VOS09CEM

TYPE OF RECORD:	NON-PERMANENT
CATEGORY OF RECORD:	CONTRACT
NAME OF CONTRACTOR:	VOSTATEK CONSTRUCTION, INC.
SUBJECT/PROJECT:	CEMETERY BUILDING CONSTRUCTION
CITY DEPARTMENT:	PARKS AND RECREATION
YEAR:	2009
EXPIRATION DATE:	06/01/~~2010~~ 2060
DESTRUCTION DATE:	~~01/01/2017~~

CITY OF Grand Junction COLORADO

PURCHASING

CONTRACT 3108-09-SDH

This CONTRACT made and entered into this 26th **day of October, 2009**, by and between the **City of Grand Junction, Colorado,** a Municipal Corporation in the County of Mesa, State of Colorado, hereinafter in the Contract Documents referred to as the "City" and **Vostatek Construction, Inc.**, hereinafter in the Contract Documents referred to as the "Contractor."

WHEREAS, the City advertised that sealed Bids would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the Project described by the Contract Documents and known as No. **IFB-3108-09-SDH "Cemetery Building Construction"**; and

WHEREAS, the Contract has been awarded to the above named Contractor by the City, and said Contractor is now ready, willing and able to perform the Work specified, in accordance with the Contract Documents;

NOW, THEREFORE, in consideration of the compensation to be paid the Contractor, the mutual covenants hereinafter set forth and subject to the terms hereinafter stated, it is mutually covenanted and agreed as follows:

ARTICLE 1

Contract Documents: It is agreed by the parties hereto that the following list of instruments, drawings, and documents which are attached hereto, bound herewith, or incorporated herein by reference constitute and shall be referred to either as the "Contract Documents" or the "Contract", and all of said instruments, drawings, and documents taken together as a whole constitute the Contract between the parties hereto, and they are fully a part of this agreement as if they were set out verbatim and in full herein:

- Contract Documents for the Project;
  - Addendum No. IFB-3108-09-SDHa
  - IFB-3108-09-DH including:
  - Instruction to Bidders
  - General Contract Documents
  - Statement of Work
  - Technical Specifications
  - DKO Drawings
  - Contractors Bid Form
- Work Change Requests (directing that changed work be performed);
- Field Orders;
- Change Orders.

ARTICLE 2

333 WEST AVENUE, BUILDING C, GRAND JUNCTION, CO 81501 P[970]244-1533 F[970]244-1427 www.gjcity.org

Definitions: The definitions provided in the General Contract Conditions apply to the terms used in the Contract and all the Contract Documents.

ARTICLE 3

Contract Work: The Contractor agrees to furnish all labor, tools, supplies, equipment, materials, and all that is necessary and required to complete the tasks associated with the Work described, set forth, shown, and included in the Contract Documents as indicated.

ARTICLE 4

Contract Time: Time is of the essence with respect to this Contract. The Contractor hereby agrees to commence Work under the Contract upon award and to achieve Substantial Completion and Final Completion of the Work by June 1, 2010.

ARTICLE 5

Contract Price and Payment Procedures: The Contractor shall accept as full and complete compensation for the performance and completion of all of the Work specified in this Contract and the Contract Documents, the sum of **Three Hundred Twelve Thousand Nine Hundred Thirty Four Dollars Sixty Nine Cents ($312,934.69)** (the "Contract Price). The amount of the Contract Price is and has heretofore been appropriated by the City Council of the City of Grand Junction for the use and benefit of this Project. The Contract Price shall not be modified except by Change Order or other written directive of the City. The City shall not issue a Change Order or other written directive which requires additional work to be performed, which work causes the aggregate amount payable under this Contract to exceed the amount appropriated for this Project, unless and until the City provides Contractor written assurance that lawful appropriations to cover the costs of the additional work have been made.

Unless otherwise provided in the Special Conditions, monthly partial payments shall be made as the Work progresses. Applications for partial and Final Payment shall be prepared by the Contractor and approved by the City in accordance with the General Contract Conditions.

Upon Final Completion of the Work under the Contract and before the Contractor shall receive final payment, the City shall publish at least twice in a newspaper of general circulation published in the City a notice that: 1. the City has accepted such Work as completed according to the Contract Documents; 2. the Contractor is entitled to final payment; 3. ten days after the first publication, specifying the exact date, the City shall pay the full balance due under the Contract; and 4. persons having claims for labor, materials, team hire, sustenance, provisions, provender, or other supplies used or consumed by the Contractor or a subcontractor shall file a verified statement of the amount due and unpaid on account of such claim prior to the date specified for such payment. Nothing herein shall be construed as relieving the Contractor and the Sureties on the Contractor's Bonds

333 WEST AVENUE, BUILDING C, GRAND JUNCTION, CO 81501 P[970]244-1533 F[970]244-1427 www.gjcity.org

from any claim or claims for work or labor done or materials or supplies furnished in the execution of the Contract.

ARTICLE 6

Bonds: The Contractor shall furnish currently herewith the Bonds required by the Contract Documents, such Bonds being attached hereto. The Performance Bond shall be in an amount not less than one hundred percent (100%) of the Contract Price set forth in Article 5. The Payment Bond shall be in an amount not less than one hundred (100%) of the Contract Price set forth in Article 5. Bonds in the amounts of $1,000 or less will be made in multiples of $100; in amounts exceeding $5,000, in multiples of $1,000; provided that the amount of the Bonds shall be fixed by the City at the lowest sum that fulfills all conditions of the Contract.

ARTICLE 7

Contract Binding: The City and the Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contract Documents constitute the entire agreement between the City and Contractor and may only be altered, amended or repealed by a duly executed written instrument. Neither the City nor the Contractor shall, without the prior written consent of the other, assign or sublet in whole or in part its interest under any of the Contract Documents and specifically, the Contractor shall not assign any moneys due or to become due without the prior written consent of the City.

ARTICLE 8

Severability: If any part, portion of provision of the Contract shall be found or declared null, void or unenforceable for any reason whatsoever by any court of competent jurisdiction or any governmental agency having the authority there over, only such part, portion or provision shall be effected thereby and all other parts, portions and provisions of the Contract shall remain in full force and effect.

IN WITNESS WHEREOF, the City of Grand Junction, Colorado, has caused this Contract to be subscribed by its City Council. The Contractor has signed this Contract the day and the year first mentioned herein.

333 WEST AVENUE, BUILDING C, GRAND JUNCTION, CO 81501 P[970]244-1533 F[970]244-1427 www.gjcity.org

CITY OF Grand Junction COLORADO

PURCHASING

The Contract is executed in four counterparts.

THE CITY OF GRAND JUNCTION, COLORADO

By: _____ 10/26/09

Scott Hockins, Purchasing Supervisor — Date

CONTRACTOR

By: _____ 10/26/09

Date

Title: President

333 WEST AVENUE, BUILDING C, GRAND JUNCTION, CO 81501 P[970]244-1533 F[970]244-1427 www.gjcity.org

Grand Junction
COLORADO

Cemetery Building Addendum #1

29-Sep-09

The 'Invitation to Bid' Documents and Construction Documents for the Cemetery Building Construction shall be revised or amended as follows:

Scope of Work

1. Clarification: A waste pile of dirt, asphalt millings, tree parts, and vegetation is currently located on the project site. City personnel will remove all this material and the T-posts surrounding the pile before work will begin on this project. Removal of this material is NOT to be included in this bid.
2. Clarification: All utility tap fees and impact fees will be paid by the City; such fees are NOT to be included in this bid. Construction permit fees are the responsibility of the Contractor and ARE to be included in this bid.
3. Clarification: Installation of the new overhead power line to this site and the new pole-mounted transformer for this site will be coordinated and paid for directly by the City, and is NOT to be included in this bid. New pole-mounted transformer will be located on the south edge of the site, just west of the proposed driveway. Installation of electrical service lines from the new transformer to the building is the responsibility of the general contractor, and MUST be included in this bid.

Bid Schedule

4. Clarification: Item #8 – Septic tank size should be shown as 1,500 gallons.
5. Clarification: Item #23 – True dimensions of the metal building are 46' x 78'.

Site and Grading Plan

6. Clarification, Concrete apron at garage door shall be 6" in depth with #3 rebar at 12" ea way. Concrete mix shall be 4000 psi design. Typical concrete walks shall be 4" in depth. Prepare grade per the soils report. Provide positive drainage slope at covered building entry not to exceed 2%.
7. Plan Change: The length of sidewalk in front of the building has been increased, and the finished floor of the building has been lowered 0.50'. (See attached exhibit.)
8. Clarification: Dimensions of the building are approximately 46' x 78', refer to Architectural drawings.
9. Clarification: The "landscape border" and "6' wood fence" shown on the Plan are part of future work to be done by the City. This bid does NOT include any landscaping or fencing work. On the Bid Schedule, please disregard line item #21, "6' wood privacy fence with gate".
10. Clarification: City surveyors will provide a construction benchmark for this project site. This work is NOT to be included in this bid.
11. Clarification: Silt fencing is not shown on the Plan, but must be installed prior to construction. The location of the silt fencing must be down-gradient from and outside of all disturbed areas. Standard silt fence materials and installation standards apply.
12. Clarification: Any excavated soil materials that must be disposed of may be "wasted" onsite, rather than hauled away. Contractor must obtain direction and approval from the Project Manager prior to depositing any such material.
13. Clarification: Sewage disposal system shown on the Plan and listed on the Bid Schedule shall meet the following specifications, or equal. (As part of the Bid, the contractor must submit "cut sheets," shop drawings, and/or spec sheets for any proposed "or equal" system.)
    :

- 1,500 gallon septic tank shall be concrete, pre-fabricated and shall be set to elevations designated in the field by the Architect or Engineer.
- Contractor must provide additional, redundant 1¼" check valve on pump discharge line. CITY OF GRAND JUNCTION PERSONNEL WILL INSTALL THE DISCHARGE TAP INTO THE EXISTING 6" FORCEMAIN.
- Pump system shall be a Barnes EcoTran System (Simplex) installed complete with Barnes OGP2022CE pump (see attached sample specifications), or equal, meeting the following minimum criteria:
    - Pump shall be submersible, single-phase, 240V, 2HP, discharging 25gpm (minimum) @ 50' total head pressure.
    - Pump system must include integrated check valve, anti-siphon controls, ball-type shutoff valve, and must be operated by automatic level control pressure switches housed within the pump basin. Pump system must include an alarm/control box to be mounted within the building. Alarm box must include alarm light, horn, silence button, and circuit breaker.
    - Pump basin shall be pre-fabricated, corrosion-resistant, vented, and provide a standard 4" inlet suitable for SDR-35 or Sch. 40-80 PVC. Discharge outlet must be 1¼" NPT. Basin must provide a minimum of 30 gallons pump cycle storage volume, and a minimum of 60 gallons total emergency storage volume. Alarm trigger volume must be no greater than 50 gallons.

Sheet A1

14. Provide 5' x 10' VCT floor finish at entry (Door 100).
15. At Women Room 110 and Men Room 111, slope floor towards floor drain – depress drain 1".
16. Bollards shall be installed per attached detail, 1/ADD1.
17. Door Schedule Opening #113 clarification - install a 2 x 8 rough sawn cedar trim (stain) to the inside of the jamb and head to finish the opening.
18. Wall Types Clarification– Wall Types #5 and #6: Materials from inside to out shall be – 5/8" Gypsum Wallboard, Met Furring Channels @ 16" o.c. over Metal Building Wall Girts (size for span), Vapor Barrier/R19 Blanket Insulation, Metal Panel Siding.

Sheet A2

19. Reflected Ceiling Clarification: Breakroom ceiling shall be exposed underside of insulation system at roof. West wall of Office #2 shall extend to underside of roof, continue finished wall south as bulkhead over the opening between Breakroom and Kitchen.
20. Reflected Ceiling Clarification: Contractor Option - Gyp Bd Ceilings shall be supported by metal joists at 24" o.c. or USG Drywall Suspension System for Flat Ceilings (or approved equal) per ASTM C635 or C645 as appropriate. Submittals for selected system shall be required.

Sheet A3

21. Specification Section 07210, Building Insulation clarification – Roof insulation shall have installed R-value of R-38 (Provide uniform depth space required for full insulation thickness, without compression or voids). Wall insulation shall be 6" in thickness with an R-value of R-19.
22. Specification Section 08360, Garage Door, manufacturer prior-approval – Overhead Door Corporation.
23. Specification Section 08700, Door Hardware, manufacturer's product prior approval – K2 QCL100 Series Locksets; Falcon T Series Locksets (Note all Locksets must meet City of Grand Junction Facilities requirement for interchangeable cores); K2 QDC200 Series Door Closers; Falcon SC70 Series Door Closers.

Sheet A4

24. Specification Section 10800, Toilet Accessories – Delete Hand Dryer.
25. Specification Section 13120, Preengineered Metal Buildings, approved alternate – Roof panels may have a modified Silicon Polyester finish over Aluminum Zinc alloy-coated or G-90 galvanized steel substrate in accordance with ASTM A792, Grade 80. Provide not less than 12 available colors for Architect's selection.
26. Specification Section 13120, Preengineered Metal Buildings – Contractor shall provide allowance(s) for structural support of all suspended and roof mounted accessories, equipment and construction assemblies. Loads to be determined by submittals in the earliest phase of Construction.

Sheet E2

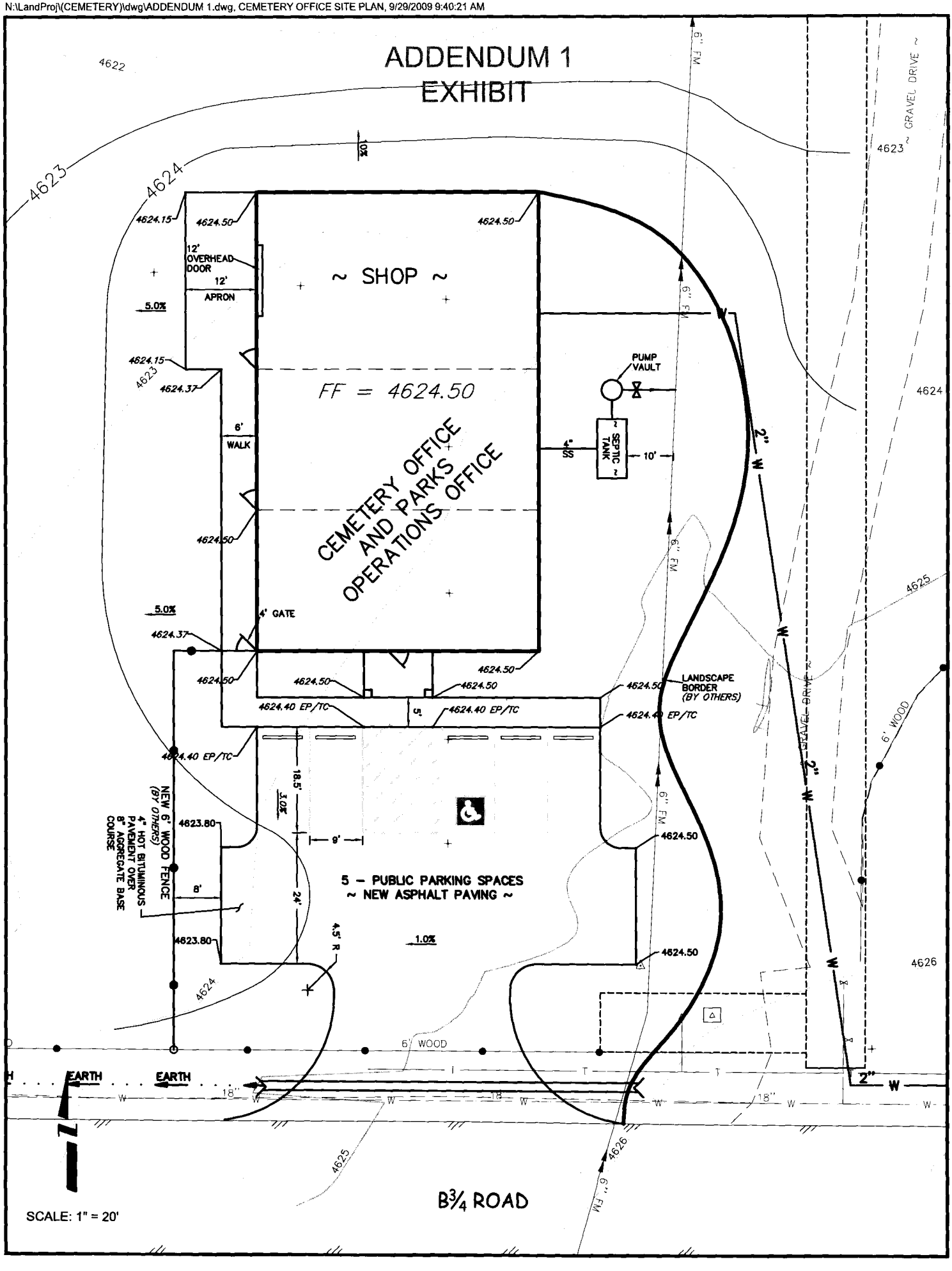
27. Power Plan, Panel Schedule, Delete Hand Dryers.
28. Panel Schedule, label circuit for future evaporative cooler.

Attachments:

Addendum 1A.pdf (Additional site plan information)
PSA-01.pdf (Submersible Grinder Pump specifications)
PS-ECO.pdf (Pump specifications)
Bollard Detail.pdf

End of Addendum #1 items

N:\LandProj\(CEMETERY)\dwg\ADDENDUM 1.dwg, CEMETERY OFFICE SITE PLAN, 9/29/2009 9:40:21 AM



BARNES PRESSURE SYSTEMS

www.cranepumps.com

Model OGP-L & OGP-AUE

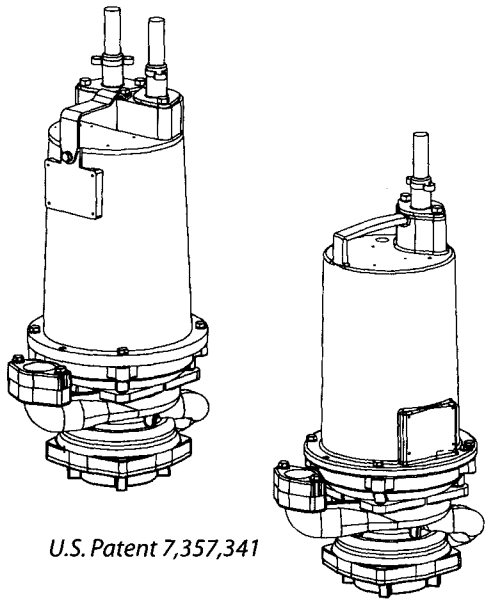
Recessed Vortex

Submersible Grinder Pumps

Specifications:

DISCHARGE .....1¼" NPT, Vertical, Bolt-on Flange
LIQUID TEMPERATURE .....104°F (40°C) Continuous
VOLUTE .....Cast Iron ASTM A-48, Class 30
MOTOR HOUSING .....Cast Iron ASTM A-48, Class 30
SEAL PLATE .....Cast Iron ASTM A-48, Class 30
IMPELLERS: *Design*.....12 Vane,Vortex, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3.
Material .....85-5-5-5 Bronze
IMPELLER SPACER.....300 Series Stainless Steel
SHREDDING RING .....Hardened 440C Stainless Steel Rockwell® C-55.
CUTTER .....Hardened 440CStainless Steel, Rockwell® C-55.
SHAFT .....416 Stainless Steel
SQUARE RINGS .....Buna-N
HARDWARE .....300 Series Stainless Steel
PAINT .....Air Dry Enamel.
SEAL: *Design* .....Single Mechanical
Material.....Rotating Faces - Silicon-Carbide
Stationary Faces - Silicon-Carbide
Elastomer - Buna-N
Hardware - 300 Series Stainless
CORD ENTRY.....30 ft. (9.1m) Std. Cord. Custom Molded Quick Connect, for Sealing and Strain Relief
CORD *Manual*.....CSA/UL Approved 12/3 Type SOW
Automatic.....CSA/UL Approved 12/5 Type SOW
UPPER BEARING:
Design .....Single Row, Angular contact Ball
Lubrication .....Oil
Load .....Radial & Thrust
LOWER BEARING:
Design .....Single Row, Angular contact Ball
Lubrication .....Oil
Load.....Radial & Thrust
MOTOR: *Design* .....NEMA L-Single Phase Torque Curve, Oil-Filled, Squirrel Cage Induction
Insulation .....Class F
SINGLE PHASE.....Capacitor Start/Capacitor Run.
LEVEL CONTROL:
L Series.....None
AUE Series .....**SOLD SEPARATELY (See Accessory Section F page 23)** Model ESPS-150, Environmentally sealed pressure switch with CPVC housing, Buna diaphragm, Custom molded quick connect for sealing and strain relief

OPTIONAL EQUIPMENT.....Cord Length, Moveable Fitting



U.S. Patent 7,357,341

Series: OGP
2HP, 3450RPM, 60Hz

SWPA MEMBER

omni GRIND plus GRINDER PUMPS

UL CSA **CSA 108 - File No. LR16567**
UL 778

DESCRIPTION:

THE GRINDER PUMP IS DESIGNED TO REDUCE DOMESTIC SEWAGE TO A FINELY GROUND SLURRY.

Model OGP

Recessed Vortex

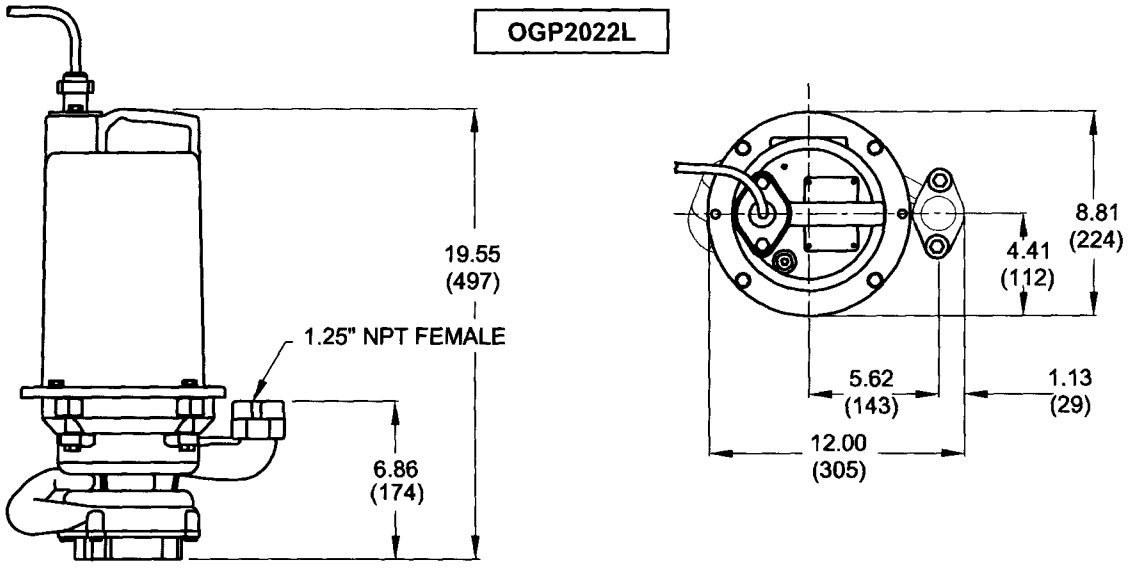
BARNES PRESSURE SYSTEMS

www.cranepumps.com

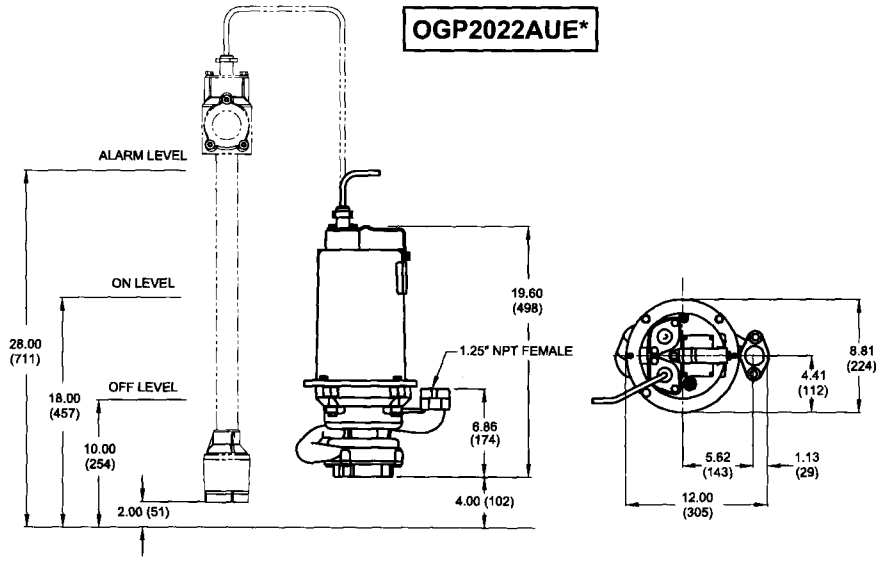
Submersible Grinder Pumps

OGP2022L

inches (mm)



OGP2022AUE*



MODEL NO	PART NO	HP	VOLT	PH/Hz	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CORD TYPE	CORD O.D. ± .02 (.5) in (mm)
OGP2022L	115328-M	2	240	1 / 60	3450	H	16.5	53.8	12/3	SOW	.61 (15.5)
OGP2022AUE*	115329-M	2	240	1 / 60	3450	H	16.5	53.8	12/5	SOW	.71 (18)

(*) **ESPS Level Control Sold Separately, See Accessory Section F page 23.**

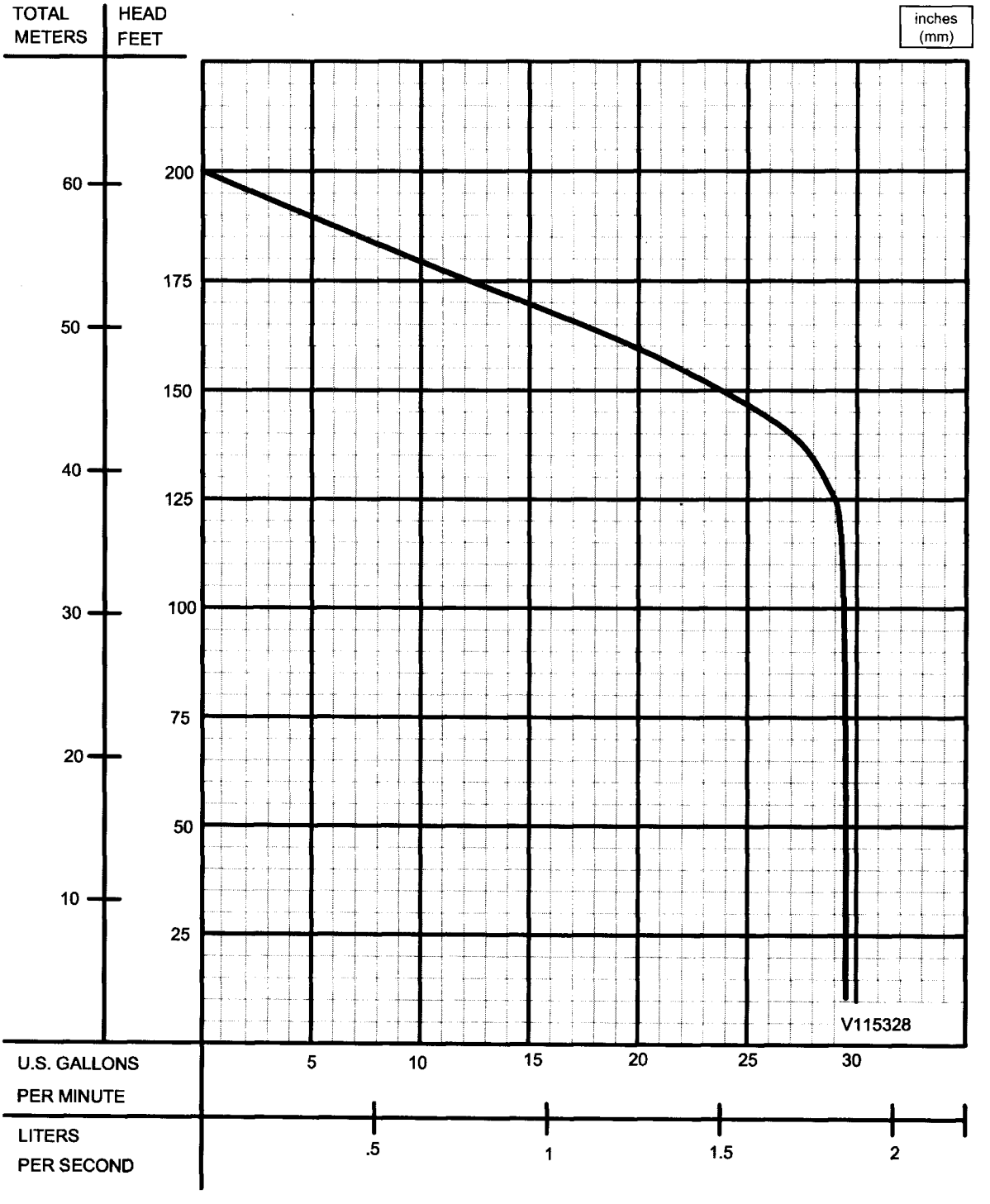
IMPORTANT !

1.) PUMP MAY BE OPERATED "DRY" FOR EXTENDED PERIODS WITHOUT DAMAGE TO MOTOR AND/OR SEALS.
2.) THIS PUMP IS APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS I DIVISION II HAZARDOUS LOCATIONS.
3.) THIS PUMP IS NOT APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS I DIVISION I HAZARDOUS LOCATIONS.
4.) INSTALLATIONS SUCH AS DECORATIVE FOUNTAINS OR WATER FEATURES PROVIDED FOR VISUAL ENJOYMENT MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ANSI/NFPA 70 AND/OR THE AUTHORITY HAVING JURISDICTION. THIS PUMP IS NOT INTENDED FOR USE IN SWIMMING POOLS, RECREATIONAL WATER PARKS, OR INSTALLATIONS IN WHICH HUMAN CONTACT WITH PUMPED MEDIA IS A COMMON OCCURRENCE.

Models OGP-L & OGP-AUE

Performance Curve
2HP, 3450RPM, 60Hz

Submersible Grinder Pumps



Testing is performed with water, specific gravity 1.0 @ 68° F @ (20°C), other fluids may vary performance

Specifications:

inches (mm)

BASIN ..... Engineered Polypropylene Copolymer, 2-piece construction, factory assembled with preformed corrosion resistant rebar installed. Includes POD for pump support and orientation

RISER..... HDPE 18" Dia. (457mm) corrugated drainpipe, day-of-installation adjustment sets basin depth [limit 9ft. 6inches (2.9m) to bottom of basin]

DISCHARGE OUTLET..... 1-1/4" NPT Flexible, stainless steel. Connects to a basin mounted bronze tank receiver.

INLET ..... 3 positions, 4" (Sch 40/80 or SDR35) Flexible Inlet Flange (For Field Installation)

COVER ..... Rock-Shaped Polyethylene Cover, interlocking with Riser Adapter, vented or unvented. Keyed lock included. Load rating of 150 lb per sq ft.

ALARM BOX..... Model1500 Alarm Panel, NEMA 4X Non-metallic Enclosure with Keyed Lock, Alarm Light, Alarm Horn w/Push Button, Pump and Alarm Circuit Breakers

DIRECT BURIAL CABLE .... 12/5 Type TC, STOOW Round U.L. Listed. 30ft (9m) length standard

MOVEABLE DISCHARGE FITTING w/ CHECK VALVE: (Removed with Pump)

Housing..... Powder Coated Cast Iron
Diaphragm..... Fiber Reinforced Neoprene
Flapper ..... Fiber Reinforced Nitrile
Size..... 1-1/4" Full Port
Valve Seat..... Bronze

BALL VALVE: ..... Toggle actuated via polypropylene harness from top side, removable without basin entry

Material..... Bronze, with Stainless Steel ball & stem, and Teflon seats
Size..... 1-1/4" Full Port

LIFTING HARNESS..... 1/8" x 3/4" Polypropylene (POD). 1/2" Dia. Polypropylene (PUMP) Breaking strength 3750 lbs.

HARDWARE ..... 300 Series Stainless Steel

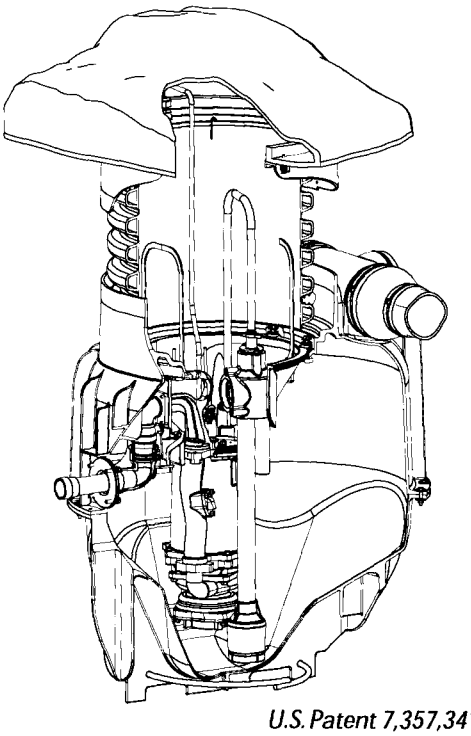
LEVEL CONTROL ..... ESPS™ – Environmentally sealed pressure switch with CPVC housing, Nitrile diaphragm, Custom molded quick connect for sealing and strain relief.

ANTI-SIPHON ..... Integral to cast iron motor housing.

Flapper..... Fiber Reinforced Nitrile
Seat..... Valox with stainless steel rivet

PUMP ..... OGP2022CE (Std), 240 Volt, 1 Phase

OPTIONS ..... Direct Burial Cable lengths, Rock Cover Vented or Flood Plain, Depth, OGVF2022CE Pump, Model 1550 Alarm Panel w/Generator Receptacle



U.S. Patent 7,357,341

EcoTRAN™ System

For use with OGP and OGV pumps, 1¼" NPT

Vented 52"-74" Depth
Vented 76"-114" Depth
Flood Plain 52"-74" Depth
Flood Plain 76"-114" Depth

CSA® LR16567 NSF 46

NSF CERTIFIED TO NSF / ANSI 46

BARNES ECOTRAN SYSTEM

UL LISTED BASIN ASSEMBLY E151564 2N87 UL1951

EcoTRAN™ System

Simplex

BARNES PRESSURE SYSTEMS

www.cranepumps.com

Short Set EcoTRAN Package - Vented Cover								
Direct Burial Cable Length	OGP Pump				OGV Pump			
	Standard Alarm Box		Alarm with Generator Receptacle		Standard Alarm		Alarm with Generator Receptacle	
	Part No.	SC	Part No.	SC	Part No.	SC	Part No.	SC
30 Ft.	122848	NS	122854	CF	122851	NS	122857	CF
50 Ft.	122849	NS	122855	CF	122852	NS	122858	CF
100 Ft.	122850	NS	122856	CF	122853	NS	122859	CF

Long Set EcoTRAN Package - Vented Cover								
Direct Burial Cable	OGP Pump				OGV Pump			
	Standard Alarm Box		Alarm with Generator Receptacle		Standard Alarm		Alarm with Generator Receptacle	
	Part No.	SC	Part No.	SC	Part No.	SC	Part No.	SC
30 Ft.	124146	NS	124152	CF	124149	NS	124155	CF
50 Ft.	124147	NS	124153	CF	124150	NS	124156	CF
100 Ft.	124148	NS	124154	CF	124151	NS	124157	CF

Short Set EcoTRAN Package - Non-Vented Cover								
Direct Burial Cable	OGP Pump				OGV Pump			
	Standard Alarm Box		Alarm with Generator Receptacle		Standard Alarm		Alarm with Generator Receptacle	
	Part No.	SC	Part No.	SC	Part No.	SC	Part No.	SC
30 Ft.	122860	CF	122866	CF	122863	CF	122869	CF
50 Ft.	122861	CF	122867	CF	122864	CF	122870	CF
100 Ft.	122862	CF	122868	CF	122865	CF	122871	CF

Long Set EcoTRAN Package - Non-Vented Cover								
Direct Burial Cable	OGP Pump				OGV Pump			
	Standard Alarm Box		Alarm with Generator Receptacle		Standard Alarm		Alarm with Generator Receptacle	
	Part No.	SC	Part No.	SC	Part No.	SC	Part No.	SC
30 Ft.	124158	CF	124164	CF	124161	CF	124167	CF
50 Ft.	124159	CF	124165	CF	124162	CF	124168	CF
100 Ft.	124160	CF	124166	CF	124163	CF	124169	CF

CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

EcoTRAN™ System

1. Depth
52"-74" (1.3m-1.8m) Vented
76"-114" (1.9m-2.9m) Vented
52"-74" (1.3m-1.8m) Flood Plain
76"-114" (1.9m-2.9m) Flood Plain

2. Pump Type (240V / 1 Phase)
2 HP OGP2022CE (STD.)
2 HP OGVF2022CE

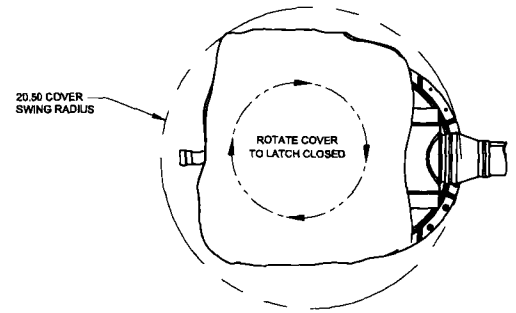
3. Direct Burial Cable Length
30 Feet (STD.)
50 Feet
100 Feet

4. Rock Cover Options (Select One)
Sandstone
Flood Plain, Sandstone

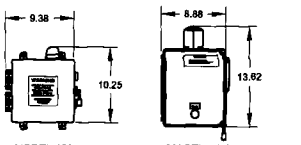
5. Alarm Box Options
Model 1500 w/Alarm Light, Horn, Silence Button & Circuit Breaker
Model 1550, includes 1500 features, Plus Generator Receptacle and Automatic Transfer Switch

NOTES!

1. Unit shipped boxed complete including Basin Package, Pump, Level Control and Alarm Box (Riser shipped separately).
2. Riser depth can be shortened in the field during installation.
3. All moving parts and seals serviceable from ground level without entry into the basin.



BARNES ECO TRAN

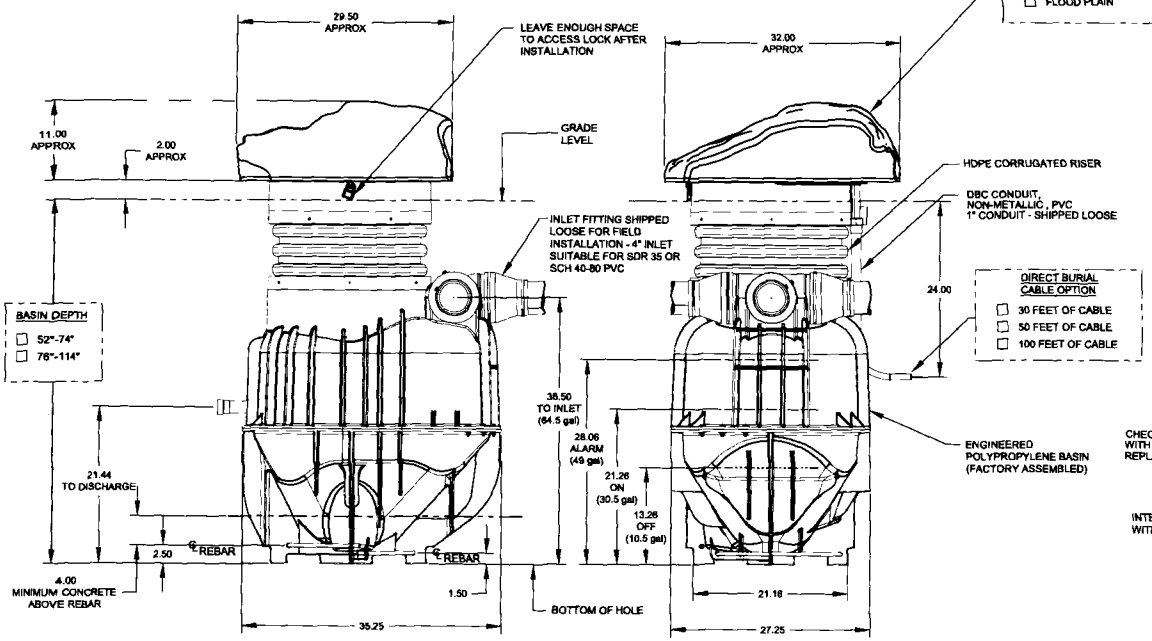


MODEL 1500
STD - (WITHOUT GENERATOR CONNECTOR)

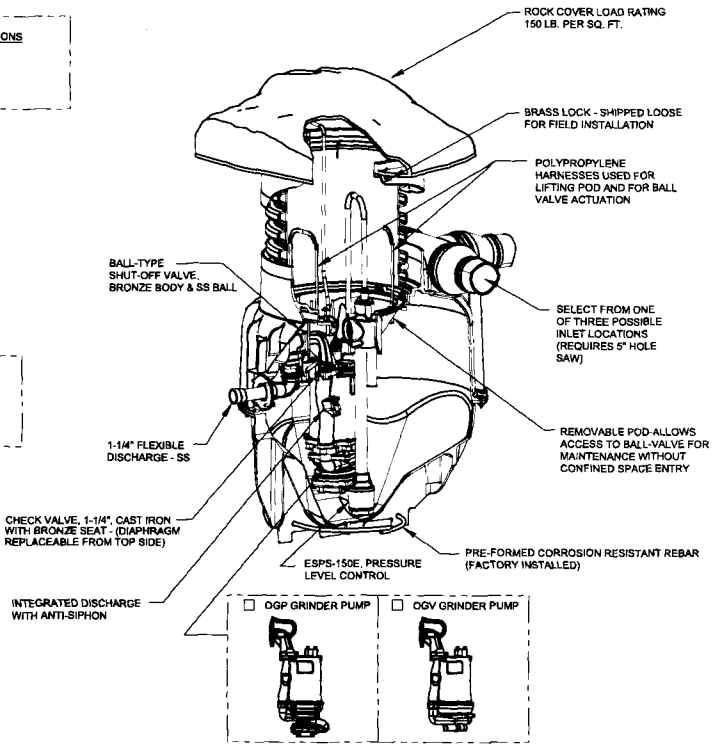
MODEL 1550
WITH GENERATOR CONNECTOR & PUSH START

ALARM BOX OPTIONS
- ☐ ALARM BOX WITHOUT GENERATOR CONNECTOR (STD)
- ☐ ALARM BOX WITH GENERATOR CONNECTOR

ROCK COVER OPTIONS
- ☐ SANDSTONE
- ☐ VENTED
- ☐ FLOOD PLAIN



DIRECT BURIAL CABLE OPTION
- ☐ 30 FEET OF CABLE
- ☐ 50 FEET OF CABLE
- ☐ 100 FEET OF CABLE



NOTES:
1. ALL DIMENSIONS ARE ±1/4" UNLESS OTHERWISE SPECIFIED

THIS DRAWING IS APPROVED FOR UNCONTROLLED DISTRIBUTION

AS A RESULT OF BARNES CONSTANT PRODUCT IMPROVEMENT PROGRAM, PRODUCT CHANGES MAY OCCUR. AS SUCH, BARNES RESERVES THE RIGHT TO CHANGE PRODUCT WITHOUT PRIOR WRITTEN NOTIFICATION

WWW.BARNES-PS.COM | SHEET 1 OF 1

TITLE
SIMPLEX, ECO TRAN SYSTEM, OGP,OGV

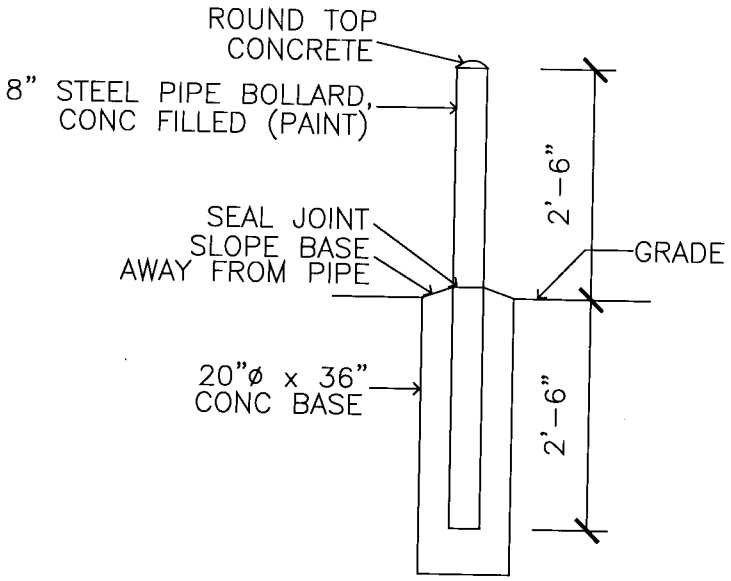
CAGE NO 96046

DWG NO CD119621

REV E

CRANE PUMPS & SYSTEMS

BARNES PRESSURE SYSTEMS



1 / ADD. 1 PIPE BOLLARD DETAIL

1/2" = 1'-0"

ADDENDUM 1

ORCHARD MESA CEMETERY

263 26 1/4 ROAD

GRAND JUNCTION, CO

DKO

SEPTEMBER 29, 2009

CITY OF Grand Junction COLORADO

Purchasing Division

Invitation for Bid

IFB-3108-09-SDH
Cemetery Building Construction

Responses Due:

October 5, 2009 at 2:00pm
333 West Ave., Building C
Grand Junction, CO 81501

Purchasing Representative:
Scott Hockins
City of Grand Junction, Purchasing Supervisor
scotth@gjcity.org
Phone (970) 244-1484

Scope of Work Questions:
Jim Stavast
City of Grand Junction, Project Manager
jamess@gjcity.org
Phone (970) 244-1569

Technical Questions/Owner's Representative:
Kreg Obergfell
DKO Architecture
k.obergfell@comcast.net
Phone (719) 375-3762

September 11, 2009

This solicitation has been developed specifically to solicit competitive responses for the **Cemetery Building Construction**, and may not be the same as previous City of Grand Junction solicitations. All offerors are urged to thoroughly review this solicitation prior to submitting. Submittal by **FAX IS NOT ACCEPTIBLE** for this solicitation.

Invitation for Bids

Table of Contents

1. Instructions to Bidders

The City of Grand Junction is soliciting competitive bids from qualified and interested companies for all labor, equipment, and materials required to reconstruct Cemetery Building according to the Plans and Specifications attached. All dimensions and scope of work should be verified by Contractors prior to submission of bids.

1.1. Delivery of Bids: Contractor shall submit a copy of their bid in a sealed envelope marked **IFB-3108-09-SDH, due date, and the bidders name** clearly indicated on the envelope. The due date, time, and address are listed on the front page of this IFB. Late bids will not be considered. Bids will be received and publicly acknowledged at the location, date and time stated. Bidders, their representatives and interested persons may be present. Bids shall be received and acknowledged only so as to avoid disclosure of process. However, all bids shall be open for public inspection after the contract is awarded. Trade secrets and confidential information contained in the bid so identified by Offeror as such will be treated as confidential by the City of Grand Junction (City) to the extent allowable in the Open Records Act.

1.2. Printed form for Price Proposal: All Price Bids must be made upon the Contractor's Bid Schedule Form attached, and should give the amounts both in words and in figures, and must be signed and acknowledged by the bidder.

1.3. Exclusions: No oral, telephonic, emailed, or facsimile bid will be considered

1.4. Contract Documents: The complete IFB and bidder's response compose the Contract Documents. Copies of these documents can be obtained from the Purchasing Division, **333 West Ave., Building C, Grand Junction, CO 81501, 970-244-1533.**

1.5. Examination of Specifications: Bidders shall thoroughly examine and be familiar with the project Statement of Work. The failure or omission of any Offeror to receive or examine any form, addendum, or other document shall in no way relieve any Offeror from any obligation with respect to his bid. The submission of a bid shall be taken as evidence of compliance with this section.

1.6. Questions regarding Statement of Work: Any information relative to interpretation of Scope of Work or specifications shall be requested of the Purchasing Representative, in writing, in ample time prior to the response time.

1.7. Addenda & Interpretations: If it becomes necessary to revise any part of this solicitation, a written addendum will be sent to all known to have received plans & Specifications. The City is not bound by any oral representations, clarifications, or changes made in the written specifications by City employees, unless such clarification or change is provided to bidders in written addendum form from the City

Purchasing Representative. Bidders shall acknowledge receipt of addenda on Contractor's Bid Form & Bidder's Proposal.

1.8. Taxes: The City is exempt from State retail and Federal tax. The bid price must be net, exclusive of taxes.

1.9. Prices: In the event of a discrepancy between the prices stated in words and those in figures, the words shall control.

1.10. Offers Binding 60 Days: Unless otherwise specified, all formal offers submitted shall be binding for sixty (60) calendar days following opening date, unless the Offeror, upon request of the Purchasing Representative, agrees to an extension.

1.11. Assignment: The bidder shall not sell, assign, transfer or convey any contract resulting from this IFB, in whole or in part, without prior written approval from the City.

1.12. Collusion Clause: Each bidder by submitting a bid certifies that it is not party to any collusive action or any action that may be in violation of the Sherman Antitrust Act. Any and all bids shall be rejected if there is evidence or reason for believing that collusion exists among bidders. The City may, or may not, at the discretion of the City's Purchasing Representative, accept future bids for the same services or commodities from participants in such collusion.

1.13. Public Disclosure Record: If the bidder has knowledge of their employee(s) or sub-contractors having an immediate family relationship with a City employee or elected official, the bidder must provide the Purchasing Representative with the name(s) of these individuals. These individuals are required to file an acceptable "Public Disclosure Record", a statement of financial interest, before conducting business with the City.

2. General Contract Conditions for City Construction Projects

2.1. The Contract: The Contract Documents for the Contract. The contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the Proposal documents. The contract may be amended or modified with Change Orders, Field Orders, or Addendums.

2.2. The Work: The term Work includes all labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such construction.

2.3. Execution, Correlation, Intent, and Interpretations: The Contract Documents shall be signed in not less than triplicate by the Owner (City) and Contractor. City

will provide the contract. By executing the contract, the Contractor represents that he/she has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents. The Contract Documents are complementary, and what is required by any one, shall be as binding as if required by all. The intention of the documents is to include all labor, materials, equipment and other items necessary for the proper execution and completion of the scope of work as defined in the technical specifications and drawings contained herein. All drawings, specifications and copies furnished by the City are, and shall remain, City property. They are not to be used on any other project, and with the exception of one contract set for each party to the contract, are to be returned to the owner on request at the completion of the work.

2.4. The Owner: The Owner is the City of Grand Junction, Colorado and is referred to throughout the Contract Documents. The term Owner means the Owner or his authorized representative. The Owner shall, at all times, have access to the work wherever it is in preparation and progress. The Contractor shall provide facilities for such access. The Owner will make periodic visits to the site to familiarize himself generally with the progress and quality of work and to determine, in general, if the work is proceeding in accordance with the contract documents. Based on such observations and the Contractor's Application for Payment, the Owner will determine the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in the contract. The Owner will have authority to reject work which does not conform to the Contract documents. Whenever, in his reasonable opinion, he considers it necessary or advisable to insure the proper implementation of the intent of the Contract Documents, he will have authority to require the Contractor to stop the work or any portion, or to require special inspection or testing of the work, whether or not such work can be then be fabricated, installed, or completed. The Owner will not be responsible for the acts or omissions of the Contractor, and sub-Contractor, or any of their agents or employees, or any other persons performing any of the work.

2.5. Contractor: The Contractor is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents. The term Contractor means the Contractor or his authorized representative. The Contractor shall carefully study and compare the General Contract Conditions of the Contract, Specification and Drawings, Scope of Work, Addenda and Modifications and shall at once report to the Owner any error, inconsistency or omission he may discover. Contractor shall not be liable to the Owner for any damage resulting from such errors, inconsistencies or omissions. The Contractor shall not commence work without clarifying Drawings, Specifications, or Interpretations.

2.6. Sub-Contractors: A sub-contractor is a person or organization who has a direct contract with the Contractor to perform any of the work at the site. The term sub-

contractor is referred to throughout the contract documents and means a sub-contractor or his authorized representative.

2.7. Award of Sub-Contractors & Other Contracts for Portions of the Work: As soon as practicable after bids are received and prior to the award of the contract, the successful Offeror shall furnish to the Owner, in writing for acceptance, a list of the names of the sub-contractors or other persons or organizations proposed for such portions of the work as may be designated in the proposal requirements, or, if none is so designated, the names of the sub-contractors proposed for the principal portions of the work. Prior to the award of the contract, the owner shall notify the successful Offeror in writing if, after due investigation, has reasonable objection to any person or organization on such list. Failure of the Owner to make an objection to any person or organization on the list prior to the award shall constitute acceptance of such person or organization. If, prior to the award of the contract, the Owner has a reasonable and substantial objection to any person or organization on such list, and refuses in writing to accept such person or organization, the successful Offeror may, prior to the award, withdraw their proposal without forfeiture of proposal security. If the successful Offeror submits an acceptable substitute with an increase in the proposed price to cover the difference in cost occasioned by the substitution, the Owner may, at their discretion, accept the increased proposal or may disqualify the Offeror. If, after the award, the Owner refuses to accept any person or organization on such list, the Contractor shall submit an acceptable substitute and the contract sum shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate Change Order shall be issued. However, no increase in the contract sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting a name with respect thereto prior to the award.

2.8. Supervision and Construction Procedures: The Contractor shall supervise and direct the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract.

2.9. Warranty: The Contractor warrants to the Owner that all materials and equipment furnished under this contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards may be considered defective. If required by Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. If within ten (10) days after written notice to the Contractor requesting such repairs or replacement, the Contractor should neglect to make or undertake with due diligence to the same, the City may make such repairs or replacements. All indirect and direct costs of such correction or removal or replacement shall be at the Contractor's expense. The Contractor will also bear the expenses of making good all work of others

destroyed or damaged by the correction, removal or replacement of his defective work.

2.10. Permits, Fees, & Notices: The Contractor shall secure and pay for all permits, governmental fees and licenses necessary for the proper execution and completion of the work. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the work. If the Contractor observes that any of the Contract Documents are at variance in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be adjusted by approximate modification. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility and shall bear all costs attributable.

2.11. Responsibility for those Performing the Work: The Contractor shall be responsible to the Owner for the acts and omissions of all his employees and all sub-contractors, their agents and employees, and all other persons performing any of the work under a contract with the Contractor.

2.12. Bid Bond: Each Bid shall as a guaranty of good faith on the part of the Bidder be accompanied by a Bid Guaranty consisting of: a certified or cashier's check drawn on an approved national bank or trust company in the state of Colorado, and made payable without condition to the City; or a **Bid Bond** written by an approved corporate surety in favor of the City. The amount of the Bid Guaranty shall not be less than 5% of the total Bid amount. Once a Bid is accepted and a Contact is awarded, the apparent successful bidder has ten calendar days to enter into a contractor in the form prescribed and to furnish the bonds with a legally responsible and approved surety. Failure to do so will result I forfeiture of the Bid Guaranty to the City as Liquidated Damages.

2.13. Performance & Payment Bonds: Contractor shall furnish a Performance and a Payment Bond, each in an amount at least equal to that specified for the contract amount as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These bonds shall remain in effect for the duration of the Warranty Period (as specified in the Special Conditions). Contractor shall also furnish other bonds that may be required by the Special Conditions. All bonds shall be in the forms prescribed by the Contract Documents and be executed by such sureties as (1) are licensed to conduct business in the State of Colorado and (2) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Accounts, U.S. Treasury Department. All bonds singed by an agent must be accompanied by a certified copy of the Authority Act. If the surety on any bond furnished by the Contractor is declared bankrupt, or becomes insolvent, or its rights to do business in Colorado are terminated, or it ceases to meet the

requirements of clauses (1) and (2) of this section, Contractor shall within five (5) days thereafter substitute another bond and surety, both of which shall be acceptable to the City.

2.14. Progress Schedule: The Contractor, if required, immediately after being awarded the contract, shall prepare and submit for the Owner's approval an estimated progress schedule for the work. The progress schedule shall be related to the entire project to the extent required by the contract documents. This schedule shall indicate the dates for the starting and completion of the various stages of construction and shall be revised as required by the conditions of the work, subject to the Owner's approval.

2.15. Use of the Site: The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents, and shall not unreasonably encumber the site with any materials or equipment.

2.16. Cleanup: The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of work he shall remove all his waste materials and rubbish from and about the project, as well as all his tools, construction equipment, machinery and surplus materials.

2.17. Insurance Requirements: The Contractor agrees to procure and maintain, at his own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by the Contractor pursuant to this section. Such insurance shall be in addition to any other requirements imposed by this contract or by law. The Contractor shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this section by reason of his failure to procure or maintain insurance in sufficient amounts, durations, or types.

2.17.1. Commercial General Liability Insurance Policy with minimum combined single limits of $1,000,000 per occurrence and $1,000,000 general aggregate for bodily injury and property damage, which coverage shall include products/completed operations, independent contractors and contractual liability each at $1,000,000 per occurrence. Coverage must be written on an occurrence form.

2.17.2. Comprehensive Automobile Liability Insurance, which includes coverage of all, owned, non-owned and rented vehicles with a minimum of $1,000,000 combined single limit for each occurrence.

2.17.3. Required limits may be satisfied by any combination of primary, excess or umbrella liability insurances, provided the primary policy complies with the above requirements and the excess umbrella is following form.

2.17.4. All insurance shall be purchased from an insurance company licensed to do business in Colorado that has a financial rating of B+ VII or better as assigned by the BEST Rating Company or equivalent.

2.18. Indemnification: The Offeror shall defend, indemnify and save harmless the City of Grand Junction, State of Colorado, and all it's officers, employees, insurers, and self-insurance pool, from and against all liability, suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the Offeror, or of any Offeror's agent, employee, sub-contractor or supplier in the execution of, or performance under, any contract which may result from proposal award. Offeror shall pay any judgment with cost which may be obtained against the City growing out of such injury or damages.

2.19. Miscellaneous Conditions: Material Availability: Bidders must accept responsibility for verification of material availability, production schedules, and other pertinent data prior to submission of bid. It is the responsibility of the bidder to notify the City immediately if materials specified are discontinued, replaced, or not available for an extended period of time. OSHA Standards: All bidders agree and warrant that services performed in response to this invitation shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970 (OSHA). In the event the services do not conform to OSHA standards, the City may require the services to be redone at no additional expense to the City.

2.20. Time: The Contract Time is the period of time allotted in the Contract Documents for completion of the work. The date of commencement of the work is the date established in a Notice to Proceed. If there is no Notice to Proceed, it shall be the date of the Contract or such other date as may be established therein, or as established as entered on the Price Proposal Form. The Date of Substantial Completion of the work or designated portions thereof is the date certified by the Owner when construction is sufficiently complete, in accordance with the Contract Documents.

2.21. Progress & Completion: The Contractor shall begin work on the date of commencement as defined in the Contract, and shall carry the work forward expeditiously with adequate forces and shall complete it within the contract time.

2.22. Delays & Extensions of Time: If the contract is delayed at any time in the progress of the work by any act or neglect of the Owner, by any employee of the Owner, by any separate contractor employed by the Owner, by changes ordered in the work, by labor disputes, fire, unusual delay in transportation, unavoidable casualties, or any cause beyond the Contractor's control, or by delay authorized by the Owner pending arbitration, or by any cause which the Owner determines may justify the delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Owner may determine. All claims for extension of time shall be made in writing to the Owner no more than fifteen (15) days after the occurrence of the delay otherwise they shall be waived. In the case of the continuing cause of delay only one claim is necessary.

2.23. Payment & Completion: The Contract Sum is stated in the Contract and is the total amount payable by the Owner to the Contractor for the performance of the work under the Contract Documents. Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of application for payment, the City of Grand Junction's Project Manager will promptly make such inspection and, when he finds the work acceptable under the Contract Documents and the Contract fully performed, the Owner shall make payment in the manner provided in the Contract Documents. Partial payments will be based upon estimates, prepared by the Contractor, of the value of Work performed and materials placed in accordance with the Contract Documents.

2.24. Retention: The City will deduct money from the partial payments in amounts considered necessary to protect the interest of the City and will retain this money until after completion of the entire contract. The amount to be retained from partial payments will be ten (10) percent of the value of the completed work, but not greater than five (5) percent of the amount of the Contract. When the retainage has reached five (5) percent of the amount of the Contract no further retainage will be made and this amount will be retained until such time as final payment is made.

2.25. Protection of Persons & Property: The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He shall erect and maintain, as required by existing safeguards for safety and protection, and all reasonable precautions, including posting danger signs or other warnings against hazards promulgating safety regulations and notifying owners and users of adjacent utilities. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct by the Contractor in the execution of the work, or in consequence of the non-execution thereof by the Contractor, he shall restore, at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or it shall make good such damage or injury in an acceptable manner.

2.26. Changes in the Work: The Owner, without invalidating the contract, may order changes in the work within the general scope of the contract consisting of additions, deletions or other revisions, the contract sum and the contract time being adjusted accordingly. All such changes in the work shall be authorized by Change Order and shall be executed under the applicable conditions of the contract documents. A Change Order is a written order to the Contractor signed by the Owner issued after the execution of the contract, authorizing a change in the work or an adjustment in the contract sum or the contract time. The contract sum and the contract time may be changed only by Change Order.

2.27. Claims for Additional Cost or Time: If the Contractor wishes to make a claim for an increase in the contract sum or an extension in the contract time, he shall give the Owner written notice thereof within a reasonable time after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property in which case the Contractor shall precede in accordance with the regulations on safety. No such claim shall be valid unless so made. Any change in the contract sum or contract time resulting from such claim shall be authorized by Change Order.

2.28. Minor Changes in the Work: The Owner shall have authority to order minor changes in the work not involving an adjustment in the contract sum or an extension of the contract time and not inconsistent with the intent of the contract documents.

2.29. Field Orders: The Owner may issue written Field Orders which interpret the Contract Documents in accordance with the specifications, or which order minor changes in the work in accordance with the agreement, without change in the contract sum or time. The Contractor shall carry out such Field Orders promptly.

2.30. Uncovering & Correction of Work: The Contractor shall promptly correct all work rejected by the Owner as defective or as failing to conform to the contract documents whether observed before or after substantial completion and whether or not fabricated installed or competed. The Contractor shall bear all costs of correcting such rejected work, including the cost of the Owner's additional services thereby made necessary. If within one (1) year after the date of completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the contract documents, any of the work found to be defective or not in accordance with the contract documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discover of condition. All such defective or non-conforming work under the above paragraphs shall be removed from the site where necessary and the work shall be corrected to comply with the contract documents without cost to the Owner. The Contractor shall bear the cost of making good all work of separate Contractors destroyed or damaged by such removal or correction. If the Owner prefers to accept defective or non-conforming work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect an appropriate reduction in the payment or contract sum, or, if the amount is determined after final payment, it shall be paid by the Contractor.

3. Scope of Work/Special Conditions

3.1. General: The City of Grand Junction is soliciting competitive bids from licensed, qualified and interested companies for all labor, equipment, and materials required to construct a Cemetery Building according to the Plans and Specifications.

3.2. Plans & Specifications: See DKO Architecture Plan Set. Plans will be available electronically at the City of Grand Junction website. Bidders are welcome, at their own cost, to make copies of the plan sets by going to: http://www.gjcity.org/CityDeptWebPages/PublicWorksAndUtilities/Engineering/InvitationstoBidBidSchedules.htm or at Plaza Reprographics at 141 N. 3rd Street, Grand Junction, CO 81501.

3.3. Addenda: If necessary, addenda will be posted on the City of Grand Junction website at:
http://www.gjcity.org/CityDeptWebPages/PublicWorksAndUtilities/Engineering/InvitationstoBidBidSchedules.htm

3.4. Plan Holder's List: Any contractors that want to be included on the Plan Holders List for this project should contact the Purchasing Representative with their information at scotth@gjcity.org and reference the Cemetery Building Construction.

3.5. Prequalification Requirement: Contractors submitting bids over $50,000 must be pre-qualified in accordance with the City's *"Rules and Procedures for* Pre-qualification of Contractors." All bids received by the specified time will be opened, but the City will reject bids over $50,000 from contractors who have not been prequalified. Application forms for prequalification are available at the Administration Office of the Department of Public Works and Planning, City Hall, 250 North Fifth Street, Room 245. Call 970-244-1555 for additional information. Application link: Prequalification Application

3.6. Tentative Project Schedule:

• Bid Documents Available	September 11, 2009
• Bid Opening	October 5, 2009
• Notice to Proceed	October 19, 2009
• Begin Construction	October 22, 2009
• Substantial Completion	March 15, 2009

3.7. Bidding Submittal Documents: Include the following completed documents with your submission.

- ✓ **Contractor's Bid Form**
- ✓ **Contractor's Bid Schedule**
- ✓ **Bid Bond**

BID BOND

KNOWN ALL MEN BY THESE PRESENTS,

that we, _____ (___ an individual, ___ a partnership, ___ a corporation incorporated in the State of _____ _____) as Principal, and _____ _____ (incorporated in the State of _____) as Surety, are held and firmly bound unto the City of Grand Junction, Colorado, (hereinafter called "City") in the penal sum of _____ dollars ($ ____ _____), lawful money of the United States, for the payment of which sum we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that WHEREAS the Principal has submitted the accompanying Bid dated _____for construction of _____ _____ (the Project) for the City and

WHEREAS, the City has required as a condition for receiving said Bid that the Principal deposit with the City either a cashier's check or a certified check equivalent to not less than five percent of the amount of said Bid or in lieu thereof furnish a Bid Bond for said amount conditioned that in event of a failure to execute the proposed Contract for such construction and to provide the required Performance and Payment Bonds and Insurance Certificates if the Contract be awarded to the Bidder, that said sum be paid immediately to the City as Liquidated Damages and not as a penalty for the Principal's failure to perform.

NOW, THEREFORE, if the Principal shall, within the period specified therefore, on the attached prescribed forms presented to the Bidder for signature, enter into a written Contract with the City in accordance with said Bid as accepted, and give Performance and Payment Bonds with good and sufficient Surety, or Sureties, as may be required upon the forms prescribed by the City, for the faithful performance and the proper fulfillment of said Contract, provide Certificates of Insurance as required by said Contract, and provide all other information and documentation required by the Contract Documents, then this obligation shall be void and of no effect, otherwise to remain in full force and effect. In the event suit is brought upon this bond by the City and the City prevails, the principal and surety shall pay all costs incurred by the City in such suit, including reasonable attorneys' fees and costs to be fixed by the Court.

IN WITNESS WHEREOF, the above bound parties have executed this instrument under their several seals the name and corporate seal of each corporate party being hereto affixed and duly signed by its undersigned representative pursuant to authority of its governing board.

Dated this _____ day of _____, 20___.

Principal: _____

Address: _____

_____

Signed: _____ (seal)

Title: _____

Surety: _____

Address: _____

_____

Signed: _____ (seal)

Title: _____

INSTRUCTIONS FOR COMPLETING BID BOND

1. The full legal name and residence of each individual executing this Bond as Principal must be inserted in the first paragraph.

2. If the Principal is a partnership, the full name of the partnership and all individuals must be inserted in the first paragraph which must recite that individuals are partners composing the partnership, and all partners must execute the Bond as individuals.

3. The State of incorporation of each corporate Principal or Surety to the Bond must be inserted in the first paragraph and the Bond must be executed under the corporate seal of said party attested by its secretary or other appropriate officer.

Attach a copy of the power-of-attorney for the Surety's agent.

CONTRACTOR'S BID FORM

BID DATE: _____

PROJECT: Cemetery Building Construction

OWNER: City of Grand Junction (hereinafter "the Owner")

PROPOSAL SUBMITTED BY: _____

(Hereinafter "the Bidder") Bidder's Name Telephone #

_____
Address

PART 1: TERMS AND CONDITIONS

The undersigned Bidder, in compliance with the Invitation to Bid and the Instructions to Bidders, having examined the General Contract Conditions, Special Conditions, Specifications, and Drawings, and any and all Addenda thereto; having investigated the location of, and conditions affecting the proposed work; hereby proposes to furnish all labor, materials and supplies, and to construct and perform all work for the Project in accordance with Contract Documents, within the time set forth and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this Bid Form is a part.

The undersigned Bidder does hereby declare and stipulate that this bid is made in good faith without collusion or connection to any person or persons bidding for the same work, and that it is made in pursuance of, and subject to, all terms and conditions of the Instructions to Bidders, the Specifications and Drawings, and all other Bidding Documents, all of which have been examined by the undersigned.

The Bidder also agrees that if awarded the Contract, to provide insurance certificates within ten (10) working days of the date of Notification of Award. Submittal of this proposal will be taken by the Owner as a binding covenant that the Bidder will be prepared to start the Project within **10 working days** after Notification to Proceed.

The City of Grand Junction reserves the right to make the award on the basis of the bid deemed most favorable, to waive any formalities or technicalities and to reject any or all bids. It is further agreed that this bid may not be withdrawn for a period of sixty (60) calendar days after closing time.

RECEIPT OF ADDENDA: the undersigned Bidder acknowledges receipt of the following Addenda to the Advertisement to Bid, Specifications, Drawings and other Contract Documents.

Addendum No._____ Dated: _____ By: _____

Addendum No._____ Dated: _____ By: _____

Addendum No._____ Dated: _____ By: _____

Addendum No._____ Dated: _____ By: _____

Addendum No._____ Dated: _____ By: _____

CITY OF
Grand Junction
COLORADO

CITY OF GRAND JUNCTION
CEMETERY BUILDING

263 26 1/4 RD
GRAND JUNCTION, CO

OWNER:
CITY OF GRAND JUNCTION
ATTN: Jim Stavast
333 West Ave, Bldg B
Grand Junction, CO 80501
(970)244-1569
(970)270-7367

ARCHITECT:
DKO ARCHITECTURE, PC
ATTN: Kreg Doergle
1109 Gregory Pl
Colorado Springs, CO 80921
(719)648-3011

STRUCTURAL:
LINDAUER DUNN, INC
ATTN: Franz Rinaldi
802 Road
Grand Junction, CO 81501
(970)241-0900

MECHANICAL/ELECTRICAL:
BURKE ASSOCIATES
ATTN: Joan Cunningham
2518 Monument Road
Grand Junction, CO 81503
(970)243-9090

CODE CONFORMANCE NOTES:

COMPLY WITH ALL CURRENT FEDERAL, STATE, COUNTY, AND LOCAL BUILDING CODES, INCLUDING:
- 2006 INTERNATIONAL BUILDING CODE
- 2005 NATIONAL ELECTRIC CODE
- 2006 INTERNATIONAL MECHANICAL CODE
- 2006 INTERNATIONAL PLUMBING CODE
- FEE CODE (FCC 1998, ANSI A117.1-2003)
- GRAND JUNCTION ZONING AND DEVELOPMENT CODE

OCCUPANCY/BUILDING USE:
- BUSINESS GROUP B: CEMETERY PILOT MANAGEMENT OFFICE
- FACTORY INDUSTRIAL GROUP F-1 MODERATE HAZARD: MAINTENANCE OF MACHINERY

NON-SEPARATED OCCUPANCIES PER SEC 302.3.2 THE ALLOWABLE AREAS AND HEIGHTS SHALL BE BASED ON THE MOST RESTRICTIVE ALLOWANCES FOR THE OCCUPANCY GROUPS.

PROPOSED CONSTRUCTION: TYPE VB
PROPOSED NUMBER OF STORIES, AND BUILDING AREA: 1 STORY, 3568 SF

ALLOWABLE HEIGHT AND BUILDING AREAS FOR PROPOSED OCCUPANCIES:
- GROUP B: 2 STORIES, 9000 SF
- GROUP F-1: 1 STORY, 8500 SF
- GROUP S2: 2 STORIES, 17000 SF

CALCULATED BUILDING OCCUPANT LOAD:

ROOM	AREA/FT. PER OCCUPANT	OCCUPANTS
CONFERENCE	211 SF/15 SF	15.4
F. CLOSET	84 SF/300 SF	0.3
WORK	555 SF/100 SF	5.6
RECORDS	113 SF/300 SF	0.4
OFFICE 1	176 SF/150 SF	1.2
BREAKROOM/KITCHEN	483 SF/15 SF	32.2
OFFICE 2	176 SF/15 SF	12
SHOP	1300 SF/100 SF	13.0
TOTAL OCCUPANT LOAD		69.3

SYMBOLS LEGEND

- WALL SECTION
- PLAN NOTE
- DOOR SYMBOL
- ROOM ELEVATION
- ROOM SYMBOL
- WINDOW TYPE
- WALL TYPE

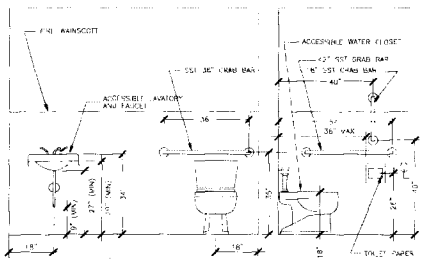
DRAWING INDEX:

DOOR SCHEDULE

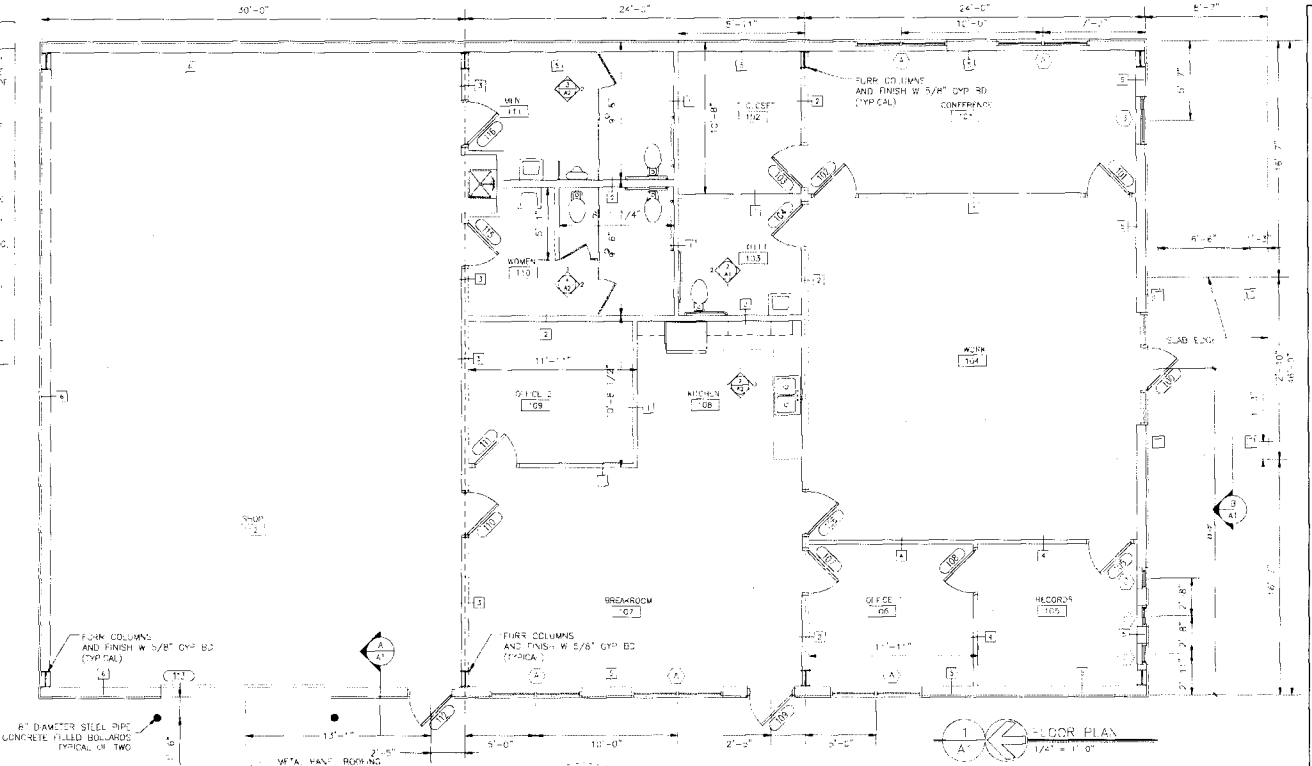
MARK	DOOR MAT.	FRAME MAT.	LABEL	HDWR GROUP	SIZE	REMARKS
00	AL	AL	--	*	3'0 x 7'0	
101	WD	HM	--	2	3'0 x 7'0	
102	WD	HM	--	7	3'0 x 7'0	
103	AL	HM	--	3	3'0 x 7'0	
104	AL	HM	--	4	3'0 x 7'0	
105	WD	HM	1 HR	3	3'0 x 7'0	
106	WD	HM	--	*	3'0 x 7'0	
107	AL	HM	--	5	3'0 x 7'0	
108	WD	HM	1 HR	3	3'0 x 7'0	
109	HM	HM	--	6	3'0 x 7'0	INSULATED
10	AL	HM	--	*	3'0 x 7'0	
11	WD	HM	--	3	3'0 x 7'0	
112	HM	HM	--	6	3'0 x 7'0	INSULATED
113	GAL	WD			12'0 x 10'0	INSULATED
15	AL	HM		8	3'0 x 7'0	
16	WD	HM		A	3'0 x 7'0	

WALL TYPES

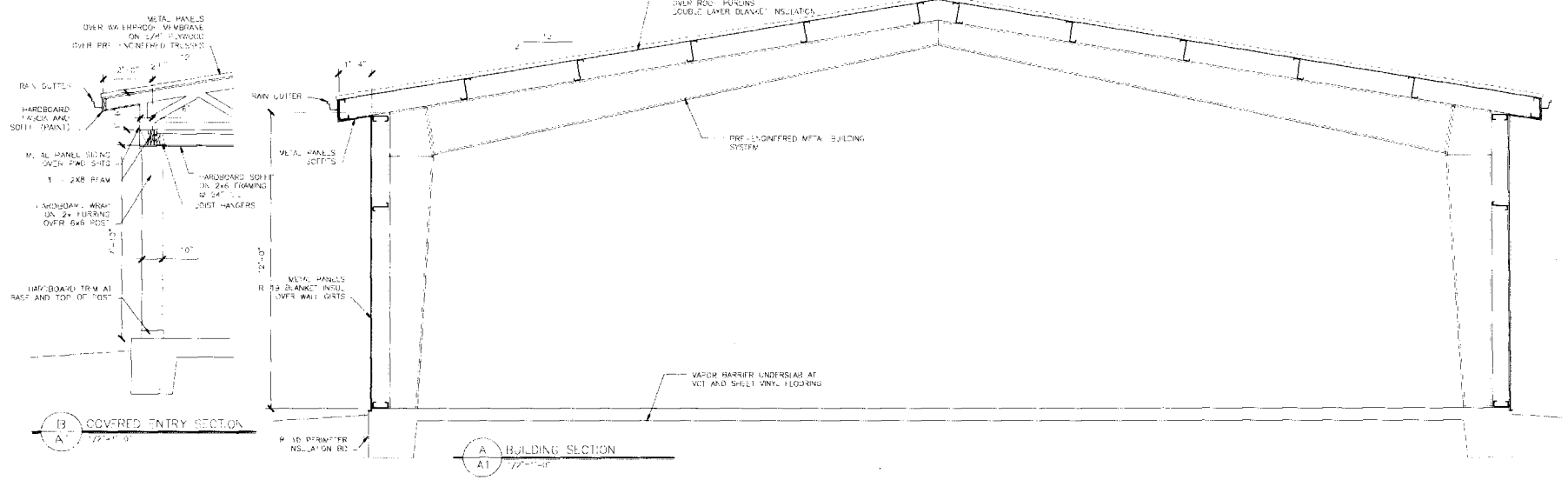
1. 3-5/8" MET STUDS 16" O.C., SOUND BATT INSULATION, 5/8" TYPE X GYP BD EA SIDE TO 6" ABOVE SAG CEILING, BRACE TO ROOF STRUCTURE @ 4' O.C.
2. 6" MET STUDS 16" O.C., SOUND BATT INSULATION, 5/8" TYPE X GYP BD EA SIDE TO 6" ABOVE SAG CEILING, BRACE TO ROOF STRUCTURE @ 4' O.C.
3. 6" MET STUDS 16" O.C., SOUND BATT INSULATION, 5/8" TYPE X GYP BD EA SIDE TO 6" ABOVE SAG CEILING, EXTEND WALL TO ROOF STRUCTURE, PROVIDE S.I.P. TRACK
4. 3-5/8" MET STUDS 16" O.C., SOUND BATT INSULATION, 2 LAYERS 5/8" GYP BD EA SIDE TO CEILING OR 6" ABOVE SAG CEILING, BRACE TO ROOF STRUCTURE @ 4' O.C.
5. MET FURRING CHANNELS 16" O.C. OVER WALL GRTS, VAPOR BARRIER, R10 BLANKET INSULATION, 5/8" GYP TO CEILING OR 6" ABOVE SAG CEILING
6. MET FURRING CHANNELS 16" O.C. OVER WALL GRTS, VAPOR BARRIER, R19 BLANKET INSULATION, 5/8" GYP TO ROOF DECK



2 TOILET ELEVATIONS
A1 1/2" = 1'-0"



1 FLOOR PLAN
A1 1/4" = 1'-0"



B COVERED ENTRY SECTION
A1 1/2" = 1'-0"

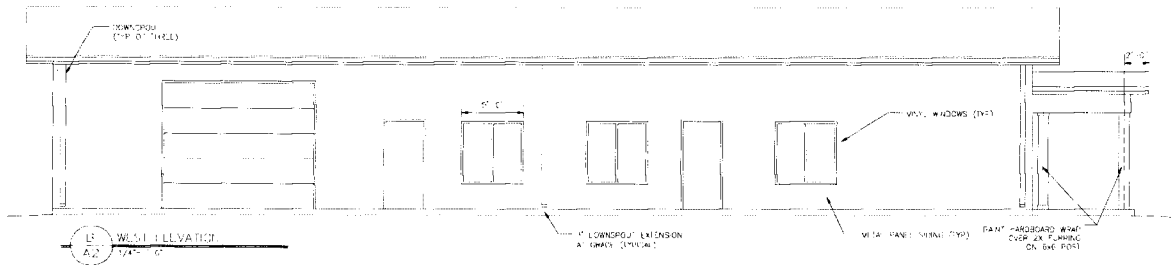
A BUILDING SECTION
A1 1/8" = 1'-0"

DKO ARCHITECTURE, PC
1109 GRAND AVENUE
GRAND JUNCTION, CO 81501
(970) 241-0745 FAX (970) 241-0747

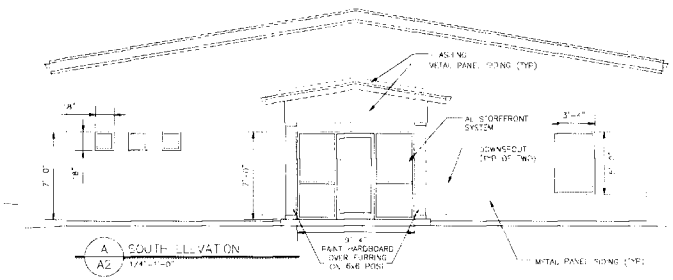
ORCHARD MESA CEMETERY
263 26 1/4 RD
GRAND JUNCTION, CO

PROJECT NO. 0903
DRAWN BY CD
ISSUE DATE 08/31/09

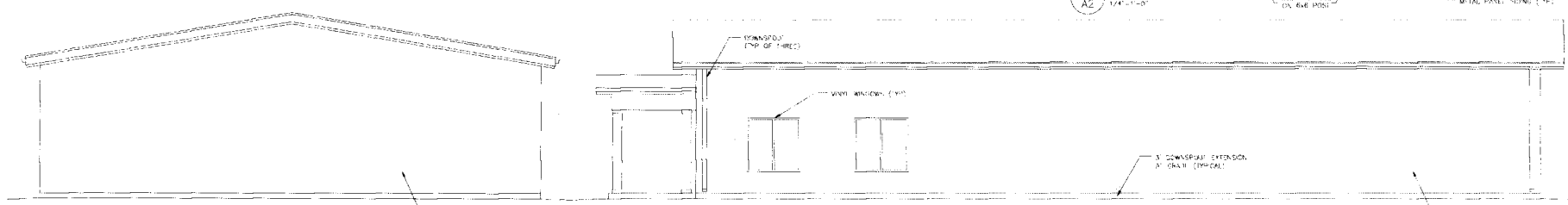
A1



B WEST ELEVATION
A2 1/4" = 1'-0"

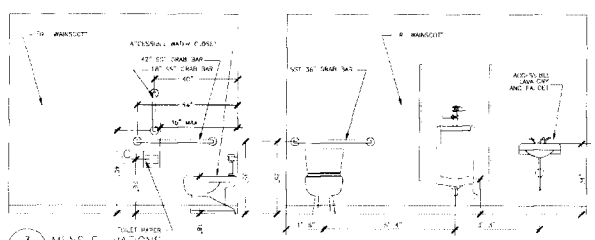


A SOUTH ELEVATION
A2 1/4" = 1'-0"

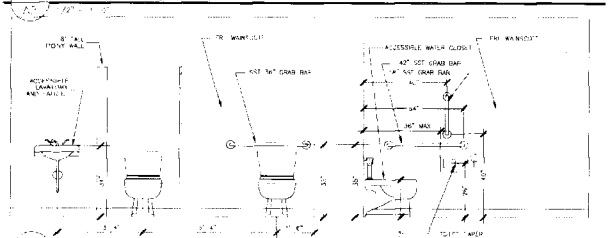


D NORTH ELEVATION
A2 1/4" = 1'-0"

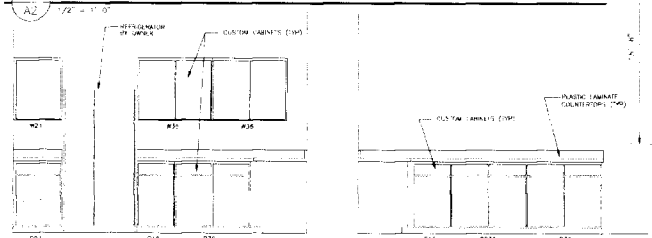
C EAST ELEVATION
A2 1/4" = 1'-0"



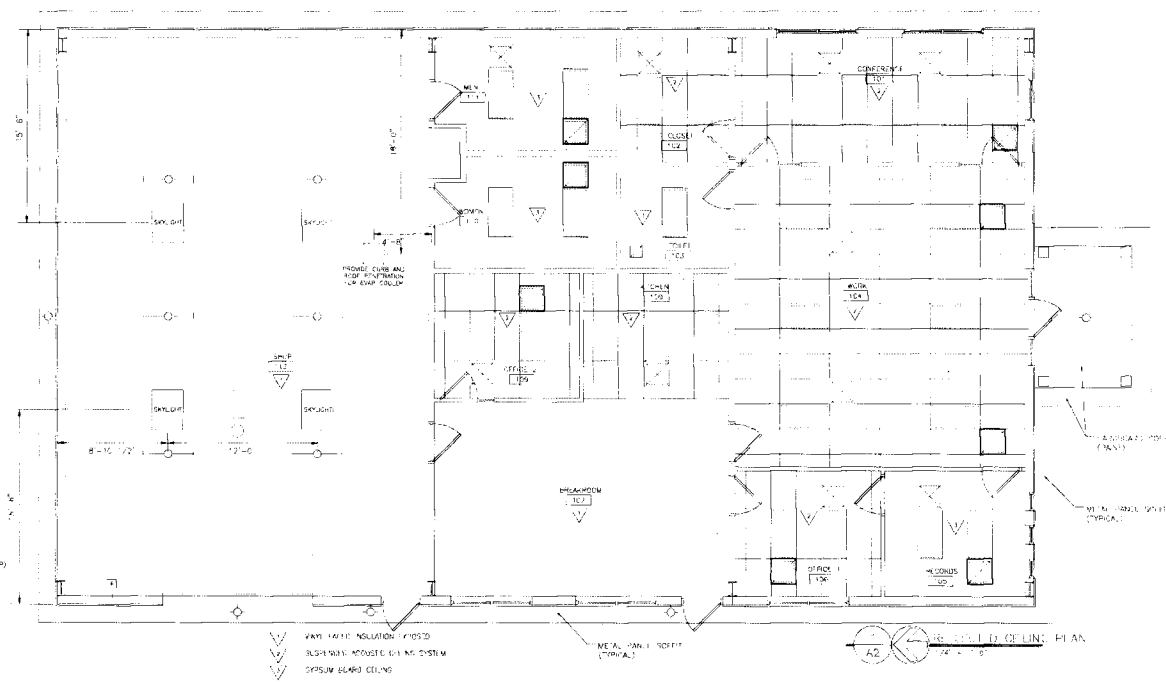
3 MENS ELEVATIONS
A2 1/2" = 1'-0"



4 WOMENS ELEVATIONS
A2 1/2" = 1'-0"



2 KITCHEN ELEVATIONS
A2 1/2" = 1'-0"



VINYL FACED INSULATION BATTS ON SUSPENDED ACOUSTIC CEILING SYSTEM
GYPSUM BOARD CEILING

REFLECTED CEILING PLAN
A2 1/4" = 1'-0"

DKO ARCHITECTURE, PC
1125 GRAND AVENUE
GRAND JUNCTION, CO
970.245.8749

ORCHARD MESA CEMETERY
263 26 1/4 RD
GRAND JUNCTION, CO

BY	CHK
DBG3	CC

Issue Date
08/31/09

A2

01300 – GENERAL REQUIREMENTS

SUMMARY OF WORK
Work required by the successful bidder of this project shall be conducted in a professional manner and to the satisfaction of the Architect. If the instructions and information contained in the Construction Documents is not sufficient for the Contractor to produce high quality work or if discrepancies or questions exist, the Contractor shall request interpretation, clarification or corrections prior to bidding. If the Contractor fails to have such written work must be performed in a satisfactory manner and requests for additional time or fees may be denied. By submitting a bid, the Contractor represents that he has understood the nature and extent of the work, all factors and conditions affecting or which may be affected by it and characteristics of its various parts and elements and their existing together and functioning.

PROJECT COORDINATION
A. The Contractor shall be responsible for coordination of the Project. It is recognized that the Construction Drawings are diagrammatic in showing certain physical relationships of the various elements and systems and their interfacing with other elements and systems. Establishment and coordination of these relationships is the exclusive responsibility of the Contractor. Each entity involved in the performance of the Work shall cooperate in the overall coordination of the work.
B. The Owner shall designate a Project Coordinator who shall represent and be authorized to act on behalf of the Owner with respect to the Project.
C. During construction, coordinate use of site and facilities through the Project Coordinator.
D. Comply with Project Coordinator's procedures for intra-project communications, submittals, reports and records, schedules, coordination drawings, and recommendations, and resolution of work-rules and conflicts.
E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
G. Make the following types of submittals to Architect through the Project Coordinator: Shop drawings, product data, and samples; and test and inspection reports. Deviations: submittals.

RECORD DOCUMENTS
A. Maintain at job site one copy of the Construction Drawings. Make note of revisions and note the actual location of concealed controls, underground utilities and mechanical items.

EXISTING UTILITIES
A. Verify locations of all existing utilities prior to starting any work. Coordinate service and utility extensions to the Project site.

WASTE DISPOSAL
A. Establish and enforce a daily system for collecting and disposing of waste materials. Provide dumpster on site.

COMPLETE SYSTEMS
A. It is the intent of the Construction Drawings that all systems including mechanical and electrical, be complete and functional to provide the finished or specified performance. The Contractor shall provide all incidental items and parts necessary to achieve this requirement. Provide power, utilities, piping, drains, services and their connection to equipment and systems requiring them.

CLEANING AND PROTECTION OF THE WORK
A. At the time each unit of the work or element of the construction is completed substantially in each area of the project, clean the work or cement to a condition suitable for use and repair damage. Replace elements which in the opinion of the Architect are damaged beyond successful restoration. Protect, clean and restore the Project elements throughout the Construction period until the Owner officially takes possession.

GUARANTEES
A. The basic warranty of the project and all of its elements shall extend for not less than one year after the Owner takes official possession.

01400 – QUALITY REQUIREMENTS

CONTROL OF INSTALLATION
A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
B. Comply with manufacturers' instructions, including each step in sequence. Should manufacturer's printed instructions, whether or not be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
E. Have Work performed by persons qualified to produce required and specified quality.
F. Verify field measurements are as indicated on shop drawings or as instructed by the manufacturer.
G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical abuse, and disfigurement.

TEST ASSESSMENT
A. Replace Work or portions of the Work not conforming to specified requirements.
B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy.

01600 – PRODUCT REQUIREMENTS

SUBMITTALS
A. Submit five (5) copies of shop drawings, product data and samples for all manufactured materials. Such submittals shall be personally reviewed by the Contractor prior to delivery to the Project Manager. The Contractor shall verify performance with the requirements of Construction Documents and shall verify dimensions and compatibility with other elements of the Project. The Contractor shall submit with such promptness as to cause no delay in his own work allowing not less than two (2) weeks for Architect's review.
B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify cop cable products, models options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
C. Shop Drawing Submittals: Prepared specifically for this Project, indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interrelated work.
E. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

TRANSPORTATION AND HANDLING
A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
B. Transport and handle products in accordance with manufacturer's instructions.
C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

STORAGE AND PROTECTION
A. Store and protect products in accordance with manufacturers' instructions.
B. Store with seals and labels intact and legible.
C. Prevent contact with material that may cause corrosion, discoloration, or staining.
D. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

01700 – EXECUTION REQUIREMENTS

COORDINATION
A. Coordinate scheduling, submittals, and work of the various sections of the Project Requirements to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
B. Notify affected utility companies and comply with their requirements.
C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
D. Coordinate space requirements, supports, and installation of mechanical and electrical work which are interdependent physically or functionally. Follow routing shown for pipes, ducts, and conduit as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate resolution of difficulties involving interfaces with finish elements.
F. Coordinate completion and clean up of work of separate sections.
G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PATCHING MATERIALS
A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

EXAMINATION
A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
C. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to overordering or mistakes.
D. Prior to cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

PREPARATION
A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

LAYING OUT THE WORK
A. Promptly notify Architect of any discrepancies discovered.

GENERAL INSTALLATION REQUIREMENTS
A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and as indicated on the Drawings for intended use.
B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
E. Make neat transitions between different surfaces, maintaining texture and appearance.

CUTTING AND PATCHING
A. Execute cutting and patching, including excavation and fill to complete the work, to whatever work in order to install properly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to components adjacent work, and to fit all the various components together properly.
B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
C. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
E. Restore work with new products in accordance with requirements of Contract Documents.
F. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. At penetrations of fire rated wall partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of the penetrated element.
G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For assembly, refinish entire unit.
H. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or shows with existing, perform a smooth and even transition.

PROGRESS CLEANING
A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
B. Remove debris and rubbish from pipe chases, shafts, and other spaces, and other closed or remote spaces, prior to enclosing the space.
C. Remove debris, junk and trash from site.
D. Leave site in clean condition, ready for subsequent work.
E. Clean up spillage and wind-blown debris from public and private lands.

PROTECTION OF INSTALLED WORK
A. Protect installed work from damage by construction operations.

ADJUSTING
A. Adjust operating products and equipment to ensure smooth and unhindered operation.

01700 – EXECUTION REQUIREMENTS (continued)

FINAL CLEANING
A. Use cleaning materials that are nonhazardous.
B. Clean interior and exterior glass, surfaces exposed to view, remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
D. Clean filters of operating equipment.

CLOSEOUT PROCEDURES
A. Make submittals that are required by governing or other authorities.
B. Notify Architect when work is considered ready for Substantial Completion.
C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's review.
D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

I. Verify Architect when work is considered finally complete.
F. Complete items of work determined by Architect's final inspection.

02200 – EARTHWORK

TEST REPORTS EXCAVATING, FILLING AND GRADING
A. The Owner, or his own laboratory and not, may engage soil testing and inspection services (Soils Engineer) to quality control testing during earthwork operations.
B. The Soils Engineer shall be consulted as to an Owner's representative and shall approve all materials, method of placement, moisture contents and percent compaction. Soil materials, whether from sources on or off site must be approved by the Soils Engineer as suitable for intended use and specifically by inspection bearing, fill and backfill.
C. Location of the new structure and proposed Finish Floor Elevation shall be staked on site and approved by the Owner's Project Manager.
D. Finished Excavation shall be observed by the Soils Engineer and Structural Engineer prior to placement of any Concrete.
E. Backfill material shall be free of deleterious material and rocks having a diameter of not more than 4". Fill material in areas to receive new concrete walks shall be placed in uniform layers not exceeding 8" of loose depth and uniformly compacted as directed by the Soils Engineer (not less than 95 percent of maximum dry density as defined by ASTM D698). Under organic topsoil. In other disturbed areas, compact and grade to match undisturbed areas. Grade areas surrounding the structure to cause rapid runoff of surface water away from the building as directed by the Soils Engineer or not less than 6" in 12 feet. Finish grade surfaces shall be free from irregular changes and within 0.10 feet of required sub or finish grade elevations. Spread stockpile topsoil and compact to a minimum six (6) inch depth on all areas not disturbed or walks, paving or structures.

03300 – CONCRETE

A. STANDARDS: Conform to applicable ACI and ASTM Standards including but not limited to:
1. ACI 301 Specifications for Structural Concrete for Buildings
2. ASTM C 94 Specifications for Ready-Mixed Concrete
3. ACI 318 Building Code Requirements for Reinforced Concrete
B. SUBMITTALS: Furnish proposed design mix for each class of concrete specified, a minimum of two (2) weeks prior to placement. Provide product data for each type of reinforcing component.
C. CONCRETE MATERIALS: Refer to the Structural drawings for concrete strength and reinforcing requirements.
D. CURING AND SEALING COMPOUNDS: Dayton Superior Cure & Seal WB, or approved equal.
E. EXECUTION:
1. Concrete forms complying with ACI 347, to the exact sizes, shapes, lines and dimensions shown, and as to result in accurate alignment, location, grades, level and plumb work in finished structures. Plumbing and utilities which pass through floor slabs shall be located from one slab.
2. Comply with the specified codes and standards, the Concrete Reinforcing Steel Institute recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports, and concrete locations of bars as shown on the Working Drawings.
3. Furnish ready-mixed concrete mixed and delivered per ASTM C94.
4. Place concrete in come once with the practices and recommendations of ACI 304R-83, and as herein specified. Protect freshly placed concrete from premature drying and excessive cold and hot weather. Maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete. Cure in accordance with ACI 301 procedures.
5. After placing slabs, bring the surface to a tolerance not exceeding 1/4 inch in two feet. Slope surfaces uniformly to drain where required. After troweling, finish per the Architect. Apply float finish to monolithic slab surfaces that are to receive trowel finish and other finishes as hereafter specified. At interior floors, apply trowel finish, unless otherwise shown. At exterior walks, apply a non-slip broom finish. Broom finish shall be applied perpendicular to length of walk.

05500 – METAL FABRICATIONS

REFERENCES
A. Meet requirements of AWS "Structural Welding Code," D1.1, latest edition.

GENERAL
A. Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not scale shop drawings. Allow for trimming and fitting where taking field measurements. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Provide templates for anchor and bolt installation by others.

SHOP DRAWINGS
A. Submit shop drawings for metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items.

WORKMANSHIP
A. Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proper details of fabrication and support. Use type of materials shown or specified for various components of work.

Form exposed work true to line and level with accurate angles and surfaces and straight edges. Accurately form corners and seams continuously, comply with AWS recommendations. At exposed connections, grind exposed welds smooth and blend to match adjacent surfaces.

Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown. At Metal fabrications exposed to view shall have a Powder Coat paint finish.

Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment, elevation, plumb, level, true and free of rack, measured from established lines and levels.

06100 – ROUGH CARPENTRY

REFERENCES
A. All lumber shall be grademarked by an agency certified by the Board of Review of the American Lumber Standards Committee, Inc. and manufactured in accordance with Product Standard PS 20, as published by the U.S. Department of Commerce.

SUBMITTALS
A. Provide product data. Provide Cedar Siding samples.

PRODUCTS
A. Framing Lumber: provide new – kiln dried lumber, S4S, unless otherwise noted, kiln dried to maximum 19% moisture content. Stud Grade with fb = 675 psi and E = 1,200,000 psi
B. Plywood concealing, APA rated sheathing grade, Exposure 1, Group 1 or 2 species for wall and roof sheathing.
C. Plywood subfloor, James Hardie Underlayment or approved equal.
D. Fascia: James Hardie Hardieplank or approved equal.

INSTALLATION
A. Refer to International Building Code for maximum span tables and framing schedules.
B. Set carpentry work accurately to required lines and lines, with members plumb and true and accurately cut and fitted.
C. Comply with recommendations of the APA for installation of plywood. Provide Simpson Strong-Tie Plate Shrinking Clips to brace unsupported sheathing edges

06154 – FABRICATED WOOD TRUSSES

SUBMITTALS
A. Trusses shall be designed by a professional engineer employed by the Manufacturer and registered in the State of Colorado.
B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods details, fastening methods, accessory fittings, hardware location and design loads

INSTALLATION
A. Follow Manufacturer's installation instructions and recommendations.
B. Fit trusses into position, taking care to prevent cut, drill or bend up. Set and secure level, plumb and at correct locations. Install permanent bracing and bridging prior to application of loads.

06400 – ARCHITECTURAL WOODWORK

REFERENCES
A. ANSI A161.2 Performance Standards for Fabricated High Pressure Decorative Laminate Countertops; 1998.
B. ANSI A208.2 American National Standard for Medium Density Fiberboard for Interior Use; 2002
C. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.
D. AWI/AWMAC (3SG) Architectural Woodwork Quality Standards Illustrated, Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada, 2008 8th Ed., Version 2.0.
E. BHMA A156.9 – American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2003 (ANSI/BHMA A156.9)
F. BHMA A156.11 – American National Standard for Hardware and Decorative Systems; Hardwood Plywood & Veneer Association; 2004 (ANSI/HPVA HP-1)
G. NEMA LD 3 High Pressure Decorative Laminates; National Electrical Manufacturers Association, 2005.

SUBMITTALS
A. Shop Drawings: Indicate materials, component profiles and surface spring elevations of wood paneling, assembly methods, joint details, fastening methods, accessory fittings, hardware location and schedule of finishes.
B. Product Data: Manufacturer's spec sheets on each product to be used, including: Specimen warranty.
C. Submittals – Samples: Countertop and Casework laminate samples indicating range of color and pattern available. Shop Drawings and Installation Diagrams: Instructions, Manufacturer's installation instructions and recommendations. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of surfaces.

MATERIALS
Cabinet Construction.
All parts cut to size, the drilled, doped and milled for sleeve assembly. Cabinet box front edges to be edgebanded with matching PVC. Box ends to be panel with 5 mm diameter holes on 32 mm centers to accommodate adjustable shelf clips and/or 10 mm European type hardware. Typical adjustable shelf pin hardware components, except backs, will be 5/8" thick (US) thermofused industrial laminate. Exposed ends, back Rails, Doors and drawer fronts shall be 1/2" thermofused melamine panel products with simulated woodgrain as manufactured by Nevamar, or approved equal.
Cabinet Hardware
Cabinet door Hinges: Blum CIP Made 125 concealed hinges with 125 degree swing, nickel plated hinge arm, nickel plated and three dimensional adjustment adjustability with a lifetime warranty.
Drawer Slides: Knape & Vogt No 1429, heavy duty ball bearing, side mounted slide construction, providing full point suspension with four (4) nylon ball bearing rollers with positive stop and 100 lb. rating.
Drawer Door pulls: Hafele pull with 4" Centers, 3/8" grip width, 11/2" projection, dark oil rubbed bronze finish/colors.
Plastic laminate GP 50, color as selected from manufacturer's standard lines. Include backing sheet of material type, grade.
Wall Panels: Provide Fiber Reinforced Laminate Panels (FRP) and panels as manufactured by Panolam Industries or approved equal. Panel construction shall be 3/4" thick particleboard core with decorative paper and fire rated phenolic paper with fiber reinforcing inner layers. Nominal thickness 0.088 inch. Panel set size 48" x 96" (4x8) with vertical grain direction. Laminate adhesive as instructed by manufacturer. Install with clip at top and bottom and color matched PVC J-mold. Provide thermoset Panolam caulker as recommended by manufacturer.
Bony aid and Window Stool: caps and aprons provide 3/4" MDF stools with radius edge one 2-1/4 to 4 1/2" thick wood apron. Submit stock samples for architects review and approval.

QUALITY ASSURANCE
A. Perform trim work construction in accordance with AWI/AWMAC Architectural Woodwork Quality Standards.

07210 – BUILDING INSULATION

SUBMITTALS
A. Product data: Submit data.

PRODUCTS
A. MINERAL/GLASS FIBER BATT INSULATION: Owens or other recognized (non-asbestos) Owens formed with binders into resilient, flexible elements or semi-rigid batts; ASTM C665.
B. Rigid insulation board – foundation perimeter insulation.

EXECUTION
A. Comply with manufacturer's instructions for the particular conditions of installation in each case. Extend insulation to thickness as shown over entire surface to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation and mastic.
B. At roofs provide a double layer insulation system including a 4" layer of unfaced insulation over purlins and an 8" way faced insulation between purlins, bended into place.
C. At walls provide 4" any reinforced blanket insulation in an over-the girt wall installation.

07720 – ROOF ACCESSORIES

SUBMITTALS
A. Product data

PRODUCTS
A. Skylight: Provide Model #24486 by AIA Industries or approved equal. Skylight shall be manufacturer's standard curb mount skylight. Provide curb extension as required for proper installation of skylight membrane flashings, metal roofing, roofing flashings and roof insulation. Outside unit dimensions shall be approximately 24x48 (inches). Provide with roof-mirror finishes, clear Glazing. Fabricate units to withstand 40 pound live loading.

EXECUTION
A. Separate metal surfaces of roof accessories from dissimilar metals and from wood and cement/lime substrates, by a thick coating of acrylic bituminous compound or other separation as recommended by the metal manufacturer, and as required to prevent corrosive action.
B. Anchor roof accessories permanently to the substrate by methods which are adequate for the sizes and locations of units. Comply with manufacturer's instructions for the particular conditions of installation. Where printed instructions are not available or do not apply to the project conditions, consult the manufacturer's technical representative for specific recommendations before proceeding with the work.

08100 – HOLLOW METAL DOORS AND FRAMES

STANDARDS:
1. ANSI/SDI 100 08 – Recommended Specifications for Standard Steel Doors and Frames
2. SDI-105-99 – Recommended Erection Instructions for Steel Frames
3. SDI-107-08 – Standards on Steel Doors (reinforcement application)
4. ANSI-A250.4-1994 – Test Doors and Frames Physical Endurance
5. Conform to HMMA 861 standards except where more stringent requirements are specified.
6. I.B.C. 2006 – International Building Code
7. ANSI-A417.1 – Accessible and Usable Building and Facilities

SUBMITTALS
A. Submit shop drawings showing fabrication and installation of standard steel doors and frames. Include details of each frame type, elevations of door and frame types, conditions at openings, details of construction, function and installation requirements of each door and frame, hardware reinforcements, and details of joints and connections. Show anchorage and accessory items.

PRODUCTS
A. All doors and frames shall be manufactures of commercial quality cold rolled steel per ASTM-A366 and A568 general requirements or equivalent to A&C or DBS minimum coating weight standard per ASTM A924. Internal reinforcement shall be manufactured of hot rolled pickled and oiled steel per ASTM A569.
B. Supports and anchors shall be fabricated of not less than 18 gauge sheet steel, galvanized where galvanized frames are used.
C. Where items are to be built into exterior walls, inserts, bolts and fasteners shall be hot dipped galvanized in comp once with ASTM-A153, Class C or D as applicable.
D. Rust proof Steel primer or comp primer shall be used based on end suitable as a base for specified finish and comp ying with ANSI A224.1, Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces on Steel Doors and Frames."

DOORS
A. Provide 1 3/4" thick doors of materials and ANS/SDI-100 grades and models
B. Exterior Doors: Level 4, Model 2 – Seamless Exterior doors shall be minimum 16-gauge steel with door lock and hinge reinforcement of door intermittently welded. Filled and sanded surfaces. Weight of door: exterior doors shall be insulated with a solid slab of expanded polystyrene or polyurethane foam permanently bonded to the inside of each face skin. The top of all doors shall be closed flush by the addition of a 16 gauge screened in top cap to prevent water infiltration.

FRAMES
A. Provide hollow metal frames for doors. Conduct fastenings unless otherwise indicated. Interior Frames: Curtus 45 Drywall Frames or approved equal. Exterior Frames: Level 2, 16-gauge welded frames for doors. Provide with mitered corners. All frames shall be accurately mitered or butted materials cut.
B. All frames shall have minimum 14 gauge hinge reinforcements, 12 gauge lock strike reinforcing, and 12 gauge closer reinforcing.
C. Provide temporary shipping bars to be removed before setting frames.

INSTALLATION
A. Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Door Frames." Provide Erection Templates. Set frames accurately in position, plumbed, aligned, and secured securely. Comparement anchors are set. After wall construction is completed, remove temporary bracing and spreaders, leaving surfaces smooth and undamaged.
B. In masonry construction, install at least 3 wall anchors per jamb, adjacent to hinge location on hinge jamb, and at corresponding heights on strike jamb. Accessible anchors include masonry wire anchors and masonry shaped anchors. Coordinate frame anchor placement with wall construction.
C. Coordinate installation of hardware.
D. Make mitered and butted corners neat and flush with no open spaces, and straight edges, crossed corners in corner.

08210 – FLUSH WOOD DOORS

QUALITY ASSURANCE
A. Manufacturer shall be a member in good standing of the Wood Door Manufacturer's Association (WDMA). Obtain wood doors from a single manufacturer to ensure uniformity in quality of appearance and construction. All doors supplied to the project to conform to WDMA IS 1A-97 for premium grade wood doors.

GENERAL REQUIREMENTS
A. Grade: Premium Grade A Faces with manufacturer's standard five (5) ply construction, minimum 1/8" thick.
B. Faces: Match existing. Oak veneer minimum 1/50th at 12% moisture content, slice after finish sanding.
C. Stiles: Doors shall have minimum 3" stiles on the hinge stile and 1.5" minimum on the lock stile; stiles faces shall match the door veneer. Top and bottom rails shall be a minimum 13/16th rails shall be mfr option hardwood or structural composite lumber (SC).

08360 – GARAGE DOORS

SHOP DRAWINGS
A. Submit Shop Drawings of the entire installation showing dimensions, sizes, profiles, thickness, and finishes of all components, and methods of attachment or anchorage to adjacent surrounding construction.

DESIGN REQUIREMENTS
A. Wind Loading: Doors shall be designed to withstand 12 PSF (effective) of door in horizontal position to be a maximum of 1/120th of door width

PRODUCT REQUIREMENTS
A. Provide TC700 sectional garage door as manufactured by Raynor or approved equal. Sections shall have an R value of 12.28 and U value of .097

08360 – GARAGE DOORS (continued)

B. Sections shall be steel sandwich construction, 2" thick, roll formed from commercial grade quality, hot-dipped galvanized steel per ASTM A-924 and A-653. Exterior and interior skins to be constructed of 25 gauge mechanically interlocked end pressure bonded to a 1-1/8" thick expanded polystyrene core. Hinge reinforcement plates shall be 16 gauge edge joined and 18 gauge center plates, end stiles to on 18 gauge. Top of door to be provided with multi-rubber vinyl, bottom of door to have flexible U-shaped vinyl seal in an extruded aluminum retainer. Doors shall be furnished with continuous weatherstripping system to reduce air infiltration.
C. Provide top jamb angle mounting, sections shall overlap the door jamb by 1" on each side of the door. Track shall be hot-dipped galvanized steel per ASTM A-653. Fully adjustable for adequate sealing of door to jamb or weatherseal. Configure track as normal headroom. The spring counterbalance shall be provided with torsion-type, galvanized steel lifting cables with a minimum safety factor of 5. Cable or spring counterbalance shall achieve 50,000 cycles.
D. Operator: Contractor Operator Chamberlain Security Sentry or approved equal. Intermittent Duty – 1/2 hp, solid state, 115v Single Phase.

08420 – ALUMINUM STOREFRONT

SHOP DRAWINGS
A. Submit Shop Drawings of the entire installation showing dimensions, sizes, profiles, thickness, and finishes of all components, and methods of attachment or anchorage to adjacent surrounding construction.

DESIGN REQUIREMENTS
A. Wind Loading: Comply with Basic Wind Speed, Exposure, and Importance Factor who loading requirements of the International Building Code as referenced in Section 1.4.A.5.
B. Maximum Deflection: Limit mullion deflection to 1/175 of span or to the flexure limit of glazing materials, whichever is less.
C. Thermal Movement: Provide for thermal expansion and contraction of system components caused by temperature cycle of 180 F without causing detrimental effects to the overall system or individual components.
D. Structural Movements: Design system to accommodate movement within system, movement between system and surrounding construction, dynamic loading and release of loads, and deflection of structural or surrounding framing, without damage to the system or components thereof.
E. Weeping: Provide integral means of draining water entering joints, condensation occurring with glazing channels or framing members, or migrating moisture within the system, to the exterior.

PERFORMANCE REQUIREMENTS
A. Air Infiltration: Maximum 0.06 cfm/sq. ft. surface area, measured at pressure differential of 6.24 psf, in accordance with ASTM E283.
B. Water Infiltration: None allowed at test pressure of 6.24 psf, in accordance with ASTM E331.
C. Thermal Performance: Maximum U-value 60, minimum condensation resistance factor 52, when tested in accordance with AAMA 1502.7 – 1987 and 1503.1 – 1989 (heating only)

GENERAL
A. Aluminum Entrances, Door and Window Systems shall be manufactured by Kawneer, Arcadia products shall be submitted for approval to the Architect and shall meet or exceed the performance criteria as established by the specified system.
B. Verify unframed sill profile with metal building system.

MATERIALS
A. Metals shall be alloy aluminum, extruded with commercial tolerances, and be free from defects impairing strength and/or durability. All fasteners, where exposed, shall match the finish of the adjacent material. Fasteners exposed to the aluminum: Provide units with an insulated glazing system. (1 inch minimum thick). Mechanically glazed shall be installed in all systems. Provide materials with a clear anodized finish.

08560 – VINYL WINDOWS

GENERAL
A. Vinyl Windows shall be manufactured by others. Alternate products shall be submitted for approval to the Architect and shall meet or perform equal to as established by the specified system. Verify unframed sills profile with metal building system.

MATERIALS
A. The extruded vinyl profiles shall comply with the performance requirements of ASTM D3679 Type II, Impact Grade Class
1. 3/4" (insert) insulated glass consists of two lites of glass sealed around a spacer. The insulating glass units shall comply with the performance requirements of the IRC in accordance with either ASTM E 774 or E 773.
C. Provide Nylon Rollers, Corrosion resistant screens on operable units.

08700 – DOOR HARDWARE

SUBMITTALS
A. Submit copies of finish hardware schedule in vertical format, listing each door opening, and organized into "hardware sets" indicating complete hardware for each door required for each door opening to function as intended. Note any special mounting instructions or requirements with the hardware schedule.
B. Submit catalog cuts and/or product data sheets for all specified finish hardware.

WARRANTY
A. All items, except as cited below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one (1) year commencing on the date of final completion and acceptance of the project. Provide promptly repair or replace items with no additional cost to the owner. Cylindrical locksets – Heavy Duty: Five (5) years. Door closers: Ten (10) years.

PRODUCTS
A. Provide the following or approved equal
Hinges Hager BB 279
Closers Norton Security Series parallel arm
Locksets Best 8K Series
Exit devices Best 8K Series
Cylinders Best (verify with Owner)
Flush/Pulls Trimco (4" x 16")
Latch guard Trimco
Weatherstrip Pemko
Kick plates Trimco
Signs Trimco (Men, Women, International symbol or accessibility)

HARDWARE GROUPS
Provide entry sockets: deadbolt, closer with stop, weatherstrip, threshold and hinges.
2. Provide passage set, door stop, and hinges.
3. Provide Storeroom locksets door stop, and hinges.
4. Provide Privacy locksets, door stop, wash and hinges.
5. Provide Storeroom locksets, door stop, and hinges.
6. Provide Entry locksets, fabricated, deadbolt, closer with stop, weatherstrip, threshold and hinges.
7. Provide Passage set, door stop, closer and hinges.
8. Provide Passage set, door stop, closer, sign and hinges.

FINISHES
A. All hardware to be furnished in US32D 630 Stainless Steel finish. Provide quality of finish, including tolerance of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by reference standards for the applicable units of hardware.

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Project No.	Phase
0903	CD

Issue Date
08/31/09

A3

FINISH SCHEDULE

MARK	ROOM	WALLS MATL	WALLS FINISH	CEILING MATL	CEILING HGT	FLOOR FINISH	FLOOR FINISH	BASE	COMMENTS
101	CONFERENCE	5/8" GYP BD	PAINT	SAG	9'-0"		CARPET	RUBBER	
102	II CLOSET	5/8" GYP BD	PAINT	SAG	9'-0"		VCT	RUBBER	
103	JANITOR	5/8" GYP BD	PAINT/FRP WAINSCOT	1/2" GYP BD	8'-0"	PAINT	SHEET VINYL	RUBBER	MOISTURE RESISTANT GYP BD ON PLUMBING WALLS
104	WORK	5/8" GYP BD	PAINT	SAG	10'-0"		CARPET	RUBBER	
105	RECORDS	5/8" GYP BD	PAINT	5/8" GYP BD	8'-0"	PAINT	VCT	RUBBER	TWO LAYERS 5/8" GYP BD ON CEILING
106	OFFICE	5/8" GYP BD	PAINT	SAG	9'-0"		VCT	RUBBER	
107	BREAKROOM	5/8" GYP BD	PAINT	NONE			VCT	RUBBER	
108	KITCHEN	5/8" GYP BD	PAINT	SAG	9'-0"		VCT	RUBBER	MOISTURE RESISTANT GYP BD ON PLUMBING WALLS
109	OFFICE 2	5/8" GYP BD	PAINT	SAG	9'-0"		VCT	RUBBER	
110	WOMEN	5/8" GYP BD	PAINT/FRP WAINSCOT	1/2" GYP BD	8'-0"	PAINT	SHEET VINYL	RUBBER	MOISTURE RESISTANT GYP BD ON PLUMBING WALLS
111	MEN	5/8" GYP BD	PAINT/FRP WAINSCOT	1/2" GYP BD	8'-0"	PAINT	SHEET VINYL	RUBBER	MOISTURE RESISTANT GYP BD ON PLUMBING WALLS
112	SHOP	5/8" GYP BD	PAINT				CONC. SEALER	RUBBER	ABUSE RESISTANT GYP BD ON WALLS

08710 - DOOR HARDWARE (continued)

INSTALLATION

A. Mount hardware units at heights indicated in the following applicable publications, except as specifically noted or required to comply with the governing regulations.
   1. Recommended Locations for Builders' Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute (DHI).
2. All hardware shall be applied and installed in accordance with best trade practice by an experienced hardware installer. Care shall be exercised not to mar or damage adjacent work.
B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

SECTION 08800 - GLAZING

STANDARDS

A. Flat Glass: ASTM C1036.
B. Safety Glass: Comply with Colorado State Statutes, IBC Chapter 24 and ANSI Z97.1 and testing requirements of CPSC 16 CFR Part 1201 for category II materials, with certifying label on each piece.
   1. Heat-Treated Glass: ASTM C1048.
C. Insulating Glass: Seal standard ASTM C 774, Class A. Provide units manufactured by SIGMA member and bearing IGCC certification numbers.
D. Glass shall be annealed, heat strengthened or tempered as required by codes or as required to meet thermal stress and wind loads.

QUALITY ASSURANCE

A. Comply with recommendations of Flat Glass Marketing Association "Glazing Manual" and "Sealant Manual."
B. Glassmen's Society Standard: Comply with ASTM C920 requirements for Type, Grade, Class and Uses.

SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used.
C. Samples:

GLASS TYPES

A. Typical Exterior Insulating Glass Units:
   Interior Lite: ¼" clear
   Exterior Lite: ¼" Obscurelite Glass Sunglass Low-E #2
   1. Shading Coefficient: 0.29
   2. Solar Heat Gain Coefficient: 0.25
   3. U-factor: 0.29
   4. Light Transmission: 0.27

SECTION 09260 - GYPSUM BOARD ASSEMBLIES

REFERENCES

A. AISI S200-11 - North American Specification for the Design of Cold-Formed Steel Structural Members, American Iron and Steel Institute, 2007 with 2004 supplement.
B. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members, 2004a.
C. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2004.
D. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2005.
E. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board, 2004.
F. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2003.

SUBMITTALS

A. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
B. Product Data: Provide manufacturer's data on partition head to structure connections, showing compliance with requirements.

METAL FRAMING MATERIALS

A. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
   1. Studs: "C" shaped with flat or formed webs with knurled faces.
   2. Runners: U shaped, sized to receive studs.
   3. Ceiling Channels: C shaped.
   4. Furring members: Manufacturer's standard hat shaped.
      a. Depth: As indicated on Drawings.
      b. Ceiling Hangers: Type and size as specified in ASTM C 754 for spacing required.
      c. Partition Head to Structure Connections: Provide manufacturer's standard devices that accommodate deflection using slotted holes, screws and anti-friction bushings; preventing rotation of studs while maintaining structural performance of partition.

GYPSUM BOARD MATERIALS

A. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.
   Fire-Resistance Type: Complying with Type X requirements; 5/8" or 1" rated.
   a. At Assemblies indicated with "Fire-Rating," use type required by indicated tested assembly. If no tested assembly is indicated, use Type X.
   b. Thickness: 5/8 inch.
   c. Edges: Tapered.
B. Ceiling Board: Special sag-resistant type.
   a. Application: Ceilings, unless otherwise indicated.
   b. Thickness: 1/2 inch.
   c. Edges: Tapered.

ACCESSORIES

A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit, type unfaced. Thickness: 3 inches.
B. Acoustic Sealant: Non-hardening, non-staining, for use non-functional with gypsum board.
C. Framing Accessories: ASTM C 1047; galvanized steel or rolled zinc, unless otherwise indicated.
D. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.
E. Screws: ASTM C 1002; self-piercing tapping type.
F. Anchorage: As Submitted, where wire, nails, screws, and other metal supports, of type and size to suit application, to rigidly secure materials in place.

FRAMING INSTALLATION

A. Metal Framing: Comply with ASTM C 754 and manufacturer's instructions.
B. Suspended Ceilings and Soffits: Space framing and furring members at 16 inches on center; laterally brace entire suspension system.
C. Studs: Space studs at 16 inches on center. Extend partition framing to structure. Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

FINISH LEVELS

A. Level 1 (Fire Taping): gypsum areas above ceilings and other areas not exposed to public view and not indicated to be painted.
B. Level 3 (Tape embedded in one coat of joint compound and two separate coats of finishing compound applied over all joints, corners, fastener heads): Use in storage areas, equipment rooms, janitor closets and other areas not exposed to public view. Apply c medium to heavy textured finish prior to painting.

SECTION 09260 - GYPSUM BOARD ASSEMBLIES (continued)

C. Level 4 (Tape embedded in one coat of joint compound, two separate coats of finishing compound applied over all joints, corners, fastener heads, surface free of trapping compound; all joint compound smooth and free of tool marks and ridges): Use on all areas exposed to public view, unless otherwise indicated. Finished drywall shall be smooth

SECTION 09511 - SUSPENDED ACOUSTICAL CEILINGS

SUBMITTALS

A. Product data: Samples.

ACOUSTICAL UNITS

A. General: ASTM E 1264, Class A.
B. Acoustical Panels: Armstrong - Sahara Zone Fine Fissured, or approved equal; 24x48 panels, square lay-in, medium texture.
C. Suspension System: Prelude XL 15/16" Exposed Tee.

INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.
B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
C. Fit border units neatly against abutting surfaces.
D. Clean units after above-ceiling work is complete.
E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

SECTION 09653 - RESILIENT SHEET FLOORING

SUBMITTALS

A. Product data: Samples.

QUALITY ASSURANCE

A. General: ASTM F 1303 Class A backing, Grade 2, Type II
B. Static load limit: ASTM F 970 500 psi

PRODUCTS

A. Provide Armstrong Possibilities Perf Print (No substitutes)
B. Sheet - 6 ft Wide
C. Gauge: 0.080 in overall, 0.040 wear layer.

INSTALLATION

A. Install flooring in accordance with manufacturer's instructions.
B. Install with flush cove base detail. Provide all necessary accessories.

SECTION 09680 - RESILIENT TILE FLOORING

SUBMITTALS

A. Product data. Samples.

PRODUCTS

A. Provide Armstrong Excelon Stonetex Tile Flooring (No substitutes)
B. Wall base (all areas) - provide 0.080 thick x 4" high Armstrong color-integrated wall base with a matte finish, conforming to ASTM F 1861
C. Provide thresholds, transition/reducing strips as required.

INSTALLATION

A. Install flooring in accordance with manufacturer's instructions.
B. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance.
C. Perform subfloor moisture testing in accordance with ASTM F 2170.
D. Report conditions that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

SECTION 09681 - CARPET

SUBMITTALS

A. Product data. Samples.

PRODUCTS

A. Provide Simply Sure Tile from the Nu Rules Collection as manufactured by Shaw Contract Group (No substitutes).
B. Multi-level pattern loop construction, fiber content 100% solution dyed nylon, face weight 19.0 ounces per square yard, 1/12 inch gauge, 0.125 inch overall thickness, 5/32 inch pile height, 3 inches per inch stitch rate, primary backing synthetic, secondary backing modified ethylene vinyl acetate (EVA) with attached cushion.

INSTALLATION

A. Install flooring in accordance with manufacturer's instructions.
B. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance.
C. Report conditions that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

SECTION 09900 - PAINTS AND COATINGS

SUBMITTALS

A. Product Data: Provide data on all finishing products, including VOC content. Paint color for deck.
B. Samples: Submit two paper chip samples, 8 x 8 inch in size, illustrating range of colors and textures available for each surface finishing product scheduled.
C. Manufacturer's Instructions: Indicate special surface preparation procedures.
D. Maintenance Data: Submit data on painting touch-up, and repair of painted and coated surfaces.

PAINTS AND COATINGS - GENERAL

A. The work of this Section includes painting/staining and finishing of all gypsum drywall walls, ceilings, soffits, wood doors and wood trim; all hollow metal doors and door frames; all exposed concrete floor slabs. Requirements of this section are that all items and surfaces which are normally painted and finished in a project of this type and quality be included. Dayton Superior - Crystal Seal CTC (or approved equal) to cured concrete slab. Follow manufacturers instructions.

EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

PREPARATION

A. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
B. Surface Defects: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
C. Hazardous Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
D. Shop-Primed Steel Surfaces to be Field Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
E. Interior Wood Items to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
F. Interior Wood Items to Receive Transparent Finish: Wipe off dust and grit prior to sealing. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

SECTION 09900 - PAINTS AND COATINGS (continued)

APPLICATION

A. Apply products in accordance with manufacturer's instructions.
B. Do not apply finishes to surfaces that are not dry. Allow specified coats to dry before next coat is applied.
C. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless otherwise approved. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

SECTION 10155 - TOILET PARTITIONS

SUBMITTALS

A. Submit manufacturer's detailed technical data for materials, fabrication and installation. Include catalog cuts of hardware, anchors, fastenings and accessories. Transmit copy of each to the Installer. Submit shop drawings for the fabrication and erection of toilet partition assemblies which are not fully described in manufacturer's data. Show all anchorage and accessory items. Provide one set actual samples of available finishes for Architect's selection.
B. Comply with Handicap Accessibility requirements of "The Americans With Disabilities Act." Submit setting drawings, templates and instructions for the installation of anchorage devices built into other work.

PRODUCTS

A. The work of this section includes toilet partitions, doors and urinal screens.
   Material: Powder coated steel.
   Type: Pilaster type.
   Finish: Colors as selected from manufacturer's standards
B. Hardware and Accessories: chrome plated pilaster shoes and wall brackets; hardware: Manufacturer's standard design, heavy-duty operating hardware and accessories, cast aluminum. Anchorages and fasteners: Manufacturer's standard exposed fasteners of finishes to match hardware, with security screw-type heads and nuts.
   For each stall, pair of heavy side mounted, sheet-formed pin hinges, gravity hinges with concealed ball-bearing rollers. Coordinate, prepare as required for door accessories as specified in this section.

INSTALLATION

A. Where possible, take field measurement prior to preparation of shop drawings and fabrications to ensure proper fitting of the work. Otherwise, indicate field measurements on shop drawings. Furnish inserts and anchoring devices which must be built into other work for the installation of toilet partitions and related work. Coordinate delivery with other work to avoid delay.
B. Install partitions rigid, straight, plumb and level, with the panels set out as shown on Drawings and as required to meet accessibility requirements. Provide clearances of not more than 1/2 inch between pilasters and panels, and not more than one inch between panels and walls. Install door bumpers on partitions or walls.

SECTION 10800 - TOILET ACCESSORIES

SUBMITTALS

A. Submit product literature of each proposed accessory to the Architect for review and approval. Submit manufacturer's technical data and installation instructions for each accessory. Transmit copies of installation instructions to the Installer.
B. Comply with Handicap Accessibility requirements of "The Americans With Disabilities Act." Submit setting drawings, templates and instructions for the installation of anchorage devices built into other work.

PRODUCTS

   Hand Dryer, World Hand Dryer model XA8 surface mount.
   Grab Bars: Bradley Model 812 (or approved equal).
   Stainless Steel Framed Mirrors (provide at each lav), 24" x 36" height.
   Napkin/Tampon Disposal (provide at each stall at women's room)
   Toilet Paper Holders, Supplied by Owner, Installed by General Contractor
   Paper Towel Dispenser, Supplied by Owner, Installed by General Contractor

INSTALLATION

A. Use concealed fastenings. Provide anchors, bolts and other necessary anchorages, and other accessories securely to walls and partitions in locations as shown or directed.
B. Install concealed mounting devices and fasteners fabricated of the same material as the accessories or of galvanized steel, as recommended by manufacturer.
C. Install exposed mounting devices and fasteners finished to match the accessories.
D. Provide matching exposed fasteners for all accessory mountings. Secure accessories in accordance with the manufacturer's instructions for each item and each type of substrate construction.
E. Install accessible fixtures, dispensers, and other elements and as directed by Architect. Conform to The Americans With Disabilities Act for positions and mounting heights for access to the handicapped.

SECTION 13120 - PREENGINEERED METAL BUILDINGS

GENERAL

A. Conform to the standard industry specifications including those of organizations such as: AISC, AWS, AISI, MBMA, etc.

SUBMITTALS

A. Submit erection drawings stamped by a licensed Colorado engineer, erection guides, brochures and color samples.

PRODUCTS

A. Provide a complete metal building system including but not limited to clear span rigid frame, exterior columns rigidly connected to rafters, roof, sidewall and endwall girts, eave struts, purlins, wind bracing and other miscellaneous structural members.
B. Provide complete roof and wall coverings including cut and fit-tites to 26 gauge roof and wall panels, trim, attachments, fasteners and sealants. Wall panels shall be pre-painted with a Modified Silicon Polyester finish over Aluminum-Zinc alloy-coated or G90 galvanized steel substrate in accordance with ASTM A792, grade 80. Roof panels, wall trim and flashings shall be pre-painted Fluropon 70% Kynar/Hylar 5000 over 26 gauge, Grade 50 Aluminum-Zinc alloy-coated steel substrate, ASTM A792, coating designation AZ50 or AZ55.
C. All framed openings, flashings, roof curbs, wall trim, metal panel soffits, fascia, rain gutters and downspouts.

INSTALLATION

A. Erection of the metal building system shall be in accordance with the appropriate erection drawings, erection guides and other documents furnished by the manufacturer.

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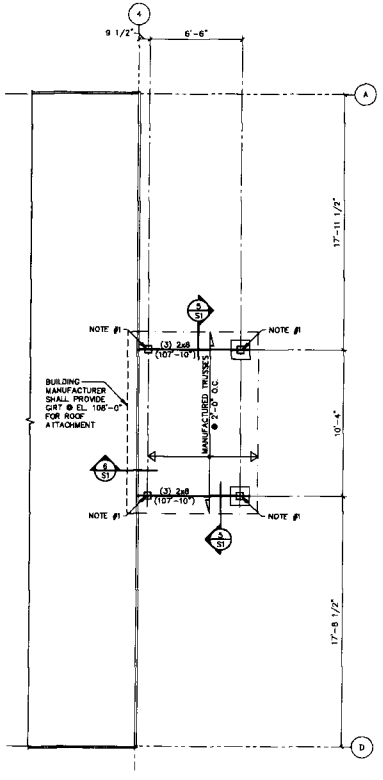
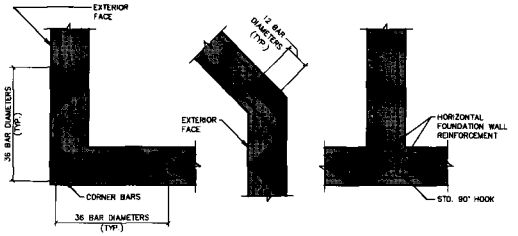
Project No. 0903 | Dwg. CD
Issue Date 08/31/09

A4

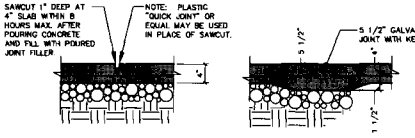


ENTRY ROOF FRAMING PLAN 1/4"=1'-0

1 BEAR ON 6x6 POST. ATTACH TO BEAM W/ SIMPSON TYPE "ACE" COLUMN CAP.



TYPICAL CORNER DETAILS 1"=1'-0



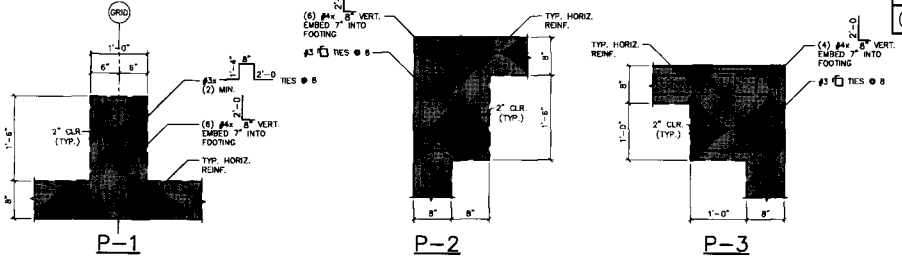
TYPICAL CONTROL JOINT SECTIONS 1"=1'-0

GENERAL NOTES

1. LIVE LOADS USED IN DESIGN:
   - A. ROOF (SNOW) ---------- 30 PSF
   - B. WIND
     - EXPOSURE ---------- C
     - BUILDING CATEGORY ---------- I
     - IMPORTANCE FACTOR (Iw) ---------- 1.0
     - V_{ult} ---------- 90 mph
     - V_{asd} ---------- 75 mph
   - C. SEISMIC
     - SEISMIC USE GROUP ---------- I
     - IMPORTANCE FACTOR (Ie) ---------- 1.0
     - SPECTRAL RESPONSE COEFFICIENTS
       - S_{DS} ---------- 0.302
       - S_{D1} ---------- 0.095
     - SITE CLASS ---------- C
     - BASIC SEISMIC PER METAL BUILDING MANUFACTURER
2. CONCRETE:
   - A. ALL CONCRETE SHALL DEVELOP 3,000 PSI COMPRESSIVE STRENGTH IN 28 DAYS.
   - B. ALL REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60.
   - C. NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER. LAP SPLICES, WHERE PERMITTED, SHALL BE A MINIMUM OF 36 BAR DIAMETERS. MAKE ALL BARS CONTINUOUS AROUND CORNERS.
   - D. STAGGER SPLICES A MINIMUM OF 4'-0" FOR TOP AND BOTTOM CONTINUOUS BARS IN FOUNDATIONS, UNLESS OTHERWISE SHOWN OR NOTED.
3. WOOD:
   - A. ALL BEAMS AND HEADERS 2 TO 4 INCHES THICK SHALL BE HEM-FIR NO. 2 AND BETTER WITH Fb = 850 PSI AND E = 1,300,000 PSI.
   - B. ALL BEAMS 5" AND THICKER SHALL BE HEM-FIR NO. 2 WITH Fb = 675 PSI AND E = 1,100,000 PSI.
   - C. ALL POSTS AND COLUMNS 5" AND THICKER SHALL BE HEM FIR NO. 2 WITH Fb = 525 PSI AND E = 1,100,000 PSI.
   - D. STUDS AND PLATES SHALL BE HEM-FIR IN STUD GRADE WITH Fb = 875 PSI AND E = 1,200,000 PSI.
4. FOUNDATIONS:
   FOUNDATION DESIGN IS BASED ON THE ASSUMED VALUES AS FOLLOWS:
   - A. ALLOWABLE SOIL BEARING PRESSURE ---------- 2,000 PSF
   - B. MODULES OF SUBGRADE REACTION ---------- 200 PCI
   - C. QUALIFIED SOILS ENGINEER SHALL EXAMINE EXCAVATION TO VERIFY CONDITIONS PRIOR TO CONSTRUCTION.
5. VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FOOTING SCHEDULE

MARK	SIZE	REINFORCEMENT	REMARKS
A	2'-8 x 2'-6 x 0'-10	(3) #5 EACH WAY BOTTOM	
B	3'-8 x 3'-6 x 0'-10	(4) #5 EACH WAY BOTTOM	

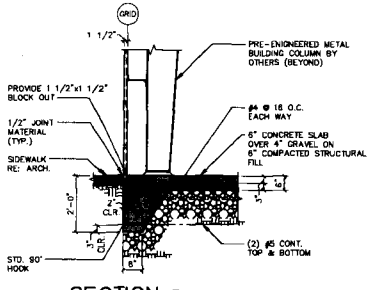


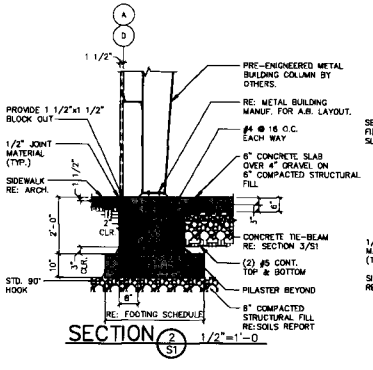
PLYWOOD NAILING SCHEDULE

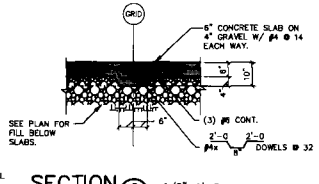
USE	THICKNESS	SPAN/INDEX RATIO	EDGE NAILING	INTER NAILING
ROOF	5/8"	32/16	8d @ 6" O.C.	8d @ 12" O.C.

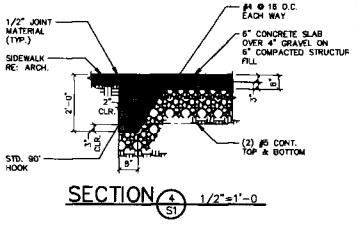
1. PLYWOOD SHEATHING SHALL BE APA GRADE TRADEMARKED CDX W/ EXTERIOR GLUE. LAY UP PLYWOOD W/ FACE GRAIN PERPENDICULAR TO SUPPORTS AND STAGGER JOINTS. ALL NAILING COMMON NAILS; RING SHANKED FOR ROOF AND FLOOR SHEATHING. REFER TO TABLE ABOVE FOR USE REQUIREMENTS.
2. O.S.B. SHEATHING MAY BE USED AS AN ALTERNATE TO PLYWOOD W/ PRIOR APPROVAL OF OWNER AND ARCHITECT. O.S.B. SHEATHING SHALL HAVE A SPAN RATING EQUIVALENT TO OR BETTER THAN THE PLYWOOD IT REPLACES. ATTACHMENT AND THICKNESS (WITHIN 1/32") SHALL BE THE SAME AS THE PLYWOOD IT REPLACES.

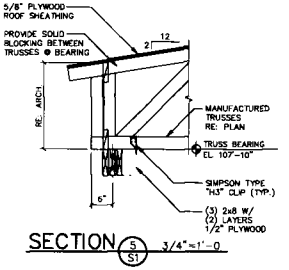
TYPICAL PILASTER DETAILS 1"=1'-0

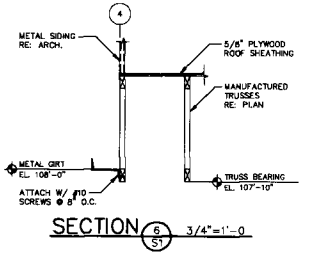












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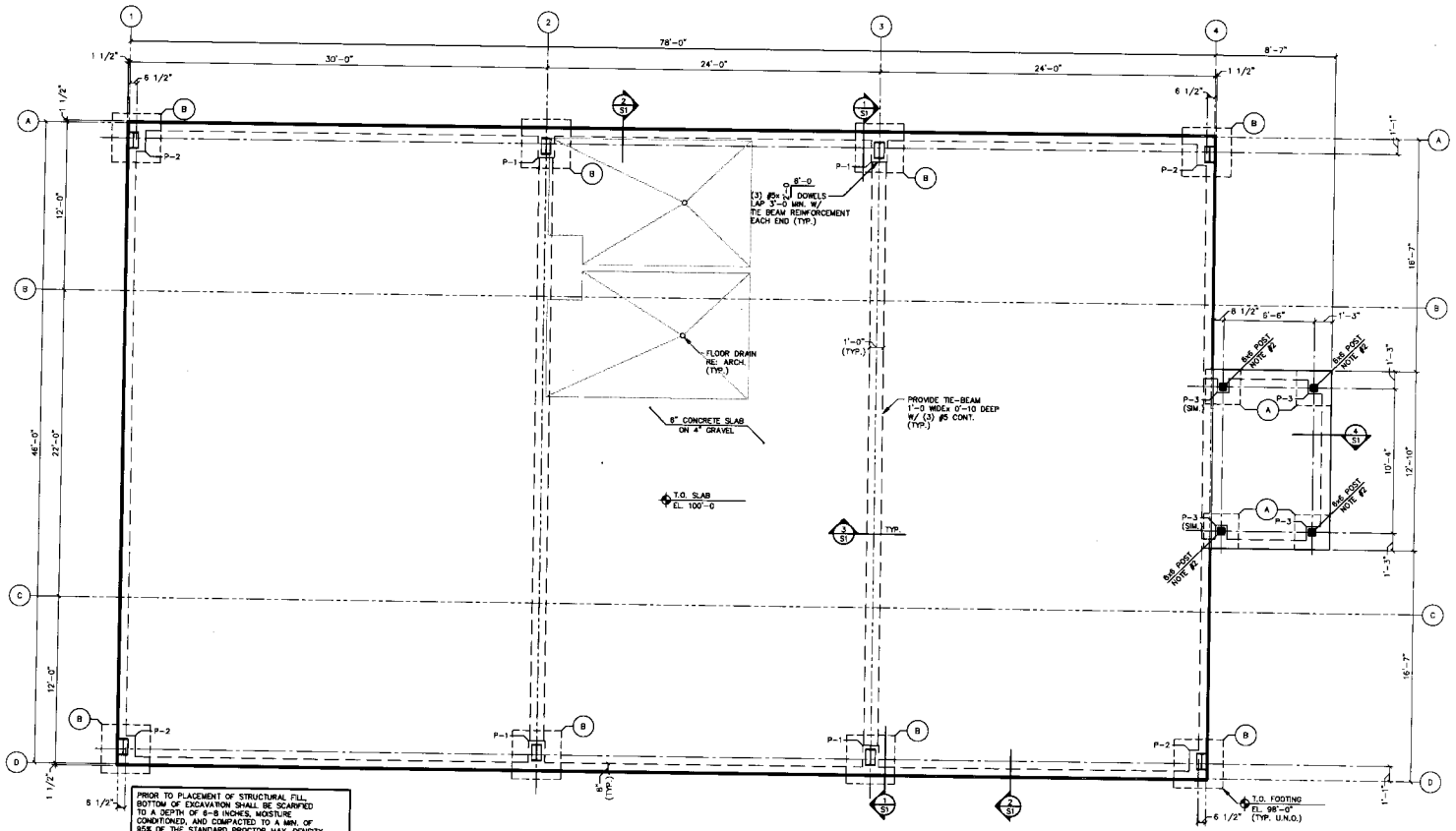
Project No. 09.049 | Phase CD
Issue Date 09/31/09

S1



FOUNDATION PLAN

1/4"=1'-0

1. REINFORCE CONCRETE SLAB WITH #4 @ 16 EACH WAY. PLACE IN MIDDLE OF SLAB.
2. PROVIDE TYPE "ABU66" POST BASE.

NOTE:
1. FOUNDATION DESIGN IS BASED UPON AN ASSUMED METAL BUILDING FRAME AND ENDWALL LAYOUT. FINAL METAL BUILDING REACTIONS AND ANCHOR BOLT LOCATIONS MUST BE MADE AVAILABLE TO ENGINEER FOR COORDINATION WITH FOUNDATION ASSUMPTIONS PRIOR TO CONSTRUCTION.
2. FOOTING LOCATIONS TO BE VERIFIED WITH METAL BUILING FRAME AND ENDWALL LOCATIONS PRIOR TO CONSTRUCTION.

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Project No.	Phase
09.049	CD
Issue Date	
08/31/09	

S2

CONDENSING UNIT/COIL SCHEDULE

DESIG.	MBH @ AR.	SEER	VOLTS/AMPS	ø	TRANE MANUFACTURE & MODEL NUMBER	NOTES
CU-1	60	13.25	240/56	1	UNIT: 4TTB3060A1 COIL: 4CXC060A4S3CA	1,2,3,4,5

1. R-410A REFRIGERANT.
2. LOW AMBIENT KIT TO 30°F.
3. LIQUID LINE FILTER DRYER WITH SITE GLASS.
4. CASED COIL WITH 3/4" CONDENSATE TO FLOOR DRAIN.
5. CONDITIONS: 100°F AMBIENT.

FURNACE SCHEDULE

DESIG.	MBH HTG @ SL	SP	CFM	HP	ø	VOLTS	TRANE MANUFACTURE AND MODEL NUMBER	NOTES
F-1	120.0	.45	1 SPEED 1995	3/4	1	115	TUX120120A9H5	1,2,3,4,5

1. HORIZONTAL, NATURAL GAS, SINGLE STAGE HEATING/COOLING PROGRAMMABLE THERMOSTAT.
2. HANG UNIT FROM PURLINS IN ATTIC WITH VIBRATION ISOLATION SPRINGS.
3. F1 TO HAVE 30% OUTSIDE AIR. THE REMAINDER OF VENTILATION VIA WINDOWS.
4. AN OUTSIDE AIR DAMPER SHALL CLOSE WHEN CO2 LEVEL IN CONFERENCE ROOM IS LESS THAN 4000 PPM AND OPEN AT 5000 PPM OR WHEN FIRST STAGE COOLING IS ENERGIZED. THE RELIEF DAMPER SHALL OPEN.
5. 3" PVC FLUE AND COMBUSTION AIR, FLUE UP THROUGH ROOF 1 1/2 FEET AND TURN DOWN. COMBUSTION AIR TURNS DOWN THROUGH EAVE.

AIR DEVICE SCHEDULE

DESIG.	TYPE OF INSTALLATION	MANUFACTURER & MODEL NUMBER	CONNECTION SIZE	ACCESSORIES	PANEL OR FACE SIZE	NOTES
A	LAY-IN CLG.	KRUEGER SMD	SHOWN ON DRAWINGS	VOLUME DAMPER	24 X 24	1
B	GYP-BD CLG.	KRUEGER SMD	SHOWN ON DRAWINGS	VOLUME DAMPER	24 X 24	1
C	SIDE WALL CEILING RETURN	KRUEGER SMD	SHOWN ON DRAWINGS	VOLUME DAMPER	24 X 12	1
D	SIDE WALL CEILING SUPPLY	KRUEGER SMD	12 X 6	VOLUME DAMPER	13.75 X 7.75	1
E	SIDE WALL TRANSFER	KRUEGER SAS	12 X 8		13.75 X 9.75	3
EXH-1	EXTERIOR SIDE WALL LOUVER	RUSKIN ELF 6375D	SHOWN ON DRAWINGS	BIRD SCREEN	36 X 30	2

1. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTORS AS REQUIRED.
2. 2" DEEP FIXED BLADE LOUVER MADE OF EXTRUDED ALUMINUM. FREE AREA VELOCITY LESS THAN 300 FPM. COLOR TO BE SELECTED BY ARCHITECT.
3. PROVIDE 12 X 8 DUCTWORK BETWEEN RETURN GRILLES, LOCATE 8" AFF.

EXHAUST FAN SCHEDULE

DESIG.	CFM	S.P.	DIA.	RPM	WATTS W.C.	ø	VOLT	MANUFACTURER & MODEL NUMBER	MOUNTING	POWERED BY	NOTES
EF-1	525	.5		1375	301 W	1	120	COOK MOD. GC 720 INLINE CONFIGURATION	SIDEWALL WITH LIGHTS		1

1. PROVIDE WITH WCRB-ALUM WALL CAP AND SOLID STATE SPEED CONTROLLER ABOVE CEILING ON FAN AND ACCESSIBLE FROM BELOW THROUGH GRID CEILING OR 16 X 16 ACCESS PANEL IN GYP. BD. CLG.

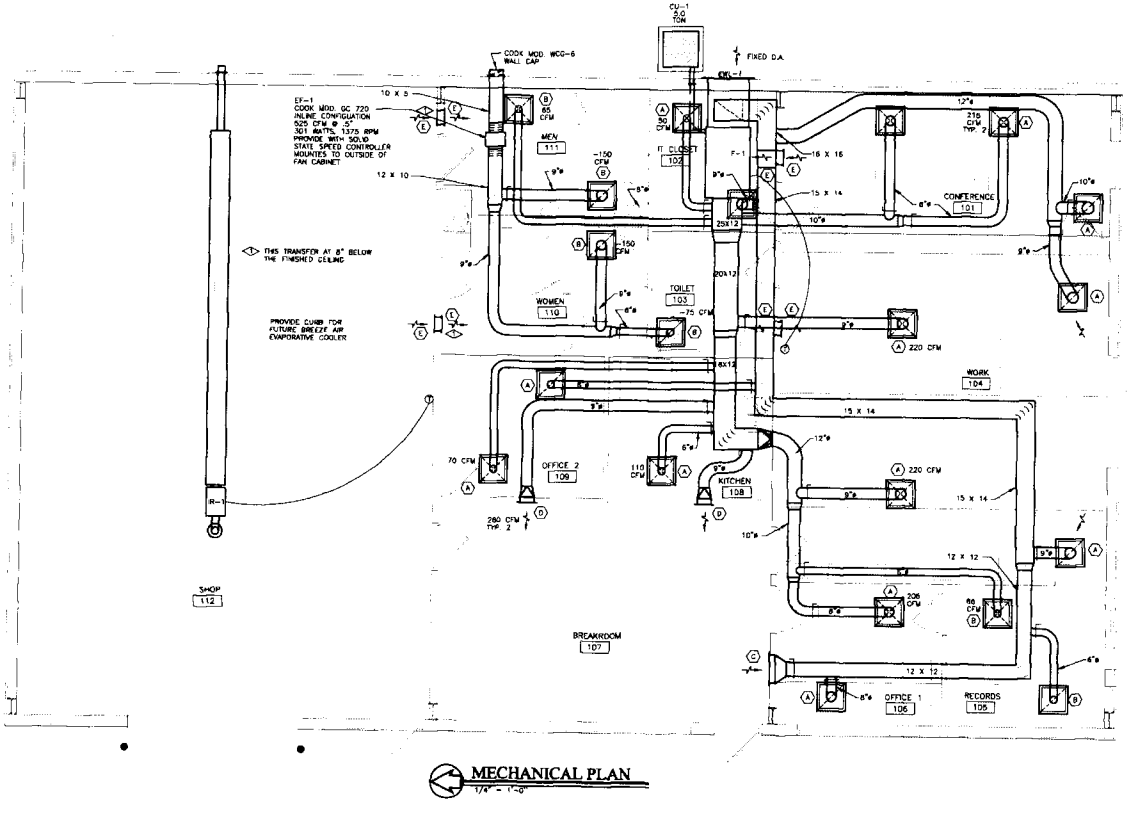
INFRARED HEATER SCHEDULE

DESIG.	MOUNTING HEIGHT	TUBE LENGTH	ø	VOLT	MBH	MANUFACTURE & MODEL NUMBER	FLUE AND COMBUSTION AIR SIZE	NOTES
IR-1	15'	25'	1	120	80	CALCANA SR 80	4"ø	1,3

1. PROVIDE WITH SPARK IGNITION, COMBUSTION AIR FLOW SWITCH, TERMINAL BOARD, THERMOSTAT, GROUNDED PLUG, POLISHED REFLECTORS, VENT CAP, REFLECTOR GAP COVERS,HANGER KIT.
2. ALL STANDARD STEEL CONSTRUCTION.
3. ALL FLUE AND COMBUSTION AIR SIZES ARE 4"ø. REFER TO CALCANA INSTALLATION MANUALS FOR EXACT SIZING.

SYMBOL LEGEND

- CW: DOMESTIC COLD WATER
- HW: DOMESTIC HOT WATER
- W: SANITARY WASTE
- HOT WATER RECIRCULATION
- PLUMBING VENT
- G — NATURAL GAS
- GATE VALVE
- BALL VALVE
- AUTOMATIC FLOW CONTROL VALVE
- STRAINER
- TEMPERATURE CONTROL VALVE
- PRESSURE RELIEF VALVE
- CHECK VALVE
- T — THERMOSTAT
- G — UNIVERSAL GAUGE TAPPING
- POINT OF CONNECTION NEW TO EXISTING
- V.T.R. — VENT THRU ROOF
- FIRE DAMPER
- FIRE/SMOKE DAMPER
- TURNING VANES IN ELBOW
- SPIN-IN CONNECTION
- MANUAL VOLUME DAMPER
- RL — RAIN LEADER
- PIPE UNION
- PIPE ANCHOR
- CLEAN OUT
- C — CONDENSATE LINE
- THERMOMETER
- D — DRAIN LINE



MECHANICAL PLAN
1/4" = 1'-0"

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Project No. 0903
Plotter CD
Issue Date 08/31/09

M1

SECTION 15010
GENERAL PROVISIONS
PART 1 GENERAL
1.01 RELATED DOCUMENTS: DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT APPLY TO WORK OF THIS SECTION.
1.02 SCOPE:
A. THIS SECTION OF THE SPECIFICATIONS APPLIES SPECIFICALLY TO THE MECHANICAL WORK, INCLUDING PLUMBING, HEATING, VENTILATION AND AIR CONDITIONING, INSTRUMENTATION AND FIRE PROTECTION.
B. PROVIDE ITEMS, ARTICLES, MATERIALS, OPERATIONS AS LISTED, MENTIONED AND SCHEDULED ON DRAWINGS AND SPECIFICATIONS, INCLUDING LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY OR REQUIRED FOR THE COMPLETION, TESTING, INSPECTION, ADJUSTING, RE-TESTING AND RE-ADJUSTING TO PROVIDE THE VARIOUS SYSTEMS SPECIFIED, OPERABLE AND COMPLETE IN ALL RESPECTS. ITEMS OF EQUIPMENT, MATERIALS AND LABOR TO BE FURNISHED BY THE OWNER WILL BE SO

C. IF ANY PERSON CONTEMPLATING SUBMITTING A BID FOR THE PROPOSED CONTRACT IS IN DOUBT AS TO THE MEANING OF ANY PART OF THE DRAWINGS OR PROJECT MANUAL OR SHOULD THE CONSTRUCTION MANAGER DISCOVER AMBIGUITIES, DISCREPANCIES, INCONSISTENCIES OR CONFLICTS HEREIN, HE SHALL SUBMIT TO THE CM AND/OR ENGINEER A WRITTEN REQUEST FOR AN INTERPRETATION NOT LATER THAN (5) CALENDAR DAYS PRECEDING THE BID DATE. THE PERSON SUBMITTING THIS REQUEST WILL BE RESPONSIBLE FOR ITS PROMPT DELIVERY.

1. IN THE EVENT THE CONTRACTOR FAILS TO NOTIFY THE CM OR THE ENGINEER OF ANY AMBIGUITIES, DISCREPANCIES OR INCONSISTENCIES WHICH MAY SUBSEQUENTLY BE GIVEN BY THE ENGINEER, THIS SHALL BE ADVANCED INFORMATION MAY BE REQUIRED OF THE CONTRACTOR WITH NO ADJUSTMENT IN CONTRACT SUM.

D. PRIOR TO BID DATE, OFFICIAL INTERPRETATION OF THE DOCUMENTS SHALL BE GIVEN ONLY BY ADDENDUM. OWNER OR ENGINEER INTERPRETATION AND SUPPLEMENTAL INFORMATION GIVEN IN THIS TIME FRAME MAY NOT BE RECOGNIZED IF NOT DOCUMENTED IN AN OFFICIAL ADDENDUM.

1.03 SUBSTITUTIONS
A. MANUFACTURER'S AND CATALOG NUMBERS SHOWN AND INDICATED ARE INTENDED AS A GUIDE TO QUALITY AND FUNCTION. PRODUCTS OF OTHER MANUFACTURERS MAY BE ACCEPTABLE UPON REVIEW BY THE ENGINEER. REQUEST FOR SUCH SUBSTITUTIONS SHALL BE SUBMITTED IN TRIPLICATE TO THE ENGINEER AT LEAST FIVE DAYS PRIOR TO BID OPENING UNLESS SUCH REQUESTS SHALL BE ACCOMPANIED BY MANUFACTURERS DATA SHEET AND OTHER INFORMATION THAT IN THE OPINION OF THE ENGINEER IS NECESSARY FOR REVIEW. REQUESTS THAT ARE SUBMITTED AT A LATER DATE OR WITHOUT SUFFICIENT INFORMATION WILL NOT BE CONSIDERED. IF, AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR DESIRES TO MAKE ADDITIONAL SUBSTITUTIONS, HE MAY REQUEST PERMISSION IN WRITING FROM THE OWNER. SUBSTITUTION REQUESTS MADE IN THAT TIME SHALL STATE THE AMOUNT DEDUCTED TO GIVE THE OWNER THE BENEFIT OF SAVINGS IN MATERIAL AND LABOR COSTS. NO EXTENSION OF COMPLETION DATE WILL BE ALLOWED FOR THE LOSS IN CONSIDERATION ON ERECTION OF SUBSTITUTIONS. NO EXCEPTIONS TAKEN IN REVIEW OF SUBSTITUTIONS SHOWED GENERAL ACCEPTANCE OF EQUIPMENT AND DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR INTENDED OPERATION, COMPLIANCE WITH THE SPECIFICATIONS, AND NECESSARY CHANGES DUE TO DIMENSIONAL DIFFERENCES, SPACE REQUIREMENTS, OR COSTS CAUSED CHANGES TO OTHER CONTRACTS INVOLVED INCLUDING RE-DESIGN COSTS NECESSITATED BY THE SUBSTITUTION.
B. SUBMITTALS WILL BE REVIEWED ON THE BASIS OF THE BRAND NAME ONLY, IN WHICH CASE IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ITEMS OF THE SUBSTITUTED MANUFACTURER OF THE INTENDED QUALITY AND PERFORMANCE.
C. PERFORMANCE AND EFFICIENCY OF EQUIPMENT SHALL NOT BE LESS THAN 95% OF THE SPECIFIED EQUIPMENT.
1.04 EXAMINATION OF SITE, DRAWINGS, AND SPECIFICATIONS
A. EXAMINE THE SITE CAREFULLY AND DETERMINE THE CONDITIONS TO BE ENCOUNTERED, WORK TO BE PERFORMED, EQUIPMENT AND MATERIALS TO BE TRANSPORTED, STORED, FURNISHED AND ALL OTHER FEATURES APPLICABLE TO COMPLETION OF THE WORK.
B. STUDY THE DRAWINGS AND SPECIFICATIONS AND REPORT TO THE ENGINEER THE INCONSISTENCIES, ERRORS, OMISSIONS, AND CONFLICTS WITH CODES AND ORDINANCES. CATALOG IDENTIFICATION NUMBERS, MODEL NUMBERS, ETC., ARE SHOWN FOR REFERENCE ONLY. VERIFY NUMBERS AND PROVIDE EQUIPMENT AND MATERIALS THAT WILL MEET INTENDED DUTY AND PERFORMANCE.
C. CATALOG IDENTIFICATION NUMBERS, MODEL NUMBERS, ETC., ARE SHOWN FOR REFERENCE ONLY. VERIFY NUMBERS AND PROVIDE EQUIPMENT AND MATERIALS THAT WILL MEET INTENDED DUTY AND PERFORMANCE.
D. SUBMITTAL OF BID BY BIDDER SHALL INDICATE SATISFACTORY EXAMINATIONS HAVE BEEN MADE AND THAT ALL ADJUSTMENTS ARE INCLUDED IN THE BID.
1.06 CODES, ORDINANCES, PERMITS, UTILITIES
A. EXECUTE WORK IN ACCORDANCE WITH THE 2006 INTERNATIONAL PLUMBING CODE, 2006 INTERNATIONAL MECHANICAL CODE, 2006 INTERNATIONAL FUEL GAS CODE, 2006 INTERNATIONAL FIRE CODE, 2006 INTERNATIONAL ENERGY CONSERVATION CODE, 2006 UNIFORM MECHANICAL CODE, OSHA, PUBLIC UTILITY, LOCAL STATE CODES, ORDINANCES, AND REGULATIONS APPLICABLE. CONTACT PROPER AUTHORITIES, OBTAIN, PAY FOR REQUIRED PERMITS, INSPECTIONS, UTILITY SERVICES FOR GAS, ELECTRICITY, (INCLUDING METERS), REGULATORS, APPURTENANCES, PITS, MANHOLES, AND CERTIFICATES. INCLUDE ALL COSTS. NOTIFY ENGINEER OF ITEMS NOT MEETING SAID REQUIREMENTS.
B. ALL APPLICABLE CODES AND ORDINANCES, WHERE MORE STRINGENT, SHALL TAKE PRECEDENCE OVER THIS SPECIFICATION.
C. THE MINIMUM INSTALLATION STANDARDS AND REQUIREMENTS INCLUDED IN THE UNIFORM PLUMBING CODE SHALL BE CONSIDERED PART OF THESE SPECIFICATIONS AS THOUGH THEY WERE FORMALLY ADOPTED AS A PART OF THE UNIFORM PLUMBING CODE.
1.06 COORDINATION AND WORKMANSHIP
A. COORDINATE WORK WITH OTHER TRADES TO ELIMINATE CONFLICTS, VERIFY DIMENSIONS AND SUBMIT ANY NOTICEABLE CONFLICTS AND INCONSISTENCIES TO ENGINEER BEFORE STARTING WORK.
B. ENSURE WORK IN ACCORDANCE WITH BEST CURRENT STANDARD PRACTICES TO CONTRIBUTE TO EFFICIENCY OF OPERATION, ACCESSIBILITY, SIGHTLINESS AND MINIMUM MAINTENANCE. COWORDIN AND ACCOMMODATE SYSTEMS TO BUILDING STRUCTURE, EQUIPMENT AND SO THAT THEY WILL NOT INTERFERE WITH OPERATION OF OTHER SYSTEMS AND OPERATING PARTS OF THE BUILDING.
1.07 DRAWINGS, SHOP DRAWINGS, SUBMITTALS
A. DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL DESIGN, ARRANGEMENT AND EXTENT OF THE SYSTEM. MAKE CHANGE IN LOCATION BECAUSE OF OBSTACLES OR OTHER INSTALLATIONS INDICATED, INCLUDING SLIGHT ALTERATIONS NECESSARY TO FIT WORK TO CONNECTING WORK ALREADY IN PLACE. DO NOT RELY ON THE SCALE OF THE DRAWINGS FOR ROUGHING-IN MEASUREMENTS, NOR USE AS SHOP DRAWINGS. FIELD MEASUREMENTS AND SHOP DRAWINGS AS REQUIRED, COORDINATE WORK WITH SHOP DRAWINGS OF OTHERS TO PROVIDE NO OBSTACLES AND PLACES REQUIRING CAREFUL FITTING.
B. SUBMIT THREE COPIES OF MANUFACTURER'S SHOP DRAWINGS AND TECHNICAL DATA OF ALL MECHANICAL EQUIPMENT TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING EQUIPMENT.
C. TO CONTAIN AN INDEPENDENT CHECK OF THE WORK, SHOP DRAWINGS WILL NOT BE ACCEPTED WITHOUT COPIES OF THE CONTRACT DRAWINGS.

END OF SECTION

SECTION 15050
BASIC MATERIALS & METHODS
PART 1 GENERAL
1.01 RELATED DOCUMENTS: DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT APPLY TO WORK OF THIS SECTION.
1.02 SCOPE: THIS SECTION OF THE SPECIFICATIONS APPLIES TO ALL PHASES OF THE MECHANICAL WORK.
1.03 MOTORS, STARTERS, WIRING
A. FURNISH AND SET IN PLACE MOTORS, CONTROLS AND WIRING NECESSARY TO OPERATE MECHANICAL EQUIPMENT IN ACCORDANCE WITH THE FOLLOWING SCHEDULE. STARTERS SHALL HAVE HAND-OFF-AUTO SWITCHES AND SHALL CONTAIN THREE READILY ACCESSIBLE HAND RESET TYPE OVERCURRENT RELAYS, WITH THERMAL ELEMENTS SIZED FOR MOTOR ACTUAL FULL LOAD CURRENT, AND TWO NORMALLY OPEN AND TWO NORMALLY CLOSED AUXILIARY CONTACTS. 480 VOLT STARTERS SHALL CONTAIN 120 VOLT CONTROL POWER TRANSFORMERS SIZED FOR THE STARTER COIL AND ANY AUXILIARY EQUIPMENT SPECIFIED. TRANSFORMERS SHALL HAVE SECONDARY DUAL ELEMENT FUSING. COMBINATION STARTERS SHALL BE ALLEN BRADLEY BULLETIN 712 OR APPROVED EQUIVALENT AND SHALL CONTAIN FUSIBLE DISCONNECT SWITCHES OF THE HEAVY DUTY QUICK MAKE QUICK BREAK TYPE, HORSEPOWER RATED, WITH OPERATOR HANDLE AND DOOR INTERLOCKED TO PREVENT OPENING ENCLOSURE DOOR WITH SWITCH IN 'ON' POSITION. MAGNETIC MOTOR STARTERS SHALL BE ALLEN BRADLEY BULLETIN 709 OR APPROVED EQUIVALENT. ENCLOSURES SHALL BE NEMA 1 UNLESS INDICATED OTHERWISE. FUSES FOR THE BRANCH/CIRCUIT SWITCHES SHALL BE PROVIDED UNDER THE ELECTRICAL CONTRACT.

ITEM	FURNISHED	RESPONSIBLE DIVISION SET	POWER-WIRED	CONTROL-WIRED
EQUIPMENT	15	15	16	---
COMBINATION MAGNETIC MOTOR STARTERS-MAGNETIC MOTOR STARTERS AND CONTACTORS	15	15	16	15
FUSED AND UNFUSED DISCONNECT SWITCHES	15	15	16	15
THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	16(1)	16(1)	16	---
MANUAL-OPERATING AND MULTI-SPEED SWITCHES	15	15	15	15
CONTROLS, RELAYS, TRANSFORMERS	15	15	15	15
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	15	15	15	15
THERMOSTATS,(LINE VOLTAGE)	15	15	15	15
TEMPERATURE CONTROL PANELS	15	15	15	15
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	15	15(2)	---	15(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	15	15(3)	---	15(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	15	15	15	15
EXHAUST FAN SWITCHES	15	15	16	15(2)
FIRE PROTECTION CONTROLS	16	16	16	16
FIRE AND SMOKE DETECTORS	16(3)	16(3)	16	16(3)

SUBSCRIPT FOOTNOTES:
1. UNDER DIVISION 15 IF FURNISHED FACTORY-WIRED AS PART OF EQUIPMENT AND COORDINATED WITH COMBINATION STARTERS.
2. IF ITEM IS FOR LINE VOLTAGE, IT IS PLACE AND INSTALLED UNDER DIVISION 16. IF FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS IT SHALL BE FURNISH AND SET UNDER DIVISION 15, CONNECT UNDER DIVISION 16.
3. FOR UNITS FACTORY MOUNTED IN OR ON MECHANICAL EQUIPMENT OR DUCTS, FAN STOP CONNECTIONS SHALL BE UNDER DIVISION 15, ALL OTHER CONNECTIONS UNDER DIVISION 16.

1.04 PROTECTION: ALL WORK, MATERIALS AND EQUIPMENT SHALL BE COMPLETELY AND ADEQUATELY PROTECTED AT ALL TIMES. PAY FOR ALL DAMAGE, INJURY OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO ERRORS IN THE CONTRACT DOCUMENTS OR SOLE FAULT AS MAY BE CAUSED BY AGENTS OR EMPLOYEES OF THE OWNER. POST EFFECTIVE DANGER SIGNS WARNING AGAINST HAZARDS CREATED BY WORK.
1.05 EXCAVATING, BACKFILLING: PROVIDE ALL TRENCHING AND BACKFILL FOR WORK UNDER THIS DIVISION IN ACCORDANCE WITH NOTES ON THE STRUCTURAL DRAWINGS AND IN THE SOILS REPORT. EXCAVATE FLAT BOTTOM TRENCHES TO RECEIVE BOTTOM OF PIPE. COMPACT BOTTOM OF TRENCHES AND SLOPE TO OBTAIN REQUIRED GRADE. COMPACT BY METHODS REQUIRED OR DIRECTED FOR SOIL CHARACTERISTICS. EXCAVATION FOR TRENCHES NEAR FOOTINGS AND PADS SHALL COMPLY WITH SECTION 315(C) OF THE U.P.C. PIPE SHALL BE LAID ON A FIRM BED FOR ITS FULL LENGTH. NO SUPPORT SHALL BE CARRIED BY THE JOINTS. REMOVE ROCKS, TRASH AND DEBRIS BEFORE PIPE IS INSTALLED. BACKFILL LIGHTLY TAMPED TO CENTERLINE OF PIPE AND COMPLETE BACKFILL WITH SELECT MATERIAL, MECHANICALLY COMPACTED FROM TRENCH FREE OF ROCKS, FOREIGN MATERIALS AND FROZEN EARTH.
1.06 EQUIPMENT, MATERIALS, INSTALLATION:
A. ALL EQUIPMENT, ACCESSORIES AND SPECIALTIES CONNECTED TO EQUIPMENT AND ITEMS OF MATERIAL SHALL BE INSTALLED AS RECOMMENDED BY THEIR MANUFACTURERS UNLESS OTHERWISE INDICATED OR SPECIFIED.
B. PROVIDE PROPER SUPPORTS, FOUNDATIONS, CONCRETE PADS, ANCHORS AND BOLTS AS REQUIRED.
1.07 CHASES, SLEEVES, CUTTING AND PATCHING
A. PROVIDE FOR CHASES, HOLES, SLEEVES, BOXES, INSERTS AND HANGERS AS INDICATED AND REQUIRED FOR PIPING, DUCTS, ETC., BY ARRANGEMENT WITH CONTRACTORS OF THE OTHER APPROPRIATE TRADES.
B. FOR DUCTS THROUGH WALLS, CEILINGS AND FLOORS, PROVIDE SHEET STEEL SLEEVES OF SUITABLE SIZE, FASTENED TO CONSTRUCTION WITH SLEEVE ENDS FLUSH WITH FINISHED SURFACES. FOR PIPES PASSING THROUGH WALLS, FLOORS OR CONSTRUCTION, PROVIDE SLEEVES MADE FROM SECTIONS OF STEEL PIPE LARGE ENOUGH TO ACCOMMODATE BOTH PIPE AND INSULATION OF PIPE PASSING THROUGH.
C. PROVIDE FOR ALL CUTTING AND PATCHING OF HOLES, OPENINGS, AND NOTCHES. OBTAIN WRITTEN APPROVAL OF ENGINEER BEFORE CUTTING, BORING, CHIPPING, BURNING, DRILLING, WELDING TO STRUCTURAL MEMBERS.
1.08 FLOOR, CEILING PLATES, FLANGES
A. PROVIDE TIGHT FITTING FLOOR AND CEILING PLATES ON PIPES PASSING THROUGH WATER TILED, TILED WALLS AND FLOORS, OR CHROME PLATED IN FINISHED AREAS, GALVANIZED CAST IRON IN UNFINISHED AREAS.
B. PROVIDE SHELL AND COLLING FLANGES FOR DUCTS IN FINISHED AREAS.
1.09 ACCESS DOORS: PROVIDE ACCESS DOORS WITH MINIMUM 16 GAUGE FRAME AND DOOR, WITH CONCEALED HINGE AND LOCK AND SCREWDRIVER LOCK, MINIMUM SIZE TO PROVIDE EASE OF ACCESS. PROVIDE INVERT ELEVATIONS AS REQUIRED FOR ACCESS TO VALVES, SHOCK ABSORBERS, AIR VENTS, EQUIPMENT, DAMPERS AND OTHER ITEMS OF MECHANICAL EQUIPMENT REQUIREMENTS: MILCOR, BUCO, MIAMI CAREY, OR APPROVED STANDARD MANUFACTURER TYPES TO SUIT CONSTRUCTION INVOLVED.
1.10 INSULATION
A. PROVIDE INSULATION OF MECHANICAL ITEMS SPECIFIED UNDER APPROPRIATE SECTION. COMPARABLE PRODUCTS OF CERTAINTEED, OWENS CORNING, JOHNS-MANVILLE, OR EQUIVALENT.
B. PITTSBURGH PLATE GLASS, EAGLE PITCHER, AND ARMSTRONG ARE ACCEPTABLE.
B. INSULATION MATERIALS, INCLUDING ADHESIVE AND COVERING, SHALL MEET NFPA 90A REQUIREMENTS AND BE UL RATED, FLAME SPREAD RATING SHALL NOT EXCEED 25 AND SMOKE DEVELOPMENT RATING NOT MORE THAN 50, UNLESS OTHERWISE INDICATED.
C. PIPE FITTINGS TO BE INSULATED SHALL MEAN ALL FITTINGS INCLUDING VALVES, FLANGES, STRAINERS, ETC., EXCEPT DO NOT INSULATE UNION OR HOT LINES. PIPE INSULATION SHALL BE INSTALLED WITH JOINTS BUTTED FINELY TOGETHER. ALL VALVES AND FITTINGS SHALL BE INSULATED WITH MITERED SECTIONS OF INSULATION EQUAL IN THICKNESS AND DENSITY TO THAT OF THE ADJOINING INSULATION, OR WITH INSULATING CEMENT EQUAL IN THICKNESS TO THAT OF ADJOINING INSULATION AND BUILT UP TO 2", OR WITH 'ZESTON' TYPE, PREMOLDED PVC FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. JOINTS ON PIPE INSULATION MAY BE STAPLED USING OUTWARD CLINCH STAPLES SPACED NOT APART AT FIRST 1/3 FROM THE LAP EDGE OF SYSTEMS OPERATING AT 50 DEGREES F AND ABOVE BELOW 50 DEGREES F THE VAPOR SEALED USING SELF-SEALING LAP, LAP SEAL GUM OR ADHESIVE. ALL INSULATION ONLY TO BE TIGHTLY AND SEALED REGARDLESS OF SERVICE.
1.11 PIPING, PIPING INSTALLATION
A. IN ADDITION TO SPECIFIED CODES, MATERIALS AND METHODS SHALL CONFORM TO THE APPLICABLE PORTIONS OF ASHRAE, ASME, ASTM, ANSI AND APWA.
B. PROVIDE PROPER GRADES, SLOPES AND ELEVATIONS WITH READILY ACCESSIBLE DRAINAGE CONNECTIONS AT LOW POINTS SO THAT ENTIRE SYSTEMS MAY BE COMPLETELY DRAINED.
C. ALLOW FOR EXPANSION AND CONTRACTION TO AVOID DISTORTION, DAMAGE, AND IMPROPER OPERATION. MAKE CERTAIN PIPING ABOVE AND BELOW GRADE IS NOT INADVERTENTLY ANCHORED. IF QUESTIONABLE, OBTAIN CLARIFICATION FROM ENGINEER.
D. ARRANGE PIPING SO THAT THERE IS A MINIMUM OF 10 PIPE DIAMETERS OF STRAIGHT UNRESTRICTED PIPE TO EACH PUMP SUCTION, OR USE APPROVED ELBOW ENHANCER FITTING.
E. INSTALL PIPING TO EQUIPMENT SO THAT NO FORCE IS TRANSMITTED TO EQUIPMENT FROM PIPING.
F. WHERE PIPING WITH SIZE CHANGE OF 2 PIPE SIZES OR MORE SHALL BE MADE WITH ECCENTRIC FITTINGS FLAT ON TOP.
G. WHERE LINE SIZES ARE REDUCED AT EQUIPMENT, SUCH AS PUMP CONNECTIONS AND AUTOMATIC CONTROL VALVES, THE ACCOMPANYING VALVES, UNIONS, STRAINERS, ETC., SHALL BE FULL LINE SIZE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
H. ANY PIPING INSTALLED IN EXTERIOR WALLS, CEILING OR ATTIC SHALL BE INSTALLED ON THE ROOM SIDE OF THE BUILDING INSULATION TO PREVENT FREEZING.
1.12 PIPE HANGERS, PIPE AND EQUIPMENT SUPPORTS
A. PROVIDE ADJUSTABLE BAND TYPE CLEVIS, OR OTHER APPROVED HANGERS, SUPPORTS AND BRACES AS MANUFACTURED BY GRINNELL, FEE AND MASON, GRABLER, ELDEN, UNISTRUT, SIGMA ENGINEERING, INC., OR AS APPROVED, TO PREVENT UNDUE STRAIN, STRESS, NOISE AND VIBRATION.
B. PERFORATED METAL STRAP, WIRE, STRING, OR SIMILARY INADEQUATE MATERIAL WILL NOT BE PERMITTED.
C. PROVIDE COPPER OR COPPER PLATED STEEL HANGERS FOR COPPER PIPING.
D. HORIZONTAL PIPING:
1. DAST IRON SOIL PIPE--SUPPORT WITHIN ONE FOOT OF EVERY JOINT AND NOT EXCEEDING 5 FOOT INTERVALS.
2. PIPING SUPPORTS, WHEN PIPING RUNS PENETRATE METAL STUDS, UTILIZE POLYPROPYLENE FIRE RESISTANT "PIPE TYTE" IN PUNCHED HOLES FOR SIZES 1/2", 3/4" AND 1". WHEN PIPING RUNS PENETRATE WOOD STUDS, UTILIZE "PIPE TYTE" FIRE STRAP AND PROVIDE ISOLATION OF POLYPROPYLENE MATERIAL.
3. MAXIMUM SPACING OF HANGERS AND MINIMUM HANGER ROD SIZE FOR STEEL PIPE:

NOMINAL PIPE SIZE INCHES	MAXIMUM SPAN FEET	MINIMUM ROD DIAMETER INCHES
1/2"	6	3/8
3/4 TO 1	7	3/8
1-1/4 TO 1-1/2	8	3/8
2	10	3/8
2-1/2	12	1/2
3-1/2	13	1/2
4	14	5/8

4. NATURAL GAS PIPING SHALL BE SUPPORTED AT 10 FT. FOR 1-1/4" AND LARGER PIPE SIZE.
5. SIX FOOT SPACING FOR 1-1/2 INCH AND SMALLER COPPER TUBING, 10 FOOT SPACING FOR 2" AND LARGER.
6. BURIED PIPING SHALL BE LAID ON A FIRM BED FOR ENTIRE LENGTH. PIPE SHALL BE CARRIED BY POINTS AND NOT BY JOINTS.
7. PIPING RUN ABOVE ROOF: SUPPORTS SHALL BE MIRO INDUSTRIES PILLOW BLOCK PIPESTAND, MODEL RP OR EQUAL FOR PIPES TO 21", 2" THROUGH 4" SHALL UTILIZE MODEL 24R OR APPROVED EQUAL. UNITS SHALL BE STACKED TO PROVIDE 6" CLEARANCE FROM PIPE TO ROOF SURFACE. MASTIC THE UNIT TO THE ROOF USING THE APPROPRIATE MASTIC TO MAINTAIN ROOF WARRANTY REQUIREMENTS. IN THE CASE OF SINGLE-PLY ROOFS, PLACE A SUBSTRATE SHEET OF SINGLE-PLY MEMBRANE OR A TRAFFIC PAD BENEATH THE PIPE STAND.
E. VERTICAL PIPING:
1. PROVIDE FRICTION RISER CLAMPS, SUPPORTED AND BRACED.
2. CAST IRON SOIL PIPE--SUPPORT AT NOT LESS THAN EVERY STORY HEIGHT AND AT ITS BASE.
3. SCREWED, WELDED AND WELDED PIPE--SUPPORT AT NOT LESS THAN EVERY OTHER STORY HEIGHT FOR 2" AND LARGER; EVERY STORY HEIGHT FOR SMALLER THAN 2".
4. COPPER TUBING AND NATURAL GAS PIPING--SUPPORT AT EVERY STORY HEIGHT FOR 1-1/2" AND LARGER AND THRICE EVERY STORY HEIGHT FOR SMALLER THAN 1-1/4".
F. PLASTIC PIPING: SUPPORTS NOT TO EXCEED 3 FT. ON CENTERS OR AS RECOMMENDED BY THE MANUFACTURER.
G. EQUIPMENT: FOUNDATIONS, BASES AND SUPPORTS AS REQUIRED AND AS INDICATED. IN CASES WHERE EQUIPMENT IS NOT SPECIFIED TO PROVIDE UNITS, ADJUSTRICS OR EQUAL PLASTIC STRINGER SLEEVES TO ENCASE THE SUPPORTS.
H. PIPING GENERALLY: PROVIDE 12 GA. STEEL PROTECTION SADDLES 12" LONG UNDER PIPE HANGERS AND INSULATION ON TOP OF EACH HANGER ON USE MISK-COASTIC CORP. PRESSED GLASS PIPE COVERING.

1.13 VALVES, UNIONS, STRAINERS
A. IN ADDITION TO VALVES AND UNIONS SHOWN, BALL VALVES AND UNIONS ARE INTENDED FOR ISOLATION OF EQUIPMENT. PROVIDE BALL VALVES AND UNIONS WHERE INDEPENDENTLY CUTTED FROM DRAWINGS, BUT WHERE NECESSARY FOR PROPER OPERATION, ISOLATION, AND MAINTENANCE. FOR ALL VALVES 2" AND SMALLER USE BALL VALVES EXCLUSIVELY THROUGHOUT UNLESS SPECIFICALLY INDICATED OTHERWISE.
B. EXCEPT WHERE INDICATED, MRDO/SCOTT VALVES ARE SPECIFIED AS A GUIDE. EQUIVALENT PRODUCTS BY CRANE, JENKINS, NIBCO, ATT, APOLLO, POWELL, R.P.& C. AND STOCKHAM ARE ACCEPTABLE.
1. BALL VALVES--125 LB. SWP, 400 LB W.O.G., SOLID SOLDER END FOR COPPER. USE THROUGHOUT FOR SHUT OFF SERVICE UNLESS NOTED OTHERWISE.
2. PLUG: NON-LUBRICATED ECCENTRIC PLUG TYPE, DEZURIK OR APPROVED EQUAL FOR GAS AND WATER. THESE VALVES ARE OPTIONAL FOR SHUT-OFF SERVICE IN LIEU OF GATE VALVES.

C. UNIONS ON SCREWED PIPING: MALLEABLE IRON, BRASS TO IRON SEAT, GROUND JOINT AND INTERNAL. CPL 483, OR APPROVED.
D. UNIONS ON COPPER TUBING: BRASS WITH SOLDERING JOINTS.
E. DIELECTRIC UNIONS: PROVIDE DIELECTRIC UNIONS IN ALL PIPING WHERE DISSIMILAR METALS COME IN CONTACT.

1.14 LEAK TESTING AND START-UP
A. LEAK TESTING OF MECHANICAL SYSTEMS SHALL BE CONDUCTED BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE ENGINEER. THE OWNER'S REPRESENTATIVE SHALL ALSO BE INFORMED AT THE START OF THE TESTS.
B. ALL PLUMBING, HEATING AND AIR HEATING SYSTEM WATER PIPING WILL BE TESTED HYDROSTATICALLY TO 150 PSI. INSPECT ALL JOINTS, CONNECTIONS AND SOLDERED PIPE SHALL BE SUBJECTED TO A "HAMMER TEST" AND A "SOAP SUDS" TEST.
C. TEST GAS PIPING FOR LEAKAGE AND GAS TIGHTNESS WITH COMPRESSED AIR OR INERT GAS SO THAT PIPING WILL STAND A PRESSURE OF AT LEAST TWO POUNDS PER SQUARE INCH WITHOUT DROP IN JOINTS. TEST GAS TRAIN PIPING AT 2 PSIG.
D. TEST GAS VENT SYSTEMS BY MEANS OF THE UPC AIR OR WATER TEST.
E. CLEAN AND DISINFECT POTABLE WATER PIPING PER COLORADO PUBLIC HEALTH DEPT. RECOMMENDATIONS.
F. CLEAN, PROTECT AND LUBRICATE ALL PIECES OF EQUIPMENT FOR PROPER OPERATION, AND PROPER LUBRICATION.
G. CLEAN AND ADJUST SIZED MOTOR OVERLOAD PROTECTION.
H. TEST AND ADJUST ALL EQUIPMENT AND CONTROLS FOR PROPER OPERATION.

1.15 TESTING, BALANCING AND ADJUSTING
A. PROVIDE THE SERVICES OF A QUALIFIED FIRM SPECIALIZING IN THE TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS, APPROVED BY THE ENGINEER UPON AWARD OF THE FINAL BALANCING, CALIBRATION AND ADJUSTMENT OF THE COMPLETE MECHANICAL SYSTEM. TEST AND BALANCE FIRM SHALL PROVIDE PROOF OF HAVING SUCCESSFULLY COMPLETED AT LEAST FIVE PROJECTS OF SIMILAR SIZE AND SCOPE. FURNISH INSTRUMENTS WHICH SHALL BE ACCURATELY CALIBRATED PRIOR TO TESTS AND MAINTAINED CALIBRATED DURING TESTS. THE FINAL BALANCING AND ADJUSTMENT OF THE SYSTEMS SHALL BE DONE AFTER ALL PORTIONS OF THE MECHANICAL SYSTEM ARE INSTALLED AND CAPABLE OF BEING OPERATED AS INDICATED BY THE SPECIFICATIONS AND AFTER FACTORY START-UP SERVICE OF EQUIPMENT HAS BEEN COMPLETED. TESTING NOTED OTHERWISE OR SPECIFICATIONS INDICATED.
B. SHALL COMPLY WITH APPLICABLE PORTIONS OF CHAPTER 30 OF THE 1994 UNIFORM MECHANICAL CODE. TESTING AND BALANCING WORK SHALL BE DIRECTLY SUPERVISED AND THE RESULTS CONFIRMED BY A REGISTERED PROFESSIONAL ENGINEER WHO SHALL REPRESENT THE TBA FIRM IN PROGRESS MEETINGS AS REQUESTED, AND SHALL BE AVAILABLE FOR CONFERRING ALL MATTERS FOUND IN THE BALANCE REPORT. CERTIFIED TEST AND BALANCE PROFESSIONAL SHALL SIGN AND SEAL THE FINAL BALANCING REPORT. TEST AND BALANCE, MEET THE INTENT OF THE SPECIFICATIONS.
B. CONTRACTOR SHALL WARRANT THE WORK PERFORMED AGAINST THE MECHANICAL CONTRACTOR UNTIL THE FINAL COMPLETION OF THIS CONTRACT. AFTER TESTING HAS BEEN DEMONSTRATED TO THE SATISFACTION OF THE TBA REPORT AND AN EVALUATION OF ITS CONTENTS HAS BEEN MADE BY THE ENGINEER, THE CONSULTING ENGINEER.
C. THE MECHANICAL CONTRACTOR SHALL SUBMIT THE NAME OF THE TBA FIRM TO THE CONSULTING ENGINEER WITHIN 30 DAYS OF CONTRACT AWARD TO ENSURE THAT THE TBA FIRM IS ON THE PROJECT FROM THE OUTSET OF CONSTRUCTION.
D. AIR AND WATER TESTING AND BALANCING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED AND IS IN FULL WORKING ORDER. PUT ALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AND EQUIPMENT INTO FULL OPERATION DURING EACH WORKING DAY OF TESTING AND BALANCING. CONTRACT SITE OBSERVATIONS DURING BALANCING DEVICES AND CONFIRM THAT THEY ARE BEING INSTALLED PROPERLY FOR THE NEED. SUBMIT A WRITTEN REPORT OF THESE OBSERVATIONS TO THE ENGINEER

PRIOR TO BALANCING CHECK AIR SYSTEMS FOR DUCT LEAKAGE. ASSURE FILTERS ARE INSTALLED, AND ARE CHANGED IF THEY ARE DIRTY. CHECK FOR CORRECT FAN ROTATION, EQUIPMENT VIBRATION, AND PROPER ALIGNMENT AND TENSION FOR PROPER OPERATION WITH ALL VOLUME CONTROL DAMPERS AND OUTLETS WIDE OPEN.
CHECK WATER SYSTEMS FOR PLUGGED STRAINERS, PROPER PUMP ROTATION, PROPER CONTROL VALVE INSTALLATION AND OPERATION, AIR LOCKS, PROPER SYSTEM STATIC PRESSURE TO ASSURE A FULL SYSTEM. PROPER FLOW METER AND CHECK VALVE INSTALLATION WITH ALL THROTTLING DEVICES AND CONTROL VALVES WIDE OPEN.
E. PROVIDE CERTIFIED PUMP CURVES, FAN CURVES, AND OTHER EQUIPMENT PERFORMANCE DATA SHEETS.
F. TEST AND ADJUST ALL WATER SYSTEMS FOR CORRECT QUANTITY OF WATER AT EACH CONVECTOR. MEASURE PUMP MOTOR AMPERAGES, VOLTAGE AND SUCTION AND DISCHARGE PRESSURES. ADJUST BALANCING VALVES FOR PROPER WATER FLOW.
G. CHECK ALL FAN AND PUMP MOTOR OVERLOAD PROTECTION DEVICES FOR PROPER SIZE AND REPORT INCORRECT SIZES.
H. VERIFY PROPER OPERATION OF HEATING SYSTEMS WHEN OUTSIDE CONDITIONS ARE NEA

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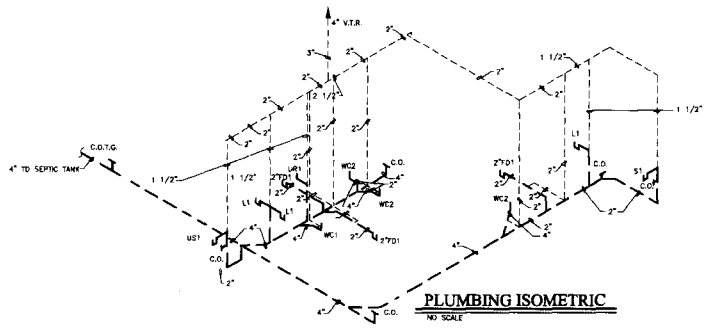


PLUMBING ISOMETRIC
NO SCALE

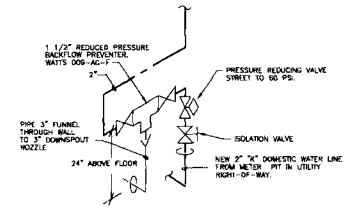
PLUMBING FIXTURE SCHEDULE

DESIG.	TYPE	HOT	COLD	VENT	WASTE	MFG. OR EQUAL MODEL NUMBER	MOUNT HEIGHT	ADA	FAUCET TRIM	NOTES	SUBSTITUTIONS
L1	WALL HUNG LAVATORY	1/2"	1/2"	1 1/2"	1 1/2"	ZURN Z5644D LUCERN MOD. 0.358.041	34"	YES	DELTA 4" SINGLE HANDLE MOD. 22C451	0.5 GPM, VANDAL PROOF AERATOR, CANTILEVER SUPPORT, GRID STRAINER	
WC-1	FLOOR MTD. TANK TYPE	1/2"		2"	4"	ZURN HET MOD. Z5530	STD.	NO		1.0 GPF, PRESSURE ASSISTED, ELONGATED OPEN FRONT SEAT, MANSFIELD PRESSURE ASSISTED ASSEMBLY.	NONE
WC-2	FLOOR MTD. TANK TYPE	1/2"		2"	4"	ZURN HET MOD. Z5380	ADA	YES		1.0 GPF, PRESSURE ASSISTED, ELONGATED ADA OPEN FRONT SEAT, MANSFIELD PRESSURE ASSISTED TANK ASSEMBLY.	NONE
UR1	WALL MTD. URINAL	3/4"		1 1/2"	2"	ZURN MOD. Z5750.0001	ADA	YES	ZURN 1.0 GPF	1.0 GAL/FLUSH ZER8005AV-CPM AQUSEUS AV VALVE- BATTERY OPERATED	NONE
S1	2 COMPARTMENT SS SINK	1/2"	1/2"	1 1/2"	2"	JUST MOD. CDL-2233-A-GR		NO	DELTA SINGLE HANDLE	1.5 GPM, VANDAL PROOF AERATOR, MAGNA OR EQUAL, 22" X 33" 2 COMPARTMENT	YES
US1	UTILITY SINK	1/2"	1/2"	1 1/2"	2"	FIAT FL1 WITH VACUUM BREAKER		NO	FIAT A1 WITH VACUUM BRKR	23 X 21 SINGLE COMPARTMENT, STEEL LEGS	YES

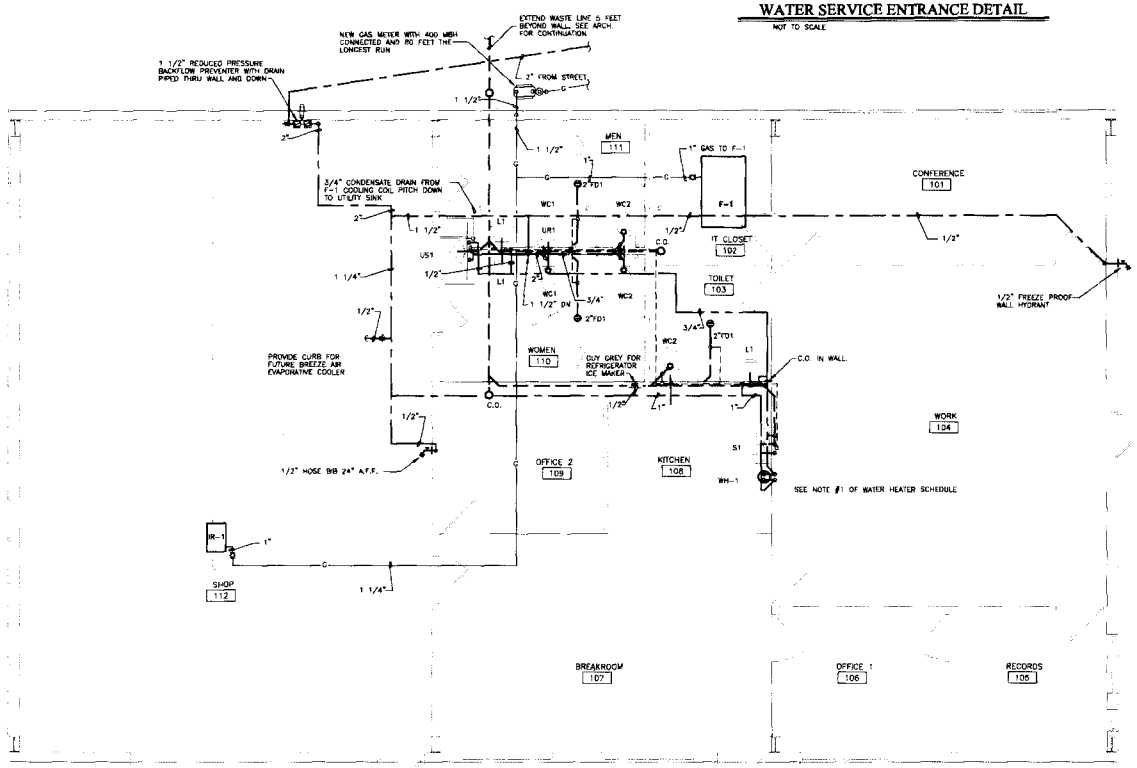
ELECTRIC WATER HEATER SCHEDULE

DESIG.	MANUFACTURE & MODEL NUMBER	GALLON VOLUME	Ø	VOLTS	S.L. INPUT WATTS	LOCATION	NOTES
WH-1	STATE WATER HEATERS MOD. SCH15USR	4	1	120	1440	UNDER COUNTER KITCHEN	1

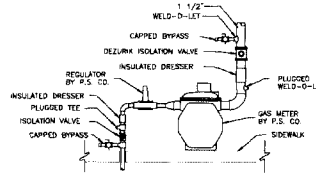
1. PROVIDE (2) 3/4" SHOCK ABSORBERS FOR EXPANSION ON COLD WATER INLET TO WATER HEATER.



WATER SERVICE ENTRANCE DETAIL
NOT TO SCALE



PLUMBING PLAN
1/4" = 1'-0"



GAS METER DETAIL
NOT TO SCALE

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Project No. 0903
Plot CD
Issue Date 08/31/09

P1

GENERAL DRAWING NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC. REFER TO THE ARCHITECTURAL, CIVIL, STRUCTURAL, AND MECHANICAL DRAWINGS FOR EXACT DIMENSIONS.

2. REFER TO THE ARCHITECTURAL DRAWINGS, ELEVATIONS, DETAILS, AND DIAGRAMS FOR LOCATIONS OF THE FLOOR AND WALL DEVICES. IF DEVICES ARE NOT NOTED OTHERWISE THEY SHALL BE MOUNTED LONG AXIS VERTICAL AT THE FOLLOWING HEIGHTS AFF TO CENTER OF DEVICE: SWITCHES +48", RECEPTACLES +18", VOICE/DATA JACKS +16".

3. COORDINATE ANY AND ALL EQUIPMENT LOCATIONS WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATE ANY AND ALL WIRING DEVICE LOCATIONS WITH THE ARCHITECTURAL ELEVATIONS, CASEWORK, SHOP DRAWINGS, AND EQUIPMENT INSTALLATION DRAWINGS. COORDINATE THE LOCATION OF ANY AND ALL MECHANICAL EQUIPMENT WITH THE MECHANICAL DRAWINGS, MECHANICAL SUBMITTALS, AND THE MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. COORDINATE THE LOCATION OF ANY AND ALL LUMINAIRES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

4. ANY AND ALL ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

5. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR. ALL CONDUCTORS SHALL BE SIZE #12 AWG UNLESS NOTED OTHERWISE. BRANCH CIRCUITS SHOWN AS A SINGLE HOMERUN SHALL NOT BE COMBINED WITH OTHER CIRCUITS.

6. ELECTRICAL DEVICES PROJECTING FROM THE WALLS WITH THEIR LEADING EDGES BETWEEN 27" AND 80" AFF SHALL PROTRUDE NO MORE THAN 4" INTO WALKWAYS OR CORRIDORS FOR ADA COMPLIANCE.

7. REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

8. THE CONTRACTOR SHALL MAINTAIN FIRE-RATINGS FOR ALL CONDUIT PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.

9. BACK TO BACK MOUNTING OF RECEPTACLES OR COMMUNICATION OUTLETS IS PROHIBITED. THE MINIMUM SEPARATION BETWEEN DEVICES SHALL BE 6" O.C. IN COMMON WALLS AND 24" O.C. IN SOUND-RATED WALLS.

10. GFCI DEVICES SHALL BE PROVIDED AS REQUIRED BY NEC AND SHALL COMPLY WITH NEC AND LOCAL REQUIREMENTS. NO FEED-THRU GFCI PROTECTION SHALL BE PERMITTED FOR DOWNSTREAM DEVICES. ALL GFCI RECEPTACLES SHALL BE UL 943 2006 "LOCK-OUT" ACTION OR "NOTIFICATION" COMPLIANT.

11. DUAL-LEVEL SWITCHING SHALL BE TWO SWITCHES PLACED IN A DOUBLE GANG BOX. THE SWITCH CLOSEST TO THE DOORWAY SHALL CONTROL THE OUTBOARD LAMP(S) AND THE OTHER SWITCH SHALL CONTROL THE INBOARD LAMP(S) UNLESS OTHERWISE DEPICTED ON THE DRAWINGS.

12. LUMINAIRES SHOWN HALF SHADED SHALL HAVE THE OUTBOARD LAMPS CONNECTED TO THE LIFE SAFETY CIRCUIT OR THE EMERGENCY BATTERY PACK. FOR BATTERY PACK FIXTURES THAT DO NOT CONTAIN AN INTERNAL ILLUMINATED LED, PROVIDE A VISIBLE RED DOT FOR QUICK IDENTIFICATION OF THE FIXTURE.

13. ALL LOW VOLTAGE AND SYSTEMS CABLING LOCATED ABOVE THE ACCESSIBLE CEILING SHALL BE PROPERLY RATED FOR THE APPLICATION, WITHOUT EXCEPTION. ALL CABLING SHALL BE HUNG FROM BRIDAL-TYPE RINGS OR PLACED IN CABLE TRAYS BY THE ELECTRICAL CONTRACTOR. ALL CONCEALED CABLING SHALL BE RUN IN 1" CONDUIT TO THE NEAREST ACCESSIBLE CEILING LOCATION. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIRED RACEWAYS WITH SYSTEMS SUBCONTRACTORS AND VENDORS (TELEPHONE, CABLE, TELE/DATA, PAGING, SECURITY, ETC).

14. COORDINATE THE INSTALLATION OF COMMUNICATIONS CABLING, ROUTING, MOUNTING BOXES, AND TERMINATIONS WITH THE OWNER OR IT MANAGER PRIOR TO CONSTRUCTION.

15. GENERAL PURPOSE OUTLETS IN STORAGE AND SHOP AREAS SHALL BE MOUNTED AT +42" AFF UNLESS OTHERWISE DEPICTED. GENERAL PURPOSE OUTLETS ON THE EXTERIOR SHALL BE MOUNTED AT +24" AFF UNLESS OTHERWISE DEPICTED. COORDINATE THE FINAL MOUNTING HEIGHT OF DEVICES SERVING EQUIPMENT WITH THE OWNER PRIOR TO ROUGH-IN.

16. ALL 120V SINGLE PHASE GENERAL PURPOSE RECEPTACLES IN SHOP AND STORAGE AREAS SHALL BE GFCI TYPE.

17. SEE SHEET E4 FOR MORE LIGHTING DETAILS.

18. ALL EMERGENCY EXIT SIGNS AND EGRESS LIGHTING SHALL BE CIRCUITED TO NEAREST AVAILABLE LIGHTING CIRCUIT UNLESS OTHERWISE DEPICTED ON DRAWING.

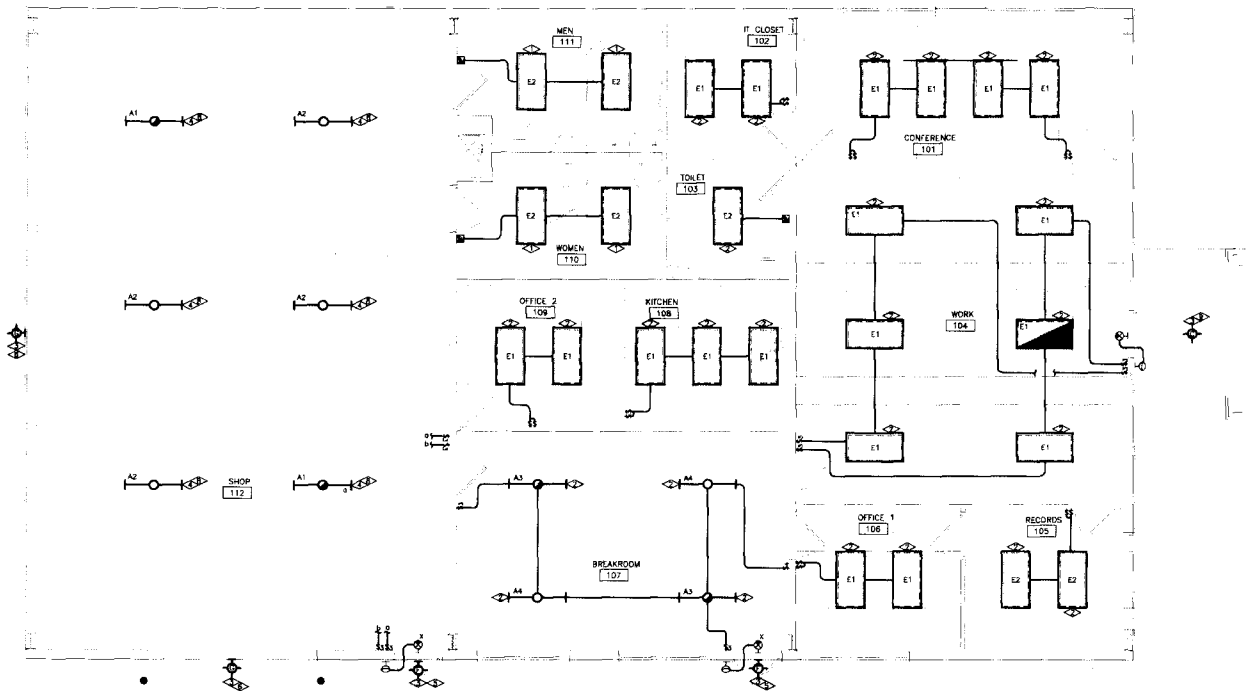
DRAWING FLAG NOTES:

1. CIRCUIT LIGHT FIXTURE IN THIS AREA TO P1-25.
2. CIRCUIT LIGHT FIXTURE IN THIS AREA TO P1-27.
3. CIRCUIT EXTERIOR LIGHT FIXTURE IN THIS AREA TO P1-28. EXTERIOR LIGHT FIXTURES ARE CONTROLLED BY PUSH BUTTON PHOTOCELL.
4. CIRCUIT LIGHT FIXTURE IN THIS AREA TO P1-30.
5. MOUNT EXTERIOR LIGHT FIXTURE IN THIS AREA @ 8'-10".
6. MOUNT EXTERIOR LIGHT FIXTURE IN THIS AREA @ 13'-0".
7. NOT USED.
8. FIELD ADJUST LOCATIONS OF FIXTURES IN THIS AREA. EXACT LOCATION OF PERLINS IS UNAVAILABLE AT TIME OF DESIGN.
9. THIS LIGHT FIXTURE SHALL BE CONTROLLED BY PHOTOELECTRIC UNIT. FIELD COORDINATE EXACT LOCATION OF PHOTOCELL SO THAT OPTIMAL SUNSHINE REACHES DEVICE OR WITH OWNER.

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER CATALOG NO.	MANUFACTURER CATALOG NO.	VOLTAGE MOUNTING # OF LAMPS	BALLAST LAMP TYPE LAMP CAT #	DESCRIPTION
A1	LITHONIA FSB 432L NDS MVOLT GEB101S EL14 WGA BGP HS036	ENGINEER APPROVED EQUIVALENT	120 SUSPENDED 4	ELECTRONIC FLUORESCENT F32T8/741	48"Lx16"Wx4-1/2"D SPEC-BEAM FLUORESCENT HIGH BAY LIGHT FIXTURE WITH EMERGENCY BATTERY PACK, CHAIN HANG @ 13'-0" A.F.F.
A2	LITHONIA FSB 432L NDS MVOLT GEB101S WSI BGP HS036	ENGINEER APPROVED EQUIVALENT	120 SUSPENDED 4	ELECTRONIC FLUORESCENT F32T8/741	48"Lx16"Wx4-1/2"D SPEC-BEAM FLUORESCENT HIGH BAY LIGHT FIXTURE, 11 GAUGE WIRE GUARD, CHAIN HANG @ 13'-0" A.F.F.
A3	LITHONIA FSB 232L NDS MVOLT GEB101S EL14 BGP HS036	ENGINEER APPROVED EQUIVALENT	MVOLT SUSPENDED 2	ELECTRONIC FLUORESCENT F32T8/741	48"Lx16"Wx4-1/2"D SPEC-BEAM FLUORESCENT HIGH BAY LIGHT FIXTURE WITH EMERGENCY BATTERY PACK, CHAIN HANG PER OWNER.
A4	LITHONIA FSB 232L NDS MVOLT GEB101S BGP HS036	ENGINEER APPROVED EQUIVALENT	MVOLT SUSPENDED 2	ELECTRONIC FLUORESCENT F32T8/741	48"Lx16"Wx4-1/2"D SPEC-BEAM FLUORESCENT HIGH BAY LIGHT FIXTURE WITH EMERGENCY BATTERY PACK, CHAIN HANG PER OWNER.
C	FAE SAFE HDR 70WH-120-81	ENGINEER APPROVED	120 CEILING RECESSED	ELECTRONIC GF70S62/C/D	15-3/8" SQUARE RECESSED FIXTURE W/.156" PRISMATIC POLYCARBONATE LENS AND
E1	LITHONIA 2GTB 2 32 A12 120 GEB101S	ENGINEER APPROVED EQUIVALENT	120 CEILING GRID 2	ELECTRONIC FLUORESCENT F32T8/741	ELECTRONIC BALLAST. DAMP LOCATION LISTED. 2'x4' TROFFER FIXTURE, LOW-PROFILE, STATIC
E2	LITHONIA 2GTB 2 32 A12 120 GEB101S	ENGINEER APPROVED EQUIVALENT	120 RECESSED 2	ELECTRONIC FLUORESCENT F32T8/741	TB LUMINAIRE, STANDARD STEEL DOOR FRAME. STANDARD LATCH PROVIDES SPRING ACTION
F	LITHONIA TWAC 50M 120 PE LPI DRL	ENGINEER APPROVED EQUIVALENT	120 BUILDING/WALL 1	HX-HPF METAL HALIDE 50W MH	10"Wx11-1/2"Wx8-15/16"D MINI WALL PACK. REAR HOUSING IS RUGGED, DIE-CAST ALUMINUM. MOUNT PER FLAG NOTE.
G	LITHONIA TWAC 70M 120 PE LPI DRL	ENGINEER APPROVED EQUIVALENT	120 BUILDING/WALL 1	HX-HPF METAL HALIDE 70W MH	10"Wx11-1/2"Wx8-15/16"D MINI WALL PACK. REAR HOUSING IS RUGGED, DIE-CAST ALUMINUM. MOUNT PER FLAG NOTE.
H	LITHONIA LHQWRM3C120/277 RQ/EUN, SEE NOTE 4	ENGINEER APPROVED EQUIVALENT	120/277 WALL/CEILING N/A	NONE REQUIRED LED WITH UNIT	12"L"x7"W"x7"D"x2"H, WHITE POLYCARB. HOUSING W/GREEN LETTERING. MOUNTED BATTERY W/2ND REMOTE HEAD.
HD	LITHONIA ELA-W-H0806	ENGINEER APPROVED EQUIVALENT	120/277 WALL/CEILING 1	NONE REQUIRED INCANDESCENT WITH UNIT	4.75"Wx7.75"Hx4.5"D WHITE SEALED REMOTE MOUNTED FIXTURE, 6 VOLT, 8 WATT LAMP. VERIFY COMPATIBILITY WITH EMERGENCY FIXTURE

NOTES:
1. THE ELECTRONIC FLUORESCENT BALLAST SHALL HAVE A TOTAL HARMONIC DISTORTION OF LESS THAN 10% AND A BALLAST FACTOR EQUAL TO OR GREATER THAN 85%.
2. ALL LIGHTING FIXTURES DENOTED WITH "EM" OR HALF SHADED SHALL BE PROVIDED WITH A BATTERY PACK WITH A MINIMUM OF 1300 INITIAL LUMENS, AND 1000 LUMENS AT 90 MINUTES USING .52W-T8-4' LAMPS FOR OPERATION OF TWO LAMPS IN A 4 LAMP FIXTURE AND 1 LAMP IN A 2 OR 3 LAMP FIXTURE. BALLAST SHALL BE CONNECT TO THE UNSWITCHED SIDE OF THE LIGHTING CIRCUIT.
3. GRID TROFFER TYPE LIGHTING FIXTURES SHALL NOT BE SUPPORTED FROM THE T-BAR CEILING GRID.
4. THIS EXIT SIGN REQUIRES THE EXTRA BATTERY CAPACITY TO OPERATE THE REMOTELY LOCATED EMERGENCY HEAD FOR EGRESS AWAY FROM THE BUILDING.
5. DIMMER LOAD CAPACITY SHALL BE 125% OR MORE FOR INCANDESCENT LOADS, AND 200% OR MORE FOR FLUORESCENT LOADS. FAN SPEED CONTROL SHALL BE RATED AT 125% OR MORE OF THE TOTAL LOAD.
6. ALL FLUORESCENT LIGHTS CONTROLLED BY A MOTION SENSOR SHALL USE PROGRAM START BALLASTS.
7. IN THE EVENT OF A LIGHT FIXTURE IS SPECIFIED TO HAVE AN EMERGENCY BALLAST AND THE BALLAST WILL NOT FIT WITHIN THE FIXTURE HOUSING, THE BALLAST SHALL BE PROPERLY MOUNTED IN A REMOTE LOCATION.



LIGHTING PLAN
1/4" = 1'-0"

ELECTRICAL LEGEND

- BRANCH CIRCUIT PANELBOARD
- TELEPHONE TERMINAL BOARD
- MOTOR
- FUSED SAFETY SWITCH / DISCONNECT
- VARIABLE FREQUENCY DRIVE
- LA-7 CIRCUITRY HOMERUN: PANEL LA – CIR. #7
- CONDUIT OR WIRE CONCEALED IN WALL/CLG
- CONDUIT OR WIRE UNDERFLOOR/UNDERGND.
- CEILING JUNCTION BOX – SURFACE/FLUSH
- WALL JUNCTION BOX – SURFACE/FLUSH
- DUPLEX RECEPTACLE
- SPLIT WIRED DUPLEX RECEPTACLE
- FOURPLEX RECEPTACLE
- APPLIANCE RECEPTACLE – 3 WIRE
- THERMOSTAT
- TELEPHONE OUTLET
- COMPUTER-DATA
- COMBINATION DATA/TELEPHONE
- TELEVISION OUTLET

SWITCHES

- $ SINGLE POLE SWITCH
- $2 TWO POLE SWITCH
- $3 THREE-WAY SWITCH
- $4 FOUR-WAY SWITCH
- $D DIMMER SWITCH
- $M MANUAL MOTOR STARTER
- $P OCCUPANCY/MOTION SENSOR

LIGHTING

- F FLUORESCENT FIXTURE # INDICATES FIXTURE TYPE
- FLOURESCENT FIXTURE WITH EMERGENCY BALLAST
- WALL BRACKET FLUORESCENT FIXTURE
- OPEN STRIP FLUORESCENT FIXTURE
- SURFACE CEILING INCANDESCENT OR H.I.D. FIXTURE
- WALL MOUNTED INCANDESCENT OR H.I.D. FIXTURE
- RECESSED CEILING DOWN LIGHT
- DOUBLE FACE EXIT SIGN, WALL AND CEILING MOUNTED
- SINGLE FACE EXIT SIGN, WALL AND CEILING MOUNTED
- WALL MOUNTED EMERGENCY LIGHT
- REMOTE MOUNTED EMERGENCY HEAD

DESIGNATIONS

- (M) MECHANICAL CONTRACTOR FURNISHED EQUIPMENT
- (O) OWNER FURNISHED EQUIPMENT
- DRAWING FLAG NOTE
- ROOM DESIGNATION

ABBREVIATIONS

NL	EXISTING NIGHT/SECURITY LIGHT – DO NOT SWITCH
WP	WEATHERPROOF
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GP	RECEPTACLE IS GFCI PROTECTED FROM AN UP STREAM GFCI RECEPTACLE
EM	EMERGENCY FUNCTION
+42"	MOUNTING HEIGHT – A.F.F. OR A.F.G. TO C.L. HIGH
MID CB	INTENSITY DISCHARGE LIGHTING TYPE CIRCUIT BREAKER
SWD CB	U.L. LISTED AS SWITCHING DUTY CIRCUIT BREAKER

LEGEND NOTES

NOTE: SYMBOLS SHOWN ARE STANDARD. VARIATION AND/OR COMBINATION MAY BE USED ON THE PLANS SUCH AS $3 (3- SWITCHING DESIGNATION), $2* (4- CIRCUIT NO.), ⊡ 30A-2P (30A-2P- 30 AMPERE-TWO POLE), ETC. THIS LIST SHOWS STANDARD SYMBOLS AND ALL MAY NOT APPEAR ON THE PROJECT DRAWINGS; HOWEVER, WHEREVER THE SYMBOL ON THE PROJECT DRAWINGS OCCUR, THE ITEM SHALL BE PROVIDED AND INSTALLED.

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Project No. 0803
Phase CD
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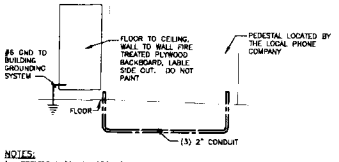
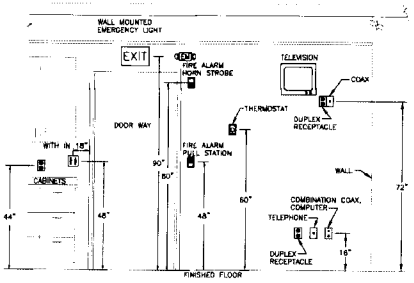
E1



NOTES:
1. PROVIDE A #6 AWG GROUND WIRE AT THE BACKBOARD TIED TO THE COMMON POWER GROUND PER NEC ART. #250. GROUND WIRE SHALL BE 36" EXPOSED MINIMUM.

TELEPHONE BACKBOARD DETAIL

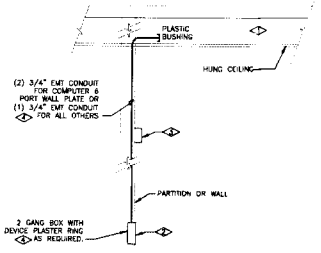
NOT TO SCALE



NOTES:
1. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL TELEVISION OUTLETS WITH THE ARCHITECT PRIOR TO INSTALLATION.
2. ALL DEVICES SHOWN ON THIS DETAIL ARE FOR REFERENCES OF MOUNTING HEIGHTS ONLY. THE ELECTRICAL CONTRACTOR SHALL FIELD ADJUST THE HEIGHTS OF THE DEVICES AS REQUIRED FOR PROPER MOUNTING OF THE DEVICES.
3. ALL DEVICES REQUIRED FOR THIS PROJECT MAY NOT APPEAR ON THIS DETAIL. ALL ITEMS SHOWN ON THIS DETAL MAY NOT BE REQUIRED FOR THIS PROJECT.

ELECTRICAL DEVICE MOUNTING HEIGHT DETAIL

NOT TO SCALE

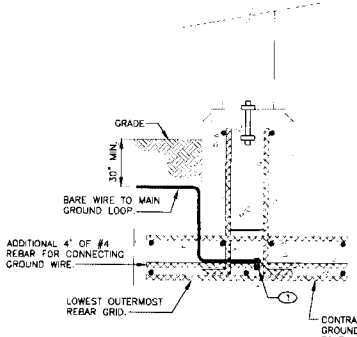


DETAIL FLAG NOTES:

1. WIRING SHALL BE RUN ABOVE CEILING. USE PLENUM RATED CABLE WHERE CEILING SPACE IS USED AS A RETURN PLENUM. SUPPORT FROM STRUCTURE MINIMUM OF EVERY 6'-0". DO NOT LAY ON CEILING TILE OR ATTACH TO CEILING SUPPORT WIRE SYSTEM UNLESS INSTALLATION CONFORMS TO 2002 NEC 300-11.
2. LOW VOLTAGE OUTLETS (EXAMPLE TELEPHONE, FAX, DATA, ETC.) MOUNT AT 16" A.F.F. UNLESS OTHERWISE NOTED ON THE DRAWINGS. COORDINATE LOCATIONS WITH BASEBOARD, CABINETRY, WINDOWS OR OTHER ITEMS ALONG THE WALLS. REPORT ANY DISCREPANCIES TO THE ELECTRICAL ENGINEER.
3. LOCATE THERMOSTATS AT 60" A.F.F. UNLESS OTHER WISE NOTED ON THE DRAWINGS. COORDINATE LOCATIONS WITH CABINETRY, WINDOWS OR OTHER ITEMS ALONG THE WALLS. REPORT ANY DISCREPANCIES TO THE ELECTRICAL ENGINEER.
4. CONTRACTOR SHALL MEET NEC REQUIREMENTS FOR RACEWAY FILL FOR CASES NOT DEPICTED IN THIS EXAMPLE.

LOW VOLTAGE OUTLET WIRING DETAIL

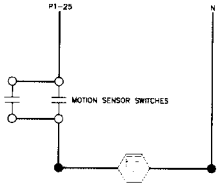
NOT TO SCALE



ITEM NO.	DESCRIPTION
1	CABLE TO #4 REBAR CONNECTOR.

UFER GROUND CONNECTION

NOT TO SCALE



FAN CONTROL SCHEMATIC

NOT TO SCALE

NOTES:
1. ONE MOTION SENSOR IN EACH RESTROOM SHALL HAVE TWO SETS OF NO CONTACTS. ONE SET SHALL CONTROL LIGHTING FOR THAT SPACE, THE OTHER SHALL CONTROL THE EXHAUST FAN.

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Project No. 0903
Phase CD
Issue Date 08/31/09

E3

SECTION 16010
ELECTRICAL GENERAL PROVISIONS
PART 1 - GENERAL
1.01 GENERAL CONDITIONS
A. THE INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, SPECIAL CONDITIONS, ADDENDAS, ALTERNATES, THESE TECHNICAL SPECIFICATIONS AND ALL DRAWINGS, TOGETHER WITH THE FORM OF PROPOSAL AND AGREEMENT, COMPRISE THE CONTRACT DOCUMENTS FOR THE ELECTRICAL CONTRACT. THE ELECTRICAL CONTRACTOR SHALL EXAMINE ALL OF THESE DOCUMENTS PRIOR TO SUBMITTING HIS OR HER PROPOSAL.
B. THE CONTRACTOR IS REQUIRED TO READ CAREFULLY THE SPECIFICATIONS FOR ALL PARTS OF THE WORK SO AS TO BECOME FAMILIAR NOT ONLY WITH THE WORK COVERED BY THIS SECTION, BUT ALSO THAT OF OTHER DIVISIONS AND SECTIONS INCLUDING ALL DRAWINGS.
C. REFER TO THE GENERAL REQUIREMENTS, DIVISION 15 MECHANICAL, AS MANY OF THE GENERAL REQUIREMENTS STATED THEREIN ARE APPLICABLE TO THE ELECTRICAL WORK AND COORDINATION OF THE TWO TRADES IS COVERED.
D. THE CONTRACTOR SHALL WATCH THE PROGRESS OF THE WORK AND REPORT TO THE ENGINEER IMMEDIATELY ANY CASES WHERE AMPLE SPACE HAS NOT BEEN PROVIDED TO ACCOMMODATE HIS WORK. HE MUST NOT CUT THROUGH ANY FINISHED WORK UNTIL HE HAS RECEIVED PERMISSION FROM THE ENGINEER. NO CLAIMS FOR EXTRA WORK WILL BE ALLOWED BECAUSE OF MISINTERPRETATION OF PLANS AND SPECIFICATIONS OR DUE TO CONFLICT BETWEEN TRADES FOR USABLE SPACE.
E. THE CONTRACTOR IS INVITED TO SUBMIT ALTERNATIVE METHODS OR MATERIALS AS A COST REDUCTION FACTOR, HOWEVER SAFETY AND INTEGRITY OF THE SYSTEMS MUST BE MAINTAINED. THESE ALTERNATIVE METHODS OR MATERIALS ARE NOT TO BE IMPLEMENTED UNLESS WRITTEN PERMISSION IS PROVIDED BY THE ENGINEER.
F. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK INCLUDED IN THIS SECTION AND THE OBLIGATION OF WORK TO THE ELECTRICAL CONTRACTOR SHALL NOT RELIEVE HIM OF THIS RESPONSIBILITY. THE ELECTRICAL CONTRACTOR AND HIS SUBCONTRACTORS WHO PERFORM WORK UNDER THIS SECTION SHALL BE RESPONSIBLE TO THE GENERAL CONTRACTOR.
G. BEFORE SUBMITTING BID, CONTRACTOR SHALL VISIT THE SITE AND EXAMINE ALL AREAS AFFECTING EXISTING BUILDINGS, EQUIPMENT AND SPACE CONDITIONS ON WHICH HIS WORK IS IN ANY WAY DEPENDENT FOR THE BEST POSSIBLE INSTALLATION AND OPERATION ACCORDING TO THE INTENT OF SPECIFICATIONS AND DRAWINGS. HE SHALL INCLUDE TO THE ENGINEER ANY CONDITION WHICH MIGHT PREVENT HIM FROM INSTALLING HIS EQUIPMENT IN THE MANNER INTENDED. NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO VISIT SITE, OR FOR ANY ASSUMED MISUNDERSTANDING OF MATERIALS TO BE FURNISHED OR WORK TO BE DONE.

1.02 CONTENTS
A. SPECIFIED HEREIN: GENERAL REQUIREMENTS FOR ELECTRICAL WORK
B. DESCRIBED HEREIN ARE THE FOLLOWING:
SCOPE
WORK NOT INCLUDED
QUALITY ASSURANCE, STANDARDS AND SYMBOLS
FEES AND INSPECTION CERTIFICATES
MATERIALS
SUBMITTALS
SUBSTITUTIONS
TEMPORARY LIGHT
ELECTRICAL DRAWINGS
COORDINATION
EQUIPMENT IDENTIFICATION AND MARKING
SLEEVES, INSERTS, FASTENINGS, SUPPORTS, CUTTING AND PATCHING
SCAFFOLDING
TESTING, ADJUSTING, CLEANING
AS-BUILT DRAWINGS
OPERATION AND MAINTENANCE MANUALS
INTERPRETATION OF DOCUMENTS

1.03 SCOPE
A. ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON DRAWINGS BUT MENTIONED IN THE SPECIFICATIONS, OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF PARTICULARLY SPECIFIED, SHALL BE FURNISHED, DELIVERED AND INSTALLED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
B. MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION AND OPERATION, SHALL BE INCLUDED IN THE CONTRACTOR'S BID, THE SAME AS IF HEREIN SPECIFIED OR SHOWN. IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED, AND READY FOR OPERATION.
C. WITH SUBMISSION OF BID, THE ELECTRICAL CONTRACTOR SHALL GIVE WRITTEN NOTICE TO THE ENGINEER OF ANY MATERIALS OR APPARATUS, BELIEVED UNSATISFACTORY, INSUFFICIENT, IN VIOLATION OF LAWS, ORDINANCES, OR RULES, AND ANY NECESSARY ITEMS OR WORK OMITTED. IN THE ABSENCE OF SUCH WRITTEN NOTICE, IT IS MUTUALLY AGREED THE CONTRACTOR HAS INCLUDED THE COST OF ALL REQUIRED ITEMS IN HIS PROPOSAL AND THAT HE WILL BE RESPONSIBLE FOR THE APPROVED SATISFACTORY FUNCTIONING OF THE ENTIRE SYSTEM WITHOUT EXTRA COMPENSATION.
D. NOT USED

E. THE WORK CONSISTS OF THE FOLLOWING:
1. INSTALLATION OF ANY AND ALL ELECTRICAL EQUIPMENT AND DEVICES DEPICTED ON THE DRAWINGS AND AS REQUIRED TO PROVIDE A COMPLETE SYSTEM.
2. BRANCH CIRCUITING, INCLUDING CONDUIT, WIRE AND BOXES AS REQUIRED FOR OPERATION OF THE ELECTRICAL SYSTEM.
3. A COMPLETE GROUNDING SYSTEM INCLUDING ALL EQUIPMENT GROUNDED TO THE BUILDING GROUNDING SYSTEM AND/OR WATER SERVICE PIPING.
4. CUTTING AND PATCHING OF HOLES REQUIRED FOR THE INSTALLATION IN CONCRETE, WOOD, STEEL OR MASONRY.
5. REPAIR OF ALL DAMAGE DONE TO THE PREMISES AS A RESULT OF THE INSTALLATION AND REMOVAL OF ALL DEBRIS AND SURPLUS MATERIAL LEFT BY THOSE ENGAGED IN THE WORK.
6. COMPLETE AND THOROUGH CLEANING OF ALL EQUIPMENT FURNISHED AND INSTALLED, BOTH INSIDE AND OUTSIDE, AND MADE READY FOR PAINTING BY OTHERS.
7. TESTING AND ADJUSTING OF EQUIPMENT.
8. COOPERATION WITH OTHER CRAFTS IN PUTTING THE INSTALLATION IN PLACE AT ANY TIME WHEN SPACE REQUIRED IS READY AND THE PROGRESS OF THE WORK SO DICTATES.

1.04 NOT USED

1.05 QUALITY ASSURANCE, STANDARDS AND SYMBOLS
A. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, INDUSTRY STANDARDS, UTILITY COMPANY AND FIRE INSURANCE CARRIER'S REQUIREMENTS. CONTACT PROPER AUTHORITIES, OBTAIN AND PAY FOR ALL REQUIRED PERMITS, INSPECTIONS AND UTILITY COMPANY SERVICE CONNECTIONS. DO NOT INCLUDE ANY UTILITY COMPANY CHARGES THAT CAN BE BILLED DIRECTLY TO THE OWNER.
B. IN CASE OF DIFFERENCE BETWEEN BUILDING CODES, SPECIFICATIONS, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS, UTILITY COMPANY REGULATIONS, FIRE INSURANCE CARRIER'S REQUIREMENTS, AND THE CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL APPLY. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DIFFERENCE.
C. NONCONFORMANCE: ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS, FIRE INSURANCE CARRIER'S REQUIREMENTS, AND UTILITY COMPANY REGULATIONS, HE SHALL BEAR THE COST ARISING IN CORRECTING SUCH DEFICIENCIES.
D. APPLICABLE CODES AND ALL STANDARDS SHALL INCLUDE ALL STATE LAWS, LOCAL ORDINANCES, UTILITY COMPANY REGULATIONS AND THE APPLICABLE REQUIREMENTS OF THE FOLLOWING NATIONALLY ACCEPTED CODES AND STANDARDS:
1. BUILDING CODES
A. NATIONAL BUILDING CODE
B. LOCAL BUILDING CODE
C. NATIONAL ELECTRICAL CODE
D. STATE ELECTRICAL CODE
E. LOCAL MUNICIPAL ELECTRICAL CODE
2. INDUSTRY STANDARDS, CODES, AND SPECIFICATIONS
A. ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
B. EIA - ELECTRONIC INDUSTRIES ASSOCIATION
C. IEEE - INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
D. IPCEA - INSULATED POWER CABLE ENGINEERS' ASSOCIATION
E. NEC - NATIONAL ELECTRICAL CODE (NFPA NO. 70-1996)
F. NBS - NATIONAL BUREAU OF STANDARDS
G. NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION
H. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
I. USASI - UNITED STATES OF AMERICA STANDARDS INSTITUTE
J. UL - UNDERWRITERS' LABORATORIES
3. INSURANCE CARRIERS
A. IRI - FACTORY INSURANCE ASSOCIATION
B. FMED - FACTORY MUTUAL ENGINEERING DIVISION
E. THE DRAWINGS DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIAL AND EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK UNDER THIS SECTION WITH THE PLUMBING, HEATING AND AIR CONDITIONING, AND THE DRAWINGS OF OTHER TRADES FOR EXACT DIMENSIONS, CLEARANCES AND ROUGHING-IN LOCATIONS. THIS CONTRACTOR SHALL COOPERATE WITH ALL OTHER TRADES IN ORDER TO MAKE MINOR FIELD ADJUSTMENTS TO ACCOMMODATE THE WORK OF OTHERS. DO NOT RELY ON THE SCALE OF THE DRAWINGS FOR ROUGH-IN MEASUREMENTS, NOR USE THEM AS SHOP DRAWINGS.
F. ALL MATERIALS AND EQUIPMENT FOR WHICH LABEL SERVICE IS AVAILABLE SHALL BEAR THE LABEL OF THE UNDERWRITERS' LABORATORIES INC.
G. CLEANLINESS: THIS CONTRACTOR SHALL GUARANTEE HIS WORKMANSHIP AND MATERIAL (ANY EXISTING EQUIPMENT ARE EXEMPT) FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AND LEAVE HIS WORK IN PERFECT ORDER AT COMPLETION. SHOULD DEFECTS DEVELOP WITHIN THE AGENCIES CONCERNED, THIS CONTRACTOR SHALL, UPON NOTICE OF SAME, REMEDY THE DEFECTS AND HAVE ALL DAMAGES TO OTHER WORK OR FURNISHINGS CAUSED BY THE DEFECTIVE WORK OR CORRECTING SAME REPAIRED AND/OR REPLACED AT HIS EXPENSE, TO THE CONDITION BEFORE SUCH DAMAGE.

1.06 FEES AND INSPECTION CERTIFICATES
A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTION SERVICES AND CERTIFICATES IN CONJUNCTION WITH THIS WORK.
B. UPON COMPLETION OF THE WORK, CONTRACTOR SHALL OBTAIN THE APPROVAL OF ALL GOVERNMENTAL AGENCIES CONCERNING THE WORK, ALONG WITH THE APPROVAL OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, SUCH CERTIFICATES OF INSPECTION AND APPROVAL FROM SAID BUREAU AND/OR AGENCIES MUST BE SUBMITTED TO THE ENGINEER.

1.07 MATERIALS
A. REFER TO DIVISION 1 SECTIONS FOR GENERAL REQUIREMENTS ON MATERIALS, MATERIALS AND EQUIPMENT.
B. ALL MATERIALS SHALL BE NEW, THE BEST OF THEIR RESPECTIVE KINDS, UNLESS OTHERWISE NOTED, AND SHALL BE INSTALLED BY LABOR THOROUGHLY SKILLED IN THE CLASS OF WORK ANTICIPATED BY THIS CONTRACT.
C. ALL MATERIALS SHALL BE CHOSEN AND COMPATIBLE WITH OTHER PRODUCTS OF THE ELECTRICAL WORK AND WITH OTHER WORK REQUIRING INTERFACE OF THIS WORK. THE ENTIRE WORK SHALL BE FREE FROM LATH CONNECTIONS AND CONTROL DEVICES. FOR EXPOSED ELECTRICAL MATERIALS SHALL BE STRUCTURAL IRON OR BRASS FINISHES OF SIMILAR WORK.

1.08 SUBMITTALS
A. THROUGH THE ENGINEER WITH COMPLETE SHOP DRAWINGS AND ASSOCIATED DATA IN ACCORDANCE WITH GENERAL CONDITIONS, FOR ALL MAJOR ELEMENTS OF THE ELECTRICAL WORK FOR REVIEW AND CHECKING AND APPROVAL. NONE OF THE FOLLOWING EQUIPMENT SHALL BE FABRICATED, DELIVERED, ERECTED ON CONNECTED OTHER THAN DRAWINGS CERTIFICALLY APPROVED IN WRITING AND SHALL BE COORDINATE WITH SUBCONTRACTORS FOR HVAC AND PLUMBING WORK.
1. LIGHTING FIXTURES, LAMPS AND BALLASTS, GEAR.
2. CONDUIT & FITTINGS, WIRING CABLING.
3. WIRING DEVICES, SWITCHES, STRUCTURAL BREAKERS.
B. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND PRESENT FIVE (5) COPIES OF SHOP DRAWINGS OR CATALOG CUTS OF ALL FIXTURES, EQUIPMENT, AND ACCESSORIES TO THE ENGINEER FOR THE ENGINEER'S APPROVAL. EQUIPMENT SHALL NOT BE ORDERED, PURCHASED, OR INSTALLED PRIOR TO APPROVAL OF THE SHOP DRAWINGS, BROCHURES, AND SCHEDULES. CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR: DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE; FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF HIS WORK WITH THAT OF ALL OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF HIS WORK.

1.09 SUBSTITUTION OF MATERIALS
A. IN SPECIFYING THE CONTRACT DRAWINGS AND SPECIFICATIONS SHOW AND DESCRIBE EQUIPMENTS SUITABLE FOR THE SPECIFIC TYPE OF EQUIPMENT EITHER NAMED OR DESCRIBED. IN THE EVENT THAT CONTRACTOR DESIRES TO FURNISH EQUIPMENT OTHER THAN THAT APPROVAL FOR A DEVICE OR PIECE OF EQUIPMENT WHICH REQUIRES CONSTRUCTION CHANGES DIFFERENT FROM THOSE INDICATED OR DESCRIBED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SUBMIT WITH HIS BID SHALL MAKE SUITABLE ALTERATIONS IN THE WORK TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ANY AND ALL ADDITIONAL COSTS INCURRED BY VIRTUE OF THE SUBSTITUTION OF SUCH EQUIPMENT FOR THE EQUIPMENT NAMED OR DESCRIBED IN THE CONTRACT DOCUMENTS.
B. WHERE IN A CERTAIN BRAND OR MAKE OR MANUFACTURER IN THE SPECIFICATIONS IS FOLLOWED BY A QUALITY STANDARD ONLY THE ARTICLE DESIRED. THE CONTRACTOR IS NOT RESTRICTED TO THE USE OF EQUIPMENT OF THE MANUFACTURER NAMED UNLESS SO INDICATED IN THE SPECIFICATIONS. HOWEVER, WHERE A SUBSTITUTION IS REQUESTED, A SUBSTITUTION WILL BE PERMITTED ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER. REQUEST FOR SUBSTITUTION MUST BE MADE IN TIME TO BE TABULATED TO THE ENGINEER AT LEAST FIVE WORKING DAYS PRIOR TO THE BID OPENING DATE. SUCH REQUESTS SHALL BE ACCOMPANIED BY SUFFICIENT DATA AND/OR OTHER INFORMATION THAT, IN THE OPINION OF THE ENGINEER, IS NECESSARY TO ENABLE HIM TO JUDGE WHETHER OR NOT EQUIPMENT SHALL BE ORDERED, FABRICATED, SHIPPED OR PROCESSED IN ANY MANNER PRIOR TO THE OPENING OF BIDS. IN ADDITION, THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ADDITIONAL COSTS THAT MAY BE INCURRED DUE TO MEET CHANGES FROM THE ORIGINAL MATERIAL OR EQUIPMENT SPECIFIED.

1.10 TEMPORARY LIGHT AND POWER
A. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ARRANGEMENTS AND COSTS FOR PROVIDING TEMPORARY LIGHTING AS REQUIRED BY THE CONSTRUCTION SUPERINTENDENT.
B. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A MINIMUM OF ONE 150W ARC INCANDESCENT OR 75W HALF-WATT LAMP FOR EVERY 500 SQUARE FEET OF FLOOR SPACE, EVENLY DISTRIBUTED THROUGHOUT THE BUILDING. SUCH LIGHTING SHALL SHOULD PROVIDE A MINIMUM OF 5 FOOT CANDLES FOR SAFE AND ADEQUATE LIGHTING THROUGHOUT THE CONSTRUCTION.
C. ANY LIGHT OR POWER OUTLETS REQUIRED OVER THE MAXIMUM QUANTITY NOTED ABOVE SHALL BE PAID FOR BY THE CONTRACTOR REQUIRING THE SAME. THE POWER CONSUMPTION SHALL BE PAID FOR BY THE GENERAL CONTRACTOR.

1.11 ELECTRICAL DRAWINGS
A. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIAL AND EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK UNDER THIS SECTION WITH THE PLUMBING AND THE DRAWINGS OF OTHER TRADES FOR EXACT DIMENSIONS, CLEARANCES AND ROUGHING-IN LOCATIONS. THIS CONTRACTOR SHALL COOPERATE WITH ALL OTHER TRADES IN ORDER TO MAKE MINOR FIELD ADJUSTMENTS TO ACCOMMODATE THE WORK OF OTHERS. DO NOT RELY ON THE SCALE OF THE DRAWINGS FOR ROUGH-IN MEASUREMENTS, NOR USE THEM AS SHOP DRAWINGS.
B. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO EACH TO THE OTHER, AND THE WORK REQUIRED BY EITHER SHALL BE INCLUDED IN THE CONTRACT AS IF CALLED FOR BY BOTH.
C. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE SLIGHT CHANGES IN THE LAYOUT OF WORK AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR BETTER APPEARANCE.
D. ELECTRICAL SYMBOLS USED ON THIS PROJECT ARE SHOWN IN A SYMBOL LIST ON THE ACCOMPANYING WORKING DRAWINGS. THIS LIST SHOWS STANDARD SYMBOLS AS ARE USUALLY USED ON PROJECT DRAWINGS; HOWEVER, WHEREVER THE SYMBOL ON PROJECT DRAWINGS DIFFERS FROM THE STANDARD, IT SHALL BE PROPERLY AND INSTALLED.
E. CONDUCTOR AND CONDUIT SIZES ARE SHOWN ON THE DRAWINGS IN AN EQUIVALENT LIGHT AND POWER DISTRIBUTION SYSTEM AND IN THE LINE DIAGRAM FOR ELECTRICAL DISTRIBUTION. UNLESS OTHERWISE NOTED, ALL OTHER CIRCUITS SHALL BE 3/4" CONDUIT WITH #12(CU. THHN).
F. THE DRAWINGS ARE INDICATIVE OF THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, FITTINGS, BOXES AND SPECIALTIES REQUIRED TO COMPLETE THE INSTALLATION.
G. ALL OUTLETS, BOXES, PANELS, AND FIXTURES SHALL BE INCLUDED IN THE WORK.
H. THE ELECTRICAL CONTRACTOR SHALL NOTE THAT ALL ITEMS OF EQUIPMENT ARE SPECIFIED IN THE SINGULAR, HOWEVER, THE CONTRACTOR SHALL PROVIDE AND INSTALL THE NUMBER OF ITEMS OF EQUIPMENT AS INDICATED ON THE DRAWINGS AND AS REQUIRED FOR COMPLETE SYSTEMS.
I. WHERE IT IS STATED THAT THE CONTRACTOR SHALL "PROVIDE" A DEVICE OR PIECE OF EQUIPMENT, IT SHALL MEAN THAT SUCH DEVICES OR EQUIPMENTS ARE FURNISHED AND INSTALLED.

1.12 COORDINATION
A. GENERAL: REFER TO THE DIVISION 1 SECTIONS FOR GENERAL COORDINATION REQUIREMENTS APPLICABLE TO THE ENTIRE WORK. IT IS RECOGNIZED THAT THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC IN SHOWING CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE ELECTRICAL WORK, AND IN ITS INTERFACE WITH OTHER WORK INCLUDING UTILITIES AND MECHANICAL WORK, AND THAT SUCH ESTABLISHMENT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. INSOFAR AS THE WIRING AND EQUIPMENT AT SUCH TIMES AND IN SUCH MANNER AS WILL IN NO WAY RETARD PROGRESS OR COMPLETION OF THE PROJECT. ARRANGE ELECTRICAL WORK IN A NEAT, WELL ORGANIZED MANNER WITH OTHER SIMILAR WORK RUNNING PARALLEL WITH PRIMARY LINES OF THE BUILDING CONSTRUCTION.
B. THE LAYOUT OF WIRING ON THE SMALL SCALE DRAWINGS SHALL NOT BE CONSIDERED ABSOLUTE. THE DESIGN SHALL BE SUBJECT TO SUCH REVISIONS AS MAY BE NECESSARY TO OVERCOME BUILDING OBSTRUCTIONS AND CHANGES SHALL BE MADE IN LIGHT FIXTURE LOCATIONS WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
C. EXAMINE THE DRAWINGS AND DETAILS FOR THE PLACEMENT OF ALL OUTLETS TO PROPERLY COORDINATE THEM WITH RELATION TO CABINETS, LABELED BENCHES, STRUCTURAL PANELS, BEAMS, MOLDINGS, ETC.
D. EXAMINE ALL OTHER SHOP DRAWINGS, CATALOG CUTS, ETC., FOR SPECIAL APPARATUS WHICH MAY BE ROUGHED IN AND TO SUCH CONNECTIONS MUST BE MADE. OUTLETS, APPARATUS AND CONNECTIONS THERETO WHICH ARE IMPROPERLY LOCATED THROUGH FAILURE TO FOLLOW THE ABOVE INSTRUCTIONS, SHALL BE SUBJECT TO CORRECTION AT THE EXPENSE OF THE CONTRACTOR RESPONSIBLE TO THE OWNER.
D. COORDINATION DRAWINGS: FOR LOCATIONS WHERE SEVERAL ELEMENTS OF ELECTRICAL (OR COMBINED MECHANICAL AND ELECTRICAL) WORK SHALL BE COORDINATED AND POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE, PREPARE COORDINATION DRAWINGS (SHOP DRAWINGS) SHOWING THE ACTUAL DIMENSIONS (AT ACCURATE SCALE) REQUIRED FOR THE INSTALLATION. PREPARE AND SUBMIT COORDINATION DRAWINGS TO ENSURE FABRICATION--COORDINATION.

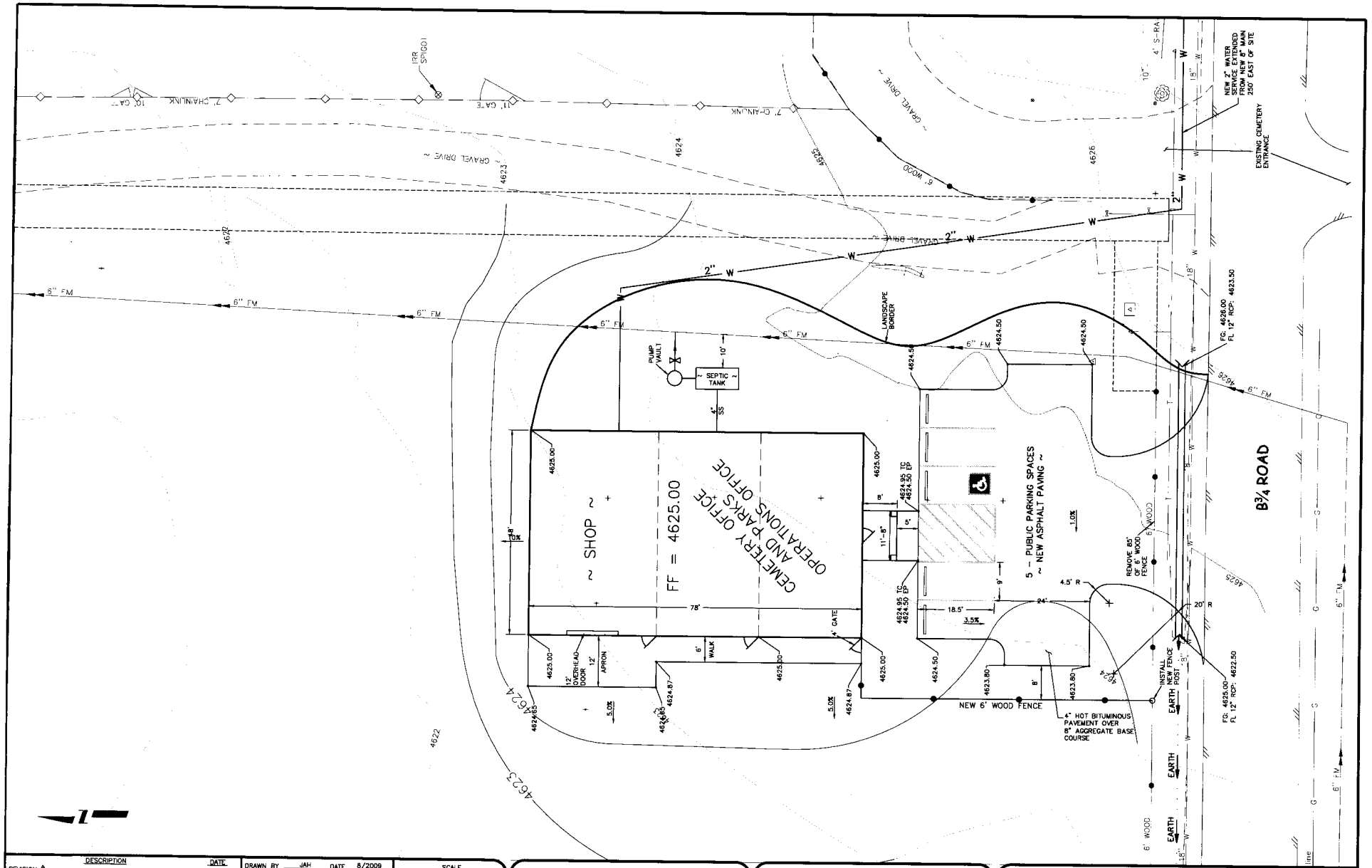
1.13 EQUIPMENT IDENTIFICATION AND MARKING
A. IDENTIFICATION OF EQUIPMENT: ALL JUNCTION BOXES WITH BLANK COVERS SHALL HAVE CIRCUITS CONTAINED THEREIN IDENTIFIED BY MEANS OF PERMANENT BLACK "INDO" MARKER ON THE COVER.
B. BRANCHES FOR LIGHTING WIRES SHALL BE TAGGED AND IDENTIFIED WITH STANDARD WIRE MARKERS IN ALL PANELS AND PULL BOXES THE TAGGING SHALL INDICATE THE CIRCUIT NUMBER AND THE EQUIPMENT IT SERVES (I.E. - "PH1-7,9,11 AC-1" FROM SAID BUREAU AND/OR AGENCIES MUST BE SUBMITTED TO THE ENGINEER.

1.14 SLEEVES, INSERTS, FASTENINGS, SUPPORTS, CUTTING AND PATCHING
A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL METALLIC SUPPORTS AS REQUIRED FOR THE PROPER INSTALLATION OF RACEWAY SYSTEMS AND ALL OTHER EQUIPMENT INSTALLED UNDER THIS DIVISION OF THE CONTRACT CONFORMING TO THE LATEST EDITION OF THE NEC.
B. CONDUIT SHALL BE SUPPORTED ON APPROVED TYPES OF WALL BRACKETS, CEILING HANGERS, STEEL STRAP HANGERS OR PIPE HANGERS. ALL FASTENINGS, SUPPORTS, CLAMPS AND ANCHORS, ETC., SHALL BE OF TYPE AND SIZE APPROVED FOR THE WORK. FOR LATH CONSTRUCTION, TOGGLE OR MACHINE BOLT FASTENINGS SHALL BE USED. FOR STRUCTURAL IRON USE REGULAR FINISHES OF SIMILAR WORK.
C. CONDUIT SHALL BE SECURELY FASTENED TO ALL SHEET METAL OUTLETS, JUNCTION AND PULL BOXES WITH TWO LOCKNUTS AND BUSHING. CARE BEING TAKEN TO SEE THAT THE FULL NUMBER OF THREADS ENGAGE THOROUGHLY TO PUMP IN. ENDS TO BE DRAWN TIGHT AGAINST THE END OF THE CONDUIT, AFTER WHICH THE LOCKNUTS SHALL BE DRAWN TIGHT SUFFICIENTLY TO DRAW THEM INTO FIRM CONTACT WITH THE OUTLET BOX. FOR OUTLETS IN A PLASTIC BUSHING ON END OF CONDUITS STUBBED INTO CEILING SPACES TO REMOVE BURRS.
D. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUPPORTS REQUIRED FOR THE EQUIPMENT, CONDUIT AND CONDUIT.
E. OBTAIN WRITTEN APPROVAL OF THE ENGINEER BEFORE NOTCHING, BORING, CHIPPING, BURNING, DRILLING OR CUTTING STRUCTURAL MEMBERS.
F. FURNISH AND INSTALL ALL SLEEVES WHICH ARE REQUIRED TO PROTECT EQUIPMENT OR WHICH MAY BE NECESSARY TO FACILITATE ITS INSTALLATION. SLEEVES USED IN CONJUNCTION WITH FORMED CONCRETE SHALL BE SET IN PLACE AS REQUIRED BEFORE APPROVING THE ENGINEER. PROVIDE "FLAMESEAL" OR OTHER APPROVED FIRE STOPPING MATERIAL AT ALL SLEEVE PENETRATIONS THROUGH FIRE WALLS, FLOORS AND CEILINGS.
G. ALL CONDUIT AND OUTLET INSTALLATIONS AND CUTTING OF ANY KIND MUST BE DONE WITH GREAT CARE SO AS NOT TO LEAVE UNSIGHTLY SURFACES WHEN THEY ARE SURFACE CONCEALED BY PLATES, ESCUTCHEONS OR OTHER NORMAL CONCEALING CONSTRUCTION. IN CASE UNSIGHTLY CONDITIONS DOES OCCUR, CONTRACTOR WILL BE REQUIRED, AT HIS OWN EXPENSE, TO REPLACE THE DAMAGED CONSTRUCTION.

1.15 SCAFFOLDING: PROVIDE AND ERECT ALL SCAFFOLDING, LADDERS, ETC., REQUIRED IN THE INSTALLATION OF WIRING, EQUIPMENT AND FIXTURES.

1.16 TESTING, ADJUSTING AND CLEANING
A. AS SOON AS ELECTRIC POWER IS AVAILABLE AND CONNECTED TO SERVE THE EQUIPMENT OF THE MANUFACTURING PLANT IS READY FOR FINAL TESTING AND PLACING IN SERVICE, A COMPLETE OPERATIONAL TEST SHALL BE MADE IN THE PRESENCE OF THE ENGINEER. THE CONTRACTOR SHALL FURNISH ALL NECESSARY INSTRUMENTS AND EQUIPMENT AND SHALL MAKE ALL TESTS AND ADJUSTMENTS, AND TRIAL OPERATIONS REQUIRED TO PLACE THE SYSTEM IN BALANCED AND SATISFACTORY OPERATING CONDITION AND HE SHALL PAY ALL MANUFACTURERS' SERVICE FEES REQUIRED FOR APPROVING THE TESTING. DATA ON ALL TESTS SHALL BE SUBMITTED TO THE ENGINEER. INCLUDE NECESSARY ASSISTANCE AND INSTRUCTIONS TO PROPERLY INSTRUCT THE OWNER'S AUTHORIZED PERSONNEL IN THE OPERATION AND CARE OF THE SYSTEM.
B. PRIOR TO TESTING THE SYSTEM, THE FEEDERS AND BRANCH CIRCUITS SHALL BE CONTINUOUS FROM MAIN FEEDER TO MAIN PANELS, TO SUBPANELS, TO OUTLETS, WITH ALL BREAKERS AND FUSES IN PLACE. THE SYSTEM SHALL BE TESTED FREE FROM SHORTS AND GROUNDING.
C. NO CIRCUITS SHALL BE ENERGIZED WITHOUT THE OWNER'S APPROVAL.
D. THE RIGHT IS RESERVED TO INSPECT AND TEST ANY PORTION OF THE EQUIPMENT AND/OR MATERIALS DURING THE PROGRESS OF ITS ERECTION. THE CONTRACTOR SHALL FURTHER TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS BEFORE APPLYING POWER TO ANY FIXTURES OR EQUIPMENT.
E. THE CONTRACTOR SHALL TEST THE ENTIRE SYSTEM IN THE PRESENCE OF THE ENGINEER WHEN THE SYSTEM IS FINALLY COMPLETED TO ENSURE THAT ALL PORTIONS ARE FREE FROM SHORT CIRCUITS OR GROUNDS.
F. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE ENGINEER WITH CERTIFICATES OF INSPECTION AND APPROVAL OF AN ACTIVE MEMBER OF THE INTERNATIONAL ASSOCIATION OF ELECTRICAL INSPECTORS OF ALL WORK COMPLETED AND INCLUDED IN THIS SECTION, IF REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THE INSPECTIONS AND WORK FAILURES INSPECTION STAGE.
G. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ALL PERMITS, INSPECTION FEES, AND INSTALLATION FEES AS REQUIRED TO COMPLETE THE WORK UNDER THIS SECTION OF THE CONTRACT.
H. THIS CONTRACTOR SHALL GUARANTEE THE MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE BY THE OWNER OR ENGINEER. DURING THIS TIME, ANY DEFECTS SHOULD SHOW UP DUE TO ANY DEFECTIVE MATERIALS, WORKMANSHIP, FAILURE TO ADJUST OR WANT OF CARE ON THE PART OF THIS CONTRACTOR, HE SHALL FURNISH ANY NEW MATERIALS AS REQUIRED TO REMEDY SUCH DEFECTS, AND PUT THE SYSTEM IN ORDER AT HIS OWN EXPENSE, ON RECEIPT OF NOTICE OF SUCH DEFECTS FROM THE ENGINEER. THIS SPECIFICATION IS NOT WITHIN ANY WAY LIMITED BY THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY FOR NEGLIGENCE OF THE OWNER.
I. UPON COMPLETION AND ACCEPTANCE OF THE WORK, ALL COMPONENT PARTS, BOTH SINGULARLY AND AS A WHOLE, SHALL BE ADJUSTED AND LEFT IN SATISFACTORY AND PROPER OPERATING CONDITION BY THE CONTRACTOR INCLUDING LIGHTING FIXTURES, PANELBOARDS, ETC., SHALL BE CLEANED OR WASHED AND ADJUSTED TO THE SATISFACTION OF THE ENGINEER.

1.17 AS-BUILT DRAWINGS
A. CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF ALL DEVIATIONS FROM CONTRACT DRAWINGS AND SPECIFICATIONS. THE SHALL NEATLY AND CONSISTENTLY RECORD IN RED INK OR PENCIL ANY DEVIATIONS ON DRAWINGS AFFECTED, AND SHALL KEEP DRAWINGS AVAILABLE FOR USE.
B. AT THE COMPLETION OF THE JOB, AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER TWO COMPLETE SETS OF ELECTRICAL PRINTS MARKED TO SHOW THE WORK AS-BUILT. THE CONTRACTOR SHALL SHOW MODIFICATIONS TO LOCATIONS FOR ALL MAJOR ELECTRICAL DEVICES, INCLUDING ALL MAIN RUNS OF CONDUIT, THE CIRCUITING OF EACH FIXTURE, ETC. SHALL BE SHOWN. CERTIFY TO THE ACCURACY OF EACH PRINT, BY SIGNATURE AND DATE THEREON, AND DELIVER



DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY JAH DATE 8/2009
DESIGNED BY DATE
CHECKED BY DATE
APPROVED BY DATE

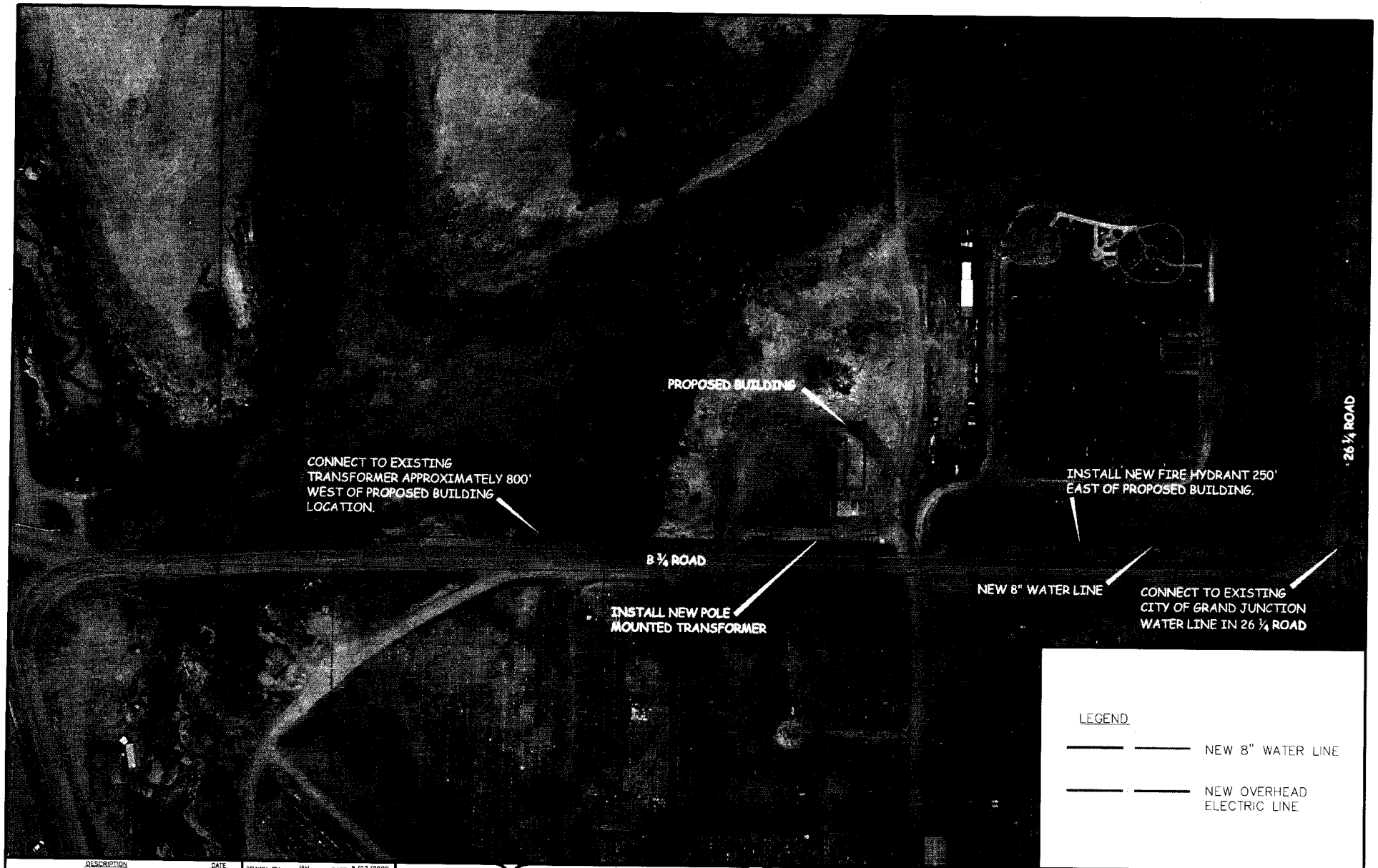
SCALE

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

ORCHARD MESA CEMETERY
OFFICE AND MAINTENANCE SHOP
SITE AND GRADING PLAN

1



DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY JAH DATE 8/27/2009
DESIGNED BY DATE
CHECKED BY DATE
APPROVED BY DATE

SCALE

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

ORCHARD MESA CEMETERY
OFFICE AND MAINTENANCE SHOP
UTILITY COMPOSITE

3

PROJECT NO. xxxx-Fxxxxx

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
ABC	AGGREGATE BASE COURSE
AC	ASBESTOS CEMENT
AP	ANGLE POINT
ASB	ANCHORED STRAW BALES
ASP	ALUMINIZED STEEL PIPE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BACK OF CURB
BF	BUTTERFLY VALVE
BOW	BACK OF WALK
BCR	BEGIN CURB RETURN
BOT	BOTTOM
BSWMP	BETTER STORM WATER MANAGEMENT PRACTICES
CH	CHORD
CAP	CORRUGATED ALUMINUM PIPE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CI	CAST IRON
C.G.& SW	CURB, GUTTER & SIDEWALK
℄	CENTER LINE
CL	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMB	COMBINATION (AS IN STORM SEWER AND SANITARY SEWER)
CONC	CONCRETE
CSM	CITY SURVEY MONUMENT
CSP	CORRUGATED STEEL PIPE
CU	COPPER
DI	DUCTILE IRON
DWY	DRIVEWAY
E	ELECTRIC
ECR	END CURB RETURN
EG	EDGE OF GUTTER
EL	ELEVATION
EP	EDGE OF PAVEMENT
EX	EXISTING
FB	FULL BODY
FC	FACE OF CURB
FG	FINISHED GRADE
FL	FLOW LINE
FL	FLANGE
FM	FORCE MAIN
FO	FIBER OPTICS
FS	FAR SIDE
FTG	FOOTING
G	GAS
GB	GRADE BREAK
GM	GAS METER
GV	GATE VALVE
HBP	HOT BITUMINOUS PAVEMENT
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
IRR	IRRIGATION
L	LENGTH OF ARC
LC	LONG CHORD
LF	LINEAR FEET
LL	LONG ARC
LS	SHORT ARC
LT	LEFT
MB	MAILBOX
MCSM	MESA COUNTY SURVEY MONUMENT
MH	MANHOLE
MJ	MECHANICAL JOINT
MW	MILL WRAP
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOP	NO ONE PERSON
NRCP	NON-REINFORCED CONCRETE PIPE
NS	NEAR SIDE
NTS	NOT TO SCALE
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIP	PLASTIC IRRIGATION PIPE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PR	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RG	RESTRAINED GLANDS
RL	LONG RADIUS
ROW	RIGHT OF WAY
RP	RADIUS POINT
RR	RAIL ROAD
RS	SHORT RADIUS
RT	RIGHT
S	SLOPE
SAN	SANITARY
SC	SHORT CHORD
SCD	STANDARD CONTRACT DOCUMENTS
SCH	SCHEDULE
SF	SILT FENCE
SL	SECTION LINE
SSRB	STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION
SSUU	STANDARD SPECIFICATIONS FOR CONSTRUCTION OF UNDERGROUND UTILITIES
STA	STATION
STL	STEEL
STM	STORM
T	TELEPHONE
TAN	LENGTH OF TANGENT
TC	TOP OF CURB
TH	TEST HOLE
TV	TELEVISION
(TYP)	TYPICAL
UU	UNDERGROUND UTILITIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VPC	VERTICAL POINT OF CURVATURE
VPCC	VERTICAL POINT OF COMPOUND CURVATURE
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
Δ	DELTA ANGLE

LEGEND

BSWMP DRAINAGE BASIN BOUNDARY

BSWMP ANCHORED STRAW BALES

BSWMP SILT FENCE

BUILDING

CONCRETE CURB AND GUTTER

CONCRETE CURB,GUTTER, & SIDEWALK

CONCRETE DITCH

CONCRETE SIDEWALK

CULVERT

EARTH DITCH

EDGE OF GRAVEL

EDGE OF PAVEMENT

FENCE (BARBED WIRE)

FENCE (CHAIN LINK)

FENCE (IRON)

FENCE (PLASTIC)

FENCE (TEMPORARY CONSTRUCTION)

FENCE (WOOD)

FENCE (WOVEN WIRE)

GUARD RAIL

HATCHING: INDICATES ASPHALT REMOVAL

HATCHING: INDICATES CONCRETE REMOVAL

HATCHING: INDICATES PROPOSED LANDSCAPE AREA

HATCHING: INDICATES STAGING AREA

LINE (CENTER OF IMPROVEMENTS)

LINE (CITY LIMITS) — CITY LIMITS

LINE (CONTROL)

LINE (EASEMENT)

LINE (MONUMENT/SECTION)

LINE (PROPERTY)

LINE (RIGHT OF WAY)

MATCH LINE — MATCH LINE SEE SHEET NO ?

PIPE (IRRIGATION)

PIPE (SIPHON)

PROPOSED CONCRETE CURB AND GUTTER

PROPOSED CONCRETE CURB,GUTTER,& SIDEWALK

PROPOSED CONCRETE SIDEWALK

PROPOSED "WET" UTILITIES (CONSTRUCTION NOTE WILL INDICATE TYPE, SIZE, AND MATERIAL OF NEW MAIN) — 8" PVC SANITARY SEWER

ALL PROPOSED FEATURES NOT SHOWN IN LEGEND WILL BE SHOWN THE SAME AS THEIR EXISTING COUNTERPART, BUT INDICATED BY BOLDER LINETYPE

RAIL ROAD

RETAINING WALL

STRIPING (CONTINUOUS WHITE)

STRIPING (DASHED WHITE)

STRIPING (CONTINUOUS YELLOW)

STRIPING (DASHED YELLOW)

TOP OF SLOPE

CONTOUR LINES (SHOWN BETWEEN TOP & TOE)

TOE OF SLOPE

TRAFFIC DETECTOR LOOP

UTILITY LINE (ABANDON) (THIS CASE A WATER LINE)

UTILITY LINE (CABLE TV)

UTILITY LINE (ELECTRIC)

UTILITY LINE (FIBER OPTIC)

UTILITY LINE (GAS)

UTILITY LINE (HIGH VOLTAGE OVERHEAD POWER)

UTILITY LINE (OVERHEAD POWER)

UTILITY LINE (OVERHEAD TELEPHONE)

UTILITY LINE (SANITARY SEWER)

UTILITY LINE (SANITARY SEWER FORCE MAIN)

UTILITY LINE (SANITARY SEWER SERVICE)

UTILITY LINE (STORM SEWER)

UTILITY LINE (STORM SEWER, PERFORATED)

UTILITY LINE (STORM/SANITARY SEWER SEWER COMBINATION)

UTILITY LINE (TELEPHONE)

UTILITY LINE (WATER)

SYMBOLS

BENCH MARK

CATCH BASIN

CLEAN OUT

CURB STOP

FIRE HYDRANT

GUY WIRE ANCHOR

HEADGATE

IRRIGATION PUMP

MAILBOX

MANHOLE (ELECTRIC)

MANHOLE (GAS)

MANHOLE (SANITARY/STORM)

MANHOLE (TELEPHONE)

MANHOLE (TV)

MANHOLE (WATER)

METER (GAS)

METER (WATER)

PEDESTAL (TELEPHONE)

PEDESTAL (TV)

PROPERTY PIN

PULL BOX

REDUCER FITTING

SIGN OR POST (SIGN TYPE NOTED)

SPRINKLER HEAD

STREET LIGHT

SURVEY MONUMENT (CITY)

SURVEY MONUMENT (TYPE NOTED)

TEST HOLE

TRAFFIC PAINT MARKING

TRAFFIC SIGNAL POLE AND MAST ARM

UTILITY POLE

VALVE (GAS)

VALVE (IRRIGATION)

VALVE (WATER)

VEGETATION (HEDGE OR BUSH)

VEGETATION (TREE STUMP)

VEGETATION (TREE) (CALIPER SIZE NOTED)

WATER HYDRANT

WEIR

YARD LIGHT

NORTH ARROW:

BAR SCALE:

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY JCS DATE 4-02
DESIGNED BY DATE
CHECKED BY DATE
APPROVED BY DATE

SCALE — PLAN HORIZ. 1"=20' VERT. — PROFILE HORIZ. VERT.

CITY OF Grand Junction COLORADO

PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

CITY OF GRAND JUNCTION STANDARD ABBREVIATIONS, LEGEND, AND SYMBOLS SHEET

4

Bid Schedule - Cemetery & Parks Operations Office

Item No.	Description	Quantity	Units	Unit Price	Total Price
1	General conditions and mobilization	1	LS	$ _____	$ _____
2	Construction survey	1	LS	$ _____	$ _____
3	Clear and grub	1	LS	$ _____	$ _____
4	Remove wood fence and return to the City	85	LF	$ _____	$ _____
5	Bldg excavation & structural fill	1	LS	$ _____	$ _____
6	Silt fence	400	LF	$ _____	$ _____
7	Concrete washout	1	EA	$ _____	$ _____
8	Sewage disposal system - including 4" service line, 15000 gallon septic tank, clear-water pump vault, pump system with all wiring and alarm, two check valves, and tie-in to existing 6" forcemain	1	LS	$ _____	$ _____
9	12" RCP storm sewer culvert	65	LF	$ _____	$ _____
10	12" FES	2	EA	$ _____	$ _____
11	Connect to existing water main	1	EA	$ _____	$ _____
12	8" PVC water main	250	LF	$ _____	$ _____
13	8" gate valve & box	1	EA	$ _____	$ _____
14	Fire hydrant with valve	1	EA	$ _____	$ _____
15	2" connection to 8" watermain, 2" gate valve and box	1	LS	$ _____	$ _____
16	2" Type K copper service with fittings	400	LF	$ _____	$ _____
17	Subsurface conditioning for parking lot	400	SY	$ _____	$ _____
18	Aggregate base course - Class 6 (8" thick)	90	CY	$ _____	$ _____
19	Hot Bituminous Paving (4" thick)	90	TN	$ _____	$ _____
20	Parking lot striping & parking blocks	1	LS	$ _____	$ _____
21	6' wood privacy fence w/ gate	80	LF	$ _____	$ _____
22	Site electrical & gas services with conduits	1	LS	$ _____	$ _____
23	48' x 78' metal building - complete per architect's specifications; with all related concrete work, doors & windows, interior finishing, mechanical, and electrical	1	LS	$ _____	$ _____
24	Force Account	1	LS	$ _____	$ 10000.00
	Total Price				$ 10000.00

Huddleston-Berry
Engineering & Testing, LLC

GEOTECHNICAL INVESTIGATION
ORCHARD MESA MUNICIPAL CEMETARY
GRAND JUNCTION, COLORADO
PROJECT# 00208-0010

CITY OF GRAND JUNCTION
250 NORTH 5TH STREET
GRAND JUNCTION, COLORADO 81501

FEBRUARY 4, 2009

Huddleston-Berry Engineering and Testing, LLC
640 White Avenue, Unit B
Grand Junction, Colorado 81501

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A geotechnical investigation was conducted new construction at the Orchard Mesa Municipal Cemetery in Grand Junction, Colorado. The project location is shown on Figure 1 – Site Location Map. The purpose of the investigation was to evaluate the subsurface conditions at the site with respect to foundation design, pavement design, and earthwork for the proposed construction. This summary has been prepared to include the information required by civil engineers, structural engineers, and contractors involved in the project.

Subsurface Conditions (p. 2)

The subsurface investigation consisted of three borings, drilled on January 13th, 2009. The locations of the borings are shown on Figure 2 – Site Plan. The borings generally encountered fill materials above clay and/or sand with gravel soils. Groundwater was encountered in one of the borings at a depth of 9.0 feet. The native lean clay soils were indicated to be moderately plastic and are anticipated to be slightly expansive. The native sand with gravel soils were indicated to be non-plastic to slightly plastic.

Summary of Foundation Recommendations

- *Foundation Type* – Spread Footings or Monolithic Structural Slabs (p. 3)
- *Structural Fill* – Minimum of 6-inches below foundations. However, structural fill should extend to dense sand with gravel soils. The native clay soils are not suitable for reuse as structural fill. The native sand with gravel soils are suitable for reuse as structural fill provided particles in excess of 6-inches in diameter are removed. Imported structural fill should consist of pit-run, CDOT Class 6 base course, or other granular material approved by the engineer. (p. 3)
- *Maximum Allowable Bearing Capacity* – 2,000 psf. (p. 3)
- *Subgrade Modulus* – 200 pci for native sand with gravel soils and 250 pci for pit-run or CDOT Class 6 base course. (p. 3)
- *Lateral Earth Pressure* – 50 pcf (p. 4)

Summary of Pavement Recommendations (p. 5)

Automobile Traffic/Parking Areas
EDLA = 5, Structural Number = 2.75

ALTERNATIVE	PAVEMENT SECTION (Inches)				
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Rigid Pavement	TOTAL
Full Depth HMA	7.0				7.0
A	3.0	11.0			14.0
B	4.0	7.0			11.0
C	3.0	6.0	6.0		15.0
Full Depth RP				6.0	6.0

Truck Traffic Areas

EDLA = 20, Structural Number = 3.50

ALTERNATIVE	PAVEMENT SECTION (Inches)				
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Rigid Pavement	TOTAL
Full Depth HMA	8.0				8.0
A	3.0	16.0			19.0
B	4.0	13.0			17.0
C	3.0	6.0	14.0		23.0
Full Depth RP		6.0		6.0	12.0

Where gravel pavements are proposed, a minimum gravel thickness of 12-inches is recommended.

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FIGURES

APPENDICES

1.0 INTRODUCTION

As part of extensive development in western Colorado and surrounding areas, the City of Grand Junction proposes new construction at the Orchard Mesa Municipal Cemetery. As part of the development process, Huddleston-Berry Engineering and Testing, LLC (HBET) was retained by the City of Grand Junction to conduct a geotechnical investigation.

The field investigation, laboratory testing, and analyses were designed to identify most of the geologic hazards common to the area including unstable slopes, swelling or collapsible soils and/or bedrock, soluble sulfates, and shallow groundwater. These issues can impact construction and will be discussed if present.

1.1 Scope

As discussed above, a geotechnical investigation was conducted at the Orchard Mesa Municipal Cemetery in Grand Junction, Colorado. The scope of the investigation included the following components:

- Conducting a subsurface investigation to evaluate the subsurface conditions at the site.
- Collecting soil samples and conducting laboratory testing to determine the engineering properties of the soils at the site.
- Providing recommendations for foundation type and subgrade preparation.
- Providing recommendations for bearing capacity.
- Providing recommendations for lateral earth pressure.
- Providing recommendations for drainage, grading, and general earthwork.
- Providing recommendations for pavement section alternatives.

The investigation and report were prepared by a Colorado registered professional engineer in accordance with generally accepted engineering practices. This report has been prepared for the exclusive use of the City of Grand Junction.

1.2 Site Location and Description

The site is located on the north side of B¾ Road, west of 26¼ Road in Grand Junction, Colorado. The project location is shown on Figure 1 – Site Location Map.

At the time of the investigation, the site was mostly open and nearly level. Several large piles of fill and organic material were observed. Vegetation was minimal and consisted of short grasses and weeds. The site was bordered to the south by B¾ Road, to the east by a dirt access road and city storage area, and to the north and west by moderate slopes down to uneven, brushy terrain.

1.3 Proposed Construction

The proposed construction is anticipated to consist of new structures, utility installation, and pavements. The proposed structures are anticipated to be constructed over reinforced concrete foundations. Foundation loads on the order of 600 to 2,000 pounds per linear foot wall loads and 8 to 20 kip column loads are expected.

2.0 SUBSURFACE INVESTIGATION

The subsurface investigation consisted of three borings, drilled on January 13, 2009. The locations of the borings are shown on Figure 2 – Site Plan. The borings were located in the field relative to existing site features. Typed boring logs are included in Appendix A. Samples of the subsurface soils were collected during Standard Penetration Testing (SPT) and using bulk sampling methods at the locations shown on the logs.

The borings were drilled to depths of between 7.0 and 9.5 feet below the existing ground surface. As indicated on the logs, the subsurface conditions at the site were slightly variable. Boring B-1, conducted in the southern portion of the site, encountered 1.0 foot of pulverized asphalt pavement above reddish brown, moist, dense silty sand with gravel to the bottom of the boring. Groundwater was not encountered in B-1 at the time of the investigation.

Boring B-2, conducted in the western portion of the site, encountered 1.0 foot of pulverized asphalt pavement above orange, moist, medium dense clayey sand with gravel to a depth of 4.0 feet. Below the clayey sand, reddish brown, moist, very dense silty sand with gravel extended to the bottom of the boring. Groundwater was not encountered in B-2 at the time of the investigation.

Boring B-3, conducted in the northern portion of the site, encountered 3.5 feet of red, moist, medium stiff sandy lean clay above brown, moist to wet, very dense silty sand with gravel to the bottom of the boring. Groundwater was encountered in B-3 at a depth of 9.0 feet at the time of the investigation.

3.0 LABORATORY TESTING

Selected soil samples collected from the borings were tested in the Huddleston-Berry Engineering and Testing LLC geotechnical laboratory for natural moisture content and density, gradation, Atterberg limits, and soluble sulfates content. The laboratory testing results are included in Appendix B.

The laboratory testing results indicate that the clay soils encountered in B-3 are moderately plastic. Based upon the Atterberg limits of these materials, the native clay soils are anticipated to be slightly expansive. The native sand with gravel soils were indicated to range from non-plastic to slightly plastic. Water soluble sulfates were detected in the site soils in a concentration of 2,700 parts-per-million (ppm).

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Foundations

Based upon the subsurface conditions at the site, shallow foundations are recommended. Spread footings and monolithic structural slab foundations are both appropriate. However, to limit the potential for excessive differential movements, it is recommended that the load bearing portions of the foundations be constructed over structural fill resting on the dense sand with gravel soils. However, a minimum of 6-inches of structural fill is recommended.

The existing fill materials are not suitable for reuse as structural fill. Due to their potential for expansion, the native clay soils are also not suitable for reuse as structural fill. The native sand with gravel soils may be reused as structural fill, provided particles in excess of 6-inches in diameter are removed. Imported structural fill should consist of a granular, non-expansive, non-free draining material such as pit-run or CDOT Class 6 base course. However, if pit-run is used as structural fill below the foundations, a minimum of six inches of Class 6 base course should be placed on top of the pit-run to prevent large point stresses on the bottoms of the foundations due to large particles in the pit-run.

Prior to placement of structural fill, it is recommended that the bottoms of the foundation excavations be scarified to a depth of 6 to 8-inches, moisture conditioned, and compacted to a minimum of 95% of the standard Proctor maximum dry density within ±2% of the optimum moisture content as determined in accordance with ASTM D698. Structural fill should extend laterally beyond the edges of the foundation a distance equal to the thickness of structural fill. Structural fill should be moisture conditioned, placed in maximum 8-inch loose lifts, and compacted to a minimum of 95% of the standard Proctor maximum dry density for fine grained soils or modified Proctor maximum dry density for coarse grained soils, within ±2% of the optimum moisture content as determined in accordance with ASTM D698 or D1557C, respectively. Pit-run materials used as structural fill should be proofrolled to the Engineer's satisfaction.

For the foundation building pad prepared as recommended with structural fill consisting of the native soils or imported granular materials above dense native gravel soils, a maximum allowable bearing capacity of 2,000 psf may be used. In addition, a modulus of subgrade reaction of 200 pci may be used for structural fill consisting of the native sand with gravel soils. A modulus of 250 pci may be used for structural fill consisting of pit-run or CDOT Class 6 base course. Foundations subject to frost should be at least twenty-four inches below the final grade.

As discussed previously, water soluble sulfates were detected in the site soils in a concentration of 2,700 ppm. This concentration represents a severe degree of potential sulfate attack on concrete exposed to these soils. Therefore, Type V sulfate resistant cement is recommended for construction at this site. However, Type V cement can be difficult to obtain and as a result, Type I-II sulfate resistant cement may need to be used instead.

4.2 Floor Slabs and Exterior Flatwork

In order to limit the potential for differential movement of floor slabs and/or exterior flatwork, it is recommended that floor slabs and/or exterior flatwork be constructed above subgrade soils, below the existing fill, that have been scarified to a depth of 9 to 12-inches, moisture conditioned and compacted to a minimum of 95% of the standard Proctor maximum dry density within ±2% of the optimum moisture content as determined in accordance with ASTM D698. However, where moderately plastic clay soils are present in the subgrade, they should be removed to a depth of at least 12-inches below the bottoms of the slabs and replaced with structural fill. Slabs-on-grade should not be tied into or connected to the foundations in any manner.

4.3 Lateral Earth Pressures

Any retaining walls, stemwalls, etc. should be designed to resist lateral earth pressures. For backfill consisting of the native soils or imported granular, non-free draining, non-expansive material, we recommend that the walls be designed for an equivalent fluid unit weight of 50 pcf in areas where no surcharge loads are present. Lateral earth pressures should be increased as necessary to reflect any surcharge loading behind the walls.

4.4 Drainage

In order to improve the long-term performance of the foundations and slabs-on-grade, grading around the structures should be designed to carry precipitation and runoff away from the structures. It is recommended that the finished ground surface drop at least four inches within the first ten feet away from the structures where impermeable surfaces (i.e. flatwork or pavements) are adjacent to the structures. Where permeable surfaces are adjacent to the structures a minimum drop of twelve inches within the first ten feet is recommended. Downspouts should empty beyond the backfill zone. In addition, automatic irrigation is not recommended within five feet of the foundations.

4.5 Excavations

Excavations in the soils at the site may stand for short periods of time but should not be considered to be stable. Trenching and excavations should be sloped back, shored, or shielded for worker protection in accordance with applicable OSHA standards. The soils generally classify as Type C soil with regard to OSHA's *Construction Standards for Excavations*. For Type C soils, the maximum allowable slope in temporary cuts is 1.5H:1V.

4.6 Pavements

The proposed construction is anticipated to include asphalt and gravel paved areas. As discussed previously, the pavement subgrade materials consist primarily of fill materials above clay and sand soils. However, the moderately plastic clay soils will be critical for the pavement design. Based upon the anticipated expansive nature of these soils, the minimum recommended modulus of 3,000 psi will be used for the pavement design.

Based upon the subgrade conditions and anticipated traffic loading, pavement section alternatives were developed in accordance with the *Guideline for the Design and Use of Asphalt Pavements for Colorado Roadways* by the Colorado Asphalt Pavement Association, AASTHO rigid pavement design procedures, and FHWA *Gravel Roads: Maintenance and Design Manual.* The following minimum pavement section alternatives are recommended:

Automobile Parking Areas
EDLA = 5, Structural Number = 2.75

ALTERNATIVE	PAVEMENT SECTION (Inches)				
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Rigid Pavement	TOTAL
Full Depth HMA	7.0				7.0
A	3.0	10.0			13.0
B	4.0	7.0			11.0
C	3.0	6.0	6.0		15.0
Full Depth RP				6.0	6.0

Truck Traffic
EDLA = 20, Structural Number = 3.50

ALTERNATIVE	PAVEMENT SECTION (Inches)				
	Hot-Mix Asphalt Pavement	CDOT Class 6 Base Course	CDOT Class 3 Subbase Course	Rigid Pavement	TOTAL
Full Depth HMA	8.0				8.0
A	3.0	16.0			19.0
B	4.0	13.0			17.0
C	3.0	6.0	14.0		23.0
Full Depth RP		6.0		6.0	12.0

Where gravel pavements are proposed, gravel should be a minimum of 12-inches in thickness.

Prior to pavement placement, areas to be paved should be stripped of all topsoil, fill, or other unsuitable materials. It is recommended that the subgrade soils be scarified to a depth of 12-inches; moisture conditioned, and recompacted to a minimum of 95% of the standard Proctor maximum dry density, within ±2% of optimum moisture content as determined by AASHTO T-99.

Aggregate base course and subbase course should be placed in maximum 9-inch loose lifts, moisture conditioned, and compacted to a minimum of 95% and 93% of the maximum dry density, respectively, at -2% to +3% of optimum moisture content as determined by AASHTO T-180. In addition to density testing, base course should be proofrolled to verify subgrade stability.

It is recommended that Hot-Mix Asphaltic (HMA) pavement conform to CDOT grading SX or S specifications and consist of an approved 75 gyration Superpave method mix design. HMA pavement should be compacted to between 92% and 96% of the maximum theoretical density. An end point stress of 50 psi should be used. In addition, pavements should conform to local specifications.

The long-term performance of the pavements is dependent on positive drainage away from the pavements. Ditches, culverts, and inlet structures in the vicinity of paved areas must be maintained to prevent ponding of water on the pavement.

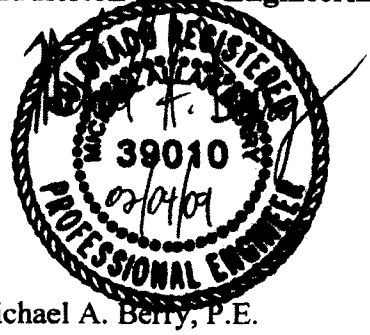
5.0 GENERAL

The recommendations included above are based upon the results of the subsurface investigation and on our local experience. These conclusions and recommendations are valid only for the proposed construction.

As discussed previously, the subsurface conditions encountered in the borings were variable. However, the precise nature and extent of subsurface variability may not become evident until construction. Therefore, it is recommended that a representative of HBET be retained to provide engineering oversight and construction materials testing services during the foundation, pavement, and earthwork phases of the construction. This is to verify compliance with the recommendations included in this report or permit identification of significant variations in the subsurface conditions which may require modification of the recommendations.

Huddleston-Berry Engineering and Testing, LLC is pleased to be of service to your project. Please contact us if you have any questions or comments regarding the contents of this report.

Respectfully Submitted:
Huddleston-Berry Engineering and Testing, LLC



Michael A. Berry, P.E.
Vice President of Engineering

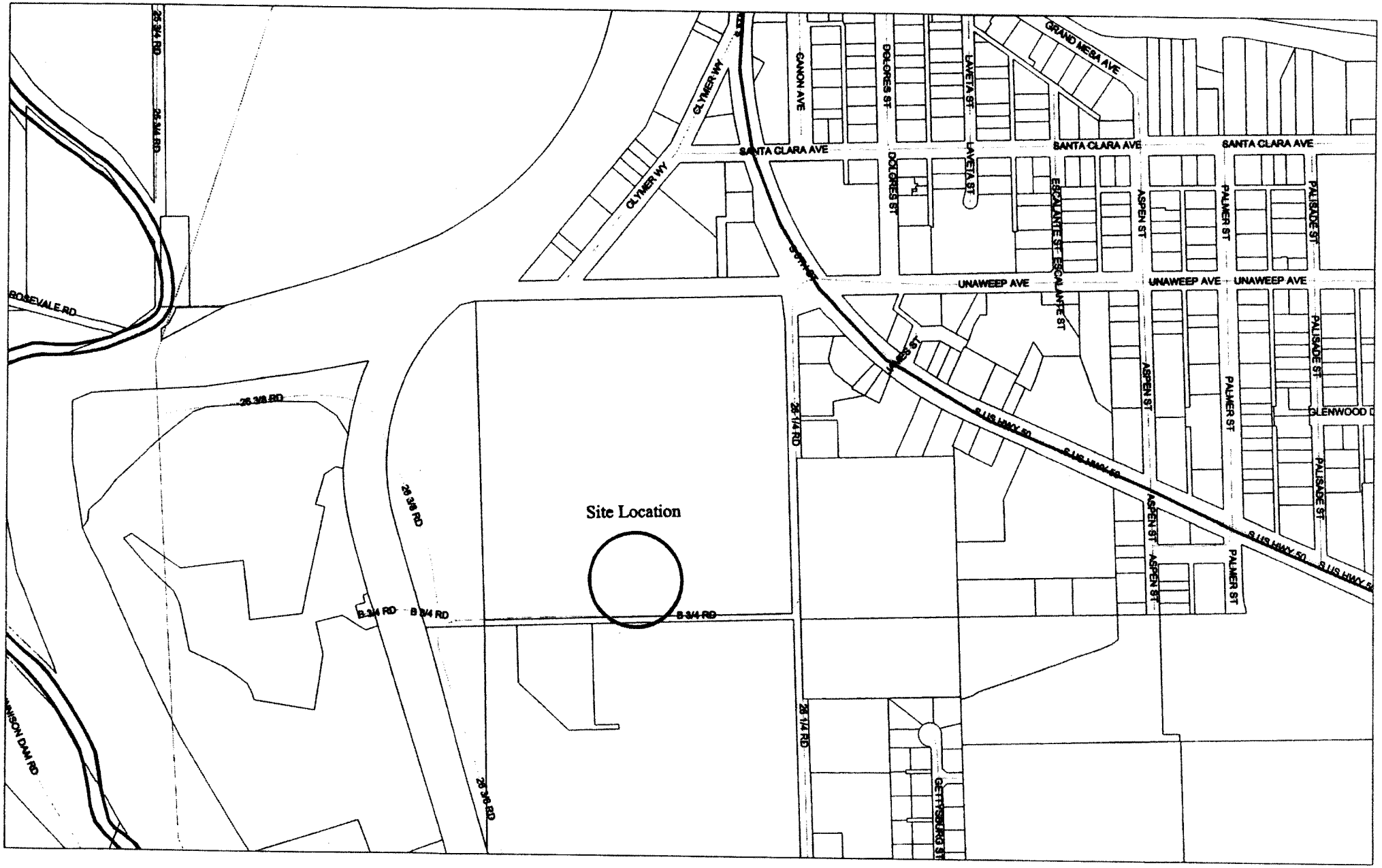


FIGURE 1
Site Location Map

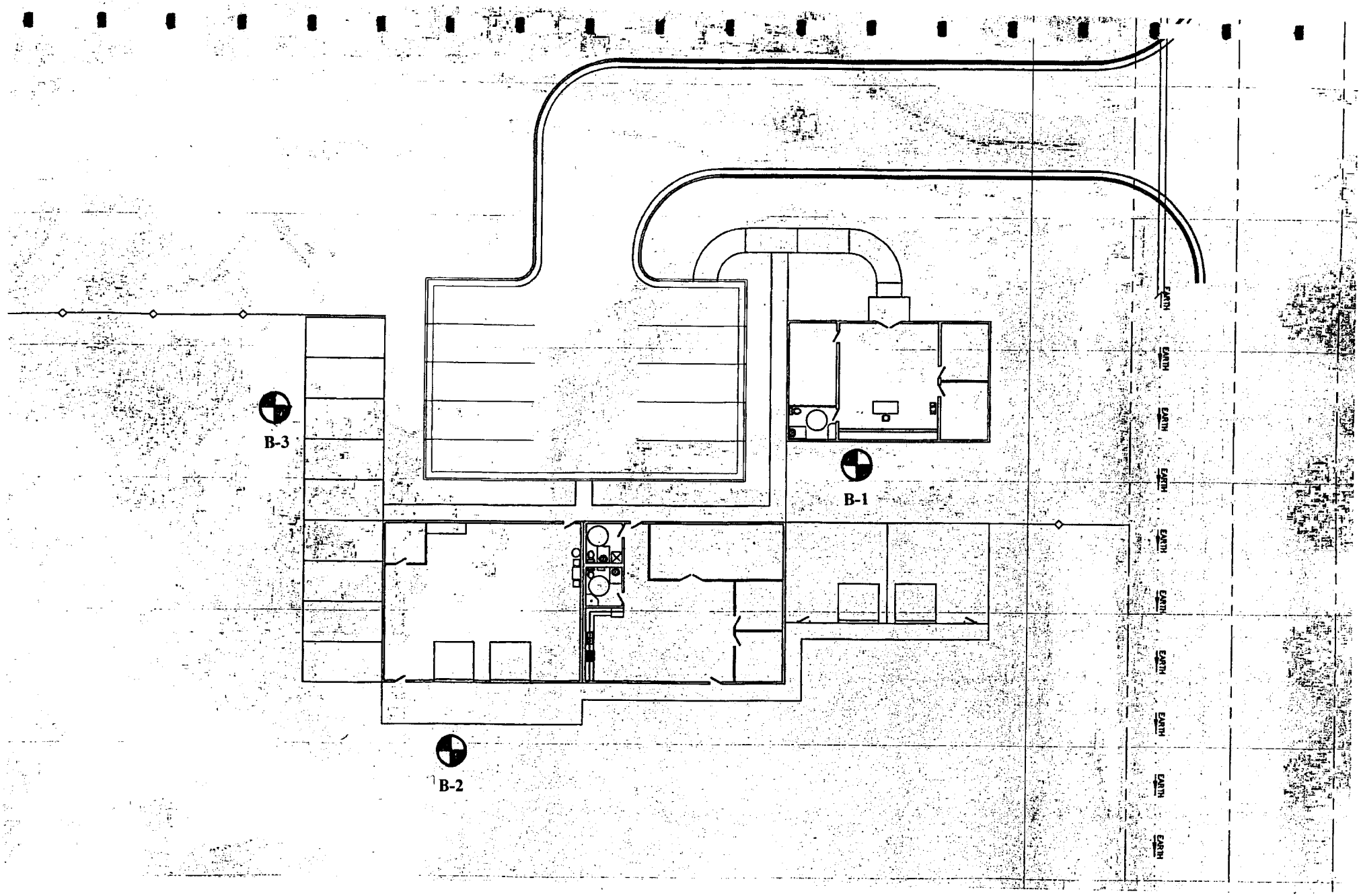


FIGURE 2
Site Plan

Huddleston-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

BORING NUMBER B-1

CLIENT City of GJ
PROJECT NAME Cemetery Building Improvements
PROJECT NUMBER 00208-0010
PROJECT LOCATION Grand Junction, CO
DATE STARTED 1/13/09 COMPLETED 1/13/09
GROUND ELEVATION ____ HOLE SIZE 4"
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING dry
LOGGED BY AS CHECKED BY MAB
AT END OF DRILLING dry
NOTES
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Pulverized Asphalt, black, moist, medium dense										
		Silty SAND with Gravel (sm), reddish brown, moist, dense										
2.5												
5.0		Bottom of hole at 7.0 feet.										

Huddleston-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

BORING NUMBER B-2

CLIENT City of GJ
PROJECT NAME Cemetery Building Improvements
PROJECT NUMBER 00208-0010
PROJECT LOCATION Grand Junction, CO
DATE STARTED 1/13/09 COMPLETED 1/13/09
GROUND ELEVATION ____ HOLE SIZE 4"
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING dry
LOGGED BY AS CHECKED BY MAB
AT END OF DRILLING dry
NOTES
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Pulverized Asphalt, black, moist, medium dense										
		Clayey SAND with Gravel (SC), orange, moist, medium dense										
		GB1: Lab Classified	GB 1					6	28	20	8	27
2.5			SS 1	33	7-10-12 (22)			11	NP	NP	NP	
		Silty SAND with Gravel (sm), reddish brown, moist, very dense										
5.0		Bottom of hole at 7.0 feet.										

Huddleston-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

BORING NUMBER B-3

CLIENT City of GJ
PROJECT NAME Cemetery Building Improvements
PROJECT NUMBER 00208-0010
PROJECT LOCATION Grand Junction, CO
DATE STARTED 1/13/09 COMPLETED 1/13/09
GROUND ELEVATION ____ HOLE SIZE 4"
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING 9.0 ft
LOGGED BY AS CHECKED BY MAB
AT END OF DRILLING 9.0 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		Sandy LEAN CLAY (CL), trace gravel, red, moist, medium stiff										
2.5		SS1: Lab Classified	SS 1	28	6-9-11 (20)			13	33	13	20	58
		Silty SAND with Gravel (SM), brown, moist to wet, very dense	GB 1					9	29	26	3	41
5.0		GB1: Lab Classified										
7.5		Bottom of hole at 9.5 feet.										

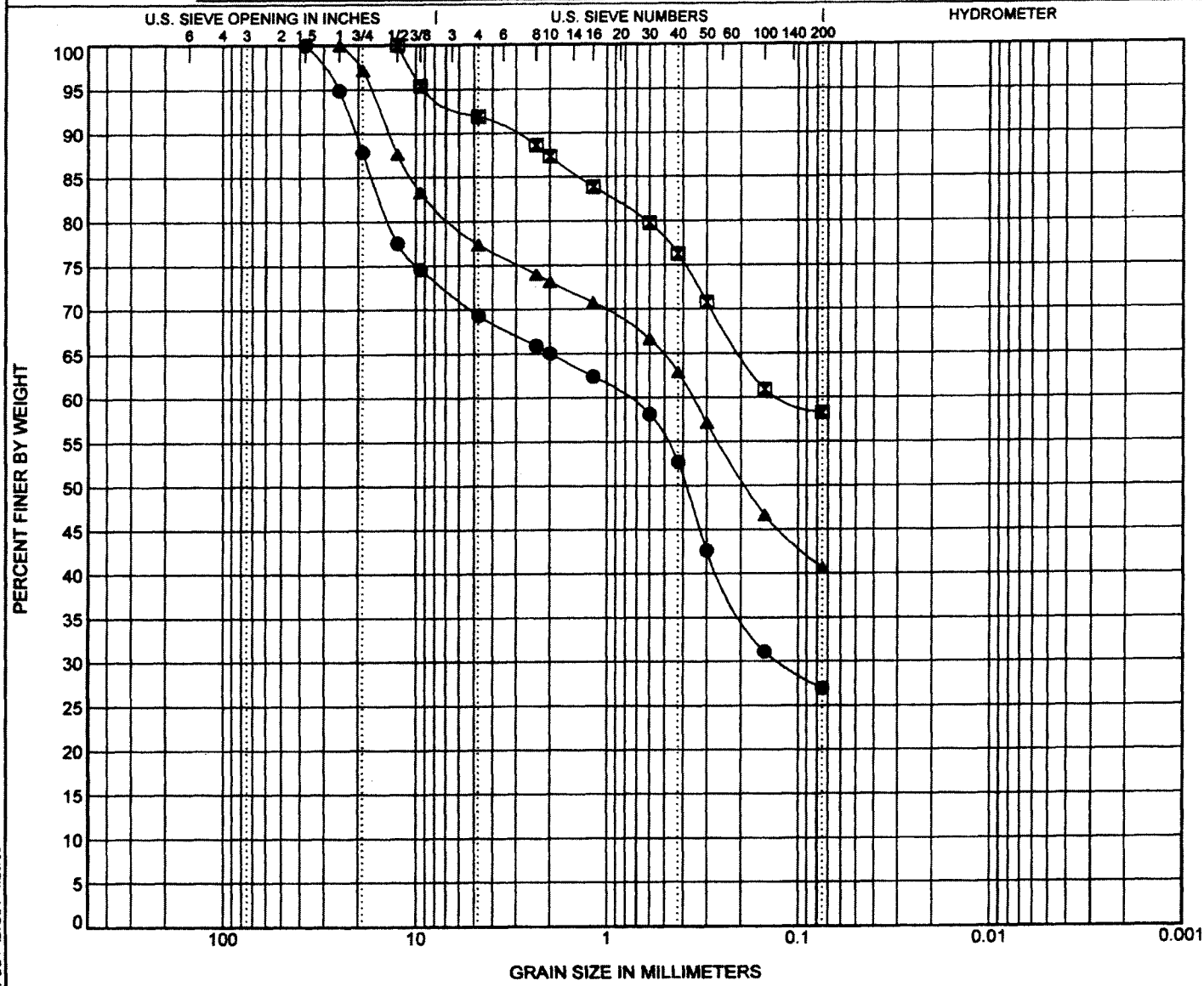
GEOTECH BH COLUMNS 00208-0010 CEMETERY BUILDING IMPROVEMENT.GPJ GINT US LAB.GDT 1/23/09

Huddleston-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

GRAIN SIZE DISTRIBUTION

CLIENT City of GJ **PROJECT NAME** Cemetery Building Improvements

PROJECT NUMBER 00208-0010 **PROJECT LOCATION** Grand Junction, CO



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● B-2 GB-1 1/2009	CLAYEY SAND with GRAVEL(SC)	28	20	8		
⊠ B-3 SS-1 1/2009	SANDY LEAN CLAY(CL)	33	13	20		
▲ B-3 GB-1 1/2009	SILTY SAND with GRAVEL(SM)	29	26	3		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-2 GB-1 1/2009	37.5	0.805	0.125		30.7	42.4	27.0	
⊠ B-3 SS-1 1/2009	12.5	0.118			8.1	33.7	58.2	
▲ B-3 GB-1 1/2009	25	0.357			22.6	36.8	40.6	

GRAIN SIZE 00208-0010 CEMETERY BUILDING IMPROVEMENT.GPJ GINT US I AB.GDT 1/23/09

Huddleston-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

ATTERBERG LIMITS' RESULTS

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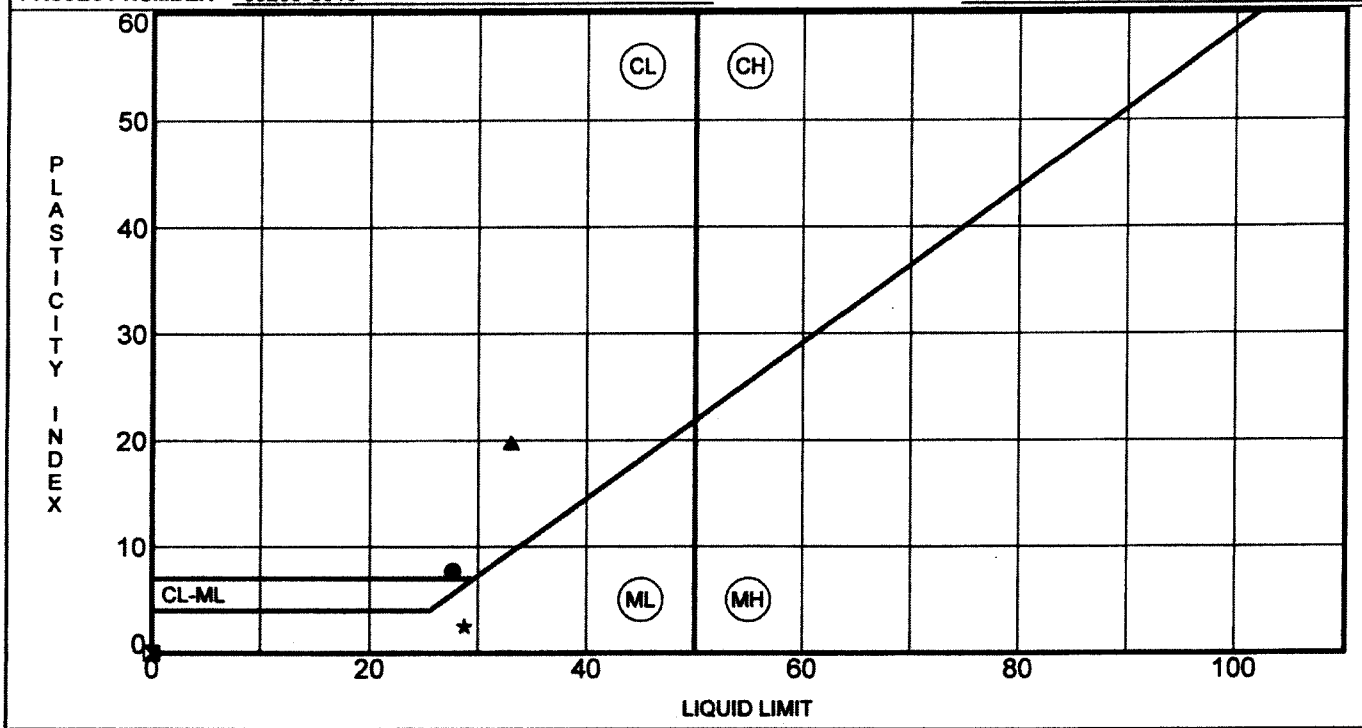

	Specimen Identification		LL	PL	PI	#200	Classification
●	B-2 GB-1	1/2009	28	20	8	27	CLAYEY SAND with GRAVEL(SC)
⊠	B-2 SS-1	1/2009	NP	NP	NP		
▲	B-3 SS-1	1/2009	33	13	20	58	SANDY LEAN CLAY(CL)
★	B-3 GB-1	1/2009	29	26	3	41	SILTY SAND with GRAVEL(SM)