

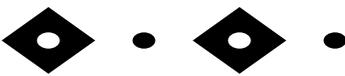


BUILDERS' BEACON

Volume IX Issue 1

Spring, 2005

LAKE COUNTY
BUILDING SERVICES
315 West Main Street
P.O. Box 7800
Tavares, FL 32778-7800



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Aluminum Structures Design Checklist

Lake County policy requires a design checklist to be completed by a Florida registered engineer or an authorized agent of a licensed master file user with all permit applications. The application will also contain elevation drawings and sufficient raised sealed engineering sheets to complete the project. A more detailed explanation is available on a separate informational brochure.

The structural adequacy of the existing structure and how new structures may be attached is determined by a Florida registered engineer, not home owners. Mr. Lawrence Bennett agreed, during a recent

meeting, that his raised sealed engineering sheets may only be used when his design checklist is completed and signed by authorized employees of a company he has licensed to use his products. Authorized employees have had sufficient training, and experience to safely design new structures using his engineering. Existing carports, screen rooms, mobile homes and other structures may not be able to support the load of the new structures, and will require a 4th wall construction method to be used. Mr. Bennett's design checklist is an acceptable alternative to Lake County's design checklist requirement.



CHECK THE STATUS OF YOUR LICENSE AND YOUR SUBS ON LINE

You can go to the following website and check the status of any contractor that is licensed in Lake County for the status of their license. You can check by contractors name, company name, license number, or class of business.

http://www.lakegovernment.com/departments/growth_management/building_services/contractor_certification/contractor_tracking.aspx

Calendar -
Office will be closed:
5/30 Memorial Day

Building Services

Admin. Director

Dale T. Greiner

Office Coordinator

Carmen Carroll

Lead Specialist

Rosalee Jackson

Annette Williams

Chief Electrical

Inspector

Jay Dagner

License Investigators

Tom Hughes

Tony Lopresto

Chief Plans Examiner

Skip Nemecek

Chief Bldg Inspector

Ron Schwab

Chief Fire Inspector

Al Sikes

Chief Plumbing/

Mechanical Inspector

Jim Copenhaver

Public Hearing

Coordinator

Deborah Kohler

Licensing Specialist

Kathy Padgett

Plans Examiners

Tom Bennett

Kenn Eilers

Steve Gladwell

Bill Hechler

Melving Isaac

Don Lally

Don Lane

Dave Miller

Sasha Namundi

Milan Paule

Russ Priestly

Mike Timpanaro

Jim Washington

Associate Examiners

Brook Miller

Debby Padgett

Fire Inspectors

Gene Brewer

Robin Gutting

Bill Harrison

Brian Hawthorne

Permit Specialists

Shannon Appoloney

Traci Bates

Teresa Dunham

Brenda Eastman

Maureen Greaney

Tracey Isbill

Brenda Lopresto

Lorena McCarroll

Dawn Stalnaker

Niki Stoothoff

Shelly Williams

Building Inspectors

John Abner

Ron Allen

Dewey Anderson

Jim Appoloney

Bill Bissett

Sheila Denoncourt

John DiPlacido

Paul Doran

Donald Glessner

Billy Jenkins

Ed Kleppel

Dale Manning

Wayne McGhee

Jerry Miller

Jeff Sandy

Ray Schaub

Tom Schmedes

Jim Shady

Robert Siemer

Jerry Trantham

Dave Wilcox

Reminder from Inspectors...

When should you call for an inspection?

When is the correct time to call for an inspection? When you have completed the work. Please do not call for an inspection if you're not totally finished with your work. Example: If you call in for a footer inspection, the trench dimensions should be the correct size. The rebar steel is the correct size as stated on your approved plan. The lap of the rebar is the correct length. Dowel rods are tied into the correct placement and are the correct size. The rebar has the correct clearance. No roots, vegetation or debris are in the footer. Are you building on compacted fill? If so you will need a compaction report at the time of your inspection. A Building Inspector will need your approved set of plans, a site plan and any other approved engineering that is necessary to give you a complete inspection.

If you check your job before you call in the

inspection, it will save time for you and the inspector. It happens everyday; an inspector goes to a job site to find the workers still trying to finish the job. The inspection cannot be done. The work is incomplete; the inspector has no choice but to disapprove the inspection. It could cost you a re-inspection fee. Please inspect your work before you call for an inspection.

Inspectors cannot tell you how to fix a problem. All they can do is tell you what the problem is. Please consult your contractor, architect or engineer for the correct way to fix the deficiency.

Please remember, inspectors are people too. They try to do their jobs in a professional manor. If you have any questions about inspections please call me. 352-636-5604.

Ron Schwab
Chief Building Inspector



Soffit Installation

The past weather events have produced soffit "blow-outs" in numerous homes. Contractors are cautioned to review and comply with the installation instructions for this construction component. Absence of soffit materials allows wind driven rain into the attic space causing unwanted damage.

Power Before Final Inspection

1 and 2 Family Dwellings:

280 Electrical Final: If Power is desired before final, an inspection will be conducted, with a Partial Final result and a green tag issued. The contractor will be required to recall the 280 Electrical final at completion of permitted job.

The facility is not to be used or occupied prior to a Certificate of Occupancy being issued. If the facility is being occupied before a Certificate of Occupancy has been issued, the contractor is in violation of Florida Statue 553 for occupying a building without a Certificate of Occupancy.

Commercial:

226 Pre Power: If Power is desired before final. A Request for Main Power before Certificate of Occupancy shall be completed and signed by Owner and Contractor, accompanied with a fee, before approval, by Building Official.



Continuing Education...

Lake County Building Services will be hosting continuing education classes in April, May & June. Please contact Kathy Padgett or Rosalee Jackson for more information. 352-343-9653 ext. 5438

Look Who's on Board...

The Lake County Building Services Division would like to welcome John Abner, Jim Appoloney, Bill Bissett, Ed Kleppel, Jim Shady, and Dave Wilcox as Building Inspectors, Tom Bennett and Don Lane as Plans Examiners, Bill Harrison as our new Fire Inspector, Annette Williams, Lead Specialist, Shannon Appoloney, Brenda Lopresto, Niki Stoothoff, and Shelly Williams as our new Permit Specialists...
Welcome!



Inspectors' Nextel and Phone Numbers

<u>Building Inspectors</u>	<u>Nextel ID</u>	<u>Cell Number</u>
Abner, John	162*57940*50	352-636-4628
Allen, Ron	162*57940*21	352-636-5594
Anderson, Dewey	162*57940*7	352-636-5565
Appoloney, Jim	162*57940*24	352-636-5600
Bissett, Bill	162*57940*14	352-636-5580
Copenhaver, Jim	162*57940*8	352-636-5567
Denoncourt, Sheila	162*57940*13	352-636-5578
DiPlacido, John	162*57940*60	352-636-5405
Doran, Paul	162*57940*25	352-636-5602
Glessner, Don	162*57940*53	352-636-6280
Jenkins, Bill	162*57940*12	352-636-5576
Kleppel, Ed	162*57940*18	352-636-5588
Manning, Dale	162*57940*55	352-636-6521
McGhee, Wayne	162*57940*15	352-636-5582
Miller, Jerry	162*57940*16	352-636-5584
Sandy, Jeff	162*57940*27	352-636-5606
Schaub, Ray	162*57940*54	352-636-6428
Schmedes, Tom	162*57940*28	352-636-5608
Shady, Jim	162*57940*58	352-636-4685
Siemer, Robert	162*57940*32	352-636-5616
Trantham, JT	162*57940*31	352-636-5614
Wilcox, Dave	162*57940*41	352-636-2925
<u>Fire Inspectors</u>		
Gutting, Robin	162*57940*10	352-636-5572
Harrison, Bill	162*57940*61	352-551-4268
Hawthorne, Brian	162*57940*11	352-636-5574



Mitered / Butt Glass Windows

Mitered /butt glass windows are required to have sufficient details to meet the code requirements of Florida Building Code, Section 1606, for installation and sizing. Windows that are not supported on all four sides are considered special cases per FBC, Section 2406.2, “Special Cases” or site-built windows per Florida Residential Code – Building, Section R308.5.

Sealed engineering for glass selection and installation details submitted for plan approval must provide and take these parameters into consideration as a minimum.

List wind speed and provide wind design pressures for opening in accordance with FBC, Section 1606.

Provide details for the supported edges showing load path.

Provide construction details of the complete wall section.

Provide details and specifications for the anchoring materials used and fastening schedules with calculations.

Provide product information for the installation of the silicone.

List thickness and size of each lite of glass showing the angle at each connection point.

Selection of glass type and thickness must

state the values and provide the calculation for each of following factors:

Provide a statement that glass requirements and calculations are based on FBC,

Chapter 24, in accordance with ASTM E-1300-04.

Provide deflection calculations for center of glass and glazing depth (bite) necessary to maintain adequate adhesion under load.

Provide calculations for non-supported edge of glass deflection and the resulting pressure applied to adjoining glass lites.

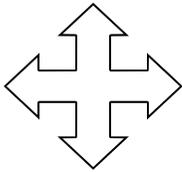
Provide details of the means of protection that will be employed to prevent edge of glass failure due to pressure from adjoining glass lites.

Provide the calculations for the structural value of the silicone, if silicone is used as a structural component, including shear and loss of adhesion values.

NOTE: Florida Product Approval Listed Storm Shutter Systems may be used to protect mitered glass windows as an alternative method to comply with wind load requirements. They must be approved during plan review and installed by time of final inspections.

WHICH WAY DO WE GO?

To help us get to your job site, we **must** have detailed directions from our office location or a major highway. Please make sure that the directions are “lot” specific. Having the correct directions will guarantee that your scheduled inspection will be made per your request and in a timely manner.



New Code Books Effective July 1st

The effective date of the 2004 Edition of the Florida Building Code will be July 1, 2005. Permit applications submitted on or after that date should demonstrate compliance with the new code.

Copies of the code books, which can be viewed online February 18th, will be available on March 4th.

They can be ordered at the International Code Council's web



site either individually at www.iccsafe.org or through a link from the Building Code Information System, www.floridabuilding.org. CDs of the code will be available June, 2005. Code orders can also be placed by telephone to the ICC at (800)786-4452 or ordered from the Building Officials Association of Florida at www.boaf.net.



The New Code and Building Plans

The 2004 Florida Building Code effective July 1, 2005 is considered a major code change and will require plans submittal changes after that date. ALL plans must reference the new code on the sealed plans after that date. The construction type and the definition of "story" are examples of the changes in the new code that must be reflected on all plans. All plans should now be submitted in black and white rather than blue-line to allow us to accept only one sealed plan, that we can scan into our system. The scanning of plans should be a great benefit to all, but only if legible plans are submitted. Remember, highlighting does not scan, please circle your options on aluminum plans.

All "Master Filed Plans" will expire on July 1, 2005. After new plans are approved for "Master Filing" we will be requiring a separate 8½ x 11 option sheet to be submitted with all new permit applications. This option sheet will identify the lot location, model number, building orientation, elevation type, and list ALL options to be used in this site specific permit. This option sheet may be incorporated into an engineer's authorization letter. Contact Skip Nemecek, Chief Plans Examiner, for additional information (352) 394-5962 Extension 375.

Hurricane Damage Permits

Applicants applying for Hurricane Damage permits will now be required to furnish proof of the damage. This can be done by photos,

insurance statements indicating storm or hurricane damage, damage assessment reports from FEMA, Property Appraiser's office or our

Building Division.

Permits will only be issued for what was already there (shingle roof for shingle roof, cannot change roof to metal, etc.).



Low Voltage

With the requirements of licensing and permitting, Low Voltage wiring for telephone and television circuits must be terminated outside at the electrical service, or be bonded to the grounding electrode system so utilities can connect equipment grounding to the grounding electrode system.

All low voltage wiring shall be complete, or safe off (if equipment is not being installed until owner purchases it at final of building).

New request codes have been created for Inspections.

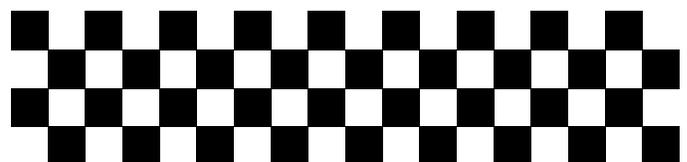
- Low Voltage Final = 237
- Low Voltage Rough = 236
- Low Voltage Underground = 235

All low voltage wire must be the correct cable type per the current adopted National Electric Code.



Article:

- 411 Low Voltage Lighting Systems
- 504 Intrinsically Safe Systems
- 640 Sound Systems
- 680 Antenna Masts
- 720 Circuits operating at less than 50 volts
- 725 Remote-Control, Signaling, and Power-Limited Circuits
- 727 Instrumentation Tray Cable
- 760 Fire Alarm Signaling Systems
- 770 Optical Fiber Cables and Raceways
- 780 Closed-Loop Power Distribution
- 800 Communications Circuits
- 810 Radio and Television
- 820 Community Antenna Television Systems
- 830 Network-Powered Broadband



Water Intrusion

In the following article, we reproduce some of the findings indicated in the report prepared for the Florida Home Builders Association by Joseph W. Lstiburek, Ph.D., PE. It would be my hope that the construction industry would incorporate the corrections/installation practices in their daily construction that were found to be deficient in the report. The Florida Building Commission has seen the report and is continuing to gather data in an effort to determine what, if any, changes are necessary in the codes and how soon they may be implemented. In the mean time, it is incumbent upon the construction industry and the code enforcement community to work together to enhance construction practices that may contribute to possible deficiencies in the final product. We have learned a great deal from the wind events of 2004 and will work diligently with the construction community to correct deficiencies in the construction and code processes.

Executive Summary

Building Science Corporation was engaged by the Home Builders Association of Metro Orlando and the Florida Home Builders Association to review the performance of residential assemblies in the central Florida (Orlando) area during the three hurricanes in August and September 2004.

The specific focus of the review was on the water management details associated with stucco claddings. Two types of stucco claddings were reviewed: "traditional three coat hard coat stucco" and "cementitious decorative finishes". Both are renderings applied to

substrates and the fundamental physics apply to both equally.

Stucco claddings leak (as do all claddings). When stucco claddings leak the penetrating water is traditionally managed in two fundamental ways:

- the water is directed to a water resistant barrier (WRB) and directed downwards and out of the building assembly; or
- the water is absorbed in a non water sensitive material, redistributed and released to the interior and exterior in a controlled way.

The first method is used with frame wall assemblies and the traditional WRB is "building paper". The second method is used with masonry block construction. Both methods are common in the central Florida (Orlando) area.

The first method is typically limited to the second floor and gable roof assemblies. The second method is the standard first floor wall construction of the majority of



homes constructed in the region.

The second floor assemblies are "drained" assemblies and drain into the first floor assemblies. The first floor assemblies are "mass" assemblies where penetrating rainwater is stored in the mass of the concrete block until it is released to both the interior and exterior during "drying" periods.

The performance of a mass assembly is based on a "rate-storage" relationship. When the rate of wetting exceeds the rate of drying accumulation occurs. Accumulation of water can occur until the quantity of accumulated moisture exceeds the moisture storage capacity of the assembly. The moisture storage capacity is time, temperature and material specific. Under normal conditions the amount of penetrating rainwater through stucco into a masonry block wall is minor and easily absorbed, redistributed and released to both the interior and exterior.

August and September 2004 was not a normal time. The mass assemblies were overwhelmed due to the extraordinary weather events. The mass assemblies were not able to store the quantity of penetrating water and not able to dry rapidly enough between wetting events and in many situations water entered past the interior lining.

The second floor frame assemblies provided mixed performance. In many cases the second floor assemblies were also overwhelmed – principally for two reasons:

- drainage was poor due to the failure of plastic housewraps and other WRB systems to provide drainage and water holdout.
- drained rainwater was not expelled to the exterior at the base of the second floor frame assemblies.

The performance of the second floor frame assemblies is also based on a "rate-storage" relationship. However, unlike the mass assemblies, very little moisture storage capacity is

available. As such for the second floor frame assemblies the rate of drying must match or exceed the rate of wetting. The key drying method in the second floor frame assemblies is drainage. This drainage depends on the provision of a drainage space between the stucco rendering and WRB and the water repellency of the WRB. Additionally, the drainage depends on the draining water being expelled to the exterior at the base of the frame assembly.

In the mass assemblies water penetrated the stucco via micro cracks (as the water also did in the frame assemblies).

Typical paint finishes are unable to span micro cracks. Under normal conditions this is not an issue for the reasons previously mentioned (the huge moisture storage capacity of masonry block assemblies). As stucco buildings age and are successively repainted the water entry is reduced after each layer of paint is added. In general, this is why many older buildings constructed with mass walls performed somewhat better.

In the second floor frame assemblies, water also penetrated the stucco via micro cracks. Again, as previously mentioned, typical paint finishes are unable to span micro cracks. In frame wall assemblies it is expected that this penetrating water will be drained back to the exterior. However, in many cases the penetrating rain-water was not drained to the exterior due to adhesion between WRB's and the stucco renderings preventing drainage between the stucco renderings and WRB's, a loss of water repellency of the WRB's and the lack of effective flashing at the base of the drained assemblies.

There appear to be significant performance issues with WRB's

relating to manufacture, testing and approval. All plastic housewraps and some building papers tend to bond to stucco renderings thereby negating drainage.

Additionally, many plastic housewraps lose their water repellency



when in contact with sheathing and stucco renderings.

The Florida Building Code in Section 2509.2.2 sets out the requirements for WRB's and stucco renderings applied over wood sheathing. Section 2509.2.2 reads as follows: "Moisture Barrier. Wood shall be covered with 15-1b roofing felt, or other approved equally moisture-resisting layer, and metal reinforcement as set forth herein."

Unfortunately, "equally moisture-resisting" is not explicitly defined in the code by reference to any ASTM standards.

In fact, some of the problems identified in our review are not currently addressed in any existing ASTM standard, particularly the water hold out of WRB's under the influence of surfactants, or the loss of water repellency due to adhesion, or the drainage characteristics of stucco renderings applied over WRB's.

There are significant code enforcement issues regarding the construction of flashing at the base of the second floor frame assemblies. Code officials are enforcing a provision of ASTM C1063 (Standard Specification for Installation of Lathing and Furring to Receive

Interior and Exterior Portland Cement-Based Plaster) that is not intended to apply where second floor frame assemblies intersect first floor mass assemblies. For reasons that are not explicable or defensible "reverse flashing" is mandated rather than drainage to the exterior at this location.

The water management of penetrations and openings in stucco claddings were also reviewed particularly window and door openings, and service penetrations.

With respect to window and door openings it is instructive to realize that windows and doors installed in residential buildings in Florida are rated for water holdout at 15 percent of the design wind load and no lower than 140 Pa or approximately 35 mph. These service limits were clearly exceeded many times during August and September 2004.

Windows and doors are expected to leak during hurricanes; they are not expected to blow out.

However, our testing indicates that many windows leaked at conditions well below their rated value – i.e. under no wind condition.

In a similar vane wind driven rain also entered dryer vent openings, electrical service panels, and bathroom fan vent openings. But, again, our testing indicates that many service penetrations leaked in the absence of wind pressures.

The method of testing windows is specified in ANSI/AAMA 101 – specifically ASTM E 547. The ASTM standard clearly views leakage at corners to constitute failure, however, it is our contention that the mounting frames used by many window testing

Water Intrusion continued...

groups in the testing of windows for compliance to the ASTM standard obscure the view of corners and subsequently many windows are listed as passing this test when in fact they fail.

Additionally, many windows are sold as “mulled” or double windows or composite windows. However, they are tested as single units. Every mulled window unit tested leaked with no applied wind load.

Finally, with respect to windows and doors, it is our contention that the installation instructions regarding window and door installation are inadequate with respect to water management. The windows and doors themselves under the Florida Building Code are subject to an ASTM standard. The interface between the window and door and the wall assembly is currently not.

Service penetrations such as dryer vents, electrical panel boxes, electrical boxes, vent fan hoods, and roof vents are currently not rated or designed for wind driven rain.

Anecdotal evidence indicates that a significant amount of rainwater entered soffit vent assemblies. This is consistent with the physics of the applied wind loads and the geometry of the soffit assemblies.

Soffit geometries are currently not designed to address extreme wind driven rain exposures. Additionally, unvented roof designs which can address this mode of rainwater entry are currently not explicitly allowed in the Florida Building Code – although they are allowed in the International Residential Code.

The use of paint as a water management technique for stucco renderings applied to mass assemblies was also examined. As the mil thickness of paint increases, the ability of some paints to span micro cracks also increases.

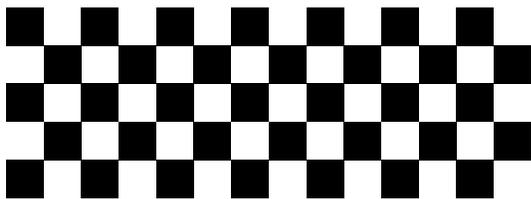
However, this applies primarily to mostly smooth surfaces. Highly textured surfaces are almost impossible to coat in a manner to seal micro cracks.

As the mil thickness of paint coatings increases, the water vapor permeability of these coatings decreases leading to problems with blistering and re-emulsification of some stucco renderings. The appropriate mil thickness and water vapor permeability relationship is currently unknown.

Finally, as part of our review of

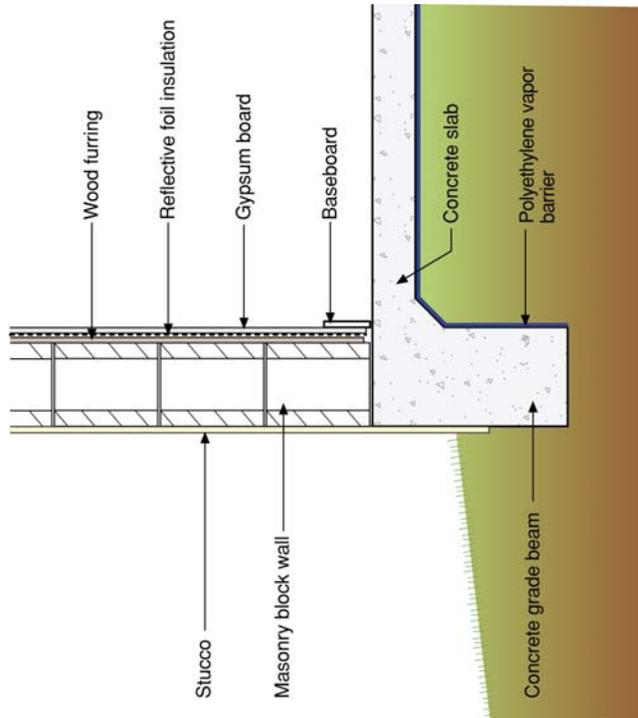
the water management provisions of the Florida Building Code we identified a provision relating to roof membranes, Section 1518.3, that appears to make no sense: “If the underlayment is a self-adhering membrane, the membrane shall be applied over a mechanically attached anchor sheet, attached in compliance with 1518.2.1.” This provision encourages roof membrane “blow off” by requiring a bond break between the self-adhering membrane and the structural roof deck. This negates the entire reason to use a self-adhering membrane.

The requirement for a mechanically attached anchor sheet under a self-adhering membrane has no basis in physics or logic and prevents the construction of highly water resistant roof assemblies that can provide a high degree of secondary protection during extreme wind driven rain events.

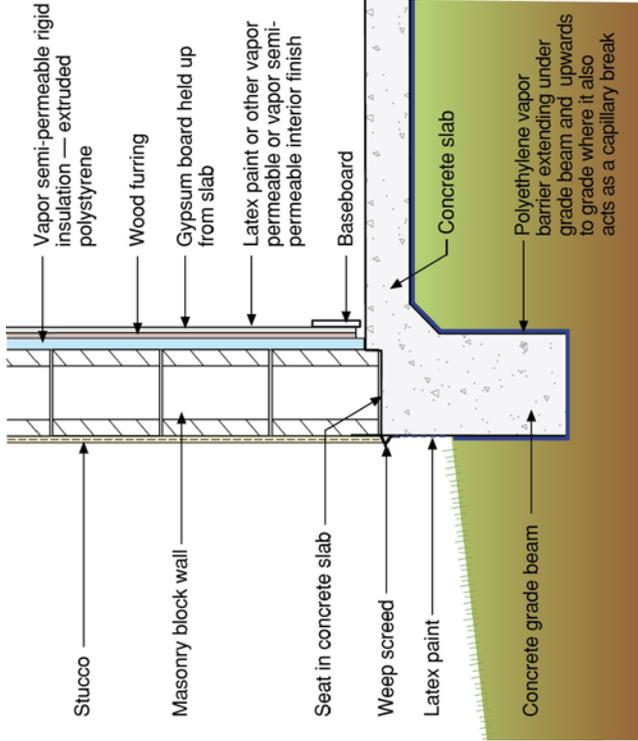


Mass Assembly Walls

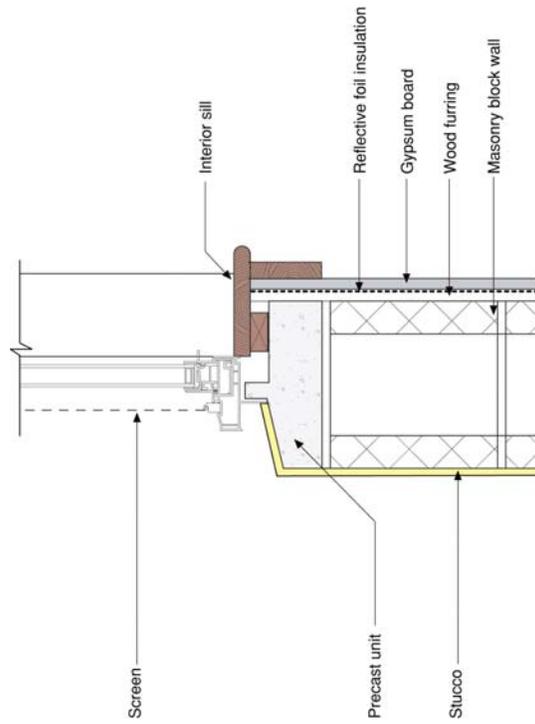
Current practice



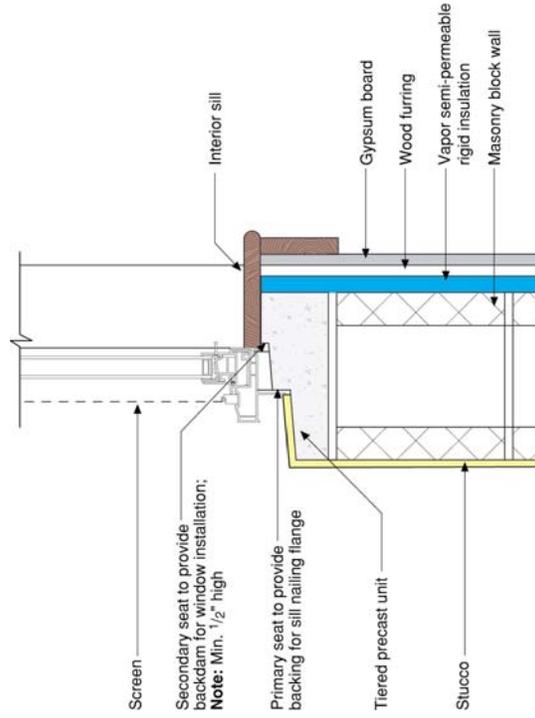
Recommended practice



Windows

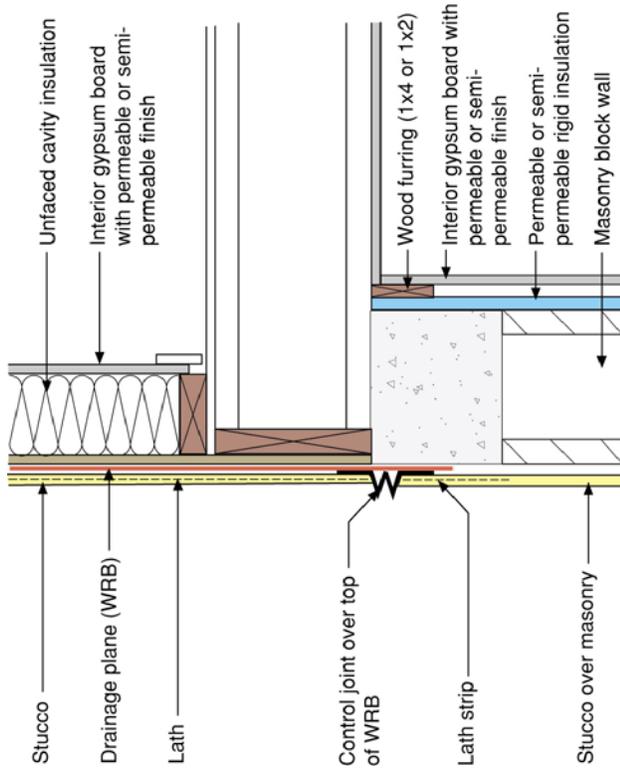


Current

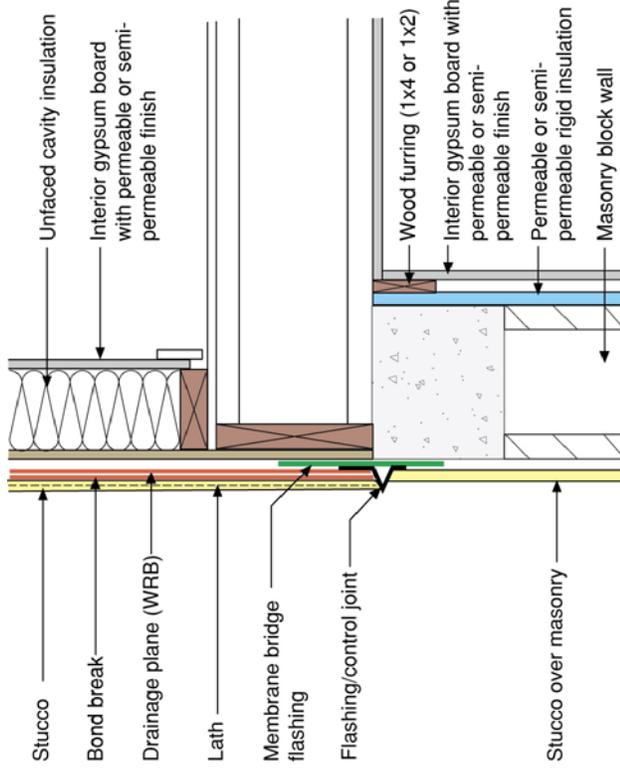


Recommended

Drained assemblies (joints between 1st & 2nd floors & gable ends)

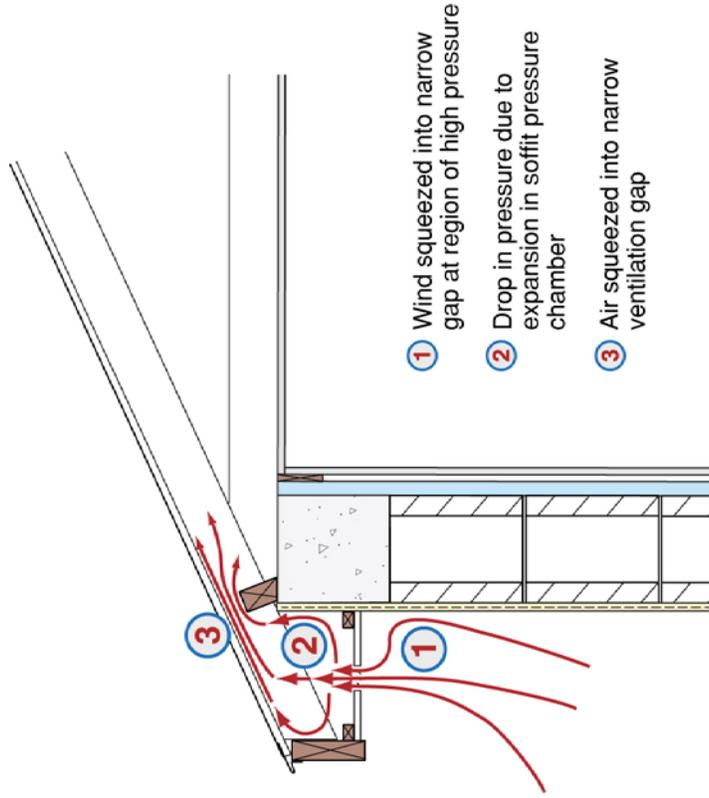
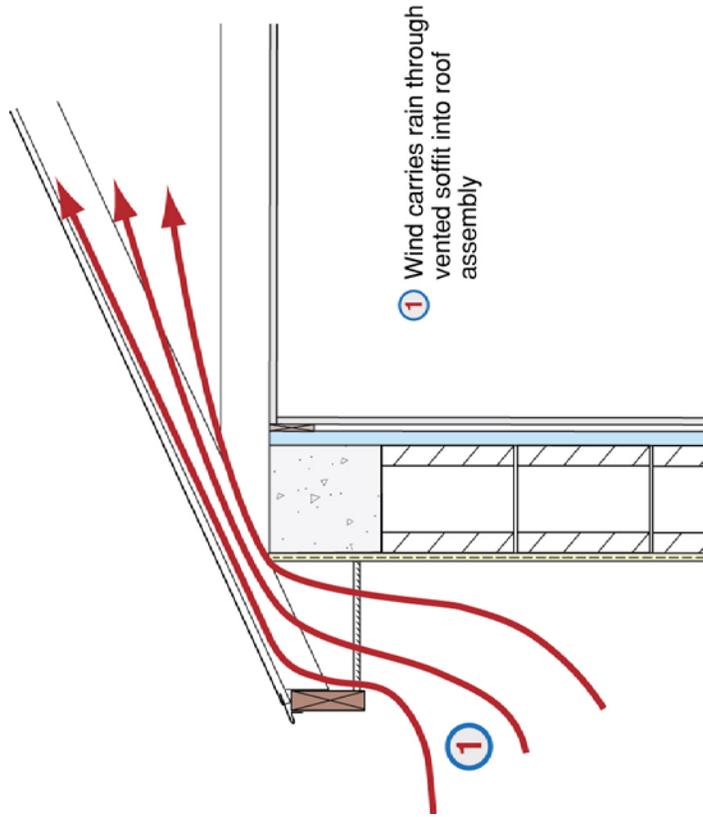


Current practice (Reversed flashed)



Recommended practice (Drained to exterior)

Soffit assemblies



Current practice

Recommended practice

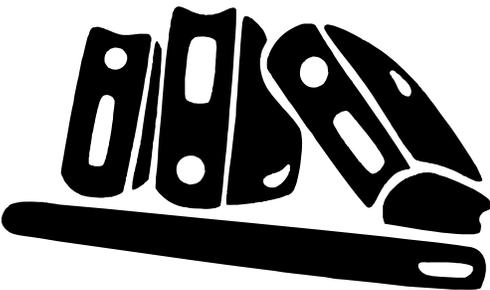
LAKE COUNTY BUILDING SERVICES CONTINUING EDUCATION COURSES

Lake County Building Services will be hosting continuing education classes on Florida Accessibility Code and Product Approval on April 25, 2005. There will be two sessions — one in the morning 8-12 am and one in the afternoon from 1-4 pm. Check-in begins at 7:30 for the morning class and 12:30 for the afternoon class. You will earn 4 CEU credits for the 4 hour class.

Florida Accessibility code CILB#0008448 2 CEU credits

Product Approval (satisfies law req. of 468) CILB#0008447 2 CEU credits

The classes will be at 315 West Main Street in Tavares, in the Round Administration Building on the second floor, room #233. The fee for taking this course is \$10.00.



For more information and reservations
Please call (352)343-9653 ext #5438
Ask for Kathy Padgett or Rosalee Jackson



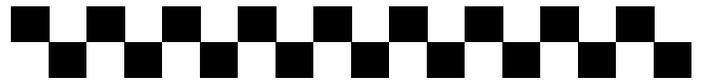
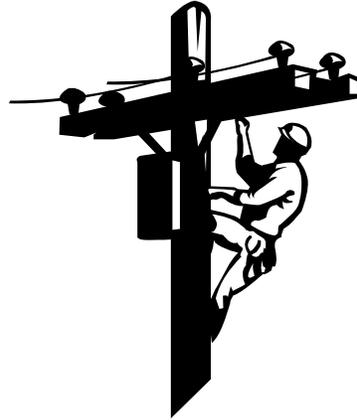
DBPR—Department of Business and Professional Regulations

If you are a contractor licensed under Chapter 489, Florida Statutes, operating as a sole proprietor, and you incorporate your business, **you must apply for a change of status with the Construction Industry Licensing Board to reflect the appropriate corporate name on your contractor's license.** It is a violation of Section 489.129 Florida Statutes, to perform contracting in a name that does not appear on your license. If you are operating as a corporation, you must also apply for a qualified business license (also known as a certificate of authority). The change of status application fee is \$50. The qualified business license application fee is \$59.

Pre-Power

Pre-power is issued on commercial projects only: for the purpose of mechanical or fire testing. A notarized letter from the qualifier is required and must be approved by a County Official. A \$60.00 fee is charged and the pre-power is good for 60 days.

The contractor schedules the inspection & calls power co.

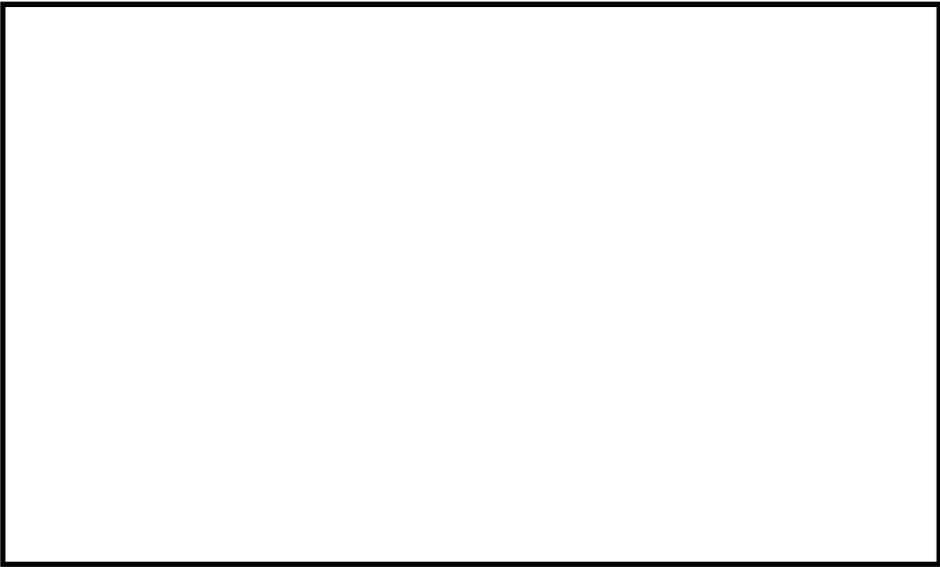


Remember—

You will need your validation number to request inspections from AIRS or the website. (Located on right hand side of your signed permit copy.) This also includes the use of "Permit Spy" software.



LAKE COUNTY BUILDING SERVICES
315 West Main Street
P.O. Box 7800
Tavares, FL 32778-7800



Phone: 352-343-9653
Fax: 352-343-9661
Email: www.lakegovernment.com

