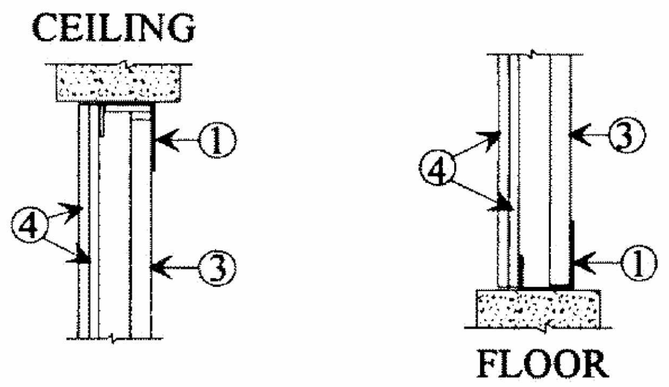
Design No. U497
March 06, 2007

Nonbearing Wall Rating — 2 Hr

HORIZONTAL SECTION



1. **Channel Track —** "J" -shaped channel, 2-1/2 in. deep with unequal legs of 1 in. and 2 in., fabricated from No. 25 MSG galv steel. Channel positioned with short leg toward finished side of wall. Channel attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC.
2. **Steel Studs —** "I" -shaped studs, min 2-1/2 in. deep by 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 1/2 in. less than floor to ceiling height and spaced 24 in. OC.
2A. **Steel Studs —** (Not Shown) — "C-H" -shaped studs, min 2-1/2 in. deep by 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 1/2 in. less than floor to ceiling height and spaced 24 in. OC.
2B. **Steel Studs —** (Not Shown) — "C-T" - shaped studs, min 2-1/2 in. deep by 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 1/2 in. less than floor to ceiling height and spaced 24 in. OC.
2C. **Furring Channels —** (Optional, not shown) - Resilient furring channels fabricated from min. 25 MSG corrosion protected steel, installed horizontally, and spaced vertically a max. 24 in. OC. Flange portion of channel attached to each intersecting stud on side of stud opposite the 1 in. liner panels with 1/2 in. long Type S or S-12 pan-head steel screws. When furring channels are used, wallboard to be installed vertically.
3. **Gypsum Board* —** 1 in. thick gypsum wallboard liner panels, supplied in nom 24 in. widths. Panels cut 1 in. less in length than floor to ceiling heights. Vertical edges inserted in "I" studs. Free edge of end panels attached to long leg of channel track with 1-5/16 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 1 in. in from both edges.

NATIONAL GYPSUM CO — Types FSW, FSW-B. .

4. **Gypsum Board* —** 1/2 in. thick, 4 ft wide wallboard applied vertically in two layers. Inner or base layer attached to studs with 1 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 24 in. OC along the edges and in the field of the boards. Outer or face layer attached to studs and channel track with 1-5/8 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 12 in. along the edges and in the field of the boards, staggered from screws in inner layer. When Furring Channels (Item 2C) are used, inner or base layer attached to furring channels with 1 in. long Type S self-drilling, self-tapping bugle head steel screws. Outer or face layer attached to furring channels with 1-5/8 in. long Type S self-drilling, self-tapping bugle head steel screws spaced 12 in. OC and staggered 12 in. from base layer screws. Joints between inner and outer layers staggered. Outer layer joints covered with paper tape and joint compound. Exposed screw heads covered with joint compound.

AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — ProRoc Type C.

CERTAINTEED GYPSUM CANADA INC — ProRoc Type C.

CANADIAN GYPSUM COMPANY — Types C, IP-X2, IPC-AR.

LAFARGE NORTH AMERICA INC — Types LGFC-C, LGFC-C/A.

NATIONAL GYPSUM CO — Types FSK-C, FSW-G, FSW-C, FSMR-C.

TEMPLE-INLAND FOREST PRODUCTS CORP — Type TG-C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR.

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR.

4A. **Gypsum Board* —** (As an alternate to Item 4) — 5/8 in. thick. Two layers installed as described in Item 4.

NATIONAL GYPSUM CO — Type FSMR-C.

5. **Batts and Blankets* —** (Optional, not shown)-Mineral wool or glass fiber batts partially or completely filling stud cavity. Any mineral wool or glass fiber batt bearing the UL Classification Marking as to Fire Resistance. See **Batts and Blankets** (BZJZ) category for names of Classified companies.

*Bearing the UL Classification Mark

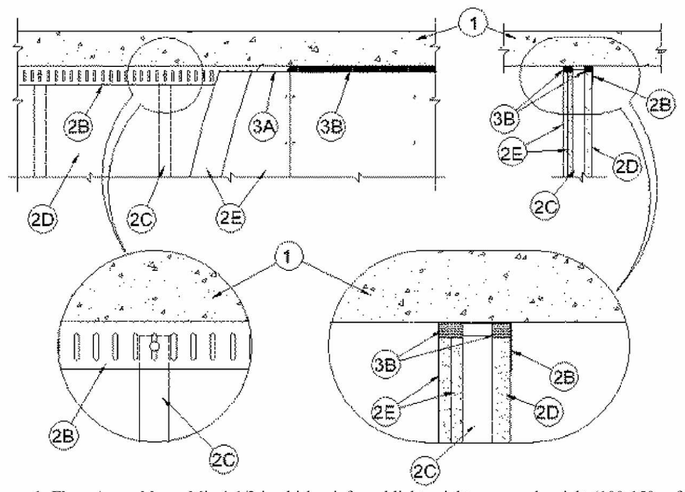
System No. HW-D-0257

October 04, 2004

Assembly Rating - 2 Hr

Joint Width - 1 in. Max

Class II Movement Capabilities - 25 Percent Compression



1. **Floor Assembly —** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.
2. **Shaft Wall Assembly —** With the exception of the ceiling runner, the 2 hr fire rated shaft wall assembly shall be constructed of the materials and in the manner described in System B of Design No. U415 in the UL Fire Resistance Directory. The wall shall include the following construction features:

A. **Floor Runners —** (Not Shown) - "J"-shaped runner, min 2-1/2 in. wide with unequal legs of 1 in. and 2 in., fabricated from min 24 MSG galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to walls and floor with steel fasteners spaced max 24 in. OC. As an alternate to the "J"-shaped runner, a min 2-1/2 in. wide by 1 or 1-1/4 in. deep channel formed from min 24 MSG galv steel may be used for the floor runner.

3. **Light Gauge Framing* —** Slotted Ceiling Track Slotted ceiling track shall consist of galv steel channels with slotted flanges. Slotted ceiling track sized to accommodate steel "C-H" studs (Items 2C). Attached to concrete at ceiling with steel fasteners spaced max 12 in. OC.

BRADY CONSTRUCTION INNOVATIONS INC,

DBA SLIPTRACK SYSTEMS — SLP-TRK.

C. **Steel Studs —** "C-H"-shaped steel studs to be min 2-1/2 in. wide and formed of min 24 MSG galv steel. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in slotted ceiling track. Studs spaced 24 in. OC. After installation of gypsum board liner panels (Item 2D), studs secured to flange of floor runner on finished side of wall only with No. 6 by 1/2 in. long self-drilling, self-tapping steel screws. Studs secured to flange of slotted ceiling track on finished side of wall only with No. 8 by 1/2 in. long self-drilling, self-tapping wafer head steel screws at slot midheight.
D. **Gypsum Board* —** 1 in. thick by 24 in. wide gypsum board liner panels as specified in Design No. U415. Panels cut 1 in. less in length than floor to ceiling height. Vertical edges inserted in "H"-shaped section of "C-H" studs. Free edge of end panels attached to long leg of "J" runner (Item 2A) with 1-5/8 in. long Type S steel screws spaced max 12 in. OC.
E. **Gypsum Board* —** Gypsum board sheets, 1/2 or 5/8 in. thick, applied vertically or horizontally in two layers on finished side of wall as specified in System B of Design No. U415. A max 1 in. gap shall be maintained between the top of the gypsum board and the bottom surface of the concrete floor. The screws attaching the gypsum board layers to the C-H studs shall be located 1 in. below the bottom of the slotted ceiling track (Item 2C). No gypsum board attachment screws are to penetrate the slotted ceiling track.

3. **Joint System** — Max separation between bottom of floor and top of liner panel (Item 2D) and between bottom of floor and top of gypsum board sheets (Item 2E) at time of installation of joint system is 3/4 in. The joint system is designed to accommodate a maximum 25 percent compression from its installed width. The joint system consists of bond breaker tape and sealant, as follows:

A. **Bond Breaker Tape —** Polyethylene tape supplied in rolls. Tape applied to flanges of slotted ceiling track (Item 2D) to prevent bonding of the sealant at points other than the top and bottom of the linear gap.
B. **Fill, Void or Cavity Material* —** Sealant Min 1 in. depth of sealant to be installed to fill linear gap between top of gypsum board liner panel (Item 2D) and top inside surface of slotted ceiling track (Item 2B) prior to installation of gypsum board sheets on finished side of wall. Min 1 in. depth of sealant to be installed to fill linear gap between top of gypsum board sheets (Item 2E) and bottom of concrete floor.

W R GRACE & CO - CONN — FS900+ or FS1900, FS1901, FS1905 and FS1929 Sealant

1 Hour Fire-Rated Construction

wt. 7 4⅝"	• 1/2" Imperial Firecode C Core gypsum Base, veneer finish only (not drywall) – 2 x 4 stud 16" o.c. – joints finished • 1/16" veneer finish	U of C 10-27-64
wt. 7 4⅞"	• 5/8" Sheetrock Firecode Core panels, or 5/8" Sheetrock UltraLight panels Firecode X or 5/8" Fiberock panels – 2 x 4 wood stud 16" or 24" o.c. – optional insulation	UL Des U305, U314

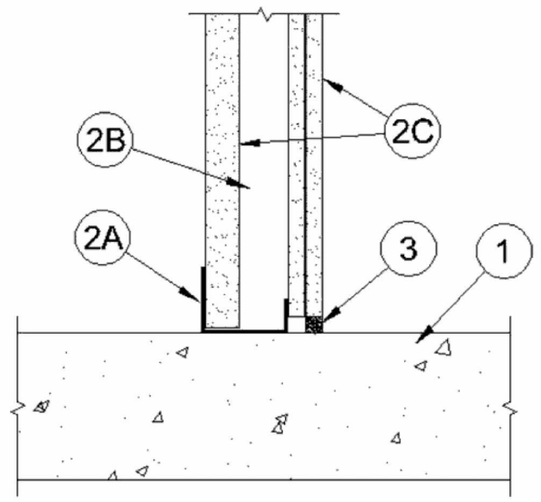
Joint Systems

System No. BW-S-0016

August 07, 2007

Assembly Ratings — 1 and 2 Hr (See Item 2)

Joint Width — 1/2 In. Max



1. **Floor Assembly —** Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) structural concrete. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***.

See **Precast Concrete Units** (CFTV) category in the Fire Resistance Directory for names of manufactures.

2. **Wall Assembly —** The 1 or 2 hr fire rated gypsum board/steel stud shaft wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory. In addition, the wall may incorporate a head-of-wall joint system constructed as specified in the HW Series Joint Systems in the UL Fire Resistance Directory. The wall shall include the following construction features:

A. **Steel Floor Runner —** "J"-shaped runners, min 2-1/2 in. (64 mm) deep, with unequal legs of 1 in. (25 mm) and 2 in. (51 mm), fabricated from min 24 MSG galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. (51 mm) from ends and not greater than 24 in. (610 mm) OC.
B. **Studs —** "C-H", "E" (back-to-back) or "C-T"-shaped studs, min 2-1/2 in. (64 mm) deep, fabricated from min 25 MSG galv steel. Cut to lengths 3/8 to 1/2 in. (10 to 13 mm) less than floor-to-ceiling height and spaced 24 in. (610 mm) OC.
C. **Gypsum Board* —** 1 in. (25 mm) thick gypsum liner panels and 1/2 in., 5/8 in. or 3/4 in. (13, 16 or 19 mm) thick gypsum panels installed as specified in the individual U400 or V400 Series shaft wall designs in the UL Fire Resistance Directory.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Fill, Void or Cavity Material* - Sealant —** Max separation between top of floor and bottom of gypsum board on the finish side is 1/2 in. Min 1/2 in. (13 mm) thickness of fill material installed on finish side of the wall between the bottom of the gypsum board and the top of the concrete floor, flush with surface of the finish side of wall.

UNITED STATES GYPSUM CO — Type A or ASP

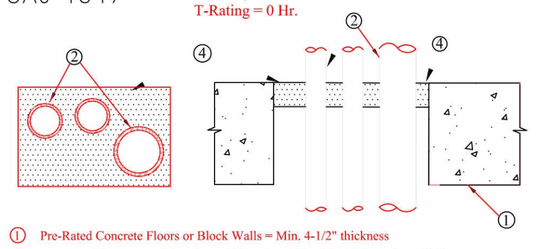
2 Hour Fire Rated Through Penetration Firestop for Multiple Metal Pipe through Concrete Floors or Walls using FYRE-SHIELD.

3735 Green Rd.
Beachwood, OH, 44122

Drawing not to scale

CAJ 1047

F-Rating = 2 Hr.
T-Rating = 0 Hr.



① Pre-Rated Concrete Floors or Block Walls = Min. 4-1/2" thickness
Max. Area of Opening = 288 sq. in., with a Max. Dimension of 24".

② Metallic Pipe: A) Steel Pipe - 8" diam. (or smaller) Sch. 40 (or heavier) steel pipe.
B) Conduit - 4" diam. (or smaller) EMT or 6" diam. (or smaller) steel conduit.
C) Iron Pipe - 8" diam. (or smaller) cast or ductile iron pipe.
D) Copper Tubing - 4" diam. (or smaller) Type L (or heavier) copper tubing.
E) Copper Pipe - 4" diam. (or smaller) Regular (or heavier) copper pipe.
NOTE: The maximum number of pipes within opening is 3. The annular space between pipes shall be min. 1-1/2" and a min. 1/2" between pipes and edge of opening.

③ Forming Material - (Not Shown, Optional) Nom. 1" thick polyurethane backer rod firmly packed into the opening as a permanent form.

④ FYRE-SHIELD - Min. 1/2" thickness mastic applied within annulus, flush with top surface of floor or with both surfaces of the wall assembly.

Project:
Location:
Installer:
Signature:

The Tremco products used above have been tested in accordance with the following:
• ASTM E814 (UL1479) Standard Test Method for Through Penetration Firestopping.

Date: 9/11/96 Drawing: TR-1047
Approved by: J. Pitcole

The above described assembly has been tested and is based on both past and anticipated performance criteria. Tremco shall not be liable for any damages, direct or consequential, resulting from use of this material or design. Tremco shall only be responsible for replacing material found to be defective.

1 or 2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Gypsum Walls using FYRE-SHIELD.

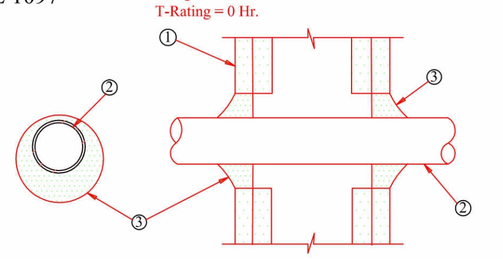
TREMCO

3735 Green Rd.
Beachwood, OH, 44122

Drawing not to scale

WL 1097

F-Rating = 1 and 2 Hr.
T-Rating = 0 Hr.



① Pre-Rated Gypsum Wallboard/Stud Wall Assembly

② Metallic Pipe - A) Steel Pipe - 8" diam. (or smaller) Sch. 40 (or heavier) steel pipe.
B) Iron Pipe - 8" diam. (or smaller) cast or ductile iron pipe.
C) Conduit - 4" diam. (or smaller) EMT or rigid steel conduit.
D) Copper Tubing - 4" diam. (or smaller) Type L (or heavier) copper tubing.
E) Copper Pipe - 4" diam. (or smaller) Regular (or heavier) copper pipe.
The annular space shall be min. 1/4" to max. 5/8" within the firestop system.

③ FYRE-SHIELD - Min. 1/2" thickness of sealant applied within opening. Additional sealant to be installed such that a min. 1/4" crown is formed around the penetrating item.

Project:
Location:
Installer:
Signature:

The Tremco products used above have been tested in accordance with the following:
• ASTM E814 (UL1479) Standard Test Method for Through Penetration Firestopping.

Date: 4/23/97 Drawing: TW-1097
Approved by: J. Pitcole

The above described assembly has been tested and is based on both past and anticipated performance criteria. Tremco shall not be liable for any damages, direct or consequential, resulting from use of this material or design. Tremco shall only be responsible for replacing material found to be defective.

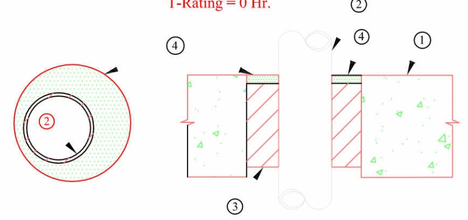
2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Concrete Floors or Walls using FYRE-SHIELD.

3735 Green Rd.
Beachwood, OH, 44122

Drawing not to scale

CAJ 1233

F-Rating = 2 Hr.
T-Rating = 0 Hr.



① Pre-Rated Concrete Floors or Block Walls = Min. 3" thick concrete floor assembly.
Min. 3-1/2" thick concrete wall assembly.

② Metallic Pipe: A) Steel Pipe- 8" diam. (or smaller) Sch. 40 (or heavier) steel pipe.
B) Iron Pipe- 8" diam. (or smaller) cast or ductile iron pipe.
C) Conduit - 4" diam. (or smaller) EMT or steel conduit.
D) Copper Tubing - 4" diam. (or smaller) Type L (or heavier) copper tubing.
E) Copper Pipe- 4" diam. (or smaller) Regular (or heavier) copper pipe.
The annular space be min. 1/2" to max. 7/8".

③ Packing Material - Min. 2-1/2" thickness of mineral wool (min. 4.0 pcf) insulation, firmly packed into opening as a permanent form.

④ FYRE-SHIELD- Min. 1/2" thickness of sealant applied within annulus, flush with top surface of floor or both surfaces of wall assembly.

Project:
Location:
Installer:
Signature:

The Tremco products used above have been tested in accordance with the following:
• ASTM E814 (UL1479) Standard Test Method for Through Penetration Firestopping.

Date: 5/11/98 Drawing: TR-1233
Approved by: M. Starr

The above described assembly has been tested and is based on both past and anticipated performance criteria. Tremco shall not be liable for any damages, direct or consequential, resulting from use of this material or design. Tremco shall only be responsible for replacing material found to be defective.

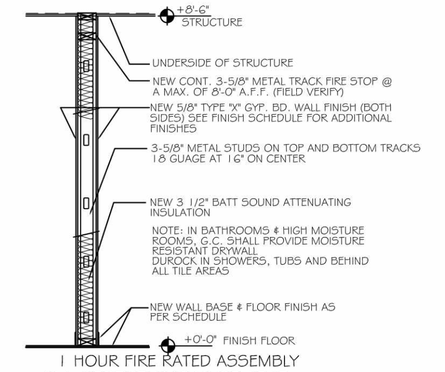
NOTE: TREMCO BRAND IS SHOWN AS ONE POSSIBLE MANUFACTURER. CONTRACTOR MAY INSTALL APPROVED SUBSTITUTIONS

FIRE DETAIL PENETRATION

SCALE: N.T.S.

WALL & PARTITION NOTES

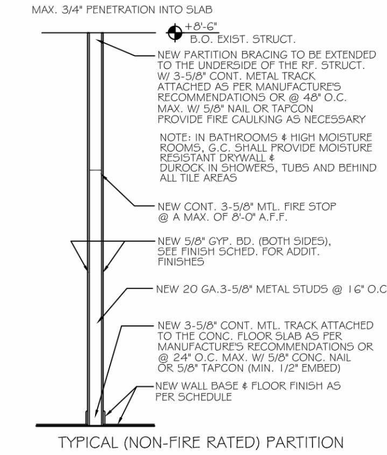
1. ALL PARTITIONS & WALLS SHALL BE CONSTRUCTED FULL HEIGHT FROM TOP OF SLAB TO BOTTOM OF STRUCTURE OR FIRE RATED SOFFIT UNLESS SPECIFICALLY NOTED OTHERWISE
2. PROVIDE CONTINUOUS CAULKING BEAD AT BOTH SIDES OF TOP & BOTTOM AND SIDES OF ALL PARTITIONS
3. SEE FINISH SCHEDULE FOR FINISH AND BASE REQUIREMENTS
4. FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS AND WALLS. REFER TO DETAILS ABOVE.
5. EXTEND STRUCTURE OF ALL NEW WALLS TO DECK, UNLESS OTHERWISE NOTED
6. PROVIDE 3-5/8" MTL. STUDS LATERAL BRACING @ 4'-0" O.C. AT ALL WALLS WHICH DO NOT EXTEND TO THE UNDERSIDE OF STRUCTURE OR SOFFIT. USE 7/16" FRAMING SCREWS & 5/8" SCREWS AS REQUIRED. PROVIDE MIN. 5/8" EMBEDMENT IF ANCHORING TO CONCRETE
7. ALL STUDS SHALL BE "C" STUDS AND A MINIMUM OF 20 GAUGE UNLESS OTHERWISE NOTED
8. AT WALL HUNG PLUMBING FIXTURES & CABINETS, STUDS SHALL BE A MINIMUM OF 20 GAUGE STUDS
9. PROVIDE ALL NECESSARY BLOCKING FOR GRAB BARS, ACCESSORIES, PLUMBING FIXTURES, RAILING, ETC.
10. PROVIDE DUROCK AT ALL SHOWERS, TUBS AND LOCATIONS SCHEDULED FOR NEW TILE FINISH (SEE FINISH SCHEDULE)
11. ALL PARTITIONS SHALL HAVE A CONTINUOUS FIRE STOP MAXIMUM HEIGHT OF 8'-0" A.F.F.
12. ALL WORK TO CONFORM TO FBC & MANUFACTURER RECOMMENDATIONS
13. LABEL ALL SMOKE AND FIRE RATED WALLS WITH STENCILED 4" HIGH LETTERING, COLOR: SAFETY RED, PER STANDARD BUILDING CODE 702.15 SAMPLE TEXT: "1 HOUR FIRE WALL" PLACE LABEL ABOVE CEILING LINE ON BOTH SIDES OF THE PARTITION.
14. 2"x4" WOOD STUDS ARE AN ACCEPTABLE SUBSTITUTE FOR METAL STUDS. ALL WOOD STUDS IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED.
15. PAINT ALL WALLS FLAT WHITE TO UNDERSIDE OF ROOF STRUCTURE.



1 HOUR FIRE RATED ASSEMBLY
(U.L. ASSEMBLY #314 OR #315

1-HOUR RATED

SCALE: 3/8" = 1'-0"



TYPICAL (NON-FIRE RATED) PARTITION

TYPICAL PARTITION

SCALE: 3/8" = 1'-0"

CLIENT :

241 77 STREET

Issued for Permitting
241 77 street
Miami Beach, FL 33141

CASTELLANOS DESIGN STUDIO

407 LINCOLN ROAD, SUITE 2C
MIAMI BEACH, FL 33139
Tel: 786.218.5335
License #AA 26002467

WWW.CASTELLANOSDESIGN.COM

No.	DATE	ISSUED / REVISED
1	17 FEB/15	PERMITTING
2	12MAR/16	PERMIT REV. 2

SEAL :

WESLEY ART CASTELLANOS
FLORIDA ARCHITECT LICENSE AR 96133

PROJECT NO : 2014-32

DETAILS

CHECKED BY : WC
DRAWN BY : AA
SCALE: AS NOTED

SHEET NO : A-5