



**BOARD OF SUPERVISORS AGENDA ITEM REPORT**

Requested Board Meeting Date: December 18, 2018

Title: P18TA00009 2018 International Residential Code Update - Building Code Text Amendment

**Introduction/Background:**

The Pima County Board of Supervisors approved the 2018 International Building Code Update to the county Building Codes (Ordinance 2018-30) on October 16, 2018. The City of Tucson mayor and council approved similar updates in October, bringing the county and city building codes into parity.

**Discussion:**

Appendix T of the International Residential Code (Solar-Ready Provisions - Detached One- and Two-Family Dwellings and Townhouses) was omitted from the Pima County building code update. The Board of Supervisors directed staff to update the building code to include Appendix T, subject to local amendments.

**Conclusion:**

Updating the International Residential Code to add Appendix T brings uniformity between local jurisdictions' building codes and positions new residential development to accommodate future installation of solar energy systems.

**Recommendation:**

Staff and Planning and Zoning Commission recommend APPROVAL of the proposed building code text amendment.

**Fiscal Impact:**

n/a

**Board of Supervisor District:**

- 1                       2                       3                       4                       5                       All

Department: Development Services Telephone: 724-9000

Contact: Daniel Ice, Chief Building Official Telephone: 724-6493

Department Director Signature/Date: *Carla A. Blackwell* 12/5/18

Deputy County Administrator Signature/Date: *[Signature]* 12/5/18

County Administrator Signature/Date: *C. D. [Signature]* 12/5/18

IPC 0518M0489PC0 KDFB

*(Handwritten initials)*



**PIMA COUNTY**  
DEVELOPMENT SERVICES

**TO:** Honorable Board of Supervisors

**FROM:** Chris Poirier, Planning Official  
Public Works-Development Services Department-Planning Division

**DATE:** November 30, 2018

**SUBJECT:** P18TA00009 2018 INTERNATIONAL RESIDENTIAL CODE UPDATE

The above referenced Building Code Text Amendment is scheduled for the Board of Supervisors' **TUESDAY, DECEMBER 18, 2018** hearing.

---

**REQUEST:** Proposal to adopt an ordinance of Pima County, Arizona; relating to building and construction; adopting Appendix T of the 2018 International Residential Code with local amendments; and amending Chapter 15.04, Section 15.04.020 of the Pima County Building Code to reflect the code adopted by reference in this Ordinance.

**OWNER:** N/A

**APPLICANT:** N/A

**DISTRICTS:** ALL

**STAFF CONTACT:** Daniel Ice / Mark Holden

**PUBLIC COMMENT TO DATE:** As of November 30, 2018, staff received four written comments in support of the proposed building code text amendment.

**PLANNING AND ZONING COMMISSION RECOMMENDATION:** APPROVAL (8-1 (Commissioner Johns voted Nay, Commissioner Bain was absent)).

**STAFF RECOMMENDATION:** APPROVAL.

TD/DI/MH/ar  
Attachments



## **BOARD OF SUPERVISORS MEMORANDUM**

**Subject: P18TA00009**

**Page 1 of 2**

### **FOR DECEMBER 18, 2018 MEETING OF THE BOARD OF SUPERVISORS**

**TO:** HONORABLE BOARD OF SUPERVISORS

**FROM:** Chris Poirier, Planning Official  
Public Works-Development Services Department-Planning Division

**DATE:** November 30, 2018

---

#### **ADVERTISED ITEM FOR PUBLIC HEARING**

##### **BUILDING CODE TEXT AMENDMENT**

#### **P18TA00009 2018 INTERNATIONAL RESIDENTIAL CODE UPDATE**

Proposal to adopt an ordinance of Pima County, Arizona; relating to building and construction; adopting Appendix T of the 2018 International Residential Code with local amendments; and amending Chapter 15.04, Section 15.04.020 of the Pima County Building Code to reflect the code adopted by reference in this Ordinance. On motion, the Planning and Zoning Commission voted 8-1 to recommend **APPROVAL** (Commissioner Johns voted Nay, Commissioner Bain was absent). Staff recommends **APPROVAL**.  
(ALL DISTRICTS)

---

#### **Planning and Zoning Commission Public Hearing Summary (November 28, 2018)**

Staff presented information from the building code text amendment to the commission, stating that the amendment will position new residential development to accommodate future solar energy system installation.

The commission opened the public hearing. The first speaker, a representative from the Southern Arizona Home Builders Assn. (SAHBA), stated that changes to the building code should only concern public safety and health, and that the proposed text amendment would increase the cost of new home construction. A commissioner asked staff why Appendix T is being amended now; staff responded that it would bring city and county building codes into closer parity, and that that amendment was directed by the Board of Supervisors. A commissioner asked what additional cost the implementation of Appendix T would be for a new home; staff stated that an estimate was not available, and most costs would be borne in the design phase, but construction costs are probably minimal. Staff gave examples of some of the Appendix T construction requirements

The commissioner asked the representative from SAHBA for an estimate of the cost increase on a new house; the SAHBA representative estimated about \$500 per house, mainly in design costs.

The commissioner noted that the local population living beneath the poverty level are unable to afford a newly-constructed house in Tucson; the SAHBA representative stated that these added regulations – solar, rainwater harvesting, etc. – have incremental impacts on construction costs.

A second speaker stated that the issue installation of solar energy systems should be driven by the free market and not a requirement imposed by the government. A commissioner opined that the social costs associated with carbon emissions are not taken into consideration by the free market. No other speakers requested to speak and the commission closed the public hearing.

A commissioner stated that these are requirements to prepare homes for future solar system installation and not actual installation of these systems, and the up-front costs would reduce future prep costs for installation of solar systems.

Commissioner Gungle made a motion to recommend **APPROVAL** of building code text amendment P18TA00009; Commissioner Cook seconded.

Upon a roll call vote, the motion to recommend **APPROVAL** passed (8-1; Commissioner Johns voted 'nay', Commissioner Bain was absent).

TD/DI/MH/ar  
Attachments

cc: Tom Drzazgowski, Chief Zoning Inspector  
P18TA00009 File

**PIMA COUNTY DEVELOPMENT SERVICES DEPARTMENT  
BUILDING AND SITE DEVELOPMENT DIVISION  
STAFF REPORT TO THE PLANNING AND ZONING COMMISSION**

**PUBLIC HEARING  
November 28, 2018**

**P18TA00009 2018 INTERNATIONAL RESIDENTIAL CODE UPDATE TEXT AMENDMENT**

<b>STATUS / AGENDA ITEMS</b>	<b>Planning and Zoning Commission Public Hearing Building Code Ordinance Adoption</b>
<b>DESCRIPTION</b>	Proposal to adopt an ordinance of Pima County, Arizona; relating to building and construction; adopting Appendix T of the 2018 International Residential Code with local amendments; and amending Chapter 15.04, Section 15.04.020 of the Pima County Building Code to reflect the code adopted by reference in this Ordinance.
<b>INITIATION</b>	Joint City/County Building Code Committee meeting, December 12, 2017; Board of Supervisors hearing October 16, 2018

**PUBLIC COMMENT**

As of November 9, 2018, staff has received one comment via email in support of the proposed update to the building code.

**STAFF RECOMMENDATION**

Staff recommends **APPROVAL** of the attached draft ordinance provisions which would amend Title 15 of the Pima County Code to adopt by reference Appendix T, *Solar-Ready Provisions – Detached One- and Two-Family Dwellings and Townhouses*, into the 2018 International Residential Code, subject to local amendments.

**STAFF REPORT**

Background

Building-related technical model codes are promulgated on a three-year cycle by national organizations to establish minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress, stability, sanitation, adequate light and ventilation, energy conservation, systems efficiency and safety to life and property. A joint Pima County / City of Tucson Building Code Committee undertook an update of local building codes to the 2018 International Building Codes. The county's building code (Pima County Code Title 15) was updated and approved by the Board of Supervisors on October 16, 2018. Similar building code amendments were adopted by Tucson's Mayor and Council on October 9, 2018, bringing the county and city's building code requirements into parity.

One minor difference in the amendments approved was Appendix T of the 2018 International Residential Code (IRC), *Solar-Ready Provisions – Detached One- and Two-Family Dwellings and Townhouses*, which was amended by the committee and adopted by City of Tucson, but

not included in the county building code update. County staff has been directed to adopt Appendix T of the 2018 IRC, subject to local amendments, to the county building code.

The Physical Infrastructure Connectivity Chapter (4) of *Pima Prospers*, the 2015 update of the Pima County Comprehensive Plan, includes an Energy Element (4.3) relating to the “development of a clean, renewable energy supply... boosting economic activity, conserving scarce water supplies, improving public health and enhancing energy security.” The element includes a goal to support the increased use of cost-effective clean alternative energy systems, and an implementation measure (4.3(1)(g)) of incorporating a solar-ready policy into the county code.

#### Building Code Update and Amendment Process

County and City Building Safety staffs reviewed amendments to the proposed 2018 International Building Codes, with a goal of uniformity across jurisdictions, regionally and nationally, limiting amendments from national standards by local geography, climate, or State requirements. The Joint County/City Building Code Committee vetted the resulting building codes and proposed amendments for recommendation to the Pima County Board of Supervisors and City of Tucson Mayor and Council.

The county and city adopted the 2018 International Residential Code with similar local amendments, with the exception of Appendix T of the IRC, which was only adopted by the city. Appendix T, *Solar-Ready Provisions for One- and Two-Family Dwellings and Townhouses*, does not require installation of solar energy systems on residences, but requires physical space, pathways for connections, and adequate roof system structural support for installation of these systems. The committee made minor amendments to Appendix T applicable to local conditions in southern Arizona (Appendix T and amendments attached below).

Development Services Department staff were directed to adopt Appendix T as part of the IRC. This will bring uniformity to building codes between local jurisdictions, and also position new residential development to be able to accommodate future installation of solar energy systems.

Respectfully submitted,



Daniel E. Ice  
Chief Building Official

**P18TA00009 2018 International Residential Code Update Text Amendment**

Title 15  
BUILDINGS AND CONSTRUCTION

....

15.04.020 - Codes adopted.

- A. The Pima County building code, codified in this chapter, adopts by reference the 2018 International Building Code, published by the International Code Council, Inc., Country Club Hills, IL, in 2017, as amended by the local amendments attached to and incorporated into Ordinance 2018-30 as Exhibit A together with the following national and international codes:

....

7. The 2018 International Residential Code, as amended by Exhibit B attached to Ordinance 2018-30 and Appendix T to the International Residential Code, as amended by Exhibit A attached to Ordinance 2018-\_\_\_.

....

**APPENDIX T [RE]  
SOLAR-READY PROVISIONS—DETACHED ONE- AND  
TWO-FAMILY DWELLINGS AND TOWNHOUSES**

*This appendix is informative and is not part of the code.*

**User note:**

*About this appendix: Harnessing the heat or radiation from the sun's rays is a method to reduce the energy consumption of a building. Although Appendix T does not require solar systems to be installed for a building, it does require the space(s) for installing such systems, providing pathways for connections and requiring adequate structural capacity of roof systems to support solar systems.*

*Section numbers in parenthesis are those in Appendix A of the residential provisions of the International Energy Conservation Code®.*

**SECTION T101  
SCOPE**

**T101.1 (RA101.1) General.**

These provisions shall be applicable for new construction where solar-ready provisions are required.

**SECTION T102 (RA102)  
GENERAL DEFINITION**

**T102.1 General.**

The following term shall, for the purpose of this appendix, have the meaning shown herein.

**SOLAR-READY ZONE.** A section or sections of the roof or building overhang designated and reserved for the future installation of a solar photovoltaic or solar thermal system.

**SECTION T103 (RA103)  
SOLAR-READY ZONE**

**T103.1 General.**

New detached one- and two-family dwellings, and townhouses with not less than 600 square feet (55.74 m<sup>2</sup>) of roof area oriented between 90 degrees and 270 degrees of true north, shall comply with Sections T103.2 through T103.10.

**Exceptions:**

1. New residential buildings with a permanently installed on-site renewable energy system.
2. A building where all areas of the roof that would otherwise meet the requirements of Section T103 are in full or partial shade for more than 70 percent of daylight hours annually

**T103.2 (RA103.2) Construction document requirements for solar-ready zone.**

Construction documents shall indicate the solar-ready zone.

**T103.3 (RA103.3) Solar-ready zone area.**

The total solar-ready zone area shall be not less than 300 square feet (27.87 m<sup>2</sup>) exclusive of mandatory access or setback areas as required by the *International Fire Code*. New townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m<sup>2</sup>) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m<sup>2</sup>). The solar-ready zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m<sup>2</sup>) exclusive of access or set-back areas as required by the *International Fire Code*.

**T103.4 (RA103.4) Obstructions.**

Solar-ready zones shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.

**T103.5 Shading.**

The solar-ready zone shall be set back from any existing or new, permanently affixed object on the building or site that is located south, east or west of the solar zone a distance not less than two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings.



**T103.6 Capped roof penetration sleeve.**

A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone located on a roof slope of not greater than 1 unit vertical in 12 units horizontal (8-percent slope). The capped roof penetration sleeve shall be sized to accommodate the future photovoltaic system conduit, but shall have an inside diameter of not less than 1 1/4 inches (32 mm).

**T103.7 (RA103.5) Roof load documentation.**

The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.

**T103.8 (RA103.6) Interconnection pathway.**

Construction documents shall indicate pathways for routing of conduit or plumbing from the solar-ready zone to the electrical service panel or service hot water system.

**T103.9 (RA103.7) Electrical service reserved space.**

The main electrical service panel shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

**T103.10 (RA103.8) Construction documentation certificate.**

A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.



Amendments to the:  
**2018 International Residential Code**



Adopt **Appendix T: Solar-Ready Provisions – Detached One- and Two-Family Dwellings and Townhouses** subject to the following REVISIONS:

**Section T103.1 General.** REVISE this section by DELETING “oriented between 90 degrees and 270 degrees of true north”

**Section T103.4 Obstructions.** REVISE section by REPLACING the word “vents” with the word “exhaust”

**Section T103.6 Capped roof penetration sleeve.** DELETE section in its entirety

**Section T103.10 Construction documentation certificate.** DELETE section in its entirety

## Stakeholder List for 2018 International Residential Code Update – Oct. 25, 2018

American Institute of Architects - (AIA)  
Attn: Tina Litteral

Arizona Builders Alliance  
Attn: Tim Bee

Diamond Ventures  
Attn: Priscilla Storm

Coalition of Sonoran Desert Protection  
Attn: Carolyn Campbell

Metropolitan Pima Alliance - (MPA)  
Attn: Allyson Solomon

Rick Volk Real Estate  
Attn: Rick Volk

Southern AZ Homebuilders Association - (SAHBA)  
Attn: David Godlewski & Shawn Cote

Tucson Association of Realtors  
Attn: Steve Huffman

Tucson Metropolitan Chamber of Commerce  
Attn: Amber Smith

Sun Corridor Inc.  
Attn: Joe Snell

Arizona PIRG Education Fund  
Attn: Diane E. Brown

Go Solar Campaign - Environment Arizona  
Attn: Bret Fanshaw

Development Center for Appropriate Technology  
Attn: David Eisenberg

Sierra Club – Grand Canyon Chapter  
Attn: Sandy Bahr

Southwest Energy Efficiency Project  
Attn: Jim Meyers

Arizona Solar Energy Industries Association  
Attn: Brandon Chesire

Solar Possibilities Consulting  
Attn: Bruce Plenk

City Of Tucson  
Attn: Clayton Trevillyan

Town of Oro Valley  
Attn: Chuck King

Town of Marana  
Attn: David Spurlock

City of South Tucson  
Attn: Henry Enrique Durazo

Town of Sahuarita  
Attn: Pam Little

## Mark Holden

---

**From:** Bruce Plenk <solarlawyeraz@gmail.com>  
**Sent:** Wednesday, November 7, 2018 6:13 PM  
**To:** Mark Holden; Daniel Ice  
**Subject:** Re: Pima Co. Building Code Text Amendment - IRC Appendix T solar-ready policy

\*\*\*\*\*

This message and sender come from outside Pima County. If you did not expect this message, proceed with caution. Verify the sender's identity before performing any action, such as clicking on a link or opening an attachment.

\*\*\*\*\*

Dan-

I support the adoption of APP T to the IRC as explained more fully in my comments to the Board of Supervisors on October 16. As I said then, I would prefer that Pima County REQUIRE solar (not just solar ready) on all new buildings, residential and commercial, and I hope the County can move in that direction. For now, however, I support the adoption of APP T as proposed with the local amendments that parallel those adopted by the City.

Thank you

Bruce Plenk

On Wed, Oct 24, 2018 at 2:04 PM Mark Holden <[Mark.Holden@pima.gov](mailto:Mark.Holden@pima.gov)> wrote:

Pima County is drafting a text amendment to the Building Code to add Appendix T (Solar-Ready Provisions – Detached One- and Two-Family Dwellings and Townhouses) of the International Residential Code, subject to local amendments. Please see attached memo for more information.

We are requesting comments by November 9, 2018 – please send comments and direct questions to Daniel Ice, Chief Building Official. Thank you,

Mark Holden

Mark S Holden, AICP

Principal Planner,

Pima County Planning Division,

Development Services Dept.

(520) 724-8800

--

Bruce Plenk  
Solar Possibilities Consulting  
Tucson, AZ  
520 909-1389

ORDINANCE NO. 2018-\_\_\_\_

AN ORDINANCE OF PIMA COUNTY, ARIZONA; RELATING TO BUILDING AND CONSTRUCTION; ADOPTING APPENDIX T OF THE 2018 INTERNATIONAL RESIDENTIAL CODE WITH LOCAL AMENDMENTS; AND AMENDING CHAPTER 15.04, SECTION 15.04.020 OF THE PIMA COUNTY BUILDING CODE TO REFLECT THE CODE ADOPTED BY REFERENCE IN THIS ORDINANCE.

THE BOARD OF SUPERVISORS OF PIMA COUNTY, ARIZONA FINDS THAT:

1. A.R.S. § 11-861 allows the adoption by reference of any building and other related codes that has been adopted by any national organization or association that is organized and conducted for the purpose of developing codes or that has been adopted by the largest city in the county.
2. The International Code Council, Inc., is a national organization or association organized and conducted for the purpose of developing codes.
3. The Pima County Board of Supervisors has adopted ordinance 2018-30 adopting building and construction related codes pursuant to A.R.S. § 11-861 and A.R.S. § 11-251(35).

IT IS ORDAINED BY THE BOARD OF SUPERVISORS OF PIMA COUNTY, ARIZONA, AS FOLLOWS:

SECTION 1. Pima County adopts by reference the 2018 International Residential Code, Appendix T, published by the International Code Council, Inc., County Club Hills, IL, 2017, as amended by the local amendments, attached as Exhibit A and incorporated by this reference.

SECTION 2. Pima County Code Chapter 15.04, Section 15.04.020 is amended to read as follows:

Chapter 15.04  
BUILDING CODES

....

15.04.020 - Codes adopted.

- A. The Pima County building code, codified in this chapter, adopts by reference the 2018 International Building Code, published by the International Code Council, Inc., Country Club Hills, IL, in 2017, as amended by the local amendments attached to and incorporated into Ordinance 2018-30 as Exhibit A together with the following national and international codes:

....

7. The 2018 International Residential Code, as amended by Exhibit B attached to Ordinance 2018-30 and Appendix T to the International Residential Code, as amended by Exhibit A attached to Ordinance 2018- .

....

SECTION 3. This ordinance is effective for permit applications initiated on or after February 1, 2019.

PASSED AND ADOPTED by the Board of Supervisors of Pima County, Arizona, on this \_\_\_\_\_ day of \_\_\_\_\_, 2018.

PIMA COUNTY BOARD OF SUPERVISORS

\_\_\_\_\_  
Chairman, Pima County Board of Supervisors

ATTEST:

\_\_\_\_\_  
Clerk of the Board of Supervisors

REVIEWED BY:



\_\_\_\_\_  
Chief Building Official

APPROVED AS TO FORM:



\_\_\_\_\_  
Deputy County Attorney  
Michael LeBlanc



Ordinance 2018-\_\_\_\_



**Exhibit A: Amendments to the  
2018 International Residential Code**

**Adopt Appendix T: Solar-Ready Provisions – Detached One- and Two-Family Dwellings and Townhouses** REVISING the following sections:

**Section T103.1 General.** REVISE this section by DELETING “oriented between 90 degrees and 270 degrees of true north”

**Section T103.4 Obstructions.** REVISE section by REPLACING the word “vents” with the word “exhaust”

**Section T103.6 Capped roof penetration sleeve.** DELETE section in its entirety

**Section T103.10 Construction documentation certificate.** DELETE section in its entirety