Architecture and Human Dimensions

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In architecture, the basic yardstick for all measurements is the size and shape of the human body. In the parts of any structure, be it private home or office building or football stadium, the final determinant of usefulness is whether it fits, really fits, you and me.

Through the years, a considerable body of technical data has been developed, based on human dimensions. Some of the more obvious of these are doors, which are always within a few inches of three feet wide and seven feet tall, and kitchen counters, which are always three feet off the floor. Any variation in these dimensions simply doesn’t work as well.

The human animal stands more or less erect to an average height of between five feet three inches and six feet six inches. (Adriance natives are above average, naturally.) His comfortably-bent elbow is about 42 inches from the floor and when he stretches, he can reach conveniently a height of about seven or seven and a half feet.

When seated, the portion doing the sitting is placed about 16 inches off the floor—14, if slumped. When he walks, he uses a piece of air space about two and one-half feet wide by six feet high, usually in a straight line.

When agitated, watching an athletic event or dancing, he may consume four or five times that much space.

What effect does all this have on building design? Corridors should provide at least three feet of width for the number of persons who may be expected to walk abreast. The total width may vary from three feet in houses to as much as 15 or 20 feet in office buildings.

Work surfaces must be at a height to permit their use with a minimum of stoop, squat or fatigue. Kitchen counters are 36 inches high; dining tables and desks 30 to 31 inches high; bars, writing counters and pass-throughs, 42 inches high.

Seating, if erect, should be about 16 inches high. Lounge seating should be a couple of inches lower and tilted back more. Seated at a table, the diner or conferee occupies a full two feet of table perimeter, elbows and all.

A good height for bathroom mirrors is six feet to the top of the mirror. A seated-type mirror, such as on a dressing table, should have the top about four feet six inches off the floor.

For many years, lavatories have been installed two feet six inches high. They are placed this low to permit use by small children, presumably. However, this is too low for comfortable use by most adults. A better solution would be to set the bowl three feet high and get a low stool for children.

Clothes closets are another area frequently made the wrong size. The absolute minimum of front to back depth for hanging clothes is 24 inches. If you have many bouffant formals or garment bags, two feet six inches would be better. The minimum height of hanging rod above floor is 72 inches for evening dresses, 63 inches for overcoats and rain coats and 42 inches for pants and jackets. Average clothing will occupy two and one-half inches of pole length per garment, heavy clothing as much as four inches.

Stairs must be designed within very close tolerances, otherwise they will not only be uncomfortable, but dangerous as well. The proportion of riser to tread should fit the formula 2R plus T equals 25. The height of the handrail should be two feet seven inches above the nose of the tread.

This dimension is a compromise between the low rail needed going up and the higher rail needed going down. Headroom above the nose of the tread must be at least seven feet at all points. This is required because when in a lean forward going down and will hit their heads on a sloping ceiling any lower.

Windows should be sized to permit viewing from both standing and seated positions (if desired). This means the sill must be not over three feet off the floor and the head must be at least six feet high, preferably higher. Also, be careful that there are no muntins or division bars at the three feet six inch level, otherwise it will split the view.

There are many other criteria based on the human figure but they all point to one thing. If a building is to be fit for human habitation, it must be exactly that.