



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

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**Subject:** Development of State Aviation  
Standards for Airport Pavement Construction

**Date:** 12/6/2019

**AC No:** 150/5100-13C

**Initiated By:** AAS-100

**Change:**

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1 **Purpose.**

This advisory circular (AC) provides guidelines for the development of State Aviation Standards for Airport Pavement Construction at nonprimary public-use airports as provided for in 49 United States Code (USC) § 47105(c) and 49 USC § 47114(d)(5).

This AC also provides guidelines for the use of State Highway Material Specifications for airport pavement construction at nonprimary public-use airports.

2 **Cancellation.**

This AC cancels AC 150/5100-13B, *Development of State Standards for Non-Primary Airports*, dated 8/31/2011.

3 **Scope.**

State Aviation Standards for Airport Pavement Construction may be used instead of FAA Standard Specifications for Construction at nonprimary public-use airports, upon approval by the Federal Aviation Administration (FAA), as provided for in 49 USC § 47105(c) and 49 USC § 47114(d)(5).

State Highway Material Specifications may be used at nonprimary public-use airports serving aircraft less than 60,000 pounds when a State has requested and received approval of the FAA as provided for in 49 USC § 41114(d)(5).

4 **Applicability.**

The FAA recommends the use of the guidelines and standards in this AC for the preparation and submission to the FAA for approval of State Aviation Standards for Airport Pavement Construction at nonprimary public-use airports. This AC does not constitute a regulation, is not mandatory, and is not legally binding. It will not be relied upon as a separate basis by the FAA for affirmative enforcement action or other administrative penalty. Conformity with this AC is voluntary, and nonconformity will not affect rights and obligations under existing statutes and regulations; however, the following applies:

1. The use of this AC is mandatory for all projects funded under Federal grant assistance programs, including the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*.
2. This AC is mandatory, as required by regulation, for projects funded with the Passenger Facility Charge program. See PFC Assurance #9, *Standards and Specifications*.
3. After the FAA has approved the use of State Aviation Standards for Airport Pavement Construction, they may be used at nonprimary public-use airports within the state where the standard was approved.
4. Approved State Aviation Standards for Airport Pavement Construction remain effective until one year after the underlying standard specifications (AC 150/5370-10, *Standard Specifications for Construction of Airports*) are updated.

## 5 **Principal Changes.**

The AC incorporates the following principal changes:

1. The title of the AC has been modified to clarify that the AC applies to the development of State Aviation Standards for Airport Pavement Construction at nonprimary public-use airports.
2. Chapter 1 covers the development of State Aviation Standards for Airport Pavement Construction at nonprimary public-use airports within a state.
3. Chapter 2 covers the Use of State Highway Material Specifications for individual projects.
4. The format of the AC has been updated and editorial changes have been made throughout the document.

## 6 **Applicable Documents.**

Consult the following FAA documents for related guidance:

<u>AC 150/5300-13</u>	<i>Airport Design</i>
<u>AC 150/5320-5</u>	<i>Airport Drainage Design</i>
<u>AC 150/5320-6</u>	<i>Airport Pavement Design and Evaluation</i>
<u>AC 150/5370-10</u>	<i>Standards for Specifying Construction of Airports</i>
<u>AC 150/5340-1</u>	<i>Standards for Airport Markings</i>
<u>AC 150/5340-18</u>	<i>Standards for Airport Sign Systems</i>
<u>AC 150/5340-30</u>	<i>Design and Installation Details for Airport Visual Aids</i>
<u>AC 150/5345-53</u>	<i>Airport Lighting Equipment Certification Program and Addendum</i>
<u>FAA Order 5100.38</u>	<i>Airport Improvement Program (AIP) Handbook</i>

FAA Order 5300.1 *Modifications to Agency Airport Design, Construction, and Equipment Standards*

7 **Where to Find this AC.**

You can view a list of all ACs at

[https://www.faa.gov/regulations\\_policies/advisory\\_circulars/](https://www.faa.gov/regulations_policies/advisory_circulars/).

Electronic copies of the FAA Airports orders can be found at

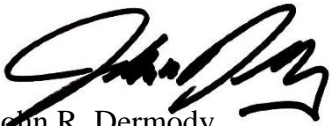
<https://www.faa.gov/airports/resources/publications/orders/>.

You can view the Federal Aviation Regulations at

[https://www.faa.gov/regulations\\_policies/faa\\_regulations/](https://www.faa.gov/regulations_policies/faa_regulations/).

8 **Feedback on this AC.**

Use the Advisory Circular Feedback form at the end of this AC if you have suggestions for improving this AC.



John R. Dermody

Director of Airport Safety and Standards

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## **CHAPTER 1. Development of State Aviation Standards for Airport Pavement Construction at Nonprimary Public-Use Airports**

### **1.1 State Aviation Standards for Airport Pavement Construction.**

This chapter provide guidelines for the development of State Aviation Standards for Airport Pavement Construction at nonprimary public-use airports as provided for in 49 USC § 47105(c) and § 47114(d)(5). The FAA limits consideration of State Aviation Standards to those detailed in paragraph 1.2 below.

State Aviation Standards for airport pavement construction may only be used at nonprimary public-use airports in the state developing the standards, as stipulated in 49 USC § 47105(c).

### **1.2 Applicable Standards.**

State Aviation Standards may be developed for airport pavement and related construction specifications for: subgrade, sub-base, base, pavement surface and related materials, drainage, fencing and turf.

#### **1.2.1 Construction Standards.**

Construction standards relate primarily to preparation of project specifications including materials and methods employed in the construction of airport pavements where aircraft operate.

The starting point for State Aviation Standards for Construction is AC 150/5370-10, Standard Specifications for Construction of Airports.

### **1.3 FAA Design Standards.**

Use FAA design standards for safety of airport approaches as required by 49 USC § 47015.

### **1.4 FAA Approval of State Aviation Standards for Construction.**

To request approval of use of State Aviation Standards:

1. The State submits for approval a copy of the proposed State Aviation Standards to the FAA Airport District Office or Regional Office for those Regions without Airport District Offices. The State must assure to the Secretary that:
  - a. safety will not be negatively affected, and
  - b. the life of the airport pavement, with necessary maintenance and upkeep, will not be shorter than it would be if constructed using FAA standards.
2. The FAA Airport District Office then forwards the request with recommended FAA action to the FAA Regional Office for review and approval, for those regions with Airport District Offices.

3. The FAA Regional Office then forwards the request with recommended FAA action to the FAA Office of Airport Safety and Standards for final review and approval by the Director of the FAA Office of Airport Safety and Standards.
4. The Director of the FAA Office of Airport Safety and Standards will then issue an approval letter to the State.

**1.5 Use of State Aviation Standards for Airport Pavement Construction.**

Once approved by the Director of the FAA Office of Airport Safety and Standards, State Aviation Standards for Airport Pavement Construction may be used at any nonprimary public-use airport in the State for which the State Aviation Standards were approved. Individual project specifications based upon State Aviation Standards must clearly identify to the contractor what material is to be used, what the quality control and quality acceptance standards are and who is responsible for performance of quality control and quality acceptance testing.

**1.6 Revision of State Aviation Standards for Airport Pavement Construction.**

The State may submit revisions to approved State Aviation Standards for Construction when deemed necessary, per the process under paragraph 1.4.

**1.7 Update of State Aviation Standards for Airport Pavement Construction.**

The State must submit any updates of State Aviation Standards for Construction to the FAA for approval within one year of any proposed update to underlying specifications that the State Aviation Standard is based upon.

## CHAPTER 2. Use of State Highway Material Specifications for Airfield Pavement Projects

### 2.1 General.

State Highway Material Specifications for airport pavement construction may only be used in accordance with 49 USC § 47114(d)(5), at nonprimary public-use airports serving aircraft less than 60,000 pounds gross weight. State Highway Material Specifications may be used for airfield pavement construction (subgrade, sub-base, base, pavement surface and related materials, drainage, fencing and turf).

1. For State Highway Material Specifications to be used for construction of airport pavement, at nonprimary public-use airports serving aircraft less than 60,000 pounds gross weight, 49 USC § 47114(d)(5) requires that the FAA determine that:
  - a. safety will not be negatively affected, and
  - b. the life of the pavement, with necessary maintenance and upkeep, will not be shorter than it would be if constructed using FAA standards.
2. State Highway Material Specifications may be used at nonprimary public-use airports serving aircraft less than 60,000 pounds, if:
  - a. the State where the airport project is located has requested and received FAA approval to use State Highway Material Specifications; or
  - b. an individual airport has an approved modification to standards to utilize State Highway Material Specifications in accordance with FAA Order 5300.1, *Modifications to Agency Airport Design, Construction, and Equipment Standards*.
3. See FAA Order 5100.38, *Airport Improvement Program Handbook*, for guidance on eligibility of pavement rehabilitation or reconstruction.

### 2.2 Use of State Highway Material Specifications for Airfield Pavement Projects.

Due to the differences between highway loadings and aircraft loadings, the use of State Highway Material Specifications on an airport may result in lower airport pavement performance than typically achieved using FAA criteria. To ensure performance as an airport pavement, the State Highway Materials Specifications may require modifications of the State materials and acceptance criteria. For example, for State highway materials to achieve performance equivalent to FAA materials, modifications might include: the use of stiffer asphalt binders, lower air content, and higher mat and joint densities than typically used on state highway pavements.

#### 2.2.1 Differences Between Airport and Highway Pavements.

1. Airport pavements are fundamentally different from highway pavements. Airport pavements are constructed to support a low volume of distributed, high load, high tire pressure traffic. Highway pavements are constructed to support a high volume of channelized low tire pressure automobile and truck traffic.

2. Foreign object debris is a major issue on airport pavements and is not a significant issue for highway pavements. Foreign object debris can be ingested into jet engines and/or impact critical aircraft surfaces. Minimizing the potential of pavement foreign object debris is one of the primary goals of airfield pavement design, construction, and maintenance.
3. Environmental distresses are the predominate distresses exhibited on airport pavements. Highway pavements are more prone to load associated distress types, such as rutting (permanent deformation) and fatigue cracking.

### 2.2.2 Critical Items to Address When Utilizing State Highway Material Specifications for Airfield Pavements.

Individual State Highway Material Specifications covering pavement generally have different titles, identification numbers, a range of criteria and requirements, and State-specific test methods.

It is recommended to follow the format of AC 150/5370-10 when editing the pavement specifications to utilize materials meeting State highway specifications. Due to the difference in how State highway specifications are organized, include in the project specifications copies of referenced State Highway Material Specifications.

When utilizing State Highway Material Specifications for airport pavements address the following items in the project specifications:

1. Terminology. Clearly identify owner and engineer.
2. Materials. Use materials equivalent or better than used for interstate highway construction. Use asphalt binder equal to or greater than highest grade used for interstate highway construction. Project specifications must identify salient material and mix properties, such as: aggregate gradation, mix type or strength.
3. Quality Control. Clearly identify quality control testing requirements. Clearly identify whom is responsible for performing quality control testing.
4. Quality Assurance. Clearly identify quality assurance testing requirements. Clearly identify who is responsible for performing quality assurance testing.
5. Measurement and Payment. Clearly identify how materials will be measured for payment. Clearly identify who will measure materials for payment.



### 2.3 **FAA Approval of Use of State Highway Material Specifications for Airfield Pavements**

To request approval of use of State Highway Material Specifications:

1. The State submits for approval a copy of the proposed State Highway Material Specifications to the FAA Airport District Office or Regional Office for those Regions without Airport District Offices. The State must assure to the Secretary that:
  - a. safety will not be negatively affected, and
  - b. the life of the airport pavement, with necessary maintenance and upkeep, will not be shorter than it would be if constructed using FAA standards.
2. The FAA Airport District Office then forwards the request with recommended FAA action to the FAA Regional Office for review and approval, for those regions with Airport District Offices.
3. The FAA Regional Office then forwards the request with recommended FAA action to the FAA Office of Airport Safety and Standards for final review and approval by the Director of the FAA Office of Airport Safety and Standards.
4. The Director of the FAA Office of Airport Safety and Standards will then issue an approval letter to the State.

## Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5100-13C

Date: \_\_\_\_\_

*Please check all appropriate line items:*

An error (procedural or typographical) has been noted in paragraph \_\_\_\_\_ on page \_\_\_\_\_.

Recommend paragraph \_\_\_\_\_ on page \_\_\_\_\_ be changed as follows:  
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In a future change to this AC, please cover the following subject:  
*(Briefly describe what you want added.)*  
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Other comments:  
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I would like to discuss the above. Please contact me at (phone number, email address).  
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Submitted by: \_\_\_\_\_

Date: \_\_\_\_\_