# Aircrete Dome ADU Permitting in Palm Bay, FL

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## Introduction

Building an aircrete dome as an Accessory Dwelling Unit (ADU) in Palm Bay, Florida, requires compliance with local zoning regulations, state building codes, hurricane safety standards, and floodplain regulations. This guide provides a detailed breakdown of the requirements, including the permit approval process and alternative construction approval for aircrete domes.

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## Zoning Rules

### General ADU Regulations (Palm Bay & Brevard County)

- ADUs must be **on single-family residential lots**.
- **Lot size requirements** must meet minimum zoning standards.
- **Maximum ADU size:** 50% of the main dwelling's living area or **up to 800 sqft**, whichever is smaller.
- **Minimum ADU size:** 200 sqft.
- **Setbacks:**
  - Rear setback: **10 feet** minimum.
  - Side setbacks: **Typically 5-10 feet** depending on zoning.
  - Minimum **5 feet separation** from other structures on the lot.
- **Height limit:** 25 feet or no taller than the main home.
- **Owner-occupancy required:** Either the main home or ADU must be owner-occupied.
- **Parking requirement:** At least **one off-street parking space** is required.

- **Utilities:** Connection to city water/sewer required where available; otherwise, septic system approval is needed.

Palm Bay recently updated its zoning codes to allow ADUs more broadly in residential districts. Verify your specific parcel's zoning before proceeding.

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# Florida State Building Codes

## Florida Building Code (FBC) 2023 (8th Edition)

- **Structural safety:** Must meet **wind load and gravity load requirements**.
- **Foundation:** Requires a signed/sealed **foundation plan** from a licensed engineer.
- **Materials and Alternative Construction:** Aircrete domes are allowed under the **Alternative Materials Clause (FBC 104.11)** but require structural validation.
- **Energy Efficiency:**
  - Must comply with **Florida Energy Conservation Code**.
  - HVAC and insulation values must meet Florida standards.
- **Fire Safety:**
  - Smoke detectors and CO alarms required.
  - Fire separation requirements apply if close to other structures.
- **Plumbing, Electrical, and Mechanical Systems:**
  - Must comply with Florida Residential Code standards.
  - Engineering may be required for electrical and plumbing if using non-traditional layouts.

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# Hurricane Safety Standards

- **Wind Load Requirements:**
  - Brevard County requires structures to withstand **140-160 mph winds**.
  - Dome shape helps resist wind uplift, but **foundation and anchoring must be certified**.
- **Impact Protection:**
  - All **windows, doors, and skylights** must be **impact-rated or have shutters**.
- **Roofing and Waterproofing:**
  - Dome coatings must be **hurricane-resistant**.
- **Structural Integrity:**
  - Aircrete domes must be designed for **uplift resistance and lateral force resistance**.
- **Inspection Requirements:**
  - City may require special **structural inspections during construction**.

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## Floodplain Requirements

- **Elevation Requirements:**
  - Structures must be built **above Base Flood Elevation (BFE) + 12 inches**.
- **Floodway Restrictions:**
  - No construction allowed in FEMA-designated **floodways**.
- **Flood Venting:**
  - If the dome includes an enclosed area **below BFE**, it must have **flood vents**.
- **Foundation in Flood Zones:**
  - May require **piers or elevation methods** for compliance.

Always check the FEMA Flood Zone Map for your property before finalizing plans.

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## Permit Approval Process

### Steps to Obtain a Permit

1. **Pre-Application Research**
   - Verify zoning with Palm Bay's **Planning and Zoning Division**.
   - Check for any additional restrictions (HOAs, environmental overlays, etc.).
2. **Prepare Construction Plans** (signed by a licensed architect/engineer)
   - Site plan, foundation plan, structural calculations, energy compliance forms.
   - Electrical, plumbing, and HVAC layouts.
3. **Submit Permit Application Online**
   - Use Palm Bay's **Online Permitting System (IMS)**.
   - Submit all required documents (survey, site plan, building plans, structural analysis, impact protection proof, etc.).
4. **City Plan Review & Revisions**
   - Expect feedback on structural integrity, wind resistance, and zoning compliance.
5. **Approval & Permit Issuance**
   - Pay final fees and obtain the official permit.
6. **Construction & Inspections**
   - **Foundation inspections** (before pouring slab).
   - **Structural inspections** (before enclosing the dome shell).
   - **Final inspections** (before Certificate of Occupancy is issued).

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## Alternative Construction Approval for Aircrete Domes

- **Florida Building Code 104.11 – Alternative Materials & Methods**
  - Aircrete domes can be approved if they meet or exceed conventional safety standards.
- **Structural Engineer Certification Required**
  - Engineer must sign and seal the plans, confirming compliance with wind and load requirements.
- **Hurricane Safety Considerations**
  - Engineering calculations for wind load must be submitted.
- **Inspections & Testing**
  - Additional testing may be required to verify **compressive strength** of aircrete.

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## Official Resources and Links

- **Palm Bay Zoning and Land Development Code:** Palm Bay Municode
- **Palm Bay Building Permits & Inspections:** Palm Bay Permitting Portal
- **Brevard County Planning & Zoning:** Brevard County Zoning
- **Florida Building Code (2023, 8th Edition):** Florida Building Code
- **FEMA Flood Map Service Center:** Check Flood Zones

For up-to-date information, always consult official sources and the local building department.

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## Conclusion

Building an **aircrete dome ADU in Palm Bay, FL** is feasible with careful planning and compliance with **local zoning, Florida building codes, hurricane safety standards, and flood regulations**. By following the permit approval process and securing proper engineering certifications, you can successfully build an aircrete dome that meets all legal and safety requirements.