

Wall Assembly Comparison

Reward ICFs vs. Wood Framing

Why settle for the standard wood framed structure when you could have more with an ICF structure?

- √ More energy efficiency
- √ Better noise reduction
- √ More time if there is a fire
- √ More strength against strong winds

Building to local codes will only get you to the minimum building standards; however, customers are demanding more. They want better quality due to increased utility costs and weather severity.

A solid concrete wall, with the built-in insulation of ICFs, delivers more strength and energy efficiency than a wood framed structure, while preventing air and moisture infiltration - and we have the numbers to prove it.

The chart below provides a quick glance at how a wood framed structure compares to an ICF structure. These direct comparisons show how Reward built structures have unmatched structural strength and wall stiffness. The ability to withstand deflection (i.e. movement) can prevent issues such as drywall cracking and/or window and door problems. Reward walls can endure significantly more applied loads from soil, wind, earthquakes, floors and roofs than a wood stud wall, thus avoiding such issues.

WALL ASSEMBLY COMPARISON CHART

Wall Type	Axial Capacity (plf)	Wall Bending Stiffness (psf)	Lateral Capacity (psf)	Clear Wall R-Value	Steady State R-Value	Sound Rating STC	Fire Resistance Rating
2 x 4 wood studs @ 16" o.c.	435	9.5	37.5	R-10.5*	R-13	33	30 min – 1 hour
2 x 6 wood studs @ 16" o.c.	3,220	37	80	R-16.5*	R-19	36	30 min – 1 hour
4" Reward ICF wall #4 @ 24" o.c.	7,500	120	43	R-26 to 44**	R-22	44	2 hour
6" Reward ICF wall #4 @ 24" o.c.	22,000	300	65	R-26 to 44**	R-22	51	3 hour
8" Reward ICF wall #4 @ 20" o.c.	50,000	575	105	R-26 to 44**	R-22	54 [±]	4 hour
10" Reward ICF wall #5 @ 24" o.c.	86,000	955	169	R-26 to 44**	R-22	57 [±]	4 hour

Axial Capacity - pressure or force placed downward upon the wall from roofs, floors and walls

Wall Bending Stiffness - the strength of the wall structure to resist deflection

Lateral Capacity - sideways movement pushing against the wall due to soil, wind or earthquakes

Deflection - movement within a wall assembly

Clear-Wall R-Value - represents the thermal performance of the area of wall containing insulation and structural components only; does not consider interface details, such as windows and floor/ceiling connectors

Steady State R-Value - determined by only the materials listed as the wall type

- √ Wood studs with an axial capacity of 435 (plf), wall bending of 9.5 (psf) and lateral capacity of 37.5 (psf) can only withstand winds of up to 130 mph, whereas a Reward ICF wall can withstand winds over 200 mph.
- √ An ICF wall's axial capacity is 50% stronger than a wood framed wall.
- √ With ICFs you can save steps & materials.

*Clear-Wall R-Value based on fiberglass batt

**The Clear-Wall R-Value, combined with thermal mass and air tightness considerations, will give you the Effective R-Value, depending on climate.

±Not actually test data; supposition based on Riverbank Acoustical Laboratories test results from the 4" and 6" Reward ICF wall



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Wall Assembly Comparison

Reward ICFs vs. Metal Stud & CMU

Why settle for the standard metal stud or CMU structure when you could have more with an ICF structure?

- √ More energy efficiency
- √ Better noise reduction
- √ More time if there is a fire
- √ More strength against strong winds

Building to local codes will only get you to the minimum building standards; however, customers are demanding more. Increased utility costs and a desire to build green are generating a demand for better performing structures.

A solid concrete wall, with the built-in insulation of ICFs, delivers more strength and energy efficiency than a metal stud framed or CMU structure, all while preventing air and moisture infiltration - and we have the numbers to prove it.

The chart below provides a quick glance at how metal stud and CMU structures compare to Reward walls. These direct comparisons show how Reward built structures have unmatched structural strength and wall stiffness. The ability to withstand deflection (i.e. movement) can prevent issues such as drywall cracking and/or window and door problems. Reward walls can endure significantly more applied loads from soil, wind, earthquakes, floors and roofs than both CMU and metal stud walls, thus avoiding such issues.

WALL ASSEMBLY COMPARISON CHART

Wall Type	Axial Capacity (plf)	Wall Bending Stiffness (psf)	Lateral Capacity (psf)	Clear Wall R-Value	Steady State R-Value	Sound Rating STC	Fire Resistance Rating
3 5/8" 18 gauge metal studs @ 16" o.c.	500	23	37	R-6*	R-13	45-49	30 min – 1 hour
6" 18 gauge metal studs @ 16" o.c.	1,775	74	83	R-8*	R-19	46-51	30 min – 1 hour
8" cmu #4 @ 32" o.c.	14,500	43	45	R-2 (Uninsulated)	R-2 (Uninsulated)	44-48	2 hour
4" Reward ICF wall #4 @ 24" o.c.	7,500	120	43	R-26 to 44**	R-22	44	2 hour
6" Reward ICF wall #4 @ 24" o.c.	22,000	300	65	R-26 to 44**	R-22	51	3 hour
8" Reward ICF wall #4 @ 20" o.c.	50,000	575	105	R-26 to 44**	R-22	54 [±]	4 hour
10" Reward ICF wall #5 @ 24" o.c.	86,000	955	169	R-26 to 44**	R-22	57 [±]	4 hour

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Steady State R-Value - determined by only the materials listed as the wall type

√ The unmatched axial capacity strength of ICFs allows you to span greater distances in floor lengths giving you more design flexibility (demands fewer load bearing walls).

√ While metal stud & CMU walls meet building code minimums, ICFs exceed them.

√ With ICFs you can save steps & materials.

*Clear-Wall R-Value based on fiberglass batt

**The Clear-Wall R-Value, combined with thermal mass and air tightness considerations, will give you the Effective R-Value, depending on climate.

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