Calculating Bellows Factor

Whenever the bellow is extended beyond the lens's focal length (i.e. more that 150mm between lens and film with a 150mm lens) then the loss of light will start to show up as underexposure on the negative or transparency. To counter this loss of light, the exposure must be increased beyond the "normal" or metered reading unless you are taking measurements on the film plane with a specialized meter.

The traditional equation for calculating Bellows Factor was:

$$\text{Correct f-Stop} = \frac{\text{Metered f-Stop X Focal Length of Lens}}{\text{Bellows Extension}}$$

However there is a quicker and easier way to do it. You already know the focal length of the lens you are using. Let's say, for example, it is a 210mm lens.

Now measure the Bellows extension in the same units (here, millimeters). Let's say you are focused very close and the distance between film and lens is 328 mm. Take each measurement and convert to a close equivalent f-stop. The 210 becomes F22 and the 328 becomes f32. The difference in f-stops (here it is one stop) is the additional exposure needed for the shot.

Bellows Extension 328 mm — 328 = f32

210mm Lens — 210 = f22
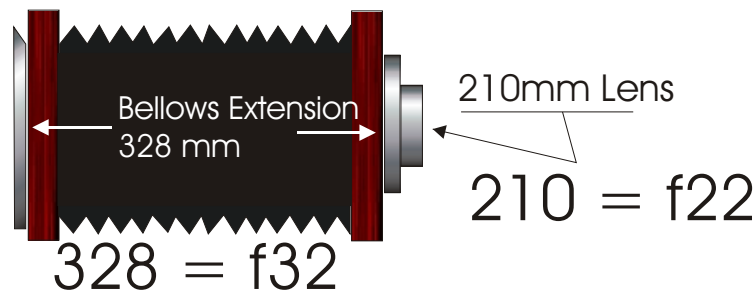
*f*32 less *f*22 = 1-stop. So if the metered exposure was *f*11@ 1/30 then the corrected exposure would be either *f*8 @ 1/30 or *f*11 @ 1/15.

Now is that simple or what? And it works every time and with every lens I've tried.