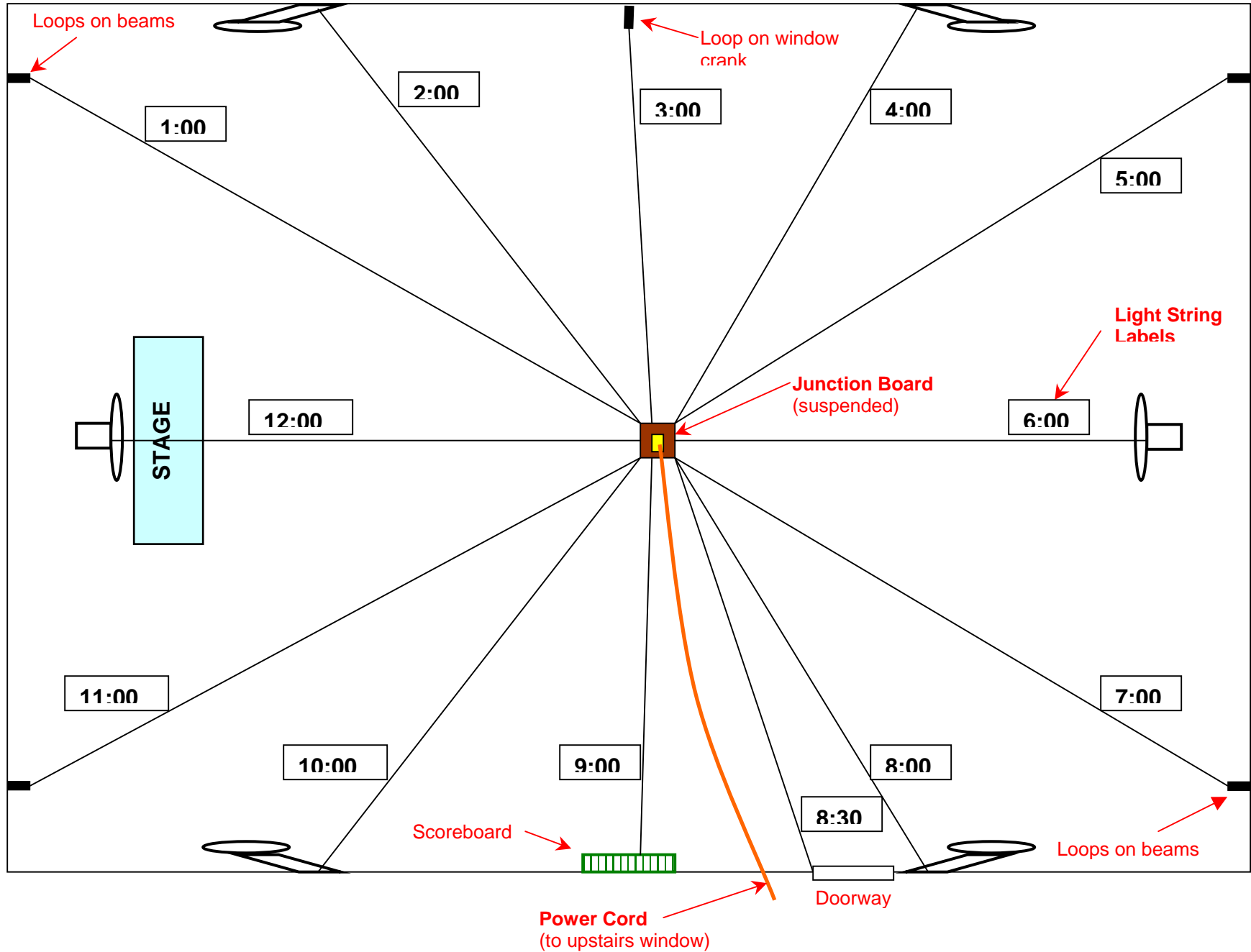
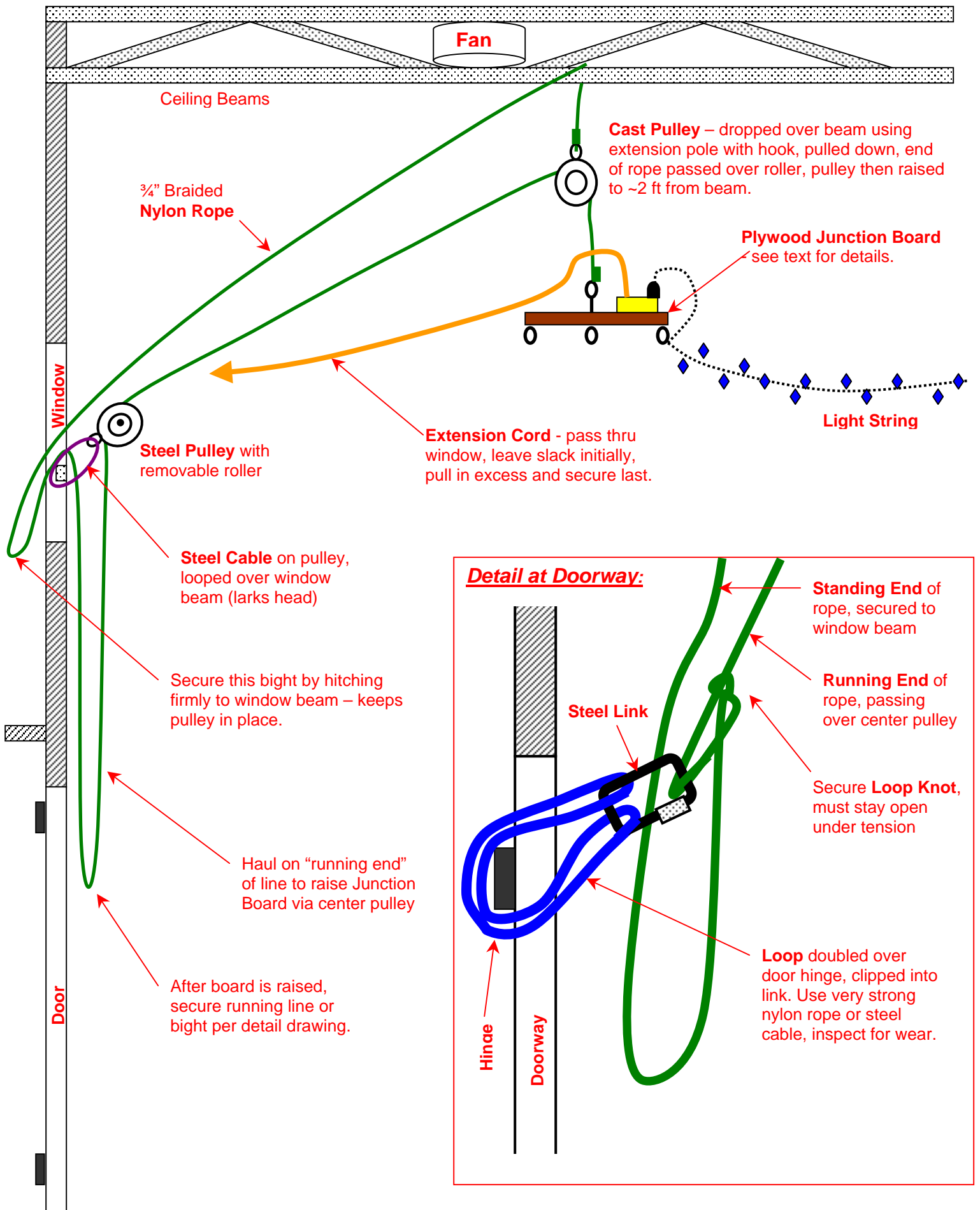


# Layout of Hanging Light Strings for Morningside Gym





**Schematic for Morningside Light Rigging**

# Instructions for Hanging Light Strings at Morningside Gym

Bill Porter, May 2007

## Overview:

1. All light strings are connected to a central plywood board (Junction Board), and their ends are secured to various points around the perimeter of the room (see hanging lights layout drawing).
2. The Junction Board has a large eyebolt in the center for suspension from a ceiling beam, plus a number of eyebolts for securing the strings. It also has a power strip into which the light strings are plugged, and the strip is powered by an extension cord that passes overhead into the upstairs room.
3. The Junction Board is raised to the desired height using pulleys. Besides making the operation much easier, this is an important safety measure because it greatly reduces wear on the rope that might cause suspension failure and a falling board.
4. The pulley system can be rigged to the ceiling beam by using an extension pole equipped with a hook. Most of the light ends can also be set without ladders by using the extension pole and various fixed cord loops at points around the perimeter.
5. Each light string is clipped to a nylon cord. The nylon cord takes all the tensile stress so the light strings don't have to! This greatly minimizes the chance of damage to cheaply made lights. The ends of the nylon cords have loops, and steel clips are used to attach them to the eyebolts on the Junction Board. The light strings can then be plugged into the power strip without getting jerked out.

## Detailed Instructions:

1. Unpack the box containing rope, Junction Board, and electrical extension cord somewhere in the center of the gym. Uncoil and fair the rope, inspect all knots for security and the rope for wear. Remember, safety is paramount and you won't be able to see this very well once it is hauled aloft. Uncoil the extension cord too.
2. At the same time as the above, have several other volunteers unpack the numbered light strings on plastic holders, unspool them and stretch them lengthwise near the side of the gym, and check each string to make sure they light (well, most of the lights anyway!).
3. Use the extension pole to raise the cast pulley on the end of the rope up over the ceiling beam near the center of the room (see schematic drawing). Give it a little toss when you get opposite the beam. It should drop over and hang a little below, and then you can use the hook to grab the pulley or the rope and drag it back to floor level. If you miss, be careful! The pulley will be falling pretty far, and you don't want to damage yourself or the floor. You can catch it or the rope near it, however, if you are very attentive.

4. Pass the end of the rope through the pulley (over the roller) and pull about 15 or 20 feet through. (At this point, you could haul the pulley up to the beam, but don't do that just yet.)
5. Tie the free end of the rope onto the central eyebolt on the Junction Board. It is extremely important that this knot be both strong and secure. The method I use is an anchor bend, which gives a double bearing surface as well as some security, plus a bowline above it. I usually add a half hitch around one leg of the bowline for absolute assurance. Pull everything tight.
6. You will see a loop of rope that passes over the beam and the pulley. Take that big loop and carry it over toward the upstairs room window. With the help of someone upstairs, use the extension pole to lift that loop through the window and pull it into the room.
7. Now unpack the steel pulley with a steel cable loop attached. Take that upstairs and loop the cable over the steel beam across the upstairs window – pass it around and through itself – that's called a "larks head". The roller wheel in the pulley can be removed by taking a clip off – do that. As shown in the schematic, pass the part of the rope leading to the Junction Board into the pulley body, then put the roller wheel back in, the pin in, the clip on. This pulley lets you raise and lower the board without having to climb upstairs, and keeps the critical attachment downstairs under the watchful eye of adults.
8. From the upstairs window, slowly haul on the part of the rope that raises the pulley toward the beam – while leaving the Junction Board on the floor. Let the pulley hang a couple of feet down so you don't accidentally pull it up over the beam while adjusting things! Now tie a short length of the loop part (technically called a bight) to the steel window beam. That secures the pulley height. (Note that after you have tied off the part downstairs, untying the upstairs part inadvertently (e.g. by children) would permit the board to fall, but only very slowly due to rope friction over the beam, and the total travel is limited by the total rope length.)
9. Downstairs, attach a steel cable or stout rope loop around the door hinge as shown in the schematic, and clip a steel link into it.
10. Connect the light strings to the Junction Board according to the layout drawing and the tape labels. The strings are numbered in relation to a clock face, with 12:00 at the top of the gym. If more strings are added later, label them time-appropriately. Plug ends into the power strip, stacking plugs as needed, then tape plug stacks down so they don't disconnect. Please use electrical tape because duct tape residue is a PITA to clean off.
11. Connect the extension cord to the power strip, then pass that through the upstairs window and plug it in. Leave it loose on the floor for now, because if you pull it tighter it will de-center the Junction Board and you won't know how to even up the ends of the strings.
12. Attach the other ends of the light strings (by the nylon cords!) in various ways. At end basketball hoops it is easiest to just use a ladder, and at hoops near the bleachers you can just reach up if you are tallish. You can use easily adjustable knots like a rolling hitch if you know them. If anything comes detached at the ends, they aren't heavy enough to hurt anyone. At other hoop backboards there are nylon loops, and there are long loops over ceiling beams near the gym corners. You can attach a steel link for weight, use the extension pole to raise it up to the loop, and drop it through, then use the hook to pull it down. Those can be secured to weights such as folding chairs, water jugs, etc – doesn't take much weight to hold them.

13. Hauling on the running end of the rope downstairs, pull the Junction Board up partway and check the graceful arcs (technically known as “dangle”) of the light strings. Adjust as needed to keep out of dancers’ reach.
14. Finally, haul up the Junction Board where you want it, tie a loop knot in the running part, then clip the loop into the steel link at the doorway. Remember, that loop knot has to stay open and not slip, or you will have a terrible time getting it off!
15. Pull the extension cord upstairs until it arcs nicely without pulling everything off-center. You are done!
16. Reverse steps more or less to take everything down. Make sure you keep rigging stuff (rope, pulleys, electrical cord) in a separate box, and the numbered cords where they don’t get mixed up with all the other cords.. Coil rope and extension cord carefully so they will deploy without tangles next time. It will save you a lot of time later.