



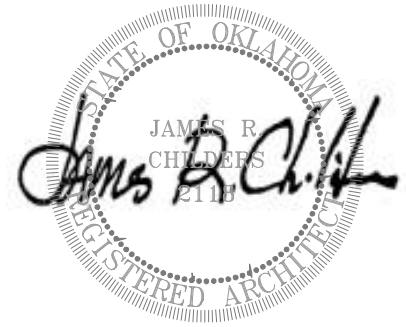
## BID PACKAGE 02 – ADDENDUM 05

**Date:** February 20, 2020

**Re:** Wilma P Mankiller Health Center Expansion

**From:** James R Childers Architect, Inc.  
45 South 4<sup>th</sup> Street  
Fort Smith, Arkansas 72901

02-20-20



This addendum forms part of the Contract Documents, and modifies the documents as noted below. Acknowledge receipt of this addendum in the space provided on the bid form. Failure to do so may subject the bidder to disqualification.

**Item 01** Revised Benco Dental Equipment Drawings due to vacuum manufacturer change and its requirements.

ALL PLANS, DRAWINGS, SPECIFICATIONS, SCHEDULES AND OTHER INSTRUMENTS OF SERVICE, INCLUDING ELECTRONS, MECHANICAL, COLLECTIVE, AND INSTRUMENTS OF SERVICE, FOR THE SOLE PROPERTY OF BENCO. BENCO RESERVES THE RIGHT TO USE THE INSTRUMENTS OF SERVICE, IN WHOLE OR IN PART, FOR ANY AND ALL PURPOSES, INCLUDING BUT NOT LIMITED TO, BIDDING, CONSTRUCTION AND ANY OTHER PURPOSE. BENCO DOES NOT WARRANT THAT THE INSTRUMENTS OF SERVICE HAVE BEEN INFRINGED OR THAT THE INSTRUMENTS OF SERVICE WILL BE INFRINGED. BENCO DOES NOT WARRANT THAT THE INSTRUMENTS OF SERVICE WILL BE INFRINGED. BENCO DOES NOT WARRANT THAT THE INSTRUMENTS OF SERVICE WILL BE INFRINGED. BENCO DOES NOT WARRANT THAT THE INSTRUMENTS OF SERVICE WILL BE INFRINGED.

**GENERAL NOTES**

1. ALL DIMENSIONS AND FIELD CONDITIONS WILL BE VERIFIED BY THE GENERAL CONTRACTOR. THE ACCURACY OF THE FIELD MEASUREMENTS IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
2. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS WILL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES PERTAINING TO THE CONSTRUCTION OF THIS DENTAL OFFICE.
3. MILLWORK SHALL BE DESIGNED BY THE MILLWORK SUPPLIER AND/OR DENTAL CABINETRY SUPPLIER EXCEPT AS NOTED.
4. BENCO SUGGESTS COMPLIANCE WITH CDC/OSHA RECOMMENDATIONS AGAINST INSTALLING CARPETING IN TREATMENT ROOMS.
5. ALL HAZARDS, TEMPORARY OR OTHERWISE SHALL BE PROTECTED TO PRESERVE PUBLIC SAFETY.
6. BENCO WILL SUPPLY ALL DETAILED TEMPLATES AND/OR DETAIL MANUFACTURER'S INSTRUCTIONS. SUCH TEMPLATES AND INSTRUCTIONS WILL DEFINE THE LOCATIONS, CONNECTIONS, AND SERVICES REQUIRED BY THE DENTAL EQUIPMENT. ERRORS RESULTING FROM THE FAILURE OF THE GENERAL CONTRACTOR TO FOLLOW THE INSTRUCTIONS AND/OR TEMPLATES WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
7. DIMENSIONS FOR ALL DENTAL EQUIPMENT ARE CRITICAL AND MUST COMPLY WITH THE MANUFACTURER'S SPECIFICATIONS, AS SUPPLIED BY BENCO. BENCO WILL NOT ASSUME RESPONSIBILITY FOR UNAUTHORIZED VARIATIONS TO THE PLANS AND/OR THE MANUFACTURER'S SPECIFICATIONS.
8. WHERE NEW MATERIALS ARE TO BE APPLIED IN EXISTING AREAS, THE GENERAL CONTRACTOR WILL REMOVE EXISTING MATERIALS, AS REQUIRED, AND PROPERLY PREPARE AREA TO RECEIVE THE NEW WORK.
9. THE GENERAL CONTRACTOR WILL INSPECT ALL AREAS OF CONSTRUCTION AFTER COMPLETION OF THE WORK AND PROVIDE "REPAIR" AND "TOUCH-UP" PAINTING, IN ORDER TO RETURN AREA TO ORIGINAL CONDITION.
10. ALL WORK FOR ALL TRADES WILL BE GUARANTEED FOR A PERIOD OF ONE YEAR MINIMUM FROM THE DATE OF ITS ACCEPTANCE.
11. ALL MATERIALS INCORPORATED INTO THE WORK WILL BE NEW, UNLESS OTHERWISE NOTED. INSPECTIONS BY A BENCO REPRESENTATIVE ARE AN INTEGRAL PART OF OFFICE CONSTRUCTION.
12. IT IS RESPONSIBILITY OF THE CUSTOMER OR HIS GENERAL CONTRACTOR TO ARRANGE FOR ALL MEETINGS, INCLUDING THE INITIAL REVIEW OF THE PLANS, SPECIFICATIONS, AND TEMPLATES AND ALL SUBSEQUENT INSPECTIONS.

**BENCO DENTAL INSPECTIONS**

- INITIAL REVIEW OF THE PLANS, SPECIFICATIONS, AND FIELD CONDITIONS WITH THE GENERAL CONTRACTOR, CARPENTER, PLUMBER, AND ELECTRICIAN BEFORE RENOVATIONS BEGIN.
  - INSPECTION AFTER FRAMING AND BLOCKING ARE COMPLETE, PLUMBING AND ELECTRICAL LINES ARE INSTALLED, AND BEFORE WALLS AND/OR FLOORS ARE CLOSED.
  - FINAL INSPECTION AFTER FINISH WORK IS COMPLETE, TWO (2) DAYS PRIOR TO THE INSTALLATION OF DENTAL EQUIPMENT.
13. BENCO WILL BE PROVIDED FIVE (5) DAYS ADVANCE NOTICE OF ALL MEETINGS. TO ARRANGE THE ABOVE, PLEASE CALL THE EQUIPMENT SPECIALIST LISTED UNDER THE PROJECT TEAM SECTION OF THE COVER SHEET.
  14. CONTRACTOR SHALL CONSULT DOCTOR AND/OR BUILDING OWNER AND, WHERE APPLICABLE, BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF THE FOLLOWING:
    - a. UPGRADING AND INSTALLATION OF ELECTRICAL SERVICE TO DENTAL OFFICE
    - b. COMPLETE HVAC SYSTEM
    - c. HOT WATER SYSTEM
    - d. FIRE SAFETY DEVICES INCLUDING: ALARMS, DETECTORS, EXTINGUISHERS, ETC.
    - e. ILLUMINATED EXIT SIGNS
    - f. GENERAL AND EMERGENCY LIGHTING
    - g. TELEPHONE SYSTEM AND WIRING
    - h. SOUND SYSTEM
    - i. COMPUTER SYSTEM WIRING

**SYMBOLS LEGEND**

- |  |                  |  |          |
|--|------------------|--|----------|
|  | DETAIL/SHEET TAG |  | SINK TAG |
|  | EQUIPMENT TAG    |  | NOTE TAG |

**PROJECT NAME & LOCATION**

# CHEROKEE NATION STILWELL, OK

(REVISED 2-10-20)  
(REVISED 2-20-20)

**PROJECT TEAM**



PITTSSTON, PA · DALLAS, TX · COSTA MESA, CA  
1 . 8 0 0 . 4 6 2 2 . 3 6 2 6 / B E N C O . C O M

295 Centerpoint Blvd. 1-800-go-benco  
Pittston, PA 18640 www.benco.com



**EQUIPMENT SPECIALIST :** CHAD PARKER  
CP8528@BENCO.COM  
(501)317-5851

**PROJECT DESIGNER :** MARK COSTIGAN

**DRAWING LIST**

SHEET	DRAWING TITLE	ISSUED	DATE
Q0.1	COVER SHEET	DENTAL SPEC.	11-18-19
Q1.1	DENTAL EQUIPMENT PLAN	DENTAL SPEC.	11-18-19
Q2.1	DENTAL CARPENTRY PLAN & DETAILS	DENTAL SPEC.	11-18-19
Q3.1	DENTAL ELECTRICAL PLAN	DENTAL SPEC.	11-18-19
Q3.2	DENTAL ELECTRICAL DETAILS	DENTAL SPEC.	11-18-19
Q4.1	DENTAL PLUMBING PLAN	DENTAL SPEC.	11-18-19
Q4.2	DENTAL PLUMBING DETAILS	DENTAL SPEC.	11-18-19
Q4.3	DENTAL PLUMBING DETAILS	DENTAL SPEC.	11-18-19

**GENERAL CONDITIONS**

**1. SUMMARY OF WORK**

DIVISION OF RESPONSIBILITIES TERMINOLOGY:

- "CONTRACTOR": WHERE REFERENCED ON THE DRAWINGS, THE TERM "CONTRACTOR" REFERS TO THE PERSON OR ENTITY RESPONSIBLE FOR PROVIDING ALL CONSTRUCTION WORK.

CONSTRUCTION DRAWINGS:

- CONSTRUCTION DRAWINGS SHALL NOT BE SCALED IN ORDER TO DETERMINE LOCATIONS OF ITEMS OF CONSTRUCTION. LARGER SCALE DETAILS TAKE PRECEDENCE OVER SMALLER SCALE DETAILS. DIMENSIONED DETAILS TAKE PRECEDENCE OVER NON-DIMENSIONED DETAILS.

- THE WORD "FURNISH" IS USED TO MEAN "SUPPLY" COMPLETE WITH ALL ESSENTIAL ACCESSORIES SO THAT THE WORK WHEN INSTALLED FUNCTIONS FOR ITS INTENDED USE, AND DELIVERY TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS.

- THE WORD "INSTALL" IS USED TO DESCRIBE OPERATIONS AT THE PROJECT SITE INCLUDING THE UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, CONNECTING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS NECESSARY FOR THE WORK TO FUNCTION FOR ITS INTENDED USE.

- THE WORD "PROVIDE" MEANS "FURNISH AND INSTALL", AS DEFINED ABOVE, COMPLETE IN-PLACE AND READY FOR INTENDED USE. THE WORD "PROVIDE" THUS REQUIRES INCLUSION OF ALL ACCESSORIES, ATTACHMENTS, SUPPORTS AND SERVICES NECESSARY TO COMPLY WITH THIS DEFINITION, WHETHER OR NOT SPECIFICALLY IDENTIFIED OR DESCRIBED IN THE CONSTRUCTION DOCUMENTS.

ENVIRONMENTAL ASSESSMENT:

- REMOVAL OF HAZARDOUS MATERIALS, IF IDENTIFIED BY ANY ENVIRONMENTAL ASSESSMENT PERFORMED BY AN ENVIRONMENTAL ENGINEER CONTRACTED BY THE OWNER, SHALL BE COMPLETED BY WAY OF A HAZARDOUS MATERIALS REMOVAL CONTRACT EXECUTED BY THE OWNER INDEPENDENT FROM AND PRIOR TO THE DATE OF COMMENCEMENT.

**2. PERMIT SUBMISSION, REVIEWS, APPROVALS & FEES**

PERMIT SUBMISSION BY CONTRACTOR:

- THE CONTRACTOR SHALL SUBMIT THE APPLICATION FOR THE BUILDING PERMIT SUBMISSION, AND SHALL INCLUDE ALL REQUIRED DESIGN AND ENGINEERING DRAWINGS AND OTHER REQUIRED DOCUMENTS.

- THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECT TO PROVIDE FOLLOW-UP COORDINATION WITH THE LOCAL JURISDICTION, AS REQUIRED, WITH RESPECT TO BUILDING-RELATED ISSUES THAT IMPACT THE APPROVAL AND RELEASE OF THE BUILDING PERMIT.

- THE COST OF ARCHITECT/ENGINEER SIGNED/SEALED CONSTRUCTION DRAWINGS AND OTHER REQUIRED DOCUMENTS, AND TRANSMITTAL TO THE CONTRACTOR WILL BE THE OWNER'S RESPONSIBILITY.

- TIME AND MATERIAL COSTS FOR THE CONTRACTOR'S DELIVERY TO AND PICKUP FROM THE LOCAL JURISDICTION, AS APPLICABLE, WILL BE THE CONTRACTOR'S RESPONSIBILITY.

BUILDING PERMIT FEES:

- ALL BUILDING PERMIT FEES SHALL BE THE CONTRACTOR'S RESPONSIBILITY, SHALL BE DUE AND PAYABLE TO THE LOCAL JURISDICTION ACCORDING TO THE LOCAL JURISDICTION'S REQUIREMENTS, AND SHALL BE INCLUDED BY THE CONTRACTOR IN THE BASE BID.

CONTRACTOR LICENSE OR LOCAL SUBCONTRACTOR PERMITS:

- IF THE CONTRACTOR OR ANY SUBCONTRACTOR IS REQUIRED BY THE STATE OR LOCAL JURISDICTION TO OBTAIN AN APPLICABLE CONTRACTOR LICENSE, OR ANY OTHER LOCAL SUBCONTRACTOR PERMITS, SO AS TO PERMIT LEGAL WORK TO BE PROVIDED FOR THIS PROJECT, THEN THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCURRED TO SATISFY THESE JURISDICTIONAL REQUIREMENTS.

- THE COST OF ANY AND ALL CONTRACTOR LICENSE(S), SUBCONTRACTOR TRADE PERMITS, SERVICES AND INSPECTIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE INCLUDED IN THE BASE BID.

- THE PRINTING COST FOR DRAWINGS AND OTHER CONSTRUCTION DOCUMENTS REQUIRED FOR ANY CONTRACTOR LICENSE(S) OR SUBCONTRACTOR TRADE PERMITS SHALL BE THE CONTRACTOR'S RESPONSIBILITY, AND SHALL BE INCLUDED IN THE BASE BID.

FINAL CERTIFICATE OF OCCUPANCY:

- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE LOCAL JURISDICTION FINAL CERTIFICATE OF OCCUPANCY, OR ITS EQUIVALENT PERMIT, SO TO ALLOW THE OWNER TO COMMENCE FULL OPERATIONS, ON OR BEFORE THE DATE OF FINAL COMPLETION.

**3. SITE UTILITIES**

- APPLICATIONS FOR SITE UTILITY SERVICE TO THE TENANT SPACE SHALL BE COORDINATED BY THE CONTRACTOR WITH THE OWNER. LOCAL SITE UTILITY PROVIDERS' POINTS OF CONTACT MAY BE INCLUDED IN THE DRAWINGS FOR REFERENCE PURPOSES.

- THE CONTRACTOR SHALL COORDINATE THE ISSUANCE OF ALL LETTERS OF REQUEST FOR SITE UTILITY SERVICES WITH THE OWNER WITHOUT DELAY FOLLOWING THE AWARD OF THE CONTRACT FOR GENERAL CONSTRUCTION, SO AS TO CONFIRM SITE UTILITY SERVICES AND SCHEDULE CONNECTIONS AT THE EARLIEST POSSIBLE CALENDAR DATE.

- ALL COORDINATION OF PROVISIONS FOR THE SITE UTILITY SERVICES BY THE CONTRACTOR SHALL BE INCLUDED IN THE BASE BID. FEES DUE AND PAYABLE TO THE LOCAL UTILITY SO AS TO FACILITATE PROVISIONS FOR SITE UTILITY SERVICES WILL BE EITHER THE OWNERS RESPONSIBILITY, OR THE OWNER MAY COORDINATE WITH THE CONTRACTOR FOR PAYMENT BY THE CONTRACTOR, WITH REIMBURSEMENT BY THE OWNER TO THE CONTRACTOR AT DIRECT COST.

**WALL LEGEND**

- |               |  |
|---------------|--|
| EXISTING WALL |  |
| NEW WALL      |  |



CHEROKEE NATION  
STILWELL, OK

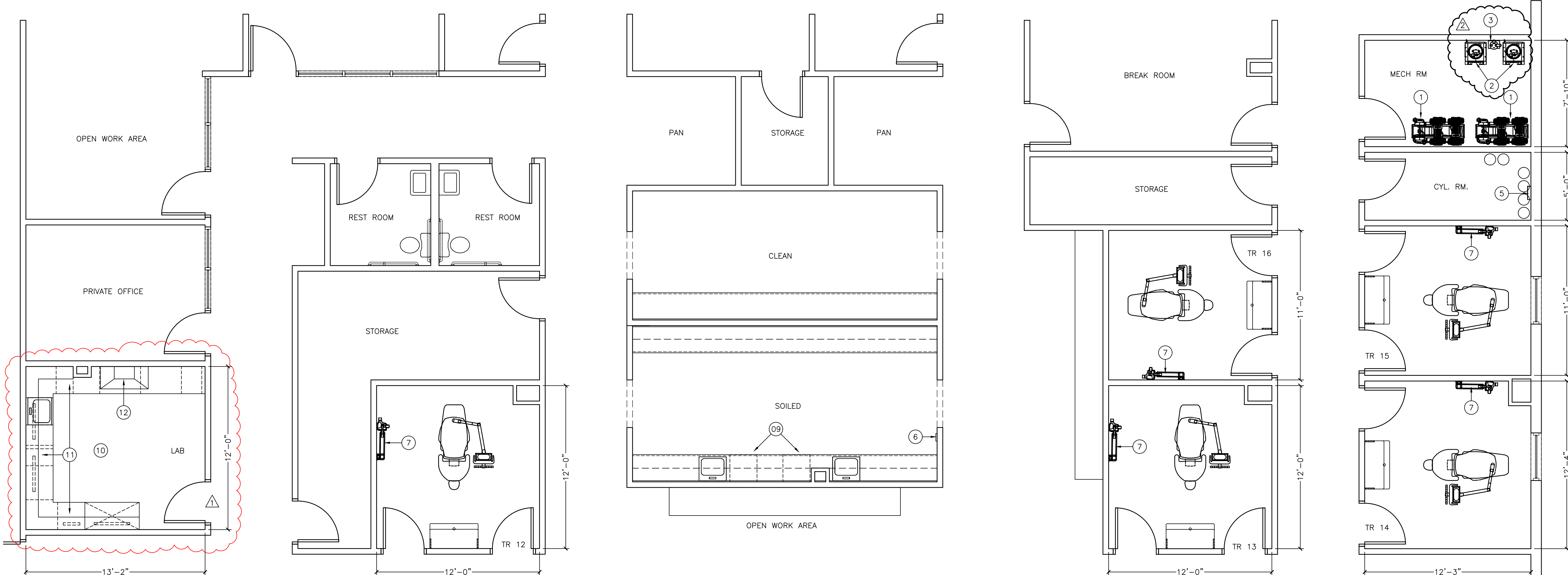
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PROJECT #:	MS19053-MEC
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CHECKED BY:	DPC

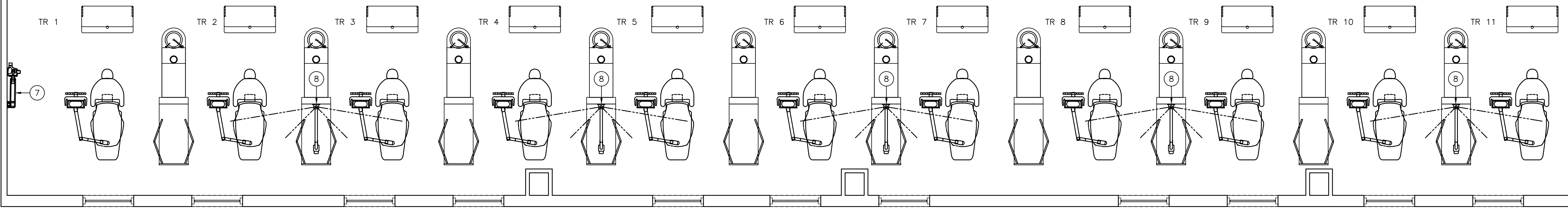
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COVER SHEET

SHEET:  
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ALL PLANS, DRAWINGS, SPECIFICATIONS, SCHEDULES AND OTHER INSTRUMENTS OF SERVICE, INCLUDING ELECTRONIC MEDIA, COLLECTIVELY, THE "INSTRUMENTS OF SERVICE". BENCO RESERVES THE RIGHT TO MODIFY OR AMEND ANY INSTRUMENT OF SERVICE WITHOUT NOTICE. BENCO WILL NOT BE RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR INADEQUACIES IN ANY INSTRUMENT OF SERVICE, INCLUDING BUT NOT LIMITED TO, DESIGN, CONSTRUCTION AND ANY OTHER DEFECTS. BENCO SHALL NOT BE RESPONSIBLE FOR ANY DEFECTS OR INADEQUACIES IN ANY INSTRUMENT OF SERVICE, INCLUDING BUT NOT LIMITED TO, DESIGN, CONSTRUCTION AND ANY OTHER DEFECTS. BENCO SHALL NOT BE RESPONSIBLE FOR ANY DEFECTS OR INADEQUACIES IN ANY INSTRUMENT OF SERVICE, INCLUDING BUT NOT LIMITED TO, DESIGN, CONSTRUCTION AND ANY OTHER DEFECTS.



DENTAL CHAIRS AND CABINETS ARE APPROX. LOCATIONS. SEE ADEC PLAN FOR EXACT PLACEMENT.



**1 DENTAL EQUIPMENT PLAN**  
SCALE: 1/4" = 1'-0"

DENTAL EQUIPMENT LEGEND			
ITEM	DESCRIPTION	STATUS	LOCATION
1	(2) A/T AIRSTAR 100 AIR COMPRESSORS	NEW	MECH. ROOM
2	(2) MIDMARK G7 VACUUM PUMPS	NEW	MECH. ROOM
3	RAMVAC HG5 AMALGAM SEPARATOR	NEW	MECH. ROOM
4	REMOTE CONTROL PANEL FOR MECHANICAL EQUIPMENT	NEW	VERIFY LOCATION
5	ACCUTRON DIGI-FLO NITROUS MANIFOLD	NEW	CYL. RM.
6	ACCUTRON NITROUS WALL ALARM	NEW	STERILE (VERIFY LOCATION)
7	INSTRUMENTARIUM FOCUS INTRAORAL X-RAY w/ 85" REACH	NEW	TR'S 1, 12, 13, 14, 15 & 16
8	INSTRUMENTARIUM FOCUS INTRAORAL X-RAY w/ 75" REACH	NEW	CENTER ISLANDS BETWEEN TR'S
9	MISCELLANEOUS STERILE EQUIPMENT: ULTRASONIC CLEANER, AUTOCLAVE & (2) MIELE WASHERS	NEW	STERILE (VERIFY LOCATIONS)
10	MISCELLANEOUS LAB EQUIPMENT: DISPOSABLE PLASTER TRAP, MODEL TRIMMER, & LATHE	NEW	LAB (VERIFY LOCATIONS)
11	MIDMARK MILLWORK	NEW	LAB
12	HANDLER FUME HOOD	NEW	LAB
-	REMAINING MISCELLANEOUS CABINETRY & MILLWORK BY OTHERS	NEW	AS SHOWN ON EQUIPMENT PLAN

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**CHEROKEE NATION**  
STILWELL, OK

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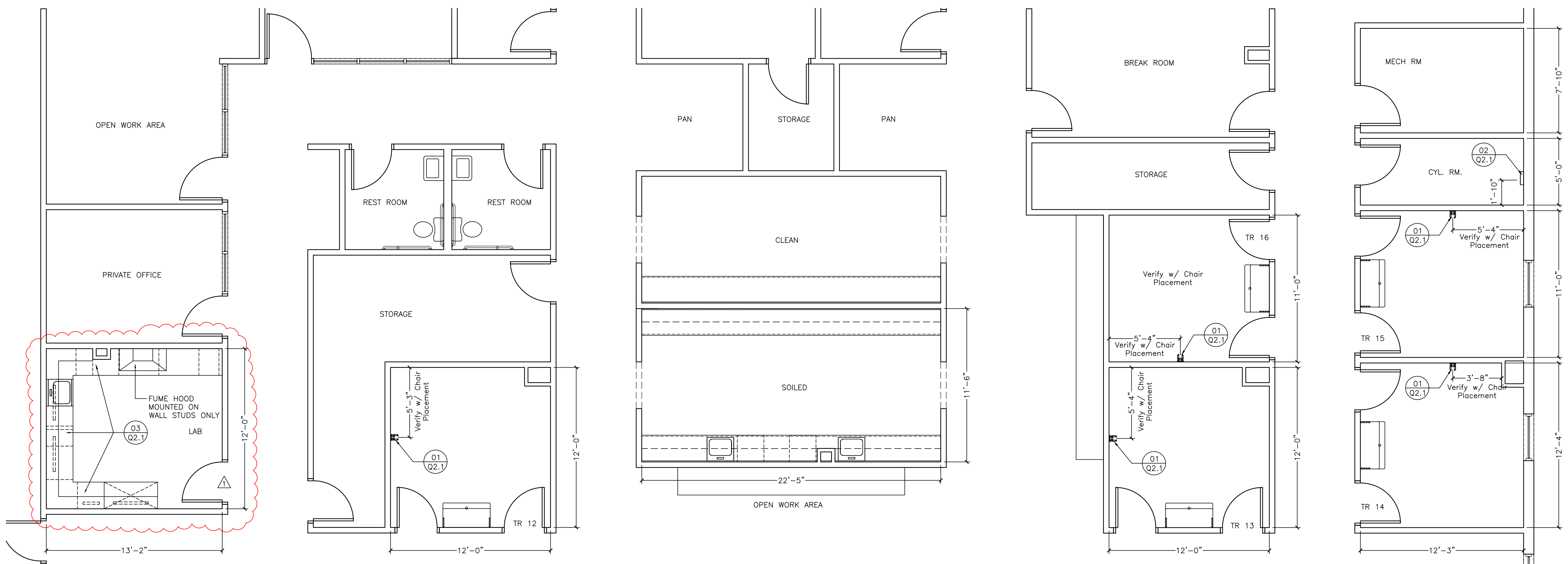
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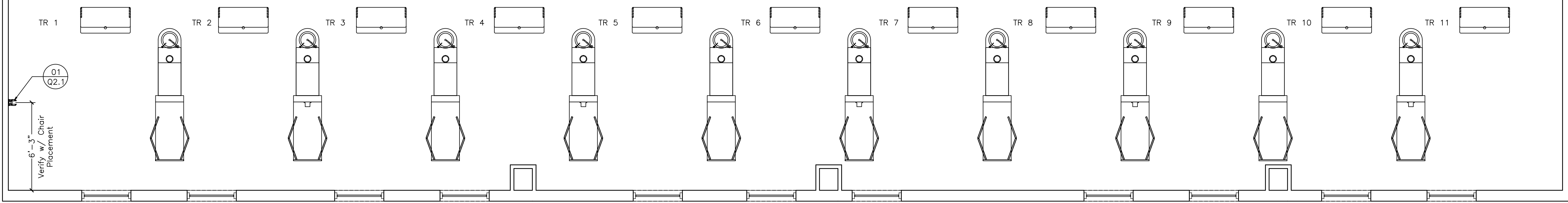
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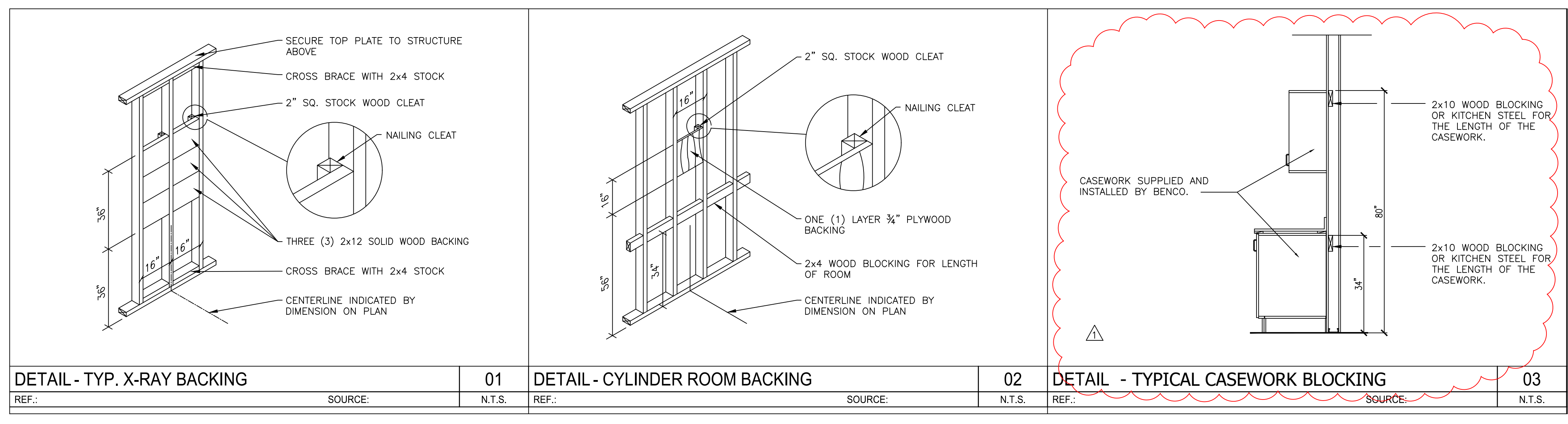
ALL PLANS, SPECIFICATIONS, SCHEDULES AND OTHER INSTRUMENTS OF SERVICE SHALL BE THE PROPERTY OF Benco. Benco reserves the right to modify or amend any instrument of service without notice. Benco does not warrant or represent that the instruments of service have been prepared or checked for compliance with any zoning or local building codes. Benco design professionals and/or building officials are responsible for verifying the accuracy of any plan.



DENTAL CHAIRS AND CABINETS ARE APPROX. LOCATIONS. SEE ADEC PLAN FOR EXACT PLACEMENT.



**1 DENTAL CARPENTRY PLAN**  
SCALE: 1/4" = 1'-0"



- CARPENTRY NOTES**
- THE DRAWING IS DIMENSIONED FROM THE FACE OF A FINISH WALL TO THE FACE OF A FINISH WALL, UNLESS OTHERWISE NOTED. THE DENTAL EQUIPMENT WILL BE DIMENSIONED FROM THE FACE OF A FINISH WALL TO THE CENTERLINE OF THE EQUIPMENT, UNLESS OTHERWISE NOTED.
  - PARTITIONS SHOWN ARE 5" NOMINAL.
  - ALL BLOCKING WILL BE INSTALLED FLUSH WITH THE FACE OF THE STUDS.
  - THE GENERAL CONTRACTOR WILL BE RESPONSIBLE TO BRACE AND PROTECT ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGES, COLLAPSE, DISTORTIONS, AND OFF-ALIGNMENT ACCORDING TO APPLICABLE CODES, STANDARDS, AND GOOD PRACTICE.
  - THE CARPENTER WILL BE RESPONSIBLE FOR BOTH THE STRUCTURAL INTEGRITY AND THE STABILITY OF ALL BLOCKING AND WALL SUPPORT.
  - THE CARPENTER WILL COMPLY WITH ALL Benco INSPECTIONS, AS NOTED IN THE GENERAL NOTES IN THE FIRST SECTION OF THESE DOCUMENTS.
  - VERIFY LOCAL & STATE X-RAY SHIELDING REQUIREMENTS WITH ARCHITECT, CONTRACTOR OR CLIENT.

**CHEROKEE NATION**  
STILWELL, OK

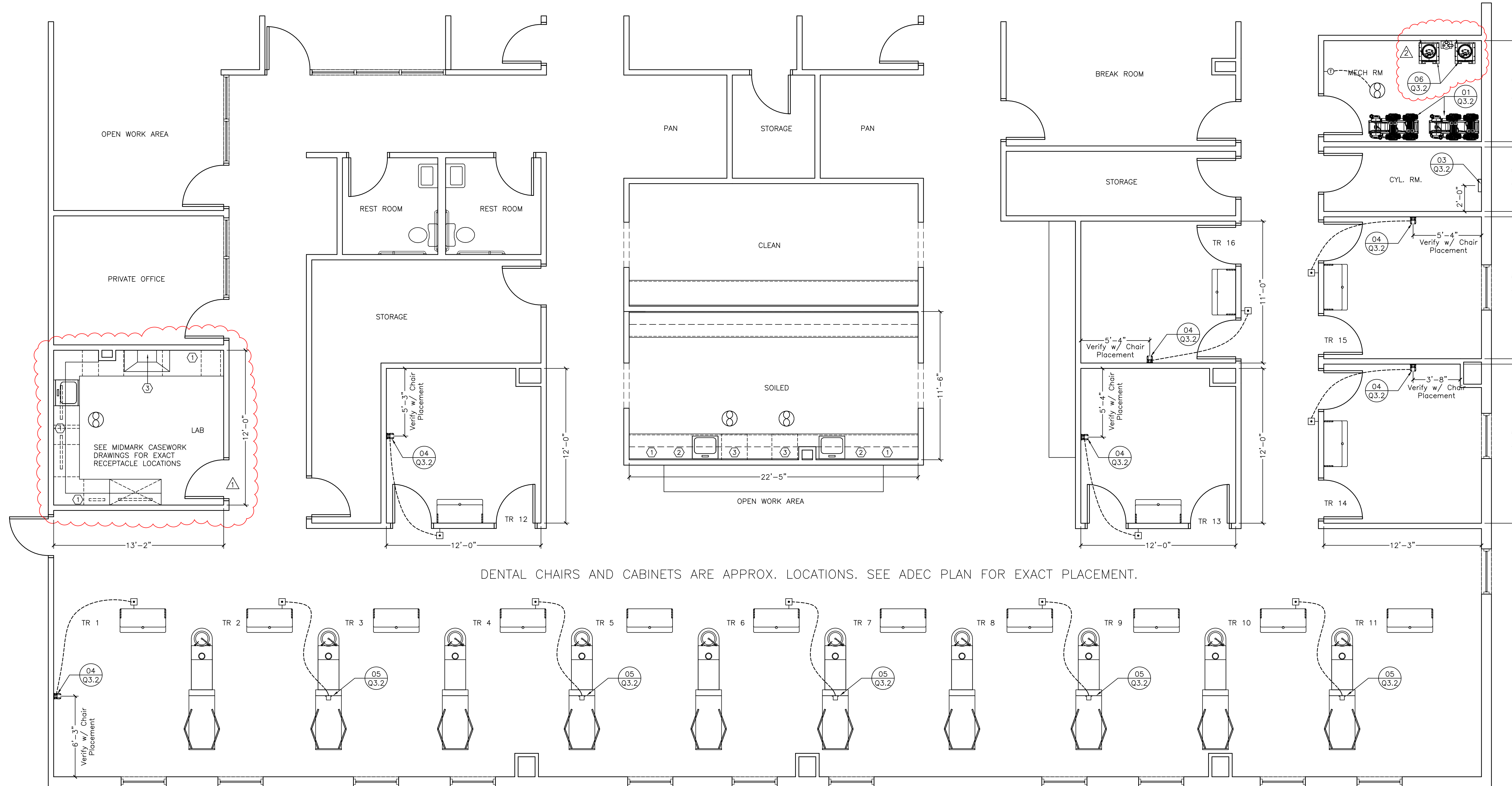
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MEC	DPC

DRAWING TITLE:
DENTAL CARPENTRY PLAN
SHEET:



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**1 DENTAL ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"

**ELECTRICAL NOTES**

- ALL EQUIPMENT WILL BE SINGLE PHASE, UNLESS OTHERWISE NOTED.
- ALL WIRING WILL BE CONCEALED WITHIN THE WALLS AND/OR FLOOR, UNLESS OTHERWISE NOTED.
- THE ELECTRICIAN WILL TAG ALL WIRES AT TERMINATION POINTS.
- THE ELECTRICIAN WILL REMOVE ALL EXISTING RECEPTACLES AND SWITCHES IN THE AREA OF WORK. THE ELECTRICIAN WILL EITHER INSTALL A BLANK PLATE OVER RECEPTACLE OR SWITCH BOX OR REMOVE BOX ENTIRELY. THE ELECTRICIAN WILL TERMINATE WIRING AND CONDUIT IN A MANNER IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
- THE ELECTRICIAN WILL INSTALL COMPLETE AND MAKE FINAL HOOK-UP TO THE FOLLOWING DENTAL EQUIPMENT, SUPPLIED BY EITHER THE DOCTOR OR Benco DENTAL, INCLUDING, BUT NOT LIMITED TO:
  - AIR COMPRESSOR
  - VACUUM PUMP
  - WATER CONTROL VALVE
  - CONTROL PANEL
- THE ELECTRICIAN WILL BE ONSITE ON THE DAY(S) OF INSTALLATION TO WORK WITH THE Benco REPRESENTATIVE ON FINAL HOOK-UP. THE ELECTRICIAN WILL SUPPLY AND INSTALL ANY AND ALL MATERIALS INDICATED IN THE ELECTRICAL DETAILS SHOWN AND MANUFACTURER'S INSTALLATION INSTRUCTION SHEETS.
- IN THE EVENT OF ANY EQUIPMENT BEING RELOCATED TO ANOTHER LOCATION, ANY AND ALL CIRCUITS MUST BE TERMINATED BY THE ELECTRICIAN IN ACCORDANCE WITH LOCAL CODE. VERIFY RESPONSIBILITY WITH THE OWNER.
- THE ELECTRICIAN WILL SEAL ALL PENETRATIONS THROUGH THE FLOOR WITH A FIRESTOP OR EQUIVALENT WATERPROOFING.
- THE ELECTRICIAN WILL COMPLY WITH ALL Benco INSPECTIONS, AS NOTED IN THE GENERAL NOTES ON THE FIRST PAGE OF THESE DOCUMENTS.
- ALL 120 VOLT, 20 AMP OUTLETS INSTALLED WITHIN 6 FEET OF A SINK AND THOSE LOCATED OUTDOORS SHALL HAVE GFCI PROTECTION.
- ALL 120 VOLT, 20 AMP DENTAL EQUIPMENT OUTLETS INSTALLED WITHIN 6 FEET OF A WATER SOURCE SHALL HAVE GFCI PROTECTION.

**NOTES LEGEND**

- RECEPTACLES ABOVE &/OR BELOW COUNTERTOPS (VERIFY QUANTITY & LOCATION WITH Benco REP AT TIME OF LAYOUT)
- ULTRASONIC CLEANER & AUTOCLAVE RECEPTACLE - 110V, 20 AMP CIRCUIT (VERIFY LOCATION W/Benco REP AT TIME OF LAYOUT)
- MIELE INSTRUMENT WASHER - PROVIDE 230V 30AMP DEDICATED CIRCUIT.
- HANDLER 236 FUME HOOD - PROVIDE 115V 15A POWER SUPPLY

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
⊕	THERMOSTATIC ON/OFF SWITCH
---	WIRING, CONCEALED IN WALL OR CEILING
⊗	EXHAUST FAN MOUNTED IN CEILING (VERIFY CFM REQUIREMENTS WITH ARCHITECT)
⊞	EXPOSURE BUTTON

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**DENTAL ELECTRICAL PLAN**

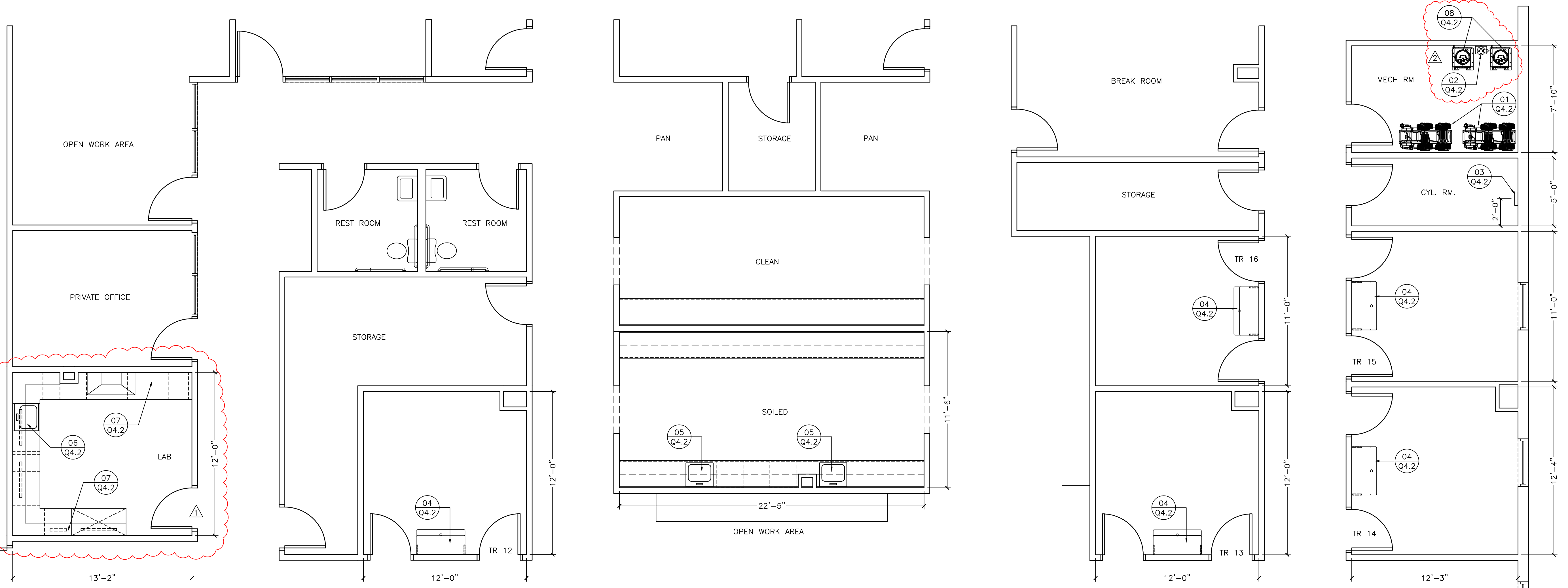
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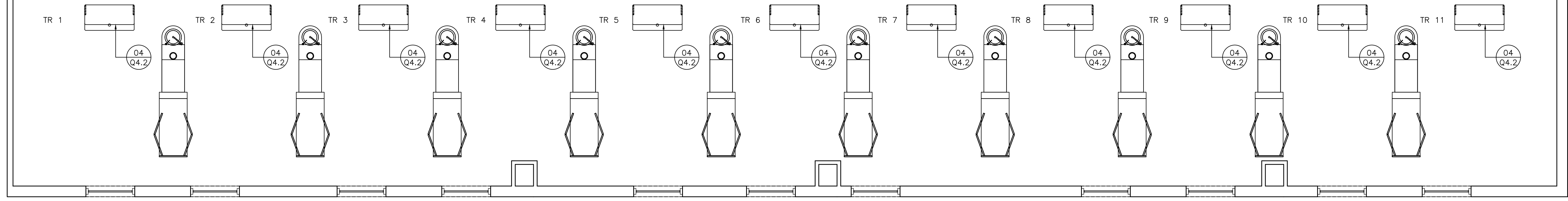




ALL PLUMBING, MECHANICAL, ELECTRICAL, AND OTHER INSTRUMENTS OF SERVICE SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTRUMENTS OF SERVICE FOR ANY SERVICES, INCLUDING BUT NOT LIMITED TO, BRIDING, CONSTRUCTION AND ANY OTHER SERVICE, AS SPECIALLY PROVIDED. BENCO DESIGN RESERVES THE RIGHT TO MAKE ANY CHANGES TO ANY INSTRUMENTS OF SERVICE WITHOUT NOTICE. BENCO DESIGN SHALL BE RESPONSIBLE FOR ANY AND ALL CHANGES TO ANY INSTRUMENTS OF SERVICE. BENCO DESIGN SHALL BE RESPONSIBLE FOR ANY AND ALL CHANGES TO ANY INSTRUMENTS OF SERVICE. BENCO DESIGN SHALL BE RESPONSIBLE FOR ANY AND ALL CHANGES TO ANY INSTRUMENTS OF SERVICE.



DENTAL CHAIRS AND CABINETS ARE APPROX. LOCATIONS. SEE ADEC PLAN FOR EXACT PLACEMENT.



**1 DENTAL PLUMBING PLAN**  
SCALE: 1/4" = 1'-0"

**MEDICAL GAS NOTES (IF APPLICABLE)**

- ENGINEER AND CONTRACTOR TO FOLLOW ALL APPLICABLE DESIGN AND INSTALLATION PROCEDURES AS LISTED UNDER NFPA #99C LEVEL 3 (MEDICAL GASES).
- ALL MEDICAL GAS AND VACUUM PIPING LOCATED UNDER SLAB (AS PER NFPA 2012, 2015 & 2018, WITHIN SLAB IS NOT ALLOWED) WITHIN BUILDINGS SHALL BE:
  - a. ALL UNDER SLAB PIPING IS ALLOW AND DOES NOT REQUIRE CONDUIT, EXCEPT WHERE ANY AND ALL PIPING SHALL PENETRATE THE SLAB. (JOINTS ARE ALLOWED UNDER SLAB)
- FOLLOW NFPA 2012, 5.3.6. MED GAS PIPING & BRAZING BY ASSE 6010 MED GAS PLUMBER FOR INSTALLATIONS & TESTING
- MEDICAL GAS CLOSETS NEED TO FOLLOW:
  - a. NATURAL VENTILATION, NFPA 2012, 9.9, 2012, 9.3.6.5.2
  - b. MECHANICAL VENTILATION, NFPA 2012, 9.3.6.5.3
  - c. CONSTRUCTION TO HAVE FIRE RATED WALLS, FLOORING, CEILING, DOOR & DOOR FRAME. NFPA 2012, 9.9.11.3
- WHEN (4) OR MORE TREATMENT ROOMS ARE EQUIPPED WITH MEDICAL GAS, THE DENTAL SUITE MUST BE EQUIPPED WITH A SPRINKLER SYSTEM. (THIS ONLY APPLIES TO ANESTHETIC LOCATIONS, AND DOES NOT APPLY TO N2O/O2 ANALGESIA/CONSCIOUS SEDATION.)

**PLUMBING NOTES**

- THE PLUMBER WILL SUPPLY AND INSTALL A WATER PRESSURE REGULATOR ON INCOMING WATER SUPPLY. THE PLUMBER WILL SET THE REGULATOR NOT TO EXCEED 65 PSI.
- THE PLUMBER WILL INSTALL THE WATER FILTER (AND THE WATER SOFTENER, AS NEEDED) ON THE COLD WATER MAIN ENTERING THE DENTAL SUITE. THE WATER FILTER WILL BE SUPPLIED BY EITHER BENCO DENTAL OR THE DOCTOR.
- THE PLUMBER WILL SUPPLY AND INSTALL SEPARATE MANUAL SHUT-OFF VALVES ON ALL SINKS, DENTAL UNITS, AND OUTLETS REQUIRING WATER AND/OR AIR.
- ALL SINKS AND FAUCETS WILL BE CONNECTED BY THE PLUMBER.
- ALL PIPES WILL BE CONCEALED WITHIN THE WALLS AND/OR THE FLOOR, UNLESS OTHERWISE NOTED ON THE BENCO DRAWINGS.
- THE PLUMBER WILL SEAL ALL PENETRATIONS THROUGH THE FLOOR WITH A FIRESTOP OR EQUIVALENT WATERPROOFING.
- ALL PIPES WILL BE FLUSHED CLEAR OF ALL DEBRIS BY THE PLUMBER.
- THE PLUMBER WILL BE ONSITE ON THE DAY(S) OF INSTALLATION TO WORK WITH THE BENCO REPRESENTATIVE ON THE FINAL HOOK-UP. THE PLUMBER WILL SUPPLY AND INSTALL ANY AND ALL MATERIALS INDICATED IN THE PLUMBING DETAILS SHOWN AND THE MANUFACTURER'S INSTALLATION INSTRUCTION SHEETS.
- THE PLUMBER WILL PROVIDE AND INSTALL ALL WATER SAFETY DEVICES (i.e. CHECK VALVES, BACKFLOW PREVENTERS, ETC.) IN ACCORDANCE WITH LOCAL CODE.
- THE PLUMBER WILL INSTALL COMPLETE AND MAKE FINAL HOOK-UP TO THE FOLLOWING DENTAL EQUIPMENT, SUPPLIED BY THE DOCTOR AND/OR BENCO DENTAL, INCLUDING, BUT NOT LIMITED TO:
  - AIR COMPRESSOR
  - VACUUM PUMP
  - AIR/WATER SEPARATORS
  - WATER CONTROL VALVE AND FILTER ASSEMBLY
- AN ELECTRIC MASTER WATER CONTROL VALVE AND FILTER ASSEMBLY IS REQUIRED FOR ANY/ALL COLD WATER LINES FEEDING ALL DENTAL EQUIPMENT. THIS WATER CONTROL VALVE AND FILTER ASSEMBLY IS REQUIRED WHETHER SUPPLIED BY BENCO, THE DOCTOR, OR THE PLUMBER. THE PLUMBER IS TO VERIFY THE EXACT LOCATION OF THE WATER CONTROL VALVE AND FILTER ASSEMBLY WITH THE DOCTOR/OWNER, AND A BENCO REP AT THE TIME OF LAYOUT AND PRIOR TO EQUIPMENT SELECTION.
- THE PLUMBER WILL COMPLY WITH ALL BENCO INSPECTIONS, AS NOTED IN THE GENERAL NOTES ON THE FIRST PAGE OF THESE DOCUMENTS.
- GENERAL DENTAL PLUMBING LINES SHOWN ARE FOR GRAPHICALLY DISPLAYING ORIGINATION AND TERMINATION POINTS. FIELD CONDITIONS MAY ALTER PLUMBING LINE LAYOUT, PER PLUMBERS DISCRETION. THE FINAL LAYOUT OF THE PLUMBING LINES IS THE RESPONSIBILITY OF THE PLUMBER.
- THE APPLICATION OF DRIVE GAS (NFPA, 2012, 99.5.3.7, AS THIS IS NOT CONSIDERED NFPA "AIR" ) AS NOTED ON THIS PLAN IS NOT USED FOR LIFE-SUPPORT PURPOSES SUCH AS RESPIRATORS, IPPB MACHINES, ANALGESIA, ANESTHESIA, AND SO FORTH.
- NFPA, 2012, 99.5.3.8 VACUUM PIPING
- NFPA, 2012, 99.5.3.8 SCAVENGING PIPING

NFPA LEGEND		
SYMBOL	NFPA 2012/2015	NFPA 2018
O=OXYGEN	99.5.3.6	99.15.4.4.2
N=NITROUS OXIDE	99.5.3.6	99.15.4.4.2
S=SCAVENGING	99.5.3.8	99.15.4.4.4
V=VACUUM	99.5.3.8	99.15.4.4.4
D=DRIVE GAS/ DENTAL AIR	99.5.3.6	99.15.4.3.3.2 99.15.4.4.3
W=W.A.G.D.	99.5.3.8	99.15.3.2.1.5

**ALL SINKS BY OTHERS**

NFPA REFERENCES FOR N2O/O2 (NON-ANESTHESIA)			
	2012	2015	2018
MED GAS PIPING, BRAZING, & TESTING	99.5.3.6	99.5.3.6	99.15.4
MED GAS STORAGE	99.11.3	99.11.3	99.11.3
MED GAS STORAGE VENTILATION NATURAL: MECHANICAL:	99.9.3.6.5.2 99.9.3.6.5.3	99.9.3.6.5.2 99.9.3.6.5.3	99.9.3.6.5.2 99.9.3.6.5.3
CATEGORY 3 DRIVE GAS	99.5.3.7	99.5.3.7	
DENTAL AIR			99.15.4.3.3.2
CATEGORY 3 VACUUM	99.5.3.8	99.5.3.8	
DENTAL VACUUM			99.15.4.3.3.3
CATEGORY 3 SCAVENGING	99.5.3.8	99.5.3.8	
NITROUS OXIDE SCAVENGING			99.15.4.3.3.4

ISSUED:	DATE:
ZONE STUDY	MM/DD/YY
DESIGN SCHEMATIC	10-29-19
DCD (FOR REVIEW)	11-18-19
DCD	11-18-19
DCD REVISION (LAB)	2-10-20
REVISION 2 (SUCTION PUMP)	2-20-20

PROJECT #:	DATE:
MS19053-MEC	
DRAWN BY / REVIEWED BY:	CHECKED BY:
MEC	DPC

DRAWING TITLE:  
**DENTAL PLUMBING PLAN**

SHEET:

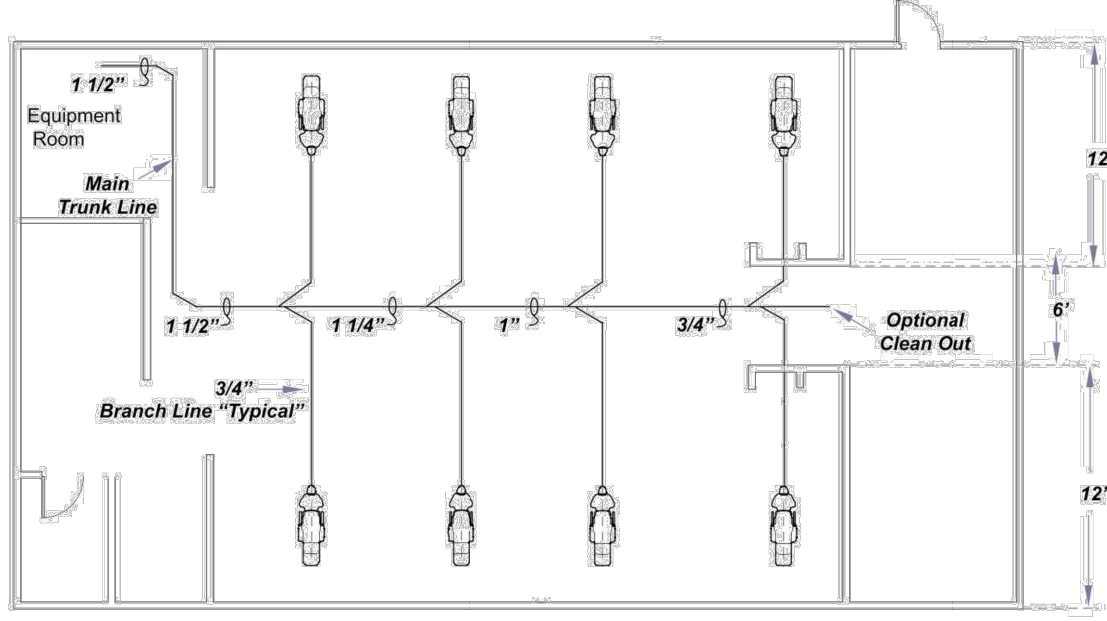
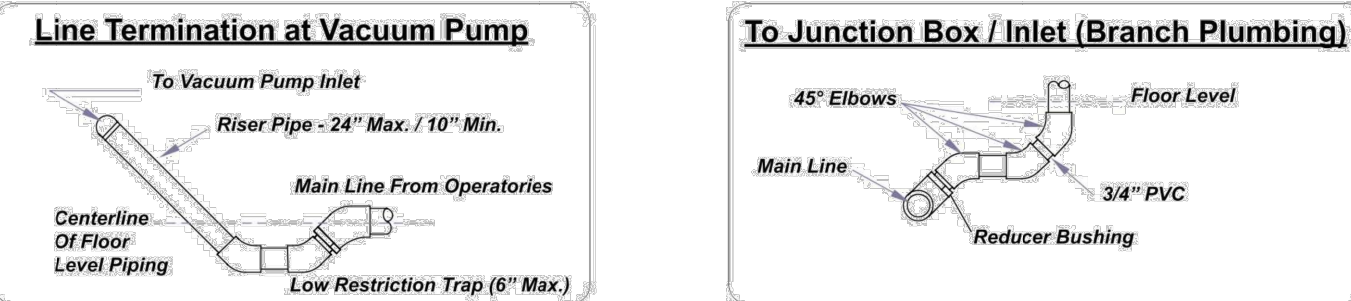






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**Below Floor - Sample Plumbing Layout**



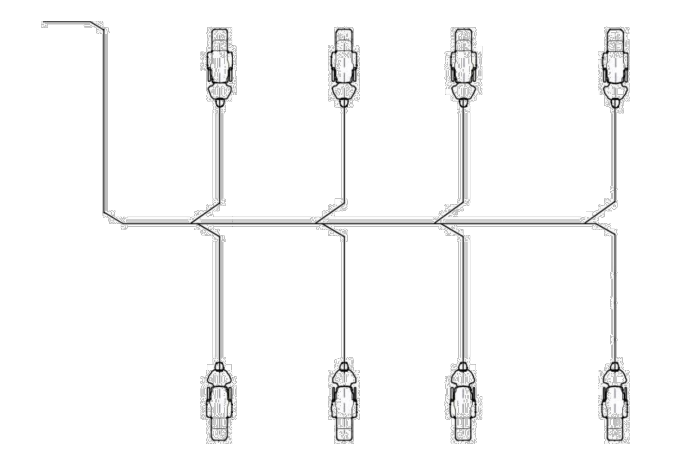
**Equipment Alert**  
When performing positive pressure leak tests to validate plumbing installation, verify vacuum systems are not connected to office piping.

**Vacuum Plumbing Layout Recommendations**

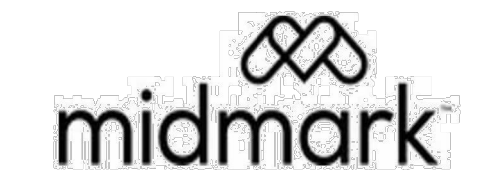
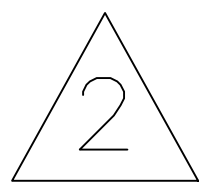
**Intended Use**  
To provide general dental vacuum plumbing layout recommendations per industry standards. Installation should be conducted by qualified dental plumbing professionals.

**Limitations of Recommendations**  
This Midmark document is designed to provide general vacuum plumbing recommendations commonly used in the dental industry. Midmark does not have expertise in building construction or detailed information about a specific building's construction. Therefore, Midmark is unable to provide recommendations for specific pipe and fitting locations.

**Equipment Alert**  
Vacuum systems must be installed per local plumbing and electrical codes.



**Applies to Models:**  
Power Max G7  
Power Vac (Std)  
Classic Series Wet Ring  
Power Max  
**Special Tools:**  
None  
Language of origin: English

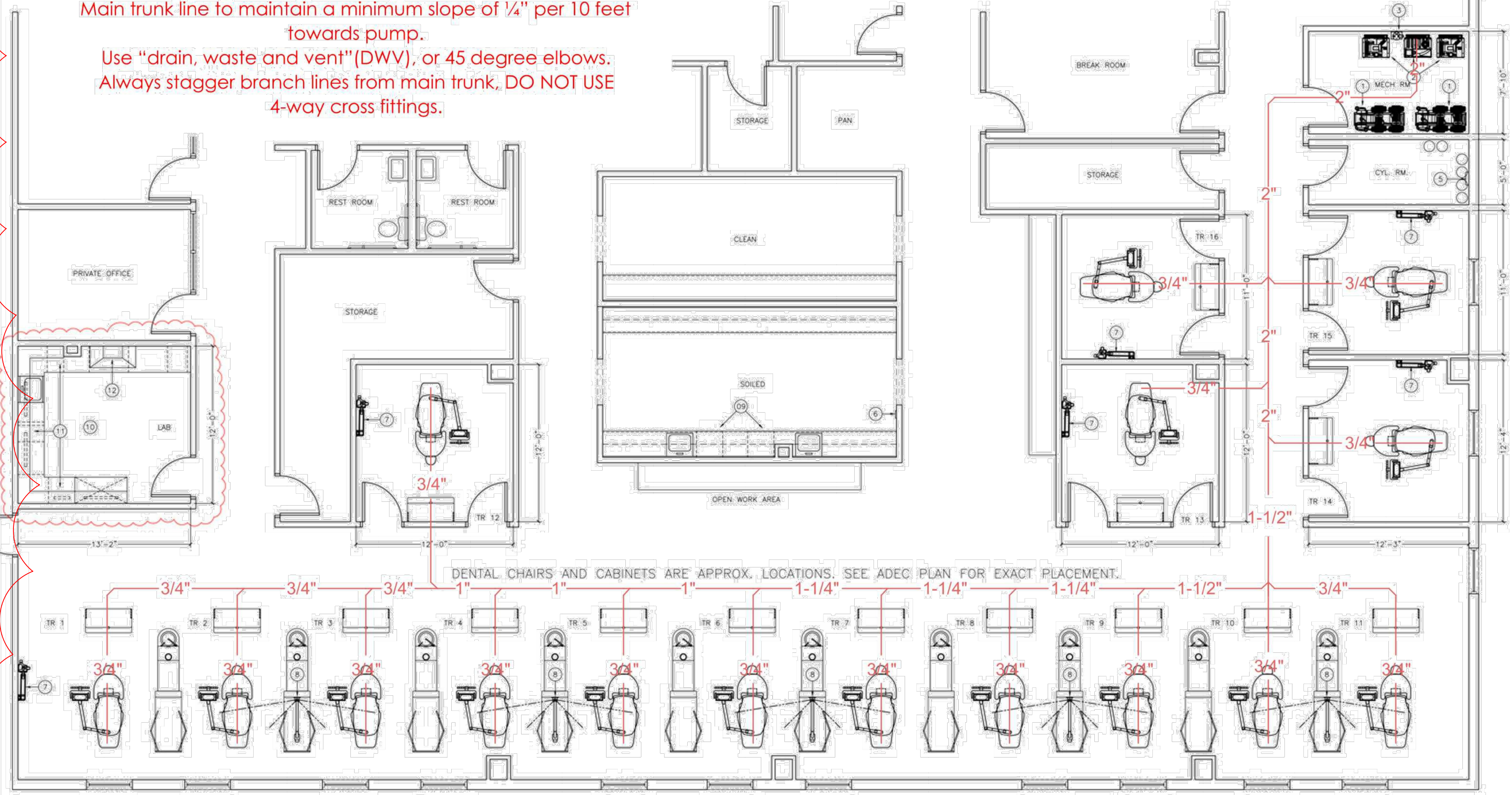


**Mechanical Drawing**

www.midmark.com  
design@midmark.com  
Phone: 1-800-MIDMARK

NO PLUMBING AT TOE OF CHAIR. SCHEMATIC IS FOR THE 12:00 CABINET.

Vacuum piping to be Type M Copper or Schedule 40 PVC.  
Main trunk line to maintain a minimum slope of 1/4" per 10 feet towards pump.  
Use "drain, waste and vent" (DWV), or 45 degree elbows.  
Always stagger branch lines from main trunk. DO NOT USE 4-way cross fittings.



DENTAL CHAIRS AND CABINETS ARE APPROX. LOCATIONS. SEE ADEC PLAN FOR EXACT PLACEMENT.

DENTAL EQUIPMENT PLAN  
SCALE: 1/4" = 1'-0"

**DENTAL EQUIPMENT LEGEND**

ITEM	DESCRIPTION	STATUS	LOCATION
1	(2) A/T ARSTAR 100 AIR COMPRESSORS	NEW	MECH. ROOM

**Below floor or at floor level plumbing**

- General Recommendations**
- Vacuum Piping to be Type M Copper or Schedule 40 PVC per product specs and local code.
  - Main trunk lines must have a minimum slope of 1/4 inch per 10 feet towards the pump.
  - Use "drain, waste and vent" (DWV), or 45 deg. elbows.
  - Down size the main trunk line after every few junction boxes or branches in order to maintain sufficient suction in operatories farthest from the vacuum.
  - Every 50 feet of main trunk line should be considered a user.
  - Attempts should be made to limit branch lines, orient main trunk lines below junction boxes or cabinets.
  - Some applications may require the main trunk line to be split, attempts should be made to equalize flow in both directions.
  - Always stagger branch lines from main trunk. do NOT use 4-way cross fittings.
  - Large applications may require multiple vacuums and dividing the operatories into zones in order to maintain sufficient suction.
- Power Vac ("G" / "STD") specific recommendations**
- 6 feet maximum height from main trunk line to the pump.
  - When using in an oral surgery environment we recommend using the surgical operator recovery room packages to collect everything and prevent build up/ops in the lines and vacuum tank.
- Wet-ring specific recommendations**
- 4 feet maximum height from main trunk line to the pump.

**Vacuum Plumbing Specifications**

Power Vac "G"	Intake (Suction) Line	Single Models G3, G5, G7	Twin Models G6, G10, G14	
	Type	PVC Sch 40 Pipe Recommended - for Main Trunk and Branch Lines		
	Line Size	Refer to: "Site Requirement Layout", located in this document.		
	Pump Termination	1 1/2"	2"	
Power Vac "Std"	Intake (Suction) Line	Single Models P3, P5, P7	Twin Models P6, P10, P14	
	Type	PVC Sch 40 Pipe Recommended - for Main Trunk and Branch Lines		
	Line Size	Refer to: "Site Requirement Layout", located in this document.		
	Pump Termination	1 1/2"	1 1/2"	
Wet-ring	Intake (Suction) Line	Single Models CV3, CV5	Twin Models CV6, CV10	
	Type	PVC Sch 40 Pipe Recommended - for Main Trunk and Branch Lines		
	Line Size	1 1/2" hose	1 1/2" hose	
	Pump Termination	3/4" NPT connection	1 1/4" NPT connection	
Power Max	Intake (Suction) Line	Model PM2	Model PM3	Model PM4
	Type	Type K-L Copper Tubing - Nickel-Drum cover compression fittings for vacuum lines.		
	Line Size	1"	1 1/4"	1 1/4"
	Operator Termination	5/8" OD copper		

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MS19053-MEC	
DRAWN BY / REVIEWED BY:	CHECKED BY:
MEC	DPC

DRAWING TITLE:  
DENTAL PLUMBING DETAILS

SHEET: