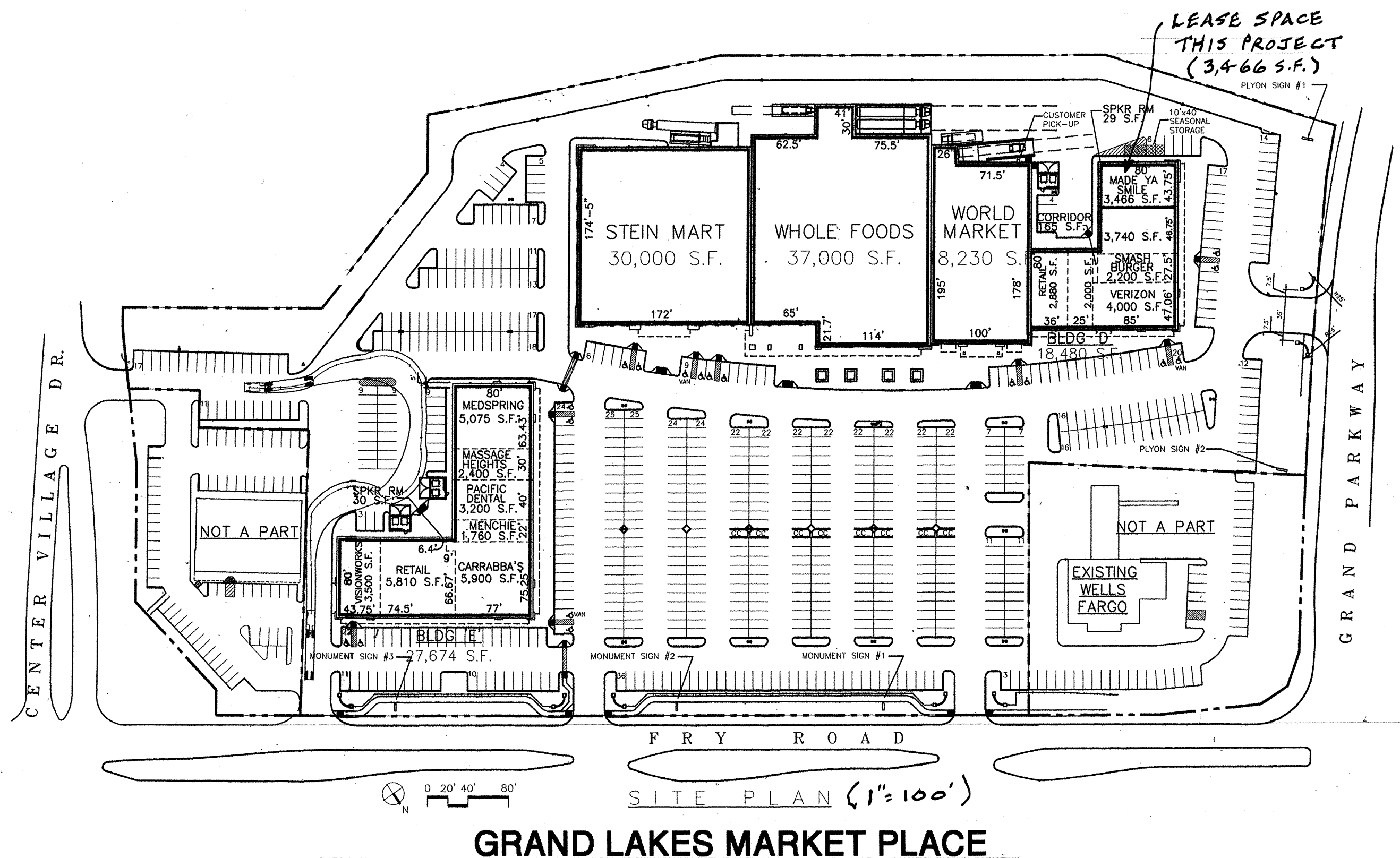










GRAND LAKES MARKET PLACE

TDLR Project No.: **EABPRJB3800553**

(Texas Accessibility Standards Architectural Barriers Project Number)

PROJECT NAME: Made Ya Smile
 BUILDING/FACILITY NAME: Grand Lakes Market Place
 LOCATION/ADDRESS: 6645 S. Fry Rd., #1000
 CITY: Katy
 STATE: TX
 ZIP: 77494
 COUNTY: Fort Bend

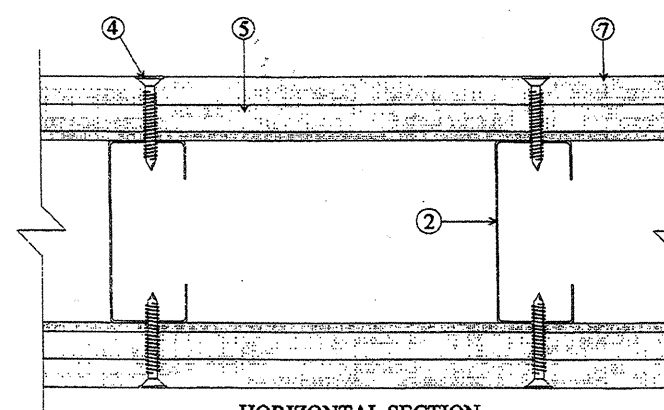
FOR COMPLIANCE WITH THE STATE OF TEXAS ELIMINATION OF ARCHITECTURAL BARRIERS ACT, THE CONSTRUCTION DOCUMENTS FOR THIS PROJECT WILL BE ISSUED FOR PLAN REVIEW TO:

David Hanshaw, RAS #235
 Texas Code Review
 32804 Hunt Road
 Brookshire, TX 77423
 PHONE: (281) 346-1430
 FAX: (281) 346-1403
 Email: mail@texascodereview.com

Contact David Hanshaw, RAS #235, (281) 346-1430 for the required TAS Inspection.

1-HOUR TENANT SEPARATION WALL

Design No. U495
 Nonbearing Wall Rating—1 or 2 Hr.
 (See Items 5 and 7)



HORIZONTAL SECTION

1. Floor and Ceiling Runners—(Not Shown)—Channel-shaped runners, 3-5/8 in. wide (min), 1-1/4 in. legs, formed from No. 25 MSG (min) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC, max.
2. Steel Studs—Channel-shaped 3-5/8 in. wide (min), 1-1/4 in. legs, 3/8 in. folded back returns, formed from No. 25 MSG (min) galv steel, spaced 24 in. OC max.
3. Batts and Blankets—(Optional, not shown)—Mineral wool or glass fiber batts partially or completely filling stud cavity. See Batts and Blankets (BZ12) category for names of Classified companies.
4. Screws—Type S self-tapping screws, 1-1/4 or 2 in. long, (1 Hr) and 2-1/2 in. long (2 Hr).
5. Building Units—For 1 Hr Rating—Nom 5/8 or 3/4 in. thick, 4 ft wide, faced gypsum wallboard panels with the faced side on the interior wall cavity. Panels attached to studs and floor and ceiling runners with screws spaced 8 in. OC along the edges of the panel and 12 in. OC in the field of the panel. Joints oriented vertically and staggered on opposite sides of the assembly.
6. Joint Tape and Compound—(not shown)—Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints.
7. Wallboard, Gypsum—For 2 Hr Rating—any Classified 5/8 in. thick (minimum), 4 ft wide, wallboard applied over exterior face of Building Unit (Item 5). Wallboard to be applied vertically with joints staggered 24 in. from Building Unit (Item 5) and attached to studs and floor and ceiling runners with screws spaced 8 in. OC.

See Wallboard, Gypsum (CKNX) Category for names of manufacturers.
 *Bearing the UL Classification Marking

General Notes & Code Analysis

1. This is a first-time interior build-out. (3466 sf). Total occupants = 35.
2. Existing Type II-B construction, steel frame.
3. Group B, Business Occupancy (Dental Office).
4. There is an existing fire sprinkler system. General contractor to furnish fire sprinkler and fire alarm shop drawings to County Fire Marshall prior to installation.
5. This project is outside of city limits in Fort bend County.



Design/Build Project
 1674 W. Sam Houston Pkwy. N.
 Houston, TX. 77043
 Corporate Office: 713.947.6548
 San Antonio: 210.800.6502
 Austin: 512.797.1429



MADE YA SMILE
 DR. KESNER, D.D.S.

DENTAL OFFICE - LEASE SPACE
 6645 S. FRY ROAD, #1000
 KATY, TEXAS 77494

BRYAN HORN * ARCHITECT

1

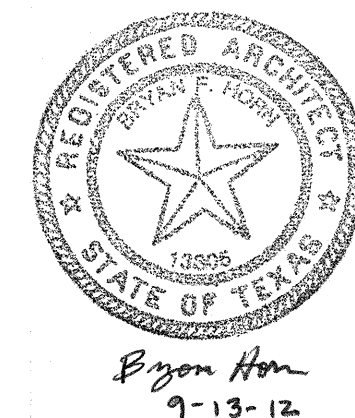
General Notes

1. Use 5/8" type "X" gypsum board at all walls.
2. Verify and install 2x fire retardant wood blocking as required for mounting of wall equipment and accessories.
3. Verify ANY equipment rough-ins and mounting requirements with supplier.
4. Public use areas shall comply with ADA and TAS (Americans With Disabilities Act and Texas Accessibility Standards), i.e., check-out, handicapped restrooms :
 - a) Clear door opening width shall be 2'8" (use 3'0" door)
 - b) Use commercial grade hardware with lever-type handle at 3'-0" A.F.F. (verify with existing)
 - c) Door opening force shall not exceed 5 pounds
 - d) Thresholds shall not exceed 1/2" in height
 - e) Door signage shall comply with ADA Section 4.30
 - f) Minimum door height shall be 6'8".
5. A readily visible, durable sign shall be posted on the egress side, on or adjacent to the door, stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters one inch (25 mm) high on a contrasting background at front door (per 2006 IBC Section 1008.1.8.3).
6. Glazing in hazardous locations shall comply with 2006 IBC Section 2406.
7. Return-air is ducted above ceiling.
8. Insulation in building shall have a flame spread not more than 25 and a smoke development rating not more than 450
9. Address identifying numbers must be posted on building prior to final inspection
10. General contractor shall obtain from landlord the tenant construction guidelines and these guidelines shall be strictly adhered to for all phases of construction.
11. Provide 36" wide portion of handicap accessible counter 36" A.F.F. (max) at cash/wrap or check-out counters.

Finish Schedule (Class-A Finishes, Typical)

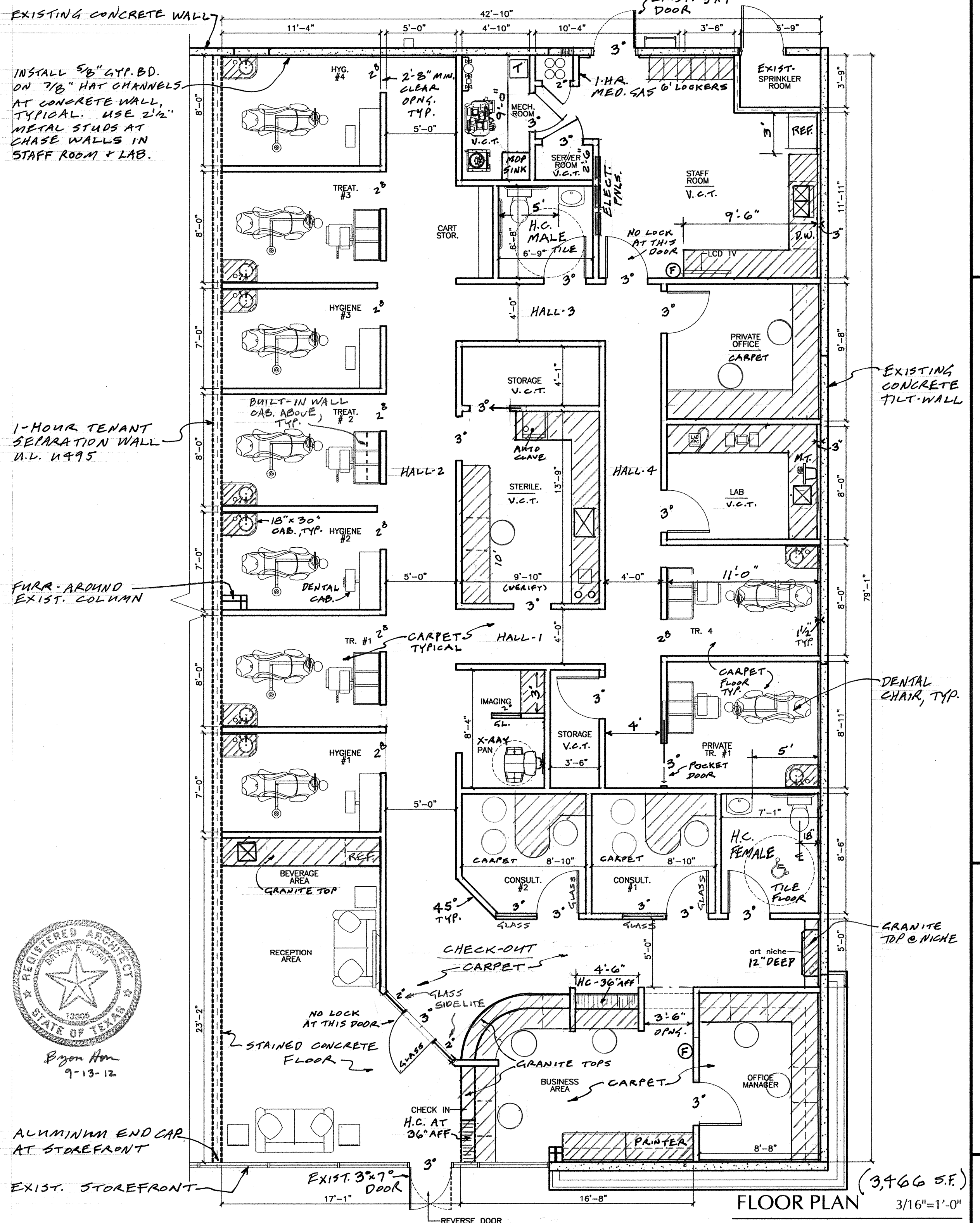
1. V.C.T. (vinyl composition tile) shall be 12" x 12" x 1/8" Armstrong Excelon. Prep and level existing floor.
2. Carpet shall be 28-ounce level loop, solution dyed, with 10-year warranty, typical.
3. Walls shall be painted with two coats of latex Sherwin Williams over wall primer.
4. Base shall be 4" Roppe rubber coved, typical, unless otherwise noted.
5. Acoustical ceiling shall be USG 2' x 2' Aurotone Natural Fissured II, 5/8", and Chicago Metallic snap-grid 211 system (Radar style with reveal edge).
6. Floor in Waiting Room shall be Stained concrete.
7. Base in restroom shall be a minimum 6"-high ceramic tile.
8. Install 4'-high ceramic tile wainscot on new restroom walls.
9. Install water resistant gypsum board on all wet walls.

(F) FIRE EXTINGUISHER - 5 lbs 3A 40 BC, MOUNT 42" ABOVE FLOOR TO HANDLE, ADD SIGN ABOVE PER CITY CODE WITH TEXAS FIRE MARSHALL TAG.



ALUMINUM END CAP AT STOREFRONT

EXIST. STOREFRONT



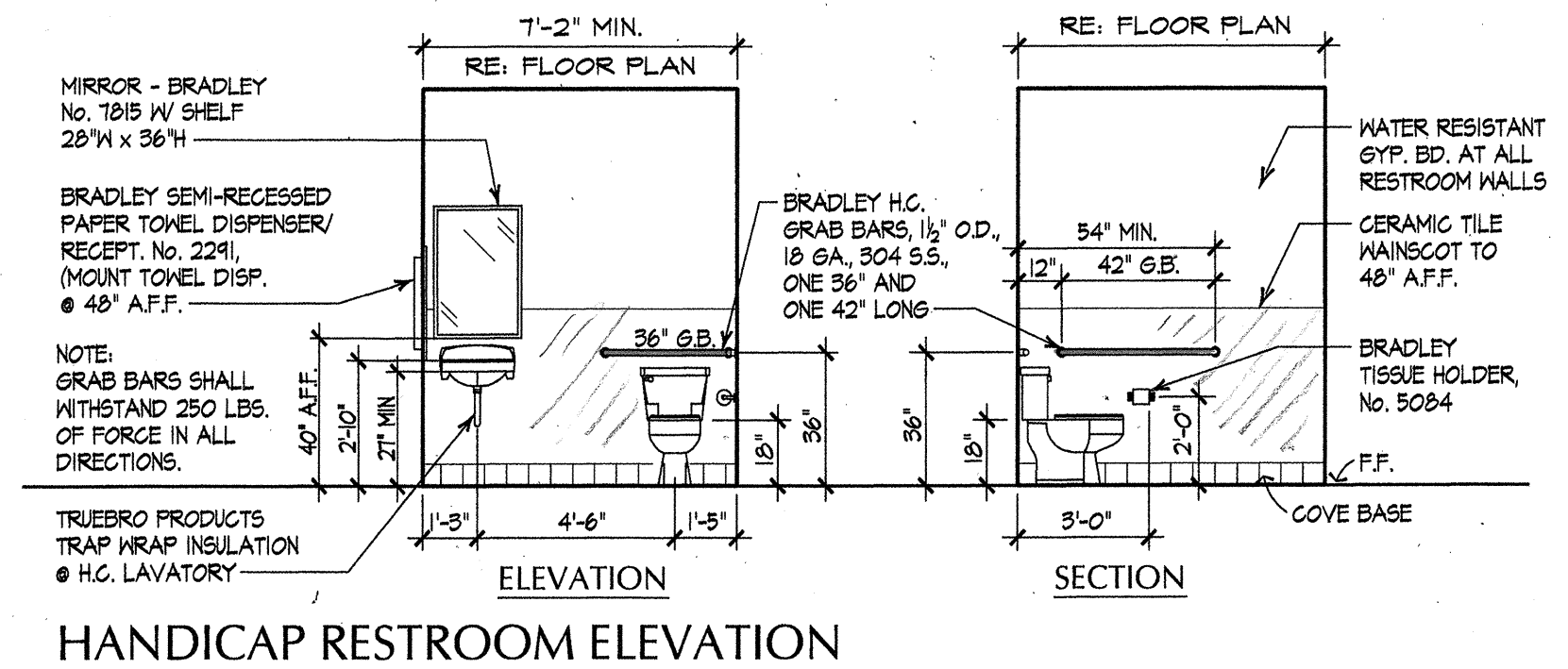
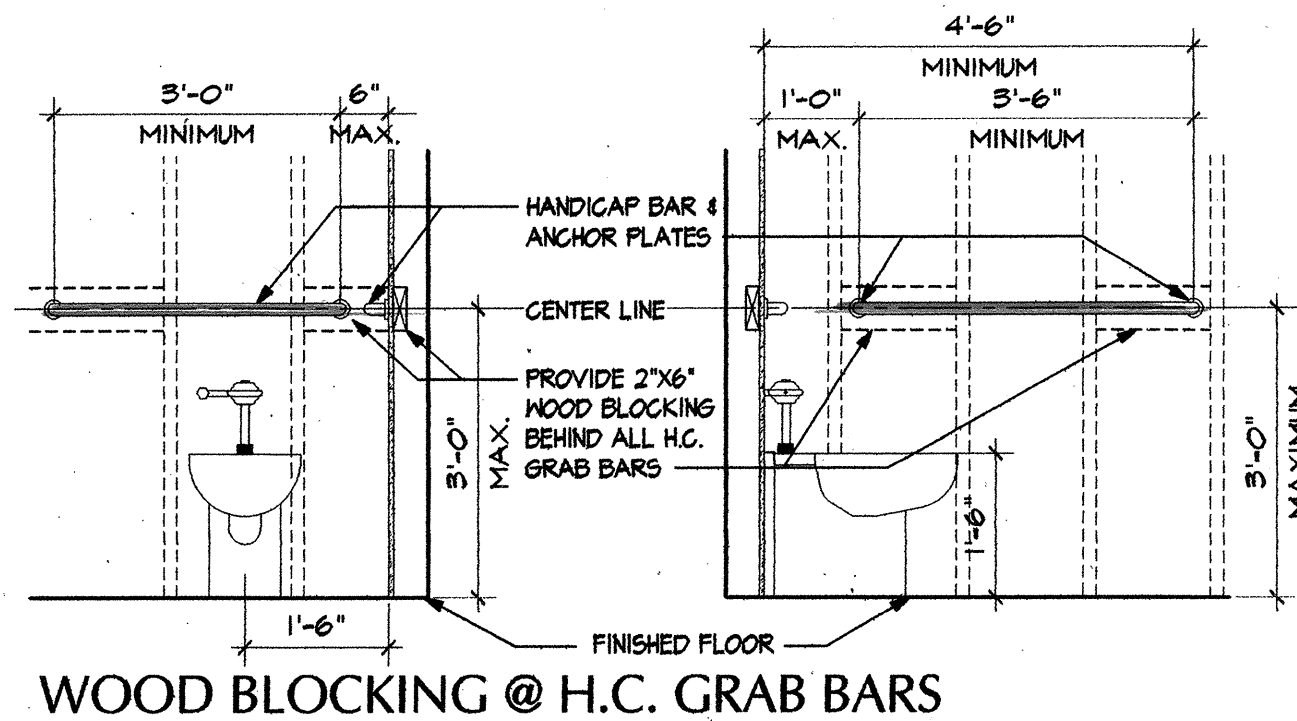
FLOOR PLAN (3,466 S.F.) 3/16"=1'-0"

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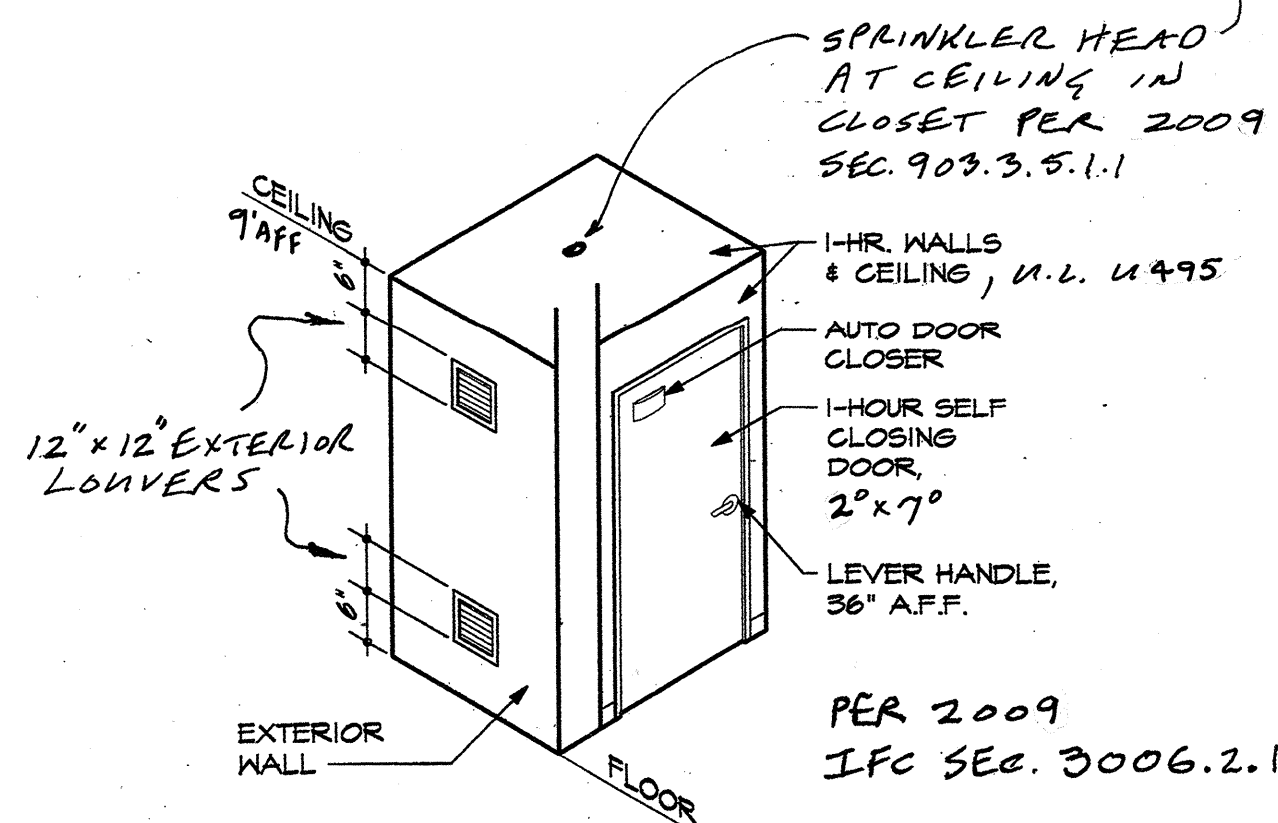


[F] 903.3.5.1.1 Limited area sprinkler systems. Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:

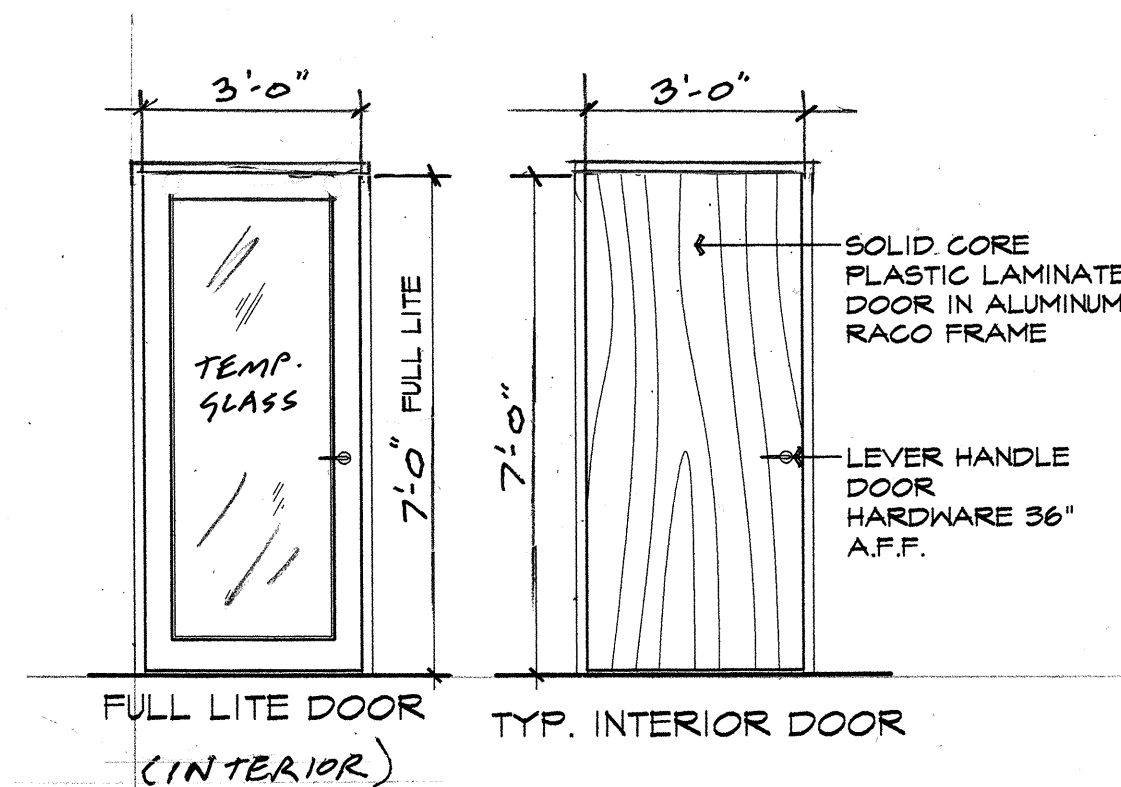
1. Valves shall not be installed between the domestic water riser control valve and the sprinklers.

Exception: An approved indicating control valve supervised in the open position in accordance with Section 903.4.

2. The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13R or NFPA 13D.

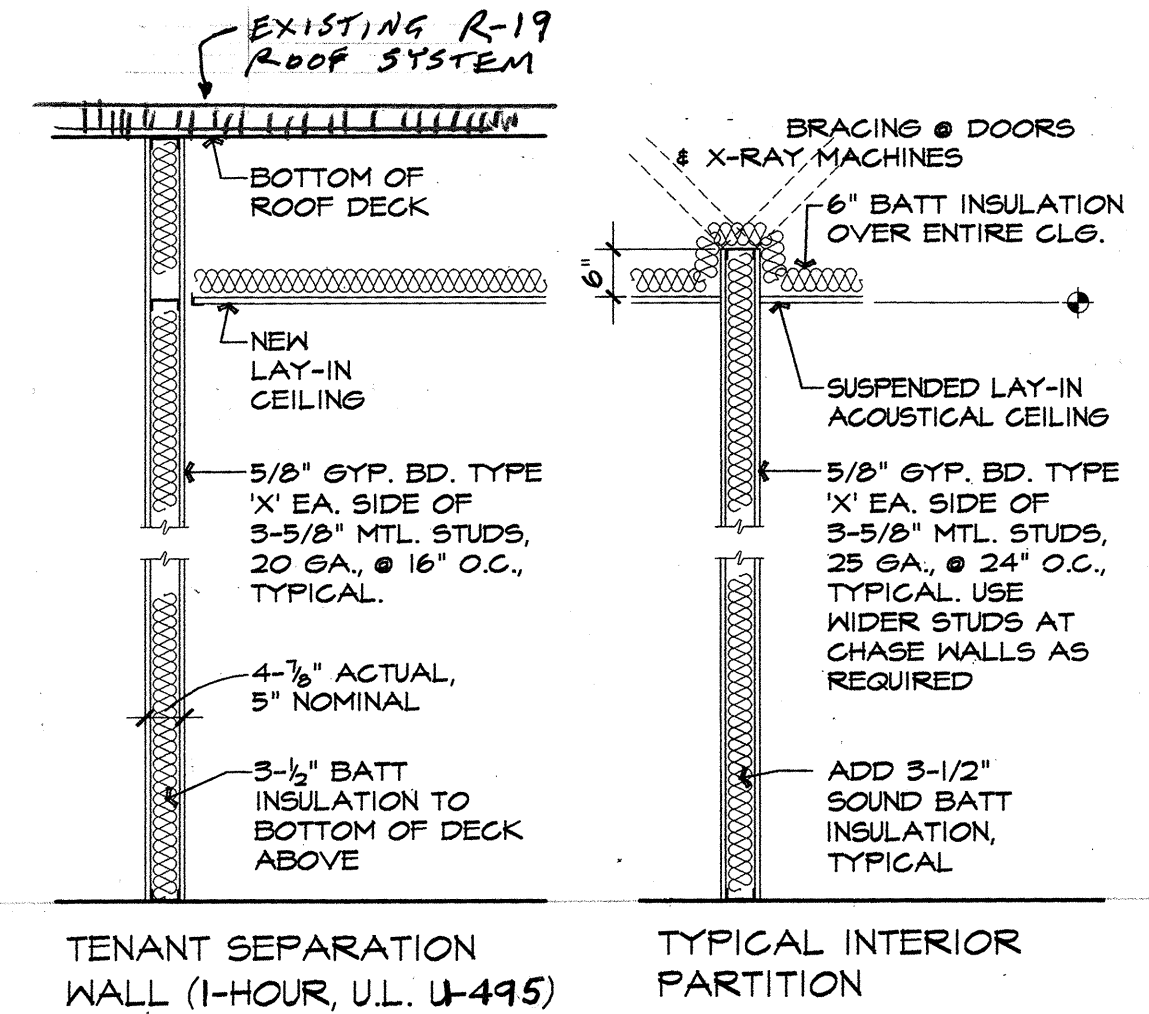
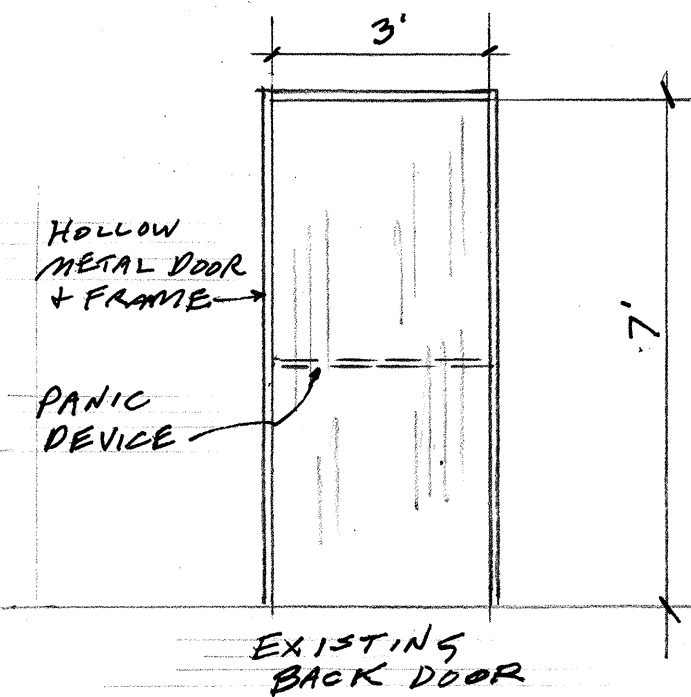
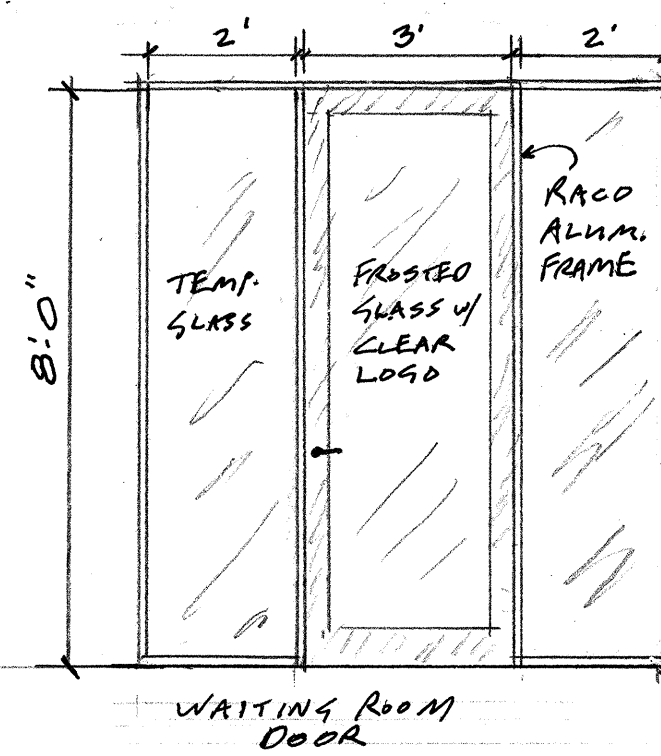
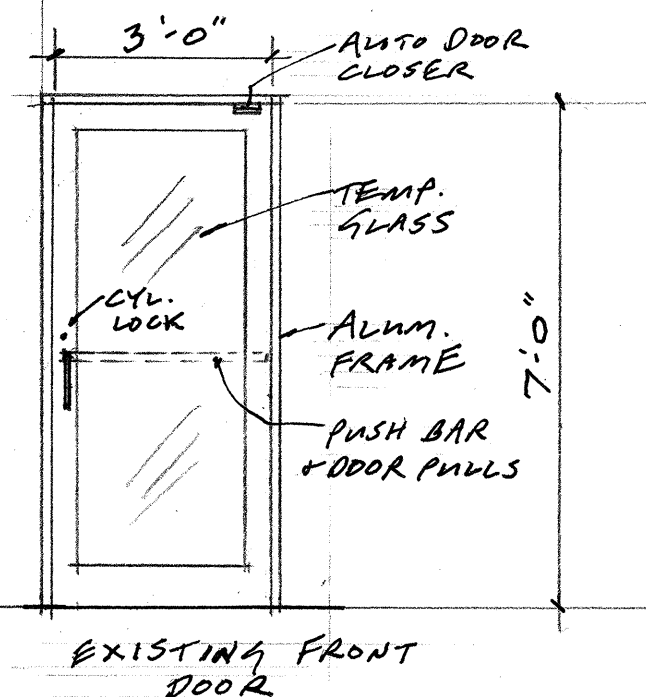


- 2 - NITROUS TANKS, 56 lbs. EACH
- 2 - OXYGEN TANKS, 250 c.f. EACH (NON-FLAMMABLE)



HARDWARE SCHEDULE (INTERIOR)

1. ALL DOORS SHALL HAVE LEVER HANDLE 36" A.F.F., 3 BUTT HINGES, NO CLOSURES, AND PASSAGE SET. RESTROOMS SHALL HAVE BUTTON TYPE LOCK WITH KEY ON OUTSIDE. FRONT ENTRY DOORS ARE EXISTING.
2. HARDWARE BASED ON SCHLAGE 'A' SERIES. VERIFY PASSAGE AND LOCKSETS WITH OWNER. HANDLES SHALL BE LEVER TYPE, JUPITER STYLE.
3. DOOR AT EQUIPMENT ROOM SHALL BE WEATHERSTRIPPED FOR SOUND AT HEAD AND JAMBS. INSTALL INTERLOCK THRESHOLD AT DOOR BOTTOM.



NOTES TO PARTITIONS

1. VERIFY AND INSTALL 2x WOOD BLOCKING AS REQUIRED FOR MOUNTING OF WALL EQUIPMENT AND ACCESSORIES.
2. VERIFY DENTAL EQUIPMENT ROUGH-INS AND MOUNTING REQUIREMENTS WITH SUPPLIER.
3. AT PARTITIONS WHERE X-RAY MACHINES OCCUR, USE 3-5/8" METAL STUDS, 16 GA., 16" O.C. AND BRACE ABOVE CEILING.
4. IN EQUIPMENT ROOM, INSTALL ALSO 1/2" ACOUSTICAL PANELS TO WALLS AND DOOR.

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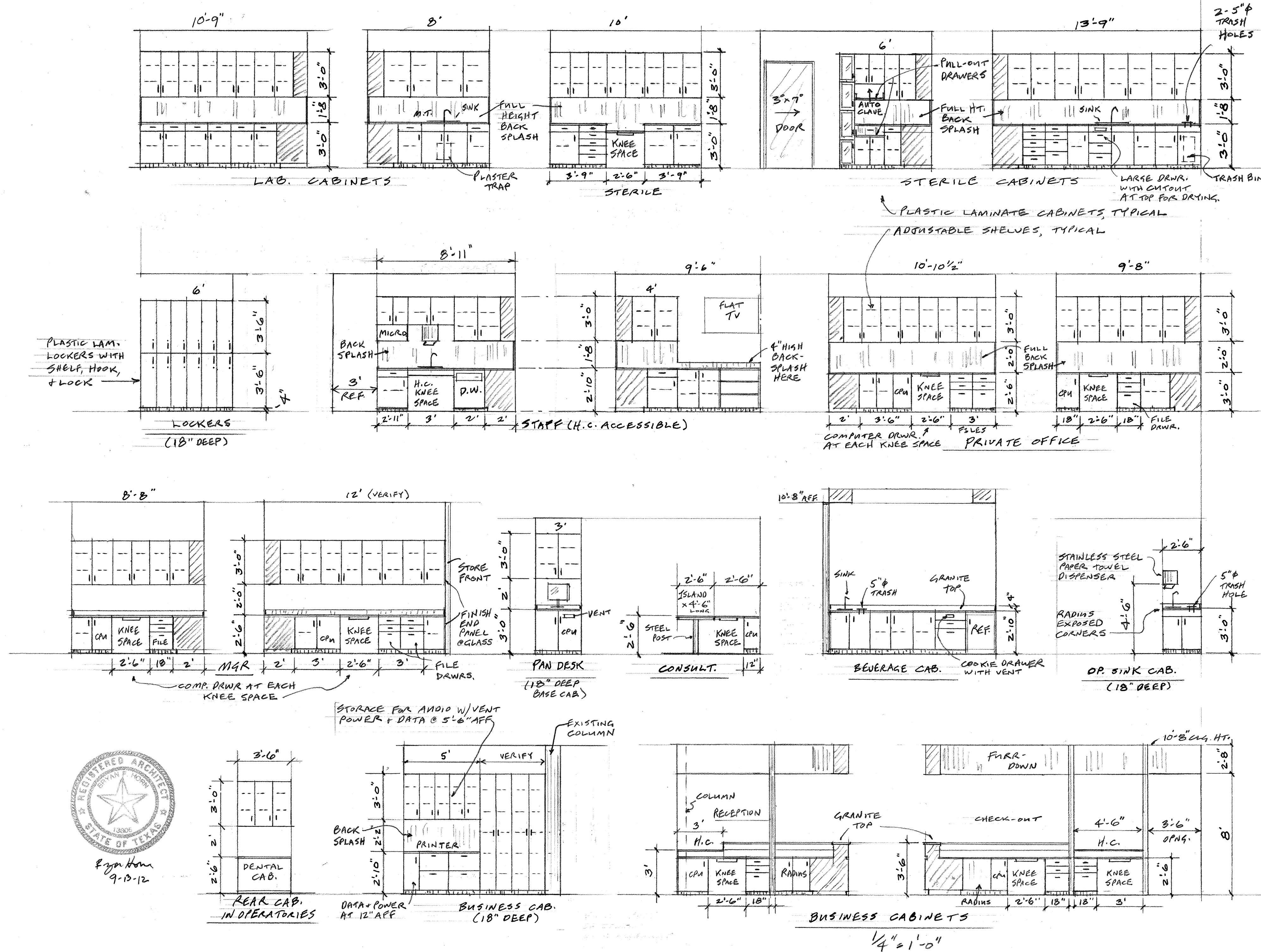
DENTAL OFFICE - LEASE SPACE
6645 S. FRY ROAD, #1000
KATY, TEXAS 77494

BRYAN HORN * ARCHITECT

MADE YA SMILE
DR. KESNER, D.D.S.

DENTAL OFFICE - LEASE SPACE
1520 FRIENDSWOOD DRIVE #104
FRIENDSWOOD, TEXAS 77546

BRYAN HORN * ARCHITECT



Bryan Horn
9-13-12

1/4" = 1'-0"

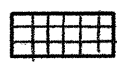
Light Fixtures

EXIT

Exit light standard with battery backup, hard-wired to premises wiring, minimum 90-minute duration



Emergency lights, with battery backup, minimum 90-minute duration



Typical 2' x 4' recessed fluorescent light fixtures as shown shall be a Metalux 3-lamp (32-watt each) w/18-cell parabolic 277 V, 1 ϕ



Typical 2' x 4' recessed fluorescent light fixtures as shown shall be a Metalux 3-lamp (32 watt each) with 0.125 A/P lens 277 V, 1 ϕ



Recessed downlights, halo 26 watt fluorescent @ acoustical ceiling, reflector type where shown on plan 120 V, 1 ϕ



Recessed downlights, halo 50 watt par @ gyp. bd. furr down with black baffle, & dimmer switch where shown on plan 120 V, 1 ϕ



Light sconce, verify style with tenant where shown on plan 120 V, 1 ϕ (6'-8" AFF)



Ceiling speakers - 8" ϕ round Dukane standard with amp wire where shown on plan



Smoke detector with battery backup, hard-wired to premises wiring, minimum 3' from air vent

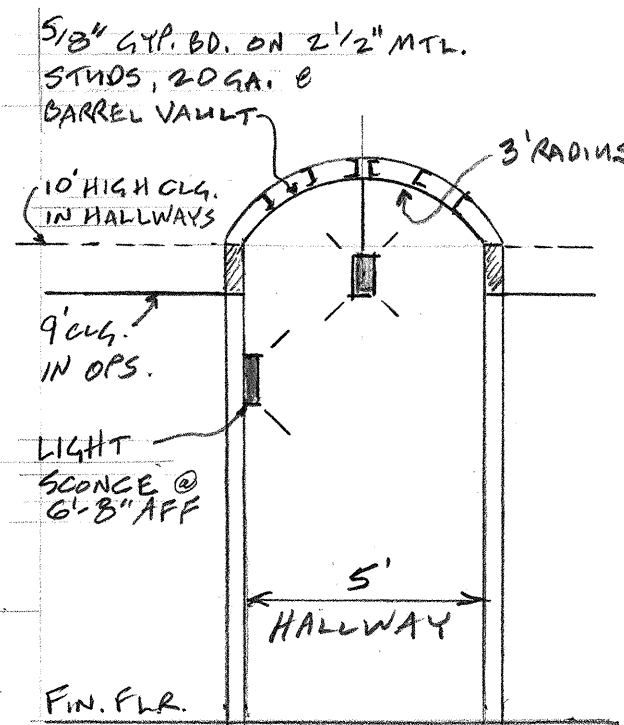
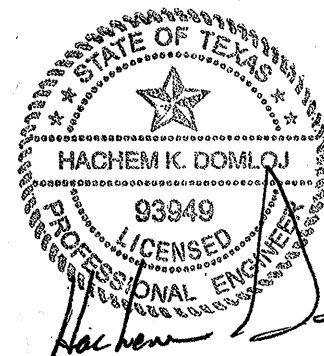


Pendant Light - verify style

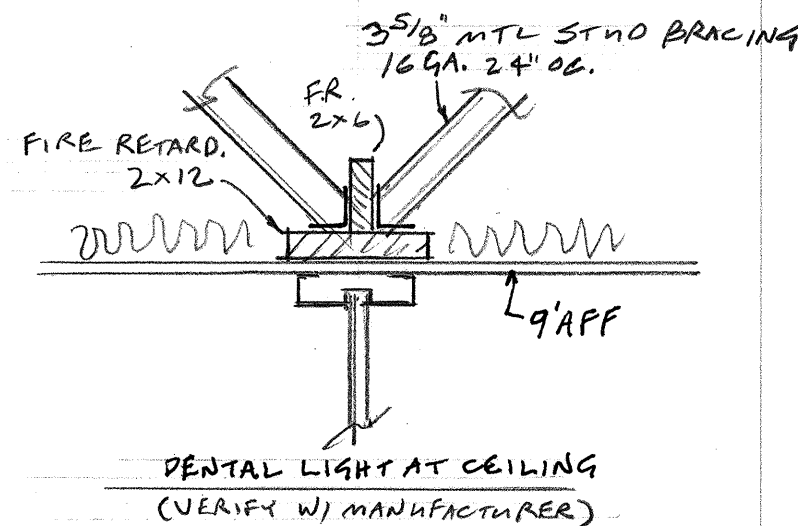
ELECTRICAL LEGEND

- DUPLEX ELECT. OUTLET, 120V., 1 ϕ
- FOURPLEX ELECT. OUTLET
- 240V., 1 ϕ RECEPTACLE, DEDICATED CIRCUIT
- TELEPHONE OUTLET WITH 1/2" DIA. CONDUIT IN WALL TO 6" ABOVE CEILING
- 120V., 1 ϕ DUPLEX FLOOR OUTLET
- COMPUTER OUTLET W/ CONDUIT IN WALL TO 6" ABOVE CEILING
- LIGHT OR FAN SWITCH, SINGLE POLE
- DIMMER SWITCH
- 3-WAY SWITCH
- G.F.I. GROUND FAULT INTERRUPTER

All light switches with motion sensor, except breakroom shall have bi-level switching.



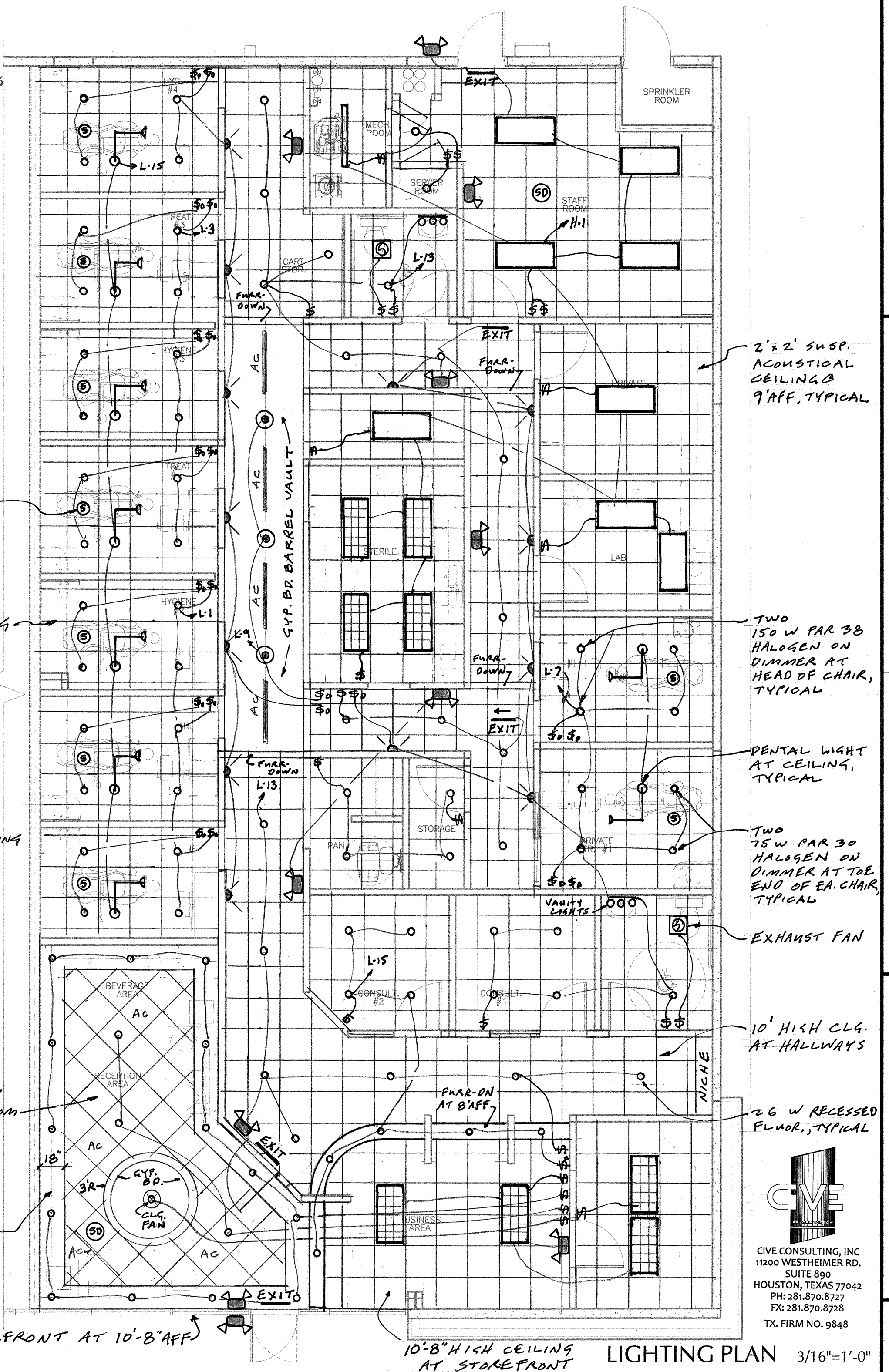
DENTAL OPERATORY LIGHTING:
(2) 150 W PAR 38 HALOGEN ON DIMMER AT HEAD OF CHAIR.
(2) 75 W PAR 30 HALOGEN ON DIMMER AT TOE END OF CHAIR.



2' x 2' CLG. AT 11'-8" AFF. IN WAITING ROOM

18" WIDE GYP. BD. FURR-DOWN WITH RECESSED LIGHTS AT 10'-8" AFF

TOP OF EXISTING STOREFRONT AT 10'-8" AFF



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CIVE CONSULTING, INC
11200 WESTHEIMER RD.
SUITE 890
HOUSTON, TEXAS 77042
PH: 281.870.8727
FX: 281.870.8728
TX. FIRM NO. 9848

NOTES TO ELECTRICAL

- ALL WIRING SHALL BE COPPER, TYPE THW.
- COMPLY WITH NATIONAL ELECTRIC CODE.
- VERIFY ALL REQUIREMENTS FOR EQUIPMENT WITH MANUFACTURER'S SPECS. ELECTRICAL SUB. SHALL PROVIDE ALL REQUIRED POWER, WIRING, ETC.
- RE: ALSO LIGHTING PLAN FOR SWITCHES, ETC.
- RE: HVAC PLAN FOR A/C EQUIPMENT, ETC.
- OUTLETS IN EACH OPERATORY SHALL HAVE FULL SIZE GROUNDING CONDUCTORS PER NATIONAL ELECTRIC CODE, ARTICLE 517-13.
- EACH X-RAY MACHINE SHALL HAVE 120V., 1Ø DEDICATED CIRCUIT, 20 AMP.
- EACH VACUUM PUMP AND AIR COMPRESSOR SHALL HAVE A DEDICATED CIRCUIT, 240V., 1Ø, 30 AMP.
- RECEPTACLES IN PATIENT CARE AREAS: IN AREA USED FOR PATIENT CARE, THE GROUNDING TERMINALS OF ALL RECEPTACLES AND ALL NON-CURRENT CARRYING CONDUCTIVE SURFACES OPERATING AT OVER 100 VOLTS SHALL BE GROUNDED BY AN INSULATED COPPER CONDUCTOR. RE: PATIENT CARE AREA ARTICLE 517.3 (A) & (B) N.E.C. AND DEFINITION OF HEALTH CARE ARTICLE 517.3 N.E.C.
- GROUNDING ELECTRODE SYSTEMS: ALL GROUNDING ELECTRODES AS DESCRIBED IN 250.52(A)(6) THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SERVED SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED AND USED. REF. ARTICLE 250.50.
- ARTICLE 660-20. A SEPARATE CONTROL DEVICE, IN ADDITION TO THE DISCONNECTING MEANS SHALL BE INCORPORATED IN THE X-RAY CONTROL SUPPLY OR IN THE PRIMARY CIRCUIT TO THE HIGH VOLTAGE TRANSFER. THIS DEVICE SHALL BE A PART OF THE X-RAY EQUIPMENT, BUT SHALL BE PERMITTED IN A SEPARATE ENCLOSURE IMMEDIATELY ADJACENT TO THE X-RAY CONTROL UNIT.
- OUTLET REQUIRED AT A/C HEATING UNIT: ARTICLE 210.63 OF THE N.E.C. REQUIRES A 125-VOLT, SINGLE PHASE, 15 OR 20 AMPERE-RATED RECEPTACLE OUTLET. OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION FOR THE SERVICING OF HEATING, AIR CONDITIONING AND REFRIGERATION EQUIPMENT. THE RECEPTACLE SHALL BE LOCATED ON THE SAME LEVEL AND WITHIN 25 FEET OF THE HEATING, AIR CONDITIONING AND REFRIGERATION EQUIPMENT. THE RECEPTACLE SHALL NOT BE CONNECTED TO THE LOAD SIDE OF EQUIPMENT DISCONNECTING MEANS. A DISCONNECTING MEANS IS ALSO REQUIRED PER ARTICLE 440.11 & 440.14 N.E.C.

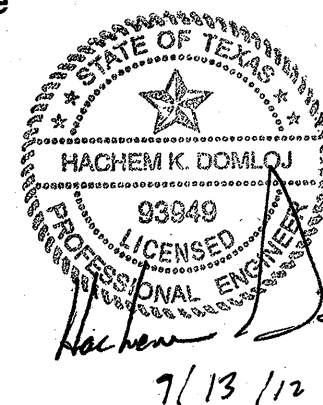
13. Ground-fault, Circuit-interruptor Protection

All 125-volt, single-phase, 15- or 20-ampere receptacles installed in the locations specified in (1) through (5) below shall have ground-fault, circuit-interrupter protection for personnel:

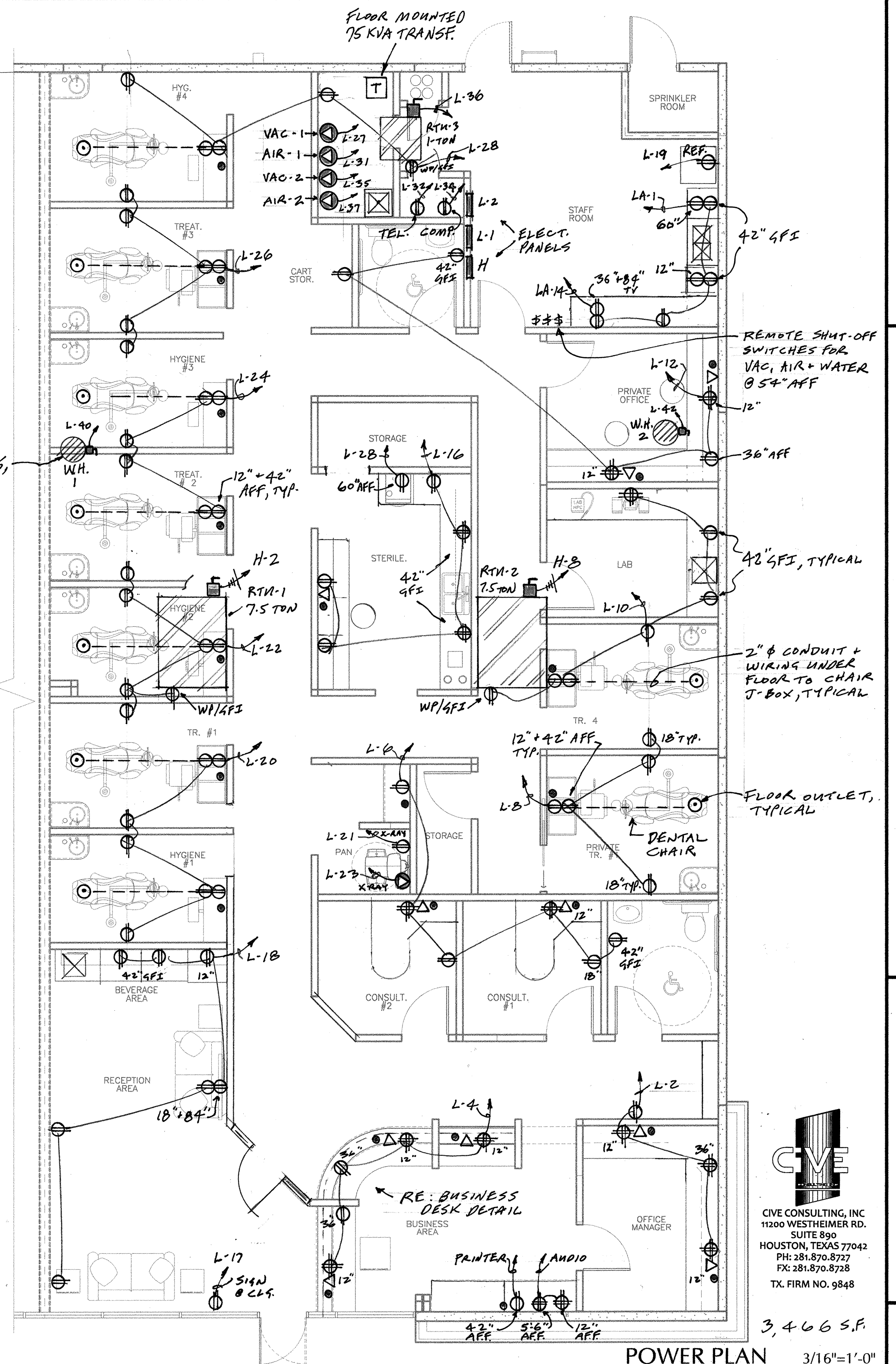
- Bathrooms
- Kitchens
- Rooftops
- Outdoors
- Sinks, where installed within six feet of the outside edge of the sink (Article 210.8(B), 2011 N.E.C.)

ELECTRICAL LEGEND

- ⊕ DUPLEX ELECT. OUTLET, 120V., 1Ø
- ⊕ FOURPLEX ELECT. OUTLET
- 240V., 1Ø RECEPTACLE, DEDICATED CIRC
- ◁ TELEPHONE OUTLET WITH 1/2" DIA. CONDUIT IN WALL TO 6" ABOVE CEILING
- ⊙ 120V., 1Ø DUPLEX FLOOR OUTLET
- COMPUTER OUTLET W/ CONDUIT IN WALL TO 6" ABOVE CEILING
- \$ LIGHT OR FAN SWITCH, SINGLE POLE
- \$ DIMMER SWITCH
- \$ 3-WAY SWITCH
- G.F.I. GROUND FAULT INTERRUPTER



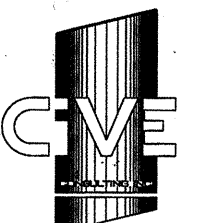
20 GAL. WATER HTR. ABOVE CEILING, TYPICAL



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3,466 S.F.

POWER PLAN 3/16"=1'-0"

277 / 480			VOLTAGE:		PHASE: 3	WIRE: 4	AIC: 14000		REMARKS:					
PANEL: H			MAINS: 225 AMPS		MLO		MCB		SURFACE					
			LUGS:		SUB-FEED		FEED-THRU		NEMA 1		NEMA 3R			
C**	WIRE*	LOAD DESCRIPTION	KVA	BKR.	CKT				CKT	BKR.	KVA	LOAD DESCRIPTION	WIRE*	C**
		LIGHTS	2.2	20/1	1				2	30/3	18	RTU-1	#10	
					3				4					
					5				6					
		75 KVA TRANSF	75	125/3	7				8	30/3	18	RTU-2	#10	
					9				10					
					11				12					
					13				14					
					15				16					
					17				18					
					19				20					
					21				22					
					23				24					
					25				26					
					27				28					
					29				30					
					31				32					
					33				34					
					35				36					
					37				38					
					39				40					
					41				42					
TOTALS:														
TOTAL: 113 KVA @ 480V. 3φ = 136 AMPS														

* All branch circuits are 2 #12, 1 #12G; 3/4" C (U.O.N.).

120/208			VOLTAGE:		PHASE: 3	WIRE: 4	AIC: 10000		REMARKS:				
PANEL: L			MAINS: 225 AMPS		MLD	MCB	SURFACE FLUSH						
			LUGS:		SUB-FEED		FEED-THRU		NEMA 1 NEMA 3R				
C**	WIRE*	LOAD DESCRIPTION	KVA	BKR.	CKT			CKT	BKR.	KVA	LOAD DESCRIPTION	WIRE*	C**
		LIGHTS	1.4	20/1	1			2	20/1	1.3	RECEPT		
			1.4		3			4		1.3			
			1.5		5			6		1.4			
			1.6		7			8		1.1			
			1.4		9			10		1.6			
			1.4		11			12		1.3			
			.9		13			14		.9			
			1.3		15			16		1.3			
		SIGN	1.2		17			18		1.1			
		REF	.8		19			20		1.4			
		X RAY	.8		21			22		1.3			
#10		X RAY	2.0	30/2	23			24		1.4			
					25			26		1.3			
		VAC-1	3.6	30/2	27			28		1.1			
					29			30		.2			
		AIR-1	3.6	30/2	31			32		.3	TEL		
					33			34		.3	COMP		
		VAC-2	3.6	30/2	35			36	20/2	3.0	RTU-3		
					37			38					
		AIR-2	3.6	30/2	39			40	20/1	1.5	WH-1		
					41			42	"	1.5	WH-2		
TOTALS:													
PROVIDE 2 SECTION PANEL KD 12-20A IP BREAKERS IN SECTION 2													

* All branch circuits are 2 #12, 1 #12G; 3/4" C (U.O.N.).

TOTAL: 51.3 KVA @ 208V. 3Φ = 142 AMPS

LOAD ANALYSIS

OCCUPANCY: CLINIC

AREA: 3600 SF @ 2VA/SF = 7.2 KVA

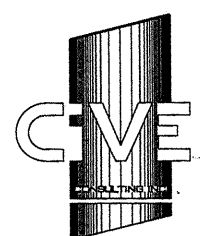
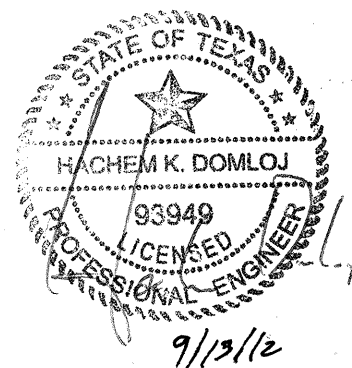
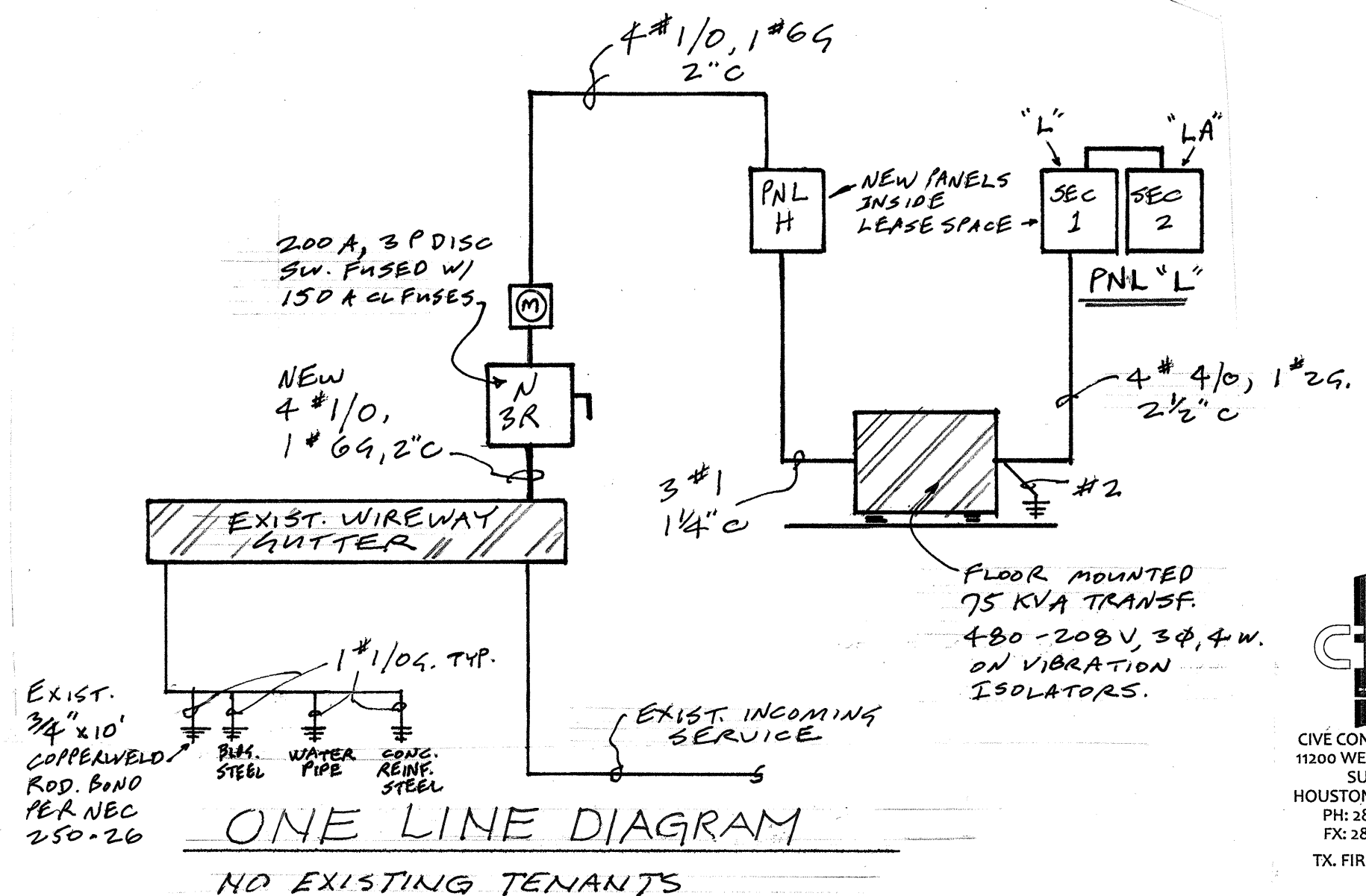
CONNECTED LTG. LOAD: 12.1

LOAD DESCRIPTION	KVA LOAD
1. Lights: 12.1 KVA @ 125% =	15.2
2. Recept: 99 x 180 VA each =	17.8
3. Sign: =	1.2
4. Equipment, including water heater =	20.8
5. HVAC (elect. heat) =	38.0
SUB TOTAL =	93.0
plus 25% of largest motor =	1.5
TOTAL: =	94.5

94.5 KVA @ 480 V, 3 PH = 114.0 AMPS

SERVICE: 4 # 1/0

SERVICE AMPACITY: 150 AMPS



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MADE YA SMILE
DR. KESNER, D.D.S.

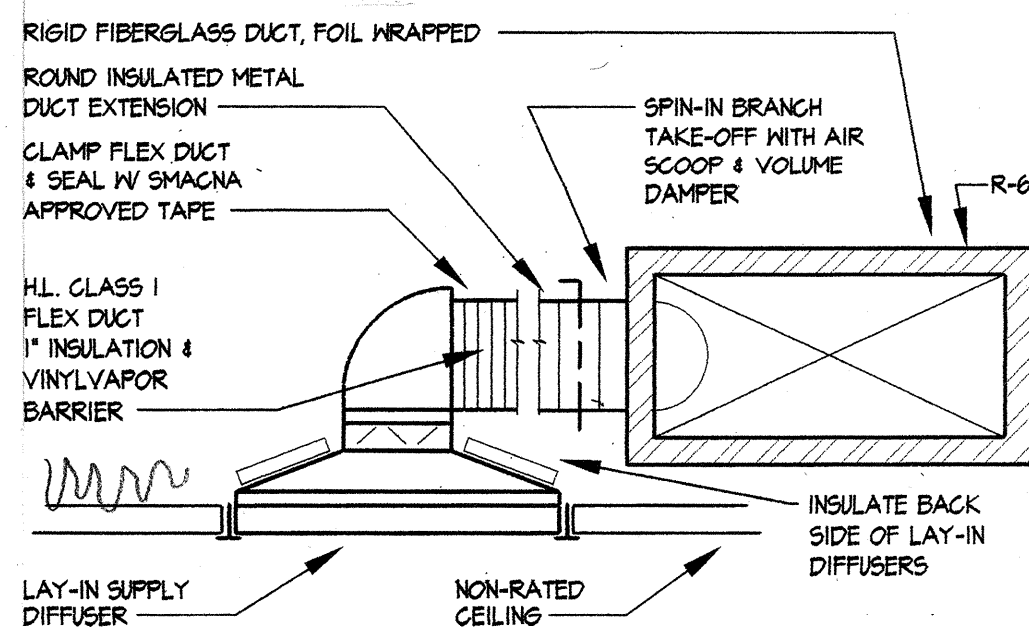
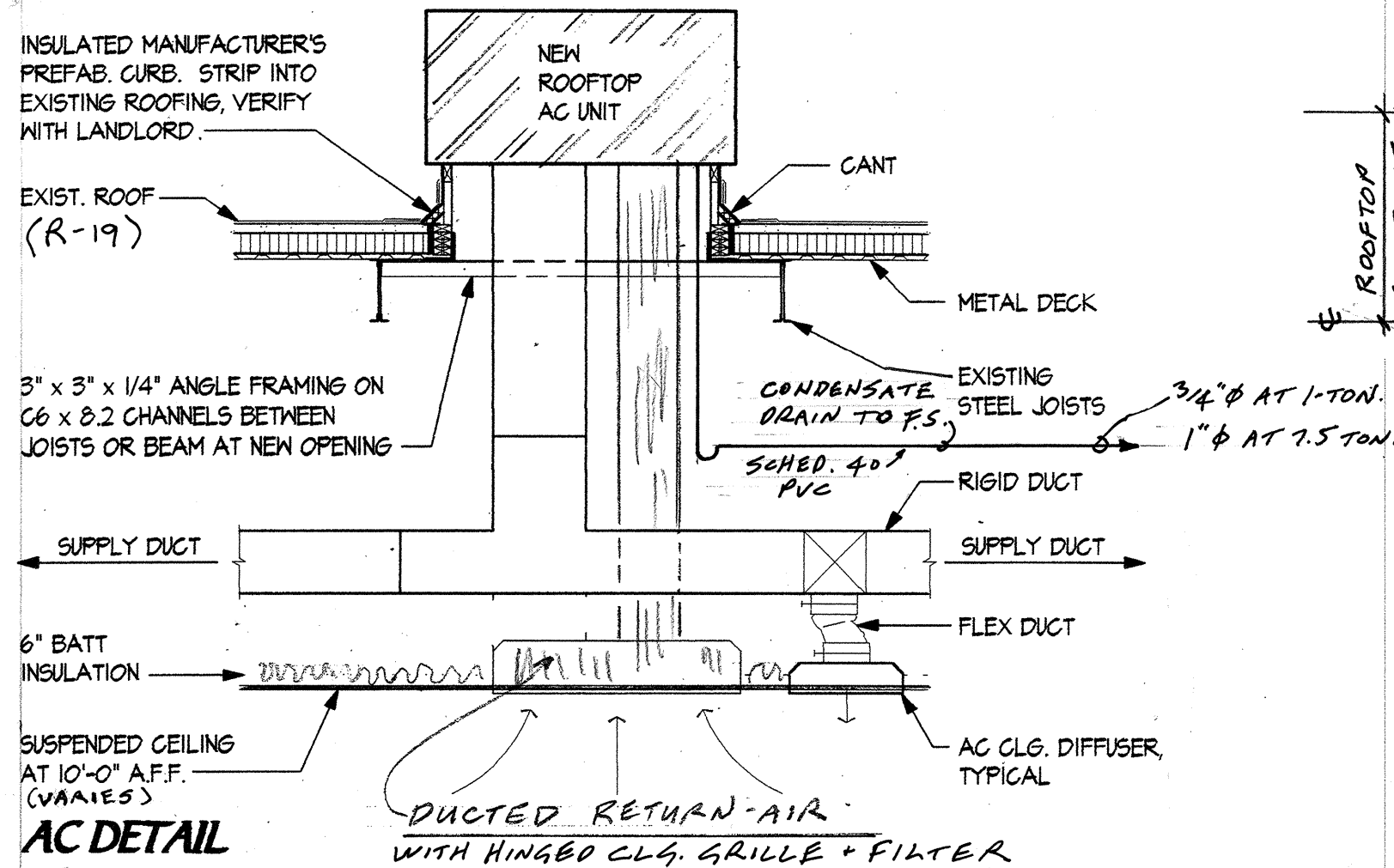
DENTAL OFFICE - LEASE SPACE
6645 S. FRY ROAD, #1000
KATY, TEXAS 77494

BRYAN HORN * ARCHITECT



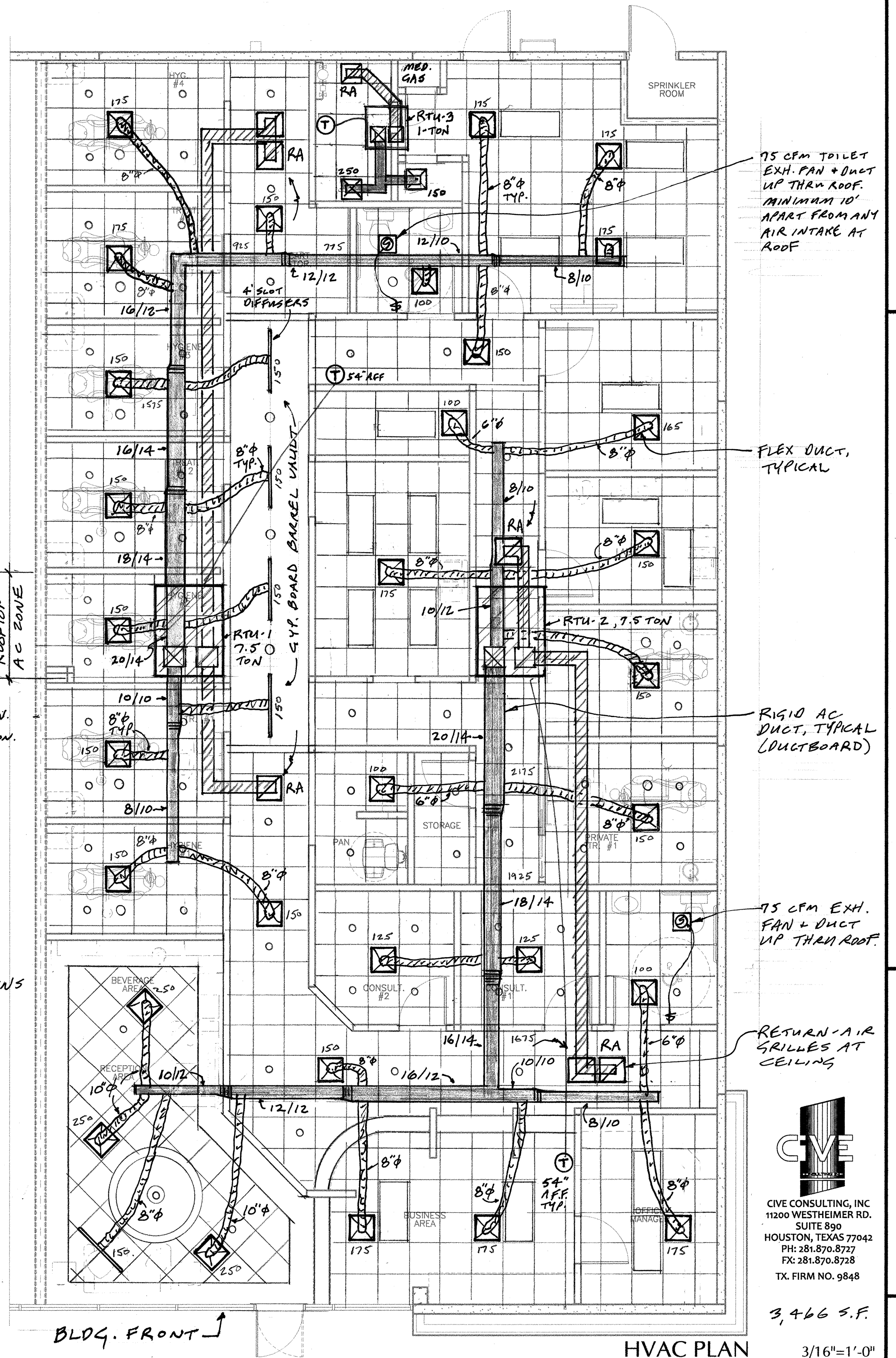
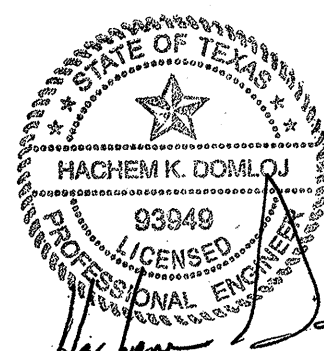
HVAC Notes

1. A/C shall be (2) new 7.5-ton 3000 cfm EER 11.2 and (1) new 1-ton 400 cfm SEER 13 rooftop units, with electric heat, motorized O.A. damper, manufacturer's roof curb, and A/C manufacturer's 7-day programmable thermostat.
2. Rigid duct shall be 1-1/2" fiberglass, foil-wrapped R-6. (Ductboard)
3. Flex duct shall be insulated and not to exceed 12 feet in length (R-6).
4. Smoke detector required on each 7.5 ton unit per city code.
5. A/C subcontractor shall size and balance all ductwork. Re-balance after move-in.
6. Outside air per table 403.3 IMC: 250 cfm each for the 7.5 ton units and 35 cfm OA for the 1-ton unit.
7. Toilet exhaust = 75 CFM.
8. General contractor shall not make any roof or wall penetrations without landlord's approval. All such penetrations shall be made by contractors approved by landlord.
9. A/C grilles shall be typical 24" x 24" perforated lay-in at supply grilles. Provide volume damper and adjustable blade deflectors.



SUPPLY-AIR DEVICE

NOTE: CONDENSATE DRAINS TO FLOOR SINK IN MECH. ROOM.



HVAC PLAN



MADE YA SMILE
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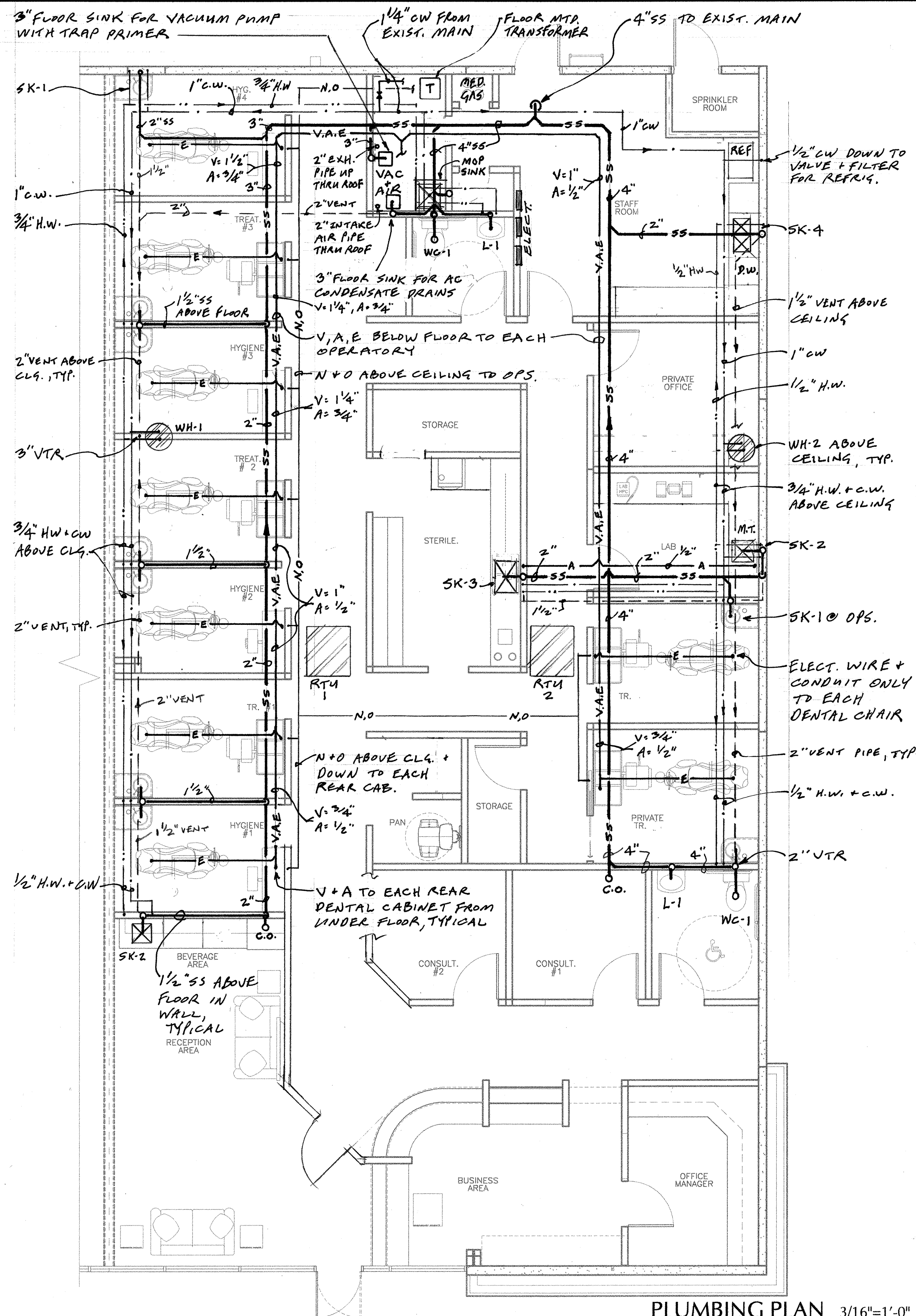
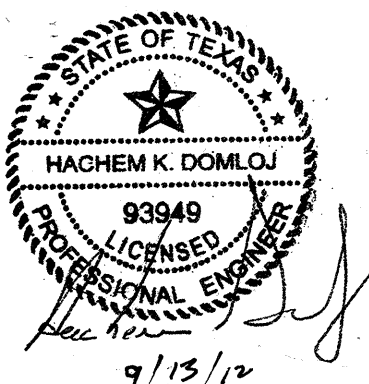


1. All above-grade water, oxygen, nitrous, and compressed air lines shall be type "L" copper.
2. All below-grade water, oxygen, nitrous, and compressed air lines shall be type "K" copper.
3. All sanitary sewer, vent, and vacuum pipe shall be sched. 40 PVC.
4. Insulate all hot and cold water lines above grade minimum 1" thick.
5. Plumber shall verify all rough-ins with equipment supplier.
6. Install shut-off valves with each fixture.
7. Comply with the latest edition of International Plumbing Code.
8. Install backflow preventer in water line before vacuum pump and model trimmer. Mount on wall in equip. room 48" AFF. Backflow preventer type shall be Watts #008PCQT, high hazard, anti-siphon, anti-spill.
9. Provide air gap above floor sink at vacuum pump of at least twice the diameter of the drain used above it.
10. Plaster trap at lab furnished by owner and installed by plumber to lab sink.
11. Model trimmer at lab furnished by owner. Plumber shall install cold water line with 1/4" chrome angle stop above counter, and connect waste line from trimmer to sink tailpipe/plaster trap.
12. All fixtures shall have a P-trap.
13. All floor drains and floor sinks shall have a minimum 2" vent.
14. No natural gas is used for this project.
15. Self-contained bottled water shall be used for dental procedures.
16. Insulate all hot water lines (1-1/4" size and below) 1" thick, based on insulation having a conductivity not exceeding .27 BTU per in/H x ft² x degree F.
17. VAC PUMP SYSTEM IS WET TYPE.
PUMP SHALL COMPLY W/NFPA 99, 2005 SEC. 5.3.3.6 & 5.3.3.6.4
18. AIR COMP. SHALL COMPLY W/NFPA 99, 2005, SEC. 5.1.3.5 & 5.3.3.5.7.1
19. MEDICAL GAS TUBING SHALL BE ASTM B819 (TYPE "L") AND HAVE MANUF. MARKINGS ("OXY"). ETC. PER NFPA 99C. 5.1.10.1.4 & 5.1.10.1.5

— . . . —	COLD WATER
— . . —	HOT WATER
— SS —	SANITARY SEWER
— — — — —	VENT PIPE FOR S.S.
— V —	VACUUM
— A —	COMPRESSED AIR
— E —	ELECT. WIRING & CONDUIT BY ELECTRICAL SUB.
— N —	NITROUS PIPE
— O —	OXYGEN PIPE
B.F. —	BACKFLOW PREVENTER
F.S. —	FLOOR SINK
I.D. —	INSIDE DIMENSION



CIVE CONSULTING, INC.
 11200 WESTHEIMER RD.
 SUITE 890
 HOUSTON, TEXAS 77042
 PH: 281.870.8727
 FX: 281.870.8728
 TX. FIRM NO. 9848



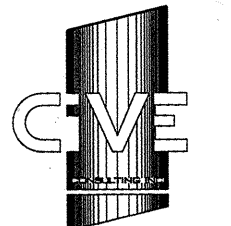
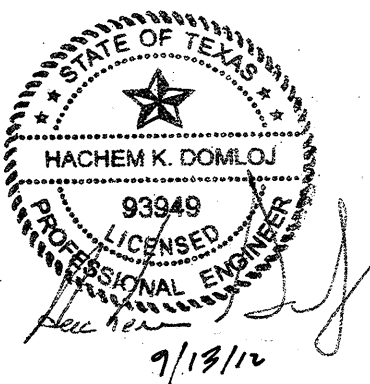
PLUMBING PLAN 3/16"=1'-0"

**MADE YA SMILE
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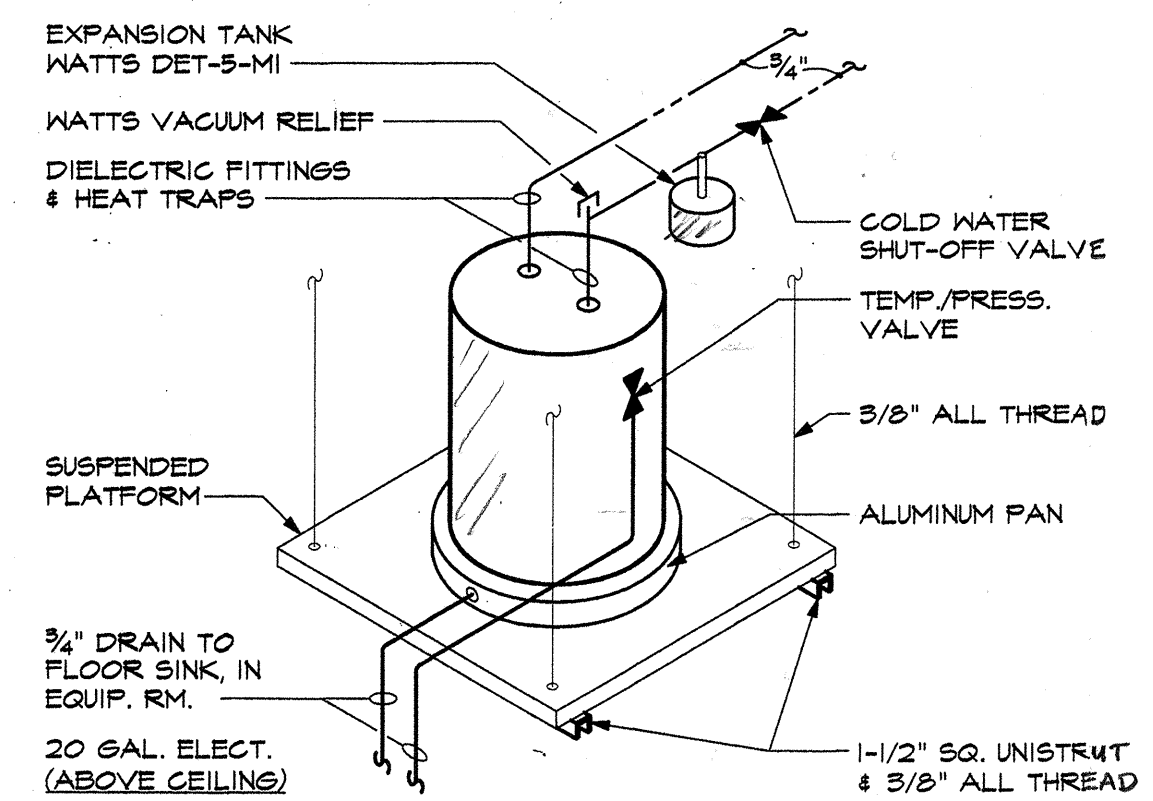
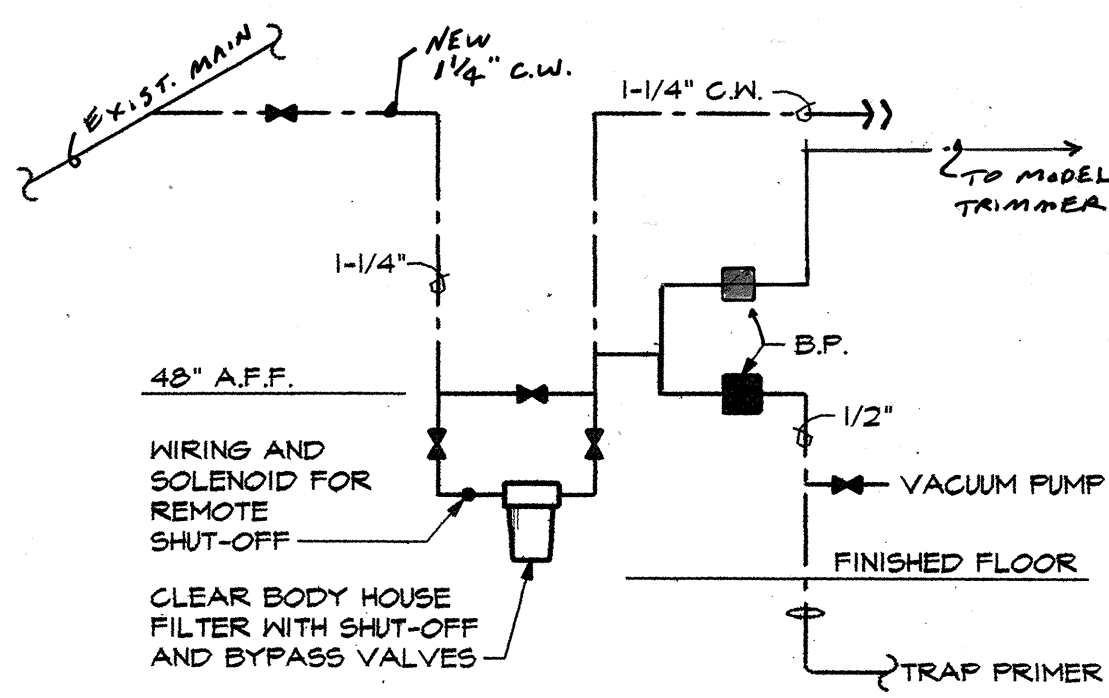
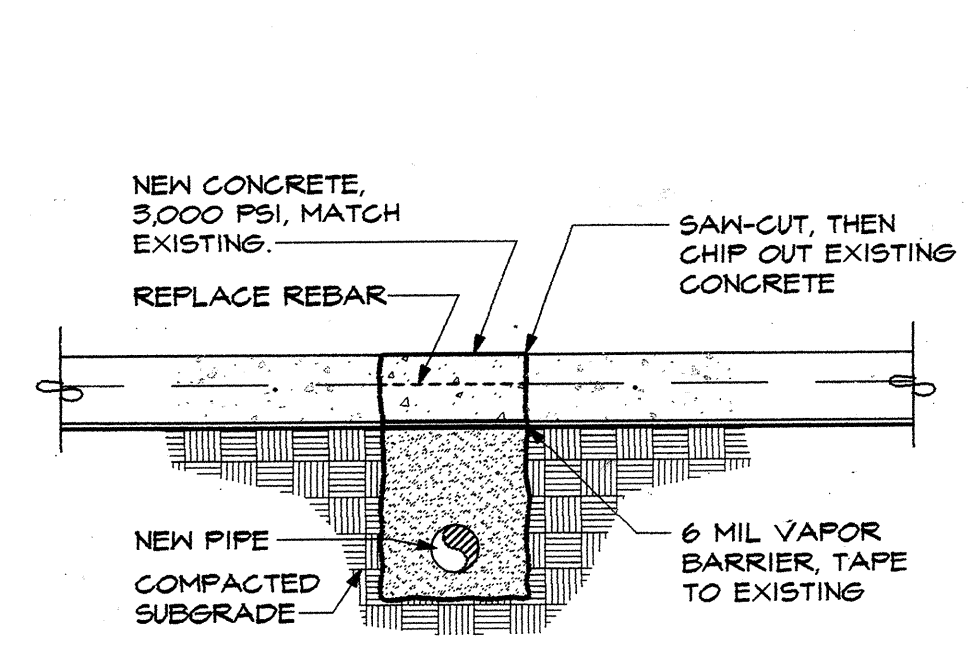
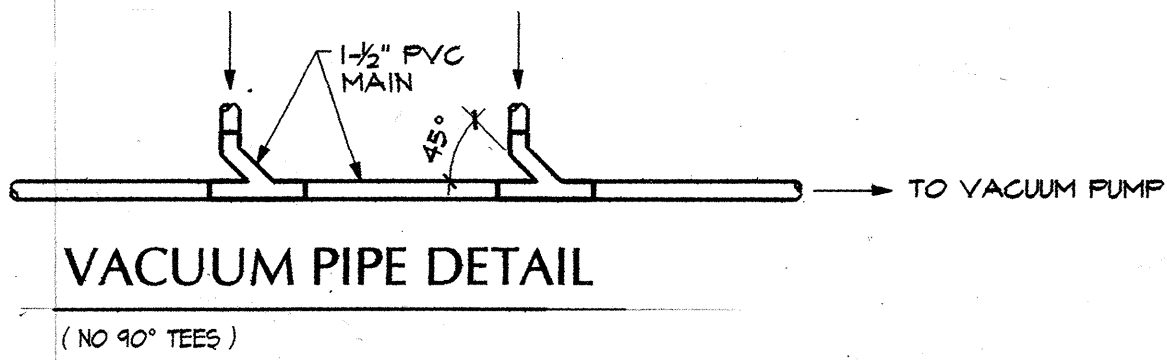
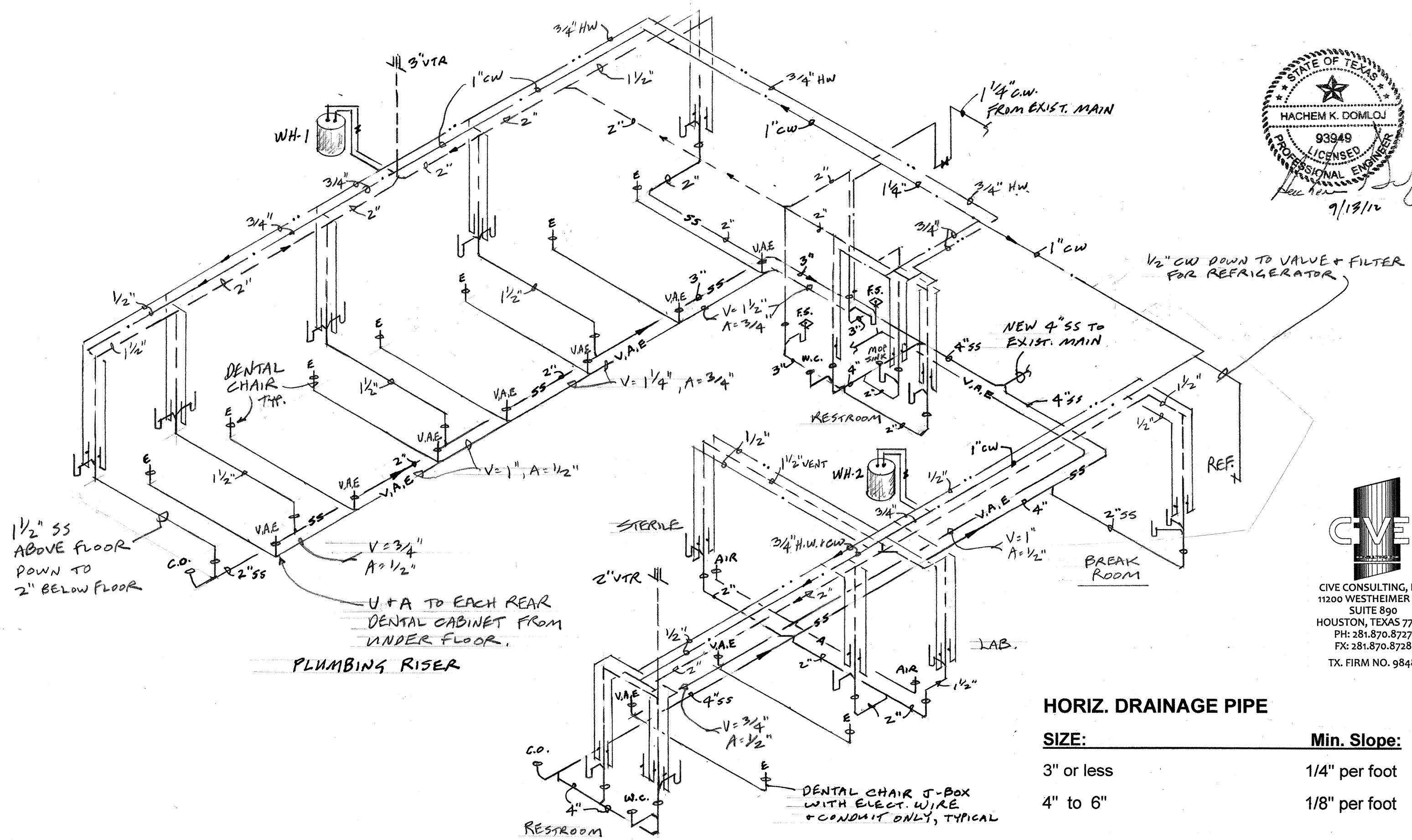


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HORIZ. DRAINAGE PIPE	
SIZE:	Min. Slope:
3" or less	1/4" per foot
4" to 6"	1/8" per foot

HANGER SPACING (MAX. HORIZ.):	
PVC pipe 4' O.C.	
Copper 6' O.C.	

TRENCH DETAIL

WATER DETAIL @ EQUIPMENT RM.

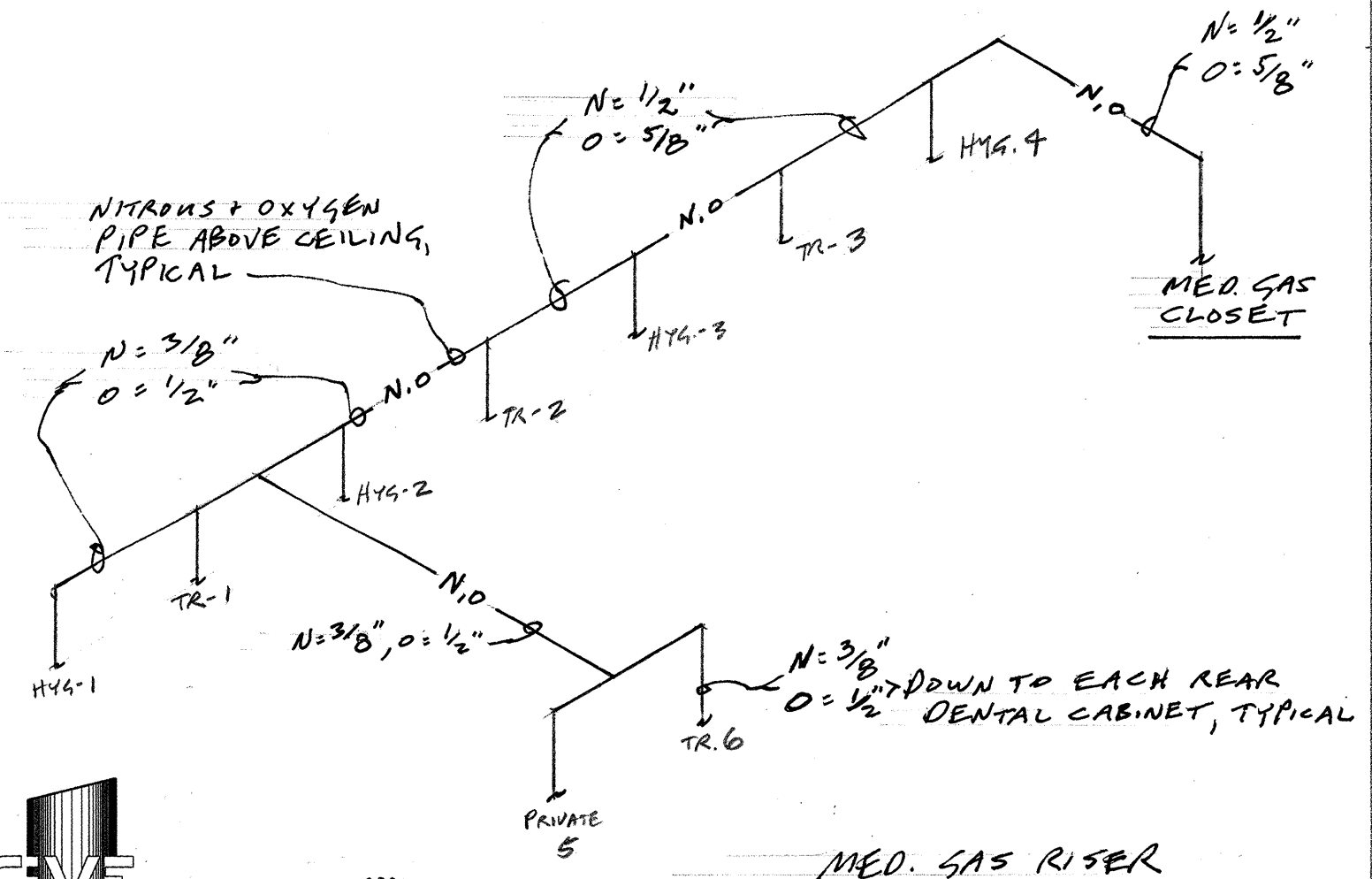
WATER HEATER DETAIL

(LOW BOY)

UPC NSF®
(73°F/23°C)



9/13/12



A.O. SMITH

Designed for use as a recovery heater having its own storage tank. Available in upright standard models (DEN) and lowboy models (DEL).

FEATURES

GLASS-LINED TANK - Thirteen sizes; 6 thru 119 gallon capacity. Tank interior is coated with glass specially developed by A. O. Smith Ceramic Research for water heater use. Tanks rated 150 psi working pressure; tested at 300 psi. Foam insulation provides maximum energy savings by minimizing radiant standby heat loss.

ELEMENTS - Zinc plated copper sheaths for longer life. Medium watt density; means lower surface temperature to minimize scale build-up and more surface to heat water. Element sizes from 1.5 to 6 KW. Maximum input 12 KW (see chart on back).

STANDARD VOLTAGES - 120, 277 single phase and 208, 240 and 480V unbalanced three-phase delta; easily converted to single-phase at terminal block (except 208V with 6000 watt elements). Single element heater, single-phase only.

TERMINAL BLOCK - Factory installed. Just bring the service to heater and connect to block. Terminal block not supplied on 120V & 277 volt models.

CONTROLS - Temperature control (adjustable through a range of 110° to 170°F on single element and 120° to 180°F on dual element) and manual reset high temperature cutoff per element (dual element models). Factory wired for non-simultaneous operation; easily converted to simultaneous element operation (three phase models only).

OPTIONAL

GOLDENROD ELEMENTS - All DEN & DEL models are available with the Goldenrod 24K gold plated elements (patent pending). Goldenrod elements provide long life and 6 times the scaling resistance of standard incoloy elements. Goldenrod elements carry a three-year warranty against failure due to lime scale build-up.

ELEMENT AVAILABILITY CHART

Input	120V	208V	240V	277V	480V
1,500	YES	YES	YES	YES	—
2,000	YES	YES	YES	YES	YES
2,500	YES	YES	YES	YES	YES
3,000	YES	YES	YES	YES	YES
3,500	—	—	YES	—	—
4,000	—	YES	YES	YES	YES
4,500	—	YES	YES	YES	YES
5,000	—	YES*	YES*	YES*	YES*
5,500	—	—	YES*	—	—
6,000	—	YES**	YES	YES	YES

NOTE: DEL-6 not available in above 2.5 KW.
DEL-6 not available in 480V.
* Not available in DEL-10, DEL-15 and DEN-30.
** A6 non-simultaneous circuit only.

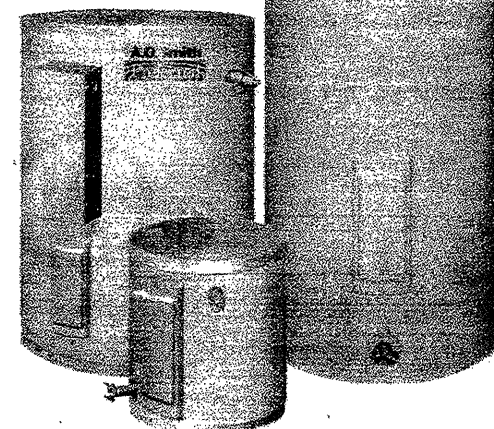
Dura-Power

COMMERCIAL ELECTRIC WATER HEATERS

DEN & DEL MODELS

Meets or exceeds the requirements of ASHRAE 90.1-1999 Standard for energy efficiencies.

See page C 029.0 for service wiring and fuse selection.



DEL MODELS

DEN MODELS

LIMITED WARRANTY OUTLINE

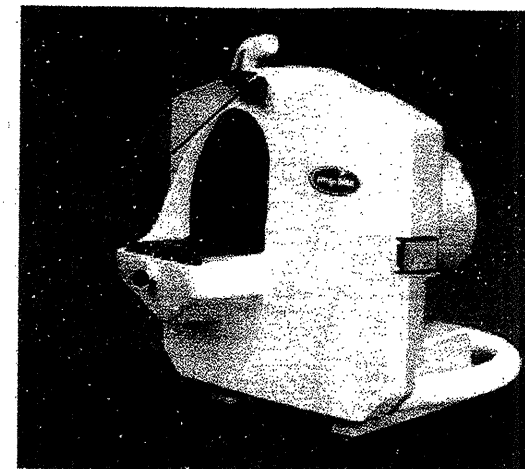
If the tank should leak any time during the first three years, under the terms of the warranty, A. O. Smith will furnish a replacement heater, installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY.** For complete information, consult the written warranty or A. O. Smith Water Products Company.

OTHER STANDARD FEATURES

- Factory installed T&P AGA/ASME relief valve
- Simplified circuitry, color coded for ease of service
- Anode rod for maximum corrosion protection
- Cabinet has bonderized undercoat with baked enamel finish
- Top inlet and outlet openings • Drain valve
- UL approved field conversion program.

3/4 HP Wet Model Trimmer

3/4 HP Wet Model Trimmer



Product Resources

- 3/4 HP Model Trimmer Operating Instructions
- Equipment Troubleshooting Guide
- 2008 Meeting Specials / Buy any 12" Trimmer and get a Sediment Tray FREE
- Technical Support

This innovative Wet Model Trimmer was designed with power, performance and safety in mind. Engineered for heavy-duty use, the 3/4 HP wet trimmer operates at a full 1800 RPM.

Designed for the professional lab, this unit offers many unique features.

Special features include:

- Self cleaning design flushes slurry from unit, preventing stone or plaster build-up
- Easy to open, single clasp door
- Electric Water Valve
- Splash Shield
- Water Spray Attachment

Safety features include:

- Enclosed motor
- Special "trip-to-off" safety switch, shuts off motor if the door is opened during operation or in the event of a power failure. Waterproof on/off switch.

High-powered for high performance, the 3/4 HP Wet Model Trimmer will withstand years of rigorous use.

Unit measures, 15" W x 15-1/4" H x 13" D (38 cm x 39 cm x 33 cm)

Technical Specifications:

- **Voltage**
 - 115V/60 Hz
- **Amperage**
 - 4A
- **Dimensions**
 - 38 cm (15") Wide
 - 39 cm (15.25") High
 - 48 cm (19") Deep

SPECIFICATIONS

AirStar

Model	Part Number	Voltage	Full Load Amps	Dimensions (HXWXD) (in Parentheses - Height with Sound Reducing Cover)	Weight
10	AS10	115	8	27 x 23 x 18 (31")	100 lbs.
21	AS21	115	15	28 x 33 x 21 (32")	210 lbs.
22	AS22	208/230	8	28 x 33 x 21 (32")	210 lbs.
30	AS30	208/230	8	29 x 33 x 21 (32")	255 lbs.
50	AS50	208/230	16	31 x 38 x 24 (32")	320 lbs.
70	AS70	208/230	24	33 x 45 x 26"	430 lbs.

VacStar

Model	Part Number	Voltage	Full Load Amps	Water Flow/ Min. Per Pump	Dimensions (HXWXD)	Weight
20	VS20	115/230	16/8	.50	14 x 11 x 11"	68 lbs.
40	VS40	230	13.4	.75	17 x 11 x 11"	85 lbs.
60	VS60	230	16	.50	22 x 28 x 16"	160 lbs.
50H	VS50H	230	16	.12	22 x 28 x 16"	170 lbs.
80	VS80	230	26.8	.75	22 x 28 x 16"	200 lbs.
80H	VS80H	230	26.8	.18	25 x 28 x 16"	210 lbs.

STS

Model	Part Number	Voltage	Factory Preset Vacuum Level Hg	Dimensions (HXWXD)	Weight
STS-3	54600	200/250 AC, 60 Hz	10" Hg	20 1/2 x 16 3/4 x 23 1/2"	110 lbs.
STS-5	54100	200/250 AC, 60 Hz	10" Hg	24 1/4 x 16 3/4 x 23 1/2"	125 lbs.
STS-8	54910	200/250 AC, 60 Hz	10" Hg	20 1/2 x 16 3/4 x 46 1/2"	220 lbs.
STS-10	54700	200/250 AC, 60 Hz	10" Hg	24 1/4 x 16 3/4 x 46 1/2"	250 lbs.

CAS

Model	Part Number	Dimensions (HXWXD)	Weight
4-Gallon	54800	22 5/8 x 18 3/4 x 39 3/4"	45 lbs.
8-Gallon	54300	22 5/8 x 18 3/4 x 46"	48 lbs.

Warranties

AirStar and VacStar are warranted to be free from defects in materials and workmanship from the date of installation for a period of 24 months.

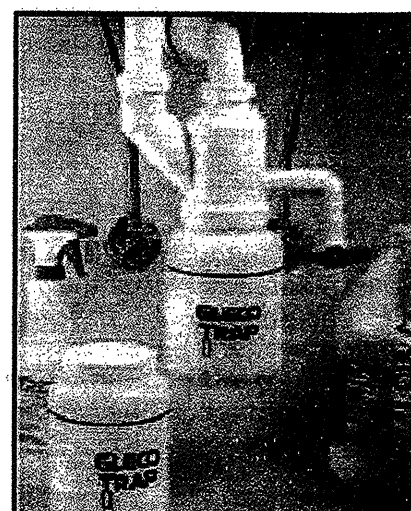
STS and CAS are warranted to be free from defects in material and workmanship for a period of 36 months.

Note: For government inquiries contact Air Techniques directly.

AirTechniques - UTILITY ROOM CONFIGURATION (VERIFY WITH MANUFACTURE)

Gleco Trap - IndiGreen Innovations

Provides you with an economical plumbing trap that is easily and quickly emptied and changed. Gleco Trap is primarily for a sink from which a substantial amount of solids is discharged. Trap is connected to the sink and collects solids in a clear bottle, which has a fill line. When solids reach the fill line, the trap is drained through a valve, the bottle is exchanged with replacement bottle, and the trap is back in service. Bottle exchange is rapid and easily done. The need for additional tools, most of all, there is no mess and no chance of water spill.



THE GLECO TRAP

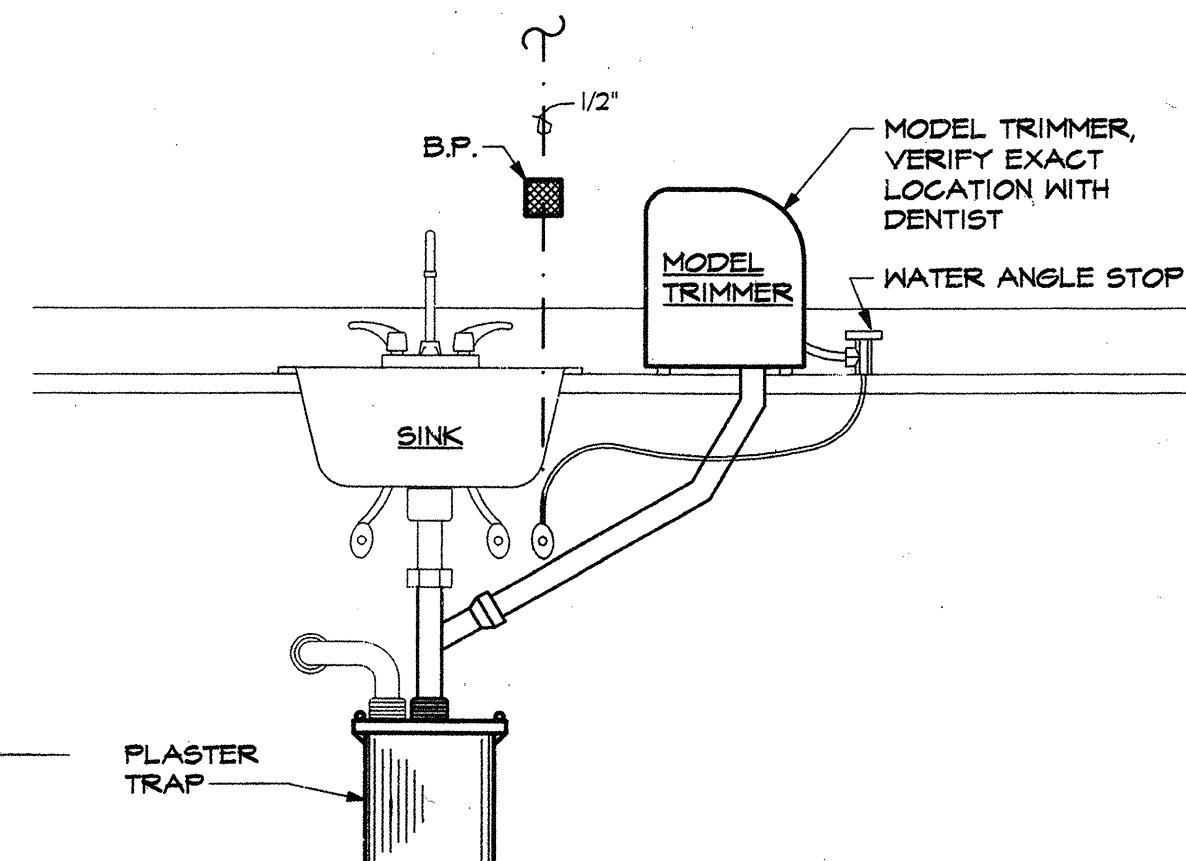
Lightweight Gleco Trap makes changing your plaster trap a clean, effortless 60-second task.

Invented by a plumber, the **Gleco Trap** brings revolution to the age-old chore of sink trap retrieval and plaster trap maintenance. No more leaky bags or bulky buckets!

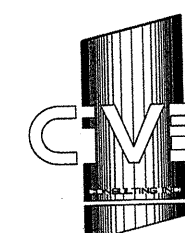
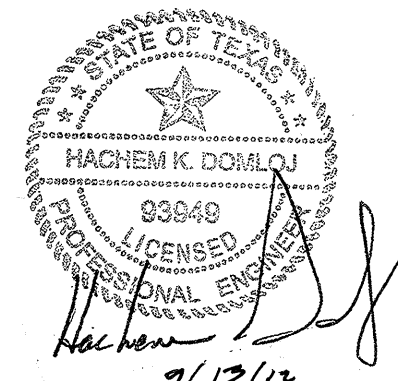
Install the pre-assembled Gleco Trap once, the replacing the bottle takes less than one minute start to finish without tools. Simply turn side valve to drain off excess water, unscrew full bottle, and screw in a clean one.

- Side drain siphons out all water prior to removal, eliminating spillage.
- See-through bottle shows waste level.
- Adapts easily to existing plumbing
- The Gleco Trap is the only plaster trap to meet US Uniform Plumbing Code!

System includes one trap assembly, two 64 oz. replacement bottles, all necessary 1/2" pipe components and simple instructions for a five-minute installation.



MODEL TRIMMER DETAIL @ LAB



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