



www.AllWallSystem.com (954) 325-7578

> FLORIDA BUILDING CODE COMPLIANT

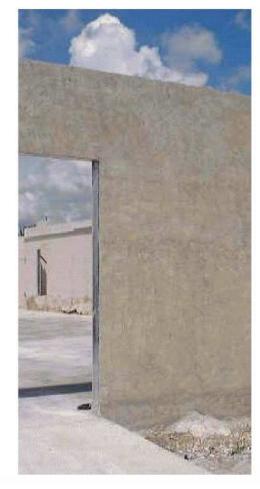
Ready for Concrete

Filled and Stuccoed



(954) 325-7578

FLORIDA BUILDING CODE COMPLIANT





All Wall Company, Inc.

Energy Efficient - Green Building Material - Invulnerable to Termites

2 Hour Fire rating - Masonry Construction - Stronger than Concrete Blocks

Building Code Compliant

Enclosed please find:

- Information showing compliance to Building Codes, Letter from Miami-Dade as an example.
- Information showing acceptance/compliance by the State of Florida Energy Extension Service housed at the University of Florida where Mr. Pierce Jones is the Assistant Director.
- Description of All Wall as a C.F.I. (Concrete Form with Insulation)
- The Architectural/Engineering drawing and Installation Notes that can be attached to, or made a part of, the plans for submittal to the building departments. No other information is needed.
- Engineering Data sheet All the specifications any engineer in the USA, and Internationally, needs to design with All Wall
- "3D" drawing with wind loads from 150 mph winds showing All Wall exceeds the loads required by over three times.
- Installation Instructions
- A copy of a permitted set of plans, that complies with the Florida Building Code. (two sheets)
- Details for ease of understanding the All Wall System. (3 sheets)
- Construction Pictures

If you have any questions, please contact: Mr. H. John Griffin II, PE at: (954) 325-7578

Phone: (954) 325-7578



The principal object of the invention is to provide a method of constructing a panel building component and wall that:

- 1. is easy to install because it is light weight and requires no special fasteners, because they fasten together with concrete when it is filled on site.
- 2. is low cost
- 3. is concrete
- 4. has high insulation properties
- 5. has excellent structural qualities
- 6. has fire resistant qualities
- 7. requires minimum pesticide applications

Further objects of the invention are:

To provide a method that is suitable for the replacement of concrete block construction

To eliminate the construction waste (as caused by the use of concrete blocks such as the additional ten percent builders normally order for breakage as well as the added waste when window and door openings are not eliminated from estimates)

To reduce construction site clean-up costs typically caused by block, stucco, furring, tie beam and column work.

To provide a construction method that eliminates the need to supply additional materials to form tie beams and columns, as well as to eliminate the need for furring and field installed insulation.

To provide a construction method that allows the finishing materials to be applied directly to the wall surface with quick and easy methods and materials. (The EXTERIOR finishes with Stucco and paint, or alternate exteriors such as siding and synthetic stucco. The INTERIOR needs only drywall tape and mud, then paint. DRYWALL boards are NOT necessary)

To minimize time consuming and expensive inspections on columns and tie beams

To provide a method which permits pre-fabrication using optimum material assembled under plant controlled conditions because of its pre-fabrication characteristics.

To provide a method which can be partly executed by mass producing in a high productivity and quality controlled environment at minimum cost.

To provide a method that can be partially completed in a manufacturing plant with pre-installed window and door openings

To provide a method for producing a panel building component which will not shrink, swell, or warp out of its designed shape, and will be unaffected by climatic changes, rot, or vermin.

To provide a method of building a load bearing wall assembly which can be safely executed by two workman without need of heavy equipment

Other objects and advantages of the present invention will become apparent to those skilled in the art of construction upon examination of the detailed descriptions and drawings of this system.



MIAMI-DADE COUNTY, FLORIDA METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE METRO-DADE FLAGLER BUILDING 140 WEST FLAGILER STREET, SUITE 1603 MIAMI, FLORIDA 33130-1563 (305) 375-2901 FAX (305)375-2908

> CONTRACTOR LICENSING SECTION (305) 375-2527 FAX (305) 375-2558

CONTRACTOR ENFORCEMENT SECTION (305) 375-2966 FAX (305) 375-2908

PRODUCT CONTROL DIVISION (305) 375-2902 FAX (305) 372-6339

December 21 2001

All Wall Con pany 100 S. Pine Island Road Plantation, FI 33324

It was a pleasure meeting with you and Mr. Griffin II, from you company regarding your new innovative Your system does not fall into the product category requiring a mandatory Notice of Acceptance (NOA)

Thank you for your interest in doing business in our County, and look forward to providing you with the services you need.

Raul Rodriguez

Chief, Product Control Division

Enclosure

cc: Francisc(Quintana ,R.A. Director



Institute of Food and Agricultural Sciences Florida Energy Extension Service Pierce Jones Assistant Director & Professor 2610 SW 23rd Terrace, Bldg 242 PO Box 110940 Gainesville, FL 32611 Voice 352-392-8074 Fax 352-392-9033

February 21, 2002

Memorandum

To: All Wall (The Red Type is relative to All Wall)

From: Pierce Jones

Subject: Madera Project

I enjoyed talking with you about using All Wall in several houses that I will be building in a "green" development project called Madera. One or two of these will be model homes. As we discussed, I am interested in product donation for the models. Below is an overview of the project.

General Overview: The Florida Energy Extension Service (FEES) at the University of Florida is participating in the design and development of an environmentally friendly, resource-efficient community in Gainesville, Florida. The 88-home community, known as Madera, is being developed by GreenTrust, LLC, and is located on a fully wooded 44-acre site adjacent to the University of Florida campus. The community has three custom homebuilders (Pleiman Homes, Edinborough Development and Carter Construction) and will market its homes through an on-site sales office (Hall Realty).

In addition to participating in Madera's overall design, the Florida Energy Extension Service plans to build eight homes in the community, including the first model home. The houses built by the university are intended to be exemplars of green and profitable construction practices. They will be designed in close coordination with the three builders to create basic efficiency and green performance criteria that will be standard in all of Madera's homes, as well as appropriate upgrade packages that will be available as options.

All of Madera's homes will be constructed to exceed conventional performance standards in the Gainesville (and Florida) markets. For example, with respect to energy efficiency, Madera's homes will all meet the ENERGY STAR® Home standard. Beyond the basic performance-enhancing features, upgrade packages will be designed to meet meaningful performance standards in the areas of energy efficiency, water efficiency and termite resistance. Upgrades will be offered beyond the basic performance configuration.

(Individual appliances can be chosen from a schedule of specific ENERGY STAR® -rated products. Depending on specific models selected, a rebate of up to \$250 will be available to the homebuyer. Fannie Mae will provide a preferred mortgage product that will allow the rebate to be used at closing to meet equity requirements.)

Termite Resistant Home

- Masonry wall construction or Borate pressure-treated wood products
- Cementatious siding or stucco exterior finish
- Steel framing (possibly including trusses)
- Meet termite package requirements in the FGBC Green Home Designation Checklist

Enhanced Indoor Environment

- SEER 12 plus
- Programmable Thermostat (w/ technical support)
- Fresh air ventilation system
- Mastic-sealed ductwork
- Advanced comfort control

<u>Conclusion</u>: I am interested in All Wall because of its energy efficiency characteristics and because it is a masonry-based wall system that is not structurally vulnerable to termites.

My goal would be to work All Wall into one of our product upgrade packages.

I hope this gives you an adequate first impression of what we're doing. My intention is to use this development as a model for other projects that we can organize around the state. I imagine you would be especially interested in areas where windstorm considerations are important.

3 of 3



Patented (954) 325-7578

"All Wall Forms In A Nutshell"

CFI

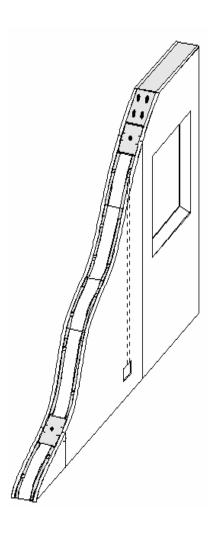
(Concrete Form with Insulation)

CFI's are basically forms for poured concrete walls, that stay in place as a permanent part of the wall assembly. The forms, made of concrete board, red iron steel (rebar), galvanized steel and insulating material in the middle of the wall system surrounded by concrete, are separate panels connected together with concrete and red iron (steel).

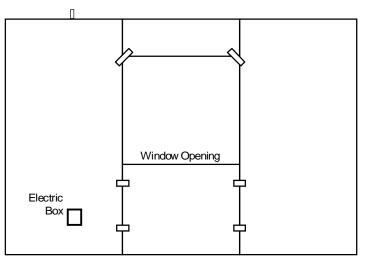
The stay-in-place forms not only provide a continuous insulation and sound barrier, but also replaces drywall on the inside, and it replaces the first two steps of the stucco application process on the outside.

The All Wall system may be considered a "Post and Beam" system. The columns (posts) are formed of light gage steel and concrete and are spaced every 14 1/2" with bigger columns of more concrete and red iron placed every four (4) feet. The Tie Beam is continuous along the top of the wall system.

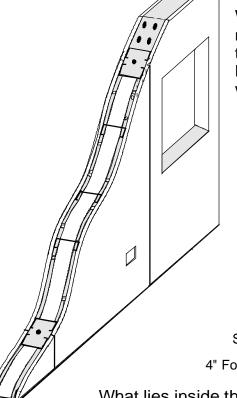
The All Wall **cfi** system is: engineer-designed, engineer-invented, patented, code-accepted, and field-proven.







What you see when looking at All Wall when it is being installed that makes you understand why it is so easy to install.



What you see IF you could just make a slice in All Wall after it has the Rebar Steel placed in the Tie Beam and the Columns and is filled with Concrete.

Steel Truss Straps

concrete

inside & out

Concrete Tie Beam Supports any type Roof. Structural Steel Rebars embed in concrete Steel C-Studs 4" Foam Insulation What lies inside the concrete filled All Wall System that makes it Superior in: Termite resistance

The Home Buyer lives in a Superior Home that COSTS LESS to live in, starting the day they move in.

Even though ...

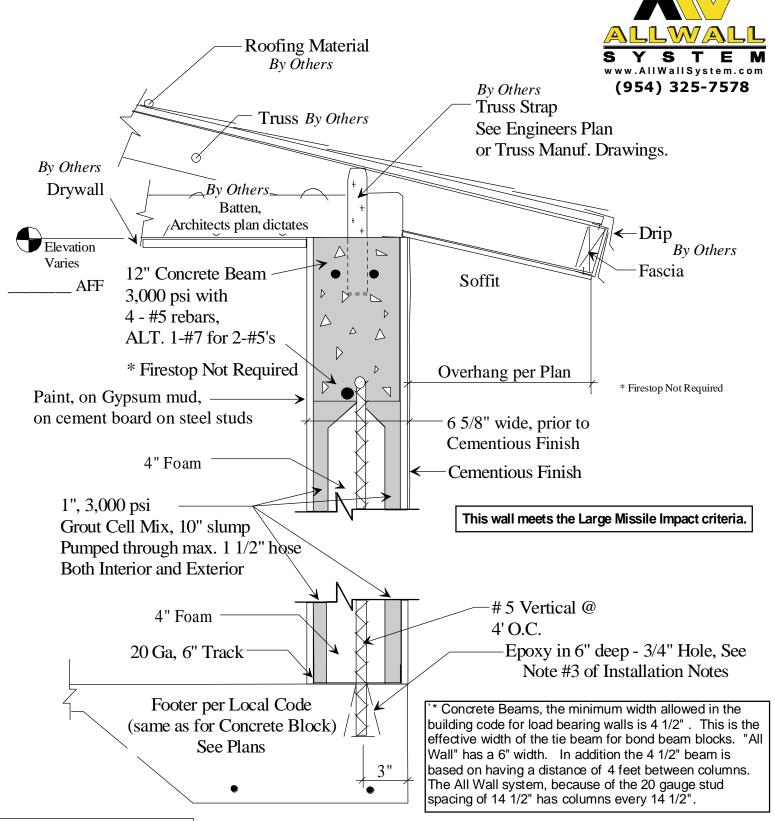
...the individual components COST MORE than other wall systems, the Technologically Advanced Superior Products make it so the Home Buyer GETS MORE for LESS MONEY when they are combined, hence the All Wall patent.

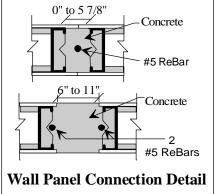
1.5" foam alternate for cold weather climates (thermal break)

Fire resistance

Energy Efficiency Mold resistance

Strength





Typical Wall Section 'Stay-In-Place-Form' All Wall System

Prepared by: **H. John Griffin II, P.E.** FL Reg. No: 38647 (954) 325-7578

All Wall 'Permanent Concrete Forms' - Installation Notes

- 1.) Concrete slab per Designer, to meet local codes. (Suggestion minimum 2500 psi concrete.) Thickness under wall panels to be a minimum of 8" for interior bearing walls. Use the same thickness as for concrete block construction for the exterior walls.
- 2.) Alternate Water Stops:
- Sawcut 1/2" deep into slab add caulk and place 1 1/2" min. 20 gauge strips at inside edge of wall panels. Caulk overlaped strips.
- Caulk with material that bonds to light gage steel and concrete under the panels
- Caulk with material that bonds concrete and concrete along the interior edge of the panels after they are filled
- 3.) Columns where panels join, including exterior corners, and on each side of window and door openings: Install 1 #5 Rebar by embedding it into a 3/4" diameter drilled hole, 5 5/8" embedment, with Ultra Bond 2 Epoxy, that has an Ultimate Tension 14,167 lbs, or approved equal.
- 4.) Tie Beams (pre-formed in the panel):

Tie Beam design varies with project location/ loading criteria, see the Designers plans. Use the same steel as called for in the local codes and on the design plans, by others, of the home. For Typica

steel placement see the cross section. (Typically:Four (4)-#5 rebars. Two(2)-2' x 2' - #5 rebar corner angles are installed at every exterior corner on the outside rebars, one top, one bottom.) To stop spreading of forms use a minimum of 25 gauge interior wall studs placed on both the interior and exterior of the panel, with a maximum spacing of four (4) feet between cross ties, made of the same material, or stronger.

5.) Anchoring Trusses:

Trusses are to be anchored with the Truss Manufacturers, or the Architects, defined straps embedded in to the Tie Beam per their instructions. (The same as conventional concrete block construction) The General Contractor, or Truss Installer, is responsible for providing straps and installing them in the wet concrete at the time of the pour.

- 6.) Bracing the wall panels for alignment prior to filling with concrete is the responsibility of the installer. (Suggestions: Each wall panel is to have one diagonal brace to support it. Alternate method is to use One(1) brace every 4 panels(or 16ft) when the panels have a horizontal C-stud fastened to the face of the panels)
- 7.) Concrete: Concrete is to be a minimum of 3,000 psi when designed with a slump of 10" that will be used when filling the panels. (Suggestions: (1) ASTM 476 "grout cell mix", or, (2) 7 sack coarse grout, 8"-11" slump with 2 units of Retarder.) (NOTE: Prior to filling with concrete the rough electric inspection of the outlets, switch boxes, and piping within the walls, shall be signed off on the inspection sheet posted on the job. Installers should check to see the inspections were done, but it is the responsibility of the General Contractor to coordinate the schedule, or, obtain verbal or written "release" of this inspection by the issuers of the building permit. A UL number, or assembly number, is not required of this panel because it is filled on site.) (Suggestion, Pump shoud be set at a rate of 4.5 CY per hour, this is very slow)
- 8.) Finishes: By Others.

Typical exterior finish would be:

Apply joint mesh over all joints, apply cementious material (that has been mixed with bonding agents that meet the requirements of ASTM C 932 -or- use Senergy product) thru mesh at all joints eliminating air voids, then spread cementious material over screw heads, then texture wall, then paint per paint manufacturers specifications. Finish unprimed siding with minimum one coat high quality, alkali-resistant primer and one coat of either 100% acrylic orlatex or oil based, exterior grade topcoat or two coats high quality, alkali-resistant, 100% acrylic or latex, exterior grade topcoat within 90 days of installation.

Typical Interior finish is achieved by taping of joints the same as the exterior as described above, compound, sanding, then painted per paint manufacturers specifications.



Prepared by: **H. John Griffin II, P.E.** FL Reg. No: 38647 (954) 325-7578 7

8 9

28

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31

> 46 47

> 48

49

Engineering Data



TABLE 1.0

Capacity of All Wall with wind Perpendicular to the wall

From Formula M=wl²/8; w = 8N	VI ²	Height		Stud Spacing	Code Load	Capacity C-Stud Calculated	#5 Rebar H(shear) 4'ctrs 4800 lbs
	Moment [in-lb]	of wall [ft]	Ht Squared [sqft]	[inch]	Increase	[psf]	[psf]
5",20ga, 33 ksi	9,100	8	64	14.5	1.33	<u>104</u>	200
6",20ga, 33 ksi	11,516	8	64	14.5	1.33	132	200
1 5/8" Flange	11,516	9	81	14.5	1.33	104	177
unless otherwise shown	11,516	10	100	14.5	1.33	<u>85</u>	160
п	11,516	11	121	14.5	1.33	<u>70</u>	145
6", 18 ga, 33 ksi	16,764	12	144	14.5	1.33	85	133
n	16,764	13	169	14.5	1.33	73	123
п	16,764	14	196	14.5	1.33	63	114
6", 16 ga, 33 ksi	21,175	15	225	14.5	1.33	69	106
п	21,175	16	256	14.5	1.33	61	100
n n	21,175	17	289	14.5	1.33	<u>54</u>	94
n n	21,175	18	324	11	1.33	<u>63</u>	89
							<u>#7 bar</u>
							7500 lbs
8", 16 ga, 33 ksi	43,018	19	361	11	1.33	<u>115</u>	131
п	43,018	20	400	11	1.33	<u>104</u>	125
п	43,018	21	441	11	1.33	<u>94</u>	119
п	43,018	22	484	11	1.33	<u>86</u>	113
п	43,018	23	529	11	1.33	<u>79</u>	108
п	43,018	24	576	11	1.33	<u>72</u>	104
"	43,018	25	625	11	1.33	<u>67</u>	100
n	43,018	26	676	11	1.33	<u>62</u>	96
"	43,018	27	729	11	1.33	<u>57</u>	92

TABLE 2.0

Horizontal Shear Capacity of All Wall

Use Bold Numbers for Capacity of All Wall

150 mph wind typically produces load of 50 psf and less

From Formula ACI Eq.(11-3) psi of concrete used = 3,000 Calculation [plf] Shear of 2" of concrete

b= [inches] = 2235 d= 12 inches (for plf) Divide by 1.4, multiply by Code increase of 1.33

 $(0.85 \times 2 / 3000 \times b'' \times d'')$ [plf]

"Full Height Wall" (Length of Wall minus window widths minus column widths)

Shear of concrete filled columns b=6", d= 4" 2,235 lb

Divide by 1.4, multiply by Code increase of 1.33

2,123 lb each

EXAMPLE

Shear provided by a 30 LF wall, that has 3 windows 4ft wide each

16,984.00 Total Provided: =

30'-12' = 18 LF minus typical 8 columns (8 x 4") = 15.33 LF 8 columns x 2,123 lbs each =

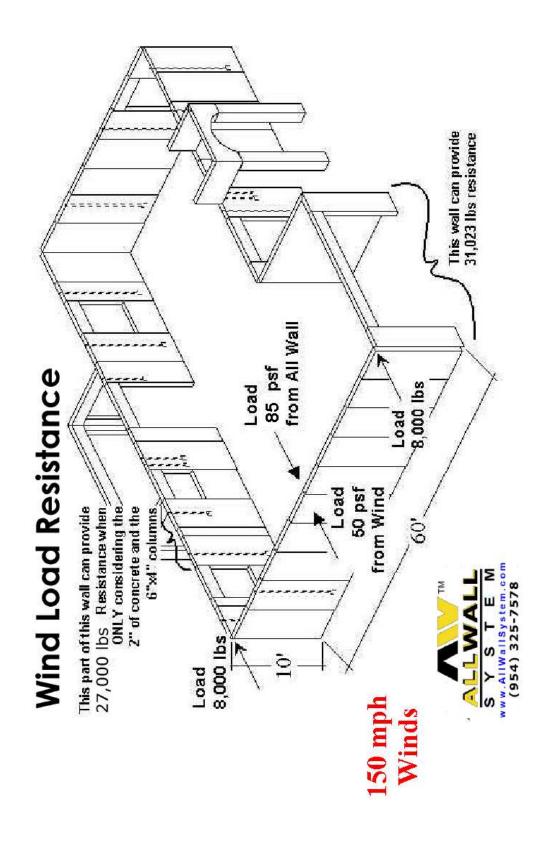
> 49,529 lbs

32,545.17

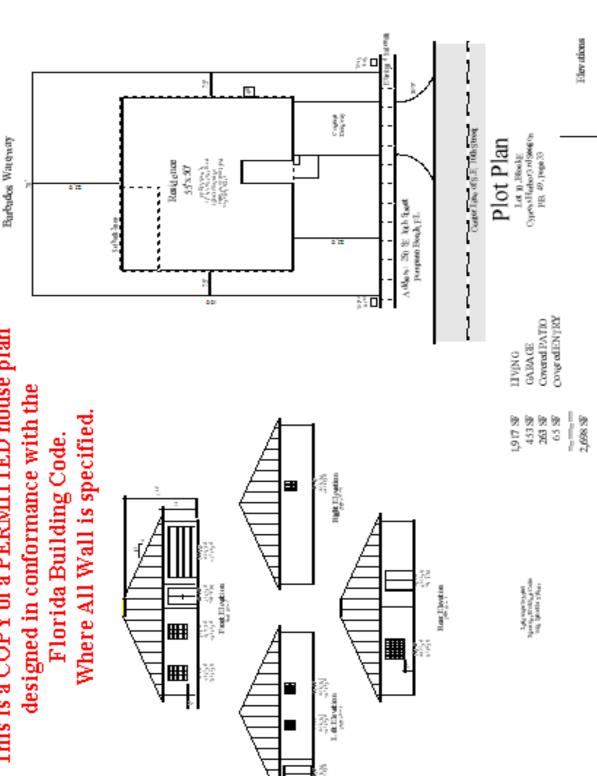
A wall 40' by 10' tall creates shear of about an 8,000 lbs in normal house with 150 mph winds (50 psf)

49,529 8,000 lbs from drawing >

[OK]

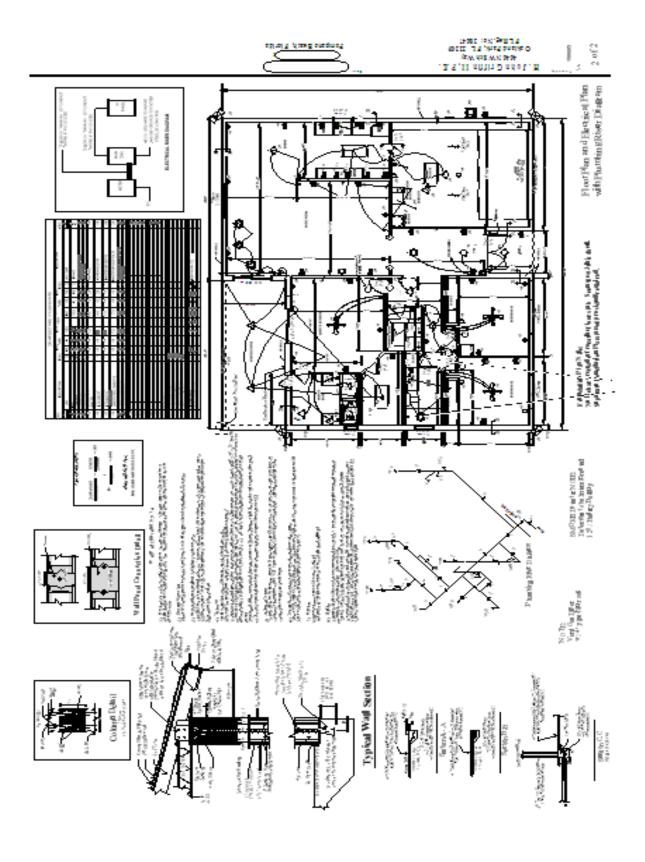




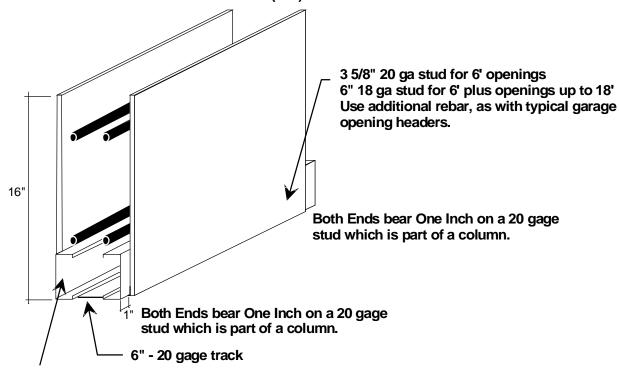


1 of 2

8

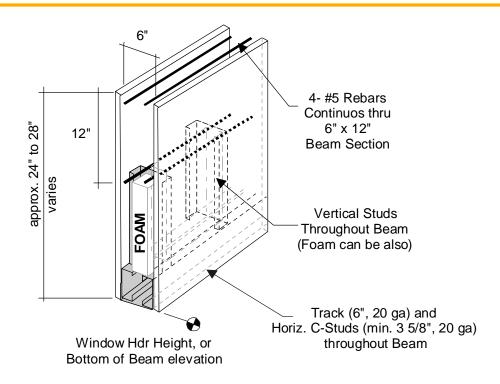




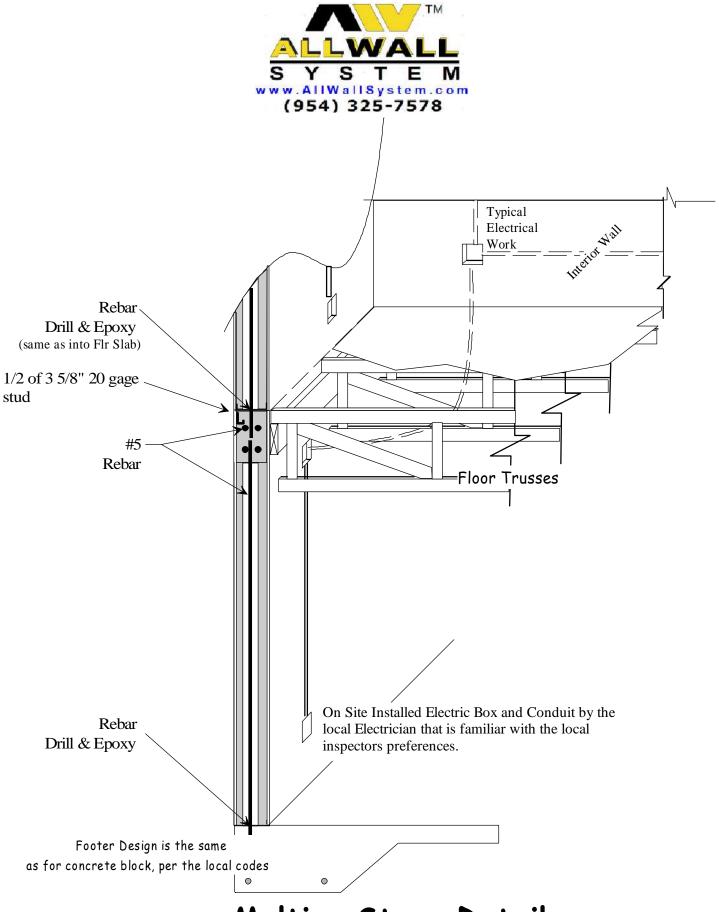


When C-Stud is filled with concrete each bend is approximately equivalent to a #5 rebar. In this case 4 - #5 rebars

Typical Header Detail for an 8'0" tall panel



Typical Header Detail for an 9'0" tall panel



Multi - Story Detail

with second floor trusses Showing Electric Installation





Construction Pictures





Two(2) Hours of in the Field Training

Every 'Type' of Panel was installed.

(1) Vertical #5 Rebar was installed at every panel joint and each side of every window and door and at each corner.

Not shown:

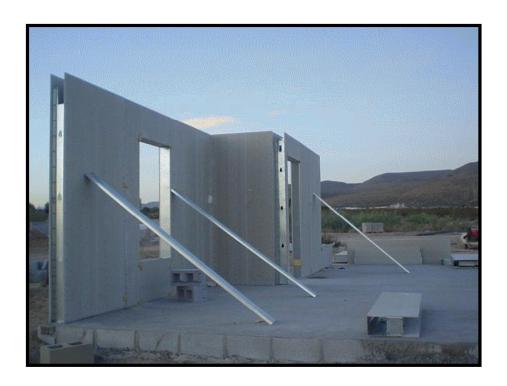
Horizontal Steel, (2) #7 Rebar gets placed in the top, 'Tie Beam Area'.

Corners are formed from the wood used to make the pallets for delivery of the panels.

Temporary 2x4's are place vertically between studs (one on each side of the wall, fastened with (3)-11"x1/4" all thread) to keep the walls from bulging when filling the wall forms (panels) with concrete.

The 2x4's are removed 30 minutes after the filling of the panel.

Nothing else to teach.







This picture shows the FLEXIBILITY of All Wall.

The Vertical Corner Steel (1) #5 and the Horizontal Steel in the Top 'Tie Beam Area' of (2) #7 Rebars can be seen in this picture





Bracing for the wall pour: 3"x 3" HDPE nuts on 1/4" all thread nylon rod.



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Installation Startup Requirements and Installation Instructions for the INSTALLATION CREWS

Prior to the start of the job the installer is to check to see:

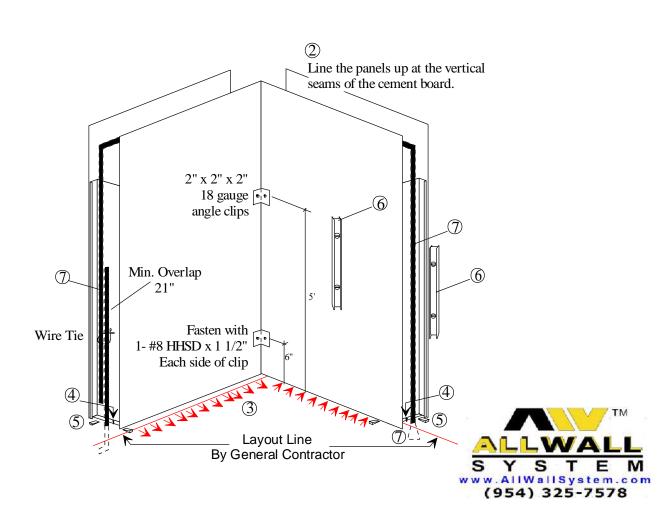
1.) The layout line is snapped and painted with clear acrylic spray to stop it from being washed away.

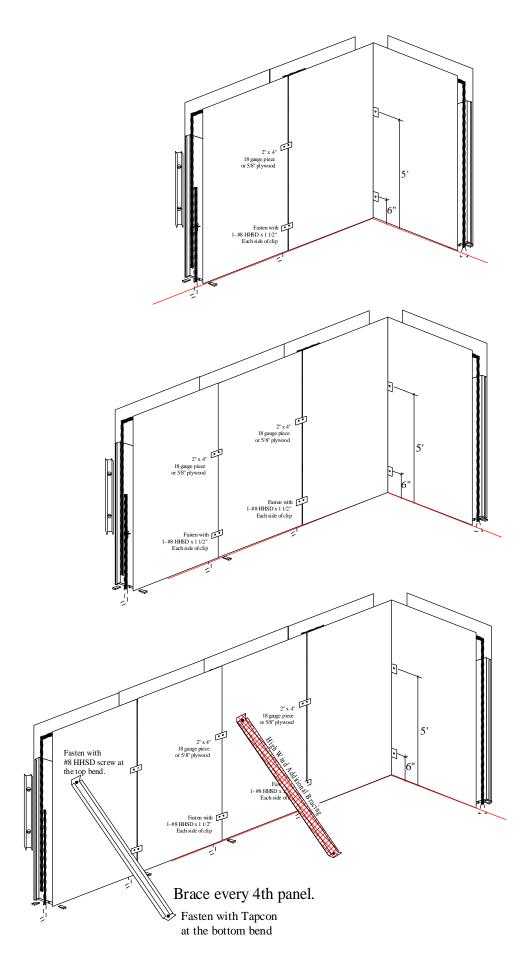
The layout line is NOT the job of the INSTALLER.

2.) The panels are marked on the layout line, at each end, and that the vertical rebar dowels are properly placed. If the rebar dowels are not placed properly it is the responsibility of the G.C. or the G.C. appointed to get them properly installed.

Installation Instructions

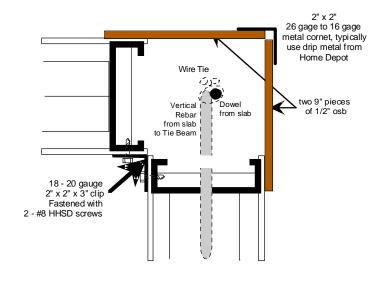
- 1.) Start installing at a corner, after the layout line has been established.
- 2.) Align the panels vertically at the corner and install clips as shown
- 3.) Slide this "L" corner piece into place, to the layout line.
- 4.) Install four(4) fasteners thru the bottom track into the slab Two as shown below, Two in the corner, that you can't see in this picture.
- 5.) Shim under end vertical c-studs to make the vertical edges plumb where the next panels will be installed.
- 6.) Hold a "4 ft. level" as shown below to plumb walls.
- 7.) Install the vertical rebar that has a 12" bent end by either,(A) tying it to the rebar that is coming out of the slab, or, (B) by drilling a 3/4" hole 6" deep even with the end of the panel, then blowing out the concrete dust, filling the hole with mixed epoxy that has a working/allowable load of 4,600 lbs pullout in 3,000 psi concrete, and placing the rebar into the hole.

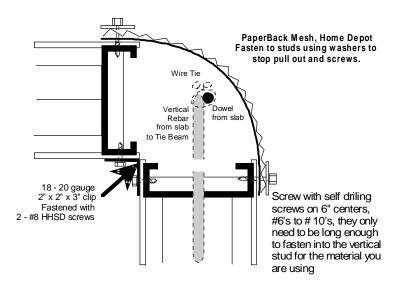






Typical Corner Connections





Plumbing Lines out of the slab to be installed in the wall

Mark the wall,
remove the concrete board and foam,
Install the panel the same as any other panel,
Use plywood to cover this area and brace
properly for the concrete filling







All Wall Company, Inc.



2 bed, 2 bath, 2 car, 1392 SF A/C, 2,041 SF Total

Selling Price of this home \$202,900

Total Building Area 2,041 SF Air Conditioned Area 1,392 SF

Standard		All Wall		
	Additional Cost		-	
0	All Wall system, Builders Charge	\$ 5,000.00		
0	Healthy Seal	\$ 417.60		
0	Solar Water Htr, Passive	\$ 2,000.00		
0	Freus Hi Efficient A/C	\$ 1,200.00	=	
ı	TOTAL:	\$ 8,617.60	65% Energy Savings	S
	Monthly Cost to the Homeowner	-		
same	Deposit	same		
\$1,282.47	Mortgage	\$1,336.94		
\$139.20	Electric Bills	\$48.72		
No	Non-Combustible and Non-Flammable	Yes		
No	Better Sealed Structural Envelope	Yes		
No	Disaster Resistant - Hurricanes and Air Borne Germs	Yes		
No	Resists Moisture Damage and Mildew	Yes		
No	Invulnerable to Termite Damage	Yes		
No	No Place for Pests to make homes or eat	Yes		
No	Noise Reduction	Yes		
No	Increased Appraisal Value	Yes	\$25,901.55	**
No	Additional Interior Usable Footage	Yes	38	SF
\$1,421.67	Monthly Out-of-Pocket	\$1,385.66	1	
	Savings, from Day One >>>>	\$36.01	per month	
		All Wall	ľ	

^{**} According to the National Association of Appraisers, studies of resale prices of homes over the past 15 years have allowed them to attach an increased value to energy saving homes. The value is calculated by taking one years energy savings (as certified by a state licensed energy rater, part of the national program) and multiplying the savings by \$20.73.

Please check with your insurance carrier for discounts on engineered, disaster resistant, healthy buildings.

Appraised Value All Wall - Eco Home \$228,802

Plus Additional Interior Square Footage of $38~\mathrm{SF}$

-- versus --

Home, as it is. \$202,900



All Wall Company, Inc.



2 bed, 2 bath, 2 car, 1751 SF A/C, 2325 SF Total

Selling Price of this home \$219,900

Total Building Area 2,325 SF Air Conditioned Area 1,751 SF

Standard Hor	me		All Wall		
	Additional Cost			-	
0	All Wall system, Builders Charge	\$	5,000.00		
0	Healthy Seal	\$	525.30		
0	Solar Water Htr, Passive	\$	2,000.00		
0	Freus Hi Efficient A/C	\$	1,200.00	•	
	TOTAL:	\$	8,725.30	65% Energy S	avings
	Monthly Cost to the Homeowner				
same	Deposit	_	same		
\$1,389.92	Mortgage		1,445.07		
\$175.10	Electric Bills	;	\$61.29		
No	Non-Combustible and Non-Flammable		Yes		
No	Better Sealed Structural Envelope		Yes		
No	Disaster Resistant - Hurricanes and Air Borne Germs		Yes		
No	Resists Moisture Damage and Mildew		Yes		
No	Invulnerable to Termite Damage		Yes		
No	No Place for Pests to make homes or eat		Yes		
No	Noise Reduction		Yes		
No	Increased Appraisal Value		Yes	\$31,931.37	**
No	Additional Interior Usable Footage		Yes	40	SF
\$1,565.02	Monthly Out-of-Pocket	\$	1,506.35	<u>.</u>	
	Savings, from Day One >>>>	\$	58.67	per month	
			All Wall		

^{**} According to the National Association of Appraisers, studies of resale prices of homes over the past 15 years have allowed them to attach an increased value to energy saving homes. The value is calculated by taking one years energy savings (as certified by a state licensed energy rater, part of the national program) and multiplying the savings by \$ 20.73. Please check with your insurance carrier for discounts on engineered, disaster resistant, healthy buildings.

Appraised Value All Wall - Eco Home \$251,831

Plus Additional Interior Square Footage of 40 SF

-- versus --

Home, as it is. \$219,900