

Casinos require security...strength...flexibility... ceiling integrity. Only H.H. Robertson Cellular Floor Systems meet every criteria.

FOR CASINOS



Why cellular makes good sense for casino wiring.

Ideally, wire distribution systems used to provide reliable electrical service to slot machines and other gaming devices must meet the following criteria:

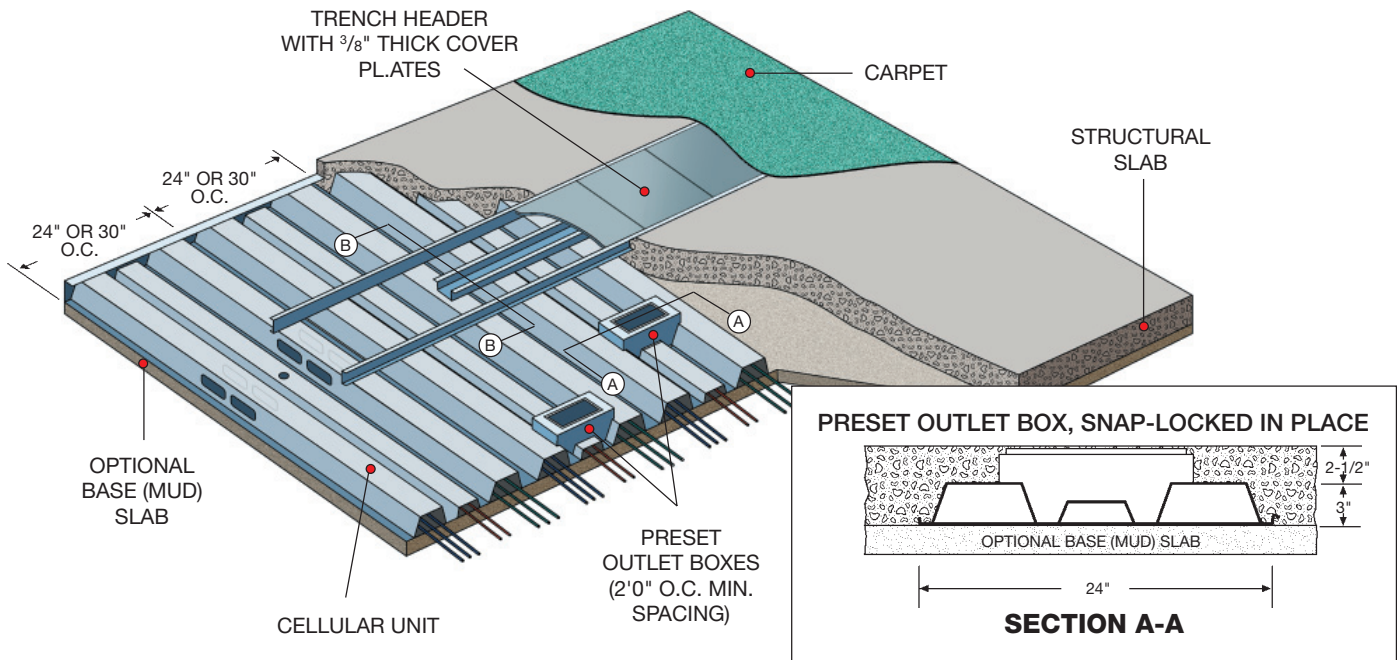
- Able to withstand the extremely heavy wheel loads of “coin carts.” (HHR testing showed a failure load of 3,180 pounds over an unactivated preset outlet and a failure load of 5,000 pounds over the $\frac{3}{8}$ "-thick steel cover plate.)
- Have sufficient design flexibility to provide services anywhere on the gaming floor without compromising desired positioning. (Robertson cellular systems provide outlets on as little as two-foot increments.)
- Able to form and reinforce the concrete pour, eliminating the need for a separate structural slab.
- Maintain ceiling integrity—the plenum and tile need never be violated. Security and surveillance systems are completely separate from gaming services.
- Provide quick and easy activation and abandonment of individual outlets without interfering with ongoing casino operations.

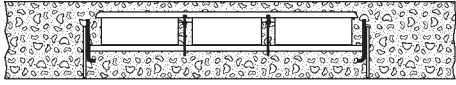
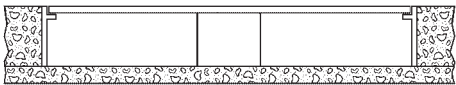
**ONLY CELLULAR FLOOR
WIRE DISTRIBUTION SYSTEMS
MEET ALL THESE CRITERIA.**

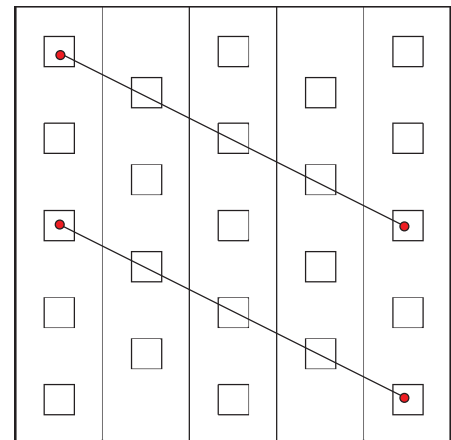
A SYSTEM FOR EVERY CASINO APPLICATION:

For Slab-On-Grade & Maximum Flexibility ...

THE FULL CELLULAR SYSTEM (TWO LEVEL)



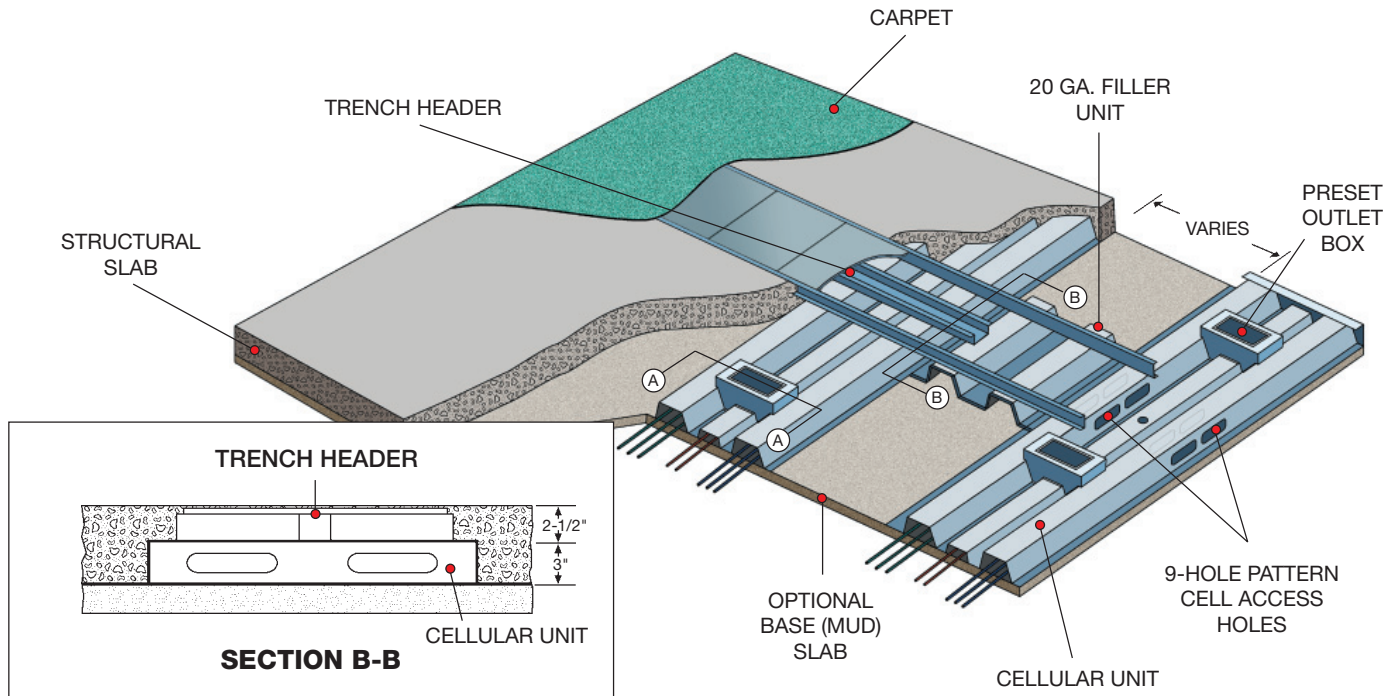
COMPARATIVE FEEDER CAPACITY (DUCT VS TRENCH HEADER)	
DUCT - 3 #4 DUCTS @8.8 SQ. IN. EA. 	TOTAL CAPACITY (SQ. IN.) 26.4
TRENCH HEADER - 36"W x 2.5"D 	TOTAL CAPACITY (SQ. IN.) 76.5

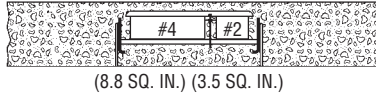
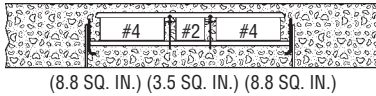
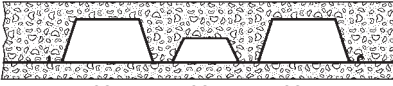



190% MORE FEED CAPACITY

For Slab-On-Grade & Maximum Economy ...

VARIABLE MODULE SYSTEM (TWO LEVEL)



COMPARATIVE CELL CAPACITY (DUCT VS HHR CELL)		CAPACITY (SQ. IN.)
TWO DUCT LAYOUT  (8.8 SQ. IN.) (3.5 SQ. IN.)	[A] #2 + #2 [B] #2 + #4	7.0 12.3
THREE DUCT LAYOUT  (8.8 SQ. IN.) (3.5 SQ. IN.) (8.8 SQ. IN.)	[C] #2 + #2 + #2 [D] #2 + #2 + #4 [E] #2 + #4 + #4	10.5 15.8 21.1
HHR CELL  (16 SQ. IN.) (5.5 SQ. IN.) (16 SQ. IN.)		CAPACITY (SQ. IN.) 37.5

436% MORE CELL CAPACITY THAN LAYOUT A

205% MORE CELL CAPACITY THAN LAYOUT B

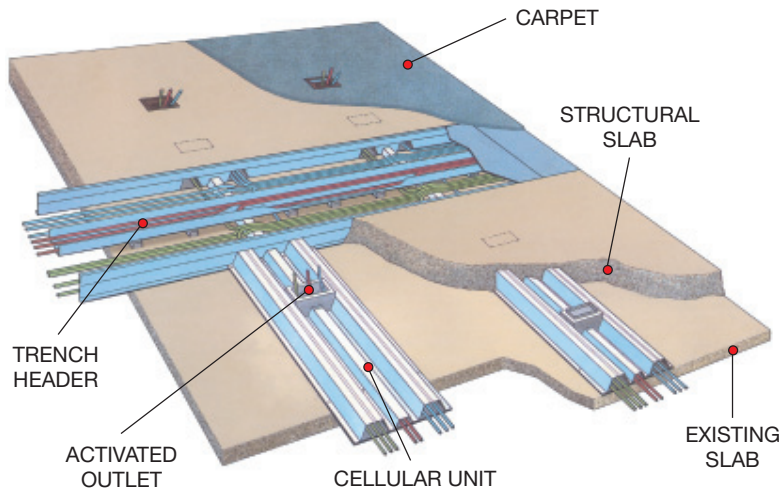
257% MORE CELL CAPACITY THAN LAYOUT C

137% MORE CELL CAPACITY THAN LAYOUT D

78% MORE CELL CAPACITY THAN LAYOUT E

For Minimum Depth on Existing Slabs...

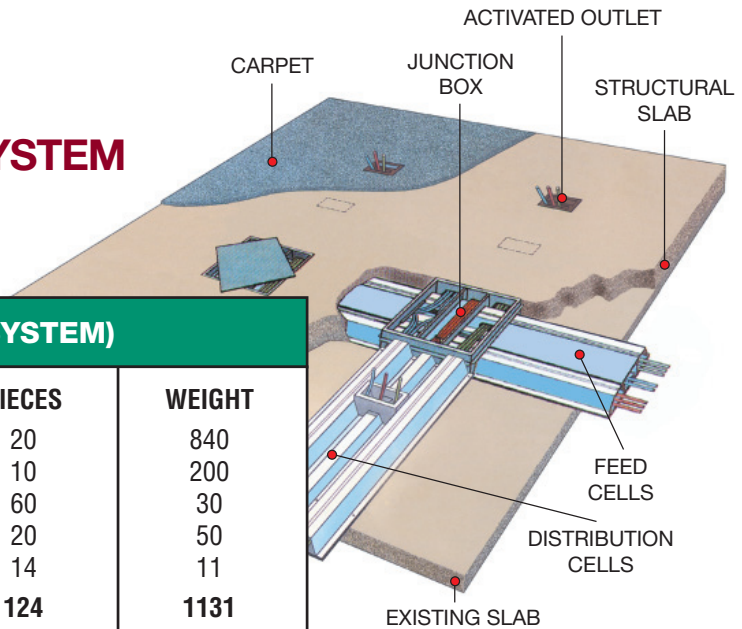
“3+1½” VARIABLE MODULE SYSTEM (SINGLE LEVEL - TRENCH HEADER FED)



Advantages vs. Underfloor Duct

- Composite deck reinforces the slab, no re-bars required
- Open top trench/lay-in wiring
- No hi-chairs required
- Single activation for power and data services
- Single concrete pour
- Eliminates concrete placement, vibration and honeycombing under cells
- Less costly to purchase and install than underfloor duct
- Twice the wiring space of standard underfloor duct

“3+1½” VARIABLE MODULE SYSTEM (SINGLE LEVEL - CELL FED WITH JUNCTION BOXES)



COMPARATIVE COSTS (DUCT VS HHR SYSTEM)		
THREE DUCT LAYOUT (4-2-4)	PIECES	WEIGHT
#4 10 foot long (4.2 plf)	20	840
#2 10 foot long (2.0 plf)	10	200
Preset inserts at 5 ft. centers (.5 lb ea)	60	30
Duct supports at 5 ft. centers (2.5 lb ea)	20	50
Hold down straps at 7 ft. centers (.75 lb ea)	14	11
TOTAL	124	1131
HHR SYSTEM	PIECES	WEIGHT
20 foot long (3.6 plf)	5	360
Outlet boxes at 5 ft. centers (2.0 lb ea)	20	40
TOTAL	25	400

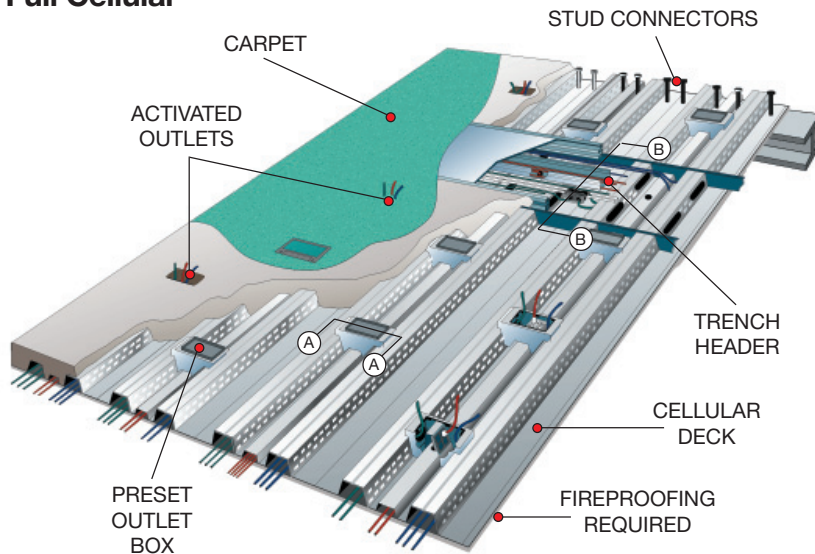
LOWER MATERIAL COST

LOWER INSTALLATION COST

For Elevated Steel Frame Construction ...

THE Q-FLOOR/TAPROUTE SYSTEM

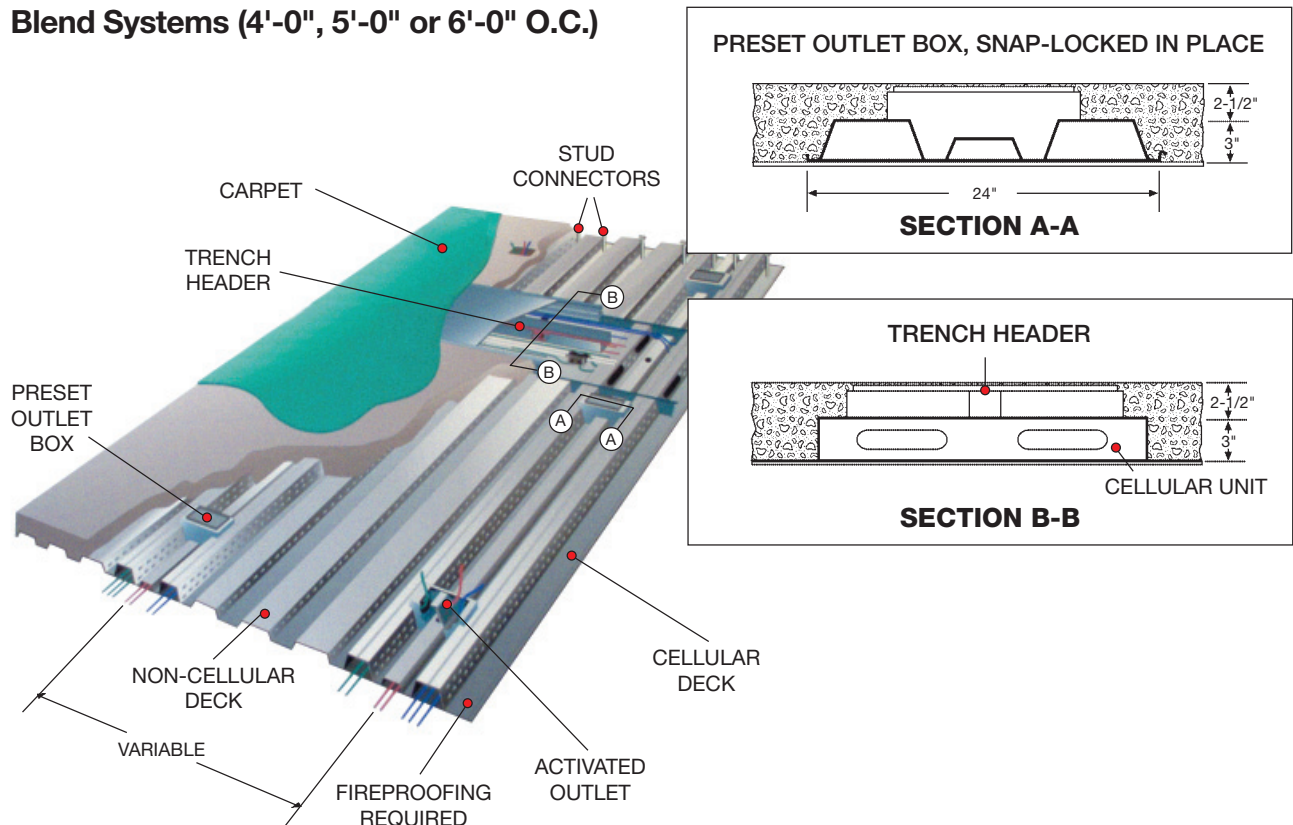
Full Cellular



Benefits

- Single pour, thin slab construction
- Fire-rated and UL-listed – Design D-739 or D-871
- Composite slab and beam construction
- Provides wire feed, distribution and delivery to the slot machines and/or gaming tables
- Tested for coin cart loads
- One hour activation without core drilling
- No exposed plastic cabling – safest in a fire event
- NEC compliant
- ICBO shear diaphragm approval

Blend Systems (4'-0", 5'-0" or 6'-0" O.C.)



No one else even comes close to H.H. Robertson in experience, design ability and manufacturing capabilities.

Every HHR cellular system meets the critical criteria for casino applications as well as providing:

- the ultimate in security—every high and low voltage cable is completely encased in steel cells.
- total EMI and RF shielding. There's not a chance of change, alteration or detection of the signals in the cables. They're totally protected in both trench header and cells.
- three services are standard—separated power, telephone and data compartments are instantly available at every activation.
- complete compatibility with fiber optic cabling as well as all conventional wiring schemes.
- no change to building height, presets require no core drilling and non-plenum rated wire is suitable for all applications.

Quality cellular floor and H. H. Robertson are synonymous. They're **fully code compliant** and will provide worry-free operation.

All Robertson systems are UL-approved and fully comply with the National Electrical Code.

FIRE SAFETY... It has to be your number one design consideration.

Don't assume that all wire distribution systems are safe simply because they are "code approved." Many systems that expose plastic covered cabling to the fire will allow those cables to burn and produce toxic smoke. This danger is not addressed by the fire codes.

Access floor plenum spaces can be particularly hazardous if a fire occurs within this space. Smoke from burning cables could incapacitate people within a few seconds.

Cellular floor systems with underside fireproofing protect plastic-covered cables to the highest levels possible. Even non-plenum cables can be used safely within the cells and trench headers. There has never been a fire in a cellular floor system!

H.H. Robertson Floor Systems

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www.hhrobertson.com (with free downloadable details)

A wealth of experience, worldwide.

Trust your system to the people who've designed, innovated and installed cellular floor electrical distribution systems for clients everywhere.

Aladdin Casino, Las Vegas, NV
 Architect: ADF

Bally's Park Place, Atlantic City, NJ
 Architect: Freidmutter Group

Black Oak Casino, Tuolumne, CA
 Architect: Kittrell Garlock & Associates

Borgata Casino, Atlantic City, NJ
 Architect: BLT/CLA

Casino Lethbridge
 Lethbridge, Alberta, Canada
 Architect: Gregory McClung

Charles Town Casino
 Charles Town, WV
 Architect: Urban Design Group

Coventry Arena/Casino Isle of Capri, Coventry, England
 Architect: Carey Jones Architects

Greektown Casino, Detroit, MI
 Architect: Hnedak Bobo Group

Hard Rock Casino & Hotel, Biloxi, MS
 Architect: Reigstad

Hard Rock (Seminole Tribe of Florida), Hollywood & Tampa, FL
 Architect: Klai/Juba

Harrah's Horseshoe Casino
 Council Bluffs, IA
 Architect: Hnedak Bobo Group

Hollywood Slots, Bangor, ME
 Architect: Urban Design Group

Hollywood Slots at Penn National
 Grantville, PA
 Architect: Urban Design Group

Lincoln Park Racetrack, Lincoln, RI
 Architect: Jetter Cook & Jepsen

MGM Grand, Detroit, MI
 Architect: Hamilton Anderson Associates

MGM Grand Macau
 Nam Van Macau China
 Architect: Wong & Tung Int'l LTD.

Muscogee Creek National Casino
 Tulsa, OK
 Architect: Cunningham Group

OTOE Missouriia Casino, Newkirk, OK
 Architect: Kuhlmann Design Group

