

OBSERVATION 1 – ROOFING DESIGN AND PLAN REVIEW

OCP should address requirement of designers to conduct site inspections and maintain evidence the inspections were completed

BD should commit to working with the designers

The Building Department has and will continue to commit to work with the consultants or sub-consultants, having spent hours with them numerous times throughout multiple reviews to be able to educate them as to the detail required to provide the information needed on the contract documents to properly bid the project.

In their role as a designer, they should have a thorough understanding of the Florida Building Code as they are licensed by the DBPR. By contrast building officials are certified by the DBPR and obligated under Florida state statute 468.604 to enforce that the design professionals create a set of construction documents that meet the code minimums. Building departments exercise oversight as stipulated by FS 468.604. However, though not bound by statute, the District's Building Department has gone beyond the pale to train from the beginning of the SMART program the design professionals in the hope that this tutelage will pay dividends down the road by strengthening a weakness of the consultants the system has chosen. Despite the additional time that this training consumes, the Building department still manages to perform successfully to the point where the finished product not only satisfies the Florida Building code, but the District's design and material standards. The roofs constructed since 2008 in this District do not leak and have withstood hurricanes. Further, there have been few, if any change orders that have anything to do with Building Department omissions regarding plan review.

OBSERVATION 5 – ROOF SUB-PERMITTING PROCESS IS MANUAL / PRINTED

BD should address consideration of Maximo as a tool for facilitating electronic submissions of sub-permit binders

We have contacted users in PPO regarding Maximo and are in the process of investigating whether it would be a useful and an affordable software application for the Building Department to use, we are also looking into the capabilities of e-Builder to determine which is the most efficient solution. Note, just recently we have researched our own ISS application, which was initiated in 2010 and were looking to repair and upgrade the system. An ISS System upgrade may be necessary to bridge the gap before implementing and changing over to a new application (Maximo or e-Builder).

OBSERVATION 6 – LACK OF RESOURCES TO SUPPORT ROOFING SUB-PERMITTING

BD should say that they will analyze the staffing and that there will be a request for staffing that the Board will need to consider approving

Recently the Building Department has repositioned the current 5 staff/contract employees to better align their responsibilities to achieve some of the points listed in the analysis. One (1) handles all administration of the BD's roofing program, a lead Inspector/Plan Examiner provides all technical aspects and manages the workload of the other three (3) Inspector/Plan Examiners. Currently one (1) is learning the Sub-permit process to supplement the Sub-permit review process. One (1) keeps track and provides all other plan review requirements on the GOB roofing projects and the other Inspector/Plan Examiner provides additional field inspections.

The BD is currently keeping pace with the Roofing Program, performing 15 to 25 inspections daily and completing plan reviews within 14 days of submittal. The concept that the Building Department has failed to perform or is delaying the program is a major misconception. We have always and still do see the need for training and adding qualified staff to continue the competent oversight both for inspections and plans examination.

It is a legitimate concern that finding competent staff to reinforce our existing personnel is essential to the continued success of the program. One of our supplemental code staff providers, CAP Government has spoken in terms of the regional paucity. See the following email:

From: Christopher Ellison <cellison@capfla.com>
Sent: Wednesday, July 29, 2020 6:00 PM
To: Robert F. Hamberger <robert.hamberger@browardschools.com>
Subject: CAP Government - Roofing Inspector Request

Mr. Hamberger,

This email is intended to provide you information regarding the limited availability of qualified and licensed Roofing Inspectors (SRI) in the South Florida region. As you know, CAP Government is a consulting firm engaged in providing professional building code compliance, engineering, and inspection services for local governments, school districts, and other governmental institutions. We are leaders in the industry, and we actively and continuously recruit for all building code trades, including those with specialized licenses. Specifically, in recent years the industry has incurred difficulties in recruiting and retaining roofing inspectors, particularly in the region. This difficulty occurs primarily due to the limited number of licensed and qualified roofing inspectors available. Your request for Roofing Inspectors has been diligently pursued; however, a reliable supply of Roofing Inspectors is not consistently available.

If you have any questions, please contact me through my email or at the numbers below.

Christopher M. Ellison
Human Resources Director

It is the BD's goal to work toward achieving the technical and personnel recommendations to fortify the department's role in the process. It is our hope that the finances be made available to achieve that end.

OBSERVATION 7 – LACK OF FORMALIZED PROCEDURES AND RESOURCES FOR INSPECTIONS

BD should say that they will analyze the staffing and that there will be a request for staffing that the Board will need to consider approving

As stated in the response to Observation 6 above, the Building Department has analyzed the existing staffing and have adjusted their responsibilities to better provide the services necessary. We will continue to pursue adding additional third-party roofing inspectors, even reviewing the possibility of issuing another RFP in hope to get additional Private Provider firms to apply. Next, request the organization chart be revised to include at a minimum the (2) positions recommended by the RSM Roofing Analysis.

BD response mentions "could look into addition of a roofing phone line for inspections" (This should be more definitive on whether they do/do not intend to explore options for adding a phone line, as well as a clerical/scheduler resource)

The BD has a phone line for inspection requests, so another phone line would be redundant. We also have an available clerical position, who could serve as a scheduler, if needed. The operation as it is, is efficient. A scheduler sitting in an office working a night shift could have no idea what the inspector is experiencing in the field hour by hour. The scheduler would not be privy to decisions made by the roofing contractor, labor or material delivery problems and changing weather conditions at certain locations. The scheduler also would not be privy to job site conditions revealed during the demolition phase such as compromised substrates, saturated lightweight insulating deck or corroded metal deck conditions. Many aspects of roofing inspections occur visually on the site and require adjustments either in the form of immediate direction to the contractor, direction suggested to and approved by the consultant or corrective action by the inspector. A scheduler would just be another unneeded layer of management that would serve as redundancy and delay the decision-making process that must happen to maintain fluid operations in the field. It should be obvious then that the scheduler would need to be as knowledgeable as the inspector, since the inspector's decisions are based on so many factors, which occur in the field. The scheduler and the inspector would have to be of the same line of thinking, which would be nearly impossible, since the former doesn't have the experience and the ability to see and understand what the next steps should be. Contractors might easily take advantage of that. Having a few more inspectors in the field would be a far more effective solution as stipulated in the response to Observation 6, which also addresses the challenge of availing the use of third-party inspectors.

OBSERVATION 8 - BUILDING CODE INTERPRETATION AND DISTRICT DESIGN STANDARDS

OCP and BD need to opine on whether the District's design standards are too high

The Florida Building Code (FBC) and Design and Material Standards (DMS) set the basic requirements of minimum roofing standards as set forth in sections 104.11, Sections 1512 through 1525 and the HVHZ volume of the FBC and the current DMS. The mandatory requirements of the FBC are to construct a roofing system that will resist wind uplift forces

that are equivalent to wind speeds up to 180 mph. The DMS is a set of minimum materials used in the design of school facilities to satisfy the Life Cycle Cost Analysis (LCCA) put forth in FS 1013.37, 2017 FBC sections 453.4.8, 453.8.7 and 2014 SREF sections 4.3(8)(a), 453.5 and 453.9. The LCCA speaks to standards for construction materials and systems based on life-cycle costs that consider initial costs, maintenance costs, custodial costs, operating costs and life expectancy.

A recommendation from the Board was to pursue bench marking of the multiple NOA approach. OCP and BD should affirm whether this is part of their action plan.

The use of using multiple NOA's or combining manufacturing NOA's to obtain a system for use on the roofing projects goes against the intent of the State of Florida's Product Approval system. The interpretation of the District's Chief Building Official, the Authority Having Jurisdiction (AHJ) requires use of a single Notice of Acceptance (NOA) for complete assemblies, which does not support an approach involving multiple NOAs.

OCP and BD should make a statement that the primary decision to go with Soprema is because they were the only manufacturer that tested the entire system (Bob/Frank – please note that this point is based on my limited knowledge from our meetings)

Soprema currently has the only tested system for a roofing recovery assembly as stated in the item above. There are countless manufacturers that could be used if we were constructing new buildings with new roofs, (but since many are existing buildings with compromised roofing substrates (steel decking and insulation), the reconstruction of the structural component and/or insulation component, the building code mandates that we use a full component system that has been approved as an NOA for HVHZ(Miami-Dade County) areas by a listed testing agency.

2017 FBC 1515.1 High Velocity Hurricane Zone-Performance Requirements). "All roof assemblies, roof coverings and roof systems shall have product approval and shall meet the following requirements..."

The definition of a roof assembly according to the 2017 FBC is; *Roof Assembly. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and a roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof deck, vapor retarder, substrate or thermal barrier, insulation and roof covering.*

The definition noted above describes exactly what Soprema's NOA is. To date, no other roofing manufacturer has received an approval from Miami-Dade County Product Approval for this required roof assembly.

OCP and BD should make a statement about the warranty (Bob/Frank – it is my understanding that the warranty is a secondary or added benefit)

If the District will be spending approximately \$350 million to remodel a considerable number of roofs and it decides not to acquire a wind rider, then what if a major hurricane were to hit Broward County? Where would the funds come from to repair the hundreds of millions of dollars for roofs that were only warrantied through a system rider topping out at 74 mph? It would seem that for the Board to make an intelligent decision, it might be necessary to find the costs involved District-wide for the GOB to pay for warranties on gradated levels of wind speeds; For example, what would the premiums cost to cover damage up to 100 mph, 120 mph, 140 mph, 160mph and 180 mph. We already know the total square footage; we just need to use

the multipliers. Many forget the higher the wind speed, the greater incidence of tornadoes, which allow the manufacturers an escape from the warranty. The same holds true for wind borne debris.

OCP and BD to comment on what MPH they feel the District is balancing regarding risk and assessment.

This should be a consideration evaluated by Risk Management. As a building official, it boils down to how much less than the maximum can one afford to come out of pocket to ensure the integrity of the water seal of our facilities. Included in this consideration would have to be the replacement of the content of the damaged interiors as well. This question is impossible to answer without knowing the financial impact to warranty the SMART roofing at various wind speeds. In an ideal world without cost consideration, I would have a wind rider to the maximum design wind speed of 180 mph.

OTHER

OCO and BD to comment on why they think some of the permitting time is excessive and what they will do to improve it

As with the design consultants, we have spent considerable time meeting with the roofing contractors. Again, we have met with the principal owners and/or their Project Managers. The results or the lack of results have everything to do with the person sitting across the table from you. They may be experienced, willing to learn, have the ability to comprehend and willing to do the work or not. The results will vary depending on all those considerations. An experienced teacher will have a class of students, who will vary in skill levels. Some will learn fairly rapidly; others may take a time or two and some take longer. As with students, roofing contractors can't be lumped into the same category. We work with them in a fashion that allows them to understand the concepts, but we can't fill out the entire permit application for them. To ask why roofing contractors take so long to grasp a rudimentary concept of their own trade, would be no different than if I asked why any graduating class didn't manage to send all their graduates to Ivy League schools.

Most roofing permits will vary as to what most materials and subcontractors will be used, which is the choice of the contractor. This is largely due to the substrate, its condition and the scope of work. Is it a new building, a remodel, does it have clay tile, concrete tile, a standing seam roof, a flat roof, lightweight. There could be coal tar or modified bitumen to demolish, coping, an expansion joint, control joint, curbs for HVAC and flashings of all types. Wind uplift resistance as designed by the consultants yield an understanding of fastening patterns. A roofer must have an understanding of metals and how they can be bonded, how they incorporate to the structure with the right fasteners: How does counter flashing work with the flashing, how does a cricket function, a roof drain, scupper, or collection heads and downspouts at the head and the base. They must have knowledge of roof access ladders, high to low roof access ladders and how to secure them so they are safe and watertight. To the undiscerning eye roofing appears to be quite simple, but I assure you it is not. However, once learned, a roofer has a much better chance of acquiring a permit in a timely fashion. It is that process of teaching the inexperienced person dispatched by the roofing company to submit for permit, that the tutoring begins. This is extremely uncommon for a building department to spend hours with contractors in this way. Because we know the importance of why the roofer has to understand how the building should be assembled so that it resists 180 mph wind uplift, remains watertight over time and with the understanding that we need to increase the pace at

which roofs are completed to align with the closure of the overall SMART program, we take the time to instruct them. One might think this is where the instruction ends, but actually it is not. With roofing contractors that lack the skills to successfully acquire a permit in a reasonable span of time, there usually is a correlation of inexperience in the field. And so, the cycle of instruction begins again in the field.