

July 3, 2013

ADDENDUM NO. #1  
Jefferson County Public Works  
Vehicle Maintenance Facility

This addendum forms a part of the bidding and contract documents and modifies the bidding documents. Acknowledge receipt of this addendum in space provided on Bid Form. **FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.**

---

**Questions Submitted:**

**Q1:** Will PVC piping below slab with heavy pipe turned up with kick exposed about 6-8 inches before returning behind drywall be approved?

**A1:** Yes, PVC conduit below slab with PVC coated rigid conduit elbow and stub-up. Please refer to specification section 261300, 3.1, B, 2.

**Q1:** Is there a panel for the welder outlets? Also, breaker size required for welder circuits?

**A1:** Welder outlets shall be fed from secondary disconnect switch of buck/boost manufacturer. Refer to keyed note #1 on sheet E1.1.

**Clarifications:**

1. All Base Bids to **ADD a \$2,100 allowance** to cover the cost of the building permit.
2. Private utilities located on the property are to be located by the owner.
3. Contractor to reference the attached **Missouri Prevailing Wage Determination**. The originally specification printing did not include of a portion of the spreadsheet information.
4. Wall Protection System Panels shall be installed per manufacturers recommended method for this application with adhesive or fasteners/anchors. This application does NOT include an additional protective base board or chair rail. Panels shall be installed over the existing gypsum board leaving the concrete wall exposed at the base.

**Drawings:**

1. See attached Sheet No. AD1-C1 which modifies C1 from the bid documents to coordinate utility locations with MEP drawings. Revisions have been clouded.
2. See attached Sheet No. AD1-P1 which modifies P1 from the bid documents to coordinate utility locations with Civil drawings. Revisions have been clouded.

Addendum #1

Jefferson County – Vehicle Maintenance Facility  
Page 1 of 2

3. See attached Sheet No. AD1-P2 which modifies P2 from the bid documents to coordinate utility locations with Civil drawings. Revisions have been clouded.

**Specifications:**

1. Section 235000 – HAC EQUIPMENT replace in its entirety with the attached section dated JULY 2013.
  - a. **Remove** low ambient cooling requirements of single zone rooftop unit.
  - b. **Revise** approved manufacturer's list for the single zone rooftop unit.
  - c. **Add** specification for inline centrifugal fan.

Addendum #1 consists of 2 pages of text and the following attachments:

Missouri Prevailng Wage Determination  
Sheet No. AD1-C1  
Sheet No. AD1-P1  
Sheet No. AD1-P2  
Specification Section 235000 – HVAC EQUIPMENT

---

RETURN ONE SIGNED COPY TOGETHER WITH YOUR PROPOSAL

Addendum No. 1 is hereby acknowledged.

Name of Bidder: \_\_\_\_\_

By: \_\_\_\_\_ Title: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Date: \_\_\_\_\_

# Missouri

# Division of Labor Standards

## WAGE AND HOUR SECTION



JEREMIAH W. (JAY) NIXON, Governor

## Annual Wage Order No. 20

### Section 050 JEFFERSON COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by

Robert A. Bedell, Acting Director  
Division of Labor Standards

This Is A True And Accurate Copy Which Was Filed With The Secretary of State: March 8, 2013

Last Date Objections May Be Filed: April 8, 2013

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	** Date of Increase	*	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Asbestos Worker (H & F) Insulator			\$37.26	55	60	\$19.51
Boilermaker			\$31.20	126	7	\$27.01
Bricklayer and Stone Mason	6/13		\$31.24	72	5	\$19.93
Carpenter		e	\$34.63	77	41	\$14.00
Cement Mason	6/13		\$30.20	80	6	\$15.36
Electrician (Inside Wireman)			\$31.75	82	71	\$10.06 + 37.5%
Electrician (Outside-Line Construction\Lineman)			\$38.91	43	45	\$5.00 + 37.5%
Lineman Operator			\$33.59	43	45	\$5.00 + 37.5%
Groundman			\$25.97	43	45	\$5.00 + 37.5%
Communication Technician			\$28.05	44	47	\$8.93 + 29.75%
Elevator Constructor	6/13	a	\$43.715	26	54	\$26.755
Operating Engineer						
Group I	6/13		\$30.51	3	66	\$23.35
Group II	6/13		\$30.51	3	66	\$23.35
Group III	6/13		\$28.61	3	66	\$23.35
Group III-A	6/13		\$30.51	3	66	\$23.35
Group IV	6/13		\$25.15	3	66	\$23.35
Group V	6/13		\$25.15	3	66	\$23.35
Pipe Fitter			\$34.25	91	69	\$26.03
Glazier			\$32.78	87	31	\$21.13 + 13.2%
Laborer (Building):						
General		b	\$24.66	73	7	\$11.67
First Semi-Skilled		d	\$25.78	73	7	\$11.67
Second Semi-Skilled		c	\$25.16	73	7	\$11.67
Lather				USE CARPENTER RATE		
Linoleum Layer and Cutter			\$29.33	92	26	\$13.70
Marble Mason			\$30.62	76	51	\$12.73
Millwright			\$34.63	77	41	\$14.00
Ironworker			\$32.28	11	8	\$20.975
Painter			\$28.75	104	12	\$13.41
Plasterer			\$29.41	67	3	\$15.78
Plumber			\$34.25	91	69	\$25.03
Pile Driver				USE CARPENTER RATE		
Roofing \ Waterproofer			\$29.50	15	73	\$15.67
Sheet Metal Worker			\$36.10	32	25	\$21.00
Sprinkler Fitter - Fire Protection			\$38.78	66	18	\$20.55
Terrazzo Worker			\$30.79	116	5	\$11.09
Tile Setter			\$30.62	76	51	\$12.73
Truck Driver-Teamster						
Group I		f	\$28.625	35	36	\$8.65
Group II		f	\$28.735	35	36	\$8.65
Group III		f	\$28.775	35	36	\$8.65
Group IV		f	\$28.845	35	36	\$8.65
Traffic Control Service Driver			\$28.775	22	55	\$9.045

Fringe Benefit Percentage is of the Basic Hourly Rate

Attention Workers: If you are not being paid the appropriate wage rate and fringe benefits contact the Division of Labor Standards at (573) 751-3403.

\*\*Annual Incremental Increase

\* Welders receive rate prescribed for the occupational title performing operation to which welding is incidental.

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

a - Vacation: Employees over 5 years - 8%; Employees under 5 years - 6%

**b - Projects over \$1 Million - \$24.66: Projects under \$1 Million - \$22.51**

c - Projects over \$1 Million - \$25.16 : Projects under \$1 Million - \$23.01

d - Projects over \$1 Million - \$25.78; Projects under \$1 Million - \$24.03

e - Projects over \$1 Million - \$26.16; Projects under \$1 Million - \$29.54

e - Projects

Projects over \$3 3/4 Million \$28,625

Projects over \$3 3/4 Million - \$28,625

### Group II:

Projects over \$3 3/4 Million - \$28 735

Projects over \$3 3/4 Million - \$28,783

### Group III:

Projects over \$3 3/4 Million - \$28 775

Projects over \$3.3/4 Million - \$26,116

#### Group IV:

Projects over \$3 3/4 Million - \$28 845

Projects under \$3 3/4 Million - \$25,345

**JEFFERSON COUNTY**  
**OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

**FED:** Minimum requirement per Fair Labor Standards Act means time and one-half (1 1/2) shall be paid for all work in excess of forty (40) hours per work week.

**NO. 3:** Means the regular workday shall consist of eight (8) consecutive hours, exclusive of a thirty (30) minute lunch period, with pay at the straight time rate. The regular workday shall begin between the hours of 6:00 a.m. and 9:00 a.m. The Employer may have the option to schedule the work week from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be paid at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather, holiday or other conditions beyond the control of the Employer, they shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hours for the workweek. All overtime work performed on Monday through Saturday shall be paid at time and one-half (1 1/2) the hourly rate plus an amount equal to one-half (1/2) of the hourly Total Indicated Fringe Benefits. All work performed on Sundays and recognized holidays shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Shifts may be established when considered necessary by the Employer. Shift hours and rates will be as follows. If shifts are established, work on the First Shift will begin between 6:00 a.m. and 9:00 a.m. and consist of eight (8) hours of work plus one-half hour unpaid lunch. Hours worked during the first shift will be paid at the straight time rate of pay. The second shift shall start eight hours after the start of the first shift and consist of eight (8) hours of work plus one-half hour unpaid lunch. Work on the second shift will begin between 2:00 p.m. and 5:00 p.m. and be paid the straight time rate plus \$2.50 per hour. The third shift shall start eight hours after the start of the second shift and consist of eight (8) hours plus one-half hour unpaid lunch. Work on the third shift will begin between 10:00 p.m. and 1:00 a.m. and be paid the straight time rate plus \$3.50 per hour. The additional amounts that are to be paid are only applicable when working shifts. Shifts that begin on Saturday morning through those shifts which end on Sunday morning will be paid at time and one-half these rates. Shifts that begin on Sunday morning through those shifts which end on Monday morning will be paid at double time these rates.

**NO. 11:** Means eight (8) hours shall constitute a day's work, with the starting time to be established between 6:00 a.m. and 8:00 a.m. from Monday to Friday. Time and one-half (1 1/2) shall be paid for first two (2) hours of overtime Monday through Friday and the first eight (8) hours on Saturday. All other overtime hours Monday through Saturday shall be paid at double (2) time rate. Double (2) time shall be paid for all time on Sunday and recognized holidays or the days observed in lieu of these holidays.

**NO. 15:** Means the regular working day shall be scheduled to consist of at least eight (8) hours, but no more than ten (10) consecutive hours, exclusive of the lunch period. The regular working day may be scheduled to commence at any time between the hours of 5:00 a.m. and 10:00 a.m. All work performed in excess of forty (40) hours in one work week, or in excess of ten (10) hours in one work day shall be paid at the rate of one and one-half (1 1/2) times the regular hourly wage scale. Any work performed on a Saturday shall be paid for at the rate of one and one-half (1 1/2) times the regular hourly wage scale unless such Saturday work falls under the category of Saturday Make-Up Day. Any work performed by Employees anywhere on Sunday or recognized holidays, shall be paid for at the rate of double (2) time the regular wage scale. If, during the course of a work week, an Employee is unable to work for any reason, and, as a result, that Employee has not accumulated forty (40) hours of compensable time at the straight time rate, the Employer, at his option may offer the Employee the opportunity to work on Saturday at straight time; provided, however, if during the period worked by said Employee on Saturday, the Employee's compensable time at the straight time rate exceeds forty (40) hours, all time worked in excess of the forty (40) hours will be paid at the rate of one and one-half (1 1/2) times the regular hourly wage scale.

**NO. 22:** Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interest parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

**JEFFERSON COUNTY**  
**OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

**NO. 26:** Means that the regular working day shall consist of eight (8) hours worked between 6:00 a.m., and 5:00 p.m., five (5) days per week, Monday to Friday, inclusive. Hours of work at each jobsite shall be those established by the general contractor and worked by the majority of trades. (The above working hours may be changed by mutual agreement). Work performed on Construction Work on Saturdays, Sundays and before and after the regular working day on Monday to Friday, inclusive, shall be classified as overtime, and paid for at double (2) the rate of single time. The employer may establish hours worked on a jobsite for a four (4) ten (10) hour day work week at straight time pay for construction work; the regular working day shall consist of ten (10) hours worked consecutively, between 6:00 a.m. and 6:00 p.m., four (4) days per week, Monday to Thursday, inclusive. Any work performed on Friday, Saturday, Sunday and holidays, and before and after the regular working day on Monday to Thursday where a four (4) ten (10) hour day workweek has been established, will be paid at two times (2) the single time rate of pay. The rate of pay for all work performed on holidays shall be at two times (2) the single time rate of pay.

**NO. 32:** The regular working day shall consist of seven and one-half (7½) hours of labor on the job between eight (8) a.m. and four (4) p.m. and the regular working week shall consist of five (5) consecutive seven and one-half (7½) hour day's of labor on the job beginning with Monday and ending with Friday of each week. The normal work week is 37½ hours. All full-time or part-time labor performed during such hours shall be recognized as regular working hours and paid for at the regular hourly rate. All work performed during regular work hours on Saturdays shall be paid at time and one-half (1-1/2). All work performed outside of regular working hours and performed during the regular work week, shall be at double (2) times the regular rate, except that the first two (2) hours following the regular work day shall be paid at one and one-half (1½) times the regular rate. And, a flexible starting time as early as 7:00 a.m. may be implemented when mutually agreed upon by the interested parties. An early starting time of 6:00 a.m. may be used during summer months to avoid excessive afternoon temperatures. This early starting time to be used when mutually agreed upon by the interested parties. SHIFT RATE: Shift work would start after 4:00 p.m. to 6:00 a.m. The first 7½ hours would be at 115% of the basic wage rate. Overtime Monday through Friday would be at 1 ½ of base shift rate. Saturday first 7 ½ hours of work – 1½ of base shift rate. Saturday – work after 7½ hours – 2 times the basic wage rate. Sunday and Holidays – 2 times the basic wage rate. All work performed on recognized holidays and Sundays shall be paid double (2) time. Appropriate overtime rates to be based on fifteen minute increments.

**NO. 35:** Means a regular work week of forty (40) hours, will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof maybe worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A work day is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time maybe advanced or delayed if mutually agreed to by the interested parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

**NO. 43:** Eight (8) hours shall constitute a work day between the hours of 7:00 a.m. and 4:30 p.m. Forty (40) hours within five (5) days, Monday through Friday inclusive, shall constitute the work week. Work performed in the 9th and 10th hour, Monday through Friday, shall be paid at time and one-half (1½) the regular straight time rate of pay. Contractor has the option to pay two (2) hours per day at the time and one-half (1½) the regular straight time rate of pay between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. Work performed outside the regularly scheduled working hours and on Saturdays, Sundays and recognized legal holidays, or days celebrated as such, shall be paid for at the rate of double (2) time.

**NO. 44:** Means forty (40) hours shall constitute a work week, Monday through Friday. Eight (8) hours shall constitute a work day. Hours of work shall be between the hours of 7:00 a.m. and 4:30 p.m. All work performed before 7:00 a.m. and after 4:30 p.m. and all work performed in excess of eight (8) hours in any one work day, over forty (40) hours in any work week and the first eight (8) hours of work on Saturday, shall be paid at the rate of one and one-half (1½) times the regular rate of pay. All hours worked in excess of eight (8) hours on Saturday, all hours worked on Sunday and on holidays, or days that may be celebrated as such, and as designated by the federal government, shall be paid at two (2) times the regular rate of pay. All shifts for work performed between the hours of 4:30 p.m. and 1:00 a.m. shall receive eight (8) hours pay at the regular hourly rate of pay plus two dollars (\$2.00) per clock hour. All work performed between the hours of 12:30 a.m. and 9:00 a.m. on a third shift shall receive eight (8) hours pay at the regular hourly rate plus four dollars (\$4.00) per clock hour. All overtime work required after the completion of a regular shift shall be paid at one and one-half times (1½ x) the "shift" hourly rate.

**JEFFERSON COUNTY  
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

**NO. 55:** Means the regular work day shall be eight (8) hours between 6:00 a.m. and 4:30 p.m. The first two (2) hours of work performed in excess of the eight (8) hour work day, Monday through Friday, and the first ten (10) hours of work on Saturday, shall be paid at one & one-half (1½) times the straight time rate. All work performed on Sunday, observed holidays and in excess of ten (10) hours a day, Monday through Saturday, shall be paid at double (2) the straight time rate.

**NO. 57:** Means eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday through Friday, shall constitute a week's work. The regular starting time shall be 8:00 a.m. If a second or third shift is used, the regular starting time of the second shift shall be 4:30 p.m. and the regular starting period for the third shift shall be 12:30 a.m. These times may be adjusted by the employer. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. All time worked before and after the established workday of eight (8) hours, Monday through Friday, and all time worked on Saturday shall be paid at the rate of time and one-half (1½) except in cases where work is part of an employee's regular Friday shift. All time worked on Sunday and recognized holidays shall be paid at the double (2) time rate of pay except in cases where work is part of an employee's previous day's shift. For all overtime hours worked \$25.65 of the fringe benefits portion of the prevailing wage shall be paid at the same overtime rate at which the cash portion of the prevailing wage is to be paid. The remaining \$1.24 of the fringe benefit portion of the prevailing wage may be paid at straight time.

**NO. 66:** Means eight (8) hours shall constitute a day's work beginning at 7:00 a.m. (or 8:00) A.M. and ending at 3:30 (or 4:30) P.M. The work week shall be forty (40) hours beginning Monday at 7:00 a.m. (or 8:00) A.M. and ending Friday at 3:30 (or 4:30) P.M. The Employer at his option may use a flexible starting time between the hours of 6:00 a.m. and 8:00 a.m. All overtime, that is worked outside of the above established working hours of Monday through Friday, shall be paid at double (2) time, including Saturdays, Sundays and Holidays.

**NO. 67:** Means eight (8) hours shall constitute a day's work, with a flexible starting time to begin between 6:00 a.m. to 8:00 a.m., five (5) days a week, Monday through Friday. Any work over eight (8) hours in any one day shall be at the overtime rate, which is time & one-half (1½). Any work on Saturday shall be at time & one-half (1½), unless a Make-Up Day due to inclement weather is in effect. Any work on Sundays or holidays shall be at double (2) time. Four (4) days, ten (10) hours each day to be worked during Monday through Friday, shall be paid at straight time. A Make-Up Day Due To Inclement Weather Only - Employee(s) will be permitted to work an eight (8) hour make-up day on Saturday only, and the employee will receive the regular straight time wage rate.

**NO. 72:** Means that except as is otherwise provided herein, the work week shall be determined to begin at 8:00 a.m. Wednesday and end at 4:30 p.m. on the following Tuesday. Except as herein provided, working hours are from 8:00 a.m. to 11:55 a.m. and 12:30 p.m. to 4:25 p.m. and no more than the regular hours shall be worked during the forenoon or afternoon at the regular rate. In the case of days of inclement weather starting time and quitting time may be adjusted so long as the hours worked on such days do not exceed eight (8) and do not extend beyond 4:30 p.m. In circumstances where the Employee or Employees have regularly been working overtime on a particular day or days, no adjustment in the starting time shall operate to deprive Employees of overtime pay, which they would have otherwise received but for the change in the starting time. The parties understand that the application of the provisions of the preceding sentence will result in Employees receiving overtime pay even where they have not worked more than with (8) hours on a particular day. Regardless of the starting time, the forenoon working hours shall end at 11:55 a.m. and the afternoon working hours shall begin at 12:30 p.m. and end 8 hours and 25 minutes after the starting time fixed by the Employer for forenoon hours. Work performed by an employee on a non-holiday Saturday, except as hereinafter provided, or at night or before or after regular working hours on a non-holiday weekday, shall be considered overtime work, for which Employees working during such time shall be paid at the rate of one and one-half (1½) times their regular hourly wage rate for each hour or fraction thereof, worked during such time. Work performed on a Sunday or the recognized holidays shall be considered overtime work for which the Employee shall be paid twice the amount of his or her regular hourly wage rate for each hour or fraction thereof worked on any such day.

**JEFFERSON COUNTY**  
**OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

**NO. 73:** Means eight (8) hours shall constitute a day's work to begin at 8:00 a.m. and end at 4:30 p.m. The starting time may be advanced one (1) or two (2) hours. Employees shall receive time and one-half (1½) for all time they are required to work before 8:00 a.m., during the lunch period or after 4:30 p.m. unless the starting time is advanced as provided above. Forty (40) hours shall constitute a week's work, Monday through Friday, or any part thereof by reason of inclement weather (rain or mud), Saturday or any part thereof may be worked as a make-up day at the straight time rate. The Employer shall have the option of working five (5) eight (8) hour day's or four (4) ten (10) hour day's Monday through Friday. If an Employer elects to work five (5) eight (8) hour days during any work week, hours worked more than eight (8) per day or forty (40) per week shall be paid at time and one-half (1½) the hourly rate Monday through Friday. If an employer elects to work four (4) ten (10) hour days in any week, work performed more than ten (10) hours per day or forty (40) hours per week shall be paid at time and one-half (1½) the hourly rate Monday through Friday. If an Employer is working ten (10) hour days and loses a day due to inclement weather, he may work ten (10) hours Friday at straight time. All time over the regular workday as defined and all hours worked on Saturday shall be paid at the rate of one and one-half (1½) the regular rate of wages. If workmen are required to work recognized holidays or days observed as such, or on Sunday, they shall receive double (2) the regular rate of pay for such work. If a laborer is assisting another craft on a make-up day and the other craft is receiving overtime pay the laborer shall receive the same overtime multiple as the craft assisted. No overtime rates shall be broken down into less than thirty (30) minute units of time. Projects that cannot be performed during regular workday: Building construction work, if required by the owner, the contractor may perform work outside the normal hours and employees shall be paid applicable straight time hourly wage rate plus a premium of \$1.50 per hour for the first eight hours worked. Any hours worked in excess of eight hours shall be paid at the applicable overtime rate plus \$1.50 per hour premium. Shift work: The Employer may elect to work, one, two or three shifts on any work. When two or more shifts are worked on any operation, the first shift or day shift shall consist of eight (8) hours exclusive of lunch time; the second or swing shift consist of eight (8) hours' work for eight and one-half hours pay, exclusive of lunch time; the third or graveyard shift shall consist of eight (8) hours' work for nine (9) hours' pay exclusive of lunch time. The swing shift shall be paid twenty-five cents (\$.25) per hour above the regular rate of pay. The graveyard shift shall be paid fifty cents (\$.50) per hour above the regular rate of pay. Multiple shift (second or third shift) operation will not be construed on the entire project if at any time it is deemed advisable and necessary for the employer to a specific operation. However, no shift shall be started between midnight and 6:00 a.m. except the graveyard shift on a three (3) shift operation, or except in unusual or emergency, regardless if the project is working one (1) or two (2) shift. Shifts shall be established for a minimum of three (3) consecutive workdays. When 2-10 or 12 hour shifts are worked, the second shift shall receive \$.50 per hour above regular rate of pay. When the employer elects to work 2-10 or 12 hour shifts, the first 8 hours shall be at straight time rates. The remaining 2 or 4 hours shall be at the overtime rate of time and one-half.

**NO. 76:** Means the standard workday shall consist of eight (8) hours of work between the hours of 8:00 a.m. and 4:30 p.m. with a thirty (30) minute unpaid lunch hour occurring in the middle of the shift. The standard workweek shall consist of five standard workdays commencing on Monday and ending on Friday. The normal starting and quitting times may be changed by mutual consent of interested parties. All time worked before and after the established eight (8) hour workday, Monday through Friday, and all time worked on Saturday, shall be paid for at the rate of time & one-half (1½) the hourly base wage rate in effect. All time worked on Sunday and holidays shall be paid at the rate of double (2) the hourly wage in effect. All work done on Saturday will be done at time & one-half (1½), unless Saturday shall be used as a make-up day. If an employee should lose one or more days in a work week and use Saturday as a make-up day the pay shall be at the regular hourly base wage rate and benefits.

**NO. 77:** Means the regular workday shall consist of eight (8) consecutive hours, exclusive of a thirty (30) minute lunch period, with pay at the regular straight time hourly rate. The regular workday shall begin on the job site between the hours of 6:00 a.m. and 8:00 a.m. with the starting time to be determined by the Employer, unless project owner requires different starting time. This adjustable starting time can, at the Employer's option, be staggered to permit starting portions of the work force at various times within the prescribed hours. The Employer may establish a four (4) ten (10) hour shift exclusive of the thirty (30) minute lunch period at the straight time wage rate. Forty (40) hours per week shall constitute a week's work Monday through Thursday. In the event a job is down due to weather conditions, safety or other conditions beyond the control of the Employer, then Friday may, at the option of the employer, be worked as a make-up day at the straight time wage rate. Straight time is not to exceed ten (10) hours a day or forty (40) hours per week. Time and one-half (1 ½ ) shall be paid for all overtime hours worked during the week, Monday through Friday and for all work performed on Saturday. Double (2) time shall be paid for all time worked on Sunday and recognized holidays.

**JEFFERSON COUNTY**  
**OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

**NO. 80:** Means eight (8) hours shall constitute the regular work day and forty (40) hours a work week, Monday through Friday. The Employer shall establish the starting time between 6:30 a.m. through 9:00 a.m. An Employer may further adjust the starting time up to 9:30 a.m. throughout the year. Time and one-half (1½) shall be paid after eight (8) consecutive hours worked after the established starting time and for hours worked before the established starting time. Time and one-half (1½) shall be paid for work performed on Saturdays. Work performed on Sundays and Holidays shall be paid at the double (2) time rate of pay. The Employer when working on Highway and Road Work may have the option to schedule the work week for his paving crew only from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate of time and one-half (1½). If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), the Employer shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hours.

**NO. 82:** Means the work day shall consist of eight (8) hours worked between 7:00 a.m. and 4:30 p.m. Forty (40) hours will constitute the work week from Monday through Friday, inclusive. Up to four (4) hours of overtime work per day performed before or after the assigned normal work day, (twelve (12) continuous hours, starting no earlier than 6:00 a.m., Monday through Friday), shall be paid at a rate of one and one-half times (1.5x) that employee's hourly rate. Any additional overtime, Monday through Friday, shall be paid at two times (2x) the regular rate of pay. The first eight hours of overtime work on Saturday shall be paid at the rate of one and one-half times (1.5x) the regular rate of pay. Hours worked in excess of eight (8) hours on Saturday shall be paid at two times (2x) the regular rate of pay. Double time shall be paid for work performed on Sundays, recognized legal holidays or days that may be celebrated as such as designated by the federal government. All shifts for work performed between the hours of 4:30 p.m. and 1:00 a.m. shall be paid at the regular hourly rate plus two dollars (\$2.00) per clock hour. All shifts for work performed between the hours of 12:30 a.m. and 9:00 a.m. shall be paid at the regular hour rate plus four dollars (\$4.00) per clock hour. All overtime work required after the completion of a regular shift shall be paid at one and one-half times (1.5x) the "shift" hourly rate.

**NO. 87:** Means eight (8) hours starting between 6:00 a.m. and 8:00 a.m. and ending between 2:30 p.m. and 4:30 p.m. at the Employers discretion shall constitute a day's work. Any work prior to 6:00 a.m. or after eight (8) hours shall be paid at the overtime rate. Five (5) days from Monday through Friday inclusive shall constitute a regular work week. All hours before and after these regular hours shall be considered overtime and shall be paid for at the rate of double (2) time. All work on Saturday and Sunday shall be paid at double (2) the prevailing scale of wages.

**NO. 91:** Means eight (8) hours shall constitute a day's work commencing at 7:00 a.m. and ending at 3:30 p.m., allowing one-half (½) hour for lunch. The option exists for the Employer to use a flexible starting time between the hours of 6:00 a.m. and 9:00 a.m. The regular workweek shall consist of forty (40) hours of five (5) workdays, Monday through Friday. The workweek may consist of four (4) ten (10) hour days from Monday through Thursday, with Friday as a make-up day. If the make-up day is a holiday, the employee shall be paid at the double (2) time rate. The employees shall be paid time and one-half (1½) for work performed on Saturdays, before the regular starting time or after the regular quitting time or over eight (8) hours per work day (unless working a 10-hour work day, then time and one-half (1½) is paid for work performed over ten (10) hours a day) or over forty (40) hours per work week. Work performed on Sundays and recognized holidays shall be paid at the double (2) time rate of pay. SHIFT WORK: When it is necessary for the project to operate in shifts, there will be three (3) eight (8) hour shifts commencing at 8:00 a.m. Shift work must continue for a period of not less than three (3) consecutive work days, two (2) days which must be regular work days (Monday through Friday). In the event the second or third shift of any regular work day shall fall into a Saturday or a holiday, such extension into a Saturday or holiday shall be considered as part of the previous workday and employees shall be paid at the regular shift rate. The first day shift shall work a regular eight (8) hour day at regular rates. The second shift shall be eight (8) hours regular time pay plus \$2.50 per hour premium for eight (8) hours work. Third shift will be for eight (8) hours regular time pay plus \$3.00 per hour premium for eight (8) hours work.

**NO. 92:** Means all work performed from 8:00 a.m. to 4:30 p.m., Monday through Friday, will be at straight time pay up to forty (40) hours per week. All work performed Monday through Friday before 8:00 a.m. and after 4:30 p.m. will be done at time and one-half (1½). All work done on Saturday will be done at time and one-half (1½), unless the employer and employee agree that Saturday shall be used as a make-up day. The Employer may use a flexible starting time of 7:00 a.m. to 8:00 a.m., and quitting time of 3:30 p.m. to 4:30 p.m., and any such different work starting time shall determine whether wages are payable at the straight rate or the premium rate. All work performed on Saturday shall be paid for at time and one-half (1½), unless the Saturday has been used as a make-up day. All work performed on Sunday and holidays shall be paid for at the rate of double (2) time.

**JEFFERSON COUNTY  
OVERTIME SCHEDULE - BUILDING CONSTRUCTION**

**NO. 104:** Means eight (8) hours per day shall constitute a standard work day between the hours of 6:00 a.m. and 8:00 p.m. The standard work week shall be forty (40) hours between 6:00 a.m. on Monday and ending 8:00 p.m. on Friday. An overtime rate of time and one-half (1½) the base hourly rate shall be paid on all hours in excess of eight (8) hours in a day Monday through Friday. Saturdays shall be considered overtime and work done on Saturday shall be paid at time and one-half (1½) the prevailing scale. Sundays and holidays shall be considered overtime and work done on these days shall be paid at double (2) the prevailing scale.

**NO. 116:** Means the standard work day shall consist of eight (8) hours of work between the hours of 8:00 a.m. and 4:30 p.m. The standard work week shall consist of five standard work days commencing on Monday and ending on Friday inclusive. All time worked before and after the established eight (8) hour work day, Monday through Friday, and all time worked on Saturdays, shall be paid for at the rate of time & one-half (1½) the hourly base wage rate in effect. All time worked on Sundays and recognized holidays shall be paid for at the rate of double (2) the hourly base wage rate in effect.

**NO. 126:** Means eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday through Friday, shall constitute a week's work. The regular starting time shall be 8:00 a.m. If a second or third shift is used, the regular starting time of the second shift shall be 4:30 p.m. and the regular starting period for the third shift shall be 12:30 a.m. These times may be adjusted by the employer. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. All time worked before and after the established workday of eight (8) hours, Monday through Friday, and all time worked on Saturday shall be paid at the rate of time and one-half (1½) except in cases where work is part of an employee's regular Friday shift. All time worked on Sunday and recognized holidays shall be paid at the double (2) time rate of pay except in cases where work is part of an employee's previous day's shift. For all overtime hours worked \$25.77 of the fringe benefits portion of the prevailing wage shall be paid at the same overtime rate at which the cash portion of the prevailing wage is to be paid. The remaining \$1.24 of the fringe benefit portion of the prevailing wage may be paid at straight time.

**JEFFERSON COUNTY  
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

**NO. 3:** All work done on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day (November 11), Thanksgiving Day, and Christmas Day shall be compensated at the double (2) time rate of pay. When any of these holidays fall on a Sunday, the following Monday shall be observed. No work shall be performed on the days set forth except in cases of emergencies to protect life or property.

**NO. 5:** All work that shall be done on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day shall be paid at the double (2) time rate of pay.

**NO. 6:** The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day and any additional holidays which may be mutually agreed upon. Whenever any such holiday falls on a Sunday, the following Monday shall be recognized and observed as the holiday. Work performed on Sundays and holidays shall be paid at the double time rate of pay. No work shall be performed on Labor Day.

**NO. 7:** The following days are assigned days and are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. If a holiday falls on a Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This is applied to protect Labor Day. When a holiday falls during the normal workweek, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week. However, no reimbursement for these eight (8) hours is to be paid to the workman unless worked. If workman are required to work the above enumerated holidays or days observed as such, or on Sunday, they shall receive double (2) the regular rate of pay for such work.

**NO. 8:** All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day, or the days observed in lieu of these holidays, shall be paid at the double time rate of pay.

**NO. 12:** All work done on New Year's Day, Decoration Day, Independence Day, Veteran's Day, Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. Should any of these days fall on Sunday, then the following day shall be observed as the holiday. Under no circumstances shall employees be permitted to work on Labor Day.

**NO. 18:** All work done on New Year's Day, Memorial Day, July 4th, Labor Day, Veteran's Day, Thanksgiving Day, the Friday following Thanksgiving and Christmas Day shall be paid at the double time rate of pay. When one of the above holidays falls on Sunday, the following Monday shall be considered the holiday, and when one of the above holidays falls on Saturday, the preceding Friday shall be considered the holiday, and all work performed on said day(s) shall be paid at the double time rate.

**NO. 25:** All work done on New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving, Christmas Day, Presidential Election Day, or days locally observed as such, and Saturday and Sunday shall be recognized as holidays and shall be paid at the double (2) time rate of pay. If a named holiday falls on a Saturday, the holiday will be observed on the preceding Friday. When a named holiday falls on Sunday, the Monday after will be observed as the holiday. Appropriate overtime rates to be based on fifteen minute increments.

**NO. 26:** All work done on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. When a Holiday occurs on Saturday it shall not be observed on either the previous Friday or the following Monday. Such days shall be regular work days. If such a holiday occurs on Sunday it shall be observed on the following Monday.

**NO. 31:** All work done on New Year's Day, Presidents Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, and Employee's Birthday shall be paid at the double time rate of pay. If a holiday falls on Sunday, the following Monday will be observed as the recognized holiday. If a holiday falls on Saturday, the preceding Friday will be observed as the recognized holiday.

**JEFFERSON COUNTY  
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

**NO. 36:** The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workman unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make-up day when an observed holiday occurs during the work week. Employees have the option to work that make-up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

**NO. 41:** The following days shall be observed as legal holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day. No work shall be performed on the Fourth of July, Labor Day or Christmas Day. Any work performed on the above holidays shall be paid for at two (2) times the regular straight time rate of pay. When any of the above holidays fall on Sunday, the following Monday shall be observed as such holiday. If a holiday falls on Saturday, it shall not be considered to be observed on the previous Friday or following Monday. Such days shall be regular workdays.

**NO. 45:** All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving, the day before Christmas, and Christmas Day, shall be paid at the double time rate of pay.

**NO. 47:** The following holidays are recognized: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving and Christmas Day. When a holiday listed above falls on Saturday, it shall be celebrated on the Friday preceding the holiday. When a holiday falls on Sunday, the following Monday shall be observed. Holidays referred to above shall be paid for at the double (2) time rate of pay when worked.

**NO. 51:** All time worked on Sundays and recognized holidays shall be paid for at the rate of double (2) the hourly base wage rate in effect. The Employer agrees to recognize the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day. If the holiday falls on Sunday, it shall be recognized on the following Monday. If the holiday falls on a Saturday, it shall be recognized as a Saturday only holiday.

**NO. 54:** All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day shall be paid at the double (2) time rate of pay. When a holiday falls on Saturday, it shall be observed on Friday. When a holiday falls on Sunday, it shall be observed on Monday.

**NO. 55:** The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

**NO. 60:** All work performed on New Year's Day, Armistice Day (Veteran's Day), Decoration Day (Memorial Day), Independence Day (Fourth of July), Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. No work shall be performed on Labor Day except when triple (3) time is paid. When a holiday falls on Saturday, Friday will be observed as the holiday. When a holiday falls on Sunday, the following Monday shall be observed as the holiday.

**JEFFERSON COUNTY  
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

**NO. 66:** All work performed on Sundays and the following recognized holidays, or the days observed as such, of New Year's Day, Decoration Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Whenever any such holidays fall on a Sunday, the following Monday shall be observed as a holiday.

**NO. 69:** All work performed on New Year's Day, Memorial Day, July Fourth, Labor Day, Veteran's Day, Thanksgiving Day or Christmas Day shall be compensated at double (2) their straight-time hourly rate of pay. Friday after Thanksgiving and the day before Christmas are also holidays, however, if the employer chooses to work the normal work hours on these days, the employee will be paid at straight -time rate of pay. If a holiday falls on a Saturday, the holiday will be observed on Saturday; if a holiday falls on a Sunday, the holiday will be observed on the following Monday.

**NO. 71:** All work performed on the following recognized holidays, or days that may be celebrated as such, shall be paid at the double (2) time rate of pay: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving and Christmas Day. If a holiday falls on Sunday, it shall be celebrated on Monday. If a holiday falls on Saturday, it shall be celebrated on the Friday proceeding such Saturday.

**NO. 73:** The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day (or mutually agreed date of the Friday after Thanksgiving Day may be substituted for Veteran's Day), Thanksgiving Day and Christmas Day, or in the event that any of said Holidays falls on Sunday, then the day or days generally recognized as such. Any work performed anywhere on any of the aforesaid Holidays, or on the day or days recognized and observed as such, shall be paid for at double (2) time the regular hourly rate.

OCCUPATIONAL TITLE	* Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Carpenter		\$34.03	23	16	\$13.90
Millwright		\$34.03	23	16	\$13.90
Pile Driver		\$34.03	23	16	\$13.90
Electrician (Outside-Line Construction\Lineman)		\$38.91	9	12	\$5.00 + 37.5%
Lineman Operator		\$33.59	9	12	\$5.00 + 37.5%
Lineman - Tree Trimmer		\$24.25	32	31	\$5.00 + 23%
Groundman		\$25.97	9	12	\$5.00 + 37.5%
Groundman - Tree Trimmer		\$19.22	32	31	\$5.00 + 23%
Operating Engineer					
Group I	6/13	\$30.51	10	9	\$23.35
Group II	6/13	\$30.51	10	9	\$23.35
Group III	6/13	\$29.21	10	9	\$23.35
Group IV	6/13	\$25.75	10	9	\$23.35
Oiler-Driver	6/13	\$26.21	10	9	\$23.35
Cement Mason	6/13	\$30.20	17	11	\$15.36
Laborer					
General Laborer	6/13	\$28.01	2	4	\$12.07
Skilled Laborer	6/13	\$28.61	2	4	\$12.07
Truck Driver-Teamster					
Group I		\$29.88	25	21	\$10.90
Group II		\$29.99	25	21	\$10.90
Group III		\$30.03	25	21	\$10.90
Group IV		\$30.10	25	21	\$10.90
Traffic Control Service Driver		\$28.775	26	25	\$9.045

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate sheet.

**JEFFERSON COUNTY  
OVERTIME SCHEDULE – HEAVY CONSTRUCTION**

**FED:** Minimum requirement per Fair Labor Standards Act means time and one-half (1 1/2) shall be paid for all work in excess of forty (40) hours per work week.

**NO. 2:** Means a regular workweek shall be forty (40) hours and will start on Monday and end on Friday. The Employer shall have the option of working five 8-hour days or four 10-hour days Monday through Friday. If an Employer elects to work five 8-hour days during any workweek, hours worked more than eight (8) per day or 40 per week shall be paid at time and one-half the hourly rate Monday through Friday. If an Employer elects to work four 10-hour days in a week, work performed more than ten (10) hours per day or 40 hours per week shall be paid at time and one-half the hourly rate Monday through Friday. When working a five 8-hour day schedule and an Employer is prevented from working forty (40) hours Monday through Friday, or any part thereof, by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. If an Employer is working a four 10-hour day schedule and loses a day due to inclement weather, he may work 10 hours Friday at straight time. All hours worked over the 40 hours Monday through Friday will be paid at 1 1/2 overtime rate. A workday shift is to begin at the option of the Employer, between 6:00 a.m. and not later than 9:00 a.m. However, the project starting time may be advanced or delayed if required. If workmen are required to work the enumerated holidays or days observed as such or Sundays, they shall receive double (2) the regular rate of pay for such work. Overtime shall be computed at one-half (1/2) hour intervals. Shift: The Contractor may elect to work one, two or three shifts on any work. When operating on more than one shift, the shifts shall be known as the day shift, swing shift, and graveyard shift as such terms are recognized in the industry. When two shifts are worked on any operation, the shifts will consist of eight (8) or ten (10) hours exclusive of lunchtime. When three shifts are worked the first day or day shift will consist of eight (8) hours exclusive of lunchtime. The second or swing shift shall consist of seven and one-half (7 1/2) hours work for eight hours pay, exclusive of lunchtime, and the third or the graveyard shift shall consist of seven (7) hours work for eight (8) hours pay, exclusive of the lunchtime. All time in excess of normal shifts shall be considered overtime. Multiple shift (the two or three shift) operation will not be construed on the entire project if at any time it is deemed advisable and necessary for the Employer to multiple shift a specific operation. However, no shift shall be started between midnight and six a.m. except the graveyard shift on a three-shift operation, or except in an unusual or emergency situation. If an Employer starts a shift between midnight and 6 a.m. except the graveyard shift on a three-shift operation, he shall reimburse all employees for the entire shift at the double time rate. Completion of the second shift on a two-shift operation or completion of the graveyard shift on a three-shift operation that carries over into Saturday morning, shall be at the straight time rate. Overtime shall be computed at 1/2 hour intervals.

**NO. 9:** Eight (8) hours shall constitute a work day between the hours of 7:00 a.m. and 4:30 p.m. Forty (40) hours within five (5) days, Monday through Friday inclusive, shall constitute the work week. Work performed in the 9th and 10th hour, Monday through Friday, shall be paid at time and one-half (1 1/2) the regular straight time rate of pay. Contractor has the option to pay two (2) hours per day at the time and one-half (1 1/2) the regular straight time rate of pay between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. Work performed in the first eight (8) hours on Saturday shall be paid at the rate of one and eight tenths (1.8) the regular straight time rate. Work performed outside these hours and on Sundays and recognized legal holidays, or days celebrated as such, shall be paid for at the rate of double (2) time.

**JEFFERSON COUNTY  
OVERTIME SCHEDULE – HEAVY CONSTRUCTION**

**NO. 10:** Means the regular workday for which employees shall be compensated at straight time hourly rate of pay shall, unless otherwise provided for, begin at 8:00 a.m. and end at 4:30 p.m. The regular workweek shall consist of five (5) days, Monday through Friday, beginning at 8:00 a.m. and ending at 4:30 p.m. except as may be modified. The starting time may be either advanced or delayed one hour or two hours at the discretion of the Employer. The Employer may have the option to schedule his work week from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate. If the Employer elects to work Monday through Thursday and is stopped due to inclement weather, holidays or other conditions beyond the control of the Employer, he shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hour workweek. All necessary overtime and work performed on Saturday, shall be paid at time and one-half (1½) the hourly rate, plus an amount equal to one-half (½) of the hourly Total Indicated Fringe Benefits. All work performed on Sundays and recognized holidays shall be paid at double (2) the hourly rate, plus an amount equal to the hourly Total Indicated Fringe Benefits. Shifts may be established when considered necessary by the Employer. Shift hours and rates will be as follows. If shifts are established, work on the First Shift will begin between 6:00 a.m. and 9:00 a.m. and consist of eight (8) hours of work plus one-half hour unpaid lunch. Hours worked during the first shift will be paid at the straight time rate of pay. The second shift shall start eight hours after the start of the first shift and consist of eight (8) hours of work plus one-half hour unpaid lunch. Work on the second shift will begin between 2:00 p.m. and 5:00 p.m. and be paid the straight time rate plus \$2.50 per hour. The third shift shall start eight hours after the start of the second shift and consist of eight (8) hours plus one-half hour unpaid lunch. Work on the third shift will begin between 10:00 p.m. and 1:00 a.m. and be paid the straight time rate plus \$3.50 per hour. The additional amounts that are to be paid are only applicable when working shifts. Shifts that begin on Saturday morning through those shifts which end on Sunday morning will be paid at time and one-half these rates. Shifts that begin on Sunday morning through those shifts which end on Monday morning will be paid at double time these rates.

**NO. 17:** Means eight (8) hours shall constitute the regular work day and forty (40) hours a work week, Monday through Friday. The Employer shall establish the starting time between 6:30 a.m. through 9:00 a.m. An Employer may further adjust the starting time up to 9:30 A.M. throughout the year. Time and one-half (1½) shall be paid after eight (8) consecutive hours worked after the established starting time and for hours worked before the established starting time. Time and one-half (1½) shall be paid for work performed on Saturdays. Work performed on Sundays and Holidays shall be paid at the double (2) time rate of pay. The Employer when working on Highway and Road Work may have the option to schedule the work week for his paving crew only from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate of time and one-half (1½). If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), the Employer shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hours.

**NO. 23:** Means the regular workweek shall start on Monday and end on Friday, except where the Employer elects to work Monday through Thursday, (10) hours per day. All work over ten (10) hours in a day or forty (40) hours in a week shall be at the overtime rate of one and one-half (1½) times the regular hourly rate. The regular workday shall be either eight (8) or ten (10) hours. If a job can't work forty (40) hours Monday through Friday because of inclement weather or other conditions beyond the control of the Employer, Friday or Saturday may be worked as a make-up day at straight time (if working 4-10's). Saturday may be worked as a make-up day at straight time (if working 5-8's). An Employer, who is working a four (4) ten (10) hour day work schedule may use Friday as a make-up day when a workday is lost due to a holiday. A workday is to begin at the option of the Employer but not later than 11:00 a.m. except when inclement weather, requirements of the owner or other conditions beyond the reasonable control of the Employer prevent work. Except as worked as a make-up day, time on Saturday shall be worked at one and one-half (1½) times the regular rate. Work performed on Sunday shall be paid at two (2) times the regular rate. Work performed on recognized holidays or days observed as such, shall also be paid at the double (2) time rate of pay.

**NO. 25:** Means a regular work week of forty (40) hours, starting on Monday and ending on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof maybe worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A work day is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time maybe advanced or delayed if mutually agreed to by the interest parties. All hours worked on recognized holidays, or days observed as such, double (2) time shall be paid.

**JEFFERSON COUNTY  
OVERTIME SCHEDULE – HEAVY CONSTRUCTION**

**NO. 26:** Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interest parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

**No. 32:** Means the overtime rate shall be time and one-half the regular rate for work over forty (40) hours per week. Sundays and Holidays shall be paid at double the straight time rate.

**JEFFERSON COUNTY  
HOLIDAY SCHEDULE – HEAVY CONSTRUCTION**

**NO. 4:** All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, or observed as such, shall be paid at the double time rate of pay. When a Holiday falls on a Sunday, Monday shall be observed. No work shall be performed on Labor Day, except in case of jeopardy to life or property. This is applied to protect Labor Day.

**NO. 9:** All work performed on Sundays and the following recognized holidays, or the days observed as such, of New Year's Day, Decoration Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Whenever any such holidays fall on a Sunday, the following Monday shall be observed as a holiday.

**NO. 11:** Means all work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day, and any additional holidays which may be mutually agreed upon shall be paid at the double (2) time rate of pay. Whenever any such holiday falls on a Sunday, the following Monday shall be recognized and observed as the holiday. No work shall be performed on Labor Day.

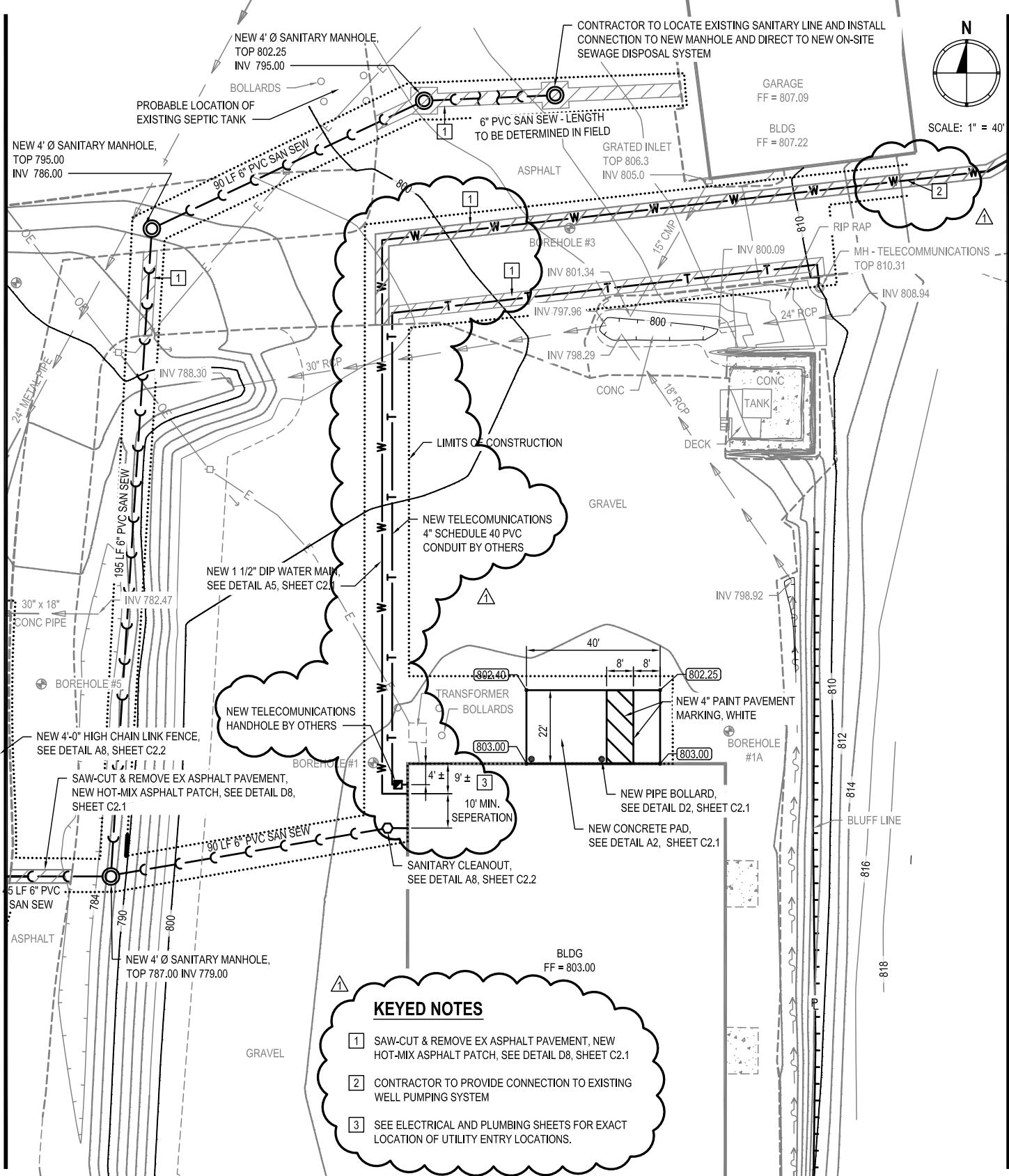
**NO. 12:** All work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day, or days celebrated as such, shall be paid at the double time rate of pay. When one of the foregoing holidays falls on Sunday, it shall be celebrated on the following Monday. When one of the foregoing holidays falls on Saturday, it shall be celebrated on the Friday before the holiday.

**NO. 16:** The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on Sunday, it shall be observed on the following Monday. If a holiday falls on Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid to the worker unless worked. If workers are required to work the above recognized holidays or days observed as such, they shall receive double (2) the regular rate of pay for such work.

**NO. 21:** The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workman unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make-up day when an observed holiday occurs during the work week. Employees have the option to work that make-up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

**NO. 25:** The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

**NO. 31:** All work performed on New Year's Day, Presidents' Day, Veterans' Day, Good Friday, Decoration Day, Fourth of July, Labor Day, Christmas Eve Day, Christmas Day, Thanksgiving Day and Day after Thanksgiving or days celebrated for the same.



ILLINOIS  
**Eastport Business Center 1**  
100 Lanter Court, Suite 1  
Collinsville, IL 62234  
tel 618.345.2200  
fax 618.345.7233

---

[www.oatesassociates.com](http://www.oatesassociates.com)

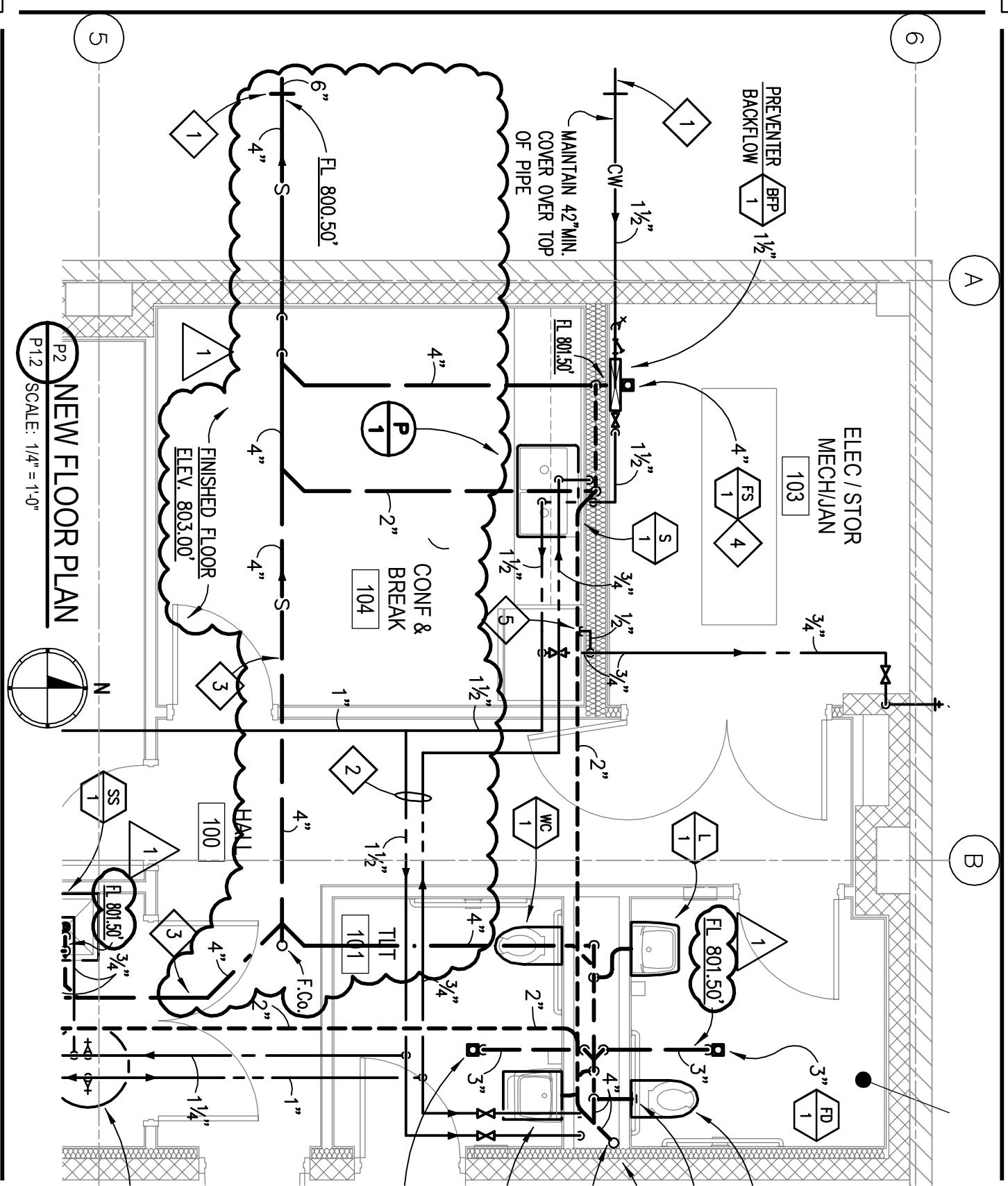
MISSOURI  
Laclede Gas Building  
720 Olive, Suite 1660  
St. Louis, MO 63101  
tel 314.588.8381  
fax 314.588.9605

**JEFFERSON COUNTY  
HIGHWAY VEHICLE  
MAINTENANCE FACILITY  
SITE PLAN**

PROJECT NO.:  
**12147**  
DATE:  
**07/03/13**  
REVISION:  
**ADD # 1**

SHEET NO.:

AD1-C1



COMPUTATION

1

ILLINOIS  
Eastport Business Center 1  
100 Lanter Court, Suite 1  
Collinsville, IL 62234  
tel 618.345.2200  
fax 618.345.7233

MISSOURI  
Laclede Gas Building  
720 Olive, Suite 1660  
St. Louis, MO 63101  
tel 314.588.8381  
fax 314.588.9605

---

**JEFFERSON COUNTY  
HIGHWAY VEHICLE  
MAINTENANCE FACILITY  
P1.2 - DETAILED FLR PLAN - PLUMBING**

PROJECT NO.:  
**12147**

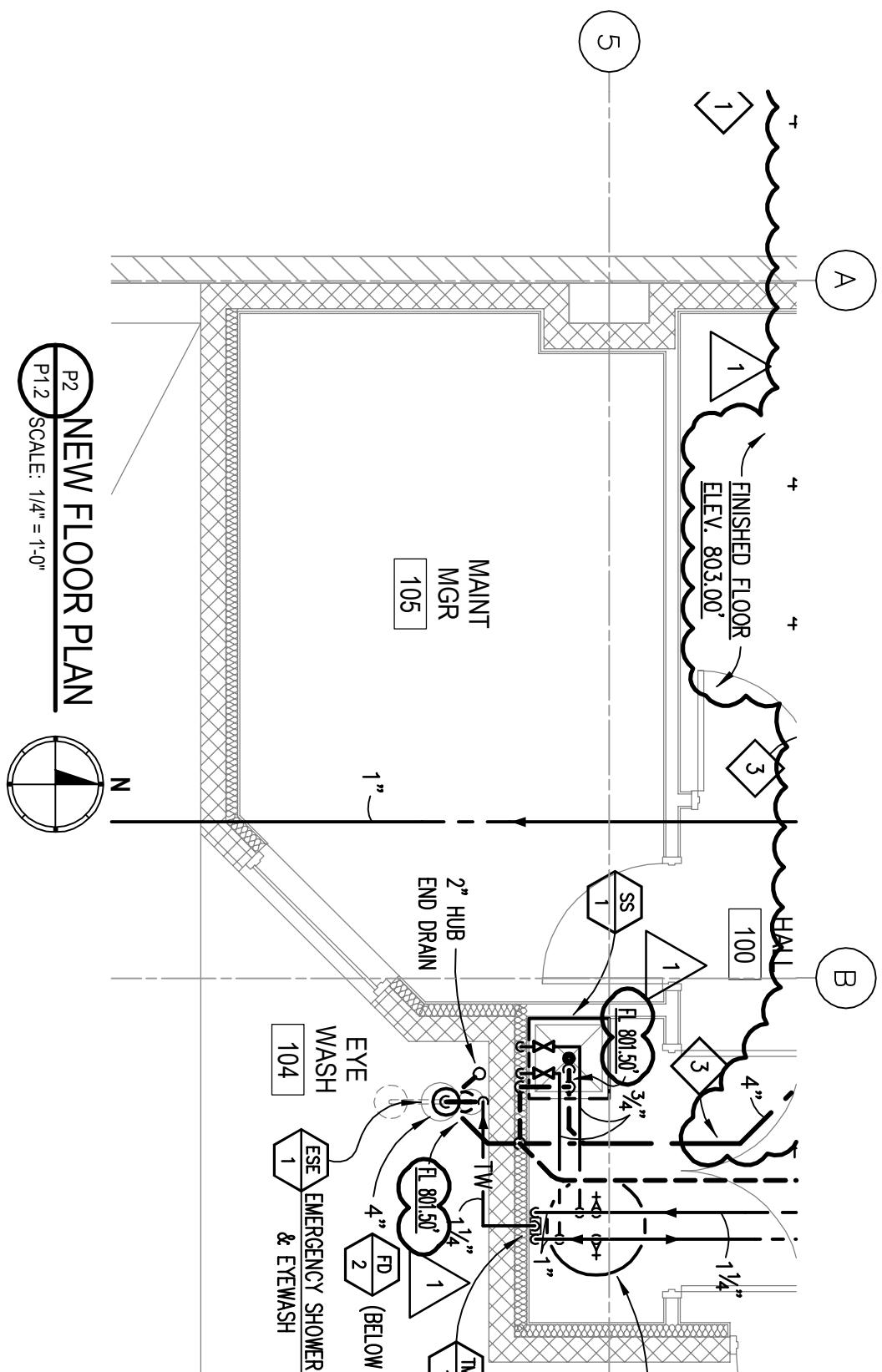
DATE:  
07/03/13

REVISION:  
ADD # 1

SHEET NO.:

**AD1-P1**

COPYRIGHT 2013 BY QATES ASSOCIATES



CONSULTANT:



ILLINOIS  
Eastport Business Center 1  
100 Lanter Court, Suite 1  
Collinsville, IL 62234  
tel 618.345.2200  
fax 618.345.7233

[www.oatesassociates.com](http://www.oatesassociates.com)

MISSOURI  
Laclede Gas Building  
720 Olive, Suite 1660  
St. Louis, MO 63101  
tel 314.588.8381  
fax 314.588.9605

Phone: 314-884-7600  
Fax: 314-884-7601

**JEFFERSON COUNTY**  
**HIGHWAY VEHICLE**  
**MAINTENANCE FACILITY**  
**P1.2 - DETAILED FLR PLAN - PLUMBING**

PROJECT NO.:  
**12147**

DATE:  
**07/03/13**

REVISION:  
**ADD #1**

SHEET NO.:

**AD1-P2**

COPYRIGHT 2013 BY OATES ASSOCIATES

## SECTION 235000 - HAC EQUIPMENT

### PART 1 - GENERAL

#### 1.1 REFERENCE

A. Sections of Division 01, GENERAL REQUIREMENTS, and requirements of Section 230100 - BASIC MECHANICAL REQUIREMENTS, apply to work under this specification section.

#### 1.2 EQUIPMENT REQUIREMENTS

A. General: Equipment shall be installed in accordance with applicable sections of this specification and shall be complete in every respect, including necessary accessories required to complete systems. Equipment shall meet all applicable codes and shall be UL listed when required by code or local authorities.

B. Prewired Control Panels (PWCP): Each piece of equipment required by these specifications or the Equipment Data Schedule to have a prewired control panel shall have panels that contain but are not limited to the following:

1. NEMA enclosure with hinged door or doors and gaskets, louvers, fans and durable finish to match the environment where it is located.
2. Power input terminals of correct size to match conductors indicated on the Equipment Data Schedule on the drawings.
3. Control power transformer with primary and secondary fuses.
4. Pushbuttons, switches, liquid crystal display (LCD), and LED or pilot lights to indicate ON, OFF, speed or other appropriate information as specified for each piece of equipment.
5. Wiring diagram on the inside cover indicating terminals by number, wiring color to each control device both inside the panel and remote. Diagram shall be covered in plastic and affixed to the inside cover or box in a location easily readable after opening the front cover plate.
6. Panel shall contain motor starter as applicable for specific equipment to provide a complete and working system.
7. Individual equipment sections of this specification contain additional prewired control panel requirements. Read each section for requirements.

C. Filters:

1. Construction Filters: HAC shall provide temporary filters in all air systems and change these filters through out the duration of construction to maintain a clean air system.
2. Occupancy Filters: Upon completion of construction HAC shall install one set of clean filters in each location of each air system. Filters shall be of the type specified for that specific piece of equipment.
3. Equipment shall not be operated at anytime without filters in place.

1.3 SCOPE OF WORK

- A. This section of the specifications covers detailed requirements of heating and air conditioning equipment required for proper operation of heating, cooling, refrigeration and ventilating systems.

1.4 DESCRIPTION OF SYSTEMS

- A. Air handling unit

1.5 SUBSTITUTIONS

- A. No substitutions will be allowed except as specified under Section 230100, BASIC MECHANICAL REQUIREMENTS.

1.6 SHOP DRAWINGS AND SUBMITTAL REQUIREMENTS

- A. See Section 230100.

PART 2 - PRODUCTS

2.1 SINGLE ZONE ROOFTOP UNITS

A. General:

1. Provide single zone packaged rooftop heating and cooling units where shown on drawings and as scheduled.
2. Unit shall consist of insulated weather-tight casing with compressor, air-cooled condenser coil, condenser fans, evaporator coil, return-air filters, supply motors, and unit controls.
3. Unit shall be 100 percent factory run tested and fully charged with R-410A.
4. Unit shall have labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.
5. Wiring internal to the unit shall be colored and numbered for identification.

B. Construction:

1. Cabinet: Weather-resistant, zinc-clad steel with baked enamel finish. Cabinet shall have removable access panels. Access panels shall be water- and air-tight and provide access to all necessary sections and components. All exterior panels shall be provided with 1/2 inch thick foil faced fiberglass insulation. Provide 115 Volt convenience outlet in accordance with NEC requirements.
2. Air Filters: Factory installed filters shall mount integral within the unit and shall be accessible through access panels. One-inch thick glass fiber disposable media filters shall be provided with the provisions within the unit for 2 inch thick filters to be field-provided and installed.

3. Evaporator Fan: Forward curved, double width, double inlet centrifugal type fan which shall be direct drive.
4. Condenser Fan: Direct drive, statically and dynamically balanced in the vertical draw through position.
5. Electric Heating Section: Integral to cabinet, heavy duty nickel chromium heating elements internally wired. Heater shall have pilot duty or automatic reset line voltage limit controls and any circuit carrying more than 48 amps shall have fuse protection in compliance with NEC.
6. Evaporator Coil: Configured aluminum fin surface mechanically bonded to copper tubing coil. Provide an independent expansion device for each refrigeration circuit. Factory pressure tested at 450 psig and leak tested at 200 psig. Provide a removable, reversible, cleanable double sloped drain pan for base of evaporator coil constructed of PVC.
7. Condensing Section: Provide vertical discharge, direct drive fans with aluminum blades. Fans shall be statically balanced. Motors shall be permanently lubricated, with integral thermal overload protection in a weather tight casing.
8. Refrigeration System: Provide scroll compressor with direct drive operating at 3600 rpm. Integral centrifugal oil pump. Provide suction gas cooled motor with winding temperature limits and compressor overloads. Provide each unit with factory-supplied completely piped with liquid line filter-drier, suction and liquid line pressure ports.
9. Outdoor Air Section: Provide economizer with dry bulb controls. Provide adjustable minimum position control located in the economizer section of the unit. Provide spring return motor for outside air damper closure during unit shutdown or power interruption.

C. Controls:

1. Provide microprocessor unit-mounted DDC control which when used with an electronic zone sensor provides proportional integral room control. This UCM shall perform all unit functions by making all heating, cooling, and ventilating decisions through resident software logic.
2. Provide factory-installed indoor evaporator defrost control to prevent compressor slugging by interrupting compressor operation.
3. Economizer Preferred Cooling: Compressor operation is integrated with economizer cycle to allow mechanical cooling when economizer is not adequate to satisfy zone requirements. Compressors are enabled if space temperature is recovering to cooling set point at a rate of less than 0.2 degrees per minute. Compressor low ambient lockout overrides this function.

D. Staging Controls:

1. Provide programmable electronic microcomputer based zone control.
  - a. Zone control shall incorporate:
    - 1) Automatic changeover from heating to cooling.
    - 2) Set-up for at least two (2) sets of separate heating and cooling temperatures per day.
    - 3) Instant override of set point for continuous or timed period from one hour to 31 days.
    - 4) Switch selection features including Fahrenheit display, 12 or 24-hour clock, keyboard disable, remote sensor, fan on-auto.

- 5) Smart Fan Operation: Allows the unit fan operation to default to the Auto Mode during unoccupied periods, regardless of the Fan switch position.
- 6) Economizer Minimum Position Override: Allows the unit controller to override and close the minimum position setting on the economizer damper during unoccupied time periods.

b. Zone sensor display shall be capable of:

- 1) Time of day.
- 2) Actual room temperature.
- 3) Programmed temperature.
- 4) Programmed time.
- 5) Duration of timed override.
- 6) Day of week.
- 7) System mode indication: heating, cooling, low battery, and fan on.

2. Provide mixed air sensor in supply air to close outside air damper.

E. Performance: See schedule on drawings.

F. Manufacturer: Units shall be by Trane as scheduled on the drawings. Units by Seasons-4, Carrier, Aaon, or McQuay meeting the above specifications will be considered for approval.

## 2.2 INLINE CENTRIFUGAL FAN (EF-1)

A. Wheel:

1. Non-overloading, backward inclined centrifugal wheel
2. Constructed of aluminum
3. Statically and dynamically balanced in accordance to AMCA Standard 204-05
4. The wheel cone and fan inlet will be matched and shall have precise running tolerances for maximum performance and operating efficiency
5. Single thickness blades are securely riveted or welded to a heavy gauge back plate and wheel cone.

B. Motors:

1. Electronically Commutated Motor

- a. Motor enclosures: Open type
- b. Motor to be a DC electronic commutation type motor (ECM) specifically designed for fan applications. AC induction type motors are not acceptable. Examples of unacceptable motors are: Shaded Pole, Permanent Split Capacitor (PSC), Split Phase, Capacitor Start and 3 phase induction type motors.
- c. Motors are permanently lubricated, heavy duty ball bearing type to match with the fan load and pre-wired to the specific voltage and phase.
- d. Internal motor circuitry to convert AC power supplied to the fan to DC power to operate the motor.

- e. Motor shall be speed controllable down to 20% of full speed (80% turndown). Speed shall be controlled by either a potentiometer dial mounted at the motor or by a 0-10 VDC signal.
- f. Motor shall be a minimum of 85% efficient at all speeds.

C. Housing/Cabinet Construction

- 1. Construction material: Galvanized.
- 2. Square design constructed of heavy gauge galvanized steel and shall include square duct mounting collars
- 3. Housing and bearing supports shall be constructed of heavy gauge bolted and welded steel construction to prevent vibration and to rigidly support the shaft and bearing assembly.

D. Housing Supports and Drive Frame:

- 1. Housing supports are constructed of structural steel with formed flanges
- 2. Drive frame is welded steel which supports the motor

E. Disconnect Switches:

- 1. NEMA rated: 1
- 2. Positive electrical shut-off
- 3. Wired from fan motor to junction box

F. Duct Collars:

- 1. Square design to provide a large discharge area
- 2. Inlet and discharge collars provide easy duct connection

G. Access Panel:

- 1. Two sided access panels, permit easy access to all internal components
- 2. Located perpendicular to the motor mounting panel

H. Options/Accessories:

- 1. Dampers:
  - a. Types: Gravity
  - b. Galvanized frames with prepunched mounting holes
  - c. Balanced for minimal resistance to flow
- 2. Finishes - Coating type: Permatector
- 3. Insulated Housing
  - a. Thickness: 1 inch
  - b. For noise reduction and condensation control
  - c. Constructed of fiberglass liner

4. Isolation:
  - a. Type: Free Standing Open Spring
  - b. Sized to match the weight of each fan
5. Motor Cover:
  - a. Constructed of galvanized steel
  - b. Covers motor and drives for safety
  - c. Standard on unit specified with UL
6. Pressure Probe:  $\frac{1}{4}$  inch diameter tube in fan venturi that allows hook up to manometer.
7. Wiring Pigtail: Direct hook-up to the power supply.

- I. Manufacturers: Unit shall be by Greenheck as scheduled on drawings. Units by Twin City, Penn Ventilation, or Loren Cook Company meeting the above specifications will be considered for approval.

### PART 3 - EXECUTION

- 3.1 INSTALLATION OF SINGLE ZONE ROOFTOP UNITS
  - A. Examination: Examine surrounding grade for compliance with requirements for conditions affecting installation and performance of rooftop units. Do not proceed with installation until unsatisfactory conditions have been corrected.
  - B. Installation:
    1. Install units according to manufacturer's written instructions.
    2. Install units level and plumb, maintaining manufacturer's recommended clearances.
    3. Unit Support: Install unit on structural curbs and level. Coordinate wall penetrations and flashing with wall construction.
  - C. Connections:
    1. Duct installation requirements are specified in specification Section 238800. Drawings indicate the general arrangement of ducts. The following are specific connection requirements. Install ducts to termination in roof mounting frames. Where indicated, terminate return air duct through roof structure, and insulate space between roof and bottom of unit.
    2. Electrical: Conform to applicable requirements in Division 26 sections.
    3. Ground Equipment: Tighten electrical connectors and terminals according to manufacturer's published torque tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

D. Demonstration: Engage a factory-authorized service representative to train Owner's maintenance personnel as specified below:

1. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventive maintenance.
2. Schedule training with Owner, through Architect, with at least 7 days advance notice.

### 3.2 INSTALLATION OF INLINE CENTRIFUGAL FAN (EF-1)

A. Manufacturer's Instructions: Comply with manufacturer's product data, including technical bulletins, product catalog installation instructions

B. Examination: Examine areas to receive fans. Notify the Engineer of conditions that would adversely affect installation or subsequent utilization and maintenance of fans. Do not proceed with installation until unsatisfactory conditions are corrected

C. Preparation:

1. Ensure roof openings are square, accurately aligned, correctly located, and in tolerance
2. Ensure duct is plumb, sized correctly, and to proper elevation above roof deck. Install duct as specified in Air Distribution (Division 23)

D. Installation:

1. Install fans system as indicated on the Installation, Operation and Maintenance Manual (IOM) and contract drawings
2. Install fans in accordance with manufacturer's instructions

E. System Startup: Refer to Installation, Operation, and Maintenance Manual (IOM)

F. Adjusting:

1. Adjust exhaust fans to function properly
2. Adjust Belt Tension
3. Lubricate bearings
4. Adjust drive for final system balancing
5. Check wheel overlap

G. Cleaning: Clean as recommended by manufacturer. Do not use material or methods which may damage finish surface or surrounding construction

H. Protection:

1. Protect installed product and finished surfaces from damage during construction
2. Protect installed exhaust fans to ensure that, except for normal weathering, fans will be without damage or deterioration at time of substantial completion

END OF SECTION 235000