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Office of the Mayor  
Hawai'i County, HI

## Report regarding operations within the Building Code Division of the Hawai'i County Public Works Department

**Project scope:** To identify inefficiencies within the building division of the Public Works Department that may lead to delayed intake, processing, and issuance of building and/ or associated construction permits.

**Project limitation:** operations within the fire code division, public works permitting division, planning department and health department are outside of the scope of this report.

**Methodology:** Online research of permitting and legal information relative to building and associated permits as well as face to face interviews with building division permitting staff and a limited number of permit applicants. Interviews with staff were held between October 3, 2022-October 7, 2022. Staff interviews were representatives of permit clerks (permit technicians), inspectors, plans examiners and division managers. Below are general interview questions and generalized responses of each group that was interviewed.

### Permit Clerks:

Q. How do you receive most of you permit applications?

A. Most are received electronically through the EPIC permit system.

Q. I understand that you use Tyler Energov as your permit records system. What does EPIC do that Energov does not do?

A. The permit clerks could not provide a clear answer to the question however it became clear to me that EPIC provide enhanced initial permit application ability for the applicants.

Q. Does EPIC require specific information such as building occupancy, construction type, height, etc. to be input by permit applicant before the application process can continue?

A. No

Q. Does EPIC provide automated geographic information such as whether a property is in a flood hazard zone to the permit applicant?

A. No

Q. It appears the owner declaration form and contractor declaration forms must be submitted as separate documents and are not part of the EPIC or Energov systems. Is that correct?

A. Yes, they are separate documents that must be provided by the permit applicant.

Q. Do you issue very many rooftop solar voltaic building permits and if so, can you tell me how many?

A. Yes, we issue a lot of them, but I can't tell you how many.

Do you require building permits for all rooftop solar installations?

A. Yes

Q. Are simple projects prioritized?

A. To some degree yes but there is no formal procedure for doing so.

Q. May I obtain a copy of your policy and procedure manuals?

A. We don't have policy or procedure manuals.

Q. I understand that Hawai'i state law requires that the county verifies the licenses of each contractor with each permit application. I also understand that the State will provide a list of licensed contractors for use in required contractor verification. Does the County utilize that list or do you perform an online search for contractor information with each permit application.

A. The information is within EPIC but it is not automatically validated. Permit Clerks validate the information prior to permit issuance.

Q. When staff meetings take place is a written meeting agenda distributed to staff?

A. No

Q. Your online checklist shows that once all reviews are approved, the applicant must come to the building division do have a permit placard printed to be posted on the jobsite. What is the purpose of the placard?

A. So that the inspector driving by knows there is a permit for the work being done.

#### **Plans examiners:**

Q. Do you use Bluebeam Revu to conduct your reviews?

A. Yes

Q. Is Revu integrated with Energov?

A. I don't think so.

Q. How do you know when a new project is ready for review?

A. (A little ambiguous). We are notified by the permit clerks.

Q. Do you prioritize simple projects to get them "out the door" more quickly?

A. Somewhat, yes.

Q. When minor corrections are needed on the plans do you redline them and approve the plans?

A. Sometimes.

Q. When corrective items are noted on plans do you attempt to contact the designer by phone and/ or email or do you always input the corrections into Energov without additional contact attempt methods?

A. Corrections are entered into Energov. We typically do not use additional contact methods.

Q. When are plans sent to the structural engineer for review?

A. When the other plans examiners determine structural review is needed.

Q. Are you familiar with the Public Duty Doctrine?

A. No.

Q. When workloads are overwhelming, do you utilize third party plan review?

A. We've done so on a very short term basis in the past.

Q. Do you require the industry standard delta and revision cloud when changes are made on plans?

A. No

Q. Do you use the "compare" feature in Bluebeam Revu to identify what changes are made to different iterations of plans?

A. No

Q. Does your division use the "Sessions" feature of Bluebeam Revu?

A. Yes

Q. Do you have an ordinance or policy that defines what a "complete" set of plans is?

A. No

Q. Do you require an engineer or architect to analyze the impact of rooftop solar systems on the

building's roof structure?

A. Yes

**Inspectors:**

Q. Do you require licensed plumbers to perform plumbing inspections?

A. We have dedicated inspectors that perform plumbing inspections.

Q. Does state law require that plumbing inspectors be licensed plumbers?

A. Unsure

Q. Must final plumbing inspections be completed prior to calling for the building final inspection?

A. Yes

Q. Can the general contractor request plumbing inspections?

A. No. Only the plumbing contractor can request plumbing inspections.

Q. When electrical inspections are requested is the general contractor allowed to request the inspection?

A. No. Only the electrical contractor is allowed to request electrical inspections.

Q. Is there a state requirement that electrical inspectors be licensed electricians?

A. We believe that the answer is "yes"

Q. Do you allow building inspectors to perform inspections for minor plumbing and/ or electrical installations?

A. No

Q. When a rooftop solar installation is inspected, does the building inspector go on the roof to check the structural connections?

A. No

Q. When the rooftop solar installation electrical inspection is called for, does the electrical inspector look at the structural connections on the roof?

A. No

Q. Do you allow any level of self-certification for minor maintenance permits such as water heater change-outs?

A. No

**Conclusions:**

Permit processing systems are extremely complex. Without written documentation such as policy/procedure manuals it becomes extremely difficult to keep complex systems organized and predictable for permit staff and permit applicants. The result is inefficiencies, personal preferences, and some level of chaos creeping into the system. These items lead to non-predictability for permit applicants which in turn leads to unnecessary complaints to upper management and elected officials.

The lack of written meeting agendas leads to ineffective use of staff time during staff meetings. If there is no agenda, there should be no meeting.

As you know, there are a significant number of open plan review positions. This is not unique to Hawaii County but rather is an industry-wide concern. It's somewhat worsened by the low rate of pay being offered by Hawaii County. Third-party plan review is a possible solution and seems to be the trend in the industry.

The current plan review fees being charged might make it difficult to retain the services of third-party review. Current building plan review fee is 20% of the building permit fee. Industry standard and the fee called out in the generic International Building Code (IBC) is 65% of the building permit fee. As you are aware, raising fees brings political implications.

Compartmentalization of duties among inspection staff also leads to inefficiencies as does assignment of virtually all structural plan review being performed by licensed engineering staff in the plan review section. Using licensed engineers to perform structural review projects scoped up to conventionally built single-family houses is extremely unusual in the industry. Finding a third-party plan review firm that would utilize this practice would hover somewhere where the needle is close to "Impossible". There also appears to be an extreme over reliance on internal engineering staff even though the project has been designed by licensed design professions such as architects or engineers. The talents and expertise of internal licensed staff is best reserved for extremely complex structures. This over reliance appears to (at least in part) stem from extreme risk intolerance. Such intolerance can be partially muted with training in the tenants of the Public Duty Doctrine.

Rooftop photovoltaic systems are typically extremely light weight (typically less than 4 PSF) Research and experience in major southwest mainland jurisdictions has demonstrated that there is little benefit in requiring the time and expense of requiring licensed design professionals to design these systems. Washington State as example, specifically exempts systems meeting established criteria from requiring a licensed design professional. It's estimated that well over 95% of rooftop systems fall within the limitations established by Washington State. Several jurisdictions have decided that building permits for these systems provide no benefit other than collection of permit fees so no longer require building permits but rather simply issue an electrical permit and ask the electrical inspector to verify required fire fighter access paths from the ground when they perform the electric inspection.

There are several other areas where staff can be better utilized such as allowing the building inspector to perform plumbing inspections at the same time as the framing inspection for simple structures such as single-family homes.

While there may be some benefit in not allowing the general contractor to call for plumbing or electrical inspections, the benefit is extremely minor but is quite an inconvenience to the permit holder. It is also a procedure I've not seen in my 34-year career.

There are some additional efficiencies that can be made but would require minor changes to the County Code.

Staff members I interviewed were all unaware of what a Lean Process Improvement program is. Lean process improvement program involves a Lean Consultant leading meetings, usually over several days where staff identifies every touch, movement, contact, flow, etc. of the permit application intake through issuance process and documents each (usually by writing each on a sticky note and attaching them to a wall). Each item is then questioned as to the necessity of why the item is being performed. If the item cannot be validated as either necessary or legally mandated, the item is deemed unnecessary and eliminated. The process typically results in a 15%-40% reduction in workload.

It is obvious that a great deal of time and money has been used to implement the Energov and EPIC systems. My limited observation of EPIC indicates to me that the implementation was intended to make

applying for a permit as painless for the applicant as possible and to a great extent looks to have been successful. This is particularly true given the challenges that Energov is well known for. While there are no perfect permit systems in existence, Tyler's Energov is well known in the building permit industry as being particularly problematic. With adequate revenues, the problems eventually always come to a resolution.

I've worked with several jurisdictions that have implemented Energov and one commonality seems to be that the sales team makes promises that the technical installation team can't keep or at least can't keep while staying within the contract budget. Typically, this results in added and unanticipated expenditures after the system goes live. Additionally, there are always things that permit and IT staff find they wished they had done differently. In conversation with building division staff there appears to be some of the same angst in this regard as I've heard from several other jurisdictions.

There is always some level of ongoing customization with any permit system therefore there is always a need for a revenue stream (in addition to annual maintenance charges) to pay for such customization.

It appears EPIC was designed to make permit application as easy as possible for applicants without predefined "you can't go to step B until you complete step A" types of requirements. While on the surface this methodology seems like great customer service, it's counterproductive by putting additional work on the permit clerks so actually results in a delay in permit processing. A better methodology is to utilize drop down pick lists and require applicants to choose the appropriate information from each pick list before they can move on to the next item. Doing so will reduce the workload of the permit clerks and keep the "chess clock" on the applicant's side until the application is completed. If that change is decided to be implemented, it will create a need for significant additional revenue for the vendor.

Another item noted is that there does not appear to be a user-friendly method for applicants to access GIS data via EPIC or Energov. I've heard this complaint from several developers.

The building chief (building official is the position title used in the International Building Code (IBC)) from what I've learned has had no participation in national code development. The same holds true for the assistant building chief. Each year, code change proposals are sent to the appropriate International Code Council (ICC) committee for consideration. The committees meet in the spring where testimony both pro and con are put under consideration and at the end of about a one-week session, the committees will send their recommendations forward for ICC staff to compile.

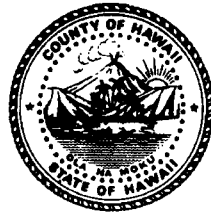
In the fall of each year, ICC holds their annual business meeting (ABM) where the full membership will listen to testimony both pro and con and then vote whether to accept the committee's recommendations. The ABM's are rotated around major mainland cities each year. These 11-day meetings not only give the building chief knowledge of what code changes will be in the next code cycle but also provides the building chief the knowledge of the reason behind each change. That knowledge gives them the ability to properly interpret the code changes as well as the ability to bring that knowledge back to the jurisdiction and pass it along to building division staff.

While travel around the nation is expensive, it's typically far less expensive than sending multiple staff to mainland training events. The current building chief has never been to one of these events.

#### **Recommendations:**

- Implement a technology fee to pay for enhancements to Energov. These fees are not unusual (typically around \$25.00 per permit).
- Investigate increasing plan review fees to industry standard (65% of the permit fee).
- Conduct Lean Process Improvement training for all building division staff (<https://www.lean.org>/<https://www.lean.org/>). This will necessitate hiring a consultant proficient in the Lean process.
- Provide Public Duty Doctrine training for all building division staff. This can usually be facilitated by the jurisdiction's legal staff.
- Investigate allowing building plan reviewers performing structural review for simple projects.
- Investigate allowing building inspectors to perform combination inspections.
- Look into third-party plan review services.
- Define by ordinance what constitutes a complete permit application.
- Assuming that data connectivity is generally available across the jurisdiction, eliminate the need for the permit applicant to come back to the permit center to obtain a permit placard. Instead, provide access to be able to print and post the permit and an inspector to access permit information remotely when they feel necessary.
- Provide budgetary support to allow the building chief and assistant building chief to participate in the ICC Committee Action Hearings (spring meeting) and the ICC Annual Business Meetings (fall).
- Eliminate the use of "Sessions" in the Bluebeam Revu process. The same result can be achieved provided both Hilo and Kona are on the same Local Area network (LAN) without the inordinate amount of work setting up a "session" each review creates. Most jurisdictions where all review staff are on the same LAN have stopped using sessions.
- Provide additional GIS integration within EPIC to automatically let the permit applicant know if the subject property has restrictions such as flood plain or geologic hazards.

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**MEMORANDUM**

**Date:** 12 December 2022

**To:** County Council  
Cost of Government Commission  
Other Stakeholders

**From:** Stephen Pause, PE, Director 

**Subject:** Transmittal of "Report Regarding Operations within the Building Code Division of the Hawaii County Public Works Department"

Attached is the report that discusses the findings from an assessment of operations in the Building Division of Department Public Works. James Tinner was retained by the Administration in August 2022 to evaluate the inefficiencies within the Building Division specifically as they may lead to delays in intake, processing, and issuance of building permits. In addition to his familiarity with the Energov (EPIC) permitting software, Mr. Tinner has a wealth of experience in code enforcement and administration as a former building official, plans examiner, building inspector, and fire marshal in the Pacific Northwest.

The report provides a number of recommendations, with some similar to what our Building Division is already working on, and others that are more nuanced and require a longer-term or more strategic implementation. A summary is provided below.

In-Progress by Building

| <b>TINNER RECOMMENDATION</b>  | <b>STATUS</b>   |
|---|---|
| Look into third-party plan review services  | Met with HGEA to discuss union issues; initial feedback is not positive |
| Eliminate the need for applicant to come back to permit center to obtain permit placard | Applicants are now able to print their permit after issuance            |
| Eliminate "sessions" in Bluebeam Revu process   | Evaluating effect of eliminating "sessions" in Bluebeam Revu            |

## Future Attention

| <b>TINNER RECOMMENDATION</b>   | <b>COMMENT</b>  |
|--|---|
| Implement a technology fee to pay for enhancements to Energov  | County does not presently charge a fee  |
| Investigate increasing plan review fees to industry standard (65% of permit fee)   | County presently charges 20% permit fee upfront   |
| Conduct Lean Process Improvement training <a href="https://www.lean.org/">https://www.lean.org/</a><br>The lean process is a method for creating a more effective business by eliminating wasteful practices and improving efficiency. | Reviewing County permitting process in a structured manner could drive out inefficiency and eliminate non-value-added steps   |
| Provide Public Duty Doctrine training for staff  | Noted   |
| Investigate allowing building plans reviewers performing structural review for simple projects   | Will consider after assessing Plans Examiner workload once all vacancies are filled (only 4/7 positions are presently filled); currently, Structural Engineer's reviews reduces the workload on Plans Examiners who are primarily focused on life-safety compliance |
| Investigate allowing building inspectors to perform combination inspections  | Requires consultation with HGEA regarding work jurisdiction; Inspector positions currently require Supervisory Electrician Licenses for Electrical Inspectors and Journeyman or Master Plumber Licenses for Plumbing Inspectors                                     |
| Define by Ordinance what constitutes a complete permit application   | Will evaluate need for an Ordinance after the effectiveness of the REVISED Application Checklist is implemented.  |
| Provide support to allow Building Chief and Deputy to participate in the ICC Committee Action Hearings and Annual Business Meetings  | Noted   |
| Provide additional GIS integration within EPIC to automatically let applicant know if subject property has restrictions such as flood plain or geologic hazards  | Noted as a future enhancement that can be used to determine when Engineering Review will be required for Building Permits   |

The Building Division is working on a number of approaches to improve permitting. These are summarized below.

| <b>ACTION</b> | <b>DESCRIPTION</b>   |
|---------------|--|
| Communication | Improve public outreach with stakeholders; hold "talk story" sessions with design professionals, drafters, contractors, others; share review checklists; improve permit issue metric and include average duration for permits to be issued |



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|---|--|
| Re-design EPIC Website  | Organize and make website user-friendly, including a complete list of forms that are needed in the permitting process; include links to related agencies.  |
| Dedicated IT Support for Energov (staff)                            | Improve staff efficiency by having a dedicated IT specialist available to help troubleshoot customized automation unique to the Building Division  |
| ICC Training and Certification for Inspectors and Plan Examiners    | Create classification of work for ICC Certification that recognizes training and level of skill of Inspectors and Plans Examiners  |
| Staff Vacancies   | Develop strategy for hiring and retaining staff; 5-step Plans Examiners for on-the-job training (done); Certification Classification for Inspectors (ongoing).   |
| Reassess Duties for Permit Clerks                                   | Assessed Permit Clerk duties; revising processes for permit application, resubmittal and revisions to ensure that documents are complete and correctly formatted to enable Permit Clerk to maximize their productivity   |
| Staff Meetings  | Weekly "Brainstorming" Meetings to identify areas for improvement; action items identified in table and progress tracked.  |
| e-Filing  | Organize documentation in shared drive readily accessible to the Building Division; this creates consistency through available information resources and uniform procedures  |
| Utilize filters to identify permits that should be prioritized      | Deployed Priority Tiles to identify projects that can be expedited based on the scope of work that is essential to community life and safety; provides for educational needs; and is limited and simple for quick review; Priority Tiles used at permit intake, plan review, and permit out-processing |
| Revise Permit Application Checklist                                 | Provide more clarity on permit application requirements with weblinks to the appropriate agencies and forms; require the Design Professional to be listed as a Permit Contact; require Design Professional to review and certify the Application Checklist   |
| Develop EPIC "Decision Engine" version of the Application Checklist | User-friendly version of the checklist   |
| Create "Self-Certify" Permit Application                            | Applicants will have the option bypass the conventional Permit Intake to reduce processing time; if Permit Clerks confirm the permit is complete, then plans will go immediately to Plan Review; if applications are found to be incomplete, then they will be   |

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|--|--|
|  | rejected (cancelled); there is no fee assessment if the application is rejected; the conventional review by Permit Clerks will still be available where the permit application is “active” while awaiting corrections; once corrections are submitted then applications will await re-review in the queue before progressing |
| Reject Incomplete Permit Applications  | Prohibit applications submitted as “place holders” that then requires Permit Clerks to contact them for missing information  |
| Update Residential Plans Designer Checklist Already Posted on the Website            | Update for 2018 International Residential Code (IRC) that applicants can use to create a complete set of plans   |
| Finalize and Post Non-Residential/Commercial Designer Checklist on the Website       | Finalize checklist for current Codes that applicants can use to create a complete set of plans   |
| Plan Resubmittals and Revisions Format   | Require Corrections Letter for Plan Resubmittals; require Design Professional Narrative for Plan Revisions; require all changes be annotated with the “Cloud and Delta” drafting method to highlight the extent of changes; utilize Bluebeam “compare” feature.  |
| Three-strike Rule  | Plan reviewer can mark up to three corrections and then approve, “as noted”; if more than three corrections needed, resubmittal will be required   |
| Encourage Communication between Design Professional and Plans Reviewer during Review | Authorize Plans Examiners to have discussions with Design Professionals when design intent is not clear; annotate plans to document revision: “... <i>per telecon with XX on date</i> ” instead of requiring resubmittals.   |
| Consider No Plan Review – “Plans Subject to Field Inspection”                        | For Residential PV less than 10kW; Electric ONLY less than 200A; Plumbing ONLY less than 4-bathrooms.  |