

DIVISION 5 - SECTION 05320

IN FLOOR CELLULAR RACEWAY SYSTEM

N-R-G-FLOR+®

\*\* NOTE TO SPECIFIER \*\* Cordeck; Electrified floor deck products.
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This section is based on the products of Cordeck, which is located at:
12620 Wilmot Rd.
Kenosha, WI 53142
Toll Free Tel: 877-857-6400
Tel: 262-857-3000
Email: [request info (sales@cordeck.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Cordeck&coid=41454&rep=&fax=&message=RE:%20Spec%20Question%20(05320cor):%20%20&mf=)
Web: [www.cordeck.com](http://www.cordeck.com)
 [ Click Here ] for additional information.
Cordeck's manufacturing lines include electrified deck, roof deck, floor deck, form deck and related accessories. You can be certain of our products total, maximum effectiveness, along with our ability to deliver the industry's highest quality, service, value and customer satisfaction. At Cordeck, we're devoted to our customers. We stand ready to earn, and keep, your full confidence and trust.
N-R-G FLORÆ and WalkerdeckÆ are the ideal wire management solution models for structural steel building construction. These systems integrate the structural steel framework with the building's necessary wire and cable distributions. The result is a dynamic system solution, harnessing building strength together with efficiency and flexibility in terms of existing, and future, electrical needs.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Cellular Floor Deck.
		2. Metal Form Deck.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03200 - Concrete Reinforcement.
		2. Section 03310 - Cast-in-Place Concrete: Concrete topping over metal floor deck.
		3. Section 05120 - Structural Steel: Support framing for openings and shear stud connectors.
		4. Section 05210 - Steel Joists: Support framing for openings and shear stud connectors.
		5. Section 05312 - Steel Roof Deck.
		6. Section 07810 - Applied Fireproofing: Spray applied fireproofing.
		7. Division 26 - Electrical, data, telephone, and floor wiring, outlets, sleeves, gaskets, raceway and covers.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. AISI - Design of Cold Formed Steel Structural Members.
		2. ASCE - Criteria for the Design and Construction of Composite Steel Deck Slabs.
		3. ASTM A 568 - General Requirements for Standard Specification for Steel.
		4. ASTM. A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
		5. Military Specification - MIL-P-21035.
		6. SDI - Specifications and Commentary for Composite Steel Floor Deck.
		7. Underwriters Laboratories Inc. - UL 209, UL Standards of Safety for Cellular Metal Floor Raceway and Fittings. The Cordeck cellular steel deck panels used in the N-R-G-FLOR+ system are designated QL-GKX-63-24.
		8. NEC - National Electrical Code.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Indicate deck plan, support locations, projections, openings and reinforcement, cellular raceways, trench header and outlet box locations, pertinent details, and accessories.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraphs if LEED is not applicable. LEED-NC credits available as follows: 1. Recycled steel used to manufacture the products (1 or 2 points) and 2. System is designed for cut to length at the factory, so little or no construction waste. (1 or 2 points).

* + 1. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
			1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
			2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
		2. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.
		3. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Manufacturer shall have a minimum of five years documented experience with the type of electrified floor system specified in this section.
		2. Installer Qualifications: Installer shall have a minimum of five years documented experience with the installation of the type of electrified floor system specified in this section.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging until ready for installation.
		2. Cut plastic wrap to encourage ventilation. Store deck on dry wood sleepers; slope for positive drainage.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Cordeck 12620 Wilmot Rd. Kenosha, WI 53142; 877-857-6400
		Email: infloorsystems@cordeck.com; Web: www.cordeck.com

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	1. METAL DECK
		1. Metal Deck General:
			1. Steel shall conform to ASTM A 563 and shall have minimum yield of 40 KSI.
			2. Cellular deck shall be hot dipped galvanized in accordance with ASTM A 653, G60 or G90 galvanized coating.
			3. Non-cellular deck shall conform to the fire resistance requirements of the specified UL design assembly number with a minimum G-60 galvanized coating.
			4. Accessories for the cellular deck shall be hot dipped galvanized and shall conform to ASTM A 653. Cell closures, Z closures, column closures, screed angles, girder fillers, etc., shall be the same finish as the non-cellular deck finish for the project.
			5. Galvanizing repair paint for the cellular deck system shall be high zinc dust content paint for repair of damaged galvanized surfaces, complying with Military Specification MIL-P-21035.

\*\* NOTE TO SPECIFIER \*\* Select one of the following deck unit paragraphs as required and delete the one not required.

* + 1. Cellular Deck Units: Cordeck type: N-R-G-FLOR+, designated #QL-GKX-63-24, 3 inches (76 mm) deep by 24 inches (610 mm) wide, providing three separate wiring raceways of the following minimum areas: Power 5.6 square inches (3600 mm2); Data 16 square inches (10300 mm2); and Communication 16 square inches (10300 mm2).
		2. Design Thickness of Cellular Deck: As required to satisfy the project span lengths, loading criteria, in accordance with the Steel Deck Institute's "Specifications and Commentary for Composite Steel Floor Deck". In no case shall the design thickness be less than the minimum established by UL Standard for safety number 209.
		3. Design Thickness of Non-Cellular Deck: As required to satisfy the project span lengths, loading criteria, and formula in accordance with the Steel Deck Institute's "Specifications and Commentary for Composite Steel Floor Deck".
		4. Super-Imposed Slab Capacity for Cellular and Non-Cellular Deck: In conformance to the "Criteria for the Design and Construction of Composite Steel Deck Slabs," published by the Technical Council of Codes and Standards Division of the American Society of Civil Engineers (ASCE) (latest edition).
		5. Form Span Deflections of the Composite Floor Deck System: Limited to L/180 of the clear span relative to the supporting member deflection with the deck sheets extending over three or more spans where possible.
		6. Slab Deflections of the Composite Floor Deck System: Limited to L/360 of the clear span relative to the supporting member deflection.
	1. TAPMATE 6 PRESETS, TAPWAY TRENCH HEADER AND TAPMATE 6 ACTIVATIONS – SEE DIVISION 26 SPECIFICATIONS

\*\* NOTE TO SPECIFIER \*\* Select one of the following preset insert paragraphs as required and delete the one not required.

1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. Verify building framing components are ready to receive Work.
		3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Field cutting shall be accomplished neatly with as good an overall fit and alignment as possible. No opening exceeding 12 inches (305 mm) in width parallel to the deck supports shall be cut unless shown on the approved shop drawings. Floor openings shall be cut by the deck erector and not other trades in the field.
		3. Level and align cellular deck intended for electrical raceways within 1/8 (3 mm) horizontally and vertically. Butt ends, allow for maximum 1/8-inch (3 mm) gap. Contact manufacturer for gaps wider than 1/8 (3 mm). Tape and seal joints watertight.
		4. Fasten floor deck to structure by welding shear studs through the deck as specified in Section 05120. If shear studs are not shown or scheduled, fasten floor deck units to steel supporting members by not less than 3/4-inch (19.1 mm) diameter fusion welds or elongated welds of equal strength or approved power actuated fasteners, spaced not more than 12 inches (305 mm) O.C. with a minimum of two welds per unit at each support. Where shear stud spacing exceeds the maximum deck weld spacing, use additional plug welds between studs.
		5. Comply with AWS D1.1 requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used in correcting weld work.
		6. Sides of adjacent units shall be joined by welding 1 inch (25 mm) long fusion welds or sheet metal screws or button punching at a maximum spacing of 3 feet (914 mm) between supports. Sides of units supported on steel members shall be fastened to the supporting members by puddle welds and/or shear studs or approved power actuated fasteners at a spacing not to exceed 3 feet (914 mm).
		7. Touch up welded surfaces with galvanized repair paint specified immediately after welding.
		8. Keep the interiors of cells that will be used as raceways free of welds having sharp points or edges.
		9. Construction Loading: Protect composite floor deck system, as well as workers below from concentrated construction loading and traffic as required. Use planking as necessary to prevent profile damage to the cellular and non-cellular deck. Profile damage is defined as indentations or bucking of webs and flanges resulting in the reduction of the sectional properties.
		10. Prepare surfaces to receive concrete as required.
			1. Seal System: Before concrete placement, make a final inspection of the entire cellular raceway system. Seal any gaps in the system to prevent concrete from entering.
			2. Clean surfaces of all dirt, debris, oil, or other foreign matter to ensue intended mechanical interlock between concrete and steel.
			3. Supports for screeds shall be located over permanent or temporary floor deck supports.
		11. Concrete Placement: Provide and place concrete in accordance with Section 03310. Conform to the ACI 318 Building Code.
	3. FIELD QUALITY CONTROL
		1. Provide cast-in-place concrete as indicated on the Drawings and as specified under Section 03310. No concrete containing chlorides from any source shall be placed over or in contact with the floor deck system.
		2. Reinforced concrete shall be in accordance with American Concrete Institute Specifications for Structural Concrete Buildings (ACI 301-72) and ACI Building Code Requirements for Reinforced Concrete (ACI 318-83).
		3. Concrete placement shall follow proper and accepted industry practice and be in accordance with ACI Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete (ACI 304-73).
		4. Concrete must be vibrated at all headers and raceways to ensure that the concrete completely fills all voids. Care must be taken not to over vibrate. Over vibration will cause segregation of materials in the concrete mix, which in turn leads to weakening of concrete strength.
		5. Shrinkage and temperature reinforcement above the floor system shall be in accordance with (ACI 318-83). Care shall be taken during concrete placement and, in particular, during concrete vibration, to prevent rising of top reinforcement within the slab.
		6. Concrete shall be carefully hand finished to a minimum of 24 inches (610 mm) adjacent to trench header sides or header duct access openings so that the top of finished concrete and trench cover plates are flush.
	4. PROTECTION
		1. Protect installed products until completion of project.
		2. Do not move or transport equipment or heavy traffic over system during construction period, without first installing ramps. Ramps shall be designed so that imposed loads are not transferred to system components.
		3. Components of the system, which are damaged during construction, shall be replaced before Substantial Completion.
		4. Touch-up, repair or replace damaged products.

END OF SECTION