U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

Timely Tales of Building Energy Codes

Electronic Construction Permitting: Best Practices and Implementation

Building Technologies Office
October 2020

Electronic Construction Permitting: Best Practices and Implementation

DOE 2020 Building Energy Code Seminar Series

1:00 – 2:30 pm EST Thursday, October 8th, 2020

Northeast Energy Efficiency Partnerships

"Assist the Northeast and Mid-Atlantic region to reduce building sector energy consumption by at least 3% per year and carbon emissions by at least 40% by 2030 (relative to 2001)"

Mission

We seek to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities.

Vision

We envision the region's homes, buildings, and communities transformed into efficient, affordable, low-carbon, resilient places to live, work, and play.

Approach

Drive market transformation regionally by fostering collaboration and innovation, developing tools, and disseminating knowledge

About NEEP

A Regional Energy Efficiency Organization

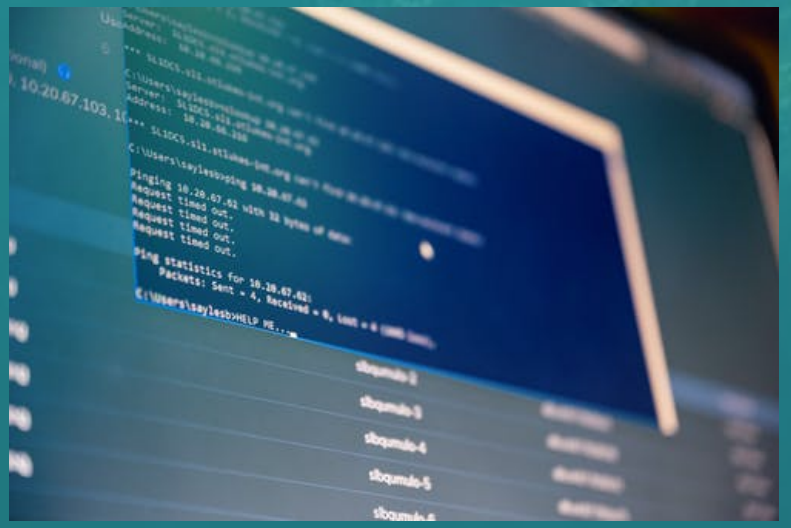
One of six REEOs funded in-part by U.S. DOE
to support state and local efficiency policies and programs.

Agenda

- Electronic Construction Permitting Overview
  - Moses Riley, Northeast Energy Efficiency Partnerships (NEEP)
- Borough of Lansdowne: Transition to The Virtual World
  - Michael Jozwiak, Zoning and Code Enforcement, Lansdowne, PA
- State of Oregon Electronic Building Permitting
  - Celina Patterson, Building Codes Division
- Discussion and Q&A

Audience Poll

Electronic Construction Permitting



Electronic Construction Permitting

- Plan submittal review
- Permitting
- Inspection requests and scheduling
- Fee calculation/collection
- Project tracking
- Communications

Electronic Construction Permitting

Consumer Benefits

- Timely permit issuance
- Remote
- Enhanced quality of service
- Coordination with other entities (utilities, renewable providers)
- Inspection Requests and Scheduling

Building Department Benefits

- Consolidated Process
- Operational Savings
- Record keeping
- Data collection
- Inter-Departmental Coordination

Virtual/Remote Inspections

Week 6 of Webinar series:
Thursday, November 5th @ 1:00 pm – 2:30 pm EST

Electronic Construction Permitting: Implementation

- Original or Purchased Software
- Funding
- Scope – one city, multiple counties, state
- Role for Third Party Specialists
- Coordinate with other Departments

Examples of Electronic Permitting Policies

State	Electronic Permitting Program
Connecticut	New Haven East Hartford Bridgeport
Delaware	New Castle County Wilmington
District of Columbia	https://dcra.dc.gov/node/1408621
Maine	Portland York Bridgeton
Maryland	Baltimore City Prince George's County
Massachusetts	State Owned Buildings Cohasset Cambridge
New Hampshire	Derry Hampton
New Jersey	Statewide construction permits
New York	New York City
Pennsylvania	Philadelphia Landsowne
Rhode Island	Statewide e-permitting
Vermont	Statewide Burlington
West Virginia	Morgantown

Electronic Construction Permitting Raising Energy Efficiency

Data Collection: Traditionally just permit data
Could also include several data fields:

- Appliances
- Compliance Path/Score
- ERI Score
- SGHC/Window U
- Air Leakage Rate
- Insulation R

Online Electronic Permitting Raising Efficiency

Online or electronic construction permitting is changing the way municipalities throughout the Northeast and Mid-Atlantic are issuing permits and scheduling inspections. For builders, plan reviewers, inspectors, and municipal and state administrators, online permitting, electronic plan review, and virtual inspection requests are streamlining and expediting the construction process while helping municipalities ensure code enforcement and compliance.

Building permits[1] traditionally have been issued by obtaining a permit application at a local or state code office and/or from online download. Currently, the majority of permit applications, along with the printed architectural drawing of a project, are submitted for code review via paper copy to the local or state code inspector's office. The utilization of electronic permitting – an online automated building permitting software system with a public user interface – is gaining traction for the efficiencies and timeliness provided to all who interface with the system. Current health risks and various limitations restricting in-person interactions due to COVID-19 provide a compelling reason for the implementation of electronic permitting. Electronic permitting, combined with virtual inspections, provides a process that is similar to customary permitting and inspections but more accessible, expeditious, and accurate.

An online electronic code compliance system can be designed to manage the permitting process from application to retrocommissioning[2] years after issuance of the original building permits.

Electronic Permitting Capabilities include:

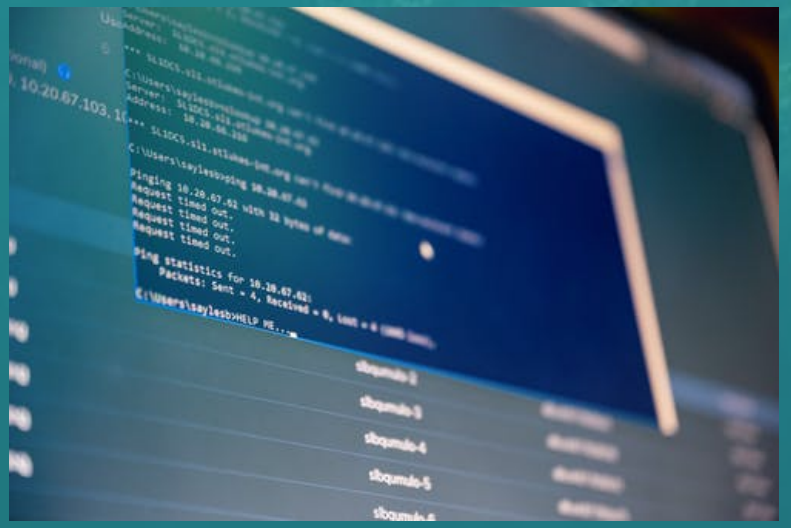
- Plan submittal and review
- Permitting (various building typologies)
- Inspection requests (interim, final, annual, long term retro-commissioning, virtual)
- Scheduling inspections
- Fee calculation and collection
- Project tracking (multiple data points for various programs)
- Workflow administration
- Customer services communication (web-based and telephone voice response)
- Inter- and intra-departmental communication and management.

The consumer benefits of online permitting include:

- Reduced permitting time
- Enhanced quality of service
- Coordination with private and public entities that provide constructions services (utilities, alarm services, renewable providers)
- Annual and retro-commissioning commercial building inspection reminders

[1] Building permits are a type of written approval required by municipal or state regulatory bodies before construction of a new or existing building can legally occur. Building permits ensure the safety of the work and the project's compliance with construction, energy, and zoning codes.
[2] Retrocommissioning is the utilization of the commissioning process to existing buildings. Retrocommissioning improves how building equipment and systems function together to optimize building performance.

Electronic Construction Permitting



Audience Poll

Borough of Lansdowne

Transition to “The Virtual World”

By: Michael Jozwiak

Catalyst for Change

- COVID-19
  - Borough Hall to close to the public
  - All construction halted
- How do we move forward?
  - Need for continuation of services and community outreach even with lack of public access to the building
  - Reduction of paper/paperless files

Framework in Place?

- What could be adapted to meet needs?
  - Connectivity for input from public
  - Connectivity for collection of permit payments online
    - Permit vendors conduit to handle credit cards, e-checks, PayPal, Authorize.NET, etc.
      - *Some vendors pay charge up to $5,000 to customize own vendor for payment*
    - Automate bank deposits from the vendor

What we put in place

- Online permit applications and payment
  - Email notification
- E-plan reviews & markups
- Online job specs & details
- Approved permit & plans emailed back to applicant

ICC Has Addressed Virtual Inspections

Virtual Inspections

- Pictures provided by contractor or owner
  - Authenticity validated via photo metadata
    - GPS coordinates to prove picture location
- Video inspection via FaceTime or Zoom
  - *Minor or basic projects only*
  - Outside property (front elevation)
  - Property address
  - Everything else is the same!
- Provide inspection documentation results via email
- Issue appropriate paperwork for project
- Finalize & close out permit/project online

Running Virtually Since March 2020

- Efficient permit processing & inspections with less manpower
- Limits public contact
- Efficient use of time management
- Zoom sessions able to be recorded
- Photos automatically linked to property file

- Poor quality internet
  - Lost connectivity seen especially in basements or heavily fortified construction sites (steel & concrete)
- Limited transfer of data into property file
  - 25MG at one time

Next Steps & Scaling Up

Technology to upload data for each property with a unique barcode onto a cloud system

Drone patrols for property maintenance

Scaling up depends on the ability of foundation to withstand the growth/increased data load

Recommendations

- Consult existing permitting software provider to determine what they can provide & how information from virtual or remote inspections can integrate

Questions?

Oregon ePermitting

Presenter:

Celina Patterson, ePermitting Manager

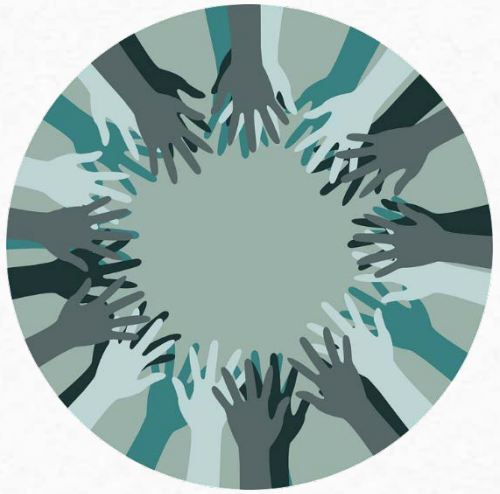
State of Oregon Building Codes Division

Who We Serve

- 41 Cities, Full ePermitting Services
- 29 Counties, Full ePermitting Services
- 9 “Basic Service” Jurisdictions
- Department of Environmental Quality’s Onsite Program
- Contractors, Realtors, Architects, Engineers and Homeowners
- Manufactured Home Industry
- Elevator Industry
- General Public

Our Resources

- Team:
  - 4 Project Managers/Implementation Specialists
  - 4 Technical Staff- Data Conversions, Scripting, Reports
  - 2 Help Desk Staff
  - 1 Training and Outreach Coordinator
  - 1 Manager



- Funded by 4% Statewide Surcharge on Building Permits

How We Developed

- 2006 "Basic Services" Homegrown Web Site
- 2009 "Full Services" Legislation Enacted
- 2011-2013 First Implementations, Lane County and City of Springfield
- 2014 "D14" Hybrid Implementation
- 2015 Oregon Standard Model/OR Scheduling App
- 2016 Planning and Code Enforcement Module
- 2017 Kayako Help Desk Implementation
- 2018 Department of Environmental Quality Onsite Module
- 2019 Public Works/Engineering Module
- 2020 Monday. com Project Management/OR Inspector App

What We Provide: "Full Services"

- Accela Citizen Access (Public Web Portal)
- Accela Automation (Jurisdictions' Permitting Portal)
- Electronic Plan Review (Acrobat Pro, Bluebeam and TBD)
- GIS Integration (if desired)
- Daily Financial Batch
- Expiration Batches
- Scheduled Address, Parcel and Owner Updates
- Inspection Scheduling Tools (ACA, Selectron IVR automated phone and text, Oregon Mobile App)
- Remote Inspection Tools (Accela Inspector, Oregon Inspector, VuSpex)
- Document Management Systems (up to each jurisdiction)

What We Have Learned

- Build in Discrete Chunks, Adding to Your Successes
- Don't Get Too Invested in One Way of Doing Things
- Avoid Overbuilding Workflow and Applications
- Work with Trusted 3rd Party Vendors
- Maintain Good Relationship with Vendors
- Consistency
- Documentation
- Work Prioritization (Software tools)
- Cross training

Ongoing Challenges

- Converting original jurisdictions onto the standard model
- Maintenance
- Managing growth
- Staying nimble
- Delivering refresher training
- Evolving technologies

What's Next?

- Expansion of electronic plan review
- Power BI/Better Data
- Video Inspections
- Contractor Hub

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Thank you!

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Celina Patterson, State of Oregon
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QUESTIONS

NECC SEMINAR SERIES

Catch the entire lineup of sessions weekly—Thursdays @ 1p ET:

- 10/01: Kickoff to the Series
- **10/08: Electronic Permitting**
- 10/15: HVAC for Low-Load Homes
- 10/22: Performance-Based Compliance
- 10/29: 2021 IECC Commercial
- 11/05: Remote and Virtual Inspections
- 11/12: New for ASHRAE Standard 90.1
- 11/19: 2021 IECC Residential
- 12/03: Advanced Technology and Codes
- 12/10: Policies for EE + Resilience
- 12/17: Field Studies in the NW Region

> Learn more: energycodes.gov/2020-building-energy-code-webinar-series

THANK YOU!

- Building Energy Codes Program

www.energycodes.gov/training

- BECP help desk

https://www.energycodes.gov/HelpDesk