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## OBESITY AND BUILDING DESIGN

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# Obesity and building design

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Unfortunately, Americans are getting larger and heavier than ever. Thirty years ago it would have been unusual to see someone who weighed more than 300 pounds. Now, it is not uncommon to see individuals weighing 500 pounds or more. Many homes and businesses are not designed or equipped to accommodate such individuals safely.

Body Mass Index (BMI) is a ratio of a person's weight to height. A person with a BMI of 30 or higher is considered obese, and a person with a BMI of 40 or higher is considered morbidly obese. Most current residential facilities accommodate obese individuals safely. However, for morbidly obese individuals the picture is different—residents may not fit through doorways, their weight may be over the capacity for chairs and beds, and some residents may use heavy motorized wheelchairs that further tax facilities.

The prevalence of individuals with a BMI of 40 and higher has increased dramatically in the U.S. over the past 20 years. Between 2000 and 2005, the number of people with a BMI over 40 rose by 50%, and the number of people with a BMI over 50 rose by 75%. Rates are highest in the South, particularly among women and minorities. This trend presents challenges both for the design of new commercial and residential facilities as well as the maintenance of existing facilities and risk management.

From a design perspective, individuals in the morbidly obese category (sometimes referred to as the bariatric population) come with a host of additional needs for comfortable and safe use of residential and commercial facilities. Design professionals must consider where these needs interface with the facility. Issues relating to personal hygiene, mobility, mobility assistance, maneuvering width, seat width, sleeping width, stability and support need further consideration. Some examples include:

**1 Width of seating and load-bearing capacity.** A standard seat width used to be around 18 inches; bariatric seat widths are now 26 to 33 inches or more. Many furniture manufacturers have not prominently stated the weight capacity of chairs or other furniture.

**2 Door and aisle ways.** The common 36-inch-wide door was able to provide access to most spaces. With bariatric wheelchairs now as wide as 41 inches, for some entering a bathroom is no longer possible without wider doorways and other design feature alterations. Minimum aisle widths of 44 to 48 inches, which are common in existing facilities, no longer allow for easy movement of more than one person.


**3 Bathroom design.** Wall-mounted toilets have been the preferred commercial fixture type for many decades. But, toilets that were traditionally designed to support about 350 pounds were detaching from their wall-mounted surfaces. In response, some manufacturers have redesigned many of their wall-hung fixtures to withstand greater loads; many facilities now choose floor-mounted fixtures to avoid potential resident injury and property damage. Standard tubs and shower stalls of 36-inch widths also no longer meet the access needs of the bariatric population, and roll-in showers are preferred.

**4 Handrails, grab bars and surfaces providing support.** Generally handrails and guard rails are designed for concentrated loads of 200 pounds. Morbidly obese individuals are capable of exceeding these load limits as they seek support and reach out to avoid a fall. Unless properly engineered for a much larger potential load, any wall-mounted surface or device is a potential injury risk to the bariatric population.

**5 Lift systems for bed transfers.** Ceiling-mounted lift systems designed for

1,000 pounds are becoming common and are proven to help reduce staff injuries during patient transfers.

**6 Larger rooms.** Wider bed widths in conjunction with greater clearances, which are required for resident transfer around the bed, need more room width and total room area than traditional rooms provide.

Today, simply complying with the Americans with Disabilities Act will not meet all the needs of this growing segment of American society. Legal regulations have not yet caught up to the needs of the bariatric population, and there is little guidance for design professionals. Builders and developers who creatively plan ahead to accommodate the bariatric population will better serve the needs of future residents and customers. 



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