## Laboratory Testing

### Construction Materials

### Asphalt Concrete:
- Bulk Specific Gravity of Core, Coated (CTM 308, ASTM D1188)
- Hveem Unit Weight (CTM 304/308)
- Hveem Unit Weight (ASTM D2727)
- Hveem Stabilometer Value (CTM 304)
- Asphalt Concrete JMF Verification
- Marshall Unit Weight (ASTM D1559), 3 plug average
- Marshall Stability/Flow (ASTM D1560), set
- Percent Bitumen (CTM 382)
- Percent Bitumen & Gradation of Extracted Sample (CTM 382/202)
- Film Stripping (CTM 302)
- HMA Moisture Content (CTM 371)
- Specific Gravity (Rice) of Bitumen Mix (ASTM D2041)
- Swell Test – Asphalt Concrete (CTM 305)
- Ignition Oven Correction Factor Aggregate and oil
- Ignition Oven Correction Factor Aggregate and oil w/ RAP
- Hveem AC Mix Design
- Marshall AC Mix Design
- Tensile Strength Ratio, Field Mix (CTM 371)
- Tensile Strength Ratio, Lab Mix (CTM 371)
- Tensile Strength Ratio, Lab Mix w/ Lime (CTM 371)
- Tensile Strength Ratio, Field Mix (ASTM D4867)
- Tensile Strength Ratio, Lab Mix (ASTM D4867)
- Tensile Strength Ratio, Lab Mix w/ Lime (ASTM D4867)

### Reinforced Concrete Tests:
- Compressive Strength, per cylinder (ASTM C39)
- Compressive Strength, per core (ASTM C39/42)
- Flexural Strength, 6x6x18 beam (ASTM C78)
- Compressive Strength of Shotcrete Panel, (ASTM C39/42)
- Compressive Strength of Shotcrete Cores
- Removal of Shotcrete Cores, In Lab
- Compressive Strength, Light Weight Concrete Fill
- Drying Shrinkage, 3 specimens, 28-day (ASTM C157)
- Modulus of Elasticity (ASTM C469)
- Tensile Strength, Splitting (ASTM C496)
- Petrographic Analysis of Cememtitious Mat
- Cement Content Analysis of Conc. (ASTM C1084)
- Coefficient of Thermal Expansion
- Concrete Trial Batch w/ lab testing

### Structural Masonry:
- Compressive Strength of Composite Prism, 8x8x16 (ASTM C1314)
- 8x12x16 (ASTM C1314)
- Compressive Strength of Masonry Block, (ASTM C140)
- Linear Shrinkage of Masonry Block, (ASTM C426)
- Shear Test of Masonry Cores, 6” (DSA)
- Compressive Strength of Masonry Cores, 6”
- Dimensions of Masonry Block, Set of 3 (ASTM C140)
- Efflorescence, Block with Mortar
- Efflorescence, Block only,
- Absorption of Masonry Block (ASTM C140),
- Unit Weight of Masonry Block (ASTM C140),
- Moisture Content of Masonry Block (ASTM C140),
- Mortar Compressive Strength
- 2x4, per cylinder (UBC STD 21-16)
- Grout Compressive Strength
- 2x2x2, per cube (ASTM C109)
- 3x3x6, per cube (UBC STD 21-18)
- Brick Compressive Strength, 5 brick set (ASTM C67)
- Brick Absorption Test (ASTM C67) 5 or 24-hour
  submersion, Efflorescence, Brick (ASTM C67)
- Modulus of Rupture (ASTM C67)
- Moisture As-Received (ASTM C67)
- Saturation Coefficient/Absorption
LABORATORY TESTING (CONTINUED)
CONSTRUCTION MATERIALS

STRUCTURAL STEEL
High Strength Bolt Testing (ASTM F606) Hardness, bolt, washer, or nut
Bolt Wedge Tensile, up to 7/8"
Bolt Wedge Tensile, 1 to 1-1/4"
Bolt Wedge Tensile, over 1-1/4"
Bolt Proof Load, up to 7/8"
Bolt Proof Load, 1 to 1-1/4"
Bolt Proof Load, over 1-1/4"
Nut Proof Load, up to 7/8"
Nut Proof Load, 1 to 1-1/4"
Nut Proof Load, over 1-1/4"
Bolt Assembly Test Series
Rebar, Tensile Test (ASTM A370)
   No. 9 bar and smaller
   No. 10-14 bar
   No. 18 bar
Rebar, Bend Test (ASTM A370)
   No. 9 bar and smaller
   No. 10-14 bar
Welded Rebar (CTM 670)
   No. 9 bar and smaller
   No. 10-14 bar
Mechanically Spliced (CTM 670)
   No. 9 bar and smaller
   No. 10-14 bar
   No. 18 bar
   Slippage Test in Addition to Tensile, each
Structural Steel, Tensile Test (ASTM A370)
   100k or less
   101k-200k
Structural Steel, Bend Test
Structural Steel, Pipe Flattening Test
Seven Wire Strand, Tensile/MOE (ASTM A416)
Seven Wire Strand, Tensile Only (ASTM A416)
Machining and Prep. of Structural Steel
Structural Steel Chemical Analysis
Skidmore Bolt Calibration, In Lab
Weld Procedure Qualification Test, Rebar
Welder Qualification Test, Rebar
Weld Procedure Qualification Test
Welder Qualification Test
Carbon Equivalent
Carbon Equivalent, Including Calculation
Macroetch Test of Welds
Nelson Stud Tensile (ASTM A370)
Charpy Impact Testing

FIREPROOFING:
Spray-Applied Fireproofing, Density (ASTM E605)
   Oven-Dry Method
   Displacement Method

ROOFING:
Asbestos Evaluation
Asphalt Softening Point
Roofing Material Analysis (ASTM D2829)
   with Surfacing
   without Surfacing
Roofing Tile, Absorption
Roofing Tile, Strength