



**Airfield Specs (P-401 and
UFGS 32 12 15.13) are “High
Wire Act” of Asphalt Paving**

Significant Changes to P-401

P-401 updated with all construction standards in AC 150/5370-10H (700 pages), released on 12/21/18. Previous version was ...-10G.

- **Contractor quality control**
 - greater emphasis, new requirements, separate pay item
- **Compaction now % of TMD (vs lab bulk density)**
 - matches highway industry
- **Tack coat as separate pay item**
- **Improved minimum lift thickness guidance**
- Adjusted gradation bands
 - matching military airfield specs
- New loaded wheel test requirement for mix design
 - Default: APA with 250 psi hose pressure at 64C
- New guidance on PG grade selection
 - additional grade bump
- Greater use of State highway standards

Next slides

Changes to P-401 Mixture Gradations in AC 150/5370-10H

Sieve Size	Percentage by Weight Passing Sieves		
	Gradation 1	Gradation 2	Gradation 3 ¹
1 inch (25.0 mm)	100	--	--
3/4 inch (19.0 mm)	90-100	100	--
1/2 inch (12.5 mm)	68-88	90-100	100
3/8 inch (9.5 mm)	60-82	72-88	90-100
No. 4 (4.75 mm)	45-67	53-73	58-78
No. 8 (2.36 mm)	32-54	38-60	40-60
No. 16 (1.18 mm)	22-44	26-48	28-48
No. 30 (600 µm)	15-35	18-38	18-38
No. 50 (300 µm)	9-25	11-27	11-27
No. 100 (150 µm)	6-18	6-18	6-18
No. 200 (75 µm)	3-6	3-6	3-6
Minimum Voids in Mineral Aggregate (VMA)	14.0	15.0	16.0
Asphalt percent by total weight of mixture:			
Stone or gravel	4.5-7.0	5.0-7.5	5.5-8.0
Slag	5.0-7.5	6.5-9.5	7.0-10.5
Recommended Minimum Construction Lift Thickness	3 inch	2 inch	1 1/2 inch

¹ Gradation 3 is intended for leveling courses. FAA approval is required for use in other locations.

Rut Testing/Evaluation

- Primary Method—APA @ 250 psi
 - AASHTO T340, 64°C, 250 psi hose pressure
 - Rutting must be < 10 mm @ 4,000 passes
- Alternative Method—APA @ 100 psi
 - AASHTO T340, 64°C, 100 psi hose pressure
 - Rutting must be < 5 mm @ 8,000 passes
- Alternative Method—Hamburg Device
 - AASHTO T324
 - Rutting must be < 10 mm @ 20,000 passes

PG Grade Selection

- Determine “base grade” (based on climate only, no bumping for traffic)
- Grade bump per table (high and low side)

Aircraft Gross Weight	High Temperature Adjustment to Asphalt binder Grade	
	All Pavement Types	Pavement area with slow or stationary aircraft
≤ 12,500 lbs (5670 kg)	--	1 Grade
< 100,000 lbs (45360 kg)	1 Grade	2 Grade
≥ 100,000 lbs (45360 kg)	2 Grade	3 Grade

- Add PG Plus test if UTI is 92 or greater (modified binder)
 - Default is ER (ASTM D6084) 75% min
 - Engineer may replace ER with local DOTs PG-Plus test
 - reference: AI's binder spec database

When Can State Hwy Paving Specs Be Used on AIP or PFC Work

- Airfield pavements \leq 30,00 pounds (no MOS required)
 - Other pavements not for aircraft loading: shoulders, perimeter roads, blast pads
 - Stabilized base course under P-501 (with an FAA-approved MOS)
- For landside pavements: roads, parking
- FAA Reauthorization Act 2018
 - Non-primary airports $> 30,000 < 60,000$ pounds (with an FAA-approved MOS):
 - MOS: FAA Region or State requests use of state highway specs for pavement under AC 150/5100-13B Development of State Standards for Nonprimary Airports” for that Region and/or State