BZE Insights

Articles to promote healthy, independent living solutions for wheelchair users.

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The Accessible Man Cave

by C. John Stanchina

Once my then girlfriend and I knew we would be getting engaged and later married, she always took it upon herself to ask, before painting a room or swapping out a light fixture, if the change she was thinking about making to her townhome was going to mesh with my tastes, knowing that we would ultimately wind up living in her place. I always thanked her for her thoughtfulness in asking, but more often than not told her, "Just do what you prefer, Sweetheart." While my apparent indifference was mostly attributable to my wanting her to be happy in her own home, I'd be lying if I didn't admit that I thought, on some level, I was banking points for design decisions I'd like to see in the house that we hope to build in the not too distant future. One unforeseen consequence of my "selflessness" that I realized only after leaving my place for hers, was that I missed having one room in the house that was predominantly mine.

Over the years, I have developed a Mars-Venus theory on the garage – women see the space as an extension of the outdoors (e.g., "Take those filthy shoes off in the garage!"), while men see the space as an extension of the home (e.g., "Hey, I just cleaned the garage – don't dump that stuff in there!). Knowing that my accommodating wife would probably not put up much of a fuss about my laying claim to this real estate, I set out to make my accessible, functional oasis – my man cave workspace.

At the outset, I didn't necessarily have a grand plan for its layout. Rather, I added elements as I needed them over time. Those elements are depicted in the pictures below, while descriptions giving their dimensions, utility, and other details are offered in the paragraphs that follow. Pricing and availability are also provided where possible. Ultimately you'll see, that in retrospect, I unconsciously settled on a "peripheral" strategy. Namely, fill the periphery of the space (lateral and overhead) with accessible, functional items while maintaining an open, unobstructed center area for vehicles or project work.

As a means of getting started, it helps to first understand the space constraints with which you have to work. Our garage measures 18'4" wide, 19'11" deep (to the inside of the garage door), and 10'6" high. This is significant, because while the height affords us plenty of room for overhead storage, there would be insufficient space for wheelchair navigation behind a vehicle parked inside the garage with the door down if we were to install a standard, 36" wide ramp to give me access to the interior of the house. As an example, at a length of 173", even if my wife's Ford Escape were to be pulled forward until it touches the 36" wide ramp, that would leave a mere 30" of clearance between the back of the vehicle and the closed garage door. Toss in a few inches of parking margin for safety, and the resulting pathway between the car and the door would be too narrow for me to use. Given that the ramp's placement inside the garage was certain, this fact was critical in deciding where to place frequently accessed items like hand tools, recycling bins and the garbage can if I didn't want to have to raise the garage door each time I wanted to use them.

While a ramp is essential for me to access our home, its placement in the garage and impact on overall garage accessibility warrants some discussion. Many home modification experts advocate placing an entrance ramp in the garage for several reasons. First, doing so means that the profile of the ramp will not detract from the original architectural profile of the home. Second, locating an entry ramp in the garage, away from view, avoids advertising to the criminal element that someone potentially more vulnerable than most lives in the residence. Finally, choosing an indoor location for a ramped entrance means the ramp will not be susceptible to deterioration or contamination due to weather. One obvious drawback, however, is that indoor ramp placement does consume space that could otherwise be used for storage space, transfer space or work space. In our case, that meant sacrificing the ability to store a second vehicle in our two-car garage, in addition to the consideration alluded to in the paragraph above.

Figure 1: Partial view of the back and left walls of the garage, highlighting the ramp, garbage can and recycling bin placement, overhead storage lifts, lighting, garage door opener and dartboard

1 The ramp: With the need to overcome a vertical drop of 17" from the entry door threshold to the garage floor, conventional wisdom suggests that we required 17' of ramp to achieve the standard 1:12 rise to run ratio. Given the slightly off-center placement of the entry door on the back wall of the garage, and the 18'4" width of that wall, we chose to wrap the ramp from the back wall to the left wall. Factoring in the need for level platforms at both the entry door and the corner where the ramp makes its 90° left turn toward the front of the garage meant we were now faced with consuming well over 17 linear feet of wall space. Ultimately, we settled on an entry platform measuring 36" wide and 45" long, a 90" long by 34" wide sloped section along the back wall, a 36" by 36" corner platform, and finished with a 101" long by 34" wide sloped section along the left wall to reach the garage floor. Three-quarter inch plywood sits atop a 2" by 4" constructed frame for each platform, while the sloped sections only require one 2" by 4" constructed support each, as these sections use three 2" by 12" planks (Lowes, $14.38/ea.) side by side. The resulting sloped sections wind up being less than 36" wide, as the 2" by 12"s aren't really 12" wide. So, at a total sloped distance of 191", this ramp achieves an inch of rise in 11.24" of run, on average, yielding a slightly steeper (yet entirely manageable) pitch than would have been achieved using the 204" of slope called for by conventional wisdom. A structural beam (1a, pictured in Figure 3) just beyond the bottom of the ramp necessitated shortening the lower portion to allow for unimpeded ramp entry and exit. Finally, the entirety of the ramp was covered with indoor/outdoor carpeting to help strip and absorb dirt and water from my wheelchair tires before entering the house. A 6' wide roll of Stratos grey indoor/outdoor carpeting can be cut down the middle to yield the 3' wide strips needed to cover the ramp. Lowes offers this product for $3.39/linear foot. Total materials cost did not exceed $300, including the carpet.

2 Garbage can/recycling bin placement: Both items are easily accessible from the top of the ramp, immediately outside the entry door to the house. Placing the recycling bin atop a spare bin not only puts it at a height that is easier to use from the ramp's top platform, but it also means that it sits at a height that facilitates its easy transfer to my lap before taking it to the curb.

3 Overhead storage lifts: I installed half a dozen of these lifts by Racor. When it comes to garage accessibility modifications, I consider these additions among the most beneficial. The Racor Pro PHL-1R Heavy Lift consists of a 4' by 4' steel wire mesh platform, capable of lifting up to 250 lbs. 8' to the ceiling. It uses an included hand crank to drive a gear box that reels/unreels 4 vinyl-coated steel cables attached to the mesh platform on one end and a ceiling-mounted steel frame on the other. Not only does this allow me to take advantage of the storage space afforded by our 10'6" ceilings that would otherwise be utterly useless to me, but I am able to do so using an off-the-shelf product designed for the masses, rather than having to turn to assistive technology developed specifically for persons with disabilities. This economy of scale helps make for a much more affordable, yet elegant solution. This product is available from amazon.com for $137.94. Additional product information is available at racorinc.com.

4 Lighting: Proper illumination is key for a functional workspace. Three 26W compact fluorescent lights (CFL), each of which produces the same amount of light as a 100W incandescent bulb, are distributed between the ceiling outlet and the

garage door opener. This light is supplemented by three, 48", dual-tube neon shop lights – one unswitched model (depicted as 4a in Figure 2), wall-mounted over the workbench and plugged into a switched power strip (4b also shown in Figure 2) mounted beneath the center of the workbench, and two switched models, suspended from the garage ceiling via eye-bolts and 2' – 3' of ornamental chain (#100 oblong, black, $0.48/linear foot). All of the preceding items are available at Lowes, with the CFLs retailing for $4.48/ea, the unswitched shop light for $9.93, and its switched counterpart for $17.98/ea.

5 Garage door opener with battery backup: This Craftsman® garage door opener features a ½ HP motor, the quiet operation of a belt drive and, most importantly, battery backup. As the ramp in the garage provides my only real means of egress, the Die Hard® battery backup was essential, allowing me the freedom to come and go even in the event of a power outage. In addition to the two remote controls for car use, this opener also includes a secure keypad transmitter for access from just outside the door. For convenience, the control pad (5b) displays both time and temperature and contains a motion sensor which activates the lights on the opener itself. The current model, #53918, is available from sears.com for $249.99, and boasts an upgrade to a ¾ HP motor.

6 Dartboard: This Arachnid® Soft Tip dartboard brings an element of competitive relaxation to my garage oasis. Moreover, it's placement on the back wall, along the ramp, makes dart retrieval from my chair easy – even from the double twenty at the very top of the board. While not identical, the Arachnid Dartronic 300 electronic dartboard represents an upgrade, and is available from dartboards.com for $44.98 with no charge for shipping.

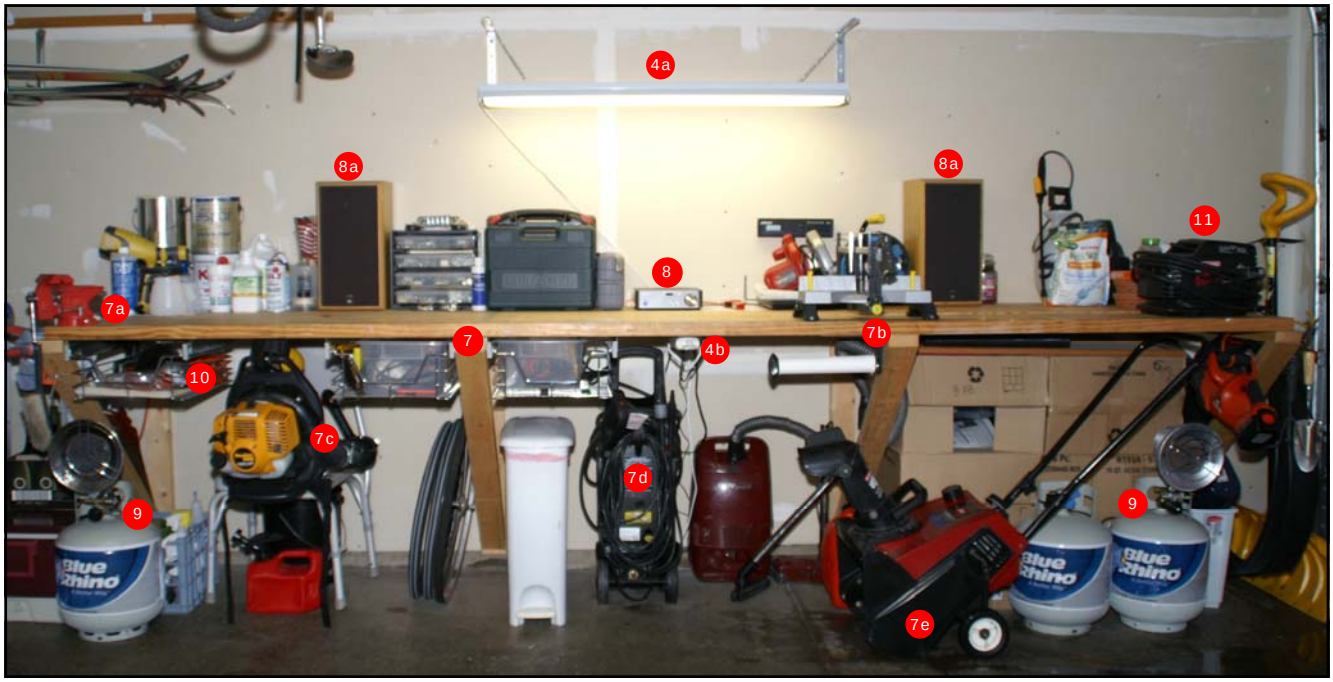

Figure 2: A depiction of the right garage wall featuring the workbench; Also shown are the wireless sound system, propane tank top heaters, under mount slide out storage drawers, and air compressor

7 The workbench: This man cave necessity was built by screwing three 2" by 12" by 12' planks (Lowes, $14.38/ea.) to four triangular braces constructed out of 2" by 4"s and spaced 48" apart. These braces are supported by partially setting them on top of the concrete foundation, while the remainder of the support comes from attaching each triangle directly into the studs with three 4" wood screws. The bench top boasts a depth of 33.75", and is strong enough to facilitate mounting tools like a bench vice (7a) or miter saw (7b) to it. Similarly, this sturdy work surface also allows for sinking utility hooks into its underside capable of holding tools as heavy as a gas-powered backpack blower (7c). At a height of 38", the work surface is a bit higher than optimal, but this allows for over 3' of clearance below for storing man cave must-haves like an electric pressure washer (7d) and a gas powered snow thrower (7e).

8 Wireless receiver/speakers: Complimenting the recreational aspect of the dartboard is the wireless sound system. By connecting a Rocketfish™ Rocketboost Wireless Sender/Receiver (not shown, Model RF-RBAUX, $59.99, bestbuy.com) to an output channel on our primary home receiver/amplifier, I am able to wirelessly transmit any audio (MP3s, satellite radio, etc.) flowing through that component directly to the Rocketfish™ Rocketboost Wireless Amplified Audio Receiver (Model RF-RBREC, $99.99, bestbuy.com) pictured here. This receiver then connects to the JBL 2600 bookshelf loudspeakers (8a , from my high school days) also pictured above, bringing big component sound to the man cave.

9 Liquid propane heaters: These heaters are as essential as an insulated garage door when it comes to creating a useable garage workspace during a Minnesota winter. They attach directly to the outlet valve on a standard 15 or 20 pound LP tank (like those used on gas grills), and can easily heat a garage of our size to a temperature of 70° (even during the coldest January nights). Thermoheat makes a 15,000 BTU model that sells for $43.98 at Lowes. Please note, however, when using these outdoor heaters to warm an indoor space, it is CRITICAL to ventilate the area prior to their ignition to disperse potentially combustible fumes from any volatile liquids stored there such as gasoline, solvents, or other flammable fluids. Further, use of a carbon monoxide detector (9a, in Figure 1) is CRUCIAL to ensure the availability of safe, breathable air while these heaters are being operated. First Alert manufactures a plug-in CO alarm with battery backup, also available at Lowes for $25.87.

10 Under mount drawers: Originally designed for top mounting to the bottom of a cabinet, I removed, flipped and reversed the slide out mechanisms to facilitate under surface mounting of these chrome wire drawers. Manufactured by ClosetMaid, each pull out drawer measures 7" high by 14.5" wide by 18.5" deep, and provides plenty of conveniently accessible storage while still leaving roughly 29" of clearance beneath them – more than enough to accommodate pulling my chair all the way up to the workbench's work surface. Unfortunately, a perusal of ClosetMaid's website suggests that these items are no longer available. Further, the drawer hardware Lowes has chosen to replace them with do not seem to be able to be modified to facilitate under surface mounting.

11 Air compressor: This 2HP, plug-in, maintenance-free air compressor has served me well for over eight years. Not only is it light enough to carry to all three levels of our home to help keep the tires on all three of my wheelchairs properly inflated, but it is also powerful enough to drive tools like power sprayers and finishing nailers. In addition, the nozzle attachment has proven ideal for blowing all sorts of "project dust" from both me and my chair. The most comparable model offered today is the Model 15309 – Craftsman 1.5 Gallon Portable Air Compressor with Hose and Eight Piece Accessory Kit. It is available from sears.com and carries a price tag of $94.99.

12 Insulated door: Because this is a Minnesota man cave, insulating the garage door is imperative if it is to be used as a workspace year `round. The door measures 7' high by 16' wide and is constructed of steel. As such, four 4' high by 8' wide by 1.75" thick Owens Corning foam panels were sufficient to cover the vast majority of the exposed steel. While we chose to press fit the panels in place, an alternative would be to use the appropriate adhesive to attach the insulation to the door. At times, this improvement has helped to achieve as much as a 30° temperature spread between the unheated garage and the outdoors. At present, Lowes is stocking the Dow Styrofoam brand scoreboard insulation panels, measuring 1.5" thick by 4' high by 8' wide, and selling them for $26.58/ea.

Figure 3: The left front corner of the garage, showing the insulated garage door (partial view), tool box shelf, wall-mounted cabinet and wall-mounted hose reel

13 Toolbox shelf: This was one of the items whose placement was important, as it represented one of the

features I wanted to be able to access without having to raise the garage door. Two triangular 2" by 4" braces were constructed from lumber left over from the workbench project, and were screwed into the studs to support a 26" wide by 12.5" deep by 0.75" thick platform, also made from scrap material. The platform surface height comes in at 32", leaving over 31" of storage space or knee clearance below, while still allowing me to see into the top drawer of the toolbox.

14 Wall mounted cabinet: This piece was easy to assemble and install, affixing directly to the studs behind the drywall. It's inner dimensions are 11.25" deep by 28.75" high by 22.5" wide, with a single, adjustable shelf. Mounted with it's base 30.5" above the floor, there is more than enough space to accommodate a detachable hose reel below while still affording me access to some items placed on top of the cabinet. This item is available at Lowes for $62.43.

15 Wall mounted hose reel: This organizational tool has held up well for over a decade. Made by Suncast, it detaches from the wall with the flip of a lever for transport or off-season storage. My particular model offers storage for 75' of hose. But the model currently stocked by Lowes can handle up to 225' of hose and sells for $37.78.

That pretty much represents all of the garage modifications I have made since marrying my wife in June of 2008. While certain additions, like the overhead storage lifts, unequivocally make accessible to me space that would otherwise not be, others, like the wall-mounted cabinet or tool box shelf simply illustrate how placement of everyday items may require special consideration when thinking about accessing them from a wheelchair. Still other features, like the dartboard, wireless sound system, insulated door and propane heaters were added simply to make the space more comfortable or enjoyable.

In spite of all of the emphasis so many of the elements featured in this article placed on storage, it can't have gone unnoticed that clutter persists in the man cave. More than likely, this means I'll be adding even more storage in the form of either wall-mounted or floor-based cabinets. Now, if I can only figure out where to put them…

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