

YOU CAN GET FULL CREDIT FOR FIRE RATINGS

No longer do we have to rely on cumbersome and expensive testing and certification procedures for fire resistance ratings of walls, floors, roofs, beams and columns. According to new provisions adopted by the model building codes, including the Standard Building Code and the two South Florida Building Codes, fire ratings can now be determined by a series of relatively easy computations.

The calculated method is an empirical procedure based on the multitude of fire tests conducted on concrete and concrete masonry assemblies. These tests were performed across the United States and Canada by various recognized testing laboratories including Underwriters Laboratories and the Portland Cement Association.

In analyzing these tests, it was discovered that only two distinct variables affected the fire resistance ratings of these materials: the type of aggregate, and the equivalent thickness of concrete or concrete masonry used. Equivalent thickness, essentially, is the thickness of solid concrete obtained if there were no cores or voids in the concrete or masonry section.

One-hour fire ratings, the minimum required between tenants in multi-family residential, is easily attained by almost all concrete and masonry sections.

This is illustrated by the following summary of the fire resistance ratings of the most commonly used concrete materials in Florida:

CHART "A"

PRODUCT	AGGREGATE TYPE	EQUIVALENT THICKNESS IN INCHES FOR FIRE RESISTANCE RATINGS ^{1,2}			
		1 hr.	2 hr.	3 hr.	4 hr.
CONCRETE	Lightweight ³	2.6(34,46)	3.6(47,64)	4.4(58,78)	5.1(67,91)
MASONRY	Limestone	2.7(35,48)	4.0(52,71)	5.0(66,89)	5.9(77, -)
CONCRETE- PRECAST or READY MIXED	Sand-Light-Weight	2.7	3.8	4.6	5.4
	Limestone	3.2	4.6	5.7	6.6

1. The numbers in parenthesis are the percent solid 8" block and the percent solid 6" block, respectively, required for the assigned fire resistance rating.

2. Expanded shale, clay or slate

3. Values between those shown in the table can be determined by direct interpolation or by using the appropriate graph on reverse side.

However, don't forget about the finishes. Required fire resistance ratings apply to the entire wall or floor/ceiling assemblies. Most block and concrete walls and floors receive some kind of finish, such as drywall, stucco, plaster, etc., which adds to the fire resistance rating of the base walls or floors.

Sometimes a concrete product does not meet the fire resistance rating required, as in the case of many standard 8" blocks that calculate to just under a two-hour rating. Often a one-half inch drywall or stucco finish on just one side will provide the additional amount needed to comply. Finishes on both sides will produce even higher ratings.

The following table gives the rule-of-thumb increases for finishes on normal weight block, lightweight block, normal limestone aggregate concrete and sand-lightweight concrete:

CHART "B"

FINISH	APPROXIMATE INCREASE IN FIRE RESISTANCE RATING (MINUTES) ¹
1/2" Standard Drywall one side	15
5/8" Standard Drywall one side	30
5/8" Stucco one side	30
1/2" Drywall both sides	40
1/2" Drywall one side/ 5/8" Stucco other side	45
5/8" Drywall one side, 5/8" Stucco other side	60
5/8" Drywall both sides	65

1. Values listed are for normal weight block, lightweight block and sand-lightweight concrete 3.6" equivalent thickness or normal limestone aggregate concrete 4.0" equivalent thickness.

Increasing the equivalent thickness of the base wall will slightly increase the values assigned for finishes (listed values will be conservative). Decreasing the equivalent thickness of the base wall will result in slightly lower values for the finishes.

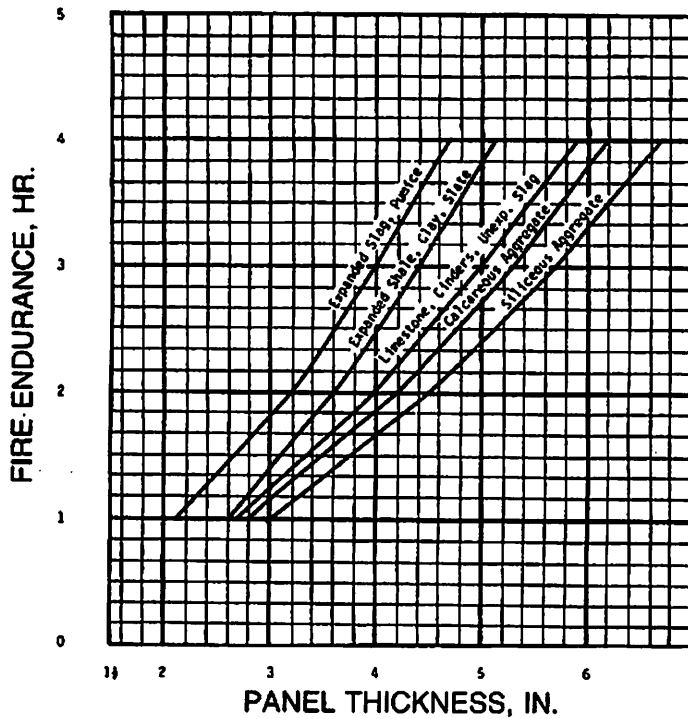
Drywall on just ONE side, however, is independent of base wall equivalent thickness and is the same no matter what equivalent thickness of concrete.

The above information is rather general, intending to cover the most commonly used concrete, concrete masonry and finishes used in Florida. For more detailed information drop your business card in the mail to FLORIDA CONCRETE & PRODUCTS ASSOCIATION Headquarters, 649 Vassar Street, Orlando, Florida 32804, 1-800-342-0080. FC & PA Staff is available to assist you in determining fire resistance ratings required for any project.

These charts provide a graphical solution to determination of fire resistance vs. equivalent thickness and may be used in lieu of direct interpolation of the tables in the Standard and South Florida Codes or the corresponding tables 4, 5, and 8A in the FLORIDA CONCRETE & PRODUCTS ASSOCIATION "Calculated Fire Resistance for Concrete and Concrete Masonry - Florida Code Approved Procedures". CFR 001.

Masonry

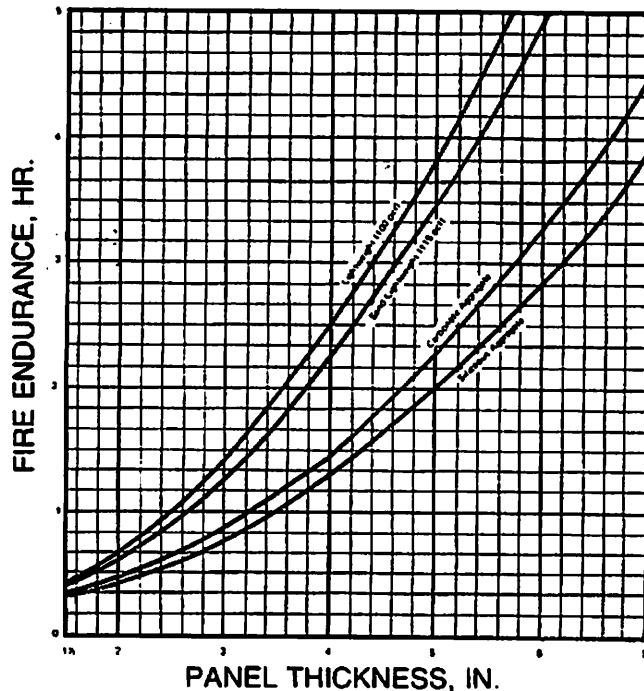
THIS CHART MAY BE USED IN LIEU OF TABLE 4, CFR 001, FC&PA



Minimum Equivalent Thickness in Inches of Load-Bearing Concrete Masonry Unit Walls for Fire-Resistance Ratings

Concrete

THIS CHART MAY BE USED IN LIEU OF TABLE 5 and TABLE 8A, CFR 001, FC&PA



Minimum Equivalent Thickness in Inches of Cast-in-Place or Precast Concrete Walls, Loadbearing or Non-Loadbearing and Concrete Floors and Roofs