. Every effort will be made to fully explore the major performance deficiencies in the meeting to enable the Commander to make a decision without the need for additional meetings or evidence. The firm will be given sufficient time to prepare for this meeting. The meeting with the Commander will be held within 30 days of the firm's rebuttal letter, to the maximum extent possible.

(2) Following the meeting with the A-E firm, the Commander will decide whether to support or change the proposed rating. If the Commander decides to change the rating, the contract file will be documented to show the reason(s). If the firm has submitted any written comments, they will be added to Item 20, "Remarks." The evaluation will be signed by the rating official, and the Commander shall sign as the reviewing official.

(3) The KO will send a letter to the A-E firm advising of the Commander's decision and enclosing the signed evaluation. If the rating is "marginal," the letter will notify the firm that the decision is final. If the rating is "unsatisfactory," the firm will be advised that it can further rebut the evaluation to the MSC Commander, and, if so, that it must respond within 15 days of the date of receipt of the letter.

(4) If a firm rebuts an "unsatisfactory" rating, the MSC Commander will be briefed prior to the meeting with the A-E firm. The meeting between the MSC Commander and the A-E firm will be held within 30 days of the meeting with the District Commander, to the maximum extent possible.

(5) The MSC Commander will decide whether to support or change the "unsatisfactory" rating assigned by the District Commander. If the MSC Commander decides not to change the rating, the contract file will be documented to show the reason(s). The KO will send a letter to the A-E firm advising of the MSC Commander's decision and that the "unsatisfactory" evaluation is final.

(6) If the MSC Commander decides that the "unsatisfactory" rating should be changed, the performance evaluation will be revised and signed by the rating official. The MSC Commander will sign as the reviewing official. The KO will send a letter to the A-E firm with a copy of the final revised evaluation.

(7) For Centers, the role of the District Commander will be filled by the highest level person in the engineering functional area. Rebuttals of a "unsatisfactory" rating are made to the Center Commander.

(8) Performance evaluations that are rebutted by A-E firms will not be transmitted to ACASS until the above rebuttal process is completed (EFARS 36.604(a)(4)).



**PROFIT EVALUATION SHEET**  
Weighted Guideline Method

RFP/Contract No. \_\_\_\_\_ Modification/DO No. \_\_\_\_\_

Title \_\_\_\_\_

Technical Complexity Factor	Length Factor	Support of Socioeconomic Programs Factor	Profit Objective
(0.05 - 0.10)	(0.02 - 0.04)	(0.00 - 0.02)	

Technical Complexity + Length + Support of Socioeconomic Programs = Profit Objective

**EXPLANATION--**

**Technical Complexity Factor:** \_\_\_\_\_

**Length Factor:** \_\_\_\_\_

**Support of Socioeconomic Programs Factor:** \_\_\_\_\_

.....

The prenegotiation profit objective for a firm-fixed-price architect-engineer (including surveying and mapping) contract, contract modification, or delivery order will be determined as described below. The profit objective for all other types of A-E contracts will be determined in accordance with DFARS 215.971.

Where:

- (1) Cost is the total estimated costs, including general; and administrative costs, of the prime contractor and any subcontractors, exclusive of any profit. However, normal profit need not be deducted from the prices of commercial supplies and services (such as airfares, reproduction, lab tests, express mail, and materials) in developing the cost base.
- (2) Technical complexity factor will vary from 0.05 for low complexity (design of simple road repaving or routine boundary survey verification) to 0.10 for high complexity ( design of nuclear chemistry laboratory or the design of the remediation of a very unusual and complex hazardous waste site). Consider the nature of the work, degree of management involvement required, schedule constraints, amount of government assistance, and availability of design criteria.
- (3) Length factor is 0.02 for a contract action of 1 month or less, and increases proportionately to 0.04 for a contract action of 21 months or longer. Consider the time necessary to complete the substantive portion of work, including option periods.
- (4) Support of socioeconomic programs factor will vary from 0.00 for a prime contractor (including a small business prime contractor) who plans no subcontracting, to 0.02 for a contractor who demonstrates exceptional program support. Consider the contractor's past record as well as this contract action with regard to mentoring and subcontracting with small businesses, small disadvantaged businesses, and historically black colleges and universities and minority institutions.

When the facilities capital cost of money is proposed by the contractor and verified, reduce the profit objective as described in DFARS 215.973(b)(2).

# **UNIFIED FACILITIES CRITERIA (UFC)**

---

## **GENERAL BUILDING REQUIREMENTS**



**APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED**

**UNIFIED FACILITIES CRITERIA (UFC)**

**GENERAL BUILDING REQUIREMENTS**

Any copyrighted material included in this UFC is identified at its point of use. Use of the copyrighted material apart from this UFC must have the permission of the copyright holder.

U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Record of Changes (changes are indicated by \1\ ... /1/)

<b>Change No.</b>	<b>Date</b>	<b>Location</b>
<u>1</u>	<u>Dec 2005</u>	<u>FOREWORD</u>

---

This UFC supersedes UFC 1-200-01, dated 31 July 2002. This UFC rescinds TI-809-04, dated 31 December 1998 and TI-809-05, dated November 1999.

## FOREWORD

vii

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD\(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCEA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request \(CCR\)](#). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site <http://dod.wbdg.org/>.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current. /1/

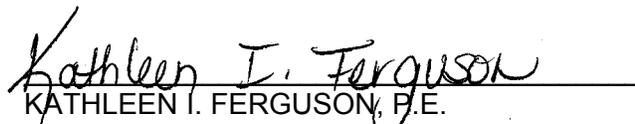
AUTHORIZED BY:



DONALD L. BASHAM, P.E.  
Chief, Engineering and Construction  
U.S. Army Corps of Engineers



DR. JAMES W. WRIGHT, P.E.  
Chief Engineer  
Naval Facilities Engineering Command



KATHLEEN I. FERGUSON, P.E.  
The Deputy Civil Engineer  
DCS/Installations & Logistics  
Department of the Air Force



Dr. GET W. MOY, P.E.  
Director, Installations Requirements and  
Management  
Office of the Deputy Under Secretary of Defense  
(Installations and Environment)

## UNIFIED FACILITIES CRITERIA (UFC) REVISION SUMMARY SHEET

**Description of Changes:** This update to UFC 1-200-01 represents another step in the joint Services effort to bring uniformity to the military use of existing commercial building codes. Technical representatives of each of the four Services developed this document to require the use of the International Building Code 2003 consistent with the scope of current military requirements and procedures. The International Building Code (IBC) 2000 was adopted with modifications as the basic building code for the Department of Defense, in the first UFC 1-200-01 published 31 July 2002. This revision of that document contains extensive modifications in the following areas:

- The document requires the use of the latest published version of the International Building Code (2003), and replaces the previous IBC 2000.
- Portions of the IBC chapter on Administration procedures were retained in this version, rather than fully deleted as in the previous version.
- Modifications in deference to the continued use of the NFPA Fire and Life Safety Codes were retained and improved.
- New military requirements were incorporated and improved references to other documents were identified for new/revised geotechnical, wind charts, live load data, energy conservation, and antiterrorism standards.

**Reasons for Changes:** The existing guidance was inadequate for the following reasons:

- The existing UFC 1-200-01 required the use of the IBC 2000 that was revised and replaced in 2003 by the International Code Council.
- The existing UFC did not properly reference and identify recently updated and published commercial structural, seismic and wind data documents.
- The existing UFC did not properly reference and identify recently updated joint Service criteria.
- The existing UFC did not reflect recent changes in the Fire and Life Safety documents published by the NFPA.

**Impact:** The following direct benefits will result from the update of UFC 1-200-01:

- Creation of a single source reference for modifications to a commercial architectural and structural building code that provides clear and consistent guidance for the design of DoD facilities.
  - Eliminates interpretation and ambiguity that could lead to design and construction conflicts
  - Continues DoD reliance upon NFPA Fire and Life Safety codes, and where they are to be specifically used and applied.
  - Facilitates update and revision as better information becomes available.
- Promotes the use of a single model code and moves the DoD toward more efficient commercial standards. This will typically result in reduced specialization, simplification of contracting, reduced construction time, and increased cost effectiveness.

CONTENTS

CHAPTER 1 INTRODUCTION.....	1
1-1 PURPOSE AND SCOPE.....	1
1-2 APPLICABILITY.....	1
1-3 BUILDING CODE.....	1
1-4 OTHER CRITERIA.....	1
CHAPTER 2 DOD USAGE OF THE INTERNATIONAL BUILDING CODE (IBC).....	2
2-1 CHAPTER 1 – ADMINISTRATION.....	2
2-2 CHAPTER 2 – DEFINITIONS.....	2
2-3 CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION.....	2
2-4 CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY.....	2
2-5 CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS.....	2
2-6 CHAPTER 6 - TYPES OF CONSTRUCTION.....	2
2-7 CHAPTER 7 – FIRE-RESISTANCE-RATED CONSTRUCTION.....	2
2-8 CHAPTER 8 – INTERIOR FINISHES.....	2
2-9 CHAPTER 9 – FIRE PROTECTION SYSTEMS.....	3
2-10 CHAPTER 10 – MEANS OF EGRESS.....	3
2-11 CHAPTER 11 – ACCESSIBILITY.....	3
2-12 CHAPTER 12 – INTERIOR ENVIRONMENT.....	3
2-13 CHAPTER 13 - ENERGY EFFICIENCY.....	3
2-14 CHAPTER 14 – EXTERIOR WALLS.....	3
2-15 CHAPTER 15 – ROOF ASSEMBLIES AND ROOFTOP STRUCTURES.....	3
2-16 CHAPTER 16 – STRUCTURAL DESIGN.....	4
2-17 CHAPTER 17 – STRUCTURAL TESTS AND INSPECTIONS.....	4
2-18 CHAPTER 18 – SOILS AND FOUNDATIONS.....	4
2-19 CHAPTER 19 – CONCRETE.....	4
2-20 CHAPTER 20 – ALUMINUM.....	4
2-21 CHAPTER 21 – MASONRY.....	4
2-22 CHAPTER 22 – STEEL.....	5
2-23 CHAPTER 23 – WOOD.....	5
2-24 CHAPTER 24 – GLASS AND GLAZING.....	5
2-25 CHAPTER 25 – GYPSUM BOARD AND PLASTER.....	5
2-26 CHAPTER 26 – PLASTIC.....	5
2-27 CHAPTER 27 – ELECTRICAL.....	5
2-28 CHAPTER 28 – MECHANICAL SYSTEMS.....	5
2-29 CHAPTER 29 – PLUMBING SYSTEMS.....	5
2-30 CHAPTER 30 – ELEVATOR AND CONVEYING SYSTEMS.....	5
2-31 CHAPTER 31 – SPECIAL CONSTRUCTION.....	5
2-32 CHAPTER 32 – ENCROACHMENT INTO THE PUBLIC RIGHT-OF-WAY.....	5
233 CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION.....	6
2-34 CHAPTER 34 – EXISTING STRUCTURES.....	6
2-35 CHAPTER 35 – REFERENCED STANDARDS.....	6
APPENDIX A REFERENCES.....	7
GOVERNMENT PUBLICATIONS:.....	7

**NON-GOVERNMENT PUBLICATIONS..... 8**

## CHAPTER 1 INTRODUCTION

### 1-1 PURPOSE AND SCOPE.

This UFC provides guidance for the use of model building codes for design and construction of Department of Defense (DoD) facilities. Public Law 104-113, *National Technology Transfer and Advancement Act of 1995*, requires Federal use of private sector consensus standards wherever practicable. The goal of the law is to reduce reliance on Federal standards by using industry standards when there is potential to simplify contracting, increase timeliness and cost effectiveness, and promote the safety and welfare of users.

### 1-2 APPLICABILITY.

This UFC applies to design and construction of all facilities for the Department of Defense. It is applicable to all methods of project delivery, including both design-bid-build and design-build.

### 1-3 BUILDING CODE.

Use the 2003 International Building Code (IBC-2003), as indicated by Chapter 2, and excluding appendices A through J, as the building code for the Department of Defense for regulating and governing the design and construction of all property, buildings and structures.

1-3.1 The use of a model building code for DoD projects is intended to promote communication in the marketplace, improve competition, and result in cost savings. However, the military often requires higher standards to achieve more stringent life-cycle performance, or to construct facilities that do not exist in the private sector. The modifications to the model code listed in Chapter 2 are based upon those unique military requirements. In the case of conflicts between the model code and the military criteria, use the military requirements.

### 1-4 OTHER CRITERIA.

Military criteria other than those listed in Chapter 2 may be applicable to specific types of structures, building systems, or building occupancies. Such structures, systems, or buildings must meet the additional requirements of the applicable military criteria.

#### 1-4.1 Antiterrorism.

For antiterrorism requirements, refer to UFC 4-010-01, UFC 4-010-02 and/or Combatant Commander Anti-terrorism/Force Protection construction standards. Project documents must provide only the minimum amount of information necessary for the installation of all elements required for force protection and must not contain information on force protection methods, philosophy, or information on design threats, as this information is considered sensitive and for official use only. For further guidance, contact the government reviewer.

## **CHAPTER 2 DOD USAGE OF THE INTERNATIONAL BUILDING CODE (IBC)**

### **2-1 CHAPTER 1 – ADMINISTRATION.**

Use Chapter 1, except as modified below:

2-1.1 Delete Paragraphs 101.4.1, 101.4.5 and 101.4.6, and Sections 103, 104, 105, 107, 108, 110, 112, 113, 114, and 115.

### **2-2 CHAPTER 2 – DEFINITIONS.**

Use Chapter 2. Definitions apply to terms used in the model codes, and are not intended to replace definitions and terms in military documents.

### **2-3 CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION.**

Use Chapter 3 and UFC 3-600-01. If any conflict occurs between Chapter 3 and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

### **2-4 CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY.**

Use Chapter 4, except as modified below:

2-4.1 Delete Section 412 and refer to applicable DoD and individual military service standards for Aircraft-Related Occupancies.

### **2-5 CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS.**

Use Chapter 5, except as modified below:

2-5.1 Refer to UFC 3-600-01 for limitations on the use of Table 503.

2-5.1 The area limitations in Table 503 may be increased by 300 percent for Air Force facilities when an approved automatic sprinkler system is installed, regardless of building height.

### **2-6 CHAPTER 6 - TYPES OF CONSTRUCTION.**

Use Chapter 6.

### **2-7 CHAPTER 7 – FIRE-RESISTANCE-RATED CONSTRUCTION.**

Use Chapter 7.

### **2-8 CHAPTER 8 – INTERIOR FINISHES.**

Use Chapter 8 and UFC 3-600-01. If any conflict occurs between Chapter 8 and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

2-9           **CHAPTER 9 – FIRE PROTECTION SYSTEMS.**

Use UFC 3-600-01 in lieu of IBC Chapter 9.

2-10           **CHAPTER 10 – MEANS OF EGRESS.**

Use UFC 3-600-01 in lieu of IBC Chapter 10.

2-11           **CHAPTER 11 – ACCESSIBILITY.**

Use Uniform Federal Accessibility Standards (UFAS) and Americans With Disabilities Act Accessibility Guide (ADAAG) in lieu of Chapter 11.

2-12           **CHAPTER 12 – INTERIOR ENVIRONMENT.**

Use Chapter 12, except as modified below:

2-12.1       Delete paragraph 1204.1, including the exception, and replace with the following:

- a. Refer to applicable Unified Facility Criteria and individual military service standards for temperature control criteria.

2-12.2       Delete paragraphs 1207.2 and 1207.3, and replace with the following:

- a. Refer to applicable Unified Facility Criteria and individual military service standards for air-borne and structure-borne sound transmission criteria.

2-12.3       Delete paragraph 1208.3 and replace with the following:

- a. 1208.3 Room area. Refer to applicable facility-specific Unified Facility Criteria and individual military service standards for minimum sizes for rooms.

2-12.4       Delete paragraph 1208.4 and replace with the following:

- a. 1208.4 Efficiency dwelling units. Refer to applicable Unified Facility Criteria and individual military service standards for dwelling unit criteria.

2-13           **CHAPTER 13 - ENERGY EFFICIENCY.**

Use Chapter 13 and UFC 3-400-01.

2-14           **CHAPTER 14 – EXTERIOR WALLS.**

Use Chapter 14.

2-15           **CHAPTER 15 – ROOF ASSEMBLIES AND ROOFTOP STRUCTURES.**

Use Chapter 15 and NRCA *Roofing and Waterproofing Manual*.

2-16           **CHAPTER 16 – STRUCTURAL DESIGN.**

Use Chapter 16, except as modified below:

2-16.1       Refer to UFC 3-310-01 for the following structural loading data.

- a. Importance factors for snow load, wind load, and seismic load (Table 1604.5)
- b. Minimum uniformly distributed live loads and minimum concentrated live loads (Table 1607.1)
- c. Ground snow loads used for determining the design snow loads for roofs
- d. Basic wind speeds used for determining the design wind loads for buildings and other structures
- e. Maximum Considered Earthquake ground motion

2-16.2       Seismic design for new buildings must be in accordance with Chapter 16 as modified by UFC 3-310-04.

- a. Refer to Paragraph 2-34.1 for seismic requirements for existing buildings.

2-17           **CHAPTER 17 – STRUCTURAL TESTS AND INSPECTIONS.**

Use Chapter 17, except as modified below:

2-17.1       In Paragraph 1704.1 General, add the following after the first sentence:

- a. The Government may require the Contractor to provide special inspections as part of his work.

2-18           **CHAPTER 18 – SOILS AND FOUNDATIONS.**

Use Chapter 18 and UFC 3-220-01.

2-19           **CHAPTER 19 – CONCRETE.**

Use Chapter 19.

2-20           **CHAPTER 20 – ALUMINUM.**

Use Chapter 20.

2-21           **CHAPTER 21 – MASONRY.**

Use Chapter 21.

2-22           **CHAPTER 22 – STEEL.**

Use Chapter 22.

2-23           **CHAPTER 23 – WOOD.**

Use Chapter 23

2-24           **CHAPTER 24 – GLASS AND GLAZING.**

Use Chapter 24. Refer to UFC 4-010-01 for special glazing requirements.

2-25           **CHAPTER 25 – GYPSUM BOARD AND PLASTER.**

Use Chapter 25.

2-26           **CHAPTER 26 – PLASTIC.**

Use Chapter 26.

2-27           **CHAPTER 27 – ELECTRICAL.**

Use NFPA 70 in lieu of IBC Chapter 27.

2-28           **CHAPTER 28 – MECHANICAL SYSTEMS.**

Use Chapter 28 and Mil Hdbk 1003/3 for NAVY and use UFC 3-410-01FA for ARMY and AIR FORCE..

2-28.1        For fuel gas systems use NFPA 54 and NFPA 58 in lieu of the International Mechanical Code and the International Fuel Gas Code.

2-29           **CHAPTER 29 – PLUMBING SYSTEMS.**

Use Chapter 29 and UFC 3-420-01.

2-30           **CHAPTER 30 – ELEVATOR AND CONVEYING SYSTEMS.**

Delete the chapter. Refer to applicable individual military service standards for elevator and conveying systems criteria.

2-31           **CHAPTER 31 – SPECIAL CONSTRUCTION.**

Use Chapter 31.

2-32           **CHAPTER 32 – ENCROACHMENT INTO THE PUBLIC RIGHT-OF-WAY.**

Use Chapter 32.

**2-33            CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION.**

Delete the chapter.

**2-34            CHAPTER 34 – EXISTING STRUCTURES.**

Use Chapter 34, except as modified below, and UFC 3-600-01. If any conflict occurs between Chapter 34 and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

2-34.1           Existing buildings inside the United States, its territories and possessions must comply with ICSSC RP6 / NISTIR 6762 in addition to Chapter 34. Refer to individual military service standards for specific seismic requirements for existing buildings outside the United States.

2-34.2           Seismic evaluation of existing buildings must be in accordance with ASCE 31-03. Rehabilitation of existing buildings for seismic loads must be in accordance with FEMA 356.

**2-35            CHAPTER 35 – REFERENCED STANDARDS.**

Use Chapter 35 and Appendix A.

## APPENDIX A REFERENCES

### GOVERNMENT PUBLICATIONS:

#### 1. Department of Defense

- United Facilities Criteria Internet Site  
<http://dod.wbdg.org>
- UFC 3-220-01, *Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures*. Anticipated publication date for UFC 3-220-01 is December, 2005. For additional information, contact the preparing activity.
- UFC 3-310-01, *Design: Structural Load Data*.
- UFC 3-310-04, *Design: Seismic Design for Buildings*. Anticipated publication date for UFC 3-310-04 is August, 2005. For additional information, contact the preparing activity.
- UFC 3-400-01, *Design: Energy Conservation*
- UFC 3-410-01FA, *Design: Heating, Ventilating and Air Conditioning*
- UFC 3-410-02N, *Design: Heating, Ventilating, Air conditioning and Dehumidifying Systems*
- UFC 3-420-01, *Design: Plumbing Systems*
- UFC 3-600-01, *Design: Fire Protection Engineering for Facilities*
- UFC 4-010-01, *DoD Minimum Antiterrorism Standards for*

*Buildings*

UFC 4-010-02, *DoD Minimum Antiterrorism Standoff Distances for Buildings*

3. U.S. Architectural and Transportation Barriers Compliance Board  
<http://www.access-board.gov/indexes/pubsindex.htm>

UFAS, *Uniform Federal Accessibility Standards*

ADAAG, *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities*

4. Federal Emergency Management Agency  
Washington, DC  
  
[http://www.degenkolb.com/0\\_0\\_Misc/0\\_1\\_FEMADocuments/fema356/ps-fema356.html](http://www.degenkolb.com/0_0_Misc/0_1_FEMADocuments/fema356/ps-fema356.html).

FEMA 356, *Prestandard and Commentary for the Seismic Rehabilitation of Buildings*, November, 2000

5. Interagency Committee on Seismic Safety Construction  
U.S. Department of Commerce  
National Institute of Standards and Technology  
Gaithersburg, MD 20899  
  
<http://fire.nist.gov/bfrlpubs/build01/art056.html>

ICSSC RP6 / NISTIR 6762, *Standards of Seismic Safety for Federally Owned and Leased Buildings*, January 2002

**NON-GOVERNMENT PUBLICATIONS**

1. American Society of Civil Engineers  
1801 Bell Drive  
Reston, VA 20191-4400
2. International Code Council  
5203 Leesburg Pike, Suite 708  
Falls Church, VA 22041
3. National Fire Protection Association  
1 Batterymarch Park  
Quincy, Massachusetts

ASCE 31-03, *Seismic Evaluation of Existing Buildings*,

*International Building Code (IBC)*, 2003

NFPA-54, *National Fuel Gas Code*, 2002

NFPA-58, *National Propane Gas Code*, 2002

NFPA-70, *National Electric Code*, 2002

4. National Roofing Contractors Association  
10255 W. Higgins Road, Suite 600  
Rosemont, IL 60018

*Roofing and Waterproofing Manual*, 2003

## **Alaska Department of Environmental Conservation (ADEC) Coordination**

**NOTE: This document is undergoing update and this version will be replaced in the near future. Please contact the Alaska District's POC, Mr. Thomas Lubeck at 907-753-5720 for further guidance.**

## **Alaska Department of Environmental Conservation (ADEC) Coordination**

### Contact Information

ADEC Website – <http://www.state.ak.us/dec/>

#### Water/Wastewater - Fairbanks

Lee Johnson  
State of Alaska  
Department of Environmental Conservation  
Northern Drinking Water/Wastewater Program  
610 University Avenue  
Fairbanks, Alaska 99709-3643  
(907) 451-2179

#### Water/Wastewater - Anchorage

William Rieth  
State of Alaska  
Department of Environmental Conservation  
Drinking Water and Wastewater Program  
555 Cordova Street  
Anchorage, Alaska 99501  
(907) 269-7519

#### Storm Water – Statewide

Greg Drzewiecki  
State of Alaska  
Department of Environmental Conservation  
Division of Air and Water Quality  
555 Cordova Street  
Anchorage, Alaska 99501  
(907) 269-7692

### Wastewater (Submitted in accordance with 18 AAC 72.205)

- In house designs are submitted to ADEC by the Civil/Sanitary Section. Prior to package submittal the Civil Engineer provides the PM with an Owner's Statement. Fill in the Project No. (UPC) and Project Name. The PM is to get the User to sign the statement and provide the copy to the Civil Engineer to include in the submittal to ADEC. Submit the 95% package for review. Expect 30 days for ADEC review.
- AE designs are submitted to ADEC by the AE firm. The PM is to provide a signed Owner's Statement to the AE to include in the submittal to ADEC.

- Note: ADEC does not require package submittal for single service line connections. Any change to the distribution line or a new system must be submitted for approval.
- This first step is to get the Approval to Construct Certificate. This certificate is valid for 90 days beyond project completion. For Operational Approval, the Contractor must submit:
  1. A set of record drawings showing any changes made during construction.
  2. A completed Certification of Construction Form.
  3. A copy of the Operation and Maintenance manuals.
  4. Verification that onsite personnel have been training in O&M procedures.
  5. A copy of the percolation test conducted for the domestic wastewater drain field, if applicable.
  6. Verification that sand in the sand bed meets the requirements of 18 AAC 72.260(a)(4)(D), if applicable.

Domestic Water (Submitted in accordance with 18 AAC 80.200)

- In house designs are submitted to ADEC by the Civil/Sanitary Section. Submit the 95% package for review. Expect 30 days for ADEC review.
  1. A completed New Class A Public Water Systems Plan Approval Checklist for Engineering Plans must be filled out and submitted with the plans, if applicable.
  2. A completed Inventory and Source Registration Form for Class C Public Water Systems must be filled out and submitted with the plans, if applicable.
- AE designs have the same submittal requirements as in house.
- This first step is to get the Approval to Construct Certificate. This certificate is valid for 90 days beyond project completion. For Operational Approval the Contractor must submit:
  1. A set of record drawings showing any changes made during construction.
  2. A completed Certification of Construction Form.
  3. A copy of the Operation and Maintenance manuals.
  4. Verification that onsite personnel have been training in O&M procedures.
  5. A copy of all pressure testing and bacteriological sample results confirming all lines altered during construction were properly disinfected and flushed prior to being put into use.

Storm Water (Submitted in accordance with 18 AAC 72)

- If the site is less than 1 acre, no special review is required.

- If the site is between 1 and 5 acres, a review is required, but no special specification if the drainage pattern is not being substantially changed. Submit the 95% package for review. Expect 30 days for ADEC review.
- If the site is over one acre and the drainage is being substantially changed a National Pollutant Discharge Elimination System (NPDES) form is required. The Civil Engineer must fill out Sections B and C of EPA Form 3510-9 – Notice of Intent (NOI) for Storm Water Discharge Associated with Industrial or Construction Activity Under the Multi-sector NPDES General Permit. The form is attached to Spec Section 01356 Storm Water Pollution Prevention Measures. Have Specifications Section delete the paragraph in 01015 SPECIAL ITEMS on NPDES. The Civil Engineer must edit specification 01356 STORM WATER POLLUTION PREVENTION MEASURES, by adding the following.
  1. The Contractor prepares a Storm Water Pollution Prevention Plan (SWPPP) and submits to the Contracting Officer.
  2. The Contractor completes the Sections of the Form 3510-9 and submits to the Contracting Officer with SWPPP, one page description of the project, a copy of the civil drawings, and prepaid mailing envelopes, for the whole package, to the Contracting Officer for approval.
  3. Upon receipt of satisfactory submittal from the Contractor, the Resident Engineer will promptly complete a separate Form 3510-9, for the Government, and forward both the Contractor-prepared and Resident Engineer-prepared forms to the NPDES Program Director. In accordance with applicable requirements, no onsite work shall be performed until two days after the documents have been post marked, notwithstanding any other provisions of the contract.
  4. The Government will forward copies of both Form 3510-9's, along with the SWPPP, the one-page project description, and civil drawings to ADEC. The Contractor shall pay all fees required for review.
  5. Upon completion of work at the project site, the Contractor shall prepare Form 3510-13, Notice of Termination of Coverage Under the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity. The completed form and prepaid mailing envelopes shall be submitted to the Contracting Officer within 10 days after the earliest date that final site conditions meet filing requirements. The Resident Engineer will promptly complete a separate Form 3510-13, for the Government. The Government will forward both forms to the NPDES Program Director.

The text that I used in my last project requiring NPDES looked like this:

- 1.5 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
 Work shall comply with EPA NPDES General Permit. Reference website at

<http://cfpub.epa.gov/npdes/stormwater/cgp.cfm> for permit, required forms, and guidance documents.

- 1.5.1 Storm Water Pollution Prevention Plan (SWPPP) Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Environmental Protection Agency's NPDES General Permits for Storm Water Discharge from Construction Activities published in the Federal Register July 1, 2003, pages 39087 - 39091. The Contractor is also responsible for compliance with any updates and changes to this permit. The Contracting Officer will retain authority assigned therein to the State. The SWPP shall be submitted to the Contracting Officer for review and approval.
- 1.5.2 Notice of Intent for Storm Water Discharge (NOI) The Contractor shall complete EPA Form 3510-9, Notice of Intent for Storm Water Discharges Associated with Construction Activity Under a NPDES General Permit, in accordance with EPA instructions and requirements. The contractor shall be responsible for determining the proper coordinates to use on Form 3510-9 and entering those coordinates in the right format. The Contractor shall complete the form, and submit it, along with the SWPPP, a one page description of the project, a copy of the Civil Drawings, and prepaid mailing envelopes for the whole package, one addressed to the NPDES Program Director and the other addressed to the Alaska Department of Environmental Conservation, to the Contracting Officer for review
- 1.5.3 Filing Upon receipt of satisfactory submittal from the Contractor, the Resident Engineer will promptly complete a separate 3510-9, for the Government, and forward both the Contractor-prepared and Resident Engineer-prepared forms to the NPDES Program Director. In accordance with applicable requirements, no onsite work shall be performed until two days after the documents have been post marked, notwithstanding any other provisions of the contract. The Government will forward copies of both Form 3510-9's, along with the SWPPP, the one-page project description, and civil drawings to the Alaska Department of Environmental Conservation (ADEC) in accordance with State of Alaska regulations. The Contractor shall pay all fees required for review in accordance with 18 AAC 72.
- 1.5.4 Notice of Termination of Coverage (NOT) Upon completion of work at the project site, the Contractor shall prepare EPA Form 3510-13, Notice of Termination of Coverage Under the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity, in accordance with the regulations stated on the form. The completed form and prepaid mailing envelopes shall be submitted to the Contracting Officer within 10 days after the earliest date that final site conditions meet filing requirements. The Resident Engineer will promptly complete a separate 3510-13 for the Government. The Government will forward both forms to the NPDES Program Director.

Attached Forms:

- Owner's Statement

- New Class A Public Water Systems Plan Approval Checklist for Engineering Plans
- Inventory and Source Registration Form for Class C Public Water Systems
- EPA Form 3510-9, Notice of Intent (NOI) for Storm Water Discharge Associated with Construction or Industrial Activity Under the Multi-sector NPDES General Permit
- EPA Form 3510-13, Notice of Termination of Coverage Under the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity





## Instructions for Completing EPA Form 3510-9

### Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under an NPDES General Permit

NPDES Form

This Form Replaces Form 3510-9 (8/98)

Form Approved OMB Nos. 2040-0188 and 2040-0211

#### Who Must File an NOI Form

Under the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et seq.; the Act), federal law prohibits storm water discharges from certain construction activities to waters of the U.S. unless that discharge is covered under a National Pollutant Discharge Elimination System (NPDES) Permit. Operator(s) of construction sites where one or more acres are disturbed, smaller sites that are part of a larger common plan of development or sale where there is a cumulative disturbance of at least one acre, or any other site specifically designated by the Director, must submit an NOI to obtain coverage under an NPDES general permit. Each person, firm, public organization, or any other entity that meets either of the following criteria must file this form: (1) they have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or (2) they have day-to-day operational control of those activities at the project necessary to ensure compliance with SWPPP requirements or other permit conditions. If you have questions about whether you need an NPDES storm water permit, or if you need information to determine whether EPA or your state agency is the permitting authority, refer to [www.epa.gov/npdes/stormwater/cgp](http://www.epa.gov/npdes/stormwater/cgp) or telephone the Storm Water Notice Processing Center at (866) 352-7755.

#### Where to File NOI Form

See the applicable CGP for information on where to send your completed NOI form.

#### Completing the Form

Obtain and read a copy of the appropriate EPA Storm Water Construction General Permit for your area. To complete this form, type or print, using uppercase letters, in the appropriate areas only. Please place each character between the marks (abbreviate if necessary to stay within the number of characters allowed for each item). Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response. If you have any questions on this form, refer to [www.epa.gov/npdes/stormwater/cgp](http://www.epa.gov/npdes/stormwater/cgp) or telephone the Storm Water Notice Processing Center at (866) 352-7755. Please submit original document with signature in ink - do not send a photocopied signature.

#### Section I. Permit Number

Provide the number of the permit under which you are applying for coverage (see Appendix B of the general permit for the list of eligible permit numbers).

#### Section II. Operator Information

Provide the legal name of the person, firm, public organization, or any other entity that operates the project described in this

application. An operator of a project is a legal entity that controls at least a portion of site operations and is not necessarily the site manager. Provide the employer identification number (EIN from the Internal Revenue Service; IRS), also commonly referred to as your taxpayer ID. If the applicant does not have an EIN enter "NA" in the space provided. Also provide the operator's mailing address, telephone number, fax number (optional) and e-mail address (if you would like to be notified via e-mail of NOI approval when available). Correspondence for the NOI will be sent to this address.

#### Section III. Project/Site Information

Enter the official or legal name and complete street address, including city, state, zip code, and county or similar government subdivision of the project or site. If the project or site lacks a street address, indicate the general location of the site (e.g., Intersection of State Highways 61 and 34). Complete site information must be provided for permit coverage to be granted.

The applicant must also provide the latitude and longitude of the facility either in degrees, minutes, seconds; degrees, minutes, decimal; or decimal format. The latitude and longitude of your facility can be determined in several different ways, including through the use of global positioning system (GPS) receivers, U.S. Geological Survey (U.S.G.S.) topographic or quadrangle maps, and EPA's web-based siting tools, among others. Refer to [www.epa.gov/npdes/stormwater/cgp](http://www.epa.gov/npdes/stormwater/cgp) for further guidance on the use of these methodologies. For consistency, EPA requests that measurements be taken from the approximate center of the construction site. Applicants must specify which method they used to determine latitude and longitude. If a U.S.G.S. topographic map is used, applicants are required to specify the scale of the map used.

Indicate whether the project is in Indian country, and if so, provide the name of the Reservation. If the project is in Indian Country Lands that are not part of a Reservation, indicate "not applicable" in the space provided.

Enter the estimated construction start and completion dates using four digits for the year (i.e., 05/27/1998). Enter the estimated area to be disturbed including but not limited to: grubbing, excavation, grading, and utilities and infrastructure installation. Indicate to the nearest quarter acre. Note: 1 acre = 43,560 sq. ft.

#### Section IV. SWPPP Information

Indicate whether or not the SWPPP was prepared in advance of filing the NOI form. Check the appropriate box for the location where the SWPPP may be viewed. Provide the name,

**Notice of Intent (NOI) for Storm Water Discharges Associated with  
Construction Activity Under an NPDES General Permit**

NPDES Form

This Form Replaces Form 3510-9 (8/98)

Form Approved OMB Nos. 2040-0188 and 2040-0211

fax number (optional), and e-mail address (optional) of the contact person if different than that listed in Section II of the NOI form.

**Section V. Discharge Information**

Enter the name(s) of receiving waterbodies to which the project's storm water will discharge. These should be the first bodies of water that the discharge will reach. (Note: If you discharge to more than one waterbody, please indicate all such waters in the space provided and attach a separate sheet if necessary.) For example, if the discharge leaves your site and travels through a roadside swale or a storm sewer and then enters a stream that flows to a river, the stream would be the receiving waterbody. Waters of the U.S. include lakes, streams, creeks, rivers, wetlands, impoundments, estuaries, bays, oceans, and other surface bodies of water within the confines of the U.S. and U.S. coastal waters. Waters of the U.S. do not include man-made structures created solely for the purpose of wastewater treatment. U.S. Geological Survey topographical maps may be used to make this determination. If the map does not provide a name, use a format such as "unnamed tributary to Cross Creek". If you discharge into a municipal separate storm sewer system (MS4), you must identify the waterbody into which that portion of the storm sewer discharges. That information should be readily available from the operator of the MS4.

Indicate whether your storm water discharges from construction activities will be consistent with the assumptions and requirements of applicable EPA approved or established TMDL(s). To answer this question, refer to [www.epa.gov/npdes/stormwater/cgp](http://www.epa.gov/npdes/stormwater/cgp) for state- and regional-specific TMDL information related to the construction general permit. You may also have to contact your EPA regional office or state agency. If there are no applicable TMDLs or no related requirements, please check the "yes" box in the NOI form.

**Section VI. Endangered Species Information**

Indicate for which criterion (i.e., A, B, C, D, E, or F) of the permit the applicant is eligible with regard to protection of federally listed endangered and threatened species, and designated critical habitat. See Part 1.3.C.6 and Appendix C of the permit. If you select criterion F, provide the permit tracking number of the operator under which you are certifying eligibility. The permit tracking number is the number assigned to the operator by the Storm Water Notice Processing Center after EPA acceptance of a complete NOI.

**Section VII. Certification Information**

All applications, including NOIs, must be signed as follows:  
*For a corporation:* By a responsible corporate officer. For the purpose of this Section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

*For a partnership or sole proprietorship:* By a general partner or the proprietor, respectively; or

*For a municipality, state, federal, or other public agency:* By either a principal executive officer or ranking elected official. For purposes of this Part, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

Include the name and title of the person signing the form and the date of signing. An unsigned or undated NOI form will not be considered eligible for permit coverage.

**Paperwork Reduction Act Notice**

Public reporting burden for this application is estimated to average 3.7 hours. This estimate includes time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Chief, Information Policy Branch 2136, U.S. Environmental Protection, Agency, 1200 Pennsylvania Avenue, NW, Washington, D.C. 20460. Include the OMB control number on any correspondence. Do not send the completed form to this address.



**C. List any utilities or other entities, that you are aware are currently providing the same type of service in the area sought by this application.<sup>1</sup>**

<u>(1)</u> _____ (Name)	<u>(2)</u> _____ (Name)
_____ (Address)	_____ (Address)
_____ (Competing Service)	_____ (Competing Service)
_____ (Competing Service Area)	_____ (Competing Service Area)

<sup>1</sup>Competing entities are those entities providing, or intending to provide, the same, or substantially the same, service or facility to any part of the requested service area.

**D. Applicant is:**

- |                                       |                                                             |
|---------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Cooperative  | <input type="checkbox"/> Privately-owned Corporation        |
| <input type="checkbox"/> Individual   | <input type="checkbox"/> Municipally-owned Utility          |
| <input type="checkbox"/> Partnership  | <input type="checkbox"/> Political Subdivision of the State |
| <input type="checkbox"/> Limited      |                                                             |
| <input type="checkbox"/> General      |                                                             |
| <input type="checkbox"/> Other: _____ |                                                             |

Date of Organization (if applicable): \_\_\_\_\_

**E. List the owners of five percent (5%) or more of the applicant's equity:**

_____ (Name)	_____ % Ownership
_____ (Street Address/Post Office Box/City/State/Zip Code )	
_____ (Name)	_____ % Ownership
_____ (Street Address/Post Office Box/City/State/Zip Code)	
_____ (Name)	_____ % Ownership
_____ (Street Address/Post Office Box/City/State/Zip Code)	

**F. List all persons or entities which are affiliated interests of the applicant as defined in AS 42.05.990(1)(A)-(I):**

---

(Name)

---

(Street Address/Post Office Box)

---

(City/State/Zip Code)

---

(Name)

---

(Street Address/Post Office Box)

---

(City/State/Zip Code)

**G. The location of where the company books will be kept:**

---

(Street Address/Post Office Box)

---

(City/State/Zip Code)

## **PART II      GENERAL DOCUMENTS**

Applicants must provide the following information in attachments numbered to correspond to the items below.

### **A.      Key Management**

List the names, titles, and responsibilities of all key management now employed, or to be employed, in the utility operation. Submit a resume for each person, including all prior background, education, and any other qualifications that may be useful to the operation of the utility.

If accurate, up-to-date resumes are on file with the Alaska Department of Environmental Conservation (ADEC), an applicant requesting a second construction or operation approval may satisfy this information requirement by submitting a statement to this effect.

### **B.      Corporate or Partnership Documents**

If the applicant is a corporation, enclose the following:

- (1)      Certificate of Incorporation
- (2)      Articles of Incorporation
- (3)      Bylaws

If the applicant is a partnership, enclose a copy of the partnership agreement.

If accurate, up-to-date corporate or partnership documents are on file with the ADEC, an applicant requesting a second construction or operation approval may satisfy this information requirement by submitting a statement to this effect.

### **C.      Benefit to the Public**

Explain in detail why the new or additional utility service is, or may be, required for managerial and financial capacity and state why any existing, similar service is insufficient or why overlapping approval is otherwise appropriate. Also, include the number and type of customers by geographic location that the applicant expects to serve. Explain how the customer estimates were derived.

### **D.      Service Area Map**

Attach a map clearly showing the boundary of the applicant's proposed service area using a U.S.G.S. topographical map, scale 1:63,360 (or 1:24,000 if available). In cases where

the proposed service area is less than one square mile, contact the ADEC staff to determine the appropriate map scale. Include a description of the area using townships and ranges. Location of all water sources will need to be clearly noted on the map.

**E. Utility Practices and Procedures**

Attach the proposed tariff or practices and procedures of the applicant, showing all of the rates, deposits, and charges associated with providing the proposed service to the general public and including the standard practices the applicant will follow when dealing with its customers (such as billing practices, conditions of disconnection, etc.). Applicants can refer to 3 AAC 48.200 – 3 AAC 48.420 for tariff requirements adopted by the Regulatory Commission of Alaska (RCA) or may contact the RCA or ADEC staff for samples of approved tariffs.

**PART III TECHNICAL DOCUMENTS/INFORMATION**

At a minimum, an applicant for a construction approval must provide the information required in Section A. Technical Capacity of the new Class A public water system plan review check list. This information must be submitted under the stamp of a registered engineer.

**PART IV FINANCIAL INFORMATION**

At a minimum, applicants must provide the following:

**A. Financial Status**

The applicant must provide the following historical financial information:

- (1) if the applicant is an existing business which previously has not operated as a utility or has not been certificated to operate as a utility, copies of the most recent year's balance sheet and income statement for the existing business (preferably audited); or
- (2) if the applicant is a new business which proposes to operate as a utility, copies of the most recent year's balance sheet and income statement for the principal owners of the business.

In addition, applicants must provide the following pro forma financial schedules:

- (a) schedule of operating revenues (see attached Schedule 1);
- (b) schedule of operating expenses (see attached Schedule 2);
- (c) plant-in-service and depreciation schedule (see attached Schedule 3);

- (d) computation of the utility's weighted cost of capital (see attached Schedule 4);
- (e) computation of the utility's rate base and return (see attached Schedule 5);
- (f) tax computation (see attached Schedule 6); and
- (g) revenue requirement and calculation of proposed rates (see attached Schedule 7).

**B. Sources of Financing**

List the sources of the financing for the proposed utility or expansion of an existing utility. Include documentation showing that the sources listed will provide the applicant with the required funds. Include the terms and conditions of all loans and equipment contracts that may be relevant. If a portion or all of the plant is contributed, list the sources and conditions of all on-site and off-site assessments, grants, or other sources of funding.

**PART V AUTHORIZATION**

Verification of Application and Authorization of Notice

The undersigned hereby verifies the application and requests the ADEC to grant to the applicant a construction and/or operation approval for the proposed new Class A public water system.

DATED AT \_\_\_\_\_, Alaska, the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_.

\_\_\_\_\_  
Name of Applicant

By: \_\_\_\_\_  
Principal Officer, Partner, or Owner

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Address of Applicant

\_\_\_\_\_  
City, State, Zip Code

## SCHEDULES FOR FINANCIAL DATA

Schedules 1-3 refer to account numbers as defined by the Uniform System of Accounts (USOA) for utilities. Copies of the USOA applicable to the type and size of utility proposed in this application are set out in the Alaska Regulatory Commission's regulations at 3 AAC 48.277 and may be obtained from the Alaska Regulatory Commission. If possible, submit these schedules on an IBM PC compatible "Lotus 123" floppy disc. A pre-formatted "Lotus 123" floppy disc containing these schedules may be obtained from the Alaska Regulatory Commission.

	Instructions for Applicants Seeking Initial Certification for an Already Operating Utility	Instructions for Applicants Seeking Certification for a New Utility	Instructions for Applicants Seeking an Amendment to the Service Area of a Certificated Utility
SCHEDULE 1	List in Column III actual attained revenues for the most recent 12 month accounting period.	Leave Columns III and IV blank.	Leave Columns III and IV blank.
	List in Column IV an estimate for expected increases or decreases in revenues during the next 12 month accounting period. Provide an explanation for your estimates on a separate sheet.	List in Column V an estimate for total revenues expected during the next 12 month accounting period. Provide an explanation for your estimates on a separate sheet.	List in Column V an estimate for an increase (or decrease) in revenues caused by the proposed amendment at the end of the first normalized year of operation. Include figures for the amendment only, i.e., do not include revenue estimates for the already existing service area.
	List in Column V an estimate for total revenues expected during the next 12 month accounting period. Column V should be the sum of Columns III and IV.		
SCHEDULE 2	Repeat procedure described for Schedule 1 for expenses.	Repeat procedure described for Schedule 1 for expenses.	Repeat procedure described for Schedule 1 for expenses.
SCHEDULE 3	List plant that has been in service for the most recent 12 month accounting period. Columns IV, V, and VI should include the total plant figures, i.e., contributed and non-contributed. Columns VII, VIII, and IX should list figures for contributed plant only.	List plant that is expected to be in service at the end of the first normalized year of operation. Columns IV, V, and VI should include total plant figures, i.e., contributed and non-contributed. Columns VII, VIII, and IX should list figures for contributed plant only.	List plant that is expected to be added (or retired) as a result of the proposed amendment of certificate. Columns IV, V, and VI should include dollar figures for total plant additions or deletions, i.e., contributed and non-contributed, at the end of the first normalized year of operation. Columns VII, VIII and IX should list figures for contributed plant only.
SCHEDULE 4	Compute weighted costs of capital for utility. Leave Line 2A blank. Attach supplementary schedule listing all long-term debt obligations. Include all terms of each obligation, date it was incurred, interest rate, and repayment obligations.	Compute weighted costs of capital for each utility. Leave Line 2A blank. Attach supplementary schedule listing all long-term debt obligations. Include all terms of each obligation, date it was incurred, interest rate, and repayment obligations.	Compute weighted cost of capital for utility. Include on Line 2 all long-term debt prior to financing the proposed addition. Include on Line 2A any additional long-term debt incurred to finance the proposed addition. Attach supplementary schedule explaining all debt obligations included in Line 2A, their terms, dates incurred, interest rates, and repayment obligations. If applicable, explain any increases in equity related to financing the proposed addition.
SCHEDULES 5-7	Follow occupational instructions given on schedules.		





Department of Environmental Conservation  
 Division of Environmental Health  
 Drinking Water and Wastewater Program  
 555 Cordova St., Anchorage, AK 99501  
 Phone: (907) 269-7623



# Alaska Public Water Systems Latitude/Longitude Data

Public Water System Name:	PWS ID #:
Name Of Person Determining Lat/Long:	Phone:
Water Source Name:	Date:

1) **Facility Type.** (Check one)

Well  Intake of Surface Water or Spring Source  Admin. Building (Use for haulers of purchased water **only**)

2) **The date the latitude and longitude were researched or collected.** Example: 06/30/1999

/

3) **Latitude in decimal degrees.** For Alaska, latitudes are between 51 and 80 North. Give data to available accuracy. Example: +56.234230

+   .

4) **Any Comments on Latitude/Longitude. (Optional)**

5) **Longitude in decimal degrees.** For Alaska, longitudes are generally -126 to -180 West. The minus sign means "West." Use + for "East." Example: -136.23423

-    .

6) **Method Of Determining Latitude & Longitude.** (Check one)

GPS  Map (Interpolation from a Topographical map)   
 Go to question #7  Go to question #8

7) **Lat/Long Accuracy In Meters.** GPS accuracy is typically encoded in the unit's display. Estimated accuracy is acceptable. The assumed datum is WGS 84. If another datum is used, please specify. Example: 30. (meters)

. Meters

8) **Scale Of Topographical Map Used.** (Pick one from scales below)

**If GPS Used**

**U:** Scale Not Applicable To GPS

**Ranges for Map Scale**

- 1:  $\geq 1:500$
- 2: 1:501 - 1:5,000
- 3: 1:5,001 - 1:10,000
- 4: 1:10,001 - 1:15,000
- 5: 1:15,001 - 1:20,000
- 6: 1:20,001 - 1:25,000
- 7: 1:25,001 - 1:50,000
- 8: 1:50,001 - 1:100,000
- 9:  $> 1:100,000$

**Discrete Map Scales**

- A:** 1:10,000
- B:** 1:12,000
- C:** 1:15,840
- D:** 1:20,000
- E:** 1:24,000
- F:** 1:25,000
- G:** 1:50,000
- H:** 1:62,500
- I:** 1:63,360
- J:** 1:100,000
- K:** 1:125,000
- L:** 1:250,000
- M:** 1:500,000

**Providing Information Below Is Optional**

9) **Vertical Measure In Meters.** The vertical component of measured point, in meters.  
 If no vertical component, leave blank. If you answer question 9, answer 10,11,& 12 also.

.

10) **Vertical Measure Method Of Collection**

GPS  Topographic Map Interpolation  Other  Unspecified

11) **Accuracy Of Vertical Measure In Meters. (+/-)**

• Meters

12) **Reference Datum For Vertical Measure.** (Pick one)

- 1: NAVD88: North American Vertical Datum of 1988
  - 2: NGVD29: National Geodetic Vertical Datum of 1929
  - 3: Elevation from Mean Sea Level
  - U: Unkown
- 

**DEC Will Complete The Following Information**

13) **Information Source For Latitude/Longitude.** (Check one box)

The State of Alaska  Regulated Entity (Health Corp, Community, etc.)  Contractor (San Surveyors, inspector, etc)  Other  Unknown

14) **Latitude/Longitude Verification Code.** Indicates whether the latitude and longitude have been verified by EPA staff, grantees or contractors, and the process for verification. (Check one box)

Verified Relative To Map Features (1:100k Or Tiger)  Ground Truth Conducted  Not Verified

Verified Relative To Map Features (1:24K)  Verified, Unknown Method  Verified Relative To Map Features (Other)

**STATE OF ALASKA  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF ENVIRONMENTAL HEALTH  
DRINKING WATER AND WASTEWATER PROGRAM**

**PLAN APPROVAL CHECKLIST  
FOR ENGINEERING PLANS  
NEW  
CLASS A PUBLIC WATER SYSTEMS**

**18 AAC 80.200, .205,  
.207, & .210**

This checklist is based upon Drinking Water Regulations, effective October 1, 1999.

Contact the office in the project area:

Anchorage:	269-7517
Bethel:	543-3215
Fairbanks:	451-2179
Juneau:	465-5317
Kenai:	262-5210
Ketchikan:	225-6200
Wasilla:	376-5038

This checklist applies to new construction, which will supply or have an effect on drinking water quality and quantity. **This checklist applies to only new Class A public water systems.**

A new Class A public water system is a Class A public water system that is constructed after October 1, 1999; a Class A public water system that has not received a public water system identification number as of October 1, 1999; or an existing water system other than a Class A public water system, if, as a result of expanding its infrastructure, falls within the definition of a Class A public water system. **18 AAC 80.1990(84)**

The agency encourages applicants, engineers, and system owners and operators to contact local plan review staff to discuss this checklist. It will be used to evaluate the completeness of submitted plans. If the submittal is not complete, the submittal may be returned to the applicant or held until contact is made with the applicant. The department may not accept incomplete submittals at the counter or determine a plan review fee until the submittal is complete. Formal review may not begin until the department determines the plan submittal is complete. Fee payment must be included for the submittal to be complete.

As required by the Alaska Drinking Water Regulations: "Subject to the availability of appropriations from the legislature and the staffing needs of other projects, the department will issue its approval or denial to construct a Class A or Class B public water system within 30 days after the department receives all of the plans and information required by this chapter. If the submittals are deficient, the department will notify the owner or operator that additional information is needed. Failure of the department to issue an approval or denial to construct within 30 days does not constitute automatic approval of the plans." **18 AAC 80.210(a) and (b)**

#### **GENERAL INFORMATION:**

1. Subject to (c), (d), (f) and (g) of 18 AAC 80.200(b), in order to construct, install, alter, renovate, operate, or improve a Class A or B public water system, or any part of one, the owner or operator must have prior written approval of engineering plans that comply with the requirements of 18 AAC 80.205. **18 AAC 80.200(b)**
2. Written approval under this section is not required for an emergency repair or routine maintenance of a public water system or for a single-service line installation or modification. **18 AAC 80.200(c)**
3. Engineering drawings and calculations for new Class A public water systems must be submitted under the seal and signature of a registered engineer. **18 AAC 80.200(d)(1)**

4. After meeting with the plan review engineer, other information may be determined necessary to assess compliance with this chapter. **18 AAC 80.205(b)(9)**

The plan review and approval process consists of two major stages:

- I. **Approval to Construct**
- II. **Approval to Operate**

### **I. Approval to Construct**

To obtain an "Approval to Construct Certificate," the Department will require that the owner(s) of the proposed Class A public water system demonstrate they have the overall capability to consistently produce and deliver water meeting Alaska's drinking water regulations. Capability encompasses the technical, managerial, and financial capacity of the water system to plan for, achieve, and maintain compliance with Alaska drinking water regulations given available water resources and the characteristics of the service population.

Technical capacity refers to the physical infrastructure of the water system, including but not limited to the adequacy of the source water, infrastructure (source, treatment, storage, and distribution), and the ability of system personnel to adequately operate and maintain the system and to otherwise implement technical knowledge.

**18 AAC 80.207(b)**

Financial capacity refers to the capability of the financial resources of the water system, including but not limited to revenue sufficiency, credit worthiness, and fiscal controls.

**18 AAC 80.207(c)**

Managerial capacity refers to the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages to customers and regulatory agencies. **18 AAC 80.207(d)**

This stage is divided into two phases. In the first phase, the registered engineer submits a request to install the source. Then during the second phase, the registered engineer and owner will submit information that will allow the department to make a determination that the proposed Class A public water system will meet technical, financial, and managerial capacity. *If this information is not provided, a construction approval will not be issued.*

### **II. Approval to Operate**

This stage is been divided into two phases.

The **first phase** occurs upon the completion of the project. The department issues a temporary 90-day operation certificate for the public water system if the following criteria are met:

- 1) Verification that construction is complete; **18 AAC 80.210(g)(1)**
- 2) The finished water analyses for coliform bacteria and for any raw water contaminant that exceeded an MCL are complete and approved; **18 AAC 80.210(g)(2)** and,
- 3) The terms and conditions set by the department regarding financial and managerial capacity have been met. **18 AAC 80.210(g)(4)**

The **second phase** occurs prior to the end of the 90-day temporary approval period, the following items are submitted for review:

- 1) Record drawings, signed and sealed by a registered engineer, **18 AAC 80.210(j)(1)**
- 2) The record drawings confirm that the public water system meets the requirements of this chapter and provides public health protection, **18 AAC 80.210(j)(2)** and
- 3) All written terms and conditions set by the department for the construction (technical capacity) of the public water system are met. **18 AAC 80.210(j)(3) and (4)**

## I. APPROVAL TO CONSTRUCT:

### Phase 1: Approval to install source

#### A. TECHNICAL CAPACITY

Indicate status of each item:

- (S) Indicates information has been submitted.  
 (NS) Indicates the information has not been submitted.

- *Please note where the information can be located in the submittal to assist the plan review engineer.*

- \_\_\_\_\_ 1. Appropriate plan approval fee submitted as required by **18 AAC 80.1910(c)**.
- \_\_\_\_\_ 2. Population served and number of service connections. **18 AAC 80.200(a)**
- \_\_\_\_\_ 3. The name, address, telephone number, and facsimile number of the owner or operator. **18 AAC 80.205(b)(6)**

- \_\_\_\_\_ 4. Construction drawings and specifications for the water source. **18 AAC 80.205(a)(1)**
- \_\_\_\_\_ 5. The location, stated as the horizontal position and elevation, of each proposed or existing wastewater treatment and disposal system, sewage pump station, sewer line manhole and cleanout, petroleum storage tank and line, and potential or actual source of pollution or contamination, including the sources listed in Table A in 18 AAC 80.020(a), within 200 feet of a proposed water source, regardless of property lines or ownership. **18 AAC 80.205(b)(3);**
- \_\_\_\_\_ 6. Statement by the registered engineer that there are no known sources of contamination within the protective radius of the proposed source.

## II. APPROVAL TO CONSTRUCT/APPROVED CHANGE ORDER:

### Phase 2, Approval for the treatment, storage, and distribution

#### A. TECHNICAL CAPACITY Continued

- \_\_\_\_\_ 1. Engineering report – applicable portions of Section 1.1 of the Recommended Standards for Water Works should be followed. **18 AAC 80.010(d)**
- \_\_\_\_\_ 2. Construction drawings and specifications for the storage, distribution, and treatment systems and related structures. **18 AAC 80.205(a)(1)**
- \_\_\_\_\_ 3. Plans and profiles of the water mains. **18 AAC 80.205(a)(2)**
- \_\_\_\_\_ 4. Design criteria, calculations, and flow analysis computations for water demand, storage tank sizing, distribution main sizing and other components of the new public water system if requested by the department to ensure that the design is adequate. **18 AAC 80.205(a)(3)**
- \_\_\_\_\_ 5. Verification that at least 20 psi of service pressure at the highest elevation or pressure zone of a distribution main can be maintained under peak design demand. **18 AAC 80.205(a)(4)**
- \_\_\_\_\_ 6. Data showing the capability of the public water system source to meet minimum water consumption needs, criteria for water demand calculations, and the production capability of the water plant. **18 AAC 80.205(b)(2)**

The following are examples of the information that should be included in the submittal in sufficient detail to allow evaluation.

- Design according to the *Suggested Practice for Small Water Systems* and other references located in 18 AAC 80.010 (b), (c) and (d).
  - Minimum water consumption needs established.
  - Manufacturer's specifications and performance curves for all pumps.
  - Production capability of the water treatment plant.
  - Freeze protection of all mains and services.
  - Backflow/Cross Connection Prevention **18 AAC 80.025.**
- \_\_\_\_\_ 1. The location, in longitude and latitude to the closest second, of each well and surface water intake and the method used to determine longitude and latitude on a form provided by the department. **18 AAC 80.205(b)(4)**  
*Departmental form can be found in Appendix A of this checklist.*
- \_\_\_\_\_ 2. The overall treatment scheme, including calculations, if required under 18 AAC 80.600 - .699, for disinfection and how *Giardia lamblia* and viruses will be removed or inactivated. **18 AAC 80.205(b)(5)**
- \_\_\_\_\_ 3. Verification that only lead-free pipe, flux, and solder will be used, as required by 18 AAC 80.500. **18 AAC 80.205(b)(7)**
- \_\_\_\_\_ 4. For a public water system that uses compressed air to pressurize hydro-pneumatic tanks, information proving that air quality will not contribute contaminants to the water. **18 AAC 80.205(b)(8)**
- \_\_\_\_\_ 5. Well log(s) and well yield test data. **18 AAC 80.210(h)**
- \_\_\_\_\_ 6. Chemical Additives And Materials. Direct additives for water treatment and materials in contact with potable water may be used on a public water system only if they are approved for that use by the National Sanitation Foundation (NSF), Underwriter Laboratories, or an equivalent organization that evaluates products using NSF Standards 60 and 61, adopted by reference in 18 AAC 80.010(b). **18 AAC 80.030**
- \_\_\_\_\_ 7. A copy of the Water Rights Application submitted to the Alaska Department of Natural Resources.
- \_\_\_\_\_ 8. A written plan sealed by a registered engineer for the operation and maintenance of all components for the proposed system. **18 AAC 80.207(b)(1)**

\_\_\_\_\_ 9. This section applies to all surface water and groundwater under the direct influence of surface water sources as specified in 18 AAC 80.600. A design report will need to be included the following information:

- The characteristics of watershed, physical condition of water source, ground water source distance(s) from any nearby bodies of surface water, influence of surface water on a ground water source, hydrogeology, and results of laboratory analyses of untreated water for biological quality & turbidity. **18 AAC 80.605;**
- Explain how the proposed treatment plant will to achieve three log removal/inactivation of Giardia lamblia. Filtration must achieve at least two log removal and disinfection must achieve at least 0.5 log inactivation. **18 AAC 80.615(b)(2), 18 AAC 80.645;**
- Identify and justify the type(s) of proposed filtration processes to reduce turbidity. Filtration processes may include, slow sand filtration, diatomaceous earth filtration, rapid sand filtration, direct filtration, alternative filtration (cartridge and bag), and/or any pretreatment such as coagulation, flocculation, and sedimentation. Design calculations covering loading rates, back washing rates, volume of back wash water, and other items necessary to determine efficiency of proposed filtration process will need to be provided. Please note that the design for finished water turbidity performance is 0.5 NTU and 1.0 NTU. **18 AAC 80.650;**
- Identify and justify the disinfection parameters/assumptions such as pH, temperature, disinfectant dosage, disinfectant demand, residual disinfectant concentration, design log inactivation criteria, design flow rate, hydraulic efficiency factor, and contact time used in the proposed design. Design calculations for such items as contact time and justifications for hydraulic efficiency factor will need to be included in the report. The location of the first user will also need to be included. **18 AAC 80.645, 18 AAC 80.660, CT Tables 'J' through 'R'.**

## **B. FINANCIAL CAPACITY**

\_\_\_\_\_ 1. For a proposed Class A public water system that is a public water utility and is not exempt from Alaska Statute 42.05 as determined with assistance from the Regulatory Commission of Alaska (RCA) staff, a copy of the application for the certificate of public convenience and necessity that has been submitted to the RCA and written verification from the RCA that an application for a certificate of public convenience and necessity has been submitted. **18 AAC 80.207(c)(1)** *Information on*

*how to obtain a copy of this application and to obtain the necessary assistance from RCA staff can be found in Appendix B of this checklist.*

- \_\_\_\_\_ 2. For a proposed Class A public water system that is a public water utility but is exempt from Alaska Statute 42.05 as determined with assistance from the RCA staff, including a municipally-owned system, a completed application on a form provided by the department, describing the owner's revenue sufficiency, credit worthiness, and fiscal controls. **18 AAC 80.207(c)(2)** *Departmental form can be found in Appendix C of this checklist.*
- \_\_\_\_\_ 3. For a proposed Class A public water system that is not a public utility, a proposed financial plan and annual budget showing estimated system income and operation costs; and, a completed financial capability assessment, on a form provided by the department and as described in 18 AAC 76.225(b)(7); or, on the forms used by the Department of Community and Economic Development to assist communities in dealing with sanitation utility issues. **18 AAC 80.207(c)(3)** Forms can be found in Appendixes D and E of this checklist.
- \_\_\_\_\_ 4. Other information that the owner believes will demonstrate financial capacity. **18 AAC 80.207(c)(4)**
- \_\_\_\_\_ 5. Other information that the department considers necessary to assess the financial capacity of the proposed Class A public water system. **18 AAC 80.207(c)(5)**

### **C. MANAGERIAL CAPACITY**

- \_\_\_\_\_ 1. For a proposed Class A public water system that is a public water utility and is not exempt from Alaska Statute 42.05 as determined with assistance from RCA staff, a copy of the application for the certificate of public convenience and necessity that has been submitted to the RCA and written verification from the RCA that an application for a certificate of public convenience and necessity has been submitted. **18 AAC 80.207(d)(1)** *Information on how to obtain a copy of this application and to obtain the necessary assistance from RCA staff can be found in Appendix B of this checklist.*
- \_\_\_\_\_ 2. For a proposed Class A public water system that is a public water utility but is exempt from Alaska Statute 42.05 as determined with assistance from the RCA staff, including a municipally-owned system, a completed application on a form provided by the department, describing the owner's revenue sufficiency, credit worthiness, and fiscal controls. **18 AAC**

**80.207(d)(2)** Departmental form can be found in Appendix C of this checklist.

- \_\_\_\_\_ 3. For a proposed Class A public water system that is not a public water utility:
- \_\_\_\_\_ Documentation showing ownership and plans, if any, for transfer of that ownership on completion of construction or after a period of operation.
  - \_\_\_\_\_ A description of the management structure of the proposed system, including the duties of each position; in providing this information, the owner may include by-laws, ordinances, articles of incorporation, or procedures and policy manuals that describe the management organization structure.
  - \_\_\_\_\_ A description of the proposed staffing, including training, experience, certification or licensing, and continuing education completed the proposed system staff.
  - \_\_\_\_\_ An explanation of how the proposed system will establish and maintain effective communications and relationships between the public water system management, its customers, professional service providers, and regulatory agencies. **18 AAC 80.207(d)(3)**
- \_\_\_\_\_ 4. A written contingency plan showing that the owner is able to provide water in compliance with Alaska's drinking water regulations to each customer within 24 hours after an event that has the potential to cause contamination of the water system above applicable MCLs as described in 18 AAC 80.300 or a lack of water pressure or supply. **18 AAC 80.207(d)(4)**
- \_\_\_\_\_ 5. The name, address, telephone number, and facsimile number of each individual operator and verification that each individual operator is qualified under 18 AAC 74, if required. **18 AAC 80.207(d)(5)**
- \_\_\_\_\_ 6. Other information that the owner believes will demonstrate managerial capacity. **18 AAC 80.207(d)(6)**
- \_\_\_\_\_ 7. Other information that the department considers necessary to assess the managerial capacity of the proposed Class A public water system. **18 AAC 80.207(d)(7)**

**III. APPROVAL TO OPERATE: Phase 1, Temporary 90-day Operation Certificate**

- \_\_\_\_\_ 1. Verification that construction has been completed. *The submittal of results of the pressure testing of mains and the disinfection method can*

*be used to confirm construction has been completed. 18 AAC 80.210(g)(1)*

- \_\_\_\_\_ 2. The finished water analysis for coliform bacteria and for any raw water contaminant that exceeded an MCL under 18 AAC 80.300 is complete and approved. **18 AAC 80.210(g)(2)**
- \_\_\_\_\_ 3. The terms and conditions set by the department regarding financial and managerial capacity have been met. **18 AAC 80.210(g)(4)**

**III. APPROVAL TO OPERATE: Phase 2, Final Operation Certificate**

- \_\_\_\_\_ 1. Record drawings, signed and sealed by a registered engineer, that confirm the system meets the requirements of Alaska's drinking water regulations and protects the interest of public health. The source of record information should be indicated on each sheet as well as items or points verified by the engineer. The use of contractor's notes and measurements may be acceptable subject to the department's engineer's prior approval and if confirmed or verified through the engineer's representative and daily field notes. The department has approved several record drawing blocks and examples can be found at each plan review office. **18 AAC 80.210(i)(1) and (2)**
- \_\_\_\_\_ 2. Resolution of all written terms and conditions set by the department for the construction (technical capacity) of the public water system in question. **18 AAC 80.210(i)(3)**
- \_\_\_\_\_ 3. Confirmation that the public water system was constructed with the use of lead-free pipe, solder, and flux. **18 AAC 80.205(b)(7)**
- \_\_\_\_\_ 4. Well log(s) for a well that serves a public water system must be submitted to the department within 30 days after construction of a production, fire, standby, or emergency well. **18 AAC 80.210(h)**
- \_\_\_\_\_ 5. Coliform sampling plan submitted for review for compliance with the Total Coliform Rule (TCR). **18 AAC 80.410**
- \_\_\_\_\_ 6. Verification that all provisions of 18 AAC 80.015(a) and (b) have been met. The following is an outline of items that will need to be covered in the submittal.

- \_\_\_\_\_ Sanitary Seal
- \_\_\_\_\_ Well is one foot above finished grade for protection from contamination.

- \_\_\_\_\_ At least 10 feet of the upper 20 feet of upper casing has been grouted.
- \_\_\_\_\_ Surface contoured away from casing for proper drainage.

**IV. SAMPLING**

Analysis of raw water is required to assess the treatment characteristics and compliance with all contaminants regulated by a Maximum Contaminant Level or that may be of a health risk. Refer to 18 AAC 80.205(c)(2) Table B and 18 AAC 80.310 for application. The following list is an outline of analysis by source type that will be required.

Table B. Minimum Raw Water Testing Requirements for a System Proposing to Use a New Water Source						
	Class A		Class B		Class C	
	Ground water	Surface Water	Ground water	Surface Water	Ground water	Surface Water
Total Coliform Bacteria	Yes	Yes	Yes	Yes	Yes	Yes
Inorganic Chemicals (not including asbestos)	Yes	Yes	No	No	No	No
Nitrate	Yes	Yes	Yes	Yes	Yes	Yes
Volatile Organic Chemicals	Yes	Yes	No	No	No	No
Secondary Contaminants	Yes	Yes	No	No	No	No

- \_\_\_\_\_ 1. For a Class A public water system proposing to make a change in the water treatment process that could change water quality, such as adding new chemicals, changing the filtration process, or changing the disinfection process water quality test results for raw water and treated water that identify the contaminants listed in 18 AAC 80.300 and important to the design of the treatment process. **18 AAC 80.205(c)(1)**
- \_\_\_\_\_ 2. For a Class A public water system that has a new water source that is:
  - \_\_\_\_\_ A groundwater source, raw water quality data sufficient for the department to determine whether the source is groundwater under the direct influence of surface water (GWUDISW). **18 AAC 80.205(c)(3)(A)**
  - \_\_\_\_\_ A surface water or GWUDISW, raw water quality sufficient to allow the department to determine whether the proposed water treatment

equipment complies with 18 AAC 80.600 – 18 AAC 80.680.  
**18 AAC 80.205(c)(3)(B)**

- \_\_\_\_\_ 3. For a Class A public water system that will serve a resident population of 10,000 or more individuals and whose owner or operator plans to add a disinfectant to the water in any part of the drinking water treatment process, raw water quality data sufficient for the department to determine whether the public water system will comply with 18 AAC 80.300(b)(2)(C). **18 AAC 80.205(c)(4)**
  
- \_\_\_\_\_ 4. For a Class A public water system, raw water quality data sufficient to allow the department to determine whether the proposed water treatment equipment will control the corrosivity of the water. **18 AAC 80.205(c)(5)**
  
- \_\_\_\_\_ 5. For Class A public water system, raw water quality data for a potential contaminant, if the department determines that the data serves the interest of public health. **18 AAC 80.205(c)(6)**

**V. OPERATION AND MAINTENANCE**

- \_\_\_\_\_ 1. Public water systems that serve more than 500 individuals, or have more than 100 service connections must have a certified operator. **18 AAC 74**
  
- \_\_\_\_\_ 2. Public water systems that fluoridate but serve less than 500 individuals, or less than 100 service connections must have a qualified operator. **18 AAC 80.230**
  
- \_\_\_\_\_ 3. The owner or operator of a Class A or Class B public water system with a surface water source or with a GWUDISW source, or the owner or operator of a new system shall ensure that the system is operated by a qualified operator by the date on which the department signs the final approval to operate the portion of the construction and operation certificate for the system under 18 AAC 80.210(k) for a new system; and within 18 months after the department determines that the groundwater source is a GWUDISW source. **18 AAC 80.615(c)**

I verify that all of the above listed items have been addressed in my submittal. An explanation is attached for any item that was not addressed or submitted.

Applicant's Name (Please print or type) : \_\_\_\_\_

Applicant's Signature : \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

If submitted by a registered engineer:

Registration Number: \_\_\_\_\_

**STATE OF ALASKA  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF ENVIRONMENTAL HEALTH  
DRINKING WATER AND WASTEWATER PROGRAM**

**CHECKLIST  
TO OBTAIN FINAL OPERATION APPROVAL FOR  
EXISTING CLASS A and B PUBLIC WATER SYSTEMS  
SEEKING APPROVAL FOR ALTERNATE DESIGN**

**18 AAC 80.200, .205, & .210**

This checklist based upon Drinking Water Regulations, effective October 1, 1999.

Contact the office in the project area:

Anchorage:	269-7517
Bethel:	543-3215
Fairbanks:	451-2179
Juneau:	465-5317
Kenai:	262-5210
Ketchikan:	225-6200
Wasilla:	376-5038

This checklist applies to Class A and B public water systems that are in existence on or before October 1, 1999 and do not have a valid operation certificate or operational approval letter. These public water systems must conform to standard sanitary engineering principles and practices and adequately protect the public health. If the existing public water system received construction approval, conforms to standard sanitary engineering principles and practices and adequately protects the public health, owner or operator must either follow the conditions of construction approval letter or meet the requirements of 18 AAC 80.210.

However, if the public water system does not conform to standard sanitary engineering principles and practices noted in the Alaska drinking water regulations (18 AAC 80.005 and 18 AAC 80.010) or does not have an approval to construct, the owner or operator may seek department approval for an alternate design for the system by submitting a report that justifies the alternate design.

The agency encourages applicants, engineers, and system owners and operators to contact local plan review staff to discuss this checklist. It will be used to evaluate the completeness of submitted plans. If the submittal is not complete, the submittal may be returned to the applicant or held until contact is made with the applicant. The department may not accept incomplete submittals at the counter or determine a plan review fee until the submittal is complete. Formal review may not begin until the department determines the plan submittal is complete. Fee payment must be included for the submittal to be complete.

#### **GENERAL INFORMATION:**

Subject to (c), (d), (f) and (g) of this section (18 AAC 80.200(b)), in order to construct, install, alter, renovate, operate, or improve a Class A or B public water system, or any part of one, the owner or operator must have prior written approval of engineering plans that comply with 18 AAC 80.205. **18 AAC 80.200(b)**

Written approval under this section is not required for an emergency repair or routine maintenance of a public water system or for a single-service line installation or modification. **18 AAC 80.200(c)**

A Class A public water system means a public water system that is expected to serve, year-round, at least 25 individuals, is expected to serve, year-round, at least 15 residential service connections, or regularly serves the same 25 or more individuals for at least six months of the year. **18 AAC 80.1990 (a)(12)**

A Class B public water system means a public water system that is not a Class A public water system, and that regularly serves at least 25 individuals each day for at least 60 days of the year. **18 AAC 80.1990(a)(13)**

If the existing public water system is determined to be a Class A Public Water System and did not have a Public Water System Identification Number assigned to it prior to October 1, 1999, it is not classified as an existing system. **Public water system classified as a New Class A public water system must meet all the requirements of 18 AAC 80.205 and 18 AAC 80.207(b), (c) and (d). There is a separate checklist for New Class A public water systems.**

Submitted reports for existing Class A and B public water systems must be signed and sealed by a registered engineer. **18 AAC 80.200(d)(1)**

## A. REPORT

The report will need to include the following items:

- \_\_\_\_\_ 1 Appropriate plan approval fee submitted as required by 18 AAC 80.1910. The owner or operator can determine fee, but department staff will make the final determination on the amount of fee.
- \_\_\_\_\_ 2 A set of engineering plans of the existing system with an accurate description, including the number and location, of potential sources of contamination, water bodies, water sources in the area, and service connections. **18 AAC 80.200(d)(3)**
- \_\_\_\_\_ 3 The name, address, telephone number, and facsimile number of the owner or operator (Owner's statement provided by the Department.) **18 AAC 80.200(d)(4)**
- \_\_\_\_\_ 4 Considerations of soil type, surface water influence, groundwater, surface topography, geological conditions. This will need to include all information required to complete a groundwater under the direct influence of surface determination (GWUDISW). **18 AAC 80.200(d)(2)**
- \_\_\_\_\_ 5 Data showing the capability of the water system source to meet minimum water consumption needs, storage capacity, the production capability of the water treatment plant. **18 AAC 80.200(d)(2)** *The following is an example of the questions and information that should be addressed in sufficient detail in the report to allow evaluation.*
  - Design according to a published design reference during the time the public water system was installed.
  - How minimum water consumption needs (peak water demands) were established.

- Based on the determined or calculated peak water demands, are the water source and the storage facilities sufficient? Calculations will need to be provided.
- Is there sufficient pressure at the highest service elevation to prevent backflow problems within the public water system?
- If there a water treatment plant, is the production capability of the plant sufficient to meet peak water demands? Plan review staff realize that that most water treatment plants can not meet peak water demands without the use of water storage tanks.
- Is there a history of mains/services freezing? If so, what steps will be taken to resolve the problem?

- \_\_\_\_\_ 7 Verification that the existing public water system has not been modified since June 14, 1991. If it has been modified after June 14, 1991, verification that the modifications were completed with the use of lead-free pipe, solder, and flux.
- \_\_\_\_\_ 8 A copy of the well log. If a well log can not be located, the well will need to be probed to determine depth of well pump and static water level. If possible, the total depth of the well should be determined if there any concerns with the quality of water being provided to the public. If video equipment can be located in the area, the well should be video taped to determine the location of the well screens or perforations.
- \_\_\_\_\_ 9 Well yield test results. If copies of the original well yield test can not be located, either a minimum of a 24 hour well yield test will need to be completed or history of the existing source well meeting peak demand will need to be provided.
- \_\_\_\_\_ 10 The location, in longitude and latitude, to the closest second, of each well and surface water intake and the method used to determine longitude and latitude on a form provided by the department. 18 AAC 80.205(b)(4)
- \_\_\_\_\_ 11 The location, stated as the horizontal position and elevation, of each proposed or existing wastewater treatment and disposal system, sewage pump station, sewer line manhole and cleanout, petroleum storage tank and line, and potential or actual source of pollution or contamination, including the sources listed in Table A in 18 AAC 80.020(a), within 200 feet of a proposed water source, regardless of property lines or ownership. **18 AAC 80.205(b)(3)**

- \_\_\_\_\_ 12 Documentation showing the existence of a local government organization, a homeowners association, a private utility, a commercial entity, or other entity whose purpose is to operate and maintain the public water system. **18 AAC 80.205(b)(10)**
- \_\_\_\_\_ 13 Verification that all provisions of **18 AAC 80.015(b)** have been met. *The following is an outline of items that will need to be covered in the report.*
- Sanitary seal
  - Well casing terminates at least one foot above ground level or at least one foot above the well house floor, whichever offers the most protection from contamination.
  - A cased well must be grouted with a watertight cement grout, sealing clay, bentonite, or an equivalent material at least 10 feet of continuous grouting within the first 20 feet below the ground surface; or an alternate method of grouting, if the department determines that the alternate method serves the interest of public health;
  - The ground surface for at least 10 feet in all directions around the well is sloped or contoured to drain away from the well
- \_\_\_\_\_ 14 Coliform sampling plan as found in 18 AAC 80.410.

## B. SAMPLING

If the existing public water system has not been monitoring water quality, raw water analysis is required to assess treatment characteristics and compliance with all contaminants regulated by a Maximum Contaminant Level or that may be a health risk. The following list is an outline of analysis by source type and system classification that will be required. ***Please note that if the existing public water system is a Class A public water system and did not have an assigned public water system identification number by October 1, 1999, the system is classified as a new system. This will require the use of the checklist for “new Class A public water systems.”***

Table B. Minimum Raw Water Testing Requirements for a System Proposing to Use a New Water Source						
	Class A		Class B		Class C	
	Ground water	Surface Water	Ground water	Surface Water	Ground water	Surface Water
Total Coliform Bacteria	Yes	Yes	Yes	Yes	Yes	Yes
Inorganic Chemicals (not including asbestos)	Yes	Yes	No	No	No	No
Nitrate	Yes	Yes	Yes	Yes	Yes	Yes
Volatile Organic Chemicals	Yes	Yes	No	No	No	No
Secondary Contaminants	Yes	Yes	No	No	No	No

\_\_\_\_\_ 1 For a Class A or B public water system proposing to make a change in the water treatment process that could change water quality, such as adding new chemicals, changing the filtration process, or changing the disinfection process water quality test results for raw water and treated water that identify the contaminants listed in 18 AAC 80.300 and important to the design of the treatment process. **18 AAC 80.205(c)(1)**

\_\_\_\_\_ 2 For a Class A or B public water system that has a new water source that is:

\_\_\_\_\_ A groundwater source, raw water quality data sufficient for the department to determine whether the source is

groundwater under the direct influence of surface water (GWUDISW). **18 AAC 80.205(c)(3)(A)**

\_\_\_\_\_ A surface water or GWUDISW, raw water quality sufficient to allow the department to determine whether the proposed water treatment equipment complies with 18 AAC 80.600 – 18 AAC 80.680. **18 AAC 80.205(c)(3)(B)**

\_\_\_\_\_ 3 For a Class A public water system that will serve a resident population of 10,000 or more individuals and whose owner or operator plans to add a disinfectant to the water in any part of the drinking water treatment process, raw water quality data sufficient for the department to determine whether the public water system will comply with 18 AAC 80.300(b)(2)(C). **18 AAC 80.205(c)(4)**

\_\_\_\_\_ 4 For a Class A public water system, raw water quality data sufficient to allow the department to determine whether the proposed water treatment equipment will control the corrosivity of the water. **18 AAC 80.205(c)(5)**

\_\_\_\_\_ 5 For all public water system, raw water quality data for a potential contaminant, if the department determines that the data serves the interest of public health. **18 AAC 80.205(c)(6)**

## C. OPERATION AND MAINTENANCE

\_\_\_\_\_ 1 Public water systems that serve more than 500 individuals, or have more than 100 service connections must have a certified operator. **18 AAC 74**

\_\_\_\_\_ 2 Public water systems that fluoridate but serve less than 500 individuals, or less than 100 service connections must have a qualified operator. **18 AAC 80.230**

\_\_\_\_\_ 3 The owner or operator of a Class A or Class B public water system with a surface water source or with a GWUDISW source, or the owner or operator of a new system shall ensure that the system is operated by a qualified operator by the date on which the department signs the final approval to operate the portion of the construction and operation certificate for the system under 18 AAC 80.210(k) for a new system; and within 18 months after the department determines that the groundwater source is a GWUDISW source. **18 AAC 80.615(c)**

*Please provide information to address this concern in the submitted report.*

## D. ADVISEMENTS FOR PUBLIC WATER SYSTEMS

Owners of all public water systems in the State of Alaska are required to obtain Water Rights from the Alaska Department Natural Resources. A copy of the water right application or permit should be included in the submitted report. At this time, it is for information only and is not required as part of the report.

If providing services to 10 or more service connects for compensation, you are required to file for a "Certificate of Public Convenience and Necessity" with the Regulatory Commission of Alaska (RCA). This notice is provided to advise the applicant of this requirement. In addition, it could also assist the applicant in providing documentation of an entity whose purpose is to operate and maintain the existing public water system.

I verify that all of the above listed items have been addressed in the submitted report. An explanation is attached for any item that was not addressed or submitted.

Applicant's Name (Please print or type): \_\_\_\_\_

Applicant's Signature: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

If submitted by a registered engineer, please provide stamp or registration number: \_\_\_\_\_

**State of Alaska**  
**DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**STATEWIDE PUBLIC SERVICE AREA**

**DRINKING WATER PLAN REVIEW**  
**OWNER'S STATEMENT**

.....  
This information required by 18 AAC 80.310(8) and 18 AAC 80.355.

DEC Office Submitted to: \_\_\_\_\_ Date: \_\_\_\_\_

Public Water System Name: \_\_\_\_\_

Public Water System Location: \_\_\_\_\_

Owner's Name: \_\_\_\_\_

Project Name: \_\_\_\_\_

Describe type of work proposed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

These plans submitted by:     Owner                       Representative of Owner

\_\_\_\_\_  
Signature of Owner or Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name/Official Title (please print clearly)

Address for all correspondence concerning this project:

\_\_\_\_\_

\_\_\_\_\_



# New Class A Public Water Systems Plan Approval Checklist for Engineering Plans

This checklist is provided by ADEC to use when developing plans for new, Class A Public Water Systems. It is best used as a tool for applicants, engineers, and system owners and operators to discuss plans as they're developed. If you are submitting changes to previously approved Class A Public Water System plans, you will use the checklist for an existing Class A System. It explains the details ADEC engineers will be looking for when they review submittals. All plans must be approved by ADEC. Also, only engineers registered in Alaska can submit plans.

Subject to staff availability, once submitted plans are considered complete, it will be approved or denied within 30 days. Incomplete plans may be returned or held pending contact with the applicant. Please note that if 30 days have passed and you haven't heard from us, your plans are not automatically approved. A complete plan includes this checklist and a fee payment.

Drinking Water Regulations: 18 AAC 80.200, .205, .207, & .210 (effective October 1, 1999)

A Class A Public Water System (PWS) is:

- System that expects to serve, year-round, at least 25 individuals or,
- Expects to serve, 15 year-round residential connections or,
- Regularly serves the same 25 individuals for at least six months a year. 18 AAC 80.1990(a)(12)

A New Class A Public Water System (PWS) is:

- A Class A public water system that is constructed after October 1, 1999;
- A Class A public water system that has not received a public water system identification number under 18 AAC 80.210(c)(3) as of October 1, 1999; or
- An existing water system other than a Class A public water system, if as a result of expanding its infrastructure, the system falls within the definition of a Class A public water system.

Contact numbers for Drinking Water Offices:

Anchorage: 269-7517	Juneau: 465-5317	Wasilla: 376-5038
Bethel: 543-3215	Kenai: 262-5210	Fairbanks: 451-2179
Ketchikan: 225-6200		



**Brought to you by:**  
**State of Alaska, Department of Environmental Conservation**  
**Division of Environmental Health, Drinking Water and Wastewater Program**  
<http://www.state.ak.us/dec>  
(02/02)

## How Plan Approval Works

The Department issues three types of approval. The approval to construct, interim approval to operate, and final approval to operate.

- The applicant submits engineering plans, all the information specified in the checklist, and the fee to the local ADEC office
- Department reviews the proposed plans (30 days or more)
- Department denies or approves construction
- When approved, construction begins
- Once construction is complete, PWS applies for an interim approval to operate
- Within 90 days after interim approval was granted the PWS applies for a final approval
- If denied at any of the three approval stages, work with ADEC engineers to rectify the situation

---

## Approval to Construct

When approvals to construct are sought, the department will determine whether it will have the technical, financial, and managerial capacity to consistently produce and deliver water that meets Alaska's drinking water regulations. The available water resources and the characteristics of the population served are considered. *Unless this information is provided, construction approval cannot be issued.*

Technical capacity means the physical infrastructure of the water system, including but not limited to the adequacy of the source water, infrastructure (source, treatment, storage, and distribution), and the system personnel's ability to adequately operate and maintain the system and to implement technical knowledge. *18 AAC 80.207(b)*

Financial capacity means the capability of the financial resources of the water system, including but not limited to revenue sufficiency, credit worthiness, and fiscal controls. *18 AAC 80.207(c)*

Managerial capacity refers to the management of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages to customers and regulatory agencies. *18 AAC 80.207(d)*

---

Sometimes systems are built in steps. If your system will be built in phases, you can obtain plan approvals at each step of the process. For example, some engineers submit requests to install the source and later submit a request to build the system. To accommodate this, the sections within this checklist are divided between: 1) source installation and, 2) treatment, storage, and distribution. Approval for each of these two phases can be given separately.

---

## **Interim Approval to Operate**

When construction is completed, and the water system is ready to serve customers, the Department issues a temporary 90-day operation certificate called an Interim Approval to Operate if the applicant demonstrates the following:

- That construction is complete; *18 AAC 80.210(g)(1)*
- Water analysis for coliform bacteria and for any raw water contaminant that exceeded an MCL taken from the completed system, that confirms finished water quality meets the requirements of this chapter; *18 AAC 80.210(g)(2)* and,
- Any terms and conditions set by the department regarding financial and managerial capacity have been met. *18 AAC 80.210(g)(4)*

---

## **Final Approval to Operate**

Before the 90-day interim approval period ends, the applicant submits these items to request final approval to operate:

- Record drawings, signed and sealed by a registered engineer, *18 AAC 80.210(j)(1)*
- The record drawings confirm that the PWS meets the requirements of this chapter and provides public health protection, *18 AAC 80.210(j)(2)* and
- All written terms and conditions set by the department for the construction (technical capacity) of the PWS are met. *18 AAC 80.210(j)(3) and (4)*
- A Complete and signed set of Sanitary Survey Forms. *18 AAC 80.200(j)(3)*

---

## **Information you need to know before completing the checklist**

- Emergency Situations: Written approval is not required for an emergency repair or routine maintenance of a PWS or for a single-service line installation or modification. *18 AAC 80.200(c)*
- Registered Engineer seal and signature: Engineering drawings and calculations for new Class A PWSs must be submitted under the seal and signature of an engineer registered in Alaska. *18 AAC 80.200(d)(1)*
- The Drinking Water Regulations, 18 AAC 80, were updated on October 1, 1999: The current regulation is available on the internet at: <http://www.state.ak.us/dec/> This checklist provides guidance to operators, engineers, owners, and developers on DEC's current interpretation of the Drinking Water Regulations. This document does not, however, substitute for DEC's regulations, nor is it a regulation itself. Thus, it cannot impose legally binding requirements on DEC, the state, or applicants, and may not apply to a particular situation based on the circumstances.
- Additional Information: After meeting with the plan review engineer, other information may be determined necessary by the department. *18 AAC 80.205(b)(9)*

1) Indicate status of each item in the box provided:

Y = information has been submitted

N = information has not been submitted. If this is the case, please provide an explanation why.

2) Identify where the information can be located in the submittal on the line

## Approval to Construct

### Phase 1: Approval to install source

#### TECHNICAL CAPACITY

- \_\_\_\_\_ 1. Correct plan approval fee submitted, as required by *18 AAC 80.1910(c)*.
- \_\_\_\_\_ 2. Population served and number of service connections. *18 AAC 80.200(a)*
- \_\_\_\_\_ 3. The name, address, telephone number, and facsimile number of the owner or operator. *18 AAC 80.205(b)(6)*
- \_\_\_\_\_ 4. Construction drawings and specifications for the water source. *18 AAC 80.205(a)(1)*
- \_\_\_\_\_ 5. The location, stated as the horizontal position and elevation of each proposed potential or existing sources of contamination within 200 feet of a proposed water source, regardless of property lines or ownership. A listing of contaminant sources is available in Table A, 18 AAC 80.020
- \_\_\_\_\_ 6. Owner's authorization allowing the engineer to address the Departments' concerns. *18 AAC 15.*

### Phase II: APPROVAL FOR TREATMENT, STORAGE, AND DISTRIBUTION

#### TECHNICAL CAPACITY

- \_\_\_\_\_ 1. Engineering report – applicable portions of Section 1.1 of the Recommended Standards for Water Works should be followed. 18 AAC 80.010(d)

- \_\_\_\_\_ 2. Construction drawings and specifications for the storage, distribution, and treatment systems and related structures. *18 AAC 80.205(a)(1)*
- \_\_\_\_\_ 3. Plans and profiles of the water mains. *18 AAC 80.205(a)(2)*
- \_\_\_\_\_ 4. Design criteria, calculations, and flow analysis computations for water demand, storage tank sizing, distribution main sizing (and other components of the new PWS if requested by the department ) to ensure that the design is adequate. *18 AAC 80.205(a)(3)*
- \_\_\_\_\_ 5. Demonstration that at least 20 psi of service pressure at the highest elevation or pressure zone of a distribution main can be maintained under peak design demand. *18 AAC 80.205(a)(4)*
- \_\_\_\_\_ 6. Data showing the capability of the PWS source to meet minimum water consumption needs, criteria for water demand calculations, and the production capability of the water plant. *18 AAC 80.205(b)(2)*

Here are some examples of the information that should be included:

- Design according to the *Suggested Practice for Small Water Systems* and other references located in 18 AAC 80.010 (b), (c) and (d)
- Minimum water consumption needs established
- Production capability of the water treatment plan
- Backflow/cross connection prevention 18 AAC 80.025
- Manufacturer's specifications and performance curves for all pumps
- Freeze protection of all mains and services

- \_\_\_\_\_ 8. Using the form provided in Appendix A, the longitude and latitude to the closest second to locate each well and surface water intake, and the method used to determine latitude and longitude. *18 AAC 80.205(b)(4)*
- \_\_\_\_\_ 9. The overall treatment scheme including Surface Water Treatment Rule calculations, if required under 18 AAC 80.600 - .699 for disinfection and how *Giardia lamblia* and viruses will be removed or inactivated. *18 AAC 80.205(b)(5)*
- \_\_\_\_\_ 10. Statement that only lead-free pipe, flux, and solder will be used, as required by 18 AAC 80.500. *18 AAC 80.205(b)(7)*
- \_\_\_\_\_ 11. For a PWS that uses compressed air to pressurize hydro-pneumatic tanks, evidence that air quality will not contribute contaminants to the water. *18 AAC 80.205(b)(8)*

- \_\_\_\_\_ 12. Well log(s) and well yield test data. *18 AAC 80.210(h)*
- \_\_\_\_\_ 13. Chemical Additives and Materials. Direct additives for water treatment and materials in contact with potable water may be used on a PWS only if they are approved for that use by the National Sanitation Foundation (NSF), Underwriter Laboratories, or an equivalent organization that evaluates products using NSF Standards 60 and 61, adopted by reference in 18 AAC 80.010(b). *18 AAC 80.030*
- \_\_\_\_\_ 14. Verification that a water rights application has been submitted to the Alaska Department of Natural Resources.
- \_\_\_\_\_ 15. A written plan sealed by a registered engineer for the operation and maintenance of all components for the proposed system. *18 AAC 80.207(b)(1)*
- \_\_\_\_\_ 16. If the source is surface water or groundwater under the direct influence of surface water (as specified in 18 AAC 80.600), submit a design report which:
- Describes the characteristics of watershed, physical condition of water source, ground water source distance(s) from any nearby bodies of surface water, influence of surface water on a ground water source, hydrogeology, and results of laboratory analyses of untreated water for biological quality & turbidity. 18 AAC 80.605;
  - Explains how the proposed treatment plant will be designed and operated to achieve three log removal/inactivation of *Giardia lamblia*. Filtration must achieve at least two log removal and disinfection must achieve at least 0.5 log inactivation. 18 AAC 80.615(b)(2), 18 AAC 80.645;
  - Identifies and justifies the type(s) of proposed filtration processes to reduce turbidity. Filtration processes may include: slow sand filtration, diatomaceous earth filtration, rapid sand filtration, direct filtration, alternative filtration (cartridge and/or bag), and/or any pretreatment such as coagulation, flocculation, and sedimentation. Design calculations covering loading rates, back washing rates, volume of back wash water, and other items necessary to determine efficiency of proposed filtration process will need to be provided. Please note that the design for finished water turbidity performance is 0.5 NTU and 1.0 NTU. 18 AAC 80.650;
  - Identify and justify the disinfection parameters/assumptions such as pH, temperature, disinfectant dosage, disinfectant demand, residual disinfectant concentration, design log inactivation criteria, design flow rate, hydraulic efficiency factor, and contact time used in the proposed design. Design calculations for such items as contact time and justifications for hydraulic efficiency factor will need to be included in the report. The location of the first user will also need to be included. 18 AAC 80.645, 18 AAC 80.660, CT Tables 'J' through 'R'.
- \_\_\_\_\_ 17. If the proposed new public water system will use a surface water source and avoid filtration, a meeting with the Statewide Drinking Water Engineering Coordinator and the local review engineer is required before plan review can start.

## FINANCIAL CAPACITY

- \_\_\_\_\_ 1. Proposed public water utility, not exempt from Alaska Statute 42.05, will need to submit a copy of the date stamped application that has been submitted to The Regulatory Commission of Alaska (RCA) for a certificate of Public Convenience and Necessity. Information on how to obtain a copy of the RCA application can be found in Appendix B. *18 AAC 80.207 (c)(1)*
- \_\_\_\_\_ 2. Proposed public water utility, exempt from Alaska Statute 42.05 including a municipally-owned system, attach completed form in Appendix C describing the owner's revenue sufficiency, credit worthiness, and fiscal controls. *18 AAC 80.207(c)(2)*
- \_\_\_\_\_ 3. For a proposed Class A PWS that is not a public utility, a financial plan and annual budget showing estimated system income and operation costs; and a completed financial assessment, on a form provided by the Department (see Appendix D) or on the forms used by the Department of Community and Economic Development to assist communities in dealing with sanitation utility issues (see Appendix E). *18 AAC 80.207(c)(3)*
- \_\_\_\_\_ 4. Other information that the owner believes will demonstrate financial capacity. *18 AAC 80.207(c)(4)*
- \_\_\_\_\_ 5. Other information that the department considers necessary to assess the financial capacity of the proposed Class A PWS. *18 AAC 80.207(c)(5)*

## MANAGERIAL CAPACITY

- \_\_\_\_\_ 1. Proposed public water utility, not exempt from Alaska Statute 42.05, will need to submit a copy of the date stamped application that has been submitted to The Regulatory Commission of Alaska (RCA) for a certificate of Public Convenience and Necessity. Information on how to obtain a copy of the RCA application can be found in Appendix B. *18 AAC 80.207 (c)(1)*
- \_\_\_\_\_ 2. If proposed system would be a public water utility, but is exempt from Alaska Statute 42.05 including a municipally-owned system, complete the form in Appendix C describing the owner's revenue sufficiency, credit worthiness, and fiscal controls. *18 AAC 80.207(d)(2)*
- \_\_\_\_\_ 3. If proposed system would not be a public water utility:
- \_\_\_\_\_ Documentation showing ownership and plans, if any, for transfer of that ownership on completion of construction or after a period of operation.
- \_\_\_\_\_ A description of the management structure of the proposed system, including the duties of each position; in providing this information, the owner may include by-laws, ordinances, articles of incorporation, or procedures and policy manuals that describe the management organization structure.

- \_\_\_\_\_ A description of the proposed staffing, including training, experience, certification or licensing, and continuing education completed by the proposed system staff.
- \_\_\_\_\_ An explanation of how the proposed system will establish and maintain effective communications and relationships between the PWS management, its customers, professional service providers, and regulatory agencies. *18 AAC 80.207(d)(3)*

- \_\_\_\_\_ 4. A written contingency plan showing that the owner is able to provide water in compliance with Alaska's drinking water regulations to each customer within 24 hours after an event that has the potential to cause contamination of the water system above applicable MCLs as described in 18 AAC 80.300 or a lack of water pressure or supply. *18 AAC 80.207(d)(4)*
- \_\_\_\_\_ 5. The name, address, telephone number, and facsimile number of each individual operator and verification that each individual operator is qualified under 18 AAC 74, if required. *18 AAC 80.207(d)(5)*
- \_\_\_\_\_ 6. Other information that the owner believes will demonstrate managerial capacity. *18 AAC 80.207(d)(6)*
- \_\_\_\_\_ 7. Other information that the department considers necessary to assess the managerial capacity of the proposed Class A PWS. *18 AAC 80.207(d)(7)*

## **INTERIM APPROVAL TO OPERATE**

---

- \_\_\_\_\_ 1. Confirmation that construction has been completed. *The submittal of results of the pressure testing of mains and the disinfection method can be used to confirm construction has been completed.* 18 AAC 80.210(g)(1)
- \_\_\_\_\_ 2. Water analysis for coliform bacteria and for any raw water contaminant that exceeded an MCL taken from the completed system, that confirms finished water quality meets the requirements of this chapter. 18 AAC 80.210(g)(2)

\_\_\_\_\_ 3. The terms and conditions set by the department regarding financial and managerial capacity have been met. *18 AAC 80.210(g)(4)*

## **FINAL APPROVAL TO OPERATE**

---

\_\_\_\_\_ 1. Record drawings, signed and sealed by a registered engineer, confirming that the system meets 18 AAC 80 and protects the interest of public health. The source of record information should be indicated on each sheet, as well as any items or points verified by the engineer. The use of contractor's notes and measurements may be acceptable subject to the department engineer's prior approval and if confirmed or verified through the engineer's representative and daily field notes. The department has approved several record drawing blocks and examples can be found at each plan review office. *18 AAC 80.210(j)(1) and (2)*

\_\_\_\_\_ 2. Resolution of all written terms and conditions set by the department for the construction (technical capacity) of the PWS in question. *18 AAC 80.210(j)(3)*

\_\_\_\_\_ 3. Confirmation that the PWS was constructed with the use of lead-free pipe, solder, and flux. *18 AAC 80.205(b)(7)*

\_\_\_\_\_ 4. Well log(s) for a well that serves a PWS must be submitted to the department within 30 days after construction of a production, fire, standby, or emergency well. *18 AAC 80.210(h)*

\_\_\_\_\_ 5. Coliform sampling plan submitted for review for compliance with the Total Coliform Rule (TCR). *18 AAC 80.410*

\_\_\_\_\_ 6. Verification that all provisions of 18 AAC 80.015(a) and (b) have been met. The following is an outline of items to be covered in the submittal.

\_\_\_ Sanitary Seal

\_\_\_ Well casing is one foot or more above finished grade for protection from contamination

\_\_\_ The well casing is grouted at least 10 continuous feet of the upper 20 feet, or approved alternative.

\_\_\_ Surface contoured away from casing for proper drainage

\_\_\_\_\_ 7. Sanitary survey forms, provided by the Department and completed by the registered engineer doing the record drawing inspection. The Department emphasizes that the owner of the PWS can either have the registered engineer, who is completing the record drawing, or someone approved by the Department do the Sanitary Survey. As long as the registered engineer has been contracted to complete the record drawings, he/she does not have to be additionally approved by the Department to do Sanitary Surveys. *18 AAC 80.210(j)(3)*

## RAW WATER SAMPLING

---

Raw water analysis is required in order to assess the treatment characteristics and compliance with all contaminants regulated by a Maximum Contaminant Level. Refer to 18 AAC 80.205(c)(2) Table B and 18 AAC 80.310 for application. The following types of tests must be performed by a certified drinking water laboratory for Class A groundwater and surface water systems.

- Total Coliform Bacteria
- Inorganic Chemicals (not including asbestos)
- Nitrate
- Volatile Organic Chemicals
- Secondary Contaminants

\_\_\_\_\_ 1. A system proposing to alter the water treatment process in a way that could change water quality (such as using new chemicals, changing the filtration process, or changing the disinfection process): Water quality test results for raw water and treated water that identify the contaminants listed in 18 AAC 80.300 and important to the design of the treatment process. *18 AAC 80.205(c)(1)*

\_\_\_\_\_ 2. A system that has a new water source that is:

\_\_\_\_\_ Groundwater: Raw water quality data sufficient for the department to determine whether the source is groundwater under the direct influence of surface water (GWUDISW). *18 AAC 80.205(c)(3)(A)*

\_\_\_\_\_ Surface Water or GWUDISW, Raw water quality sufficient to allow the department to determine whether the proposed water treatment equipment complies with 18 AAC 80.600 – 18 AAC 80.680. *18 AAC 80.205(c)(3)(B)*

\_\_\_\_\_ 3. System will serve a resident population of 10,000 or more individuals and whose owner or operator plans to add a disinfectant to the water in any part of the drinking water treatment process: Raw water quality data sufficient for the department to determine whether the PWS will comply with 18 AAC 80.300(b)(2)(C). *18 AAC 80.205(c)(4)*

\_\_\_\_\_ 4. Raw water quality data sufficient to allow the department to determine whether the proposed water treatment equipment will control the corrosivity of the water. 18 AAC 80.205(c)(5)

\_\_\_\_\_ 5. Raw water quality data for a potential contaminant, if the department determines that the data serves the interest of public health. *18 AAC 80.205(c)(6)*

# OPERATION AND MAINTENANCE

---

- \_\_\_\_\_ 1. Verification that the PWS serve more than 500 individuals, or have more than 100 service connections has the required number and level of certified operator(s). *18 AAC 74*
  - \_\_\_\_\_ 2. Verification that the PWS serve less than 500 individuals, or has less than 100 service connections and is using either a surface water or a ground water under the direct influence of surface water and has a qualified operator. *18 AAC 80.230*
  - \_\_\_\_\_ 3. Verification that the PWS fluoridates, serves less than 500 individuals, or has less than 100 service connections and has a qualified operator. *18 AAC 80.230*
- 

I verify that all of the above listed items have been addressed in my submittal. An explanation is attached for any item that was not addressed or submitted.

Applicant's Name (Please print or type): \_\_\_\_\_

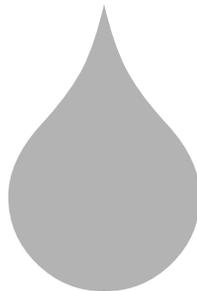
Applicant's Signature: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

If submitted by a registered engineer; registration number: \_\_\_\_\_

(The signature and seal of an engineer registered in Alaska is required for the submittal, regardless of whether the applicant is a registered engineer.)



## Plan Approval Checklist for Engineering Plans

### **NEW Class A**

#### Public Water Systems

#### ***Appendix A Thru E***

- ◆ **Appendix A:** Latitude and Longitude Form
- ◆ **Appendix B:** Cover letter, The Regulatory Commission of Alaska's Application for New Certificate of Public Convenience and Necessity.
- ◆ **Appendix C:** ADEC New Class A Public Water system Management and Financial Assessment Application.
- ◆ **Appendix D:** Alaska Drinking Water Fund Application Form ADEC/FC&O/MG&L
- ◆ **Appendix E:** Utility Management Assessment from the Department of Community and Economic Development.



STATE OF ALASKA  
 DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
**INVENTORY AND SOURCE REGISTRATION FORM**  
**FOR**  
**CLASS C PUBLIC WATER SYSTEM**

**A. 1. Public Water System Name and Location:**

---



---

Legal description of property: \_\_\_\_\_

Number of people served daily: \_\_\_\_\_

Number of service connections: \_\_\_\_\_

**Public Water System Owner:** \_\_\_\_\_

Owner Address: \_\_\_\_\_

---

Owner Phone: \_\_\_\_\_

**A. 2. Required Check List:**

- \$75.00 registration fee as required by 18 AAC 80.1910.
- Results of nitrate and coliform water samples do not exceed the MCL set at 18 AAC 80.300.  
(attach reports from certified laboratory)
- Source water protection requirements of 18 AAC 80.015 have been met.  
(see section B. page 2 for details)
- Minimum separation distance requirements of 18 AAC 80.020 have been met.  
(see section B. page 2 for details)
- Cross-connection provisions of 18 AAC 80.025 have been met.  
(see section B. page 2 for details)

**A. 3. Public Water System Source:**

(circle yes or no)

- YES NO Well depth is less than 30 feet to the first opening for water collection.
- YES NO Well is located less than 50 horizontal feet to a surface water source.
- YES NO Source uses an infiltration gallery, spring, rain catchment, or surface water.
- YES NO Source requires treatment to meet an MCL set at 18 AAC 80.300.

If answer YES to any of the above Public Water System Source, then complete section C. on page 2.

For Department Use Only

**This water system is hereby granted department approval to operate. The following public water system identification number is being assigned to this public water system: \_\_\_\_\_**

\_\_\_\_\_  
 BY ADEC Staff Signature TITLE DATE

**Public Water System Name:** \_\_\_\_\_

**B. 1. Source Water Protection Requirements 18 AAC 80.015:**

*Applies to wells only*

Check box if complete

- Well casing extends a minimum of one foot above ground level or above level of well house floor.
- Well casing is grouted with a watertight cement grout, sealing clay, bentonite, or an equivalent material. The well must have at least 10 feet of continuous grouting within the first 20 feet below ground surface or another method approved by the Department.
- Well is provided with a suitable well cap or sanitary seal.
- For at least 10 feet in all directions, the ground surface around the well is sloped or contoured to drain water away from the well.
- Copy of well log is attached.
- The well is adequately protected against flooding.
- Before use, a newly constructed or reworked well must be flushed of sediment and disinfected.

**B. 2. Minimum Separation Distance Requirements 18 AAC 80.020:**

*Applies to all water systems*

Check box if complete

- Source is located a minimum of 150 feet from a wastewater treatment works, wastewater disposal system, pit privy, sewer manhole, lift-station, sewer cleanout.
- Source is located a minimum of 100 feet from a community sewer line, holding tank, other potential source of contamination including sanitary landfills, domestic animal and agricultural waste and industrial discharge lines.
- Source is located a minimum of 75 feet from a private sewer line, petroleum lines, and drinking water treatment waste.
- A letter from ADEC granting the necessary waiver(s) needs to be attached if a system does not meet the requirements of 18 AAC 80.020.

**B. 3. Cross-Connection Provisions 18 AAC 80.025:**

*Applies to all water systems*

Check box if complete

- This water system is not connected directly or indirectly, with any unapproved water system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, glycol loop, or other device that contains, or might contain, wastewater or other substances of unknown or unsafe quality that might be capable of contaminating the water supply through backflow (loss of pressure), without an approved backflow prevention device or assembly.

**B. 4. I certify that:**

The source water protection requirements of 18 AAC 80.015, the minimum separation requirements of 18 AAC 80.020, and the cross-connection provisions of 18 AAC 80.025 are met.

BY	TITLE	DATE
Must be signed by owner or operator.		

**Public Water System Name:**

**C. Public Water System Source**

This Section must be completed (if answered YES to any question in section A.3 Public Water System Source)

The water treatment is designed to consistently achieve 99.9 percent removal and inactivation of Giardia lamblia cysts and have one NTU or less of treated water turbidity.

The water treatment is designed to consistently meet the MCL set 18 AAC 80.300.

Design plans and calculations have been completed by a registered engineer for this system and are attached with this registration form.

The following signature blocks need to be completed by the owner or operator, the person who constructed the water system, and the engineer who monitored the system's construction, certifying that:

**This water system was constructed in accordance with the provisions of 18 AAC 80 and provides public health protection.**

_____ BY	signature	_____ OWNER OR OPERATOR	_____ DATE
_____ BY	signature	_____ INSTALLER	_____ DATE
_____ BY	signature	_____ ENGINEER	_____ DATE

**D. Alaska Public Water System Latitude/Longitude Data (Optional)**

1) **Facility Type.** (Check One)

Well

Intake of Surface Water or Spring Source

2) **The date the latitude and longitude were researched or collected.**

\_\_ \_\_ / \_\_ \_\_ / \_\_ \_\_ \_\_ \_\_  
m m d d y y y y

3) **Latitude in decimal degrees.** For Alaska, latitudes are between 51 and 80 North. Give data to available accuracy. Example: + 56.234230

+     .     

4) **Longitude in decimal degrees.** For Alaska, longitudes are generally -126 to -180 West. The minus sign means "West". Use + for "East". Example: -136.23423

-     .     

5) **Method of determining latitude and longitude.** ( Check one)

GPS

Map ( interpolation from a topographical map)

Survey

6) **Any comments on latitude/longitude.** (Optional)

\_\_\_\_\_  
\_\_\_\_\_

7) **Latitude/longitude accuracy in meters.** GPS accuracy is typically encoded in the unit's display. Estimated accuracy is acceptable if the assumed datum is WGS 84. If another datum is used, please specify. Example: 30 (meters)

\_\_ \_\_ . Meters

**Public Water System Name:**

**E. Diagram of Public Water System ( Optional)**

In a plan view, locate and identify each of the following, including distance from well and system in feet.

- a) System source: well, infiltration gallery, spring, rain catchment area, or surface water source and intake structure.
- b) All buildings and structures.
- c) Water and sewer lines to each building.
- d) Wastewater Treatment and Disposal Systems.
- f) Storage tanks including size, content and type of construction.
- g) Property lines, adjacent roads, and driveways.
- h) Sources of contamination within 150 feet of system source.

e) Water pumps with type and maximum flow rate listed.



STATE OF ALASKA  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**CLASS C PUBLIC WATER SYSTEM  
APPROVAL PROCESS**

Approval of a Class C Public Water System is required by the State of Alaska Drinking Water Regulations, 18 AAC 80. The Department of Environmental Conservation has developed this form to provide water system owners and/or operators with a streamlined approval process. Construction approval is no longer required for Class C Public Water Systems. Approval to Operate is now issued on page 1 of this form. Approval is based on the owner or operator certifying that the system meets the minimum source water protection, minimum separation distance, and minimum cross-connection provisions as described on 18 AAC 80. The water system must demonstrate satisfactory water quality of nitrate and coliform bacteria for this approval.

This form is not intended to cover every requirement of the State Drinking Water Regulations. The owner and/or operator are responsible to provide safe water to the public and comply with 18 AAC 80. This approval process relies on the owner and/or operator. They must insure that minimum construction standards for such items as pumps, storage and construction materials are met.

If a system uses a surface water source or a groundwater source that is or may be under the direct influence of surface water, then the system is required to have treatment and be designed and inspected by a registered engineer. Pages 2 and 3 of this form outline when an engineer is required for the system design.

The Department recommends that all Class C public water systems be designed and inspected by a registered engineer. The Department will accept an engineer's certification of the requirements found in 18 AAC 80 for a Class C system, in lieu of the owner or operation certification. The Department's approval is based on a limited review, and a engineer can insure that all aspects of the water system construction conform to industry standards.

A construction manual will be developed by the Department to assist owners and operators with the proper construction of Class C public water systems. This manual will be available in February 2000.

A Class C public water system is defined as a public water system that is not a Class A public water system, a Class B public water system or a private water system. Generally, Class C drinking water systems serve no more than 24 individuals daily and have 14 or fewer service connections. A potable water system serving a single family residence or one duplex is not a Class C system.

This registration form and all required attachments should be submitted to your local office of the Department of Environmental Conservation Office, the addresses are listed below:

**Anchorage Office**

555 Cordova Street  
Anchorage, Alaska 99501-2617  
(907) 269-7517

**Juneau Office**

410 Willoughby Ave. Ste. 105  
Juneau, Alaska 99801-1795  
(907) 465- 5350

**Wasilla Office**

PO Box 871064  
Wasilla, Alaska 99687  
(907) 376-5038

**Bethel Office**

PO Box 557  
Bethel, Alaska 99559  
(907) 543-3215

**Ketchikan Office**

540 Water Street  
Ketchikan, Alaska 99901  
(907) 225-6200

**Fairbanks Office**

610 University Avenue  
Fairbanks, Alaska 99709  
(907) 451-2360

**Kenai Office**

43335 Kalifornsky Beach Rd. Ste. 11  
Soldotna, Alaska 99669  
(907) 262-5210

Please see our web page for more information: <http://www.state.ak.us/dec/deh>

The owner, operator or engineer will need to complete sections **A.1, A.2, A.3, B.4** and **C** depending on the source type. Please remember that the noted sections and test results are required by the State Drinking Water Regulations (18 AAC 80.200 (h), (i), (j)).

To assist the owner, operator or engineer in determining if the Class C public water system is in compliance with the State Drinking Water Regulations, the department recommends that sections **B.1, B.2, B.3, D** and **E** also be completed and the requested information be provided.

For Class C public water systems using a source that is either an infiltration gallery, spring, rain catchment or surface water, section **B.1** does not apply. Please remember that sections **B.2, B.3** and **B.4** are still valid.

### **Definitions**

**"MCL"** - Maximum Contaminant Level - Means the maximum permissible level of a contaminant in water that is delivered to any user of a public water system.

**Class "A" Public Water System** - Means a public water system that (A) is expected to serve, year-round, at least 25 individuals; (B) is expected to serve, year-round, at least 15 residential service connections; or (C) regularly serves the same 25 or more individuals for at least six months of the year.

**Class "B" Public Water System** - Means a public water system that is not a Class A public water system, and that regularly serves at least 25 individuals each day for at least 60 days of the year.

**ALASKA DRINKING WATER  
FUND**

Application Form

---

---

**GENERAL INFORMATION**

Name of Municipality/City: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: (907) \_\_\_\_\_

---

---

**CONTACT PERSON**

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Telephone: (907) \_\_\_\_\_

---

---

**PROJECT TYPE (Check One)**

Water Treatment Facility     Replacement     Rehabilitation     Storage Facility  
 Distribution System     TransmissionLine     Source Development

---

---

**ASSISTANCE AMOUNT**

This application is for \$ \_\_\_\_\_ in loan monies from the Alaska Drinking Water Fund.

What loan pay back period would you prefer?

2 year     5 year     20 year    Other (please specify)  year

NOTE: The loan pay back period may not exceed 20 years.

---

---

DESCRIPTION OF PROJECT; \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

---

## PROJECT COSTS

Administration	\$ _____
Legal	\$ _____
Preliminary Studies/Reports	\$ _____
Engineering Design	\$ _____
Inspection/Surveying/Construction Management	\$ _____
Construction	\$ _____
Equipment	\$ _____
Contingencies	\$ _____
Other _____	\$ _____
Total Project Costs	\$ _____

---

---

## ESTIMATED PROJECT SCHEDULE

	<u>Estimated Completion Date</u>
Loan Agreement Signed	_____
Preliminary Engineering Report	_____
Design Engineering	_____
Preparation of Bid Documents	_____
Award of Construction Contract	_____
Construction Initiation	_____
Construction Completion	_____
Initiation of Operation	_____

---

---

## OTHER FUNDING

What funds, other than Alaska Drinking Water Fund monies, are committed for this project?

Federal Funds from: _____	Amount: \$ _____
Other State Funds from: _____	Amount: \$ _____
Other (identify source): _____	Amount: \$ _____

A separate account will be established within the municipality's accounting system through which financial assistance received from the Alaska Drinking Water Fund will be administered.

I certify the above information is current and correct.

\_\_\_\_\_  
Name Title

\_\_\_\_\_  
Signature Date

---

---

### CHECKLIST

#### DOCUMENTS TO BE SUBMITTED AS PART OF THIS APPLICATION:

- \_\_\_ Financial Capability Information Document
- \_\_\_ Facility Plan
- \_\_\_ Environmental Information Documentation
- \_\_\_ Application for Force Account Charge Rate Approval and Equipment Rate Approval (if work related to this project will be done by force account)
- \_\_\_ Certification from your City Attorney stating that the Municipality has sufficient legal authority to incur the debt for an Alaska Drinking Water Fund loan

#### EITHER:

- \_\_\_ A resolution from your city council authorizing this loan application and designating an official authorized to accept and manage an Alaska Drinking Water Fund Loan; or
- \_\_\_ A resolution from your city council authorizing this loan application and specifying that an additional resolution will be issued to authorize the acceptance of a loan offer from the Alaska Drinking Water Fund.

---

---

Submit Completed Application to:

**Alaska Department of Environmental Conservation  
Facility Construction and Operation  
410 Willoughby Avenue, Suite 303  
Juneau, AK 99811**

**ALASKA DRINKING WATER  
FUND**  
Financial Information Form

**GENERAL INFORMATION**

The following information is intended to show whether your community can afford to repay the proposed loan from the Alaska Drinking Water Fund.

Loan Amount: \$ \_\_\_\_\_

Repayment Term in years: \_\_\_\_\_  
(Loan repayment term may not exceed 20 years)

Estimated Interest Rate: \_\_\_\_\_  
(We will provide an estimate if you wish)

Estimated Annual Payment: \$ \_\_\_\_\_  
(Given the above information, we will provide this if you wish)

Please describe the sources of funding that will be used to repay the loan:

General Funds	amount	\$ _____
Capital Reserves	amount	\$ _____
User Fees	amount	\$ _____
Assessments, LIDs	amount	\$ _____
Taxes (identify type)	_____ amount	\$ _____
Other (identify)	_____ amount	\$ _____

Describe whether any of these sources of funding or revenue have been previously pledged and, if so, please indicate the type of pledge or encumbrance (such as a previous bond sale, special assessment, legal or judicial settlement, etc.), amount pledged and any balance remaining: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please describe any litigation that could affect your communities ability to repay this loan: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

---

**CURRENT DEBT INFORMATION**

Does your community have a debt ceiling? If so, what is it? \$ \_\_\_\_\_

How much remains available? \$ \_\_\_\_\_

What is your current level of bonded indebtedness? \$ \_\_\_\_\_

Please indicate the date, rating and amount of your last bond sale.

Date: \_\_\_\_\_ Rating: \_\_\_\_\_ Amount: \$ \_\_\_\_\_

---

---

**CURRENT DRINKING WATER FINANCING**

Please provide the following information regarding your current annual water utilities budget.

Operating revenues: \$ \_\_\_\_\_ Operating expenses: \$ \_\_\_\_\_

User fees collected: \$ \_\_\_\_\_ Annual debt service: \$ \_\_\_\_\_

TOTAL Revenues: \$ \_\_\_\_\_ Other non-operating expenses: \$ \_\_\_\_\_

TOTAL Expenses: \$ \_\_\_\_\_

Reserves: \$ \_\_\_\_\_

---

---

**USER FEES**

If User Fees are intended to repay any portion of this loan, please submit:

- \_\_\_\_\_ Existing ordinance that authorizes the collection of user fee
- \_\_\_\_\_ Current fee structure
- \_\_\_\_\_ Pertinent portions of your budget documents
- \_\_\_\_\_ Most recent State single audit
- \_\_\_\_\_ Most recent rate study or rate analysis

Also, please complete the following:

Number of existing residential and commercial users: \_\_\_\_\_

Number of proposed residential and commercial users: \_\_\_\_\_

How much will this loan repayment increase user fees? For example, how much will the average residential users monthly fee increase? \_\_\_\_\_

\_\_\_\_\_

---

---

I certify the above information is correct and current.

\_\_\_\_\_

Name

\_\_\_\_\_

Title

\_\_\_\_\_

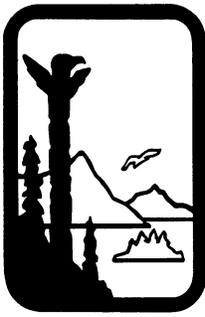
Signature

\_\_\_\_\_

Date

---

---



**STATE OF ALASKA**  
**ALASKA DRINKING WATER FUND**  
**FORCE ACCOUNT LABOR RATE WORKSHEET**

This worksheet is provided to assist communities in obtaining approval of force account labor rates for loan reimbursement. You are under no obligation to claim all costs or to fill out the entire form. For basic hourly rates, Sections A, B, G and H should be completed for each job classification. Sections C, D, E and F are provided to assist you in computing straight labor rates. If reimbursement for city owned equipment is also desired, please provide a list of equipment and charge rates along with the appropriate Force Account Labor Rate Worksheets for ADEC review and approval.

Job Classification: \_\_\_\_\_ Project Loan/Name \_\_\_\_\_

**A. Calculate Monthly Workhours**

Working Hours Per Month = \_\_\_\_\_  
 (work hours per week x 52 weeks per year divided by months per year)

**B. Calculate Hourly Pay Rate**

Monthly Pay Rate Ranges from \$ \_\_\_\_\_ to \$ \_\_\_\_\_

Hourly Pay Rate Ranges From \$ \_\_\_\_\_ to \$ \_\_\_\_\_  
 (monthly pay rate divided by working hours per month = Pay Rate Per Hour)

**C. Calculate Hourly Benefit Rate**

Social Security (FICA)	_____ %
Workers Compensation (W/C)	_____ %
Retirement Contribution (PERS)	_____ %
Unemployment Insurance (SUI)	_____ %
<b>Total Benefits Percentage</b>	<b>_____ %</b>

Hourly Benefit Rate Ranges from \$ \_\_\_\_\_ to \$ \_\_\_\_\_  
 (hourly pay rate x total benefits percentage = Hourly Benefit Rate )

**D. Calculate Hourly Insurance Rate**

Health and Dental Ranges from	\$ _____ to \$ _____
Accidental Death	\$ _____ to \$ _____
Basic Life or Other: _____	\$ _____ to \$ _____
<b>Total Insurance Benefits</b>	<b>\$ _____ to \$ _____</b>

Hourly Insurance Rate from \$ \_\_\_\_\_ to \$ \_\_\_\_\_  
 (total insurance benefits divided by working hours per month = Insurance Rate Per Hour)

---

---

**E. Calculate Hourly Leave Rate**

Vacation Leave days per month ranges from \_\_\_\_\_ days to \_\_\_\_\_ days

Sick Leave days per month ranges from \_\_\_\_\_ days to \_\_\_\_\_ days

Leave Hours Per Month Ranges From \_\_\_\_\_ hours to \_\_\_\_\_ hours  
(vacation plus sick leave days per month x working hours per day = Leave Hours Per Month)

Leave Rate Per Hour Ranges from \$ \_\_\_\_\_ to \$ \_\_\_\_\_ hours  
(pay rate per hour x leave hours per month divided by working hours per month = Leave Rate Per Hour)

---

---

**F. Calculate Hourly Holiday Rate**

Paid Holidays Per Year = \_\_\_\_\_ days

Holiday Rate Per Hour Ranges from \$ \_\_\_\_\_ to \$ \_\_\_\_\_  
(paid holidays per year divided by 12 months divided by working hours per month x working hours per day x pay per hour = Holiday Rate Per Hour)

---

---

**G. Calculate Hourly Charge Rate**

	Hourly Low Rate	Hourly High Rate
Pay Rate	\$ _____	\$ _____
Benefit Rate	\$ _____	\$ _____
Insurance Rate	\$ _____	\$ _____
Leave Rate	\$ _____	\$ _____
Holiday Rate	\$ _____	\$ _____
Total:	\$ _____	\$ _____

---

---

**H. Certification**

Based on the details shown above for the \_\_\_\_\_ job classification, we request approval of a low rate of \$ \_\_\_\_\_ per hour, and a high rate of \$ \_\_\_\_\_ per hour inclusive for all employees in this job classification engaged in force account work.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**ALASKA DRINKING WATER FUND**

Model Resolution

Resolution No. \_\_\_\_\_ Date: \_\_\_\_\_

WHEREAS, \_\_\_\_\_ (the Municipality) seeks to obtain the necessary financial assistance to construct water system improvements; and

WHEREAS, the State of Alaska, Department of Environmental Conservation (the Department) is able to offer funding through the Alaska Drinking Water Fund; and

WHEREAS the Municipality wishes to apply for a loan from the Alaska Drinking Water Fund;

THEREFORE BE IT RESOLVED that the Municipality is authorized to apply to the Department for a loan from the Alaska Drinking Water Fund for water system improvements. \_\_\_\_\_ (specify name and title) is authorized to execute any and all documents that may be required by the Department to reflect the indebtedness, the terms of its repayment, and any security therefore, including but not limited to an agreement for the loan and a promissory note.

In place of the above sentence, the Municipality may instead specify that an additional resolution will be issued to authorize the acceptance of a loan offer from the Alaska Drinking Water Fund.

\_\_\_\_\_  
Mayor

Attested by: \_\_\_\_\_  
City Clerk

# ALASKA DRINKING WATER FUND

## Payment Request

Payment Number: \_\_\_\_\_ Date: \_\_\_\_\_  
Project Number: \_\_\_\_\_

### Loan Recipient

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_

Project Title: \_\_\_\_\_

### Payee (where check should be sent if different from above)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_

### Cost Breakdown

	Total Loan Amount	Previous Payments	Amount of this Request	Total Payment
Administrative	\$ _____	\$ _____	\$ _____	\$ _____
Engineering/Design	\$ _____	\$ _____	\$ _____	\$ _____
Inspection/Surveying	\$ _____	\$ _____	\$ _____	\$ _____
Construction	\$ _____	\$ _____	\$ _____	\$ _____
Equipment	\$ _____	\$ _____	\$ _____	\$ _____
Other ( _____ )	\$ _____	\$ _____	\$ _____	\$ _____

Total Loan Amount: \$ \_\_\_\_\_

Previous Payments: \$ \_\_\_\_\_

This Payment: \$ \_\_\_\_\_

Balance Remaining: \$ \_\_\_\_\_

### Certification

I certify to the best of my knowledge and belief that the amount of funds I am requesting is in accordance with the terms of the loan offer and this request for payment represents the correct loan share due which has not been previously paid. The project is now approximately \_\_\_\_\_% complete.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

**STATE OF ALASKA  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**GENERAL WASTEWATER DISPOSAL PERMIT NO. 9940-DB002**

**Excavation Dewatering**

Permit Expiration Date: November 30, 2003

This general wastewater disposal permit is issued for the disposal of wastewater from excavations within the South Central and Northern Regions of the State of Alaska. This general permit applies to any volume of wastewater disposal from excavations which take place during construction or earthwork activities for projects such as culvert placement, gravel extraction, pipeline installation, inspection or repair, bridge construction, building construction and other similar projects. This general permit does not apply to wastewater disposal from coal, placer, hard rock or most other types of mining activities, although it may apply to some construction activities that take place at a mine. This permit is not applicable to waters listed by the state as impaired, where the impairment is wholly or partially caused by a pollutant contained within the proposed discharge.

This permit is subject to the conditions and stipulations contained in Appendices A and B, which are incorporated herein by reference. All disposals made under the authority of this permit, regardless of size, are subject to the conditions and stipulations contained herein. Approval to operate under this permit shall be valid for not longer than 12 months. This permit does not relieve the permittee of the responsibility of obtaining other required permits.

The Department will require a person to apply for an individual disposal permit when it determines that the proposed disposal does not meet the conditions of this general permit, contributes to significant pollution, causes an adverse impact on public health or water quality, or a change occurs in the availability of technology or practices for the control or abatement of pollutants contained in the disposal. Issues that the Department may consider when deciding whether to require an individual permit for a particular disposal include, but are not limited to: proximity of contaminated sites, proximity of drinking water wells, separation distance waivers for drinking water wells in the vicinity of the proposed activity, potential for reversal in the direction of surface water or groundwater flow, and potential changes in drinking water and ground water quality. Dewatering projects at contaminated sites may not be conducted under this permit. Issuance of an individual disposal permit requires a 30 day public notice period and additional time for processing the application.

This permit is issued under provisions of Alaska Statutes 46.03, the Alaska Administrative Code as amended or revised, and other applicable State laws and regulations, including standards of the Alaska Coastal Management Program under 6 AAC 80 for activities in the coastal zone.

This permit is effective on issuance and expires November 30, 2003, unless superseded before that time by a state certified U.S. Environmental Protection Agency National Pollutant Discharge Elimination System permit or upon issuance of an amended general permit. This permit may be terminated or modified in accordance with AS 46.03.120.

April 15, 1999  
Date Issued

**SIGNATURE ON FILE**

Timothy J. Wingerter  
Watershed Management and Development  
Division of Air and Water Quality

**APPENDIX A – OPERATION****I. NOTICE OF DISPOSAL**

- A. Applicants wishing to conduct disposal activities under this permit and whose estimated total discharge volume is greater than 500,000 gallons, must submit a Notice of Disposal (as defined in Section I.C), to the appropriate office of the Alaska Department of Environmental Conservation (listed in Section VI), at least thirty days prior to the disposal activity. Shorter notice and verbal notification (followed by written confirmation) may be used for emergency situations.
- B. A Notice of Disposal is not required if the total discharge is less than 500,000 gallons and the Alaska Water Quality Standards (18 AAC 70) are not violated. Dischargers must operate under the provisions and requirements of this general permit even if they are not required to submit a Notice of Disposal.
- C. Each Notice of Disposal submitted under Section I.A must include the following information:
  - 1. Applicant's name, position, company address and telephone number.
  - 2. Site map showing the location of the discharge, (latitude and longitude) and any receiving waters.
  - 3. Topographic map or aerial photograph of at least a scale of 1:6,300, showing the exact location of the discharge and the direction and ultimate termination of the flow after discharge.
  - 4. Date of initial discharge, expected duration of discharge, rate of pumping, and average and maximum daily flow rates in gallons per day.
  - 5. Method of dewatering, including typical design schematics.
  - 6. Method and design of the proposed treatment system if required to meet permit limitations, and design of all wastewater conveyances, constructed or natural, for this dewatering operation demonstrating that the conveyances can handle the flow.
  - 7. A brief description of monitoring methods, including, but not limited to, commercial laboratories to be used, sampling methods, in situ analytical methods, equipment to be used, and location of sampling and measurement points.
- D. Applicants must receive written approval from the Department before conducting disposal activities under this permit. Written approval from the Department is not required for discharges of less than 500,000 gallons. The Department will, in its discretion, deny use of this permit, or attach or waive conditions as appropriate for specific disposal activities.

- E. A fee of \$200.00 must be paid for each Notice of Disposal submitted to the department. The department will bill the applicant when approval to operate under this general permit has been granted. A plan review fee of \$400.00 may also be charged, depending on the complexity of the project.
- F. The applicant must contact the Department of Fish and Game, Habitat and Restoration Division, two weeks prior to any discharge, if the discharged water will enter a fish bearing stream.
- G. The applicant must contact the Department of Natural Resources, Division of Water, for any dewatering operation that exceeds 30,000 gallons of water per day in volume to determine whether a temporary water use permit is required pursuant to 11 AAC 93.

**II. CONTAMINATED SITES**

- A. For dewatering projects greater than 500,000 gallons within three miles of a known contaminated site(s) that meet the inclusion criteria for the Department's contaminated site database, the permittee shall, in addition to the Notice of Disposal required in Section I.A, provide the following information:
  - 1. Data about the contaminated site(s) including the type and concentration of contaminants, whether the contaminant(s) are solid, liquid, or dissolved, and the size and location of any contamination plumes.
  - 2. A detailed geohydrologic report by a geologist or engineer professionally licensed to practice in the State of Alaska. This report must specifically address the impact of the proposed dewatering activity on adjacent contaminated sites and drinking water wells.
  - 3. Proposed and / or existing monitoring well locations which are capable of providing information on ground water elevations, whether contaminants are being smeared below the natural minimum groundwater elevation, whether the contaminant plume is being diverted and whether contaminant migration rates are increasing.
  - 4. How contaminants that are entrained in the dewatering effluent will be treated, and the contaminant discharge concentrations. Treatment plans must be designed and stamped by an engineer registered in the State of Alaska.

- B. The information described in Section II.A is not required if the applicant can demonstrate that the contaminated site(s) within three miles of the dewatering site do not affect the groundwater.
- C. The information described in Sections II.A.2 and II.A.3 is not required if the proposed dewatering will not drop the groundwater level below the natural minimum groundwater elevation as recorded by the U.S. Geological Survey or another reliable source. Daily measurements of ground water elevations in monitoring wells may be required to prove that ground water elevations are not being lowered beyond natural low elevations that would occur naturally.
- D. When the dewatering project may adversely affect a contaminated site by moving or smearing contamination, the applicant is encouraged to use construction practices such as cofferdams to eliminate or reduce the volume of groundwater to be discharged.
- E. An individual permit may be required, the disposal application may be denied or the Department may impose additional conditions to its approval based on the effects of the proposed operation on a contaminated site.

III. LIMITATIONS

- A. During the period beginning on the effective date of this permit and lasting through the expiration or termination date, the permittee is authorized to discharge wastewater as specified in this section.
- B. Wastewater discharged from dewatering operations shall not exceed the following limitations:

<u>Effluent Limitations</u>	<u>Maximum Value</u>
Turbidity	5 NTU's above background <sup>1</sup>
Total Aqueous Hydrocarbons	15 µg/l, (micrograms per liter)
Total Aromatic Hydrocarbons	10 µg/l, (micrograms per liter)
Settleable Solids	0.2 ml/l <sup>2</sup> , (milliliter per liter)
Total Iron	2 mg/l, (milligrams per liter)

- C. The effluent pH shall be between 6.5 and 8.5 pH units and within 0.2 units, (marine water), or 0.5 units, (fresh water), of the receiving water pH.

---

1 Applies to discharges to the waters of the state only. Not applicable to disposals which freeze upon discharge. Shall not have more than 10% increase in turbidity when the natural condition is more than 50 NTU, not to exceed a maximum increase of 15 NTU. Shall not exceed 5 NTU over natural conditions for all lake waters.

2 When the discharge flow is greater than the receiving water flow, settleable solids shall have a maximum limitation of 0.1 ml/l.

- D. The Department will, in its discretion, attach terms and conditions to its written approval of a discharge as appropriate for each specific disposal.
- E. The discharge shall not cause thermal or physical erosion.
- F. The disposal shall not cause a change in established flow patterns of the receiving water nor shall it cause flooding resulting in property damage.
- G. Waivers of the minimum separation distance between a drinking water source and a potential source of contamination are sometimes based on the direction of flow of the groundwater. The dewatering operation cannot cause a drinking water source with such a waiver to be threatened with contamination by changing the direction of flow of the groundwater.
- H. The discharge shall not cause destruction of vegetation.
- I. The discharge shall not create a thermal barrier to fish movement.
- J. The discharge shall not result in the exclusion of fish from aquatic habitat.
- K. The discharge shall not cause re-suspension of sediments upon discharge into receiving waters.
- L. The discharge shall be free of any additives such as antifreeze solutions, methanol, solvents, corrosion inhibitors; garbage; toxic substances; grease and oils which produce a sheen; foam in other than trace amounts; and other contaminants.
- M. The discharge shall not cause a violation of the Alaska Water Quality Standards (18 AAC 70).
- N. Groundwater elevations may not be affected in a manner that reduces the quantity or quality of the water drawn from wells owned by other area well owners, unless arrangements have been made to either provide suitable water to those users, or those wells are modified (with the owners permission) in a manner so that the quantity and quality will not be affected. Well owners may have additional legal rights and the applicant is encouraged to discuss the matter with the affected property owners prior to submission of the Notice of Intent to the Department.

IV. MONITORING

- A. Permittees discharging more than 500,000 gallons of wastewater shall monitor the wastewater stream in the following manner and frequency while the discharge is occurring:

<u>Effluent Characteristic</u>	<u>Sample Location</u>	<u>Minimum Frequency</u>	<u>Sample Type</u>
Total Flow	Effluent	Daily	NA
Turbidity (NTU)	Effluent & Background <sup>4</sup>	Weekly <sup>3</sup>	Grab
Total Aqueous Hydrocarbons	Effluent	Monthly <sup>3</sup>	Grab
Total Aromatic Hydrocarbons	Effluent	Monthly <sup>3</sup>	Grab
Settleable Solids	Effluent	Daily	Grab
Total Iron	Effluent	Weekly	Grab

- B. Permittees with discharges estimated to be less than a total of 500,000 gallons of wastewater shall monitor total flow. The data generated from this monitoring will only need to be reported to the Department if the actual flow monitored is more than a total of 500,000 gallons.
- C. Iron precipitation from iron concentrations found in some ground waters has the potential to cause limits for settleable solids to exceed those in the permit. The Department recommends that the applicant determine the iron concentration in the groundwater to be dewatered prior to submittal of the Notice of Disposal. In areas of known high concentrations of iron, the Department will require that this information be submitted.
- D. Test procedures used for sample analysis shall conform to methods cited in 18 AAC 70.020(c), or as such regulations may be amended. The permittee may substitute alternative methods of monitoring or analysis upon receipt of prior written approval from the Department.

---

<sup>3</sup> A Minimum of one sample shall be taken, unless the department has waived the requirement.

<sup>4</sup> Turbidity values of effluent and receiving water shall be determined. One sample shall be taken at a point representative of the discharge prior to its entering the receiving water. A second sample shall be taken of the receiving water upstream of the discharge point, or in the case of receiving waters with low or no flow, prior to discharge, at a location representative of the receiving water. Both samples shall be taken during the same day within a reasonable time frame (i.e., within 20 minutes to one-half hour).

- E. Some monitoring may be waived by the department and / or additional monitoring may be required and will be established on a case by case basis.
- F. Samples and measurements taken as required shall be representative of the volume and nature of the monitored activity.
- G. If the permittee monitors any influent, effluent, or surface water characteristic identified in this permit more frequently than required, the results of such monitoring shall be reported to the Department in the monitoring report required under Section IV of this Appendix.

V. MANAGEMENT PRACTICES

- A. The operator shall take whatever steps are appropriate to maintain the dewatering operation in such a manner that the terms and conditions of this permit are met. This includes leaving the dewatering site, including any settling ponds, in a condition that will not cause additional degradation to the receiving waters over those resulting from natural causes.
- B. The operator, when using an earthen channel to transport wastewater from a dewatering operation to the receiving water, shall not drive construction equipment in the channel in such a manner as to re-suspend sediment.
- C. The operator shall maintain fuel handling and storage facilities in a manner that prevents the discharge of petroleum products into receiving waters.

VI. REPORTING

Monitoring results shall be summarized, reported to the Department and postmarked no later than the 14th day of the month following the month that each sampling occurs. Reporting shall begin at the commencement of discharge. Signed copies of these, and all other reports required herein, shall be submitted to the appropriate regional office at the following addresses:

State of Alaska  
Department of Environmental Conservation  
Division of Air and Water Quality  
610 University Avenue  
Fairbanks, Alaska 99709-3643  
Telephone (907) 451-2360  
Fax (907) 451-2187

State of Alaska  
Department of Environmental Conservation  
Division of Air and Water Quality  
555 Cordova Street  
Anchorage, Alaska 99501  
Telephone (907) 269-7500  
Fax (907) 269-7652

Knowingly making a false statement, by the permittee, the operator, or other employees, including contractors, on any such report may result in the imposition of criminal penalties as provided for under AS 46.03.790.

**VII. RECORDS RETENTION**

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed, and calibration and maintenance of instrumentation, and recordings from continuous monitoring instrumentation shall be retained in Alaska for observation by the Department for three years. Upon request from the Department, the permittee shall submit certified copies of such records.

**VIII. CHANGE IN DISCHARGE**

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant or toxic material, (including oil, grease, or solvents) more frequently than specified, or at a concentration or limit not authorized, shall constitute noncompliance with the permit. Any anticipated construction changes, flow increases, or process modifications which will result in new, different, or increased discharges of pollutants causing a violation of this permit's limitations are not allowed under this permit and must be reported by submission of an individual waste disposal permit application or revision of the Notice of Disposal. Physical changes may also be subject to plan review by the Department.

**IX. TOXIC POLLUTANTS**

If a toxic pollutant (including oil, grease, or solvents) concentration standard is established in accordance with 18 AAC 70 for a pollutant present in this discharge, and such standard is more stringent than the limitation in this permit, this permit is considered to be modified in accordance with the toxic pollutant concentration standard.

**X. ACCIDENTAL DISCHARGES**

The permittee shall provide protection from accidental discharges not in compliance with the provisions of this permit. Facilities to prevent such discharges shall be maintained in good working condition at all times.

**XI. NONCOMPLIANCE NOTIFICATION**

A. If, for any reason, the permittee does not comply with or will be unable to comply with any terms or conditions specified in this permit, the permittee shall report the noncompliance to the Department within 72 hours of becoming aware of such conditions. This report shall be by telephone, fax, or in the absence of both, by mail.

- B. A written follow-up report shall be sent to the Department within seven (7) days of the noncompliance event. The written report shall contain, but not be limited to:
1. Times and dates on which the event occurred, and if not corrected, the anticipated time the noncompliance is expected to continue.
  2. A detailed description of the event, including quantities and types of materials involved.
  3. Details of any actual or potential impact on the receiving environment or public health.
  4. Details of actions taken or to be taken to correct the causes of the event.
  5. Details of actions taken or to be taken to correct the cause(s) of the event and any damage resulting from the event.

**XII. RESTRICTION OF PERMIT USE**

The Department may prohibit or restrict use of this permit by a permittee because of noncompliance within this permit.

**XIII. TRANSFER OF OWNERSHIP**

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Department of Environmental Conservation at the appropriate office listed in Appendix A, Section VI of this permit.

**APPENDIX B - GENERAL PERMIT CONDITIONS**

**I. ACCESS AND INSPECTION**

The permittee shall allow the Commissioner or his/her representative access to the permitted facilities at reasonable times to conduct scheduled or unscheduled inspections or tests to determine compliance with this permit, State laws, and regulations.

**II. INFORMATION ACCESS**

Except where protected from disclosure by applicable state or federal law, all records and reports submitted in accordance with the terms of this permit shall be available for public inspection at the appropriate State of Alaska Department of Environmental Conservation Regional Office.

**III. CIVIL AND CRIMINAL LIABILITY**

Nothing in this permit shall relieve the permittee from any potential civil or criminal liability for noncompliance with the permit or with applicable law.

**IV. AVAILABILITY**

The permittee shall post or maintain a copy of this permit available to the public at the disposal facility.

**V. ADVERSE IMPACT**

The permittee shall take all necessary means to minimize any adverse impacts to the receiving waters or lands resulting from noncompliance with any limitation specified in this permit, including any additional monitoring needed to determine the nature and impact of the noncomplying activity. The permittee shall clean up and restore all areas adversely impacted by the noncompliance.

**VI. CULTURAL OR PALEONTOLOGICAL RESOURCES**

Should cultural or paleontological resources be discovered as a result of this activity, work which would disturb such resources is to be stopped, and the State Historic Preservation Office, Division of Parks and Outdoor Recreation, Department of Natural Resources (907) 762-2622, is to be notified immediately.

**VII. OTHER LEGAL OBLIGATIONS**

This permit does not relieve the permittee from the duty to obtain any other necessary permits from the Department or from other local, state or federal agencies, and to comply with the requirements contained in any such permits. All activities conducted and all plans implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations.

**VIII. POLLUTION PREVENTION**

In order to prevent and minimize present and future pollution, when making management decisions that effect waste generation, the permittee shall consider the following order of priority options as outlined in AS 46.06.021:

- \* waste source reduction,
- \* recycling of waste,
- \* waste treatment, and
- \* waste disposal.



State of Alaska  
 Department of Environmental Conservation  
 610 University Avenue  
 Fairbanks, AK 99709-3643



## CERTIFICATION OF CONSTRUCTION FOR DOMESTIC WASTEWATER SYSTEMS

**Instructions:**

1. Within 30 days after the construction, installation, or modification of a project is completed, the owner, the contractor(s) responsible for constructing the project, and a registered engineer responsible for construction inspection, must complete and sign this form declaring that the project was constructed in accordance with the most recent Department-approved plans, or in accordance with the attached as-built drawings.
  
2. If a project is being completed in phased construction, a map shall be attached showing that portion of the project being declared completed on the date stated in the Owner's Section. Completion of each phase of a project must be declared as it is completed. Additional Certification of Construction forms are available from any Department of Environmental Conservation office.

*Please type or print, except for signature:*

**SECTION A-** Owner's Section

Name and brief description of project: \_\_\_\_\_

Name of Owner: \_\_\_\_\_

ADEC Project No. \_\_\_\_\_

Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date Project Completed: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

I certify that I am the owner of the above-referenced project. I further certify that this project was constructed in accordance with the latest plans submitted to and approved by the Alaska Department of Environmental Conservation (ADEC), or in accordance with the attached as-built drawings. I understand that I may be required to take remedial measures to correct any construction which was completed without prior ADEC approval, which departs from the approved plans, and which is found to be inconsistent with the applicable requirements of ADEC wastewater disposal regulations (18 AAC 72).

**Signature of Owner**

(Please Sign in Ink)

**Date**

**SECTION B- Contractor's Section**

I certify that I (or an individual under my direct supervision) have conducted an inspection of the project referenced in Section A, or portions of the project which I had the responsibility for constructing, and that to the best of my knowledge and information, the project, or those portions, was or were constructed in accordance with the latest plans submitted to and approved by the Alaska Department of Environmental Conservation, or in accordance with the attached as-built drawings.

---

<b>Name of Contractor</b>	<b>Signature of Contractor</b> (please sign in ink)	<b>Date</b>
---------------------------	-----------------------------------------------------	-------------

For multiple contractors, if applicable:

---

<b>Name of Contractor</b>	<b>Signature of Contractor</b> (please sign in ink)	<b>Date</b>
---------------------------	-----------------------------------------------------	-------------

---

<b>Name of Contractor</b>	<b>Signature of Contractor</b> (please sign in ink)	<b>Date</b>
---------------------------	-----------------------------------------------------	-------------

---

**SECTION C- Engineer's Section**

I certify that I (or any individual under my direct supervision) have conducted an inspection of the above referenced project, and that to the best of my knowledge and information, the project was constructed in accordance with: (check one of the following)

the latest plans submitted to and approved by the Alaska Department of Environmental Conservation

or

in accordance with the attached as-built drawings.

---

Signature of Professional Engineer Responsible for Construction Inspection (Please Sign in Ink)	State of Alaska Professional Engineer Registration Number	Date
-------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------	------

---

Typed or Printed Name of Professional Engineer

