The changes, clarifications, omissions, additions, and/or alterations in, on, and to the bid information and specifications shall apply to the Advertisement for Bid submitted for and to the project indicated above. Except as modified by this Addendum 03, all the terms and provisions of the bidding documents for the above listed project remain in full force and effect. This Addendum 03 supersedes all previous instructions pertaining to the items listed:

Addendum 03 for the DCWRF Dewatering Improvements Construction consists of 2 total pages and includes the following changes/additions:

1. Standard detail drawings are included as Attachment A.
2. BOPU lobby is currently closed due to COVID-19. If the lobby is not scheduled to be open on the date bids are due (Nov 5), updated bid submittal instructions will be distributed with final addendum (Nov 2).
3. Questions and answers:
   a. Q: There are detail numbers called out on the drawings and I don’t believe these details where included in the bid package. Please provide standard details for the project.
      A: Correct. Standard details were inadvertently left out of the original bid package. Standard detail drawings are included as Attachment A.
   b. Q: Is it the owner’s responsibility or the contractors to offload the Huber equipment and set it into an onsite building?
      A: The contractor will be responsible to coordinate shipment, offload, and store equipment prior to installation. The owner is responsible for coordinating submittals (and paying for them) prior to the Huber contract getting assigned to the contractor.
   c. Q: Can HVAC work start during phase 1?
      A: Yes, HVAC can start during Phase 1 or Phase 0.
   d. Q: I was wondering why all duct is stainless.
      A: While, aluminum ductwork holds up well with moisture, stainless steel is the best for areas with H2S concerns. Since there is no odor control in this building to aid in the H2S removal and since there
are historical H2S concerns in the building (i.e. electrical equipment rapidly corroding), stainless steel ductwork is determined to be the best option.
e. Q: Is there additional information, model numbers or specifications available for the washwater booster pumps and the initial/supplemental mixers?
   A: The washwater booster pumps and mixers are all part of the Huber scope. Their contract and scope is attached to Section 01 64 00 Owner-Furnished Products. The submittal information for this equipment was provided in Addendum 01.
f. Q: Will the HVAC duct work require insulation. I know the specifications were included but I didn't see anything notating the need for insulation on the prints?
   A: The required HVAC ductwork is specified in Section 23 07 00 HVAC Insulation.
g. Q: Will the piping need to be insulated?
   A: There is no piping insulation required.

End of Addendum 03

Attachments:
   Attachment A: Standard Detail Drawings
2020RPI01-B02
Addendum 03

Attachment A
Standard Detail Drawings
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</tr>
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<td>GUARD POST - EXTERIOR</td>
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<td>PIPE SUPPORT - WALL MOUNT</td>
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<td>PIPE SUPPORT - WALL MOUNTED MEDIUM</td>
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<td>4005-556</td>
<td>BEAM CLAMP</td>
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<td>4027-182</td>
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INDEX OF DETAILS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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CONCRETE EQUIPMENT PADS

GENERAL NOTE:
FOR GENERAL NOTES SEE DETAIL 3 OF 3.
6" MIN, TYP UNLESS NOTED OTHERWISE ON PLANS

3/4" CHAMFER, TYP

THICKENED EDGE OF SLAB ALL AROUND

#5@12" EW T&B

NOTE:
WHEN ANCHORAGE OF EQUIPMENT TO PAD IS REQUIRED, USE CONCRETE ANCHORS SPECIFIED.

TYPE 'H'

GENERAL NOTE:
FOR GENERAL NOTES SEE DETAIL 3 OF 3.

CONCRETE EQUIPMENT PADS

NTS

DETAILED 2 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

© JACOBS
NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.

2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE, WHILE PAD IS BEING PLACED.

3. ANCHOR BOLT SLEEVES SHALL BE USED TO PROVIDE MINIMUM ANCHOR BOLT MOVEMENT OF 1/2" IN ALL HORIZONTAL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER.

4. ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT AFTER BOLTS ARE ALIGNED. SEE [0330-057].

5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS INDICATED OTHERWISE.

6. WEDGES, SHIMS, OR LEVELING NUTS SHALL BE USED TO SUPPORT THE BASE WHILE THE GROUT IS PLACED. WEDGES OR SHIMS SHALL BE REMOVED AFTER GROUT IS SET AND PACK VOID WITH GROUT.

7. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT ABOVE SUPPORTING SLAB (SEE TABLE BELOW). WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, USE TYPE "B" EQUIPMENT PAD WITH BLOCKOUT.

8. TYPE "D" PAD SHALL BE USED ONLY WHERE SPECIFICALLY INDICATED. PLACE THE SURROUNDING FLOOR SLAB AFTER THE EQUIPMENT PAD.

9. AT CONTRACTOR'S OPTION, CONCRETE ANCHORS MAY BE USED IN LIEU OF CAST-IN-PLACE ANCHOR BOLTS FOR EQUIPMENT ANCHOR BOLTS LESS THAN 3/4" DIAMETER WHEN APPROVED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER. ANCHORS SHALL BE INSTALLED WITH 4" MINIMUM EDGE DISTANCE IN EACH DIRECTION.

<table>
<thead>
<tr>
<th>AB DIA (IN.)</th>
<th>1/2</th>
<th>5/8</th>
<th>3/4</th>
<th>7/8</th>
<th>1</th>
<th>1 1/4</th>
<th>1 3/8</th>
<th>1 1/2</th>
<th>1 3/4</th>
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<td>MIN PAD HT (IN.)</td>
<td>7</td>
<td>8 1/2</td>
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<td>11</td>
<td>12 1/2</td>
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<td>16 1/2</td>
<td>18</td>
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CONCRETE EQUIPMENT PADS

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

DETAIL 3 OF 3

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MACHINERY ANCHOR BOLT DETAIL

NOTES:
1. FOR CONCRETE EQUIPMENT PAD DETAILS AND NOTES NOT SHOWN SEE 0330-056
2. MATERIAL TO MATCH BOLT.

ANCHOR BOLT DETAILS

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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END OF EXISTING WALL OR SLAB

STD LAP LENGTH, SEE GENERAL STRUCTURAL NOTES

MIN EDGE DISTANCE

REBAR DOWELS, SEE DRAWINGS FOR SIZE AND SPACING

NEW WALL OR SLAB EXTENSION

STD LAP LENGTH, SEE GENERAL STRUCTURAL NOTES

MINIMUM EMBEDMENT "A", SEE NOTE 5

2" MINIMUM

LIMITED EDGE DISTANCE

NEW WALL OR SLAB

FACE OF EXISTING WALL OR SLAB

EXISTING REINFORCEMENT

MINIMUM EMBEDMENT "B"

HOLE DIA AS RECOMMENDED BY ADHESIVE MANUFACTURER

T/2, SEE NOTE 4

EXISTING REINFORCEMENT

LEMS

UNLIMITED EDGE DISTANCE

<table>
<thead>
<tr>
<th>DOGEL SIZE</th>
<th>MINIMUM EDGE DISTANCE</th>
<th>MINIMUM EMBEDMENT &quot;A&quot;</th>
<th>MINIMUM EMBEDMENT &quot;B&quot;</th>
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<tr>
<td>#9</td>
<td>7 1/2&quot;</td>
<td>15&quot;</td>
<td>24&quot;</td>
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NOTES:

1. CONFORM TO REQUIREMENTS OF SPECIFICATION SECTION 03 63 00, CONCRETE DOWELING.

2. FOLLOW ADHESIVE MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.

3. USE MINIMUM EMBEDMENTS SHOWN, EXCEPT USE MANUFACTURER'S MINIMUM RECOMMENDED EMBEDMENT IF GREATER.

4. LOCATE DOWELS CENTERED IN WALL OR SLAB UNLESS OTHERWISE NOTED ON DRAWINGS. WHERE 2 ROWS OF DOWELS INDICATED, STAGGER SPACING & LOCATE ALTERNATING DOWELS AT MINIMUM EDGE DISTANCE FROM OPPOSITE FACES.

5. PROVIDE MINIMUM EMBEDMENT "A" SHOWN IN TABLE UNLESS SHORTER EMBEDMENT DEPTH IS CALLED OUT ON DRAWINGS.

ADHESIVE DOWEL

NTS
1" MIN GROUT ALL AROUND BOLT

1" + \( \frac{D_b}{2} \)

ANCHOR BOLT, SEE PLANS

SUPPORTED MEMBER

6" EMBEDMENT LENGTH

SOLID GROUT HORIZONTAL CELLS

1/2" CLR

4" MIN

4" MIN

(2) SOLID GROUTED BLOCKS MIN

CMU

NOTE:

\( D_b = \text{DIAMETER OF BOLT} \)

MASONRY ANCHOR BOLT

NTS

© JACOBS

0422-046

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
EXISTING MASONRY WALL NEW OPENING

5/8" DIA ADHESIVE ANCHOR W/6" EMBEDMENT LOCATE 2" FROM END OF PL TYP AT EA END

1/2" BENT PL EXTEND VERT LEG 8" BEYOND EDGE OF OPNG

5/8" DIA ADHESIVE ANCHOR W/6" EMBEDMENT LOCATE 2" FROM END OF PL TYP AT EA END ADD'L ANCHORS FOR 8" SPA CENTERED ON WALL

FULLY GROUT 16" ALL AROUND NEW OPNG PRIOR TO CUTTING OPNG

REFER TO FACILITY DWGS FOR OPNG DIMS

8" EXST CMU WALL

2"

8"

8" EXST CMU WALL

FULLY GROUT 16" ALL AROUND NEW OPNG PRIOR TO CUTTING OPNG

REFER TO FACILITY DWGS FOR OPNG DIMS

5/8" DIA ADHESIVE ANCHOR W/6" EMBEDMENT LOCATE 2" FROM END OF PL TYP AT EA END ADD'L ANCHORS FOR 8" SPA CENTERED ON WALL

8" EXISTING MASONRY WALL NEW OPENING

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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NOTES:
1. UNLESS OTHERWISE NOTED, ANCHOR BOLTS SHALL BE 3/4" DIA x REQUIRED WITH LEVELING NUTS AND 6" MINIMUM EMBED AND BASEPLATES SHALL BE CENTERED ON COLUMN.
2. MINIMUM WELD SIZE SHALL BE 3/16" FILLET, ALL WELDS SHALL BE SINGLE-PASS WELDS.

COLUMN BASE - STEEL
NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
NOTES:

1. ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.

2. PROVIDE ADDITIONAL 1 1/2" LENGTH TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHEN REQUIRED OR USED.

3. DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.

TYPICAL BEAM CONNECTION - STEEL

<table>
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<tr>
<th>NOMINAL BEAM DEPTH, INCHES</th>
<th>ROWS OF BOLTS</th>
<th>BOLT DIA, INCHES</th>
<th>DOUBLE ANGLE, LENGTH, INCHES</th>
<th>COMMENTS</th>
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<td>-</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>3/4&quot;</td>
<td>0'-5 1/2&quot;</td>
<td>-</td>
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</table>
NOTE:
1. DO NOT CUT EXISTING REINFORCING DURING DRILL-IN ANCHOR INSTALLATION.

BEAM / WALL CONNECTION - STEEL

NTS
**NOTES:**

1. ATTACH METAL DECKING TO ALL SUPPORTS PERPENDICULAR TO DECKING SPAN WITH SPECIFIED FASTENERS AT EACH VALLEY OF DECKING. ATTACH METAL DECKING TO SUPPORTS PARALLEL TO SPAN @ 6" ON CENTER. WHERE VALLEY OF DECKING DOES NOT FALL AT SUPPORTS PARALLEL TO DECK SPAN, PROVIDE FILLER PIECES FOR EQUAL ATTACHMENTS.

**ROOF DECK OPENING**

**NTS**

**DRY CREEK WATER RECLAMATION FACILITY**

**DEWATERING IMPROVEMENTS**

**CHEYENNE, WYOMING**

---

**TABLE:**

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<tr>
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<th>CLOSURE</th>
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<td>W &lt; 4'-0&quot;</td>
<td>L 3x3x1/4</td>
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<tr>
<td>4'-0&quot; &lt; W ≤ 6'-0&quot;</td>
<td>L 4x3x1/4 (LLV)</td>
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<tr>
<td>6'-0&quot; &lt; W</td>
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<tr>
<td>6'-0&quot; &lt; L ≤ 7'-6&quot;</td>
<td>L 5x3x1/4 (LLV)</td>
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<tr>
<td>7'-6&quot; &lt; L</td>
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</table>

**OPENING WIDTH**

"W"

**SUPPORT**

3/16" WALL SUPPORT

**JOIST OR BEAM SUPPORT**

TYP EA END

**TOP CHORD OF METAL JOIST OR BEAM**

**SUPPORT ANGLE, SEE SCHED**

**COPE ANGLE AS REQD**

**FRAMING CONNECTIONS**

**WALL SUPPORT**

- L 5x3x1/4x0'-8" LONG W/ 2 - 5/8" DIA CONC ANCHORS @ 5" GA
- L 3/16" SEE SCHED
INSTALL FIRST TREAD FLUSH W/ T.O. GRATING

EXST STAIR STRINGER

GS-2, SIM GRATING

BOLTED Conn

0512-020

METAL BEAM, SEE PLANS

TOP CONNECTION - STEEL

VARIES W/ STAIR SLOPE

3/8" STL BOT PLATE W/ 11/16"x2 1/2"
SLOTTED HOLES

EXST STAIR TO BE RELOCATED

PLAN

3/16

3/16

END STL PL 3/8"x3"x
VARIIES

NON-SHRINK GROUT

3/8" STL BOT PLATE W/ 11/16"x2 1/2"
SLOTTED HOLES

(2) 5/8" SST CONC ANCHORS W/ 4"
MIN EMBEDMENT

SECTION

BOTTOM CONNECTION

STAIR DETAILS

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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NOTES:
1. PROVIDE 6" STIFFENED KICK PLATE ATTACHED TO REMOVABLE RAILING.
2. FABRICATE REMOVABLE RAILING IN MAXIMUM 8'-0" SECTIONS WITH 2 POSTS EACH SECTION.

RAILING - REMOVABLE THREE RAIL - ALUMINUM

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
STANDARD GRATING

GS-2 - ONE SIDED

ATTACH GRATING TO BEAM WITH CLAMP AS SPECIFIED
GRATING THICKNESS
EXTEND GRATING TO FAR SIDE OF BEAM FLANGE

SUPPORTING BEAM, FOR SIZE AND END CONDITIONS, SEE PLAN

GS-2 - TWO SIDED

ATTACH GRATING TO BEAM WITH CLAMP AS SPECIFIED
GRATING THICKNESS
MIN BEARING DIMENSION, SEE NOTE 12

SUPPORTING BEAM, FOR SIZE AND END CONDITIONS, SEE PLAN

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0553-001

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
NOTES:

1. INSTALL ANCHORS MAXIMUM 4" FROM EACH END.

2. WHEN ANCHOR IS WITHIN 4" OF A CMU EDGE, UTILIZE MANUFACTURER'S LOW-TORQUE INSTALLATION PROCEDURES.

GS-3

EQUIPMENT OPENINGS

STANDARD GRATING

NTS
GENERAL NOTES:

1. GRATING SHALL BE LIGHT DUTY GRATING UNLESS OTHERWISE NOTED ON DRAWINGS.

2. GRATING SPAN IS INDICATED BY ← → , SEE PLAN.

3. INDIVIDUAL GRATING SECTIONS SHALL NOT EXCEED 3'-0" IN WIDTH OR WEIGH MORE THAN 150 POUNDS, UNLESS INDICATED OTHERWISE.

4. SHOP DRAWINGS BASED ON FIELD DIMENSIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION.

5. MATERIAL FOR SUPPORTS OF STEEL AND ALUMINUM GRATING TO BE SAME AS GRATING, EXCEPT METAL SUPPORTS THAT ARE TO BE EMBEDDED IN CONCRETE SHALL BE TYPE 316 STAINLESS STEEL.

6. GRATING THICKNESS SHALL BE 2 1/2".

7. BEARING BAR THICKNESS FOR GRATING TO BE 3/16" MINIMUM. SEE SPECIFICATIONS FOR SPACING OF BEARING AND CROSS BARS.

8. BAND ALL EDGES. MATCH DEPTH OF BEARING BAR.

9. TYPE OF MATERIAL USED SHALL BE AS SHOWN ON PLANS OR AS SPECIFIED. THIS STANDARD DETAIL INCLUDES 2 TYPES, ALTHOUGH BOTH MAY NOT BE INCLUDED IN PROJECT.

10. THE HORIZONTAL CLEARANCE BETWEEN THE GRATING AND GRATING SUPPORTS SHALL NOT BE LESS THAN 1/4" NOR GREATER THAN 1/2" AND AS SPECIFIED.

11. MINIMUM BEARING HORIZONTAL DIMENSION = 2".

STANDARD GRATING

NTS

DETAIL 3 OF 3

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

© JACOBS
1. FROM NATURAL GAS DISTRIBUTION SYSTEM, SIZE AS SHOWN ON PLANS

2. 6" LONG DIRT LEG LOCATED AS CLOSE TO INLET OF EQUIPMENT AS POSSIBLE.

3. REMOVABLE CAP

4. BALL VALVE V305, LOCATED CLOSE TO INLET SIDE OF DIRT LEG TEE

5. GROUND JOINT UNION

6. CONNECT TO EQUIPMENT GAS TRAIN, INCLUDING 316 SST FLEXIBLE CONNECTOR OR RIGID PIPE FOR 1" DIA AND LARGER CONNECTIONS, TYP

7. TRANSITION TO UNIT CONNECTION, SIZE AS REQUIRED

8. 1/8" NPT PLUGGED TAPPING ACCESSIBLE FOR TEST GAUGE CONNECTION

9. PRESSURE REDUCING VALVE

GAS FIRED EQUIPMENT CONNECTION

NTS

DRY CREEK WATER RECLAMATION FACILITY DEWATERING IMPROVEMENTS CHEYENNE, WYOMING
FLOOR PENETRATION - DRY AREA

NOTES:
1. 2" ANGLE CLOSURE COLLAR OF SAME MATERIAL AS DUCT.
316 STAINLESS STEEL

LINER IF SPECIFIED

SEAL ALL JOINTS W/ WATERPROOF MASTIC

STORM LAP JOINT

PATE DUCT SUPPORT
SYSTEM PREFABRICATED CURB OR EQUAL

PATCH EXIST MEMBRANE ROOF TO ATTACH CURB TO DECK

ROOF INSULATION

316 STAINLESS STEEL DUCT & INSULATION

CURB FLASHING

METAL DECK ROOF

CURB MANUF STANDARD METAL DECK RECOMMENDED FASTENERS OR PL 1/4x3x3" MIN FASTEN W/ (2) 3/8" WEDGE ANCHORS, FOR METAL DECK, BOLT PLATE DIRECTLY TO DECK, PLATE SHOULD COVER TWO RIBS OF DECK MIN FOR CURB ATTACHMENT

NOTE:
1. SPACE SUPPORTS ON BAR JOISTS OR NO MORE THAN 5' APART.

ABOVE ROOF DUCTING AND SUPPORT

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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INSULATED DUCT THROUGH ROOF

SHEET METAL DUCT WITH INTERNAL LINER

PATCH EXST MEMBRANE ROOF TO ATTACH CURB TO DECK

STANDARD LOCK JOINT-SOLDER SEAMS WATER TIGHT

COUNTER FLASHING, PITCH AWAY FROM DUCT (20 GAGE)

PREFAB ROOF CURB

ROOF INSULATION

METAL DECK ROOF

CUT ROOF OPENING & FRAME OUT NEW ROOF PENETRATION, SEE STRUCTURAL DETAIL 0531-021

EXTERNAL INSULATION
GENERAL DUCTWORK NOTES

1. LOW PRESSURE CONSTRUCTION SHALL BE IN ACCORDANCE WITH LOCAL MECHANICAL CODES AND THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOC., INC. HVAC DUCT CONSTRUCTION STANDARDS UNLESS OTHERWISE INDICATED ON DRAWINGS.

2. CEILING DIFFUSER SIZES ARE NECK SIZES AND ARE TO BE LOCATED IN THE T-BAR GRIDS IN ALL SUSPENDED CEILING SYSTEMS. WHERE REFLECTED CEILING PLANS ARE PROVIDED LOCATE DIFFUSERS AND GRILLES AS INDICATED.

3. ALL DUCT SIZES SHOWN ARE NET FREE AND ARE DIMENSIONS.

4. PROVIDE SPLITTER OR VOLUME DAMPER AT EACH SUPPLY DUCT TAKE-OFF IN ACCORDANCE WITH TYPICAL DUCT CONSTRUCTION DETAILS.

5. PROVIDE VOLUME DAMPERS FOR EACH GRILLE AT EACH CONNECTION AND ANY OTHER LOCATIONS INDICATED ON THE DRAWINGS IN ACCORDANCE WITH TYPICAL DUCT RECONSTRUCTION DETAILS. DAMPERS TO BE INSTALLED MIN. 5'-0" FROM GRILLE.

LOW PRESSURE DUCT CONSTRUCTION

NTS

DRY CREEK WATER RECLAMATION FACILITY DEWATERING IMPROVEMENTS CHEYENNE, WYOMING
1" INSULATION GUARD WHERE REQUIRED FOR INTERNALLY LINED DUCKWORK

BRANCH DUCT TAKE-OFF
NTS

DIRECTIO N
OF AIR FLO W

MANUAL DAMPER W/ LOCKING QUADRANT PLACE HANDLE IN LOCATION WITH BEST ACCESSIBILITY FROM WALKING AND WORKING SURFACES

CLOSE OPENINGS AT CORNERS

L = ¼W, 4" MINIMUM
ϕ = 45°

DRY CREEK WATER RECLAMATION FACILITY DEWATERING IMPROVEMENTS CHEYENNE, WYOMING

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### DUCT BRACING SCHEDULE FOR RECTANGULAR DUCTS

<table>
<thead>
<tr>
<th>DUCT SIZE (3)</th>
<th>VERTICAL L'S</th>
<th>DIAGONAL L'S</th>
<th>HORIZONTAL L'S</th>
<th>LONGITUDINAL L'S</th>
<th>BOLT SIZE</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30” SQ.</td>
<td>2 1/2x2 1/2x16GA.</td>
<td>2 1/2x2 1/2x16GA.</td>
<td>2x2x16GA.</td>
<td>3x3x16GA.</td>
<td>1/4”</td>
<td>TYPE III</td>
</tr>
<tr>
<td>42” SQ.</td>
<td>4x4x16GA.</td>
<td>2 1/2x2 1/2x16GA.</td>
<td>2 1/2x2 1/2x16GA.</td>
<td>DO</td>
<td>3/8”</td>
<td>TYPE III</td>
</tr>
<tr>
<td>54” SQ.</td>
<td>4x4x12GA.</td>
<td>2 1/2x2 1/2x16GA.</td>
<td>2 1/2x2 1/2x16GA.</td>
<td>DO</td>
<td>3/8”</td>
<td>TYPE III</td>
</tr>
<tr>
<td>60” SQ.</td>
<td>4x4x12GA.</td>
<td>3x3x16GA.</td>
<td>3x3x16GA.</td>
<td>DO</td>
<td>3/8”</td>
<td>TYPE III</td>
</tr>
<tr>
<td>84” SQ.</td>
<td>4x4x12GA.</td>
<td>4x4x14GA.</td>
<td>4x4x14GA.</td>
<td>DO</td>
<td>3/8”</td>
<td>TYPE IV</td>
</tr>
<tr>
<td>96” SQ.</td>
<td>5x3x1/4</td>
<td>4x4x12GA.</td>
<td>4x4x12GA.</td>
<td>DO</td>
<td>1/2”</td>
<td>TYPE V</td>
</tr>
</tbody>
</table>

"L" DENOTES ANGLE.
ALL HOLES IN L'S 1/16" OVERSIZE MAX.
PLACE STANDARD CUT WASHERS
BETWEEN SHEET METAL L'S & NUT.

MIN. EDGE DISTANCE FOR BOLTS

- 1/4” ——— 1”
- 3/8” ——— 1”
- 1/2” ——— 1”
- 5/8” ——— 1 1/8”
- 3/4” ——— 1 1/4”
- 7/8” ——— 1 1/2”

1. BRACE ALL RECTANGULAR DUCTS 6 SQ. FT. OF AREA AND LARGER. BRACE ALL ROUND DUCTS 28” IN DIAMETER AND LARGER.

2. TRANSVERSE BRACING TO OCCUR 30’-0” O.C. MAXIMUM. (EXCEPT RECTANGULAR DUCTS 61” AND LARGER IN EITHER DIRECTION MAY BE BRACED AT 32’-0”O.C.) TRANSVERSE BRACING SHALL BE INSTALLED AT EACH DUCT TURN AND AT EACH END OF A DUCT RUN. LONGITUDINAL BRACING SHALL OCCUR AT 60’-0” MAXIMUM.

3. NO BRACING IS REQUIRED IF THE TOP OF DUCT IS SUSPENDED 12” OR LESS FROM THE SUPPORTING STRUCTURAL MEMBER AND ATTACHED TO TOP OF DUCT.

4. SEE SCHEDULE FOR TYPICAL CONNECTION TO STRUCTURAL SUPPORTING MEMBERS.

5. THE DUCTS MAX. DIMENSION SHALL GOVERN WHAT BRACING IS REQUIRED. EXAMPLE: A 36”x60” DUCT SHALL BE BRACED AS A 60” SQ. DUCT.
ROOF MOUNTED FAN

1. FAN
2. PROVIDE 1" MINIMUM FLANGE ON SLEEVE
3. PRE-FABRICATED ROOF CURB
4. ROOF OPENING AS REQUIRED BY EQUIPMENT MANUFACTURER
5. PROVIDE BACKDRAFT DAMPER
6. CUT ROOF OPENING AND FRAME OUT NEW ROOF PENETRATION. SEE ARCHITECTURAL DETAIL 0531-021
7. PATCH EXST MEMBRANE ROOF TO ATTACH CURB TO DECK
8. FASTEN SLEEVE FLANGE AND FAN TO CURB
9. RUBBER PAD
10. ROOF INSULATION
11. METAL DECK ROOF

NOTES
A. REFER TO STRUCTURAL DRAWINGS FOR ROOF OPENING DETAILS.
DUCT SUPPORT PER SMACNA "HVAC DUCT CONSTRUCTION STANDARDS"

SEE PLAN FOR SIZE OF DUCT

WALL

45°

1/2" GRID 316SST SCREEN

FINISHED FLOOR

12"

FLOOR EXHAUST DUCT

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
DUCT WALL PENETRATION

WALL

1" MAX CLEARANCE

SHEET METAL DUCT

PACK OPENING AROUND DUCT WITH FIRE SAFEING

2" ANGLE CLOSURE COLLAR SAME MATERIAL AS DUCT

CAULK WITH WATERPROOF SILICONE RUBBER SEALANT, TYP
NOTE:
FOR INTERIOR GUARD POST, SEE 0559-026.

GUARD POST - EXTERIOR
NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
3471-810
2 1/2" THRU 24" PIPE

PRE-ENGINEERED PIPE SUPPORT

SIZE AS REQUIRED BY CALCULATIONS, STANDARD WALL PIPE MINIMUM

STANDARD PIPE FLANGE

MINIMUM 1 1/2" NON-SHRINK GROUT

CONCRETE ANCHORS, SIZE AND NUMBER AS REQUIRED BY CALCULATIONS

---

### DIMENSION TABLE

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>&quot;A&quot; MINIMUM NOMINAL PIPE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1/2&quot;</td>
<td>2-1/2&quot;</td>
</tr>
<tr>
<td>3&quot;</td>
<td>2-1/2&quot;</td>
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<td>6&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

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**NOTE:**
SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

**PIPE SUPPORT**

**SADDLE SUPPORT PEDESTAL TYPE - ADJUSTABLE**

**NTS**

**4005-500**

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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NOTES:
1. ONLY FOR VERTICAL PIPES.
2. NOT FOR USE ON CEILINGS OR BOTTOMS OF BEAMS.
3. PROVIDE PIPE PROTECTION BARRIER AS SPECIFIED. FABRICATE OVERSIZE STRAP WHERE REQUIRED.
4. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

PIPE SUPPORT - WALL MOUNT

NTS
3/4" THRU 8" PIPE —

MACHINE BOLT, TYP

CONCRETE FLOOR OR WALL (MASONRY WALL SIMILAR)

SECTION

PRE-ENGINEERED OFFSET PIPE CLAMP

PROVIDE PIPE PROTECTION BARRIER AS SPECIFIED. FABRICATE OVERSIZE CLAMP WHERE REQUIRED.

NOTES:
1. ONLY FOR VERTICAL OR FLOOR MOUNTED PIPES.
2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

PIPE SUPPORT - WALL MOUNTED

NTS

DRY CREEK WATER RECLAMATION FACILITY DEWATERING IMPROVEMENTS CHEYENNE, WYOMING 4005-505

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NOTES:
1. WALL BRACKET SHALL BE MEDIUM HEAVY DUTY AS REQUIRED BY CALCULATIONS.
2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

PIPE SUPPORT - WALL MOUNTED MEDIUM

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
OVERHEAD PIPE HANGER

NOTES:
1. SUBMIT FINAL DESIGN DRAWINGS AND CALCULATIONS OF SUPPORTS AND ANCHORS AS SPECIFIED.
2. LONGITUDINAL BRACE BEYOND (NOT SHOWN) AS REQUIRED BY CALCULATIONS, SEE 4005-5XX

CONC SLAB

2 - #4 x 5'-0" EW AT ISOLATED INSERTS, PROVIDE ADDITIONAL TYP BARS EW AT CONTINUOUS INSERTS

MIN 1 UNDERCUT CONC ANCHORS AS SPECIFIED

TRANSVERSE BRACE, SIZE AND TYPE AS REQUIRED BY CALCULATIONS

PRE-ENGINEERED PIPE STRAP OR U-BOLT, CLEVIS ROD AND EMBED ASSEMBLY, ADAPT ASSEMBLY AS REQUIRED TO RECEIVE TRANSVERSE AND LONGITUDINAL BRACES

4" DIA TO 24" DIA PIPE

ROD STIFFENER AS REQD

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DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING
CONC SLAB

2 - #4 x 5'-0" EW AT ISOLATED INSERTS, PROVIDE ADDITIONAL TYP BARS EW AT CONTINUOUS INSERTS

MIN 1 UNDERCUT CONC ANCHORS AS SPECIFIED

TRANSVERSE BRACE, SIZE AND TYPE AS REQUIRED BY CALCULATIONS

1/2" DIA TO 8" DIA PIPE

PRE-ENGINEERED SPLIT PIPE RING WITH TURNBUCKLE AND EMBED ASSEMBLY, ADAPT ASSEMBLY AS REQUIRED TO RECEIVE TRANSVERSE AND LONGITUDINAL BRACES

NOTES:

1. SUBMIT FINAL DESIGN DRAWINGS AND CALCULATIONS OF SUPPORTS AND ANCHORS AS SPECIFIED.

2. LONGITUDINAL BRACE BEYOND (NOT SHOWN) AS REQUIRED BY CALCULATIONS, SEE 4005-5XX

OVERHEAD PIPE HANGER

NTS

DRY CREEK WATER RECLAMATION FACILITY
DEWATERING IMPROVEMENTS
CHEYENNE, WYOMING

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BEAM CLAMP

ROD SIZED FOR LOAD AND SPACING
1 1/2" VXXX

1 1/2" GALV NIPPLE

BLIND FLANGE DRILLED & TAPPED FOR 1 1/2" NIPPLE

TEE, WYE OR CROSS AS SHOWN ON PLANS

TYPE 2 FLUSHING CONNECTION

NTS
1. APPLY ANTI-GALLING COMPOUND TO SST PIPE THREADS.

2. LOCATE VALVE FOR CONVENIENT OPERATION WITH OWNER'S REPRESENTATIVES APPROVAL ONLY.

SAMPLE VALVE

NTS

DRY CREEK WATER RECLAMATION FACILITY DEWATERING IMPROVEMENTS CHEYENNE, WYOMING

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