

# FLOOR LOADING SPECIFICATIONS

Floor Loading, also referred to as Ground Pressure, is an industry term used to determine whether a given floor can withstand a Hy-Brid Lift being driven on it. The capacity of a floor would lead one to first consider the weight of the machine, but also the machine length and width; wheel size and material; and weight distribution, which are all factored in when determining floor loading.

## DEFINITIONS

### Rated Load

The maximum platform capacity rating.

### Gross Vehicle Weight (GVW)

Minimum: The weight of the machine, excluding the rated load.

Maximum: The weight of the machine plus the full rated load.

### Occupied Floor Area

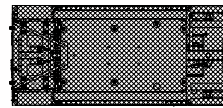
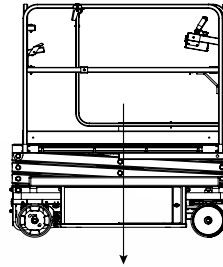
The projected contact area of the footprint of the machine, calculated as the projected chassis length times the projected chassis width.

### Machine Load

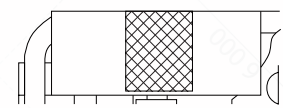
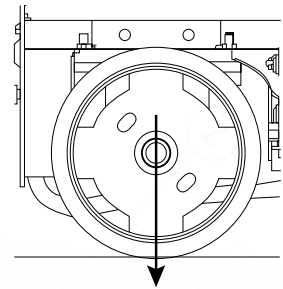
The average pressure that the entire machine exerts on the floor while supporting its rated load. This is relevant to the floor structure (beams, concrete) and what the floor has strength to support.

### Maximum Wheel Load

The maximum pressure that any one tire exerts on the floor while supporting its rated load this is relevant to the floor surface (tiles, carpet) and what it can withstand without being cracked, punctured, etc.



Occupied Floor Area



Approximate Wheel Contact Area

## WEIGHTS & LOADS

MODEL	MIN/MAX	VEHICLE WEIGHT	MACHINE LOAD	WHEEL LOAD
HB-1430	Minimum	1645 lb (746.2 kg)	125.3 psf (6.0 kPa)	80.9 psi (557.8 kPa)
	Maximum	2315 lb (1050.1 kg)	180.0 psf (8.6 kPa)	113.6 psi (783.2 kPa)
HB-1030	Minimum	1273 lb (577.4 kg)	97.2 psf (4.7 kPa)	62.7 psi (432.3 kPa)
	Maximum	2023 lb (917.6 kg)	153.9 psf (7.4 kPa)	99.3 psi (684.6 kPa)
HB-1230	Minimum	1610 lb (730.3 kg)	138 psf (6.6 kPa)	102.7 psi (707.8 kPa)
	Maximum	2160 lb (979.8 kg)	185 psf (8.9 kPa)	137.7 psi (949.6 kPa)
HB-P1027	Minimum	870.5 lb (394.9 kg)	129.6 psf (6.2 kPa)	250.3 psi (1725.8 kPa)
	Maximum	1420.5 lb (644.3 kg)	211.5 psf (10.1 kPa)	408.5 psi (2816.5 kPa)
HB-P827	Minimum	793 lb (359.7 kg)	118.1 psf (5.7 kPa)	210.6 psi (1452.0 kPa)
	Maximum	1343 lb (609.2 kg)	200.0 psf (9.6 kPa)	356.7 psi (2459.4 kPa)
HB-P527	Minimum	575 lb (260.8 kg)	75.9 psf (3.6 kPa)	115 psi (792.9 kPa)
	Maximum	1075 lb (487.6 kg)	141.9 psf (6.8 kPa)	215 psi (1482.4 kPa)

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**HY-BRID LIFTS™**  
BY CUSTOM EQUIPMENT LLC

# Floor-Loading Solutions

Lightweight Hy-Brid scissor lifts provide answers for weight-restricted jobsites.

By Katie Parrish

Once thought of as a niche machine, Richfield, Wis.-based Custom Equipment's Hy-Brid scissor lifts are rolling onto mainstream projects. In eastern Missouri, two companies are using Hy-Brid lifts to meet specific needs, particularly on weight-restricted floors.

## Rolling load limits

Traditionally used in computer rooms and telecom facilities to distribute HVAC and wiring, access floors have gradually moved into office buildings, thanks to their long list of benefits. A leader in manufacturing access floor panels, Tate Access Floor provides panels made of welded steel that are filled internally with lightweight cement for strength and sound proofing. Bick Group, a dealer for Tate Access Floor, has provided access floor solutions since the mid-1960s. Since converting a 49,000-square-foot printing facility into its Gold-Level LEED-certified headquarters in St. Louis, Mo., Bick Group is not only a distributor of access floors but also a user.

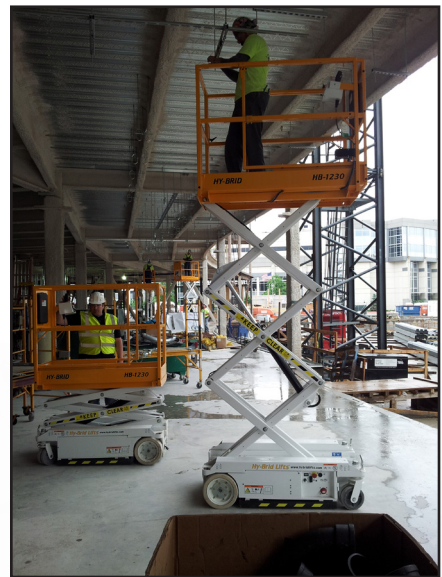
Access floor panels are elevated to route power, wiring, and ductwork underneath, and

they have a concentrated and a rolling load rating. For example, Tate's CCN1000 access floor panel can support a concentrated load of 800 pounds and a rolling load of 600 pounds.

A common question for Bick Group is which aerial work platforms are light enough to travel across access floor panels. "Invariably, it comes up in every meeting, 'What can we put on this floor?'" says Rick Mahoney, project manager and safety director for Bick Group. "You need a lightweight machine to ride on our floors – the lighter, the better."

He says the Hy-Brid HB1030 scissor lift, which weighs 1,200 pounds, was found to have a rolling load of 300 pounds per wheel. This is determined by dividing the total weight of the machine by the number of wheels. The 1,650-pound HB1430 has a rolling load of 412.5 pounds per wheel. By comparison, another scissor lift with a similar platform height weighs about 3,500 pounds and has a rolling load of 875 pounds. Both Hy-Brid machines are well below the load rating of the Tate CCN1000 panel.

Mahoney says Custom Equipment's Hy-Brid scissor lifts are the only aerial work platforms he is aware of that fit within the rolling load capabilities of Tate access floor panels.



Subcontractors on the St. Clare Health Center project are required to use Hy-Brid scissor lifts.

## Seismic-zone restrictions

Structures in eastern Missouri follow earthquake construction parameters because of the New Madrid fault line. Specifically, buildings have weight limitations on concrete floors. On the \$230 million SSM St. Clare Health Center construction job in Fenton, Mo., Alberici Constructors' response to the floor-loading issues on the hospital campus was simple: Use lighter weight machines. Alberici specified that all subcontractors use either rolling baker scaffolds or Custom Equipment's Hy-Brid scissor lifts.

More than 50 of Midwest Aerials & Equipment's 200 Custom Equipment Hy-Brid HB1030 and HB1430 scissor lifts were used by six different subcontractors at the peak of construction. "It's not uncommon for 12 lifts to be on one floor," says Linda Weber, St. Louis sales manager for Midwest Aerials & Equipment.

St. Clare Health Center is the second hospital project for which Alberici has specked Custom Equipment Hy-Brid scissor lifts. Not only are these units lightweight, but James McGuirk Jr., project superintendent for Alberici Constructors, says these units access the site well and easily move through doorways. McGuirk says the St. Clare Health Center is a LEAN Construction job, and the overhead was roughed in before the framing. Subcontractors are using the Hy-Brid lifts to put in ceilings and finish the walls.

November 2008 is the projected end-date for the hospital project, but McGuirk says they'll finish as soon as they can. LEAN Construction can put them ahead of schedule if it's done correctly, he adds. If history is any indication, the job will likely finish early. Cardinal Glennon Children's Hospital – the other construction project that Alberici specified Hy-Brid lifts – finished three months ahead of schedule. ■



The Custom Equipment Hy-Brid HB1030 scissor lift is light enough to ride over access floor panels at Bick Group's headquarters.

