

FROM: HQ AFCESA/CES  
139 Barnes Drive, Suite 1  
Tyndall AFB FL 32403-5319

SUBJECT: **Engineering Technical Letter (ETL) 97-17: Guide Specification –  
Paint and Rubber Removal from Roadway and Airfield Pavements**

**1. Purpose.** This ETL provides a guide specification which may be incorporated into contract documents.

**2. Application:** All Air Force installations.

**2.1. Authority:** AFPD 32-10, *Air Force Installations and Facilities*.

**2.2. Effective Date:** Immediately.

**2.3. Expiration:** Five years from date of issue.

**2.4. Ultimate Recipients:** Air Force, Army and Navy engineers responsible for maintenance and repair of Air Force facilities.

**2.5. Coordination:** Civil Engineer functional staff of Air Force Major Commands (MAJCOMs), the Air Force Flight Standards Agency (AFFSA), and the Air Force Center for Environmental Excellence (AFCEE).

**3. Referenced Publications.** See Attachment 1.

**4. Requirements.** See Attachment 1.

**5. Point Of Contact.** Mr. Michael D. Ates, HQ AFCESA/CESC, DSN 523-6351, commercial (850) 283-6351, Internet atesm@afcesa.af.mil.

William G. Schauz, Colonel, USAF  
Director of Technical Support

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1. Guide Specification for Rubber  
and Paint Removal  
2. Distribution List

**GUIDE SPECIFICATION**  
**RUBBER AND PAINT REMOVAL**  
**ROADWAY AND AIRFIELD RUNWAY PAVEMENTS**

**NOTE:** Notes, explanations, or elective guidance enclosed by parentheses or bordered by dotted lines are to be deleted before publication of this document as a project specification. Other deviations from this guide specification should be coordinated with the MAJCOM Pavements Engineer prior to advertising a request for bids.

**1. SCOPE.**

**1.1. Description of Work.** The work specified by this section consists of furnishing all labor, equipment, tools, appliances, and materials required to remove 85 percent of the (rubber (and) paint) buildup from 100 percent of the (rubber covered (and) painted) area within a designated area of (runway, taxiway, apron, (and) roadway) pavement. The (rubber (and) paint) removal is to be completed without damage to the pavement surface, joints, and joint and crack seals, or any other government property. The term "paint" used herein may include obsolete paint markings and/or loose and poorly bonded paint buildup.

**1.2. Determination of Compliance.** The determination of the 85 percent removal shall be accomplished by test as described in section 6, Compliance Testing.

**1.3. Pavement Damage Survey.** The CO and the Contractor shall jointly inspect the work area before work commences. Any existing damage to the pavement systems shall be documented at that time. The Contractor shall repair damage incurred during the contracted operations in accordance with paragraph 7.1

**1.4. Methods and Work Areas.**

**NOTE:** Select one or both of the following paragraphs. If both are selected, number as 1.4.1 and 1.4.2.

**1.4.1. Rubber Removal.** Rubber buildup shall be removed from the designated rubber-covered area in accordance with paragraph 5.(3.) The rubber-covered area in each runway touchdown zone is an imaginary rectangle with sides

parallel to the centerline and ends transverse to the centerline. Within the rectangle, the rubber deposits overlap and the exposed pavement texture comprises less than 80 percent of the total area. The rubber-covered area does not include the portion of pavement outside the central rubber buildup zone where the rubber marks are intermittent and more than 80 percent of the pavement texture is exposed. Rubber deposits are not to be removed outside the designated rubber-covered area.

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**1.4.1. (or) 1.4.2. Paint Removal.** Paint shall be removed in accordance with paragraph 5.(3. (or) 5.4). The locations and configurations of markings to be removed are indicated in the contract drawings.

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**1.5. Test Strip Demonstration.** The Contractor shall test all equipment and demonstrate on the designated pavement work areas the proposed method to be used to remove (rubber (and) paint).

**1.5.1.** The Contracting Officer (CO) will designate a test strip within the work area. The test strip shall be as wide as the full operating width of the equipment and at least 15 meters (50 feet) long. The test strip shall be long enough to determine the operating parameters of the vehicle(s) and equipment to be used for the work. The test strip shall be used to demonstrate the effectiveness of the Contractor's methods and equipment to satisfactorily remove (rubber (and) paint) deposits from the pavement surfaces at the specified removal rate without damaging the pavement surface. Satisfactory removal shall be determined in accordance with section 6 of this specification, Compliance Testing. The CO and/or CO's representative(s) shall be present at the test area to examine the pavement texture obtained on the test strip. The test strip shall be the measure of performance required of the Contractor for the (rubber (and) paint) removal project.

**1.5.2.** The Contractor shall not proceed with the work until the results of the test strip are satisfactory to the CO or authorized representative.

**1.6. Escorts and Interpreters.** The Contractor shall provide escorts and interpreters in overseas locations, or where the workforce is comprised primarily of non-English-speaking personnel.

## **2. REFERENCED PUBLICATIONS.**

**2.1. Air Force:**

- AFI 13-213, *Airfield Management*
- AFI 32-1026, *Planning and Design of Airfields*
- AFI 32-1042, *Standards for Marking Airfields*
- AFMAN 32-1076, *Visual Air Navigation Systems*
- AFJMAN 32-1013v1, *Airfield and Heliport Planning Criteria*
- AFMAN 32-1013v2, *Planning Criteria and Waivers for Airfield Support Facilities*
- ETL 94-1, *Standard Airfield Pavement Marking Schemes.*

**2.2. Federal Aviation Administration (FAA):**

- FAA Advisory Circular (AC) 150/5370-2C, *Operational Safety on Airports During Construction*
- FAA AC 150/5340-1G, *Standards for Airport Markings*

**2.3. United States Code (U.S.C.):**

- 42 U.S.C. 6901, et seq., *Resource Conservation Recovery Act*
- 42 U.S.C. 9601, et seq., *Comprehensive Environmental Response, Compensation, and Liability Act*
- 49 U.S.C. 1801, et seq., *Hazardous Materials Transportation Act*

**2.4. Federal Highway Administration:**

- *The Manual on Uniform Traffic Control Devices*

**3. EQUIPMENT.**

**3.1. Machinery.** The equipment used in the removal process shall be mounted on pneumatic tires and shall remove deposits of (rubber (and) paint) without causing damage to pavement surfaces, joints, or joint and crack seal material.

**3.2. Lighting.** The Contractor shall furnish all lighting necessary for night operations. Lighting will be directed or shaded to prevent interference with aircraft, the Air Traffic Control tower, and other base operations. The Contractor shall be capable of removing all lighting equipment from the runway within 15 minutes of notification of an emergency

**3.3. Storage.** The Contractor shall store equipment and materials only in areas approved by the CO.

**3.4. Government Furnished Materials And Equipment.**

**3.4.1. Communications Equipment.** The Government will furnish a radio to the Contractor for the purpose of maintaining verbal communications with the Control Tower during each work day. The Contractor shall assume responsibility for the radio while it is in his possession and shall reimburse the Government for the cost of repair or replacement if the radio is lost, damaged, or destroyed.

**3.4.2. Water.** Water will be furnished at no cost to the Contractor. The water supply shall be a fire hydrant designated by the CO and located within a reasonable proximity to the work area. The Contractor shall install a gate valve and back-flow prevention device on the fire hydrant tap. The Contractor shall furnish all equipment, material, and labor necessary to obtain and deliver water from the designated fire hydrant to the work area(s).

#### **4. OPERATIONS ON THE AIRFIELD.**

**4.1. Airfield Access.** Work will be performed in the controlled zones of the base or the airfield. All access to or through the base shall be coordinated with the CO or authorized representative. All access to or through the airfield shall be coordinated with the Chief of Airfield Management.

**4.1.1.** When within the radio-controlled areas of the airfield, the Contractor shall maintain continuous verbal and visual contact with the control tower. The Contractor shall verbally inform the control tower and the Chief of Airfield Management when the work has been completed and all equipment, labor and materials have been removed from the airfield.

**4.1.2.** It is the intention of the Government to close the runway to all aircraft traffic while (rubber (and) paint) is being removed. However, work may be interrupted to provide a runway for aircraft in an emergency or when a special or unscheduled mission is assigned. If the runway is needed for aircraft operations, the Contractor shall remove all equipment from the operational surfaces of the airfield and beyond the hold line within 15 minutes of notification to clear the runway. A scheduled landing or departure that has been identified to the Contractor prior to the start of the Contractor's work shift shall not be considered an interruption.

**4.2. Debris Removal.** The Contractor shall clear debris from the (runway (and) roadway) surface as the work proceeds.

**4.3. Work Schedule.** The Contractor must adhere to the preapproved schedule for execution of the work, weather permitting, since (runway (and) roadway) closures must be coordinated in advance. If the Contractor's schedule is delayed by weather conditions or mechanical equipment breakdown, the Contractor shall notify the CO and a new work schedule will be established. The CO's representative shall be responsible for coordinating the (runway (and) roadway) closure schedule with the using agencies.

**4.4. Environmental Limitations.** (Rubber (and) paint) removal methods that use water or chemicals shall not be permitted when the air temperature is at 4.5 °C (40 °F) and falling or the pavement surface temperature is at 1.7 °C (35 °F) or less and falling.

**4.5. Night Operations.** Night work must be approved in advance by the CO. The Government reserves the right to accept or reject night work the day following night activities by the Contractor.

## **5. METHOD OF OPERATION.**

**5.1. Compliance with Regulations.** The Contractor shall ensure that any (rubber (and) paint) removal process is conducted in strict compliance with all local, state, and Federal environmental statutes and regulations, including, but not limited to, regulations promulgated under the *Resource Conservation Recovery Act*, 42 U.S.C. 6901, et seq., and the *Comprehensive Environmental Response, Compensation, and Liability Act*, 42 U.S.C. 9601, et seq.

**5.2. Establishment of Work Zones.** The Contractor shall provide all cones, barriers, lights, signs, placards, flags, and flagging personnel necessary to establish an adequate work zone and control traffic in and around the work zone. The Contractor shall establish and maintain work zones as necessary throughout the period of the contract, prominently identifying potential hazards and dangers to personnel and traffic in or near the work area.

**5.2.1.** As a minimum, the Contractor shall comply with AFI 32-1042, ETL 94-1, AFI 32-1044, and FAA AC 150/5370-2 for temporary pavement closures on airfields.

**5.2.2.** The Contractor will comply with Part VI, "Traffic Controls for Street and Highway Construction, Maintenance, Utility and Emergency Operations" of *The Manual on Uniform Traffic Control Devices* when establishing work zones on roads and streets.

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**5.(3.) Rubber Removal.** Rubber shall be removed by high pressure water and/or detergents. The Contractor may inject sand as an abrasive into the high pressure water system. The use of environmentally acceptable chemical agents or high velocity impact removal shall be considered on a case-by-case basis. Use of any chemicals or impact abrasive in the removal process must be approved in advance by the CO. The Government specifically reserves the right to reject the use of any rubber removal process which the CO determines may pose unnecessary risks

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to aircraft due to foreign object damage (FOD) potential, human health, or the environment as a result of its use, storage, or disposal. Rubber deposits shall be removed at a minimum rate of 929 square meters (10,000 square feet) per hour.

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**5.(3. (or) 5.4.) Paint Removal.** Paint shall be removed by high pressure water and/or grinding. The Contractor may inject sand as an abrasive into the high pressure water system. The use of environmentally acceptable chemical agents or high velocity impact removal shall be considered on a case-by-case basis. Use of any chemicals or impact abrasive in the removal process must be approved in advance by the CO. The Government specifically reserves the right to reject the use of any paint removal process which the CO determines may pose unnecessary risks to aircraft due to foreign object damage (FOD) potential, human health, or the environment, as a result of its use, storage, or disposal. Painted markings equal to or greater than one meter (three feet) wide shall be removed at a minimum rate of 93 square meters (1000 square feet) per hour.

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## **6. COMPLIANCE TESTING.**

**6.1.** Compliance with the 85 percent removal from 100 percent of the area shall be determined by direct testing within the designated work area.

**6.1.1.** A 0.1 square meter (approximately one square foot) section of transparent material inscribed with a grid of 100 equal squares shall be used as a tool for quantitative measure of the 85 percent removal. Place the grid pattern on the pavement surface at random locations. Then count the squares which contain (rubber (and) paint) deposits. The number of squares containing (rubber (and) paint) deposits shall not exceed 15 in each of the randomly selected locations.

**6.1.2.** Each work area designated for (rubber (and) paint) removal shall be divided into at least four equal zones for the purpose of compliance testing. Within each zone, a minimum of seven random locations shall be evaluated. At least 85 percent of the randomly selected areas within each zone must meet the requirement described in paragraph 6.1.1. Each zone shall be evaluated independently. A zone not meeting the 85 percent removal requirement shall be recleaned by the Contractor at the Contractor's expense.

**6.2.** Deposits of (rubber or rubber buildup (and) paint) are defined as any surface deposit that can be removed by scratching the deposit with a flat sharp object (such as a pocket knife) without damaging the pavement surface. Stains

are defined as materials in the pavement surface microtexture that cannot be removed without damaging the pavement surface. Stain is generally embedded in the surface of the pavement below the horizontal plane of the surface texture. The Contractor is not responsible for stain removal.

## **7. DAMAGE REPAIR AND CLEANUP.**

**7.1. Pavement Damage Repair.** Any damage to the pavement surface, joints, joint and crack seals, or other Government property incurred during the performance of the work shall be repaired by the Contractor at the Contractor's expense. Repair methods and materials shall be approved by the CO prior to performance of the repairs. Repairs shall be completed within the performance period for the contract.

**7.2. Cleanup.** The Contractor shall remove from the airfield all debris, waste, and by-products generated by the (rubber (and) paint) removal operations and shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations, including, but not limited to, regulations promulgated under the *Resource Conservation Recovery Act*, 42 U.S.C. 6901, et seq., the *Comprehensive Environmental Response, Compensation, and Liability Act*, 42 U.S.C. 9601, et seq., and the *Hazardous Materials Transportation Act*, 49 U.S.C. 1801, et seq.

## **8. SPECIAL CONSIDERATIONS.**

**8.1.** The Contractor shall submit a Waste Identification and Disposal Plan describing his proposed actions regarding waste collection, control, identification, and disposal. The plan will address disposal methods and requirements for hazardous and non-hazardous wastes.

**8.2.** Lead-based paints to be removed will be identified by the Government. If lead-based paint is identified for removal, the Contractor shall submit a plan of action detailing the proposed procedures for lead-based paint removal, including all air and bulk sampling and analysis, for approval by the CO's environmental representative. The plan shall include all procedures and equipment required for worker protection by the Occupational Safety and Health Administration (OSHA), as well as local and state requirements.

**8.2.1.** The Contractor shall control, collect, and perform toxicity characteristic leaching procedure (TLCPL) tests on all waste generated as a result of paint removal. Disposal will be hazardous or non-hazardous, depending on the test result compared with the regulatory requirements for disposal of the waste.

**8.2.2.** Soil samples shall be taken and tested by the Government in the vicinity of the work areas before and after paint removal operations (eight to ten composite samples for each 300 linear meters (1000 feet) of work area.) These tests are to ensure there is no increase in the level of lead contamination due to the Contractor's work. Any increase in lead content of the soil shall be reduced to its former level or below by the Contractor at the Contractor's expense.

**8.3.** The Contractor shall draft any written notification required by local, state, or Federal laws, regulations, or guidelines, and shall submit such notification to the CO for approval. After approval from the CO, the Contractor shall submit the written notifications and/or permits to the appropriate regulating authority. Proof of regulatory (local, state, and Federal) approved submittals must be presented to the CO prior to the start of any work.

**NOTE:** Section 9 (below) should be deleted when pavement rubber and/or paint removal is included in a lump sum project.

## **9. PAYMENT.**

**9.1. Measurement.** The unit of measurement for pavement (rubber (and) paint) removal shall be the number of square meters of pavement cleaned and accepted by the CO.

**9.2. Payment.** The quantities of (rubber buildup (and) paint) removed from the pavement surfaces as specified in paragraph 6.1 will be paid by contract unit price(s). (If both rubber and paint are to be removed, they should be priced as separate units.) The payment will constitute full compensation for all labor, materials, tools, equipment, appliances, disposal, and the performance of all work involved in removing the (rubber (and) paint) from the designated areas.

**9.3. Aircraft Traffic Interruptions.** The Contractor shall specify on the bid schedule an hourly rate for aircraft traffic interruption. Time measurement for traffic interruptions shall begin with the notification to the Contractor to clear the runway and shall end ten minutes after the Contractor is notified that he can re-occupy the runway. The Contractor shall be paid for a minimum of one hour for each interruption. Interruptions longer than one hour shall be calculated on the half hour: i.e., a delay over one hour but less than one and one-half hours would be paid as one and one-half hours; a delay over one and one-half hours but less than two hours would be paid as two hours.

**NOTE:** Section 9 (below) should be deleted when pavement rubber and/or paint removal is included in a unit price project.

## **9. PAYMENT.**

**9.1. Payment.** Payment will constitute full compensation for all labor, materials, tools, equipment, appliances, disposal, and the performance of all work involved in removing (rubber (and) paint) from the designated areas.

**9.2. Aircraft Traffic Interruptions.** The Contractor shall specify on the bid schedule an hourly rate for aircraft traffic interruption. Time measurement for traffic interruptions shall begin with the notification to the Contractor to clear the runway and shall end ten minutes after the Contractor is notified that he can re-occupy the runway. The Contractor shall be paid a minimum of one hour for each interruption. Interruptions longer than one hour shall be calculated on the half hour: i.e., a delay of over one hour but less than one and one-half hours would be paid as one and one-half hours; a delay over one and one-half hours but less than two hours would be paid as two hours.

## DISTRIBUTION LIST

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### SPECIAL INTEREST ORGANIZATIONS

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