32 00 00 – Exterior Improvements

32 12 16 Asphalt Paving

Regulatory Requirements:

Comply with materials, workmanship, and other applicable requirements of the SCDOT for asphalt paving work.

All asphalt paving projects shall include monitoring and testing by a geotechnical testing agency that meets the qualification requirements of ASTM E 329 and the certified asphalt inspector requirements of the SCDOT.

Asphalt Paving Mixes:

Base Course: Asphalt base courses are typically not required except for pavement installations located within SCDOT Rights of Way where they typically must be used in lieu of GABC (see Earth Moving section). Where required, it shall be Type A Hot Mix Asphalt Aggregate Base Course in accordance with Sections 310 and 401 of the SCDOT “Standard Specifications for Highway Construction”.

Prime/Tack Coat: Prime coats are typically not required except on top of GABC installations located within SCDOT Rights of Way (rarely used—see above). Tack coats are required wherever a new asphalt overlay is installed on existing (not brand new) asphalt. Prime/tack coat shall be asphalt binder or emulsified asphalt in accordance with Section 401 of the SCDOT “Standard Specifications for Highway Construction”.

Intermediate (Binder) Course: Where required shall be Type B Hot Mix Asphalt Intermediate Course in accordance with Sections 401 and 402 of the SCDOT “Standard Specifications for Highway Construction”.

Asphalt Surface Course: Shall be Type B or Type C Hot Mix Asphalt Surface Course in accordance with Sections 401 and 403 of the SCDOT “Standard Specifications for Highway Construction”. Type B is typically utilized for linear installations such as roads and highways. Type C is slightly weaker but provides for an improved workability and is typically utilized for parking lots and other confined area installations.

Pavement Markings:

Pavement markings shall consist of pavement marking paint or thermoplastic pavement markings as required by the CCU Project Manager or authorities having jurisdiction. Paint shall typically be used for low traffic installations such as parking lots and minor roads and thermoplastic shall be used for higher traffic applications.

Pavement-Marking Paint shall be in accordance with Section 625 of the SCDOT “Standard Specifications for Highway Construction”.

Thermoplastic Pavement Markings shall be in accordance with Section 627 of the SCDOT “Standard Specifications for Highway Construction”.

Pavement Markings shall consist of pavement marking paint or thermoplastic pavement markings as required by the CCU Project Manager or authorities having jurisdiction. Paint shall typically be used for low traffic installations such as parking lots and minor roads and thermoplastic shall be used for higher traffic applications.

Pavement-Marking Paint shall be in accordance with Section 625 of the SCDOT “Standard Specifications for Highway Construction”.

Thermoplastic Pavement Markings shall be in accordance with Section 627 of the SCDOT “Standard Specifications for Highway Construction”.
Wheel Stops shall be precast, air-entrained concrete, 5 inches high by 9 inches wide by 72 inches long with chamfered corners, drainage slots on the underside, and holes for anchoring to substrate. All wheel stops shall be anchored with steel dowels, at least 24” long, driven through the anchor holes into the substrate.

LEED Considerations:

Materials and Resources: Recycled Content (Credit 4)
Regional Materials (Credit 5)

32 13 13 Concrete Paving

Regulatory Requirements:

Comply with materials, workmanship, and other applicable requirements of the SCDOT for concrete paving work.

All concrete paving projects shall include monitoring and testing by a geotechnical testing agency that meets the qualification requirements of ASTM E 329 and ASTM C 1077 to perform material evaluation tests and to design concrete mixtures.

Pavement marking and wheel stop requirements, where applicable, shall be the same as indicated in the Asphalt Paving section.

Concrete Materials:

Concrete: Shall be in accordance with Section 701 of the SCDOT “Standard Specifications for Highway Construction”. Min. strength Class 3000 unless otherwise required.

Admixtures: Air-entraining, accelerating, retarding, and water reducing admixtures shall be in accordance with Section 701 of the SCDOT “Standard Specifications for Highway Construction”.

As of 1-3-11, no preferences have been provided from CCU for decorative concrete although they have indicated that they are working with a local vendor to establish a standard.

LEED Considerations:

Sustainable Sites: Stormwater Design—Quantity (Credit 6.1—porous concrete)
Stormwater Design—Quality (Credit 6.2—porous concrete)
Heat Island Effect—Nonroof (Credit 7.1)

Materials & Resources: Recycled Content (Credit 4)
Regional Materials (Credit 5)

32 14 00 Unit Paving
Where time allows, designer shall require contractor to provide full-size samples of each unit paver type and color for verification before full order for pavers is placed.

Pavers and aggregate each shall be obtained from one source with resources to provide materials and products of consistent quality in appearance and physical properties.

All unit paver system materials and installation shall be in accordance with the written instructions of the unit paver manufacturer.

Where installations are considered complicated or of substantial size, designer shall consider the use of mock-ups to verify selections, demonstrate aesthetic effects, and set quality standards for materials and execution.

All aggregate bed type paver installations shall have positive edge restraint at the boundaries of the installation to prevent the lateral displacement of setting bed and/or joint aggregate and subsequent failure of the pavement.

Pavement marking and wheel stop requirements, where applicable, shall be the same as indicated in the Asphalt Paving section.

Plan construction to mitigate potential destabilization or contamination of installed unit pavers by sedimentation or vehicular traffic.

Installer Qualifications: unit paving installer shall meet the following qualifications.

   Experience: Five years' experience in unit paving installation.
   Certifications: Field supervisor shall be a Level 1 Certified Concrete Paver Installer by the Interlocking Concrete Paver Institute.
   Installer's Field Supervision: Maintain the above certified supervisor on Project site full-time when work is in progress.

As of 1-3-11, no preferences have been provided from CCU for a unit paver standard although they have indicated that are working with a local vendor to establish one.

Brick Pavers:

   Light-traffic Brick Pavers: ASTM C 902, Class SX.
   Heavy Vehicular Brick Pavers: ASTM C 1272.

Concrete Pavers: Solid interlocking paving units complying with ASTM C 936.

Rough-Stone Pavers: Paving stones, with thermal-finished faces and edges, complying with the following standards as applicable:

   Granite: ASTM C 615.
   Limestone: ASTM C 568.
   Quartz-Based Stone: ASTM C 616.
   Slate: ASTM C 629.
ADA Detectable Warning Concrete Pavers: Solid interlocking paving units complying with ASTM C 936. Surface Texture shall be non-slip, truncated dome surface texture meeting the requirements of the Americans with Disabilities Act (ADA). Designers are reminded that yellow is not a required color by the ADA and that the color grey is generally desired by CCU. The ADA does have specific requirements with regard to contrast between the detectable warning surface and adjoining surfaces and the designer shall provide for this requirement.

Products: Provide one of the following or an approved equal:

- ADA Detectable Warning Paver by ECG (Elizabeth City Glass), Inc. These pavers are approved by SCDOT and therefore must be used for all work within an SCDOT R/W. In addition, they are the preferred paver by CCU.
- Hanover Detectable Warning Pavers by Hanover Architectural Products
- Detectable Warning Pavers by Tile Tech Industries.
- ADA Detectable Warning Pavers by Pavestone Company.

LEED Considerations:

- Sustainable Sites: Stormwater Design—Quantity (Credit 6.1—porous pavers)
- Stormwater Design—Quality (Credit 6.2—porous pavers)
- Heat Island Effect—Nonroof (Credit 7.1)

- Materials & Resources: Recycled Content (Credit 4)
- Regional Materials (Credit 5)

32 31 13 Chain Link Fences and Gates

All fence posts, rails, gates, fittings, and hardware shall be industrial grade with zinc metallic coating, followed by a black polymer coating.

Fence fabric shall be black polymer coated.

Sports field fences shall include top rail padding where height and location is such that contact by athletes is considered a potential hazard.

32 31 19 Decorative Metal Fences and Gates

Requirements for decorative metal fences shall be coordinated with the CCU Project Manager on a case by case basis.

32 32 23 Segmental Retaining Walls

Requirements for segmental block retaining walls shall be coordinated with the CCU Project Manager on a case by case basis.
32 84 00 Planting Irrigation

All irrigation pipe shall be Schedule 40 PVC unless otherwise approved (C-900 for large diameter lines, etc.) Flexible polyethylene tubing shall not be used.

Irrigation controllers shall be by Signature Control Systems Inc. and shall be satellite type that are fully capable of stand-alone operation or integration with CCU’s central irrigation control system.

Additional requirements for irrigation systems shall be coordinated with the CCU Project Manager on a case by case basis.

LEED Considerations:

Water Efficiency: Water Efficient Landscaping (Credit 1)

32 92 00 Turf and Grasses

Turf grass requirements shall be coordinated on a case by case basis with the CCU Project Manager. In general, CCU utilizes 419 Bermuda for athletic fields and high foot traffic areas, Zoysia for dense shade areas, and Centipede for all other areas.

LEED Considerations:

Water Efficiency: Water Efficient Landscaping (Credit 1)

32 93 00 Plants

Designers shall utilize native species where possible with an emphasis on utilizing plants with a proven record of longevity within a 50 mile radius of the CCU Campus (except for locations immediately adjacent to the Atlantic Ocean and subject to the coastline micro-climate).

Frost intolerant plants, such as Oleander shrubs, shall not be used.

Sharp, poisonous, or otherwise dangerous plants shall not be used in areas adjacent to sidewalks, plazas, park spaces, or other areas where there is a significant likelihood of human contact.

LEED Considerations:

Water Efficiency: Water Efficient Landscaping (Credit 1)