

# ENGINEERING TECHNICAL LETTERS (ETL)

**Note: Some older ETLs show a five-year expiration date, but this may be ignored; all ETLs are valid until cancelled or superseded.**

Number	Title	Status	Date
82-1		Superseded by ETLs 83-10, 86-1, 87-4	10 Nov 82
82-2		Superseded by AFEPPM 88-10	10 Nov 82
82-3		Superseded by ETLs 83-5, 84-2	10 Nov 82
82-4		Superseded by ETL 84-7	10 Nov 82
82-5		Superseded by ETLs 84-1, 86-13, 86-14	10 Nov 82
82-6		Cancelled	30 Dec 82
82-7		Cancelled	30 Nov 82
83-1	Design of Control Systems for HVAC		16 Feb 83
83-2		Superseded by ETL 84-3	16 Feb 83
83-3	Interior Wiring Systems, AFM 88-15, Para 7-3	Cancelled	2 Mar 83
83-4	EMCS Data Transmission Media Considerations	Cancelled	3 Apr 83
83-5		Superseded by ETL 84-2	5 May 83
83-6		Cancelled	24 May 83
83-7		Cancelled	30 Aug 83
83-8		Cancelled	15 Sep 83
Chg 1 to ETL 83-1	U.S. Air Force Standardized Heating, Ventilating & Air Conditioning (HVAC) Control Systems		22 Jul 87
83-9		Superseded by ETL 94-4	14 Nov 83
83-10		Superseded by ETL 86-1	28 Nov 83
84-1		Superseded by ETL 86-14	18 Jan 84
84-2		Superseded by ETL 94-4	27 Mar 84
84-3		Cancelled	21 Mar 84
84-4		Superseded by ETLs 86-7, 86-15, 87-5	10 Apr 84
84-5		Superseded by ETLs 84-8, 86-11, 86-18, 88-6	7 May 84
84-6		Cancelled/Not Used	Not Issued

Number	Title	Status	Date
84-7		Superseded by AFEPPM 96-4	13 Jun 84
84-8		Superseded by ETL 86-11	19 Jun 84
84-9		Superseded by ETL 88-7	5 Jul 84
84-10		Cancelled	1 Aug 84
86-1		Superseded by ETL 87-7	3 Feb 86
86-2		Cancelled	5 Feb 86
86-3		Superseded by ETL 86-4	21 Feb 86
86-4		Cancelled	12 May 86
86-5	Fuels Use Criteria for Air Force Construction		22 May 86
86-6		Superseded by ETLs 86-11, 86-18, 88-6	3 Jun 86
86-7		Superseded by ETL 86-15	3 Jun 86
86-8	Aqueous Film Forming Foam Waste Discharge Retention and Disposal		4 Jun 86
86-9	Lodging Facility Design Guide	Superseded by AFCEE Temporary Lodging Facilities Design Guide	4 Jun 86
86-10		Superseded by AFCEE Design Guide, Installation Force Protection Guide, Jul 97	13 Jun 86
86-11		Superseded by ETL 88-6	3 Jul 86
86-12		Superseded by ETL 90-2	3 Jul 86
86-13		Superseded by ETL 86-14	18 Aug 86
86-14		Cancelled	15 Oct 86
86-15		Superseded by ETL 87-5	13 Nov 86
86-16	Direct Digital Control of Heating, Ventilation, and Air Conditioning Systems		9 Dec 86
86-17		Superseded by ETL 89-6	17 Dec 86
86-18		Superseded by ETL 88-6	18 Dec 86
87-1		Superseded by AFI 32-1067	15 Jan 87
87-2	Volatile Organic Compounds	Cancelled	4 Mar 87
87-3		Superseded by ETLs 87-6, ETL 88-5	12 Mar 87
87-4		Superseded by ETL 94-4	13 Mar 87
87-5		Superseded by ETL 94-2	13 Jul 87
87-6		Superseded by ETL-88-5	21 Aug 87
87-7		Superseded by ETL 89-1	14 Oct 87

Number	Title	Status	Date
87-8		Superseded by ETL 90-1	19 Oct 87
87-9	Prewiring	Superseded by ETL 02-12	21 Oct 87
88-1		Superseded by ETL 89-2	5 Jan 88
88-2		Cancelled	21 Jan 88
88-3		Superseded by AFMAN 32-1146(I)	15 Jun 88
88-4	Reliability & Maintainability (R&M) Design Checklist	Superseded by ETL 01-1	24 Jun 88
88-5		Superseded by ETL 91-6	2 Aug 88
88-6		Superseded by AFI 32-1068	1 Aug 88
88-7		Superseded by ETLs 90-3, 91-2	24 Aug 88
88-8		Superseded by ETL 91-7	4 Oct 88
88-9		Cancelled	7 Oct 88
88-10	Prewired Work Station Guide Specifications	Cancelled	29 Dec 88
89-1		Superseded by ETL 90-4	6 Feb 89
89-2	Standard Guidelines for Submission of Facility Operating and Maintenance Manuals		23 May 89
89-3		Superseded by ETL 93-5	9 Jun 89
89-4	Systems Furniture Guide Specification	Cancelled	6 Jul 89
89-5		Issued as ETL 90-7	
89-6	Power Conditioning and Continuation Interfacing Equipment (PCCIE) in the Military Construction Program (MCP)	Cancelled	7 Sep 89
89-7	Design of Air Force Courtrooms		29 Sep 89
90-1	Built-Up Roof (BUR) Repair/Replacement Guide Specification		23 Jan 90
90-2	General Policy for Prewired Workstations and Systems Furniture	Cancelled	26 Jan 90
90-3	TEMPEST Protection for Facilities	Cancelled	
90-4		Cancelled	24 May 90
90-5	Fuel and Lube Oil Bulk Storage Capacity for Emergency Generators		26 Jul 90
90-6	Electrical System Grounding, Static Grounding and Lightning Protection		3 Oct 90
90-7	Air Force Interior Design Policy	Cancelled	12 Oct 90
90-8	Guide Specifications for Ethylene Propylene Diene Monomer (EPDM) Roofing		17 Oct 90

Number	Title	Status	Date
90-9		Superseded by ETL 96-1	2 Nov 90
90-10	Commissioning of Heating, Ventilating, and Air Conditioning (HVAC) Systems Guide Specification		17 Oct 90
91-1	Fire Protection Engineering Criteria - Testing Halon Fire Suppression Systems		2 Jan 91
91-2	High Altitude Electromagnetic Pulse (HEMP) Hardening in Facilities		4 Mar 91
91-3		Superseded by MIL-HDBK-1008B, Jan 94	14 Jun 91
91-4	Site Selection Criteria for Fire Protection Training Areas		14 Jun 91
91-5		Superseded by ETL 94-5	
91-6	Cathodic Protection	Superseded by MIL-HDBK-1136 (now UFC 3-570-06) and AFH 32-1290	3 Jul 91
91-7		Cancelled	21 Aug 91
91-8		Cancelled	24 Sep 91
93-1	Construction Signs	Superseded by ETL 02-9	11 Mar 93
93-2	Dormitory Criteria for Humid Areas	Superseded by ETL 03-2	13 Jul 93
93-3		Cancelled	18 Aug 93
93-4	Fire Protection Engineering Criteria - Automatic Sprinkler Systems in Military Family Housing (MFH)		11 Aug 93
93-5	Fire Protection Engineering Criteria - Electronic Equipment Installations	Superseded by ETL 01-18	
94-1	Standard Airfield Pavement Marking Schemes	Superseded by ETL 04-2	5 Apr 94
94-2	Utility Meters in New and Renovated Facilities	Superseded by UFC 3-400-01	10 Jun 94
94-3	Air Force Carpet Standard	Superseded by ETL 00-6	10 Jun 94
94-4	Energy Usage Criteria for Facilities in the Military Construction Program	Superseded by UFC 3-400-01	19 Aug 94
94-5	Fire Protection Engineering Criteria and Technical Guidance	Superseded by ETL 99-4	8 Nov 94
94-6	Fire Protection Engineering Criteria and Technical Guidance - Removal of Halogenated Agent Fire Suppression Systems		5 Dec 94
94-7	EPA Guideline Items in Construction and Other Civil Engineering Specifications	Superseded by ETL 00-1	14 Dec 94

Number	Title	Status	Date
94-8	Design in Metric		14 Dec 94
94-9		Superseded by ETL 96-4	14 Dec 94
95-1	Halon 1301 Management Planning Guidance		12 May 95
95-2	Preparation of Requirements and Management Plan (RAMP) Packages for Military Construction (MILCON) Program Projects	Superseded by AFCEE <i>Project Managers Guide For Design And Construction</i>	26 Oct 95
95-3	Planning Guide for Installation of Ultra-High-Molecular-Weight (UHMW) Polyethylene Panels Under Aircraft Arresting System Cables (CONUS Installations)	Superseded by AFI 32-1043	26 Oct 95
95-4	Mandatory Energy/Water Performance Standards for Replaced or Modified Equipment	Superseded by UFC 3-400-01	31 Oct 95
96-1		Superseded by ETL 98-7	22 Jan 96
96-2	Elimination of Liquid Polychlorinated Biphenyls (PCBs) Prioritization Guidance		2 May 96
96-3	Typical Statement of Work for Airfield Pavement Condition Survey		26 Jun 96
96-4	Temporary Joint Sealing Details and Procedures for Pavements		9 Jul 96
96-5	Hangar Concrete Floor Reflective Coating Criteria		26 Aug 96
97-1	National Primary Drinking Water Regulations: Lead and Copper Rule (LCR) Corrosion Control Desk-Top Report Statement of Work (SOW)	Cancelled	29 Jan 97
97-2	Maintenance and Repair of Rigid Airfield Pavement Surfaces, Joints, and Cracks		28 Jul 97
97-3	Base Course Proof Rolling Requirements		25 Mar 97
97-4	Expedient Trim Pad Anchoring		2 Jun 97
97-5	Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements		25 Apr 97
97-6		Not Used	
97-7		Not Used	
97-8		Superseded by ETL 98-4	9 Jun 97
97-9	Criteria and Guidance for C-17 Contingency Operations on Semi-Prepared Airfields		25 Nov 97
97-10	Structural Evaluation of Existing Buildings for Seismic and Wind Loads	Superseded by ETL 00-5	30 Oct 97

Number	Title	Status	Date
97-11	Mitigation of Non-Structural Seismic and High Wind Deficiencies for Existing Buildings	Superseded by ETL 00-5	30 Oct 97
97-12	Mitigation of Existing Building Structural Deficiencies for Seismic and High Wind Loads	Superseded by ETL 00-5	30 Oct 97
97-13	Dormitory Ventilation and Exhaust System Design Criteria	Superseded by ETL 03-2	7 Aug 97
97-14	Procedures for Airfield Pavement Condition Index Surveys	Superseded by UFCs 3-270-05/06	15 Sep 97
97-15		Not Used	
97-16	Pavement Marking Systems for Low Temperature Applications		25 Nov 97
97-17	Paint and Rubber Removal from Roadway and Airfield Pavements		1 Dec 97
97-18	Guide Specification for Airfield and Roadway Marking		5 Dec 97
97-19		Not Used	
97-20		Not Used	
97-21		Not Used	
97-22	Competing Facility Keying Systems		5 Dec 97
98-1	Design Criteria for Aggregate Surfaced Helicopter Slide Areas and Heliports		14 Jan 98
98-2	Clean Air Act Amendments Requirements for Electric Generators and Power Plants		1 Jun 98
98-4	Building Manager Energy Conservation Handbook		16 Jan 98
98-5	C-130 and C-17 Contingency and Training Airfield Dimensional Criteria	Superseded by ETL 04-7	19 Oct 98
98-6		Not Used	
98-7		Superseded by ETL 01-2	29 Apr 98
98-8	Fire Protection Engineering Criteria – Existing Aircraft Facilities		25 Jun 98
98-9		Not Used	
98-10	Installation and Operation Guide for the Stanley Hydraulic Power Unit (HPU) (M (MAAS) Upgrade)		5 Nov 98
99-1	Treatment and Disposal of Aircraft Washwater Effluent		7 Jan 99
99-2		Not Used	
99-3		Not Used	

Number	Title	Status	Date
99-4	Fire Protection Engineering Criteria - Emergency Lighting and Marking of Exits		9 Nov 99
99-5		Not Used	
99-6	Programming Fuels Projects	Superseded by ETL 01-15	10 Dec 99
99-7	Airfield Pavement Condition Index Survey	Superseded by ETL 02-13	27 Sep 99
00-1	EPA Guideline Items in Construction and Other Engineering Specifications		5 Jan 00
00-2	Inspection and Testing of Trim Pad Anchoring Systems		1 Feb 00
00-3		Not Used	
00-5	Seismic Design for Buildings and Other Structures		5 Jun 00
00-4	Small Arms Range Design and Construction	Superseded by ETL 01-13	
00-6	Air Force Carpet Standard	Superseded by ETL 03-3	11 May 00
00-7	Fire Protection Engineering Criteria — Correlation of US and Host Nation Codes and Criteria		10 May 00
00-8	Airfield Pavement Design Criteria	Superseded by UFC 3-260-02	28 Apr 00
00-9	Airblast Protection Retrofit for Unreinforced Concrete Masonry Walls		8 Aug 00
00-12	Fire Protection Engineering Criteria — Conversion of Fire Alarm Radio Systems to Narrowband Technology	Superseded by ETL 03-5	19 Dec 00
01-1	Reliability and Maintainability (R&M) Design Checklist		11 Oct 01
01-2	Fire Protection Engineering Criteria - New Aircraft Facilities	Superseded by ETL 02-15	1 Apr 01
01-3		Not Used	
01-4	Fire Protection Engineering Criteria - Protective and Hardened Aircraft Shelters		31 Dec 01
01-5	Jet Engine Thrust Standoff Requirements for Airfield Asphalt Edge Pavements		24 May 01
01-6	Contingency Airfield Pavement Specifications		12 Jun 01
01-7	Large Aggregate Asphalt Mixtures		5 Jun 01
01-8	Resin Modified Pavement Design and Application Criteria		25 Sep 01
01-9	Procedures to Retard Reflective Cracking		17 Jul 01
01-10	Design and Construction of High-Capacity Trim Pad Anchoring Systems		24 Jul 02

<b>Number</b>	<b>Title</b>	<b>Status</b>	<b>Date</b>
01-11		Not Used	
01-12		Not Used	
01-13	Small Arms Range Design and Construction	Superseded by ETL 02-11	31 Dec 01
01-14		Not Used	
01-15	Programming Fuels Projects		5 Jun 01
01-16		Not Used	
01-17	Communications and Information Systems Criteria for Air Force Facilities	Superseded by ETL 02-12	Draft
01-18	Fire Protection Engineering Criteria – Electronic Equipment Installations		24 Oct 01
01-19		Not Used	
01-20	Guidelines for Airfield Frangibility Zones		29 Nov 01
02-1	Design of Drainage Structures for Heavy Aircraft Loading		1 Aug 02
02-2		Not Used	
02-3		Not Used	
02-4	Airblast Protection Polymer Retrofit of Unreinforced Concrete Masonry Walls		12 Jun 02
02-5	Guidance for Energy Savings Performance Contracts		31 Oct 02
02-6		Not Used	
02-7	Preventing Concrete Deterioration Under B-1 Aircraft		7 Aug 02
02-8	Silicone Joint Sealant Specification for Airfield Pavements		5 Sep 02
02-9	Construction Signs		15 May 02
02-10	Airblast Protection Retrofit of Lightweight Manufactured Structures		12 Jun 02
02-11	Small Arms Range Design and Construction		22 Nov 02
02-12	Communications and Information System Criteria for Air Force Facilities		27 Jun 02
02-13	Pavement Engineering Assessment Standards	Superseded by ETL 04-9	5 Sep 02
02-14	Determining the Need for Runway Rubber Removal	Superseded by ETL 04-10	4 Sep 02
02-15	Fire Protection Engineering Criteria – New Aircraft Facilities		3 Dec 02

<b>Number</b>	<b>Title</b>	<b>Status</b>	<b>Date</b>
02-16	Design, Construction, Maintenance, and Evaluation of the Pegasus Glacial Ice Runway for Heavy Wheeled Aircraft Operations		16 Oct 02
02-17	Use of Non-potable Water to Replace Potable Water		25 Oct 02
02-18		Not Used	
02-19	Airfield Pavement Evaluation Standards and Procedures		12 Nov 02
03-1	Storm Water Construction Standards		24 Mar 03
03-2	Design Criteria for Prevention of Mold in Air Force Facilities	Superseded by ETL 04-3	12 Aug 03
03-3	Air Force Carpet Standard		16 Apr 03
03-4	Alternate Fuels E85 and B20		21 Oct 03
03-5	Converting Civil Engineering Radio Frequency Devices to Narrowband Technology		21 Oct 03
03-6		Not Used	
03-7		Not Used	
03-8	Rejuvenation of Hot-Mix Asphalt (HMA) Pavements		19 Dec 03
04-2	Standard Airfield Pavement Marking Schemes		19 Jul 04
04-3	Design Criteria for Prevention of Mold in Air Force Facilities		6 Apr 04
04-4	Trenchless Technology (TT) for Crossing Air Force Pavements		31 Mar 04
04-6	Inspection of Drainage Systems		8 Jan 04
04-7	C-130 and C-17 Landing Zone (LZ) Dimensional, Marking, and Lighting Criteria		29 Mar 04
04-8	Stone Matrix Asphalt (SMA) for Air Force Pavements		9 Jan 04
04-9	Pavement Engineering Assessment (EA) Standards		29 Apr 04
04-10	Determining the Need for Runway Rubber Removal		12 May 04

# CONSTRUCTION TECHNICAL LETTERS (CTL)

Number	Status
87-1	Superseded by CTL 88-3
88-1	Superseded by CTL 90-1
88-2	Superseded by AFCESA Tech Data Bulletin, Photovoltaic Concept, Design, and Application
88-3	Superseded by ETL 93-1
88-4	Replaced by Electronic Data File and Documentation in PDC/WIMS
88-5	Superseded by CTL 90-2
88-6	Cancelled
88-7	Superseded by AFPAM 32-1005
89-1	Cancelled
89-2	Superseded by AFPAM 32-1005
89-3	Superseded by AFPAM 32-1005
90-1	Superseded by ETL 95-2 and USAF Project Manager's Guide for Design and Construction
90-2	Cancelled