Estimating shelf space needs

Original Question (October 10, 2007)**:**

Formula for generating space count?

I am hoping someone out there may have a solution to this problem. Rather than having to physically measure each shelf, is there a formula for calculating linear feet occupied based on volume count?

List Responses:

I believe we calculate 7 volumes per foot.

We have measured quite a bit, and our library is huge (over 170,000 sf) and I can tell you, it does not take that long to measure. If you have a note pad with one person recording, and a second person measuring and calling out numbers it is pretty easy to compile accurate numbers. We have tried formulas, and going off the plans and each of those methods have left us with inaccurate results. You will find that the math gets easy, as often all of the shelves in a row are the same length (six bays, six shelves high, 42 inch shelves = 6 x 6 x 42"). I guess my main point is that whatever you need the numbers for, it is well worth it to be accurate - you could miscalculate needed growth space, or spend an entire summer shifting only to find out you do not have enough space at the end of the shift. I would also recommend measuring in inches and then converting to linear feet.

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for law books I use about 3 vol per linear foot.

I believe a legal volume averages about 2 inches. Maximum volume capacity per 35" shelf is 6 volumes per linear foot. Acceptable fill range is 5 to 5.5 v/lf.

I'm sure that you probably have the answer to this question, but in "Space Planning in the Special Library," the estimate is that a single-faced section of steel shelving is considered to hold 125 to 150 books. In a book collection that is fairly uniform in size, an estimate of 6 to 7 books per linear foot and 5 reference books per linear foot is used. Bound periodicals (if you have them) average 4 to 5 volumes per linear foot.

We assume about 8 law books per linear foot. That's basic on random measuring and is an average. But I personally think there is no substitute to measuring for accuracy, especially if you are needing numbers for both monographs and serials. They vary a great deal. Just my two cents...

We use 6 volumes per linear foot.

We use 5 volumes per linear foot when we are calculating available growth space for the ABA.

My recollection is 5 volumes per foot. Others may have different formulas. Good luck.

There is actually a book on moving collections that discusses estimating shelving space. It uses a factor that on average a book is around 1.25 inches (but with law books, I'd say that would have to be a little bit bigger -- especially Reporters.) Here is a link to the Google Books page for this specific book. http://books.google.com/books?id=-NNhqAbRusAC&dq=estimating+book+shelf+space&psp=1 Good Luck!!

It used to be that it was 3 or 4 vols per foot but that was back in the days of the full bodied reporter/treatise. I imagine it's smaller now. We physically count but I've been thinking of "guestimating" for two or three years and counting the following, but haven't resorted to that, yet. I'll probably do a random selection of 30 - 50 shelves, count the number of volumes and divide feet by volumes to get an "guestimation" number.

I thought an old rule of thumb was 10 books per linear foot.

After having measured our shelves a few years ago - yes, we took the length of the shelf and subtracted the amount that was occupied to get our total linear footage and LF occupied – we figured our average was 7 volumes per foot. So since the measuring party, we've calculated based on 7 volumes per linear foot. I believe there is another statistic which uses 5 volumes per linear foot, but can't tell you just now where that comes from.

By experience (I'm a professional planner) 15 books per shelf of 36 inches - it allows reasonable growth for short term-for a five years span.

I used 6 volumes per linear foot. Rather than re-calculate all of the shelving each year, I use this formula to determine the number of LF being occupied by the number of volumes added this year. Then I add the LF to last year's number. This generally works well if your library has not undergone much shelving change. Last year, when we relocated to several temporary locations, I manually counted our shelves and then estimated capacity. What a tiresome exercise!

Planning Academic and Research Library Buildings, 2d ed., by Leighton & Weber (ALA), Table 6.3, on page 153, shows Space Requirements for Various Classification of Books When Shelves Are Filled Solidly:

Law: 5 vol./ft. of shelf, or 84 vol./single-faced section.

In the text, they go into a great deal more detail, and you might ask ILL for pages 153-158 if you don't have the book in your library.

It runs in my mind, though, that this was discussed a few years ago, with somewhat different conclusion than the shocking number from Leighton & Weber.

Yes, problem is, it varies. For many people the magic number in law libraries is 6 vols per linear foot; others like 8 per linear foot. You will get a functional occupancy estimate by applying numbers in that range. You can improve accuracy by applying a different base number to measure different parts of the collection. For example, we have individually cataloged California documents. Each represents a volume, but it may take 15-20 of them to fill a linear foot of shelving.

We used to do it the other way around measuring the shelf feet and multiplying by the average number of volumes per shelf/foot (usu. 5 or 6). I bet almost all of the shelves in your library are 3 feet and that almost every section of shelves has 7 shelves and that you have big blocks of ranges of shelves -- it should take you about 10 minutes to count number of stacks in a range, number of sections in each stack, do a little multiplication and have a pretty good number for your shelf-feet.

You might want to check the most current version of Stephen Margeton's book on law library space planning.