



INTERNATIONAL CODE COUNCIL®
CONFERENCE AND HEARINGS

Advances in Technology Solutions

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Dave Walls – Vice President of Business Support Initiatives, ICC



Emory R. Rodgers

Leadership in Building Safety Fellowship

Receive up to \$20,000 to use toward an eligible executive development program.

Learn more and APPLY

www.iccsafe.org/EmoryRodgersFellowship



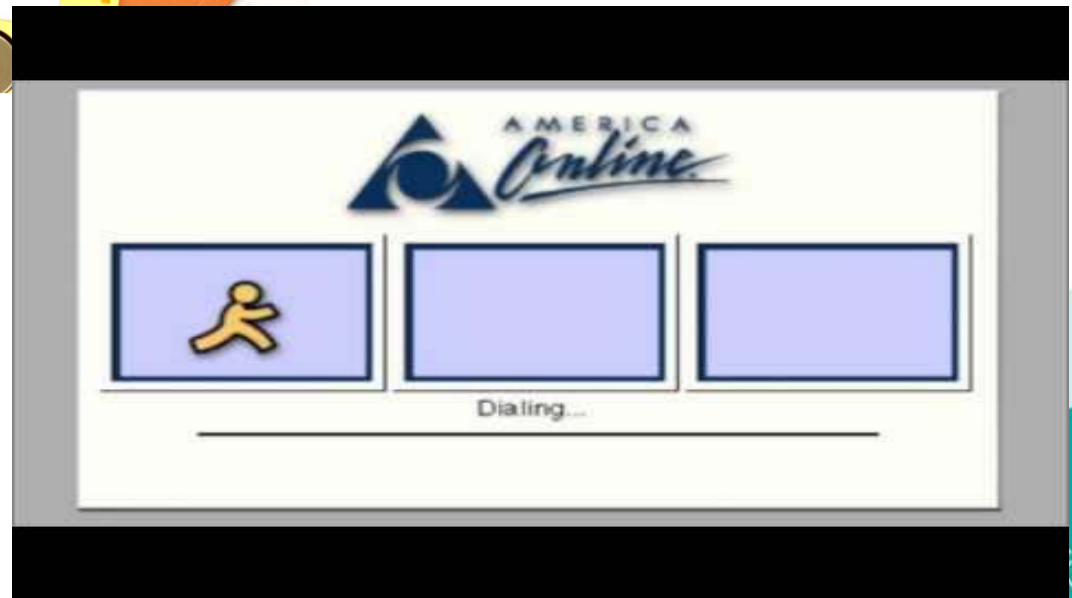
Digital Transformation

- Digital Transformation **is a journey**
- The **impact of the pandemic** on the building safety industry
- **New mindset** creates best chance for success
- What does **digital mean to the customer**
- Utilizing data analytics and product management expertise **to solve pain points for customers**
- Digital strategy **create better tools, 24/7 access** to codes, standards and online resources and education





Signs of Change



Digital Evolution



NETFLIX



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Digital Transformation in the Construction Industry: BIM



- BIM: Business Information Modeling
 - Improve Onsite Collaboration and Communication.
 - Model-Based Cost Estimation.
 - Visualize Projects in Preconstruction.
 - Better Coordination and Clash Detection.
 - Mitigate Risk and Reduce Cost.
 - Improved Scheduling/Sequencing.
 - Increase Productivity with Prefabrication.

Remote Teams

- Being remote changes the way that people work, so we need to change the tools used to perform the work



Why Digital?

- Meetings
 - In Person -> Zoom / MS Teams
- Notes
 - Notepads -> iPads and Tablets
- Calls
 - Audio -> Video / Facetime
- Collaboration
 - Flat Files -> Cloud accessible real time edits

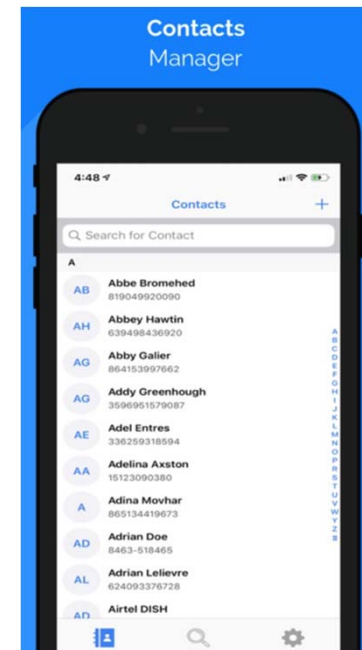


Evolution of Technology



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Digital Transformation



Group Discussion



- Pain points in current environment conditions
 - How has the pandemic impacted your team communication?
 - How has your daily workflow changed?
 - What tools have you started using as a result of working with remote teams?
 - Has your means of accessing the codes and standards content changed?
 - Are you using online services within your jurisdiction?

Why ICC is Embracing Digital

- Efficiencies of technology
- Speed to market
- Standardization of Content
- Tagging of supplemental content
 - Code Interpretations
 - Significant Changes
 - Multimedia Content
- Integration opportunities





San Diego Case Study

- In 2020 San Diego's Development Services Department had to move out of new office space for emergency repairs
- Permitting and inspections would have been nearly impossible without their codebooks to refer to
- Relocation coupled with pandemic led to over 40% of the department working from home
- Digital Codes Premium provided means to maintain productivity in a remote environment
- “We reduce the amount of paper used whenever we can. The staff is very excited about going digital, especially the younger ones. They do everything on computers. Digital access could even help bring in more young code professionals.”
 - Medhi Shadyab, P.E., J.D. Senior Structural Engineer

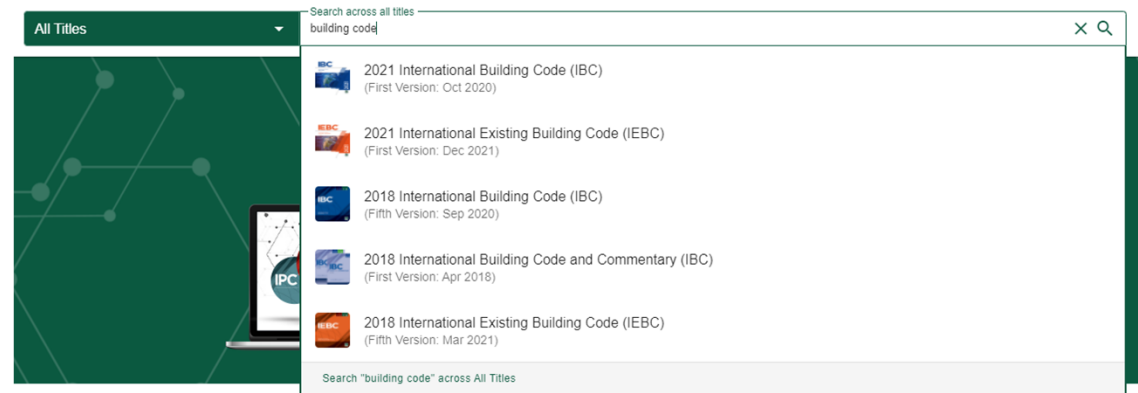
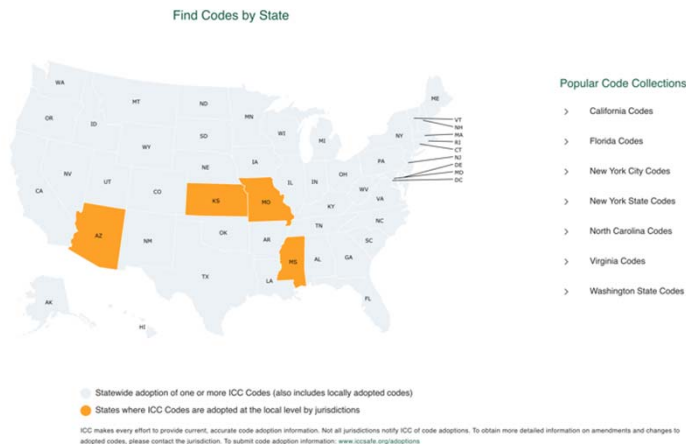
<https://www.iccsafe.org/building-safety-journal/bsj-perspectives/pandemic-or-no-san-diego-sees-premiumaccess-as-the-wave-of-the-near-future/>



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Digital Codes

- Complete Codes Database with multiple ways to find your code titles
- 24/7 Access Available from any web connected device
- Basic Online Free View Available for 800+ titles
- Enhanced features promote efficiency in working with the codes




Digital Codes Premium

- Content Search
- Exclusive Content Offerings
- Follow references between chapters or across titles
- Bonus premium materials
- Flexible Subscription Offerings
 - Singles
 - Collections
 - Premium Complete



Premium Singles




Single Premium Titles

\$30 - \$150 annually

Prices Vary by Title

[Browse Singles](#)

Premium Complete



Complete Set of Premium Titles and Features


\$650 annually

Introductory Price for Members

\$865 annually
Introductory Price for Non-Members

[Subscribe Now](#)

Premium Collections



Collection Set of Premium Titles

\$300 - \$650 annually

Prices Vary by Collection

[Browse Collections](#)

Enterprise pricing available. Please inquire via enterprisesales@iccsafe.org



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Complete Code Compliance

- International Codes
 - Complete Collections
 - All Versions available
 - Changed sections between cycles identified with red text
- State level specific codes
 - Custom collection titles with integrated amendments, errata and supplements
 - All Versions available
 - Changed sections between cycles identified with blue text



2021 International Residential Code (IRC)



2021 International Fire Code (IFC)



2021 International Fuel Gas Code (IFGC)



2021 International Existing Building Code (IEBC)

Custom Local Building Codes

- New Service offered through General Code – a member of the ICC Family of Solutions
- Local amendments integrated into a custom title and identified with fuschia colored text
- Enhanced features available to city staff and design professionals
- Growing number of represented locations
 - Harford County, Maryland
 - Howard County, Maryland
 - City of O'Fallon, Missouri
 - Guadalupe County, Texas
 - Bellevue, Washington



CITY OF BELLEVUE CONSTRUCTION CODE ADMINISTRATION

OF BELLEVUE CONSTRUCTION CODE ADMINISTRATION replaces PART I of

tion, organization and enforcement of the technical codes adopted by the city. The
ough structural strength, means of egress facilities, stability, sanitation, adequate liq
ent and to provide safety to firefighters and emergency responders during emergen



Notes For Amendments with Premium

- Identify code sections with amendments or changes to text
 - Markup messages with formatting (strikethrough, underline color) and color coding
- Quickly identify all sections in
- current title with an amendment
- Export for quick reference
- Share with other Premium users

known as the *Building Code* of [NAME OF JURISDICTION], hereinafter referred to as "this code."

Bookmark / Note

B I U x_2 x^2

f_x

These regulations shall control all matters concerning the **construction, alteration, addition, repair, removal, demolition, location, occupancy, change of owner, change of business name and maintenance of all buildings and structures**, and shall apply to existing or proposed buildings and structures, except as such matters are otherwise provided for in other ordinances or statutes, or in the rules and regulations authorized for promulgation under the provisions of this code. See Sections 108 and 3103 for Temporary Structures. |

Select Existing Project Tag

Amendments

Edit Tag

Cancel Save

Notes For Amendments with Premium

- Notes labeled with Project Tags and Displayed Inline to the Code

All Codes

Legend Information

CODE SECTIONS

MY NOTES

Move Notes

Manage Notes

Filter By Project Tags:

Amendments

Sections with the "Amendments" tag

[A] 101.1 Title.

[A] 101.2 Scope.

[A] 101.4 Referenced codes.

[A] 101.4.1 Gas.

[A] 102.1 General.

[A] 101.1 Title.
These regulations shall be known as the *Building Code* of [NAME OF JURISDICTION], hereinafter referred to as "this code."

My Notes

These regulations shall be known as the Building Code of the Village of Orland Park hereinafter referred to as "the building code" or "this code". (Amd. Ord. 5418, 7-1-19)

Project Tag: Amendments

Created By: Daniel Janousek (djanousek@iccsafe.org)

[A] 101.2 Scope.
The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exception: Detached one-and two-family *dwellings* and *townhouses* not more than three *stories above grade plane* in height with a separate *means of egress*, and their accessory structures not more than three *stories above grade plane in height, shall comply with this code or the International Residential Code.*

My Notes

These regulations shall control all matters concerning the construction, alteration, addition, repair, removal, demolition, location, occupancy, change of owner, change of business name and maintenance of all buildings and structures, and shall apply to existing or proposed buildings and structures, except as such matters are otherwise provided for in other ordinances or statutes, or in the rules and regulations authorized for promulgation under the provisions of this code. See Sections 108 and 3103 for Temporary Structures.

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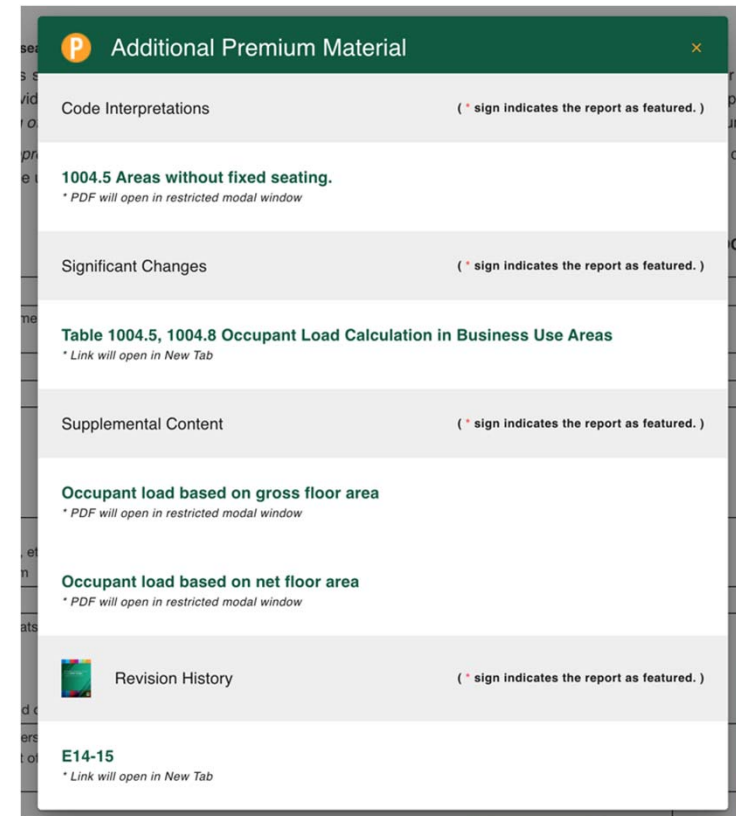
Digital Codes Titles

- Referenced Standards
 - Growing number of standards
- Supporting Documents on Applying the Codes
 - Commentaries
 - Complete Revision History
 - Wiley Resources
- Topic Centric Resources
 - Energy
 - Fire
 - Green and Sustainability
 - ANCR



Supplemental Materials

- ES Reports
 - Building products are tagged across sections and chapters of the codes for which they are relevant.
- Errata Tags
 - Identified errata from ICC Errata Central tagged to specific version and section impacted by the change.
- Exclusive Premium Contents
 - Complete Revision History
 - Significant Changes
 - Code Interpretations



cdpACCESS Proposal Integration

- Tag impacted sections with cdp specific icon across 2021 I-Codes
- Promote awareness of proposed code changes within code development cycle
- Provide context around change (reason statement, cost impact)
- Encourage participation within code development process via cdpACCESS (public comments, online voting)

The screenshot displays the cdpACCESS website interface. At the top, a green header features the 'cdpACCESS' logo and a 'Proposals Under Consideration' section. A blue banner on the right asks 'WHAT IS THE CODE DEVELOPMENT PROCESS?' with a 'Click to learn more' link. The main content area shows a proposal titled 'E1-21' with the IBC reference 'IBC: 1003.1 (IFC:[BE] 1003.1)'. The proponent is listed as 'John-Jozef Proczka, representing self (john-jozef.proczka@phoenix.gov)'. The proposal is for the '2021 International Building Code' and is titled 'Revise as follows:'. The text of the proposal discusses the applicability of Section 1003.1 to all three elements of the means of egress system, the reason for the change (provisions for ladders in 1011.16), and the cost impact (simply clarifying wording). At the bottom, there is a 'Go to cdpACCESS' button and a footer with the International Code Council logo and text.

cdpACCESS Proposals Under Consideration
Proposals listed are under active consideration within the code development process for integration to the next cycle's version of the model code. If a proposal is no longer being considered (i.e. withdrawn), it will be removed from the list.

WHAT IS THE CODE DEVELOPMENT PROCESS?
Click to learn more

E1-21
E1-21
IBC: 1003.1 (IFC:[BE] 1003.1)
Proponents: John-Jozef Proczka, representing self (john-jozef.proczka@phoenix.gov)

2021 International Building Code

Revise as follows:

1003.1 Applicability. The general requirements specified in Sections 1003 through 1015 shall apply as individually scoped and to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

Reason: The provisions for ladders in 1011.16 do not serve as a component of the means of egress, but are individually scoped in Section 1011.1 to be a code requirement nonetheless.

The provisions for guards in sections 1015.2, 1015.6, 1015.7 all apply to locations that are not parts of the means of egress, but are individually scoped in Section 1015.1

This proposal is providing clarity at the start of Chapter 10 that although the provisions of the chapter primarily apply to the means of egress there is scoping in its provisions that applies outside of the means of egress.

Cost Impact: The code change proposal will not increase or decrease the cost of construction

Simply clarifying wording

Go to **cdpACCESS**

The International Code Council develops construction and public safety codes through a governmental consensus process. This system of code development has provided the highest level of safety in the world for more than 90 years.

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Keep Yourself Organized

- Bookmark sections of interest
- Add text, files, images or videos to code sections annotations
- Categorize your bookmarks and annotations
- Share your notes with other Digital Codes Premium users or export to PDF



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Advanced Search

- Keyword search for identification within specific code sections
- Advanced search controls allow targeted narrowing of result set
 - Any of these words
 - Exact Phrase
 - All of these words
 - None of these words
 - Near search
- Content type filter allows user to pull results from just tables or figures where relevant
- Share, Bookmark or Copy section text directly from search results page

Advanced Search [X]

*Note: For most effective searches, multiple filters can be used within the same search. For example, any of these words combined with none of these words will provide a more specific result set.

Any of these words
Ex. Area, Building, Brick

This exact phrase
means of egress

All of these words
Ex. Area, Building, Brick

None of these words
Ex. Concrete, Cement


OR

Near Search
Ex. Fire near Ex. Content

Any of these words: 'Area, Building, Brick' returns any result that contains any of the comma separated terms within it.
This exact phrase: 'Bearing Wall Structure' returns any result that contains these terms/phrase in this exact order.
All of these words: 'Area, Building, Brick' returns any result that contains each of the comma separated terms within it.
None of these words: 'Concrete, Cement' excludes any result that contains any of the comma separated terms within it.
Near Search: 'fire' near 'content' finds both terms within 50 words of each other. May also use multiple words such as 'means of near egress'.

Close Clear Search

Advanced Search



I-Codes


Search Premium database contents
means of egress

×

Q

Advanced

Search Type
Title Content

 Daniel
Complete

Content Search

Refine SearchSave Search

1 - 20 of 630 Results for "means of egress"

Sort By: Relevance

Results Per Page: 20

This exact phrase: means of egress

I-Codes Year & Titles

2021

ICC Performance Code® for Buildings and Facilities (ICCPC)

International Building Code (IBC)

International Energy Conservation Code (IECC)

International Energy Conservation Code (IECC) & ANSI/ASHRAE/IES Standard 90.1-20

International Existing Building Code (IEBC)

International Fire Code (IFC)

International Fuel Gas Code (IFGC)

International Green Construction Code (IgCC)

International Mechanical Code (IMC)

International Plumbing Code (IPC)

International Private Sewage Disposal Code (IPSDC)

International Property Maintenance Code (IPMC)

International Residential Code (IRC)

International Swimming Pool and Spa Code (ISPSC)

International Wildland-Urban Interface Code (IWUIC)






International Zoning Code (IZC)

2018






2015

2012






SECTION AM103 MEANS OF EGRESS
2021 International Residential Code (IRC) ► APPENDIX AM ► SECTION AM103








R326.4 Means of egress .
The **means of egress** for habitable attics shall comply with the applicable provisions of Section R311.
2021 International Residential Code (IRC) ► CHAPTER 3 ► SECTION R326 ► R326.4








R311.7.12 Ship's ladders.
Ship's ladders shall not be used as an element of a **means of egress**. Ship's ladders shall be permitted provided that a required **means of egress** stairway or ramp serves the same space at each adjoining level or where a **means of egress** is not required. The clear width at and below the handrails shall be not less than 20 inches (508 mm).
Exception: Ship's ladders are allowed to be used as an element of a **means of egress** for lofts, mezzanines and similar areas of 200 gross square feet (18.6 m2) or less that do not provide exclusive access to a kitchen or bathroom.
2021 International Residential Code (IRC) ► CHAPTER 3 ► 1. R311.7 ► R311.7.12








SECTION R311 MEANS OF EGRESS
2021 International Residential Code (IRC) ► CHAPTER 3 ► SECTION R311



a. 301.2 (3.2)
occupant load: the number of persons for which the **means of egress** of a building or portion thereof is designed.
2021 International Green Construction Code (IgCC) ► CHAPTER 3 ► CHAPTER ► a. 301.2 (3.2)



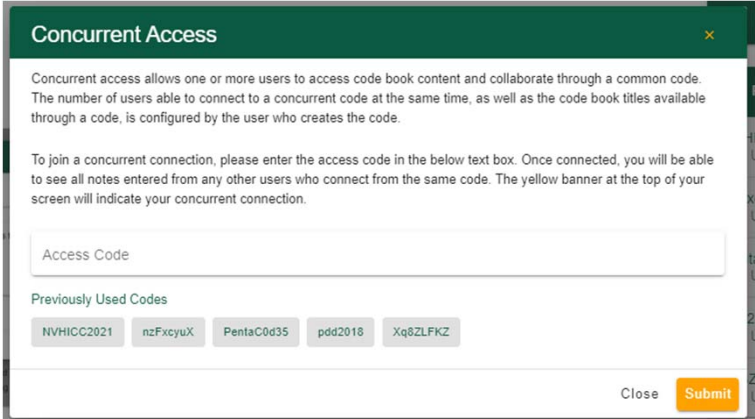
R311.7.11 Alternating tread devices.
Alternating tread devices shall not be used as an element of a **means of egress**. Alternating tread devices shall be permitted provided that a required **means of egress** stairway or ramp serves the same space at each adjoining level or where a **means of egress** is not required. The clear width at and below the handrails shall be not less than 20 inches (508 mm).
Exception: Alternating tread devices are allowed to be used as an element of a **means of egress** for lofts, mezzanines and similar areas of 200 gross square feet (18.6 m2) or less where such devices do not provide exclusive access to a kitchen or bathroom.
2021 International Residential Code (IRC) ► CHAPTER 3 ► 1. R311.7 ► R311.7.11



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Premium for Teams

- Concurrent Access with Premium for Teams
- Premium features available for your entire team
- Seamlessly share notes across your team
- Access controlled by number of licenses available
- Usage Reports to Monitor How Access is being utilized



Concurrent Access

Concurrent access allows one or more users to access code book content and collaborate through a common code. The number of users able to connect to a concurrent code at the same time, as well as the code book titles available through a code, is configured by the user who creates the code.

To join a concurrent connection, please enter the access code in the below text box. Once connected, you will be able to see all notes entered from any other users who connect from the same code. The yellow banner at the top of your screen will indicate your concurrent connection.

Access Code

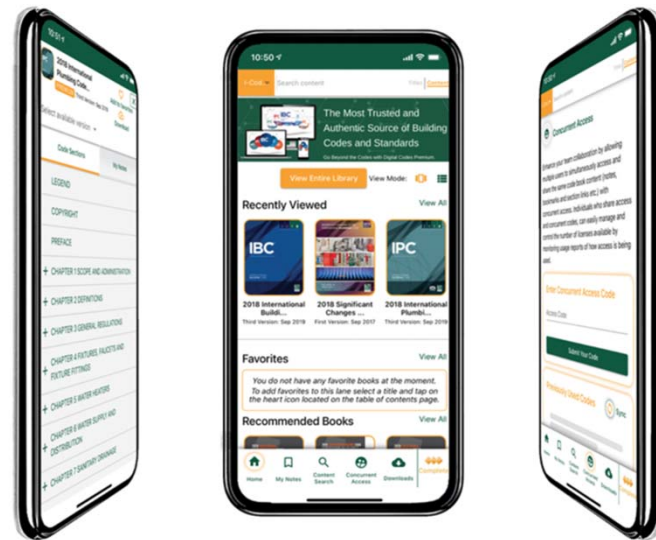
Previously Used Codes

NVHICC2021 nzFxcyuX PentaC0d35 pdd2018 Xq8ZLFKZ

Close **Submit**

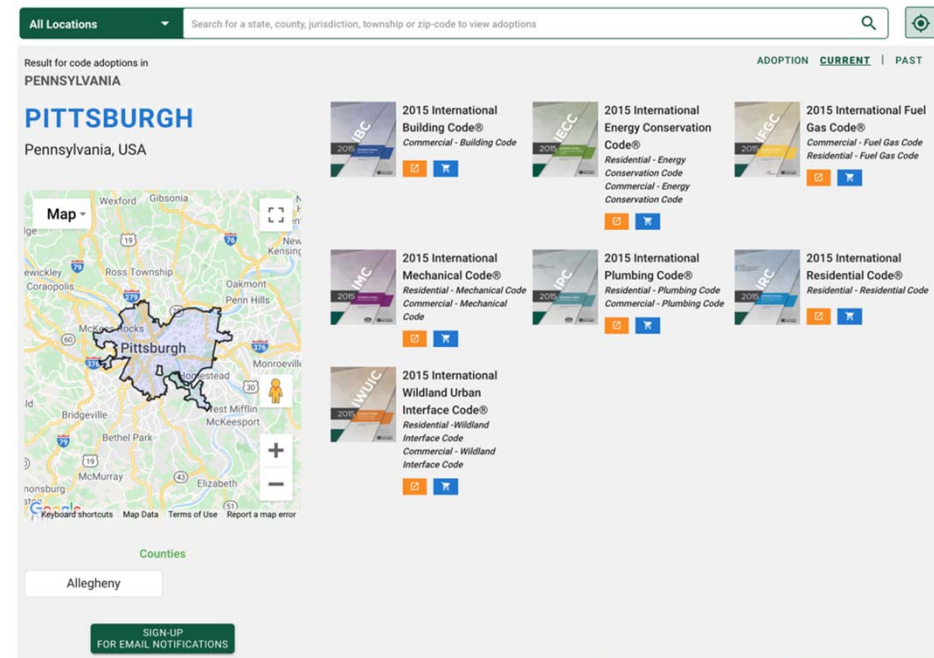
Digital Codes Premium Mobile App

- Native Mobile Experience for Premium subscription titles
- Advanced Search capabilities
- Syncing between Premium and Mobile App for titles and notes
- Offline Access for up to 15 titles
- Available on Apple and Android Devices



Adoptions Database

- Searchable Database of over 100,000 state, county and jurisdiction locations
- State and local level adoption information
- I-Code Adoptions Maps depict versions currently in effect by state
- Free online resource developed in coordination with FLASH and ISO
- <https://codeadoptions.iccsafe.org>



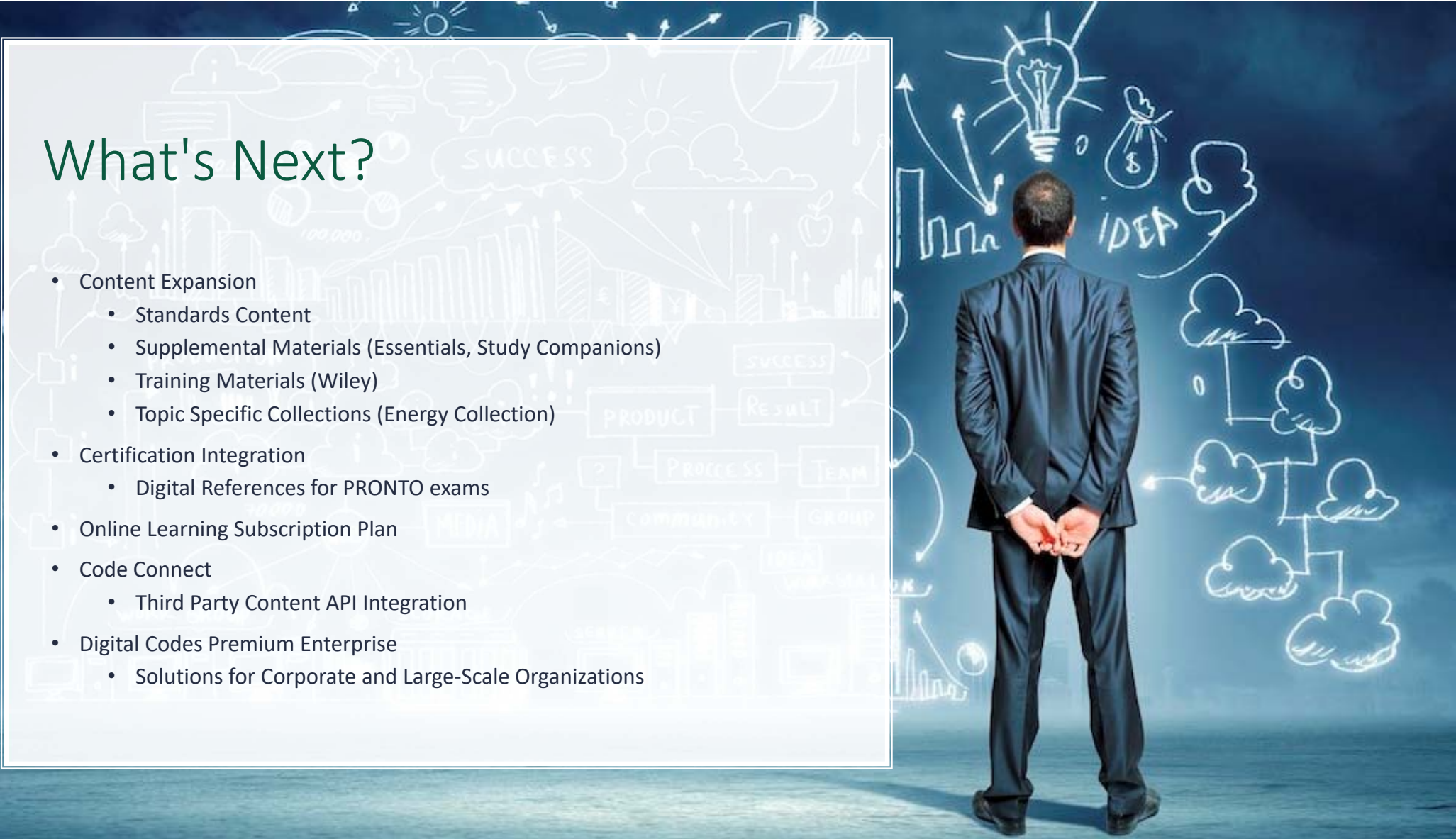
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What's Next?

- Content Expansion
 - Standards Content
 - Supplemental Materials (Essentials, Study Companions)
 - Training Materials (Wiley)
 - Topic Specific Collections (Energy Collection)
- Certification Integration
 - Digital References for PRONTO exams
- Online Learning Subscription Plan
- Code Connect
 - Third Party Content API Integration
- Digital Codes Premium Enterprise
 - Solutions for Corporate and Large-Scale Organizations

- 
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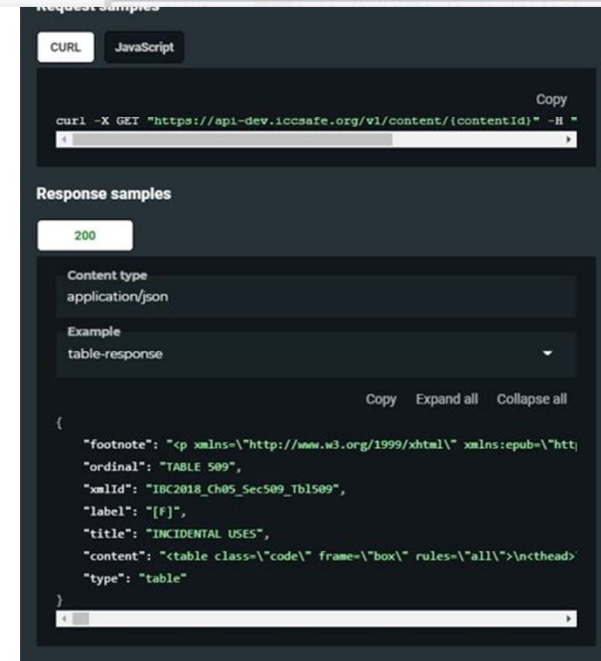
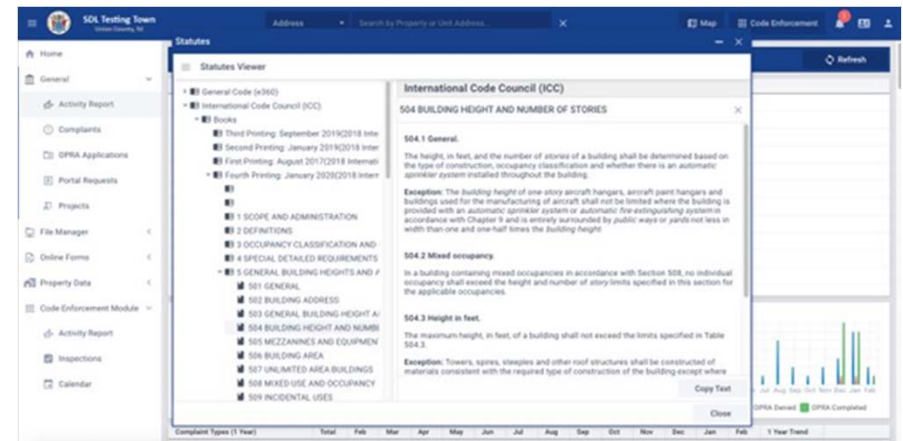
ICC Online Learning

- Digital Subscription Service
- All Access collection of training content
- Robust offering of over 150 online courses covering the most relevant topics in the Building Safety Industry
- Earn CEUs at your own pace



Code Connect API

- To leverage the Code Council's reach with authorities having jurisdiction (AHJs) and the AEC market segment to increase distribution and discovery of ICC content & tools
- ICC Code Contents Integrated into 3rd Party Applications
- Direct access to the trusted source with all versions
- Keyword search and extraction of code level contents



Digital Codes Premium Enterprise

- Simplify the way your team researches, understands and applies codes and standards
- Digital Codes Premium Enterprise enhances enterprises' codes and standards experience with interactive features and advanced tools to search codes faster, share notes, collaborate, and manage building codes – ALL IN ONE PLACE
- Make building code research easier for your organization



Break

- Digital Codes Premium Shirt Giveaway after Break



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Todays Presentation on the MPO

- Technology
- Online Permitting
- Electronic Plan Review
- RVI Process
- SolarAPP



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What is the Model Program for Online Services (MPO)

Purpose and Scope

Provide guidance for the implementation processes to

- issue permits,
- provide plan review, and
- conduct inspections of projects remotely

The MPO addresses items related to the above goals and criteria (implementation and enforcement).

The MPO is not written in enforceable language



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Technology Use



Information technology

- Enables building departments to automate and streamline the building department processes by using a set of digital tools or services.
- The intent of electronic solutions is to improve processes and records management by
 - allowing customers to apply online,
 - reducing permitting timelines,
 - eliminating paper printing and storage, and
 - minimizing carbon and environmental footprints.
- Electronic solutions improve customer service and staff efficiency,
- Enhance quality and make operating funds more productive.
- An electronic solution system typically replaces traditional paper and file-card systems.
- In short, information technology can benefit both the building department and its constituency.

Technology Use

It can consist of a simple software tool for tracking permits, reviewing plans and scheduling inspections or it may contain a broad array of task-specific tools for:

- plan review
- issuing and tracking permits
- inspection scheduling
- performing inspections
- posting inspection results
- project tracking
- fee calculation and collection
- workflow management
- reporting
- record keeping and permit documents archival
- coordination with other government departments

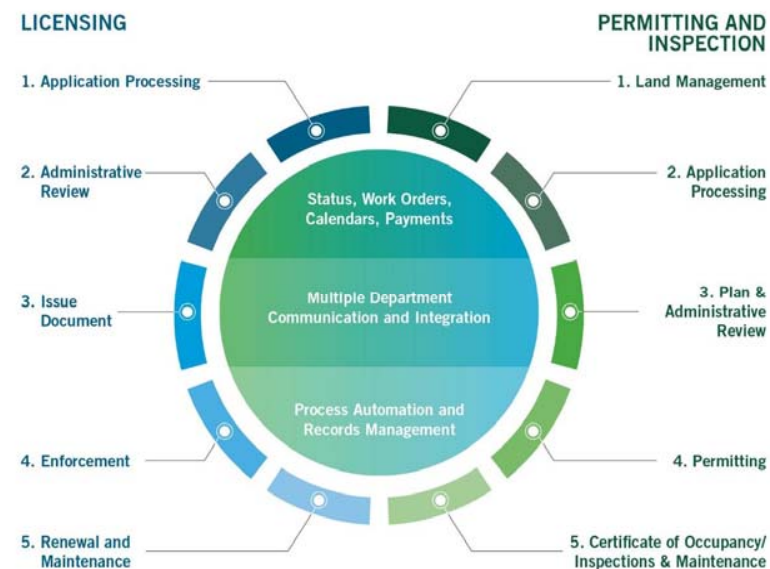


Challenges of implementing new software

- Jurisdictions are busy and often an under-resourced operation
 - which is frequently overlooked when jurisdictions consider a software solution.
- Successful deployments of the software will typically be complete in a few month's but
 - it will often take 18 to 24 months before the new application is seen as user friendly
 - Jurisdiction IT staff oversight and participation

Leadership commitment and involvement is critical

- Vendors are limited in their ability to address resistance to change which is a natural part of the implementation process.





Selecting a Solution

- **Standalone Function-Specific Solutions**

Standalone software solutions that solve **specific problems** presented in the digital transformation of a building department.

- **Independent Integrated Solutions**

Independent Integrated Solutions generally have a robust community development software solution as a hub system

Supports the key building functions as well as a few very tightly related departments such as **code enforcement, planning, zoning and others**.

- **Enterprise Platform Solutions**

A single software platform that fulfills all of the major functionality involved

building, planning, zoning, DPW and asset management, finance and the other major operational components including plan review

Online Permitting

Improve customer service

Streamline the permitting process

Allows customers to apply for and obtain Commercial Building Permits 24/7, and

Residential building permits on-line 24/7

- Records Management
- Cost savings and Operational Efficiency
- Enhanced communications with the applicant
- Direct revenue and other sought out data reports' generation
- Integrated system with electronic plan review, building inspections and other online services
- Citizen access for look up and status check
- Inspection results may be uploaded live for the project's proponent use
- The ability to modify permit information as the project scope change
- Generating automated plan check and permit expiration notices to the owner and applicant on record.
- Automating the issuance of the Certificate of Occupancy by populating the project data field directly from the permit document



Recommended Features

- Flexibility and customization
- Ability to integrate with existing software and application such as GIS and Finance
- Can be modified easily to apply for other permits or actions such as
 - Encroachment permits
 - Grading permits
 - Fire permits
 - Maintenance permits
 - Business license
 - Other permits



Continued

Recommended Features

- Can be easily upgraded
- Work with a variety of fee collections methodologies
- Ability to hyperlink to outside agencies involved in the permitting process such as contractor's license lookup, design professional licensure information and property identifiers such as Tax Assessors' records etc..
- Connectivity to other city actions linked to a property
- Allows the placement of Lock/Holds and Notices on a given property
- Allows the placement of other restrictions such as fire hazard zones and flood zones.

San Bernardino County – Dashboard

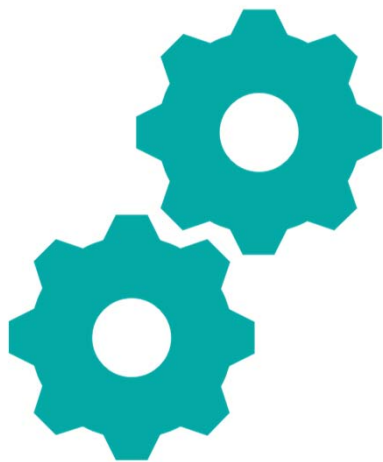
- <https://www.youtube.com/watch?v=IMzwTy5xQw8&list=PL0NuOovxpBhzkiG-KKfFsdDZ4JYjW0aoq&index=4>





"It'll never fly."

PLAN REVIEW



Electronic Plan Review - EPR

- Process is not NEW
- Most jurisdictions use a basic automated system
- Matter of preference for what works best for departments and their own workflow
 - All systems have pluses and minuses
 - Many jurisdictions use as an administrative tool or permit system to track progress, count number of plan reviews, and correlate with permitting, inspections and accounting.
 - Some programs allow direct technical communications to occur
- Overall Plan Review systems, processes and programs continue to advance



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- Some PR programs require special software, while others like ICC's have no software requirements.
- Features in programs that don't require specialized software can include
 - Dashboard to show current and past review progress and reports
 - Direct submittal forms of what codes to have reviewed
 - Download construction documents in PDF format
 - Customized workflow to specific needs
 - Add different users with different activities
 - Submit construction documents at a later time
 - Request free quotes electronically
 - 24/7 access



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• Electronic Plan Review Process



EPR form submitted into the system



Customer Submits required plans and documents including permit application in accordance with the policy of the jurisdictions

Submit all applicable or supporting documentation
Print sizes and File Format should be in the format required by the jurisdiction
Security Settings set to "Allowed"
Arrange plan/bundles in the order specified by the jurisdiction



Once all documents are received the applicant will be notified if anything is missing or incomplete from the plans.



Review comments are consolidated and sent back to the applicant for changes and resubmit plans

The resubmittal process will take as many times as necessary



jE1 Not sure what that orange receycle sumbole is in the middle.

jay Elbettar, 9/8/2021

Submitting & Tracking Documents

Electronic submittal is intended to speed up process, but these are tips to help the process go smoothly

- Bundle drawings into discipline or break down into volumes
- Submit bundles separately
- Don't submit individual sheets

Most Programs allow Tracking

- Allows updates and see exactly where process is
- Some programs have real time plan review available
- Notifications sent to customer on progress updates
- Notifications sent when review is complete and detailed report is sent



Challenges related to online reviews

- Electronic services tied into online payments
- Zooming in on images and scrolling through pages takes a lot of patience and practice
- Building Departments can get overwhelmed with online plan review services
- Managing different reviewers and different submittal cycles. Some software programs allow layering with different colors distinguishing various reviewers



A man in a grey sweater is seen from the side, working on a laptop. A circular inset on the left shows a close-up of a computer screen displaying architectural plans and software interfaces. The text 'Plan Review Software' is overlaid on this inset.

Plan Review Software

- Bluebeam
- Project.dox
- e-PlanReview
- Sire Technologies
- Adobe PDF
- Oracle



PLAN REVIEW

City of Salem, Oregon's Project Coordinator

- **Project Coordinator** is automatically assigned to commercial projects with valuation of **\$10 million** or more, or that are high-profile, politically sensitive, complex or unusual.
- **Project Coordinator** services are provided at **no additional charge**.
- **Project Coordinator facilitates** moving projects through the regulatory processes from the pre-application stage to final occupancy approval.
- **Project Coordinator manages** Request for Information (RFIs), change orders, and revisions.

Building Inspections



PRIOR TO ITS FALL, THE GREAT AND SPACIOUS BUILDING FIRST HAD TO DEAL WITH A BUILDING INSPECTOR.



What is Remote Virtual Inspection (RVI)?

- A form of visual inspection
- Uses visual or electronic aids
- Allows inspectors to observe products and/or materials from a distance

- **Purpose**

- Provide more efficient building inspection services
- When sites are in dangerous environments
 - To minimize human contact
 - where circumstances or conditions prevent an in-person onsite field inspection.



REMOTE VIRTUAL INSPECTION – RVI

(AKA video and visual)

WHAT IT IS - Definition

RVI, is a form of visual inspection which uses visual or electronic aids to allow an inspector or team of inspectors to observe products and/or materials from a distance because the objects are inaccessible or are in dangerous environments, or whereby circumstances or conditions prevent an in-person inspection.

Purpose of the RVI Resources

After the pandemic hit, jurisdictions were looking for ways to keep everyone safe and many were looking for ways to implement remote inspections

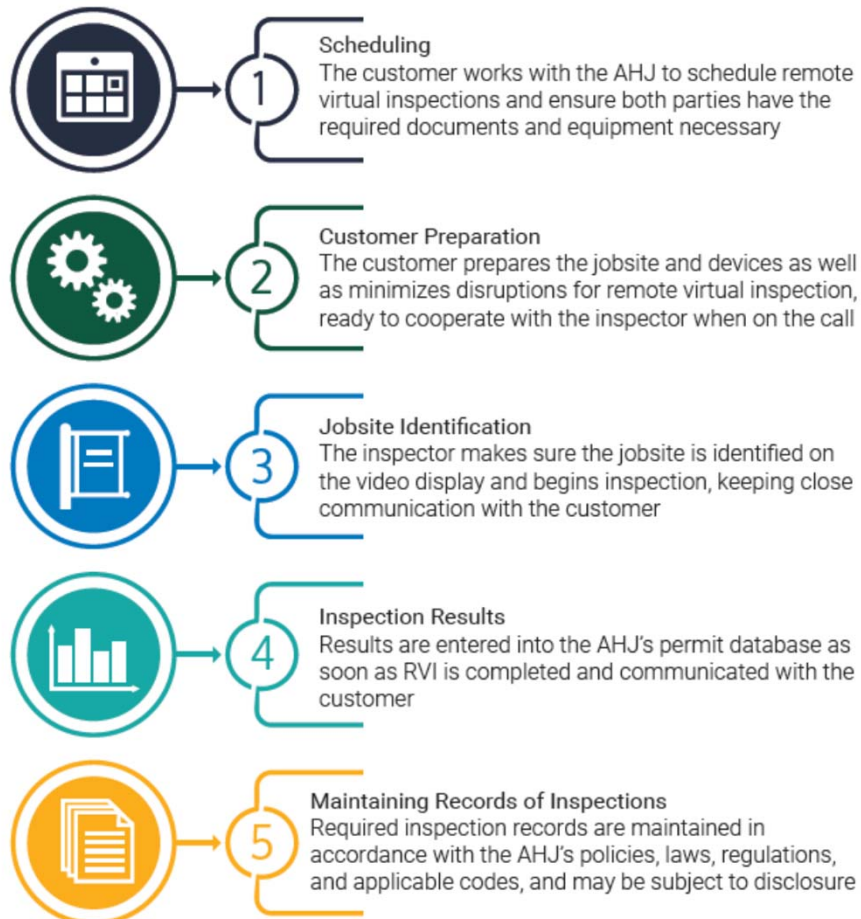


Why Use RVI?

- Today's phones and tablets have powerful capabilities for real-time, online communication
- Allows construction projects to continue without impediment
- Allows AHJs to continue providing essential services needed to ensure the safety of the built environment
- RVI benefits both jurisdictions and customers

Key Steps for Remote Virtual Inspection

THE KEY STEPS TO A REMOTE VIRTUAL INSPECTION



- Remote Video Inspection - Bing video Tucson

RVI Scheduling

AHJ Requirements:

- Require lead time
- Sufficient Time for Type of inspection
- Time slots
- Platform (Facetime, Skype, Google Duo, etc.)
- Confirm qualified inspection type
- Provide confirmation to the customer



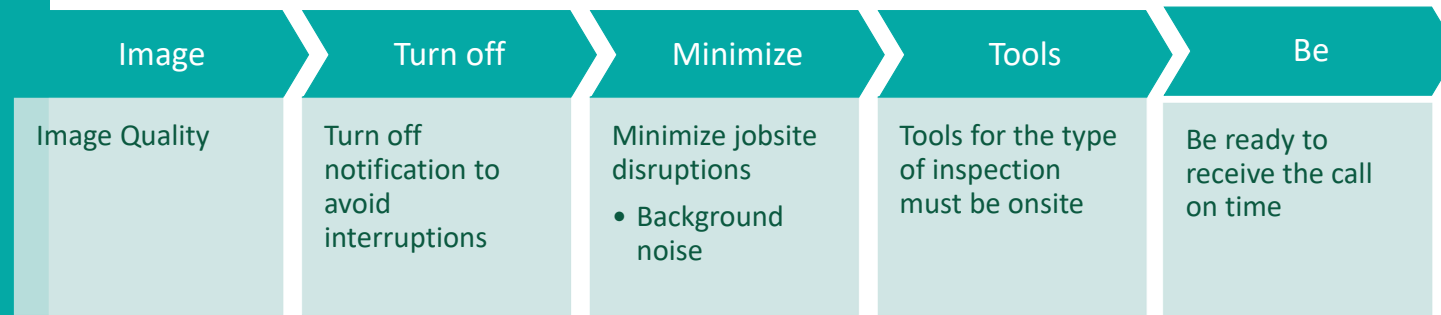
RVI Scheduling

- **Customer Requirements:**

- Active permit
- Sufficient Time for Type of inspection
- Confirm Platform (Facetime, Skype, Google Duo, etc.)
- Confirm qualified inspection type
- Confirm with jurisdiction



RVI Process - Customer Preparations



RVI Process - Jobsite

- Safe for person handling the device
- Device is fully charged
- Hi Speed WiFi or cell service with a strong signal
- Good lighting and visible
- Tools available onsite
- Plans & permit card available



RVI Process - Inspection



- Begin video at the street
 - Geotagging/GPS
- AHJ establish and clearly communicate directions
- Customer must be cooperative
- Minimize interruptions
- RVI Participation Agreement



RVI Process – Inspection Results

Results are entered into system following inspection

Available for Customer review

- Inspector may send results electronically

Corrections noted

- Schedule reinspection
- Optional – inspector may permit video of corrections

Utility tags

Record Maintenance



RVI Inspection Types

- Plumbing system repairs or fixture replacements.
- Construction trailer installations.
- Swimming pool excavations.
- Gas line repairs or gas utility clearance.
- Electric utility clearances.
- HVAC direct replacement or repair.
- Minor residential electrical.
- Insulation

RVI Inspection Types

- Miscellaneous repair/exterior repair or upgrades (stucco, windows, etc.).
- Re-roofing/roof covering replacement.
- Water heater or water softener direct replacement.
- New residential plumbing rough-in.
- New residential rough framing inspections.
- Residential rooftop-mounted photovoltaic panel systems.
- HUD manufactured home installation verification.
- Any other inspection approved by the AHJ.



RVI Inspection Challenges

Connectivity/Technology

- Video and/or Audio

Ensuring correct site location

Ensuring correct location within the building

Insufficient data to demonstrate compliance

Complexity of the project

Inadequate tools onsite

Length of time for inspection



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RVI Inspection Benefits

- Health and safety benefits
- Customer - Schedule an inspection time
 - Able to plan around schedule
 - Pre-determined length of time for inspection
- Jurisdiction - Eliminates drive time
- Saves time and resources
- Reduces GHG

RVI Inspection Challenges



- Connectivity/Technology
 - Video and/or Audio
- Ensuring correct site location
- Ensuring correct location within the building
- Insufficient data to demonstrate compliance
- Complexity of the project
- Inadequate tools onsite
- Length of time for inspection
- Qualified owner representative available



RVI Inspection Education

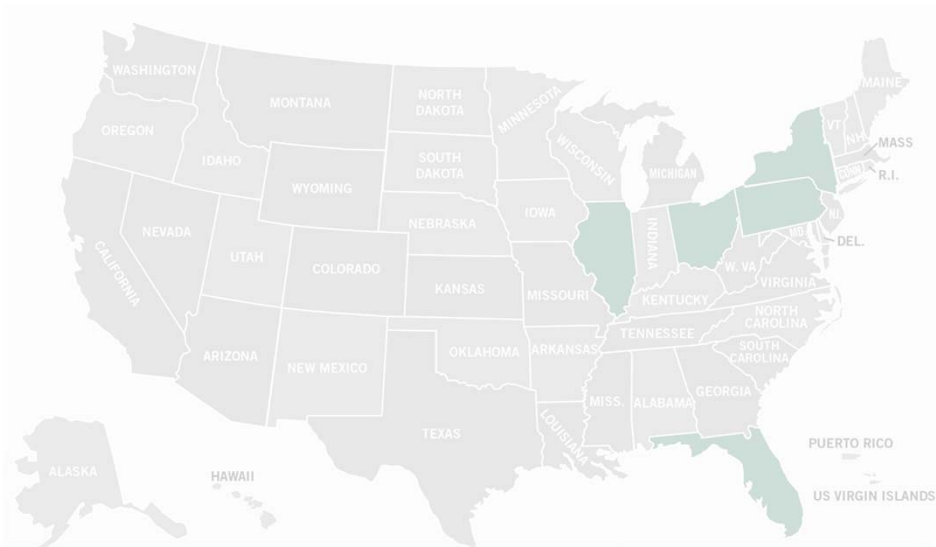
- Training
 - The RVI process
 - The various video platforms/software
 - Communication skills
- Training for Customers
 - Job site expectations
 - Scheduling protocols



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RVI - Special Inspections

- Special Inspections
 - High Strength Bolting
 - Welding
 - Concrete
 - Others



RVI Resources

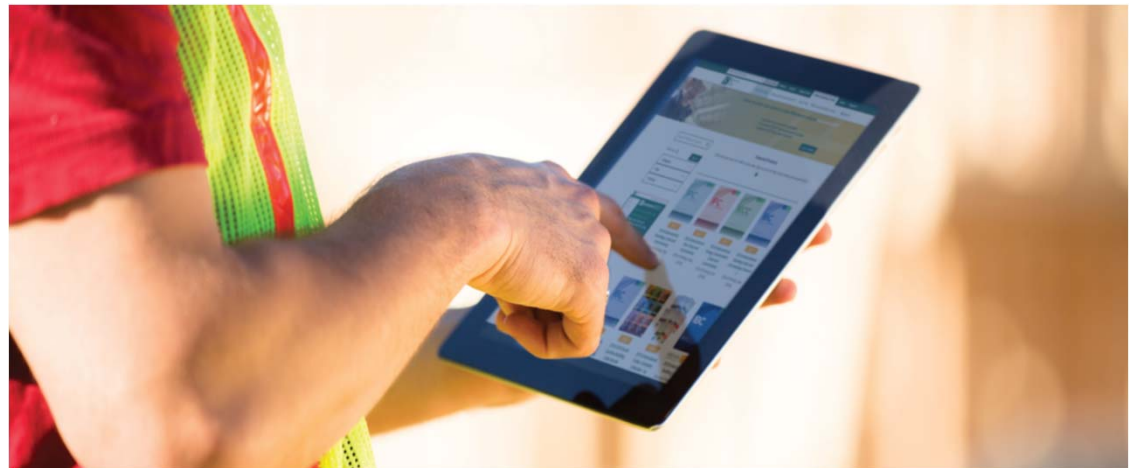
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List of Jurisdictions
Software Availability



RVI - Software

- Municipity
- Inspected.com
- Blitzz
- Others



RVI – Example Jurisdictions

[Alexandria, Virginia](#)

[Arlington County, Virginia](#)

[City of Austin, Texas](#)

[City of Fort Collins, Colorado](#)

[North Carolina Code Officials Qualification Board](#)

[North Carolina Department of Insurance](#)

[North Las Vegas](#)

[Los Angeles County Video Inspection Process and Inspection Guide for PV Systems For One- and Two-Family Dwellings](#)

[City of Los Angeles Department of Building and Safety Virtual Inspection Program](#)

Many others around the country

- [Transforming Edmonton: Remote Video Inspections - Bing video](#)

Future of RVI

- Many jurisdictions have made it permanent
- Energy related standard and protocols

Resources

www.iccsafe.org

Free Public Access to Codes

<https://codes.iccsafe.org/>

[Recommended Practices: Remote Video Insp.book \(iccsafe.org\)](https://insp.iccsafe.org/)



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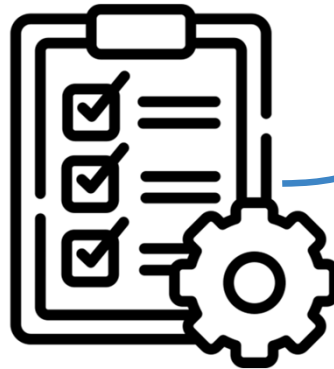
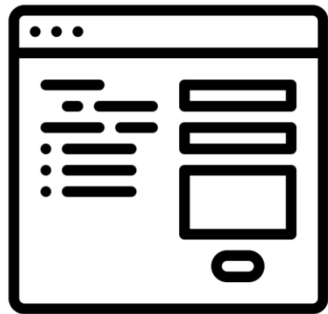
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2021
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Installer submits an application with design specifications through SolarAPP



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SolarAPP+
JUNE 22, 2020
SolarAPP+ Project Approval Record
[Project Title]

Project Information		Contractor Information	
Project Type	Rooftop solar	License 1 Type	29423957
System Size (Kw)	12	License 1 Number	242379235
AHJ	Modesto, California		
SolarAPP eligibility	Confirmed		
Address	2027 E Cliff Dr Santa Cruz, CA 95062		
Scope of Work	Lorem ipsum. Consectetur turpis pulvinar morbi fringilla cursus. Consectetur turpis		

Scan code to open project

Approval ID: 42932593
projectverificationui.com/projectID

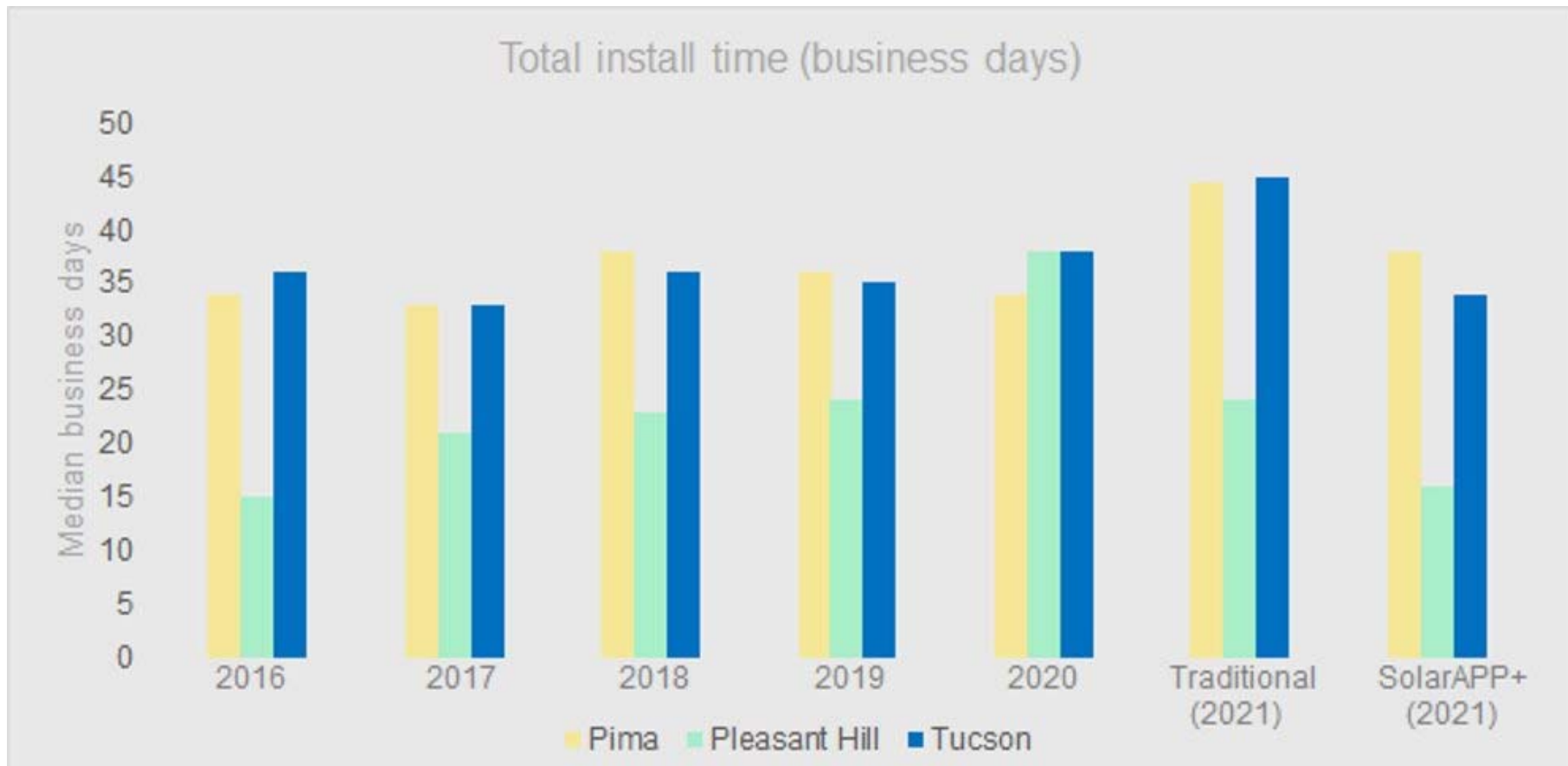
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SolarAPP+ significantly reduces install times

PRELIMINARY DRAFT RESULTS: DO NOT CITE



2021
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Time Savings for Local Governments

Permitting Time Saved by SolarAPP+

	Mean permit review time (hours)	SolarAPP+ Permits	Time saved on permit review (hours)	Mean Permit Revision Time (hours)	SolarAPP+ Revisions	Time saved on permit revision (hours)	Total time saved (hours)
Pima County, AZ	1	54	54	0.75	11	8.25	62.25
Pleasant Hill, CA	0.25	19	4.75	0.20*	41	8.20	12.95
Tucson, AZ	1	76	76	0.75	47	35.25	111.25
Totals	-	149	134.75	-	99	51.7	186.45

- Time saved during SolarAPP+ pilot: 186.45 hrs
- Estimated time saved since launch: ~420 hrs

PRELIMINARY DRAFT RESULTS: DO NOT CITE



- Thank You





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