



Draper® Smart Gym System, Roebbelen Center, Roseville, CA

- Pre-plan for gymnasium requirements at the beginning of the design process to ensure the facility will meet both performance needs and budgetary requirements.

Architects and general contractors know at the very beginning of a project if it will include a gymnasium. And yet quite often equipment manufacturers are not consulted until the design is completed and put out for bid. This disconnect can lead to inadequate facilities if issues cannot be addressed before completion.

A perfect example of the importance of early planning is the Roebbelen Center at the Grounds in Roseville, California, a joint project of the Placer County Fairgrounds of Roseville, and Placer Valley Tourism.

This large gymnasium consists of four bays. Each bay has three side-by-side high school-sized basketball courts with two volleyball systems running across each basketball court. Besides hosting basketball and volleyball competitions, the facility hosts cheerleading competitions as well as exhibits and other events, so all equipment must fold up to the ceiling to allow 35 feet of clear space over the floor area.

Each backstop is electrically operated and includes an electric 8-10-foot height adjuster. Each volleyball court has an electrically operated overhead volleyball system and there are divider curtains in between and at the ends of each basketball court to prevent balls from rolling into adjacent activities.



Ceiling suspended folding equipment

Each basketball court also has two scoreboards suspended from electric lifters. That is a total of 24 basketball backstops, 24 Electric Height Adjusters, 24 Overhead Volleyball Systems with judge's stands, 24 scoreboard lifters, and 17 gymnasium divider curtains across all four bays.

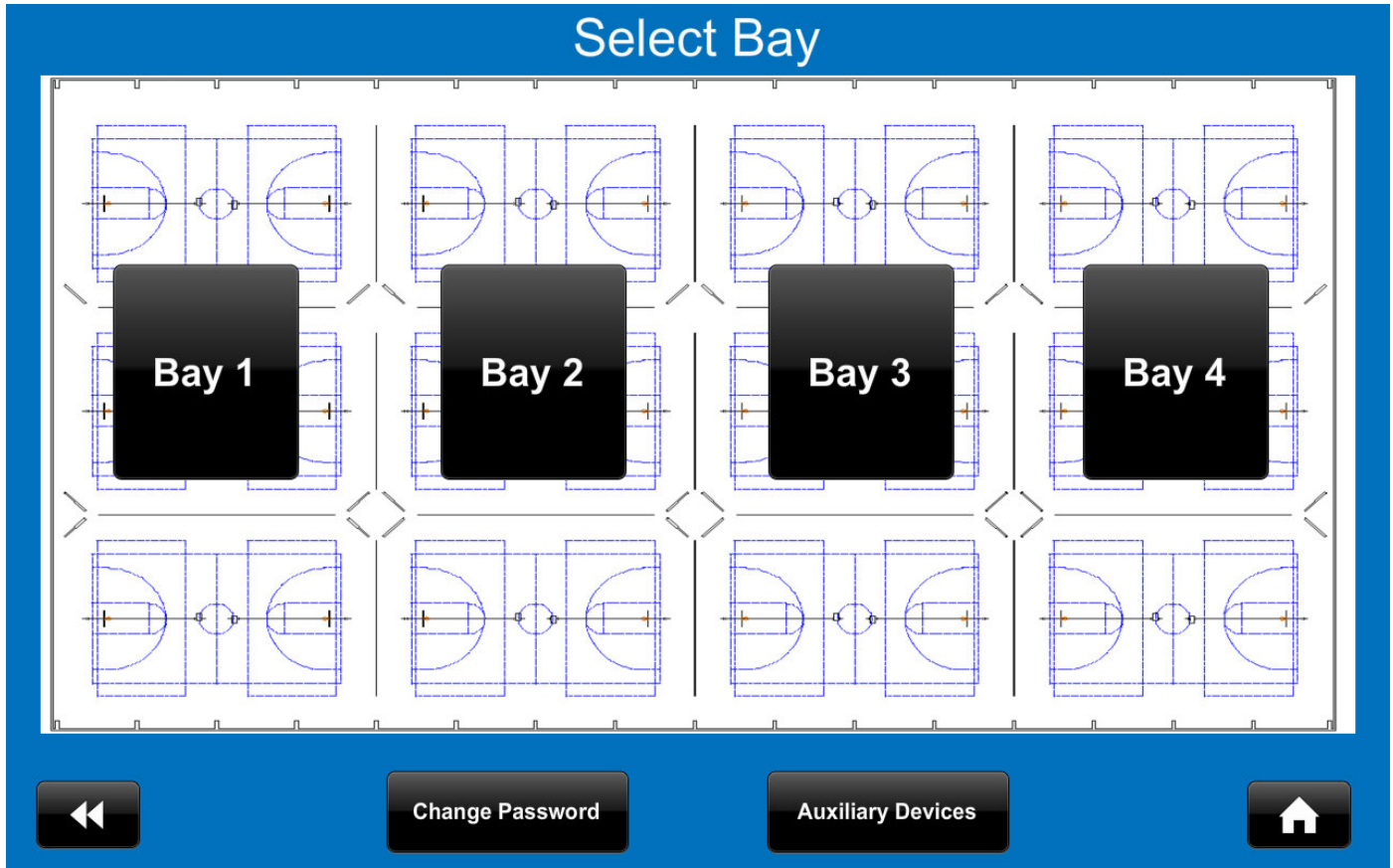
The challenge of space.

With the large amount of ceiling suspended folding equipment the first challenge was simply specifying solutions that would all fit, whether in the folded or playing positions. By recommending a mix of side-folding ceiling-suspended backstops and ceiling-suspended volleyball systems, Draper® helped prevent equipment coming into conflict during operation. Fold-up divider curtains and custom designed scoreboard lifters utilizing divider curtain winches, divider curtain hardware, and retracting power cords also had to be accounted for in the design.

The challenge of clearance vs. cost.

The next challenge was designing the equipment and support to allow the 35 feet of clear overhead space required for competitive cheerleading. The pre-engineered metal building is 250 feet wide x 415 feet long with rigid frame members spaced at about 25.5 feet on center. Such a large building requires a lot of expensive steel, so another challenge was to keep the height as low as possible and still have the required clear space overhead. Draper designer/technical support specialist Leif Olson worked closely with the contractor and the metal building manufacturer to place the fewest support beams possible and design the equipment to fold as far as possible.

"We had to use a few design 'tricks' to make these two competing goals come together," Olson said. "For instance, we alternated the location of the ladder supports on the overhead volleyball systems, so they were always on the high side when folded."



Draper Smart Gym Control System interface for four bays

Draper® was also able to use fewer support beams and require lower rigid frame eaves and a lower peak. That translated to less steel and lower cost for the pre-engineered metal structure, while meeting clearance needs.

The challenge of speed vs. cost.

Because of the high number and variety of events held at the Roebbelen Center, facility owners needed to be able to quickly change set-ups. However, they also wanted to save money by sharing as many electrical circuits as possible.

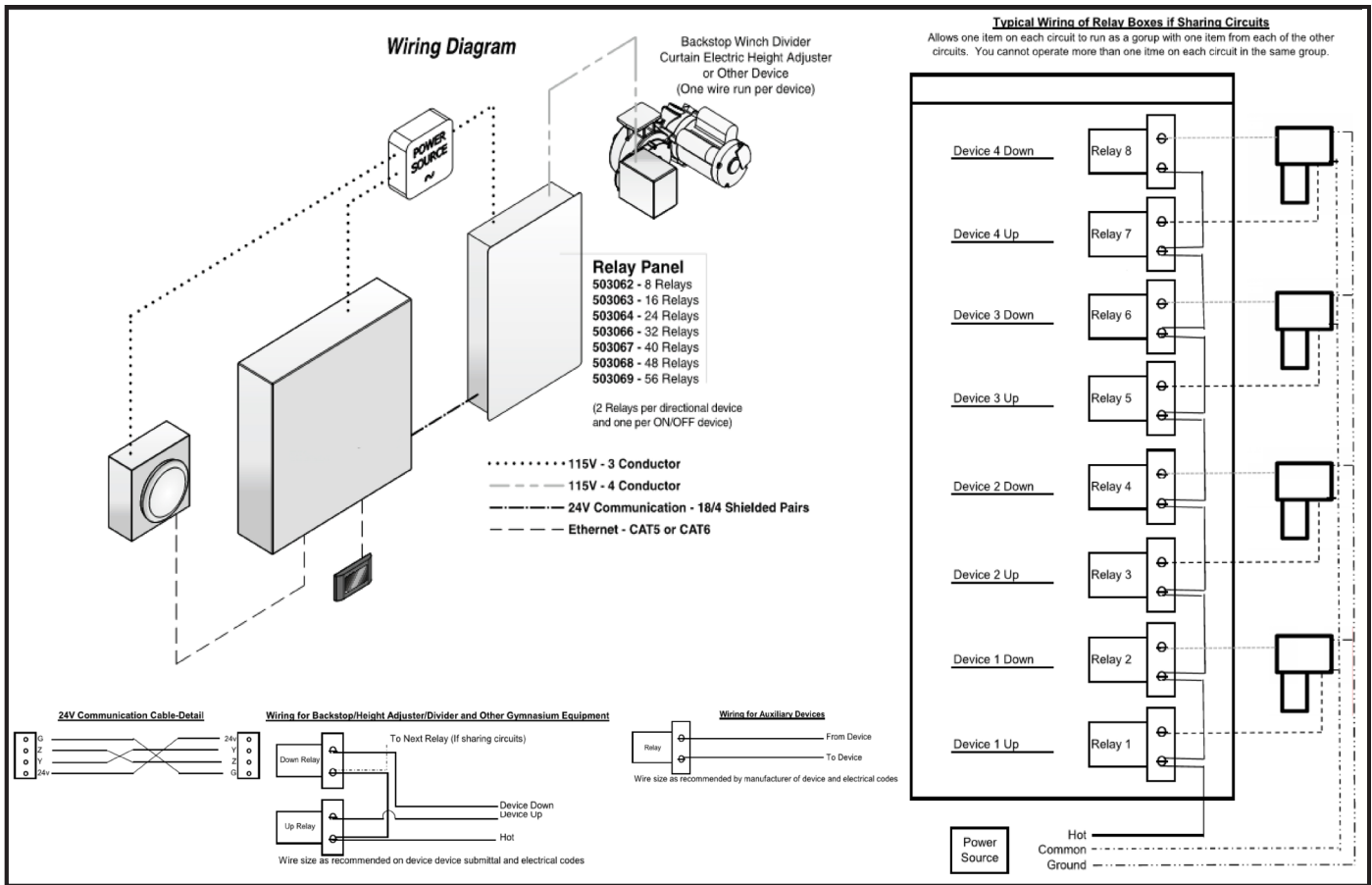
Most gymnasium equipment products are operated by ¾ HP motors, each of which requires a dedicated 20-amp circuit. If using traditional key switches, the project would have required 113 circuits with 113 wall-mounted switches, several people, and/or a lot of time to change court set ups for different activities.

The answer? Draper® Smart Gym, a custom-programmed control system that utilizes a central processor and five relay panels to operate the motors. A 10.1” graphic wall mounted ethernet touch screen with a custom, project-specific program and a tablet with a custom graphical interface provide control from anywhere inside the gym. Users can watch equipment operating and no one outside of the area has access.

“Early on, we analyzed the floor plan and made several suggestions to allow the facility to rapidly change set ups,” said Neal Turner, CSI, CCPR, LEED® AP, director of gymnasium equipment sales. “We also wanted to make sure that devices that will never run together share circuits, to prevent any chance of overload. We were able to reduce the required 20-amp circuits by 70%, resulting in lower electrical equipment costs.”

User interfaces for the touch screens include building layouts for easy navigation. The initial screen has the overall layout and the option to select any one of the four bays. From there

CASE STUDY: PRE-PLANNING ADDRESSES CHALLENGES



Wiring diagram for four bays

the user is sent to the screen for the chosen bay that shows the bay layout, with options to drill further down to individual courts. It is always possible to operate devices individually or at the court level, but on each bay screen, there are single-court set up buttons to allow a user to change all three courts in the bay from volleyball to basketball or vice versa.

The volleyball set-up button simultaneously raises all six height adjusters, moves all six backstops to the stored position and lowers all six overhead volleyball systems to the playing position. There is also a single button to raise or lower every divider in each bay – as many as eight curtains in some bays. Similar set-up buttons are available at the court level as well.

Time savings in changing bay layouts is huge compared to having one or two devices running at the same time from key switches. One person can set up the entire facility in a matter of minutes instead of hours.

Thanks to involving Draper® at the start of the design process, the architect was able to ensure the facility met both performance needs and budgetary requirements. Without that pre-planning, equipment may have had to be cut and fewer events staged, leading to less revenue.

Click here www.draperinc.com/go/SmartGym.htm for more information on the Draper Smart Gym system.

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