5/14/19

RE: Addendum #1 for IFB 19-01 Telford-Shroyer RAD Conversion

Prepared by: Greater Dayton Premier Management (GDPM)

This Addendum modifies and shall become a part of the original Request for Quote (RFQ) and is hereby made part of the Bidding Documents for the referenced project.

All bidders shall indicate in their Quote that this Addendum has been received and considered in their Quote.

The Addendum items are intended to supplement, clarify or correct parts of the IFB package. Items in the addendum shall take precedence over items corrected and shall be of equal value with items supplemented or clarified. Any questions in reference to this addendum must be directed, in writing, to:

Jonathan Schaaf
RDA Group Architects
7945 Washington Woods Drive
Dayton, Ohio 45459
937.610.3440
937.610.3441 Fax
jrs@rda-group.com

Addendum #1

1. See attached documents.

Information added to gdpm.org on 5/4/19 This is Addendum #1

RDA GROUP ARCHITECTS
7945 Washington Woods Drive
Dayton, Ohio 45459
937.610.3440

Addendum #1
Telford-Shroyer RAD Conversion
IFB #19-01

May 13, 2019

Greater Dayton Premier Management
400 Wayne Ave.
Dayton, Ohio 45410

This Addendum modifies and shall become a part of the original Contract Documents and is hereby made part of the Bidding Documents for the referenced project.

All bidders shall indicate in their bid/proposal that this Addendum has been received and considered in their bid proposal.

The Addendum items are intended to supplement, clarify or correct parts of the bid proposal package. Items in the addendum shall take precedence over items corrected and shall be of equal value with items supplemented or clarified. Any questions in reference to this addendum must be directed, in writing, to:

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Addendum Items:

1. RDA understands that some bidders may have had “font” issues when printing the documents. We believe we have determined and resolved the issue with several of the mechanical engineer’s sheets [list below]. RDA has re-uploaded the entire drawing set to DropBox as well as a second file set that we believe contains only the sheets that were experiencing the “font” issue. There were no “changes” to the set, just a re-upload to address the font printing issue.
    a. 514 Telford – Sheet M1, M4
    b. 520 Telford – Sheet M1, M4
    c. 526 Telford – Sheet M1, M4
    d. 532 Telford – Sheet M1, M4
    e. 1907 Shroyer – Sheet M1, M6
    f. 2018 Shroyer – Sheet M1, M6

End of Addendum #1.

DOUBLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 12"Ø - ROUND DUCT
- VOLUME DAMPER
- BDD - BACK DRAFT DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- DUCT TRANSITION, ROUND OR FLAT OVAL TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR TO ROUND OR FLAT OVAL
- DUCT TRANSITION, RECTANGULAR, ROUND, OR FLAT OVAL
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- TAP-IN BRANCH, RECTANGULAR
- BRANCH DUCT, CONICAL LATERAL FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, CONICAL TEE FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, "Y" FITTING, ROUND OR FLAT OVAL
- SUPPLY DUCT SECTION, RECTANGULAR
- RETURN DUCT SECTION, RECTANGULAR
- EXHAUST DUCT SECTION, RECTANGULAR
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- SUPPLY AIR DEVICE (ARROWS INDICATE THROW DIRECTIONS, NO THROWS INDICATE 4-WAY THROW.
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE

PIPING LINETYPES

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- SS - SANITARY DRAIN PIPING
- SANITARY VENT PIPING
- G - GAS PIPING

MISCELLANEOUS SYMBOLS

- CONNECT TO EXISTING
- MISCELLANEOUS SYMBOLS

SINGLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 8"Ø - ROUND DUCT
- 36x18Ø - FLAT OVAL DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- FLEXIBLE ROUND DUCT
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- FSD - COMBINATION FIRE/SMOKE DAMPER
- SD - SMOKE DAMPER
- DUCT TRANSITION
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- DF - DIVIDED FLOW FITTING, RECTANGULAR
- RECTANGULAR TAP-IN BRANCH OR ROUND OR FLAT OVAL CONICAL TEE
- INCLINED CONICAL TAKE-OFF, ROUND OR FLAT OVAL
- "Y" FITTING, ROUND OR FLAT OVAL
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- END OF DUCT RUN
- T - THERMOSTAT

PIPING SYMBOLS

- VALVE
- CHECK VALVE
- DOUBLE BACKFLOW PREVENTER
- PLUG VALVE
- SAFETY OR PRESSURE RELIEF, ANGLE VALVE
- PRESSURE REGULATING VALVE
- LATERAL Y
- CAP
- ELBOW, 90°
- ELBOW, 90° TURNED UP
- ELBOW, 90° TURNED DOWN
- ELBOW, 45°
- TEE
- TEE, TURNED UP
- TEE, TURNED DOWN
- REDUCER
- UNION
- STRAINER
- M - METER
- R - REGULATOR
- C.O. - CLEANOUT
- F.D. - FLOOR DRAIN
- V.T.R. - VENT THROUGH ROOF

GENERAL NOTES:

1. FOR THE PURPOSE OF THIS PROJECT THE MECHANICAL SCOPE OF WORK AND PLUMBING SCOPE OF WORK HAVE BEEN CONSOLIDATED TO BE ON THE SAME SHEETS.

GENERAL PLUMBING NOTES:

1. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING SYSTEMS COMPLETE, UNLESS NOTED OTHERWISE. COMPLETE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PIPE AND FITTINGS, PIPE HANGERS AND ANCHORS, EQUIPMENT, FIXTURES, SPECIALTIES, ETC. THIS CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, LOCATIONS, RELATIVE DIMENSIONS, ETC. PIPING AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND REQUIREMENTS AND ADJUST ACCORDINGLY.
4. CONTRACTOR SHALL INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS.
5. THIS CONTRACTOR SHALL CONCEAL ALL PIPES WITHIN WALLS OR CHASES WHENEVER PRACTICAL.
6. THIS CONTRACTOR SHALL MAINTAIN DIMENSIONED "AS-BUILT" DRAWINGS FOR ALL UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE TO ENGINEER AT PROJECT COMPLETION.
7. CONTRACTOR SHALL INCLUDE ALL EXCAVATIONS AND BACK FILLING REQUIRED FOR UNDERGROUND PIPING. ALL BACK FILL SHALL BE FREE FROM ALL TRASH AND BUILDING MATERIALS. BACK FILL SHALL BE ENGINEERED FILL 95% COMPACTED IN 8" LAYERS.
8. ALL WORK SHALL CONFORM TO ASSOCIATED SPECIFICATIONS.
9. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
10. THIS CONTRACTOR SHALL PROVIDE AND INSTALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO ALL OBVIOUSLY NECESSARY LOCATIONS INCLUDING ALL VALVES, FITTINGS, HANGERS, BACKFLOW PREVENTERS, WATER HEATERS, ETC.
11. ALL WATER PIPING SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL PIPING SHALL BE SUPPORTED WITH 3/8" ALL THREAD AND CLEVIS HANGERS AND IN ACCORDANCE WITH SECTION 308 OF THE OBC - PLUMBING CODE, LATEST EDITION. UNLESS NOTED OTHERWISE.
    B. THIS CONTRACTOR SHALL INSULATE ALL NEW DOMESTIC HOT AND COLD WATER DISTRIBUTION INCLUDING FITTINGS.
    C. THIS CONTRACTOR SHALL PROVIDE AND INSTALL SERVICE VALVES ON ALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO EACH FIXTURE. ALL VALVES SHALL BE LOCATED IN CONVENIENT LOCATIONS.
    D. ALL HOSE BIBBS SHALL BE MOUNTED AT 24" ABOVE GRADE, UNLESS NOTED OTHERWISE.
    E. THE CONTRACTOR SHALL PROVIDE APPROPRIATE AIR CHAMBERS AT ALL EQUIPMENT WITH QUICK CLOSING VALVES.
    F. ALL DOMESTIC WATER PIPING SHALL BE POLYETHYLENE OR APPROVED EQUAL.
    G. ALL DOMESTIC WATER PIPE INSULATION SHALL BE 1" THICK WITH ALL SERVICE JACKET. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.28 BTUH-IN/SQ.FT.-°F AT 100°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. PIPE INSULATION SHALL BE AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
12. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SANITARY SEWER/ TRADE WASTE TO ALL NECESSARY LOCATIONS INCLUDING FLOOR DRAINS, CLEANOUTS, TRAPS, VENTS, ETC.
13. ALL SANITARY SEWER/ TRADE WASTE SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL SANITARY SEWER/ TRADE WASTE PIPE SHALL BE INSTALLED WITH ¼" PER FOOT MINIMUM SLOPE FOR LINES 2½" DIAMETER OR LESS, AND ⅛" PER FOOT MINIMUM SLOPE FOR LINES 3" OR GREATER, UNLESS NOTED OTHERWISE.
    B. ALL EXPOSED TRAPS AND TRIM SHALL BE BRIGHT CHROME, UNLESS OTHERWISE NOTED. ALL PLUMBING FIXTURES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
    C. VENTS SHALL BE LOOPED ABOVE CEILING AND/OR WITHIN ATTIC TO MINIMIZE ROOF PENETRATIONS.
    D. PVC NOT ACCEPTABLE FOR VENT PIPING IN CEILING PLENUM SPACES.
    E. PVC PIPE IS ACCEPTABLE FOR WASTE AND VENT PIPING. COORDINATE PIPE MATERIALS AND CEILING PLENUMS.
    F. THIS CONTRACTOR SHALL REFERENCE ARCHITECTURAL SHEETS FOR PLUMBING FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.
    G. ALL SANITARY FLOOR DRAINS SHALL HAVE TRAP PRIMER CONNECTIONS, UNLESS OTHERWISE NOTED.
14. CONDENSATE DRAINS THAT SERVE HVAC EQUIPMENT SHALL BE SCHEDULE 40 PVC PIPING. CONDENSATE DRAINS SERVING STEAM EQUIPMENT SHALL BE STEEL.
15. ALL PIPING SHALL BE CONSTRUCTED AND INSTALLED AS DESCRIBED BELOW.
    A. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH MINIMUM 4" CLEARANCE BETWEEN FINISHED COVERING OF PARALLEL, ADJACENT PIPES, OTHER WORK, ETC. UNLESS NOTED OTHERWISE.
    B. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH APPROPRIATE CLEARANCE FOR PASSAGES, HEADROOM, OPERATION OF DOORS OR WINDOWS, EQUIPMENT, LIGHTING OUTLETS, OR OWNER'S APPARATUS AND EQUIPMENT.
    C. INSTALL PIPING, VALVES, FITTINGS, ETC. ROUTED OVER MEANS OF EGRESS A MINIMUM OF 7'-6" CLEARANCE ABOVE FINISHED FLOOR.
    D. OFFSET PIPING AROUND COLUMNS, BEAMS, AND OTHER OBSTRUCTIONS AS REQUIRED.
    E. PIPING SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    F. GROOVED MECHANICAL COUPLINGS AND FASTENERS SHALL ONLY BE USED IN ACCESSIBLE LOCATIONS.
    G. INSULATE ALL CONNECTIONS BETWEEN PIPE, FITTINGS, AND HANGERS OF DISSIMILAR METAL AGAINST DIRECT CONTACT WITH DIELECTRIC INSULATING MATERIAL. PIPE CONNECTIONS SHALL BE WITH A DIELECTRIC FLANGE OR UNION.
    H. ALL RISERS SHALL HAVE A BALL VALVE FOR MANUAL VENTING AT HIGH POINTS IN THE SYSTEM.
    I. PIPE IDENTIFICATION SHALL COMPLY WITH ASME STANDARD A13.1 'SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS' UNLESS NOTED OTHERWISE. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    J. PIPE MARKERS SHALL BE A PREFORMED ONE PIECE UV RESISTANT VINYL WITH EMBOSSED LETTERS AND FLOW ARROWS. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    K. VALVES SHALL BE IDENTIFIED WITH 'SIZE, TYPE, AND DESCRIPTION OF OPERATION'.
    L. PIPE HANGERS AND SUPPORTS
        a. USE ADJUSTABLE CLEVIS HANGERS, FOR INDIVIDUAL, STRAIGHT HORIZONTAL RUNS.
        b. USE RISER CLAMPS FOR VERTICAL PIPE RUNS.
        c. USE PIPE ROLLERS AND GUIDES TO SUPPORT STEAM SUPPLY AND STEAM CONDENSATE LINES.

GENERAL MECHANICAL NOTES:

1. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL PROVIDE AND INSTALL THE HVAC SYSTEMS AND EXHAUST SYSTEMS COMPLETE. THE INSTALLATION SHALL INCLUDE, BUT NOT LIMITED TO, ALL DUCTWORK AND FITTINGS, EQUIPMENT, DIFFUSERS, SMOKE DETECTORS, THERMOSTATS AND 24 VAC WIRING, ROOF AND/OR WALL PENETRATIONS, TESTING AND BALANCING, ETC. CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES.
3. IT IS INTENDED THAT WORK COVERED BY SPECIFICATIONS AND DRAWINGS INCLUDES EVERYTHING REQUISITE AND NECESSARY TO MAKE VARIOUS SYSTEMS COMPLETE AND OPERATIVE, IRRESPECTIVE OF WHETHER OR NOT EVERY ITEM IS SPECIFICALLY NOTED. OMISSION OF DIRECT REFERENCE TO ANY ESSENTIAL ITEM SHALL NOT EXCUSE CONTRACTOR FROM COMPLYING WITH ABOVE INTENT.
4. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION.
5. IN GENERAL, THE DRAWINGS SHOW THE DESIRED DUCT ROUTING LOCATION PLUS FITTINGS AND CONNECTIONS. THE DUCT AND ASSOCIATED EQUIPMENT CAN BE LOWERED OR RAISED AS NECESSARY TO ACCOMMODATE MINOR FIELD CONDITIONS. THE CONTRACTOR SHALL NOTE ALL CHANGES ON DRAWINGS AND RETURN MARKED UP DRAWINGS TO THE OWNER.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN STRICT ACCORDANCE WITH SAFETY REQUIREMENTS IMPOSED BY THE OWNER AND OSHA.
8. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, REMOVE ALL DEBRIS FROM THE OWNER'S PROPERTY, AND DISPOSE OF SAME ACCORDING TO LOCAL REGULATIONS.
9. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS. CHANGES SHALL NOT BE MADE WITHOUT APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE FINAL HOOK-UP, PURGE AND LIGHTING OF ALL NATURAL GAS EQUIPMENT IF APPLICABLE.
12. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED MEETING THE REQUIREMENTS OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, LATEST EDITION, AND AS DESCRIBED BELOW.
13. ALL DUCT SHALL BE SHEET METAL AND INSTALLED IN STRICT ACCORDANCE WITH SMACNA STANDARDS, LATEST EDITION.
    A. HANGERS SHALL BE PROVIDED A MAXIMUM OF EVERY 8'-0", AT ROOF PENETRATIONS AND AT ALL ELBOWS. ALL DUCT SHALL BE SELF-SUPPORTING AND NOT REQUIRE CONNECTING EQUIPMENT FOR SUPPORT.
    B. ALIGN, ADJUST, AND LEVEL ALL DUCT FOR SATISFACTORY OPERATION. IF A SLOPE IS SPECIFIED, ALIGN AND ADJUST TO MEET STATED REQUIREMENTS.
    C. REINFORCE ALL DUCTS TO PREVENT BREATHING, VIBRATING, BUCKLING, OR UNNECESSARY NOISE AS REQUIRED TO SATISFY PROJECT REQUIREMENTS.
    D. ALL DUCT AND PLENUM SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. IT IS ACCEPTABLE TO CHANGE DUCT SIZES WHEN THE CROSS-SECTIONAL AREA IS MAINTAINED.
    E. THE INTERIOR OF ALL DUCTS AND PLENUMS SHALL BE SMOOTH AND FREE OF OBSTRUCTIONS, BURRS, AND SHARP EDGES.
    F. ALL RECTANGULAR ELBOWS SHALL HAVE DOUBLE THICKNESS TURNING VANES, INCLUDING DISCHARGE AND RETURN PLENUM BRANCHES.
    G. ALL CONCENTRIC TRANSITIONS SHALL HAVE A MAXIMUM TOTAL ANGLE OF 45° CONVERGING AND 30° DIVERGING FOR LARGEST DIMENSION.
    H. ALL SHEET METAL DUCT JOINTS SHALL BE SEALED WITH AN APPROVED DUCT SEALANT.
    I. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CAULKED AND SEALED AIR TIGHT USING A DRAW BAND. THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUNS SHALL BE 6'-0". FLEXIBLE DUCT SHALL NOT HAVE MORE THAN AN AGGREGATE TOTAL OF 90° CHANGE IN DIRECTION, WITH A BEND NOT LESS THAN 1.5 DUCT DIAMETER CENTERLINE RADIUS.
    J. ALL ROUND DUCT TAKE-OFFS SHALL HAVE SPIN-IN TYPE FITTINGS WITH BALANCING DAMPERS.
    K. ALL AIR DEVICES SHALL BE CONNECTED WITH 3 DUCT DIAMETERS OF STRAIGHT DUCT. IN AREAS WHERE SPACE IS LIMITED A SHEET METAL ELBOW SHALL BE CONNECTED TO AIR DEVICE.
14. ALL NEW SHEET METAL DUCT TO BE ASTM A526 PRIME GALVANIZED SHEET METAL (SHEET AND STRIP) OF THE PROPER GAGE.
15. ALL INSIDE DUCT WITH EXTERNAL DUCT INSULATION SHALL BE 0.75 PCF DENSITY, 2" THICK WITH FSK FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.29 BTUH-IN/SQ. FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT WRAP AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
16. OUTSIDE EXPOSED DUCT WITH INTERNALLY LINED DUCT INSULATION SHALL BE 1.5 PCF DENSITY, 2" THICK WITH MAT FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.25 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NPFA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT LINER EM AS MANUFACTURED BY KNAUF OR APPROVED EQUAL.
17. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 1" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.24 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
18. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 2" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.33 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
19. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SECONDARY DRAIN PAN WITH FLOAT SWITCH FOR ALL AIR CONDITIONING EQUIPMENT TO BE INSTALLED ABOVE A SUSPENDED CEILING. THE SECONDARY DRAIN PAN SHALL BE GALVANIZED STEEL WITH SOLDERED CORNERS AND 2" MINIMUM COLLECTION DEPTH. THE FLOAT SWITCH SHALL BE WIRED WITH AIR CONDITIONING EQUIPMENT TO DISABLE CONTINUED OPERATION.
20. THE EQUIPMENT AND MATERIALS SPECIFIED ON THE DRAWINGS ESTABLISH THE MINIMUM STANDARDS AND BASIS FOR THE BID. ALTERNATE MANUFACTURERS AND METHODS MUST BE APPROVED PRIOR TO SUBMISSION OF BID.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion
514 Telford Avenue | 520 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record
10/08/18 AS-BUILT SET
10/23/18 REVIEW SET
11/27/18 80% SET
04/19/19 BID SET

Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
NOTES AND LEGENDS

Sheet Number
514 TELFORD AVE
M1

GAS USAGE-TENANT

	EXISTING	NEW
FURNACE	60	60
WATER HEATER	50	40
TOTAL	110	100

NOTES:
1. GAS USAGE IS PER METER, ONE METER PER TENANT SPACE.

GAS USAGE-HOUSE

	EXISTING	NEW
FURNACE	25	25
WATER HEATER	40	40
TOTAL	65	65

NOTES:
1. GAS METER SERVES LAUNDRY EQUIPMENT SEPARATE FROM TENANT METERS.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL #	CFM	S.P. IN WATER	VOLTAGE	POWER (W)	SOUND (SONES)	NOTES
EF-1	BROAN	QTXE080FLT	50	0.25	120	23.3	0.3	2,3,4

NOTES:
1. PROVIDE WITH BROAN RADIATION DAMPER, MODEL #RDM1.
2. PROVIDE WITH BROAN PREMIUM RADIATION DAMPER, MODEL #RDFQL.
3. EXHAUST FAN WITH INTEGRAL LIGHT.
4. FURNISH WITH EXHAUST FAN TIMER SWITCH, EATON 9590AW OR EQUAL. TIMER SWITCH TO HAVE 10 MINUTE AND 1 HOUR SETTINGS AT MINIMUM. INSTALLATION BY ELECTRICAL CONTRACTOR.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	WASTE	VENT	HOT	COLD	DESCRIPTION
BA-1	TUB / SHOWER	3"	1-1/2"	1/2"	1/2"	EXISTING TUB AND SHOWER SURROUND TO REMAIN. PROVIDE MOEN COMMERCIAL SINGLE HANDLE POSI-TEMP FAUCET, MODEL #T8389EP15, WITH MOEN POSI-TEMP PRESSURE BALANCING VALVE, MODEL #8371HD. SET DISCHARGE TEMPERATURE TO 110°F MAX.
L-1	LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"	EXISTING LAVATORY TO REMAIN. PROVIDE PROFLO CHROME SINGLE HANDLE LAVATORY FAUCET WITH POP-UP DRAIN, MODEL #PFWSC4746SCP, 1.2 GPM, 4" CENTERSETS. PROVIDE WITH 0.5 GPM AERATOR INSERT, PART NUMBER PFX14320. PROVIDE CAST BRASS CHROME PLATED OPEN GRID PO PLUG, MODEL #155A. VERIFY FIT PRIOR TO ORDERING.
S-1	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	1/2"	EXISTING SINK TO BE REINSTALLED. PROVIDE WITH PROFLO CHROME SINGLE HANDLE KITCHEN FAUCET, MODEL #PFXC3101CP, 1.5 GPM FLOW RATE, AND METAL LEVER HANDLE. PROVIDE WITH DEARBORN BRASS 12 LOCKING CUP SINK BASKET STRAINERS. VERIFY FIT PRIOR TO ORDERING.
SP-1	SUMP PIT SYSTEM	-	-	-	-	'BASEMENT WATCHDOG' MODEL #DFK961, ½ HP COMBINATION UNIT WITH EMERGENCY BACKUP SUMP PUMP SYSTEM. 3,100 GPH @ 10 FT HEAD PRIMARY PUMP, 1,000 GPH @ 10 FT HEAD BACKUP PUMP. PROVIDE 'BASEMENT WATCHDOG' "MAINTENANCE FREE AGM BATTERY" MODEL #BW27AGM AND BATTERY BOX. PROVIDE 18" DIAMETER SUMP PUMP BASIN WITH LID. COORDINATE DEPTH WITH FIELD CONDITIONS.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	3"	1-1/2"	-	1/2"	AMERICAN STANDARD #2467.136 "CADET FLOWISE" TANK TYPE PRESSURE-ASSISTED TOILET, WHITE VITREOUS CHINA, FLOOR MOUNTED, 1.1 GAL. FLUSH, 16-1/2" HIGH BOWL RIM HEIGHT. PROVIDE WITH PROFLO SLOW CLOSE ELONGATED PLASTIC TOILET SEAT WITH EASY CLEAN, MODEL #PFTSEC2000.
WB-1	WASHING MACHINE BOX	2"	1-1/2"	1/2"	1/2"	WASHING MACHINE CONNECTION BOX WITH SINGLE LEVER VALVE AND HAMMER ARRESTERS. RIGHT HAND DRAIN OPTION. GUY GRAY MODEL #WB200HA OR EQUAL.
WH-2	WATER HEATER (GAS)	-	-	3/4"	3/4"	STATE PROLINE XE POWER DIRECT VENT, 40-GALLON COMMERCIAL-GRADE RESIDENTIAL GAS WATER HEATER, MODEL #GS6 40 YBPDS. 40,000 BTUH INPUT, 0.68 ENERGY FACTOR, 74 GALLON FIRST HOUR RATING, 45 GPH RECOVERY AT 90° RISE. 22" DIAMETER, 29-7/8" OVERALL DEPTH, 59" OVERALL HEIGHT. PROVIDE WITH DRAIN PAN AND NEW COMBUSTION AIR INTAKE PIPE. CONNECT TO EXISTING FLUE PIPE.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion

514 Telford Avenue | 520 Telford Avenue | 526 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record
10/08/18 AS-BUILT SET
10/23/18 REVIEW SET
11/27/18 80% SET
04/19/19 BID SET

Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
SCHEDULES

Sheet Number
514 TELFORD AVE
M4

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DOUBLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 12"Ø - ROUND DUCT
- VOLUME DAMPER
- BDD - BACK DRAFT DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- DUCT TRANSITION, ROUND OR FLAT OVAL TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR TO ROUND OR FLAT OVAL
- DUCT TRANSITION, RECTANGULAR, ROUND, OR FLAT OVAL
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- TAP-IN BRANCH, RECTANGULAR
- BRANCH DUCT, CONICAL LATERAL FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, CONICAL TEE FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, "Y" FITTING, ROUND OR FLAT OVAL
- SUPPLY DUCT SECTION, RECTANGULAR
- RETURN DUCT SECTION, RECTANGULAR
- EXHAUST DUCT SECTION, RECTANGULAR
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- SUPPLY AIR DEVICE (ARROWS INDICATE THROW DIRECTIONS, NO THROWS INDICATE 4-WAY THROW.
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE

PIPING LINETYPES

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- SS - SANITARY DRAIN PIPING
- SANITARY VENT PIPING
- G - GAS PIPING

MISCELLANEOUS SYMBOLS

- CONNECT TO EXISTING
- MISCELLANEOUS SYMBOLS

SINGLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 8"Ø - ROUND DUCT
- 36x18Ø - FLAT OVAL DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- FLEXIBLE ROUND DUCT
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- FSD - COMBINATION FIRE/SMOKE DAMPER
- SD - SMOKE DAMPER
- DUCT TRANSITION
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- DF - DIVIDED FLOW FITTING, RECTANGULAR
- RECTANGULAR TAP-IN BRANCH OR ROUND OR FLAT OVAL CONICAL TEE
- INCLINED CONICAL TAKE-OFF, ROUND OR FLAT OVAL
- "Y" FITTING, ROUND OR FLAT OVAL
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- END OF DUCT RUN
- T - THERMOSTAT

PIPING SYMBOLS

- VALVE
- CHECK VALVE
- DOUBLE BACKFLOW PREVENTER
- PLUG VALVE
- SAFETY OR PRESSURE RELIEF, ANGLE VALVE
- PRESSURE REGULATING VALVE
- LATERAL Y
- CAP
- ELBOW, 90°
- ELBOW, 90° TURNED UP
- ELBOW, 90° TURNED DOWN
- ELBOW, 45°
- TEE
- TEE, TURNED UP
- TEE, TURNED DOWN
- REDUCER
- UNION
- STRAINER
- M - METER
- R - REGULATOR
- C.O. - CLEANOUT
- F.D. - FLOOR DRAIN
- V.T.R. - VENT THROUGH ROOF

GENERAL NOTES:

1. FOR THE PURPOSE OF THIS PROJECT THE MECHANICAL SCOPE OF WORK AND PLUMBING SCOPE OF WORK HAVE BEEN CONSOLIDATED TO BE ON THE SAME SHEETS.

GENERAL PLUMBING NOTES:

1. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING SYSTEMS COMPLETE, UNLESS NOTED OTHERWISE. COMPLETE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PIPE AND FITTINGS, PIPE HANGERS AND ANCHORS, EQUIPMENT, FIXTURES, SPECIALTIES, ETC. THIS CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, LOCATIONS, RELATIVE DIMENSIONS, ETC. PIPING AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND REQUIREMENTS AND ADJUST ACCORDINGLY.
4. CONTRACTOR SHALL INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS.
5. THIS CONTRACTOR SHALL CONCEAL ALL PIPES WITHIN WALLS OR CHASES WHENEVER PRACTICAL.
6. THIS CONTRACTOR SHALL MAINTAIN DIMENSIONED "AS-BUILT" DRAWINGS FOR ALL UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE TO ENGINEER AT PROJECT COMPLETION.
7. CONTRACTOR SHALL INCLUDE ALL EXCAVATIONS AND BACK FILLING REQUIRED FOR UNDERGROUND PIPING. ALL BACK FILL SHALL BE FREE FROM ALL TRASH AND BUILDING MATERIALS. BACK FILL SHALL BE ENGINEERED FILL 95% COMPACTED IN 8" LAYERS.
8. ALL WORK SHALL CONFORM TO ASSOCIATED SPECIFICATIONS.
9. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
10. THIS CONTRACTOR SHALL PROVIDE AND INSTALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO ALL OBVIOUSLY NECESSARY LOCATIONS INCLUDING ALL VALVES, FITTINGS, HANGERS, BACKFLOW PREVENTERS, WATER HEATERS, ETC.
11. ALL WATER PIPING SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL PIPING SHALL BE SUPPORTED WITH 3/8" ALL THREAD AND CLEVIS HANGERS AND IN ACCORDANCE WITH SECTION 308 OF THE OBC - PLUMBING CODE, LATEST EDITION. UNLESS NOTED OTHERWISE.
    B. THIS CONTRACTOR SHALL INSULATE ALL NEW DOMESTIC HOT AND COLD WATER DISTRIBUTION INCLUDING FITTINGS.
    C. THIS CONTRACTOR SHALL PROVIDE AND INSTALL SERVICE VALVES ON ALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO EACH FIXTURE. ALL VALVES SHALL BE LOCATED IN CONVENIENT LOCATIONS.
    D. ALL HOSE BIBBS SHALL BE MOUNTED AT 24" ABOVE GRADE, UNLESS NOTED OTHERWISE.
    E. THE CONTRACTOR SHALL PROVIDE APPROPRIATE AIR CHAMBERS AT ALL EQUIPMENT WITH QUICK CLOSING VALVES.
    F. ALL DOMESTIC WATER PIPING SHALL BE POLYETHYLENE OR APPROVED EQUAL.
    G. ALL DOMESTIC WATER PIPE INSULATION SHALL BE 1" THICK WITH ALL SERVICE JACKET. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.28 BTUH-IN/SQ.FT.-°F AT 100°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. PIPE INSULATION SHALL BE AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
12. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SANITARY SEWER/ TRADE WASTE TO ALL NECESSARY LOCATIONS INCLUDING FLOOR DRAINS, CLEANOUTS, TRAPS, VENTS, ETC.
13. ALL SANITARY SEWER/ TRADE WASTE SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL SANITARY SEWER/ TRADE WASTE PIPE SHALL BE INSTALLED WITH ¼" PER FOOT MINIMUM SLOPE FOR LINES 2½" DIAMETER OR LESS, AND ⅛" PER FOOT MINIMUM SLOPE FOR LINES 3" OR GREATER, UNLESS NOTED OTHERWISE.
    B. ALL EXPOSED TRAPS AND TRIM SHALL BE BRIGHT CHROME, UNLESS OTHERWISE NOTED. ALL PLUMBING FIXTURES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
    C. VENTS SHALL BE LOOPED ABOVE CEILING AND/OR WITHIN ATTIC TO MINIMIZE ROOF PENETRATIONS.
    D. PVC NOT ACCEPTABLE FOR VENT PIPING IN CEILING PLENUM SPACES.
    E. PVC PIPE IS ACCEPTABLE FOR WASTE AND VENT PIPING. COORDINATE PIPE MATERIALS AND CEILING PLENUMS.
    F. THIS CONTRACTOR SHALL REFERENCE ARCHITECTURAL SHEETS FOR PLUMBING FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.
    G. ALL SANITARY FLOOR DRAINS SHALL HAVE TRAP PRIMER CONNECTIONS, UNLESS OTHERWISE NOTED.
14. CONDENSATE DRAINS THAT SERVE HVAC EQUIPMENT SHALL BE SCHEDULE 40 PVC PIPING. CONDENSATE DRAINS SERVING STEAM EQUIPMENT SHALL BE STEEL.
15. ALL PIPING SHALL BE CONSTRUCTED AND INSTALLED AS DESCRIBED BELOW.
    A. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH MINIMUM 4" CLEARANCE BETWEEN FINISHED COVERING OF PARALLEL, ADJACENT PIPES, OTHER WORK, ETC. UNLESS NOTED OTHERWISE.
    B. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH APPROPRIATE CLEARANCE FOR PASSAGES, HEADROOM, OPERATION OF DOORS OR WINDOWS, EQUIPMENT, LIGHTING OUTLETS, OR OWNER'S APPARATUS AND EQUIPMENT.
    C. INSTALL PIPING, VALVES, FITTINGS, ETC. ROUTED OVER MEANS OF EGRESS A MINIMUM OF 7'-6" CLEARANCE ABOVE FINISHED FLOOR.
    D. OFFSET PIPING AROUND COLUMNS, BEAMS, AND OTHER OBSTRUCTIONS AS REQUIRED.
    E. PIPING SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    F. GROOVED MECHANICAL COUPLINGS AND FASTENERS SHALL ONLY BE USED IN ACCESSIBLE LOCATIONS.
    G. INSULATE ALL CONNECTIONS BETWEEN PIPE, FITTINGS, AND HANGERS OF DISSIMILAR METAL AGAINST DIRECT CONTACT WITH DIELECTRIC INSULATING MATERIAL. PIPE CONNECTIONS SHALL BE WITH A DIELECTRIC FLANGE OR UNION.
    H. ALL RISERS SHALL HAVE A BALL VALVE FOR MANUAL VENTING AT HIGH POINTS IN THE SYSTEM.
    I. PIPE IDENTIFICATION SHALL COMPLY WITH ASME STANDARD A13.1 'SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS' UNLESS NOTED OTHERWISE. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    J. PIPE MARKERS SHALL BE A PREFORMED ONE PIECE UV RESISTANT VINYL WITH EMBOSSED LETTERS AND FLOW ARROWS. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    K. VALVES SHALL BE IDENTIFIED WITH 'SIZE, TYPE, AND DESCRIPTION OF OPERATION'.
    L. PIPE HANGERS AND SUPPORTS
        a. USE ADJUSTABLE CLEVIS HANGERS, FOR INDIVIDUAL, STRAIGHT HORIZONTAL RUNS.
        b. USE RISER CLAMPS FOR VERTICAL PIPE RUNS.
        c. USE PIPE ROLLERS AND GUIDES TO SUPPORT STEAM SUPPLY AND STEAM CONDENSATE LINES.

GENERAL MECHANICAL NOTES:

1. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL PROVIDE AND INSTALL THE HVAC SYSTEMS AND EXHAUST SYSTEMS COMPLETE. THE INSTALLATION SHALL INCLUDE, BUT NOT LIMITED TO, ALL DUCTWORK AND FITTINGS, EQUIPMENT, DIFFUSERS, SMOKE DETECTORS, THERMOSTATS AND 24 VAC WIRING, ROOF AND/OR WALL PENETRATIONS, TESTING AND BALANCING, ETC. CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES.
3. IT IS INTENDED THAT WORK COVERED BY SPECIFICATIONS AND DRAWINGS INCLUDES EVERYTHING REQUISITE AND NECESSARY TO MAKE VARIOUS SYSTEMS COMPLETE AND OPERATIVE, IRRESPECTIVE OF WHETHER OR NOT EVERY ITEM IS SPECIFICALLY NOTED. OMISSION OF DIRECT REFERENCE TO ANY ESSENTIAL ITEM SHALL NOT EXCUSE CONTRACTOR FROM COMPLYING WITH ABOVE INTENT.
4. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION.
5. IN GENERAL, THE DRAWINGS SHOW THE DESIRED DUCT ROUTING LOCATION PLUS FITTINGS AND CONNECTIONS. THE DUCT AND ASSOCIATED EQUIPMENT CAN BE LOWERED OR RAISED AS NECESSARY TO ACCOMMODATE MINOR FIELD CONDITIONS. THE CONTRACTOR SHALL NOTE ALL CHANGES ON DRAWINGS AND RETURN MARKED UP DRAWINGS TO THE OWNER.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN STRICT ACCORDANCE WITH SAFETY REQUIREMENTS IMPOSED BY THE OWNER AND OSHA.
8. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, REMOVE ALL DEBRIS FROM THE OWNER'S PROPERTY, AND DISPOSE OF SAME ACCORDING TO LOCAL REGULATIONS.
9. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS. CHANGES SHALL NOT BE MADE WITHOUT APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE FINAL HOOK-UP, PURGE AND LIGHTING OF ALL NATURAL GAS EQUIPMENT IF APPLICABLE.
12. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED MEETING THE REQUIREMENTS OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, LATEST EDITION, AND AS DESCRIBED BELOW.
13. ALL DUCT SHALL BE SHEET METAL AND INSTALLED IN STRICT ACCORDANCE WITH SMACNA STANDARDS, LATEST EDITION.
    A. HANGERS SHALL BE PROVIDED A MAXIMUM OF EVERY 8'-0", AT ROOF PENETRATIONS AND AT ALL ELBOWS. ALL DUCT SHALL BE SELF-SUPPORTING AND NOT REQUIRE CONNECTING EQUIPMENT FOR SUPPORT.
    B. ALIGN, ADJUST, AND LEVEL ALL DUCT FOR SATISFACTORY OPERATION. IF A SLOPE IS SPECIFIED, ALIGN AND ADJUST TO MEET STATED REQUIREMENTS.
    C. REINFORCE ALL DUCTS TO PREVENT BREATHING, VIBRATING, BUCKLING, OR UNNECESSARY NOISE AS REQUIRED TO SATISFY PROJECT REQUIREMENTS.
    D. ALL DUCT AND PLENUM SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. IT IS ACCEPTABLE TO CHANGE DUCT SIZES WHEN THE CROSS-SECTIONAL AREA IS MAINTAINED.
    E. THE INTERIOR OF ALL DUCTS AND PLENUMS SHALL BE SMOOTH AND FREE OF OBSTRUCTIONS, BURRS, AND SHARP EDGES.
    F. ALL RECTANGULAR ELBOWS SHALL HAVE DOUBLE THICKNESS TURNING VANES, INCLUDING DISCHARGE AND RETURN PLENUM BRANCHES.
    G. ALL CONCENTRIC TRANSITIONS SHALL HAVE A MAXIMUM TOTAL ANGLE OF 45° CONVERGING AND 30° DIVERGING FOR LARGEST DIMENSION.
    H. ALL SHEET METAL DUCT JOINTS SHALL BE SEALED WITH AN APPROVED DUCT SEALANT.
    I. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CAULKED AND SEALED AIR TIGHT USING A DRAW BAND. THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUNS SHALL BE 6'-0". FLEXIBLE DUCT SHALL NOT HAVE MORE THAN AN AGGREGATE TOTAL OF 90° CHANGE IN DIRECTION, WITH A BEND NOT LESS THAN 1.5 DUCT DIAMETER CENTERLINE RADIUS.
    J. ALL ROUND DUCT TAKE-OFFS SHALL HAVE SPIN-IN TYPE FITTINGS WITH BALANCING DAMPERS.
    K. ALL AIR DEVICES SHALL BE CONNECTED WITH 3 DUCT DIAMETERS OF STRAIGHT DUCT. IN AREAS WHERE SPACE IS LIMITED A SHEET METAL ELBOW SHALL BE CONNECTED TO AIR DEVICE.
14. ALL NEW SHEET METAL DUCT TO BE ASTM A526 PRIME GALVANIZED SHEET METAL (SHEET AND STRIP) OF THE PROPER GAGE.
15. ALL INSIDE DUCT WITH EXTERNAL DUCT INSULATION SHALL BE 0.75 PCF DENSITY, 2" THICK WITH FSK FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.29 BTUH-IN/SQ. FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT WRAP AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
16. OUTSIDE EXPOSED DUCT WITH INTERNALLY LINED DUCT INSULATION SHALL BE 1.5 PCF DENSITY, 2" THICK WITH MAT FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.25 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NPFA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT LINER EM AS MANUFACTURED BY KNAUF OR APPROVED EQUAL.
17. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 1" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.24 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
18. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 2" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.33 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
19. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SECONDARY DRAIN PAN WITH FLOAT SWITCH FOR ALL AIR CONDITIONING EQUIPMENT TO BE INSTALLED ABOVE A SUSPENDED CEILING. THE SECONDARY DRAIN PAN SHALL BE GALVANIZED STEEL WITH SOLDERED CORNERS AND 2" MINIMUM COLLECTION DEPTH. THE FLOAT SWITCH SHALL BE WIRED WITH AIR CONDITIONING EQUIPMENT TO DISABLE CONTINUED OPERATION.
20. THE EQUIPMENT AND MATERIALS SPECIFIED ON THE DRAWINGS ESTABLISH THE MINIMUM STANDARDS AND BASIS FOR THE BID. ALTERNATE MANUFACTURERS AND METHODS MUST BE APPROVED PRIOR TO SUBMISSION OF BID.

TRI-TECH
Built On Integrity
ENGINEERING AND PROJECT MANAGEMENT

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion
514 Telford Avenue | 520 Telford Avenue
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Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record
10/08/18 AS-BUILT SET
10/23/18 REVIEW SET
11/27/18 80% SET
04/19/19 BID SET

Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
NOTES AND LEGENDS

Sheet Number
520 TELFORD AVE
M1

GAS USAGE-TENANT

	EXISTING	NEW
FURNACE	60	60
WATER HEATER	50	40
TOTAL	110	100

NOTES:
1. GAS USAGE IS PER METER, ONE METER PER TENANT SPACE.

GAS USAGE-HOUSE

	EXISTING	NEW
FURNACE	25	25
WATER HEATER	40	40
TOTAL	65	65

NOTES:
1. GAS METER SERVES LAUNDRY EQUIPMENT SEPARATE FROM TENANT METERS.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL #	CFM	S.P. IN WATER	VOLTAGE	POWER (W)	SOUND (SONES)	NOTES
EF-1	BROAN	QTXE080FLT	50	0.25	120	23.3	0.3	2,3,4

NOTES:
1. PROVIDE WITH BROAN RADIATION DAMPER, MODEL #RDM1.
2. PROVIDE WITH BROAN PREMIUM RADIATION DAMPER, MODEL #RDFQL.
3. EXHAUST FAN WITH INTEGRAL LIGHT.
4. FURNISH WITH EXHAUST FAN TIMER SWITCH, EATON 9590AW OR EQUAL. TIMER SWITCH TO HAVE 10 MINUTE AND 1 HOUR SETTINGS AT MINIMUM. INSTALLATION BY ELECTRICAL CONTRACTOR.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	WASTE	VENT	HOT	COLD	DESCRIPTION
BA-1	TUB / SHOWER	3"	1-1/2"	1/2"	1/2"	EXISTING TUB AND SHOWER SURROUND TO REMAIN. PROVIDE MOEN COMMERCIAL SINGLE HANDLE POSI-TEMP FAUCET, MODEL #T8389EP15, WITH MOEN POSI-TEMP PRESSURE BALANCING VALVE, MODEL #8371HD. SET DISCHARGE TEMPERATURE TO 110°F MAX.
L-1	LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"	EXISTING LAVATORY TO REMAIN. PROVIDE PROFLO CHROME SINGLE HANDLE LAVATORY FAUCET WITH POP-UP DRAIN, MODEL #PFWSC4746SCP, 1.2 GPM, 4" CENTERSETS. PROVIDE WITH 0.5 GPM AERATOR INSERT, PART NUMBER PFX14320. PROVIDE CAST BRASS CHROME PLATED OPEN GRID PO PLUG, MODEL #155A. VERIFY FIT PRIOR TO ORDERING.
S-1	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	1/2"	EXISTING SINK TO BE REINSTALLED. PROVIDE WITH PROFLO CHROME SINGLE HANDLE KITCHEN FAUCET, MODEL #PFXC3101CP, 1.5 GPM FLOW RATE, AND METAL LEVER HANDLE. PROVIDE WITH DEARBORN BRASS 12 LOCKING CUP SINK BASKET STRAINERS. VERIFY FIT PRIOR TO ORDERING.
SP-1	SUMP PIT SYSTEM	-	-	-	-	'BASEMENT WATCHDOG' MODEL #DFK961, ½ HP COMBINATION UNIT WITH EMERGENCY BACKUP SUMP PUMP SYSTEM. 3,100 GPH @ 10 FT HEAD PRIMARY PUMP, 1,000 GPH @ 10 FT HEAD BACKUP PUMP. PROVIDE 'BASEMENT WATCHDOG' "MAINTENANCE FREE AGM BATTERY" MODEL #BW27AGM AND BATTERY BOX. PROVIDE 18" DIAMETER SUMP PUMP BASIN WITH LID. COORDINATE DEPTH WITH FIELD CONDITIONS.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	3"	1-1/2"	-	1/2"	AMERICAN STANDARD #2467.136 "CADET FLOWISE" TANK TYPE PRESSURE-ASSISTED TOILET, WHITE VITREOUS CHINA, FLOOR MOUNTED, 1.1 GAL. FLUSH, 16-1/2" HIGH BOWL RIM HEIGHT. PROVIDE WITH PROFLO SLOW CLOSE ELONGATED PLASTIC TOILET SEAT WITH EASY CLEAN, MODEL #PFTSEC2000.
WB-1	WASHING MACHINE BOX	2"	1-1/2"	1/2"	1/2"	WASHING MACHINE CONNECTION BOX WITH SINGLE LEVER VALVE AND HAMMER ARRESTERS. RIGHT HAND DRAIN OPTION. GUY GRAY MODEL #WB200HA OR EQUAL.
WH-2	WATER HEATER (GAS)	-	-	3/4"	3/4"	STATE PROLINE XE POWER DIRECT VENT, 40-GALLON COMMERCIAL-GRADE RESIDENTIAL GAS WATER HEATER, MODEL #GS6 40 YBPDS. 40,000 BTUH INPUT, 0.68 ENERGY FACTOR, 74 GALLON FIRST HOUR RATING, 45 GPH RECOVERY AT 90° RISE. 22" DIAMETER, 29-7/8" OVERALL DEPTH, 59" OVERALL HEIGHT. PROVIDE WITH DRAIN PAN AND NEW COMBUSTION AIR INTAKE PIPE. CONNECT TO EXISTING FLUE PIPE.

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Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
SCHEDULES

Sheet Number
520 TELFORD AVE
M4

DOUBLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 12"Ø - ROUND DUCT
- VOLUME DAMPER
- BDD - BACK DRAFT DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- DUCT TRANSITION, ROUND OR FLAT OVAL TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR TO ROUND OR FLAT OVAL
- DUCT TRANSITION, RECTANGULAR, ROUND, OR FLAT OVAL
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- TAP-IN BRANCH, RECTANGULAR
- BRANCH DUCT, CONICAL LATERAL FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, CONICAL TEE FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, "Y" FITTING, ROUND OR FLAT OVAL
- SUPPLY DUCT SECTION, RECTANGULAR
- RETURN DUCT SECTION, RECTANGULAR
- EXHAUST DUCT SECTION, RECTANGULAR
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- SUPPLY AIR DEVICE (ARROWS INDICATE THROW DIRECTIONS, NO THROWS INDICATE 4-WAY THROW.
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE

PIPING LINETYPES

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- SS - SANITARY DRAIN PIPING
- SANITARY VENT PIPING
- G - GAS PIPING

MISCELLANEOUS SYMBOLS

- CONNECT TO EXISTING
- MISCELLANEOUS SYMBOLS

SINGLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 8"Ø - ROUND DUCT
- 36x18Ø - FLAT OVAL DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- FLEXIBLE ROUND DUCT
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- FSD - COMBINATION FIRE/SMOKE DAMPER
- SD - SMOKE DAMPER
- DUCT TRANSITION
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- DF - DIVIDED FLOW FITTING, RECTANGULAR
- RECTANGULAR TAP-IN BRANCH OR ROUND OR FLAT OVAL CONICAL TEE
- INCLINED CONICAL TAKE-OFF, ROUND OR FLAT OVAL
- "Y" FITTING, ROUND OR FLAT OVAL
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- END OF DUCT RUN
- T - THERMOSTAT

PIPING SYMBOLS

- VALVE
- CHECK VALVE
- DOUBLE BACKFLOW PREVENTER
- PLUG VALVE
- SAFETY OR PRESSURE RELIEF, ANGLE VALVE
- PRESSURE REGULATING VALVE
- LATERAL Y
- CAP
- ELBOW, 90°
- ELBOW, 90° TURNED UP
- ELBOW, 90° TURNED DOWN
- ELBOW, 45°
- TEE
- TEE, TURNED UP
- TEE, TURNED DOWN
- REDUCER
- UNION
- STRAINER
- M - METER
- R - REGULATOR
- C.O. - CLEANOUT
- F.D. - FLOOR DRAIN
- V.T.R. - VENT THROUGH ROOF

GENERAL NOTES:

1. FOR THE PURPOSE OF THIS PROJECT THE MECHANICAL SCOPE OF WORK AND PLUMBING SCOPE OF WORK HAVE BEEN CONSOLIDATED TO BE ON THE SAME SHEETS.

GENERAL PLUMBING NOTES:

1. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING SYSTEMS COMPLETE, UNLESS NOTED OTHERWISE. COMPLETE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PIPE AND FITTINGS, PIPE HANGERS AND ANCHORS, EQUIPMENT, FIXTURES, SPECIALTIES, ETC. THIS CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, LOCATIONS, RELATIVE DIMENSIONS, ETC. PIPING AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND REQUIREMENTS AND ADJUST ACCORDINGLY.
4. CONTRACTOR SHALL INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS.
5. THIS CONTRACTOR SHALL CONCEAL ALL PIPES WITHIN WALLS OR CHASES WHENEVER PRACTICAL.
6. THIS CONTRACTOR SHALL MAINTAIN DIMENSIONED "AS-BUILT" DRAWINGS FOR ALL UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE TO ENGINEER AT PROJECT COMPLETION.
7. CONTRACTOR SHALL INCLUDE ALL EXCAVATIONS AND BACK FILLING REQUIRED FOR UNDERGROUND PIPING. ALL BACK FILL SHALL BE FREE FROM ALL TRASH AND BUILDING MATERIALS. BACK FILL SHALL BE ENGINEERED FILL 95% COMPACTED IN 8" LAYERS.
8. ALL WORK SHALL CONFORM TO ASSOCIATED SPECIFICATIONS.
9. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
10. THIS CONTRACTOR SHALL PROVIDE AND INSTALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO ALL OBVIOUSLY NECESSARY LOCATIONS INCLUDING ALL VALVES, FITTINGS, HANGERS, BACKFLOW PREVENTERS, WATER HEATERS, ETC.
11. ALL WATER PIPING SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL PIPING SHALL BE SUPPORTED WITH 3/8" ALL THREAD AND CLEVIS HANGERS AND IN ACCORDANCE WITH SECTION 308 OF THE OBC - PLUMBING CODE, LATEST EDITION. UNLESS NOTED OTHERWISE.
    B. THIS CONTRACTOR SHALL INSULATE ALL NEW DOMESTIC HOT AND COLD WATER DISTRIBUTION INCLUDING FITTINGS.
    C. THIS CONTRACTOR SHALL PROVIDE AND INSTALL SERVICE VALVES ON ALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO EACH FIXTURE. ALL VALVES SHALL BE LOCATED IN CONVENIENT LOCATIONS.
    D. ALL HOSE BIBBS SHALL BE MOUNTED AT 24" ABOVE GRADE, UNLESS NOTED OTHERWISE.
    E. THE CONTRACTOR SHALL PROVIDE APPROPRIATE AIR CHAMBERS AT ALL EQUIPMENT WITH QUICK CLOSING VALVES.
    F. ALL DOMESTIC WATER PIPING SHALL BE POLYETHYLENE OR APPROVED EQUAL.
    G. ALL DOMESTIC WATER PIPE INSULATION SHALL BE 1" THICK WITH ALL SERVICE JACKET. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.28 BTUH-IN/SQ.FT.-°F AT 100°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. PIPE INSULATION SHALL BE AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
12. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SANITARY SEWER/ TRADE WASTE TO ALL NECESSARY LOCATIONS INCLUDING FLOOR DRAINS, CLEANOUTS, TRAPS, VENTS, ETC.
13. ALL SANITARY SEWER/ TRADE WASTE SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL SANITARY SEWER/ TRADE WASTE PIPE SHALL BE INSTALLED WITH ¼" PER FOOT MINIMUM SLOPE FOR LINES 2½" DIAMETER OR LESS. AND ⅛" PER FOOT MINIMUM SLOPE FOR LINES 3" OR GREATER, UNLESS NOTED OTHERWISE.
    B. ALL EXPOSED TRAPS AND TRIM SHALL BE BRIGHT CHROME, UNLESS OTHERWISE NOTED. ALL PLUMBING FIXTURES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
    C. VENTS SHALL BE LOOPED ABOVE CEILING AND/OR WITHIN ATTIC TO MINIMIZE ROOF PENETRATIONS.
    D. PVC NOT ACCEPTABLE FOR VENT PIPING IN CEILING PLENUM SPACES.
    E. PVC PIPE IS ACCEPTABLE FOR WASTE AND VENT PIPING. COORDINATE PIPE MATERIALS AND CEILING PLENUMS.
    F. THIS CONTRACTOR SHALL REFERENCE ARCHITECTURAL SHEETS FOR PLUMBING FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.
    G. ALL SANITARY FLOOR DRAINS SHALL HAVE TRAP PRIMER CONNECTIONS, UNLESS OTHERWISE NOTED.
14. CONDENSATE DRAINS THAT SERVE HVAC EQUIPMENT SHALL BE SCHEDULE 40 PVC PIPING. CONDENSATE DRAINS SERVING STEAM EQUIPMENT SHALL BE STEEL.
15. ALL PIPING SHALL BE CONSTRUCTED AND INSTALLED AS DESCRIBED BELOW.
    A. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH MINIMUM 4" CLEARANCE BETWEEN FINISHED COVERING OF PARALLEL, ADJACENT PIPES, OTHER WORK, ETC. UNLESS NOTED OTHERWISE.
    B. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH APPROPRIATE CLEARANCE FOR PASSAGES, HEADROOM, OPERATION OF DOORS OR WINDOWS, EQUIPMENT, LIGHTING OUTLETS, OR OWNER'S APPARATUS AND EQUIPMENT.
    C. INSTALL PIPING, VALVES, FITTINGS, ETC. ROUTED OVER MEANS OF EGRESS A MINIMUM OF 7'-6" CLEARANCE ABOVE FINISHED FLOOR.
    D. OFFSET PIPING AROUND COLUMNS, BEAMS, AND OTHER OBSTRUCTIONS AS REQUIRED.
    E. PIPING SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    F. GROOVED MECHANICAL COUPLINGS AND FASTENERS SHALL ONLY BE USED IN ACCESSIBLE LOCATIONS.
    G. INSULATE ALL CONNECTIONS BETWEEN PIPE, FITTINGS, AND HANGERS OF DISSIMILAR METAL AGAINST DIRECT CONTACT WITH DIELECTRIC INSULATING MATERIAL. PIPE CONNECTIONS SHALL BE WITH A DIELECTRIC FLANGE OR UNION.
    H. ALL RISERS SHALL HAVE A BALL VALVE FOR MANUAL VENTING AT HIGH POINTS IN THE SYSTEM.
    I. PIPE IDENTIFICATION SHALL COMPLY WITH ASME STANDARD A13.1 'SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS' UNLESS NOTED OTHERWISE. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    J. PIPE MARKERS SHALL BE A PREFORMED ONE PIECE UV RESISTANT VINYL WITH EMBOSSED LETTERS AND FLOW ARROWS. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    K. VALVES SHALL BE IDENTIFIED WITH 'SIZE, TYPE, AND DESCRIPTION OF OPERATION'.
    L. PIPE HANGERS AND SUPPORTS
        a. USE ADJUSTABLE CLEVIS HANGERS, FOR INDIVIDUAL, STRAIGHT HORIZONTAL RUNS.
        b. USE RISER CLAMPS FOR VERTICAL PIPE RUNS.
        c. USE PIPE ROLLERS AND GUIDES TO SUPPORT STEAM SUPPLY AND STEAM CONDENSATE LINES.

GENERAL MECHANICAL NOTES:

1. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL PROVIDE AND INSTALL THE HVAC SYSTEMS AND EXHAUST SYSTEMS COMPLETE. THE INSTALLATION SHALL INCLUDE, BUT NOT LIMITED TO, ALL DUCTWORK AND FITTINGS, EQUIPMENT, DIFFUSERS, SMOKE DETECTORS, THERMOSTATS AND 24 VAC WIRING, ROOF AND/OR WALL PENETRATIONS, TESTING AND BALANCING, ETC. CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES.
3. IT IS INTENDED THAT WORK COVERED BY SPECIFICATIONS AND DRAWINGS INCLUDES EVERYTHING REQUISITE AND NECESSARY TO MAKE VARIOUS SYSTEMS COMPLETE AND OPERATIVE, IRRESPECTIVE OF WHETHER OR NOT EVERY ITEM IS SPECIFICALLY NOTED. OMISSION OF DIRECT REFERENCE TO ANY ESSENTIAL ITEM SHALL NOT EXCUSE CONTRACTOR FROM COMPLYING WITH ABOVE INTENT.
4. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION.
5. IN GENERAL, THE DRAWINGS SHOW THE DESIRED DUCT ROUTING LOCATION PLUS FITTINGS AND CONNECTIONS. THE DUCT AND ASSOCIATED EQUIPMENT CAN BE LOWERED OR RAISED AS NECESSARY TO ACCOMMODATE MINOR FIELD CONDITIONS. THE CONTRACTOR SHALL NOTE ALL CHANGES ON DRAWINGS AND RETURN MARKED UP DRAWINGS TO THE OWNER.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN STRICT ACCORDANCE WITH SAFETY REQUIREMENTS IMPOSED BY THE OWNER AND OSHA.
8. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, REMOVE ALL DEBRIS FROM THE OWNER'S PROPERTY, AND DISPOSE OF SAME ACCORDING TO LOCAL REGULATIONS.
9. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS. CHANGES SHALL NOT BE MADE WITHOUT APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE FINAL HOOK-UP, PURGE AND LIGHTING OF ALL NATURAL GAS EQUIPMENT IF APPLICABLE.
12. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED MEETING THE REQUIREMENTS OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, LATEST EDITION, AND AS DESCRIBED BELOW.
13. ALL DUCT SHALL BE SHEET METAL AND INSTALLED IN STRICT ACCORDANCE WITH SMACNA STANDARDS, LATEST EDITION.
    A. HANGERS SHALL BE PROVIDED A MAXIMUM OF EVERY 8'-0", AT ROOF PENETRATIONS AND AT ALL ELBOWS. ALL DUCT SHALL BE SELF-SUPPORTING AND NOT REQUIRE CONNECTING EQUIPMENT FOR SUPPORT.
    B. ALIGN, ADJUST, AND LEVEL ALL DUCT FOR SATISFACTORY OPERATION. IF A SLOPE IS SPECIFIED, ALIGN AND ADJUST TO MEET STATED REQUIREMENTS.
    C. REINFORCE ALL DUCTS TO PREVENT BREATHING, VIBRATING, BUCKLING, OR UNNECESSARY NOISE AS REQUIRED TO SATISFY PROJECT REQUIREMENTS.
    D. ALL DUCT AND PLENUM SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. IT IS ACCEPTABLE TO CHANGE DUCT SIZES WHEN THE CROSS-SECTIONAL AREA IS MAINTAINED.
    E. THE INTERIOR OF ALL DUCTS AND PLENUMS SHALL BE SMOOTH AND FREE OF OBSTRUCTIONS, BURRS, AND SHARP EDGES.
    F. ALL RECTANGULAR ELBOWS SHALL HAVE DOUBLE THICKNESS TURNING VANES, INCLUDING DISCHARGE AND RETURN PLENUM BRANCHES.
    G. ALL CONCENTRIC TRANSITIONS SHALL HAVE A MAXIMUM TOTAL ANGLE OF 45° CONVERGING AND 30° DIVERGING FOR LARGEST DIMENSION.
    H. ALL SHEET METAL DUCT JOINTS SHALL BE SEALED WITH AN APPROVED DUCT SEALANT.
    I. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CAULKED AND SEALED AIR TIGHT USING A DRAW BAND. THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUNS SHALL BE 6'-0". FLEXIBLE DUCT SHALL NOT HAVE MORE THAN AN AGGREGATE TOTAL OF 90° CHANGE IN DIRECTION, WITH A BEND NOT LESS THAN 1.5 DUCT DIAMETER CENTERLINE RADIUS.
    J. ALL ROUND DUCT TAKE-OFFS SHALL HAVE SPIN-IN TYPE FITTINGS WITH BALANCING DAMPERS.
    K. ALL AIR DEVICES SHALL BE CONNECTED WITH 3 DUCT DIAMETERS OF STRAIGHT DUCT. IN AREAS WHERE SPACE IS LIMITED A SHEET METAL ELBOW SHALL BE CONNECTED TO AIR DEVICE.
14. ALL NEW SHEET METAL DUCT TO BE ASTM A526 PRIME GALVANIZED SHEET METAL (SHEET AND STRIP) OF THE PROPER GAGE.
15. ALL INSIDE DUCT WITH EXTERNAL DUCT INSULATION SHALL BE 0.75 PCF DENSITY, 2" THICK WITH FSK FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.29 BTUH-IN/SQ. FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT WRAP AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
16. OUTSIDE EXPOSED DUCT WITH INTERNALLY LINED DUCT INSULATION SHALL BE 1.5 PCF DENSITY, 2" THICK WITH MAT FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.25 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NPFA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT LINER EM AS MANUFACTURED BY KNAUF OR APPROVED EQUAL.
17. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 1" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.24 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
18. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 2" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.33 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
19. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SECONDARY DRAIN PAN WITH FLOAT SWITCH FOR ALL AIR CONDITIONING EQUIPMENT TO BE INSTALLED ABOVE A SUSPENDED CEILING. THE SECONDARY DRAIN PAN SHALL BE GALVANIZED STEEL WITH SOLDERED CORNERS AND 2" MINIMUM COLLECTION DEPTH. THE FLOAT SWITCH SHALL BE WIRED WITH AIR CONDITIONING EQUIPMENT TO DISABLE CONTINUED OPERATION.
20. THE EQUIPMENT AND MATERIALS SPECIFIED ON THE DRAWINGS ESTABLISH THE MINIMUM STANDARDS AND BASIS FOR THE BID. ALTERNATE MANUFACTURERS AND METHODS MUST BE APPROVED PRIOR TO SUBMISSION OF BID.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion

514 Telford Avenue | 520 Telford Avenue | 526 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project #: 18-0218
Greater Dayton Premier Management

Print Record

10/08/18	AS-BUILT SET
10/23/18	REVIEW SET
11/27/18	80% SET
04/19/19	BID SET

Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
NOTES AND LEGENDS

Sheet Number
526 TELFORD AVE
M1

GAS USAGE-TENANT

	EXISTING	NEW
FURNACE	60	60
WATER HEATER	50	40
TOTAL	110	100

NOTES:
1. GAS USAGE IS PER METER, ONE METER PER TENANT SPACE.

GAS USAGE-HOUSE

	EXISTING	NEW
FURNACE	25	25
WATER HEATER	40	40
TOTAL	65	65

NOTES:
1. GAS METER SERVES LAUNDRY EQUIPMENT SEPARATE FROM TENANT METERS.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL #	CFM	S.P. IN WATER	VOLTAGE	POWER (W)	SOUND (SONES)	NOTES
EF-1	BROAN	QTXE080FLT	50	0.25	120	23.3	0.3	2,3,4

NOTES:
1. PROVIDE WITH BROAN RADIATION DAMPER, MODEL #RDM1.
2. PROVIDE WITH BROAN PREMIUM RADIATION DAMPER, MODEL #RDFQL.
3. EXHAUST FAN WITH INTEGRAL LIGHT.
4. FURNISH WITH EXHAUST FAN TIMER SWITCH, EATON 9590AW OR EQUAL. TIMER SWITCH TO HAVE 10 MINUTE AND 1 HOUR SETTINGS AT MINIMUM. INSTALLATION BY ELECTRICAL CONTRACTOR.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	WASTE	VENT	HOT	COLD	DESCRIPTION
BA-1	TUB / SHOWER	3"	1-1/2"	1/2"	1/2"	EXISTING TUB AND SHOWER SURROUND TO REMAIN. PROVIDE MOEN COMMERCIAL SINGLE HANDLE POSI-TEMP FAUCET, MODEL #T8389EP15, WITH MOEN POSI-TEMP PRESSURE BALANCING VALVE, MODEL #8371HD. SET DISCHARGE TEMPERATURE TO 110°F MAX.
L-1	LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"	EXISTING LAVATORY TO REMAIN. PROVIDE PROFLO CHROME SINGLE HANDLE LAVATORY FAUCET WITH POP-UP DRAIN, MODEL #PFWSC4746SCP, 1.2 GPM, 4" CENTERSETS. PROVIDE WITH 0.5 GPM AERATOR INSERT, PART NUMBER PFX14320. PROVIDE CAST BRASS CHROME PLATED OPEN GRID PO PLUG, MODEL #155A. VERIFY FIT PRIOR TO ORDERING.
S-1	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	1/2"	EXISTING SINK TO BE REINSTALLED. PROVIDE WITH PROFLO CHROME SINGLE HANDLE KITCHEN FAUCET, MODEL #PFXC3101CP, 1.5 GPM FLOW RATE, AND METAL LEVER HANDLE. PROVIDE WITH DEARBORN BRASS 12 LOCKING CUP SINK BASKET STRAINERS. VERIFY FIT PRIOR TO ORDERING.
SP-1	SUMP PIT SYSTEM	-	-	-	-	'BASEMENT WATCHDOG' MODEL #DFK961, ½ HP COMBINATION UNIT WITH EMERGENCY BACKUP SUMP PUMP SYSTEM. 3,100 GPH @ 10 FT HEAD PRIMARY PUMP; 1,000 GPH @ 10 FT HEAD BACKUP PUMP. PROVIDE 'BASEMENT WATCHDOG' "MAINTENANCE FREE AGM BATTERY" MODEL #BW27AGM AND BATTERY BOX. PROVIDE 18" DIAMETER SUMP PUMP BASIN WITH LID. COORDINATE DEPTH WITH FIELD CONDITIONS.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	3"	1-1/2"	-	1/2"	AMERICAN STANDARD #2467.136 "CADET FLOWISE" TANK TYPE PRESSURE-ASSISTED TOILET, WHITE VITREOUS CHINA, FLOOR MOUNTED, 1.1 GAL. FLUSH, 16-1/2" HIGH BOWL RIM HEIGHT. PROVIDE WITH PROFLO SLOW CLOSE ELONGATED PLASTIC TOILET SEAT WITH EASY CLEAN, MODEL #PFTSEC2000.
WB-1	WASHING MACHINE BOX	2"	1-1/2"	1/2"	1/2"	WASHING MACHINE CONNECTION BOX WITH SINGLE LEVER VALVE AND HAMMER ARRESTERS. RIGHT HAND DRAIN OPTION. GUY GRAY MODEL #WB200HA OR EQUAL.
WH-2	WATER HEATER (GAS)	-	-	3/4"	3/4"	STATE PROLINE XE POWER DIRECT VENT, 40-GALLON COMMERCIAL-GRADE RESIDENTIAL GAS WATER HEATER, MODEL #GS6 40 YBPDS, 40,000 BTUH INPUT, 0.68 ENERGY FACTOR, 74 GALLON FIRST HOUR RATING, 45 GPH RECOVERY AT 90° RISE. 22" DIAMETER, 29-7/8" OVERALL DEPTH, 59" OVERALL HEIGHT. PROVIDE WITH DRAIN PAN AND NEW COMBUSTION AIR INTAKE PIPE. CONNECT TO EXISTING FLUE PIPE.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion
514 Telford Avenue | 520 Telford Avenue | 526 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record
10/08/18 AS-BUILT SET
10/23/18 REVIEW SET
11/27/18 80% SET
04/19/19 BID SET

Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
SCHEDULES

Sheet Number
526 TELFORD AVE
M4

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DOUBLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 12"Ø - ROUND DUCT
- VOLUME DAMPER
- BDD - BACK DRAFT DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- DUCT TRANSITION, ROUND OR FLAT OVAL TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR TO ROUND OR FLAT OVAL
- DUCT TRANSITION, RECTANGULAR, ROUND, OR FLAT OVAL
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- TAP-IN BRANCH, RECTANGULAR
- BRANCH DUCT, CONICAL LATERAL FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, CONICAL TEE FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, "Y" FITTING, ROUND OR FLAT OVAL
- SUPPLY DUCT SECTION, RECTANGULAR
- RETURN DUCT SECTION, RECTANGULAR
- EXHAUST DUCT SECTION, RECTANGULAR
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- SUPPLY AIR DEVICE (ARROWS INDICATE THROW DIRECTIONS, NO THROWS INDICATE 4-WAY THROW.
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE

PIPING LINETYPES

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- SS - SANITARY DRAIN PIPING
- SANITARY VENT PIPING
- G - GAS PIPING

MISCELLANEOUS SYMBOLS

- CONNECT TO EXISTING
- MISCELLANEOUS SYMBOLS

SINGLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 8"Ø - ROUND DUCT
- 36x18Ø - FLAT OVAL DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- FLEXIBLE ROUND DUCT
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- FSD - COMBINATION FIRE/SMOKE DAMPER
- SD - SMOKE DAMPER
- DUCT TRANSITION
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- DF - DIVIDED FLOW FITTING, RECTANGULAR
- RECTANGULAR TAP-IN BRANCH OR ROUND OR FLAT OVAL CONICAL TEE
- INCLINED CONICAL TAKE-OFF, ROUND OR FLAT OVAL
- "Y" FITTING, ROUND OR FLAT OVAL
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- END OF DUCT RUN
- T - THERMOSTAT

PIPING SYMBOLS

- VALVE
- CHECK VALVE
- DOUBLE BACKFLOW PREVENTER
- PLUG VALVE
- SAFETY OR PRESSURE RELIEF, ANGLE VALVE
- PRESSURE REGULATING VALVE
- LATERAL Y
- CAP
- ELBOW, 90°
- ELBOW, 90° TURNED UP
- ELBOW, 90° TURNED DOWN
- ELBOW, 45°
- TEE
- TEE, TURNED UP
- TEE, TURNED DOWN
- REDUCER
- UNION
- STRAINER
- M - METER
- R - REGULATOR
- C.O. - CLEANOUT
- F.D. - FLOOR DRAIN
- V.T.R. - VENT THROUGH ROOF

GENERAL NOTES:

1. FOR THE PURPOSE OF THIS PROJECT THE MECHANICAL SCOPE OF WORK AND PLUMBING SCOPE OF WORK HAVE BEEN CONSOLIDATED TO BE ON THE SAME SHEETS.

GENERAL PLUMBING NOTES:

1. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING SYSTEMS COMPLETE, UNLESS NOTED OTHERWISE. COMPLETE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PIPE AND FITTINGS, PIPE HANGERS AND ANCHORS, EQUIPMENT, FIXTURES, SPECIALTIES, ETC. THIS CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, LOCATIONS, RELATIVE DIMENSIONS, ETC. PIPING AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND REQUIREMENTS AND ADJUST ACCORDINGLY.
4. CONTRACTOR SHALL INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS.
5. THIS CONTRACTOR SHALL CONCEAL ALL PIPES WITHIN WALLS OR CHASES WHENEVER PRACTICAL.
6. THIS CONTRACTOR SHALL MAINTAIN DIMENSIONED "AS-BUILT" DRAWINGS FOR ALL UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE TO ENGINEER AT PROJECT COMPLETION.
7. CONTRACTOR SHALL INCLUDE ALL EXCAVATIONS AND BACK FILLING REQUIRED FOR UNDERGROUND PIPING. ALL BACK FILL SHALL BE FREE FROM ALL TRASH AND BUILDING MATERIALS. BACK FILL SHALL BE ENGINEERED FILL 95% COMPACTED IN 8" LAYERS.
8. ALL WORK SHALL CONFORM TO ASSOCIATED SPECIFICATIONS.
9. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
10. THIS CONTRACTOR SHALL PROVIDE AND INSTALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO ALL OBVIOUSLY NECESSARY LOCATIONS INCLUDING ALL VALVES, FITTINGS, HANGERS, BACKFLOW PREVENTERS, WATER HEATERS, ETC.
11. ALL WATER PIPING SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL PIPING SHALL BE SUPPORTED WITH 3/8" ALL THREAD AND CLEVIS HANGERS AND IN ACCORDANCE WITH SECTION 308 OF THE OBC - PLUMBING CODE, LATEST EDITION. UNLESS NOTED OTHERWISE.
    B. THIS CONTRACTOR SHALL INSULATE ALL NEW DOMESTIC HOT AND COLD WATER DISTRIBUTION INCLUDING FITTINGS.
    C. THIS CONTRACTOR SHALL PROVIDE AND INSTALL SERVICE VALVES ON ALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO EACH FIXTURE. ALL VALVES SHALL BE LOCATED IN CONVENIENT LOCATIONS.
    D. ALL HOSE BIBBS SHALL BE MOUNTED AT 24" ABOVE GRADE, UNLESS NOTED OTHERWISE.
    E. THE CONTRACTOR SHALL PROVIDE APPROPRIATE AIR CHAMBERS AT ALL EQUIPMENT WITH QUICK CLOSING VALVES.
    F. ALL DOMESTIC WATER PIPING SHALL BE POLYETHYLENE OR APPROVED EQUAL.
    G. ALL DOMESTIC WATER PIPE INSULATION SHALL BE 1" THICK WITH ALL SERVICE JACKET. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.28 BTUH-IN/SQ.FT.-°F AT 100°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. PIPE INSULATION SHALL BE AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
12. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SANITARY SEWER/ TRADE WASTE TO ALL NECESSARY LOCATIONS INCLUDING FLOOR DRAINS, CLEANOUTS, TRAPS, VENTS, ETC.
13. ALL SANITARY SEWER/ TRADE WASTE SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL SANITARY SEWER/ TRADE WASTE PIPE SHALL BE INSTALLED WITH ¼" PER FOOT MINIMUM SLOPE FOR LINES 2½" DIAMETER OR LESS, AND ⅛" PER FOOT MINIMUM SLOPE FOR LINES 3" OR GREATER, UNLESS NOTED OTHERWISE.
    B. ALL EXPOSED TRAPS AND TRIM SHALL BE BRIGHT CHROME, UNLESS OTHERWISE NOTED. ALL PLUMBING FIXTURES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
    C. VENTS SHALL BE LOOPED ABOVE CEILING AND/OR WITHIN ATTIC TO MINIMIZE ROOF PENETRATIONS.
    D. PVC NOT ACCEPTABLE FOR VENT PIPING IN CEILING PLENUM SPACES.
    E. PVC PIPE IS ACCEPTABLE FOR WASTE AND VENT PIPING. COORDINATE PIPE MATERIALS AND CEILING PLENUMS.
    F. THIS CONTRACTOR SHALL REFERENCE ARCHITECTURAL SHEETS FOR PLUMBING FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.
    G. ALL SANITARY FLOOR DRAINS SHALL HAVE TRAP PRIMER CONNECTIONS, UNLESS OTHERWISE NOTED.
14. CONDENSATE DRAINS THAT SERVE HVAC EQUIPMENT SHALL BE SCHEDULE 40 PVC PIPING. CONDENSATE DRAINS SERVING STEAM EQUIPMENT SHALL BE STEEL.
15. ALL PIPING SHALL BE CONSTRUCTED AND INSTALLED AS DESCRIBED BELOW.
    A. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH MINIMUM 4" CLEARANCE BETWEEN FINISHED COVERING OF PARALLEL, ADJACENT PIPES, OTHER WORK, ETC. UNLESS NOTED OTHERWISE.
    B. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH APPROPRIATE CLEARANCE FOR PASSAGES, HEADROOM, OPERATION OF DOORS OR WINDOWS, EQUIPMENT, LIGHTING OUTLETS, OR OWNER'S APPARATUS AND EQUIPMENT.
    C. INSTALL PIPING, VALVES, FITTINGS, ETC. ROUTED OVER MEANS OF EGRESS A MINIMUM OF 7'-6" CLEARANCE ABOVE FINISHED FLOOR.
    D. OFFSET PIPING AROUND COLUMNS, BEAMS, AND OTHER OBSTRUCTIONS AS REQUIRED.
    E. PIPING SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    F. GROOVED MECHANICAL COUPLINGS AND FASTENERS SHALL ONLY BE USED IN ACCESSIBLE LOCATIONS.
    G. INSULATE ALL CONNECTIONS BETWEEN PIPE, FITTINGS, AND HANGERS OF DISSIMILAR METAL AGAINST DIRECT CONTACT WITH DIELECTRIC INSULATING MATERIAL. PIPE CONNECTIONS SHALL BE WITH A DIELECTRIC FLANGE OR UNION.
    H. ALL RISERS SHALL HAVE A BALL VALVE FOR MANUAL VENTING AT HIGH POINTS IN THE SYSTEM.
    I. PIPE IDENTIFICATION SHALL COMPLY WITH ASME STANDARD A13.1 'SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS' UNLESS NOTED OTHERWISE. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    J. PIPE MARKERS SHALL BE A PREFORMED ONE PIECE UV RESISTANT VINYL WITH EMBOSSED LETTERS AND FLOW ARROWS. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    K. VALVES SHALL BE IDENTIFIED WITH 'SIZE, TYPE, AND DESCRIPTION OF OPERATION'.
    L. PIPE HANGERS AND SUPPORTS
        a. USE ADJUSTABLE CLEVIS HANGERS, FOR INDIVIDUAL, STRAIGHT HORIZONTAL RUNS.
        b. USE RISER CLAMPS FOR VERTICAL PIPE RUNS.
        c. USE PIPE ROLLERS AND GUIDES TO SUPPORT STEAM SUPPLY AND STEAM CONDENSATE LINES.

GENERAL MECHANICAL NOTES:

1. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL PROVIDE AND INSTALL THE HVAC SYSTEMS AND EXHAUST SYSTEMS COMPLETE. THE INSTALLATION SHALL INCLUDE, BUT NOT LIMITED TO, ALL DUCTWORK AND FITTINGS, EQUIPMENT, DIFFUSERS, SMOKE DETECTORS, THERMOSTATS AND 24 VAC WIRING, ROOF AND/OR WALL PENETRATIONS, TESTING AND BALANCING, ETC. CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES.
3. IT IS INTENDED THAT WORK COVERED BY SPECIFICATIONS AND DRAWINGS INCLUDES EVERYTHING REQUISITE AND NECESSARY TO MAKE VARIOUS SYSTEMS COMPLETE AND OPERATIVE. IRRESPECTIVE OF WHETHER OR NOT EVERY ITEM IS SPECIFICALLY NOTED. OMISSION OF DIRECT REFERENCE TO ANY ESSENTIAL ITEM SHALL NOT EXCUSE CONTRACTOR FROM COMPLYING WITH ABOVE INTENT.
4. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION.
5. IN GENERAL, THE DRAWINGS SHOW THE DESIRED DUCT ROUTING LOCATION PLUS FITTINGS AND CONNECTIONS. THE DUCT AND ASSOCIATED EQUIPMENT CAN BE LOWERED OR RAISED AS NECESSARY TO ACCOMMODATE MINOR FIELD CONDITIONS. THE CONTRACTOR SHALL NOTE ALL CHANGES ON DRAWINGS AND RETURN MARKED UP DRAWINGS TO THE OWNER.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN STRICT ACCORDANCE WITH SAFETY REQUIREMENTS IMPOSED BY THE OWNER AND OSHA.
8. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, REMOVE ALL DEBRIS FROM THE OWNER'S PROPERTY, AND DISPOSE OF SAME ACCORDING TO LOCAL REGULATIONS.
9. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS. CHANGES SHALL NOT BE MADE WITHOUT APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE FINAL HOOK-UP, PURGE AND LIGHTING OF ALL NATURAL GAS EQUIPMENT IF APPLICABLE.
12. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED MEETING THE REQUIREMENTS OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, LATEST EDITION, AND AS DESCRIBED BELOW.
13. ALL DUCT SHALL BE SHEET METAL AND INSTALLED IN STRICT ACCORDANCE WITH SMACNA STANDARDS, LATEST EDITION.
    A. HANGERS SHALL BE PROVIDED A MAXIMUM OF EVERY 8'-0", AT ROOF PENETRATIONS AND AT ALL ELBOWS. ALL DUCT SHALL BE SELF-SUPPORTING AND NOT REQUIRE CONNECTING EQUIPMENT FOR SUPPORT.
    B. ALIGN, ADJUST, AND LEVEL ALL DUCT FOR SATISFACTORY OPERATION. IF A SLOPE IS SPECIFIED, ALIGN AND ADJUST TO MEET STATED REQUIREMENTS.
    C. REINFORCE ALL DUCTS TO PREVENT BREATHING, VIBRATING, BUCKLING, OR UNNECESSARY NOISE AS REQUIRED TO SATISFY PROJECT REQUIREMENTS.
    D. ALL DUCT AND PLENUM SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. IT IS ACCEPTABLE TO CHANGE DUCT SIZES WHEN THE CROSS-SECTIONAL AREA IS MAINTAINED.
    E. THE INTERIOR OF ALL DUCTS AND PLENUMS SHALL BE SMOOTH AND FREE OF OBSTRUCTIONS, BURRS, AND SHARP EDGES.
    F. ALL RECTANGULAR ELBOWS SHALL HAVE DOUBLE THICKNESS TURNING VANES, INCLUDING DISCHARGE AND RETURN PLENUM BRANCHES.
    G. ALL CONCENTRIC TRANSITIONS SHALL HAVE A MAXIMUM TOTAL ANGLE OF 45° CONVERGING AND 30° DIVERGING FOR LARGEST DIMENSION.
    H. ALL SHEET METAL DUCT JOINTS SHALL BE SEALED WITH AN APPROVED DUCT SEALANT.
    I. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CAULKED AND SEALED AIR TIGHT USING A DRAW BAND. THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUNS SHALL BE 6'-0". FLEXIBLE DUCT SHALL NOT HAVE MORE THAN AN AGGREGATE TOTAL OF 90° CHANGE IN DIRECTION, WITH A BEND NOT LESS THAN 1.5 DUCT DIAMETER CENTERLINE RADIUS.
    J. ALL ROUND DUCT TAKE-OFFS SHALL HAVE SPIN-IN TYPE FITTINGS WITH BALANCING DAMPERS.
    K. ALL AIR DEVICES SHALL BE CONNECTED WITH 3 DUCT DIAMETERS OF STRAIGHT DUCT. IN AREAS WHERE SPACE IS LIMITED A SHEET METAL ELBOW SHALL BE CONNECTED TO AIR DEVICE.
14. ALL NEW SHEET METAL DUCT TO BE ASTM A526 PRIME GALVANIZED SHEET METAL (SHEET AND STRIP) OF THE PROPER GAGE.
15. ALL INSIDE DUCT WITH EXTERNAL DUCT INSULATION SHALL BE 0.75 PCF DENSITY, 2" THICK WITH FSK FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.29 BTUH-IN/SQ. FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT WRAP AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
16. OUTSIDE EXPOSED DUCT WITH INTERNALLY LINED DUCT INSULATION SHALL BE 1.5 PCF DENSITY, 2" THICK WITH MAT FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.25 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NPFA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT LINER EM AS MANUFACTURED BY KNAUF OR APPROVED EQUAL.
17. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 1" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.24 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
18. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 2" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.33 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
19. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SECONDARY DRAIN PAN WITH FLOAT SWITCH FOR ALL AIR CONDITIONING EQUIPMENT TO BE INSTALLED ABOVE A SUSPENDED CEILING. THE SECONDARY DRAIN PAN SHALL BE GALVANIZED STEEL WITH SOLDERED CORNERS AND 2" MINIMUM COLLECTION DEPTH. THE FLOAT SWITCH SHALL BE WIRED WITH AIR CONDITIONING EQUIPMENT TO DISABLE CONTINUED OPERATION.
20. THE EQUIPMENT AND MATERIALS SPECIFIED ON THE DRAWINGS ESTABLISH THE MINIMUM STANDARDS AND BASIS FOR THE BID. ALTERNATE MANUFACTURERS AND METHODS MUST BE APPROVED PRIOR TO SUBMISSION OF BID.

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OHFA Project : 18-0218
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Print Record
10/08/18 AS-BUILT SET
10/23/18 REVIEW SET
11/27/18 80% SET
04/19/19 BID SET

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2018-177

Date
APRIL 19, 2019

Sheet Title
NOTES AND LEGENDS

Sheet Number
532 TELFORD AVE
M1

LOUVER SCHEDULE

MARK	SIZE NECK	SIZE FACE	SIZE DEPTH	FREE AREA (SQ. IN)	MANUF. GREENHECK	MANUF. RUSKIN	MANUF. TITUS	MANUF. TUTTLE & BAILEY	MODEL #	DUTY EXHAUST	DUTY INTAKE	TYPE RELIEF	TYPE STATIONARY	TYPE ADJUSTABLE	MOUNTING HEIGHT FINISH FLOOR TO BOTTOM	FINISH CEILING	FINISH CLEAR LACQUER	FINISH COLOR BY ARCH.	FINISH PRIMER	FINISH MILL	MISC. CONTROL DAMPER	MISC. BIRDSCREEN	MISC. ALUM. CONST.	MISC. BLANK OFF	NOTES
L1	-	24" X 30"	4"	275	●				ESD-403-24X30		●		●		48"					●		●	●		-

NOTES: 1.
2.

GAS USAGE

	EXISTING	NEW
BOILER	140	-
WATER HEATER	76	-
TANKLESS WATER HEATER	-	199
DRYER	25	25
TOTAL	241	224

NOTES: 1. DUE GAS METER SERVES THE BUILDING.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	WASTE	VENT	HOT	COLD	DESCRIPTION
BA-1	TUB / SHOWER	3"	1-1/2"	1/2"	1/2"	AKER KDTS 3060 MODEL #142006, 60" X 30" X 78" FOUR-PIECE GEL-COATED FIBERGLASS TUB-SHOWER. PROVIDE WITH MOEN COMMERCIAL SINGLE HANDLE POSI-TEMP FAUCET, MODEL #T8389EP15, WITH MOEN POSI-TEMP PRESSURE BALANCING VALVE, MODEL #8371HD. SET DISCHARGE TEMPERATURE TO 110°F MAX. COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF BASE. LEFT HAND AND RIGHT HAND DRAIN VARIES PER UNIT. FIELD VERIFY PRIOR TO ORDERING.
L-1	LAVATORY (ADA)	1-1/4"	1-1/4"	1/2"	1/2"	LAVATORY WITH INTEGRAL BOWL BY OTHERS. PROVIDE PROFLO CHROME SINGLE HANDLE LAVATORY FAUCET WITH POP-UP DRAIN, MODEL #PFWSC4746SCP, 1.2 GPM, 4" CENTERSET INSTALLATION. PROVIDE WITH 0.5 GPM AERATOR INSERT, PART NUMBER PFX14320. PROVIDE CAST BRASS CHROME PLATED OPEN GRID PO PLUG, MODEL #155A.
S-1	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	1/2"	EXISTING SINK TO BE REINSTALLED. PROVIDE PROFLO CHROME SINGLE HANDLE KITCHEN FAUCET, MODEL #PFXC3101CP, 1.5 GPM FLOW RATE, AND METAL LEVER HANDLE. PROVIDE WITH DEARBORN BRASS 12 LOCKING CUP SINK BASKET STRAINERS.
SP-1	SUMP PIT SYSTEM	-	-	-	-	'BASEMENT WATCHDOG' MODEL #DFK961, ⅓ HP COMBINATION UNIT WITH EMERGENCY BACKUP SUMP PUMP SYSTEM. 3,100 GPH @ 10 FT HEAD PRIMARY PUMP, 1,000 GPH @ 10 FT HEAD BACKUP PUMP. PROVIDE 'BASEMENT WATCHDOG' "MAINTENANCE FREE AGM BATTERY" MODEL #BW27AGM AND BATTERY BOX. PROVIDE 18" DIAMETER SUMP PUMP BASIN WITH LID. COORDINATE DEPTH WITH FIELD CONDITIONS.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	3"	1-1/2"	-	1/2"	AMERICAN STANDARD #2467.136 "CADET FLOWISE" TANK TYPE PRESSURE-ASSISTED TOILET, WHITE VITREOUS CHINA, FLOOR MOUNTED, 1.1 GAL. FLUSH, 16-1/2" HIGH BOWL RIM HEIGHT. PROVIDE WITH PROFLO SLOW CLOSE ELONGATED PLASTIC TOILET SEAT WITH EASY CLEAN, MODEL #PFTSEC2000.
WB-1	WASHING MACHINE BOX	2"	1-1/2"	1/2"	1/2"	WASHING MACHINE CONNECTION BOX WITH SINGLE LEVER VALVE AND HAMMER ARRESTERS. RIGHT HAND DRAIN OPTION. GUY GRAY MODEL #WB200HA OR EQUAL.
WH-3	TANKLESS WATER HEATER (GAS)	-	-	3/4"	3/4"	RHEEM PRESTIGE SERIES CONDENSING TANKLESS WATER HEATER WITH BUILT-IN RECIRCULATION PUMP OPERATED BY TIMER, MODEL #RTGH-RH11DV. 199,000 BTUH INPUT, 0.94 UNIFORM ENERGY FACTOR, 11.0 GALLON PER MINUTE FLOW RAT AT 35° RISE. PROVIDE WITH CONDENSATE NEUTRALIZER, SERVICE VALVES, AND PRESSURE RELIEF VALVES.

ELECTRIC BASEBOARD HEAT

MARK	MANUFACTURER	MODEL #	VOLTS	PH	WATTS	AMPS	LENGTH (IN)	NOTES
EB-1	CADET	4F1000W	240	1	1,000	-	48	1
EB-2	CADET	3F750W	240	1	750	-	36	1
EB-3	CADET	2F350W	240	1	350	-	24	1
-	-	-	-	-	-	-	-	-

NOTES: 1. PROVIDE WITH WALL MOUNTED THERMOSTAT. COORDINATE POWER WITH ELECTRICAL. RESTRICT HEATING SETTING FROM BEING SET ABOVE COOLING SETTING.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL #	CFM	S.P. IN WATER	VOLTAGE	POWER (W)	SOUND (SONES)	NOTES
EF-2	BROAN	AE50	50	0.25	120	26.9	0.8	1,4

NOTES: 1. PROVIDE WITH BROAN RADIATION DAMPER, MODEL #RDM1.
2. PROVIDE WITH BROAN PREMIUM RADIATION DAMPER, MODEL #RDFQL.
3. EXHAUST FAN WITH INTEGRAL LIGHT.
4. FURNISH WITH EXHAUST FAN TIMER SWITCH, EATON 9590AW OR EQUAL. TIMER SWITCH TO HAVE 10 MINUTE AND 1 HOUR SETTINGS AT MINIMUM. INSTALLATION BY ELECTRICAL CONTRACTOR.

SPLIT SYSTEM HVAC UNIT SCHEDULE

INDOOR UNIT

MARK	MANUFACTURER	MODEL # (FURNACE)	MODEL # (COIL)	AIRFLOW SUPPLY AIR (CFM)	AIRFLOW EXTERNAL S.P. (INCHES W.G.)	AIRFLOW OUTSIDE AIR (CFM)	MIN. ACCEPTABLE CAPACITIES COOLING NOMINAL (MBH)	COOLING SENSIBLE (MBH)	COOLING ENTERING AIR TEMP. DB(°F)/WB(°F)	HEATING OUTPUT (MBH)	UNIT PRIMARY HEATING PERFORMANCE TYPE ELECTRIC COIL	HEAT PUMP	HOT WATER	NATURAL GAS	STEAM	INPUT/ OUTPUT (MBH) [KW]	# OF STAGES	TURN DOWN RATIO	AFUE	ELECTRICAL MOTOR HP	UNIT VOLTAGE	UNIT PHASE	UNIT MCA	UNIT MOCP	AIR FILTER QTY	AIR FILTER MERV #	AIR FILTER SIZE L x W x T	UNIT WEIGHT (LBS)	NOTES
FC-1.1#	CARRIER	-	40MAQB09B--3	380	-	-	9.0	-	-	-		●				/8.0	1	-	-	-	240	1	0.2	-	-	-	- x - x -	20	1,2,3,4
FC-1.2#	CARRIER	-	40MAQB09B--3	380	-	-	9.0	-	-	-		●				/8.0	1	-	-	-	240	1	0.2	-	-	-	- x - x -	20	1,2,3,4
FC-1.3#	CARRIER	-	40MAQB09B--3	380	-	-	9.0	-	-	-		●				/8.0	1	-	-	-	240	1	0.2	-	-	-	- x - x -	20	1,2,3,4

NOTES: 1. CARRIER UNITS MAY BE SUBSTITUTED WITH EQUIVALENT BRYANT UNITS OR APPROVED EQUAL. COORDINATE PHYSICAL SPACE REQUIREMENTS WITH EXISTING CONDITIONS. VERIFY FLOW DIRECTION AND PROVIDE ANCILLARY EQUIPMENT AS NECESSARY. PROVIDE CONDENSATE PUMP AS NECESSARY WHERE ACCESS TO A DRAIN IS NOT READILY AVAILABLE. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL. CLEAN FILTER NEAR THE END OF MAJOR CONSTRUCTION. PROVIDE PROGRAMMABLE THERMOSTAT.
2. UNIT IS POWERED BY OUTDOOR UNIT.
3. MARK '#' DENOTES THE APARTMENT NUMBER IN WHICH THE UNIT. 'H' DENOTES "HOUSE" USE.
4. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH SECOND STAGE "EMERGENCY" HEAT CAPABILITY. THE FIRST STAGE OF HEATING SHALL CONTROL THE HEAT PUMP. THE SECOND STAGE OF HEATING SHALL CONTROL THE ELECTRIC RESISTANCE BASE-BOARD IN THE SAME ROOM AS THE HEAT PUMP. PROVIDE HEAT PUMP WITH 24 VOLT INTERFACE MODULE AS NECESSARY. DO NOT LOCK-OUT EITHER THE HEAT PUMP OR THE ELECTRIC RESISTANCE HEAT.

OUTDOOR UNIT

MARK	MANUFACTURER	MODEL	COOLING CAPACITY NOMINAL (MBH)	COOLING CAPACITY AMBIENT TEMP. (°F)	SEER	EER	HEATING CAPACITY NOMINAL (MBH)	HEATING CAPACITY AMBIENT TEMP. (°F)	COP	HSPF	ELECTRICAL COMPRESSOR QTY	COMPRESSOR VOLTAGE	COMPRESSOR PHASE	COMPRESSOR RLA	ELECTRICAL VOLTAGE	ELECTRICAL PHASE	ELECTRICAL MCA	ELECTRICAL MOCP	UNIT WEIGHT (LBS)	NOTES
HP-1	CARRIER	38MGRQ24C--3	24.0	95	23.0	12.5	23.0	47	3.9	10.0	1	240	1	-	240	1	25	30	150	1
							17.6	-14	-											

NOTES: 1. UNITS MAY BE SUBSTITUTED WITH EQUIVALENT BYANT UNITS OR APPROVED EQUAL. PROVIDE WITH MOUNTING BASE AS NECESSARY PER FIELD CONDITIONS. COORDINATE WITH ELECTRICAL FOR POWER REQUIREMENTS AND LOCAL DISCONNECT.

NOTE: HVAC EQUIPMENT HAS BEEN SIZED IN ACCORDANCE WITH ASHRAE HANDBOOKS UTILIZING HAP SOFTWARE.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion
514 Telford Avenue | 520 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record
10/08/18 AS-BUILT SET
10/23/18 REVIEW SET
11/27/18 80% SET
04/19/19 BID SET

Project Number
2018-177

Date
APRIL 19, 2019

Sheet Title
SCHEDULES

Sheet Number
532 TELFORD AVE
M4

DOUBLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 12"Ø - ROUND DUCT
- BDD - BACK DRAFT DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- DUCT TRANSITION, ROUND OR FLAT OVAL TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR TO ROUND OR FLAT OVAL
- DUCT TRANSITION, RECTANGULAR, ROUND, OR FLAT OVAL
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- TAP-IN BRANCH, RECTANGULAR
- BRANCH DUCT, CONICAL LATERAL FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, CONICAL TEE FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, "Y" FITTING, ROUND OR FLAT OVAL
- SUPPLY DUCT SECTION, RECTANGULAR
- RETURN DUCT SECTION, RECTANGULAR
- EXHAUST DUCT SECTION, RECTANGULAR
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- SUPPLY AIR DEVICE (ARROWS INDICATE THROW DIRECTIONS, NO THROWS INDICATE 4-WAY THROW.
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE

PIPING LINETYPES

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- SS - SANITARY DRAIN PIPING
- SANITARY VENT PIPING
- G - GAS PIPING

MISCELLANEOUS SYMBOLS

- CONNECT TO EXISTING
- MISCELLANEOUS SYMBOLS

SINGLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 8"Ø - ROUND DUCT
- 36x18Ø - FLAT OVAL DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- FLEXIBLE ROUND DUCT
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- FSD - COMBINATION FIRE/SMOKE DAMPER
- SD - SMOKE DAMPER
- DUCT TRANSITION
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- DF - DIVIDED FLOW FITTING, RECTANGULAR
- RECTANGULAR TAP-IN BRANCH OR ROUND OR FLAT OVAL CONICAL TEE
- INCLINED CONICAL TAKE-OFF, ROUND OR FLAT OVAL
- "Y" FITTING, ROUND OR FLAT OVAL
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- END OF DUCT RUN
- T - THERMOSTAT

PIPING SYMBOLS

- VALVE
- CHECK VALVE
- DOUBLE BACKFLOW PREVENTER
- PLUG VALVE
- SAFETY OR PRESSURE RELIEF, ANGLE VALVE
- PRESSURE REGULATING VALVE
- LATERAL Y
- CAP
- ELBOW, 90°
- ELBOW, 90° TURNED UP
- ELBOW, 90° TURNED DOWN
- ELBOW, 45°
- TEE
- TEE, TURNED UP
- TEE, TURNED DOWN
- REDUCER
- UNION
- STRAINER
- M - METER
- R - REGULATOR
- C.O. - CLEANOUT
- F.D. - FLOOR DRAIN
- V.T.R. - VENT THROUGH ROOF

GENERAL NOTES:

1. FOR THE PURPOSE OF THIS PROJECT THE MECHANICAL SCOPE OF WORK AND PLUMBING SCOPE OF WORK HAVE BEEN CONSOLIDATED TO BE ON THE SAME SHEETS.

GENERAL PLUMBING NOTES:

1. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING SYSTEMS COMPLETE, UNLESS NOTED OTHERWISE. COMPLETE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PIPE AND FITTINGS, PIPE HANGERS AND ANCHORS, EQUIPMENT, FIXTURES, SPECIALTIES, ETC. THIS CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, LOCATIONS, RELATIVE DIMENSIONS, ETC. PIPING AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND REQUIREMENTS AND ADJUST ACCORDINGLY.
4. CONTRACTOR SHALL INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS.
5. THIS CONTRACTOR SHALL CONCEAL ALL PIPES WITHIN WALLS OR CHASES WHENEVER PRACTICAL.
6. THIS CONTRACTOR SHALL MAINTAIN DIMENSIONED "AS-BUILT" DRAWINGS FOR ALL UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE TO ENGINEER AT PROJECT COMPLETION.
7. CONTRACTOR SHALL INCLUDE ALL EXCAVATIONS AND BACK FILLING REQUIRED FOR UNDERGROUND PIPING. ALL BACK FILL SHALL BE FREE FROM ALL TRASH AND BUILDING MATERIALS. BACK FILL SHALL BE ENGINEERED FILL 95% COMPACTED IN 8" LAYERS.
8. ALL WORK SHALL CONFORM TO ASSOCIATED SPECIFICATIONS.
9. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
10. THIS CONTRACTOR SHALL PROVIDE AND INSTALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO ALL OBVIOUSLY NECESSARY LOCATIONS INCLUDING ALL VALVES, FITTINGS, HANGERS, BACKFLOW PREVENTERS, WATER HEATERS, ETC.
11. ALL WATER PIPING SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL PIPING SHALL BE SUPPORTED WITH 3/8" ALL THREAD AND CLEVIS HANGERS AND IN ACCORDANCE WITH SECTION 308 OF THE OBC - PLUMBING CODE, LATEST EDITION. UNLESS NOTED OTHERWISE.
    B. THIS CONTRACTOR SHALL INSULATE ALL NEW DOMESTIC HOT AND COLD WATER DISTRIBUTION INCLUDING FITTINGS.
    C. THIS CONTRACTOR SHALL PROVIDE AND INSTALL SERVICE VALVES ON ALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO EACH FIXTURE. ALL VALVES SHALL BE LOCATED IN CONVENIENT LOCATIONS.
    D. ALL HOSE BIBBS SHALL BE MOUNTED AT 24" ABOVE GRADE, UNLESS NOTED OTHERWISE.
    E. THE CONTRACTOR SHALL PROVIDE APPROPRIATE AIR CHAMBERS AT ALL EQUIPMENT WITH QUICK CLOSING VALVES.
    F. ALL DOMESTIC WATER PIPING SHALL BE POLYETHYLENE OR APPROVED EQUAL.
    G. ALL DOMESTIC WATER PIPE INSULATION SHALL BE 1" THICK WITH ALL SERVICE JACKET. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.28 BTUH-IN/SQ.FT.-°F AT 100°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. PIPE INSULATION SHALL BE AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
12. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SANITARY SEWER/ TRADE WASTE TO ALL NECESSARY LOCATIONS INCLUDING FLOOR DRAINS, CLEANOUTS, TRAPS, VENTS, ETC.
13. ALL SANITARY SEWER/ TRADE WASTE SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL SANITARY SEWER/ TRADE WASTE PIPE SHALL BE INSTALLED WITH ¼" PER FOOT MINIMUM SLOPE FOR LINES 2½" DIAMETER OR LESS, AND ⅛" PER FOOT MINIMUM SLOPE FOR LINES 3" OR GREATER, UNLESS NOTED OTHERWISE.
    B. ALL EXPOSED TRAPS AND TRIM SHALL BE BRIGHT CHROME, UNLESS OTHERWISE NOTED. ALL PLUMBING FIXTURES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
    C. VENTS SHALL BE LOOPED ABOVE CEILING AND/OR WITHIN ATTIC TO MINIMIZE ROOF PENETRATIONS.
    D. PVC NOT ACCEPTABLE FOR VENT PIPING IN CEILING PLENUM SPACES.
    E. PVC PIPE IS ACCEPTABLE FOR WASTE AND VENT PIPING. COORDINATE PIPE MATERIALS AND CEILING PLENUMS.
    F. THIS CONTRACTOR SHALL REFERENCE ARCHITECTURAL SHEETS FOR PLUMBING FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.
    G. ALL SANITARY FLOOR DRAINS SHALL HAVE TRAP PRIMER CONNECTIONS, UNLESS OTHERWISE NOTED.
14. CONDENSATE DRAINS THAT SERVE HVAC EQUIPMENT SHALL BE SCHEDULE 40 PVC PIPING. CONDENSATE DRAINS SERVING STEAM EQUIPMENT SHALL BE STEEL.
15. ALL PIPING SHALL BE CONSTRUCTED AND INSTALLED AS DESCRIBED BELOW.
    A. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH MINIMUM 4" CLEARANCE BETWEEN FINISHED COVERING OF PARALLEL, ADJACENT PIPES, OTHER WORK, ETC. UNLESS NOTED OTHERWISE.
    B. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH APPROPRIATE CLEARANCE FOR PASSAGES, HEADROOM, OPERATION OF DOORS OR WINDOWS, EQUIPMENT, LIGHTING OUTLETS, OR OWNER'S APPARATUS AND EQUIPMENT.
    C. INSTALL PIPING, VALVES, FITTINGS, ETC. ROUTED OVER MEANS OF EGRESS A MINIMUM OF 7'-6" CLEARANCE ABOVE FINISHED FLOOR.
    D. OFFSET PIPING AROUND COLUMNS, BEAMS, AND OTHER OBSTRUCTIONS AS REQUIRED.
    E. PIPING SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    F. GROOVED MECHANICAL COUPLINGS AND FASTENERS SHALL ONLY BE USED IN ACCESSIBLE LOCATIONS.
    G. INSULATE ALL CONNECTIONS BETWEEN PIPE, FITTINGS, AND HANGERS OF DISSIMILAR METAL AGAINST DIRECT CONTACT WITH DIELECTRIC INSULATING MATERIAL. PIPE CONNECTIONS SHALL BE WITH A DIELECTRIC FLANGE OR UNION.
    H. ALL RISERS SHALL HAVE A BALL VALVE FOR MANUAL VENTING AT HIGH POINTS IN THE SYSTEM.
    I. PIPE IDENTIFICATION SHALL COMPLY WITH ASME STANDARD A13.1 'SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS' UNLESS NOTED OTHERWISE. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    J. PIPE MARKERS SHALL BE A PREFORMED ONE PIECE UV RESISTANT VINYL WITH EMBOSSED LETTERS AND FLOW ARROWS. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    K. VALVES SHALL BE IDENTIFIED WITH 'SIZE, TYPE, AND DESCRIPTION OF OPERATION'.
    L. PIPE HANGERS AND SUPPORTS
        a. USE ADJUSTABLE CLEVIS HANGERS, FOR INDIVIDUAL, STRAIGHT HORIZONTAL RUNS.
        b. USE RISER CLAMPS FOR VERTICAL PIPE RUNS.
        c. USE PIPE ROLLERS AND GUIDES TO SUPPORT STEAM SUPPLY AND STEAM CONDENSATE LINES.

GENERAL MECHANICAL NOTES:

1. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL PROVIDE AND INSTALL THE HVAC SYSTEMS AND EXHAUST SYSTEMS COMPLETE. THE INSTALLATION SHALL INCLUDE, BUT NOT LIMITED TO, ALL DUCTWORK AND FITTINGS, EQUIPMENT, DIFFUSERS, SMOKE DETECTORS, THERMOSTATS AND 24 VAC WIRING, ROOF AND/OR WALL PENETRATIONS, TESTING AND BALANCING, ETC. CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES.
3. IT IS INTENDED THAT WORK COVERED BY SPECIFICATIONS AND DRAWINGS INCLUDES EVERYTHING REQUISITE AND NECESSARY TO MAKE VARIOUS SYSTEMS COMPLETE AND OPERATIVE. IRRESPECTIVE OF WHETHER OR NOT EVERY ITEM IS SPECIFICALLY NOTED. OMISSION OF DIRECT REFERENCE TO ANY ESSENTIAL ITEM SHALL NOT EXCUSE CONTRACTOR FROM COMPLYING WITH ABOVE INTENT.
4. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION.
5. IN GENERAL, THE DRAWINGS SHOW THE DESIRED DUCT ROUTING LOCATION PLUS FITTINGS AND CONNECTIONS. THE DUCT AND ASSOCIATED EQUIPMENT CAN BE LOWERED OR RAISED AS NECESSARY TO ACCOMMODATE MINOR FIELD CONDITIONS. THE CONTRACTOR SHALL NOTE ALL CHANGES ON DRAWINGS AND RETURN MARKED UP DRAWINGS TO THE OWNER.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN STRICT ACCORDANCE WITH SAFETY REQUIREMENTS IMPOSED BY THE OWNER AND OSHA.
8. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, REMOVE ALL DEBRIS FROM THE OWNER'S PROPERTY, AND DISPOSE OF SAME ACCORDING TO LOCAL REGULATIONS.
9. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS. CHANGES SHALL NOT BE MADE WITHOUT APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE FINAL HOOK-UP, PURGE AND LIGHTING OF ALL NATURAL GAS EQUIPMENT IF APPLICABLE.
12. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED MEETING THE REQUIREMENTS OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, LATEST EDITION, AND AS DESCRIBED BELOW.
13. ALL DUCT SHALL BE SHEET METAL AND INSTALLED IN STRICT ACCORDANCE WITH SMACNA STANDARDS, LATEST EDITION.
    A. HANGERS SHALL BE PROVIDED A MAXIMUM OF EVERY 8'-0", AT ROOF PENETRATIONS AND AT ALL ELBOWS. ALL DUCT SHALL BE SELF-SUPPORTING AND NOT REQUIRE CONNECTING EQUIPMENT FOR SUPPORT.
    B. ALIGN, ADJUST, AND LEVEL ALL DUCT FOR SATISFACTORY OPERATION. IF A SLOPE IS SPECIFIED, ALIGN AND ADJUST TO MEET STATED REQUIREMENTS.
    C. REINFORCE ALL DUCTS TO PREVENT BREATHING, VIBRATING, BUCKLING, OR UNNECESSARY NOISE AS REQUIRED TO SATISFY PROJECT REQUIREMENTS.
    D. ALL DUCT AND PLENUM SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. IT IS ACCEPTABLE TO CHANGE DUCT SIZES WHEN THE CROSS-SECTIONAL AREA IS MAINTAINED.
    E. THE INTERIOR OF ALL DUCTS AND PLENUMS SHALL BE SMOOTH AND FREE OF OBSTRUCTIONS, BURRS, AND SHARP EDGES.
    F. ALL RECTANGULAR ELBOWS SHALL HAVE DOUBLE THICKNESS TURNING VANES, INCLUDING DISCHARGE AND RETURN PLENUM BRANCHES.
    G. ALL CONCENTRIC TRANSITIONS SHALL HAVE A MAXIMUM TOTAL ANGLE OF 45° CONVERGING AND 30° DIVERGING FOR LARGEST DIMENSION.
    H. ALL SHEET METAL DUCT JOINTS SHALL BE SEALED WITH AN APPROVED DUCT SEALANT.
    I. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CAULKED AND SEALED AIR TIGHT USING A DRAW BAND. THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUNS SHALL BE 6'-0". FLEXIBLE DUCT SHALL NOT HAVE MORE THAN AN AGGREGATE TOTAL OF 90° CHANGE IN DIRECTION, WITH A BEND NOT LESS THAN 1.5 DUCT DIAMETER CENTERLINE RADIUS.
    J. ALL ROUND DUCT TAKE-OFFS SHALL HAVE SPIN-IN TYPE FITTINGS WITH BALANCING DAMPERS.
    K. ALL AIR DEVICES SHALL BE CONNECTED WITH 3 DUCT DIAMETERS OF STRAIGHT DUCT. IN AREAS WHERE SPACE IS LIMITED A SHEET METAL ELBOW SHALL BE CONNECTED TO AIR DEVICE.
14. ALL NEW SHEET METAL DUCT TO BE ASTM A526 PRIME GALVANIZED SHEET METAL (SHEET AND STRIP) OF THE PROPER GAGE.
15. ALL INSIDE DUCT WITH EXTERNAL DUCT INSULATION SHALL BE 0.75 PCF DENSITY, 2" THICK WITH FSK FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.29 BTUH-IN/SQ. FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT WRAP AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
16. OUTSIDE EXPOSED DUCT WITH INTERNALLY LINED DUCT INSULATION SHALL BE 1.5 PCF DENSITY, 2" THICK WITH MAT FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.25 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NPFA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT LINER EM AS MANUFACTURED BY KNAUF OR APPROVED EQUAL.
17. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 1" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.24 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
18. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 2" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.33 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
19. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SECONDARY DRAIN PAN WITH FLOAT SWITCH FOR ALL AIR CONDITIONING EQUIPMENT TO BE INSTALLED ABOVE A SUSPENDED CEILING. THE SECONDARY DRAIN PAN SHALL BE GALVANIZED STEEL WITH SOLDERED CORNERS AND 2" MINIMUM COLLECTION DEPTH. THE FLOAT SWITCH SHALL BE WIRED WITH AIR CONDITIONING EQUIPMENT TO DISABLE CONTINUED OPERATION.
20. THE EQUIPMENT AND MATERIALS SPECIFIED ON THE DRAWINGS ESTABLISH THE MINIMUM STANDARDS AND BASIS FOR THE BID. ALTERNATE MANUFACTURERS AND METHODS MUST BE APPROVED PRIOR TO SUBMISSION OF BID.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion
514 Telford Avenue | 520 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record

10/08/18	AS-BUILT SET
10/23/18	REVIEW SET
11/27/18	80% SET
04/19/19	BID SET

Project Number: 2018-177

Date: APRIL 19, 2019

Sheet Title: NOTES AND LEGEND

Sheet Number: 1907 SHROYER AVE.

M1

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL #	CFM	S.P. IN WATER	VOLTAGE	POWER (W)	SOUND (SONES)	NOTES
EF-1	BROAN	QTXE080FLT	50	0.25	120	23.3	0.3	2,3,4

NOTES:
1. PROVIDE WITH BROAN RADIATION DAMPER, MODEL #RDM1.
2. PROVIDE WITH BROAN PREMIUM RADIATION DAMPER, MODEL #RDFQL.
3. EXHAUST FAN WITH INTEGRAL LIGHT.
4. FURNISH WITH EXHAUST FAN TIMER SWITCH, EATON 9590AW OR EQUAL. TIMER SWITCH TO HAVE 10 MINUTE AND 1 HOUR SETTINGS AT MINIMUM. INSTALLATION BY ELECTRICAL CONTRACTOR.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	WASTE	VENT	HOT	COLD	DESCRIPTION
L-1	LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"	EXISTING LAVATORY TO REMAIN. PROVIDE PROFLO CHROME SINGLE HANDLE LAVATORY FAUCET WITH POP-UP DRAIN, MODEL #PFWSC4746SCP, 1.2 GPM, 4" CENTERSETS. PROVIDE WITH 0.5 GPM AERATOR INSERT, PART NUMBER PFX14320. PROVIDE CAST BRASS CHROME PLATED OPEN GRID PO PLUG, MODEL #155A. VERIFY FIT PRIOR TO ORDERING.
S-1	DOUBLE BOWL SINK	1-1/2"	1-1/4"	1/2"	1/2"	PROFLO DOUBLE BOWL STAINLESS STEEL SINK, MODEL #PFSR332263. EACH BOWL SIZE IS 14" WIDE BY 15-3/4" FRONT TO BACK BY 6-1/8" DEEP, 33" X 22" OVERALL, WITH (3) HOLES AT 4" CENTERS FOR FAUCET MOUNTING. PROVIDE WITH PROFLO CHROME SINGLE HANDLE KITCHEN FAUCET, MODEL #PFXC3101CP, 1.5 GPM FLOW RATE, AND METAL LEVER HANDLE. PROVIDE WITH DEARBORN BRASS 12 LOCKING CUP SINK BASKET STRAINERS.
SH-1	ADA SHOWER	3"	1-1/2"	1/2"	1/2"	STERLING MODEL #60270125 63" ADA SHOWER WITH SEAT AND GRAB BARS. PROVIDE WITH MOEN COMMERCIAL SINGLE HANDLE CHROME PLATED HAND-HELD FAUCET, MODEL #T8389EP15, WITH 30" SLIDE BAR AND 69" METAL HOSE, WITH MOEN POSI-TEMP PRESSURE BALANCING VALVE, MODEL #88346. SET DISCHARGE TEMPERATURE TO 110°F MAX. COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF BASE. FIELD VERIFY PRIOR TO ORDERING.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	3"	1-1/2"	-	1/2"	AMERICAN STANDARD #2467.136 "CADET FLOWISE" TANK TYPE PRESSURE-ASSISTED TOILET, WHITE VITREOUS CHINA, FLOOR MOUNTED, 1.1 GAL. FLUSH, 16-1/2" HIGH BOWL RIM HEIGHT. PROVIDE WITH PROFLO SLOW CLOSE ELONGATED PLASTIC TOILET SEAT WITH EASY CLEAN, MODEL #PFTSEC2000.

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Sheet Title
SCHEDULES AND DETAILS

Sheet Number
1907 SHROYER AVE.
M6

DOUBLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 12"Ø - ROUND DUCT
- BDD - VOLUME DAMPER
- BDD - BACK DRAFT DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- DUCT TRANSITION, ROUND OR FLAT OVAL TO RECTANGULAR
- DUCT TRANSITION, RECTANGULAR TO ROUND OR FLAT OVAL
- DUCT TRANSITION, RECTANGULAR, ROUND, OR FLAT OVAL
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- TAP-IN BRANCH, RECTANGULAR
- BRANCH DUCT, CONICAL LATERAL FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, CONICAL TEE FITTING, ROUND OR FLAT OVAL
- BRANCH DUCT, "Y" FITTING, ROUND OR FLAT OVAL
- SUPPLY DUCT SECTION, RECTANGULAR
- RETURN DUCT SECTION, RECTANGULAR
- EXHAUST DUCT SECTION, RECTANGULAR
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- SUPPLY AIR DEVICE (ARROWS INDICATE THROW DIRECTIONS, NO THROWS INDICATE 4-WAY THROW.
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE

PIPING LINETYPES

- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE REMOVED
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- SS - SANITARY DRAIN PIPING
- SANITARY VENT PIPING
- G - GAS PIPING
- CD - CONDENSATE DRAIN PIPING

MISCELLANEOUS SYMBOLS

- CONNECT TO EXISTING
- MISCELLANEOUS SYMBOLS

SINGLE LINE DUCTWORK SYMBOLS

- 12x6 - RECTANGULAR DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- 8"Ø - ROUND DUCT
- 36x18Ø - FLAT OVAL DUCT (FIRST FIGURE IS FOR SIDE SHOWN, SECOND FIGURE IS FOR SIDE NOT SHOWN)
- FLEXIBLE ROUND DUCT
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- FD - FIRE DAMPER, 1 1/2 HOUR FIRE RATED
- FSD - COMBINATION FIRE/SMOKE DAMPER
- SD - SMOKE DAMPER
- DUCT TRANSITION
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, RECTANGULAR
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, RECTANGULAR
- R - INCLINED RISE WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- D - INCLINED DROP WITH RESPECT TO AIR FLOW, ROUND OR FLAT OVAL
- 90° ELBOW (SMOOTH OR 5 PIECE ELBOW)
- 45° ELBOW (SMOOTH OR 3 PIECE ELBOW)
- DF - DIVIDED FLOW FITTING, RECTANGULAR
- RECTANGULAR TAP-IN BRANCH OR ROUND OR FLAT OVAL CONICAL TEE
- INCLINED CONICAL TAKE-OFF, ROUND OR FLAT OVAL
- "Y" FITTING, ROUND OR FLAT OVAL
- 90° ELBOW TURNED UP, RECTANGULAR
- 90° ELBOW TURNED DOWN, RECTANGULAR
- 90° ELBOW TURNED UP, ROUND; FLAT OVAL SIMILAR
- 90° ELBOW TURNED DOWN, ROUND; FLAT OVAL SIMILAR
- END OF DUCT RUN
- T - THERMOSTAT

PIPING SYMBOLS

- VALVE
- CHECK VALVE
- DOUBLE BACKFLOW PREVENTER
- PLUG VALVE
- SAFETY OR PRESSURE RELIEF, ANGLE VALVE
- PRESSURE REGULATING VALVE
- LATERAL Y
- CAP
- ELBOW, 90°
- ELBOW, 90° TURNED UP
- ELBOW, 90° TURNED DOWN
- ELBOW, 45°
- TEE
- TEE, TURNED UP
- TEE, TURNED DOWN
- REDUCER
- UNION
- STRAINER
- M - METER
- R - REGULATOR
- C.O. - CLEANOUT
- F.D. - FLOOR DRAIN
- V.T.R. - VENT THROUGH ROOF

GENERAL NOTES:

1. FOR THE PURPOSE OF THIS PROJECT THE MECHANICAL SCOPE OF WORK AND PLUMBING SCOPE OF WORK HAVE BEEN CONSOLIDATED TO BE ON THE SAME SHEETS.

GENERAL PLUMBING NOTES:

1. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPING SYSTEMS COMPLETE, UNLESS NOTED OTHERWISE. COMPLETE INSTALLATION SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PIPE AND FITTINGS, PIPE HANGERS AND ANCHORS, EQUIPMENT, FIXTURES, SPECIALTIES, ETC. THIS CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES, LOCATIONS, RELATIVE DIMENSIONS, ETC. PIPING AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND REQUIREMENTS AND ADJUST ACCORDINGLY.
4. CONTRACTOR SHALL INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS.
5. THIS CONTRACTOR SHALL CONCEAL ALL PIPES WITHIN WALLS OR CHASES WHENEVER PRACTICAL.
6. THIS CONTRACTOR SHALL MAINTAIN DIMENSIONED "AS-BUILT" DRAWINGS FOR ALL UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE TO ENGINEER AT PROJECT COMPLETION.
7. CONTRACTOR SHALL INCLUDE ALL EXCAVATIONS AND BACK FILLING REQUIRED FOR UNDERGROUND PIPING. ALL BACK FILL SHALL BE FREE FROM ALL TRASH AND BUILDING MATERIALS. BACK FILL SHALL BE ENGINEERED FILL 95% COMPACTED IN 8" LAYERS.
8. ALL WORK SHALL CONFORM TO ASSOCIATED SPECIFICATIONS.
9. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
10. THIS CONTRACTOR SHALL PROVIDE AND INSTALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO ALL OBVIOUSLY NECESSARY LOCATIONS INCLUDING ALL VALVES, FITTINGS, HANGERS, BACKFLOW PREVENTERS, WATER HEATERS, ETC.
11. ALL WATER PIPING SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL PIPING SHALL BE SUPPORTED WITH 3/8" ALL THREAD AND CLEVIS HANGERS AND IN ACCORDANCE WITH SECTION 308 OF THE OBC - PLUMBING CODE, LATEST EDITION. UNLESS NOTED OTHERWISE.
    B. THIS CONTRACTOR SHALL INSULATE ALL NEW DOMESTIC HOT AND COLD WATER DISTRIBUTION INCLUDING FITTINGS.
    C. THIS CONTRACTOR SHALL PROVIDE AND INSTALL SERVICE VALVES ON ALL DOMESTIC HOT AND COLD WATER DISTRIBUTION TO EACH FIXTURE. ALL VALVES SHALL BE LOCATED IN CONVENIENT LOCATIONS.
    D. ALL HOSE BIBBS SHALL BE MOUNTED AT 24" ABOVE GRADE, UNLESS NOTED OTHERWISE.
    E. THE CONTRACTOR SHALL PROVIDE APPROPRIATE AIR CHAMBERS AT ALL EQUIPMENT WITH QUICK CLOSING VALVES.
    F. ALL DOMESTIC WATER PIPING SHALL BE POLYETHYLENE OR APPROVED EQUAL.
    G. ALL DOMESTIC WATER PIPE INSULATION SHALL BE 1" THICK WITH ALL SERVICE JACKET. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.28 BTUH-IN/SQ.FT.-°F AT 100°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. PIPE INSULATION SHALL BE AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
12. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SANITARY SEWER/ TRADE WASTE TO ALL NECESSARY LOCATIONS INCLUDING FLOOR DRAINS, CLEANOUTS, TRAPS, VENTS, ETC.
13. ALL SANITARY SEWER/ TRADE WASTE SHALL BE INSTALLED MEETING THE REQUIREMENTS OF OBC - PLUMBING CODE, LATEST EDITION, AND AS DESCRIBED BELOW.
    A. ALL SANITARY SEWER/ TRADE WASTE PIPE SHALL BE INSTALLED WITH ¼" PER FOOT MINIMUM SLOPE FOR LINES 2½" DIAMETER OR LESS, AND ⅛" PER FOOT MINIMUM SLOPE FOR LINES 3" OR GREATER, UNLESS NOTED OTHERWISE.
    B. ALL EXPOSED TRAPS AND TRIM SHALL BE BRIGHT CHROME, UNLESS OTHERWISE NOTED. ALL PLUMBING FIXTURES SHALL BE WHITE, UNLESS OTHERWISE NOTED.
    C. VENTS SHALL BE LOOPED ABOVE CEILING AND/OR WITHIN ATTIC TO MINIMIZE ROOF PENETRATIONS.
    D. PVC NOT ACCEPTABLE FOR VENT PIPING IN CEILING PLENUM SPACES.
    E. PVC PIPE IS ACCEPTABLE FOR WASTE AND VENT PIPING. COORDINATE PIPE MATERIALS AND CEILING PLENUMS.
    F. THIS CONTRACTOR SHALL REFERENCE ARCHITECTURAL SHEETS FOR PLUMBING FIXTURE LOCATIONS, MOUNTING HEIGHTS, ETC.
    G. ALL SANITARY FLOOR DRAINS SHALL HAVE TRAP PRIMER CONNECTIONS, UNLESS OTHERWISE NOTED.
14. CONDENSATE DRAINS THAT SERVE HVAC EQUIPMENT SHALL BE SCHEDULE 40 PVC PIPING. CONDENSATE DRAINS SERVING STEAM EQUIPMENT SHALL BE STEEL.
15. ALL PIPING SHALL BE CONSTRUCTED AND INSTALLED AS DESCRIBED BELOW.
    A. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH MINIMUM 4" CLEARANCE BETWEEN FINISHED COVERING OF PARALLEL, ADJACENT PIPES, OTHER WORK, ETC. UNLESS NOTED OTHERWISE.
    B. INSTALL PIPING, VALVES, FITTINGS, ETC. WITH APPROPRIATE CLEARANCE FOR PASSAGES, HEADROOM, OPERATION OF DOORS OR WINDOWS, EQUIPMENT, LIGHTING OUTLETS, OR OWNER'S APPARATUS AND EQUIPMENT.
    C. INSTALL PIPING, VALVES, FITTINGS, ETC. ROUTED OVER MEANS OF EGRESS A MINIMUM OF 7'-6" CLEARANCE ABOVE FINISHED FLOOR.
    D. OFFSET PIPING AROUND COLUMNS, BEAMS, AND OTHER OBSTRUCTIONS AS REQUIRED.
    E. PIPING SHALL BE INSTALLED TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
    F. GROOVED MECHANICAL COUPLINGS AND FASTENERS SHALL ONLY BE USED IN ACCESSIBLE LOCATIONS.
    G. INSULATE ALL CONNECTIONS BETWEEN PIPE, FITTINGS, AND HANGERS OF DISSIMILAR METAL AGAINST DIRECT CONTACT WITH DIELECTRIC INSULATING MATERIAL. PIPE CONNECTIONS SHALL BE WITH A DIELECTRIC FLANGE OR UNION.
    H. ALL RISERS SHALL HAVE A BALL VALVE FOR MANUAL VENTING AT HIGH POINTS IN THE SYSTEM.
    I. PIPE IDENTIFICATION SHALL COMPLY WITH ASME STANDARD A13.1 'SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS' UNLESS NOTED OTHERWISE. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    J. PIPE MARKERS SHALL BE A PREFORMED ONE PIECE UV RESISTANT VINYL WITH EMBOSSED LETTERS AND FLOW ARROWS. COORDINATE WITH EXISTING AND VERIFY WITH OWNER.
    K. VALVES SHALL BE IDENTIFIED WITH 'SIZE, TYPE, AND DESCRIPTION OF OPERATION'.
    L. PIPE HANGERS AND SUPPORTS
        a. USE ADJUSTABLE CLEVIS HANGERS, FOR INDIVIDUAL, STRAIGHT HORIZONTAL RUNS.
        b. USE RISER CLAMPS FOR VERTICAL PIPE RUNS.
        c. USE PIPE ROLLERS AND GUIDES TO SUPPORT STEAM SUPPLY AND STEAM CONDENSATE LINES.

GENERAL MECHANICAL NOTES:

1. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL PROVIDE AND INSTALL THE HVAC SYSTEMS AND EXHAUST SYSTEMS COMPLETE. THE INSTALLATION SHALL INCLUDE, BUT NOT LIMITED TO, ALL DUCTWORK AND FITTINGS, EQUIPMENT, DIFFUSERS, SMOKE DETECTORS, THERMOSTATS AND 24 VAC WIRING, ROOF AND/OR WALL PENETRATIONS, TESTING AND BALANCING, ETC. CONTRACTOR SHALL COORDINATE PROVISIONS FOR PENETRATIONS IN BLOCK WALLS (I.E. SLEEVES, LINTELS, ETC.) WITH THE GENERAL CONTRACTOR.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND INSPECTIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES.
3. IT IS INTENDED THAT WORK COVERED BY SPECIFICATIONS AND DRAWINGS INCLUDES EVERYTHING REQUISITE AND NECESSARY TO MAKE VARIOUS SYSTEMS COMPLETE AND OPERATIVE. IRRESPECTIVE OF WHETHER OR NOT EVERY ITEM IS SPECIFICALLY NOTED. OMISSION OF DIRECT REFERENCE TO ANY ESSENTIAL ITEM SHALL NOT EXCUSE CONTRACTOR FROM COMPLYING WITH ABOVE INTENT.
4. THIS CONTRACTOR SHALL CONSULT THE ARCHITECTURAL AND ELECTRICAL DRAWINGS TO AVOID INTERFERENCES AND CONFLICTS WITH OTHER TRADES. THIS CONTRACTOR WILL BE EXPECTED TO COVER ALL REWORK COSTS DUE TO LACK OF COORDINATION.
5. IN GENERAL, THE DRAWINGS SHOW THE DESIRED DUCT ROUTING LOCATION PLUS FITTINGS AND CONNECTIONS. THE DUCT AND ASSOCIATED EQUIPMENT CAN BE LOWERED OR RAISED AS NECESSARY TO ACCOMMODATE MINOR FIELD CONDITIONS. THE CONTRACTOR SHALL NOTE ALL CHANGES ON DRAWINGS AND RETURN MARKED UP DRAWINGS TO THE OWNER.
6. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS IN STRICT ACCORDANCE WITH SAFETY REQUIREMENTS IMPOSED BY THE OWNER AND OSHA.
8. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, REMOVE ALL DEBRIS FROM THE OWNER'S PROPERTY, AND DISPOSE OF SAME ACCORDING TO LOCAL REGULATIONS.
9. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR; MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS. CHANGES SHALL NOT BE MADE WITHOUT APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL DEMONSTRATE OPERATION OF ALL SYSTEMS AND EQUIPMENT TO THE OWNER. THE OPERATING AND SERVICE MANUALS FOR ALL EQUIPMENT SHALL BE FURNISHED TO THE OWNER.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE FINAL HOOK-UP, PURGE AND LIGHTING OF ALL NATURAL GAS EQUIPMENT IF APPLICABLE.
12. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED MEETING THE REQUIREMENTS OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE, LATEST EDITION, AND AS DESCRIBED BELOW.
13. ALL DUCT SHALL BE SHEET METAL AND INSTALLED IN STRICT ACCORDANCE WITH SMACNA STANDARDS, LATEST EDITION.
    A. HANGERS SHALL BE PROVIDED A MAXIMUM OF EVERY 8'-0", AT ROOF PENETRATIONS AND AT ALL ELBOWS. ALL DUCT SHALL BE SELF-SUPPORTING AND NOT REQUIRE CONNECTING EQUIPMENT FOR SUPPORT.
    B. ALIGN, ADJUST, AND LEVEL ALL DUCT FOR SATISFACTORY OPERATION. IF A SLOPE IS SPECIFIED, ALIGN AND ADJUST TO MEET STATED REQUIREMENTS.
    C. REINFORCE ALL DUCTS TO PREVENT BREATHING, VIBRATING, BUCKLING, OR UNNECESSARY NOISE AS REQUIRED TO SATISFY PROJECT REQUIREMENTS.
    D. ALL DUCT AND PLENUM SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE. IT IS ACCEPTABLE TO CHANGE DUCT SIZES WHEN THE CROSS-SECTIONAL AREA IS MAINTAINED.
    E. THE INTERIOR OF ALL DUCTS AND PLENUMS SHALL BE SMOOTH AND FREE OF OBSTRUCTIONS, BURRS, AND SHARP EDGES.
    F. ALL RECTANGULAR ELBOWS SHALL HAVE DOUBLE THICKNESS TURNING VANES, INCLUDING DISCHARGE AND RETURN PLENUM BRANCHES.
    G. ALL CONCENTRIC TRANSITIONS SHALL HAVE A MAXIMUM TOTAL ANGLE OF 45° CONVERGING AND 30° DIVERGING FOR LARGEST DIMENSION.
    H. ALL SHEET METAL DUCT JOINTS SHALL BE SEALED WITH AN APPROVED DUCT SEALANT.
    I. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CAULKED AND SEALED AIR TIGHT USING A DRAW BAND. THE MAXIMUM LENGTH OF FLEXIBLE DUCT RUNS SHALL BE 6'-0". FLEXIBLE DUCT SHALL NOT HAVE MORE THAN AN AGGREGATE TOTAL OF 90° CHANGE IN DIRECTION, WITH A BEND NOT LESS THAN 1.5 DUCT DIAMETER CENTERLINE RADIUS.
    J. ALL ROUND DUCT TAKE-OFFS SHALL HAVE SPIN-IN TYPE FITTINGS WITH BALANCING DAMPERS.
    K. ALL AIR DEVICES SHALL BE CONNECTED WITH 3 DUCT DIAMETERS OF STRAIGHT DUCT. IN AREAS WHERE SPACE IS LIMITED A SHEET METAL ELBOW SHALL BE CONNECTED TO AIR DEVICE.
14. ALL NEW SHEET METAL DUCT TO BE ASTM A526 PRIME GALVANIZED SHEET METAL (SHEET AND STRIP) OF THE PROPER GAGE.
15. ALL INSIDE DUCT WITH EXTERNAL DUCT INSULATION SHALL BE 0.75 PCF DENSITY, 2" THICK WITH FSK FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.29 BTUH-IN/SQ. FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND A COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT WRAP AS MANUFACTURED BY KNAUF OR APPROVED EQUAL. ALL INSULATION JOINTS SHALL BE TIGHTLY BUTTED AND COVERED WITH 4" WIDE X .0025" FOIL TAPE ADHERED WITH LAP SEAL ADHESIVE TO PROVIDE A COMPLETE VAPOR BARRIER ENVELOPE.
16. OUTSIDE EXPOSED DUCT WITH INTERNALLY LINED DUCT INSULATION SHALL BE 1.5 PCF DENSITY, 2" THICK WITH MAT FACE. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.25 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE AND COMPOSITE FIRE AND SMOKE HAZARD RATING, AS TESTED BY PROCEDURE ASTM E-84, NPFA 255 AND UL 723, NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. DUCT INSULATION SHALL BE DUCT LINER EM AS MANUFACTURED BY KNAUF OR APPROVED EQUAL.
17. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 1" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.24 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
18. ALL FLEXIBLE DUCT SHALL BE A FACTORY PRE-INSULATED DUCT COMPOSED OF A CORROSION RESISTANT REINFORCING WIRE HELIX PERMANENTLY BONDED TO A BLACK CPE CORE, COVERED WITH A 2" THICK FIBERGLAS INSULATING BLANKET, AND SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED POLYESTER FILM, LAMINATED TO GLASS MESH, ELASTOMER BACK-COATED. THE INSULATING BLANKET SHALL HAVE A "U" VALUE OF 0.33 BTUH-IN/SQ.FT.-°F AT 75°F MEAN TEMPERATURE DIFFERENCE. THE DUCT SHALL COMPLY WITH THE LATEST NFPA BULLETIN 90A AND SHALL BE LISTED AS A CLASS 1 AIR DUCT MATERIAL, UL STANDARD 181. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KE OR APPROVED EQUAL.
19. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SECONDARY DRAIN PAN WITH FLOAT SWITCH FOR ALL AIR CONDITIONING EQUIPMENT TO BE INSTALLED ABOVE A SUSPENDED CEILING. THE SECONDARY DRAIN PAN SHALL BE GALVANIZED STEEL WITH SOLDERED CORNERS AND 2" MINIMUM COLLECTION DEPTH. THE FLOAT SWITCH SHALL BE WIRED WITH AIR CONDITIONING EQUIPMENT TO DISABLE CONTINUED OPERATION.
20. THE EQUIPMENT AND MATERIALS SPECIFIED ON THE DRAWINGS ESTABLISH THE MINIMUM STANDARDS AND BASIS FOR THE BID. ALTERNATE MANUFACTURERS AND METHODS MUST BE APPROVED PRIOR TO SUBMISSION OF BID.

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Moderate Rehabilitation of
Telford-Shroyer RAD Conversion

514 Telford Avenue | 520 Telford Avenue
532 Telford Avenue | 1907 Shroyer Avenue | 2018 Shroyer Avenue
Kettering, Ohio
OHFA Project : 18-0218
Greater Dayton Premier Management

Print Record

10/08/18	AS-BUILT SET
10/23/18	REVIEW SET
11/27/18	80% SET
04/19/19	BID SET

Project Number
2018-177

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Sheet Title
NOTES AND LEGEND

Sheet Number
2018 SHROYER AVE.
M1

ELECTRIC BASEBOARD HEAT

MARK	MANUFACTURER	MODEL #	VOLTS	PH	WATTS	AMPS	LENGTH (IN)	NOTES
EB-1	CADET	4F1000W	240	1	1,000	-	48	1
EB-2	CADET	3F750W	240	1	750	-	36	1
EB-3	CADET	2F350W	240	1	350	-	24	1
-	-	-	-	-	-	-	-	-

NOTES:
1. PROVIDE WITH WALL MOUNTED THERMOSTAT. COORDINATE POWER WITH ELECTRICAL. RESTRICT HEATING SETTING FROM BEING SET ABOVE COOLING SETTING.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	WASTE	VENT	HOT	COLD	DESCRIPTION
BA-1	TUB / SHOWER	3"	1-1/2"	1/2"	1/2"	MOEN COMMERCIAL SINGLE HANDLE POSI-TEMP FAUCET, MODEL #T8389EP15, WITH MOEN POSI-TEMP PRESSURE BALANCING VALVE, MODEL #8371HD. SET DISCHARGE TEMPERATURE TO 110°F MAX. COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF BASE. LEFT HAND AND RIGHT HAND DRAIN VARIES PER UNIT. FIELD VERIFY PRIOR TO ORDERING.
L-1	LAVATORY (ADA)	1-1/4"	1-1/4"	1/2"	1/2"	LAVATORY WITH INTEGRAL BOWL BY OTHERS. PROVIDE PROFLO CHROME SINGLE HANDLE LAVATORY FAUCET WITH POP-UP DRAIN, MODEL #PFWSC4746SCP, 1.2 GPM, 4" CENTERSET INSTALLATION. PROVIDE WITH 0.5 GPM AERATOR INSERT, PART NUMBER PFX14320. PROVIDE CAST BRASS CHROME PLATED OPEN GRID PO PLUG, MODEL #155A.
S-1	KITCHEN SINK	1-1/2"	1-1/4"	1/2"	1/2"	PROFLO DOUBLE BOWL STAINLESS STEEL SINK, MODEL #PFSR332263. EACH BOWL SIZE IS 14" WIDE BY 15-3/4" FRONT TO BACK BY 6-1/8" DEEP, 33" X 22" OVERALL, WITH (3) HOLES AT 4" CENTERS FOR FAUCET MOUNTING. PROVIDE WITH PROFLO CHROME SINGLE HANDLE KITCHEN FAUCET, MODEL #PFXC3101CP, 1.5 GPM FLOW RATE, AND METAL LEVER HANDLE. PROVIDE WITH DEARBORN BRASS 12 LOCKING CUP SINK BASKET STRAINERS.
S-2	LAUNDRY SINK	1-1/2"	1-1/4"	1/2"	1/2"	EXISTING SINK TO REMAIN. PROVIDE PROFLO TWO HANDLE LAUNDRY FAUCET, MODEL #PF244A, 2.4 GPM FLOW RATE, AND METAL LEVER HANDLE.
WC-1	FLOOR MOUNTED WATER CLOSET (ADA)	3"	1-1/2"	-	1/2"	AMERICAN STANDARD CADET PRO RIGHT HEIGHT ELONGATED TOILET, MODEL #215AA.104, WHITE VITREOUS CHINA, FLOOR MOUNTED, 1.28 GAL. FLUSH, 16-1/2" HIGH BOWL RIM HEIGHT. PROVIDE WITH PROFLO SLOW CLOSE ELONGATED PLASTIC TOILET SEAT WITH EASY CLEAN, MODEL #PFTSEC2000.
WH-2	WATER HEATER (GAS)	-	-	3/4"	3/4"	STATE PROLINE XE POWER DIRECT VENT, 40-GALLON COMMERCIAL-GRADE RESIDENTIAL GAS WATER HEATER, MODEL #GS6 40 YBPDS. 40,000 BTUH INPUT, 0.68 ENERGY FACTOR, 74 GALLON FIRST HOUR RATING, 45 GPH RECOVERY AT 90° RISE, 22" DIAMETER, 29-7/8" OVERALL DEPTH, 59" OVERALL HEIGHT. PROVIDE WITH DRAIN PAN AND NEW COMBUSTION AIR INTAKE PIPE. CONNECT TO EXISTING FLUE PIPE.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL #	CFM	S.P. IN WATER	VOLTAGE	POWER (W)	SOUND (SONES)	NOTES
EF-1	BROAN	QTXE080FLT	50	0.25	120	23.3	0.3	2,3,4

NOTES:
1. PROVIDE WITH BROAN RADIATION DAMPER, MODEL #RDM1.
2. PROVIDE WITH BROAN PREMIUM RADIATION DAMPER, MODEL #RDFQL.
3. EXHAUST FAN WITH INTEGRAL LIGHT.
4. FURNISH WITH EXHAUST FAN TIMER SWITCH, EATON 9590AW OR EQUAL. TIMER SWITCH TO HAVE 10 MINUTE AND 1 HOUR SETTINGS AT MINIMUM. INSTALLATION BY ELECTRICAL CONTRACTOR.

GAS USAGE - TENANT

	EXISTING	NEW
FURNACE	66	-
WATER HEATER	38	40
TOTAL	104	40

NOTES:
1. ONE GAS METER PER TENANT SPACE. THERE ARE FOUR METERS FOR THE BUILDING.

SPLIT SYSTEM HVAC UNIT SCHEDULE

INDOOR UNIT

MARK	MANUFACTURER	MODEL # (FURNACE)	MODEL # (COIL)	AIRFLOW: SUPPLY AIR (CFM)	AIRFLOW: EXTERNAL S.P. (INCHES W.G.)	AIRFLOW: OUTSIDE AIR (CFM)	MIN. ACCEPTABLE CAPACITIES: COOLING: NOMINAL (MBH)	COOLING: SENSIBLE (MBH)	COOLING: ENTERING AIR TEMP. DB(°F)/WB(°F)	HEATING: OUTPUT (MBH)	UNIT PRIMARY HEATING PERFORMANCE: TYPE: ELECTRIC COIL	HEAT PUMP	HOT WATER	NATURAL GAS	STEAM	INPUT/ OUTPUT (MBH) [KW]	# OF STAGES	TURN DOWN RATIO	AFUE	ELECTRICAL: MOTOR HP	UNIT: VOLTAGE	PHASE	MCA	MOCP	AIR FILTER: QTY	MERV #	SIZE L x W x T	UNIT WEIGHT (LBS)	NOTES
FC-1.1#	CARRIER	-	40MAQB09B--3	380	-	-	9.0	-	-	-		●				/8.0	1	-	-	-	240	1	0.2	-	-	-	- x - x -	20	1,2,3
FC-1.2#	CARRIER	-	40MAQB09B--3	380	-	-	9.0	-	-	-		●				/8.0	1	-	-	-	240	1	0.2	-	-	-	- x - x -	20	1,2,3

NOTES:
1. CARRIER UNITS MAY BE SUBSTITUTED WITH EQUIVALENT BRYANT UNITS OR APPROVED EQUAL. COORDINATE PHYSICAL SPACE REQUIREMENTS WITH EXISTING CONDITIONS. VERIFY FLOW DIRECTION AND PROVIDE ANCILLARY EQUIPMENT AS NECESSARY. PROVIDE CONDENSATE PUMP AS NECESSARY WHERE ACCESS TO A DRAIN IS NOT READILY AVAILABLE. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL. CLEAN FILTER NEAR THE END OF MAJOR CONSTRUCTION. PROVIDE PROGRAMMABLE THERMOSTAT.
2. UNIT IS POWERED BY OUTDOOR UNIT.
3. MARK '#' DENOTES THE APARTMENT NUMBER IN WHICH THE UNIT. 'H' DENOTES "HOUSE" USE.
4. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH SECOND STAGE "EMERGENCY" HEAT CAPABILITY. THE FIRST STAGE OF HEATING SHALL CONTROL THE HEAT PUMP. THE SECOND STAGE OF HEATING SHALL CONTROL THE ELECTRIC RESISTANCE BASE-BOARD IN THE SAME ROOM AS THE HEAT PUMP. PROVIDE HEAT PUMP WITH 24 VOLT INTERFACE MODULE AS NECESSARY. DO NOT LOCK OUT THE HEAT PUMP OR THE ELECTRIC HEAT.

OUTDOOR UNIT

MARK	MANUFACTURER	MODEL	COOLING CAPACITY: NOMINAL (MBH)	COOLING CAPACITY: AMBIENT TEMP. (°F)	SEER	EER	HEATING CAPACITY: NOMINAL (MBH)	HEATING CAPACITY: AMBIENT TEMP. (°F)	COP	HSPF	ELECTRICAL: COMPRESSOR: QTY	COMPRESSOR: VOLTAGE	COMPRESSOR: PHASE	COMPRESSOR: RLA	VOLTAGE	PHASE	MCA	MOCP	UNIT WEIGHT (LBS)	NOTES
HP-1	CARRIER	38MGRQ24C--3	24.0	95	23.0	12.5	23.0	47	3.9	10.0	1	240	1	-	240	1	25	30	150	1
							23.0	5	2.1											
							17.6	-14	-											

NOTES:
1. UNITS MAY BE SUBSTITUTED WITH EQUIVALENT BYANT UNITS OR APPROVED EQUAL. PROVIDE WITH MOUNTING BASE AS NECESSARY PER FIELD CONDITIONS. COORDINATE WITH ELECTRICAL FOR POWER REQUIREMENTS AND LOCAL DISCONNECT.

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2018 SHROYER AVE.
M6

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