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SECTION 09 68 13

Modular Carpet Tile Carpeting using Milliken Non-Reactive Standard Adhesive, Renovation Solution
Created January, 2017

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes modular carpet tile and Milliken Non-Reactive Standard Adhesive

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Milliken Carpet Installation Instructions
- C. Milliken Non-Reactive Standard Warranty
- D. Specification Sheet, Milliken Non-Reactive Standard Adhesive

1.3 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:
 - a. Review delivery, storage, and handling procedures.
 - b. Review ambient conditions and ventilation procedures.
 - c. Review subfloor preparation procedures.
 - 1) Concrete subfloors must be structurally sound, clean, dust free, smooth, trowel finish, and level.
 - 2) Cracks and holes in excess of 1/8" (3.2mm) should be filled with a Portland Cement based floor patching material (Gypsum based compounds are not recommended).
 - a) XL Brands Prelude is a recommended product should treatment of porous concrete slab be deemed necessary.
 - 3) Inspection should determine that slab is on or above grade, including a review of any potential concrete additives and mold release agents that could affect compatibility with Milliken Non-Reactive Standard Adhesive.
 - 4) No chemical incompatibility exists between Milliken modular carpet or Milliken Non-Reactive Standard Adhesive and any existing floor covering adhesive. This includes "cutback", asphalt emulsion, general-purpose

adhesive, epoxy and any other commonly found flooring adhesives. The only physical requirement for existing adhesive films is that they be smooth, non-tacky, and that residual trowel notches be reduced to 1/32" (0.8mm) or less. In most cases the removal of the existing floor covering accomplishes this with only normal sweeping, cleaning, and patching required prior to beginning installation.

- 5) Regardless of adhesive type, the existing layer should have minimal residual tack. There is no chemical reaction; however, excessive tack may cause the carpet modules to become bonded too aggressively to the floor over time. This tack can be minimized or eliminated by sifting Portland cement based patch powder into the existing film and sweeping away the excess or by applying a very thin layer of Portland patch.
 - 6) If additional smoothing is required and residual adhesive is black (cutback or asphalt emulsion) smoothing must be accomplished by applying a very thin layer of one of the Portland Cement based patching compounds.
 - 7) If residual adhesive is not black, scrape or sand until smooth and non-tacky as required.
- d. Review installation instructions and Milliken warranty requirements, including the following:
- 1) No moisture testing is required for On Grade renovations provided:
 - a) Confirmed and intact ASTM E-1745 vapor retarder (Class B minimum) placed in accordance with ACI 302-2001 and directly in contact with the concrete placement.
 - b) No visible water on the surface.
 - c) Acclimatized to service conditions.
 - d) Floor prep must be performed in accordance with ASTM F 710-11 unless specifically allowed per manufacturer's installation instructions.
 - e) All topical compounds must be removed prior to application of adhesive.
 - f) Bond test is required with archived written and photo documentation, including any corrective action required.
 - 2) If there is no vapor retarder or the presence of a vapor barrier is unknown for On Grade renovations, product may be installed if the moisture levels do not exceed 95% relative humidity as measured by the in situ relative humidity probe test per the latest edition of ASTM F2170, as described in the Milliken Non-Reactive Standard Adhesive product specifications and Milliken's then current published instructions for installation of modular carpet.
 - 3) No moisture testing is required for Above Grade renovations provided:
 - a) No visible water on the surface.
 - b) Acclimatized to service conditions.
 - c) Floor prep must be performed in accordance with ASTM F 710-11 unless specifically allowed per manufacturer's installation instructions.
 - d) All topical compounds must be removed prior to application of adhesive.
 - e) Bond test is required with archived written and photo documentation, including any corrective action required.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
2. Include manufacturer's written installation recommendations specific to a Renovation as opposed to New Pour.

B. Shop Drawings: For carpet tile installation, plans showing the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
2. Carpet tile type, color, and dye lot.
3. Type of installation.
4. Pattern of installation.
5. Pattern type, location, and direction.
6. Pile direction.
7. Type, color, and location of insets and borders.
8. Type, color, and location of edge, transition, and other accessory strips.
9. Transition details to other flooring materials.

C. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Coordinate "Qualification Data" Paragraph below with qualification requirements in Section 014000 "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

B. Qualification Data: For Installer.

C. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.

D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has 5 years of comparable experience on installing commercial carpet and 5 years installing products by all specified carpet manufacturers.
- B. Fire-Test-Response Ratings: Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI's "CRI Carpet Installation Standard."
- B. Carpet tiles and adhesives shall be stored between 40° F and 100° F in a clean, dry, enclosed space off the ground and shall be conditioned to between 60° F and 90° F for 48 hours prior to installation.

1.10 FIELD CONDITIONS

- A. Comply with CRI's "CRI Carpet Installation Standard" for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weather tight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants.
- C. Floor temperature should be 60 °F minimum for proper adhesive curing and performance.
- D. If subfloor is contaminated with an oily residue either from removal of "cutback" during asbestos abatement or from a previous end use such as metal fabrication, this residue MUST be totally removed or covered prior to applying modular adhesive and carpet.
- E. Product is allowed to be installed over moisture stained concrete. Products not allowed to be installed over moisture stained concrete must be noted.
- F. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.
- G. Requisite field conditions for Milliken Non-Reactive Standard Adhesive.
 - 1. No moisture testing is required for On Grade renovations provided:
 - a. Confirmed and intact ASTM E-1745 vapor retarder (Class B minimum) placed in accordance with ACI 302-2001 and directly in contact with the concrete placement.

- b. No visible water on the surface.
 - c. Acclimatized to service conditions.
 - d. Floor prep must be performed in accordance with ASTM F 710-11 unless specifically allowed per manufacturer's installation instructions.
 - e. All topical compounds must be removed prior to application of adhesive.
 - f. Bond test is required with archived written and photo documentation, including any corrective action required.
2. If there is no vapor retarder or the presence of a vapor barrier is unknown for On Grade renovations, product may be installed if the moisture levels do not exceed 95% relative humidity as measured by the in situ relative humidity probe test per the latest edition of ASTM F2170, as described in the Milliken Non-Reactive Standard Adhesive product specifications and Milliken's then current published instructions for installation of modular carpet.
3. No moisture testing is required for Above Grade renovations provided:
- a. No visible water on the surface.
 - b. Acclimatized to service conditions.
 - c. Floor prep must be performed in accordance with ASTM F 710-11 unless specifically allowed per manufacturer's installation instructions.
 - d. All topical compounds must be removed prior to application of adhesive.
 - e. Bond test is required with archived written and photo documentation, including any corrective action required.

H. Precautions for cleaning materials and methods that could be detrimental to carpet tile

1.11 WARRANTY

- A. Warranties are applicable to all Milliken commercial modular products. These warranties are subject to the specific Warranty Terms and Conditions provided by Milliken related to commercial modular carpet products, and related details about the test methods supporting these warranties are available upon request.
- 1. These warranties shall not apply to carpet which has been placed in storage for extended periods, exposed to temperature extremes, bent or deformed.
 - 2. Additionally, these warranties do not cover damage arising from any use that is different from the normal, intended use of the carpet, including, but not limited to:
 - a. Damage caused by chlorinated or any other solvent-based cleaning agents.
 - b. Damage caused by exposure to substances or contaminants which degrade or destroy color in carpet.
 - c. Damage caused by use of inappropriate maintenance methods or unapproved maintenance service providers.
 - d. Damage caused by sharp objects.
 - e. Damage caused by Installer or workmanship of related Installer.
 - f. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 3. Failures include, but are not limited to, the following:

- a. The carpet will lose no more than 10% of its face fiber by weight during the Lifetime of the carpet.
 - 1) If the carpet is installed on stairs, the warranty will be limited to 5 years.
 - 2) Relevant claims require submittal of a 1 square yard sample of unused attic stock and a like size piece from referenced area related to warranty to be submitted to independent testing lab for verification.
 - b. Staining/soiling resistance
 - 1) Carpet treated with StainSmart will resist staining and soiling during the Lifetime of the carpet.
 - c. Color pattern permanency
 - d. Delamination of backing
 - e. Edge ravel
 - f. Tuft bind
 - g. Floor Compatibility
 - h. Antistatic
 - i. Antimicrobial Protection
 - 1) Milliken warrants that the AlphaSan antimicrobial agent will remain active during the Lifetime of the carpet.
 - j. Flammability
 - k. Cushion Resiliency
 - l. Dimensional Stability
 - m. Floor Release
 - n. Moisture Resistance
4. Warranty Period: the Lifetime of the original carpet installation, beginning at the date of the applicable invoice and remaining in effect throughout the period of time that the original purchaser of the original carpet chooses to keep the carpet on the floor at the original installation site.
- B. Special Warranty for Milliken Non-Reactive Standard Adhesive: Manufacturer warrants that the Milliken Non-Reactive Standard Adhesive, when used with current Milliken modular carpet with Comfort Plus[®] or Underscore[™] backing systems, will form a bond that provides tack and resistance to lateral movement while allowing for the removal of the modular carpet in high moisture slab conditions with no limit on relative humidity as long as there is no visible water on the slab surface for the Lifetime of the original carpet installation in Commercial installations subject to meeting the following conditions:
- 1. No moisture testing required if on-grade installations that have a confirmed vapor retarder consistent with ASTM E-1745 Class B minimum conforming vapor retarder placed in accordance with ACI 302-2001 and directly in contact with the concrete placement.
 - 2. If there is no vapor retarder or the presence of a vapor barrier is unknown, product may be installed if testing is done per the latest edition of ASTM F2170, as described in the Milliken Non-Reactive Standard Adhesive product specifications and Milliken's then current published instructions for installation of modular carpet, and the moisture levels do not exceed 95% relative humidity as measured by the in situ relative humidity probe test.
 - 3. If the concrete slab is experiencing hydrostatic pressure, or the slab surface is visibly wet, the slab should be treated by some other method and is not covered by this warranty. Failures include, but are not limited to, the following:

- a. Milliken does not warrant against hydrostatic pressure, instances where water is forcibly pushed into the slab and/or moisture events caused by broken pipes. In such cases the warranty will be voided.
4. Warranty Period: Lifetime
- a. "Lifetime" is defined as the period of time that the original purchaser of the original carpet installed with the adhesive product chooses to keep the carpet on the floor at the original installation site. Lifetime warranties only apply to adhesive product purchased after November 4, 2016.
5. Validation
- a. The warranty only applies to use of the Milliken Non-Reactive Standard Adhesive product in carpet installations when bond testing, substrate preparation, adhesive application and carpet installation have all be performed in accordance with the requirements and instructions set forth on the product label, the product specification sheet, Milliken's then current published instructions for installation of modular carpet (which are specific for each carpet product), and the then current Carpet and Rug Institute publication CRI 104 (collectively, the "Documentation"). Furthermore, the carpet installation must be in an indoor commercial environment. The warranty shall not apply to:
 - 1) Installations on substrates that were not prepared as instructed in the Documentation;
 - 2) Installations where silicates or other sealers or curing additives have been used on the substrate;
 - 3) Installations over substrates where hydrostatic pressure exists;
 - 4) When the claimant does not have written and photographic documentation of the bond testing conducted prior to the installation;
 - 5) Installation failures due to outside sources of water;
 - 6) Installations taken up or replaced prior to inspection by authorized Milliken personnel;
 - 7) Installations with chemically cleaned substrates, where improper cleaning methods have been used, or where adhesive removed have been applied;
 - 8) Installations using incompatible curing compounds, mold release agents, or non-Portland cement based leveling or patch compounds;
 - 9) Failure of leveling or patch compounds of any kind;
 - 10) Damage caused by expansion joints or other structural areas;
 - 11) Structural failure, seismic action, discoloration, caustic solutions entering the system topically through joints;
 - 12) Where the adhesive product was allowed to freeze prior to use. In no event shall Milliken be liable for incidental or consequential damages, whether in contract, warranty, negligence, strict liability, or otherwise.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Milliken, Comfort Plus® Cushion Back Carpet Tile
 - 1. Primary Backing: Nonwoven
 - 2. Secondary Backing: PVC-free backing, open-celled polyurethane cushion
- B. Milliken, ES Underscore™ Cushion Back Carpet Tile
 - 1. Primary Backing: Nonwoven
 - 2. Secondary Backing: PVC-free backing, open-celled polyurethane cushion

2.2 NON REACTIVE STANDARD ADHESIVE

- A. Manufacturer: Milliken
- B. Packaging: 4-gallon pail with pour spout or 15.1L size
- C. Weight per Gallon: 8.5 lbs. per gallon +/- 0.25 lbs.
- D. Base: Acrylic Emulsion
- E. Color:
 - 1. Wet: Mint Green
 - 2. Dry: Maintains a green tint—this change is one of the adhesive film indicators
- F. Solids: 58% by weight minimum
- G. Consistency: Thin syrup
- H. Solvent: No; water-based
- I. Storage: Adhesive must be stored between 40° and 100°F; protect from freezing
- J. On Site: Carpet, adhesive, and area must be conditioned to between 60° and 90°F 24 hours before, during, and after installation.
- K. Flammability: Non-flammable in wet state
- L. Shelf Life: Two year stored in original container tightly sealed
- M. Set-up Time: Varies with humidity temperature and air velocity
- N. Bonding Duration: Indefinite when kept clean
- O. Clean-up from Carpet: Water when still wet – safety solvent when dry

2.3 INSTALLATION ACCESSORIES

- A. Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Milliken Non-Reactive Standard Adhesive
- C. Milliken Non-Reactive Standard Adhesive is applied with a $\frac{3}{4}$ to 1" nap paint roller or a $\frac{1}{32}$ " x $\frac{1}{32}$ " x $\frac{1}{16}$ " notched trowel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and installation tolerances.
- B. Examine carpet tile for type, color, pattern, and potential defects.
- C. Concrete Slabs: Verify that finishes comply with requirements specified in Section 033000 "Cast-in-Place Concrete" and that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
 - 1. All topical membrane forming concrete curing compounds must be removed.
 - 2. Concrete subfloor must be structurally sound, clean, smooth, trowel finish (not burnished) and level. Cracks and holes in excess of $\frac{1}{8}$ " (3.2mm) should be filled with a Portland Cement based floor patching material such as W.W. Henry 547 Unipro™, DAP "Webcrete 98", Maipei "PlaniPatch", Ardex "Featherfinish" or similar. Gypsum based compounds are not recommended.
 - 3. The only physical requirement for existing adhesive films is that they be scraped clean and dry. If additional smoothing is required and residual adhesive is black (cutback or asphalt emulsion) smoothing must be accomplished by applying a very thin layer of one of the above patching compounds.
 - 4. If residual adhesive is not black, scrape or sand until smooth and non-tacky as required.
 - 5. Protruding objects must be removed. Floor must be flat (not undulating) to within $\frac{1}{4}$ " in 12' (6.4mm across 3.66m) with no abrupt changes.
 - 6. Durabond D250 is a recommended product should this type of treatment be deemed necessary; however, any non-silicone based sealer will work acceptably with non-PVC backings. This treatment is NOT intended to be a corrective for out of specification water vapor transmission levels.
 - 7. When working with a Gyp-Crete or Gypsum subfloor, Milliken recommends sealing with a gypsum floor sealer prior to installation. Failure to do so will result in an unacceptable installation. Gyplock Sealer by Cornerstone Coatings International Inc. is a suitable sealant.

3.2 PREPARATION

- A. General: Comply with CRI's "Carpet Installation Standards" and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.
- B. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.
- C. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. Comply with CRI's "CRI Carpet Installation Standard," Section 18, "Modular Carpet" and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. Maintain dye-lot integrity. Do not mix dye lots in same area.
- D. Maintain pile-direction patterns recommended in writing by carpet tile manufacturer.
- E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- F. Coverage rates for Comfort Plus and Underscore cushionback full spread for all tile sizes: 35-40 sq. yards per gallon (9.5-10 sq. meters per liter).
- G. In extreme environments, such as casinos and convention centers, which will routinely experience rolling loads in excess of 5,000 lbs., a heavier full spread of adhesive is recommended. Target coverage for this end use is 20-25 sq. yards per gallon (5-6 sq. meters per liter) for the Non-Reactive Standard product.
- H. ADHESIVE READINESS SHOULD BE VERIFIED AS FOLLOWS BEFORE BEGINNING INSTALLATION.
 - 1. A bond test is a mock-up installation done prior to the general installation of the Modular Carpet tile to indicate whether the adhesive will bond satisfactorily to the substrate and floor covering. Bond testing will aid in identifying both the working characteristics of the adhesive, such as the appropriate open and working time for the site conditions, and also any potential bonding problems to the substrate.
- I. Bond Test Procedure:
 - a. Select an approximately 7-foot square area (4 square meters) in a typical location on the substrate or slab. The floor should be prepped and consistent with the installation plan per Milliken Modular carpet installation instructions.
 - b. Milliken modular carpet adhesives should be applied to the substrate for a releasable installation in the recommended manner (trowel, roller, or aerosol spray) and

application rate. The adhesive should be allowed to dry completely prior to installation of modular carpet.

- c. Observe the adhesive drying time, which will vary with the floor porosity and ambient conditions. Properly dried adhesive will not transfer to the finger and will have a tacky feel.
- d. After placing the carpet tile on the dried adhesive apply downward pressure to assure contact with the substrate. Tiles should be immediately locked in place inhibiting lateral movement.
- e. After 24 hours, observe the mock-up installation to see if any obvious problems may exist. The modular carpet should be adequately bonded to the substrate, and inhibit lateral movement with adhesive remaining firmly bonded to the substrate. To test this attempt to slide each tile. Now lift each carpet tile and check backing for adhesive transfer. All adhesive should remain on the floor. There should be no adhesive transfer to the back of the tile.
- f. Document with photos that show floor prep, floor with adhesive, and back of tile upon tile removal after 24hr period.
- g. Testing should be conducted approximately 72 hrs prior to installation.
- h. If installation covers multiple floors a bond test should be conducted on grade.

3.4 PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - B. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 1. Remove yarns that protrude from carpet tile surface.
 2. Vacuum carpet tile using commercial machine with face-beater element.
- C. Protect installed carpet tile to comply with CRI's "Carpet Installation Standard," Section 20, "Protecting Indoor Installations."