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FOR LOWELL MANUFACTURING REPRESENTATIVE EDUCATION PURPOSES ONLY!

## Lowell Open Frame & Solid Side Floor Racks Are Superior!

### 1) FABRICATION ATTRIBUTES:

**A) METAL FURNITURE™:** Lowell Racks and Cabinets are manufactured to have a pleasing aesthetic look to clients through the use of consistent precision metal forming techniques. This allows a free standing, wall mount, or portable rack models to coexist in the same architectural environment with a uniform appearance not typically found with other brands. Contributing to this look are beveled corners offered on the front and rear of all free standing and portable enclosures. The wall mounted has beveled edges on the front only per application use. These beveled edges are throughout the product line from the most economical "fixed rail" construction to the premium yet competitive "adjustable rail" racks and cabinets. (ex.: Brand MAP WRK model has four beveled corners, MRK two [front side], and ERK no beveled corners.)

**B) MATERIALS:** Lowell Manufacturing Company uses only certified U.S. manufactured steel in all rack & cabinet products for 100% *American Manufactured Quality*. Many other suppliers use part or all imported steel in their respective products.

**C) ALL WELDED CONSTRUCTION:** Lowell products utilize fully welded construction throughout the open frame and solid side floor, wall mount, and portable rack lines as opposed to partially welded and mechanically fastened. (ex: ERK series from brand MAP are identified by us as "weld and bolt" construction.) Additionally, Lowell open frame and solid side floor racks have been UL static-load tested to 3,000-3,150 lbs. depending on model number, which is 16.7-20.6% more static-load bearing than brand MAP claimed 2,500 lb. per independent third party testing laboratories.

**D) REVERSIBLE RAIL SYSTEM:** Dual rail system provides unparalleled flexibility in today's convergent market place. Printed number designations appear on both external faces in rack unit increments to facilitate equipment placement. One face is comprised of EIA standard threaded holes for 10-32 screws while the other face has square punched holes well known in the data, telecom, and broadcast markets. These square holes accept cage nuts for screw sizes 6mm, 12-24, and 10-32 allowing standard equipment from varying disciplines to be mounted in a single rack plane. Once a decision is made on the type or style of rack, this system virtually eliminates the need for ordering or stocking multiple racks for varying applications in the field, which should make economic sense to both integration and distribution customers.

**E) FRONT DOORS:** Lowell solid and vented front doors are one-piece construction providing superior strength and torsional rigidity to those of other manufacturers, which use a two piece design that sacrifices strength and typically exhibits a less than flat 'perf' material appearance (perforated screen welded to a frame). The Plexiglas version utilizes the same frame design with a Plexiglas insert

stiffened by internal braces. This sophisticated design bevels all edges of the door rather than two beveled edges or no beveled edges by others to complete the Metal Furniture™ look. Lowell's design pioneered the ability to add or remove a door as well as change from right to left hinging without removing rail-installed equipment.

**F) SIDE PANELS:** Lowell side panels for ganging racks incorporate a beveled leading and trailing edge to compliment the beveled corners of the frames for a nice architectural finish. These side panels are mounted via "bullet" fixtures that have a leading taper (easy mount to key hole in rack frame), and a trailing taper (seats side panel snugly to rack frame without additional hardware). The side panels can be secured by any one screw (provided) through the frame into the side panel via any of two front coined holes or 2-3 (rack size dependent) rear mounting positions. This flexibility makes placing or removing Lowell side panels easier than on virtually any other rack. There have been no reported occurrences of side panels binding in a Lowell rack frame. (ex.: Brand MAP employs a tongue on the side panel that aligns with a slot in the frame. This is much more susceptible to damage and can bind.)

## 2) LABOR SAVING BENEFITS:

**A) SHOP LABOR SAVINGS:** Lowell's ganging racks have been designed to supply ample internal lacing space while giving consideration to architectural floor space. The design incorporates one lateral rail dimension throughout the 19" cabinet line, which is 1.5" from the tapped 10X32 equipment-mounting hole-center in the mounting rail to the 90-degree angle bend where the rail is mounted to the rack. (ex.: Brand MAP WRK model ganging rack is designed to offer ample lacing space [2" as above] while their MRK ganging rack sacrifices lacing space [Only 1" vs. 2"] to cut costs. This results in two wire looming (lacing) platforms, which can influence consistency and labor costs for systems integrators.

**B) FIELD LABOR SAVINGS:** The top platform of the open frame and solid side floor racks are stamped with compound knockouts (1-2" [3each] & 1-1.5" [2 each] on a braced 6" platform. This platform facilitates conduit installation (room for additional field punching for 4" pipe and mounting hardware [3 each] over right, left, and center compound knock out positions for RG and/or CAT5 cable pulls), or external electrical box (4X4" or 6X6") installation without compromising available space for cooling fans or other accessories. There are also knockouts (6) for installation of dual-diversity wireless antennae. Each cabinet is supplied with shipping stiffeners (Lowell L-3, 16 gauge formed panels) that become flush top closure (no additional parts to order). The flush fit offers a clean finished look as well as a constant vertical dimension for architectural considerations such as framing where applicable.

This platform offers unparalleled flexibility in our industry while providing a consistency that benefits both equipment specification providers and integrators alike. Both are used to dealing with multiple electrical contractors as well as other trade disciplines. What both desire is a predictable outcome in the field. By providing them with the 6" platform that is uniform throughout the Lowell Open Frame and Solid Side Floor Rack product line regardless of unit depth, both the consultant and the integrator can have continuity in their layout design from project to project and EC to EC. This is particularly helpful for an isolation design or an "outside" the rack electrical termination. Once the preferred methods are outlined and employed, both consultant and system integrator should see consistent results that help streamline both punch list and installation time.

Competitors typically offer several different optional top closure application panels, which must be ordered separately. The integrator must choose the right panel for application, build it up, and then install it to the rack. These panels, when attached to their racks, offer nowhere near the stability and strength of Lowell's welded reinforced tops. They also typically add somewhere between 3/8" and 5/8" to the overall height of the rack.

### 3) VALUE ADDED:

#### A) COST CONSIDERATIONS:

Observation: The premium cost differential within the MAP product line for a WRK 44-32 over a MRK 44-31 is \$49.47\*. The premium for a WRK44-27 over MRK44-26 is \$111.28 \* to a customer. (\* based on 6/2008 MAP dealer price guide)

Lowell's L278-77 & L277-77 respectively (32" & 27" depth, and includes top closure) ARE POSITIONED TO COMPETE with the MRK44-31 & MRK 44-26 (31" & 26" depths) when including a \$30.21 adder for MAP MW-ST solid top closure, which makes them an immediate \$49 to \$111 better value over WRK series product. Lowell is providing a product that is superior to the WRK models other than the extra 1/2" per side lacing space which requires more architectural real estate (typically \$135-165 per square foot for commercial space).

Lowell incorporates vented rear doors in all standard open frame and solid side floor racks while MAP does not. (ex.: To get a vented rear door on a MAP (WRK, MRK [only offered in 44RU for these series], or ERK) product, you must order the rack less the rear door (-LRD), and order a vented rear door (MW-VRD-44 for WRK/MRK or ERK-VRD-44 for ERK series), which will typically be shipped in a separate box. After subtracting the solid rear door and adding the vented rear door, the net differential compared to the Lowell counterpart is approximately +\$37.00 for the WRK/MRK. The difference is +\$48.00 for the ERK, and it's their economical rack? The alternative is their standard rear door with knock-outs to mount KO-VT3 vent panels @ \$20.40 each X 2 = \$40.80, which in addition to the cost of the vent panels requires ordering separate parts and additional labor. NET RESULT is additional \$37-\$48 PER MAP RACK cost over Lowell with additional parts to order and labor time.

Lowell includes the Pilot Point™ RSP (=Phillips finish head with mounted nylon washer) 5.1 hardened screws with every open frame or solid side floor rack. Lowell racks 35RU or more include 50 screws (\$8.00 in MAP \$ for HW type), and 24RU or less include 25 screws (\$4.00 in MAP \$ for HW type) free of charge. Perhaps more importantly, if the rack is shipped directly to the installation site, valuable install time is sacrificed if there is no rack mounting hardware.

Thus, looking beyond the price sheet, Lowell offers minimally \$45 to \$56 in true \$\$\$ value with each rack above and beyond what MAP provides as base rack product regardless of model.

Lowell provides 350lb. load-bearing casters on caster trucks, which have a larger footprint than typically offered by others. In addition to larger load capacity, the benefit of the larger footprint is that a rack is more easily moved after it has settled into position in environments such as carpeted floors.

Remember the L3 panels from B) Field Labor Savings above? When you order a fan panel, vented panel, or some other device to top load in the rack, the L3 (3RU[L3-195] & 4 RU[L3-197] in 22"

deep models, or 3RU[L3-195 & 7RU[L3-1912] in 27", 32", & 36" models) may be used as standard blank filler panels, which an integrator typically needs and purchases anyway. These Lowell panels represent \$25.52\* column price/catalog for the 22" deep models and \$33.19\* for deeper models (\* Sept. 18, 2008 price/catalog). The competition's shipping stiffeners are basically unpainted throw-away pieces.

**B) PACKAGING:** Racks and cabinets are currently packaged for shipping utilizing corrugated corners and a full cardboard wrap with cushioned top and bottom caps. This helps to ensure that the product arrives un-damaged when treated with a modicum of respect by various means of transfer. Most others use shrink-wrap and cardboard fillers that are not as durable for transit, and especially when it comes to repacking the product after shop loading for shipment to the project site.

**C) FREIGHT:** Lowell currently offers pre-paid base ground freight net of fuel and other applicable surcharges to one location in the contiguous U.S. for net product orders \$2,750.00 and above. This single location can be a forwarder-broker for shipments to HI, AK, or internationally.

Comparison: MAP uses guerilla tactics for freight. They have no specific freight program. Some customers get free freight with a large annual commitment or quantity per order proviso. Others may pay local delivery charge (historically approx. \$50) per delivery in certain metropolitan areas or where there are MAP fulfillment centers for distribution. Their local "factory" distribution house in SOCAL does have a truck that does a "milk-run" to distributors and upper end integrators. Otherwise customers calling fulfillment locations are directed to N.J. or local distributors. There is typically an additional cost to the customer for purchasing through distribution whether it is price driven via % above MAP dealer direct price or expenses for will-call. There can also be issues competing with other wholesale disciplines such as electrical contractors purchasing at the same locations for the same or perhaps a lower price based on volume with the distributor.

#### 4) THIRD PARTY AGENCIES AND CODE CONSIDERATIONS

**A) UL LISTINGS:** Lowell open frame and solid side floor racks, wall racks, and portable racks are listed under UL1678 & CUL for Audio/Video Applications. In addition, Lowell L265, 267, 268, 275, 277, 278, & 279 solid side and open frame series racks meet CSA C22.2 No. 1-04 static load requirements for 3,000-3,150 lbs. Comparison: MAP is listed at 2,500lbs. (Remember the pickup truck on top of the racks ad?)

**B) SEISMIC and IBC ESSENTIAL FACILITY REQUIREMENTS:** Rack products that need to meet either Seismic or Essential facilities requirements are being seen in many more **architectural specifications** than just a few years ago. In the past the major driver was perhaps at risk geographical areas subject to seismic event(s), but now the depth of past research in this area is being defined in a much broader scope to include weather related occurrences such as tornadoes and hurricanes, or in relation to security applications where it is "essential" that equipment remain operable after an occurrence. This means that there is potential for the specification and sale of Lowell -S products in every U.S state as well the rest of world where IBC Code is in place. Lowell's Seismic Version (-S suffix for L260 & L270 series) Racks are shipped with White Paper applications guide, and documents bearing the stamp of a **PE (professional engineer)**. This **CERTIFICATION** is applicable to BOTH STAND ALONE and MULTIPLE GANGING RACK applications.

MAP now has “seismic certified” offerings still utilizing a bracket kit (WRK, MRK, or ERK with a -Z4 suffix) as their solution. Customers have utilized it and some AHJs (Authorities Having Jurisdiction) have signed off on it in application. Basically, Lowell product is rated for 1,200 lb. load including rack for basic anchoring. MAP also makes that claim, but when one starts to get further in depth for IBC listings, Lowell’s product maintains higher load ratings than MAP.

**C) WHAT IS THE VALUE of PE CERTIFIED?** It allows the consultant or system integrator in a design build to comfortably specify the use of Lowell racks for Seismic anchoring in an IBC (International Building Code), UBC (Uniform Building Code), CBC (California Building Code), California OSHPD (Office of Statewide Health, Planning and Development), and California DSA (Department of Structural Architects). The engineering calculations have been done for various zones per load ratings for the modified construction of the -S models for essential and non-essential facilities. The included PE documents can be submitted to the relevant code agencies, and when installed per the appropriate called out method per application will pass inspection for the given Seismic or Essential Zone as defined. These documents, in a sense, are an insurance policy against liability for designers when properly applied to a design’s code requirements. They are especially useful for consultants whose work is not geographically limited, but are looking for a quality “cookie cutter” solution for their choice rack or cabinet. This falls in the same vein as a UL or ETL listed product to meet various local codes without consequence to the consultant or designer.

The base premium for Lowell -S product is +\$105.26 and can be as much as +\$189.47 when including the EQQ-4RU IBC maximum bracing option, which may seem like a large sum when compared to MAP universal WRK,MRK, or ZRK -Z4 bracket kit at \$21.46

BE AWARE THAT MAP PROMOTES THAT THEIR RACKS MEET SEISMIC CODE SPECIFICATIONS WITH NO ADDITIONAL RACK COST. While at face value what is stated is true, it is substantially misleading in reality.

#### **D) COST CONSIDERATIONS: What value does \$100 provide to a customer?**

Let’s break it down:

**1) Administration:** The value of the paper work may not be very tangible to a purchasing or estimating person (they will view the MAP product as a better sheet price value), but is significant in real \$\$ at the consultant and integrator administration level as documented costs of \$300 to \$1,500 Per Unit in projects are possible for racks without proper documentation (included with Lowell -S) depending on the scope, location, logistics and other potential variables involved.

**2) Purchasing and Estimating:** The \$83.80 difference between Lowell -S models and MAP rack with -Z4 bracket kit does not take into account additional costs for MAP including the purchase price of 4 additional anchors (Lowell = 4, MAP = 8), labor for drilling 4 additional holes, securing 4 additional anchors, and that’s before consideration as to whether any type of concrete will provide base for substantial anchoring with 2 – 3/8” anchors per corner placed. A purchasing person is not going to be involved in labor, and the estimator may be cognizant of labor and is tossing a fixed amount to the rack. That is a dangerous financial practice in the bid market as a company may overestimate costs and lose job or underestimate and lose substantial margin.

**3) Field Installation:** MAP currently only offers 3/8" anchoring, which will significantly limit applications where product can be legitimately used solely with floor anchoring vs. Lowell's 3/8", 1/2", and 5/8" anchoring capabilities. Additional fixtures or bracing such as UniStrut™ will significantly add to the installed cost, and will not be as clean a presentation. It should also be noted that welded corner gussets (4) sized for 5/8" anchors allow the use of isolation bushings for 3/8" and 1/2" anchors (Hilte) for isolation of A/V integration racks. If all MAP offers is 3/8" anchoring and they're being specified, how are they capable of isolation mounting for A/V integration applications? This should be a definitive edge in Lowell –S product's favor.

Again, Lowell's anchoring system is accomplished with 4 anchors instead of eight so half the anchor labor time (drilling holes in concrete and ratcheting torque set anchors). The corner gussets are welded in the Lowell enclosure rather than laid on the frame with MAP, which makes placement much easier.

The bracketing system for MAP will not allow for the use of larger size anchors required for heavier rack loading as the Zone requirements become higher so whether the "Seismic Certified" MAP product is really fit for given applications becomes a valid question. (See white paper tables).

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*100 Integram Drive • P.O. Box 385 • Pacific, Missouri 63069 U.S.A.*

*Call 800.325.9660 • 636.257.3400 • Fax 636.257.6606 • Click [www.lowellmfg.com](http://www.lowellmfg.com)*