



The safe, impressive weightroom at Poplar Buff High School in Poplar Buff, Missouri. It was designed by BFS Clinician Jim Brown, who is also a coach at the school.

ABCs of Weightroom Design

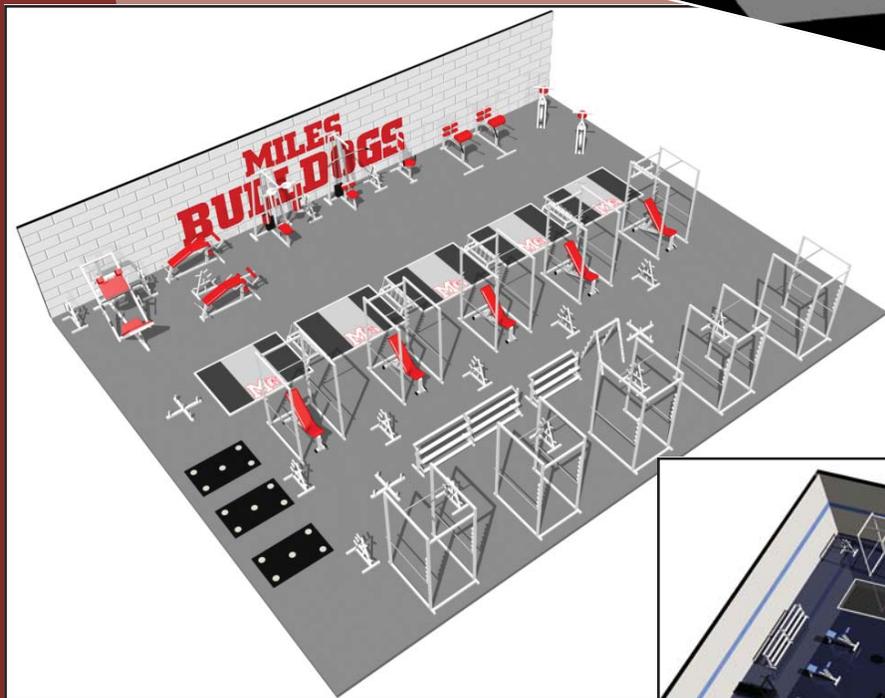
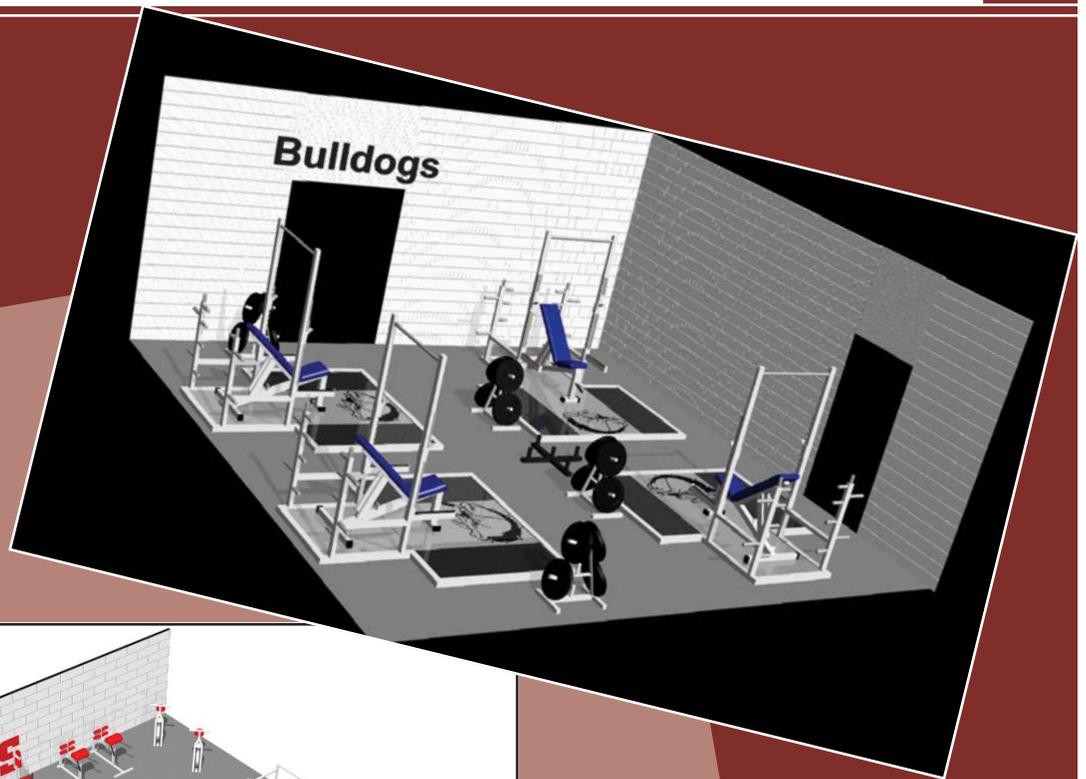
Practical tips on designing safe and effective weightrooms

“If you fail to plan, you plan to fail” is an axiom by Benjamin Franklin that applies to many different aspects of sports and physical fitness training. If a football coach does not scout the competition and devise the appropriate game plan, the team could lose to even inferior opponents. If a strength coach does not plan workouts to progressively

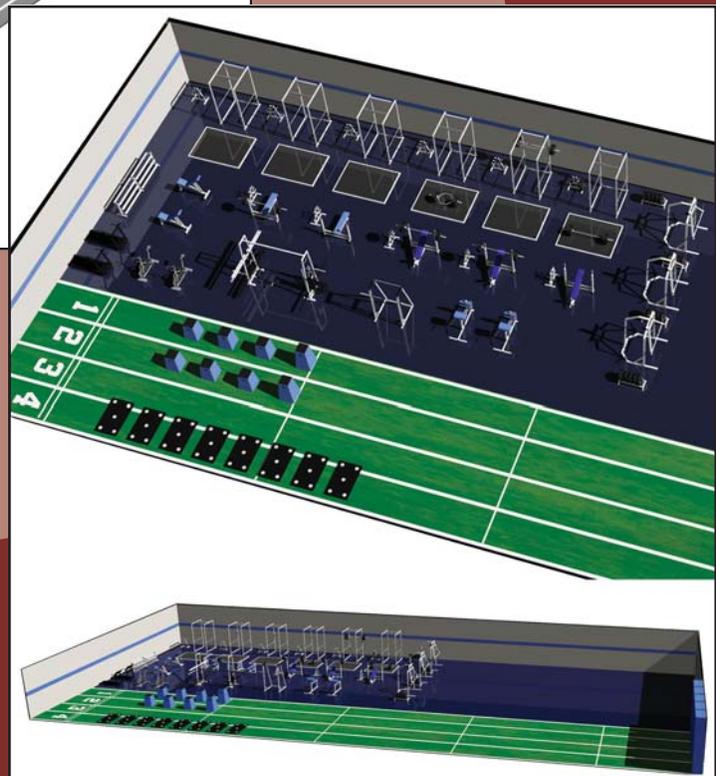
use heavier weights, athletes will not become stronger and may even regress physically. And in terms of weightroom facility planning, if you fail to carefully plan your facility, you will dramatically increase the risk of injuries to those using the facility. Nobody knows this better than Dr. Marc Rabinoff.

Dr. Rabinoff, whose work in the legal aspects of sports and fitness train-

ing is profiled in the *BFS Liability and Safety Training Manual*, has been an expert witness in numerous lawsuits arising from faulty planning of weight-training facilities. He has been an expert witness in several cases involving athletes who were fatally injured by falling off treadmills because the machines were placed too close to a wall. Additionally, Dr. Rabinoff was



One of the services BFS offers is weightroom planning through the use of 3-D illustrations.



consulted on five cases in which individuals became paralyzed from using improperly designed Smith machines, one dying before the case went to trial. You might not hear about these types of lawsuits, as many are settled before they come to court. But the reality is that such cases are not uncommon; Rabinoff says that a few years ago one major health club chain had several hundred lawsuits pending against it. The saddest thing about this fact is that many of these injuries could have been prevented.

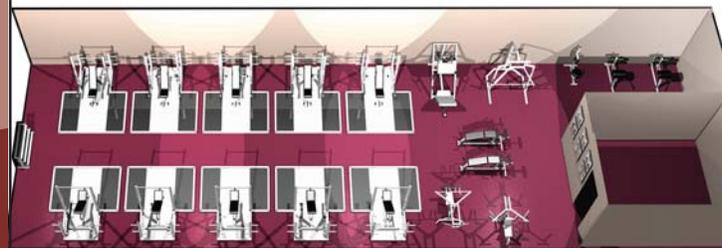
"I would estimate that 50 percent of all the litigations I have been involved with were a result of poor facility design," says Rabinoff. "One of

the major problems is having too much equipment for the space available. Often this is a result of school administrators or gym owners listening to the advice of equipment manufacturers, who ignore safety considerations so they can sell as much equipment as possible to increase their bottom line."

One of the services BFS offers is weightroom planning through the use of 3-D illustrations such as the ones provided in this article. These illustrations are drawn to scale to show you exactly how your weightroom can look, thereby ensuring proper use of available space and the best design for safe traffic flow. For example, whereas three feet of space between equipment

might be adequate, treadmills might require twice that amount. Having a 3-D illustration is also a great way to help generate funding for a new facility.

For detailed design standards and recommendations for equipment and facilities, the bible in this area is the *Annual Book of ASTM Standards*. Founded in 1898, ASTM International is a nonprofit organization that Rabinoff has served on that consists of committees working to provide standards for materials, products, systems and services. In many of the cases Rabinoff has participated in, the recommendations in ASTM's annual publication provide much of the primary authoritative reference material. But to get you started, Dr. Rabinoff has come up with the following checklist to help you make your weightroom as safe as possible. BFS



Weightroom Design Checklist

Yes No

1. Weight Training Area

- Space allows for easy access to equipment
- Walls free of protruding objects

2. Signage (BFS Safety Package)

- Instructional signs visible and undamaged
- Signs posted emphasizing safety
- Signs posted stating spotting requirements, warnings and acknowledgment of assumption of risk
- Entry/exits visible, marked and unobstructed

3. Environment

- Air exchanges and ventilation adequate
- Lights functioning properly
- Ceiling space sufficient for overhead lifts

4. Flooring

- Nonslip
- Shock absorbing
- Easily cleaned, repaired and replaced
- Free of debris
- Platforms available for Olympic lifting exercises

5. Mirrors

- Positioned higher than largest weight plates
- Secured and unbroken
- Positioned away from activity
- Above and away from dumbbell racks
- Easily cleaned and replaced
- Cracked and distorted mirrors replaced quickly

6. Equipment maintenance and service

- Receipts and all paperwork available associated with purchase
- Manufacturers' contact information available (phone, E-mail, fax)

7. New member/student orientation (BFS Safety Package)

- Acknowledgement form signed (assumption of risk)

8. Weight training equipment

- Collars and clips
- Weight storage, dumbbell racks adequately positioned, easily accessible

Benches:

- Braced firmly
- Surfaces cleaned/disinfected regularly
- Warning signs visible and undamaged on equipment
- Weight machines, weight racks and anchor points securely anchored to wall/floor, where required
- Weight machines, squat racks have properly functioning safety stops

Weight machines, weight racks and pulley mechanisms:

- Cables not broken or frayed
- Mechanisms lubricated
- No nude-metal stress
- Corrosion free
- Nonslip material on pedals
- Nonslip rubber grips on machines

9. Cardiovascular/Circuit Training Area

- Warning signs visible and undamaged
- Climate controlled
- Nonslip flooring and drip mats
- Restrictions enforced for using area (regarding age or disability, etc.)
- Housekeeping: potential sites of infection controlled/disinfected
- Machine and equipment maintenance done regularly and documented
- Area supervised

10. Supervision by qualified staff

- Certified with practical and theory courses (BFS certification)