Town of Seabrook, New Hampshire

Waste Water Treatment Facility

HVAC Unit Replacement

Invitation for Bid # B2016-SWR-03

You are cordially invited to submit a stipulated sum proposal for the furnishing of all permitting, taxes, documentation, materials, equipment, services, labor and supervision necessary for and/or reasonably incidental to the Proposed WWTP HVAC upgrade and replacement project in accordance with the attached specifications, terms and conditions. Prospective respondents are advised to read this information over carefully prior to submitting.

Proposals must be submitted in a sealed envelope or package, plainly marked "SEABROOK WWTP HVAC PROJECT" and addressed to:

Ms. Shaylia Marquis, Procurement Manager
Town of Seabrook
99 Lafayette Road
Seabrook, NH 03874

A pre bid meeting will be held at the project location
274 Route 286, Wright's Island, Seabrook, NH on November 3rd, 2016 at 3:30pm
The pre bid meeting is not required but is highly recommended.
Please confirm your attendance by email to Mlehoullier@tridentgrp.com

All submissions must be received no later than
3:30pm on Thursday, November 17th, 2016 by the Office of the Town Manager

SEABROOK WWTP-HVAC UPGRADE PROJECT INVITATION TO BID

Date: October 19, 2016

To: Interested Mechanical Contractors

INVITATION TO BID

You are invited to submit a stipulated sum proposal for the furnishing of all permitting, taxes, documentation, materials, equipment, services, labor and supervision necessary for and/or reasonably incidental to the Proposed WWTP HAVC upgrade & Replacement Project, Seabrook, NH

A. **PREBID MEETING**

1.) A pre-bid meeting will be held at the project location on November 3, 2016 at 3:30 PM. Bidders will meet at the front entrance to the Treatment Plant.

2.) **Please confirm your attendance by email to Mlehoullier@tridentgrp.com.**

3.) Questions, attendance or additional information should be directed to the attention of Marc Lehoullier of Trident Building & Properties Group at (603) 898-6110 ext16, or by email Mlehoullier@tridentgrp.com.

4.) Questions/RFI's shall be taken up to the pre-bid meeting.

B. **DISCREPANCIES**

1.) Should a Bidder find discrepancies or ambiguities in, or omissions from, the drawings or specifications, or should he be in doubt as to their meaning, he shall at once notify The HL Turner Group here after referred to as the consultant, who will send a written bulletin to all Bidders.

2.) Bidders are responsible for all dimensions, building areas, and verifying existing conditions.

C. **FORMS**

1.) All proposals must be submitted on the prepared Bid forms and shall be subject to all requirements of the drawings, the specifications, and any other documents issued in connection with the above including this Invitation to Submit a Proposal.

2.) Voluntary alternates are not allowed unless prior approval from Trident & HL Turner.

3.) Attention is directed to the fact that the specifications include a set of bidding and contract forms. These are for bidding purposes on this project.

4.) A hard copy must be mailed.

5.) All blank spaces on forms must be filled in.

6.) The signature must be in longhand and executed by a principal duly authorized to make contracts. The Bidder's legal name must be fully stated.

D. **SUBMISSION OF PROPOSALS**

Sealed proposals will be received by the Owner no later than 3:30 PM November 17, 2016:

Ms. Shaylia Marquis, Procurement Manager
Town of Seabrook
99 Lafayette Road
Seabrook, NH 03874

1.) The Owner reserves the right to reject any/all proposals without explanation, to waive all formality in connection with bid opening, and to waive any informality in the proposals.

2.) The opening of the bid proposals will be public. Determination will be based upon all pertinent data contained in the proposals.

3.) Proposals submitted by the Contractor, as a result of this invitation to submit a Proposal, shall not obligate the Owner in any way.

E. **THE BID**

The bid shall be for the completed job as specified herein.

F. **VALIDITY**

All bids submitted shall remain valid for a period of not less than 30 calendar days from the Bid date.

INSTRUCTION TO BIDDERS

I. PROJECT:

HVAC UPGRADE &
Replacement Project
Seabrook Waste Water
Treatment Plant

II. PROJECT DESCRIPTION:

A. Base Bid:

1. The project includes removal and replacement of the existing RTU. Examination of ductwork, and repairs, as specified. Installation of replacement HVAC system, as specified.

III. WORK SCHEDULE:

A. The project is to proceed at an agreed to date with Owner. The project is to be done on a continual day-to-day basis except in the case of inclement weather. The project must be completed as soon as possible. All work is to commence after an approved date from the Owner. Work must be done Monday through Friday during normal work hours.

IV. BID DUE DATE:

V.

A. All bids are due by 3:30 PM on November 17, 2016
B. Bids must be delivered to the designated person in a timely manner to meet the bid deadline.

VI. BASE BID:

A. The Base Bid is the sum stated in the bid for which the bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for the sums stated in the Alternate Bids.

VII. ALTERNATE BID:

Split System in Office

VIII. UNIT PRICE BID:

A. As listed on bid form.

IX. CONTRACTORS:

A. Each Bidder shall include in its bid an outline of the Work to be performed by the Bidder with his own personnel. Any subcontractor work shall be identified within the Bid Proposal, and is subject to Owner approval.

B. Each bidder must provide with the Bid Form three project references with a minimum five-year history.

X. CLARIFICATIONS

A. All bidders must conduct their own roof measurements as the plan included with the specifications is for reference only.

B. All requests for clarification or interpretation of the Bidding Documents shall be made to Paul Becht, The HL Turner Group pbecht@hlturner.com with a copy to Marc Lehoullier, Owner's Project Manager to Mlehoullier@tridentgrp.com.

XI. SUBSTITUTIONS AND VOLUNTARY ALTERNATES

A. The materials, products, and equipment described in the bidding documents establish the standard of required function, dimension, appearance, and quality to be met.

B. No substitution will be considered prior to receipt of bids unless a written request for approval has been received by the aforementioned people at least three days prior to the date for receipt of bids. The Owners' decision regarding a proposed substitution shall be final.

C. If a substitution is approved prior to bidding, such approval will be set forth in an Addendum. Bidders shall not rely on approvals made in any other manner.

D. Voluntary alternates will not be accepted unless prior approval is given by the Owner or the Owner's representative. These may be rejected for any reason.

XII. PREVAILING WAGE

A. None.

XIII. BID FORM:

A. Your bid must be prepared on the Bid Form included with the Bidding Documents; additional copies may be obtained from Owner.

B. All blanks on the Bid Form must be completed in ink or type.

C. Bids by corporations must be executed in the corporate name by the President or Vice President.

D. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

E. All names must be typed or printed below the signature.

F. The bid shall contain an acknowledgement of receipt of all Addenda (the numbers must be filled in on the Bid Form).

G. The physical and e-mail address and telephone number for communications regarding your bid must be shown.

XIV. OPENING OF BID:

A. All Bids received prior to the date and time designated for the Bid opening will be opened publicly by the Awarding Authority.

XV. BID TO REMAIN SUBJECT TO ACCEPTANCE:

A. All bids will remain subject to acceptance for 90 days after the Bid due date.

XVI. AWARD OF CONTRACT:

A. The Owner reserves the right to reject any or all Bids, if it determines that is in its interest to do so.

B. Award means the determination and selection of the lowest, responsible and eligible Bidder, by the Awarding Authority.

C. The Awarding Authority will award the contract to the lowest responsible and eligible Bidder within thirty (30) days, Saturdays, Sundays, and legal holidays excluded after the opening of bids.

D. The Awarding Authority reserves the right to waive any informalities in or to reject any or all bids if it be in the public interest to do so.

E. The Awarding Authority also reserves the right to reject any bid if it determines that such bid does not represent the bid of a person competent to perform the work as specified or if less than three (3) available bids are received.

F. The term ""lowest responsible and eligible bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who obtains within ten days of the notification of contract award the security by bond, if required.

XVII. CONTRACT SECURITY:

A. When the Successful Bidder delivers the executed Agreement to owner, it must be accompanied by the required Performance and Payment Bonds. This requirement cannot be waived by Owner if the Contract Price exceeds $25,000.

II. INSURANCE:

A. When the Successful Bidder delivers the executed Agreement to the Owner, it must be accompanied by the required insurance certificates.

III. SIGNING OF AGREEMENT:

A. When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within five days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with required Bonds and insurance certificates. Owner shall deliver one fully signed counterpart to the Contractor.

IV. UNIT/ALTERNATE PRICES:

A. Prices by Corresponding Unit Are to Be Included in the Bid Form as Separate Line Items and shall be inclusive of Profit and Overhead.

V. SEALED BIDS marked "SEABROOK WWTP HVAC PROJECT" shall be sent to:

Ms. Shaylia Marquis, Procurement Manager

Town of Seabrook

99 Lafayette Road

Seabrook, NH 03874

VI. ADDITIONAL INFORMATION:

A. If you should need any additional information or have any questions regarding the project or specifications, all questions should be submitted in writing to the attention of Marc Lehoullier by email to Mlehoullier@tridentgrp.com

BID FORM

SEABROOK WASTEWATER TREATMENT PLANT
OPERATIONS BUILDING
HVAC PROJECT
SEABROOK, NEW HAMPSHIRE

TO: Town of Seabrook
99 Lafayette Road
Seabrook, NH 03874

Date:_____

SUBJECT: Wastewater Treatment Plant Operations Building
274 Route 286
Seabrook, New Hampshire

Proposal submitted by **(Bidder Name and Address Below)**:

_____

_____

The undersigned proposes to furnish all labor, material, tools and equipment in complete accordance with the provisions of the Contract Documents dated October 14, 2016 including all supplemental information provided and distributed by The H.L. Turner Group Inc.

The Bidder acknowledges receipt of and includes the requirements of the following Addenda:

Number	**Date**
_____	_____
_____	_____

In submitting this Bid, the undersigned agrees:

1. The Bidder shall not have defaulted on, or failed to execute, enter into, or perform a contract for services with the Town of Seabrook, New Hampshire during the past five (5) years.

2. The Bid shall remain in full force and will not be withdrawn for a period of thirty (30) calendar days after the actual date of Bid opening thereof.

3. To enter into and execute a contract, if awarded on the basis of this Bid.

4. To provide a Payment and Performance Bond for the contract amount.

5. To successfully accomplish the work in accordance with the Contract Documents.

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6. Work to be substantially completed by January 1, 2016 and finally complete by January 29, 2016.

7. To provide the Insurances required, as defined in the Summary of Work.

8. To **not unbalance** the Bid prices as the Town of Seabrook reserves the right to delete items in the Bid at any time.

9. The Bid prices submitted on this project shall include all material, labor, taxes, fees, permits, disposal, and all freight charges, for a total cost to the Town of Seabrook.

10. Bidder is to include with his Bid a short summary of their approach to the work, as well as any variations from the specification in a letter attached to the Bid.

11. The Town of Seabrook, New Hampshire reserves the right to accept any and all Bids and to waive any informalities.

Wastewater Treatment Plant HVAC Project:

Item	Description		Bid Price
1.	Laboratory HVAC Base Bid	(L.S.)	$_______________

The undersigned agrees to complete the Base Bid work for the Total Lump Sum Price of: (Base Bid includes the work shown on Drawings M1, M2, M4, M5.1 & M5.2).)

In words: ____

Item	Description		Bid Price
2.	Office HVAC Alternate Bid	(L.S.)	$_______________

The undersigned agrees to complete the Alternate work for the Total Lump Sum Price of: (Alternate Bid includes the work shown on Drawing M3).)

In words: ____

Show above amount in both words and numerals. In the event of error, amount in words shall govern.

>>

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Note: The Following Items are Required as Part of the "Bid Form" Submission:

1. Bidder accepts the Town of Seabrook's general terms and conditions as outlined in the forms contained in the Project Manual.

   a. Circle One (1) of these: **Yes** **No**

   If **No** is circled, mark-up of acceptable terms must be provided with Bid.

2. Provide written short summary of the approach to the work and schedule as part of the Bid Form Submission and include the written short summary with the "Bid Form".

3. Complete the information below:

Bidder: _____

Business Address: _____

_____

Authorized Signature: _____

Name (Print Clearly): _____

Title: _____

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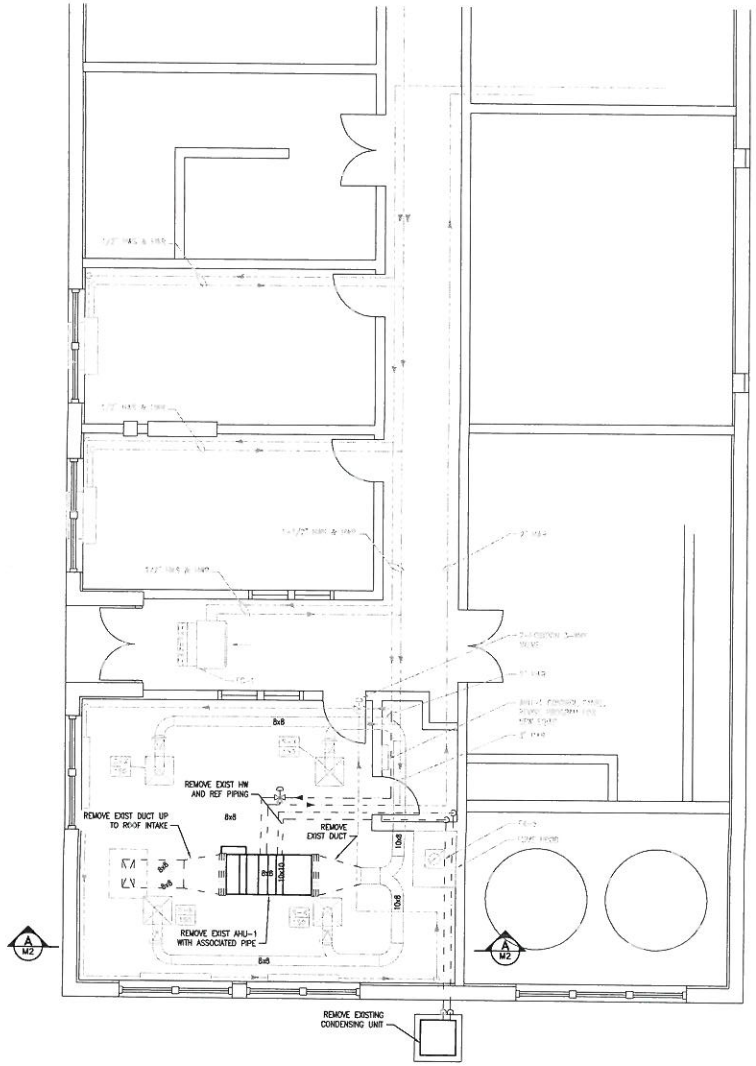
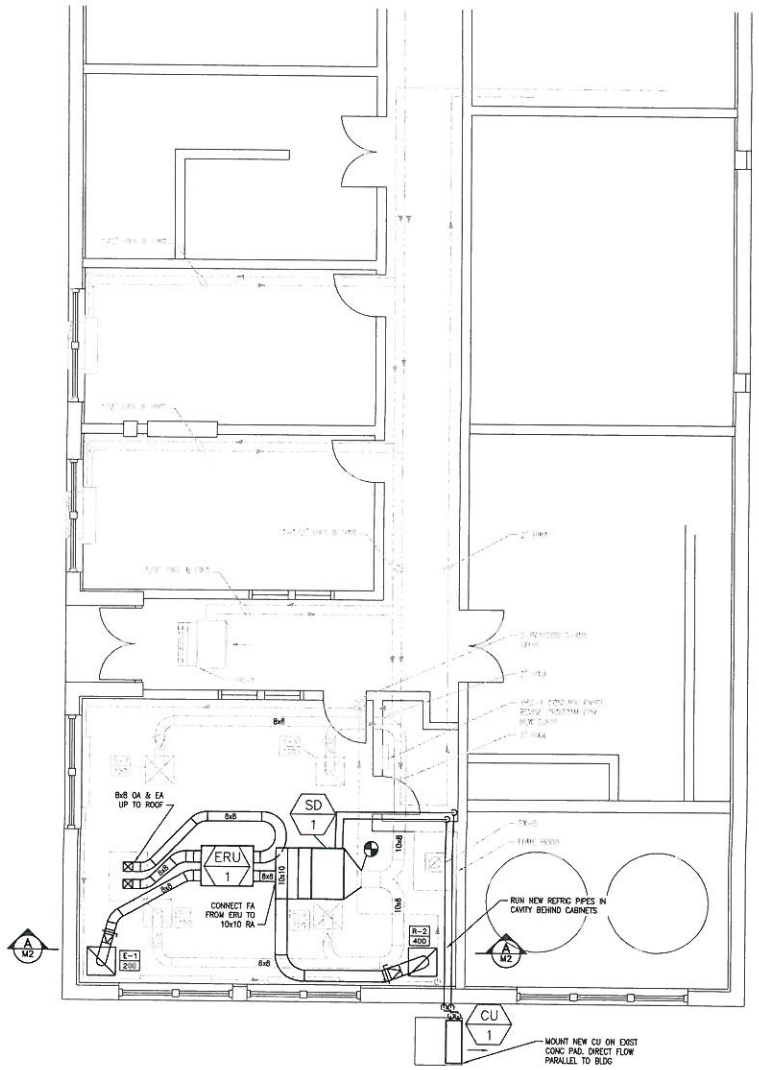


1 PLAN – DEMOLITION
1/4"=1'-0"



1 PLAN – NEW WORK
1/4"=1'-0"

GRAPHIC SCALE
0 feet

TURNER GROUP

The H.L. Turner Group Inc.
37 Locke Rd.
Concord, New Hampshire 03301
t:603.228.1122
hlturner.com
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KEY PLAN:

PROJECT TITLE / ADDRESS:
TOWN OF SEABROOK, NH
WASTEWATER TREATMENT PLANT
HVAC MODIFICATIONS

99 Lafayette Road
Seabrook, NH 03874

ISSUE:
BID & CONSTRUCTION
10/17/16

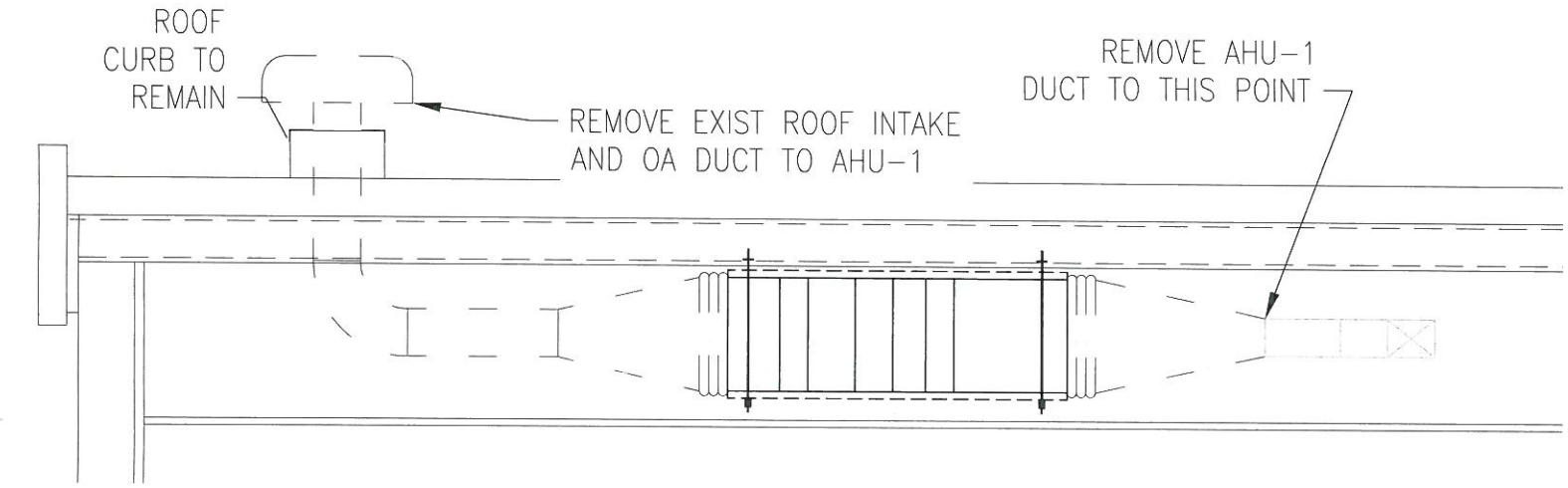
PROJECT NO:	4431
SCALE:	AS NOTED
DESIGN BY:	BMC
DRAWN BY:	JDP
CHKD BY:	DHB
ISSUE DATE:	10/17/16

STAMP

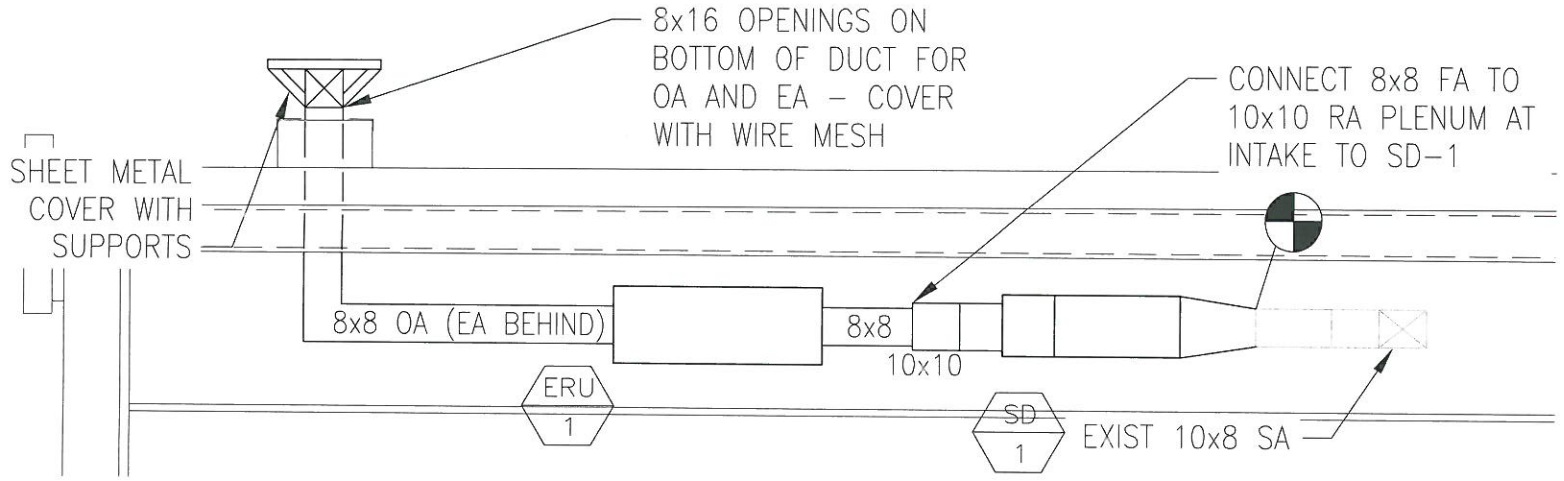
REVISIONS:

SHEET TITLE:
HVAC PLAN

M1



1 M1 SECTION A-A – DEMOLITION
1"=1'-0"



2 M1 SECTION A-A – NEW WORK
1"=1'-0"

GRAPHIC SCALE

1/16" = 1'-0" | 3/32" = 1'-0" | 1/8" = 1'-0"

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KEY PLAN:

PROJECT TITLE / ADDRESS:
TOWN OF SEABROOK, NH
WASTEWATER
TREATMENT PLANT
HVAC MODIFICATIONS

39 Lafayette Road
Seabrook, NH 03874

ISSUE:
BID &
CONSTRUCTION
10/17/16

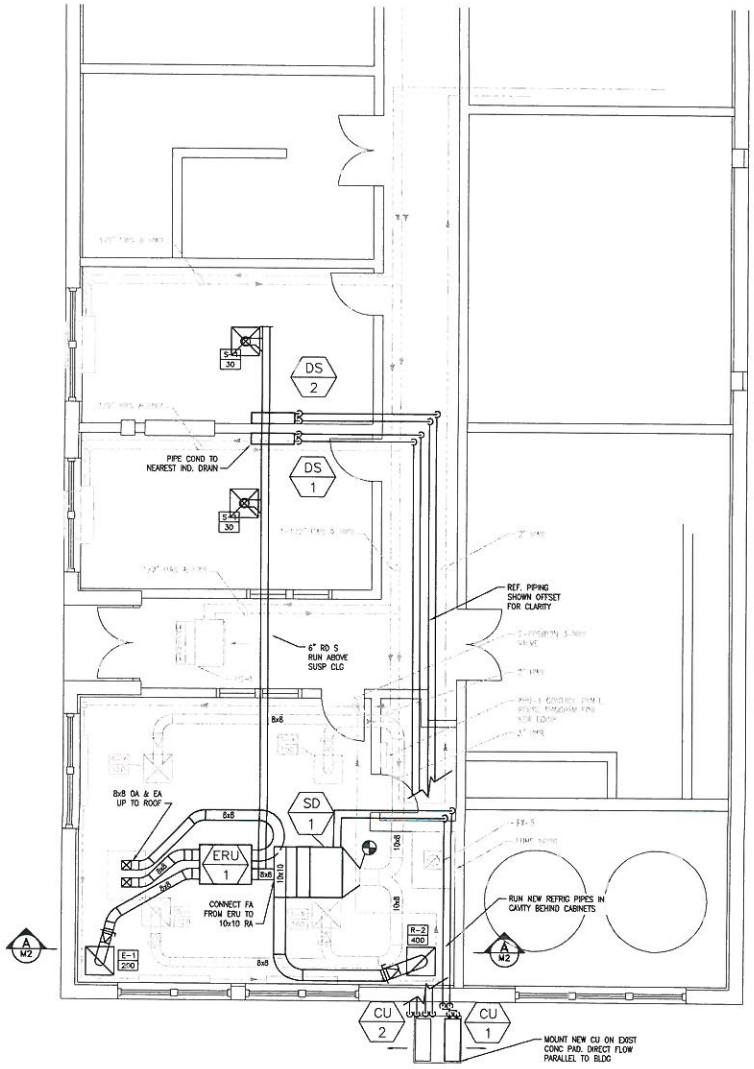
PROJ. NO.:	1431
SCALE:	AS NOTED
DESN. BY:	DRC
DRAWN BY:	JDF
CHKD BY:	DHS
ISSUE DATE:	10/17/16

STAMP

REVISIONS

SHEET TITLE:
SECTIONS

M2



1 PLAN – ALTERNATE
1/4"=1'-0"

GRAPHIC SCALE
0 feet

TURNER GROUP

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KEY PLAN:

PROJECT TITLE / ADDRESS:
TOWN OF SEABROOK, NH
WASTEWATER
TREATMENT PLANT
HVAC MODIFICATIONS

99 Lafayette Road
Seabrook, NH 03874

ISSUE:
BID &
CONSTRUCTION
10/17/16

PROJ. NO.:	4431
SCALE:	AS NOTED
DES./K.BY:	SMC
DRAWN BY:	JDP
CHKD BY:	DMB
ISSUE DATE:	10/17/16

REVISIONS

SHEET TITLE:
ALTERNATE OFFICE COOLING & VENTILATION

M3

SPLIT SYSTEM DUCTED HEAT PUMP SCHEDULE

TAG (INDOOR)	TAG (OUTDOOR)	SERVES	NOMINAL TONS (OUTDOOR)	INDOOR AIRFLOW (CFM)	COOLING				PIPE SIZES (IN.)		UNIT ELECTRICAL					DIMENSIONS (L x W x H) (IN.)		WEIGHT (LB)		MANUFACTURER	INDOOR MODEL	OUTDOOR MODEL	NOTES
					TOTAL (BTUH)	SENSIBLE (BTUH)	POWER (KW)	SEER (BTUH/W)	SUCTION	LIQUID	VOLTS	PH	HZ	MCA	MOPD	INDOOR	OUTDOOR	INDOOR	OUTDOOR				
SD-1	CU-1	LAB	1.5	572	17,200		1.38	17.5	1/2	1/4	208	1	60	14.0	15	47X28X8	33X13X34	62	119	MITSUBISHI	SEZ-KD18NA	SUZ-KA18NA	ALL

GENERAL NOTES:

1. RATED CONDITIONS: TEMPERATURES (DEG. F): INDOOR 80 DB/67 WB, OUTDOOR 95 DB/75 WB.
2. POWER SUPPLY TO OUTDOOR UNIT. PROVIDE INTERCONNECTING POWER & CONTROL CONDUIT TO INDOOR UNIT.
3. CONDENSATE DRAIN: PIPE INTERNAL PUMPED CONDENSATE TO NEAREST INDIRECT WASTE OUTLET.
4. REFRIGERANT R-410A. INVERTER VARIABLE-SPEED COMPRESSOR. MULTI SPEED SUPPLY FAN MOTOR (HIGH SPEED CFM INDICATED).
5. PROVIDE REFRIGERANT LINE KIT WITH PREINSULATED SUCTION AND LIQUID PIPING IN SIZES SCHEDULED AND AS INDICATED ON PLAN DRAWINGS. FIELD-APPLY OUTDOOR 30-MIL PVC JACKET AND FITTING SYSTEM.
6. PROVIDE FILTER BOX WITH MERV 8 FILTERS (FBL1-3).
7. PROVIDE WALL MOUNTED PAR-21MAA CONTROLLER AND CONNECTION TO EXISTING HONEYWELL CONTROL FOR TIMECLOCK START/STOP FUNCTIONS.

WALL-MOUNT DUCTLESS MINI-SPLIT HEAT PUMP SCHEDULE (ALTERNATE)

TAG (INDOOR)	TAG (OUTDOOR)	SERVES	NOMINAL TONS (OUTDOOR)	INDOOR AIRFLOW (CFM)	COOLING				PIPE SIZES (IN.)		UNIT ELECTRICAL					DIMENSIONS (L x W x H) (IN.)		WEIGHT (LB)		MANUFACTURER	INDOOR MODEL	OUTDOOR MODEL	NOTES
					TOTAL (BTUH)	SENSIBLE (BTUH)	POWER (KW)	SEER (BTUH/W)	SUCTION	LIQUID	VOLTS	PH	HZ	MCA	MOPD	INDOOR	OUTDOOR	INDOOR	OUTDOOR				
DS-1	CU-2	OFFICE	1.5	328	9000		1	16.1	3/8	1/4	208	1	60	11	15	36X9X12	33X15X35	29	187	MITSUBISHI	MSZ-FH09NA	MXZ-2C20NAHZ	ALL
DS-2	CU-2	OFFICE	1.5	328	9,000		1.00	16.1	3/8	1/4	208	1	60	7.0	15	36X9X12	33X15X35	29	187	MITSUBISHI	MSZ-FH09NA	MXZ-2C20NAHZ	ALL

GENERAL NOTES:

1. RATED CONDITIONS: TEMPERATURES (DEG. F): INDOOR 80 DB/67 WB, OUTDOOR 95 DB/75 WB.
2. POWER SUPPLY TO OUTDOOR UNIT. PROVIDE INTERCONNECTING POWER & CONTROL CONDUIT TO INDOOR UNIT.
3. CONDENSATE DRAIN: PROVIDE CONDENSATE PUMP AS SPECIFIED FOR WALL-MOUNT UNITS , POWERED FROM UNIT POWER. DRAIN HOSE AND CLAMPS TO RIGID PIPE.
4. REFRIGERANT R-410A. INVERTER VARIABLE-SPEED COMPRESSOR. MULTI-SPEED SUPPLY FAN MOTOR (HIGH SPEED CFM INDICATED).
5. PROVIDE REFRIGERANT LINE KIT WITH PREINSULATED SUCTION AND LIQUID PIPING IN SIZES SCHEDULED AND AS INDICATED ON PLAN DRAWINGS. FIELD-APPLY OUTDOOR 30-MIL PVC JACKET AND FITTING SYSTEM.
6. PROVIDE MHK1 WIRELESS CONTROLLER AND CONNECTION TO EXISTING HONEYWELL CONTROL FOR TIMECLOCK START/STOP FUNCTIONS.

ENERGY RECOVERY VENTILATOR SCHEDULE

TAG	LOCATION	SERVES	SYSTEM	CFM	ESP (IN. WC)	WINTER				SUMMER				FILTERS (2-INCH)	MOTORS (2) (SEE NOTE 6)		UNIT ELECTRICAL						DIMENSIONS L x W x H (IN.)	WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
						EAT (DEG. F)		LAT (DEG. F)		EAT (DEG. F)		LAT (DEG. F)					VOLTS	PH	HZ	FLA	MCA	MOPD					
						DB	WB	DB	WB	DB	WB	DB	WB	(MERV)	(HP)	(WATTS)											
ERV-1	LAB	LAB	SUPPLY	260	0.50	4	2	49.6	41.0	89.0	62.6	79.3	66.6	8	1/2	NOTE 5	208	1	60		5.0	15	44 X 24 X 16	199	RENEWAIRE	EW450IN-ECM	ALL
			EXHAUST	200	0.75	70.0	58.5	-	-	75.0	62.6	-	-	13	3/4	NOTE 5											

GENERAL NOTES:

1. ELECTRONICALLY COMMUTATED (EC) MOTORS. SC-ECM REMOTE POTENTIOMETER SPEED CONTROL FOR EACH MOTOR. SET FOR INDICATED FLOW.
2. FILTER ALARM SWITCHES FOR SUPPLY AND EXHAUST.
3. FUSED DISCONNECT SWITCH.
4. PROVIDE INTERCONNECTING POWER AND CONTROL WIRING FOR ACCESSORIES.
5. PROVIDE CONNECTION TO EXISTING HONEYWELL CONTROL FOR TIMECLOCK START/STOP FUNCTION.
6. SUSPEND UNIT FROM DECK WITH HANGARS AND SPRING MOUNTS.

SUPPLY DIFFUSER & GRILLE SCHEDULE

TAG	NECK SIZE (IN.)	AIRFLOW (CFM)	THROW (FT)	SOUND (NC)	SP (IN. WG)	TYPE	MANUFACTURER	MODEL	NOTES
S-1	6 x 6	100	4-9	<20	0.07	CEILING DIFFUSER	TITUS	TMC-AA	1-7

NOTES:

1. CBD NOT REQUIRED UNLESS NOTED OTHERWISE ON FLOOR PLANS - GENERALLY FURNISHED IN DUCT.
2. BORDER FOR T-BAR CEILINGS: TYPE 3, 24"x24" LAY-IN PANEL, UNLESS INDICATED OTHERWISE.
3. THROW BASED ON 150-50 FPM TERMINAL VELOCITY.
4. AIRFLOW SCHEDULED IS FOR PERFORMANCE RATINGS, ACTUAL CFM IS INDICATED ON PLANS.
5. ALUMINUM.
6. SQUARE NECK, LOUVERED FACE, REMOVABLE CORE.
7. PERFORMANCE BASED ON 4-WAY PATTERN. PROVIDE PATTERN INDICATED ON FLOOR PLANS.

RETURN & EXHAUST GRILLE SCHEDULE

TAG	NECK SIZE (IN.)	AIRFLOW (CFM)	SOUND (NC)	SP (IN. WG)	TYPE	MANUFACTURER	MODEL	NOTES
R/E-1	8 x 8	200	<20	0.06	RETURN GRILLE	TITUS	355 FL	-
R/E-2	12 x 12	400	<20	0.06	RETURN GRILLE	TITUS	355 FL	-
-	-	-	-	-	-	-	-	-

GENERAL NOTES:

1. CBD NOT REQUIRED UNLESS NOTED OTHERWISE ON FLOOR PLANS - GENERALLY FURNISHED IN DUCT.
2. BORDER FOR T-BAR CEILINGS: TYPE 3, 24"x24" LAY-IN PANEL, UNLESS INDICATED OTHERWISE.
3. BORDER FOR SIZES 8"x8" AND BELOW: TYPE 1 SURFACE MOUNT.
4. ALUMINUM CONSTRUCTION, FIXED CURVED VANES ON 1/2-INCH CENTERS.
5. MOUNT WITH BLADES ORIENTED FOR LEAST VISIBILITY INTO DUCTWORK.
6. AIRFLOW SCHEDULED IS FOR PERFORMANCE RATINGS, ACTUAL CFM IS INDICATED ON PLANS.

1/16" = 1'-0" 3/32" = 1'-0" 1/8" = 1'-0"

GRAPHIC SCALE

TURNER GROUP

The H.L. Turner Group Inc.
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Concord, New Hampshire 03301
(603) 228.1122
hlturner.com
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KEY PLAN:

PROJECT TITLE / ADDRESS:

TOWN OF SEABROOK, NH
WASTEWATER TREATMENT PLANT
HVAC MODIFICATIONS

99 Lafayette Road
Seabrook, NH 03874

ISSUE:

BID &
CONSTRUCTION
10/17/16

PROJ. NO: 1431 STAMP:

SCALE: AS NOTED

DESN. BY: SMB

DRAWN BY: BHB/BP

CHKD BY: SMB

ISSUE DATE: 10/17/16

REVISIONS:

SHEET TITLE:

SCHEDULES

M4

A. COORDINATE SCHEDULE FOR STARTUP OF VARIOUS EQUIPMENT AND SYSTEMS.
B. VERIFY THAT EACH PIECE OF EQUIPMENT OR SYSTEM HAS BEEN CHECKED FOR PROPER LUBRICATION, DRIVE ROTATION, BELT TENSION, CONTROL SEQUENCE, OR OTHER CONDITIONS WHICH MAY CAUSE DAMAGE.
C. VERIFY THAT TESTS, METER READINGS AND SPECIFIED ELECTRICAL CHARACTERISTICS AGREE WITH THOSE REQUIRED BY THE EQUIPMENT OR SYSTEM MANUFACTURER.
D. VERIFY WIRING AND SUPPORT COMPONENTS FOR EQUIPMENT ARE COMPLETE AND TESTED.
E. EXECUTE STARTUP UNDER SUPERVISION OF RESPONSIBLE MANUFACTURER'S REPRESENTATIVE AND CONTRACTORS' PERSONNEL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
F. WHEN SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS, REQUIRE MANUFACTURER TO PROVIDE AUTHORIZED REPRESENTATIVE TO BE PRESENT AT SITE TO INSPECT, CHECK AND APPROVE EQUIPMENT OR SYSTEM INSTALLATION PRIOR TO STARTUP, AND TO SUPERVISE PLACING EQUIPMENT OR SYSTEM IN OPERATION.
G. SUBMIT A WRITTEN REPORT, IN ACCORDANCE WITH CLOSEOUT PROCEDURES, THAT EQUIPMENT OR SYSTEM HAS BEEN PROPERLY INSTALLED AND IS FUNCTIONING CORRECTLY.

1.10 ADJUSTMENTS AND OWNER'S INSTRUCTIONS
A. ADJUSTMENTS: AFTER COMPLETION OF THE INSTALLATION WORK CALLED FOR IN THIS SPECIFICATION, THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL FURNISH NECESSARY MECHANICS OR ENGINEERS FOR THE ADJUSTMENT AND OPERATION OF THE SYSTEMS, TO THE END THAT THE SYSTEMS BE PERFECTLY ADJUSTED AND TURNED OVER TO THE OWNER IN PERFECT WORKING ORDER.
B. INSTRUCTION: INSTRUCT THE OWNER'S AUTHORIZED REPRESENTATIVE IN THE CARE AND OPERATION OF THE INSTALLATION, PROVIDING REQUIRED FRAMED INSTRUCTION CHARTS, DIRECTIONS AND OTHER RELATED ITEMS.
C. TESTING: AFTER THE ENTIRE INSTALLATION IS COMPLETED AND READY FOR OPERATION, TEST THE SYSTEMS PRIOR TO THE ACCEPTANCE TESTING PROCESS OUTLINED BELOW. THESE TESTS ARE SUPPLEMENTARY TO DETAILED TESTS SPECIFIED HEREIN OR DIRECTED. THE OWNER WILL PROVIDE WATER AND ELECTRIC CURRENT FOR THE TESTS. THE CONTRACTOR SHALL PROVIDE NECESSARY LABOR, TEST PUMP, GAUGES, METERS, OTHER INSTRUMENTS, AND MATERIALS. THE CONSTRUCTION MANAGER AND ARCHITECT AND THEIR REPRESENTATIVES RESERVE THE RIGHT TO BE PRESENT AT ANY OF THESE TESTS. NOTIFY THE CONSTRUCTION MANAGER FIVE DAYS IN ADVANCE OF ANY TEST.

1.11 WARRANTIES
A. THE CONTRACTOR SHALL PROVIDE A COMPLETE PARTS AND LABOR WARRANTY FOR A PERIOD OF AT LEAST ONE YEAR ON EQUIPMENT, MATERIALS, AND WORKMANSHIP. THE WARRANTY PERIOD SHALL EXTEND LONGER WHERE SPECIFIED ELSEWHERE FOR INDIVIDUAL EQUIPMENT OR SYSTEMS.
B. THE WARRANTY ON EACH SYSTEM AND ITS RELATED EQUIPMENT SHALL START WHEN THE SYSTEM IS UNDER FULLY AUTOMATIC OPERATION AND IS SUBSTANTIALLY COMPLETE. THE WARRANTY ON COMPONENTS IN EACH SYSTEM SHALL COMMENCE WHEN THE ENTIRE SYSTEM IS OPERATIONAL. THE WARRANTY ON COOLING EQUIPMENT SHALL COMMENCE ONLY AFTER THE COOLING EQUIPMENT IS FULLY INSTALLED, CHARGED AND FUNCTIONAL, WHICH MAY NOT COINCIDE WITH COMPLETION OF OTHER SYSTEMS OR RELATED AIR MOVING EQUIPMENT (DUE TO WINTER TIME COMPLETION).

1.14 OPERATING AND MAINTENANCE MANUALS
A. FURNISH BOUND OPERATING AND MAINTENANCE (O&M) MANUALS. SUBMIT TO THE OWNER WITHIN 30 DAYS FROM SUBSTANTIAL COMPLETION FOR REVIEW. THE OWNER RESERVES THE RIGHT TO DISAPPROVE INCOMPLETE SUBMISSIONS.
B. OPERATING INSTRUCTIONS SHALL BE SPECIFIED FOR EACH SYSTEM, AND INCLUDE COPIES OF POSTED SPECIFIC INSTRUCTIONS.
C. FOR MAINTENANCE PURPOSES, PROVIDE COPIES OF FINAL APPROVED SHOP DRAWINGS, PARTS LISTS, SPECIFICATIONS AND MANUFACTURER'S MAINTENANCE BULLETINS FOR EACH PIECE OF EQUIPMENT.
D. PROVIDE CALIBRATION CURVES OR CALCULATOR WHEELS FOR CIRCUIT SETTERS.
E. PROVIDE LIST OF FILTER AND BELT SIZES REQUIRED FOR EACH PIECE OF EQUIPMENT.

1.15 INSTALLATION DRAWINGS AND REPORTS
A. PROVIDE RECORD DRAWINGS OF ACTUAL INSTALLATION, AND PERFORMANCE DATA FOR EACH ITEM OF EQUIPMENT PROVIDED, WITHIN 45 DAYS AFTER SUBSTANTIAL COMPLETION, FOR REVIEW AND TRANSMITTAL TO THE OWNER.
B. PROVIDE A WRITTEN MECHANICAL BALANCING REPORT, WITHIN 60 DAYS AFTER SUBSTANTIAL COMPLETION, FOR REVIEW AND TRANSMITTAL TO THE OWNER.

PART 2 PRODUCTS

2.1 PIPE AND EQUIPMENT SUPPORTS
A. MANUFACTURERS, STRUT HANGERS: UNISTRUT (DIVISION OF TYCO), ANVIL INTERNATIONAL, COOPER B-LINE, HYDRA-ZORB COMPANY, THOMAS & BETTS – SUPERSTRUT UNIT, OR TOLCO (DIVISION OF COOPER B-LINE). NO SUBSTITUTIONS.
B. ACCEPTABLE MANUFACTURERS, SWIVEL BAND AND CLEVIS HANGERS: CARPENTER & PATERSON, ANVIL INTERNATIONAL, COOPER B-LINE, OR TOLCO (DIVISION OF COOPER B-LINE). NO SUBSTITUTIONS.
C. SEE DETAILS FOR SUPPORTING PIPES AND EQUIPMENT FROM BUILDING STRUCTURES.

2.2 SLEEVES AND ESCUTCHEONS FOR PIPING
A. SLEEVES
1. GALVANIZED-STEEL PIPES, ASTM A53, SCHEDULE 40, WITH PLAIN ENDS.
2. GALVANIZED-STEEL SHEET, 0.0239-INCH MINIMUM THICKNESS, ROUND TUBE CLOSED WITH WELDED LONGITUDINAL JOINT.
B. ESCUTCHEONS:
1. MATERIAL: BRASS OR STAINLESS STEEL AT FLOORS AND IN POTENTIALLY DAMP OR WET LOCATIONS. BRASS OR STEEL IN OTHER LOCATIONS.
2. FINISH: POLISHED CHROME PLATED IN EXPOSED LOCATIONS, PRIME PAINTED STEEL OR ROUGH BRASS IN MECHANICAL ROOMS AND SIMILAR SPACES.
3. CONSTRUCTION MAY BE ONE-PIECE OR SPLIT-HINGED TYPE. PROVIDE SETSCREW OR SPRING-CLIP FASTENERS TO HOLD IN PLACE.

2.3 VIBRATION ISOLATION
A. MANUFACTURERS: MASON INDUSTRIES, AMBER/BOOTH, KINETICS NOISE CONTROL, OR VIBRATION ELIMINATOR COMPANY. NO SUBSTITUTIONS.
B. SPRING HANGERS: CAPABLE OF AT LEAST 20 DEGREE HANGER ROD MISALIGNMENT (SWING-SPRING), AND INCORPORATING A RUBBER ELEMENT WITH THREADED INSERT.
C. SPRING MOUNTS: RESTRAINED TYPE, WITH FASTENING AND LEVELING DEVICES, AND NEOPRENE SOUND PADS UNDER BASE.
D. DEFLECTION: NOMINAL 1 INCH UNLESS OTHERWISE INDICATED.

2.4 LABELS & IDENTIFICATION
A. ACCEPTABLE MANUFACTURERS, NAMEPLATES
1. SETON IDENTIFICATION PRODUCTS
2. BRIMAR INDUSTRIES INC.
B. MANUFACTURERS, TAGS: SETON IDENTIFICATION PRODUCTS, OR BRIMAR INDUSTRIES, INC. NO SUBSTITUTIONS.
C. MANUFACTURERS, PIPE MARKERS: SETON IDENTIFICATION PRODUCTS, BRADY WORLDWIDE, INC., OR BRIMAR INDUSTRIES, INC. NO SUBSTITUTIONS.
D. EQUIPMENT IDENTIFICATION
1. NAMEPLATES FOR EQUIPMENT SHALL BE ALUMINUM WITH A BLACK ENAMEL BACKGROUND AND ETCHED OR ENGRAVED NATURAL ALUMINUM LETTERING, OR LAMINATED PLASTIC WITH ENGRAVED WHITE LETTERS ON BLACK BACKGROUND, OF SIZES EASILY READABLE FROM THE FLOOR.
2. NAMEPLATES FOR CONTROLS, SWITCHES, STARTERS, PILOT DEVICES, PUSHBUTTONS, RELAYS AND TRANSFORMERS SHALL BE AT LEAST 2-1/2" X 3/4".
3. NAMEPLATES FOR MAJOR EQUIPMENT SHALL BE AT LEAST 1-1/2" X 4", WITH THE DESIGNATED NUMBER ENGRAVED IN LETTERING NOT LESS THAN 3/4-IN. HIGH.
C. PIPE IDENTIFICATION
1. PROVIDE COLOR-CODED PIPE IDENTIFICATION MARKERS. PIPE MARKERS SHALL BE SNAP-ON LAMINATED PLASTIC WITH ACRYLIC COATING.
2. PROVIDE FLOW DIRECTION ARROW MARKER WITH EACH PIPE CONTENT MARKER.
3. IN GENERAL, PROVIDE 2-IN. HIGH LETTERING FOR PIPE LINES 4" DIA. AND LARGER, AND 3/4-IN. HIGH LETTERING FOR PIPE LINES 3" DIA. AND SMALLER.
D. TAGS
1. TAGS FOR IDENTIFYING VALVES AND EQUIPMENT SHALL BE ENGRAVED PLASTIC SIMILAR TO NAMEPLATES, OR STAMPED BRASS. TAGS MAY BE USED WHERE IRREGULAR SURFACES ARE NOT SUITABLE FOR NAMEPLATES.
2. INFORMATION TAGS SHALL BE CLEAR PLASTIC HOLDERS WITH PRINTED MESSAGE, WITH REINFORCING GROMMET. FASTENING SHALL BE BY NYLON TIES, OR METAL CHAIN OF MATERIAL SUITABLE FOR CONTACT WITH NEARBY METALS.
E. LABEL-MAKER LABELS NOT ALLOWED
1. LABELS SUCH AS THE SELF-ADHESIVE TAPE LABELS BY SUCH MANUFACTURERS AS BROTHER AND DYMO ARE NOT ACCEPTABLE SUBSTITUTES FOR THE IDENTIFICATION SPECIFIED.

PART 3 EXECUTION

3.1 EQUIPMENT IDENTIFICATION
A. ITEMS OF MECHANICAL EQUIPMENT, SUCH AS CONDENSING UNITS, AIR HANDLING UNITS, FANS, PUMPS, UNIT HEATERS, VARIABLE AIR VOLUME BOXES, AND DDC CONTROL PANELS, SHALL BE IDENTIFIED BY APPROVED NAMEPLATES PROVIDED BY THE SUBCONTRACTOR FURNISHING THE EQUIPMENT. NAMEPLATES SHALL BE SECURELY AFFIXED, IN A PERMANENT MANNER, TO EACH INDIVIDUAL PIECE OF EQUIPMENT, AND SHALL ALSO INCLUDE BUT NOT BE LIMITED TO EACH STARTER, SWITCH, RELAY AND TRANSFORMER WHICH CONTROLS THIS EQUIPMENT. NAMEPLATES SHALL BEAR NOTATIONS CORRESPONDING TO THE NOTATIONS USED ON THE CONTRACT DRAWINGS AND ON THE FRAMED WIRING DIAGRAMS AND OPERATING INSTRUCTIONS.
B. PROVIDE NAMEPLATES ON EQUIPMENT, CONTROLS, SWITCHES, TIMERS, STARTERS, RELAYS, AND TRANSFORMERS, DESCRIBING THE FUNCTION AND USE OF THE EQUIPMENT IN NON-TECHNICAL LANGUAGE.
C. COORDINATE NAMING WITH THE ELECTRICAL SYSTEM INSTALLER, SO THAT NAMES ON INSTALLED CIRCUIT BREAKER PANEL SCHEDULES ARE FILLED OUT TO MATCH THE NAMING ON THE EQUIPMENT. THE INTENT IS FOR OCCUPANTS TO EASILY AND SAFELY DETERMINE THE PROPER CIRCUIT BREAKER ASSOCIATED WITH THE EQUIPMENT.

3.2 PIPE IDENTIFICATION
A. INSTALL PIPE MARKERS AFTER BUILDER PAINTING OF PIPING IS COMPLETE, AND PRIOR TO CONCEALING PIPING ABOVE HARD CEILINGS.
B. PROVIDE ARROW MARKER WITH EACH PIPE CONTENT MARKER TO INDICATE DIRECTION OF FLOW. IF FLOW CAN BE IN EITHER DIRECTION, USE DOUBLE-HEADED ARROW MARKER.
C. LABEL MAINS AT POINTS OF ENTRANCE AND EXIT FROM MECHANICAL ROOMS, ADJACENT TO VALVES, ON RISERS, AT TEE FITTINGS, AT POINTS OF ENTRANCE AND EXIT FROM BUILDING, AT LEAST ONCE IN EACH ROOM, AND AT INTERVALS NOT LONGER THAN 20 FT.
D. IT IS NOT REQUIRED TO LABEL DROPS IN PARTITIONS TO EQUIPMENT SUCH AS BASEBOARD AND CABINET HEATERS.

3.3 FOUNDATIONS
A. CEILING MOUNTING: WHERE CEILING MOUNTING IS INDICATED OR SPECIFIED, USE SUSPENDED PLATFORM OR STRAP HANGERS, BRACKETS, OR SHELF, WHICHEVER IS MOST SUITABLE FOR EQUIPMENT AND ITS LOCATION. CONSTRUCT OF STRUCTURAL STEEL MEMBERS, STEEL PLATES, AND RODS AS REQUIRED. BRACE AND FASTEN TO BUILDING STRUCTURE OR TO INSERTS AS APPROVED OR AS DETAILED AND IN CONFORMANCE WITH SEISMIC RESTRAINT REQUIREMENTS. MOUNT ROTATING EQUIPMENT USING RUBBER-IN-SHEAR OR SPRING TYPE ISOLATION HANGERS AS A MINIMUM IF OTHER ISOLATION IS NOT INDICATED OR SCHEDULED.
B. WHERE FLOOR MOUNTING IS INDICATED, LOCATE EQUIPMENT ON 4-INCH-HIGH REINFORCED CONCRETE PAD OF ADEQUATE SIZE TO FULLY SUPPORT EQUIPMENT, WITH ANCHORS AND BASE PLATES AS REQUIRED, WITH PAD DOWELED TO CONCRETE FLOOR SLAB. THE CORNERS OF CONCRETE PADS SHALL BE CHAMFERED 1/2 INCH. PAD AND STEEL SIZES AND LOCATION SHALL BE COORDINATED WITH THE APPROVED EQUIPMENT.
C. WHERE SO DETAILED, INSTALL EQUIPMENT ON CONCRETE PAVERS, PRESSURE TREATED SLEEPERS OR ON STRUCTURAL STEEL FRAME.
D. VIBRATION ISOLATION: PROVIDE AS INDICATED ON THE PLAN AND DETAIL DRAWINGS AT BOILER ROOM, AT MAKEUP AIR UNIT IN THE ATTIC, AND ON PIPE AND DUCT HANGERS WITHIN 40 FEET FROM MAKEUP AIR UNIT.

3.4 PIPING SUPPORTS
A. SUPPORT AS REQUIRED BY STATE AND LOCAL CODES, ORDINANCES, AND REGULATIONS.
B. UNLESS OTHER APPLICABLE REGULATIONS ARE STRICTER, SUPPORT IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE, 2009 OR LATER EDITION.

3.5 SLEEVES AND ESCUTCHEONS
A. PROVIDE SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN WALLS, PARTITIONS, FLOORS, AND ROOFS, AND SEAL AS REQUIRED FOR FIRE RATING.
B. SIZE TO ALLOW FIRESTOPPING. SIZE HOLES AND SLEEVES TO ALLOW FOR CONTINUOUS INSULATION THROUGH THE SLEEVE, AND AT LEAST 1/4 INCH CLEAR BETWEEN INSULATION AND SLEEVE FOR PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION.
C. CUT SLEEVES FLUSH WITH BOTH SURFACES IN EXPOSED LOCATIONS, TO ALLOW CONCEALMENT WITH ESCUTCHEONS. FASTEN SLEEVES PERMANENTLY IN PLACE.
D. PROVIDE ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, PARTITIONS, FLOORS, AND CEILINGS WHERE EXPOSED TO VIEW IN OCCUPIED SPACES AND MECHANICAL ROOMS AND SIMILAR SPACES.
E. ESCUTCHEONS ON BARE PIPING SHALL BE ONE-PIECE TYPE WHERE POSSIBLE. ESCUTCHEONS ON INSULATED PIPING SHALL BE SPLIT, HINGED TYPE.
F. SIZE ESCUTCHEONS AND FLOOR PLATES WITH INNER DIAMETER TO FIT CLOSELY AROUND PIPE, TUBE, AND INSULATION OF PIPING, AND WITH OUTER DIAMETER THAT COMPLETELY COVERS OPENING.

3.6 FIRESTOPPING
A. THIS SUBCONTRACTOR IS RESPONSIBLE FOR FIRESTOPPING PENETRATIONS OF FIRE-RATED BUILDING ELEMENTS BY WORK OF THIS DIVISION SUCH AS PIPING, DUCTWORK, AND WIRING.
B. FIRESTOPPING SYSTEMS, MATERIALS, DETAILS, AND METHODS SHALL BE OF THE SAME TYPE AND MANUFACTURER AS THOSE USED BY THE GENERAL CONTRACTOR UNDER THE ARCHITECTURAL DIVISIONS OF THE CONTRACT DOCUMENTS.
C. WHERE FIRESTOPPING IS EXPOSED TO VIEW (INCLUDING LOCATIONS COVERED BY LOOSE REMOVABLE MATERIALS SUCH AS CEILING TILES OR ATTIC INSULATION) IN BOILER ROOMS, ATTIC, AND SIMILAR LOCATIONS, PROVIDE A SELF-ADHESIVE LABEL ADJACENT TO THE PENETRATION, FILLED OUT WITH INFORMATION ABOUT THE FIRESTOP USED AT THAT PENETRATION.
D. DEMONSTRATE TO THE CONSTRUCTION MANAGER, THE FIRESTOPPING AT A SAMPLE MOCK-UP OF EACH TYPE OF PENETRATION, BEFORE PROCEEDING WITH OTHERS OF THE SAME TYPE.

SECTION 23784

DUCTED OR DUCTLESS SPLIT SYSTEM HEAT PUMPS

PART 1 GENERAL

1.1 SUBMITTALS
A. SHOP DRAWINGS: INDICATE ASSEMBLY, UNIT DIMENSIONS AND WEIGHTS, ACCESS LOCATIONS, REQUIRED CLEARANCES, CONSTRUCTION DETAILS, PIPING CONNECTION SIZES AND LOCATIONS, OTHER FIELD CONNECTION DETAILS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
B. PRODUCT DATA.
1. PROVIDE LITERATURE WHICH INDICATES DIMENSIONS, WEIGHTS, CAPACITIES, RATINGS, MATERIALS AND FINISHES, AND CONNECTION REQUIREMENTS.
2. AIR COILS: CERTIFY CAPACITIES IN ACCORDANCE WITH ARI 410-87.

1.2 SPLIT-SYSTEM HEAT PUMPS
A. UNITS AND ACCESSORIES SHALL COMPLY WITH NFPA 70 NATIONAL ELECTRICAL CODE.
B. COMPLETE UNIT SHALL SHALL CARRY UL, ETL, OR CSA LISTING.
C. UNITS SHALL BE FACTORY ASSEMBLED, PIPED, WIRED AND TESTED.

PART 2 PRODUCTS

2.1 SPLIT-SYSTEM HEAT PUMPS
A. MANUFACTURERS: MITSUBISHI, DAIKIN, FUJITSU
B. INDOOR EVAPORATOR COOLING COIL SECTION:
1. CASING: STEEL, PAINTED IN MANUFACTURER'S STANDARD COLOR. CASING SHALL INCLUDE ACCESS PANELS TO ALLOW CLEANING OF COIL, OR PROVIDE ACCESS IN DUCTS.
2. COIL: COPPER TUBING AND ALUMINUM FINS.
3. DRAIN PAN: CORROSION RESISTANT, WITH DRAIN CONNECTIONS FOR COMPLETE DRAINAGE.
4. THERMAL EXPANSION VALVE: FURNISHED WITH COIL.
5. ACCESSORIES: REFRIGERANT PIPING ACCESSORIES SHALL BE AS RECOMMENDED BY MANUFACTURER, AND MAY INCLUDE LIQUID LINE SIGHT GLASS, LIQUID LINE FILTER, SUCTION FILTER, AND SERVICE VALVES.
6. VIBRATION ISOLATORS: TO MATCH ASSOCIATED AIR HANDLER OR FURNACE.
C. OUTDOOR CONDENSING UNIT: SEE SECTION 23670.
D. FACTORY REFRIGERANT PIPING LINESETS: TYPE K COPPER, ANNEALED (SOFT) TEMPER, WITH ELASTOMERIC INSULATION.

PART 3 EXECUTION

3.1 INSTALLATION
A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. VIBRATION ISOLATION: SUPPORT UNITS WITH VIBRATION ISOLATING HANGERS OR MOUNTS.
C. PIPE REFRIGERANT AS RECOMMENDED BY THE MANUFACTURER, WITH VALVES AND ACCESSORIES AS RECOMMENDED.
D. PIPE CONDENSATE DISCHARGES TO SAFE LOCATION AND AS INDICATED, WITH AIR GAP OR AIR BREAK PER CODE. CONDENSATE MUST BE PIPED TO A FLOOR DRAIN OR SIMILAR PLUMBING CONNECTION. PROVIDE A CONDENSATE PUMP IF NECESSARY.

SECTION 23788

ENERGY RECOVERY EQUIPMENT

PART 1 GENERAL

1.1 ENERGY RECOVERY UNITS AND HEAT RECOVERY UNITS
A. UNITS AND ACCESSORIES SHALL COMPLY WITH NFPA 70 NATIONAL ELECTRICAL CODE.
B. ELECTRICAL COMPONENTS SHALL CARRY UL, ETL, OR CSA LISTING.
C. UNIT SHALL BE FACTORY ASSEMBLED, WIRED AND TESTED.

1.5 EXTRA MATERIALS
A. PROVIDE TWO SPARE SETS OF FILTERS FOR EACH UNIT.

PART 2 PRODUCTS
A. MANUFACTURERS: RENEWAIRE.
B. CASING: STEEL, PAINTED IN MANUFACTURER'S STANDARD COLOR. CASING SHALL INCLUDE ACCESS PANELS TO EXPOSE HEAT EXCHANGER, FILTERS, MOTOR(S), FANS, AND OTHER ITEMS REQUIRING MAINTENANCE.
C. SUPPLY AND RETURN FANS: CENTRIFUGAL. MOTORS SHALL BE ELECTRONICALLY-COMMUTATED (EC) TYPE WHEN SO INDICATED OR SCHEDULED.
D. HEAT EXCHANGER: PLATE TYPE, PROVIDING BOTH SENSIBLE HEAT TRANSFER AND LATENT HEAT (MOISTURE) TRANSFER.
E. DEFROST AND CONDENSATE DRAINAGE: NONE REQUIRED.
F. VIBRATION ISOLATION: PROVIDE EXTERNAL ISOLATION HANGERS OR MOUNTS AS INDICATED OR SCHEDULED.
G. FILTERS: OF TYPE SCHEDULED.

PART 3 EXECUTION

3.1 INSTALLATION
A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. VIBRATION: MOUNT WITH VIBRATION ISOLATORS AS INDICATED. PROVIDE FLEXIBLE DUCT CONNECTIONS. PROVIDE FLEXIBLE CONDUITS IN ELECTRICAL AND CONTROL WIRING CONNECTIONS.
C. PIPE CONDENSATE TO DRAIN, WITH TRAPS IN HEATED LOCATION.
D. INSTALL FILTERS AND VERIFY TIGHT FIT.
E. INSTALL REQUIRED CONTROLS.
F. TEST TO VERIFY HEAT- OR ENERGY-RECOVERY PERFORMANCE.

GRAPHIC SCALE

TURNER GROUP

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ARCHITECTS • ENGINEERS • BUILDING SCIENTISTS

PROJECT TITLE / ADDRESS:

TOWN OF SEABROOK, NH
WASTEWATER
TREATMENT PLANT
HVAC MODIFICATIONS

99 Lafayette Road
Seabrook, NH 03874

ISSUE:
BID &
CONSTRUCTION
10/17/16

SHEET TITLE:
SPECIFICATIONS
SHEET 1

M5.1

SECTION 230700

DUCTWORK, PIPING, AND EQUIPMENT INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. INSULATION MATERIALS.

B. JACKETS AND VAPOR BARRIER MATERIALS

C. FITTINGS AND JACKET SEALING TAPES.

D. ACCESSORIES.

E. INSTALLATION METHODS

1.2 SUBMITTALS

A. SUBMIT IN ACCORDANCE WITH SECTION 230500

1.3 REGULATORY REQUIREMENTS

A. MATERIALS: FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/50 OR ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723. FOR ELASTOMERIC FOAM INSULATION, RATING SHALL APPLY FOR THICKNESSES UP TO 2 INCHES.

B. INSULATION MATERIALS SHALL BE FORMED(S) FREE. NO FIBERS WITH DIMENSIONS SIMILAR TO AIRBORNE FIBERS SHALL BE RELEASED FROM ANY MATERIAL

1.5 JOB CONDITIONS

A. WEATHER LIMITATIONS: DO JOB SITE IN ORIGINAL NON-BROKEN FACTORY PACKAGING, LABELED WITH MANUFACTURER'S DENSITY AND THICKNESS.

B. PROTECT INSULATION FROM WEATHER AND CONDITIONS THAT'S DIRT, WATER, CHEMICAL, AND MECHANICAL DAMAGE, BY STORING IN ORIGINAL WRAPPING.

C. PERFORM WORK AT AMBIENT AND EQUIVALENT TEMPERATURES AS RECOMMENDED BY THE ADHESIVE AND MASTIC MANUFACTURERS.

D. APPLICATION SHALL BE BY EXPERIENCED INSULATION MECHANICS. INSULATION SHALL BE INSTALLED WITH SMOOTH SURFACES AND SQUARE CORNERS AND EDGES READY TO RECEIVE FINISH PAINT IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE. WORK METHODS ACCOMMENDED BY THE MANUFACTURERS AND APPROVED BY THE ARCHITECT.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. TRADES AND MINERAL FIBER PRODUCTS: KNAUF INSULATION, CERTAINTEED CORPORATION, JOHNS MANVILLE CORPORATION, NO SUBSTITUTIONS.

B. ELASTOMERIC FOAM PRODUCTS: ARMACELL LLC, OR K-FLEX USA. NO SUBSTITUTIONS.

C. GLASS FIBER INSULATION SEALING TAPES: VENTURE TAPE CORPORATION, 3M COMPANY, IDEAL TAPE CO. DIVISION OF AMERICAN BILTRITE INC., NASHUA TAPE PRODUCTS (DIVISION OF BERRY PLASTICS CORP.). NO SUBSTITUTIONS.

D. ACCESSORIES: CELL-LITE DIVISION OF JOHNS MANVILLE (PRODUCT: JM-BRAND STUDCHECK), EXTRUDED PRODUCTS, DIVISION OF SPECIALTY CONSTRUCTION BRANDS, INC., A SUBSIDIARY OF H.B. FULLER (INSULFAST), SEALANTS, REINFORCING MEMBRANES, AND ACCESSORIES): JOHNS MANVILLE (PRODUCTS: TUFFER-SEAL ACRYLIC POLYMER SEALANTS, (FLEXIBLE JACKET SYSTEMS): PABCO/CHILDERS METALS, DIVISION OF ITW INSULATION SYSTEMS (PRODUCTS: METAL JACKET SYSTEMS, AND ACCESSORIES): RPC DIVISION (INTERNATIONAL PRODUCTS: FROUGH COAT ACRYLIC POLYMER MECHANICAL INSULATION REPAIR COATING; VENTURE TAPE CORPORATION (PRODUCT: JACKET FOR OUTDOOR INSULATION).

2.2 FACTORY-APPLIED JACKETS

ALL-SERVICE JACKET (ASJ): A COMPOSITE OF AN OUTER SURFACE LAYER OF HIGH-DENSITY WHITE KRAFT PAPER, BONDED TO AN ALUMINUM FOIL VAPOR RETARDER, AND REINFORCED WITH PARALLEL YARN SCRIM.

B. FOIL-SCRIM-KRAFT (FSK): A COMPOSITE OF AN OUTER SURFACE LAYER OF ALUMINUM FOIL, BONDED TO A HIGH-DENSITY KRAFT PAPER, AND REINFORCED WITH FIBERGLASS YARN SCRIM.

2.3 PIPE INSULATION MATERIALS

A. FLEXIBLE ELASTOMERIC INSULATION:

1. PREFORMED PIPE INSULATION, OF CLOSED CELL EXTRUSIONS OF NBR/PVC BLEND (MEETS REQUIRE AS ACCEPTABLE BENZOTRIC RUBBER/POLYVINYL CHLORIDE NBR/PVC). OTHER ELASTOMERIC MATERIALS INCLUDING EPDM RUBBER, OR THERMOPLASTICS SUCH AS POLYETHYLENE AND POLYSTYRENE, ARE NOT ALLOWED. ARMACELL ARMAFLEX AP OR AP 100, OR APPROVED EQUAL BY K-FLEX USA.

2. MAXIMUM THERMAL CONDUCTIVITY 0.27 (BTU-IN)/(HR-SQ FT-°F) RATED AT 50°F

3. MINIMUM WATER SERVICE TEMPERATURE SHALL BE AT LEAST 210°F.

4. PROVIDE INSULATION WITH SELF-SEALING STRIPS, AND/OR PROVIDE MANUFACTURER'S RECOMMENDED ADHESIVES: ARMSTRONG 520 ADHETHAL OR APPROVED EQUAL.

5. FOR OUTDOOR SERVICE, APPLY AT LEAST TWO COATS OF UV RESISTANT WHITE WATER INSULATION FINISH APPROVED FOR USE BY THE INSULATION MANUFACTURER EXPOSED ELASTOMERIC INSULATION. ANALYSING WB FINISH, OR APPROVED EQUAL. PAINT SURFACE SHALL BE SUITABLE FOR ACCEPTING TOP COAT OF LATEX PAINT BY THE PAINTING CONTRACTOR.

B. POLYISOCYANURATE INSULATION: RIGID INSULATION, CONSISTING OF CFC PROJECT

1. ASJ: AN OPERATOR'S MANUAL FOR OPERATION FUNCTIONS SPECIFIED UNDER OPERATOR SECTIONS.

2. FSK

C. ELASTOMERIC INSULATION SHEETS:

1. ARMACELL ARMAFLEX AP OR AP SS, SHEET FORM, OF CLOSED CELL EXTRUSIONS OF NBR/PVC BLEND, SYNTHETIC RUBBER, OR OTHER APPROVED ELASTOMERIC MATERIAL (THERMOPLASTICS SUCH AS POLYETHYLENE AND POLYSTYRENE ARE NOT ALLOWED). ARMACELL AP ARMAFLEX SA SELF ADHERING SHEETS ARE ALSO ACCEPTABLE

2. MAXIMUM THERMAL CONDUCTIVITY 0.27 (BTU-IN)/(SQFT-HR-°F) RATED AT 50°F

3. MINIMUM RATED SERVICE TEMPERATURE SHALL BE AT LEAST 180°F.

4. PROVIDE INSULATION MANUFACTURER'S RECOMMENDED ADHESIVES, ARMSTRONG 520 ADHESIVE, OR APPROVED EQUAL.

5. FOR OUTDOOR SERVICE, APPLY AT LEAST TWO COATS OF UV RESISTANT WHITE WATER INSULATION FINISH APPROVED FOR USE BY THE INSULATION MANUFACTURER EXPOSED ELASTOMERIC INSULATION. ANALYSING WB FINISH, OR APPROVED EQUAL. PAINT SURFACE SHALL BE SUITABLE FOR ACCEPTING TOP COAT OF LATEX PAINT BY THE PAINTING CONTRACTOR.

D. ACOUSTIC DUCT LINING

1. ELASTOMERIC INSULATION SHEETS - SEE SPECIFICATIONS FOR DUCTWORK INSULATION MATERIALS

E. JACKET SEAM SEALANT TAPE FOR EXTERIOR OF DUCTS

1. FIBERGLASS INSULATION: 4-INCH WIDE PERMANENT BUTYLTENE TAPE WHICH MEETS THE INSULATION JACKET AS RECOMMENDED BY THE INSULATION MANUFACTURER. CLOTH-BACKED DUCT TAPE IS NOT ACCEPTABLE. PROVIDE MANUFACTURER'S TAPE SEALING TOOL OR EQUAL.

2. ELASTOMERIC INSULATION: ARMACELL AP ARMAFLEX INSULATION TAPE SELF-ADHESIVE ELASTOMERIC INSULATION TAPE.

2.6 ADHESIVES, SEALANTS, AND COATING COMPOUNDS

A. ADHESIVES FOR SECURING INSULATION TO METAL SURFACES AND VAPOR BARRIER LAP ADHESIVE FOR USE IN BUILDING INTERIORS (MEETS ASTM C916, TYPE I) (ADHESIVE VEHICLE NONFLAMMABLE IN LIQUID STATE AND PROVIDES EDGE-BURNING TESTS) OR TYPE 2 (ADHESIVES VEHICLE NONFLAMMABLE IN LIQUID STATE AND WILL NOT FACE EDGE-BURNING TEST). ADHESIVES SHALL BE WATERPROOF IN THEIR CURED STATE.

B. MINERAL FIBER INSULATION CEMENT: ASTM C195. MAXIMUM THERMAL CONDUCTIVITY 0.61 BTU-IN/(SQ FT-°F) AT 200°F MEAN TEMPERATURE WHEN TESTED PER ASTM C177.

C. ELASTOMERIC: INSULATION FINISH FOR OUTDOOR SERVICE. UV RESISTANT WHITE WATER INSULATION FINISH APPROVED FOR USE BY THE INSULATION MANUFACTURER, ARMSTRONG WB FINISH, OR APPROVED EQUAL. WHITE SILICONE ENCLOSE ARMORMAX INSULATED PAINT SURFACE SHALL BE SUITABLE FOR ACCEPTING TOP COAT OF LATEX PAINT BY THE PAINTING CONTRACTOR.

PART 3 EXECUTION

3.1 INSTALLATION

A. GENERAL

1. PROVIDE INSULATION FOR NEW AND MODIFIED PIPING, EQUIPMENT, AND SPECIALTIES, AND AS INDICATED

2. INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH TABLE 1, ASHRAE 90.1-2007 OR STATE ENERGY CODES, WHICHEVER IS MORE STRINGENT, FOR THE TYPE OF INSULATION USED

B. CONDENSATE PIPING: 1" DOUBLE ELASTOMERIC FOAM

3.2 DUCTWORK AND EQUIPMENT APPLICATIONS

A. SUPPLY AIR DUCTS IN CONDITIONED CEILING SPACES: INSULATE WITH 1-1/2"-INCH SHOP FIBERGLASS BLANKETS (DUCTWRAP).

B. VENTILATION SUPPLY-AIR AND OUTDOOR-AIR DUCTS AND PLENUMS: WHERE CEILING INSULATE WITH EIGHT BOARD FIBERGLAST INSULATION. THICKNESS ON SUPPLY-AIR DUCTWORK AT LEAST 2 INCHES. WHICHEVER ON DIVIDER-AIR DUCTWORK AT LEAST 2 INCHES

C. EXHAUST AIR DUCTS AND PLENUMS

1. INSULATE FROM ROOF OR WALL PENETRATION TO END WITH AT LEAST 2-INCH THICK RIGID BOARD FIBERGLAST INSULATION

3.3 PREPARATION

A. INSTALL PIPING, DUCTWORK, AND EQUIPMENT AFTER SYSTEM TESTS HAVE BEEN COMPLETED

B. SURFACES TO BE INSULATED SHALL BE CLEANED OF DIRT, RUST, AND SCALE, AND DRIED. ENSURE SURFACES ARE CLEAN AND DRY PRIOR TO INSTALLATION. ENSURE INSULATION IS DRY BEFORE AND DURING APPLICATION.

C. ENSURE FULL RANGE OF MOTION OF EQUIPMENT ACTUATIONS

3.4 PIPING INSULATION INSTALLATION

A. GENERAL

1. APPLY INSULATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

2. PROVIDE INSULATION SHIELDS WHERE PIPE IS SUPPORTED FROM THE BOTTOM

3. WHERE PIPES PENETRATE FIRE-RATED ASSEMBLIES, PROVIDE MINERAL-FIBER INSULATION INSERTS AND SLEEVES OF SHEET METAL OR STEEL PIPE.

4. PROVIDE VAPOR BARRIER FINISH ON MATERIAL FOR PIPES CONVEYING FLUIDS AT LESS THAN 60°F. VAPOR BARRIER AS REQUIRED BY SERVICE AS LISTED IN TABLE 1.

5. INSULATE FITTINGS, FLANGES, AND VALVES UNLESS OTHERWISE NOTED. DO NOT INSULATE VALVE STEMS, HAND WHEELS AND OPERATORS. USE FACTORY MOLDED, PREFORMED FIELD FABRICATED INSULATION OF THE SAME THICKNESS AND THERMAL CONDUCTIVITY AS THE MATERIAL ON THE ADJACENT PIPE.

6. WHERE INSULATION CAUSES OBSTRUCTIONS WITH VALVE HANDLES, SAFETY RELIEF VALVES, AND OTHER ITEMS REQUIRING MANUAL OPERATION IN NORMAL SERVICE, ALLOW ADEQUATE SPACE FOR PIPE EXPANSION. INSTALL INSULATION WITH REMOVABLE SECTIONS OVER VALVES, EXPANSION JOINTS, AND END CAPS. DO NOT USE SOLID PIECES WHERE A FULL LENGTH SECTION WILL FIT.

7. INSULATION SHALL BE CONTINUOUS THROUGH SLEEVES WALL AND CEILING OPENINGS. EXTEND SURFACE FINISHES TO PROVIDE SURFACES, ENDS, AND RAW EDGES OF INSULATION. APPLY COATINGS AND ADHESIVES AT THE MANUFACTURER'S RECOMMENDED COVERAGE PER GALLON. INDIVIDUALLY INSULATE PIPING, EQUIPMENT, AND SPECIALTIES. MAINTAIN DRY DURING THE APPLICATION OF ANY FINISH. BEVEL AND SEAL THE EDGES OF EXPOSED INSULATION. PROVIDE A SUBSTRATE AND VAPOR SEAL WHERE INSULATION TERMINATES AGAINST METAL HANGERS. UNLESS OTHERWISE INDICATED, DO NOT INSULATE THE FOLLOWING:

a. VALVE HAND WHEELS

b. VERIFICATION ISOLATING CONNECTIONS

c. ADJACENT INSULATION

d. ASME STAMPS.

e. NAMEPLATES AND VALVES WHERE MINIMAL UNIT ENCLOSURES

B. FLEXIBLE ELASTOMERIC INSULATION.

1. INSULATION SEAMS SHALL BE NEATLY AND TIGHTLY GLUED TOGETHER USING MANUFACTURER'S RECOMMENDED ADHESIVE. BOND CUTS, BUTT JOINTS, AND END AND LONGITUDINAL JOINTS WITH MANUFACTURER'S RECOMMENDED ADHESIVE, WITH INSULATION TO COVER CLOSING, PIPE, FITTINGS, AND VALVES.

2. INSULATE FLANGES, UNIONS, VALVES, AND FITTINGS IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS

3. SUFFICIENT LOOSENING. APPLY AT LEAST TWO COATS OF UV RESISTANT INSULATION FINISH TO ANY EXPOSED INSULATION

C. HANGERS AND ANCHORS.

1. PIPE INSULATION SHALL BE CONTINUOUS THROUGH PIPE HANGERS. WHERE PIPE IS SUPPORTED BY THE INSULATION, PROVIDE NESTS OF 18 GA. STEEL OR GALVANIZED STEEL SHIELDS OR NESTS 18-GA, TYPE 20 PROTECTION SHIELDS CONFORMING TO MSS SP-69. WHERE SHIELDS ARE USED ON PIPES 2 INCH AND LARGER, PROVIDE INSULATION INSERTS AT POINTS OF HANGERS AND SUPPORTS.

2. INSULATION INSERTS SHALL BE OF CELLULAR GLASS (ARMAFLEX A PDT) OR OTHER APPROVED MATERIAL OF THE SAME THICKNESS AS ADJACENT INSULATION. INSERTS SHALL HAVE SUFFICIENT COMPRESSIVE STRENGTH TO ADEQUATELY SUPPORT THE PIPE WITHOUT COMPRESSING FIVE INSERTS TO A THICKNESS LESS THAN THE ADJACENT INSULATION. INSULATION INSERTS SHALL EXTEND THE BOTTOM HALF OF THE PIPE CIRCUMFERENCE WITH MINIMUM ARC OF 180 DEGREES, AND SHALL BE NOT LESS IN LENGTH THAN THE 3-INCH SHIELD. SHIELD SHALL HAVE SMOOTH FACING ON THE INSERT SHALL BE THE SAME MATERIAL AS THE FACING ON THE ADJACENT INSULATION. SEAL SHIELDS INTO INSULATION WITH WATER BARRIER SEALING, OR ON OUTDOOR WORK WITH MANUFACTURER'S RECOMMENDED WEATHERPROOF COATING, AS APPLICABLE.

3. WHERE PROTECTION SADDLES ARE USED, FILL VOID WITH THE SAME INSULATION MATERIAL AS USED ON THE ADJACENT PIPE. THESE AREAS ARE SECURED SO SHIELD ON COLD PIPING THAT IS TO BE INSULATED, INSULATE THE ANCHORS THE SAME AS THE PIPING FOR A DISTANCE NOT LESS THAN FIVE TIMES THE INSULATION THICKNESS TO PREVENT CONDENSATION. VAPOR SEAL INSULATION AT ANCHORS.

C. SLEEVES AND WALL CHASES

1. WHERE CONTINUING INTERIOR WALLS AND PARTITIONS, EXTEND A METAL JACKET 2 INCHES OUT ON EITHER SIDE OF THE WALL AND SECURE ON EACH END WITH A BAND.

2. WHERE PENETRATING FLOORS, EXTEND A METAL JACKET FROM A POINT BELOW THE BACK-UP MATERIAL TO A POINT 10 INCHES ABOVE THE FINISH FLOOR WITH ONE BAND AT THE FLOOR AND A BAND NOT MORE THAN 1 INCH FROM THE END OF THE METAL JACKET

3. WHERE PENETRATING EXTERIOR WALLS, EXTEND ONE METAL JACKET THROUGH THE SLEEVE TO A POINT 2 INCHES BEYOND INTERIOR SURFACE OF THE WALL.

F. FIELD-INSTALLED JACKETS

1. PIPING EXPOSED IN FINISHED AREAS AT 8 FEET OR LESS ABOVE FINISHED FLOOR (NOT INCLUDING PIPING ABOVE THE WAREHOUSE GRID) SHALL BE WEATHERED PVC JACKET AND EXPOSE SYSTEM. LAP SEAMS DOWNWARD TO DRAIN, AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE SEALANT.

2. PIPING EXPOSED MATERIALS: PVC JACKET AND FITTING SYSTEM. LAP SEAMS DOWNWARD TO DRAIN, AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE SEALANT.

3.5 FLANGES, UNIONS, VALVES AND FITTINGS INSULATION

A. FACTORY FABRICATED REMOVABLE AND REUSABLE INSULATION COVERS SHALL BE USED FOR FITTINGS REQUIRING PERIODIC SERVICE, AND MAY BE USED FOR OTHER FITTINGS.

B. FOR INDOOR EQUAL-TEMPERATURE, CHILLED WATER, HOT WATER, AIR CONDITIONING COIL CONDENSATE DRAINS, AND REFRIGERANT SUCTION AND LIQUID PIPING, PLACE FACTORY PRE-MOLDED PIECES OR FIELD-FABRICATED INSULATION OF THE SAME THICKNESS AND CONSISTENCY AS THE ADJOINING PIPE INSULATION AROUND THE FLANGE, VALVE, UNION, OR FITTING ADJOINING THE ADJOINING PIPE INSULATION

C. IF HEATING-COIL INSULATION IS USED, OVERLAP EITHER A MINIMUM OF 2 INCHES ON ONE PIPE DIAMETER, WHICHEVER IS GREATER. USE INSULATING CEMENT TO FILL VOIDS. PLACE AND JOIN THE SEGMENTS WITH MANUFACTURER'S RECOMMENDED WATER VAPOR-RESISTANT, FIRE-RETARDANT ADHESIVE APPROPRIATE FOR TEMPERATURE LIMIT OF SERVICE. BEVEL MASTIC INSULATION MAY ALSO BE USED

D. PROVIDE FACTORY PRE-MOLDED ONE-PIECE PVC FITTING COVERS. MATING EDGES ENTER THE INSULATION AND SECURE BY STAPLING, TAPING WITH VAPOR BARRIER TAPE, OR WITH METAL OR PLASTIC HOOKS MADE FOR SECURING PVC FITTING COVERS. FOR COLD SERVICES REQUIRING CONTINUOUS VAPOR BARRIER, DO NOT USE STAPLES OR HOOKS WHICH PENETRATE THE VAPOR BARRIER. LIMIT THE USE OF PVC FITTING COVERS TO AMBIENT TEMPERATURES BELOW 100 F.

3.6 EQUIPMENT INSULATION

A. MODIFY INSULATION TO AVOID OBSTRUCTIONS WITH VALVE HANDLES, SAFETY RELIEF VALVES, AND OTHER MOVING PARTS. ALLOW ADEQUATE SPACE FOR PIPE EXPANSION INSTALL INSULATION WITH JACKETS STRAIGHT, SMOOTH, AND DENSITY DOWN ON LONGITUDINAL AND END LAPS. DO NOT USE STAPLE PIECES WHERE A FULL LENGTH SECTION WILL FIT.

B. INSULATE TO THICKNESS IN TABLE 1.

3.7 DUCTWORK INSULATION INSTALLATION

A. INSTALL CONFORMING AFTER DUCTWORK AND EQUIPMENT HAVE BEEN SOILED, TESTED, AND APPROVED.

B. ENSURE INSULATION IS CONTINUOUS THROUGH INSIDE WALLS AND PARTITIONS. FACE AROUND DUCTS WITH FIREPROOF SELF-SUPPORTING INSULATION MATERIAL, PROPERLY SEALED.

C. FINISH INSULATION NEATLY AT HANGERS, SUPPORTS AND OTHER PROTRUSIONS.

D. LOCATE INSULATION OR CONVEY SEAMS IN LEAST VISIBLE LOCATIONS

E. INSTALL RIGID INSULATION WITH NO PERCENT ADVANTAGE OF ADHESIVE AND 18 GAUGE GALVANIZED WIRELE ANCHOR PINS ON 18 INCH CENTERS. SEAL JOINTS AND BREAKS IN INSULATION OR DUCT OPENINGS AND AT LEAST 3-INCH FROM PERIMETERS, WITH WATER BARRIER TAPE OR 4-INCH WIDE STRIPS OF OPEN MESH CLOTH IN SPM OR TAPE EMBEDDED BETWEEN TWO COATS OF WATER BARRIER SEALANT. POINT-UP EXPOSE JOINTS AND BREAKS WITH MINERALIZE SETTING CEMENT

F. REPAIR DETERIORATION OF JOINTS OR CRACKING OF INSULATION DUE TO THERMAL MOVEMENT OR OTHER WORKMANSHIP

G. SEAL JOINTS AND PUNCTURES WITH 4-INCH MINIMUM WIDTH PRESSURE-SENSITIVE TAPE.

H. STANDING SEAMS, SUPPORTING ANGLES, AND FLANGES ON INSULATED DUCTWORK SHALL BE INSULATED WITH THICKNESS EQUAL TO THE DUCT INSULATION, AND EDGES SHALL BE FINISHED AND THICK SMOOTH.

I. MECHANICAL FASTENERS SHALL NOT BE INSERTED OR SCREWED TO THE DUCT AND SHALL NOT PENETRATE THE METALWORK.

3.8 PAINTING AND IDENTIFICATION

A. PAINTING: PRIME-COAT EXPOSE METALS WHERE EXPOSED TO OCCUPANT VIEW, AND IN OTHER AREAS IN WHICH PAINTING IS INDICATED ON THE ARCHITECTURAL CONTRACT DOCUMENTS

3.9 FIELD INSPECTION

A. VISUALLY INSPECT TO ENSURE THAT MATERIALS LISTS AND WORKMANSHIP CONFORM TO SPECIFICATIONS. INSPECT INSTALLATIONS FOR COMPLIANCE WITH REQUIREMENTS.

TABLE 1

PIPING INSULATION WALL THICKNESSES

OPERATING (TEMPERATURE RANGE (°F))	CONDUCTIVITY (BTU-IN./HR-FT2-°F)	RATING MEAN °F,	NOMINAL PIPE DIAMETER (IN.)			
			RUNOUTS UP TO 2	1 1/2 TO 2	2 1/2 - 4	
HEATING SYSTEMS (HOT WATER AND GLYCOL)						
251–350	0.29–0.29	200	1.5	2.5	3.5	2.5
201–250	0.27–0.28	150	1.0	1.5	2.0	2.5
141–200	0.25–0.29	125	0.5	1.5	2.0	2.0
105–140	0.24–0.28	100	0.5	1.5	2.0	2.0
DOMESTIC HOT WATER SYSTEMS						
105	0.24–0.28	100	0.5	1.0	1.0	1.5
COLD PIPING SYSTEMS (POTABLE COLD WATER)						
POTABLE	0.23–0.28	75	0.5	1.0	1.0	1.0
40–55	0.23–0.28	75	0.5	1.5	1.5	1.5
BELOW 40	0.23–0.27	75	1.0	1.5	1.5	1.5
CONDENSATE PIPING (REQUIRES VAPOR BARRIERS)						
35–75	0.25–0.26	200	0.5	0.5	0.5	0.75
INDIRECT WASTE PIPING						
33–120	0.21–0.25	200	0.5	0.5	0.5	0.75

NOTES

A. "RUNOUT" IS DEFINED AS THE SHORT RUN OF PIPE FROM THE BRANCH PIPING ABOVE OR AT THE CEILING TYPICALLY, WITHIN A WALL OR PARTITION, AND THE DROP IN OR ALONG A WALL OR PARTITION TO A TERMINAL DEVICE. NOT TO EXCEED 4 FT IN HORIZONTAL LENGTH

SECTION 230900

AUTOMATIC TEMPERATURE CONTROLS

PART 1 GENERAL

1.1 GENERAL

A. THE WORK OF THIS SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR

1.2 SCOPE INCLUDES

A. A FULLY INTEGRATED CONTROL SYSTEM CONSISTING OF THE FOLLOWING:

1. ELECTRIC / ELECTRONIC BASED EQUIPMENT CONTROLLED MECHANICAL DIRECTLY WITH ELECTRONIC SENSORS, ACTUATORS AND ENVIRONMENTAL DELIVERY SYSTEMS.

2. ELECTRIC / ELECTRONIC CONTROLS AND MECHANICAL DEVICES FOR ITEMS INDICATED ON DRAWINGS AND DESCRIBED HEREINAFTER SUCH AS BUT NOT LIMITED TO DAMPERS, VALVES, FANS, AND PUMPS

3. SUBMITTALS, DATA ENTRY, ELECTRICAL INSTALLATION, PERFORMANCE, START UP, TEST AND VALIDATION, INSTALLATION OF OWNER'S REPRESENTATIVE ON MAINTENANCE AND OPERATION, AS-BUILT INFORMATION, AND SYSTEM WARRANTY

1.3 SUBMITTALS

A. SUBMIT IN ACCORDANCE WITH SECTION 230700 - GENERAL REQUIREMENTS

B. SUBMITTAL SHALL CONSIST OF:

1. WIRING INTERCONNECTION DIAGRAMS INDICATING MOUNTING PANEL AND DEVICE POWER AND SIGNALS

1.4 CODES AND REFERENCES

A. THE COMPLETE TEMPERATURE CONTROL INSTALLATION SHALL BE IN STRICT ACCORDANCE TO THE NATIONAL AND LOCAL ELECTRICAL CODES AND THE ELECTRICAL SECTION OF THESE SPECIFICATIONS. DEVICES DESIGNED FOR USE IN LOW VOLTAGE APPLICATIONS SHALL BE UL LISTED. MICROPROCESSOR BASED REMOTE AND CENTRAL SYSTEMS SHALL BE ULWIN LISTED.

B. ELECTRONIC EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF FCC REGULATION PART 15, SECTION J3 CONCERNING RADIO FREQUENCY ELECTROMAGNETIC INTERFERENCE AND BE SO LABELED.

1.5 MANUALS

A. PROVIDE THE FOLLOWING MANUALS UPON SUBSTANTIAL COMPLETION OF THE PROJECT

1.6 WARRANTY

A. COMPREHENSIVE SYSTEM SOFTWARE, PARTS AND ASSEMBLIES SUPPORTS BY THE TEMPERATURE CONTROL CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS, WORKMANSHIP, AND PERFORMANCE FOR ONE YEAR FROM ACCEPTANCE DATE.

B. LABOR TO TROUBLESHOOT, REPAIR, REPROGRAM, CALIBRATE OR REPLACE SYSTEM COMPONENTS SHALL BE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR AT NO ADDITIONAL CHARGE TO THE OWNER DURING THE WARRANTY PERIOD.

PART 2 PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. PROVIDE COMPLETE CONTROLS INDICATED ON SCHEDULE FOR EACH PIECE OF MECHANICAL EQUIPMENT TO EFFECTIVELY MECHANICAL SYSTEM AND TO PERFORM FUNCTIONS SPECIFIED. SEQUENCES OF OPERATION INDICATES ARE THE MINIMUM REQUIREMENTS. ADDITIONAL FEATURES AND COMPONENTS THAT PROVIDE EQUIVALENT RESULTS WITH THESE REQUIREMENTS ARE PERMITTED. SYSTEM SHALL BE ADJUST TO THE OUTLINE ECONOMATIC INFORMATION PROVIDED SO THAT A COMPLETE AND FUNCTIONAL SYSTEM IS PROVIDED WITH CONTROL AS INDICATED.

B. CONTROLLERS SHALL INCLUDE USER INTERFACE DEVICES, TO ALLOW OWNER TO ADJUST SETPOINTS AND OTHER PARAMETERS. CONTROLLERS WHICH ARE "BLACK BOX" TYPE REQUIRING THE SERVICES OF A CONTROL COMPANY TECHNICIAN FOR SUCH ADJUSTMENTS, ARE NOT ACCEPTABLE.

2.2 CONTROL VALVES

A. MANUFACTURERS: HONEYWELL, BELIMO, OR CONTROL SYSTEM MANUFACTURER.

B. VALVE BODIES SHALL BE BRONZE, SMALL-VALVE, NON-OR ROUGE-NOSE STEM.

C. TERMINAL HEATING UNIT VALVES: INCH 2 ZONE SEVERE PRODUCT LINE OF SMALL VALVE ZONE VALVES WITH MECHANICAL CONNECTION WITHOUT ACTUATOR. ON-OFF CONTROL WITH SPRING RETURN FOR FAILSAFE POSITION. PROVIDE NORMALLY OPEN OR NORMALLY CLOSED AS REQUIRED. MAXIMUM FLUID TEMPERATURE 240 DEGREES F AT 150 DEGREES F AMBIENT. MAXIMUM SHUTOFF PRESSURE 125 PSI AT 200 PSIG OPERATING PRESSURE.

1. VALVES FOR HEATING WITHIN APARTMENTS SHALL BE FAIL-CLOSED, POWERED OPEN, SO THAT IN SUMMER SEASON THE VALVE MOTORS ARE NOT POWERED.

2. VALVES FOR HEATING IN PUBLIC SPACES AND BOILER ROOM SHALL BE FAIL-OPEN, POWERED CLOSED. POWER FOR THESE VALVES SHALL BE SWITCHED OFF WHEN THE HEATING SYSTEM IS OFF IN WARM WEATHER, TO REDUCE WEAR ON THE MOTORS

D. RUBBER-PADDLE-BALL TYPE VALVES, AND WAX-MOTOR VALVES ARE NOT ACCEPTABLE.

2.4 AUTOMATIC DAMPERS

A. PROVIDE AUTOMATIC CONTROL DAMPERS WHICH ARE NOT SPECIFICALLY TO BE INTEGRAL WITH OTHER EQUIPMENT.

B. PRIMARY AIR DAMPERS SHALL BE INSULATED. BLADES SHALL BE AIRFOIL TYPE FOR REDUCED PRESSURE DROP.

C. DAMPERS SHALL BE ULTRA-LOW LEAKAGE TYPE, WITH SEALS EQUAL TO THE DAMPERS MANUFACTURED BY RUSKIN.

D. MODULATING DAMPERS SHALL HAVE OPPOSED BLADES. TWO-POSITION DAMPERS SHALL HAVE PARALLEL BLADES.

2.5 DAMPER AND VALVE ACTUATORS

A. AUTOMOBILE CONSTRUCTED DIRECTLY UNLESS OTHERWISE OTHERWISE ELSEWHERE. SHALL BE SUFFICIENT STRENGTH AND DESIGN TO OPERATE DAMPERS OR VALVES WITH PRESSURES AS INDICATED ON DRAWINGS AND WITH VELOCITIES AND PRESSURE DIFFERENTIALS. SHALL BE SIZED TO OPERATE THE APPROACHED EXPOSED BLADES, WITH SUFFICIENT TORQUE OUTPUT AS RECOMMENDED BY MANUFACTURER FOR PROPER ACTION AND FOR TIGHT CLOSE-OFF AS REQUIRED.

B. ACTUATORS SHALL GENERALLY HAVE RETURN SPRINGS TO RETURN TO FAIL-SAFE POSITION.

C. ELECTRIC ACTUATORS SHALL BE EQUIPPED WITH ADJUSTABLE MECHANICAL (NOT MERCURY) AUXILIARY SWITCHES TO PROVIDE FULL OPENING OF DEVICE CONTROLLED

D. WHERE ACTUATORS ARE MOUNTED IN EXPOSED LOCATIONS SUBJECT TO WEATHER OR MOISTURE, PROVIDE WEATHERPROOF ENCLOSURES. LIMITED COMPONENTS SHALL FIT TO MANY ZONES ARE NOT WEATHERTIGHT. DO NOT USE TRUE SEALANT AND TAPE ITS COMPONENTS FOR WEATHERTIGHT CONNECTIONS. CONDITIONAL UNITS OR SEANS KNOWN AS BUTTON FINISH SEAM LOOSE ARE NOT ACCEPTABLE.

1. SNAP-LOCK CONTINUOUSLY SEANS MAY BE USED ON AROUND DUCTS UP TO 8 INCHES DIAMETER, WITH SCREWS PROVIDED TO SECURE THE SEAMS AT 24 INCHES ON CENTER MAXIMUM SPACING.

2. DRIVE SLIP SYSTEMS AS REQUIRED IN SMACNA HANDBOOK FOR RECTANGULAR DUCTS. DRIVE SLIPS NOT ALLOWED ON CIRCULAR DUCTS.

D. REINFORCEMENT: USE BRACING ANGLES ON FLAT BARS SHALL BE RIVETED TO DAMPERS ON DUCTS SIZES 18 INCHES OR MORE. UNBALANCED BLADES UNDER 18 IN WIDE MAY BE STIFFENED BY CROSS BREAKING. UNBALANCED STIFFENED BLADES SHALL HAVE EITHER CROSS BREAKING OR FLAT BAR REINFORCEMENT AND FLUSH SEAMS IN LIEU OF STANDING AMOUNT AND PREVENTING SEAMS.

E. INTERNAL TIE RODS: NOT ALLOWED

F. FITTINGS: SQUARE ELBOWS, ROUND ELBOWS, FITTINGS, SMACNA THROTTLE, TRANSITIONS, SPLITTERS, DUCT VOLUME DAMPERS, AND ACCESS DOORS. FITTINGS CONNECTIONS AND ACCESS DOORS SHALL CONFORM WITH SMACNA THROTTLE SYSTEM 2.

1. RECTANGULAR BRANCHES SHALL BE 45 DEGREE THROTTLE FITTINGS, OR RECTANGULAR THROTTLE SHALL BE USED FOR ROUND BRANCHES. EACH BRANCH LINE SHALL HAVE A VOLUME DAMPER INSTALLED.

2. RECTANGULAR-DUCT DYNAMS:

a. WITHOUT (FLANGE) TO DRAIN. SHALL HAVE SINGLE THICKNESS TURNING VANES WITH RADIUS TYPE TRAILING EDGES. VANES SHALL CONFORM TO THE SMALL-RADIUS VANE REQUIREMENTS OF SMACNA HANDBOOK, EXCEPT THAT SHEET METAL SHALL BE AT LEAST 20 GAUGE. VANES IN DUCTS WITH WIDTH IN THE PLANE OF THE TURN 42 INCHES OR LARGER MAY HAVE TYPE AND SPACING CONFORMING TO THE LARGE-RADIUS VANE REQUIREMENTS OF SMACNA HANDBOOK. VANES SHALL FIT THE ENTIRE CROSS-SECTION OF THE DUCT.

b. RADIUS ELBOW: SHALL HAVE A CENTERLINE RADIUS NOT LESS THAN 1-1/2 TI

DRAFT

AIA® Document A107™ – 2007

Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope

AGREEMENT made as of the [ ] day of [ ] in the year Two Thousand Sixteen
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Town of Seabrook
99 Lafayette Road
Seabrook, NH

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

WWTP HVAC UPGRADE & REPLACEMENT PROJECT

The **Owner's Project Manager** (OPM):
(Name, legal status, address and other information)

Trident Building, LLC
155 North Broadway
Salem, NH 03079

The Owner's Design Consultant is:

The HL Turner Group, Inc.
27 Locke Road
Concord, NH 03301

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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(1329687822)

TABLE OF ARTICLES

1 THE WORK OF THIS CONTRACT

2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3 CONTRACT SUM

4 PAYMENT

5 DISPUTE RESOLUTION

6 ENUMERATION OF CONTRACT DOCUMENTS

7 GENERAL PROVISIONS

8 OWNER

9 CONTRACTOR

10 DESIGN CONSULTANT OR OPM

11 SUBCONTRACTORS

12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

13 CHANGES IN THE WORK

14 TIME

15 PAYMENTS AND COMPLETION

16 PROTECTION OF PERSONS AND PROPERTY

17 INSURANCE & BONDS

18 CORRECTION OF WORK

19 MISCELLANEOUS PROVISIONS

20 TERMINATION OF THE CONTRACT

21 CLAIMS AND DISPUTES

ARTICLE 1 THE WORK OF THIS CONTRACT

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

Within 7 (seven) days from contract date.

§ 2.2 The Contract Time shall be measured from the date of commencement.

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(1329887822)

§ 2.3 The Contractor shall achieve Substantial Completion of the entire Work not later than August 30, 2014

Portion of Work	Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

Liquidated Damages shall be assessed at the rate of $500/day beyond September 30, 2014. In the event that Substantial Completion is attained prior to September 30, 2014, the Contractor shall be entitled to a bonus of $500/day for each day prior to the Substantial Completion date.

ARTICLE 3 CONTRACT SUM

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

[X] Stipulated Sum, in accordance with Section 3.2 below

[ ] Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below

[ ] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below

(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)

§ 3.2 The Stipulated Sum shall be ( ), subject to additions and deductions as provided in the Contract Documents.

§ 3.2.1 The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.2.2 Unit prices, if any:
(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit ($0.00)
Bond		
Labor Rate for additional services		

§ 3.2.3 Allowances included in the stipulated sum, if any: There are no Allowances
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Allowance
NONE	NONE

~~**§ 3.3 COST OF THE WORK PLUS CONTRACTOR'S FEE**~~
~~**§ 3.3.1** The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.~~

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~~§ 3.3.2 The Contractor's Fee:~~
~~*(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)*~~

~~§ 3.4 COST OF THE WORK PLUS CONTRACTOR'S FEE WITH A GUARANTEED MAXIMUM PRICE~~
~~§ 3.4.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.~~

~~§ 3.4.2 The Contractor's Fee:~~
~~*(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)*~~

~~§ 3.4.3 GUARANTEED MAXIMUM PRICE~~
~~§ 3.4.3.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed « » ($ « »), subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.~~
~~*(Insert specific provisions if the Contractor is to participate in any savings.)*~~

~~§ 3.4.3.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:~~

~~« »~~

~~§ 3.4.3.3 Unit Prices, if any:~~
~~*(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)*~~

~~Item~~	~~Units and Limitations~~	~~Price Per Unit ($0.00)~~

~~§ 3.4.3.4 Allowances included in the Guaranteed Maximum Price, if any:~~
~~*(Identify and state the amounts of any allowances, and state whether they include labor, materials, or both.)*~~

~~Item~~	~~Allowance~~

~~§ 3.4.3.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:~~

~~« »~~

ARTICLE 4 PAYMENTS

§ 4.1 PROGRESS PAYMENTS

§ 4.1.1 Based upon Applications for Payment submitted to the Design Consultant or OPM by the Contractor and Certificates for Payment issued by the Design Consultant or OPM , the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

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§ 4.1.3 Provided that an Application for Payment is received by the Design Consultant or OPM not later than the 5th day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the 5th day of the following month. If an Application for Payment is received by the Design Consultant or OPM after the date fixed above, payment shall be made by the Owner not later than Thirty (30) days after the Design Consultant or OPM receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 4.1.4 Retainage, if any, shall be withheld as follows:

10%

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

% »

§ 4.2 FINAL PAYMENT
§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 18.2, and to satisfy other requirements, if any, which extend beyond final payment;

.2 the contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a guaranteed maximum price; and

.3 a final Certificate for Payment has been issued by the Design Consultant or OPM .

§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Design Consultant or OPM **'s final Certificate for Payment, or as follows:**

ARTICLE 5 DISPUTE RESOLUTION
§ 5.1 BINDING DISPUTE RESOLUTION
For any claim subject to, but not resolved by, mediation pursuant to Section 21.3, the method of binding dispute resolution shall be as follows:
(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.)

[ ] Arbitration pursuant to Section 21.4 of this Agreement

[X] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS
§ 6.1 The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 6.1.1 The Agreement is this executed AIA Document A107–2007, Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope.

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§ 6.1.2 The Supplementary and other Conditions of the Contract: There are no Supplementary Conditions

Document	Title	Date	Pages

§ 6.1.3 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)
Attached as Exhibit B

Section	Title	Date	Pages

§ 6.1.4 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)
Attached as Exhibit B

Number	Title	Date

§ 6.1.5 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are enumerated in this Article 6.

§ 6.1.6 Additional documents, if any, forming part of the Contract Documents:

There are no Additional Documents

.3 Other documents:
(List here any additional documents that are intended to form part of the Contract Documents.)

None

ARTICLE 7 GENERAL PROVISIONS

§ 7.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Design Consultant or OPM. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 7.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

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§ 7.3 THE WORK
The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 7.4 INSTRUMENTS OF SERVICE
Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Design Consultant or OPM and the Design Consultant or OPM 's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 7.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE
§ 7.5.1 The Design Consultant or OPM and the Design Consultant or OPM 's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Design Consultant or OPM 's or Design Consultant or OPM 's consultants' reserved rights.

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Design Consultant or OPM and the Design Consultant or OPM 's consultants.

§ 7.6 TRANSMISSION OF DATA IN DIGITAL FORM
If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmission, unless otherwise provided in the Agreement or in the Contract Documents.

ARTICLE 8 OWNER
§ 8.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER
§ 8.1.1 The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.2 The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 8.1.3 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 8.2 OWNER'S RIGHT TO STOP THE WORK
If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

§ 8.3 OWNER'S RIGHT TO CARRY OUT THE WORK
If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner, without prejudice to any other remedy the Owner may have, may correct such deficiencies and may deduct the reasonable cost thereof, including Owner's expenses and

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compensation for the Owner's Representative 's services made necessary thereby, from the payment then or thereafter due the Contractor.

ARTICLE 9 CONTRACTOR

§ 9.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 9.1.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.1, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Design Consultant or OPM any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Design Consultant or OPM may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

§ 9.1.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Design Consultant or OPM any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Design Consultant or OPM may require.

§ 9.2 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 9.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

§ 9.3 LABOR AND MATERIALS

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 9.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 9.3.3 The Contractor may make a substitution only with the consent of the Owner, after evaluation by the Design Consultant or OPM and in accordance with a Modification.

§ 9.4 WARRANTY

The Contractor warrants to the Owner and Design Consultant or OPM that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.

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§ 9.5 TAXES

The Contractor shall pay sales, consumer, use and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 9.6 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 9.6.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 9.7 ALLOWANCES

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. Allowance amounts shall not include the Contractor's costs for unloading and handling at the site, labor, installation, overhead, and profit.

§ 9.8 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 9.8.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Design Consultant or OPM 's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 9.8.2 The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Design Consultant or OPM.

§ 9.9 SUBMITTALS

§ 9.9.1 The Contractor shall review for compliance with the Contract Documents and submit to the Design Consultant Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Design Consultant reasonable time for review. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Design Consultant that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

§ 9.9.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

§ 9.10 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 9.11 CUTTING AND PATCHING

The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

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§ 9.12 CLEANING UP

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus material from and about the Project.

§ 9.13 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Design Consultant and OPM harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Design Consultant or OPM . However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Design Consultant.

§ 9.14 ACCESS TO WORK

The Contractor shall provide the Owner and Design Consultant or OPM access to the Work in preparation and progress wherever located.

§ 9.15 INDEMNIFICATION

§ 9.15.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Design Consultant and OPM , Design Consultant and OPM 's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

§ 9.15.2 In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 10 DESIGN CONSULTANT OR OPM

§ 10.1 The Design Consultant or OPM will provide administration of the Contract and will be an Owner's representative during construction, until the date the Design Consultant or OPM issues the final Certificate for Payment. The Design Consultant or OPM will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 10.2 The Design Consultant or OPM will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Design Consultant or OPM will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Design Consultant or OPM will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 10.3 On the basis of the site visits, the Design Consultant or OPM will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Design Consultant or OPM will not be responsible for the Contractor's

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failure to perform the Work in accordance with the requirements of the Contract Documents. The Design Consultant or OPM will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 10.4 Based on the Design Consultant & OPM's evaluations of the Work and of the Contractor's Applications for Payment, the Design Consultant & OPM will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 10.5 The Design Consultant or OPM has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

§ 10.6 The Design Consultant will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 10.7 The Design Consultant will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Design Consultant will make initial decisions on all claims, disputes and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

§ 10.8 The Design Consultant's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 10.9 Duties, responsibilities and limitations of authority of the Design Consultant as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Design Consultant & OPM. Consent shall not be unreasonably withheld.

ARTICLE 11 SUBCONTRACTORS

§ 11.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

§ 11.2 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Design Consultant & OPM the names of the Subcontractors or suppliers for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Design Consultant or OPM has made reasonable written objection within ten days after receipt of the Contractor's list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 11.3 Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Design Consultant or OPM , and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 12.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under conditions of the contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such claim as provided in Article 21.

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§ 12.2 The Contractor shall afford the Owner and separate contractor's reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

§ 12.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

ARTICLE 13 CHANGES IN THE WORK

§ 13.1 By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor and Design Consultant, or by written Construction Change Directive signed by the Owner and Design Consultant or OPM.

§ 13.2 Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Design Consultant & OPM, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the Construction Change Directive. The Design Consultant or OPM will make an interim determination of the amount of payment due for purposes of certifying the Contractor's monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Design Consultant or OPM will prepare a Change Order.

§ 13.3 The Design Consultant or OPM will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Design Consultant & OPM promptly and before conditions are disturbed.

ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 14.3 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion is the date certified by the Design Consultant in accordance with Section 15.4.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by changes ordered in the Work, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties or any causes beyond the Contractor's control, or by other causes which the Design Consultant & OPM determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Design Consultant & OPM may determine, subject to the provisions of Article 21.

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ARTICLE 15 PAYMENTS AND COMPLETION

§ 15.1 APPLICATIONS FOR PAYMENT

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit to the Design Consultant & OPM, before the first Application for Payment, a schedule of values, allocating the entire Contract Sum to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Design Consultant & OPM may require. This schedule, unless objected to by the Design Consultant or OPM, **shall be used in reviewing the Contractor's** Applications for Payment.

§ 15.1.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor, less (2) that portion of those payments attributable to the **Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.**

§ 15.1.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 15.1.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the **Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.**

§ 15.2 CERTIFICATES FOR PAYMENT

§ 15.2.1 The Design Consultant & OPM **will, within seven days after receipt of the Contractor's Application for** Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Design Consultant & OPM determines is properly due, or notify the Contractor and Owner in writing of the Design Consultant or OPM's **reasons for withholding certification in whole or in part as provided in Section 15.2.3.**

§ 15.2.2 The issuance of a Certificate for Payment will constitute a representation by the Design Consultant to the Owner, based on the Design Consultant & OPM's **evaluations of the Work and the data comprising the Application** for Payment, that, to the best of the Design Consultant's **knowledge, information and belief, the Work has** progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Design Consultant or OPM. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Design Consultant or OPM has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data **requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how** or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 15.2.3 The Design Consultant or OPM may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Design Consultant or OPM **'s opinion the representations to the** Owner required by Section 15.2.2 cannot be made. If the Design Consultant or OPM is unable to certify payment in the amount of the Application, the Design Consultant or OPM will notify the Contractor and Owner as provided in Section 15.2.1. If the Contractor and the Design Consultant or OPM cannot agree on a revised amount, the Design Consultant or OPM will promptly issue a Certificate for Payment for the amount for which the Design Consultant or OPM is able to make such representations to the Owner. The Design Consultant or OPM may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Design Consultant or OPM's

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opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a separate contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 15.2.4 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 15.3 PROGRESS PAYMENTS

§ 15.3.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in similar manner.

§ 15.3.2 Neither the Owner nor Design Consultant or OPM shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 15.3.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 15.4 SUBSTANTIAL COMPLETION

§ 15.4.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 15.4.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Design Consultant & OPM a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 15.4.3 Upon receipt of the Contractor's list, the Design Consultant will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Design Consultant determines that the Work or designated portion thereof is substantially complete, the Design Consultant will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion, establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 15.4.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 15.5 FINAL COMPLETION AND FINAL PAYMENT

§ 15.5.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Design Consultant will promptly make such inspection and,

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when the Design Consultant finds the Work acceptable under the Contract Documents and the Contract fully performed, the Design Consultant will promptly issue a final Certificate for Payment stating that to the best of the Design Consultant 's knowledge, information and belief, and on the basis of the Design Consultant's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Design Consultant's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.5.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 15.5.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

§ 15.5.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from

.1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;

.2 failure of the Work to comply with the requirements of the Contract Documents; or

.3 terms of special warranties required by the Contract Documents.

§ 15.5.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY

§ 16.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 16.1.2 and 16.1.3, except for damage or loss attributable to acts or omissions of the Owner or Design Consultant or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15.

§ 16.2 HAZARDOUS MATERIALS

§ 16.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Design Consultant in writing. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay and start-up.

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§ 16.2.2 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Design Consultant & OPM , Design Consultant & OPM 's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact, the material or substance presents the risk of bodily injury or death as described in Section 16.2.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 16.2.3 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

ARTICLE 17 INSURANCE AND BONDS

§ 17.1 The Contractor shall purchase from, and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable, claims for damages because of bodily injury, including death, and claims for damages, other than to the Work itself, to property which may arise out of or result from the Contractor's operations and completed operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them. This insurance shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to the Contractor's obligations under Section 9.15. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. The Contractor shall cause the commercial liability coverage required by the Contract Documents to include: (1) the Owner, the Design Consultant & OPM and the Design Consultant & OPM 's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 17.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 17.3 PROPERTY INSURANCE

§ 17.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance on an "all-risk" or equivalent policy form, including builder's risk, in the amount of the initial Contract Sum, plus the value of subsequent modifications and cost of materials supplied and installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 15.5 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 17.3.1 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and sub-subcontractors in the Project.

§ 17.3.2 The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 17.3.3 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Design Consultant & OPM , Design Consultant & OPM 's consultants, separate contractors described in Article 12, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 17.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as

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appropriate, shall require of the Design Consultant & OPM , Design Consultant & OPM 's consultants, separate contractors described in Article 12, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 17.3.4 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their sub-subcontractors in similar manner.

§ 17.4 PERFORMANCE BOND AND PAYMENT BOND

§ 17.4.1 The Owner shall require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 17.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 18 CORRECTION OF WORK

§ 18.1 The Contractor shall promptly correct Work rejected by the Design Consultant or OPM or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Design Consultant or OPM 's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.2.7.3 in Exhibit A, Determination of the Cost of the Work.

§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.4.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.

§ 18.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

§ 18.4 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 18.5 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 18.

ARTICLE 19 MISCELLANEOUS PROVISIONS

§ 19.1 ASSIGNMENT OF CONTRACT

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

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§ 19.2 GOVERNING LAW
The Contract shall be governed by the law of the place where the Project is located, except, that if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.4.

§ 19.3 TESTS AND INSPECTIONS
Tests, inspections and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Design Consultant & OPM timely notice of when and where tests and inspections are to be made so that the Design Consultant & OPM may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor.

§ 19.4 COMMENCEMENT OF STATUTORY LIMITATION PERIOD
The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 19.4.

ARTICLE 20 TERMINATION OF THE CONTRACT
§ 20.1 TERMINATION BY THE CONTRACTOR
If the Design Consultant fails to certify payment as provided in Section 15.2.1 for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, upon seven additional days' written notice to the Owner and the Design Consultant , terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 20.2 TERMINATION BY THE OWNER FOR CAUSE
§ 20.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 20.2.2 When any of the above reasons exists, the Owner, upon certification by the Design Consultant or OPM that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' written notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Design Consultant & OPM 's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or

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Owner, as the case may be, shall be certified by the Design Consultant, upon application, and this obligation for payment shall survive termination of the Contract.

§ 20.3 TERMINATION BY THE OWNER FOR CONVENIENCE

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 21 CLAIMS AND DISPUTES

§ 21.1 Claims, disputes and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Design Consultant but excluding those arising under Section 16.2, shall be referred initially to the Design Consultant & OPM for decision. Such matters, except those waived as provided for in Section 21.8 and Sections 15.5.3 and 15.5.4, shall, after initial decision by the Design Consultant or OPM or 30 days after submission of the matter to the Design Consultant or OPM, be subject to mediation as a condition precedent to binding dispute resolution.

§ 21.2 If a claim, dispute or other matter in question relates to or is the subject of a mechanic's lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 21.3 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with their Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to this Agreement, and filed with the person or entity administering the mediation. The request may be made concurrently with the binding dispute resolution but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 21.4 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any claim, subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association, in accordance with the Construction Industry Arbitration Rules in effect on the date of this Agreement. Demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 21.5 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 21.6 Any party to an arbitration may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written Consent.

§ 21.7 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 21.8 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

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.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, **without limitation, to all consequential damages due to either party's termination** in accordance with Article 20. Nothing contained in this Section 21.8 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Town of Seabrook, NH	
(Printed name and title)	*(Printed name and title)*

DRAFT

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Proposals must be signed by an official authorized to bind the contractor to its provisions for at least a period of 90 days. Failure of the successful bidder to accept the obligation of the contract may result in the cancellation of any award.

"The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section the word "person" means any natural person, joint venture, partnership, corporation or other business or legal entity."

_____
(Authorized Signature)

_____
(Date)

_____
(Company & Title)

TIMELINE

November 3rd, 2016	**Pre -Bid meeting at Location: 3:30pm** Bidders will meet at the front entrance of the Treatment Plant. 274 Route 286, Wright's Island, Seabrook NH 03874.
November 17th, 2016	**Submissions due at Seabrook Town Hall; 3:30pm** Proposals will be evaluated immediately thereafter. During this time we may require interviews at our office with our evaluation team. You will be notified if this is requested. 99 Lafayette Rd, Seabrook NH 03874.

Approved By: 10/25/2016

William M. Manzi III, Date
Town Manager

END OF DOCUMENTS