

THE TOWN OF HILTON HEAD ISLAND
CONSTRUCTION BOARD OF ADJUSTMENTS & APPEALS
Regular Meeting

Ling Graves, Chairman
Frank Guidobono, Vice Chairman
Robert Tanner
Joe Nix
Neil Gordon
Michael Lynes



Gary M. Schmidt
Jay R. Owen
Robert Zinn
Chauncey Burtch
Randy May

REVISED AGENDA

Tuesday, July 22, 2014
at 5:30 p.m. in

Revised meeting location to Conference room 3 in Town Hall

I. CALL TO ORDER

II. FREEDOM OF INFORMATION ACT COMPLIANCE

Public notification of this meeting has been published, posted and mailed in compliance with the Freedom of Information Act and the Town of Hilton Head Island requirements.

III. WIRELESS TELEPHONE USAGE

Please turn off all wireless devices so as not to interrupt the meeting.

IV. APPROVAL OF AGENDA

V. APPROVAL OF MINUTES

Approval of CBAA minutes of May 15, 2014

VI. APPEARANCE BY CITIZENS ON ITEMS UNRELATED TO TODAY'S AGENDA

VII. UNFINISHED BUSINESS

PUBLIC HEARING

a) Edgewater at Broad Creek, 70 Verbena Lane, Building F

NOTE: Edgewater at Broad Creek is being removed from the agenda and rescheduled for the August 26th CBAA meeting at 5:30pm

VIII. NEW BUSINESS

PUBLIC HEARING

a) APL #: 000972-2014 Tennismaster Unit 103/100 Shipyard Drive

IX. ADJOURNMENT

Please note that a quorum of Town Council may result if four (4) or more Town Council members attend this meeting.

**THE TOWN OF HILTON HEAD ISLAND
CONSTRUCTION BOARD OF ADJUSTMENT & APPEALS MINUTES**

Date of Meeting: Thursday, May 15, 2014

Members Present: Frank Guidobono, Neil Gordon, Ling Graves, Michael Lynes, Randy May
Jay Owen, Gary Schmidt, Robert Tanner,

Members Absent: Chauncey Burtch, Joe Nix, Robert Zinn

Town Staff Present: Jill Foster, *Deputy Director Community Development*; Bob Klein,
Building Official; Brian Hulbert, *Staff Attorney*

I. Call to Order

Chairman Graves called the meeting to order at 3:00 p.m.

II. FOIA Compliance

Public notification of this meeting has been published, posted and mailed in compliance with the Freedom of Information Act and the Town of Hilton Head Island requirements.

III. Swearing in of CBAA Members. Mayor Laughlin performed the swearing in of the eight members that were present.

IV. Election of Chairman and Vice Chairman. Mr. Gordon nominated Mr. Ling for Chairman. Mr. Owen Seconded. The motion passed unanimously. Mr. Gordon nominated Mr. Guidobono for Vice Chairman. Mr. Owen Seconded. The motion passed unanimously.

V. Approval of Agenda. Approved as presented.

VI. Approval of Minutes

The minutes of February 28, 2012 were approved as presented.

VII. Appearance by Citizens on Items Unrelated to Today's Agenda. None

VIII. Unfinished Business. None

IX. New Business

A. Adopt 2014 CBAA Meeting Schedule. The 2014 CBAA Meeting Schedule was approved as presented.

B. Consideration of proposed amendments to CBAA Rules of Procedures. Ms. Jill Foster reviewed various sections of the proposed Rules of Procedures. Mr. Gordon made a motion to approve the Revised Rules of Procedure as presented. Mr. Owen seconded. The motion passed unanimously.

X. Adjournment

There being no further business, the meeting adjourned at 3:45 p.m.

Submitted by Eileen Wilson, Senior Administrative Assistant

Approved by: _____
Ling Graves, Chairman

DRAFT



TOWN OF HILTON HEAD ISLAND

Community Development Department

TO: Construction Board of Adjustments and Appeals
FROM: Bob Klein, Building Official
DATE: July 8, 2014
SUBJECT: APL #: 000972-2014

Staff has received an appeal from property owner Vince Buontempo, at 100 Shipyard Drive, Unit 103. The appeal requests the CBAA reverse the Building Official's decision to not void an inspection approval on a re-roof conducted in 2012 to the building. Mr. Buontempo's intention is that he wants to make his bedroom cooler by venting the attic.

Background:

I became aware of a concern from owner Vince Buontempo who resides at 100 Shipyard, Unit 103, in May of 2013. Mr. Buontempo's concern is the lack of ventilation to the roof in his master bedroom which is a single story section of a two story building in Tennismaster. Mr. Buontempo informed me he approached both a roofing contractor, Mr. Dabule (HH Roofing), and Mr. Fenstermaker, the regime's management and property manager, to add static or ridge roof vents at 100 Shipyard Drive, Unit 3, to the lower first floor section of his condo. Both refused to take any action to alter the 34 year old building,

Findings of Fact

1. I, Bob Klein, am the Building Official for the Town of Hilton Head Island.
2. In 1983, the Town first adopted a Building Code (Attachment 2).
3. In 2008, the Town of Hilton Head Island adopted the 2006 *International Building Codes* which includes Chapter 34: Existing Buildings (Attachments 3 & 4). In particular, Chapter 3410 indicates that the chapter 'applies only to structures existing prior to the established date.' Section 3410.2.4 indicates "Alterations and repairs. An existing building or portion thereof, which does not comply with the requirements of this code for new construction, shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently."
4. In order to determine the established date of effectiveness of Chapter 34 of the IBC, I discussed the matter with Roger Lowe, Administrator of the South Carolina Building Codes Council. An email from Mr. Lowe indicated the effective date of Chapter 34 is when the Town adopted its first building code (which is October 1983) (Attachment 5).

5. According to Beaufort County Tax Records, the Tennismaster building with Unit 103 was constructed in 1978 (Attachment 6), which was prior to the incorporation of the Town of Hilton Head Island and the effective date of Chapter 34.
6. A field check of Unit 103, via a hole in the wall placed by Mr. Buontempo, indicated there is a lack of any area separation wall (firewall) between the Unit 103 and the adjacent unit. Moreover, there was no evidence of any firewall construction to the underside of the roof sheathing and no 5/8" type X rock on the underside of the roof sheathing lying 4 feet to each side (which is a standard way to build a fire wall separation).
7. The roof was replaced in 2012 and received an inspection approval (Attachment 7). This roof did not alter continuous existing soffit vents that were installed during the original building construction around Unit 103 and the adjacent unit, nor did it add additional vents. Power vents were also added to increase air circulation in a different part of the building. However, there is no attic access to determine if the power vents are currently venting the attic over Unit 103.
8. In 2012, a letter from Owens Corning confirms the System Advantage warranty is in place on the roof (Attachment 8).
9. In 2013, at the request of Mr. Buontempo, two field representatives from Owens Corning conducted a site visit and confirmed that the roof is in conformance with their standards and the warranty on the new roof is valid. It also states that small sections of various buildings had unvented spaces in the units and that Owens Corning will provide a full roof warranty for the complete building to include these unvented spaces (Attachment 9).

Conclusions of Law

1. Chapter 34 of the 2006 International Building Code regulates Tennismaster at 100 Shipyard Drive since it was built prior to 1983.
2. Chapter 34 indicates it does not allow alterations or repairs in such a manner which results in the building being less safe or sanitary than such building is currently. The alteration to the roof proposed by Mr. Buontempo would make this structure less safe because there is no existing area separation wall between the units. With a lack of any area separation wall (firewall) between Unit 103 and the adjacent unit, venting of the existing roof as suggested would escalate any fire between the two units.
3. The roofing manufacturer has established that the roof warranty is valid with the existing unvented spaces and did not require extra venting.
4. Based on these conclusions, I determined that the roof was installed correctly, that further venting as proposed by Mr. Buontempo would compromise safety, and the inspection approval should not be withdrawn.

The record as attached consists of the following documents:

- 1) Appeal Application
- 2) Town Adoption of first Building Code
- 3) Town Adoption of International Building Code (Title 15 Article 2)
- 4) 2006 IBC Chapter 34 Section 3410: Compliance Alternatives
- 5) Email from Roger Lowe defining effective date of Chapter 34
- 6) Beaufort County Tax Records: construction date of dwelling
- 7) Building Permit for roof and Inspection Approval for new roof
- 8) November 12, 2012 letter from Owens Corning
- 9) October 7, 2013 letter from Mel Sancrant, Owens Corning

Staff reserves the right to submit additional documents.

If you have any questions, please contact Bob Klein at 341-4664 or bobk@hiltonheadislandsc.gov.

TOWN OF HILTON HEAD ISLAND
Community Development Department
1 Town Center Court
Hilton Head Island, SC 29928
843-341-4757

CONSTRUCTION BOARD OF
ADJUSTMENTS AND APPEALS

APPLICATION FOR REQUEST FOR
VARIANCES or APPEALS

Fee: \$75.00 (Make check payable to the Town of Hilton Head Island)

RECEIVED
6/23/14
BK

Meeting Date: _____

Building Permit Number: B1202581

Street Address of Property: 103 Tennis Master /100 Shipyard Drive

Owner Name: Vincent A Buontempo (Condo) (62 units)

Owner Address: 238 Bloomingdale Ave , Cranford , NJ 07016

Owner Phone Number: 908 -868 - 3478

Owner Representative: Self

Representative Address: _____

Representative Phone Number: _____ Email: _____

Description of Request: *(Attach description if necessary)* **CODE SECTION:** IBC Ch 15
NEW ROOFS COMPLETED JANUARY 2013 IRC 806
Attic Ventilation

A new roof (tear off) was installed on 62 units without (One)
roof vent on the lower roofs as required by Code. Mr. Klein was there
in April of 2013 after installation and a long and arduous chain of
events ensued which has past a lot of time . A complaint with the
SCLLR is still pending . The objective here is to void the
inspection approval . A Corning rep and the State Inspector for the
SCLLR have confirmed the above as enclosed documents show.

DATE : June 18, 2014

TOTAL P.01

Sincerely,
Vincent A Buontempo

Application Instructions

Before installing this product, check local building codes for their roofing requirements.

These shingles are designed for new or re-roofing work over any properly built and supported wood roof deck having adequate nail holding capacity and a smooth surface. Check local building codes.

Precautionary Note:

The manufacturer will not be responsible for problems resulting from any deviation from the recommended application instructions and the following precautions:

Roof Top Loading: Lay shingle bundles flat. Do not bend over the ridge.

Roof Deck: • 6" Maximum roof deck boards • Minimum 3/8" plywood • Minimum 3/4" OSB

Regardless of deck type used, the roofing installer must:

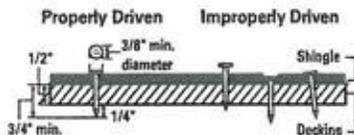
1. Install the deck material in strict compliance with the deck manufacturer's instructions.
2. Prevent the deck from getting wet before, during and after installation.

Ventilation: Must meet or exceed FHA Minimum Property Standards.

Handling: Use extra care in handling shingles when the temperature is below 40°F.

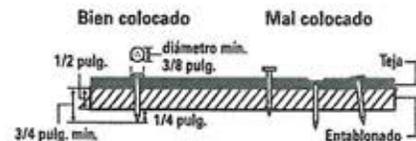
Storage: Store in a covered ventilated area at a maximum temperature of 110°F. Bundles should be stacked flat. Protect shingles from weather when stored at the job site. Do not store near steam pipes, radiators, etc.

Fastener requirement: Use galvanized steel, stainless steel, or aluminum nails minimum 12 gauge shank with 3/8" diameter head. Owens Corning Roofing recommends that fasteners comply with ASTM F 1667. Check local building codes.



All Fasteners must penetrate at least 3/4" into the wood deck or completely through sheathing.

Notice: Owens Corning Roofing recommends the use of nails as the preferred method of attaching shingles to wood decking or other nailable surface.



Instrucciones de aplicación

Antes de colocar este producto, verifique los códigos locales de construcción para conocer los requisitos de su techo.

Estas tejas han sido diseñadas para la construcción de techos nuevos o el arreglo de techos existentes sobre plataformas de madera correctamente construidas y que poseen una capacidad de sujeción de clavos y una superficie lisa. Consulte los códigos de construcción locales.

Aviso importante:

El fabricante no se hará responsable por los problemas que surjan como consecuencia de no seguir exactamente las instrucciones de instalación recomendadas y de los siguientes avisos importantes:

Carga sobre los techos: Coloque los paquetes de tejas de manera plana sobre el techo. No los doble sobre la cumbrera.

Plataforma del techo: • Tablas de la plataforma del techo de 6 pulg. de máximo • 3/8 pulg. como mínimo de madera triplay • 3/4 pulg. como mínimo para paneles de fibra orientada

Cualquiera que sea el tipo de superficie utilizada, el instalador del techo debe:

1. Instalar el material de la plataforma siguiendo estrictamente las instrucciones del fabricante.
2. Evitar que la plataforma se moje antes, durante y después de la instalación.

Ventilación: Debe cumplir o exceder las normas mínimas para propiedades, establecidas por el FHA.

Uso: Tenga mucho cuidado al usar y colocar las tejas cuando la temperatura sea inferior a los 40°F.

Almacenamiento: Almacene en un área cubierta y ventilada a una temperatura que no sobrepase los 110°F/43°C. Almacenar en forma plana. Proteja las tejas del clima cuando las almacene en el lugar de trabajo. No las almacene cerca de tuberías de vapor, radiadores, etc.

Requisito de sujetador: Use clavos de acero galvanizado, acero inoxidable o de aluminio, de calibre 12 como mínimo, con un diámetro de cabeza de 3/8 pulg. Owens Corning Roofing recomienda que los sujetadores cumplan con la norma ASTM F 1667. Consulte los códigos de construcción locales.

Todos los sujetadores deben penetrar al menos 3/4 pulg. en la plataforma del techo de madera o atravesar completamente los revestimientos de madera triplay.

Aviso: Owens Corning Roofing recomienda el uso de clavos como método preferido para fijar tejas a superficies de madera u otras superficies aptas para clavos.

CAUTION

ROOF SURFACE MAY BE SLIPPERY: Especially when wet or icy. Use a fall protection system when installing. Wear rubber soled shoes. Walk with care.

FALLING HAZARD: Secure area below work and materials on roof. Unsecured materials may slide on roof. Place on level plane or secure to prevent sliding. Wear a hard hat.

WARNING: This product contains a chemical known to the State of California to cause cancer.

CUIDADO

EL TECHO PUEDE ESTAR RESBALOSO: Especialmente cuando está mojado o cubierto de hielo. Al realizar la instalación, utilice un sistema de protección contra las caídas. Utilice zapatos con suela de goma. Camine con cuidado.

PELIGRO DE CAÍDA DE OBJETOS: Asegure el área que se encuentra debajo de la zona de trabajo y los materiales que están sobre el techo. Los materiales que no estén sujetos pueden caerse del techo. Colóquelos en un lugar sin pendiente o sujételos para que no se caigan. Use un casco resistente.

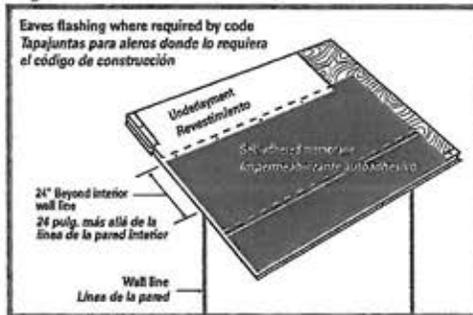
ADVERTENCIA: Este producto contiene una sustancia química considerada cancerígena en el estado de California.

Specialty Eave Flashing:

Where required by code.

WeatherLock® underlayment or equivalent eave and flashing membrane applied to a point at least 24" beyond interior wall line. See manufacturer's installation instructions. See Fig. 1.

Fig. 1 Specialty Eave Flashing
Tapajuntas especial para aleros



Tapajuntas especial para aleros:

Donde lo requiera el código. Revestimiento WeatherLock®, o impermeabilizante equivalente para aleros y tapajuntas instalada hasta un punto de al menos 24 pulg. pasando la línea de la pared interior. Consulte las instrucciones de instalación del fabricante. Ver la Fig. 1.

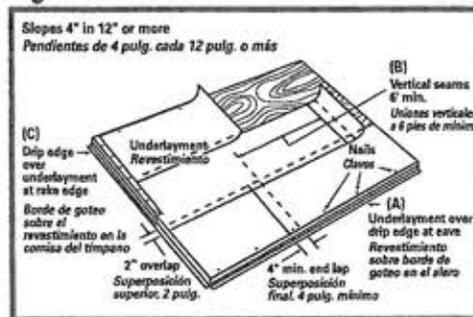
2 Underlayment:

Standard Slope (4" in 12" or more)

Application of underlayment, metal drip edges, and eaves flashing. See Fig. 2.

- (A) Apply one layer of underlayment over metal drip edge at eaves. Use only enough fasteners to hold in place.
- (B) Overlap successive courses 2". Overlap course ends 4". Side laps are to be staggered 6' apart.
- (C) Apply metal drip edge over underlayment at rake.

Fig. 2 Underlayment Standard Slope
Pendiente estándar del revestimiento



2 Revestimiento:

Pendiente estándar (4 pulg. cada 12 pulg. o más)

Instalación del revestimiento, bordes de goteo metálicos y tapajuntas de aleros: Ver la Fig. 2.

- (A) Instale una sección del revestimiento sobre el goterón metálico del alero. Utilice la cantidad estrictamente necesaria de sujetadores para mantenerla en su lugar.
- (B) Sobreponga las hileras siguientes 2 pulg. Sobreponga los extremos de las hileras 4 pulg. Los empalmes laterales deben escalonarse a 6 pies de distancia.
- (C) Instale el borde de goteo de metal sobre el revestimiento en la cornisa.

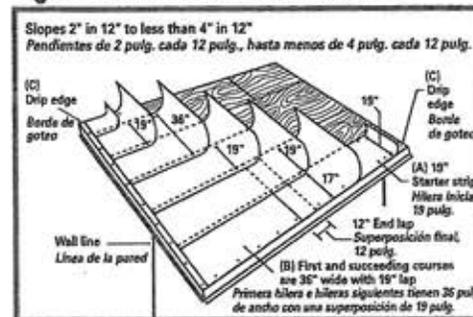
3 Underlayment:

Low Slope (2" in 12" to less than 4" in 12")

Application of underlayment, metal drip edges, and eaves flashing. See Fig. 3.

- (A) Apply 19" starter strip of underlayment over metal drip edge at eaves. Use only enough fasteners to hold it in place.
- (B) Use 36" strip of underlayment for remaining courses, overlapping each course 19". Side laps are to be staggered 6' apart.
- (C) Apply metal drip edge over underlayment at rake.

Fig. 3 Underlayment Low Slope
Pendiente baja del revestimiento



3 Revestimiento:

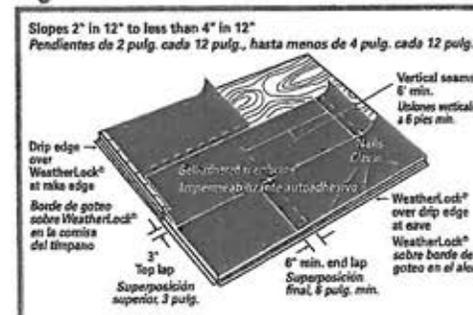
Pendiente baja (2 pulg. cada 12 pulg., a menos de 4 pulg. cada 12 pulg.)

Instalación del revestimiento, bordes de goteo metálicos y tapajuntas de aleros: Ver la Fig. 3.

- (A) Instale una sección inicial de 19 pulg. de revestimiento sobre el goterón metálico del alero. Utilice la cantidad estrictamente necesaria de sujetadores para mantenerla en su lugar.
- (B) Use una sección de revestimiento de 36 pulg. para el resto de las hileras, sobreponiendo cada hilera 19 pulg. Los empalmes laterales deben escalonarse a 6 pies de distancia.
- (C) Instale el borde de goteo de metal sobre el revestimiento en la cornisa.

Or WeatherLock® self-adhered underlayment or equivalent with a standard over lap of 3" and metal drip edge. See Fig. 3A.

Fig. 3A Underlayment Low Slope
Pendiente baja del revestimiento



o membrana autoadherente WeatherLock® o equivalente con una superposición estándar de 3 pulg. y borde de escurrimiento. Ver la Fig. 3A.

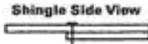
4 Shingle Fastening:

Place fasteners $6\frac{1}{8}$ " from bottom edge of each shingle and 1" from each end.

Standard Pattern Use four fasteners. See Fig. 4.

Six Nail Pattern Use six fasteners. See Fig. 4A.

Mansard or Steep Slope Fastening Pattern. Place fasteners $6\frac{1}{8}$ " from bottom edge to secure both layers of the shingle. See Fig. 4B.



REQUIRED: For slopes exceeding 60 degrees or 21 inches per foot, use six fasteners and four spots of asphalt roof cement per shingle. Apply immediately; one 1" diameter spot of asphalt roof cement **under** each shingle tab. Center asphalt roof cement 2" up from bottom edge of shingle tab. See Fig. 4B.

Roof Cement where required must meet ASTM D-4586 Type I or II (Asbestos Free).

Six nail fastening pattern is required for maximum wind warranty. In addition, Owens Corning™ Starter Shingles are required along the eave and rake. (See Starter Shingle instructions for details.)

Fig. 4 Standard Fastening Pattern
Esquema de instalación estándar

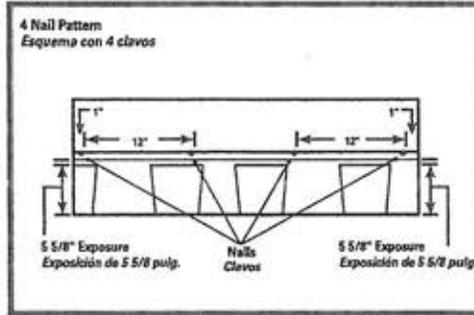


Fig. 4A Six Nail Fastening Pattern
Esquema de instalación con seis clavos

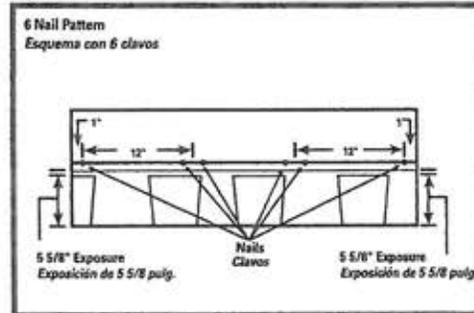
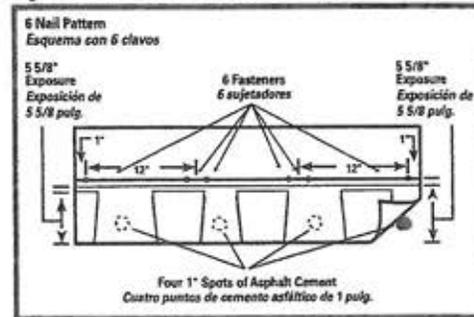


Fig. 4B Mansard or Steep Slope Fastening Pattern
Esquema de instalación en pendientes pronunciadas o mansardas



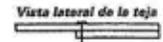
4 Sujeción de las tejas:

Coloque los sujetadores a $6\frac{1}{8}$ pulg. a partir del borde inferior de cada teja y a 1 pulg. de cada extremo.

Esquema estándar. Utilice cuatro sujetadores. Ver la Fig. 4.

Esquema con seis clavos Para 6 sujetadores. Ver la Fig. 4A.

Esquema de instalación en pendientes pronunciadas o mansardas. Coloque los sujetadores a $6\frac{1}{8}$ pulg. del borde inferior para ajustar ambas capas de la teja. Ver la Fig. 4B.



REQUISITO: Para pendientes de más de 60 grados o 21 pulg. por pie, utilice seis sujetadores y cuatro cantidades pequeñas de cemento asfaltado por teja. Instale inmediatamente una sección con 1 pulg. de diámetro de cemento asfaltado **debajo** de cada lengüeta de las tejas. Asegúrese de que el cemento asfaltado esté centrado 2 pulg. por encima del borde inferior de la lengüeta de la teja. Ver la Fig. 4B.

Cuando sea necesario utilizar cemento para techos, éste debe cumplir con la norma ASTM D-4586 Tipo I ó II (sin asbestos).

El esquema de fijación de seis clavos es obligatorio para la garantía máxima contra vientos. Además, es necesario instalar las tejas para la hilera inicial de Owens Corning™ en las cornisas de tímpano y los aleros. (Consulte las instrucciones de las tejas para la hilera inicial para obtener información detallada).

5 Shingle Application:

These shingles are applied with a 6½" offset, with 5⅝" exposure, over prepared roof deck, starting at the bottom of the roof and working across and up. This will blend shingles from one bundle into the next and minimize any normal shade variation. Application with offsets of 4" or 8" are also acceptable.

Caution must be exercised to assure that end joints are no closer than 2" from fastener in the shingle below and that side laps are no less than 4" in succeeding courses. Refer to course application steps for specific instructions.

Starter Course:

Use an Owens Corning™ Starter shingle product or trim 5⅝" from the starter course shingle. Trim 6½" off the rake of the starter course shingle and flush with the drip edge along the rake and eaves edge, and continue across the roof. Use 5 fasteners for each shingle, placed 2" to 3" up from eaves edge. See Fig. 5. (If no drip edge is used, shingles must extend a minimum of ⅞" and no more than 1" from rake and eaves edge.)

First Course:

Apply first course starting with the full shingle even with the starter course. See Fig. 5A. Fasten securely according to fastening instructions. See Fig. 4.

Second Course:

Remove 6½" from the left end of this shingle and apply the remaining piece over and above the first course shingle and flush with edge of the first course with 5⅝" exposure. See Fig. 5B. Fasten securely according to fastening instructions. See Fig. 4.

Third Course:

Remove 13" from the left end of this shingle and apply the remaining piece over and above the second course shingle flush with edge of the second course with 5⅝" exposure. See Fig. 5C. Fasten securely according to fastening instructions. See Fig. 4.

(continued on next page)

Fig. 5 Shingle Application
Instalación de tejas

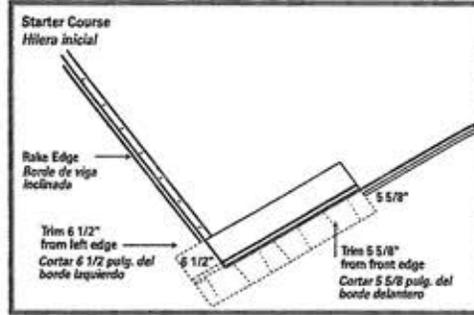


Fig. 5A Shingle Application
Instalación de tejas

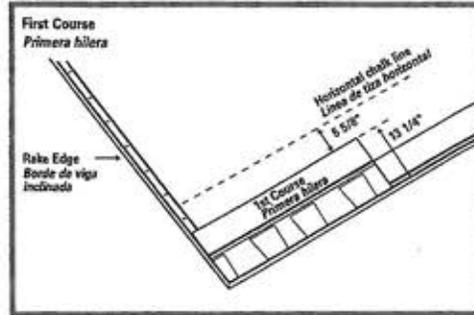


Fig. 5B Shingle Application
Instalación de tejas

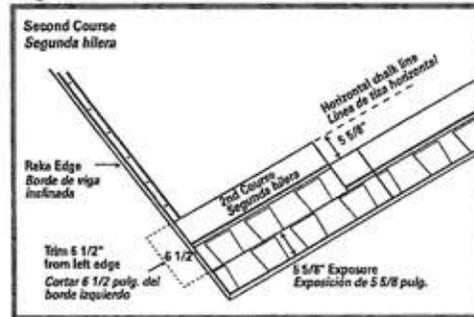
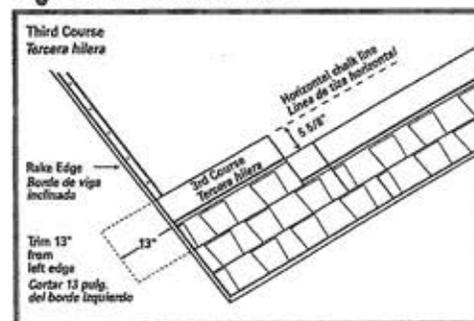


Fig. 5C Shingle Application
Instalación de tejas



5 Instalación de las tejas:

Estas tejas se instalan con un desplazamiento de 6½ pulg., con una superficie expuesta de 5⅝ pulg., sobre plataformas de techos preparadas. La colocación comienza por la parte inferior del techo y se realiza en forma transversal hacia arriba. De esta manera, las tejas de un paquete se mezclan con las del siguiente y se reducen al mínimo las variaciones normales de tonalidad. También se pueden instalar tejas con un desplazamiento de 4 ó 8 pulg.

Asegúrese de que las uniones de los extremos no se encuentren a menos de 2 pulg. del sujetador de la teja que se encuentra más abajo, y que las superposiciones laterales no sean de menos de 4 pulg. en las hileras siguientes. Consulte los pasos de instalación de hileras para ver las instrucciones específicas.

Hilera inicial:

Utilice un rollo de inicio o corte 5⅝ pulg. de la teja de la hilera inicial. Corte 6½ pulg. desde la viga inclinada en la teja de la hilera inicial y extienda más allá de la viga inclinada y el borde del alero, y continúe a lo ancho del techo. Utilice 5 sujetadores para cada teja, colocados a una distancia de entre 2 y 3 pulg. del borde del alero. Ver la Fig. 5. (Si no utiliza un borde de goteo, las tejas deben extenderse un mínimo de ⅞ pulg. y un máximo de 1 pulg. de la viga inclinada y el borde del alero.)

Primera hilera:

Coloque la primera hilera comenzando con la teja entera alineada con la hilera inicial. Ver la Fig. 5A. Sujete firmemente de acuerdo con las instrucciones de sujeción. Ver la Fig. 4.

Segunda hilera:

Quite 6½" pulg. del borde izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la primera hilera y al ras del borde de la primera hilera, con 5⅝ pulg. de exposición. Ver la Fig. 5B. Sujete firmemente de acuerdo con las instrucciones de sujeción. Ver la Fig. 4.

Tercera hilera:

Quite 13 pulg. del borde izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la segunda hilera y al ras del borde de la segunda hilera, con 5⅝ pulg. de exposición. Ver la Fig. 5C. Sujete firmemente de acuerdo con las instrucciones de sujeción. Ver la Fig. 4.

(continúa en la página siguiente)

5 Shingle Application (cont.):

Fourth Course:

Remove 19½" from the left end of this shingle and apply the remaining piece over and above the third course shingle and flush with edge of the third course with 5½" exposure. See Fig. 5D. Fasten securely according to fastening instructions. See Fig. 4.

Fifth Course:

Remove 26" from the left end of this shingle and apply the remaining piece over and above the fourth course shingle and flush with edge of the fourth course with 5½" exposure. See Fig. 5E. Fasten securely according to fastening instructions. See Fig. 4.

Sixth Course:

Remove 32½" from the left end of this shingle and apply the remaining piece over and above the fifth course shingle and flush with edge of the fifth course with 5½" exposure. See Fig. 5F. Fasten securely according to fastening instructions. See Fig. 4.

Succeeding Courses:

For succeeding courses, repeat first through sixth course. See Fig. 5G.

Fig. 5D Shingle Application
Instalación de tejas

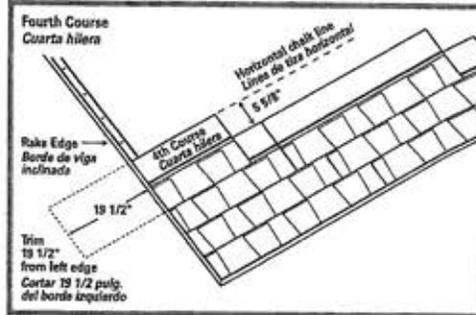


Fig. 5E Shingle Application
Instalación de tejas

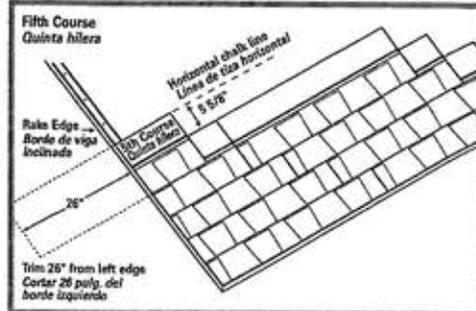


Fig. 5F Shingle Application
Instalación de tejas

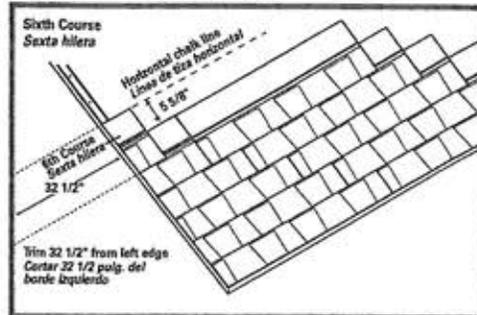
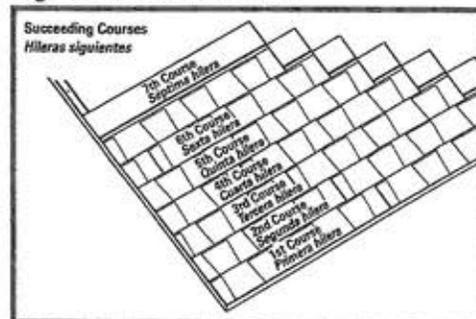


Fig. 5G Shingle Application
Instalación de tejas



5 Instalación de las tejas (cont.):

Cuarta hilera:

Quite 19½ pulg. del borde izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la tercera hilera y al ras del borde de la tercera hilera, con 5½ pulg. de exposición. Ver la Fig. 5D. Sujete firmemente de acuerdo con las instrucciones de sujeción. Ver la Fig. 4.

Quinta hilera:

Quite 26 pulg. del borde izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la cuarta hilera y al ras del borde de la cuarta hilera, con 5½ pulg. de exposición. Ver la Fig. 5E. Sujete firmemente de acuerdo con las instrucciones de sujeción. Ver la Fig. 4.

Sexta hilera:

Quite 32½ pulg. del borde izquierdo de esta teja y aplique la pieza restante sobre y por encima de la teja de la quinta hilera y al ras del borde de la quinta hilera, con 5½ pulg. de exposición. Ver la Fig. 5F. Sujete firmemente de acuerdo con las instrucciones de sujeción. Ver la Fig. 4.

Hileras siguientes:

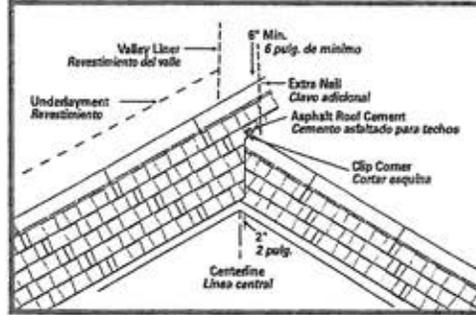
Para las hileras siguientes, repita los pasos que se indican desde la primera hasta la sexta hilera. Ver la Fig. 5G.

6 Valley Construction:
Closed-Cut Valley See Fig. 6.

A closed-cut valley can be used as an alternative to woven and open valley and is applied as follows:

Lay a 36" wide valley liner of self-adhered membrane underlayment or equivalent. A 36" wide minimum 50 lb. smooth surface roll roofing can also be used as a valley liner. Lay all shingles on one side of valley and across center line of valley a minimum of 12". Fasten a minimum of 6" away from center line on each side of valley. Strike a chalk line 2" from the center line of the unshingled side. Apply shingles on the unshingled side up to the chalk line and trim, taking care not to cut the underlying shingles. Clip upper corners of these shingles, cement and fasten. Both woven and metal valleys are acceptable alternatives.

Fig. 6 Closed-Cut Valley Construction
Construcción del valle con corte cerrado



6 Construcción del valle:
Valle cerrado Ver la Fig. 6.

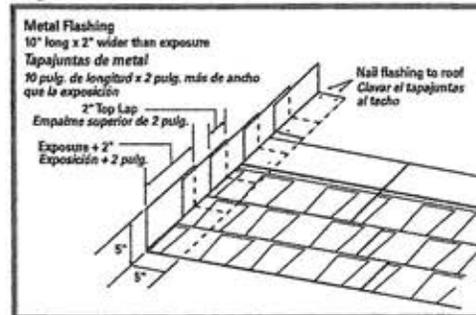
Un valle con corte cerrado puede ser usado como alternativa a un valle tejido o abierto y se coloca de la siguiente manera:

Coloque en el valle un impermeabilizante autoadhesivo o equivalente con 36 pulg. de ancho. Para revestir el valle, también se puede utilizar un rollo de techado de 36 pulg. de ancho y un mínimo de 50 libras. Coloque todas las tejas sobre un lado del valle y a través de la línea central del valle al menos 12 pulg. Sujete a un mínimo de 6 pulg. de la línea central a cada lado del valle. Marque una línea de tiza a 2 pulg. de la línea central del lado que no tiene tejas. Coloque las tejas del lado que no tiene tejas hasta la línea de tiza y recorte, con cuidado de no cortar las tejas que se encuentran debajo. Una los extremos superiores de estas tejas, coloque cemento y sujete. Se pueden utilizar valles de tejido o metal.

7 Step Flashing:

Use 10" long and 2" wider than expected exposure corrosion-resistant metal where roof planes butt against vertical sidewalls or chimneys. See Fig. 7.

Fig. 7 Step Flashing
Tapajuntas escalonado



7 Revestimiento escalonado:

Utilice metal resistente a la corrosión con una exposición de 10 pulg. de longitud y de 2 pulg. más de ancho que la exposición esperada en los puntos en los que los planos del techo se unan a las paredes laterales verticales o a chimeneas. Ver la Fig. 7.

8 Hip & Ridge Application:

Use corresponding Owens Corning™ Hip & Ridge shingles to best complement shingle color. Follow specific application instructions as printed on the Hip & Ridge shingle package. See Fig. 8.

Fig. 8 Hip & Ridge Application
Instalación de caballetes y cumbresras



8 Aplicación para caballete y cumbra

Utilice Owens Corning™ tejas para caballetes y cumbresras. Siga las instrucciones de instalación del paquete de caballetes y cumbresras. Ver la Fig. 8.

341-2087



INNOVATIONS FOR LIVING

2

Roofing System
OWENS CORNING ROOFING AND INSULATION

For Homeowners

Recycle Now

Products for ZIP/Postal Code:

07101

Determining Roof Ventilation Requirements

The following U.S. Department of Housing and Urban Development Statutes covering the ventilation of structural space are basic guidelines to determine the proper ventilation styles and sizes for any home. These statutes appear in the latest edition of the "Minimum Property Standards" (MPS 403-3).

The correct amount of roof ventilation:

- As a general rule, one square foot of net free vent area per 300 square feet of attic floor or area to be vented is recommended.
- In the rare situation where no vapor retarder is used and proper distribution of undereave and ridge vents cannot be achieved, one square foot of net free vent area should be provided for each 150 square feet of attic floor or area to be vented.
- For a balanced system, ventilation should be equal at the undereave and ridge.
- In cases where a balanced system cannot be achieved, always provide more than 50% of the total required ventilation at the undereave and the remainder at the upper portion of the roof.

Openings: All openings greater than 1/8 inch must be screened to prevent insect penetration and louvered to protect against the entrance of rain and snow.

The Proper Amount of Foundation Ventilation:

- One square foot of net free vent area is recommended for every 1,500 square feet of floor area covered by a polyethylene vapor retarder. Ratio is 1:150 if vapor retarder is not used.
- Net free vent area is that area unobstructed by screens, louvers, or other materials.
- Heated crawlspaces and basements do not need vents.
- Earth floors should be covered with a 4 - 6 mil. polyethylene vapor retarder.
- Providing at least two crawlspace vents will allow for a flow of air in and out of the crawlspace.

Openings: All openings must be screened to prevent insect penetration and protected from the entrance of rain and snow.

Natural Ventilation

A natural ventilation system utilizes ventilators installed in openings in the attic and properly positioned to take advantage of natural air flow to draw hot summer or moist winter air out and replace it with fresh outside air.

Calculate:

Determine the Square Footage of the Attic or Area to be Vented

(To do this, multiply the width in feet by the length in feet)

Choose your square footage



Bob Krum

2-3

Code
MPS 403-3
OR 806. INC
IBC 1503

I may have sent this to you I don't recall.



INNOVATIONS FOR LIVING

Owens Corning

Roofing System
OWENS CORNING ROOFING AND ASBESTOS, LLC

For Homeowners

Recycle Now

Products for ZIP/Postal Code:

07101

Accessories

Even the most beautiful and high-performance roof shingles can fail without the proper accessories. Owens Corning Roofing offers an array of ventilation, waterproofing and other accessories that complement the high quality of our shingles - while helping to ensure a long, healthy life for your new roof.

Please choose an accessory below to learn more about it.

Help Me Get Started

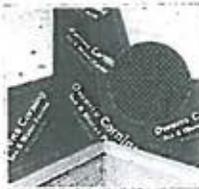
- 341 - 4757

Fx 2087



Ventilation Products

Proper roof ventilation ensures the maximum life and performance of your roof. Without adequate ventilation, the best roofs fail. See Owens Corning's full line of roof vent products.



Ice & Water Barrier Products

Without proper protection, wind, rain, ice and other elements can easily damage your new roof. See how Owens Corning's family of Ice & Water Barrier Products stops the worst Mother Nature has to offer.



Underlayment Products

Our underlayment products give an extra layer of protection beneath the shingles to help prevent wind-driven rain from reaching the roof deck.



Hip & Ridge Shingles

Easily enhance the aesthetics and performance of your new roof with Owens Corning Hip & Ridge Shingles.



Starter Shingles

Decrease installation time and costs with Owens Corning's Starter Shingle Products.

Handwritten signature: Bob H. Hem

1-3

CHAPTER 15

ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1501 GENERAL

1501.1 Scope. The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies, and rooftop structures.

SECTION 1502 DEFINITIONS

1502.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AGGREGATE. In roofing, crushed stone, crushed slag or water-worn gravel used for surfacing for roof coverings.

BALLAST. In roofing, ballast comes in the form of large stones or paver systems or light-weight interlocking paver systems and is used to provide uplift resistance for roofing systems that are not adhered or mechanically attached to the roofdeck.

BUILT-UP ROOF COVERING. Two or more layers of felt cemented together and surfaced with a cap sheet, mineral aggregate, smooth coating or similar surfacing material.

INTERLAYMENT. A layer of felt or nonbituminous saturated felt not less than 18 inches (457 mm) wide, shingled between each course of a wood-shake roof covering.

MECHANICAL EQUIPMENT SCREEN. A partially enclosed *rooftop structure* used to aesthetically conceal heating, ventilating and air conditioning (HVAC) electrical or mechanical equipment from view.

METAL ROOF PANEL. An interlocking metal sheet having a minimum installed weather exposure of 3 square feet (0.279 m²) per sheet.

METAL ROOF SHINGLE. An interlocking metal sheet having an installed weather exposure less than 3 square feet (0.279 m²) per sheet.

MODIFIED BITUMEN ROOF COVERING. One or more layers of polymer-modified asphalt sheets. The sheet materials shall be fully adhered or mechanically attached to the substrate or held in place with an *approved* ballast layer.

PENTHOUSE. An enclosed, unoccupied structure above the roof of a building, other than a tank, tower, spire, dome cupola or bulkhead.

POSITIVE ROOF DRAINAGE. The drainage condition in which consideration has been made for all loading deflections of the roof deck, and additional slope has been provided to ensure drainage of the roof within 48 hours of precipitation.

REROOFING. The process of recovering or replacing an existing roof covering. See "Roofrecover" and "Roofreplacement."

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roofdeck, *vaporretarder*, substrate or thermal barrier, insulation, *vaporretarder* and roof covering.

The definition of "Roof assembly" is limited in application to the provisions of Chapter 15.

ROOF COVERING. The covering applied to the roof deck for weather resistance, fire classification or appearance.

ROOF COVERING SYSTEM. See "Roof assembly."

ROOF DECK. The flat or sloped surface not including its supporting members or vertical supports.

ROOF RECOVER. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

ROOF REPAIR. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

ROOF VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, attics, cathedral ceilings or other enclosed spaces over which a roof assembly is installed.

ROOFTOP STRUCTURE. An enclosed structure on or above the roof of any part of a building.

SCUPPER. An opening in a wall or parapet that allows water to drain from a roof.

SINGLE-PLY MEMBRANE. A roofing membrane that is field applied using one layer of membrane material (either homogeneous or composite) rather than multiple layers.

UNDERLAYMENT. One or more layers of felt, sheathing paper, nonbituminous saturated felt or other *approved* material over which a steep-slope roof covering is applied.

SECTION 1503 WEATHER PROTECTION

1503.1 General. Roof decks shall be covered with *approved* roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings shall be designed and installed in accordance with this code and the

approved manufacturer's instructions such that the roof covering shall serve to protect the building or structure.

1503.2 Flashing. Flashing shall be installed in such a manner so as to prevent moisture entering the wall and roof through joints in copings, through moisture-permeable materials and at intersections with parapet walls and other penetrations through the roof plane.

1503.2.1 Locations. Flashing shall be installed at wall and roof intersections, at gutters, wherever there is a change in roof slope or direction and around roof openings. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (0.483 mm) (No. 26 galvanized sheet).

1503.3 Coping. Parapet walls shall be properly coped with noncombustible, weatherproof materials of a width no less than the thickness of the parapet wall.

[P] 1503.4 Roof drainage. Design and installation of roof drainage systems shall comply with Section 1503 and the *International Plumbing Code*.

1503.4.1 Secondary drainage required. Secondary (emergency) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason.

1503.4.2 Scuppers. When scuppers are used for secondary (emergency overflow) roof drainage, the quantity, size, location and inlet elevation of the scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1503.4.1. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when locating and sizing scuppers.

1503.4.3 Gutters. Gutters and leaders placed on the outside of buildings, other than Group R-3, private garages and buildings of Type V construction, shall be of noncombustible material or a minimum of Schedule 40 plastic pipe.

1503.5 Roofventilation. Intake and exhaust vents shall be provided in accordance with Section 1203.2 and the manufacturer's installation instructions.

1503.6 Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration greater than 30 inches (762 mm) wide as measured perpendicular to the slope. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

SECTION 1504 PERFORMANCE REQUIREMENTS

1504.1 Wind resistance of roofs. Roof decks and roof coverings shall be designed for wind loads in accordance with Chapter 16 and Sections 1504.2, 1504.3 and 1504.4.

1504.1.1 Wind resistance of asphalt shingles. Asphalt shingles shall comply with Section 1507.2.7.

1504.2 Wind resistance of clay and concrete tile. Wind loads on clay and concrete tile roof coverings shall be in accordance with Section 1609.5.

1504.3 Wind resistance of nonballasted roofs. Roof coverings installed on roofs in accordance with Section 1507 that are mechanically attached or adhered to the roof deck shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1609.

1504.3.1 Other roof systems. Roof systems with built-up, modified bitumen, fully adhered or mechanically attached single-ply through fastened metal panel roof systems, and other types of membrane roof coverings shall also be tested in accordance with FM 4474, UL 580 or UL 1897.

1504.3.2 Metal panel roof systems. Metal panel roof systems through fastened or standing seam shall be tested in accordance with UL 580 or ASTM E 1592.

Exception: Metal roofs constructed of cold-formed steel, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads, shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2209.1.

1504.4 Ballasted low-slope roof systems. Ballasted low-slope (roof slope < 2:12) single-ply roof system coverings installed in accordance with Sections 1507.12 and 1507.13 shall be designed in accordance with Section 1504.8 and ANSI/SPRI RP-4.

1504.5 Edge securement for low-slope roofs. Low-slope membrane roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with ANSI/SPRI ES-1, except the basic wind speed shall be determined from Figure 1609.

1504.6 Physical properties. Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall demonstrate physical integrity over the working life of the roof based upon 2,000 hours of exposure to accelerated weathering tests conducted in accordance with ASTM G 152, ASTM G 155 or ASTM G 154. Those roof coverings that are subject to cyclical flexural response due to wind loads shall not demonstrate any significant loss of tensile strength for unreinforced membranes or breaking strength for reinforced membranes when tested as herein required.

1504.7 Impact resistance. Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470.

1504.8 Aggregate. Aggregate used as surfacing for roof coverings and aggregate, gravel or stone used as ballast shall not be used on the roof of a building located in a hurricane-prone region as defined in Section 1609.2, or on any other building with a mean roof height exceeding that permitted by Table 1504.8 based on the exposure category and basic wind speed at the site.

1 A

HHI, INC.
386 Spanish Wells Road, Suite A-6
Hilton Head, SC 29926
(843)689.3555

**Town of Hilton Head
One Town Center Court
Hilton Head, South Carolina 29928**

August 1, 2013

Attn: Mr. Chris Yates

**Re: Tennismaster Villas
100 S. Shipyard Drive
Shipyard Plantation**

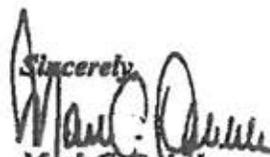
Dear Chris;

This letter serves to confirm that on November 9, 2012 this firm completed a shingle roof replacement project on all twelve buildings at the above referenced location.

All work was completed as outlined in our contract dated August 7, 2012 and was performed in accordance with Owens Corning's current details and specifications utilizing their "Oakridge" shingle product and accessories. A copy of our contract is enclosed. ? ↙

Following the completion of all work, an Owens Corning "System Advantage Limited Roof Warranty" was issued by the manufacturer and submitted to the owner. This is an enhanced warranty that we, as an Owens Corning "Preferred Contractor", were qualified for and were able to offer the owner as part of this project.

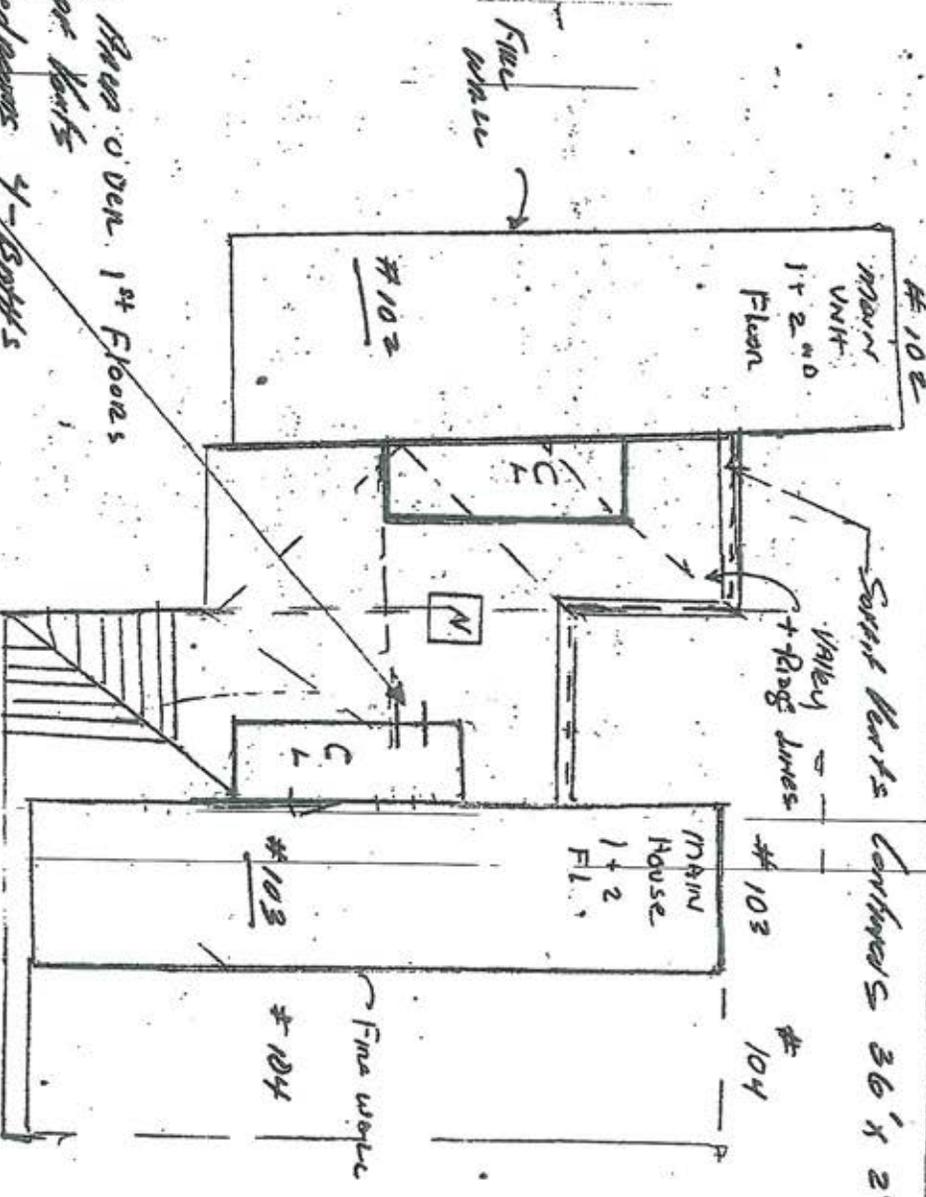
Please do not hesitate to contact me directly if you have any further questions.

Sincerely,

Mark C. DeBelle

5

[N] THIS RPTIC HOUSE 0 DEN. 1st FLOORS
HAS NO ROOF DECKS
650 +/- 2 BEDROOMS 2-BATHS

Access Site
1st Closer
Second Floor
Unit 103



* DIVISION LINE BETWEEN UNITS
BUT - HAS OPEN COMMON RPTIC

103 Tomms MURSTELL
SHIPYARD ALLEN HEND SE

Eric Harting

SCALE

DRAWN BY

REVISED

DATE

APPROVED BY

DRAWING NUMBER

StormMaster® Shake GENERAL INSTRUCTIONS [For Spanish Instructions Click Here \(Para las Instrucciones Españolas Haga Clic Aquí\)](#)

IMPORTANT: THE STATEMENTS EXPRESSED ON THIS PAGE ARE THE RECOMMENDATIONS FOR THE APPLICATION OF THE ROOFING PRODUCTS AS OUTLINED AND ILLUSTRATED. ANY DEVIATION FROM THESE RECOMMENDED PROCEDURES SHALL BE AT THE SOLE RISK OF THE INSTALLERS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS DAMAGE TO THE APPLICATION AND LIFE OF THIS ROOFING PRODUCT, RESULTING IN THE TERMINATION OF ANY WARRANTY, EXPRESSED OR IMPLIED.

1.) GENERAL INSTRUCTIONS

The lifetime limited warranty option is only available for individual single-family site built detached residence. A 50 year limited warranty would apply to all property owned by government agencies, corporations, limited liability companies, partnerships, trust, religious organizations, schools, or school districts, condominiums, or cooperative housing arrangements, or installed on apartment buildings or any type of building or premises not used by individual homeowners for a single family site built detached residence.

These StormMaster® Shake shingles are warranted against manufacturing defects and wind gusts up to 110 MPH WITH STANDARD 4 NAIL INSTALLATION. See ATLAS SIGNATURE SELECT® LIMITED WARRANTY FOR HIGH WIND WARRANTY PROVISION (130 MPH). (See DIAGRAM #7 for proper fastening instructions.) The StormMaster® Shake Limited Warranty can be obtained by visiting www.AtlasRoofing.com/Warranty, or by writing to: Atlas Roofing Corporation, Attn: Consumer Service Department, 2564 Valley Road, Meridian, Mississippi, 39307. The following instructions must be followed to qualify for protection under the StormMaster® Shake Limited Warranty.

Important: See special instructions below for Low Slope Applications. See special instructions below for Steep Slope/Mansard/130 MPH High Wind application. To obtain stated area coverage and to achieve design performance and appearance, the directions on this package must be followed. Sealing of the adhesive strips on each shingle to the shingle beneath is created by heat from sunlight. Atlas Roofing Corporation also endorses the Asphalt Roofing Manufacturers Association's (ARMA) recommendations for application details not specified within this text.

2.) ROOF DECK VENTILATION

Adequate ventilation under the roof deck must be provided to prevent harmful condensation in winter and heat build-up in summer. These conditions can cause: A.) Accelerated shingle weathering B.) Deck rot and attic fungus C.) Shingle distortion/cracking due to deck movement D.) Cosmetic blisters on the shingle surface

Atlas will not be responsible for damage to shingles as a result of inadequate ventilation. Ventilation provisions must meet or exceed current FHA Minimum Property Standards and conform to all building codes and regulations. To best ensure adequate ventilation and circulation of air, a combination of vents at the ridge area and eave area should be used. All roof structures, especially mansard and cathedral type ceilings, must have complete through ventilation from bottom to top. FHA Minimum Property Standards require 1 square foot of net free attic vent area for every 150 feet of attic floor area; or one square foot per every 300 square feet, if vapor barrier is installed on the warm side of the ceiling, or at least one half the ventilation area is provided near the ridge.

OWENS CORNING ROOFING & ASPHALT LLC
 ONE OWENS CORNING PARKWAY
 TOLEDO, OHIO 43689
 419.246.5600



June 11, 2013

Tennis master Villas-POA
 c/o IMC Resort Services, Inc.
 2 Corpus Christie, Suite 302
 Hilton Head, SC 29928
 Attn: Ron Fenstermaker and Mark Dabule

Subject: Roofing System Limited Warranty Tennis Master Villas

To Whom It May Concern:

This is to confirm that Owens Corning stands behind the manufactured quality of its shingles when installed per our application instructions. When installed per our application instruction they carry a full warranty as outline in our limited warranty.

If our Oakridge™ Shingles are installed according to these instructions printed on each shingle wrapper, then they are considered to be properly installed.

An Owens Corning™ Preferred Contractor may offer an enhanced warranty to the standard Owens Corning™ Warranty. One level of enhanced warranty that an Owens Corning™ Preferred Contractor may offer is the System Advantage™ Roofing Limited Warranty. The System Advantage™ Roofing Limited Warranty on Oakridge shingles in a Non-Residential application is for 40 years from the date of install and takes the TruProtection® period from 5 years to 20 years. In order to get the System Advantage™ Roofing Limited Warranty, the following requirements must be met:

- An Owens Corning™ Roofing Preferred or Platinum Preferred Contractor must install your new Owens Corning™ Roofing System to the installation instructions attached to this letter and adhere to local building codes.
- Your roofing system must be installed over a clean roofing deck and not over existing shingles or other roofing materials.
- You must use a No. 15 or No. 30 asphalt-saturated felt, Owens Corning™ Fiberglas™ Reinforced Felt or Owens Corning™ Deck Defense® Underlayment.

Records at the Owens Corning™ ProDesk show that a System Advantage™ Limited Warranty was registered by HHI, Inc. (OC Preferred Contractor ID # 211070) on November 9, 2012 for Tennis Master Villas.

Sincerely,

Mel Sencrant
 Mel Sencrant
 Roofing Specialist,
 Building Science and Technology
 Owens Corning

IBL-
 806.
 1503.00

OWENS CORNING ROOFING AND ASPHALT LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO 43659
419.248.6600



October 7, 2013

Tennismaster Villas POA
c/o IMC Resort Services, Inc.
2 Corpus Christie, Suite 302
Hilton Head, SC 29928
Attn: Ron Fenstermaker

Re: Shingle Warranty Tennismaster Villas Units 101-120 Hilton Head, SC ("Units")

To Whom It May Concern:

The purpose of this letter is to confirm that Owens Corning Roofing and Asphalt System Advantage Roofing Limited Warranty™ is valid on the above mentioned job.

An inspection was conducted and found that there are small sections of various buildings had unvented spaces in the Units. Owens Corning Roofing Asphalt LLC will provide a full warranty for the complete building to include these unvented spaces.

Owens Corning Warranty on Roofing Shingles will be valid within the terms and Conditions stated in the warranty. Any further questions regarding this issue please give me a call.

Sincerely,

Mel Sancrant

Mel Sancrant
Owens Corning Science and Technology, LLC
An Authorized Representative of
Owens Corning Sales, LLC

A TOTAL
CONTRADICTION
OF HIS JUNE
LETTER

October 18, 2013

Bob Klein ; Code Official

Township of Hilton Head, Sc.

Dear Bob:

I discussed the letter sent by Mel Sancrant with him on Friday past in which he states " there are small sections of unvented spaces in various buildings".

There are 48-3 bedroom units and 14-2 bedroom units there. The small sections of unvented space measures 15x 25 or 375 Square feet multiplied by the 48 - 3 bedroom units equal 18000 square feet of un-vented space. All of their publications and instructions suggest and promote proper ventilation. When and where does this requirement begin?

Mel explained to me that his concern is with the integrity of the the shingles , nothing else . All other concerns regarding structure, health, moisture , rot , etc , defers to IBC Code and enforcement. The Code officials have the final word , as per Mel and the other people I talked with from Corning. (note his letter of June 11)

Any further actions regarding this project, unless a defect in the product used , are to be taken between the code officials and the contractor. (IBC Code 1503 same letter of June 11)

Please begin the process of serving the roofer with code violations and holding the original approval back until the proper work is completed there.

Fax to : 843- 341-2087

Sincerely ,
Vince Buontempo
103 Tennis Master.

QUESTION: At his level of employment (area sales rep) and in a site visit of about one hour, can he void the installation instructions and the " legal language" of the warranty ?



Office of Investigation and Enforcement

Inspection/Interview Report

Case No: 2013-12

Complainant:

Mr. Vincent A. Buontempo
103 Ship Yard Drive (Tennis Masters)
Hilton Head Island, SC 29928

Respondent:

Mr. Robert J. Klein
One Town Center Court
Hilton Head Island, SC 29928

Date Received: 11/04/2013

Date of Report: 1/31/2014

Investigator: Ronald L. Brewer

Person(s) Interviewed:

Complainant: Mr. Vincent A. Buontempo (Per Telecon)
Licensee/Respondent: Mr. Robert J. Klein (Respondent's Office)

The South Carolina Office of Investigations and Enforcement conducted an interview and inspection for the S.C. Buildings Code Council in reference to a complaint filed by the Complainant referenced above. The purpose of this interview and inspection was to determine if specific facts exist or conduct displayed should warrant recommendation of any sanction(s) against the Respondent based upon conduct or actions made by the Respondent.

On 12/3/2013 Investigator Brewer interviewed the Complainant via a telephone conversation. The Complainant lives in New Jersey and will not be back in South Carolina until spring of 2014. The Complainant is the owner of unit 103 at the "Tennis Master Villas" which is 1 of the 4 units in this particular set of units. The Complainant states the shingles were completed being replaced on all the "Tennis Master Villas" which are a total of 62 units in the latter part of 2012. The complaint is noted further in this report.

On 1/6/2014 Investigator Brewer interviewed the Respondent at the Respondent's office. Discussion of the shingle replacement and ventilation requirements for the "Tennis Master Villas" took place. The Respondent stated a written reply would be forthcoming of his findings.

On 1/6/2014 Investigator Brewer performed a site inspection of the Complainant's address and the adjoining units from the exterior. The Complainant had someone meet and open his unit for the Investigator's access and an interior inspection was performed on unit 103.

On 1/16/2014 Investigator Brewer received from the Respondent a written response to the complaint. The written report has been made a part of the case file.

The following is the complaint:

Complaint Item:

Item # 1: A section of attic for each unit is not properly ventilated.

Investigator's Observation: As stated before the Investigator observed the exterior and interior of unit 103. The interior of unit 103 had an access that was cut (by others) to allow limited access from the opening. Full access to the attic was not available. But from this limited access it appears that there is a section (lower) of attic that only has some soffit ventilation and no ventilation at the top/hip/ridge of this lower roof/attic space. From the exterior there are visible power vents for each unit at the "upper" roof/attic space.

The initial complaint by the Complainant, the Respondent's documentation and the Investigator's findings are being forwarded to an Investigative Review Committee (IRC), which is appointed by the Building Codes Council of South Carolina (BCC). The IRC will review the case at the next available BCC IRC meeting. The IRC's recommendation(s) for the disposition of this case will then be presented to the BCC members for their consideration at the next available BCC meeting. Should the matter be resolved prior to the IRC's review of the complaint, the IRC may take those actions into consideration during review of the complaint.

Sincerely,



Ronald L. Brewer
Investigator

cc: Mr. Vincent A. Buontempo
Mr. Robert J. Klein
File

	Roof Assembly Ventilation Coalition	
	529 14 th Street, NW, #750 Washington, DC 20045	Tel: 202.207.0917 Fax: 202.223.9741
www.ravcoalition.org		

FOR IMMEDIATE RELEASE

Contact: Shawn Richardson

(202) 207-1124

Srichardson@kellencompany.com

Roof Assembly Ventilation Coalition Leads Efforts to Improve Code Requirements for Attic Ventilation

(WASHINGTON, DC) – The Roof Assembly Ventilation Coalition (RAVC) participated in the development of the 2012 International Residential Code (IRC), recently published by the International Code Council (ICC). The RAVC proposed language aimed at adding clarity to the code, provide for balanced intake and exhaust for ventilated attics, and help ensure that attic ventilators work as intended.

Section 806.2 of the 2012 IRC has been revised to include:

“At least 40 percent and not more than 50 percent of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located no more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the required ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914mm) below the ridge or highest point of the space shall be permitted.”

The new revisions also include a requirement that ventilators be installed in accordance with the manufacturer’s installation instructions. With increased reliance on tested components, proper installation is just as important as proper design.

Attic ventilation is a proven design method that helps the roof assembly manage moisture, heat, and enhances roof covering durability. The RAVC was formed to provide a resource to advance building design through the use of ventilated attic spaces. By proposing and supporting detailed code provisions addressing the balanced approach to intake and exhaust, the RAVC is taking the lead role in advancing ventilated attic assemblies.

About RAVC

The Roof Assembly Ventilation Coalition, headquartered in Washington, DC, was formed in 2008 under the organization of the Asphalt Roofing Manufacturers Association. The coalition represents roof vent manufacturers, suppliers of residential roofing materials, and other interested stakeholders whose mission is to be the leading authority and technical resource on ventilated roof assembly design and performance, and to be the responsible advocate for proper steep slope roof assembly ventilation.

###

VENTILATION PROTECTION PLAN

Why Ventilate?



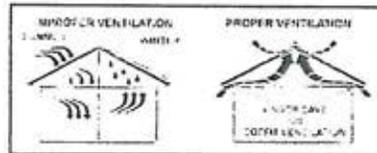
Heat

In hot weather, proper ventilation prevents the attic from becoming a "hot box" that radiates unwanted heat down through the attic floor into the living area. Attic temperatures can reach 150 degrees.



Moisture

In cold weather, proper ventilation helps prevent moisture from condensing on the insulation, rafters, and roof deck. Trapped moisture can rot wood members and rob insulation of its R-value.



Mold

Attics are prime sources for excess moisture and heat that result in "sick attics." Improperly ventilated attic areas provide food sources (wooden building components) plus the moisture and heat needed for toxic mold colonization. Sick attics may affect your living area environment thus posing potential health problems.



Shingle Warranties

Where ventilation is not adequate, Shingles deteriorate twice as fast as Shingles over well ventilated air spaces.

With this in mind, shingle manufacturers

Void their warranties if their shingles are installed over improperly ventilated attics



3 Must Do Steps For Attic Ventilation

1. Install all exhaust ventilation at the **SAME HEIGHT** within a common attic area.
2. Install **ONLY ONE TYPE** of exhaust ventilation within a common attic area.
3. Install a **BALANCED SYSTEM** of intake and exhaust ventilation.

Did you know?

All major shingle manufacturers void their warranties if their shingles are installed over improperly ventilated attics



(F3) Damages to the shingles caused by inadequate ventilation or roof drainage. Ventilation must meet FHA minimum standards



(F) Inadequate roof drainage or attic ventilation, or application of shingles directly to insulation or to an insulated deck unless prior written authorization is obtained in writing from the Company's Technical Services Manager. (Ventilation must meet FHA Minimum Property Standards.)



Exclusions from coverage Tamko shall not be liable for:

#1 faulty or improper application of the shingles, inadequate ventilation of the shingles, or shingles not installed or applied in accordance with Tamko written instructions to the installer on the packaging



Sure start protection does not extend to any shingles applied to insulated roof deck systems that are not ventilated between the insulation and the deck material upon which the shingles are attached



(B) damage to the products caused by inadequate attic/roof sheathing ventilation (note), ventilation must meet the FHA & HUD minimum property standards or minimum (1) square foot of net free attic vent area for every one hundred fifty feet of attic floor area; or one square foot per every 300 square feet, if vapor barrier is installed on the warm side of the ceiling, or at least 1/2 of ventilation area is provided near the ridge.



IKO will not be liable for damages caused insufficient attic ventilation or roof drainage. Ventilation must meet building code requirements. IKO is also not liable for damage caused to products installed over a roof deck that is not properly ventilated with an air space between the roof deck and the insulation. Approximately 1/2 the ventilation must be at the eaves with the remaining half at the top, or ridge of the roof.

THE HISTORY OF ATTIC VENTILATION REGULATION AND RESEARCH

William B. Rose

ABSTRACT

The aim of this paper is to review the research literature and regulatory documents on attic ventilation in the United States. Before, during, and immediately following World War II there was a spurt of regulatory and research activity that gave rise to the current standards and guidelines that govern residential construction practice. Upon review of the literature of that time, it becomes apparent that the findings of the research are not consistent with the conclusions drawn by researchers and others. In particular, the rule requiring an attic ventilation ratio of 1:300 does not appear to have been justified at the time of its promulgation. The research that was

intended to substantiate the rule fails to support it. The promulgation of the 1:300 rule went forward, nevertheless.

A second spurt of interest in attic performance began in 1978, with several research papers tending toward the conclusion that ventilation of well-insulated attics does not have a significant effect on cooling load. Monitoring efforts in the 1980s showed that air leakage and moisture storage are the predominant determinants of performance. Modeling efforts showed greater success with temperature prediction than with moisture prediction.

INTRODUCTION

Purpose

The aim of this paper is to present the sources of regulations governing attic construction, particularly attic ventilation. The focus of the search has been in the 1940s in the United States, when the well-known 1:300 venting ratio first appeared in documents of the Federal Housing Authority (FHA). This article presents the results of a literature search and review of previous research reports. Documents at a U.S. university and at the U.S. Department of Housing and Urban Development (HUD) have been scoured for references to attic ventilation. The search was intended to be exhaustive. The findings are presented here and conclusions are drawn from a critical reading of the articles that were available.

Conclusions also are drawn from the *absence* of material, particularly the absence of material that would substantiate the regulatory documents. Of course, this method is subject to criticism whenever relevant documents that may have been ignored are brought to light. Readers and reviewers are invited to continue the work begun here by presenting other relevant work, and the conclusion presented here may have to be modified by future presentations.

It is the opinion of this author that research of high quality should be used for the improvement of building regulation and practice. However, regulations and construction decisions must often be made in the absence of

applicable research, as was the case following World War II. In this paper, there is no intent to criticize the formulators of building regulations for failure to correctly anticipate later findings. Indeed, they often seemed to exhibit excellent judgment.

This paper does *not* aim to address whether or not attic ventilation is an appropriate construction practice.

Early Construction Methods

Traditional construction has been documented in many works and can be found in many examples of preserved buildings. In traditional construction, roofs were never airtight. Rather, the building itself often acted as a chimney. Holes in roofs were a part of all primitive construction, as has been noted by Mircea Eliade, a historian of religions (Eliade 1957). Most indigenous pre-industrial buildings, at least outside of the Mediterranean area, were steep roof structures. In agricultural buildings, a cupola was added to ensure that the moisture and odors generated within could easily and safely exhaust to the outside. Industrial buildings had vented roofs to prevent the buildup of smoke or other pollutants. Much early fire prevention hinged on holes high in the roof, which lessened the likelihood of horizontal fire spread.

Through the nineteenth century, roofing materials (slate or tile on lath) were porous to air movement, thus providing natural ventilation of attic spaces. Thus, the roofing, support, and framing materials all tended to

William B. Rose is with the School of Architecture, Building Research Council, at the University of Illinois, Urbana-Champaign.

be in equilibrium with the outdoors, even as humidity generated indoors passed by these materials on their way out of the building. Natural roof ventilation tended to prevent the buildup of humidity or smoke within the interior of the building because there was a continuous flow of indoor air upward and out of the building.

The first major technical change occurred with the introduction of bituminous roofing materials, first in low-slope roofing and later in steep-roof construction (shingles). These nonrigid materials required continuous sheathing or decking. A bituminous roof/deck was impermeable to the movement of moisture, and this construction introduced concerns for the buildup of condensation. Pamphlets from the 1930s show concern by painters regarding paint peeling from "poorly vented" gables. However, it is worthy of note that documents from the 1920s and 1930s, for example, FHA 1935, while stressing concern for moisture problems in foundation spaces, apparently considered steep-roof residential construction with continuous board sheathing to be free of moisture problems.

The second technical change that occurred was the introduction of plywood into residential construction during and after World War II. Plywood was found to be more subject to deterioration than board sheathing. With its introduction, the first concerns for rotting sheathing began to be expressed. One of the early researchers, Britton, found that rotting plywood sheathing occurred in buildings with wet foundation areas (Britton 1949a).

A third technical change was the expanded use of cathedral ceilings. Story-and-a-half construction, where a section of the upper story has a sloped ceiling between the knee wall and the ceiling, was common even in the

1800s. With panelization and modularization of residential construction in the 1950s came much greater use of cathedral ceilings as design elements or as elements that simplified transport and site erection.

A fourth technical change was the increase in insulation levels, which occurred with the beginning of the century, but expanded greatly during the oil crises of the 1970s.

Performance Models and Analysis

To better understand attic construction regulations, it may be helpful to try to render as explicit as possible the implicit assumptions and hypotheses that underlie these regulations. Three distinct models of how attics perform can be seen in tracing the history of attics and attic ventilation.

- The earliest attics followed the traditional or agricultural model, in which attic openings served to intentionally ventilate the entire building. This paradigm lies behind the expression, "A building has to breathe."
- In "modern" construction, an airtight ceiling (in principle) prevents flows from the interior to the attic. This paradigm is found in any analysis that accounts for diffusion. Diffusion has been shown to be a significant transport mechanism only in the absence of air movement by convection.
- The most realistic model is a "mixed" model, in which the attic spaces or cathedral ceiling cavities are variously attached to or detached from air volumes below. Pathways for connection include chases for plumbing, ductwork, flues, and electrical wiring.

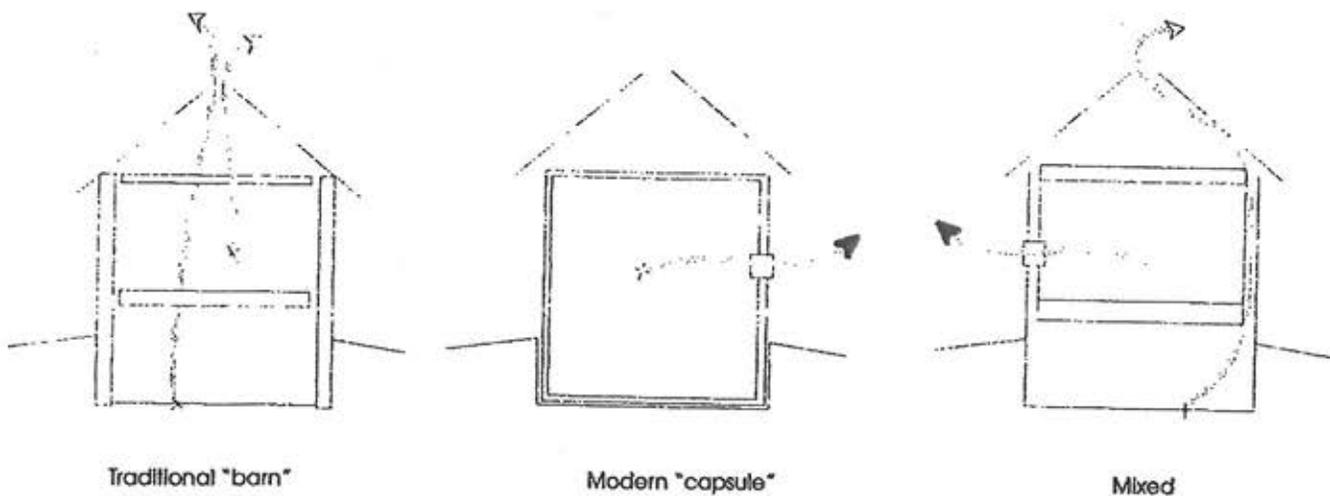


Figure 1 Three models of residential construction, with their impact on attic performance. In traditional construction (including agricultural construction), the attic acts as a chimney to discharge moisture from the foundation and from interior uses. In modern construction, the living space receives little moisture from the foundation and all moisture discharge is independent of the attic space. In mixed construction, the attic serves as the outlet for foundation moisture, while interior moisture may be discharged directly outside.

Certain other assumptions that are commonly found in the literature should be made explicit. These include:

- Winter conditions are more critical than summer conditions; northern regulations should be imposed broadly across the United States.
- The interior is "humid," although there have been no guidelines for indoor humidity. There is no concept of "moisture load" to correspond to live and dead loads for structural analysis. Assemblies have presumably been designed to withstand any possible moisture load.
- Many moisture control options are acknowledged, such as vapor barriers, ceiling airtightness, and ventilation, but ventilation is, by far, the most closely watched and regulated.
- No performance criteria are set, but sheathing deterioration (both mechanical and microbiological) is undesirable.

RESEARCH AND REGULATION

Rowley

In 1938 and 1939, Frank Rowley conducted wall and attic research at a U.S. university, and the results were published in *ASHVE Transactions* (Rowley et al. 1939). His aim was to test the resistance of various wall and roof assemblies to the accumulation of condensation under steady-state conditions. In an insulated test room he built three small test huts, shown in Figure 2. One hut had no ventilation, a second had mechanical ventilation, and a third hut had natural ventilation. Small aluminum panels were placed at the sheathing to collect frost. The panels were removed and weighed and any change in weight was attributed to frost accumulation on the panel. The ceiling was plaster on metal lath and appears to have

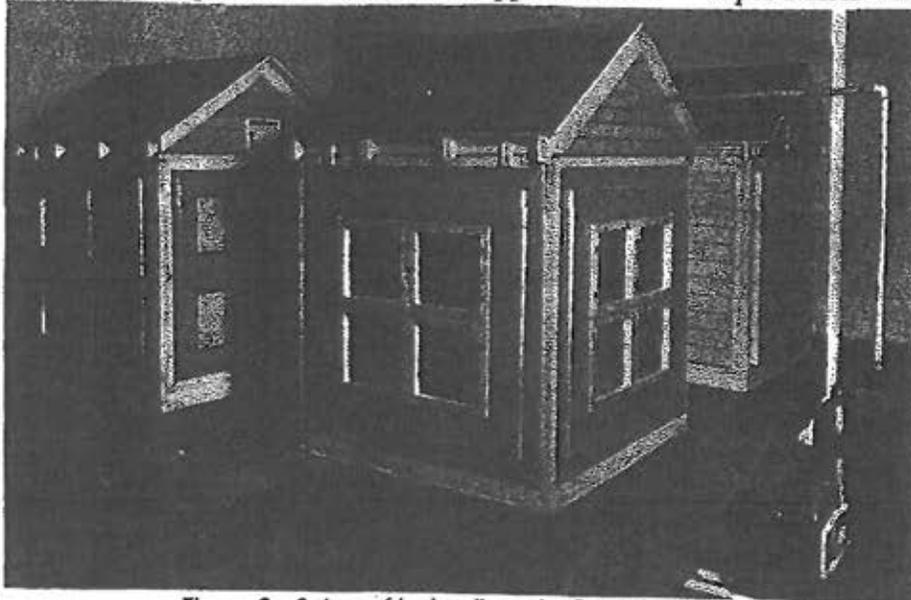


Figure 2 Setup of test cells under Frank Rowley.

been airtight. No vapor barriers were used, so all moisture transfer can be assumed to have been via diffusion.

The outset of his test, "period 2-3," contained the most difficult climatic conditions, with low "outdoor" temperatures (-10°F [-23°C]) and an indoor humidity of 40%. The hut with no ventilation showed an accumulation of moisture that ceased once the outdoor air temperature was elevated to 15°F (-9°C). The hut with natural ventilation showed no accumulation with a $1/4\text{-in.}^2$ opening for each square foot of ceiling area (1:576 ratio), but condensation appeared once the opening area was reduced by half (1:1152 ratio). The hut with mechanical ventilation showed no condensation at 3 ft^3 per hour per square foot of ceiling area (1 m^3 per m^2), but a trace of condensation appeared when the ventilation flow rate was cut in half. Rowley stated, "Evidently test period number 2-3 represents the minimum of ventilation for either natural or mechanical ventilated attic."

Rowley drew conclusions about both walls and attics. With regard to attics, Rowley concluded:

4. It is possible to reduce the rate of condensation within the structure by ventilating to the outside. This method may be particularly effective in attics where the condensation occurs on the underside of the roof. Adequate ventilation may be obtained without serious loss of heat...

9. For cold attic spaces it is desirable to allow openings for outside air circulation through attic space as a precaution against condensation on the underside of the roof even though barriers are used in the ceiling below.

Conclusion number 4 makes sense, and is a valid deduction from the experiment. A large vapor pressure difference was established across a plaster ceiling with no vapor barrier. Without dilution, sheathing condensation would be simple to predict by the dew-point method.

However, the paper contains no basis for conclusion No. 9. Rowley reported on no tests that included ceiling vapor barriers. The wall tests reported in this article showed decreases in the amount of condensation in wall sheathing due to the use of a vapor barrier to be from a $10\times$ decrease to a $100\times$ decrease, to the elimination of all condensation. Thus, it is difficult to imagine what Rowley's estimate of attic sheathing condensation would be, or how he could argue that his ventilation findings could apply to the case of a ceiling with a vapor barrier.

FHA Property Standards 1942

In January 1942 there appeared "Property Standards and Minimum Construction Requirements for Dwellings," published by the National Housing Agency for the FHA (FHA 1942). It contains substantial revisions from all of the previous "Property Standards" forms published by the FHA for use by state and regional offices. It contains this requirement:

209K Attics (Includes air space between ceiling and flat roofs).

1. Provide effective fixed ventilation in all spaces between roofs and top floor ceilings, by screened louvres or by other means acceptable to the Chief Architect.

2. Net ventilation area for each separate space to be not less than 1/300 of horizontally projected roof area. Where possible, locate vents to provide effective cross-ventilation.

3. Use corrosion-resistant screening over openings, mesh not less than 12/in.

This is the first statement of the requirement for 1:300 ventilation. It appeared in January 1942 with no explanation or attribution. It does not appear to be based on Rowley's work for two reasons: (a) later FHA (HHFA) researchers claimed to be unfamiliar with any precedents (see below), and (b) in a later publication (Rowley 1947), Rowley argued for a vent ratio of 1/4 in.² per ft² of ceiling area, or 1:576, a number that he was able to justify from his own research results. Thus there is no explicit rationale given for the 1:300 rule, and the one available reference for attic condensation, Rowley, does not appear to have been taken into account. It is interesting to note that the first requirement for the ventilation of crawl spaces appeared on the same page of the same document (Rose 1994).

Ralph Britton

Following World War II, the National Housing Agency was converted to the Housing and Home Finance Agency (HHFA). In January 1947, Ralph R. Britton, a structural and architectural engineering adviser on the technical staff of the HHFA, undertook a series of tests on walls and roof-ceiling assemblies (Britton 1948). The research took place in a climatemeter that had recently been put into service. The climatemeter was capable of maintaining uniform cold and hot temperatures. The results of the wall and roof-ceiling tests are reported in HHFA Technical Bulletins 1, 2, 3, 8, and 12. The roof-ceiling work is reported only in Technical Bulletins 1 and 2; the wall research continued in the later reports.

The report begins with a curious remark under "Test Procedure": "When this program started there was, to the best of our knowledge, no past experience to serve as a guide in setting up a test procedure." The research-

ers appear to have been unaware of Rowley's work. The aim of the tests was expressed on the first page: "The tests are designed to provide needed technical data on the performance of new materials and new methods of assembling old and new materials in construction suitable for use in obtaining structurally adequate, durable and livable dwellings."

Six test roof-ceiling panels were constructed and placed on a building made up of the test wall panels. The entire "building" fit tightly within the climatemeter, as shown in Figure 3. This figure contains a sketch of the ventilation slots in the eaves. It may be important to note the differences between the test conditions and common field conditions:

- The test was steady-state for one- or two-week periods at cold temperatures.
- There was no provision for radiant effects, either sun or nighttime cooling.
- The roofs were flat.

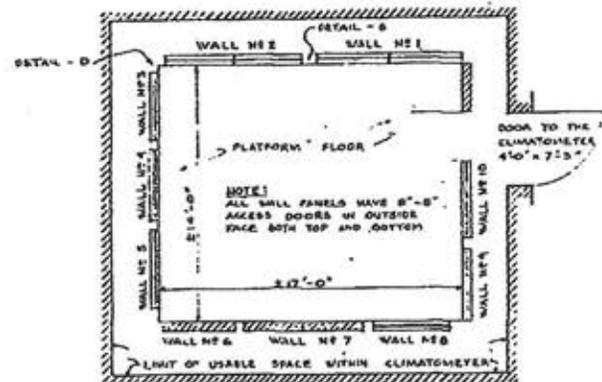


Figure 3 Plan and section of test panels from Britton's research.

TABLE 1

Case	Vapor Barrier	Insulation or Radiant Foil	Ventilation	First Finding, March 5	Second Finding,	Conclusion
1	vb, cont.	rock wool	1/300	ok	ok	ok
2	vb, facing	rock wool	1/300	ok	ok	ok
3	no vb	rock wool	1/300	frost	frost	visual ^a
4	no vb	refl. foil in mid	1/300-none ^b	cond.	cond.	visual
5	no vb	refl. foil near top	none	cond.	ice	visual
6	no vb	2 refl. foils	1/300-none	cond.	water	visual
1a	as in 1	as in 1	none	some frost	ok	ok
2a	as in 2	facing unstapled	1/300	ok	ok	psych. ^c
3a	as in 3	as in 3	1/100	ok	slight moist.	psych.
7	no vb	2 refl. foils	none	frost	ok	ok
8	no vb	2 refl. foils	none	water, mist	cond. at edge	ok
9	no vb	3 refl. foils	none	drops	not insp.	ok

^a"Visual" means that there was visual evidence of condensation.

^bVentilation of 1/300 was closed before inspections were conducted.

^c"Psych." means that, although there was no visual evidence of condensation, the psychrometric conditions indicated that condensation was imminent.

- There were inspection hatches through the roof side of each test panel.
- There is no mention of openings in the ceiling in the project description (though curiously the "findings" section mentions that photographs of sheathing conditions were taken from below).
- The ceiling material was "1/2 in. structural insulating board."
- The research report gives no idea of how air pressures might have played a role.

There were two phases, with six different roof assemblies in each phase. The 12 cases studied are shown in Table 1. Phase I (cases 1 through 6) lasted from January 28, 1947, to March 6, 1947, and is written up in Technical Report No. 1. Phase II (cases 1a, 2a, 3a, 7, 8, and 9) lasted from March 27 to May 7.

In phase I, there is a description of roof No. 1. This roof is of particular interest because it is the insulated roof studied both with and without ventilation. The roof had

- granular-surfaced roofing,
- 5/16-in. Douglas fir plywood,
- 2-in. air space,
- 4-in. rock wool insulation,
- kraft paper facing with two aluminum foil faces,
- 1/2-in. structural insulation board,
- one coat flat paint,
- joists 2 by 6—16-in. o.c.,
- cold-side ventilation 1:300, and
- excellent workmanship in applying barrier.

Roof 2 was like roof 1 except that the vapor barrier was a simple kraft facing. Roof 3 was similar, but with no vapor barrier at all. Roofs 4, 5, and 6 had only single sheets of reflective foil and had no mineral wool insulation at all. They were ventilated at 1:300.

In Phase II:

- The cold-side ventilation of roof 1 was closed completely. Roof 1 became roof 1a.
- The attachment of the kraft facing in roof 2 was modified, and it became roof-ceiling 2a.
- The ventilation in roof-ceiling 3 was enlarged from 1:300 to 1:100 (roof-ceiling 3a).
- Roofs 4, 5, and 6 were modified to have double sheets of reflective foil but still no mineral wool insulation and the vents were closed. They became roof-ceilings 7, 8, and 9.

So the vented assemblies were roof-ceilings 1, 2, 3, 4, 5, 6, 2a, and 3a. The unvented assemblies were 1a, 7, 8, and 9.

Beginning January 28, the cold "outdoor" conditions were varied from 20°F (-7°C) to 0°F (-18°C). The interior temperature was 70°F (21°C) and the indoor relative humidity (RH) was varied from 46% to 38%. Through several steps, no problems were encountered in roof-ceiling 1. Then the ventilation was closed completely and an inspection took place on April 18. Here are the findings for roof-ceiling 1a, which show that the researchers knew of the importance of air leakage:

No evidence of condensation was found in the cold cavity at the center access door. At the access door near the edge a small amount of frost was found on the inside of the door, the bolt attaching the handle of the door, the nails extending through the plywood sheathing, and around the edge of the door.

It is quite possible that some of this was caused by vapor gaining access to the cavity through a hole drilled for instrumentation. Close inspection indicated a not too effective attempt at sealing this hole.

On April 25, a new series was begun with the same temperature and humidity conditions as in the previous test. On May 7, an inspection took place, with these results for roof-ceiling 1: "No trouble. The slight amount of moisture noted in the cold side of the cavity at the edge access door was no doubt due to a small hole through inside surface for instrumentation."

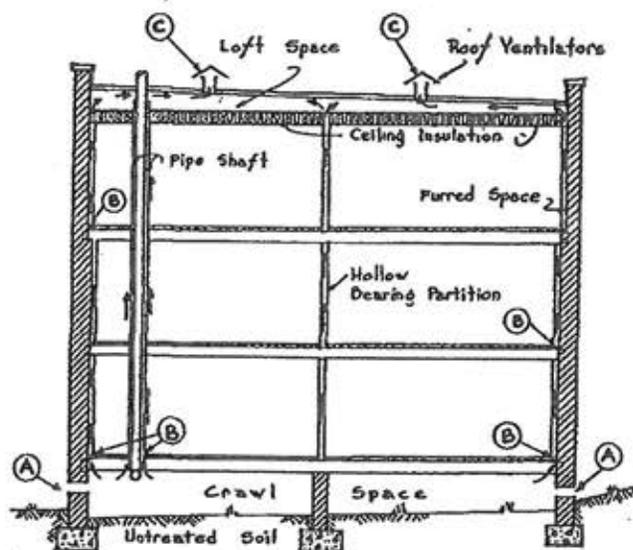
At the end of Technical Report No. 2, several conclusions were drawn. Regarding the roof-ceiling results, Britton concluded:

4. Based on visual inspection only, the following wall and roof-ceiling constructions may well be questioned for suitability for the most severe parts of the United States: Walls 2, 12, and 13. Roof ceiling 3, 4, 5, and 6.

5. Based on a study of psychrometric data with reasonable allowance for variable state conditions being more severe than steady state conditions of testing, the following wall and roof-ceiling constructions may well be questioned for suitability for the most severe parts of the United States: Walls, 1, 1a, 2a, 5a, 7, 7a, 10a, 12, and 13. Roof-ceilings 2a and 3a.

These are the final conclusions from the entire HHFA study regarding roof-ceiling assemblies. Regarding the cases with mineral wool insulation (ignoring the reflective foil cases): The suitable roof assemblies were roof-ceilings 1 and 2 (with well-installed vapor barriers and 1:300 ventilation) and 1a, with no ventilation. The questionable roof-ceiling samples were 3, 2a, and 3a, all vented assemblies. Clearly, one cannot conclude from these research results that ventilation provides sufficient moisture control for roof-ceiling assemblies. The effectiveness of a vapor barrier was demonstrated. The research also highlighted the importance of sealing air leakage paths, but the researchers appeared unable to incorporate their findings about air leakage into their conclusions. (It is to their credit that their observations were complete enough that future researchers could review their data for factors such as air leakage, which were not part of the original intent.)

Another important paper by Ralph Britton was "Crawl Spaces: Their Effect on Dwellings—An Analysis of Causes and Results—Suggested Good Practice Requirements" (Britton 1949a). In it, Britton identified wet crawl spaces as the principal cause of deterioration of attic sheathing in a case study of 72 apartment buildings with low-slope roof systems, shown in Figure 4. He identified the path that moisture takes in going from the crawl space to the attic, and he showed that it bypasses the living space. He showed that by changing the kind of attic ventilation from exhaust-only to inlet-plus-exhaust, crawl-space moisture would rise but attic sheathing moisture would go down. He also recommended that, if



• TYPICAL CROSS SECTION •
• APARTMENT PROJECT •

- (A) - Inadequate wall ventilation
 - (B) - Openings in floor $\frac{1}{8}'' \pm$, continuous
 - (C) - Roof ventilation misplaced unless vents are also in side walls above top ceiling floor.
- → Arrows indicate path of warm humid air

DRAWING NO. 1

Figure 4 Section of case study apartment building from Britton (1949), showing the path taken by humid air from the wet crawl space, through the furred spaces, up to the loft or attic space.

workmanship were sufficient to ensure that crawl-space moisture did not leak into the attic space, then the attic ventilation ratio could be reduced by 90% (from 1:300 to 1:3000, it may be presumed).

Note: Where an effective vapor barrier is assured in the top-story ceiling, loft or attic space ventilation specified above may be greatly decreased. Such a decrease may be as much as 90% where controlled construction is assured and walls or crawl space do not contribute to moisture supply in the attic or loft space.

This conclusion is important because it indicates the thinking by Britton and presumably the HHFA. It highlights the importance attached to moisture loads from the foundation. It allows speculation that the attic venting ratios might have been different had there not been Britton's experience with wet crawl spaces.

Britton wrapped the conclusions from his wall/roof studies and his crawl space investigations into an im-

TABLE 1.—Recommended good practice—loft and attic ventilation ¹			
Type of roof and occupancy	Condensation zone		
	I	II	III
(a) Flat roof—Slope less than 3 inches in 12 inches. No occupancy contemplated.	Total net area of ventilation should be 1/300th ² distributed uniformly at the eaves plus a vapor barrier in the top story ceiling. Free circulation must be provided through all spaces.	Same as for zone I.....	Same as for zone I.
(b) Gable roof—Slope over 3 inches in 12 inches. No occupancy contemplated.	Total net area of at least 2 louvers on opposite sides located near the ridge to be 1/300th ² plus a vapor barrier in the top story ceiling.	Same ventilation as for zone I. A vapor barrier is not considered necessary.	Same as for zone II.
(c) Hip roof—No occupancy contemplated	Total net area of ventilation should be 1/300th ² with 1/600th ² distributed uniformly at the eaves and 1/600th ² located at the ridge with all spaces interconnected. A vapor barrier should also be used in the top story ceiling.	Same ventilation as for zone I. A vapor barrier is not considered necessary.	Same as for zone II.
(d) Gable or hip roof—With occupancy contemplated.	Total net area of ventilation should be 1/300th ² with 1/600th ² distributed uniformly at the eaves and 1/600th ² located at the ridge with all spaces interconnected. A vapor barrier should also be used on the warm side of the top full story ceiling, the dwarf walls, the sloping part of the roof, and the attic story ceiling.	Same as for zone I.....	Same as for zone I except that a vapor barrier is not considered necessary if insulation is omitted.

¹ It is recognized that in many areas increased ventilation may be desirable for summer comfort.
² Refers to area enclosed within the building lines at the eave level.

Figure 5 Table of recommended good practice—loft and attic ventilation, as it appeared in Britton "Condensation Control In Dwelling Construction: good Practice Recommendations" and HHFA "Condensation Control In Modern Buildings."

portant article (Britton 1949b). Here his research results led to "recommended good practice," which took the form of a table, shown here as Figure 5.

Jordan et al./FPL

In 1948, another series of three tests were conducted by Jordan et al. (in conjunction with the Housing and Home Finance Agency) (Jordan et al. 1948).

Their first test was to compare air velocity through a louvered opening with no obstruction against air velocity through the same opening with 16-mesh wire screen. They found that at high velocities (more than 100 fpm [30 m/min]), the screen reduced air movement by 20% to 25%. At low velocity, the screen reduced the air velocity by almost 400%, from 114 fpm (35 m/min) to 36 fpm (11 m/min). The authors concluded that such a screen would probably block off all air movement induced by temperature difference.

As a second test, they studied three occupied houses in Madison, Wis., from mid-January through February 1947. Gravimetric weighing of wood slivers was used to determine moisture content. The moisture content indicated attic relative humidity. They found that only one house had a high moisture content and it was the house with high indoor humidity. They concluded that attic moisture is more a function of indoor humidity than of vapor barriers or ventilation.

Their third test was for condensation under controlled laboratory conditions. A small test chamber was outfitted to indoor, outdoor, and attic conditions. Mechanical ventilation was provided between 0.6 air changes per hour (ACH) and 1.5 ACH. (Later research by Forest and Walker [1993] showed air change rates in

test attics from 1 to 10 ACH.) The results showed frost formation in most of the unventilated cases and dissipation of the frost in most of the ventilated cases. The authors found frost even in the case where an asphalt vapor barrier was installed, leading to the conclusion that attic ventilation is desirable even with a vapor barrier. The authors came to the following conclusion,

The considerable lowering of attic temperatures caused when insulation was placed in the ceiling panel did not increase the formation of frost materially. When insulation was used, however, the amount of ventilation necessary to prevent or remove frost had to be greatly increased. This was due to the fact that the lower attic temperatures prevailing when the ceiling was insulated necessitated removal of much more air to get rid of a given quantity of moisture vapor, because a given volume of the colder air holds less vapor.

The authors indicated that ventilation rates much higher than those provided by the 1:300 ratio may be necessary in "highly insulated attics," i.e., attics with more than 4 in. (10 cm) of insulation.

HHFA "Condensation Control In Modern Buildings"

In August 1949, "Condensation Control in Modern Buildings" appeared. This publication (HHFA 1949) was the pivotal publication that served as the basis for almost all future standards and regulations. It synthesized the previous research and recommended practices, particularly that of Britton and Jordan. It replicated the table from Britton (1949a), shown here as Figure 5.

Hutcheon and Air Leakage

Britton, in his article cited above (1949a), had illustrated the damaging effects of airflow from wet crawl spaces into attics, but the outcome of his work was a focus on diffusion and an assumption that the establishment of good practice would obviate the air leakage problem. Neil B. Hutcheon, assistant director of the Division of Building Research at the National Research Council of Canada, initiated a Canadian drive to focus on air leakage as an essential element in moisture control in attics. Hutcheon (1950) may be the seminal document of his investigation, which continued throughout his career. He noted frost accumulation 10 times greater than would be predicted by "normal vapour transmission." He concluded forcefully:

It seems necessary to assume some other mechanism for vapour migration than the usual one of vapour diffusion under vapour pressure difference, to explain the rate of moisture transmission. It is possible that leakage of warm, moist inside air outward and upward, carrying water vapour can account for this.

By 1954, his observations had been consolidated into research reports (Hutcheon 1954). Here, Hutcheon stated:

The tendency for warm air to find its way upward is identical in principle to the situation in a chimney in which "draft" is produced. A column of air twenty feet high and one square foot will, at outside winter temperatures, weigh up to 0.35 pounds more than a similar column at indoor temperature. There is thus created a potential pressure of 0.35 pounds per square foot available to induce leakage of cold air at lower levels in a house and to force warm air out at the top. In other words, the warm air in a house tends to be "floated" up and out by the heavier cold air leaking in and collecting at lower levels.

His recommendations were for airtightness at the ceiling plane and for ventilation of the attic space.

Hinrichs

H.S. Hinrichs, in 1961 a research engineer with a manufacturer of various vent devices, conducted a study to determine the relative effectiveness of several devices (Hinrichs 1962). He used dissipation of smoke as an indicator of effectiveness and found that soffit and ridge ventilation provided greater dissipation than roof louvers, gable-end louvers, ridge only, soffit only or other combinations.

NBS "Summer and Whole House Ventilation"

"Summer and Whole House Ventilation" was published by the National Bureau of Standards (now NIST)

in July 1979. The work was edited by Doug Burch. The general conclusion from the volume is that, while attic ventilation cools attic air significantly, cooling has little impact on the total heat gain and cooling load in a house.

Reagan and Acklam (1979) measured the solar reflectivity of many commonly used building materials and showed how those values can be effectively used in whole-house energy calculations. He concluded that "changing the roof color from dark to light does greatly reduce the summer roof heat gain of a typical southwestern house, but such a reduction has little effect on the summer total house heat gain because the roof heat gain is typically small to begin with compared to the total house heat gain." Wetherington (1979) noted that tile roofs operated at much lower temperatures than shingle roofs. Later research (Chandra and Moalla 1992) confirmed this observation, with both local airflow around the tile and evaporation of sorbed moisture as explanations.

Dutt and Harrje (1979) reported that houses with forced attic exhaust ventilation used more power during the air-conditioning season than did houses with natural attic ventilation. They also noted that air-conditioning use went up when the attic fan was put in operation. They attributed this to behavioral differences by the occupants, having noted that two large ceiling bypasses were sealed. However, the movement of conditioned air from the living space into the attic under the pressure difference created by the exhaust fan remains a strong likelihood. Grot and Siu (1979) reached the conclusion that the ceiling heat gain for a two-story townhouse is only a small portion (less than 10%) of the sensible cooling load of the air conditioner for a climate similar to that of central New Jersey. Though the attic fan can reduce the ceiling heat by as much as 25%, no difference in the operation of the air conditioner could be observed either under average or maximum conditions.

Burch and Treado (1979) reached the conclusion that attic ventilation is not an effective energy conservation procedure for houses with insulation thicknesses of 4 in. and 6.5 in. This was true even with air-conditioning supply ductwork in the attic. Compared to soffit venting, power venting or turbine venting produced a maximum reduction of 17% in the average duct heat gain rate. They also found that whole-house ventilation was an effective energy conservation procedure.

Modeling Efforts

To apply findings from case studies and laboratory studies, the measured values must come to be used in the validation of models. Several researchers worked in this field during the 1980s, including Peavy (1979), Wilkes (1989), Burch and Luna (1980), Gorman (1987), Forest and Walker (1993), and TenWolde (1995). Peavy (1979) and Wilkes (1989) were among the first to do vali-

dated temperature models. Burch and Gorman attempted some of the first attic performance models that included moisture. Gorman's work has been further developed by himself, Forest, and TenWolde.

Later Research

Cleary (1984a, 1984b, 1985; Cleary and Sondereger 1987) was among the first researchers to establish the importance of moisture storage in attics. This concern was further developed by Harje, Ford, and others. In an interesting article, Ford (1982) showed the close relationship between attic air temperature and dew-point temperature. (See Figure 6 [copied from that report].) Because dry-bulb temperature is a measure of energy and dew-point temperature is a measure of absolute humidity (mass), they are commonly taken to be independent quantities. It is temperature-driven sorption and desorption of moisture from the attic material that links them closely, as is shown.

Further recent works by a national laboratory (on reflective foils and laboratory testing in a large-scale climate simulator) and by Tom Forest have made significant contributions to our understanding of attic performance. Lstiburek and Carmody (1992) have made use of the most recent research findings.

CONCLUSIONS

The requirement for 1:300 attic ventilation appeared in January 1942 with no apparent basis in the research literature. With the publication in 1948 of the HHFA's "Condensation Control in Modern Buildings," the 1:300 ratio became a fixture of construction practice to the present day.

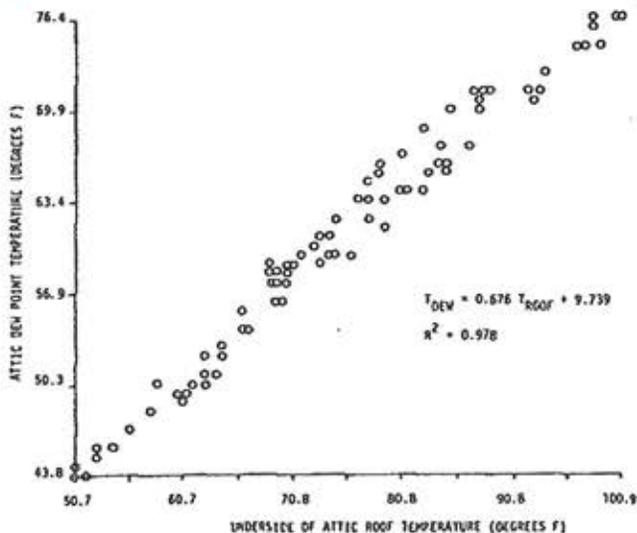


Figure 6 Copied from Ford showing the interdependence of dry-bulb temperature and dew-point temperature in actual attic measurements.

The research support for the need for the 1:300 attic ventilation rule is not strong. Rowley's 1939 research was conducted with no vapor barrier; his conclusion that ventilation is desirable even with a vapor barrier is unfounded. The Britton (1948) research showed that the tested unvented roof-ceiling assemblies performed satisfactorily, while the only vented assemblies that performed well were those with good vapor barriers. Jordan et al. found that screening can reduce the net free area of a vent by half, indoor humidity is a stronger determinant of moisture problems than either ventilation or vapor barriers, and with increasing insulation levels (up to 4 in. of mineral wool) "the amount of ventilation necessary to prevent or remove frost had to be greatly increased."

These results point in contradictory directions. Rowley demonstrated the effectiveness of 1:576 ventilation against diffusion. Britton demonstrated mixed effectiveness for ventilation and no ventilation. Jordan et al. demonstrated the insufficiency of 1:300 ventilation for diffusion moisture removal in well-insulated attics.

Although Britton's research noted the influence of air leakage on research results, he drew no conclusion about airtightness in practice. The prevention of air leakage became a desirable element of cold-weather construction due to the research of Hutcheon, beginning in 1950.

Studies in the late 1970s showed that attic ventilation was not effective at reducing cooling energy costs. Studies in the 1980s showed that moisture storage is an important element in the moisture balance in an attic.

Despite mixed research results, attic ventilation has become an element of almost all U.S. building codes and practice. Clearly, there is no significance to be attached to the particular ratio "1:300."

REFERENCES

- Britton, R.R. 1948. Condensation in walls and roofs. Housing and Home Finance Agency Technical Papers #1, 2, 3. July. April, HHFA Technical Paper #8. Washington, D.C.: Housing and Home Finance Agency.
- Britton, R.R. 1949a. Crawl spaces: Their effect on dwellings—An analysis of causes and results—Suggested good practice requirements. Housing and Home Finance Agency Technical Bulletin No. 2, January. Reprinted in Housing and Home Finance Agency Technical Bulletin No. 8.
- Britton, R.R. 1949b. Condensation control in dwelling construction. HHFA Technical Bulletin #10, May-June. Washington, D.C.: Housing and Home Finance Agency.
- Britton, R.R. 1949c. Condensation in wood frame walls under variable state conditions of exposure. Housing and Home Finance Agency Technical Paper #12. Washington, D.C.: Housing and Home Finance Agency.
- Burch, D.M., and D.E. Luna. 1980. A mathematical model for predicting attic ventilation rates required for preventing condensation on roof sheathing. *ASHRAE Transactions* 86(1): 201-220.
- Burch, D.M., M.R. Lemay, B.R. Rian, and E.J. Parker. 1984. Experimental validation of an attic condensation model. *ASHRAE Transactions* 90(2).



SYSTEM ADVANTAGE™ PREFERRED ROOFING LIMITED WARRANTY

Limitations on the transferability of this warranty are set forth herein.

Thank you for your recent purchase of an Owens Corning® Roofing System. We believe we manufacture the highest quality and most attractive roofing systems available anywhere, and that is why we stand behind them with one of the best warranties in the industry. We have attempted to write this warranty in clear, plain-English terms, including the limitations and restrictions, so you will fully understand the warranty we are making to you. However, if anything in this warranty is not clear to you, please visit our Web site at www.roofing.owenscorning.com or call 1-800-ROOFING.

WHO IS COVERED

To be eligible for this System Advantage™ Preferred Roofing Limited Warranty, your property must be located in the United States and you must be the original consumer purchaser (i.e., the property owner, not the installer or contractor) or the first transferee from the original consumer purchaser (Owner) of a complete Owens Corning® Roofing System (Roofing System), as defined below, by Owens Corning Roofing and Asphalt, LLC (Owens Corning) and be in accordance with the "Eligibility Requirements For This Warranty" below. In addition, the entire Roofing System must be installed by an Owens Corning® Preferred Contractor (PC) or Owens Corning® Platinum Preferred Contractor (PPC).

ELIGIBILITY REQUIREMENTS FOR THIS WARRANTY

- Your Roofing System must be installed by a PC or PPC who is authorized by Owens Corning to register the Owens Corning® System Advantage™ Preferred Roofing Limited Warranty. PC's and PPC's shall install the roof as per the specifications outlined in 2-6, below;
- Your Roofing System must be installed according to application requirements published by Owens Corning and in accordance with all generally accepted good roofing practices (using ARMA and NRCA standard application guidelines) and all local building code requirements which are in effect at the time of installation;
- The Roofing System must not be installed over an existing roof—all existing materials must be removed to the deck. All rotten or damaged wood fascia, trim, or decking must be replaced, and decking must conform to American Plywood Association recommendations;
- For your roof to qualify as a complete Roofing System, you must have purchased and installed Owens Corning® shingles, any No. 15 or No. 30 asphalt-saturated felt underlayment, fiberglass reinforced felt, or an equivalent synthetic underlayment, and four (4) of the six (6) products (Products) listed below:
 - Owens Corning® VentSure® ventilation products, in conjunction with functional eave and/or soffit intake vents;
 - Owens Corning® Hip and Ridge shingles;
 - Owens Corning® Underlayment products. These Products qualify as the mandatory No. 15 or No. 30 asphalt-saturated felt underlayment as listed above if applied over the entire deck;
 - Owens Corning® Starter Shingle products;
 - Owens Corning® WeatherLock® Self-Sealing Ice & Water Barrier Products; and
 - Owens Corning® Illuminator® Tube Skylight.
- New metal flashing(s) and drip edge must be installed. Step flashing is required for sidewall, front walls and chimney applications. Counter flashing is required per NRCA guidelines where applicable; and
- During installation, the PC or PPC must ensure that all required details and flashings are correctly installed as per Owens Corning requirements and NRCA guidelines, and in compliance with the above-listed Eligibility Requirements numbered 1-5.

Exceptions to the above requirements must be approved in writing by Owens Corning prior to installation of a Roofing System.

WHAT IS COVERED

We warrant that your Owens Corning® Roofing System is free from any manufacturing defects that materially affect their performance on your roof during the Tru PROtection® period or that cause leaks for the balance of the applicable warranty period. All non-Owens Corning® Roofing products installed on your roof are excluded.

WORKMANSHIP TERMS

This warranty covers workmanship for a period of time as described in the terms below. Workmanship includes any defective installation of the Owens Corning® Roofing System. The Workmanship Terms are only valid if the Owens Corning® Roofing System is installed by a PC or PPC, per the terms and conditions of the System Advantage™ Preferred Roofing Limited Warranty requirements.

SYSTEM ADVANTAGE™ PREFERRED WORKMANSHIP PERIOD

During the System Advantage™ Preferred Workmanship Period, if any part of your Roofing System is found to have an application defect or there are application errors in your Roofing System, Owens Corning will arrange to have your roof repaired or recovered or, at its sole option, will provide you with replacement roofing products and issue Compensation (see COMPENSATION section below) for the full reasonable cost of labor and other materials to repair or recover your roof, including flashings at valleys, dormers, chimneys and plumbing vents. The costs of labor to tear off some or all of your Roofing System and disposal are included, if necessary, to repair your roof. Workmanship Period is outlined in the "Limited Warranty Information Table" below.

NOTE: First Two (2) Years. If your claim arises out of an application error which is discovered or discoverable within the first two (2) years after installation, it is the obligation of the PC or PPC who installed your Roofing System to make all necessary repairs.

HOW LONG ARE YOU COVERED

The length of your warranty depends on the type of Owens Corning® shingles you purchased. See the "Limited Warranty Information Table" below to determine the warranty period that applies to your Owens Corning® shingles. If you make a claim under this warranty that results in a repair of your roof, this warranty will be unaffected, as long as the repair is done by an Owens Corning® PC or PPC, and we will continue to provide you with coverage on your entire Roofing System provided that Owens Corning® Products are used in the repairs. However, if you make a claim that results in your entire Roofing System being removed and replaced, this warranty will be void. If new Owens Corning® shingles are installed, you will then receive an Owens Corning® Standard Limited Warranty. However, if you once again install an entire Roofing System, you will be eligible to purchase a new System Advantage™ Preferred Roofing Limited Warranty (or other premium warranty), as long as the new Roofing System is installed by an Owens Corning® PC or PPC per the "Eligibility Requirements For This Warranty" above.

1. TRU PROTECTION® PERIOD

During the Tru PROtection® period of this warranty, our Compensation to you will be one-hundred percent (100%) of material and labor costs as reasonably determined by Owens Corning, to repair, replace or recover defective shingles, including the cost of tear-off, and disposal subject to certain limitations. Tru PROtection® period excludes workmanship coverage. See the "Limited Warranty Information Table" below for the specific Tru PROtection® period that applies to the Owens Corning® shingles you have purchased.

Under this System Advantage™ Preferred Roofing Limited Warranty, all Owens Corning® Roofing Essentials® Products, (see "Eligibility Requirements For This Warranty" above for products) with the exception of Powered Roof Vents, share the Tru PROtection® period concurrent with the shingle installed. At the expiration of the Tru PROtection® period, all Roofing Essentials products revert to the coverage specified by their individual warranties.

Under this System Advantage™ Preferred Roofing Limited Warranty, if a cut Owens Corning® Supreme® shingle is used instead of Owens Corning® Hip & Ridge shingles, the warranty and Tru PROtection® period for the Supreme® shingle is fifteen (15) years. The Owens Corning® Supreme® shingles do not assume the warranty for shingles used on the balance of the roof, unless the entire roof is installed with Supreme® shingles. The Tru PROtection® period does not apply to Wind and Algae coverage. Please see "What About Wind Resistance" and "What About Algae Resistance" below for applicable coverage.

2. PRORATED PERIOD

Once the Tru PROtection® period of this warranty has expired, the prorated period will begin. Materials and labor will be covered, and we will take into account the number of full years of use you have enjoyed from the original installation date through the date of your claim, and reduce the amount of our Compensation to you accordingly. That is, we will prorate the amount of our Compensation to you through the date of your claim for any manufacturing defects that cause leaks for the balance of the applicable warranty period. For example: If you have a twenty-five (25) year warranty and you make your claim anytime in the fifteenth (15th) year our Compensation to you will be 14/25ths (such cost not to exceed 14/25ths of the labor and material cost at the time of purchase). For lifetime shingle coverage, see the "Lifetime Shingle Proration Table" below.

3. OTHER TYPES OF STRUCTURES

The coverage for all Owens Corning® shingles offered by this warranty applies only to single-family detached homes. In the instance of shingles purchased or installed upon property owned by, for example, corporations, governmental agencies, partnerships, trusts, religious organizations, schools, condominiums or cooperative housing arrangements, or installed on apartment buildings or any other type of building or premises not used by individual homeowners as their residence, the warranty period for Oakridge® shingles will be forty (40) years and all other lifetime shingles will be fifty (50) years from the original installation date of the shingles, and the Tru PROtection® period will be twenty (20) years. Please see the "Lifetime Shingle Proration Table" below for the prorated formula after Tru PROtection® coverage expires for lifetime shingles.

LIFETIME SHINGLE PRORATION TABLE

Structure/Owner	Tru PROtection® Period		
	Years 1-50	Prorated Period Years 51 and Beyond	
Single-family detached homes	100%	20%	
Structure/Owner	Years 1-20	Years 21-40 Oakridge® Shingles Only	Years 21-50 All Other Lifetime Shingles
Other types of structures	100%	60% reduced by 2.5% each year thereafter*	60% reduced by 2% each year thereafter*

*Proration is calculated annually, based on the original installation date. There are no partial year prorations.

4. EXCEPTIONS

At all times, Owens Corning's obligation of Compensation for repair, replacement or prorated portion of the original purchase price of the defective Roofing System is subject to certain limitations.

5. WHAT ABOUT WIND RESISTANCE

Your shingles contain asphalt sealant that requires direct warm sunlight for several days in order to seal properly (Thermal Sealing). If your shingles are installed during a period of cool weather, they may not adequately seal until the season changes or the weather warms, and if your shingles never receive direct sunlight or are not exposed to adequate surface temperatures, they may never achieve Thermal Sealing. Prior to Thermal Sealing, your shingles are more vulnerable to blow-offs and wind damage. This is the fundamental nature of shingles and not a manufacturing defect, and we are not responsible for any blow-offs or wind damage that may occur prior to Thermal Sealing having occurred. After your shingles have achieved Thermal Sealing, however, they will be covered under this warranty if they experience blow-offs or wind damage in winds up to the levels listed in the chart at the end of this warranty. HOWEVER, THE COVERAGE AGAINST SHINGLE BLOW-OFFS OR WIND DAMAGE IS IN EFFECT FOR A PERIOD OF FIFTEEN (15) YEARS FOR LIFETIME SHINGLES AND FIVE (5) YEARS FOR SUPREME® SHINGLES, FROM THE ORIGINAL DATE OF INSTALLATION. Owens Corning will be liable only for the reasonable cost of replacing blown-off shingles, and Owens Corning® Hip and Ridge Shingles if applicable, (to include material and labor) and the reasonable cost of manually sealing the unsealed shingles remaining on the roof. After fifteen (15) years for lifetime shingles and five (5) years for Supreme® shingles, from date of installation, Owens Corning® shingles and, if applicable, Owens Corning® Hip & Ridge shingles plus labor will be covered at twenty percent (20%) of the original cost of the Owens Corning® shingles, Owens Corning® Hip & Ridge shingles and labor. We will take into account the number of months of use you have enjoyed from the original installation date, through the date of your claim, and reduce the amount of our Compensation to you accordingly. Please refer to "Transferability of This Warranty" below for applicable transfer coverage.

6. WHAT ABOUT ALGAE RESISTANCE

If the shingles that you purchased were not specifically labeled as "Algae Resistant" (AR), then any discoloration caused by algae is not covered by this warranty as explained in the section below, "What Is Not Covered." However, if you did purchase AR shingles, they are covered for the period described in the chart at the end of this warranty (prorated after the first twelve [12] months) following the date of installation ("AR Warranty Period") against brown-black staining caused by growth of blue-green algae (primarily the cyanobacteria Gloeococcales spp). We do not cover the effects of other growth such as mold, lichen, and green algae. If brown-black staining occurs during the AR Warranty Period, you will be entitled to the following remedy:

a. REMEDY FOR BLUE-GREEN ALGAE GROWTH—If your AR shingles are discolored by blue-green algae growth during the first twelve (12) months of the AR Warranty Period, we will cover the cost, including labor (such cost not to exceed the initial cost of the AR shingles plus the initial cost of installation), as reasonably determined by Owens Corning, to repair, replace or recover the affected AR shingles, subject to certain limitations. We will not cover any underlayment, metalwork, flashings or other related work, and we will not cover the cost to tear off or dispose of your AR shingles. For purposes of this AR shingle warranty, the term "repair" as used above refers to cleaning or otherwise removing any blue-green algae growth from affected AR shingles. Decisions regarding whether your AR shingles should be repaired, replaced or recovered will be made solely by Owens Corning.

b. PRORATION—If your AR shingles have been installed longer than twelve (12) months, labor will not be covered and we will prorate your Compensation to take into account the number of months of use that you have enjoyed through the date of your claim. For example: If you make your claim in the last month of the fifth (5th) year of the AR warranty (i.e., the 60th month) and the AR warranty length is ten (10) years (i.e., 120 months), we will not cover labor but will cover 60/120ths of the reasonable material cost of the affected AR shingles (such cost not to exceed 60/120ths of the material cost at time of purchase of the AR shingles).

3. Foot traffic on your roof or damage caused by object(s) (e.g., tree branches) falling on your roof;
4. Shading, or variations in the color of your Owens Corning® shingles and, if applicable, Owens Corning® Hip & Ridge shingles or discoloration caused by algae, fungi, lichen or cyanobacteria (unless covered under the section "What About Algae Resistance" above);
5. Faulty installation of your Roofing System by an installer other than an Owens Corning® PC or PFC;
6. Inadequate ventilation or roof drainage. Some exceptions may apply. If you have questions, please contact us at 1-800-ROOFING;
7. Settlement of the structure of your property or buckling or cracking of the deck over which your Roofing System is installed;
8. Damage to the Roofing System caused by alterations made after completion of application, including structural changes, equipment installation, painting or the application of cleaning solutions, coatings, or other modifications;
9. Improper storage, handling or other conditions beyond our control;
10. Damages caused by, or the cost to repair or replace, any non-Owens Corning® shingles or products;
11. Improperly designed or installed gutter or downspout systems; and
12. Any costs that you incur which are not authorized in advance by Owens Corning.

TRANSFERABILITY OF THIS WARRANTY (Based on original installation date) Single-Family Detached Homes

You can transfer this warranty one (1) time, anytime during the life of the warranty. For this warranty to be transferred, the new Owner must complete and return the attached warranty transfer card, within sixty (60) days after the date of the real estate transfer to obtain the benefits of this warranty. Proof of purchase of the Owens Corning® Roofing System and the installation date must be submitted at the same time. If the transfer takes place within the first fifteen (15) years for Supreme® shingles or twenty-five (25) years for lifetime shingles, the second Owner is entitled to the balance of the Tru PROtection® Period. The System Advantage™ Preferred Workmanship Period is fully transferable in the first ten (10) years and will remain a ten (10) year workmanship period from the original date of installation. If the transfer occurs after the first fifteen (15) years for Supreme® shingles or twenty-five (25) years for lifetime shingles, the balance of this warranty shall be reduced to a two (2) year period after the date of ownership change. Since the System Advantage™ Preferred workmanship period expires after ten (10) years, it is non-transferable after ten (10) years. If there is a manufacturing defect that causes leaks during this two (2) year period, our Compensation to the second (2nd) Owner will be based only on the reasonable cost of the replacement Roofing System reduced by the amount of use enjoyed from the original installation date through the date of your claim. The AR Warranty Period and Wind Warranty Period are fully transferable if the transfer occurs during the first five (5) years for Supreme® shingles or ten (10) years for lifetime shingles. The second owner will receive the balance of the coverage outlined in the "Limited Warranty Information Table" below.

Other Types of Structures

You can transfer this warranty one (1) time, anytime during the life of the warranty. For this warranty to be transferred, the new Owner must complete and return the attached warranty transfer card, within sixty (60) days after the date of the real estate transfer to obtain the benefits of this warranty. Proof of purchase of the Owens Corning® Roofing System and the installation date must be submitted at the same time. If the transfer takes place within the first fifteen (15) years for Supreme® shingles or twenty (20) years on lifetime shingles, the second Owner is entitled to the same coverage as the original Owner. If the transfer occurs after the first fifteen (15) years for Supreme® shingles or twenty (20) years for lifetime shingles, the balance of this warranty shall be reduced to a two (2) year period after the date of ownership change. If there is a manufacturing defect that causes leaks during this two (2) year period, our Compensation to the second (2nd) Owner will be based only on the reasonable cost of the replacement Roofing System reduced by the amount of use the second (2nd) Owner and the original Owner have enjoyed from the original installation date through the date of your claim. The AR Warranty Period and Wind Warranty Period are fully transferable if the transfer occurs during the first five (5) years for Supreme® shingles or ten (10) years for lifetime shingles. The second owner will receive the balance of the coverage outlined in the "Limited Warranty Information Table" below.

WHAT IS NOT COVERED

Our warranty does not cover damage to the Owens Corning® shingles or Products due to any cause not expressly covered herein. After our shingles or Products leave our manufacturing facility, they are subjected to conditions and handling beyond our control that could affect their performance. This warranty does not cover any problems with non-defective shingles or Products caused by conditions or handling beyond our control. Some examples not covered by this warranty include:

1. Acts of God, such as hail, strong storms or winds over the maximum wind speed listed in the chart at the end of this warranty, or ice damming above the area covered by leak barriers or flashings;
2. Damage to or failure of the Roofing System as a result of damage to or the failure of the underlying roofing structure;

XO

REPLACEMENT SHINGLE VARIATION

As a result of our ongoing efforts to improve and enhance our shingle and Product line, we must reserve the right to discontinue or modify our shingles and Products, including their colors. We are not liable to you if you make a warranty claim in the future and any replacement shingles or Products you receive vary in color either because of normal weathering or changes in our shingle or Product line. You should understand that if we replace any of your shingles or Products under this warranty, we reserve the right to provide you with substitute shingles and Products that are comparable only in quality of your original shingles and Products.

COMPENSATION

Under the terms of this Limited Warranty, the manner of Compensation is at Owens Corning's sole discretion and may be issued in the form of cash settlement and/or material credit to an existing supplier of Owens Corning® Roofing materials or Owens Corning retains the right to provide materials in lieu of compensation. All costs must be pre-approved by Owens Corning. Note: The prorated material cost will be determined by the cost of the Roofing System at the original time of purchase.

CLAIMS PROCESS

To make a claim under this warranty, you need to do so within thirty (30) days after you discover the problem. Just call us at 1-800-ROOFING or visit us at: <http://roofing.owenscorning.com/homeowner/warranty/claimform.aspx>. To fully evaluate your claim, we may ask you to provide, at your expense, pictures of your shingles and/or shingle samples for us to test. If you have any questions, do not hesitate to call 1-800-ROOFING or visit our Web site at www.roofing.owenscorning.com.

LIMITATIONS

THIS WARRANTY IS EXCLUSIVE AND REPLACES ALL OTHER WARRANTIES, CONDITIONS, REPRESENTATIONS AND GUARANTEES, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER BY STATUTE, AT LAW OR IN EQUITY AND IS LIMITED IN LENGTH TO THE EXPRESS WARRANTY PROVIDED ABOVE UNLESS A SHORTER PERIOD IS PERMITTED BY LAW.

THIS WRITTEN WARRANTY IS YOUR EXCLUSIVE WARRANTY FROM OWENS CORNING AND REPRESENTS THE SOLE REMEDY TO ANY OWNER OF OWENS CORNING® SHINGLES AND THE OWENS CORNING® ROOFING SYSTEM. OWENS CORNING MAKES NO OTHER REPRESENTATIONS, WARRANTIES OR GUARANTEES OF ANY KIND OTHER THAN THOSE STATED EXPLICITLY HEREIN.

YOUR REMEDY FOR DEFECTIVE OWENS CORNING® SHINGLES OR OWENS CORNING® ROOFING SYSTEM IS FULLY DESCRIBED IN THE PRECEDING SECTION, "HOW LONG ARE YOU COVERED." YOU ARE NOT ENTITLED TO ANYTHING MORE THAN WHAT IS DESCRIBED IN THAT SECTION. WE ARE NOT RESPONSIBLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, PUNITIVE, OR OTHER DAMAGES OF ANY KIND INCLUDING DAMAGE TO YOUR STRUCTURE OR TO YOUR STRUCTURE'S CONTENTS WHETHER FOR BREACH OF THIS WARRANTY, NEGLIGENCE, STRICT LIABILITY OR OTHER CLAIMS DERIVED IN TORT OR FOR ANY OTHER CAUSE.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

LIMITED WARRANTY INFORMATION TABLE

Product Name	Warranty Period		Tru PROtection® Period		System Advantage™ Preferred Workmanship™ Period		Wind Warranty Protection	Wind Warranty Period	Algae Warranty Period
	Single-Family Detached Home	Other Types of Structures	Single-Family Detached Home	Other Types of Structures	Single-Family Detached Home	Other Types of Structures			
Berkshire®	Lifetime	50 Years	50 Years	20 Years	10 Years	10 Years	110 MPH/130 MPH*	15 Years	15 Years
Woodmoor®	Lifetime	50 Years	50 Years	20 Years	10 Years	10 Years	110 MPH/130 MPH*	15 Years	10 Years
Woodcrest®	Lifetime	50 Years	50 Years	20 Years	10 Years	10 Years	110 MPH/130 MPH*	15 Years	10 Years
WeatherGuard® HP†	Lifetime	50 Years	50 Years	20 Years	10 Years	10 Years	130 MPH†	15 Years	10 Years
Duration® Series^	Lifetime	50 Years	50 Years	20 Years	10 Years	10 Years	130 MPH	15 Years	10 Years
Oakridge®	Lifetime	40 Years	50 Years	20 Years	10 Years	10 Years	110 MPH/130 MPH**	15 Years	10 Years
Supreme®	25 Years	25 Years	15 Years	15 Years	10 Years	10 Years	60 MPH	5 Years	10 Years

Algae Resistant shingles

NOTE: When properly installed, Owens Corning® Hip & Ridge shingle warranty terms will match with the corresponding roofing shingle. (See specific Owens Corning® Hip & Ridge shingle installation instructions for details.)

† Berkshire® Hip & Ridge is required for 15 year Algae Resistance warranty.

‡ WeatherGuard® HP Hip & Ridge or ProEDGE STORM™ Hip & Ridge is required to complete UL 2218, Class IV impact resistant roof system.

* 130-MPH is applicable only with 6-nail application in accordance with installation instructions.

** 130-MPH is applicable only with 6-nail application and Owens Corning® Starter Shingle product application along eaves & rakes in accordance with installation instructions.

*** Contractor is responsible for the first two (2) years.

^ Includes TruDefinition® Duration; TruDefinition® Duration STORM™; TruDefinition® Duration® Designer Colors Collection; Duration® Premium Cool; and Duration® Premium Shingles.

For more information on Owens Corning® Roofing Products, or any of our wide range of building products and systems, it's easy to reach us: 1-800-GET PINK® | www.roofing.owenscorning.com

AN ORDINANCE OF THE TOWN OF HILTON HEAD ISLAND

Ordinance No.83- 8

Proposed Ordinance No.83-9

AN ORDINANCE ADOPTING TITLE 15 OF THE MUNICIPAL CODE OF THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA, TO ADD CHAPTER 1--OFFICIAL BUILDING CODE, CHAPTER 3--FIRE PREVENTION CODE, CHAPTER 5--ADMINISTRATION, CHAPTER 7--MOBILE HOME, CHAPTER 9--FLOOD DAMAGE CONTROLS, AND CHAPTER 11--SWIMMING POOLS.

BE IT ORDERED AND ORDAINED BY THE COUNCIL OF THE TOWN OF HILTON HEAD ISLAND, SOUTH CAROLINA; AND IT IS ORDAINED BY THE AUTHORITY OF THE SAID COUNCIL:

Section 1 Adoption. The Municipal Code of the Town of Hilton Head Island, South Carolina, be, and it hereby is, amended by adding the entire Title 15 of the said Code. A copy of the said Title 15 is attached hereto and incorporated herein.

Section 2 Severability. If any part of this Ordinance is held to be unconstitutional, it shall be construed to have been the legislative intent to pass said Ordinance without such unconstitutional provision, and the remainder of said Ordinance shall be deemed and held to be valid as if such portion had not been included. If said Ordinance, or any provisions thereof, is held to be inapplicable to any person, group of persons, property, kind of property, circumstances or set of circumstances, such holding shall not affect the applicability thereof to any other persons, property or circumstances.

Section 3 Effective Date. This ordinance shall be effective upon its enactment by the Town Council for the Town of Hilton Head Island.

Section 4 Applicability. This ordinance shall apply to and control development in accordance with its terms from and after the effective date.

9/1983

PASSED, APPROVED AND ADOPTED BY THE COUNCIL FOR THE TOWN OF
HILTON HEAD ISLAND ON THIS 3RD DAY OF OCTOBER, 1983.

Benjamin M. Racusin
Benjamin M. Racusin, Mayor

Barbara Anderson
Municipal Clerk

Date of First Reading : 9/26/83

Date of Second Reading: 10/3/83

TITLE 15
BUILDING AND BUILDING CODES

=====

CHAPTER 1 - OFFICIAL BUILDING CODE

ARTICLE 1
NAME

Section 15-1-110 Name. This chapter shall be known and cited as the "Building Code of the Town of Hilton Head Island."

ARTICLE 2
BUILDING CODE

PART A - ADOPTION OF CODE

Section 15-1-211 Building Code Adopted. The 1982 edition of the Standard Building Code, with subsequent revisions as published by the Southern Building Code Congress, is hereby adopted as the minimum standard for the construction, alteration, use, demolition and removal of buildings or other structures, or any appurtenances connected or attached thereto, except as otherwise specifically provided in this Chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the Code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

(Reserved for Amendments)

ARTICLE 3
ELECTRICAL CODE

PART A - ADOPTION OF CODE

Section 15-1-311 Electrical Code Adopted. The 1981 edition of the National Electrical Code, with subsequent revisions as published by the National Fire Protector's Association, is hereby adopted as the minimum standard for the installation of all electrical wiring, devices and equipment in the Town, except as otherwise specifically provided in this chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

(Reserved for Amendments)

PART C - LICENSING AND REGULATIONS

Section 15-1-331 Administration; Enforcement. The provisions of this Article shall be administered and enforced by the officials of the Town as provided for in this Code.

Section 15-1-332 Definitions. The following definitions shall apply to this Article:

(1) Electrical Inspector: A person designated by the Chief Building Official to do electrical inspections.

(2) Master Electrician: A person who possesses a valid Town Master Electricians License.

(3) Journeyman Electrician: A person who possesses a valid Town Journeyman Electrician's License.

(4) Apprentice Electrician: A person not having the qualifications of a Journeyman Electrician but performing electrical work under the supervision of a Master or Journeyman Electrician.

Section 15-1-333 Electrical Contractor Must Employ Licensed Electricians.

(A) Every electrical contractor, firm or corporation engaging in the business of electrical repair, installation, construction, contracting, and/or manufacturing in the Town including firms which install and repair electrical signs and display lighting shall be required to have regularly employed a licensed Electrician duly certified by the Town Council under the provisions of this title and having in his possession a license at all times, to supervise all electrical work

(B) Any person, firm or corporation desiring to perform work covered in this Ordinance shall be required to file a statement with the Town Manager or his designee in which shall be named the Licensed Electrician who shall be regularly employed locally to supervise the work of said firm or corporation.

(1) In the event the Licensed Electrician named in said license shall for any reason sever his connection or be unable to supervise the work of such firm or corporation, the firm or corporation shall have sixty (60) days during which time the Licensed Electrician must be replaced; otherwise all electrical operations of the firm or corporation will cease.

(2) Every person, firm or corporation performing electrical work covered in this Ordinance must have a telephone and mailing address to receive messages from the Building Inspection Department of the Town or other persons concerned, during regular business hours. The Chief Building Inspector shall keep a record of all such firms.

(3) In order that proper supervision may be assured by all electrical contractors, no Licensed Electrician shall use his license to certify an electrical installation unless he has personally and directly supervised the work.

Section 15-1-334 Issuance to Home Owners. Nothing herein contained shall prohibit any bona fide owner from personally installing electrical wiring in a residence he both owns and lives in provided he abides by the following rules and regulations:

A. Submit plans and specifications to the Building Inspections Department for approval.

B. Make application and secure an electrical permit before commencing electrical work of any kind.

C. File an affidavit that he is the bona fide owner, and will personally install the work on his premises only.

D. Pay the required permit fees.

E. Perform the electrical work according to the rules and regulations contained in this title and the current issue of the National Electrical Code.

F. Notify the Building Inspections Department when the work is ready for inspection.

G. Personal installation by an owner must be by himself, for himself, on his own premises without compensation or pay from anyone for his labor or the installation. An owner exercising this privilege shall conform to all the requirements of this title, and he shall not employ anyone to assist him with the installation.

Section 15-1-335 Electrical Appeals and Examining Board. There shall be appointed by the Town Council an Electrical Appeals and Examining Board which shall serve without compensation.

(A) Organization: The Electrical Appeals and Examining Board shall consist of five (5) members. Such Board shall be composed of two (2) Master Electricians actively engaged in the electrical contracting business within the corporate limits of the Town, one (1) Engineer or Senior Electrical Technician employed by Palmetto Electric Cooperative, one (1) Professional Engineer or Registered Architect and one (1) Fire Marshall. All Board members shall reside in the Town.

(B) Term of Office: Of the members first appointed, one (1) shall be appointed for a term of one (1) year, two (2) for a term of two (2) years and two (2) for a term of three (3) years and thereafter they shall be appointed for terms of four (4) years. Vacancies shall be filled for an unexpired term in the manner in which original appointments are required to be made.

(C) Quorum: Three (3) members of the Board shall constitute a quorum. In rendering a decision, affirmative votes of the majority present, but not less than three (3) affirmative votes, shall be required. No Board member shall act in a case in which he has a personal interest.

(D) Record: The Building Official shall act as the Secretary of the Electrical Appeals and Examining Board and shall make a detailed record of all its proceedings which shall set forth the reason for its decision.

(E) Procedure: The Board shall establish rules and regulations for its own procedures not inconsistent with the provisions of the National Electric Code. The Board shall meet at regular intervals, to be determined by the Chairman, or in any event the Board shall meet within ten (10) days after notice of an appeal has been received. The Secretary of the Board shall be responsible for notifying the Board and all parties concerned prior to the scheduled meeting.

Section 15-1-336 Duties and Responsibilities.

(A) Act on Appeals: The Board when so appealed to and after a hearing shall render a decision on each appeal.

(B) Advise Council of Changes: The Electrical Appeals and Examining Board shall review all proposed Code changes and Amendments to the Electrical Ordinance of the Town and shall make recommendations to the Town Council for adoption.

(C) Test and Issue Licenses: The Electrical Appeals and Examining Board shall prepare examinations designed to determine the applicants practical knowledge of electrical construction and the National Electrical Code. The Board will also be responsible for administering the examination and issuance of licenses to Journeyman and Master Electricians having the necessary qualifications.

(D) Hearings: The Board shall conduct hearings against Licensed Electricians for due cause after receiving written notice from the Electrical Inspector or another Licensed Electrician, that the accused has willfully violated the provisions of this Ordinance.

Section 15-1-337 License Procedure.

(A) All persons doing electrical work within the Town of Hilton Head shall possess a valid Town Electricians License.

(B) Grandfather Clause: At the effective date of this Ordinance, any person actively engaged in the electrical contracting business within the Town may continue to do so for a one (1) year period without obtaining an Electrician's License. At the end of the one (1) year grace period all grandfathered persons and firms must comply with all requirements of this Ordinance.

(C) Exemptions:

1. Any person who holds a valid S.C. Electrical Contracting License to do electrical work shall not be required to take the examinations but must pay the prescribed fees before engaging in any electrical work within the Town.

2. Any person who holds an Electrician's License issued by the Municipal Association of South Carolina Uniform Licensing Program shall not be required to take the examinations, but must pay the prescribed fees before engaging in electrical work within the Town.

3. Apprentice Electricians are not required to take examinations but are permitted to perform electrical work only when they are in the employ and under the supervision of a Licensed Electrician.

(D) Fees: License Fees shall be as follows:

	<u>Journeyman Electrician</u>	<u>Master Electrician</u>
Town Resident	\$ 75.00	\$ 150.00
Non-Resident	\$ 150.00	300.00

(E) Renewal: All Licenses shall expire on December 31st of each year. Application for renewal shall be made on or before the expiration date.

(F) Renewal fees shall be as follows:

	<u>Journeyman Electrician</u>	<u>Master Electrician</u>
Town Resident	\$ 50.00	\$ 75.00
Non-Resident	\$ 75.00	\$ 150.00

If any person allows his License to expire, the renewal fee shall be doubled. Any application for renewal not received within the time as specified in Paragraph E. above must then file a new application with the Board and take another examination.

(G) Types of Licenses:

1. The Electrical Appeals and Examining Board shall issue two types of Licenses: (1) Journeyman Electrician License and (2) Master Electricians License.

2. The holder of a valid Journeyman Electricians License may perform electrical work on projects permitted for not more than \$5,000.00 which involve only single phase services not

to exceed 600 amperes. A Journeyman Electrician shall not be allowed to wire swimming pools, spas, combination bathtub/spas, fountains, docks or similar electrical installations which involve contact with water.

3. The holder of a valid Master Electricians License may perform all electrical work.

(H) Examination and Issuance of License:

1. Qualifications of Applicant: Applicants for Journeyman Electrician Licenses shall have at least one (1) year of technical training and two (2) years of actual work experience, or have worked four (4) years as an Apprentice in fields of electrical construction, electrical sign work or electrical maintenance. Applicants for Master Electrician Licenses shall have a minimum of six (6) years experience in the field of electrical construction, electrical sign work, or electrical maintenance.

2. Applicants desiring to take an examination for Master or Journeyman Electrician shall notify the Electrical Appeals and Examining Board in writing on an application form furnished by the Secretary of their intention to take such examination at least ten (10) days before the date of the examination set by the Board. The application will include a summary of the applicant's qualifications and three (3) references certifying to the applicant's experience.

3. The Electrical Appeals and Examining Board shall hold regularly scheduled examinations. The Secretary of the Board shall insert a notice in a newspaper of general circulation within the Town not less than fifteen (15) days before the date of the examination.

(I) Nature of Examination: Examinations shall be of a technical and theoretical nature, sufficiently strict to establish the qualifications of the applicant and to satisfy the Board of the applicant's competency as a Journeyman or Master Electrician, as well as his familiarity with the rules and regulations governing applicable construction.

(J) Issuance of License: Any applicant obtaining a passing grade, as determined by the Board, shall be issued a License authorizing him to supervise or engage in work as a licensed electrician within the Town of Hilton Head.

(K) Refusal of Board to Grant License: Whenever the Electrical Appeals and Examining Board shall find, after examining an applicant as herein provided, that the applicant for an Electrician's license has failed to pass the examination, the Board shall refuse to issue a license to him and shall notify the applicant of this result by a written notice sent to his last known address as given to the Board by the applicant.

(1) Applicant's Right to Appeal: The applicant within ten (10) days from the date the Electrical Appeals and Examining Board renders a decision, shall have the right to appeal to the Town Council or to a Court of appropriate jurisdiction.

Section 15-1-338 Right to Appeal Electrical Inspector's Decision. Whenever a person is dissatisfied with a decision of the Electrical Inspector, after appealing to the Chief Building Inspector and receiving no relief to his satisfaction, he may appeal the decision to the Electrical Appeals and Examining Board. Appeals shall be made within ten (10) days in writing to the Secretary of the Board stating full particulars.

When the decision of an Electrical Inspector is appealed to the Electrical Appeals and Examining Board, the Board, after a hearing, may vary the application of this Code to any particular case if, in its opinion, the enforcement thereof would do manifest injustice, and would be contrary to the spirit and purpose of this Code or public interest, or in its opinion, the interpretation of the Electrical Inspector shall be modified or reversed, provided, in the Board's opinion, there is no danger of personal injury or property damage as a result of the modification.

If a decision of the Electrical Appeals and Examining Board reverses or modifies a refusal, order or disallowance of the Electrical Inspector, or varies the application of any provision of this Code, the Electrical Inspector shall immediately take action in accordance with such decision.

Section 15-1-339 Hearings - Licensed Electricians.

(A) If in the opinion of any licensed Electrician, any holder of a Town Electricians License, or other Electrician qualified to do business in the Town, has violated the provisions of this Ordinance or the National Electrical Code, that person may file a signed written complaint with the Secretary of the Electrical Appeals and Examining Board. The complaint shall state: The job location, the date the violation was observed and the exact nature of the violation with the name of the responsible licensed electrician.

(B) After notification of the complaint, the Chairman of the Board shall direct the Chief Building Inspector to inspect the work within seventy-two (72) hours, and file a written report back to the Board verifying the violation and specifying if any corrective action has been taken.

(C) Upon receipt of the Inspector's report, if sufficient reason exists for the Electrical Appeals And Examining Board to believe a violation exists, the Chairman shall set a hearing date and send by Certified Mail, at least fifteen (15) days prior to the hearing, a letter to the accused notifying them to appear at a hearing to determine proof of such alleged violation.

(D) The accused shall be provided with a copy of the charges against him. The alleged violator may be represented by counsel at the hearing and may present evidence in his behalf. All hearings shall be open; however, deliberation of the Board shall be in Executive Session.

(E) The Board will render their decision within five (5) days after the close of the hearing and it shall be one of the following:

1. Not Guilty.
2. Reprimand
3. Suspension of Electrician's license not to exceed one (1) year
4. Revocation of Electrician's license

(F) The results of the hearing including a transcript of the proceedings shall be forwarded immediately upon the rendering of a decision to the accused and accuser and to all members of the Board.

Section 15-1-340 General Regulations.

(A) Failure to Correct Defective Work: Any person who fails to correct defective work within the time specified by the Electrical Inspector, after having been duly notified of such defects, may not do any further work until such defects have been corrected, inspected and approved by the Electrical Inspector.

(B) Concealment of Work Prior to Inspection: It shall be unlawful for any person or his agents or employees to cover or conceal any wiring for light, heat or power until a certificate of inspection in the form of a sticker or tag is placed on the main service equipment by the Electrical Inspector signifying that the installation has been inspected and approved.

(C) Modifying Electrical Installations: It shall be unlawful for any person to tamper with any wiring installation, protective device, or equipment, or to do any work or make any changes thereon, unless he is qualified to do so as provided for in this Ordinance.

(D) Supervision of Temporary Installations: A licensed Master Electrician shall be required to supervise and patrol all temporary electrical installations for carnivals, circuses and fairs during their operation in the Town as well as similar wiring systems using electricity for light, heat, power, in order that life and property may be protected. This supervision shall be required regardless of the manner in which electricity is generated or supplied. The number of qualified electricians

required to supervise in this area shall be determined by the Electrical Inspector.

(E) Approval of Materials, Appliances and Devices: No electric materials, devices, signs, displays, or appliances designed for attachment to or installation on any electrical circuit or system for light, heat or power, shall be installed, used, sold or offered for sale unless they are in conformity with the approved industry methods of construction for the safety of life and property. Electrical materials, devices, or appliances used in the Town shall conform with the standards of Underwriter's Laboratories, Incorporated, and the standards approved by the American Standards Association. The maker's name, trademark, or other identification symbol shall be placed on all electrical materials, devices, or appliances which are sold or offered for sale or use. These markings and others, such as voltage, amperes, wattage, and power factor or appropriate ratings described in the National Electrical Code are necessary to determine the character of the materials, device or equipment and the use for which it is intended. Nothing in this section shall be construed to limit the use of specially fabricated gutters, pull boxes, troughs, etc., provided they meet the National Electrical Code requirements.

(F) Installations Damaged by Fire: No person shall perform any permanent work on any electrical installation damaged by fire, without first applying to the appropriate Fire Marshal for approval and then to the Building Inspections Department for a ruling on the portion of the wiring system that must be replaced.

(G) Authority to Disconnect Hazardous Wiring: The assigned Electrical Inspector is hereby given the power to disconnect extension cords, temporary wiring, branch circuits, and subfeed conductors of the utility supplying electrical energy to any portion of an electrical wiring system on or in buildings, or on premises, if the wiring is deemed by the Inspector to be hazardous to life or property. Any person supplying current must disconnect service from the source of supply upon instructions from the Electrical Inspector where hazards are deemed to exist. The assigned Electrical Inspector will immediately notify the local power company of such action.

Section 15-1-341 Appeals. The appeal of any ruling by the Electrical Appeals and Examining Board or other administering agent of this Ordinance shall be made to the Town Council as prescribed in this section.

(A) The appeal of any ruling made under the provisions of this Ordinance shall be filed with the Town Council within twenty (20) calendar days of receipt of notice of the contested action.

(B) Upon receipt of the appeal notification, the Town Council may:

1. Appoint a hearing examiner, or
2. Consider the appeal as a body

(C) The Town Council or the hearing examiner acting on behalf of the Town Council shall take all pertinent testimony. The hearing examiner shall provide the Town Council with a summary of findings and recommendations.

(D) The Town Council shall act on the appeal within sixty (60) days of the appeal filing date. Thereafter, an aggrieved party may appeal a decision of the Town Council through petition to a Court of appropriate jurisdiction in Beaufort County.

Section 15-1-342 Penalties.

(A) Any person violating any of the provisions, Sections, or Subsections of this Ordinance or of the Sections of the Town Building Code Ordinance regarding electrical work may be called before the Electrical Appeals and Examining Board for a hearing. The Board, after receiving testimony, may with cause give a warning to the violator or after repeated offenses require a hearing before the Electrical Appeals and Examining Board to determine the qualifications of the violating Electrician.

(B) Violation of the provisions of this Ordinance or failure to comply with any of its requirements shall constitute a misdemeanor, upon conviction thereof in a Court of appropriate jurisdiction, the violator may be fined not more than two hundred dollars (\$200.00) or imprisoned for not more than thirty (30) days, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the assigned Electrical Inspector from taking such other lawful action as necessary to safeguard life or property or to remedy any violation.

ARTICLE 4
PLUMBING CODE

PART A - ADOPTION OF CODE

Section 15-1-411 Plumbing Code Adopted. The 1982 edition of the Standard Plumbing Code, with all subsequent revisions published by the Southern Building Code Congress, is hereby adopted as the minimum standard for the purpose of regulating the installation of all plumbing, and to secure the beneficial interest and purposes thereof, which are the health, sanitation,

general public safety, and welfare, except as otherwise specifically provided in this Chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the Code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

Section 15-1-421 Additions, Insertions, Deletions to Code.

(Reserved for Amendments)

ARTICLE 5
GAS CODE

PART A - ADOPTION OF CODE

Section 15-1-511 Gas Code Adopted. The 1982 edition of the Standard Gas Code, with all subsequent revisions published by the Southern Building Code Congress, is hereby adopted as the minimum standard for the the safe installation of gas piping and gas appliances, except as otherwise specifically provided in this chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the Code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

Section 15-1-521 Additions, Insertions, Deletions to Code.

(Reserved for Amendments)

ARTICLE 6
MECHANICAL CODE

PART A - ADOPTION OF CODE

Section 15-1-611 Mechanical Code Adopted. The 1982 edition of the Standard Mechanical Code, with all subsequent revisions published by the Southern Building Code Congress, is hereby adopted as the minimum standard for the the safe installation and maintenance of all mechanical equipment so as to safeguard life, health and public welfare and the protection of

property, except as otherwise specifically provided in this Chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the Code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

Section 15-1-621 Additions, Insertions, Deletions to Code.

(Reserved for Amendments)

ARTICLE 7

1 AND 2 FAMILY DWELLING CODE

PART A - ADOPTION OF CODE

Section 15-1-711 Housing Code Adopted. The 1979 edition, as amended, of the One and Two Family Dwelling Code, with all subsequent revisions published by the Southern Building Code Congress, is hereby adopted as the minimum standard for the use, maintenance and occupancy of one and two family dwellings, dwelling units or structures within the corporate limits, as defined in that code, except as otherwise specifically provided in this Chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the Code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

Section 15-1-721 Additions, Insertions, Deletions to Code.

(Reserved for Amendments)

CHAPTER 3 - FIRE PREVENTION CODE

ARTICLE 1
NAME

Section 15-3-111 Name. This Chapter shall be known and cited as the "Fire Prevention Code of the Town of Hilton Head Island."

ARTICLE 2
ADOPTION

PART A - ADOPTION OF CODE

Section 15-3-211 Adoption of Fire Prevention Code. The 1982 edition of the Standard Fire Prevention Code, with all subsequent revisions published by the Southern Building Code Congress, is hereby adopted as the minimum standard for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion, save and except as otherwise specifically provided in this Chapter. A copy of the Code is hereby made a part of this Chapter as fully and completely as if the same were set out herein verbatim. A copy of the Code is on file in the Office of the Municipal Clerk.

PART B - ADDITIONS, INSERTIONS AND DELETIONS

(Reserved for Amendments)

CHAPTER 5 - ADMINISTRATIONARTICLE 1
ORGANIZATION

Section 15-5-111 Since it is recognized that the Town does not yet have the ability to implement a Building Inspection and Land Planning Department, the Town Council is authorized to enter into an intergovernmental service contract with Beaufort County and the Beaufort County Joint Planning Commission to provide for these services.

ARTICLE 2
FEES AND PERMITS

PART A - FEES

Section 15-5-211 General. (A) Other fees superseded: The following schedules and regulations regarding fees are hereby adopted and supersede all regulations and schedules regarding fees published in the Standard Building Code, Standard Plumbing Code, and National Electric Code.

(B) Fees mandatory: No permit shall be issued until the fees prescribed in this section shall have been paid. Nor shall an amendment to a permit be approved until the additional fee, if any, due to an increase in the estimated cost of the building or structure, shall have been paid.

(C) Failure to obtain permit:

- (1) If any person commences work on a building or structure before obtaining the necessary permit from the applicable governing body, he shall be subject to the penalty prescribed herein.
- (2) Where work for which a permit is required by this code is started or proceeded with prior to obtaining said permit, the fees herein specified shall be doubled, but the payment of such double fee shall not relieve any persons from fully complying with the requirements of this code in the execution of the work nor from any other penalties prescribed herein.

(D) Records of fees collected: The building official shall keep a permanent and accurate accounting of all permit fees and other monies collected, the names of all persons upon whose account the same was paid, the full date, and the amount thereof.

(E) By whom fees to be paid: Any and all fees shall be paid by the person to whom the permit is issued.

Section 15-5-212 Building permit fees. On all buildings, structures or alterations requiring a building permit, as set forth in Section 105 of the Standard Building Code, the fee shall be paid as required at the time of filing application, in accordance with the following schedule:

(A) Permit fees.

- (1) Where the valuation does not exceed five hundred (\$500) dollars, no fee shall be required.
- (2) For valuation over five hundred (\$500) dollars up to and including two thousand (\$2,000) dollars, the fee shall be five (\$5) dollars per thousand or fraction thereof.
- (3) For a valuation over two thousand (\$2,000) dollars up to and including fifteen thousand (\$15,000) dollars, the fee shall be ten (\$10) dollars for the first two thousand (\$2,000) dollars and three (\$3) dollars for each additional thousand or fraction thereof.
- (4) For a valuation over fifteen thousand (\$15,000) dollars up to and including fifty thousand (\$50,000) dollars, the fee shall be forty-nine (\$49) dollars for the first fifteen thousand (\$15,000) dollars plus two and 50/100 (\$2.50) dollars for each additional thousand or fraction thereof.
- (5) For a valuation over fifty thousand (\$50,000) dollars up to and including one hundred thousand (\$100,000) dollars, the fee shall be one hundred thirty-six and 50/100 (\$136.50) dollars for the first fifty thousand (\$50,000) plus two (\$2) dollars for each additional thousand or fraction thereof.
- (6) For a valuation over one hundred thousand (\$100,000) dollars up to and including five hundred thousand (\$500,000) dollars, the fee shall be two hundred thirty-six and 50/100 (\$236.50) dollars for the first one hundred thousand (\$100,000) dollars plus one dollar and 25/100

(\$1.25) for each additional thousand or fraction thereof.

- (7) For a valuation over five hundred thousand (\$500,000) dollars and up, the fee shall be seven hundred thirty-six and 50/100 (\$736.50) dollars for the first five hundred thousand (\$500,000) dollars plus seventy-five cents (\$0.75) for each additional thousand or fraction thereof.

(B) Moving of building. For the moving of any building or structure, the fee shall be fifty (\$50) dollars.

(C) Demolition of building. For the demolition of any building or structure, the fee shall be twenty-five (\$25) dollars.

(D) Plan-checking fees. When the valuation of the proposed construction exceeds one thousand (\$1,000) dollars and a plan is required to be submitted by Section 105.3 of the Standard Building Code, a plan-checking fee shall be paid to the building official at the time of submitting plans and specifications for checking. Said plan-checking fee shall be equal to one-half of the building permit fee as set forth in Section 107.4 of the Standard Building Code.

Section 15-5-213 Plumbing Permit Fees.

(A) Permit fees.

- (1) For issuing each permit, the fee shall be ten (\$10) dollars (in addition).
- (2) For each plumbing fixtures, floor drain or trap (including water and drainage piping), the fee shall be two and 50/100 (\$2.50) dollars.
- (3) For each house sewer, the fee shall be five (\$5) dollars.
- (4) For each house sewer having to be replaced or repaired, the fee shall be five (\$5) dollars.
- (5) For each cesspool, the fee shall be five (\$5) dollars.
- (6) For each septic tank and seepage pit or drain-field, the fee shall be ten (\$10) dollars.
- (7) For each water heater and/or vent, the fee shall be two and 50/100 (\$2.50) dollars.

- (8) For installations, alterations or repair of water piping and/or water treating equipment, the fee shall be five (\$5) dollars.
- (9) For repair or alteration of drainage or vent piping, the fee shall be five (\$5) dollars.
- (10) For vacuum breakers or backflow protective devices installed subsequent to the installation of the piping or equipment served, one to five (5) is two dollars and 50/100 (\$2.50) each and over five (5) is one dollar and 50/100 (\$1.50) each.

(B) Reinspections. If the plumbing official or his duly authorized representative shall, upon his inspection after the completion of the work or apparatus, find the same does not conform to and comply with the provisions of this Code, he shall notify the contractor, indicating the corrections required; and when he shall then again inspect the work or apparatus without further charge; but, when extra inspections are necessary due to any of the following reasons, a charge of ten (\$10) dollars shall be made for each reinspection:

- (1) Wrong address.
- (2) Condemned work, resulting from faulty work.
- (3) Repairs or corrections not made when inspections are called.
- (4) Work not ready for inspection when called.

All reinspection fees shall be paid prior to final inspections of plumbing work.

Section 15-5-214 Electrical Permit Fees.

(A) Schedule of electrical permit fees:

(1) First five (5) outlets, 110-volt.....	\$ 3.00
(2) Each additional 110-volt outlet	0.10
(3) Special purpose outlets, each	1.00
(4) Each light fixture	0.10
(5) Temporary pole	3.00
(6) Services up to 100 amps	5.00
100 to 200	10.00
200 to 40	15.00
400 up, per 100 amps	5.00
(7) Motors, each hp	0.50
(8) Swimming pools	5.00
(9) Panels, each	1.00
(10) Apartments, main	1.00
(11) Reinspection fee	5.00

Section 15-5-215 Mechanical Permit Fees.

(A) Issuance. For issuing each permit, the fee shall be ten (\$10) dollars.

(B) Fees for heating, ventilating, duct, air conditioning and refrigeration systems.

(1) The fee for heating, ventilating, duct, air conditioners and refrigeration systems shall be ten (\$10) dollars for the first one thousand (\$1,000) dollars of valuation of the installation plus two (\$2) dollars for each additional one thousand (\$1,000) dollars or fraction thereof.

(2) For repairs, alterations and additions to an existing system where the cost is over five hundred (\$500) dollars, the fee shall be two (\$2) dollars for each one thousand (\$1,000) dollars or fraction thereof in valuation plus five (\$5) dollars.

(C) Reinspection of heating, ventilating, duct, air conditioning and refrigeration systems. In case it becomes necessary to make a reinspection of a heating, ventilating, air conditioning or refrigeration system, the installer of such equipment shall pay a reinspection fee of five (\$5) dollars.

(D) Temporary operation inspection fee. For inspecting a temporary operation system, a fee of five (\$5) dollars shall be paid by the contractor requesting such inspection. If the system is not approved for temporary operation on the first inspection, for each subsequent inspection for such purpose a reinspection fee of five (\$5.00) dollars shall be charged.

(E) Valuation for fee purposes. In all buildings except one and two family dwellings using self-contained air conditioning units less than two (2) tons, the fee charged shall be based on the valuation of the total tonnage of all units combined. The minimum fee shall be ten (\$10) dollars. Boilers based on Btu input:

33,000 Btu (1Bhp) to 165,000 (5Bhp)	\$ 5.00
165,001 Btu (5Bhp) to 330,000 (10Bhp)	10.00
330,000 Btu (10Bhp) to 1,165,000 (52Bhp)	15.00
1,165,001 Btu (52Bhp) to 3,300,000 Btu (98Bhp) ...	25.00
Over 3,300,000 Btu	35.00

(F) Boiler reinspection fee. In case it becomes necessary to make a reinspection of the installation of a boiler, the person, firm, corporation or owner to whom a permit is issued shall pay for each reinspection a fee of five (\$5) dollars.

Section 15-5-216 Gas Permit Fees.

(A) Inspection fee--Gas piping. The total fee for inspection of consumer's gas piping at one location (including both rough and final piping inspection) shall be one dollar and 50/100 (\$.50) each for one to four (4) outlets, inclusive, and fifty cents (\$.50) for each outlet five (5) and above.

(B) Inspection fee--Conversion burners, floor furnaces, incinerators, boilers, or central heating or air conditioning units. The fee for inspecting conversion burners, floor furnaces, incinerators, boilers or central heating or air conditioning units shall be one dollar and 50/100 (\$.50) for each unit.

(C) Inspection fee--Vented wall furnaces and water heaters. The fee for inspecting vented wall furnaces and water heaters shall be one (\$1) dollar for each unit.

Section 15-5-217 Miscellaneous Fees.

(A) Safety Inspection fee. The safety inspection fee shall be ten (\$10) dollars.

(B) Federal Housing Administration Realtor Inspector fee. The FHA realtor inspection fee shall be twenty (\$20) dollars.

Section 15-5-218 Building Permit Valuation. If, in the opinion of the Building Official, the valuation of a building, alteration, or structure, appears to be underestimated, the Building Official shall then determine the value of the building from the most recent edition of the Southern Building Code Congress International's Building Cost Data for South Carolina and then charge the appropriate fee.

Section 15-5-219 Re-Inspections. If the Building Official or his duly authorized representative shall, upon his inspection after the completion of the work or apparatus, find the same does not conform to and comply with the provisions of this Code, he shall notify the contractor, indicating the corrections to be made; and then he shall again inspect the work or apparatus without further charge; but when extra inspections are due to any of the following reasons, a charge of \$15.00 shall be made for each re-inspection:

- (A) wrong address.
- (B) condemned work, resulting from faulty work.
- (C) repairs or corrections not made when inspections are called.
- (D) work not ready for inspection when called.

All re-inspection fees shall be paid before any further inspections are made.

PART B - REFUNDS

Section 15-5-221 Refunds.

(A) Permit holder must return all applicable permit forms and receipts; photostatic copies will not be accepted.

(B) Permit refund will be for total amount paid minus plan checking fee.

(C) No refunds will be given for permits where construction has not started within six months of issuance, provided the Building Official has not issued or granted any extensions of time as provided for in section 105.5 of the Standard Building Code.

CHAPTER 7 - MOBILE HOMESARTICLE 1
DEFINITIONS AND COMPLIANCESection 15-7-111 Definitions.

(A) Mobile home. A movable or portable, detached single-family dwelling constructed to be towed after fabrication on its own wheel and chassis, connected utilities, and designed without a permanent foundation for year-round living. It can consist of one or more units that can be folded, collapsed or telescoped when towed and expanded later for additional cubic capacity, or of two (2) or more units, separately towable but designed to be joined into one integral unit, capable of being again separated into the component for repeated towing. Modular units not designed as a "mobile home" shall not be included under the terms of these regulations.

(B) Mobile home park. Any plot of land upon which three (3) or more mobile homes, occupied for dwelling or sleeping purposes, are located and the property owner receives a rent payment for providing a mobile home stand.

Section 15-7-112 Compliance exemptions. Where the Town Council finds that compliance with the provisions of this ordinance would result in unnecessary hardship, an exemption or extension of time for compliance may be granted without impairing the intent or purpose of this ordinance; provided such exemption or extension does not adversely affect the health and safety of the public and mobile home park inhabitants or adjacent property owners.

ARTICLE 2
TIEDOWN

Section 15-7-211 Tiedown and fire safety requirements; compliance. For all mobile homes, tiedown and fire safety requirements shall be complied with. Mobile home dealers shall be responsible for ensuring that all mobile homes comply with tiedown and fire safety requirements when originally installed.

Section 15-7-212 Tiedowns and ground anchors--Minimum requirements. (A) All mobile homes located within the Town shall be provided with a minimum number of tiedowns and ground anchors as set forth below. These standards are intended to assure that a mobile home will withstand sustained winds equal to

twenty-five (25) pounds per square foot for horizontal pressures, fifteen (15) pounds per square foot uplift for vertical (horizontal projection) pressures; and thirty (30) pounds per square foot for vertical downward pressures.

Minimum tiedown and ground anchor requirements:

Length of Coach	Number of Tiedowns	Number of Ground Anchors
Less than 41 feet	3 sets	6
41 to 65 feet	4 sets	8
Over 65 feet	5 sets	10

(B) Each ground anchor shall be attached to the frame of the coach and to a factory built-in steel tiedown or other style of integral tiedown of equal strength, or external, "over-the-coach" type tiedown which crosses over the top of the coach. A tiedown set shall include two (2) tiedowns to the coach frame and one tiedown crossing over the coach, or built into the coach, attached to corresponding ground anchors and turnbuckles on each side of the coach. A minimum of one tiedown set and two (2) ground anchors shall be required on each expandable section of any mobile home. Doublewide and multiple unit mobile homes shall be tied down and anchored as one mobile home.

Section 15-7-213 Tiedown--Tensil strength of anchors and tiedowns. Each anchor and tiedown shall have a minimum tensil strength of four thousand five hundred (4,500) pounds.

Section 15-7-214 Tiedown--Anchor spacing. Maximum anchor spacing shall not exceed an average distance of fifteen (15) feet, except where the coach straps require adjustments to allow the ties to cross as close to each end as possible with straps at stud and rafter location.

Section 15-7-215 Tiedown--Ties passing over coach. Ties passing over the coach shall use steel or wood blocks to distribute the pressure at all top corners. In addition, ties passing over the coach shall be perpendicular to the ground and secured to the coach chassis or frame as close to the bottom of the coach as practical.

Section 15-7-216 Tiedown--Blocking. Blocking shall be installed beneath the main longitudinal frame of the mobile home at least at the same interval of spacing as the tiedown anchors and shall be in line with the tiedowns. Blocking shall be of steel or concrete. If concrete building blocks are used, cores shall be placed verticle with a solid treated wooden cap block on the top beneath the frame.

Section 15-7-217 Tiedown--Footings. Footings beneath blockings shall be firm and not less than sixteen (16) by sixteen (16) inches in plan dimensions; in like manner, two (2) class A solid concrete blocks of an appropriate size may be used. Footing thickness shall be a minimum of four (4) inches. If a concrete slab at least as wide and as long as the mobile home is used, the thickness shall have built-in tiedown straps which comply with the minimum of four (4) inches.

Section 15-7-218 Tiedown--Shims. Shimming between the blocking pier and the steel frame shall be treated wood of first quality or other firm materials. Shims shall be fitted tightly to prevent rocking of the unit under the action of wind gusts.

ARTICLE 3 OTHER PROVISIONS

Section 15-7-311 Secondary structures. All awnings, carports, cabanas, and other secondary buildings or structures shall be secured so as to meet the minimum Town Building Code requirements.

Section 15-7-312 Hurricane and windstorm resistance. All new mobile homes brought into the Town shall meet the minimum "hurricane and windstorm resistive construction standards of the USA Standard Institute Publication A 119.1, 1969, as amended. All such mobile homes shall have built-in tiedown straps which comply with the minimum requirements of this ordinance.

Section 15-7-313 Electrical requirements.

(A) Service poles. Service poles supplying power to mobile homes shall be located at least five (5) feet from any part of the mobile home.

(B) Underground installation. All services shall be installed underground from the service pole to the underside of the mobile home.

Section 15-7-314 Responsibility of mobile home park owner. The mobile home park owner shall be responsible for insuring that all mobile homes comply with the mobile home Ordinance.

CHAPTER 9 - FLOOD DAMAGE CONTROLSARTICLE 1
FINDINGS OF FACT AND PURPOSE

Section 15-9-111 Preamble. (A) The flood hazard areas of the Town are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruptions of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of tax base all of which adversely affect the public health, safety and welfare.

(B) These flood losses are caused by the cumulative effect of obstructions of flood plains causing increases in flood heights and velocities, and by the occupancy of flood hazard areas by structures vulnerable to floods or hazardous to other lands which are inadequately elevated, flood-proofed, or otherwise protected from flood damages.

(C) The flood hazard areas of the Town have been identified by the Federal Insurance Administration through a scientific and engineering report entitled "The Flood Insurance Study for the County of Beaufort," dated September 30, 1977, Federal Register Vol. 41, No. 207, pages 46962-46992 dated Tuesday, October 26, 1976, with accompanying Flood Rate Insurance Maps and Flood Boundary Maps. Said reports and accompanying maps and any revision thereto are hereby adopted by reference and declared to be part of this Chapter.

(D) It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in flood hazard areas by provisions designed to:

- (1) Require that buildings vulnerable to floods, including facilities which serve such buildings be protected against flood damages at the time of initial construction.
- (2) Regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.
- (3) Control filling or grading which may increase erosion or flood damage.
- (4) Control the alteration of natural flood plains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters.

ARTICLE 2
ADMINISTRATION

Section 15-9-211 To insure that the purposes of this ordinance are being complied with in regard to development within the flood hazard areas of the Town, The Building Official shall provide the applicant with the location of the proposed development with respect to the flood hazard area limits and water surface elevation of the base flood (i.e., 100 year flood) at the proposed development site.

Section 15-9-212 The Building Official shall require the following specific information to be included as part of an application for a building permit:

(A) A plan which details size of structure, finished ground elevation finished floor elevation, water supply, sanitary facilities and, if appropriate, floodproofing measures.

(B) If the building structure incorporates floodproofing measures or breakaway walls, then a certification is required by a registered professional engineer or architect stating that adequate precautions against flood damage have been taken with respect to the design of said building or structure, and that the plans for the development of the site adhere to the restrictions cited in this Chapter.

Section 15-9-213 The Building Official shall:

(A) Review proposed developments to assure that all necessary permits have been received from those governmental agencies from which approval is required by federal, state or local law.

(B) Notify adjacent communities and the Water Resources Commission prior to any alteration or relocation of a watercourse, and shall submit evidence of such notification to the Federal Insurance Administration.

(C) Obtain necessary engineering analysis to assure that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained.

Section 15-9-214 The Building Official shall require the verification of actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures prior to framing of said structure. The elevation information shall be maintained as public record.

ARTICLE 3
CONSTRUCTION STANDARDS

Section 15-9-311 Standards. Reference should be made to FIA Publication:

Elevated Residential Structures
(HUD FIA-184)

Section 15-9-312 Elevation Requirements. (A) Residential structures must be constructed so that the lowest floor, including basement, is located no lower than the base flood elevation (i.e., the 100 year flood elevation).

(B) Non-residential structures may be constructed below the base flood elevation (i.e., 100 year flood elevation) provided they are designed to preclude the inundation of flood water and withstand the hydrostatic loads associated with the base flood (i.e., structure must be floodproofed to the elevation of the base flood.)

(C) In those areas which do not contain regulatory flood elevation data, other available flood elevation data shall be utilized as the basis for meeting the requirements of (A) or (B) above or in the absence of other data the lowest floor, including basement, shall be above the elevation specified in the flood insurance study.

Section 15-9-313 Fill. If fill is used to raise the lowest floor to the base flood elevation:

- (1) Fill shall consist of suitable compact soil or small rock materials only. Sanitary landfills shall not be permitted.
- (2) Uncontained fill shall extend laterally no less than five (5) feet beyond the building line at all points.
- (3) Fill shall be used only to the extent to which it does not adversely affect adjacent properties.
- (4) Fill slopes shall be no steeper than allowed by acceptable engineering standards for the type of fill material used.

Section 15-9-314 Anchoring. (A) All structures shall be firmly anchored to prevent flotation, collapse, or lateral movement.

(B) All ducts, pipes, storage tanks, shall be firmly anchored to prevent flotation collapse or lateral movement.

Section 15-9-315 Electrical and Gas Utility Systems. (A) All electrical and gas water heaters, furnaces, compressors, and other critical electrical and gas installations shall be permitted only at elevations at or above the base flood elevation level.

(B) No electrical distribution panel shall be allowed at an elevation less than three (3) feet above the base flood elevation.

Section 15-9-316 Plumbing. (A) The location, construction, and installation of all potable water supply systems shall be in such a manner as to prevent contamination from flood waters during the base flood.

(B) Sanitary sewers and storm drainage systems that have openings within the structure below the base flood elevation shall be equipped with automatic water tight check valves or other automatic devices that are installed in each discharge line passing through a building exterior wall. On site waste disposal systems shall be designed to minimize damage from flooding.

Section 15-9-317 Special Standard for Construction in Coastal High Hazard Areas. Located within the special flood hazard areas are areas known as Coastal High Hazard Areas (V-Zones). These coastal high hazard areas have special flood hazards associated with high velocity waters from tidal surge and hurricane wave wash and therefore the following special construction standards shall apply in the Coastal High Hazard Areas as determined by the Building Official.

- (1) All buildings or structures (except marine structures) shall be located landward of the reach of the mean high tide.
- (2) All buildings or structures shall be elevated so that the bottom of the lowest horizontal supporting member is located no lower than the base flood elevation level, with all space below the lowest supporting member open so as not to impede the flow the water, except as provided for breakaway walls in (9), below.
- (3) All buildings or structures shall be securely anchored on pilings or columns.
- (4) Pilings or columns used as structural support shall be designed and anchored so as to withstand all applied loads of the base flood flow.
- (5) The adequacy of provision contained in (3) and (4), above, shall be certified to by a registered professional engineer or architect.

- (6) Pilings or columns used as structural support shall be spaced so that when measured perpendicular to the general direction of flood flow shall not be less than eight (8') feet apart at the closest point.
- (7) There shall be no fill used as structural support.
- (8) There shall be no alteration of primary sand dunes or mangrove stands which would increase potential flood damage.
- (9) Breakaway walls shall be allowed below the base flood elevation provided they are not part of the structural support of the building and are designed so as to breakaway, under abnormally high tides or wave action, without damage to the structural integrity of the building on which they are to be used.

NOTE: Specifications for breakaway walls should be determined in consultation with local engineers and architects and based on local conditions. Standard practice is to use a loading of 20 to 30 pounds per square foot (p.s.f.) as wind load on a vertical panel facing directly into the wind. This load would correspond to a wind speed of about 100 miles per hours and should be the minimum load which would cause the panels to breakaway. The maximum loading which would not cause failure to the superstructure is more difficult to determine but is probably about 50 to 75 P.S.F. Designation of this limit should be based on such factors as material, cross-section, and spacing of pilings or columns upon which the structure sits, the elevation above the ground, and other assumed loadings on the structure.

- (10) If breakaway walls are utilized, such enclosed space shall not be used for human habitation.

Section 15-9-318 Approval for Breakaway Walls. Prior to construction, plans for any structure that will have breakaway walls must be submitted to the Building Official for approval. The Building Official will review the plans for compliance with the provisions of this Chapter. The Building Official shall approve, reject, or recommend modifications of the plans within four (4) days from the receipt of the plans.

ARTICLE 4
SPECIAL STANDARDS FOR MOBILE HOMES IN FLOOD HAZARD AREAS

Section 15-9-411 Mobile Home Standards. (A) No new mobile home parks, expansion of existing mobile home parks or placement of any mobile home not in a mobile home park established before September 30, 1977, shall be allowed within a Coastal High Hazard Area.

(B) Mobile homes may be located or relocated in existing mobile home parks located within a Coastal High Hazard Area as replacements provided that:

- (1) any mobile home site rental or leasing agreement or any contract for and deed of sale clearly states that the land in question has been designated as part of a flood hazard area and may be subject to flooding.
- (2) any mobile home home moved into or relocated within an existing mobile home park shall be anchored in accordance with the provisions of this Article.
- (3) easy access for a mobile home hauler is provided.

(C) The construction of a new mobile home park, the expansion of an existing mobile home park, the placement of a mobile home not in a mobile home park or the substantial improvement thereof, not in a Coastal High Hazard area, shall be allowed only if the following criteria are met:

- (1) Ground anchors for the tiedowns are provided.
- (2) Tiedown requirements:
 - (i) Over-the-top ties are required at each of the four corners of the mobile home, with two additional ties per side for mobile homes more than 50 feet long.
 - (ii) Frame ties are required in conjunction with each over-the-top tie.
 - (iii) All components of the anchoring must be capable of carrying a force of 4,800 pounds.
- (3) Lots and pads that are elevated on compacted fill or by any other method must be approved by a state licensed Surveyor or Registered Engineer by a statement indicating that the lowest habitable floor of the mobile home is at or above the base flood level, before electrical service is connected.

- (4) Adequate surface drainage and easy access for a mobile home hauler are provided.
- (5) Load bearing foundation supports such as piers or pilings must be placed on stable soil or concrete footings no more than ten feet apart, and if the support height is greater than 72 inches, the support must contain steel reinforcement.

ARTICLE 5

REQUIREMENTS FOR SUBDIVISION PROPOSALS AND UTILITY SYSTEMS

Sections 15-9-511 Subdivisions. Flood plain management criteria associated with the subdivision of land into lots, building sites or building units is contained within the Town Subdivision Regulations or future ordinances regulating such development activity.

Section 15-9-512 Utilities. Water supply systems and/or sanitary sewage systems should be designed to minimize or eliminate infiltration of flood waters into the system and discharges from the systems into flood waters.

ARTICLE 6 VARIANCES

Section 15-9-611 Requirements for Variances. Upon the submission of a written application to the Town Board of Adjustments a variance may be granted permitting the erection of structures with a lowest floor elevation, including basement, lower than regulatory flood elevation if all of the following are met:

(1) (a) The property on which the structure is to be erected is an isolated lot of one-half acre or less, with all contiguous existing structures constructed below such required first floor elevation, or (b) a structure listed on the National Register of Historic Places or a State Inventory of History Places is to be restored or reconstructed.

(2) Good and sufficient cause exist for the granting of the variance.

(3) Failure to grant the variance would result in exceptional hardship to the applicant.

(4) The issuance of the variance would not result in increased flood heights, additional threats to public safety or extraordinary public expense.

(5) The variance would not have the effect of nullifying the intent and purpose of the ordinance.

Section 15-9-612 (A) All applications for variances shall be heard by the Board of Adjustment after reference to such committees and administrative officials as may be established for purposes of investigation and recommendation.

(B) Prior to the granting of a variance the Board of Adjustment must find that justifications exist in accordance with the terms of this ordinance. These findings together with the granting of a variance, shall be reduced to writing, and may be a part of the public record. All variances shall pertain to the particular parcel of land and apply only to the proposed structure set forth in the variance and application.

(C) Such variance shall be freely transferable with the land and shall not be personal to the applicant.

(D) Unless otherwise provided therein, a variance shall be valid for a period of one year after the date of its issuance. If construction has not commenced pursuant thereto within such time, said variance shall become void. Lapse of a variance by the passage of time shall not preclude subsequent application for variance.

(E) No variance except herein specifically permitted may be granted from the provisions of this ordinance. The variance procedures herein provided shall be the exclusive method for obtaining variances under the provisions herein.

Section 15-9-613 Each written application for a variance shall be accompanied by a fee of twenty-five dollars. Such application shall reflect the type of structures for which a variance is sought, the size of such structures, the approximate location upon the parcel and intended use thereof and the reasons for which the variance is being sought.

Section 15-9-614 Any applicant to whom a variance is granted shall be given notice that the proposed structure will be located in the flood prone area that the structure will be permitted to be built with a lowest flood elevation below the regulatory flood elevation, and the cost of flood insurance will be commensurate with the increased risk resulting from the reduced first flood elevation.

CHAPTER 11 - SWIMMING POOLS

Section 15-11-111 Enclosure of commercial pools. All commercial pools, as defined by the South Carolina Department of Health and Environmental Control swimming pool regulations, shall be completely enclosed by a fence or substantial structure not less than four (4) feet in height.

Chapter 1

OFFICIAL CONSTRUCTION CODE*

Article 1.	Administration
Article 2.	Adoption of Building Codes
Article 3.	Adoption of Electrical Code Regulations
Article 4.	Licensing

ARTICLE 1. ADMINISTRATION†

Section 15-1-100. Amendments.

The following amendments shall be incorporated as definitions for all construction codes:

1. *Jurisdiction or municipality.* Whenever "jurisdiction or municipality" occurs, substitute "Town of Hilton Head Island."
2. *Department of law or corporate council.* Whenever "department of law or corporate council" occurs, substitute "town legal department."
3. *Chief appointing authority of the municipality.* Whenever "chief appointing authority of the municipality" occurs, substitute "town manager."
4. *Department of building safety.* Whenever "department of building safety" occurs, substitute "community development department inspection/compliance section."

(Ord. No. 2008-22, 9-2-2008)

Sections 15-1-101—15-1-111. Reserved.

(Ord. No. 2008-22, 9-2-2008)

Section 15-1-112. Board of appeals.

Section 15-1-112.1 General. There is hereby established a board to be called the construction board of adjustments and appeals, which shall consist of nine (9) members and two (2) alternates. The board shall be appointed by town council.

Section 15-1-112.2 Limitations on authority. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.

Section 15-1-112.3 Qualifications. The construction board of adjustments and appeals shall consist of nine (9) members and two (2) alternates. Such board shall be composed of one (1) South Carolina registered architect, one (1) South Carolina licensed general contractor, one (1) South Carolina registered engineer, one (1) South Carolina licensed mechanical contractor (heating and air conditioning), one (1) South Carolina licensed plumbing contractor, one (1) South Carolina registered electrical engineer, one (1) South Carolina licensed electrical contractor and two (2) members at-large from the building industry. The said board shall be appointed by the town council. In addition to the regular members, there shall be two (2) alternate members; one (1) member at-large from the building industry and one (1) member at-large from the electrical industry. Board members shall be appointed for four-year terms. No member may serve more than two (2) successive terms, except for extraordinary circumstances where town council believes it to be in the best interest of the community to have a continuation, for a specified period, of a particular member of the board.

***Editor's note**—Ord. No. 2008-22, adopted Sept. 2, 2008, amended Ch. 1 in its entirety and enacted similar provisions as set out herein. The former Ch. 1 derived from Ord. No. 01-07, § 1, adopted June 5, 2001; Ord. No. 02-17, §§ 1, 2, adopted May 21, 2002; Ord. No. 02-40, § 1, adopted Nov. 19, 2002; Ord. No. 04-39, §§ 1—3, adopted Nov. 3, 2004; and Ord. No. 05-03, §§ 1—3, 8, adopted March 1, 2005.

†**Note**—The provisions of the latest edition of International Building Code—Chapter 1 Administration shall govern the administration of all construction codes adopted by the Town of Hilton Head Island with the exception of Section 101.4.1 Electrical, Section 101.4.5 Property Maintenance and Section 112 Board of Appeals.

Section 15-1-112.4 Quorum and voting. A simple majority of the board shall constitute a quorum. The concurring vote of five (5) members of the construction board of adjustment and appeals shall be necessary to reverse any action, order, requirement, decision, or determination of the building official. If the required number of votes is not obtained, the action, order, requirement, decision or determination of the building official shall stand. For votes on any other matter, the affirmative votes of the majority present shall be required. In the event that regular members are unable to attend the meeting, alternative members, if substituted, shall vote.

Section 15-1-112.5 Fee. A fee of seventy-five dollars (\$75.00) shall accompany application for appeal.
(Ord. No. 2008-22, 9-2-2008)

ARTICLE 2. ADOPTION OF BUILDING CODES*

(Ord. No. 2008-22, 9-2-2008)

ARTICLE 3. ADOPTION OF ELECTRICAL CODE†

(Ord. No. 2008-22, 9-2-2008)

Section 15-1-301. Administration; enforcement.

The provisions of this article shall be administered and enforced by the officials of the town as provided for in this code.
(Ord. No. 2008-22, 9-2-2008)

***Note**—The latest edition of the International Building Code, the International Mechanical Code, the International Energy Efficiency Code, the International Plumbing Code, the International Fuel Gas Code and the International Residential Code as adopted by the South Carolina Building Code Council are hereby adopted as the minimum standard for the construction, alteration, use, demolition and removal of buildings or other structures, or any appurtenances connected or attached thereto with effective dates established by the South Carolina Building Code Council. A copy of each code is hereby made a part of this chapter as fully and completely as if the same were set out herein verbatim. A copy of each code is on file in the office of the municipal clerk.

†Note—The latest edition of the National Electrical Code as adopted by the South Carolina Building Code Council is hereby adopted as the minimum standard for the installation of all electrical wiring, devices and equipment and is hereby adopted as the regulation governing all electrical work in the town. A copy of the code is hereby made a part of this chapter as fully and completely as if the same were set out herein verbatim. A copy of the code is on file in the office of the municipal clerk. The provisions contained in article 1 of this chapter titled "Administration" shall govern the administration of the National Electrical Code.

Section 15-1-302. Definitions.

The following definitions shall apply to this article:

- (1) *Electrical inspector:* A person designated by the building official to do electrical inspections.

(Ord. No. 2008-22, 9-2-2008)

Section 15-1-303. Issuance to homeowners.

Nothing herein contained shall prohibit any bona fide owner from personally installing electrical wiring in a residence he both owns and lives in provided he abides by the following rules and regulations and:

- (1) Submits plans and specifications to the inspections division for approval.
- (2) Makes application and secures an electrical permit before commencing electrical work of any kind.
- (3) Files an affidavit that he is the bona fide owner, and will personally install the work on his premises only.
- (4) Pays the required permit fees.
- (5) Performs the electrical work according to the rules and regulations contained in this title and the current issue of the National Electrical Code.
- (6) Notifies the inspections division when the work is ready for inspection.

accessible unisex toilet or bathing facility is permitted. The unisex facility shall be located on the same floor and in the same area as the existing facilities.

3409.8.10 Dressing, fitting and locker rooms. Where it is technically infeasible to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate-sex facilities are provided, accessible rooms for each sex shall be provided. Separate-sex facilities are not required where only unisex rooms are provided.

3409.8.11 Check-out aisles. Where check-out aisles are altered, at least one of each check-out aisle serving each function shall be made accessible until the number of accessible check-out aisles complies with Section 1109.12.2.

3409.8.12 Thresholds. The maximum height of thresholds at doorways shall be $\frac{3}{4}$ inch (19.1 mm). Such thresholds shall have beveled edges on each side.

3409.9 Historic buildings. These provisions shall apply to buildings and facilities designated as historic structures that undergo alterations or a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 3409.9.1 through 3409.9.4 for that element shall be permitted.

3409.9.1 Site arrival points. At least one accessible route from a site arrival point to an accessible entrance shall be provided.

3409.9.2 Multilevel buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

3409.9.3 Entrances. At least one main entrance shall be accessible.

Exceptions:

1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1110 shall be provided at the primary entrance and the accessible entrance.

3409.9.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one accessible toilet room complying with Section 1109.2.1 shall be provided.

SECTION 3410 COMPLIANCE ALTERNATIVES

3410.1 Compliance. The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings while permitting repair, alteration, addition and change of occupancy

without requiring full compliance with Chapters 2 through 33, or Sections 3401.3, and 3403 through 3407, except where compliance with other provisions of this code is specifically required in this section.

3410.2 Applicability. Structures existing prior to [DATE TO BE INSERTED BY THE JURISDICTION. NOTE: IT IS RECOMMENDED THAT THIS DATE COINCIDE WITH THE EFFECTIVE DATE OF BUILDING CODES WITHIN THE JURISDICTION], in which there is work involving additions, alterations or changes of occupancy shall be made to conform to the requirements of this section or the provisions of Sections 3403 through 3407. The provisions in Sections 3410.2.1 through 3410.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.

3410.2.1 Change in occupancy. Where an existing building is changed to a new occupancy classification and this section is applicable, the provisions of this section for the new occupancy shall be used to determine compliance with this code.

3410.2.2 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, and that portion is separated from the remainder of the building with fire barriers or horizontal assemblies having a fire-resistance rating as required by Table 508.3.3 for the separate occupancies, or with approved compliance alternatives, the portion changed shall be made to conform to the provisions of this section.

Where a portion of the building is changed to a new occupancy classification, and that portion is not separated from the remainder of the building with fire barriers or horizontal assemblies having a fire-resistance rating as required by Table 508.3.3 for the separate occupancies, or with approved compliance alternatives, the provisions of this section which apply to each occupancy shall apply to the entire building. Where there are conflicting provisions, those requirements which secure the greater public safety shall apply to the entire building or structure.

3410.2.3 Additions. Additions to existing buildings shall comply with the requirements of this code for new construction. The combined height and area of the existing building and the new addition shall not exceed the height and area allowed by Chapter 5. Where a fire wall that complies with Section 705 is provided between the addition and the existing building, the addition shall be considered a separate building.

3410.2.4 Alterations and repairs. An existing building or portion thereof, which does not comply with the requirements of this code for new construction, shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. If, in the alteration or repair, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33.

3410.2.4.1 Flood hazard areas. For existing buildings located in flood hazard areas established in Section 1612.3, if the alterations and repairs constitute substan-

8/23/13 5

Klein Bob

From: Roger Lowe <roger.lowe@llr.sc.gov>
Sent: August 23, 2013 9:44 AM
To: Jennie Meade
Cc: Klein Bob
Subject: [GRAYMAIL] RE: 2012 IBC section 3412.2

Follow Up Flag: Follow up
Flag Status: Flagged

Bob,

The date that should be entered in Section 3412.2 is the date that your jurisdiction actually first adopted a building code. Thus you can only apply Section 3412 to buildings that existed prior to that date. The date should be the date that Hilton Head actually began a comprehensive building regulation program using a recognized code with regard to construction.

Regards,

Roger K. Lowe, MCP CBO
Administrator
SC Building Codes Council
SC Contractors' Licensing Board
SC Manufactured Housing Board
South Carolina Department of Labor, Licensing, and Regulation
110 Centerview Drive (29210)
Post Office Box 11329
Columbia, SC 29211-1329
Phone: (803) 896-4688
Fax: (803) 896-4814
Email: roger.lowe@llr.sc.gov
Website: www.llr.state.sc.us

Confidentiality Note: This e-mail, including any attachments, contains privileged & confidential info intended only for the use of the individual or entity named above. If the reader of this e-mail is not the intended recipient or the employee/agent responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this e-mail, including attachments, is strictly prohibited. If you have received this e-mail message in error, please notify us immediately at 803-896-4696. Thank you.

-----Original Message-----

From: Jennie Meade
Sent: Friday, August 23, 2013 8:03 AM
To: Roger Lowe
Subject: FW: 2012 IBC section 3412.2

-----Original Message-----

1/5/14
6



Beaufort County, South Carolina

generated on 1/4/2014 9:14:57 PM EST

Property ID (PIN)	Alternate ID (AIN)	Parcel Address	Data refreshed as of	Assess Year	Pay Year
R550 015 000 0268 0003	00417196	100 SHIPYARD DR Unit 103,	12/28/2013	2013	2013

Current Parcel Information

Owner	BUONTEMPO VINCENT A KATHLEEN A	Property Class Code	ResImp CondominiumUnit SglFam
Owner Address	238 BLOOMINGDALE AVE CRANFORD NJ 07016	Acreage	.0000

Legal Description APT 103A TENNIS MASTER VILLAS 11-27-1978 DB02731484 J313

Historic Information

Tax Year	Land	Building	Market	Taxes	Payment
2013		\$421,000	\$421,000	\$4,769.87	\$0.00
2012		\$484,200	\$484,200	\$3,767.79	\$3,767.79
2011		\$484,200	\$484,200	\$3,728.23	\$3,728.23
2010		\$484,200	\$484,200	\$3,679.07	\$3,679.07
2009		\$484,200	\$484,200	\$3,602.68	\$3,602.68
2008		\$289,600	\$289,600	\$3,521.21	\$3,521.21
2007		\$289,600	\$289,600	\$3,379.43	\$3,379.43
2006		\$289,600	\$289,600	\$3,084.06	\$3,084.06
2005		\$289,600	\$289,600	\$2,880.75	\$2,880.75
2004		\$289,600	\$289,600	\$2,908.80	\$2,908.80

Sales Disclosure

Grantor	Book & Page	Date	Deed	Vacant	Sale Price
BRAUNSDORF EDWARD C LOIS V TRUSTEES	1169 458	5/4/1999	Fu		\$201,000
BRAUNSDORF EDWARD C LOIS V	1100 559	3/19/1998	De		\$0



BI202581

PERMIT

550 15-268

Issued:	Parcel ID: R55001500002680000	Fee: \$203.00	Value: \$16,200.00
Address: 100 SHIPYARD DRIVE	Subdivision: SHIPYARD	Building # 100	Unit# 101-104
Permit Type: Commercial Roof	Occupancy: Residential	Fl. Zone/Min Finished Floor Elevation	A7(14)

Description: TENNIS MASTER UNITS 101-104W RE ROOF REPLACE SHINGLE ROOFS. SAME MATERILAS, SAME COLOR.

Heated Square Ft	0	Unheated Square Ft	0	Total Square Feet	0	Number of Units	0
Number of Stories	00	Type of Exterior		Type of Construction		Number of Fireplaces	
Number of Bedrooms	0	Type Roofing	ASPHALT	Type Sewage		Fire Alarm System	0
Number of Bathrooms	0	Type of Heating/Air		Septic Tank #		Sprinklered	
Total Residential Rooms		Type of Fuel		Number of Elevators	0	Square Feet of Pool	0

Owner:	TENNIS MASTER ASSOC	22 OLD SHORT HILLS RD	07039 5605
Contractor:	HHI INC	LIVINGSTON NJ	
Applicant:	MARK DABULE	20 TOWNE DRIVE #155	29910
Architect:	MARK DABULE	20 TOWNE DRIVE #155	29910
Engineer:			
Business			

I acknowledge the following: All work must comply with Town of Hilton Head Island adopted codes. THIS IS IN A SPECIAL FLOOD HAZARD ZONE

Print Name: MARK C. DABULE Signature: Mark C. Dabule Date: 10/15/12
 Owner or Authorized Agent of Owner

No actions to recover damages based upon or arising out of the defective or unsafe condition of an improvement to real property may be brought more than eight years after substantial completion of the improvement. An owner has a right to extend this period by entering into a contractual agreement for extended liability under Section 15-3-640 of South Carolina state code.

11/21/2012 7:19:06 AM

Inspection Requests Reporting Hilton Head Island, SC

Page 29

Requested Date: 11/21/2012

Inspection Area:

Address : 100 SHIPYARD DRIVE
TENNIS MASTER VILLAS UNITS 101-104

A/P/D Information:

Activity:	B1202581	Type:	BLDG	Sub Type:	CROOF	Status:	ISSUED	on:	10/05/2012
Const Type:	RES	Occupancy:		Use:		Insp Area:			
PARCEL:	R55001500002680	Valuation:			\$16,200.00				
APPLICANT:	HHI INC				843-689-3555				Flood Zone
OWNER:	TENNIS MASTER ASSOC								A7(14)
CONTRACTOR:	HHI INC				843-689-3555	#2:			

E contr:	HVAC:
Architect:	Engr:
P contr:	

Description: SHIPYARD / TENNIS MASTER UNITS 101 - 104 / RE ROOF REPLACE SHINGLE ROOFS. SAME MATERILAS, SAME COLOR.

Requested Inspection(s):

B1202581

Item: 170 Final Inspection

Requestor: SELECTRON

Comments 067649-02* Request for insp.# 170

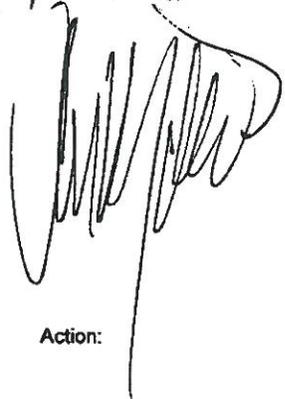
Assigned To: *****

Requested Time: 12:00:00 PM

Phone or

Entered By: DatEx-Voice

OK

OK to final


Inspection History:

Item: 170 Final Inspection

Item: 292 Permit Check

Item: 295 Information

Item:

Inspector

Action:

Comment:

November 30, 2012

TENNISMASTER VILLAS HPR
100 SHIPYARD DR
HILTON HEAD ISLAND SC 29928

Warranty Information

Property Address	100 SHIPYARD DR, HILTON HEAD ISLAND, SC 29928
Duration	40 Year
Period Start	November 9, 2012
Period End	November 9, 2052
Amount	Paid in Full

Dear Tennismaster Villas HPR:

Thank you for choosing the Owens Corning™ Roofing System.

ZSA1-5099285

This letter contains your warranty registration information, but please note:

The folder that came with this mailing IS your System Advantage™ Roofing warranty.

Please read it carefully, as it contains your rights and protection as a property owner. We have made it in a folder format so that you can use it to hold all of your roofing documents in one convenient place. Please take your roofing contract, or proof of purchase, together with this letter, and store it safely within the Preferred Protection warranty folder. The warranty also contains your transfer card should you desire to transfer this warranty to a new owner if you sell your property.

We believe that we manufacture the highest quality and most effective shingles available anywhere, and that is why we stand behind them with one of the best warranties in the industry.

With your recent registration for the System Advantage™ Roofing Warranty, (previously known as the Preferred Protection Warranty), our system will work both longer and harder for you.

Sincerely,

Owens Corning
Warranty Administrator

Enclosure

VINCE *What criteria for warranty*
Question: will the warranty if ventilation
is not to code in effect at the time was built
in 1983? Code hasn't changed and roof is not to
code then nor now.



Please read this warranty carefully. It is not a contract and does not constitute an offer of insurance. It is a warranty of workmanship only. It does not cover damage caused by fire, lightning, wind, hail, or other causes. It is void if the roof is not installed according to the instructions. Owens Corning is not responsible for any damage to the roof or property. © 2012 Owens Corning Fiberglas, Inc.

 **PREFERRED CONTRACTOR** www.owenscorning.com

INDUSTRY'S FOLIO 36

9

OWENS CORNING ROOFING AND ASPHALT LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO 43653
419.248.5500



October 7, 2013

Tennismaster Villas POA
c/o IMC Resort Services, Inc.
2 Corpus Christie, Suite 302
Hilton Head, SC 29928
Attn: Ron Fenstermaker

Re: Shingle Warranty Tennismaster Villas Units 101-120 Hilton Head, SC ("Units")

To Whom It May Concern:

The purpose of this letter is to confirm that Owens Corning Roofing and Asphalt System Advantage Roofing Limited Warranty™ is valid on the above mentioned job.

An inspection was conducted and found that there are small sections of various buildings had unvented spaces in the Units. Owens Corning Roofing Asphalt LLC will provide a full warranty for the complete building to include these unvented spaces.

Owens Corning Warranty on Roofing Shingles will be valid within the terms and Conditions stated in the warranty. Any further questions regarding this issue please give me a call.

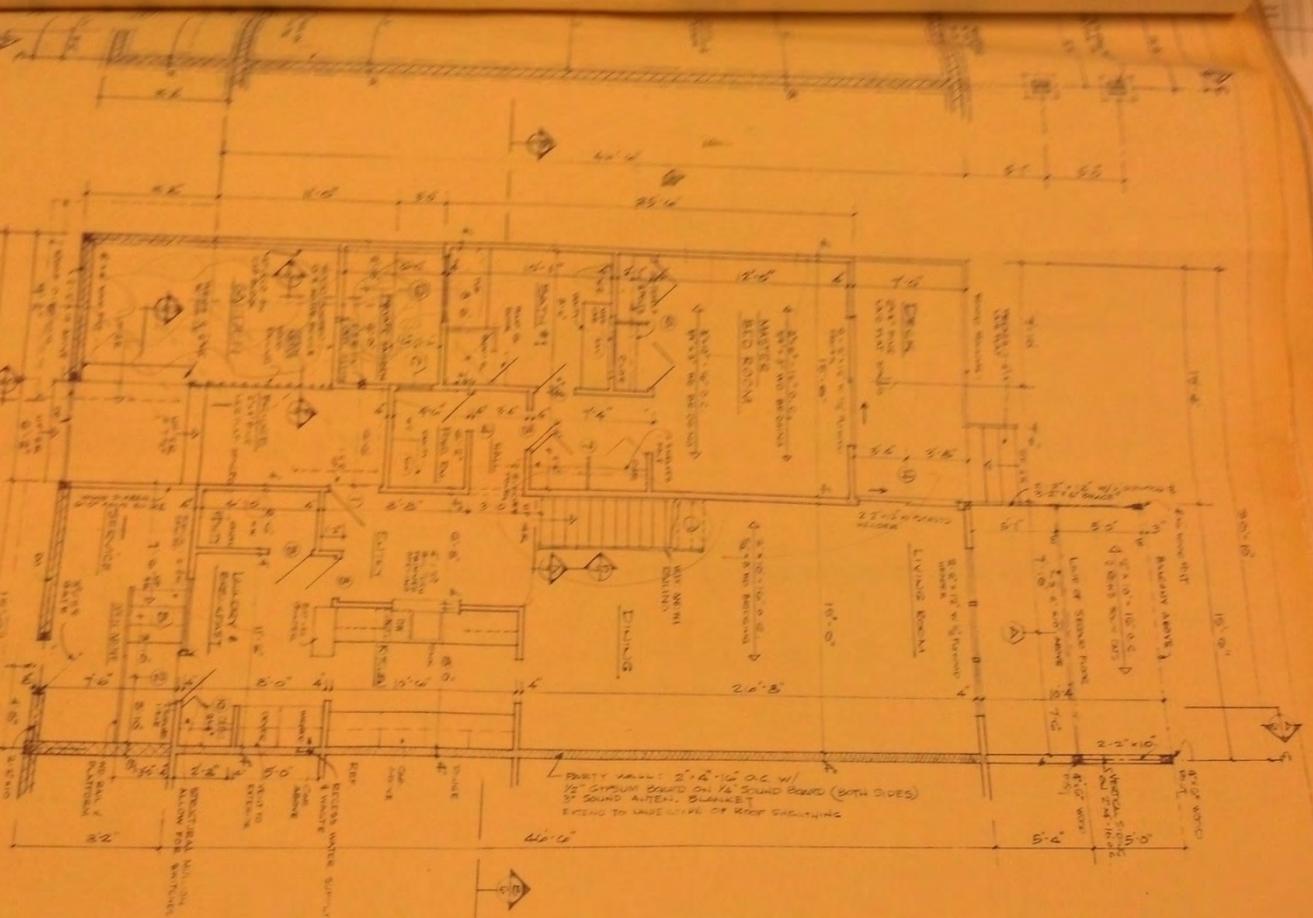
Sincerely,

Mel Sancrant

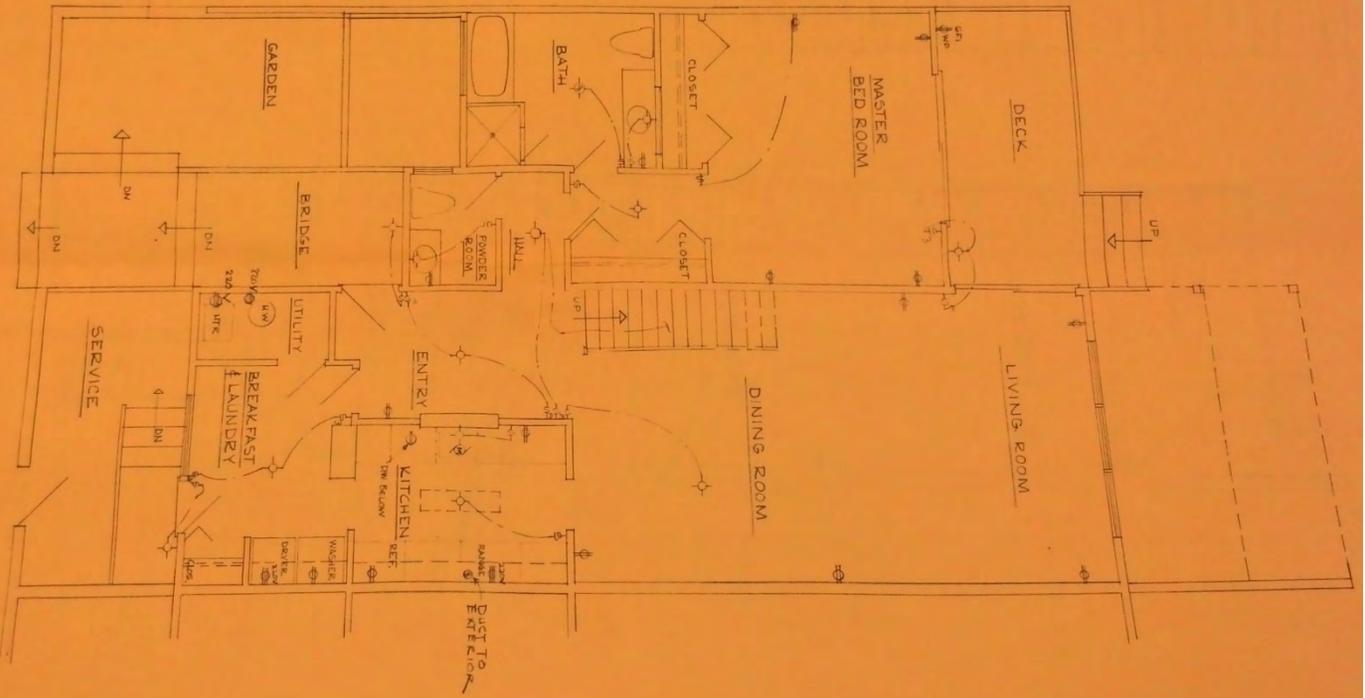
Mel Sancrant
Owens Corning Science and Technology, LLC
An Authorized Representative of
Owens Corning Sales, LLC



FIRST FLOOR PLAN



NOTES TO BE KEPT ON HAND FOR THE ARCHITECT
1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED
2. ALL WALLS ARE 12" THICK UNLESS OTHERWISE NOTED
3. ALL DOORS ARE 3' 0" WIDE UNLESS OTHERWISE NOTED
4. ALL WINDOWS ARE 6' 0" WIDE UNLESS OTHERWISE NOTED
5. ALL FLOORS ARE 4" CONCRETE ON 6" GRAVEL UNLESS OTHERWISE NOTED
6. ALL ROOFS ARE 4" CONCRETE ON 6" GRAVEL UNLESS OTHERWISE NOTED
7. ALL CEILING ARE 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
8. ALL STAIRS ARE 8" WIDE UNLESS OTHERWISE NOTED
9. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
10. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
11. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
12. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
13. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
14. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
15. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
16. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
17. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
18. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
19. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED
20. ALL STAIRS ARE TO BE FINISHED WITH 1/2" GYPSUM BOARD ON 1/2" SOUND BOARD UNLESS OTHERWISE NOTED



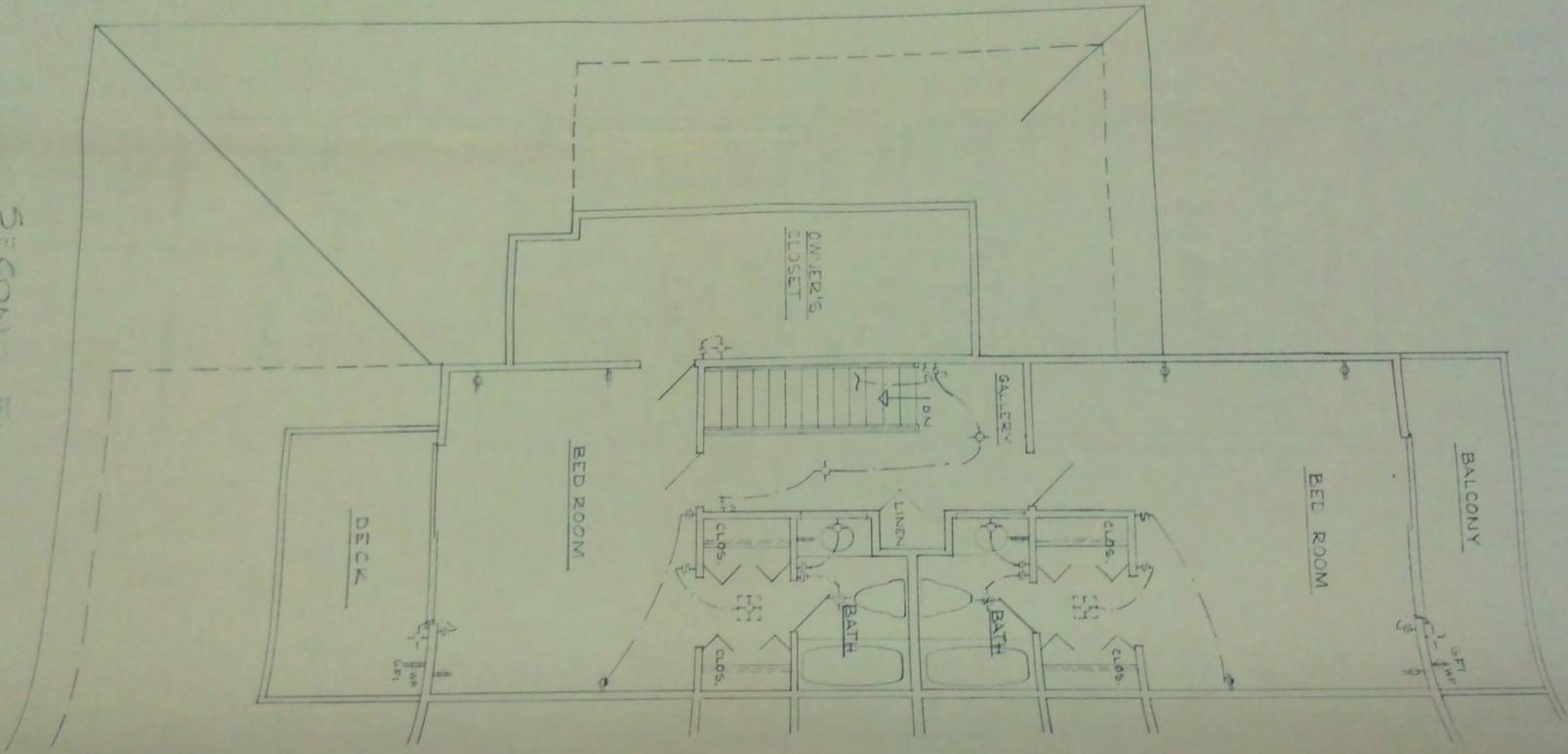
FIRST FLOOR PLAN
SCALE = 1/4" = 1'-0"

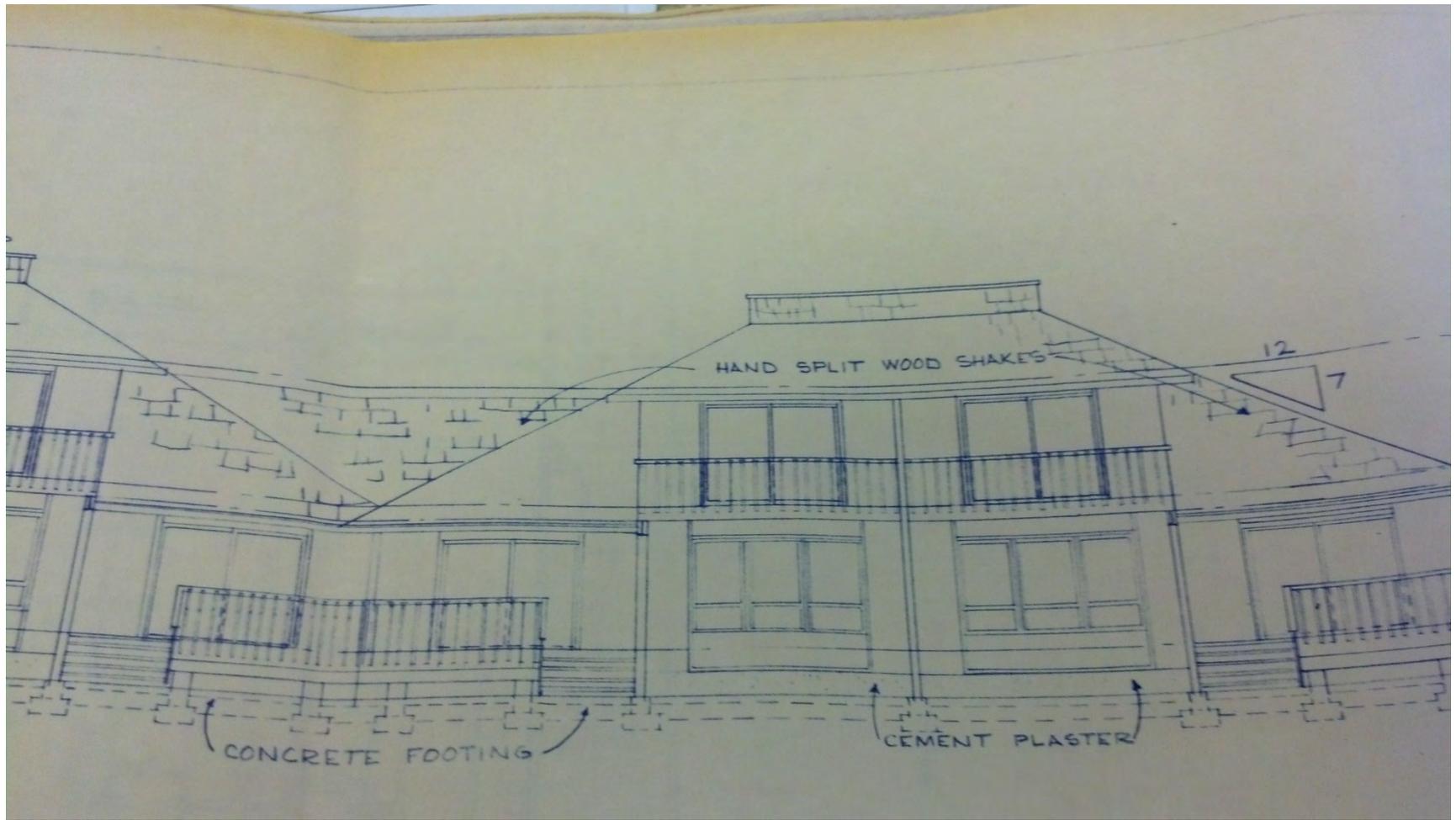
NOTE : SEE SHEET NO. 5 FOR ELECTRICAL SYMBOL SCHEDULE

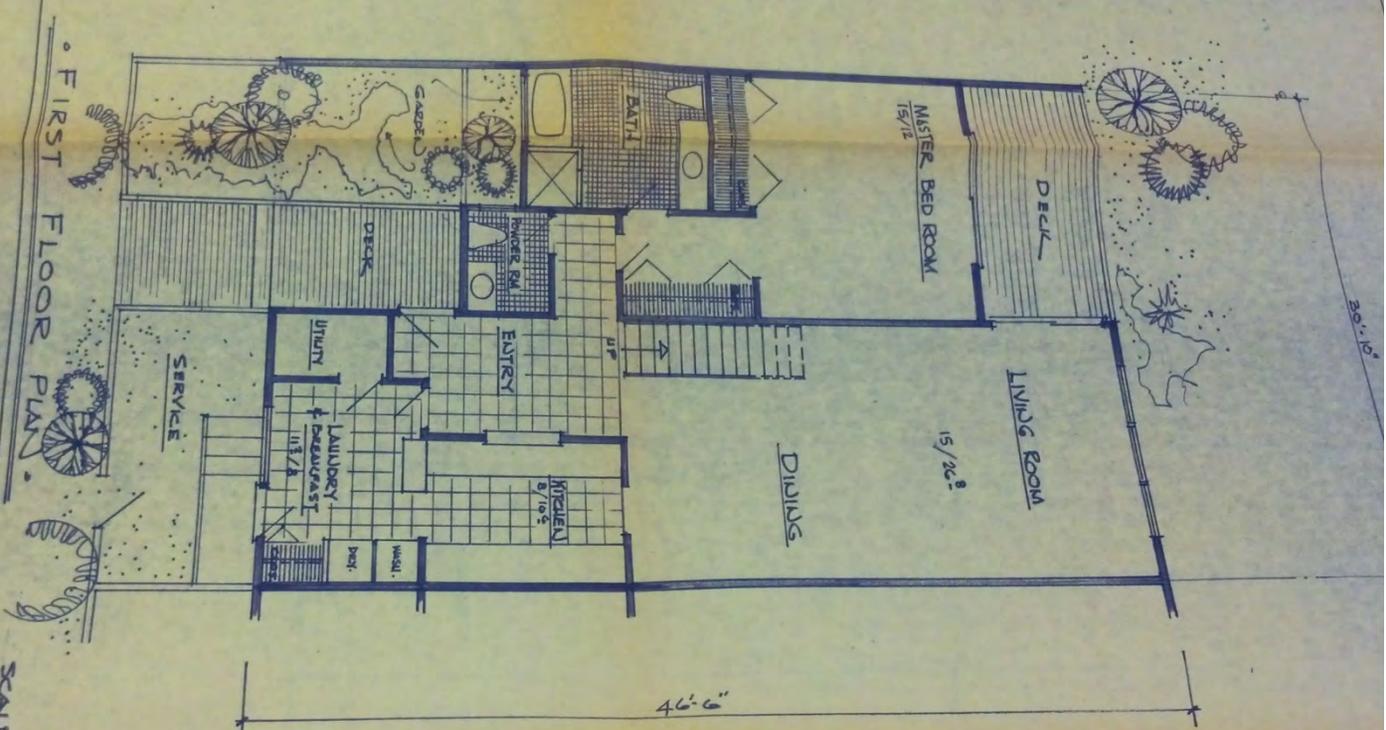


TENNISMASTER VILLAS
SHIP

SECOND FLOOR PLAN







• FIRST FLOOR PLAN •

• JENNIS MASTER VILLA
 SHIPYARD PLANTATION
 HILTON HEAD, SOUTH CAROLINA

SCALE = 1/4" = 1'-0"

