BUILDING CODE SERVICES
ADMINISTRATIVE GUIDELINE

Number: BD-015

Title: Threshold Procedure

Revision Date: 8/14/24

Approved By: Mark Lodge, Director

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Purpose:
The procedure establishes the requirements for Threshold Buildings.

Scope:
The procedure provides information on the required documentation, inspection reporting, and final certification.

Definition as provided in the FBC, 8th edition, 2023:
Threshold Building: any building which is'

- greater than three stories or 50 feet in height, or
- which has an assembly occupancy classification that exceeds 5,000 square feet in area and an occupant content of greater than 500 persons
- EHPA (enhanced hurricane protection area)

Guidelines:

1. Prior to Permit
   a. Project Architect/Engineer shall:
      i. Identify on plans which building(s) are Threshold Buildings.
         (1) This shall be noted on the Life Safety Sheet(s) contained code related data
         (2) Provide a key type plan identifying the Threshold Building(s).
      ii. Supply a Threshold Building Inspection Plan. (Sample copy attached)
   b. Building Code Services Plan Review shall:
      i. Verify permit has been issued to a General Contractor.
      ii. Verify which building(s) is/are a Threshold Building(s).
      iii. Review the Threshold Inspection Plan.
      iv. Review the Threshold Engineer's credentials.
      v. Review the special inspector's credentials.

2. During Construction
    a. Threshold Engineer or approved representative shall:
        i. Perform inspection per Threshold Inspection Plan.
        ii. Prepare reports and notifications. (Sample copy attached)
    b. The Special Inspector shall:
        i. Perform appropriate Threshold Building inspections
        ii. Input inspection results into the computer system.
3. Prior to Certificate of Occupancy or Temporary Certificate of Occupancy, Special Inspector shall provide Letter of Certification. (Sample attached)
4. The attached sample forms contain the minimum amount of information required by Building Codes Services, all forms submitted to the Building Code Services for either field review or our files shall contain the Engineer's letterhead.
    a. The Project Engineer should use the attached Threshold Inspection Plan as a base, and add to or delete from accordingly to address the specific job conditions.
    b. The Special Inspector should use the sample Threshold Inspection Report as a base; he/ she may format the form to fit their standard inspection forms, but shall include the information requested in the sample form.
    c. The sample Certification form is the information required by State law, Engineer needs to add their letterhead to the form.

SAMPLE THRESHOLD INSPECTION PLAN

Name of structural engineering firm
Address
Telephone number
Fax
E-Mail

Project
Project Number
Structural Engineer
Date

THRESHOLD INSPECTION PLAN
(Sections as applicable)

Scope of Work

This plan describes the work required to comply with the threshold law, Florida Statute chapter 553. The threshold inspector or his designated representative shall inspect the work in accordance with the permitted contract documents, and any written variations by the engineer of record. The official contract documents are the permitted plans, recorded addenda, and specifications with all amendments thereto, including the threshold inspector's plan.

Qualifications of the Threshold Inspector

The threshold inspector shall be a Florida registered engineer experienced in structural engineering and certified as required by current law. The threshold inspector shall have a minimum of seven years experience in the recent design and inspection of similar structures.

The threshold inspector may send a full time employee as his/her authorized representative to the project. The threshold inspector's representative shall have a minimum of three years of experience in inspection, knowledge of the structural systems in the project, and applicable codes and standards. Other qualifications of the authorized representative shall include specialized training in the assemblies and materials inspected and licensure as a professional engineer or architect, graduation from an engineering program in civil or structural engineering, graduation from an architectural education program, or licensed as a standard building inspector or general contractor.

Submit resumes of both threshold inspector and threshold inspector's representative to Building Code Services for review and acceptance. Do not change the threshold inspector or his representative during the duration of the project, without prior notification and approval of the Building Official.

The threshold inspector is to provide the owner with insurance certificates for all applicable coverages, including professional liability, specifically covering such special inspection assignments, general liability, automobile coverage, and workmen's compensation.

Responsibilities and Limitations of the Threshold Inspector

The threshold inspector shall maintain a record of the progress, working conditions, any instructions or observations given to the contractor, and suspected deviations from the contract documents. The threshold inspector shall be on the job site when structural work on the primary structure is scheduled, performing required inspections and note compliance or deviations promptly to avoid delays of the work.

The threshold inspector is not to make any design decisions or interpretations of the contract documents, nor direct the work of the contractor.

Reporting Information and Observations

The signed threshold inspector's daily reports shall be in writing before leaving the project site. Submit copies to Building Code Services, Owner's authorized representative, the Architect, the Contractor, and the Structural Engineer of record on a weekly basis under a cover letter signed and sealed by the threshold inspector. A daily log, which will detail all inspections made will be prepared and kept at the project site. The log shall include a list of deficiencies with dates & types of resolution.

It is the duty of the threshold inspector to notify the Building Official, Contractor, Architect, Engineer of Record, and Owner of the following:

- The use of materials, equipment, or workmanship, which does not conform to the official contract documents or which may cause improper construction.
- Work, which is not being done in accordance with the approved official contract documents.
- The recommended removal or repair of faulty construction, which is performed without inspection and not capable of being inspected or tested in place.
- The request for interpretations from the architect/engineer of record.

Upon completion of the structural construction and prior to the issuance of a certificate of occupancy, a signed and sealed statement by the threshold inspector shall be submitted to Building Code Services stating that the portion of the project under his inspection responsibilities has been constructed in general conformance with the contract documents. This statement shall be in accordance with Section 553.79(7)a, of the Florida Statutes.

Requirements of the Owner

The owner is defined as an authorized employee of Program Management.
The owner shall ensure that a qualified testing agency is retained.
The owner shall ensure that a geotechnical consultant is retained to confirm that the specified foundation preparation is performed.

Requirements of the Contractor

The contractor will cooperate with and assist the threshold inspector in performing his inspection duties as specified herein. The threshold inspector shall have free access to the project at all times.

The contractor will advise the threshold inspector, in advance, of construction schedules and planned operations in order to assure timely and appropriate observation and inspection of items specified herein. The minimum notice given the threshold inspector shall be 24 hours prior to the time of the inspection or concrete pour.

The contractor shall provide coordination drawings for all sleeves of all excavations under or adjacent to foundations before scheduling inspections. Drawings shall include depths, offsets, and Details of maintaining foundation integrity.

The contractor shall furnish in a timely manner to the threshold inspector, copies of all reviewed and accepted submittals including but not limited to revised drawings, shop drawings, supplemental sketches, correspondence, etc. for the structural elements of the project.

The contractor will provide the threshold inspector with private, non-shared office facilities at the construction site to accommodate his needs. As a minimum, this office is to be equipped with the following items: desk, chair, plan table, plan rack, filing cabinet, telephone, utilities, air conditioning, toilet, and janitorial service. These facilities may be included as part of, but private from, the District's office space.

The contractor has the sole responsibility for any deviations from the official contract documents and the costs of rectifying those deviations.

Construction performed without inspection and that is unable to be inspected may require testing or removal as determined by the structural engineer of record.

The contractor shall ensure that a signed and sealed shoring and re-shoring plan by a delegated engineer registered in the State of Florida is provided to Building Code Services, architect, structural engineer of record, and the threshold inspector prior to any mandatory inspection by the threshold inspector**.**

Installation of all shoring and reshoring shall be in accordance with signed and sealed shoring and reshoring drawings prepared by the delegated shoring engineer. The delegated shoring engineer shall inspect to insure the work complies with the drawing requirements and specifications and provide a written report to the threshold inspector prior to all concrete pours. The threshold inspector is to verify the inspection visit and is to observe that the work appears to be in compliance with the drawings. Prior to all concrete pours, the general contractor shall prepare and submit a certification letter stating that each shoring and reshoring is in compliance with the shoring documents.

Requirements of the Engineer of Record

The structural engineer will visit the project site at least once a month to insure that all structural questions are answered, all drawings, specifications, revisions, and shop drawings have been received, review any deviations or non-compliance items, and the project is being adequately built by the contractor and inspected by the testing laboratory, threshold inspector, and building code services. All changes, corrections, and clarifications shall be signed and sealed per Florida Statutes.

THRESHOLD INSPECTION GUIDELINES

The contractor shall provide copies of the appropriate specifications, current design drawings, tilt wall drawings, erection drawings, shoring drawings, shop drawings, and photographs (if there is the danger of damaging adjacent buildings) for the Threshold Inspector for his use in his office.

Subsurface Investigation

Soil Investigation Report: All threshold buildings shall have a soil bearing and/or pile load capacity certification issued prior to placement of concrete for the foundation. The threshold inspector shall have a signed and sealed copy of all such reports. The threshold inspector shall confirm that the specified notes regarding the foundation on the design drawings concur with the soils report.

Site Preparation

There shall be a pre-construction meeting with the contractor, geotechnical engineer, and the structural engineer of record to discuss the methods of how the contractor shall handle site preparation and foundation construction. The geotechnical report provides site preparation recommendations. The geotechnical engineer and structural engineer of record shall review and agree upon the contractor's procedures and equipment

The Owner shall hire a qualified testing laboratory to monitor, document, and certify all site preparation work complies with the geotechnical recommendations.

The contractor shall perform all other excavation and filling work shall in accordance with the geotechnical engineer's recommendations. Verify that the testing laboratory has performed required compaction tests prior to pouring concrete for the foundation.

Concrete

The contractor is to notify the threshold inspector a minimum of 24 hours prior to the placement of any structural concrete or removal of forms.

The threshold inspector shall be on site during the placement of concrete for the primary structural frame to ascertain the contractor follows proper concreting practices. Observations by the threshold inspector shall include but not be limited to the following:

- Verify that a testing laboratory is on site.
- Verify the design strength of the concrete delivered to the site conforms to the contract document requirements for the structural element under construction.
- Verify the approved concrete mix design is used.
- Verify, with the testing technician, the concrete slump delivered to the site meets the design parameters after adding any water at the site.
- Verify the contractor follows recognized industry standards in conveying concrete from the mixer to final place of deposit.
- Verify concrete is being deposited continuously or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the area of placement.
- Verify concrete is properly consolidated and thoroughly worked around reinforcement, embedded items, and into corners of forms.
- Verify after removal of formwork, the concrete surfaces do not have honeycombing and voids.

Forms

Provide forms for all footings and slabs on grade. Building Code Services may waive the requirement to form footings with recommendation of the structural engineer of record after review of applicable site and soil conditions and the geotechnical report.
Inspect forms for their correct locations, required dimensions, alignment, form ties, and spacers.
Verify all forms are properly coated.
Verify that all foreign materials are removed from the forms.

Footings

Prior to placement of reinforcing steel in footings, the testing laboratory shall perform density tests to verify proper compaction. Provide copy of the results of these tests to the threshold inspector at the job site before inspection of footings.

Embeds and reinforcing steel shall be checked for proper quantity, size, spacing, and minimum clearance from forms. Dowels for columns and walls shall be firmly supported and accurately located. The threshold inspector may request the contractor to spot check dowel position and splices. Verify all rebar are installed in accordance with the contract documents.

Verify size, location, and elevation of sleeves as required to accommodate utilities.
Verify that sleeves are constructed in compliance with design details.

Structural Slabs-on-Grade

Verify that compaction tests are complete and meet design requirements prior to concrete placement.

Check that the location and type of slab expansion joints and control joints confirm to the contract documents

Verify slab reinforcing steel for quantity, size, spacing, correct depth, and bar supports. Verify the reinforcing steel mat is tied and supported sufficiently to ensure correct positioning during and after concrete placement.

Monitor concrete placement and materials testing laboratory for documenting of slump test, test cylinders, and sampling at intervals consistent with the contract documents.

Reinforcing Steel

Verify that rebar grade, size, number, and location conform to the requirements of the contract documents and report deficiencies to the contractor.

Verify minimum clearance requirements from formed surfaces meet code and contract document requirements.

Verify that reinforcing is adequately supported to resist displacement or shifting during concrete placement.

Verify that splices in reinforcing steel are located as shown in the approved drawings. Report any discrepancies to the contractor and engineer of record. Verify that hooks and corner bars are installed as required.

Verify specific locations for placement of epoxy-coated bars as specified in the contract documents.

Verify that all specified embedded items are installed as shown and secured against displacement prior to concrete placement.

Verify that rebar surfaces are free of excess rust or other coating that may adversely affect bonding capacity. If oiling of forms is required, apply before reinforcing is placed.

Verify additional reinforcement at openings, sleeves, and embedded items in accordance with the construction documents.

Expansion Joints

Verify that the joint materials used are as specified and are installed in accordance with the manufacturer's recommendations.

Verify that the location and size of structural expansion joints are as per the approved construction documents.

Control Joints/Construction Joints

Note locations of all construction joints in beams/slabs, and confirm locations with the engineer of record if not shown on the contract drawings.

Verify preparation of joints with regard to spliced dowels, keys, and bulkheads.

Curing

Curing procedures must be per contract documents, ACI "Standard Practice for Curing Concrete", and other recognized industry standards.

Tilt Wall Panels

Walls shall be inspected prior to concrete placement for reinforcing steel quantity, placement, configuration, and placement of embedded items as required. Inspect location of recesses, haunches, and embedded items. Wall construction shall be observed during concrete placement.

Concrete Precast/Prestressed System

Verify that precast members delivered to the project are in compliance with the contract documents and shop drawings.
Inspect all precast member for damage upon arrival at the site.
Report any defective or damaged members.
Obtain from the contractor a detailed set of precast drawings, which have been designed, signed and sealed by a professional engineer registered in the State of Florida.
Verify that the required connection details are provided and that they are in accordance with the contract documents.
Obtain and review certification of welders' qualifications. Certification must be current.
Verify that certified welders perform all welded connections.
Verify that all precast connections have been installed and inspected.
Report all discrepancies to the architect and engineer of record.

Openings

Check the location of all openings. If additional openings not shown on the plans are required, protect those openings with short diagonal reinforcing steel bars, as specified on the structural drawings. The engineer of record must approve the additional openings.

Anchors

Periodically verify depth, diameter, and preparation of drilled holes used for structural fastening.
Periodically verify proper mixing and installation of all structural epoxy.

Embedded Items

Verify the utility conduits are placed in slabs as shown by the structural engineer’s plans and Florida Building Code to preserve the structural integrity of the slab.
Verify all embedded items are installed per the structural engineer’s drawings and properly secured.
Relocation of embedded items, which are in conflict with reinforcing steel, will not be permitted without prior approval of the engineer of record.

Concrete Columns

Concrete columns shall be checked for dimensions, rebar sizes, quantity, and correct placement.
Proper clearance between reinforcing steel and forms shall be maintained.
Reinforcing steel shall be checked after placement for proper anchorage, lap length, and orientation.

Cast-In-Place Slabs and Beams

Inspect slabs and beams prior to the concrete placement for reinforcing steel quantity, placement, and configuration. Check placement of slab hook bars to the outer face of beams. Check for temperature steel in slabs. Observe slabs and beams during concrete placement.
Concrete beams shall be checked for dimensions, rebar size, quantity, and correct placement. Proper clearances between steel and forms shall be maintained.
Stirrups shall be checked for size, quantity, proper bends, and correct placement. Stirrups shall be spaced in accordance with the construction documents.
Check corner bars and tie beam dowels for proper size, location, and lap splice length as shown on construction documents.
Observe all concrete placement for compliance with ACI 318 requirements.

Shoring and Reshoring

The special inspector shall review the shoring/reshoring plans and confirm that the spacing, layout, and specific components being used are consistent with the plans. All discrepancies noted by the special inspector shall be resolved prior to any concrete placement.

All shoring and reshoring drawings shall provide adequate information on the sizes and capacities of the shores, including dimensions, so that the shores on the site can be verified as the proper unit. Required bracing shall also be indicated.

Shoring and reshoring include all form/false-work required to support work, worker, and equipment until completion of curing.

Shoring and reshoring shall be inspected for proper condition, spacing, plumb, and proper bearing of forming members on the shores. Bracing, when required, shall also be checked for proper connection to the shores.

Testing

All concrete shall be checked for proper slump in accordance with the specifications. The number of slump tests and number of concrete cylinders shall be in accordance with the specifications.
Preparation of the test cylinders shall be made by a certified technician of the testing laboratory. Technicians shall carry proof of certification and provide such to the Owner or Owner's representative upon request.
Copies of the test reports shall be promptly furnished to the engineer, PBCSD Senior Project Administrator, contractor, and threshold inspector.
Any failed inspection shall be reported immediately upon the completion of the test to the Contractor and the Owner's representative.

Structural Steel

Review approved shop drawings.

Verify all steel sizes and **grades** with the contract drawings.
Verify that members are correctly installed.
For bolted connections, verify type of bolt, size, washer, and method of tightening. Confirm that the bolt tightening is completed in accordance with the contract documents.
Verify that welded connections are performed by certified welders. Verify type of welding electrodes.

Steel Trusses

Review shop drawings and erection plan.
Verify that trusses are erected in accordance with the erection plan prepared and sealed by the contractor's specialty engineer.
Verify proper size, type, washers, and method of tightening for high strength bolts.
Verify that trusses are lifted at the designated lift points.
Verify that permanent bracing is in conformance with the approved signed and sealed erection drawings.
Verify that erection proceeds in the sequence and method as shown on the approved erection plan.
Report any discrepancies to the contractor and engineer.
Inspect field splices to ensure that trusses are properly connected before removal of temporary bracing.

Open Web Steel Joists

Inspect steel joists to verify type, size, spacing, connections, straightness, and finish are per construction documents and shop drawings.
Check that bearing conditions conform to requirements of Steel Joist Institute and contract documents.
Verify that the permanent bracing, permanent cross bridging and uplift bridging are being installed per requirements of the construction documents and erection drawings.
Inspect setting of shelf angles, bearing plates, and miscellaneous structural items to verify size, quantity, location, and finish.
Visually examine all field welds.
Verify that welders are properly certified. Certification must be current.

Light Gauge Metal Framing

Obtain copies of approved signed and sealed fabrication and erection drawings.
Review all fabricated components delivered to the site for damage.
Verify that all connections, bearing, bracing, and bridging conform to the contract documents and approved shop drawings.
Light gauge metal trusses used as exterior structural framing shall be limited to soffits and other minor structural framing. Trusses will be factory fabricated, if not in compliance, notify the engineer and building code services immediately.

Metal Deck

Verify that the type, size, and corrosion protection provided are as specified in the contract documents.
Verify that the deck to joist connections, deck-to-deck side lap connections, and deck overlap at supports are as specified in the contract documents.
Verify that touch-up paint and spray applied fire protection materials are installed in accordance with the contract documents prior to concealment by other work.

Masonry/Brick

Verify that the type and size of the masonry units supplied are as specified and that storage and handling procedures are in accordance with the contract documents and manufacturers' recommendations.
Verify fill cell locations; that vertical reinforcing steel is of the grade, size, and location specified; that rebar lap splices satisfy the minimum lap length specified; that the cells to be grouted are clear of excessive mortar fins, are vertically aligned, and clean of all mortar and debris.
Verify that the horizontal reinforcement is present in the courses specified; that the horizontal reinforcement is lap spliced the minimum length specified. Also, that the prefabricated corners and tees are installed at wall corners and intersections.
Verify that bond beams, lintels, tie-columns, tie beams, wall openings, and additional reinforcement at wall openings are installed according to the contract documents.
Verify that the grout, mortar, and fill cell concrete are in accordance with the approved mix designs, and that the materials are installed in accordance with the contract documents.
Monitor grout placement. Verify that grouting is performed in lifts not to exceed the maximum specified and that the grout is consolidated as specified.
Verify that masonry elements are constructed to the tolerances specified, including mortar joint thickness and vertical alignment.
Verify that masonry is fastened to adjoining work with specified type, number of fasteners, and per manufacturer's requirements.
Verify that the expansion joints are installed in the specified locations and are constructed to the specified dimensions.

Window/Door System

Review product approvals of doors, windows, etc. that affect building integrity.
Verify that allowable wind pressure on window/door system meets or exceeds the design wind pressure of the window/door opening.
Verify that the window/door system has an approved protection system.
Verify that the attachments, type, size, length, and spacing of the fasteners of the window/door system to the building substrate is as per the submitted product approval.
Verify that the window/door system bear an approved label identifying the manufacturer, performance characteristics, and approved product evaluation entity.

Materials Testing

All testing requirements as defined in the structural documents shall be adhered to, with copies of results forwarded to the special inspector. This shall be as a minimum, and the special inspector may request additional tests as required. The intent of this aspect is to allow the special inspector to state that the materials used are in conformance with the requirements of the structural documents. All materials testing shall be executed by qualified laboratories and testing firms. Typically, this would include, but not be limited to, concrete testing, mortar cube tests, grout prism tests, weld testing and inspection, bolt torque confirmations, and other structural materials examinations as per ASTM standards specified in the project documents.

Submittals

All submittals shall be reviewed by the contractor and architect/engineer of record prior to transmittal to the threshold inspector.

The threshold inspector shall be provided with copies of all correspondence related to the construction of the project - all shop drawings, all deviations from the contact documents, all test reports, a full set of the contract documents, and any other items he may deem necessary too perform his duties.

Submissions for alternates as provided by the contractor or design professionals and documentation regarding acceptance or denial or proposed alternatives shall be provided to the threshold inspector as they become available.

Signed and sealed

Name of Company
Signature
Name of Engineer, License Numbers - professional and special inspector
Date

SAMPLE SPECIAL INSPECTOR'S THRESHOLD BUILDING INSPECTION REPORT

(Company letterhead) (To include Name of office, Address, Telephone Number, Fax number, and contact name and e-mail address)

THRESHOLD INSPECTION REPORT

Report Number: _____(continuous per job) Date: _____
Project Name: _____
Project Number: _____ Permit Number:_____
Contractor: _____ Threshold Field Inspector: _____
Senior Project Manager:_____
Inspection requested by: _____ Weather Conditions _____

The following areas of construction were observed:

Unusual Events:

Outstanding Issues:

Visitors to the job site:

Attachments:

(Approved; approved as noted; disapproved, re-inspection required.)

Print Name: _____
Signature: _____ _____
Threshold engineer's/inspector's name and license number

c: contractor
PBCSD Senior Project Manager (3661 Interstate Park Road North., Riviera Beach, FL 33404)

SAMPLE LETTER OF CERTIFICATION

(Company letterhead) (To include Company Name, Address, Telephone Number, Fax Number and contact name and e-mail address)

Date

Building Codes Services
The School District of Palm Beach County
3661 Interstate Park Road North
Riviera Beach, Florida 33404
Attn: Mark Lodge, Building Official

Re: Special Inspector's certification for threshold building inspection services
(Name of school)
(Address of school)
Project number
Permit number

Gentlemen:

(Company name) has conducted threshold inspections of the structural system (building shell and envelope) of the referenced project. The structural components are installed substantially in accordance with the project plans, specifications, and Florida Building Code. These inspections were conducted from _____to _____.

To the best of my knowledge and belief, all load bearing components of the structure(s) referenced above, as well as the shoring and re-shoring thereof (if applicable) have been constructed in accordance with the permitted documents prepared by a structural engineer and submitted to the Palm Beach County School District Building Codes Services.

Sincerely,
(Company name)

Name of Engineer of Record:
License number:

cc: Mark Lodge, BCS Manager (3661 Interstate Park Road North, Riviera Beach, FL 33404)