**Specification Note:**

**The following specifications call out the material and default installation requirements necessary for the floor as recommended by Robbins Sports Surfaces. In some cases, local codes, physical requirements or installer recommendation may override these methods and procedures. It is Robbins recommendation to review the specification with a Regional Sales Manager or the local Authorized Dealer before incorporating the specification into the project design. Some options impact installed cost and verification of the design and budget is advised.**

**For the name of the local Robbins representative or dealer, contact Robbins at 1-800-543-1913 or on the web at www.robbinsfloor.com.**

SECTION 09 / GUIDE SPECIFICATIONS FOR

**ROBBINS® BIO-CHANNEL® CLASSIC FLOOR SYSTEM**

**(Anchored and Resilient)**

**SECTION 096460 – WOOD ATHLETIC & SPORTS FLOORING**

**PART 1 – GENERAL**

1. **DESCRIPTION**
	1. Scope
		1. The complete installation of Robbins **Bio-Channel Classic** floor system by Robbins, Inc. of Cincinnati, Ohio.
	2. Related work specified under other sections. (A cross-reference should be incorporated in these sections.)
		1. Concrete and Concrete Finishing - Section 03\_ \_ \_.
			1. Concrete Slab Depression: 3” (76mm) using 25/32” (20mm)flooring
			2. Surface Finish: steel troweled and finished smooth.
			3. Concrete Tolerance: +/- 1/8” (3mm) in radius of 10’ (3m). High spots shall be ground level and low spots shall be filled in with approved leveling compound by the general contractor to meet the tolerance above. Floor Flatness and Floor Levelness (FF and FL) numbers are not recognized.
			4. Compressive Strength: Concrete shall be a minimum of 3,000 psi (21 MPa) and a maximum of 4000 psi (28MPa) compressive strength after 28 days. Concrete shall be free of washed river gravel, pea gravel, flint or hardener additives. No lightweight concrete.
		2. Membrane Waterproofing and Dampproofing - Section 07\_ \_ \_.
			1. Concrete subfloors on or below grade shall be adequately waterproofed beneath the slab and at the perimeter walls and on the earth side of below grade walls by general contractor using suitable type membrane.
			2. Sand-Poly-Sand slab construction is not an acceptable construction.
		3. Thresholds - Section 08\_ \_ \_.
		4. Game Standard Inserts - Section 11\_ \_ \_.
	3. **REFERENCES**
	4. MFMA - Maple Flooring Manufacturers Association
	5. FSC – Forest Stewardship Council
	6. **QUALITY ASSURANCE**
	7. Manufacturer Qualifications
		1. Basis of design shall be **Bio-Channel Classic** floor system as provided by Robbins Sports Surfaces, www.robbinsfloor.com, (800-543-1913)
		2. Manufacturer shall be an established firm experienced in products specified in this section and have been in business a minimum of ten (10) years; Robbins, Inc. or an approved equal.
		3. Manufacturer shall be a member in good standing of the Maple Flooring Manufacturers Association (MFMA).
		4. Materials other than those listed must be approved 10 days prior by written addendum. Materials from non-approved manufacturers will not be accepted.
	8. Floor Contractor/Installer Qualifications and Certifications
		1. The flooring contractor shall be a Robbins Accredited Installation Company with MFMA Accredited Installer(s) on-site for the duration of the wood floor installation; or, a contractor approved by Robbins Sports Surfaces.
		2. Flooring contractor shall submit a list of at least three completed projects of similar magnitude and complexity completed under current corporate identity.
	9. Floor System Performance Requirements
		1. Surface Appearance (available option)
			1. Expansion spaces will not exceed 1/64” (0.4mm) at time of installation and will be spread evenly across the floor with each row of flooring.
			2. Expansion spacing will be installed to allow for normal expected increases in Equilibrium Wood Moisture Content (EMC).
		2. The wood flooring shall be MFMA-FJ maple.
		3. Maple Flooring shall been tested in accordance under California Department of Public Health/EHLB/Standard Method Version 1.2, 2017 and been found to be in compliance with the standard.
		4. The use of power-actuated or pneumatic anchoring systems is not allowed. The floor system must be anchored using the drilled and pinned method.
		5. Steel anchor channels shall be of double flange design and run continuously along the length of the sleeper.
		6. Subfloor and metal channel design shall be constructed in a fashion to prevent the over

 anchorage of the flooring system.

* + 1. System subfloor shall be made from nominal 23/32” APA rated sheathing
		2. Subfloor and metal channel design shall be constructed in a fashion to prevent the over

 anchorage of the flooring system.

* 1. **SUBMITTALS**
	2. Specification
		1. Submit Robbins **Bio-Channel Classic** specification sheet.
	3. Drawing
		1. Submit Robbins **Bio-Channel Classic** drawings as required.
	4. Sample
		1. Submit one (1) sample of **Bio-Channel Classic** if requested by architect
	5. Concrete Guidelines
		1. Submit Robbins Technical Services “Concrete Guide Specification” for further information regarding conditions and requirements of concrete prior to installation.
	6. Maintenance Guidelines
		1. Submit copy of Maintenance Instructions.
	7. **DELIVERY, STORAGE AND HANDLING**
	8. Delivery of Materials
		1. Materials shall not be delivered, stored or installed until all masonry, painting, plastering tilework, marble and terrazzo work is complete, and all overhead mechanical work, lighting, backstops, scoreboards are installed. **Room temperature of 55-80 degrees Fahrenheit (13 to 27 degrees Celsius) and relative humidity of 35-50 % are to be maintained.** In- Slab Relative Humidity shall be 85% or less using ASTM F 2170 In-Slab Relative Humidity test. Ideal installation/storage conditions are the same as those that will prevail when building is occupied
		2. Materials shall not be stored at the installation location if the In-Slab relative humidity level for the concrete slab is above 85% using ASTM F 2170 In-Slab Relative Humidity test.
	9. **JOB CONDITIONS-SEQUENCY**
	10. Do not install floor system until concrete has been cured 60 days and the requirements in paragraph 1.05 A are obtained.
	11. General Contractor is responsible to ensure slab is clean and free of all dirt and debris prior to floor installation beginning.
	12. Permanent heat, light and ventilation shall be installed and operating during and after installation. **Maintain a temperature range of 55 to 80 degrees Fahrenheit (13 to 27 degrees Celsius) and a relative humidity range of 35 to 50%.** Consult MFMA guidelines for further information.
	13. After floors are finished, area to be kept locked by general contractor to allow curing time for the finish. If after required curing time general contractor or owner requires use of gym, he shall protect the floor by covering with non-fibered kraft paper or red rosin paper with taped joints, until acceptance by owner (or owner’s agent) of complete gymnasium floor.
	14. **WARRANTY**
	15. Guarantee shall not cover damage caused in whole or in part by casualty, ordinary wear and tear, abuse, use for which material is not designed, faulty construction of the building, settlement of the building walls, failure of the other contractors to adhere to specifications, separation of the concrete slab and excessive dryness or excessive moisture from humidity, spillage, migration through the slab or wall, or any other source.
	16. Robbins, Inc. hereby warrants the **Bio-Channel Classic** material to be free from manufacturing defects for a period of 1 year. This warranty is in lieu of all other warranties, expressed or implied including but not limited to any warranty of merchantability or fitness for a particular purpose, and of any other obligations on the part of Robbins. In the event of breach of any warranty, the liability of Robbins shall be limited to repairing or replacing **Bio-Channel Classic** material and system components supplied by Robbins and proven to be defective in manufacture, and shall not include any other damages, either direct or consequential.

**PART 2 – PRODUCTS**

* 1. **MATERIAL**
	2. Vapor Barrier
		1. 6-mil polyethylene.
			1. Options (delete or modify above):
				1. Moisture Suppression System for projects with high concrete moisture.
	3. Subfloor
		1. Robbins Bio-Channels: engineered-wooden sleeper with 7/16” (11mm) EPDM Bio-Pads attached, factory encased in a steel channel. Sleeper must be free to move vertically within steel channel confines to assure proper uniformity of resiliency and function.
		2. 23/32” (18mm) structural APA rated sheathing, exposure 1.
	4. Maple Flooring Manufacturers Association(MFMA) Wood Flooring:
		1. 25/32” (20mm) thick x 2 ½” (63mm) facewidth (2-1/4” (57mm), contractor option), 2nd & Better grade, Factory Sanded Advantage™ XL(Non-Factory Sanded, contractor option), TGEM, KD Northern Hard MAPLE, Continuous Strip XLplus™. Flooring as manufactured by Robbins and graded in accordance with MFMA-FJ rules. Flooring will have XLplus™ technology to reduce or eliminate routine spacing for expansion.
		2. Grade: 2nd and Better
			1. Options (delete or modify above):
				1. 1st Grade
				2. 3rd and Better
				3. 3rd Grade
	5. Fasteners
		1. Flooring – 1-¾” (45mm) barbed cleats or staples.
		2. Subfloor – 1-5/8” to 1-¾” (40mm) subflooring nails or staples.
		3. Channel anchors - 1-1/2” (38mm) long steel Powers SPIKE® anchors or Tapcons
	6. Finishing materials
		1. MFMA approved sealer
		2. MFMA approved finish
	7. Gamelines
		1. Gameline paint(s) shall be recommended by the finishing materials manufacturer, and must be compatible with the finish.
	8. Perimeter
		1. 3” x 4” ventilating type. (Specify black or brown)
1. **PART 3-EXECUTION**
	1. **INSPECTION**
	2. Inspect concrete slab for proper tolerance and dryness, and report any discrepancies to the general contractor and architect in writing. Slab will be level to within 1/8” (3mm) in a 10’ (3m). Moisture content of the concrete slab shall not exceed 85% using ASTM F 2170 In-Slab Relative Humidity test.
	3. All work required to put the concrete subfloors in acceptable condition shall be the responsibility of the general contractor.
	4. Subfloor shall be broom cleaned by general contractor.
	5. Installer shall document all working conditions provided in General Specifications prior to commencement of installation.
	6. **INSTALLATION**
	7. **VAPOR BARRIER**
		1. Install polyethylene with joints lapped a minimum of 6” (150mm) and turned up 4” (100mm) at the walls.
	8. **SUBFLOOR**
		1. Place Bio-Channels 16-1/16” (408mm) ON CENTER end-to-end staggering end joints in adjacent rows, perpendicular to the intended direction of the maple flooring. Gap the ends of the sleepers approximately ¼” (6mm). Provide 1-½” to 2" (40 to 50mm) expansion void at the perimeter and all vertical obstructions.
		2. Anchor Bio-Channels at predetermined locations.

**NOTE: Anchor sleepers in 3 of the pre-determined holes, at both ends and in center. When shimming for leveling is necessary, anchor in all 5 holes.**

**NOTE: If extensive shimming is necessary, alternate anchoring ‘non-standard’ method may be necessary. Additional costs for this ‘non-standard’ method are to be borne by the purchaser.**

* + 1. Install solid blocking at doorways, under bleachers in the stacked position, and below portable goals.
		2. Install Bleacher Blocking per manufacturer’s recommendations.
		3. Install 23/32” (18mm) plywood subfloor parallel to sleeper channels and securely fasten subfloor 6” (150mm) ON CENTER along each channel sleeper.
	1. **FLOORING**
		1. Machine nail maple finish flooring 10” to 12” (150mm to 200mm) O.C. with end joints properly driven up and proper spacing provided for humidity conditions in specific regions. Consult your local Robbins Accredited Installation Company “Certified” contractor. Provide 2” (50mm) expansion voids at the perimeter and at all vertical obstructions. **OPTION: (Specify or Delete)** Expansion rows will be evenly distributed with each row of flooring, with each space not exceeding 1/64” (0.4mm).
	2. **FINISHING**
	3. **SANDING**
		1. Sand per manufacturer’s recommendations.
		2. After sanding, buff entire floor using 100 grit screen or equal grit sandpaper, with a heavy-duty buffing machine.
		3. Inspect entire area of floor to insure the floor presents a smooth surface without drum stop marks, gouges, streaks or shiners.
		4. Vacuum and/or tack floor before first coat of seal.
	4. **FINISHING**
		1. Floor should be clean and completely free of dirt and sanding dust.
		2. Apply specified combination of seal, gameline paint, and finish in accordance with manufacturer’s instructions.
		3. Buff and vacuum and/or tack between each coat after it dries.
		4. Apply game lines accurately after the buffing and vacuuming the coated surfaces. Game lines shall be painted between seal coats and finish coats. Layout in accordance with drawings. For game lines, use current rules of association having jurisdiction. Lines shall be straight with sharp edges in colors selected by architect.

**3.04 WALL BASE INSTALLATION**

* 1. Install vent cove base anchored to walls with base cement or screws. Use pre-molded outside corners and neatly mitered inside corner.
	2. **CLEANING**
	3. Clean up all unused materials and debris and remove it from the premises.
	4. **MAINTENANCE**
	5. Upon completion of floor installation, the owners, attendants or individuals in charge are responsible for the upkeep of the building and are to see that the care and maintenance instructions of the MFMA and Robbins are followed.

**END OF SECTION 0964690**

**Construction options are available to modify this system to the project design and budget.**

**Contact your Regional Sales Manager (1-800-543-1913) or the local Authorized Dealer for more information.**

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