WEST CONSULTANTS PLLC
405 South Sterling Street, Morganton, NC 28655
828 433 5661 / fax 828 433 5662 / info@west-consultants.com

ADDENDUM NO. 2

This ADDENDUM NO. 2 is being issued August 16, 2019, to all parties who hold a set of CONTRACT DOCUMENTS on the project entitled:

TOWN OF BEECH MOUNTAIN
NEW PUBIC WORKS FACILITIES
BEECH MOUNTAIN, NORTH CAROLINA

This ADDENDUM NO. 2 shall become part of the CONTRACT DOCUMENTS and its receipt acknowledged on the BID DOCUMENTS at the time of bidding.

General:

1. A record of attendance for the pre-bid meeting that was held on July 30, 2019 is included herein. General Contractors intending to submit a Bid were required to attend the meeting.

2. This Addendum No. 2 is intended to address questions that were raised during the pre-bid meeting as well as other questions received later. This Addendum No. 2 also presents new information. Bidders shall read all of it.

3. The following manufacturers have requested review as to qualifications and are approved.

	Equipment or Material	Manufacturer
a.	Insulated metal wall and roof panels (Sections 07 41 13.23, 07 42 13.19	All Weather Insulated Panels, Clayton, NC
b.	Lift No. 1 (Section 11 11 25)	Challenger 4015 Series

Specifications:

1. Table of Contents – Revised and enclosed herewith.

2. Bid Form: Revised and enclosed herewith. Includes a bid item as an allowance for kitchen appliances and increases the Contract Times by 90 days.

3. Standard General Conditions: Paragraph 7.02B – "regular working hours" may be interpreted as 7:00 AM to 7 PM.

4. Standard General Conditions: Paragraphs 15.06D and 15.08A have been revised. Pages 61 and 62 of 66 are included herewith with these changes.

5. Specification 01 50 00 Temporary Facilities and Controls, 3.05 Control of Erosion, Siltation, and Pollution: Enclosed herewith is a plan approved letter dated July 22, 2019

and NCG01 Self-Inspection, Recordkeeping and Reporting requirements (effective April 1, 2019). The contractor shall perform and comply with these requirements.

6. Section 01 50 00 Temporary Facilities and Controls, 3.12 Building Permits: The Owner (Town of Beech Mountain) will waive any building permit fees associated with this Project. (The permits will still have to be acquired by the Contractor).

7. The following Sections have changed. The paragraphs that are revised are highlighted in each section, and the section is enclosed herewith:

Section Number	Section Name
06 11 00	Wood Framing
07 42 13.19	Insulated Metal Wall Panels (Shop)
08 11 13	Hollow Metal Doors, Frames and Hardware
09 05 13.13	Interior Finishes
09 91 01	Painting
11 11 25	Vehicle-Lifting Equipment
11 11 26	Vehicle-Washing Equipment
11 82 36	Facility Waste Balers
13 34 19.11	Metal Building Systems (Salt Storage)
13 34 19.21	Metal Building Systems (Shop and Office)
21 13 13	Wet-Pipe Fire-Suppression Sprinkler Systems

8. New Section 05 12 00 Structural Metal Framing: This section has been added and is included herein.

9. Section 22-4000 Plumbing Fixtures: Page 22000-13 is revised and is enclosed herewith

Drawings:

1. The following are revised plan sheets and are enclosed herewith (note: revision clouds are not shown in every case where revisions were made):

1 of 1	Title
Civil	
C3 of 14	Master Site Plan
C4 of 14	Utilities
C5 of 14	Site, Grading, Drainage, & Erosion Control Plan - North
C6 of 14	Site, Grading, Drainage, & Erosion Control Plan - South
C7 of 14	Site, Grading, Drainage, & Erosion Control Plan - Water Tank Road
C10 of 14	Site Details (Wet Detention Pond & Tsb-1)
Building	
S1 of 9	Appendix B
S2 of 9	Floor Plan & Life Safety Egress Plan
S3 of 9	Elevations & Above Office Storage Floor Plan
S4 of 9	Details
S5 of 9	Preliminary Foundation Plan
S7 of 9	Recycle Center Buildings - Floor Plans and Elevations

S8 of 9	Recycle Center - Compactor Shelters
S9 of 9	Salt Storage Building

Plumbing

P1 of 6	Plumbing Specifications, Fixture Schedule and Typical Installation Details
P2 of 6	Waste and Vent Piping Plan - Office and Shop Areas
P3 of 6	Supply Piping Plan - Office and Shop Areas
P4 of 6	Underground Piping Requirements for Truck Wash System
P5 of 6	Air Piping Plan - Shop Area
P6 of 6	Recycle Center Plumbing Plans

Electrical

E1 of 11	Electrical Specifications, Requirements, Schedules and Typical Installation Details
E2 of 11	Electrical Panel Schedules and Power Riser for Public Works Building
E3 of 11	Shop Area Power Plan
E4 of 11	Shop Heater Power Plan
E5 of 11	Underground Conduit Requirements for Truck Wash System
E6 of 11	Office Power Plan
E7 of 11	Shop Lighting Plan
E8 of 11	Office Lighting Plan
E9 of 11	Salt Storage Electrical Plan
E10 of 11	Recycle Center Electrical Plans
E11 of 11	Recycle Center Panel Schedule, Power Riser and Electrical Details

2. The following are new plan sheets and are included herein:

Building

S6 of 9	Public Works Office – Timber Frame

Accessory Buildings – Structural Steel & Foundations

T1 of 12	Recycle Shelter – General Notes & Details
T2 of 12	Recycle Shelter – Foundation Plan and Details
T3 of 12	Recycle Shelter – Roof Framing Plan
T4 of 12	Recycle Shelter – Framing Elevations
T5 of 12	Recycle Shelter – Framing Elevations
T6 of 12	Recycle Shelter – Framing Sections
T7 of 12	Container Shelter – General Notes & Details
T8 of 12	Container Shelter – Foundation Plans and Details
T9 of 12	Container Shelter – Roof Framing Plan
T10 of 12	Container Shelter – Framing Elevations
T11 of 12	Container Shelter – Framing Elevations
T12 of 12	Container Shelter – Framing Sections

Clarifications:

1. Section 31 02 00 Earthwork 2.02 Excavation Classification: As specified in this section, the unit prices for "rock excavation" and "undercutting" are to include all work associated with removal of these materials along with the acquisition and placement of suitable material, where needed. As specified elsewhere, Contractor shall import and/or export materials, if needed, to achieve design elevations (except that the designated waste

area as shown on Sheet C5 may be used to reduce exporting). Therefore, it will be the Contractor's decision whether to breakdown rock into suitable sized pieces to qualify as structural fill or to export the rock and import suitable material in its place.

2. The term "shop" used in the Bidding Documents includes the Wash Bay portion of the metal building.

3. Section 08 51 13 Aluminum Windows: The term "sash" in the window specification does not imply that windows are operable. All windows are to be fixed type.

ADDENDUM NO. 2
Issued this 16th day of August 2019

Benjamin B. Thomas, PE
West Consultants, PLLC
Morganton, North Carolina

/kj

Town of Beech Mountain
New Public Works Facilities
Avery County, NC

PREBID MEETING
July 30, 2019, 2:00 PM
Beech Mountain Town Hall

RECORD OF ATTENDANCE

NAME	ORGANIZATION	EMAIL
Benjie Thomas	West Consultants, PLLC	bthomas@west-consultants.com
Bill Hatch	Town of Beech Mountain	rhatch@townofbeechmountain.com
Jeff Oliver	Simcon Co.	joliver@simoncompany.com
Marcus Anders	Bakers Construction Services, Inc	Marcus@bakersconstructionservices.com
John Eldredge	Vecellio & Grogan	John.Eldredge@vecelliogrogan.com
Coleman Clark	Wilkie Construction	estimator@wilkie-const.com
John Fesperman	MBI Builders	John@Mbibuilders.com
Pat Breedlove	GRC Construction	pat@grcinc.com
Jeremiah Trowbridge	M.Tech Cox Construction	jtrowbridge@mtechcox.com
Scott Pitts	VPC Builders	spitts@vpcbuilders.com
Berry Stubbs	Alan Tye + Assoc./Stertil Koni Lifts	bob@alantyelifts.com
Daniel Hall	Hamlett & Associates Inc	danielhamlett@gmail.com
Michael L. Morrison	Concurrent Concepts & Solutions	Michael.Morrison@congruentes.com
Steve Dudzinski	Sheram Williams	steve.dudzinski@sheram.com
Tim Hollaman	Town of Beech Mtn	thollaman@townofbeechmountain.com
* Alan Domaske	Simcon Co.	bids@simoncompany.com

* not attendee

TABLE OF CONTENTS

Contract Drawings:

West Consultants Project No. 18041

BID FORM

Town of Beech Mountain
403 Beech Mountain Parkway
Beech Mountain, NC 28604

New Public Works Facilities

Bid Submitted by: _____

TABLE OF CONTENTS

Page

Bid Recipient

1.01 This Bid is submitted to:

Town of Beech Mountain
403 Beech Mountain Parkway
Beech Mountain, NC 28604

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to

acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	**Addendum, Date**

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

	Item	Quantity	Unit	Unit Price	Total Bid
1.	Public Works Facilities, Complete (all work required by the Contract Documents not otherise itemized)	1	Lump Sum		$_____
2.	Rock Excavation - Mass	4,000	CY	$_____	$_____
3.	Rock Excavation - Trench	400	CY	$_____	$_____
4.	Undercutting (Unsuitable Soil Removal/Replacement)	800	CY	$_____	$_____
5.	Allowance for Appliances	1	Lump Sum		$10,000.00
	Total Bid			$_____	

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Bonds required under Paragraph 6.01 of the General Conditions will be based on the Contract Price.

5.01 **Bidder proposes to use the following manufacturers and agrees not to make substitutions unless approved by Owner and Engineer:**

Reference Section	Equipment or Materials	Manufacturer
Division 07	Metal Roof and Wall Panels	
11 11 25	Lift No. 1	
11 11 25	Lift No. 2	
11 11 26	Vehicle-Washing Equipment	
11 82 26	Facility Waste Compactors	
11 82 36	Facility Waste Baler	
13 34 19.11	Salt Storage Metal Building	
13 34 19.21	Shop and Office Metal Building	
Division 26	Standby Generator Set	

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete within **450** calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **480** calendar days after the date when the Contract Times commence to run.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Evidence of Authority to Sign, if applicable, in accordance with Article 13 of the Instructions to Bidders;

B. Required Bid security;

C. List of Proposed Subcontractors and the approximate value of each subcontract;

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

E. Contractor's License number and classification and limitation, or Evidence of Bidder's ability to obtain the necessary State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;

F. Identification of Minority Business Participation form, if applicable; and

G. "Affidavit A – Listing of Good Faith Efforts" or "Affidavit B – Intent to Perform Contract with Own Workforce", as applicable.

H. Iran Divestment Certification

***Bids not containing the required Attachments and information may be considered "Non-Responsive."**

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____
(where applicable)

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all disputes that Contractor believes are unsettled; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance*:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer **and Owner are** ~~is~~ satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment **and all work is completed to the satisfaction of the Owner.**

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer

and approved by the Owner (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion or after the date of the issuance of a certificate of occupancy for a building, whichever is later (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;
2. correct such defective Work;
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. ~~In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.~~

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

July 22, 2019

LETTER OF APPROVAL WITH MODIFICATIONS

The Town of Beech Mountain
ATTN: Mr. Tim H. Holloman
403 Beech Mountain Parkway
Beech Mountain, NC 28604

RE: Project Name: TOWN OF BEECH MOUNTAIN NEW PUBLIC WORKS BLDG
Acres Approved: 5.83
Project ID: AVERY 2019-003
County: Avery
City: Beech Mountain
Address: Beech Mountain Parkway
River Basin: Catawba
Stream Classification: West Fork Ponder Creek – WS-II;Trout;HQW
Submitted By: Mr. Benjamin Thomas, PE
Date Received by LQS: December 4, 2018
Date Revision Received by LQS: July 19, 2019
Plan Type: Institutional

Dear Mr. Holloman:

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable with modifications and hereby issue this letter of Approval with Modifications. The Modifications Required for Approval are listed on the attached page. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

As of April 1, 2019, all new construction activities are required to complete and submit an electronic Notice of Intent (NOI) form requesting a Certificate of Coverage (COC) under the NCG010000 Construction Stormwater General Permit. This form MUST be submitted and COC issued prior to the commencement of any land disturbing activity on the above-named project. The NOI form may be accessed at deq.nc.gov/NCG01. Please direct questions about the NOI form to Annette Lucas at Annette.lucas@ncdenr.gov or Paul Clark at Paul.clark@ncdenr.gov. After you submit a complete and correct NOI Form, a COC will be emailed to you within **three business days**. Initially, DEMLR will not charge a fee for

coverage under the NCG01 permit. However, a $100 fee will soon be charged annually. This fee is to be sent to the DEMLR Stormwater Central Office staff in Raleigh.

Title 15A NCAC 4B .0118(a) and the NCG01 permit require that the following documentation be kept on file at the job site:

1. The approved E&SC plan as well as any approved deviation.
2. The NCG01 permit and the COC, once it is received.
3. Records of inspections made during the previous 12 months.

Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to insure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Program is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, it is determined that the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to ensure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you provided. This permit allows for a land-disturbance, as called for on the application plan, not to exceed the approved acres. Exceeding the acreage will be a violation of this permit and would require a revised plan and additional application fee. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project. Please notify us if you plan to have a preconstruction conference.

Your cooperation is appreciated.

Sincerely,

Melissa J. King, PE
Assistant Regional Engineer
Land Quality Section

Enclosures: Modifications Required for Approval
NPDES NCG01 Fact Sheet

ec: Mr. B. Thomas, PE bthomas@west-consultants.com

MODIFICATIONS REQUIRED FOR APPROVAL

Project Name: TOWN OF BEECH MOUNTAIN NEW PUBLIC WORKS BLDG
Project ID: AVERY 2019-003
County: Avery

1. Prior to any disturbance at this site, the Certificate of Coverage for NCG01 Construction Stormwater General Permit must have been received.
{NCG01 Construction Stormwater General Permit}

2. All surface waters must be protected from sediment-laden runoff with adequate erosion sediment control devices and an adequate buffer. {G.S. 113A-57}{15A NCAC 04B .0106}{15A NCAC 04B .0109}{15A NCAC 04B .0125}

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (anc this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDCs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NORTH CAROLINA *Environmental Quality*

SECTION 05 12 00
STRUCTURAL METAL FRAMING

PART 1 – GENERAL

1.01 SUMMARY

This section covers structural steel for the Container Shelter and the Cardboard/Attendant Building. If not addressed elsewhere, this section shall also be used for incidental structural steel used elsewhere in the Work.

Extent of structural steel is shown on Drawings, including basic layout and type of structural steel required.

1.02 REFERENCES

Codes and Standards: Comply with applicable provisions except as otherwise indicated:

AISC "Code of Standard Practice for Steel Buildings and Bridges";
AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" including "Commentary";
AWS D1.1 "Structural Welding Code".
SSPC "Steel Structures Painting Manual, Volume 2, Systems and Specifications."
OSHA 1970 as amended to date of contract.
Building Code – 2012 North Carolina Building Code

1.03 SUBMITTALS

A. General
Submit listed submittals in accordance with the General Conditions.

B. Action Submittals

1. Shop Drawings:
Submit prints, showing complete details and schedules (if required) for fabrication, assembly and erection. Furnish anchor bolts required for installation in other work; furnish templates for bolt installation.

2. Shop and erection drawings include the following:
Types of materials, including sizes and weights of members, identifying by piece numbers and locations.
Location, types and details of connections.
Openings, including reinforcement as shown on the Drawings.
Welding sequences as required by "Structural Welding Code."
Erection drawings, erection sequence including piece numbers and location. Shop drawings must be completely checked by the contractor before submitting them for review.
Cleaning and painting schedules.

3. Reports
   a. Submit certified copies of mill test reports for all steel furnished. Perform mechanical and chemical tests for all material regardless of thickness or use. No part of the ASTM Specifications will be waived without written consent of the Engineer.
   b. Submit copies of prequalified and other welding procedures in form prescribed in AWS D1.1 "Structural Welding Code."
   c. Submit welder certifications.
   d. Submit Fabricator qualifications, including AISC certification.

e. Submit Erector qualifications.
f. At completion of shop fabrication, submit certificate of compliance, suitable for submittal to building official in accordance with 1704.22 of the Building Code, stating that all fabrication was performed in accordance with the approved shop drawings and the Contract Documents.

1.04 QUALITY ASSURANCE

A. Fabricator: The supplier of structural steel under this Section shall be a fabricator with substantial experience in the supply, cutting, welding, and delivery of components as specified herein and as regularly used in steel framed buildings. Fabricator shall also be a "Certified Building Fabricator" as certified by AISC's Quality Certification Program.

B. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure" AWS Dl.l.

Provide certification that both shop and field welders to be employed in work have satisfactorily passed AWS qualification tests within the previous 48 months.

Submit welding certificates to the Architect/Engineer for each welder's test results. In addition, the welder's employer shall certify that each welder has been engaged in the type of welding for which he is qualified within the preceding three months.

If recertification of welders is required, retesting will be contractor's responsibility.

C. Erector: Contractor or subcontractor erecting the structural steel framing and accessories shall be qualified for such work and shall have at least five (5) years' experience in performing work of similar scope and complexity as for this Project.

1.05 DELIVERY, STORAGE, AND HANDLING

Store materials to permit easy access for inspection and identification.

Keep steel members off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration, stack in such a manner that surface water will properly drain. If materials are to be stored for an extended period of time, cover in such a way that rain will not fall on the material, but air will flow freely through the stack.

Do not store materials on structure in a manner that might cause distortion or damage to members of supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 – PRODUCTS

2.01 MATERIALS

All materials shall comply with the following standards, as applicable:

Structural Steel Wide Flange Shapes: ASTM A992, Grade 50.
All Other Structural Steel Shapes, Steel Plates and Bars: ASTM A36.
Cold Formed Steel Tubing: ASTM A 500, Grade B, FY=46 Ksi
Steel Pipe: A 53, Type E or S, Grade B.
Fasteners: High strength bolts and nuts, ASTM A 325 N using "Turn of Nut" method of installation.
Anchor Bolts: ASTM A 307, nonheaded type unless otherwise indicated.

PART 3 – EXECUTION

3.01 FABRICATION

Comply with AISC "Specifications" and final shop drawings. Mark and match mark units for field assembly.

3.02 CONNECTIONS

As shown on final shop drawings. Use high strength bolts for field connections, except as otherwise indicated. Unless otherwise noted, all beam connections shall be Standard Frames Connections as shown in part 4 of the AISC Manual of Steel Construction. Unless reactions are indicated on the plans, connections shall develop at least one half of the total uniform load capacity tabulated in part 2 of the AISC Manual of Steel Construction. In no case, however, shall the connections be less than the one half the T dimensions.

Prior to fabricating any material, shop drawings must be reviewed by the Engineer. Paragraph 4.2.1 of Section 4, Code of Standard Practice for Steel Buildings and Bridges, (AISC) is hereby modified to delete the sentence, "This approval constitutes the Owner's acceptance of all responsibility for the design adequacy of any connections designed by the fabricator as a part of his preparation to those in AISC's "Structural Steel Detailing'.

Comply with AWS Code for procedures, appearance and quality of welds.

3.03 PROVISIONS FOR OTHER WORK

Fabricate structural steel members to provide holes for securing other work and for passage of other work through steel framing as indicated.

3.04 SHOP PAINTING

Paint structural steel work, except members or portions of members embedded in concrete or mortar, and contact areas to be welded or riveted. SPl and SP3 clean steel to remove loose mill scale, rust, oil and grease. Apply prime paint to provide a minimum dry film thickness of 4.0 mils. Refer to Section 09 91 01 for coating specifications.

3.05 ERECTION

Comply with AISC Code and Specifications, and maintain work in safe and stable condition during erection.

3.06 SET BASE PLATES

Set base plates on cleaned bearing surfaces, using wedges or other adjustments as required. Solidly pack open spaces with premixed, non-metallic, non-corrosive, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD C588, Type A.

Products offered by manufacturers to comply with the requirements for non-metallic, non-shrink grout include the following:

Euco N.S.; Euclid Chemical Co. Crystex
L & M Construction Chemicals Masterflow 713
Master Builders Five Star Grout
U. S. Grout Corp. Upcon
Upco Chemical Div., USM Corp. Propak
Protex Industries, Inc.

3.07 SPLICE MEMBERS

Splice members only where shown on final shop drawings.

3.08 TOUCH UP PRIME

Touch up prime paint after erection. Clean field welds, bolted connections and abraded areas, and apply same type paint as used in shop.

3.09 TEMPORARY SHORING AND BRACING

Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

3.10 TEMPORARY PLANKING

Provide temporary planking and working platforms as necessary to effectively complete work.

3.11 GAS CUTTING

Do NOT use gas cutting torches in field for correcting fabrication errors in structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Engineer. Finish gas cut sections equal to a sheared appearance when permitted.

Drill or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning or by use of drift pins. Drill holes in bearing plates.

END OF SECTION

SECTION 06 11 00
WOOD FRAMING

PART 1 – GENERAL

1.01 SUMMARY

This section includes heavy timber framing of exterior shelters and porch roof, along with decking and trim to be connected to these structures and to steel structures.

1.02 REFERENCES

DOCPS 20	Department of Commerce Voluntary Product Standard PS 20-10
SPIB	Southern Pine Inspection Bureau
NC Building Code	
AWPA Standards U1 and M4	American Wood Protection Association U1-Interior Dry M4-Standard for the Care of Preservative-Treated Wood Products
WCLIB	West Coast Lumber Inspection Bureau

1.03 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
1. Product Data: Submit literature showing proposed suppliers of wood, product details and evidence of compliance with these specifications, along with the same for attachment devices and other components.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

Protect wood products during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

PART 2 – PRODUCTS

2.01 GENERAL

A. Markings: All wood and wood products used for load-supporting purposes shall bear the grade mark of a lumber grading or inspection agency that has been approved by an accreditation body that complies with DOCPS20. For rough-sawn lumber and for sizes 5-inches or greater in nominal width, a certificate of inspection as to species and grade may be submitted in lieu of markings on the wood.

B. Framing Lumber: Where wood framing from 2 inches to 5 inches (but not including 5 inches) in nominal thickness, and 2 inches or more in nominal width is shown or scheduled: Provide lumber complying with grading rules which conform to the requirements of the “National Grading Rule for Dimension Lumber” of the American Lumber Standards Committee established under PS 20.

C. Framing lumber, except as otherwise specified or noted on the Drawings for specific items: WCLIB “Select Structural” grade Douglas Fir.

D. Boards, General: Where lumber less than 2" in nominal thickness and 2" or more in nominal width is shown or specified, provide boards complying with dry size requirements of PS 20. Boards shall be Douglass Fir "Select Structural".

E. Plywood Standard: For each use, comply with the requirements for "Softwood Plywood/Construction and Industrial" PS 1 by the US Department of Commerce. Plywood shall be produced by a member of the American Plywood Association. Use grade "A" where exposed. Use grade "D" face where completely concealed.

F. All products shall comply with the NC Building Code Chapter 23, unless otherwise noted, and shall be preservative treated in accordance with applicable requirements of AWPA Standard U1 and M4.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install plumb, level, true and straight with no distortions.

B. Cut to fit unless specified to be shop-fabricated or shop-cut to exact size.

C. Follow instruction of product manufacturers, applicable codes, and "Heavy Timber Construction" publication of the American Wood Council.

END OF SECTION

SECTION 07 42 13.19
INSULATED METAL WALL PANELS
(SHOP)

PART 1 – GENERAL

1.01 SUMMARY

A. Pre-insulated metal panel cladding where indicated on the Drawings. Also included are all necessary trims, fasteners, sealants and gaskets as required for a weathertight installation. Panels shall be secured to the structure with concealed clips and fasteners in the sidejoints.

1. Steel faced factory foamed-in-place with compatible joinery.
2. Sealants between panels and their intersection.
3. Extruded aluminum trim related to the walls and its intersection with adjacent materials.

1.02 REFERENCES

A. AAMA 501.1 – Standard Test Method for Exterior Windows, Curtain Walls and Doors for Water Penetration Using Dynamic Pressure.
B. ASTM A 653– Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
C. ASTM A 792 – Standard Specification for Steel Sheet, Aluminum-Zinc Alloy Coated Steel by the Hot-Dip Process.
D. ASTM C 518 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
E. ASTM E 72 – Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
F. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
G. ASTM E 283 – Standard Method for Determining the Rate of Air Leakage Through Exterior Window, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
H. ASTM E 330-02 - Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference
ASTM E 331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Wall by Uniform Static Air Pressure Difference
I. CAN/ULC S102 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.03 SUBMITTALS

A. Submit under provisions of the General Conditions.
B. Action Submittals
1. Manufacturer’s data sheets on each product to be used, including:
a. Preparation instructions and recommendations.
b. Storage and handling requirements and recommendations.
c. Material type, metal thickness and finish.
d. Installation methods.
2. Shop Drawings: Including elevations, fastening patterns, sections of each condition and details as required.
3. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer’s full range of available colors and patterns.

SECTION 08 11 13
HOLLOW METAL DOORS, FRAMES AND HARDWARE

PART 1 – GENERAL

1.01 SUMMARY

This section shall include all hollow metal doors, door frames, and door hardware that are indicated on the Drawings and as specified herein. Doors specified elsewhere are also included herein as to hardware only.

Types, sizes, design, and location of hollow metal doors and frames, and accessories shall be as shown on the Drawings.

1.02 REFERENCES

ASTM B633	Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
ASTM B879	Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface
HMMA 840	Guide Specification for Installation and Storage of Hollow Metal Doors and Frames

1.03 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
Product Data: Submit manufacturer's complete product literature for specified door, frames, and hardware, including:
1. Physical properties and dimensions demonstrating compliance with the Specifications and suitability for the intended use.
2. Manufacturer's storage, handling, and installation requirements and recommendations.
3. Project-specific information.
4. Any clarifications or exceptions.

PART 2 – PRODUCTS

2.01 MATERIALS

Steel shall be commercial quality, carbon steel sheets, free from scale, pitting, and surface defects. Gauges shall be U.S. Standard. Electrolytic, zinc-coated sheets shall conform to ASTM-B633. Steel for face sheets of hollow metal doors, and for broad frame faces, shall be stretcher-leveled.

Shop-coat primer shall be manufacturer's standard rust inhibitive baked primer over phosphatizing treatment. Electro zinc plating where required, shall be not less than 0.1 ounce of zinc per square foot, and conform to ASTM B633.

B. Hollow Metal Doors:

Hollow metal doors shall be flush type, 1 ¾-inch thick, formed of 16 gauge, stretcher-leveled, cold-rolled steel, sheets on both faces. In addition, exterior doors shall be fabricated from zinc-coated, bonderized sheets.

Finished work shall be free from warpage, bulge, or buckle. Corner bends shall be true, straight, and as sharp as possible for the gauge of metal used. Doors shall have no visible seams or joints on faces or stile edges.

Stiffen face sheets by continuous, vertical formed, sheet steel sections occupying full depth of interior space between door faces. Stiffeners shall be not less than 22 gauge, spaced not more than 6 inches apart, and securely attached to both face sheets by spot welds at not more than 6" on centers. Fill spaces between stiffeners for full height of door with a .6 to .7 pound density, inorganic, non-combustible batt-type material to sound-deaden and insulate door.

Join faces at stile edges by a continuous weld extending full height of door. Welds shall be ground, filled, and dressed smooth to make them invisible; and to provide a smooth, flash surface.

Close top and bottom edges of doors with a continuous, recessed steel channel of not less than 16 gauge sheet steel. Extend channel full width of door, and spot weld to both faces. Provide exterior doors with an additional flush closure at top edge. Where required for attaching weather-stripping, provide a flush closure at bottom edges, also. Space holes in bottom closure of exterior doors to permit escape of entrapped moisture.

Provide profiles on both stiles of door as follows:

Single-acting Swing Doors	Beveled 1/8" in 2"
Double-acting Swing Doors	Rounded on 2 1/8" radius

Mortise, reinforce, drill, and tap doors at factory for fully templated hardware in accordance with approved hardware schedule and with templates supplied by the hardware supplier. Reinforcement shall be welded within door. Where surface-mounted hardware is to be applied, provide only reinforcing plates in door. Drill and tap for hardware at factory for both mortised and surface hardware not subject to field relocation due to project conditions.

Treat all surfaces chemically to insure cleaning and maximum adhesion of finish. Install shop coat of rust-inhibitive primer. For exterior doors, clean off and touch-up all welds and areas where zinc-coating has been damaged. Touch-up with zinc-rich primer.

C. Glazing:
Provide insulated safety glass where view lites are indicated, including wire reinforcement as required for fire-rated doors.

D. Hardware:
Finished hardware, unless otherwise noted, necessary to complete building, must be furnished by the Contractor. Incidental hardware that may not be listed herein shall nevertheless be provided, to make each door assembly complete and functional. Any hardware not specifically mentioned must be equal in quality and design to that which is specified. All hardware must be of ample size to perform the duties for which it is intended and must conform with the finished shape or member-taking hardware.

The numbers used in the following hardware set schedule have been taken from the catalogs of Assa Abloy Dss, Inc.; McKinney, Corbin Russwin, Markar; or equal.

Finish:

Finishes shall be US 26D and US 32D, except as otherwise specified herein.

Keying:

All locks shall be identically keyed. Furnish six keys total.

Hardware shall be delivered to the Contractor with a checking list in perfect condition properly packed and marked for the location in which it is to be installed and accompanied by a list of instructions in such form as will facilitate a proper installation. At completion of work, all hardware shall be cleaned, all damaged or broken parts replaced and all hardware left in perfect working order.

E. Door Schedule:

No.	Location	Description	Hardware Set No.
1,2	Main Entrance, Front	Quad 3'0" x 7'0" (AL)(GP)(XOXX)	1
15	Exterior Office Door	3'0" x 7'0" (AL) (GP)	1
18, 22, 25, 29	Exterior Doors	3'0" x 7'0" (HM)	2
3,7,	Hall, Parts	3'0" x 7'0" Flush Solid Wood Core (Paint Grade) w/(HM - Frames)	3
5,6	Restrooms	3'0" x 7'0" Flush Solid Wood Core (Paint Grade) w/(HM - Frames)	4
10-14, 32	Office Storage, Comm. Rm., Offices (2-4), Plumbing Storage,	3'0" x 7'0" Flush Solid Wood Core (Paint Grade) w/(HM - Frames)	5
4, 16	Break Rm., Conference Room	3'0" x 7'0" Flush Solid Wood Core (Paint Grade) w/(HM - Frames)	6
8,9,17,31	Office 5, Shop, Laundry, 2nd Flr	3'0" x 7'0" (HM)	7
19-21, 23, 24, 26-28	Shop Bay Doors	Upward Acting Sectional Door (VL)	8
33	Wash Bay Interior	3'0" x 7'0" (HM)	2
34	Attendant's Office	3'0" x 7'0" (HM)	2
35	Salt Storage Personnel Entry	3'0" x 7'0" (HM)	2
36	Salt Storage Loading	Upward Acting Sectional Door	8

Legend: HM = Hollow Metal, VL = View Lite, GP = Glass Panel, AL=Aluminum "Store Front"

F. Hardware Schedule:

Quantity	Description	Catalog No.	Finish	Manufacturer
Hardware Set #1				
1	Continuous Hinge	HG305 with adjust-a screw fasteners	630	MA
1	Lockset	As Required	626	CR
1	Door Closer	DC6210 X A12 with prop open feature	689	CR
1	Set Weatherstrip	303APK		PE
1	Door Bottom Sweep	3452 CNB		PE
1	Threshold			PE

Hardware Set #2				
1	Continuous Hinge	HG305 with adjust-a screw fasteners	630	MA
1	Lockset	ML2065 NSA	US32D	CR
1	Kickplate	K1050 8” x 2” LDW	US32D	RO
1	Door Closer	DC6210 X A12	689	CR
1	Set Weatherstrip	303APK		PE
1	Door Bottom Sweep	3452 CNB		PE
1	Threshold	171A		PE
Hardware Set #3				
1	Continuous Hinge	HG305 with adjust-a screw fasteners	630	MA
1	Lockset	5010CWL	26D	K
1	Kickplate	K1050 8” x 2” LDW	US32D	RO
1	Door Closer	DC6210 X A12	689	CR
1	Set Weatherstrip	303APK		PE
1	Door Bottom Sweep	3452 CNB		PE
1	Threshold	171A		PE
Hardware Set #4				
3	Hinges	TA2714	26D	MC
1	Privacy Lockset	ML2030 NSA	630	CR
1	Door Closer	DC6200	689	CR
1	Kick Plate	KP1050 8” X 2” LDW	32D	MC
1	Wall Stop	406	32D	RO
3	Door Silencers	608		RO
Hardware Set #5				
3	Hinges	TA2714	26D	MC
1	Lockset	ML2051 NSA	26D	CR
1	Wall Stop	406	32D	RO
3	Door Silencers	608		RO
Hardware Set #6 Same as HW set #5				
1	Lockset	ML2010 NSA	26D	CR
Hardware Set #7 Same as HW set #5				
1	Lockset	ML2051 NSA (Doors 8,9,31)	26D	CR
1	Lockset	ML2010 NSA (Door 17)	26D	CR
1	Door Closer	DC6210 x A12	689	CR
Hardware Set #8				
1	Cylinder	AS REQUIRED	626	CR

Finish Legend	
26D	Satin Chrome
32D	Satin Stainless Steel
630	Satin Stainless Steel
689	Aluminum Painted
US32D	Stainless Steel, Dull
626	Satin Chrome

Manufacturer Legend	
CR	Corbin Russwin
MC	McKinney
MA	Markar
RO	Rockwood
PE	Pemko
K	Kaba

PART 3 – EXECUTION

3.01 INSTALLATION

Follow guidelines of HMMA 840.

Install frames, plumb, rigid, and in true alignment. Brace properly until built into wall. Inspect frames for plumbness and correct positioning before being tied finally into wall structure. Frames installed out of correct position shall be torn out and replaced.

Secure door frames to floor with countersunk expansion device at each jamb. If applicable, build adjustable anchors into masonry walls as the work progresses.

Hang metal doors plumb and true, with doors making uniform contact with metal frames on all sides. Metal doors that cannot be hung to fit evenly on all sides shall be removed and replaced.

END OF SECTION

SECTION 09 05 13.13
INTERIOR FINISHES

PART 1 – GENERAL

1.01 SUMMARY

This section covers the construction and supply of various interior components for the main building office section and the Attendant office with restroom.

1.02 REFERENCES

NC Building Code
ASTM F1066 Class 2 “through” pattern
ASTM E662 Smoke Chamber Test.
ASTM 1280 Standard Specification for Application of Gypsum Sheathing
ASTM C36 Standard Specification for Gypsum Wallboard
ASTM C474 Standard Test Methods for Joint Treatment Materials for Gypsum Board Construction
ASTM C475 Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
Fed Spec. SS-J-570a, Type I, Type II, and Type III
End-Joint Compounds and Tape Wallboard (For Gypsum Wallboard Construction)

1.03 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
Product Data: Submit manufacturer’s complete product literature for specified products and accessories, including:
1. Physical properties demonstrating compliance with the Specifications and suitability for the intended use.
2. Manufacturer’s storage, handling, and application requirements and recommendations.
3. Project-specific information
4. Any clarifications or exceptions.
5. Samples of all ceramic tile, lvt, base and acoustical tile and suspension system shall be submitted to the Owner and Engineer for approval.
6. Samples of all acoustical tile and suspension system shall be submitted to Engineer for approval.

C. Closeout Submittals:
1. Manufacturer’s standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Contractor’s correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.

1.04 DELIVERY AND STORAGE OF MATERIALS

All materials shall be delivered in their original unopened packages, containers, and bundles bearing the name of the manufacturer and the brand name. Materials shall be stored in an enclosed shelter providing protection from damage and exposure to the elements. Damage or deteriorated materials shall be removed from the premises.

PART 2 – PRODUCTS

2.01 METAL STUDS AND DRYWALL

A. All materials included herein shall be manufactured by the companies regularly engaged in producing such materials and shall be applied where indicated and as specified. Product names and numbers listed herein are used to establish the type and performance required but do not restrict experienced manufacturers from being allowed. Installation of partition materials shall be done by workmen experienced in this trade.

B. Metal Stud and Drywall Systems:
   1. Single Layer Wallboard Partitions: Shall be composed of 3-5/8" x 25 Ga. minimum with 5/8" gypsum board, screw attached to each side.
   2. Bridging: Metal studs to have cold rolled channel bridging. ¾" x 16 Ga. @ 3-5/8" studs. Use 16 Ga. Clip screwed to bridging and each steel stud. Walls up to 10'-0" to have 1 row.
   3. Design loads: 5 psf minimum as required by NC Building Code. Additional support shall be provided for wall mounted plumbing fixtures.
   4. Design framing systems to accommodate deflections of the primary building structure, construction tolerances and to withstand design loads with maximum deflections limits of NC Building Code.
   5. Contractor shall be responsible for providing final design per NC Building Code, and to construct wall system based upon final design, at no additional cost to Owner.

C. Materials:
   1. Studs: Shall be of sizes as indicated on the Drawings and be channel type, roll-formed from galvanized steel, designed for screw attachment.
   2. Floor and Ceiling Runners: Shall be 1-1/4" deep leg runners formed of galvanized steel, and in sizes to correspond with studs. Gauge of runners to correspond with studs.
   3. Gypsum Wallboard: Shall have radial edges specially designed to overcome joint deformation, shall comply with ASTM C36, and shall be: 5/8" thick x 48" or 54" wide, Sheetrock Brand Mold Tough or equal.
   4. Gypsum Sheathing, if applicable, shall be ½" thick x 48" wide with asphalt treated gypsum core and water repellant building paper surface as manufactured by U.S. Gypsum.
   5. Tile Backerboard, if applicable, shall be 5/8" thick fiber reinforced gypsum product.
   6. Cement Board, if applicable, shall be 5/8" thick cementitious fiber reinforced mat sheathing, and shall comply with ASTM 1280.

D. General Gypsum Guidelines:
   1. Joint Treatment Products: Shall conform to ASTM C474 and C475. and Fed Spec. SS-J-570a, Type I, Type II, and Type III.
      a. Pre-fill compound shall be Durabond 90 Joint Compound or equal – Multipurpose.
      b. Taping compound shall be Durabond Joint Compound or equal – Taping.
      c. Topping compound shall be Durabond Joint Compound or equal – Topping.
      d. Reinforcing Tape shall be Perf-A-Tape Reinforcing Tape or equal, spark perforated and with beveled edges.
   2. Wallboard Sealant shall be Sheetrock Brand W/R sealant or equal.
   3. Fasteners, Wallboard shall be 1" U.S.G Brand Hi=Lo Type S or equal bulge head screws.
   4. Fasteners, stud to runner shall be 3/8" U.S.G. Brand type S or equal pan head screws.
   5. Fasteners, stud to door frame shall be ½" U.S.G. Brand type S-12 or equal pan head screws.
   6. Grout, Door Frame shall be Durabond 90 or equal joint compound – multipurpose.
   7. Corner beads shall be U.S.G. corner reinforcement N0. 103 or equal.

8. Metal Trim shall be U.S.G. or equal metal trim, galvanized, of sizes corresponding with the wallboard thickness and types.
9. Control joints shall be U.S.G. or equal control No 093 or equal, roll formed of zinc.
10. Caulking shall be a resilient non-hardening, non-shrinking, non-skinning, non-staining material, U.S.G. Acoustical Sealant or equal.
11. Metal angle runners shall be U.S.G. or equal metal angle runners, 1-3/8" x 7/8" x 24 ga. galvanized steel angle sections.

2.02 LUXURY VINYL COMPOSITE TILE – LVT and BASE

A. LVT shall be 0.125" (1/8") thick uniform in size, 20 mil wear layer, with edges cut accurately and square with 20 year commercial warranty.

B. Colors and patterns shall be selected BY Owner from the manufacturer's color palette for LUXURY LVT and Base.

C. Manufactured by Armstrong "Natural Creations Diamond 10 Technology ArborArt and Earth Cuts" (main entrance) or equals.

D. Base shall be uniform thickness, supplied on rolls, premium thermoplastic, coved style for resilient flooring.

2.03 CERAMIC TILE and BASE

A. Ceramic Tile shall be 8" x 8", square for the shower, walls and floor.

B. Colors and patterns shall be selected by Owner from the manufacturer's color palette for Quarry Basics XA Tile and Base.

C. Manufactured by Quarry Basics XA Abrasive slip resistance Tile from Metropolitan Ceramics, division of Iron Rock or equal.

D. Furnish Standard Grade certificate conforming to ANSI A137.1.

E. Quarry tile trim size, color and shape to match field tile.

2.04 ACOUSTICAL CEILINGS

A. Acoustical tile and suspension system shall be the non-fire rated type: tile shall be mineral fiber in 24" sq. x 3/4" min., lay-in type, smooth design, white color, with recessed profile.

B. Suspension system for suspended acoustical tile shall be manufactured by Armstrong "Ultima" or equal and shall be the exposed grid system and shall be the non-fire rated type.

C. Edge strips:
Metal edge strips with white baked enamel finish, except as otherwise specified, shall be provided at all walls, or on vertical surfaces where acoustical tile edges would be exposed. Edge strips shall be of an approved design to prevent sagging and fastening methods and spacing shall be such that no sagging will occur in edge strips.

2.05 TOILET ROOM ACCESSORIES

A. Provide the following accessories in EACH toilet room as a minimum (items 1-6) and (items 7-8 main building only).
   1. Toilet Paper Holders: Shall be 18-8 polished stainless steel or brass chrome plated with chrome plated roller. One (1) required.
   2. Paper Towel Dispenser & Waste Receptacle: Shall be ADA recess mounted, roll towel, with min. 12-gal waste container, fabricated of 22 ga. stainless steel and satin finish. Dispenser shall be recessed type, battery-powered, touchless, automatic, similar to Georgia-Pacific Model #59466. Dispenser cover shall be 24 gage, #304 stainless steel, #4 AISI satin brush finish. One (1) required.
   3. Grab Bars (Type 1): Shall be wall hung bar fabricated of 18. ga. Stainless steel 1-1/2" o.d. tubing with 1-1/2" clearance to wall and shall have safety grips surface, model shall be for handicapped toilets: 42" long. (Located beside water closet). One (1) required.
   4. Grab Bar (Vertical): Same construction as (Type I) except 18" long and placed vertical. Located beside water closet. One (1) required.
   5. Grab Bar (Type 2): Same construction as (Type 1) except 36" long. (Locate behind water closet). One (1) required.
   6. Mirror: Shall be wall hung 18" x 36" min. fabricated of 20 ga. stainless steel frame, mitered corners, mirror edge protected by chafe absorbing fillers, mirror No. 1 quality, ¼" glass, silver coated and sealed. One (1) required.
   7. Grab Bars (Type 3): Shall be wall hung bar fabricated of 18. ga. Stainless steel 1-1/2" o.d. tubing with 1-1/2" clearance to wall and shall have safety grips surface, model shall be for handicapped roll in showers: 48" long. (Located on back wall of shower). One (1) required.
   8. Grab Bars (Type 4): Shall be wall hung bar fabricated of 18. ga. Stainless steel 1-1/2" o.d. tubing with 1-1/2" clearance to wall and shall have safety grips surface, model shall be for handicapped roll in showers: 24" long. (Located on side walls of shower). Two (2) required.

B. Structural Strength: All components of a grab bar, supporting structure, and concealed blocking shall be strong enough to resist a 250 pound concentrated force applied either horizontally or vertically.

2.06 TOILET STALL PANELS

A. General: The toilet partitions shall be solid high-density polyethylene (HDPE) polymer with floor anchored and overhead braced installation. Furnish materials necessary for completion of work in this section as and shown in approved drawings.

B. Product

1. Doors and Pilasters: Shall be 1" thick (door and panels 55" high, pilasters 82" high) HDPE polymer that is water resistant and non-absorbent. A heat sinc shall be attached as standard to the bottom of all doors and panels.
2. Material: The HDPE material shall have homogenous color throughout each component with ¼" machined edges for uniformity. Self-lubricating surface shall resist markings from pens, pencils and other writing instruments.
3. Color: Shall be selected from a full range of standard designer colors.
4. Door Hardware: Integral hinges shall be integrated into the door and pilaster with no exposed metal parts. The ½" nylon gravity cam hinge with a 3/16" stainless steel center pin (bottom) and ½" nylon rod (top) shall be set during installation to desired open position when not locked. Slide latch, strike, keep and coat hook shall be brushed aluminum alloy to resist corrosion. Latch, strike and keeper shall be through bolted with

tamper resistant barrel nuts and shoulder screws. Slide latch assembly shall allow for emergency access by lifting the door from the bottom.

5. Mounting Hardware: Panel brackets shall be 54" long and extruded from PVC resin with 6 through bolt panel attachment points. Panels shall be through bolted with tamper resistant barrel nuts and shoulder screws.
6. Construction Design: Partitions shall be anchored to the floor with a ¼" x 1" stainless steel mounting bar attached to the bottom of the pilaster. Floor anchoring system shall be secured to the floor with 3/8" stainless steel anchors. The mounting system shall be concealed by molded plastic trim shoes secured with two metal clips incorporated into the floor anchor assembly. Aluminum head rail with anti-trip profile shall provide overhead bracing and span all compartments and brace the end pilaster to the back wall.
7. Door and panels shall be mounted above the finished floor.

PART 3 – EXECUTION

3.01 INSTALLATION

Installation shall be in strict accordance with the manufacturer's instructions and recommendations.

3.02 METAL STUDS AND DRYWALL

A. Climate Control
When outdoor temperature is below 55 degrees F, heat shall be maintained in the building continuously and uniformly at not less than 55 degrees F from one week prior to beginning of installation until the gypsum wall board application and joint treatment is completed. Installation shall not be started until windows are glazed and doors are installed, unless openings are temporarily closed. Ventilation either natural or supplied by fans, circulators, or air conditioner equipment, shall be provided to remove excess moisture during joint treatment.

B. Installation
1. Metal runners shall be aligned accurately according to partition layouts and secure to concrete slabs with stud nails or power driven anchors, spaced 24 inches on center.
2. Caulking shall be applied in beads of 3/8" diameter where specified or detailed. Entire perimeter of face layer of wallboard shall be caulked tight, on each side of partition.
3. Metal studs shall be placed not to exceed 24" or 16" o.c., as called for on the drawings, into floor and ceiling runners and shall be secured to runners with screws of USG Metal Lock Fastener Tool or equal at door and window frames, partition intersections and corners.
4. Metal door studs shall be located within 2" of all door frame jambs and shall be anchored to the jambs and head anchor clips of each frame by bolt or screw attachment. Over frames, a cut-to-length section of runner shall be installed with flanges slip and web bent to allow flanges to overlap adjacent studs. A cut-to-length stud extending from door frame header to ceiling runners shall be positioned at vertical joints over door frames.
5. Wallboard screws shall be applied with an electric screw gun. Screws shall be driven not less than 3/8" from ends or edges of wallboard to provide uniform dimple not over 1/32" deep.
6. Gypsum sheathing shall be applied with long dimension horizontal and with vertical joints staggered ½ sheet. Stagger joints from inside gypsum board finish. Attach with 1-1/4" screws spaced 8" o.c. in the field of the board and into each stud. Screw attach at 4" o.c. staggered along vertical joints of the board. Sheathing paper shall be installed over entire surface of gypsum sheathing as specified.
7. Single layer wallboard shall be applied face out with long dimension vertical. All abutting ends and edges shall occur over stud flanges. Joints on opposite sides of a partition shall occur on different studs.

Screws shall be spaced 12" o.c. in the field of the board, and 8" o.c. staggering along the vertical abutting edges, or as recommended wallboard manufacturer's literature – submit copy.

8. Joint treatment compounds shall be mixed according to manufacturer's directions.
   a. Pre-filling: All "V" grooves formed by abutting eased radial edges of wallboard shall be filled flush with the plane of the taper with pre-fill compound. Excess compound beyond the "V" groove shall be wiped clean leaving a flat joint to receive taping.
   b. Taping: After pre-fill has hardened, a thin uniform layer of taping compound shall be applied to all joints and angles to be reinforced. Reinforcing tape shall be applied immediately centered over the joint, seated into the compound. A skim coat shall follow immediately, but shall not function as a fill or second coat. Tape shall be properly folded and embedded in all angles to provide a true angle.
   c. Filling: after taping compound has hardened, topping compound shall be applied filling the board taper flush with the surface. The fill coat shall cover the tape and feather out slightly beyond the tape. On joints with no taper, the fill coat shall cover the tape and feather at least 4" on either side of the tape. No fill coat is necessary on interior angles.
   d. Finishing: After topping compound is set, a finish coat of topping compound shall be spread evenly over and extend slightly beyond the fill coat on all joints and feather to a smooth, uniform finish. Over tapered edges, the finish joint shall not protrude beyond the plane of the surface. All taped angles shall receive a finish coat to cover the tap and taping compound, and provide a true angle. Where necessary, sanding shall be done between coats and follow the final application of compound to provide a smooth surface, ready for decoration.
9. Fastener depressions: Taping compound shall be applied to all fastener depressions followed, when hardened, by at least two coats of topping, leaving all depressions level with the plane of the surface.
10. Finishing beads and trim: Taping compound shall be applied to all bead and trim and shall be feathered out from the ground to the plane of the surface. When hardened, this shall be followed by two coats of topping compound each extending slightly beyond the previous coat. The finish coat shall be feathered from the ground to the plans of the surface and sanded as necessary to provide a flat, smooth surface ready for decoration
11. Cleaning: At the completion of the installation of the partitions, all rubbish shall be removed from the building, leaving floors broom clean. Excess material, scaffolding, tools and other equipment shall be removed from the building and job site.

3.03 LUXURY VINYL TILE – LVT and BASE

A. Inspection of Surfaces
   1. Examine substrate for evidence of excessive moisture content, residues, contaminants, and unevenness that would prevent execution and quality of resilient flooring assembly as specified.
   2. Verify that new concrete substrates have been cured for at least 30 days. Verify that no chemical curing compounds have been used or are present on surface of substrates.
   3. Notify Owner of any adverse conditions encountered during examination of substrate. Do not proceed with installation of resilient flooring until defects have been corrected except where correction is indicated under PREPARATION in this Section.

B. Preparation
   1. Comply with the flooring manufacturer's written recommendations for existing and new substrate preparation as applicable.
   2. Remove dirt, oil, grease, or other foreign matter from surfaces to receive floorcovering

materials.

3. Broom clean or vacuum surfaces to be covered.
4. Remove substrate ridges and bumps.
5. Use finishing underlayment to fill small cracks and depressions in substrate. Provide at all locations where uneven existing floor slab conditions are not satisfactory for the application of the scheduled new floor finish. Apply finish underlayment in accordance with manufacturers written instructions.

C. Application of Adhesives
   1. Mix and apply adhesives in accordance with manufacturer's instructions.
   2. Provide safety precautions during mixing and applications as recommended by adhesive manufacturer.
   3. Apply uniformly over surfaces.
      a. Cover only that amount of area that can be covered by flooring material within the recommended working time of the adhesive.
      b. Remove any adhesive that dries or films over.
      c. Do not soil walls, bases or adjacent areas with adhesives.
      d. Promptly remove any spillage.
   4. Apply adhesives with notched trowel or other suitable tool recommended by adhesive manufacturer.

D. Installation of LVT and Base
   1. Comply with the flooring manufacturer’s written installation instructions.

3.04 CERAMIC TILE AND BASE

A. Product Handling
   1. Deliver all products to job site in manufacturer's unopened cartons.
   2. Keep tile cartons dry and protect from vandalism.

B. Environmental Conditions
   1. Maintain temperature at 50 degree F minimum during tilework and for 7 days after completion. Do not apply tile to frozen surfaces.
   2. Vent temporary heaters to outside to avoid carbon monoxide damage to new tilework.
   3. Provide adequate lighting for good grouting and clean-up.

C. Setting Materials: Follow ANSI A108 Series specifications for setting materials as set forth below. Refer to ANSI A108 Forward - Explanation and Notes and TCA Handbook for description and appropriate uses of setting materials.
   1. Portland Cement Mortar: ANSI A108.1A
   2. Dry-Set Mortar: ANSI A108.5, A118.1
   3. Latex Portland Cement Mortar: ANSI A108.5, A118.4
   4. Epoxy Mortar: ANSI A108.6, A118.3
   5. Modified Epoxy-Emulsion Mortar: ANSI A108.9, A118.8
   6. Furan Mortar: ANSI A108.8, A118.5
   7. Organic Adhesives (for interior use only): ANSI A136.1 Regardless of the setting material chosen, use of a 3/8" square notched trowel is recommended when installing Metropolitan Ceramics tile.

D. Grouting Materials: Refer to ANSI A108 Series and TCA Handbook for description and appropriate uses of grouts.

1. Floors and Walls: furnish a commercial grout meeting the appropriate specification.
2. Sand-Portland Cement Grout: ANSI A108.10
3. Latex-Portland Cement Grout: ANSI A108.10
4. Epoxy Grout: ANSI A108.6, A118.3
5. Modified Epoxy Emulsion Grout: ANSI A108.9, A118.8
6. Furan Grout: ANSI A108.8, A118.5

E. Protective Materials: See ANSI A108.1-A-1-5 "Environmental Conditions and Protection" for information specific to the type of setting materials and grouts used.

F. Acceptability of Surfaces: Before tiling, be sure variations of surface to be tiled fall within maximum variations shown below:

	Walls	Floors
Dry-Set Mortar	1/8" in 8'	1/8" in 10'
Epoxy Mortar	1/8" in 8'	1/8" in 10'
Organic Adhesive	1/8" in 8'	1/16" in 3'

Report all unacceptable surfaces to the engineer and do not tile such surfaces until they are leveled enough to meet above requirements.

Before tiling, be sure surfaces to be tiled are free from coating, curing membranes, oil, grease, wax and dust.

G. Layout:
1. Determine locations of all movement joints before starting tile work.
2. Lay out all tile work so as to minimize cuts less than one-half tile in size.
3. Locate tile cuts so as to be least conspicuous.

H. Transitions:
1. Transitions from tile to different finish surfaces (Carpet, Exposed Concrete) shall be per ADA rules ICC/ANSI A117.1-2003.
2. Coordination shall be made between trades by contractor.

I. Workmanship:
1. Supply first-class workmanship in all tile work.
2. Use all products in strict accordance with recommendations and directions of manufacturer.
3. Proportion all mixes in accordance with latest ANSI Standard Specifications.
4. For maximum adhesion, backbutter tile.
5. Use a beating block to embed tile and align surfaces and edges.

J. Setting Methods: Refer to applicable parts of ANSI A108 Series and TCA Handbook for information and details concerning appropriate setting methods for specific job conditions.

K. Grouting:
1. Follow grout manufacturer's recommendations as to grouting procedures and precautions.
2. Remove all grout smears and haze, observing grout manufacturers' recommendations as to use of acid or chemical cleaners. DO NOT USE ANY PRODUCT CONTAINING HYDROFLUORIC ACID SINCE IT WILL ATTACK BOTH GROUT AND TILE.

L. Curing and Protection from Construction Dirt and Traffic:
Follow directions set forth in ANSI A108. Series for curing based on type of setting material and grout used.

M. Initial Cleaning and Seasoning:
1. It is the installer's responsibility to thoroughly clean and remove all grout or mortar residue from the new tile surface.
2. Because grout joints are porous and highly susceptible to staining, protect them with an application of a *penetrating sealer*, such as Aqua Mix Penetrating Sealer.

3.04 ACOUSTICAL CEILINGS

Hangers and main runners shall be spaced in accordance with the manufacturer's specifications and recommendations governed by expected maximum load. Main runners shall be accurately leveled and spaced. Install a baked white enamel finish metal angle or channel molding, matching the ceiling system at all sides of ceiling grilles, recessed light fixtures, and other items shown in ceilings. All acoustical tile units shall be removable for access to areas above the ceiling.

Where electrical fixtures are attached to the suspension system, additional 12 ga. galvanized wire supports shall be installed from structure to the suspension system to properly support the electrical fixtures. This Contractor shall verify all locations of electrical fixtures and provide proper support for the suspension system so that the electrical fixtures can be attached to same.

END OF SECTION

SECTION 09 91 01
PAINTING

PART 1 – GENERAL

1.01 SUMMARY

This section includes preparation of surfaces to be painted on site, all field painting, and the repairs to the shop priming or finish coats of paint. In general, all equipment furnished with standard shop finishes shall be field painted, except graphic panels, electrical equipment, instruments, and similar items with baked-on enamel finishes.

1.02 REFERENCES

A. Without limiting the general aspects of other requirements of these specifications, all surface preparation, coating and painting of surfaces shall conform to the applicable requirements of the Steel Structures Painting Council, National Association of Corrosion Engineers (NACE), International Concrete Repair Institute (ICRI), and the manufacturer's printed instructions.

B. The Owner’s decision shall be final as the interpretation and/or conflict between any of the referenced specifications and standards contained herein.

1.03 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
Product Data: Submit manufacturer’s complete product literature for specified pipe paint, including:
1. Physical properties demonstrating compliance with the Specifications and suitability for the intended use.
2. Manufacturer’s storage, handling, and application requirements and recommendations.
3. Project-specific information
4. Any clarifications or exceptions.
5. Paint schedules shall be submitted to the Engineer for selection of colors by the Owner. Manufacturer's color charts shall be submitted to the Owner at least 30 days prior to paint application.

C. Closeout Submittals:
1. Manufacturer’s standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Applicator’s correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.

1.04 APPLICATOR QUALIFICATIONS

A. The applicator shall have five years’ practical experience and successful history in the application of specified products in similar projects. Applicator shall substantiate this requirement by furnishing a list of references and job completions.

B. The Contractor shall provide a site mock up with each paint system as a representative of how the systems shall be installed and their final appearance, which is to be approved by the Owner and Engineer before any

work is started. For overcoat projects this mock up shall be used to test for adequate adhesion. This approved mock up shall be the quality standard for the rest of the project.

1.05 QUALITY ASSURANCE

A. General: Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application, and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards and are approved by the Engineer.

B. Surface Preparation: Surface preparation will be based upon comparison with: "Pictorial Surface Preparation Standards for Painting Steel Surfaces", SSPC Vis 1 and ASTM Designation D2200; "Standard Methods of Evaluating Degree of Rusting on Painted Steel Surfaces" SSPC Vis 2 and ASTM Designation D610; "Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive" or “Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coating and Polymer Overlays” and ICRI CSP Surface Profile Chips.

C. Application: No coating or paint shall be applied: When the surrounding air temperature or the temperature of the surface to be coated is below the minimum required temperature for the specified product; to wet or damp surfaces or in fog or mist; when the temperature is less than 5 degrees F above the dewpoint; or when the air temperature is expected to drop below 40 degrees F within six hours after application of coating. Dewpoint shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables. If above conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.

D. Thickness and Holiday Checking: Thickness of coatings and paint shall be checked with a nondestructive, magnetic type thickness gauge. The integrity of coated interior surfaces shall be tested with an approved inspection device. Nondestructive holiday detectors shall not exceed the voltage recommended by the manufacturer of the coating system. For thicknesses between 10 and 20 mils (250 microns and 500 microns), a non sudsing type wetting agent, such as Kodak Photo Flo, may be added to the water prior to wetting the detector sponge. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations, and retested. No pinholes or other irregularities will be permitted in the final coating.

E. Inspection Devices: The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry film thickness of coating and paint. The Contractor shall also furnish U.S. Department of Commerce; National Bureau of Standard certified thickness calibration plates to test accuracy of dry film thickness gauges and certified instrumentation to test accuracy of holiday detectors.

F. All necessary testing equipment shall be made available for the Engineer’s use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Owner.

G. All parties, to include the Owner, Engineer, Contractor, applicator, and the product manufacturer, shall meet prior to any work is started to review the Section and discuss project specific expectations, needs and requirements.

1.06 SAFETY AND HEALTH REQUIREMENTS

In accordance with requirements set forth by regulatory agencies applicable to the construction industry and manufacturer's printed instructions and appropriate technical bulletins and manuals, the Contractor shall provide and require use of personnel protective lifesaving equipment for persons working on or about the project site.

1.07 DELIVERY, STORAGE, AND HANDLING

All materials shall be brought to the jobsite in original, sealed containers. They shall not be used until the Owner has inspected contents and obtained data from information on containers or labels. Materials exceeding storage life recommended by the manufacturer shall be rejected.

All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paint must be stored to conform to City, County, State and Federal safety codes for flammable coating or paint materials. At all times, coating and paints shall be protected from freezing.

PART 2 – PRODUCTS

2.01 MANUFACTURER

Manufacturers of paint products for water process components shall only be those companies that have regularly and successfully manufactured coating systems for the municipal water and wastewater industry for at least ten (10) years consecutively prior to this contract. Approved manufacturers include Tnemec, Sherwin-Williams, Ameron, and Carboline. Other approved manufacturers for coatings for certain components are as listed in the following schedules.

2.02 COATING SYSTEMS

A. Exterior cement board surfaces:
Prime Coat: Tnemec Series 10-99W, or equal.
Finish Coats: Tnemec Series 1029 Enduratone, or equal. Apply two coats over primer at 2.0 to 3.0 mils per coat. Color shall be selected by Owner.

B. Interior wood surfaces (trim) and interior cement board: Applies to items not fully prefinished.
Prime Coat: Glidden UH-250 or Sherwin Williams or Devoe equals, or other equal.
Finish Coats: Glidden #7770 flat or low gloss latex paint, or Sherwin-Williams or Devoe Equals, Tnemec Series 1029 Enduratone,or other equal. Apply two coats over primer at 2.0 to 3.0 mils per coat. Color shall be selected by Owner.

C. Interior walls and metal surfaces (restrooms gypsum board, and all hollow metal):
Prime Coat : Hollow metal shall be shop primed with gray enamel.
Finish Coats:
1. Pittsburg Pitt Glaze and High Solids Pitt Glaze Semi-Gloss or Sherwin-Williams Tile-Clad II Epoxy, B62 Series/B60 V70 or Glidden Glid-Guard Chemical Resistant Epoxy #4508 Series or Tnemec Series 113 Tneme-Tufcoat. Application: 2 coats at 4.0 to 6.0 mils dry film thickness each. Color to be selected by Owner.

D. Interior gypsum board walls (excluding restrooms):
Prime Coat: Glidden 1000-1200 drywall primer, Sherwin-Williams equal, Devoe equal, or other equal.
Application: 1 coat.
Finish Coats: Glidden 1416 Ultrahide Semi-gloss Interior Acrylic, Sherwin-Williams equal, Devoe equal, Tnemec Series 1029 Enduratone or other equal. Application: 2 coats at 2.0 to 3.0 mils per coat. Color to be selected by Owner.

E. Traffic Paint (stall striping):
Paint shall be Sherwin-Williams "Pro-Mar" traffic marking paint, Series B29.Y.2 or Glidden traffic paint No. 63228, Devoe equal, or other equal. Apply two (2) coats of paint at manufacturer's recommended rate with total minimum of 15 mil dry film thickness. Apply with mechanical equipment to provide uniform straight edges.

F. Steel (all steel surfaces except those pre-finished such as metal roof and wall panels; includes fabricated steel such as stairway):
Shop Surface Preparation: SSPC SP-6/NACE No. 3 Commercial Blast to a 1.5 mil angular surface profile.
Shop Prime Coat: Polyamide epoxy applied at 4.0 to 6.0 dry mils (performance equivalent to Tnemec Series 161).
Field Surface Preparation: SSPC-SP3 Power Tool Cleaning to remove any corrosion or film issues. Spot prime as need with a modified aromatic polyurethane (performance equal to Tnemec Series 1 Omnithane). The surface shall be clean and dry before painting.
1st Coat: Aliphatic Acrylic Polyurethane applied at 2.0 – 3.0 dry mils
(performance equal to Tnemec Series 72 or 73 Endura-Shield)
2nd Coat: Aliphatic Acrylic Polyurethane applied at 2.0 – 3.0 dry mils
(performance equal to Tnemec Series 72 or 73 Endura-Shield)

G. Exterior Concrete Walls (Salt Storage Building and Recycle Center Attendant Building knee walls where exposed to view):
Surface preparation: New concrete must be cured 28 days; all form-release agents and other matter must be removed; patch and smooth all form tie holes and other imperfections;
Prime coat: compatible with substrate and finish coat as recommended by finish coat manufacturer (performance equal to Tnemec Series 151 at 0.7 to 1.5 dry mils).
Finish coat: sand-textured acrylic, Parex DPR Standard Acrylic, Tnemec Enviro-Crete Series 157, or equal.
Color: Beige, as selected by Owner from among manufacturer's available colors.
Application: Trowel or spray, one or two coats at 6.0 to 9.0 mils, as needed to hide concrete substrate and any form lines or other imperfections in concrete surfaces.

H. Interior Concrete Floors (new office/shop building and recycle center attendant building) where indicated on Drawings:
1. Office Area Rooms (except for break room and floors to receive tile):
Surface Preparation: NACE No. 6/ SSPC-SP13 Surface Preparation of Concrete to ICRI concrete surface profile (CSP) 4. Allow new poured-in-place concrete to cure for a minimum of 28 days at 75 degrees F.
Primer: Apply modified polyamine epoxy Tnemec Series 237 Power-Tread at 8.0-10.0 dry mils
Double-Broadcast: Apply modified polyamine epoxy Tnemec Series 237 Power-Tread resin at 80 sqft/gal. Broadcast decorative quartz or flake aggregate (based on Owner's selection) to refusal for thickness of approximately 1/16" in a single broadcast. Double broadcast to 1/8".
Finish: Apply aliphatic moisture cured urethane Tnemec Series 248 Everthane at 2.0-3.0 dry mils
Color: clear or other color selected by Owner from among manufacturer's standard offerings.

2. Break Room Floor:
Surface Preparation: NACE No. 6/ SSPC-SP13 Surface Preparation of Concrete to ICRI concrete surface profile (CSP) 4. Allow new poured-in-place concrete to cure for a minimum of 28 days at 75 degrees F.
Primer: Apply polyurethane modified concrete Tnemec Series 242 Ultra-Tread-S at 1/8" neat. Broadcast aggregate to refusal to 3/16".
Intermediate: Apply modified polyamine epoxy Tnemec Series 280 Tneme-Glaze at 10.0-12.0 dry mils.
Finish: Apply aliphatic moisture cured urethane Tnemec Series 248 Everthane at 2.0-3.0 dry mils.
Color: clear or other color selected by Owner from among manufacturer's standard offerings.

3. Shop Floor and Attendant Building Floor:
Surface Preparation: NACE No. 6/ SSPC-SP13 Surface Preparation of Concrete to ICRI CSP 4. Allow new poured-in-place concrete to cure for a minimum of 10 days at 75 degrees F.
Urethane Concrete Primer: Apply Tnemec Series 241 Ultra-Tread MVT or equal at 70-80 sqft/gallon. Broadcast aggregate to refusal.
Double Broadcast: Apply Tnemec Series 237 Power-Tread or equal at 20 mils wet. Aggregate (selected by Contractor for slip resistance) is then broadcast into wet resin until a uniformly dry appearance is obtained to an approximate thickness of 1/16" per broadcast. Double broadcast to 1/8".
Grout: Apply Tnemec Series 237 Power-Tread or equal at 8.0-16.0 dry mils.
Finish: Apply Tnemec Series 248 Everthane or equal at 2.0-3.0 dry mils .
Color: clear or other color selected by Owner from among manufacturer's standard offerings.

I. Salt Storage Building Interior Concrete Surfaces:
1. Floor: Surface Preparation: NACE No. 6/ SSPC-SP13 Surface Preparation of Concrete to ICRI concrete surface profile (CSP) 4. Allow new poured-in-place concrete to cure for a minimum of **28** days at 75 degrees F.
Primer: Apply Tnemec Series 282 Tneme-Glaze at 10.0-12.0 wet mils. Broadcast aggregate for slip resistance
Finish: Apply Tnemec Series 282 Tneme-Glaze at 10.0-12.0 dry mils
2. Walls:
Surface Preparation: SSPC-SP-13/ NACE No. 6 Surface Preparation of Concrete to an ICRI CSP 3 Surface Profile. Concrete must be cured at least 28 days.
Primer: Apply Tnemec Series 104 HS Epoxy at 4.0-6.0 mils DFT
Finish: Apply Tnemec Series 104 HS Epoxy at 4.0-6.0 mils DFT

J. Exterior Wood Surfaces (stain finish):
Surface preparation to be in accordance with manufacturer's recommendation.

Apply one coat of Cabot Australian Timber Oil #3400 Series, or equal. Color to be selected by Owner and be similar to Red Cedar

K. Second Story Storage Area Plywood:
Surface preparation: Wood must be clean and dry

Primer: Sherwin-Williams Minwax Polyurethane for Floors, semigloss
Finish: Sherwin-Williams Minwax Polyurethane for Floors, semigloss

PART 3 – EXECUTION

3.01 GENERAL

A. All surface preparation, coating and painting shall conform to applicable standards of the Steel Structures Painting Council, NACE, ICRI and the manufacturer's printed instructions. Material applied prior to observation of the surface by the Engineer shall be removed and reapplied at the expense of the Contractor.

B. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.

C. Dust, dirt, oil, grease or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags.

D. The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Engineer.

E. Application of the first coat shall follow immediately after surface preparation and cleaning and before rust bloom or flash rusting occurs. Any cleaned areas not receiving first coat within this period shall be recleaned prior to application of first coat.

F. Surfaces that have been shop painted and have been damaged during transit or installation, or where the shop coat or coats of paint have deteriorated, shall be cleaned and retouched before any successive painting is done on them in the field. Surfaces with enamel finishes that have been damaged in transit or during installation shall be retouched to match the original finish.

G. All surfaces to be painted as well as the atmosphere in which painting is to be done shall be kept warm and dry by heating and ventilating if necessary until each coat of paint has hardened. Any defective paint shall be scraped off and repainted in accordance with the Engineers' directions.

H. Finished surfaces shall not show brush marks or other irregularities. Undercoats shall be thoroughly and uniformly sanded with Number 00 sandpaper or equal to remove defects and provide a smooth even surface. Top and bottom edges of doors shall be painted and all exterior trim shall be backprimed before installation.

I. Painting shall be continuous and shall be accomplished in an orderly manner so as to facilitate inspection. Materials subject to weathering shall be prime coated as quickly as possible. Surfaces of exposed members that will be inaccessible after erection shall be cleaned and painted before erection.

J. In general, aluminum, stainless steel, copper, bronze, and pre-finished wall panels shall not be field painted. Care shall be taken not to paint shafts, grease fittings, nameplates, machined parts, sight glasses, etc.

3.02 SURFACE PREPARATION

A. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council and NACE shall form a part of this specification:
   1. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods which involve a solvent or cleaning action.

2. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mill scale and other detrimental foreign matter to degree specified by hand chipping, scraping, sanding and wire brushing.
3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust' loose mill scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders.
4. Brush-Off Blast Cleaning (SSPC-SP7/NACE 4): Brush-off blast cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose coating. Tightly adherent mill scale, rust, and coating may remain on the surface. Mill scale, rust, and coating are considered tightly adherent if they cannot be removed by lifting with a dull putty knife after abrasive blast cleaning has been performed.
5. Commercial Blast Cleaning (SSPC-SP6/NACE 3): Blast cleaning until at least 66 percent of each element of surface area is free or all visible residues.
6. Near White Blast Cleaning (SSPC-SP10/NACE 2): Blast cleaning to nearly white metal cleanliness, until at least 95 percent of each element of surface area is free of all visible residues.
7. Surface Preparation of Concrete (SSPC-SP13/NACE 6): This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems.
8. Power Tool Cleaning to Bare Metal (SSPC-SP11): This standard covers the requirements for power tool cleaning to produce a bare metal surface and to retain or produce a minimum 25 micrometer (1.0 mil) surface profile. This standard is suitable where a roughened, clean, bare metal surface is required, but where abrasive blasting is not feasible or permissible.

B. Blast cleaning for all surfaces shall be by dry method unless otherwise directed.

C. Particle size of abrasives used in blast cleaning shall be that which will produce a 1.5 – 2.0 mil (37.5 microns - 50.0- microns) surface profile or in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied.

D. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants that would interfere with adhesion of coating or paint and shall not be reused unless specifically approved by the Owner.

E. During blast cleaning operations, caution shall be exercised to insure that surrounding existing coatings or paint are not exposed to abrasion from blast cleaning.

F. The Contractor shall keep the area of his work and the surrounding environment in a clean condition. He shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the accomplishment of the work, the operation of the existing facilities, or nuisance to the surrounding environment.

G. Blast cleaned surfaces shall be cleaned prior to application of specified coatings or paint. No coatings or paint shall be applied over damp or moist surfaces.

H. Specific Surface Preparation: Surface preparation for the specific system shall be as noted in Part 2 – Products.

3.03 APPLICATION, GENERAL

A. Coating and paint application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision, for "Shop, Field and Maintenance Painting," and to the recommendations of the manufacturer of the coating and paint materials.

B. Thinning shall be permitted only as recommended by the manufacturer, approved by the Engineer, and utilizing the thinners stated in Part 2 – Products.

C. Each application of coating or paint shall be applied evenly, free of brush marks, sags, runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

D. Protective coverings or drop cloths shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent coatings or paint from being spattered onto surfaces that are not to be coated or painted. Surfaces from which materials cannot be removed satisfactorily shall be recoated or repainted as required to produce a finish satisfactory to the Engineer.

E. When two coats of coating or paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting color.

F. Film thickness per coat specified in Part 2 – Products are minimum required. If roller application is deemed necessary, the Contractor shall apply additional coats so as to achieve the specified thickness.

G. All welds, edges and other irregular surfaces shall receive a brush coat of the specified product prior to application of the first complete coat.

3.04 MANUFACTURER SERVICES

A NACE-certified technical representative from the paint manufacturer shall visit the Site to support the Contractor's personnel or the Owner as needed and/or requested. Visits shall be made on a weekly basis as a minimum or as needed to review hold points for the Engineer. 48 hours' notice to Engineer and paint manufacturer is required by the Contractor for each hold point inspection.

3.05 SOLVENT VAPOR REMOVAL

Where appropriate all solvent vapors shall be completely removed by suction type exhaust fans and blowers before placing in operating service.

3.06 CLEAN UP

Upon completion of the work, all staging, scaffolding, and containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating or paint spots and oil or stains upon adjacent surfaces shall be removed and the jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired, or refinished at no cost to the Owner.

3.07 ANNIVERSERY INSPECTION

Approximately 360 days after the date of Substantial Completion, the Contractor will return for a one-year anniversary inspection of the coatings work. The Contractor will correct any deficiencies found at no cost to the Owner.

END OF SECTION

SECTION 11 11 25
VEHICLE – LIFTING EQUIPMENT

PART 1 – GENERAL

1.01 SUMMARY

This section covers the supply and installation of two hydraulic and mechanical vehicle lift systems to be located in the shop building.

1.02 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
Product Data: Submit manufacturer's complete product literature for lifts and accessories, including:
1. Physical properties and dimensions demonstrating compliance with the Specifications and suitability for the intended use.
2. Manufacturer's storage, handling, and installation requirements and recommendations.
3. Project-specific information.
4. Any clarifications or exceptions.

C. Closeout Submittals:
1. Operation and maintenance data and instructions.
2. Manufacturer's standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Contractor's correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.

1.03 QUALITY ASSURANCE

A. Manufacturer: Manufacturers of equipment specified in the Section shall have a minimum of ten (10) years' experience in the manufacture of the type of equipment specified. Manufacturers shall be Rotary Lift (Dover Corporation), Mohawk Lifts, Steril-Koni, or approved equal.

PART 2 – PRODUCTS

2.01 VEHICLE LIFTS

A. General – Vehicle lifts shall be of heavy-duty steel construction, four-post design with ramps and runways, dual-function lock system, power system, accessories specified herein, and all incidental items needed for a complete, functional lifting system.

B. Lift No. 1 – Lift No. 1 shall be a 14,000-pound capacity lift located in Bay #1 of the shop. It shall be Dover-Rotary Lift Model #SM014-L with two (2) RJ7000 rolling jacks, FC5760-14 air line kit, and S100151 ramp chocks to allow drive-through use, Mohawk Lifts equals, Steril-Koni equals, or other approved equals. The lift shall meet the following specifications, allowing for minor deviations as may exist among approved manufacturers:

Rise	78 3/4”
Length Overall	21’1”
Width Overall	11’8 1/2”
Inside of Columns	116 1/4”
Between Front and Rear Columns	194 3/4”
Height of Columns	9’ 1 1/16”
Width of Runways	20”
Height of Runways	7”
Width Between Runways	43”
Lifting Capacity	14,000 lbs.
Motor	2 HP
Voltage	208v – 230v
Time of Full Rise	65 seconds

C. Lift No. 2 – Lift No. 2 shall be a 30,000-pound capacity lift located in Bay #2 of the shop. It shall be Dover-Rotary Lift Model #SM30EL3 with two (2) RJ152BK rolling jacks and FC5780-3 ramp chocks to allow drive-through use; Mohawk Lifts equals, Steril-Koni equals, or other approved equals. The lift shall meet the following specifications, allowing for minor deviations as may exist among approved manufacturers:

Max Wheelbase	235”
Rise	68”
Length Overall	25’ 8 1/8”
Width Overall	12’ 4 13/16”
Inside of Columns	132”
Between Front and Rear Columns	249”
Height of Columns	7’ 3/4”
Width of Runways	24”
Height of Runways	8 3/8”
Width Between Runways (min.)	41”
Width Between Runways (max.)	48”
Lifting Capacity	30,000 lbs.
Motor	4 HP
Voltage Single Phase	208v – 230v
Time of Full Rise	105 seconds

PART 3 – EXECUTION

3.01 GENERAL

All installation shall be as recommended by the manufacturer and in accordance with applicable codes, the Drawings, and approved submittals. Install compressed air lines to both lifts. Furthermore, at least one day/trip of on-site services by the manufacturer’s authorized representative shall be provided, for the purpose of verifying proper installation, adjusting equipment, and training Owner’s personnel in the proper and safe use of the equipment.

END OF SECTION

SECTION 11 11 26
VEHICLE – WASHING EQUIPMENT

PART 1 – GENERAL

1.01 SUMMARY

This section covers the supply and installation, and startup services for the commercial vehicle washing system to be located in the wash bay of the shop.

1.02 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
Product Data: Submit manufacturer's complete product literature for vehicle-washing equipment and accessories, including:
1. Physical properties and dimensions demonstrating compliance with the Specifications and suitability for the intended use.
2. Manufacturer's storage, handling, and installation requirements and recommendations.
3. Project-specific information.
4. Any clarifications or exceptions.
5. Shop drawings showing compliance with Contract Documents and showing all other information needed for installation in wash bay (including but not limited to electrical, pneumatic, water supply, and wastewater connections) show floor trenches, grates, basins, and piping design for proper collection of water even if such components are not supplied by the washing equipment manufacturer.

C. Closeout Submittals:
1. Operation and maintenance data and instructions.
2. Manufacturer's standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Contractor's correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.
3. Startup report by manufacturer.

1.03 QUALITY ASSURANCE

A. Manufacturer: Manufacturers of equipment specified in the Section shall have a minimum of ten (10) years' experience in the manufacture of the type of equipment specified. Manufacturer shall have experience with large vehicle washing systems. Manufacturers shall be Istobal USA Corporation of Bristol, VA, Westmatic Corporation of Buffalo, NY, N/S Corporation of Inglewood, CA, or approved equal.

PART 2 – PRODUCTS

2.01 VEHICLE WASHING EQUIPMENT

A. General – Vehicle washing equipment shall be a complete system designed, provided, and supervised during installation by a single manufacturer. The system shall use high pressure water sprays to clean vehicles up to 13'9" high and shall clean roof, sides, front, rear, and underside. The system shall be fully automatic, of the drive-through type. The system shall use potable water supply and not recycle any water. The system

shall be substantially equivalent to the Istobal HW' ROTATORS model 4HWR100 consisting of, but not limited to, the following components:

1. (1) rotator arch – 8 heads – 3 per side-and 2 on top
2. (4) 33 GPM pump stands with 3 pumps on each stand
3. (1) Foaming presoak system with arch
4. (1) Single wash activation system with stand
5. (1) Under carriage spray system with 3-way valve
6. (1) Photo eye activation system
7. (1) Touch screen control panel for programming and troubleshooting
8. (5) 4' set of guide rails
9. (1) Final rinse arch
10. (1) Two position entry light
11. (1) Water storage tank

B. Components – Components shall meet the following specifications. Product numbers listed are Istobal products and are listed to establish minimum requirements. Not all components are listed. Manufacturer shall supply all electrical, mechanical, pneumatic, hydraulic, and specialized components for a complete, functional system. Contractor shall provide all remaining materials needed for the system to be complete and functional. Components shall be designed for the type of power supply (phases and voltage) as identified on the electrical Drawings.

1. RC084013 Underchassis Wash 70 bar 252 l/m
   a. Set consisting of 5 mm-thick, 2,950 mm wide galvanized steel frame
   b. Double pipe with ten 15° nozzles with ceramic tip
   c. 70 bar 252 L/min high-pressure, with 15° orientation towards vehicle front and rear
   d. High-pressure solenoid valve and control selector switch with indicator light
2. RC123024 Foamy sides chemical prewash fixed
   a. Stainless steel side pipes
   b. Pipe brackets in galvanized painted steel
   c. Dosing pump unit in plant room with premix tank and Hydrominder dilution system
   d. Impulse pump, 5.5 kW, 100 bar, 28 L/min
3. RC065056 H.P. Electropump 16.5kW 70 bar 126 l/min
   a. Rack with three high-pressure pumps 70 bar, 5.5 kW, 42 L/min
   b. Pressure control valve
   c. 200 L plastic tank
   d. Water inlet solenoid valve to tank with level control
4. ~~RC077016 Pressure group 1-2 racks~~
   a. ~~2.2 kW pressure booster to supply up to two high-pressure rack tanks~~
   b. ~~60 L horizontal tank with bracket~~
   c. ~~Water level detection for its supply tank~~
5. RC075004 Mesh filter 100 microns
   a. Inlet filter on tank, high-pressure rack, 100 µm
   b. Wall mounted
   c. 1-1/4" connections
6. RC079004 Centring guides length 2.3m x 120mm (5 sets required)
   a. One pair of 2.3 m-long centring guides
   b. Tubes with welded elbows on ends, 120 mm diameter
   c. 4.5 mm-thick hot-dip galvanized steel
7. RC017002 Rinsing arch
   a. Final rinse arch consisting of 3 mm-thick galvanized steel bases and 1-1/4" aluminum pipes
   b. With 19 quick-coupling nozzles, supplied from water pump RC065013 1.5 kW 3 bar 125 L/min

   c. Control selector switch with indicator light
8. RC065013 Demineralized water pump 1,5 kW 3 bar 125 l/min
   a. Stainless steel water pump prepared to work with demineralized water
   b. Includes fittings for water hoses, non-return valve and control box
   c. Supplies rinse arch RC017002
9. RC016002 Frost prevention by pipe emptying
   a. Distributor with up to 8 solenoid valves for pipe emptying by controlled compressed-air injection
   b. Digital control thermostat
   c. 15 m connection between solenoid valve and water line
   d. Includes one solenoid valve for the first water line, extensions RC016029 necessary for the rest

PART 3 – EXECUTION

3.01 GENERAL

All installation shall be as recommended by the manufacturer and in accordance with applicable codes, the Drawings, and approved submittals. Furthermore, at least one day/trip of on-site services by the manufacturer's authorized representative shall be provided, for the purpose of verifying proper installation, adjusting equipment, and training Owner's personnel in the proper and safe use of the equipment. Additionally, manufacturer shall supervise and/or install final connections to Manufacturer's equipment, shall test and adjust complete system, and shall provide a written report certifying that the system has been properly installed.

END OF SECTION

SECTION 11 82 36
FACILITY WASTE BALERS

PART 1 – GENERAL

1.01 SUMMARY

This section covers the supply and installation of a cardboard compactor/baler machine to be located inside the Recycle Center Attendant Office and Cardboard Recycle Shelter.

1.02 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
Product Data: Submit manufacturer's complete product literature for waste balers and accessories, including:
1. Physical properties and dimensions demonstrating compliance with the Specifications and suitability for the intended use.
2. Manufacturer's storage, handling, and installation requirements and recommendations.
3. Project-specific information.
4. Any clarifications or exceptions.

C. Closeout Submittals:
1. Operation and maintenance data and instructions.
2. Manufacturer's standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Contractor's correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.

1.03 QUALITY ASSURANCE

A. Manufacturer: Manufacturers of equipment specified in the Section shall have a minimum of ten (10) years' experience in the manufacture of the type of equipment specified. Manufacturers shall be PTR Baler & Compactor Company, Ace Equipment Company, Harmony Enterprises, Inc., or approved equal.

PART 2 – PRODUCTS

2.01 CARDBOARD COMPACTOR/BALER

A. Dimension Restrictions – Compactor/Baler shall fit within designated space without obstructing doors or pathways. Maximum footprint shall be 83" x 42". Maximum height shall be 152 inches.

B. Equipment Specifications – Cardboard Compactor/baler shall be PTR Model 2300HD, ACE Equipment Model 6030HD, Harmony Model M60STD, or approved equal. Equipment shall be of the vertical type using hydraulic power for compaction and ejection. Capacity shall be 1,000 pounds minimum for a bale size of 30"x48"x60". Hydraulic pump shall be 10 gallons per minute minimum. Motor shall be 10 horsepower minimum and supplied by three phase power (voltage as indicated on the Electrical Drawings). Unit shall have internal transformer to convert to 120-volt single phase power for controls. Platen force shall be 55,000 pounds minimum. Cycle times shall be less than one minute.

PART 3 – EXECUTION

3.01 GENERAL

All installation shall be as recommended by the manufacturer and in accordance with applicable codes, the Drawings, and approved submittals. Furthermore, at least one day/trip of on-site services by the manufacturer's authorized representative shall be provided, for the purpose of verifying proper installation, adjusting equipment, and training Owner's personnel in the proper and safe use of the equipment.

END OF SECTION

SECTION 13 34 19.11
METAL BUILDLING SYSTEMS
(SALT STORAGE)

PART 1 – GENERAL

1.01 SUMMARY

A. This section covers the pre-engineered salt storage building as shown on the Drawings and herein specified.

B. Building system general includes:
   1. Clear arch span system
   2. Enclosed rear-end wall.
   3. Enclosed front-end wall with panels precut to fit roof radius and door openings.
   4. Upward acting sectional door and personnel door.
   5. All necessary accessories to complete the building.
   6. Concrete retaining wall and foundation.

1.02 REFERENCES

ASTM A972	Standard Specification for Fusion Bonded Epoxy-Coated Pipe Piles
ASCE 7-10	Minimum Design Loads for Buildings and Other Structures
AISC	"Manual of Steel Construction," latest edition, American Institute of Steel Construction.
AISC	"Specification for Structural Steel Buildings." latest edition.
AIS1	"Cold-Formed Steel Design Manual," latest edition, American Iron and Steel Institute.
2018	NC State Building Code

1.03 SUBMITTALS

A. General – Submit listed submittals in accordance with General Conditions.

B. Action Submittals – Submit complete information for methods and materials, including:
   1. All Manufacturer drawings and design calculations, which shall bear the professional seal and signature of a licensed professional engineer registered in the state of North Carolina
   2. Anchor bolt placement plan, column reactions and calculations in advance of erection drawings.
   3. Foundation plan signed and sealed by a licensed professional engineer registered in the state of North Carolina.

C. Closeout Submittals:
   1. Maintenance data and instructions for panels, doors, walls and floors.
   2. Manufacturer’s standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Contractor’s correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.

1.04 QUALITY ASSURANCE

A. General: The structure shall comply with the current versions of AISC, AISI and ASTM specifications at the time of manufacturing.

B. Manufacturer: The company manufacturing the products specified in this Section shall have a minimum of 5 years' experience in the manufacture of pre-fabricated steel building systems.

C. Structural framing and covering shall be the design of a North Carolina licensed professional engineer experienced in design of this work.

D. Erector shall have specialized experience in the erection of this type of steel building systems for a period of at least 5 years.

1.05 DESIGN REQUIREMENTS

A. Metal roof and walls:
   1. The building metal shall be designed by the Manufacturer as a complete system. Members and connections not indicated on the Drawings shall be the responsibility of the Manufacturer and/or Contractor.
   2. All loads given are minimum requirements. All applicable provisions of the 2018 NC Building Code will apply.
   3. Basic design loads include live, seismic, wind, and dead load, and shall be calculated according to ASCE 7-10.
   4. Design loads are as follows:
      a. Wind speed Vult = 170 mph LRFD/strength design as per ASCE 7-10
      b. Exposure: C, Partially Enclosed.
      c. Importance factor based upon building usage: Wind = 1.00.
      d. Roof Live load = 20 psf.
      e. Ground snow load = 30 psf.
      f. Seismic Zone: Site Class C, as per the subsurface report by S&ME, Inc.
      g. NC Building Code, 2018 edition, application and combination of loads.

B. Concrete:
   The concrete foundation and retaining walls shall be designed by a North Carolina registered professional engineer for the loads above and to store 600 tons road salt. Salt height shall be as shown on the Drawings.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Materials delivered to the site shall be immediately unloaded and stored on site in a clean dry environment, stored at least 6" above ground in a secure area, well ventilated, protected from the weather and secure from leaning and topping in accordance with storage guidelines supplied. Deliver, store and handle all items to prevent bending, corrosion and damage.

1.07 WARRANTIES

A. Building manufacturer shall provide manufacturer's standard material warranties, including but not limited to, 30-year steel mill and ArcelorMittal Galvalume warranties.

PART 2 - PRODUCTS

2.01 MATERIALS – STEEL.

A. General: Steel roof and walls shall be Steel Masters Building Systems Model Q40-11-50, or equal.

B. Arch Panels: Heavy Commercial grade 80, 20 gauge, AZM180/AZ60 minimum triple spot Galvalume Plus steel, in accordance with ASTM A972. Double bolt, 9" lap seams.

C. Front End Wall: 22-gauge Galvalume Plus steel end wall with 14' x 16' 14-gauge cannister door post and header. Panels precut to fit roof radius and door openings.

D. Rear End Wall: 22-gauge Galvalume Plus steel end wall.

E. Industrial Base Connector: Complete set for fastening structure to concrete wall. All material is 14 gauge with Galvalume Plus coating.

F. Premium Grade Hardware: 5/16" grade 8 / DT 1500 hr salt rated preassembled fasteners with polyethylene washers to secure the building components through predrilled holes.

G. Sealant Manufacturer's standard type.

H. Exterior Finish: Exterior Finish: One coat 70% polyvinylidene fluoride (PVDF) coil coating, nominal 0.7 mil (0.02 mm), over 0.2 mil (0.005 mm) primer; color as selected (by Owner) from manufacturer's standard colors.

2.02 MATERIALS – DOORS

A. Metal Personnel Doors and Frames - Shall conform to section 081113.

B. Upward Acting Sectional Doors
1. General: The upward action sectional door shall be series 421 un-insulated steel as manufactured by Overhead Door Corp. or approved equal.
2. Door Sections to be of a min. 20 ga. Galvanized interior and exterior, ribbed, un-insulated and shall form a weather tight joint and provide full-width interlocking structural rigidity. Panels shall have factory pre-coated finish, colors selected by owner from manufacturer's standard colors. Wind load Design: ANSI/DASMA 102 standards and as required by code.
3. Counterbalance shall be helical torsion springs on cross header shaft. Lift cables shall be galvanized with cable safety factor of 7:1, stressed spring wire.
4. Hardware shall be galvanized steel hinges and fixtures, full floating, hardened steel, ball bearing rollers with hardened steel races. Doors reinforced with steel struts as required for size of door.
5. Lock shall be keyed as supplied by door hardware vendor as specified in section 08 11 13.
6. Tracks shall be galvanized steel with a wedge action to create weather tight closure when door is in the lowered position. Provide tracks as recommended by manufacturer to suit loading required and clearances available. Brackets shall be mounted on steel angles provided by others. Provide general contractor with template for all blocking locations required for the installation of this work.
7. Weather-stripping shall be flexible pvc strip on bottom section and top section and be provided and installed by this supplier. Aluminum and vinyl seal for jambs shall be provided by this supplier.
8. Operation shall be by manual (chain pull) hoist.

PART 3 - EXECUTION

3.01 EXECUTION

A. Preparation:
   1. Verify site conditions under provisions of Sections 015000 and 310200.
   2. Verify that foundation, floor slab, and electrical utilities, and placed anchors are in correct position and properly squared.
   3. Provide access to the work as scheduled for owner provided inspections, if required. The cost of any required inspections is the responsibility of the owner.
   4. Do not proceed until unsatisfactory conditions have been corrected.

B. Erection – Wall and Roof Systems
   1. Install all wall and roofing systems in accordance with manufacturer's instructions and details.
   2. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.

C. Erection – Flashing and Trim
   1. Install flashings and trim in strict accordance with manufacturer's instructions, using proper sheet metal procedures.

D. Installation - Accessories
   1. Install door frames, doors, overhead doors, in accordance with manufacturer's instructions.
   2. All roof and wall accessories to be installed weathertight.

E. Standards
   1. All work shall be performed by experienced workmen in a workmanlike manner to published tolerances.
   2. Install in accordance with AISC Manual of Steel Construction, approved shop drawings, building code, and Drawings.

END OF SECTION

SECTION 13 34 19.21
METAL BUILDING SYSTEMS
(SHOP AND OFFICE)

PART 1 – GENERAL

1.01 SUMMARY

A. This section covers the pre-engineered metal building system as shown on Drawings and herein specified for the new public works shop and office building.

B. Building system generally includes:
   1. Structural framing and sub-framing systems.
   2. Sheet metal & trim.
   3. Insulated standing seam metal roof.
   4. Preformed insulated and non-insulated metal wall panel.
   5. Insulation

C. Windows, doors, and other appurtenances that attach to the metal building system may be supplied by suppliers other than the metal building Manufacturer. Certain of these appurtenances are specified herein.

1.02 REFERENCES

ASCE 7-10	Minimum Design Loads for Buildings and Other Structures
MBMA	"Metal Building Systems Manual," latest edition, Metal Building Manufacturer's Association.
AISC	"Manual of Steel Construction," latest edition, American Institute of Steel Construction.
AISC	"Specification for Structural Steel Buildings." latest edition.
AISI	"Cold-Formed Steel Design Manual," latest edition, American Iron and Steel Institute.
CMAA	“Crane Manufactures Association of America Inc.” latest edition, Specification No. 70.

1.03 RELATED SECTIONS

Other sections applicable to the Pre-engineered Metal Building are (but not limited to):

01 45 33	Code Required Special Inspections and Procedures
03 33 13	Normal Weight Concrete
07 41 13.23	Insulated Metal Roof Panels, Gutters, and Snow Bars
07 42 13.13	Metal Wall Panels (Office)
07 42 13.19	Insulated Metal Wall Panels (Shop)
08 11 13	Hollow Metal Doors, Frames and Hardware
08 51 13	Aluminum Windows
09 91 01	Painting

1.04 PRE-INSTALLATION MEETINGS

Prior to erection of framing, conduct pre-installation meeting at Site attended by Owner, Engineer, Manufacturer’s technical representative, special inspections agency and any subcontractors (installers of structure).

1.05 SYSTEM DECRIPTION

A. General Building Description:
1. Clear span rigid frame.
2. 14’ eave heights - Office & 18’ eave heights - Shop.
3. Straight columns, (No tapered or soldier columns allowed).
4. Bay spacing: 28’ (Office), 25’ (Shop) as shown on the Drawings.
5. Roof: preformed insulated metal panels, slope of 4 inches per foot.
6. Wall system: preformed metal panels except where other exterior coverings are indicated on the Drawings.
7. Accessories: doors and windows.
8. Framed opening supports (Header, Jacks, Jambs, Flashings and Trims).

1.06 DESIGN REQUIREMENTS

A. Design Requirements:
1. The building shall be designed by the Manufacturer as a complete system. Members and connections not indicated on the Drawings shall be the responsibility of the Manufacturer and/or Contractor. All components of the system shall be supplied by the same manufacturer. In addition to requirements herein, the building shall be designed per the MBMA manual. The building shall be designed by a North Carolina registered professional engineer.
2. All loads given are minimum requirements. All applicable provisions of the 2018 NC Building Code will apply.
3. Basic design loads include live, seismic, wind, and dead loads. All other design loads such as mechanical equipment loads (static, dynamic, or kinetic) are classified as auxiliary loads.
4. Design loads for frames, walls and roof are as follows:
(See Appendix B – Sheet S1 for additional information)
a. Wind speed Vult = 170 mph (ASCE 7-10, LRFD)
b. Exposure: C, Enclosed.
c. Importance factor based upon building usage: Snow 1.10, Seismic 1.25.
d. Live load = 20 psf (reducible).
e. Ground snow load = 30 psf.
f. Collateral loads = 3 psf (Office), 5 psf (Shop) and as indicated on the Drawings.
g. Seismic Zone: Site Class C, as per the subsurface report by S&ME, Inc.
h. NC Building Code, 2018 edition, application and combination of loads.
i. Auxiliary = Equipment loads (provided by plumbing, mechanical and electrical subcontractors as applicable).
5. Design each member to withstand stresses resulting from a combination of loads that produce the maximum percentage of actual to allowable stress in the member, as prescribed by AISC.

Office:

Frames:	Vertical =	L/240, based on live, snow or wind
	Horizontal =	H/200, based on wind
Purlins:	Vertical =	L/240, based on live, snow or wind
Girts:	Horizontal =	L/240, based on wind or seismic

Shop:

Frames:	Vertical =	L/180, based on live, snow or wind
	Horizontal =	H/60, based on wind

Purlins: Vertical = L/150, based on live, snow or wind
Girts: Horizontal = L/90, based on wind or seismic

6. Wind loads to manufactured stone walls shall be applied as lateral forces to girts and columns equal to the wind load across the tributary width between columns.

   * Manufactured stone support structure shall be limited to L/600 at top height of wall.

7. Seismic forces from manufactured stone wall systems shall be transferred to the structure as lateral forces at the building columns. Forces from walls shall be determined from wall cross sections shown on the Drawings, using horizontal force factors for elements of structures.
8. Subcontractors shall provide dead load weights of equipment, and all requirements for equipment supports and locations of openings in the roof and wall.

B. Concrete Foundation:
The concrete foundation, including but not limited to, floor slab and column footings, shall be designed by a North Carolina registered professional engineer. Shop floor shall be designed for a 250 psf uniform live load or a 3,000 pound concentrated load per ASCE 7-10. Office floor shall be designed for 125 psf uniform live load. Slabs and footings shall be designed to safely transfer column reactions from all load combinations to the ground, in accordance with ASCE 7-10 and the recommendations of the subsurface report.

1.07 SUBMITTALS

A. General – Submit listed submittals in accordance with General Conditions.

B. Action Submittals:
Submit complete information for methods and materials, including:
1. All Manufacturer drawings and design calculations, which shall bear the professional seal and signature of a licensed professional engineer registered in the state of North Carolina.
2. Anchor bolt placement plan, column reactions and calculations in advance of erection drawings.
3. Foundation plan signed and sealed by a licensed professional engineer registered in the state of North Carolina.

C. Closeout Submittals:
1. Maintenance data and instructions for panels, doors, walls and floors.
2. Manufacturer’s standard warranty, and any project-specific warranty, if elsewhere required. Warranties that extend beyond the Contractor’s correction period shall be project-specific documents executed by the manufacturer and shall clearly indicate beginning and ending dates of the warranty period.

1.08 QUALITY ASSURANCE

A. General: Fabricate structural steel members in accordance with MBMA Metal Building Systems Manual, and for items not covered, AISC – Specification for Structural Steel Building.

B. Manufacturer: The company manufacturing the products specified in this Section shall have a minimum of 5 years’ experience in the manufacture of steel building systems. The manufacturing company shall be certified under the American Institute of Steel Construction's Category MB Certification Program.

C. Structural framing and covering shall be the design of a licensed professional engineer experienced in design of this work.

D. Erector shall have specialized experience in the erection of steel building systems for a period of at least 5 years.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle all items to prevent bending, corrosion and damage.

1.10 WARRANTIES

A. Building manufacturer shall provide component manufacturer's standard material warranties (refer to related sections.)

B. Metal building installer shall provide a workmanship warranty of 2 years.

1.11 ADMINISTRATION

A. All nomenclature shall conform to the MBMA Metal Building Systems Manual.

B. Coordination and administration of the work shall be in accordance with the MBMA Metal Building Systems Manual - Common Industry Practices.

PART 2 - PRODUCTS

2.01 MATERIALS – ROOF AND WALL PANELS: refer to separate sections

2.02 MATERIALS – WALL INSULATION

A. Wall Insulation: ASTM C665, blanket, glass fiber type, faced with reinforced white vinyl, UL flame spread classification of 25 or less where exposed, with R-value of 19.0 continuous insulation.

2.03 MATERIALS - TRIM

A. Flashings, Internal and External Corners, Closure Pieces, Fascia, Infills, and Caps: Same material and finish as adjacent material, profile to suit system. Color as selected by Owner from manufacturer's standards.

2.04 MATERIALS – DOORS

A. Metal Personnel Doors and Frames - Shall conform to Section 08 11 13. Aluminum “Store Front” doors and frames shall also conform to Section 08 51 13.

B. Upward Acting Sectional Doors
   1. General: All upward acting sectional doors shall be series 525 insulated steel as manufactured by Overhead Door Corp. or approved equal.
   2. Door Sections to be of a min. 24 ga. galvanized exterior, flush exterior without ribs or grooves and shall have rabbeted meeting rails to form a weather tight joint and provide full width interlocking

structural rigidity. Panel shall have insulation and backer panel of 24 ga. Steel. Panels shall have factory pre-coated finish, colors selected by owner from manufacturer's standard colors. Wind load Design: ANSI/DASMA 102 standards and as required by code.

3. Counterbalance shall be torsion springs on cross header shaft. Lift cables shall be galvanized with cable safety factor of 7:1, stressed spring wire.
4. Hardware shall be galvanized steel hinges and fixtures, full floating, hardened steel, ball bearing rollers with hardened steel races. Doors reinforced with steel struts as required for size of door.
5. Lock shall be keyed with interlock switch for automatic operator as supplied by door hardware vendor as specified in section 08 11 13.
6. Tracks shall be galvanized steel with a wedge action to create weather tight closure when door is in the lowered position. Provide tracks as recommended by manufacturer to suit loading required and high lift along roof pitch. Brackets shall be mounted on steel angles provided by others. Provide general contractor with template for all blocking locations required for the installation of this work.
7. Weather-stripping shall be flexible pvc strip on bottom section and top section and be provided and installed by this supplier. Aluminum and vinyl seal for jambs shall be provided by this supplier.
8. Operation shall be by electric operator and manual (chain pull) hoist.
   Electric Operator: Operator shall be UL listed electric operator, size and type as recommended by manufacturer Overhead Door Corp. or approved equal manufacturer. Operator designed to move door in either direction at not less than 2/3 foot or more than 1 foot per second. Means shall be provided to disconnect operator from the door for manual operation. Operator shall be equipped with drive limit switches as an integral part of the mechanism, and provide accurate settings to control the "up" and "down" positions. During manual operation limit switches shall remain "timed" to door position. Motor shall be instant reversing. Push button station shall have 3 buttons for up down and stop. Operators shall meet UL 325/2010 requirements of continuous monitoring of safety devices. Provide emergency reversing door switch mounted along bottom door edge. Operator shall be designed to work with keyed lock and interlock switch for automatic operator. Electric operators located in the Wash Bay shall be designed for wet environment service.
9. Each door shall have view lites, as shown on the Drawings (4 per door).

2.05 MATERIALS – WINDOWS – Refer to Section 08 51 13.

2.06 MATERIALS – TRANSLUCENT PANELS – None.

2.07 MATERIALS - ACCESSORIES

A. Ventilator/Wall Louvers: Shall conform to mechanical drawings and Specifications.

2.08 FABRICATION – PRIMARY FRAMING

A. Framing Members: Clean and prepare in accordance with SSPC-SP2 as a minimum, and coat in accordance with Section 09 91 11.

B. Hot rolled members shall be fabricated in accordance with AISC Specification for pipe, tube, and rolled structural shapes and primed.

C. Fabricate built-up members in accordance with MBMA Metal Building Systems Manual, Common Industry Practices.

2.09 FABRICATION - SECONDARY

A. Framing Members: Clean and prepare in accordance with SSPC-SP2, as a minimum, and coat in accordance with Section 09 91 11.

B. Cold Formed Members: Cold formed structural shapes shall be fabricated in accordance with MBMA Metal Building Systems Manual, Common Industry Practices.

2.10 FABRICATION - GUTTERS, DOWNSPOUTS, FLASHING AND TRIM

Refer to roof and wall panel specification sections.

2.11 THERMAL AND MOISTURE PROTECTION

A. Exterior Caulking: All joints or intersections as follows: At all masonry walls where wood, metal, or prefinished surfaces adjoin masonry or concrete work. Where metal adjoins woodwork. All miscellaneous intersections and joints as shown on drawings. Control joints in exterior brick – install butyl rod and caulk.

B. Interior Caulking: All joints or intersections as follows: All miscellaneous intersections and joints as shown on drawings. All work to be in accordance with manufacturer's recommendations.

C. Joint Sealant: All joints or intersections as follows: Saw, Isolation or Control joints in interior and exterior concrete and slab work.

All caulking and sealants shall be Sika, Sikaflex or approved equals, compatible with application and per manufacturer's recommendations.

PART 3 - EXECUTION

3.01 EXECUTION

A. Verify site conditions under provisions of Sections 01 50 00 and 31 02 00.

B. Verify that foundation, floor slab, plumbing, mechanical and electrical utilities, and placed anchors are in correct position and properly squared.

C. Provide access to the work as scheduled for Owner provided inspections. The cost of any required inspections is the responsibility of the Owner.

D. Do not proceed until unsatisfactory conditions have been corrected.

3.02 ERECTION

A. Erection - Framing
   1. Erect framing in accordance with MBMA Metal Building Systems Manual, Common Industry Practices.
   2. Use templates for accurate setting of anchor bolts. Level bearing plate area with steel wedges or shims, and grout. Check all previously placed anchorages

3. Erect building frame true and level with vertical members plumb and bracing properly installed. Maintain structural stability of frame during erection.
4. Ream holes requiring enlargement to admit bolts. Burned holes for bolted connections are not permitted without written approval by designer. Burned holes to be reamed.
5. Tighten bolts and nuts in accordance with "Specification for structural joints using ASTM A325 or A490 bolts".
6. The erector shall furnish temporary guys and bracing where needed for squaring, plumbing, and securing the structural framing against loads, such as wind loads acting on the exposed framing and seismic forces, as well as loads due to erection and erection operation, but not including loads resulting from the performance of work by others. Bracing furnished by the Manufacturer for the metal building system cannot be assumed to be adequate during erection and are not to be used to pull frames into plumb condition. The temporary guys, braces, falseworks and cribbing are the property of the erector, and the erector shall remove them immediately upon completion of erection.
7. Do not field cut or modify structural members without approval of the metal building Manufacturer.
8. After erection, erector to prime welds, abrasions, and surfaces not shop primed, galvanized or needing touch-up.

B. Erection – Wall and Roof Systems
   1. Install all wall and roofing systems in accordance with manufacturer's instructions and details.
   2. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.

C. Erection – Gutter, Downspout, Flashing and Trim
   1. Install gutters and downspouts, flashings and trim in strict accordance with manufacturer's instructions, using proper sheet metal procedures.
   2. Install downspouts to connect with underground piping.

D. Erection – Translucent Panels/Domes – None

E. Installation - Accessories
   1. Install door frames, doors, overhead doors, windows and glass, in accordance with manufacturer's instructions.
   2. All roof and wall accessories to be installed weathertight.

F. Tolerances
   1. All work shall be performed by experienced workmen in a workmanlike manner to published tolerances.
   2. Install framing in accordance with MBMA Metal Building Systems Manual, Common Industry Practices.

END OF SECTION

SECTION 21 13 13
WET-PIPE FIRE SUPPRESSION SPRINKLER SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

This section covers the design, supply, and installation of an NFPA-13 fire suppression sprinkler system for the shop and office building. Scope is limited to the system beyond (downstream) of the wet riser terminating 12-inches above the floor.

1.02 REFERENCES

NFPA-13	Standard for the Installation of Sprinkler Systems
ASSE 1013	Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers

1.03 SUBMITTALS

A. General – Submit listed submittals in accordance with the General Conditions.

B. Action Submittals:
1. Product Data: Submit data on all materials including manufacturers' installation instructions
2. Shop Drawings: Indicate complete layout of all system components, accessories, and system controls, sign and sealed by system designer.
3. Samples: Submit one of each style of sprinkler proposed.
4. Design Data: Submit signed and sealed design calculations.

C. Closeout Submittals:
1. Operation and Maintenance Data: Submit components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of company available for future servicing.

1.04 QUALITY ASSURANCE

A. Designer-Installer
Contractor shall provide a complete fire suppression system designed and installed by a North Carolina licensed fire sprinkler contractor. The Designer-Installer shall have a minimum of five (5) years' experience providing systems of the same type and scope as for this Project.

1.05 DESIGN PARAMETERS

A. Design system to comply with NFPA 13.

B. System shall protect all floors, lower and upper, and concealed spaces as may be required by NFPA 13 and applicable codes. Design shall be for the building hazard classification, type of construction, dimensions, and other data as shown on the Drawings. Note in particular the data on Appendix B, Sheet S-1.

C. Available water supply: The nearest existing fire hydrant (#A-47) is approximately 750 linear feet from the proposed connection point for the new water main. The hydrant was flow tested by Town of Beech Mountain personnel on May 22, 2019. The measurements observed were:

Static pressure:	170 psi
Residual pressure:	150 psi
Flow:	1,680 gal./min.

The approximate elevation of this fire hydrant is 5075 (mean sea level). The ground storage water tank supplying this fire hydrant (Emerald Mountain Tank) is stated to be 35-feet diameter x 16 feet tall with a ground elevation of 5460.

The pipe line from this tank to the fire hydrant and to the point of connection in Water Tank Road is assumed to be 10-inch cast iron. The proposed pipe line from here to the riser is 6-inch ductile iron, approximately 515 linear feet. The estimated, calculated conditions at the riser are:

Elevation:	5110.0 (12” above floor)
Static Pressure:	155 psi (based on tank water level at 5468)
Residual Pressure:	140 psi (at 500 gpm)

Contractor shall perform its own tests and calculations prior to proceeding with design, and shall adjust the estimated static and residual pressures at design fire flow accordingly.

PART 2 – PRODUCTS

2.1 GENERAL

System products shall be selected by the system designer according to designer’s experience and qualifications and according to applicable codes and NFPA 13. Products specified herein are intended to establish a general level of quality only. Not all products listed herein may be needed for this Project.

2.2 SPRINKLERS

A. Acceptable Manufacturers: Viking, Reliable, Tyco Simplex Grinnel, or equal.

B. Suspended Ceiling Types (acoustical tile):
1. Type: Standard or Extended Coverage, Recessed or Concealed pendant type with matching adjustable escutcheon plate.
2. Construction: All brass frame with metal spring seal, Teflon coated, brass or chrome finish.
3. Escutcheon Plate Finish: Chrome plated.
4. Fusible Link: Glass bulb type, temperature rated for specific area hazard.

C. Exposed Area Type:
1. Type: Standard or Extended Coverage upright type, with guard.
2. Factory applied corrosion-resistant coating.
3. Fusible Link: Glass bulb type, temperature rated for specific area hazard.

D. Side Wall Type:
   1. Type: Standard or Extended Coverage, Semi-recessed or Recessed horizontal side wall type with matching adjustable escutcheon plate and guard.
   2. Construction: All brass frame with metal spring seal, Teflon coated, brass or chrome finish.
   3. Escutcheon Plate Finish: Brass. Chrome plated. Enamel, color as selected.
   4. Fusible Link: Glass bulb type temperature rated for specific area hazard.

E. Guards: Finish to match sprinkler finish.

2.2 ABOVE GROUND PIPING

A. Pipe shall be Standard Weight, Schedule 40 Black-Steel Pipe: ASTM A53/A53M, Type E, Grade B, ERW pipe or ASTM A106, Grade B, seamless steel pipe. Pipe ends may be factory or field formed to match joining method.
   1. Thread Fittings:
      a. Malleable-Iron Fittings: ASME B16.3, Class 300
      b. Flanges and Flanged Fittings: ASME B16.5, Class 300, unless Class 600 is indicated.
   2. Grooved-End Fittings: ASTM A47 malleable Iron or ASTM A536 Ductile Iron, with dimensions matching steel pipe and ends factory grooved according to AWWA C606.

2.3 BURIED PIPING (if applicable)

A. Ductile Iron Pipe, Class 350, AWWA C151, grooved ends.
   1. Steel Fittings: ASME B16.5, steel flanges and fittings.
   2. Ductile Iron Joints: ANSI/AWWA C-606.
   3. Ductile Iron Coupling Housings: ASTM A536, Grade 65-5-12.
   4. Install piping with double-layer half over-lap 10 mil polyethylene tape.

2.4 PIPING SPECIALTIES (where applicable)

A. Wet Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber faced clapper to automatically actuate water motor alarm or electric alarm, with pressure retard chamber and variable pressure trim; test and drain valve; strainer and gages. Valve shall be double check type with reduced pressure zone (RPZ) conforming to ASSE 1013 and having isolation valves and test cocks.

B. Water Motor Alarm: Hydraulically operated impeller type alarm with aluminum alloy red enameled gong and motor housing, nylon bearings, and inlet strainer.

C. Electric Alarm: Electrically operated red enameled gong with pressure alarm switch.

D. Water Flow Switch: Vane or paddle type switch with u-bolt mounting, horizontal or vertical, with adjustable alarm delay 0-120 second range.

E. Fire department Connections
   1. Type: Flush mounted wall type with chrome plated finish or free standing type with ductile iron pedestal with red enamel finish.
   2. Outlets: Two-way with fire department thread size. Threaded dust-cap and chain of matching material and finish.
   3. Drain: 3/4" inch min. automatic drip.
   4. Label: “Sprinkler – Fire Department Connection”.

2.5 ELECTRICAL CHARACTERISTICS AND COMPONENTS (if applicable)

A. Controls: Supervisory switches, Water Level Supervisory Switches, Tank Temperature Supervisory Switches, Room Temperature Supervisory Switches.

B. Disconnect Switch: Factory mount in control panel and/or on equipment.

PART 3 - EXECUTION

3.1 INSTALLATION (as applicable)

A. Install buried shut-off valves in valve box, furnish post indicator as required.

B. Install and/or indicate location of approved double check valve assembly at sprinkler system water source connection and Fire Department Connection. (Utility contractor will install FDC and pipe to 12” above floor).

C. Install outside alarm-gong on building wall.

D. Place pipe runs to minimize obstruction to other work.

E. Install piping in concealed spaces above finished ceiling.

F. Locate sprinklers in coordination with ceiling plan. Sprinkler heads to be near the center of ceiling tiles.

G. Install guards on sprinklers as required.

H. Hydrostatically test entire system.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Verify signal devices are installed and connected to fire alarm system.

3.3 LABELLING AND SIGNS

A. Provide as required per NFPA.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Apply masking or paper cover to protect concealed sprinklers, cover plates, and sprinkler escutcheons not receiving field paint finish. Remove after painting. Replace painted sprinklers with new.

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Prepare test and inspection reports.

C. Wet Sprinkler System will e considered defective if it does not pass tests and inspections.

3.5 CLEANING

A. Flush entire piping system of foreign matter.

B. Remove and replace sprinklers with paint other than factory finish.

END OF SECTION

22-4000 PLUMBING FIXTURES: <S>

1.0 GENERAL

A. The Plumbing Contractor shall furnish and install all plumbing fixtures indicated on the project drawings and/or described in these specifications unless otherwise specifically noted.

B. Fixtures shall be set and piped in a neat, finished and uniform manner, making connections with supplies, waste, soil and vent piping previously specified or as may be directed.

C. All fixtures shall be of quality of workmanship and materials specified, complete with all fittings and trim.

D. Provide A.D.A. compliant molded insulation on exposed water and drain piping beneath handicap accessible lavatories and sinks. Insulation shall be designed to allow removal and re-installation for pipe servicing.

E. Solar Water Heater, Sun Earth, Inc. HE Series (or approved equal), with two (2) roof mounted collectors (Equal to Sun Earth Empire Series) shall be used as follows: The plumbing contractor shall install or employ a trained solar installation sub-contractor to install an 80 gallon solar tank with a 208 volt 4500 watt electric element with a 21 gallon/hour recovery at 90◦ F rise to heat water when there is not enough solar energy available. The tank shall include an internal coil heat exchanger which will be used with two roof mounted collectors to circulate a closed loop mixture of non-potable liquid between the collectors and the tank. A control and pump shall be furnished to circulate the non-potable liquid between the tank, coil and collectors when solar conditions allow and include any chemicals, thermal expansion tanks or devices to prevent the non-potable liquid from contaminating the storage tank potable water. All potable water piping above building slab shall be insulated with 1" thick fiberglass piping insulation having a one piece fire retardant jacket and self-sealing cap. Jacket shall be all service type, white and cleanable with a damp cloth. The solar storage tank shall have a metal drain pan that is a minimum of 3" greater than the diameter of the tank and piped to the floor drain near the solar tank location shown on the drawing. The piping of the non-potable liquid from the storage tank coil to the roof mounted collectors shall be protected and of a material to not allow leakage of the liquid and/or any damage to the roof, building or equipment involved. The system installer shall be responsible for any damage involved for a minimum of one year after acceptance of the system by the owner. The potable hot water supply temperature shall not exceed 110◦ F.