SCHOOL EQUIPMENT ANCHORAGE NOTES

EQUIPMENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2010 CBC, SECTIONS 1615A.1.12 THROUGH 1615A.1.22 AND ASCE 7-05 CHAPTER 6 AND 13.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE ATTACHMENT OF THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-05 SECTION 13.3 AS DEFINED IN ASCE 7-05 SECTION 13.6.8, 13.6.7, 13.6.5.6, AND 2010 CBC, SECTIONS 1615A.1.20, 1615A.1.21 AND 1615A.1.22.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS OR THEY SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS (OPA #) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

GENERAL NOTES

1. ALL INDICATED DIMENSIONS ARE APPROXIMATE AND ARE GIVEN FOR ESTIMATE PURPOSES ONLY. BEFORE PROCEEDING WITH THE WORK CAREFULLY CHECK AND VERIFY ALL DIMENSIONS, SIZES, REQUIRED CLEARANCES AND ASSUME FULL RESPONSIBILITY FOR THE FITTING OF ALL EQUIPMENT AND MATERIALS HEREIN REQUIRED TO OTHER PARTS OF THE WORK AND TO THE WORK OF OTHER TRADES.
2. THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO THE EXTENT THAT ALL OFFSETS, BENDS, SPECIAL FITTINGS AND LOCATIONS ARE NOT EXACTLY LOCATED.
3. THIS CONTRACTOR SHALL COMPLY WITH ALL CONTRACT DOCUMENTS IN LAYING OUT HIS WORK AND EQUIPMENT. HE SHALL COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER TRADES AND ALL JOB CONDITIONS.
4. THE INSTALLATION OF VALVES, THERMOMETERS, GAUGES, CLEANOUTS, DAMPERS, DUCT ACCESS DOORS OR OTHER INDICATING EQUIPMENT OR SPECIALTIES REQUIRING READING, ADJUSTMENT, INSPECTION, REPAIRS, REMOVAL OR REPLACEMENT SHALL BE CONVENIENTLY AND ACCESSIBLY LOCATED WITH REFERENCE TO THE FINISHED BUILDING.
5. ALL LINE VOLTAGE WIRING, EQUIPMENT AND LINE VOLTAGE CONDUIT SHOWN DASHED SHALL BE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE WIRING AND LOW VOLTAGE CONDUIT SHALL BE BY THE HVAC CONTRACTOR. VERIFY ELECTRICAL CHARACTERISTICS PRIOR TO BID AND MATERIAL PURCHASE.
6. FINAL LOCATIONS OF THERMOSTAT OR SENSORS TO BE VERIFIED WITH THE ELECTRICAL AND MECHANICAL ENGINEER AT JOB SITE.
7. ALL THERMOSTATS OR SENSORS ON EXTERIOR WALLS TO BE MOUNTED ON THERMAL ISOLATION BASE.
8. ROOM THERMOSTATS OR SENSORS SHALL BE MOUNTED AT 4'-0" ABOVE FINISHED FLOOR. SEE DETAIL, THIS SHEET, FOR THERMOSTATS LOCATED ABOVE CABINETRY. JUNCTION BOX AND CONDUIT SHALL BE SEALED AIR-TIGHT.
9. WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL ENGINEER AND DSA FIELD ENGINEER.
10. ALL MISCELLANEOUS DUCTS, PIPES, ETC. SHALL BE BRACED IN ACCORDANCE WITH SMACNA DETAILS.
11. ALL SIZES FOR DUCTWORK AND AIR DISTRIBUTION ARE NET INSIDE DIMENSIONS.
12. PROVIDE AND INSTALL TURNING VANES IN RIGHT ANGLE ELBOWS AND DEFLECTORS IN RECTANGLE BRANCHES.
13. PROVIDE AND INSTALL ALL NECESSARY ACCESS DOORS AND CEILING ACCESS PANELS FOR DAMPERS AND CONTROLS.
14. PROVIDE COMBINATION FIRE/SMOKE DAMPERS IN DUCTS PENETRATING FIRE RATED PARTITIONS.
15. FOR EXACT LOCATIONS OF DIFFUSERS AND REGISTERS, SEE ARCHITECTURAL DRAWINGS.
16. INSTALL ALL FRESH AIR INTAKES AS TO BE 10'-0" FROM ANY AND ALL SANITARY VENTS OR EXHAUST FAN DISCHARGE. WHEN NECESSARY, EXTEND VENTS OR PROVIDE ADDITIONAL FRESH AIR INTAKE DUCTWORK AS DIRECTED BY THE ENGINEER.
17. THE SIZES, WEIGHTS AND CAPACITIES OF ALL EQUIPMENT SCHEDULED ON THE PLAN HAVE BEEN CAREFULLY COMPUTED. SHOULD EQUAL ITEMS BY DIFFERENT MANUFACTURERS (SEE SPECIFICATIONS) BE SUBMITTED FOR APPROVAL, ALL SUCH SUBMITTALS SHALL INCLUDE 1/4" SCALE SHOP DRAWINGS SHOWING METHOD OF INSTALLATION. PROVIDE LOAD RATINGS AND SEISMIC CALCULATIONS AS APPROVED BY A REGISTERED STRUCTURAL ENGINEER WITH EACH SUBMITTAL.
18. REQUIRED ROUTINE MAINTENANCE ACTION SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE LABEL, WHICH MAY BE LIMITED TO IDENTIFYING BY TITLE AND/OR PUBLICATION NUMBER THE OPERATION AND MAINTENANCE MANUAL FOR THAT PARTICULAR MODEL AND TYPE OF PRODUCT. ONE COPY OF THIS INFORMATION SHALL BE FURNISHED BY THE CONTRACTOR TO THE OWNER.
19. THE CONTRACTOR SHALL PROVIDE THE BUILDING OWNER, MANAGER, AND ORIGINAL OCCUPANTS A DESCRIPTION OF THE QUANTITIES OF OUTDOOR AND RECIRCULATED AIR THAT THE VENTILATION SYSTEMS ARE DESIGNED TO PROVIDE TO EACH AREA.
20. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL TRADES AT THE SITE. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE PLANS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
21. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DO ALL CORING, SAW CUTTING, PATCHING AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY FOR HIM TO PENETRATE FOR HIS WORK. ALL OPENINGS SHALL BE SEALED TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING PENETRATED.
22. CUTTING, BORING, SAW CUTTING OR DRILLING THROUGH THE STRUCTURAL ELEMENTS IS NOT TO BE STARTED UNTIL THE THE DETAILS HAVE BEEN REVIEW AND APPROVED BY THE ARCHITECT, STRUCTURAL ENGINEER AND THE DSA FIELD ENGINEER IF THE DETAILS DO NOT SHOW OR CONFORM TO THE APPROVED DRAWINGS.
23. PENETRATIONS OF PIPES, CONDUITS, ETC., IN WALLS REQUIRING PROTECTED OPENING SHALL BE FIRE STOPPED. FIRE STOP MATERIAL SHALL BE A U.L. TESTED AND APPROVED ASSEMBLY APPROVED BY THE STATE FIRE MARSHALL.
24. BEFORE BIDDING THE PROJECT THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE CLEARANCES AVAILABLE TO BRING THE SPECIFIED EQUIPMENT AND MATERIAL TO THE SITE.
25. MANUAL VOLUME DAMPERS USED FOR HARD CEILING SHALL BE POTTORFF MODEL RCS-213 (REMOTE CONTROL DAMPER SYSTEM). CONTRACTOR SHALL VERIFY CEILING TYPE TO DETERMINE APPROPRIATE DAMPER TYPE.

EQUIPMENT SCHEDULES

FURNACE SCHEDULE

ITEM NO.	MANUFACTURER AND MODEL NO.	QUANTITY	ROOM SERVED	INPUT MBTU/HR.	OUTPUT MBTU/HR.	EXTERNAL S.P.	AFUE	C.F.M.	MOTOR H.P.	ELECTRICAL DATA V-Ø-HZ	ELECTRICAL DATA MCA	MOCP	APPROX. OPERATING WEIGHT WT.=LBS.	ANCHORAGE DETAIL	OUTSIDE AIR (CFM)	REMARKS
F 1	CARRIER 58CVX070-12	10	CLASSROOMS IN SCOPE OF WORK	66.0	54.0	.75	80.0	1180	1/2	115-1-60	9.0	15	130	1 / M4.0	450	COMPLETE WITH 7-DAY ELEC. PROGRAMMABLE T-STAT.

CEILING DIFFUSER SCHEDULE (SUPPLY AIR)

ITEM NO.	CEILING TYPE	MANUFACTURER AND MODEL NO.	FACE TYPE	REMARKS
CD	T-BAR OR GYP. BOARD	METAL AIRE 9000	MODULAR CORE	24x24 FILLER PANEL FOR LAY IN T-BAR, FIELD VERIFY PROPER DISCHARGE CONFIGURATION (2-WAY, 3-WAY OR 4-WAY).

CEILING REGISTER SCHEDULE (RETURN/EXHAUST AIR)

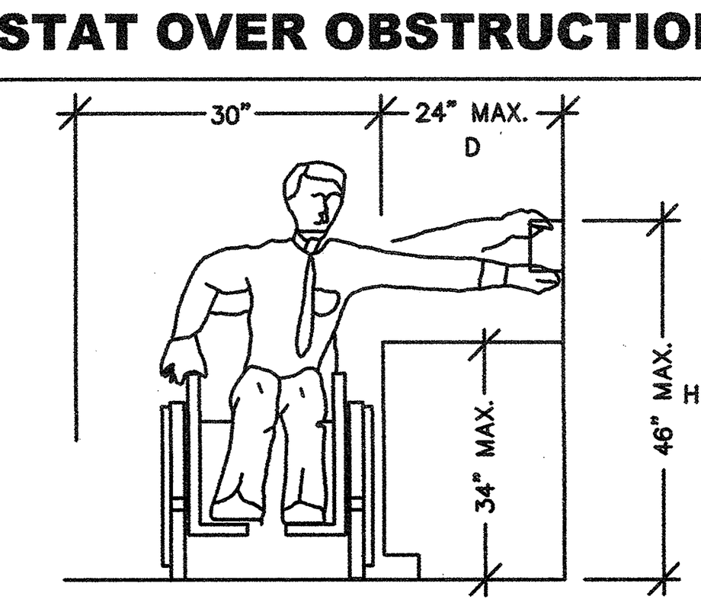
ITEM NO.	CEILING TYPE	MANUFACTURER AND MODEL NO.	FACE TYPE	REMARKS
CR	T-BAR OR GYP. BOARD	METAL AIRE RH	FIXED LOUVER	NONE

LEGEND

SYMBOL	ABBREV.	DESCRIPTION
		SQUARE OR RECTANGULAR DUCT
	(L)	DUCT WITH ACOUSTIC LINER(IN ADDITION TO WHERE SPECIFIED)
		ROUND DUCT
		FLEXIBLE ROUND DUCT
UP (OR DN)		DUCT SLOPE DIRECTION
		DUCT UP OR DOWN
		DUCT TRANSITION
		RADIUS ELBOW (✻ FIG. 2-2)
		RECTANGULAR/SQUARE DUCT THROAT ELBOW WITH VANES (✻ FIG. 2-2)
OR		SQUARE 45 DEGREE ENTRY BRANCH CONNECTION (✻ FIG. 2-8)
		ROUND DUCT WYE FITTING (✻ FIG. 3-5)
OR		RECTANGULAR DUCT PARALLEL FLOW BRANCH (✻ FIG. 2-7)
"TH OR "TH		THROAT SIZE ON RECTANGULAR DUCT SPLIT
OR		DUCT TAKE-OFF FROM BOTTOM
OR		DUCT TAKE-OFF FROM TOP
	MVD	VOLUME DAMPER
	FD	FIRE DAMPER
		MOTORIZED DAMPER
	FD-SD	FIRE DAMPER & SMOKE DAMPER
		BAROMETRIC DAMPER
	CR	CEILING REGISTER (RETURN OR OUTSIDE AIR)
	CD	CEILING DIFFUSER (SUPPLY)
	CR	CEILING REGISTER (EXHAUST AIR)
		SUPPLY AIR DUCT SECTION UP OR DOWN
		RETURN OR OUTSIDE AIR DUCT SECTION UP OR DOWN
		EXHAUST AIR DUCT SECTION UP OR DOWN
		SUPPLY AIR DUCT UP THRU FLOOR OR ROOF
		RETURN OR OUTSIDE AIR DUCT UP THRU FLOOR OR ROOF
		EXHAUST AIR DUCT UP THRU FLOOR OR ROOF
2	LVR.	DOOR LOUVER AND SQUARE FOOT AREA
		UNDERCUT DOOR 3/4"
	GALV.	GALVANIZED
	G. I.	GALVANIZED IRON
	S.P.	STATIC PRESSURE
Ø	DIA.	ROUND(DIAMETER)
	CFM	CUBIC FEET OF AIR PER MINUTE
	DTR	DOWN THRU ROOF
	EXH.	EXHAUST
	OSA	OUTSIDE AIR
	R. OR RET.	RETURN
	S. OR SUPP.	SUPPLY
	TEMP.	TEMPERATURE
	TYP	TYPICAL
	UTR	UP THRU ROOF
XX / X		EQUIPMENT NUMBER
AC-4 T	T'STAT.	THERMOSTAT WITH UNIT NUMBER @ 48" MAX. A.F.F.
	BDD	BACKDRAFT DAMPER
	(L)	LINED DUCT

✻ REFERS TO "SMACNA" HVAC DUCT CONSTRUCTION STANDARDS

THERMOSTAT OVER OBSTRUCTION



(C)
MAXIMUM SIDE REACH OVER OBSTRUCTION

THIS DIAGRAM ILLUSTRATES THE SPECIFIC REQUIREMENTS OF THESE REGULATIONS AND IS INTENDED ONLY AS AN AID FOR BUILDING DESIGN AND CONSTRUCTION

SIDE REACH

FIGURE 11B-5D

CORRESPONDING REACH HEIGHTS FOR GIVEN DEPTHS:

WHEN D = 10" OR LESS, H = 54" MAX.
WHEN D = 11" H = 53.5" MAX.
WHEN D = 12" H = 53.0" MAX.
WHEN D = 13" H = 52.5" MAX.
WHEN D = 14" H = 51.5" MAX.
WHEN D = 15" H = 51.0" MAX.
WHEN D = 16" H = 50.5" MAX.
WHEN D = 17" H = 50.0" MAX.
WHEN D = 18" H = 49.5" MAX.
WHEN D = 19" H = 49.0" MAX.
WHEN D = 20" H = 48.5" MAX.
WHEN D = 21" H = 47.5" MAX.
WHEN D = 22" H = 47.0" MAX.
WHEN D = 23" H = 46.5" MAX.
WHEN D = 24" H = 46.0" MAX.

THIS DIAGRAM ILLUSTRATES THE SPECIFIC REQUIREMENTS OF THESE REGULATIONS AND IS INTENDED ONLY AS AN AID FOR BUILDING DESIGN AND CONSTRUCTION

SIDE REACH
FIGURE 11B-5D

DRAWING LIST

DWG.NO.	DESCRIPTION
M0.0	GENERAL NOTES, LEGEND AND DRAWING LIST
M0.1	TITLE 24
M2.0	FLOOR PLAN
M4.0	DETAILS

APPLICABLE CODES AND STANDARDS

APPLICABLE CODES AS OF JANUARY 1, 2011

- 2010 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 1
- 2010 CALIFORNIA BUILDING CODE (CBC)
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 2
  (2009 INTERNATIONAL BUILDING CODE (IBC) W/CALIFORNIA AMENDMENTS)
- 2010 CALIFORNIA ELECTRICAL CODE (CEC)
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 3
  (2008 NATIONAL ELECTRICAL CODE (NEC) W/CALIFORNIA AMENDMENTS)
- 2010 CALIFORNIA MECHANICAL CODE
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 4
  (2009 UNIFORM MECHANICAL CODE (UMC) W/CALIFORNIA AMENDMENTS
- 2010 CALIFORNIA PLUMBING CODE
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 5
  (2009 UNIFORM PLUMBING CODE (UPC) W/CALIFORNIA AMENDMENTS)
- 2010 CALIFORNIA ENERGY CODE
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 6
- 2010 CALIFORNIA FIRE CODE (CFC)
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 9
  (2009 INTERNATIONAL FIRE CODE (IFC) W/CALIFORNIA AMENDMENTS)

PBWS ARCHITECTS

1040 Lincoln Avenue, Suite 200
Pasadena, California 91103

T: 626.432.5000
F: 626.432.5010
www.pbws.com

Consultant:
TTG • STRUCTURAL • MECHANICAL • ELECTRICAL • CIVIL
TMAD TAYLOR & GAINES
901 Via Piemonte, Suite 400
Ontario, California 91764
Phone: 909.477.6915 Fax: 909.477.6916
www.ttgcorp.com Project No. 0011.006.00

Project Title:

Palos Verdes HS

CLASSROOM BUILDING 3

600 Cloyden Road
Palos Verdes Estates
California 90274

KEY PLAN

BID SET	04.24.12
DSA SUBMITTAL	07.22.11
50% CD	05.31.11
DESIGN DEVELOPMENT	03.17.11

Mark Date Description
Issues/Revisions

LICENSED ARCHITECT WADE DINE FRAZIER NO. C24336 RENEWS 6-30-13 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER CHRIS E. RADTKE No. M24519 Exp. 9/30/12 MECHANICAL STATE OF CALIFORNIA

Approval:

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL. 03-114031
FILE 19-H41
AC FLS SS
DATE MAR 2 2 2012

Project No:	10021.00
CAD Dwg. File:	
Drawn By:	AD
Checked By:	SN

Sheet Title:

GENERAL NOTES, LEGEND AND DRAWING LIST

Sheet Number:

M0.0

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 1 of 3) PERF-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *CA Climate Zone 06* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☒ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Relocatable - Indicate ☐ specific climate zone ☐ all climates
Phase of Construction: ☒ New Construction ☐ Addition ☐ Alteration

STATEMENT OF COMPLIANCE

This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to a Building using the performance compliance approach.
The documentation author hereby certifies that the documentation is accurate and complete.

Documentation Author — Signature:
Name: *Andy Cloud* — Date: *6/30/2011*
Company: *TMAD Taylor & Gaines* — Phone: *(909) 477-6915*
Address: *800 North Ferran Lane, Suite #100*
City/State/Zip: *Ontario, CA 91764*

The Principal Designer hereby certifies that the proposed building design represented in this set of documentation documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application. The proposed building has been designed to meet the energy efficiency requirements contained in sections 110, 116 through 118, and 140 through 149 of Title 24, Part 6. Please check one:

ENV. LTG. MECH.

☐ ☐ ☐ I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer, mechanical engineer, electrical engineer, or I am a licensed architect.
☐ ☐ ☐ I affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code by section 6737.3 or 6737.5 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
☐ ☐ ☐ I am exempt under Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt pursuant to Business and Professions Code Sections 5537, 5538 and 6737.1.

Principal Envelope Designer
Name: — Signature:
Company: *PBWS Architects* — Date:
Address: *1040 Lincoln Ave, Suite 200* — License #
City/State/Zip: *Pasadena, CA 91103* — Phone: *626.432.5000*

Principal Mechanical Designer
Name: *Chris Radtke, P.E.* — Signature:
Company: *TTG Inc* — Date:
Address: *800 North Ferran Lane, #100* — License #
City/State/Zip: *Ontario, CA 91764* — Phone: *909.477.6915*

Principal Lighting Designer
Name: *Master ginetta, P.E.* — Signature:
Company: *TTG Inc* — Date: *3/8/12*
Address: *800 North Ferran Lane, #100* — License # *B4951*
City/State/Zip: *Ontario, CA 91764* — Phone: *909.477.6915*

INSTRUCTIONS TO APPLICANT COMPLIANCE & WORKSHEETS (check box if worksheets are included)

☒ ENV-1C Certificate of Compliance. Required on plans.
☒ LTG-1C Certificate of Compliance. Required on plans.
☐ LTG-2C Lighting Controls Credit Worksheet
☐ LTG-3C Indoor Lighting Power Allowances
☒ MECH-1C Certificate of Compliance. Required on plans.
☒ MECH-2C Air/Water Side/Service Hot Water & Pool Requirements.
☒ MECH-3C Mechanical Ventilation and Names
☒ MECH-5C Mechanical Equipment Details

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 2 of 3) PERF-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*

ANNUAL TDV ENERGY USE SUMMARY (kBtu/sqft/yr)

Energy Component	Standard Design	Proposed Design	Compliance Margin
Space Heating	3.47	1.92	1.40
Space Cooling	85.70	84.82	0.07
Indoor Fans	65.41	61.52	3.80
Heat Rejection	0.00	0.00	0.00
Pumps & Misc.	0.00	0.00	0.00
Domestic Hot Water	0.00	0.00	0.00
Lighting	84.04	73.11	10.93
Receptacle	64.40	64.40	0.00
Process	0.00	0.00	0.00
Process Lighting	0.00	0.00	0.00
TOTALS	306.04	289.80	16.24
Percent better than Standard		5.3 %	5.3 % excluding process)

Heating, Cooling, Fans, Heat Rej., Pumps, DHW, Lighting, Receptacle, Process, Process Ltg

BUILDING COMPLIES

GENERAL INFORMATION

Building Orientation	*(N) 0 deg*	Conditioned Floor Area	9,350 sqft.
Number of Stories	1	Unconditioned Floor Area	0 sqft.
Number of Systems	10	Conditioned Footprint Area	9,350 sqft.
Number of Zones	10	Natural Gas Available On Site	Yes

	Orientation	Gross Area	Glazing Area	Glazing Ratio
Front Elevation	(N)	2,440 sqft.	306 sqft.	19.2 %
Left Elevation	(E)	1,840 sqft.	233 sqft.	12.5 %
Rear Elevation	(S)	2,440 sqft.	395 sqft.	16.2 %
Right Elevation	(W)	1,840 sqft.	230 sqft.	12.5 %
Total		8,560 sqft.	1,255 sqft.	14.6 %
Roof		9,350 sqft.	70 sqft.	0.8 %

	Standard	Proposed	
Prescriptive Lighting Power Density	1.300 W/sqft.	1.040 W/sqft.	Prescriptive Values for Comparison only. See LTG-1C for allowed LPD.
Prescriptive Window TDV Energy	327,685	294,472	

Remarks:

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 3 of 3) PERF-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*

ZONE INFORMATION

System Name	Zone Name	Occupancy Type	Floor Area (sqft.)	Inst. LPD (W/sqft.)	Ctrl. Credits (W/sqft.)	Allowed LPD Area (W/sqft.)	Tailored (W/sqft.)	Proc. Loads (W/sqft.)
F-1 (Classroom 101)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 102)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 103)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 104)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 105)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 106)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 107)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 108)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 109)	Classroom	Classroom, Lecture, Training	935	1.04				
F-1 (Classroom 110)	Classroom	Classroom, Lecture, Training	935	1.04				

Note(s): 1. Sec.140.6-E 2. Sec.170.3C 3. Sec.170.3C 4. Sec.170.4D
(to share)
Items above require special documentation

EXCEPTIONAL CONDITIONS COMPLIANCE CHECKLIST

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification to be used with the performance approach. The local enforcement agency determines the adequacy of the justifications, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

The exceptional features listed in this performance approach application have specifically been reviewed. Adequate written justification and documentation for their use has been provided by the applicant:

Authorized Signature or Stamp

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *6* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☒ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☒ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☒ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS — **INSULATION**

Tag/ID[1]	Assembly Type[2]	Area (ft²)	Orientation (N, E, S, W)	U-Factor	Cavity R-Value	Exterior R-Value	Framing	Interior R-Value	Interior Framing	Joint Appendix 4	Condition Status[3]	Pass	Fail
23	Slab	935	(N)	0.730	None					4.4.7-A1	New	☐	☐
24	Wall	362	(E)	0.074	R-19					4.2.1-A5	New	☐	☐
27	Wall	374	(E)	0.074	R-19					4.2.1-A5	New	☐	☐
28	Wall	227	(N)	0.074	R-19					4.2.1-A5	New	☐	☐
29	Roof	935	(N)	0.031	R-30					4.2.1-A20	New	☐	☐
30	Slab	935	(N)	0.730	None					4.4.7-A1	New	☐	☐
31	Wall	362	(E)	0.074	R-19					4.2.1-A5	New	☐	☐
32	Wall	374	(E)	0.074	R-19					4.2.1-A5	New	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-9K.
2. If Fail, then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID[1]	Fenestration Type[2]	Area (ft²)	Orientation (N, E, S, W)	SHGC or Shade	U-Factor or Shade	Max PF/Factor	U-Factor Source[3]	Max PF/Factor	SHGC Source[4]	Overhang	Condition Status[5]	Pass	Fail
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-9K.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *6* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☒ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☒ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☒ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS — **INSULATION**

Tag/ID[1]	Assembly Type[2]	Area (ft²)	Orientation (N, E, S, W)	U-Factor	Cavity R-Value	Exterior R-Value	Framing	Interior R-Value	Interior Framing	Joint Appendix 4	Condition Status[3]	Pass	Fail
33	Wall	227	(W)	0.074	R-19					4.2.1-A5	New	☐	☐
34	Roof	935	(W)	0.031	R-30					4.2.1-A20	New	☐	☐
35	Slab	935	(W)	0.730	None					4.4.7-A1	New	☐	☐
36	Wall	210	(S)	0.074	R-19					4.2.1-A5	New	☐	☐
37	Wall	362	(W)	0.074	R-19					4.2.1-A5	New	☐	☐
38	Wall	374	(W)	0.074	R-19					4.2.1-A5	New	☐	☐
39	Roof	935	(W)	0.031	R-30					4.2.1-A20	New	☐	☐
40	Slab	935	(W)	0.730	None					4.4.7-A1	New	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-9K.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID[1]	Fenestration Type[2]	Area (ft²)	Orientation (N, E, S, W)	SHGC or Shade	U-Factor or Shade	Max PF/Factor	U-Factor Source[3]	Max PF/Factor	SHGC Source[4]	Overhang	Condition Status[5]	Pass	Fail
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-9K.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 3) ENV-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *6* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☒ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☒ Conditioned Spaces ☐ Unconditioned Spaces
☐ Skylight Area for Large Enclosed Space ≥ 8000 ft² (If checked include the ENV-4C with submittal)
Phase of Construction: ☐ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☒ Overall Envelope ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

FIELD INSPECTION ENERGY CHECKLIST

OPAQUE SURFACE DETAILS — **INSULATION**

Tag/ID[1]	Assembly Type[2]	Area (ft²)	Orientation (N, E, S, W)	U-Factor	Cavity R-Value	Exterior R-Value	Framing	Interior R-Value	Interior Framing	Joint Appendix 4	Condition Status[3]	Pass	Fail
41	Wall	210	(S)	0.074	R-19					4.2.1-A5	New	☐	☐
42	Wall	210	(S)	0.074	R-19					4.2.1-A5	New	☐	☐
43	Roof	935	(S)	0.031	R-30					4.2.1-A20	New	☐	☐
44	Slab	935	(S)	0.730	None					4.4.7-A1	New	☐	☐
45	Wall	210	(E)	0.074	R-19					4.2.1-A5	New	☐	☐
46	Wall	362	(E)	0.074	R-19					4.2.1-A5	New	☐	☐
47	Wall	210	(S)	0.074	R-19					4.2.1-A5	New	☐	☐
48	Roof	935	(S)	0.031	R-30					4.2.1-A20	New	☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-9K.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. A fail does not meet compliance.

FENESTRATION SURFACE DETAILS

Tag/ID[1]	Fenestration Type[2]	Area (ft²)	Orientation (N, E, S, W)	SHGC or Shade	U-Factor or Shade	Max PF/Factor	U-Factor Source[3]	Max PF/Factor	SHGC Source[4]	Overhang	Condition Status[5]	Pass	Fail
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐
										☐		☐	☐

1. See Instructions in the Nonresidential Compliance Manual, page 3-9K.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE AND FIELD INSPECTION ENERGY CHECKLIST (Part 2 of 3) ENV-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*

ROOFING PRODUCT (COOL ROOFS)

(Note if the roofing product is not CRRC certified, this compliance approach cannot be used) Go to Overall Envelope Approach or Performance Approach

CHECK APPLICABLE BOX BELOW IF EXEMPT FROM THE ROOFING PRODUCT "COOL ROOF" REQUIREMENTS: | Pass | Fail | N/A

☐ Roofing compliance not required in Climate Zones 1 and 16 with a Low-Sloped (≤ 2:12 pitch or less.
☐ Roofing compliance not required in Climate Zone 1 with a Steep-Sloped with less than 6 5/8" Greater than 2:12 pitch.
☐ Low-sloped (Roof framed roofs in Climate Zones 2 and 5 are exempted), solar reflectance and thermal emittance or SRI shall have a U-factor of 0.139 or lower. See Opaque Surface Details roof assembly. Column U-Factor.
☐ Steep-sloped (Roof framed roofs in Climate Zones 2 and 5 are exempted), solar reflectance and thermal emittance or SRI shall have a U-factor of 0.165 or lower. See Opaque Surface Details roof assembly below, Column U-Factor.
☐ The roof was covered by building integrated photovoltaic panels and building integrated solar thermal panels are exempted. Solar reflectance and thermal emittance or SRI, see spreadsheet calculation at www.energy.ca.gov/title24/
☐ Roof constructions that have thermal mass over the roof membrane with a weight of at least 25 lb/ft² are exempt from the requirements of this section.
☐ High-rise residential buildings and hotels and motels with low-sloped roofs in Climate Zones 1 through 5, 10 and 16 are exempted from the low-sloped roofing criteria.

1. If Fail then describe on this page of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CRRC Product ID Number	Roof Slope ≤ 2:12 = F-2	Product Weight ≥ 25 lb/ft² = H-E	Product Type[1]	Aged Solar Reflectance[2]	Thermal Emittance	SRI[3]	Pass	Fail
	☐	☐					☐	☐
	☐	☐					☐	☐
	☐	☐					☐	☐
	☐	☐					☐	☐
	☐	☐					☐	☐
	☐	☐					☐	☐

1. The CRRC Product ID Number can be obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/search.php
2. Indicate the type of product is being used for the roof top, i.e. single-ply roof, asphalt roof, metal roof, etc.
3. If the Aged Reflectance is not available in the Cool Roof Rating Council's Rated Product Directory then use the Initial Reflectance value from the Cool Roof Rating Council's Rated Product Directory and multiply the Initial Reflectance value by 0.2 to obtain a calculated aged value. Where a the Initial Solar Reflectance from the Cool Roof Rating Council's Rated Product Directory.
4. Check box if the Aged Reflectance is a calculated value using the equation above.
5. The SRI value needs to be calculated from a spreadsheet calculator at http://energy.ca.gov/title24/
6. If Fail then describe on this page of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

To apply **Liquid Field Applied Coatings**, the product(s) must be supplied across the entire roof surface and meet the dry mil thickness or coverage recommended by the coatings manufacturer and meet minimum performance requirements listed in §118(i)4. Select the applicable coating:

☐ Aluminum Pigmented Asphalt Roof Coating ☐ Cement-Based Roof Coating ☐ Other

Discrepancies:

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 4) MECH-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *6* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☒ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☒ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☒ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☒ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

HVAC SYSTEM DETAILS — **FIELD INSPECTION ENERGY CHECKLIST**

Equipment[1]	Inspection Criteria	Meets Criteria or Requirements: Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	*F-1 (Classroom 105)*	☐	☐
Equipment Type[3]	*Split DX*	☐	☐
Number of Systems	*1*	☐	☐
Max Allowed Heating Capacity[4]	*54,000 Btu/hr*	☐	☐
Minimum Heating Efficiency[5]	*80% AFUE*	☐	☐
Max Allowed Cooling Capacity[6]	*0 Btu/hr*	☐	☐
Cooling Efficiency[7]	*n/a*	☐	☐
Duct Location/ R-Value	*R-8.0*	☐	☐
When duct testing is required, submit **MECH-4A** & **MECH-4-HERS**	*No*	☐	☐
Economizer	*No Economizer*	☐	☐
Thermostat	*Setback Required*	☐	☐
Fan Control	*Constant Volume*	☐	☐

1. If the Actual Installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 4) MECH-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *6* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☒ Nonresidential ☐ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☒ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☒ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☒ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

HVAC SYSTEM DETAILS — **FIELD INSPECTION ENERGY CHECKLIST**

Equipment[1]	Inspection Criteria	Meets Criteria or Requirements: Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	*F-1 (Classroom 107)*	☐	☐
Equipment Type[3]	*Split DX*	☐	☐
Number of Systems	*1*	☐	☐
Max Allowed Heating Capacity[4]	*54,000 Btu/hr*	☐	☐
Minimum Heating Efficiency[5]	*80% AFUE*	☐	☐
Max Allowed Cooling Capacity[6]	*0 Btu/hr*	☐	☐
Cooling Efficiency[7]	*n/a*	☐	☐
Duct Location/ R-Value	*R-8.0*	☐	☐
When duct testing is required, submit **MECH-4A** & **MECH-4-HERS**	*No*	☐	☐
Economizer	*No Economizer*	☐	☐
Thermostat	*Setback Required*	☐	☐
Fan Control	*Constant Volume*	☐	☐

1. If the Actual Installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 1 of 4) MECH-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*
Project Address: *600 Cloyden Road Palos Verdes* — Climate Zone: *6* — Total Cond. Floor Area: *9,350* — Addition Floor Area: *n/a*

GENERAL INFORMATION

Building Type: ☐ Nonresidential ☒ High-Rise Residential ☐ Hotel/Motel Guest Room
☐ Schools (Public School) ☐ Relocatable Public School Bldg. ☒ Conditioned Spaces ☐ Unconditioned Spaces (affidavit)
Phase of Construction: ☒ New Construction ☐ Addition ☐ Alteration
Approach of Compliance: ☐ Component ☒ Overall Envelope TDV Energy ☐ Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees: 0 deg

HVAC SYSTEM DETAILS — **FIELD INSPECTION ENERGY CHECKLIST**

Equipment[1]	Inspection Criteria	Meets Criteria or Requirements: Pass	Fail – Describe Reason[2]
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	*F-1 (Classroom 108)*	☐	☐
Equipment Type[3]	*Split DX*	☐	☐
Number of Systems	*1*	☐	☐
Max Allowed Heating Capacity[4]	*54,000 Btu/hr*	☐	☐
Minimum Heating Efficiency[5]	*80% AFUE*	☐	☐
Max Allowed Cooling Capacity[6]	*0 Btu/hr*	☐	☐
Cooling Efficiency[7]	*n/a*	☐	☐
Duct Location/ R-Value	*R-8.0*	☐	☐
When duct testing is required, submit **MECH-4A** & **MECH-4-HERS**	*No*	☐	☐
Economizer	*No Economizer*	☐	☐
Thermostat	*Setback Required*	☐	☐
Fan Control	*Constant Volume*	☐	☐

1. If the Actual Installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
2. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form. Compliance fails if a Fail box is checked.
3. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 2 of 4) MECH-1C

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*

Discrepancies:

ENVELOPE MANDATORY MEASURES: NONRESIDENTIAL ENV-MM

Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*

DESCRIPTION

Building Envelope Measures:

§110(a)	Installed insulating material shall have been certified by the manufacturer to comply with the California Quality Standards for insulating material, Title 20 Chapter 4, Article 3.
§110(b)	All Insulating Materials shall be installed in compliance with the flame-spread rating and smoke density requirements of Sections 2602 and 707 of Title 24, Part 3.
§116(f)	The opaque portions of framed demising walls in nonresidential buildings shall have insulation with an installed R-value of no less than R-13 between framing members.
§117(a)	All Exterior Joints and openings in the building that are observable sources of air leakage shall be caulked, gasketed, weatherstripped or otherwise sealed.
§116(a) 1:	Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft² of window area, 0.3 cfm/ft² of door area for residential doors, 0.3 cfm/ft² of door area for nonresidential single doors (swinging and sliding), and 1.0 cfm/ft² for nonresidential double doors (swinging).
§116(a) 2:	Fenestration U-factor shall be tested in accordance with NFRC 100, or the applicable default U-factor.
§116(a) 3:	Fenestration SHGC shall be rated in accordance with NFRC 200, or NFRC 100 for site-built fenestration, or the applicable default SHGC.
§116(b):	Site Constructed Doors, Windows and Skylights shall be caulked between the unit and the building, and shall be weatherstripped (except for unframed glass doors and fire doors).

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL MECH-MM

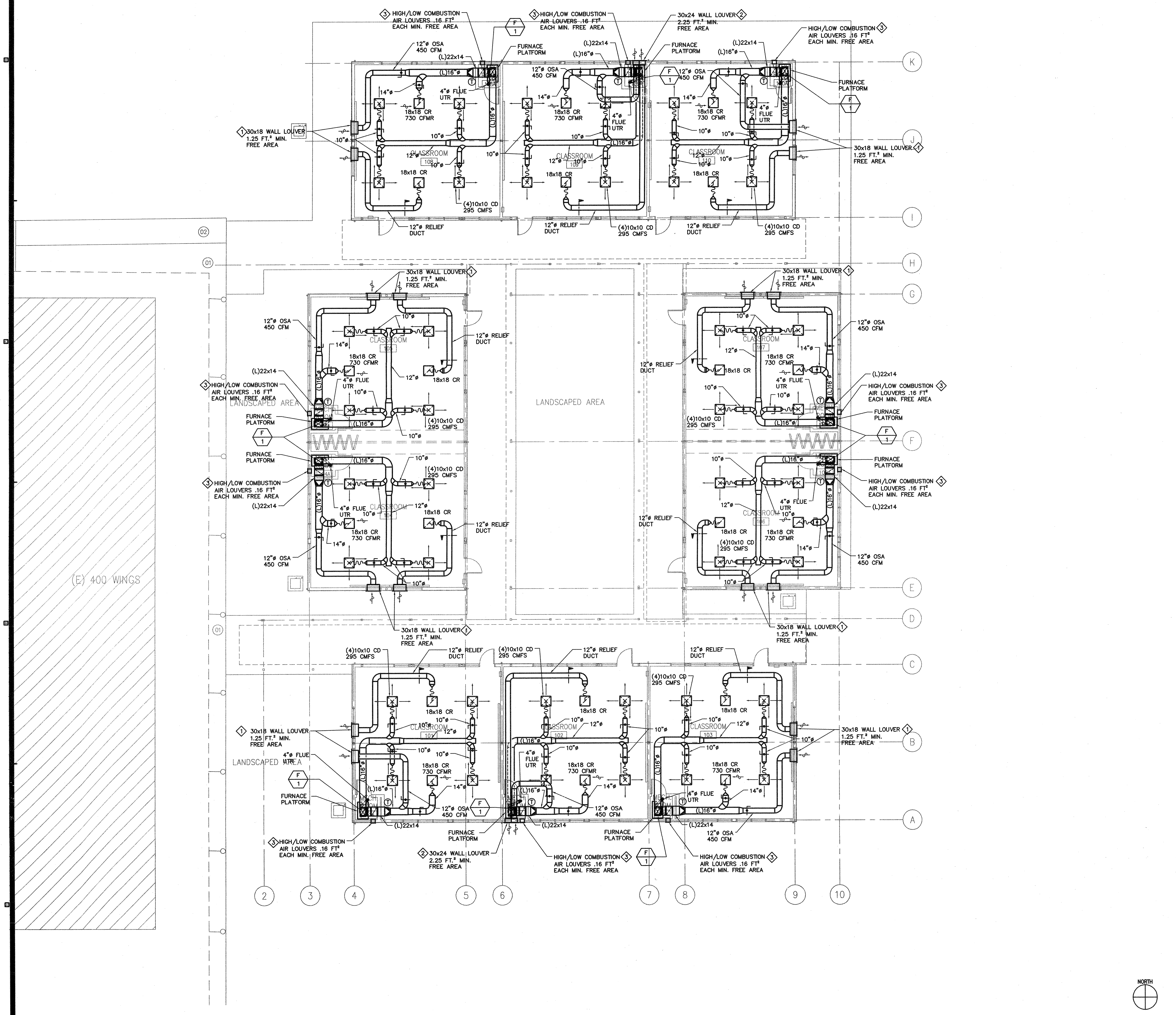
Project Name: *Palos Verdes HS Classroom Bldg. 3* — Date: *6/30/2011*

Equipment and System Efficiencies

§111:	Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.
§115(b)	Fan type central furnaces shall not have a pilot light.
§125:	Piping, except that conveying fluids at temperatures between 60 and 105 degrees Fahrenheit, or within HVAC equipment, shall be insulated in accordance with Standards Section 123.
§124:	All handling duct systems shall be installed and insulated in compliance with Sections 601, 602, 603, 604, and 605 of the CMC Standards.

Controls

§122(g)		Each space conditioning system shall be installed with one of the following:
	1A.	Each space conditioning system serving building types such as offices and manufacturing facilities (and all others not explicitly exempt from the requirements of Section 112 (d)) shall be installed with an automatic time switch with an accessible manual override that allows operation of the system during off-hours for up to 4 hours. The time switch shall be capable of programming different schedules for weekdays and weekends and have program backup capabilities that prevent the loss of the device's program and time setting for at least 10 hours if power is interrupted; or
	1B.	An occupancy sensor to control the operating period of the system; or
	1C.	A 4-hour timer that can be manually operated to control the operating period of the system.
	2.	Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback heating and/or a setup cooling thermostat setpoint.
§122(g):		Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 square feet; shall be provided with isolation devices, such as valves or dampers that allow the supply of heating or cooling to be setback or shut off independently of other isolation areas; and shall be controlled by a time control device as described above.
§122(c):		Thermostats shall have numeric setpoints in degrees Fahrenheit (F) and adjustable setpoint stops accessible only to authorized personnel.
§122(h):		Heat pumps shall



FLOOR PLAN

1/8"=1'-0" 1

KEY NOTES

1. WALL LOUVER COMPLETE WITH FULL SIZE PLENUM.
2. WALL LOUVER COMPLETE WITH FULL SIZE PLENUM. PROVIDE A SHEET METAL DIVIDER IN PLENUM FOR EACH DUCT. RUN OSA AND RELIEF DUCT ABOVE MECHANICAL CLOSET.
3. HIGH AND LOW COMBUSTION AIR LOUVERS ARE TO BE WITHIN 12" OF THE FINISHED FLOOR AND 12" WITHIN BOTTOM OF CEILING IN MECHANICAL CLOSETS. SEE ARCHITECTURAL ELEVATIONS.

PBWS ARCHITECTS

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www.ttgcorp.com Project No. 0011.006.00

Project Title:

Palos Verdes HS

CLASSROOM BUILDING 3

600 Cloyden Road
Palos Verdes Estates
California 90274

KEY PLAN

BID SET	04.24.12
DSA SUBMITTAL	07.22.11
50% CD	05.31.11
DESIGN DEVELOPMENT	03.17.11

Mark Date Description
Issues/Revisions

LICENSED ARCHITECT WADE DINE FRAZIER NO. C24338 RENEWS 6-30-13 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER CHRIS E. RADTKE No. M24519 Exp. 9/30/12 MECHANICAL STATE OF CALIFORNIA

Approval:

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL. 03-114031
FILE: 19-H41
AC FLS SS
DATE MAR 22 2012

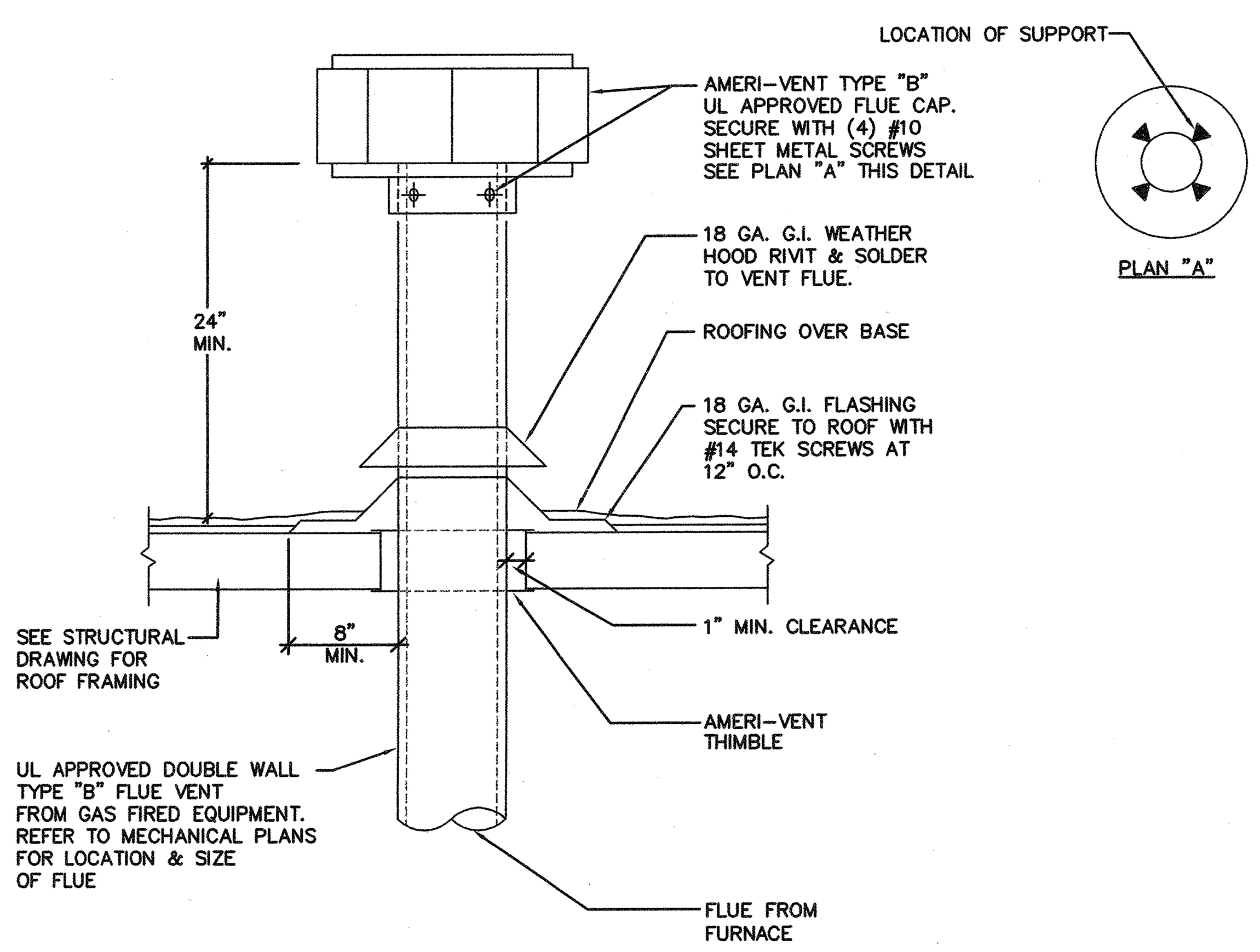
Project No: 10021.00
CAD Dwg. File:
Drawn By: AS
Checked By: RP

Sheet Title:

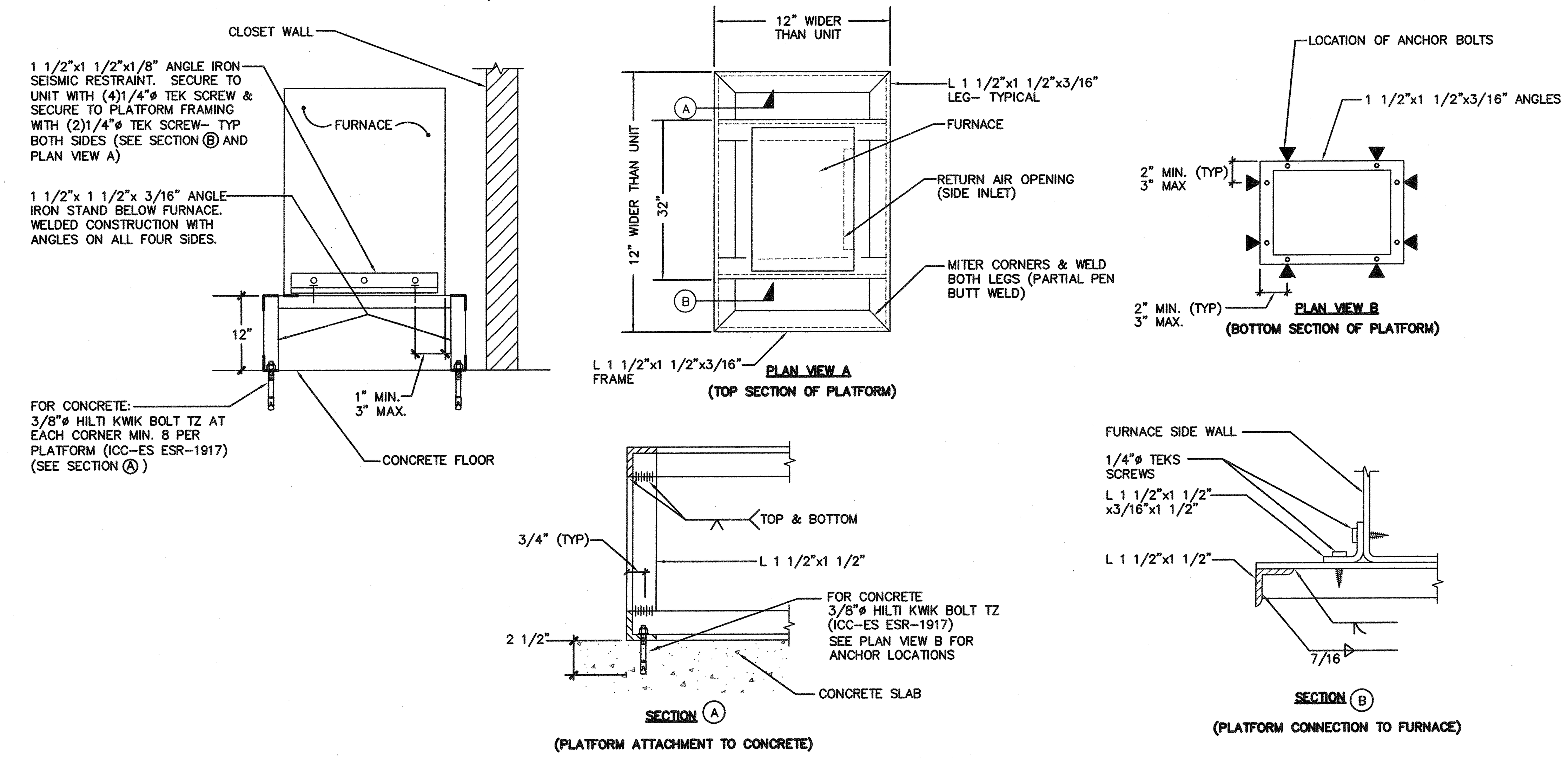
FLOOR PLAN

Sheet Number:

M2.0



FURNACE FLUE THRU ROOF DETAIL NTS 6



FURNACE PLATFORM DETAIL NTS 1

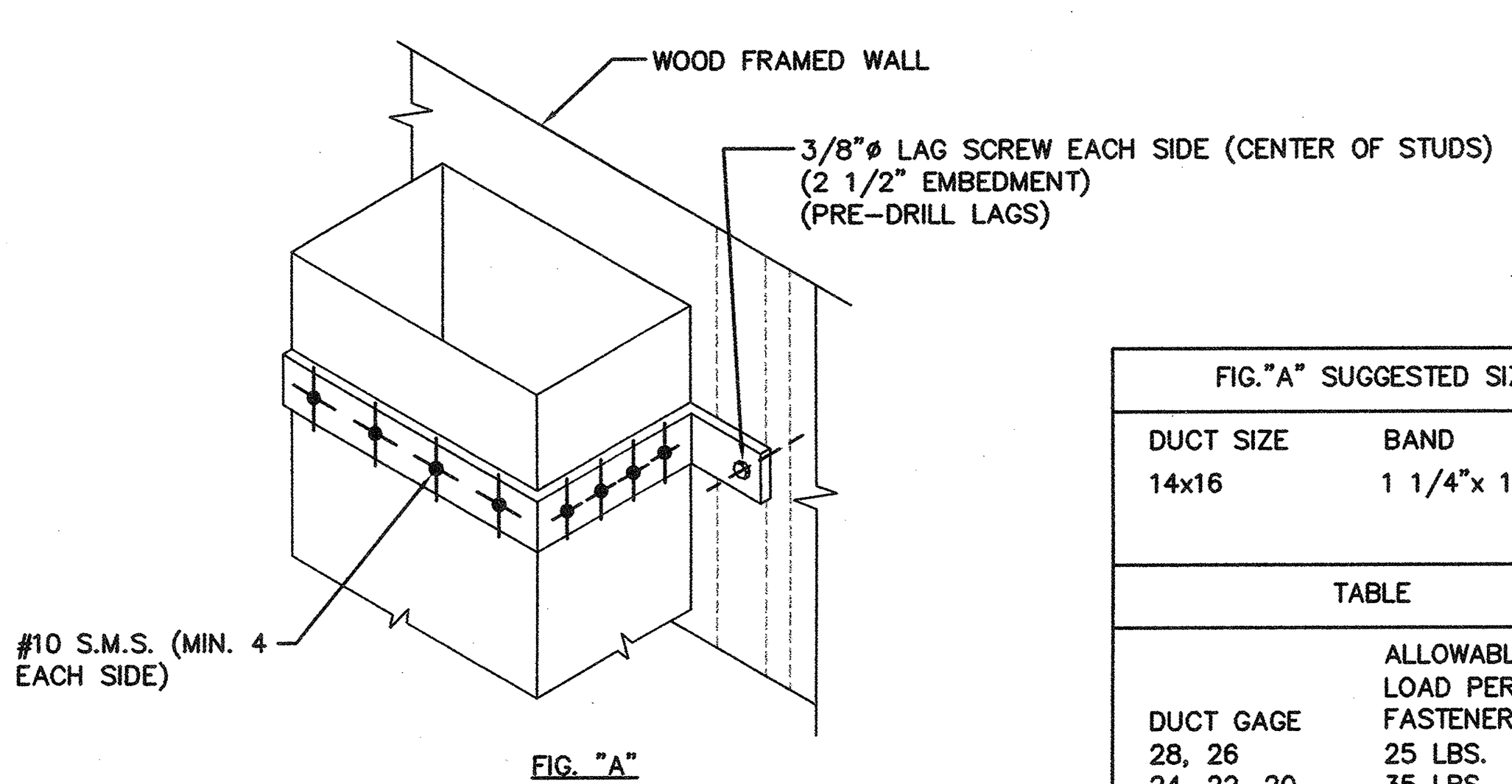


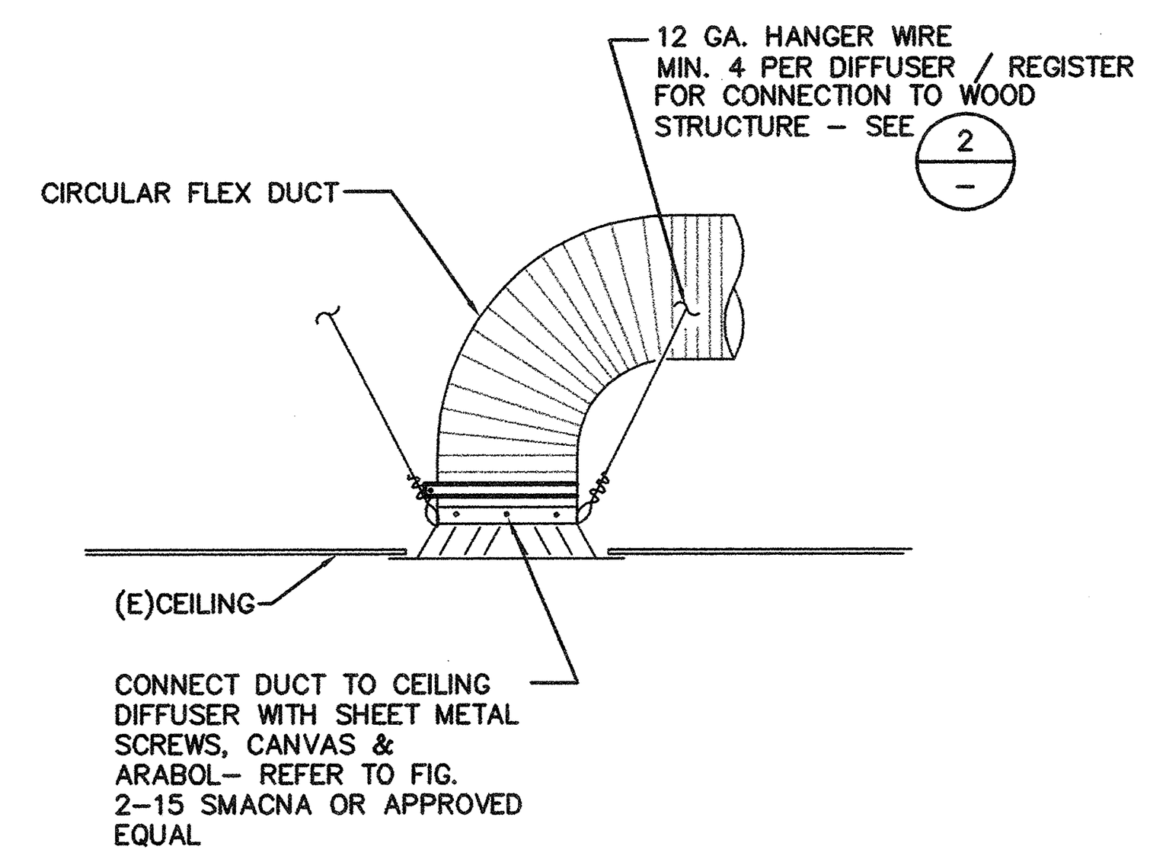
FIG."A" SUGGESTED SIZING	
DUCT SIZE	BAND
14x16	1 1/4"x 1/8"

TABLE	
DUCT GAGE	ALLOWABLE LOAD PER FASTENER
28, 26	25 LBS.
24, 22, 20	35 LBS.
18, 16	50 LBS.

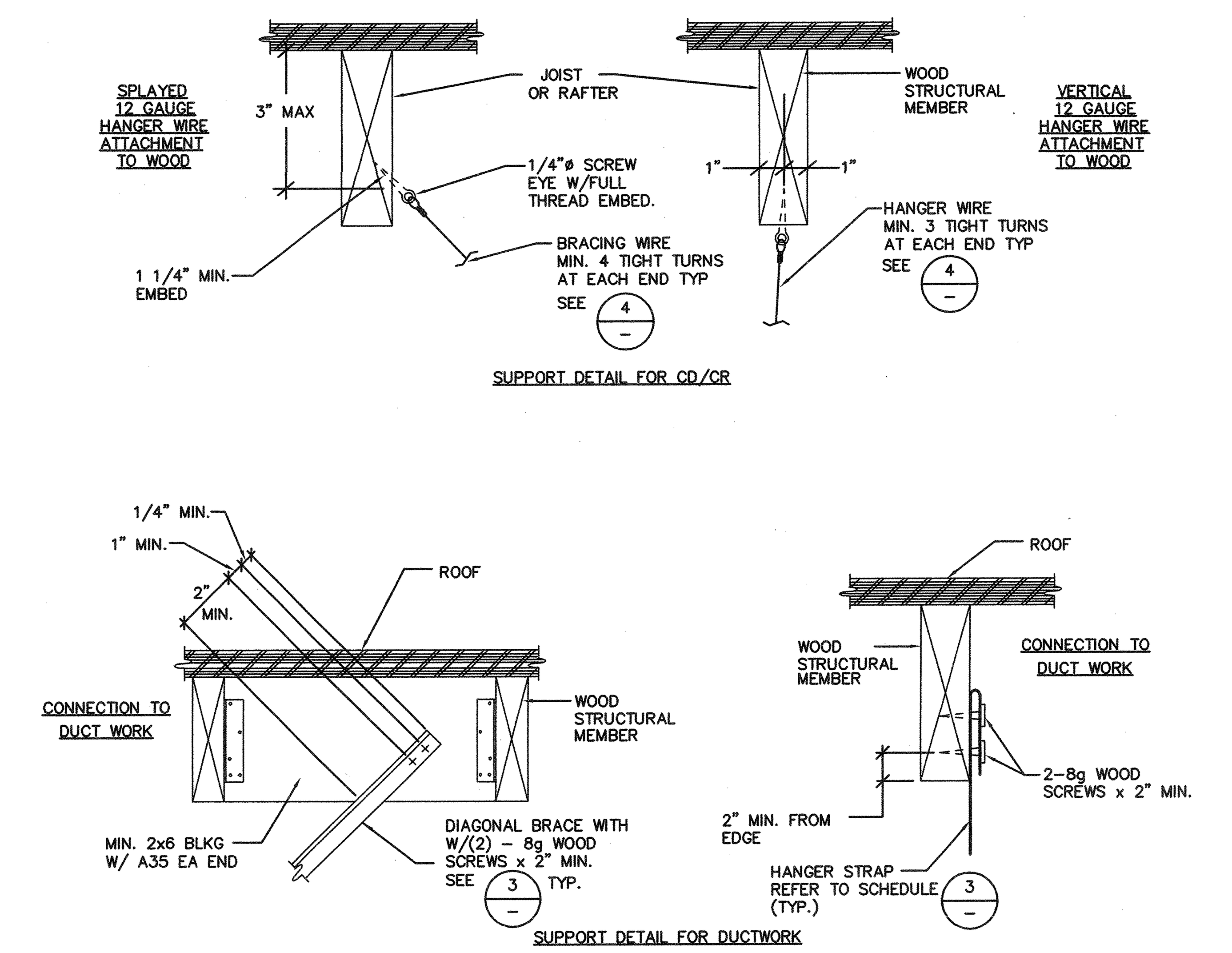
NOTE: (REFERENCE SMACNA DUCT CONST. STDS. FIG.4-7)

1. BRACKETS ARE SIZED FOR 12' OF DUCT MAX.
2. LOCATE DUCTS AGAINST WALL OR MAX. OF 2" AWAY FROM WALL
3. EACH WALL ANCHOR SHALL SATISFY THE FOLLOWING CRITERIA UNLESS OTHER ANALYSIS IS MADE:
   A. TENSILE LOAD = 3/8"x DUCT WEIGHT, SAFETY FACTOR OF (4)

DUCT CONNECTION TO WALL NTS 7

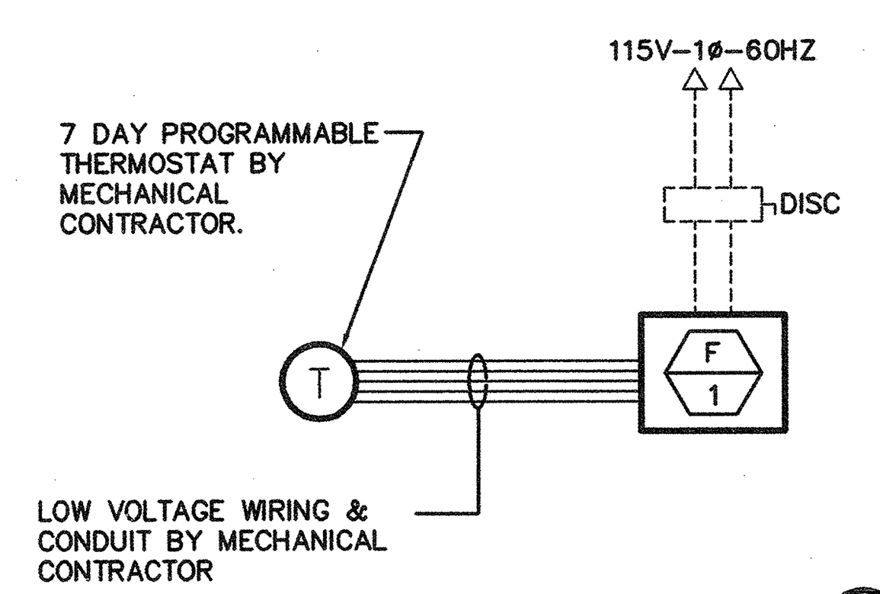


CD/CR MOUNTING DETAIL NTS 4



CONNECTION TO STRUCTURE NTS 2

NTS 8



T — THERMOSTAT BY UNIT MANUFACTURER.

EQUIPMENT FURNISHED AND INSTALLED UNDER ELECTRICAL.

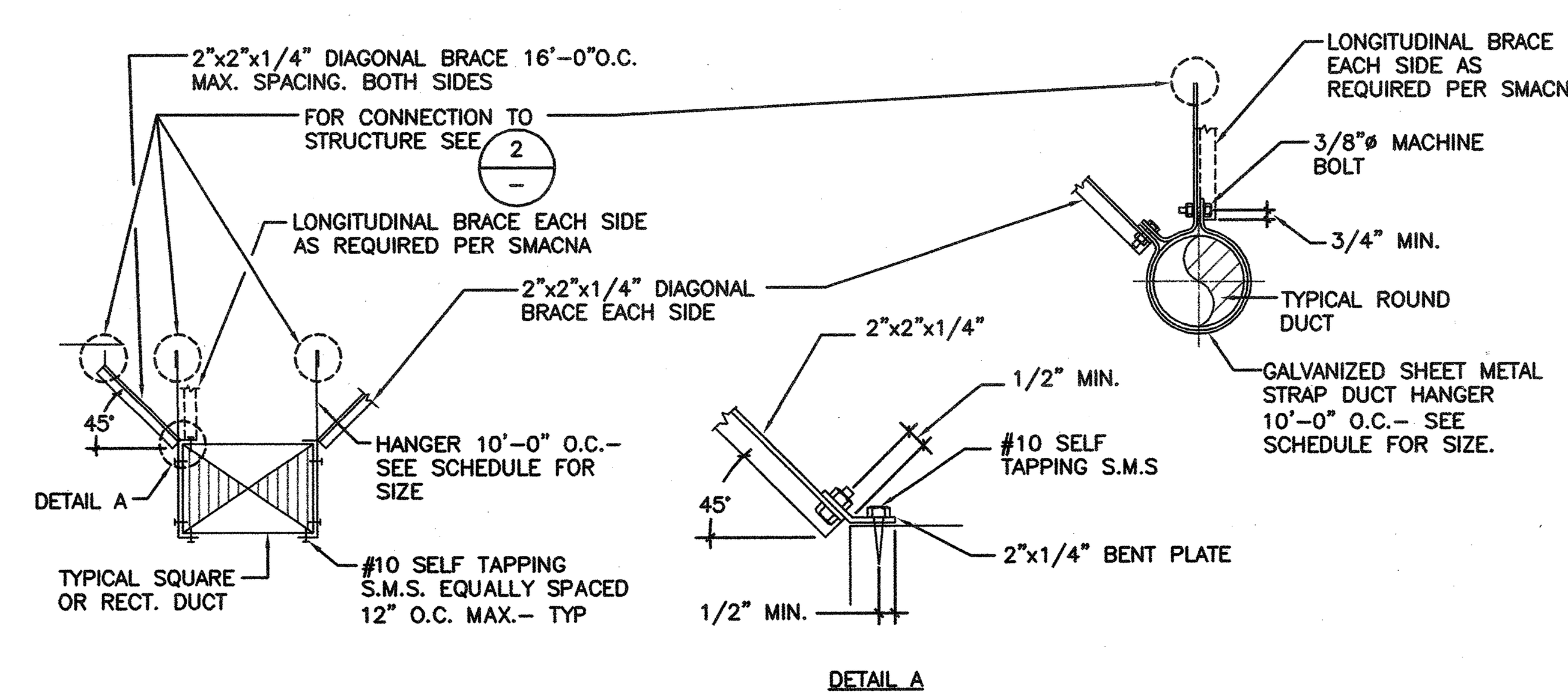
EQUIPMENT FURNISHED AND INSTALLED UNDER MECHANICAL.

LINE VOLTAGE WIRING AND CONDUIT FURNISHED UNDER ELECTRICAL.

LOW VOLTAGE WIRING AND CONDUIT FURNISHED AND INSTALLED UNDER MECHANICAL. SEE ELECTRICAL SPECIFICATION SECTIONS FOR CONDUIT AND WIRING REQUIREMENTS (ALL LOW VOLTAGE WIRING TO BE IN CONDUIT)

DISC — DISCONNECT SWITCH.

CONTROL WIRING DIAGRAMS/LEGEND NTS 5



RECTANGULAR DUCT			ROUND DUCT		
MAX. OF DUCT PERIMETER/IN.	STRAP	MAX. LOAD EACH HANGER/LBS.	DIAMETER /INCHES	STRAP	MAX. LOAD EACH HANGER/LBS.
P/2 =72	1"X 20 GA.	20	UP TO 20"	1"X 20 GA.	20
P/2 =96	1"X 18 GA.	30	21" TO 36"	1"X 18 GA.	30

NOTE:

1. NO BRACING REQUIRED IF DUCT IS SUSPENDED 12 INCHES OR LESS IN LENGTH.
2. FOR TRANSVERSE AND LONGITUDINAL BRACING FOLLOW "SMACNA" GUIDELINES FOR SEISMIC HAZARD LEVEL "A".

DUCT SUPPORT DETAIL NTS 3

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www.ttgcorp.com Project No. 0011.006.00

Project Title:

Palos Verdes HS
CLASSROOM BUILDING 3
600 Cloyden Road
Palos Verdes Estates
California 90274

KEY PLAN

Mark	Date	Description
BID SET	04.24.12	
DSA SUBMITTAL	07.22.11	
50% CD	05.31.11	
DESIGN DEVELOPMENT	03.17.11	

Issues/Revisions

LICENSED ARCHITECT — WADE DAVE FRAZIER — NO. C24338 — 8-30-13 — STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER — No. M24519 — Exp. 9/30/12

Approval:

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL. 03-114031
INC 19-H41
AC FLS SS
DATE MAR 2 2 2012

Project No: 10021.00
CAD Dwg. File:
Drawn By: AS
Checked By: RP

Sheet Title:

DETAILS

Sheet Number:

M4.0

GENERAL NOTES

1. ALL WORK AND MATERIAL SHALL COMPLY WITH THE LATEST; CALIFORNIA BUILDING CODE, CALIFORNIA PLUMBING CODE, 2010 CALIFORNIA ADMINISTRATIVE CODE TITLE 24, CALIFORNIA STATE FIRE MARSHAL, APPLICABLE LOCAL CODES, AMENDMENTS AND REQUIREMENTS. ALL APPROVED ASTM, ACI, AND AITC DESIGNATIONS SHALL BE AMENDED TO MOST RECENT DATE.
2. PROVIDE ALL SYSTEM COMPONENTS AND APPURTENANCES FOR A FULLY OPERATIONAL, CODE COMPLIANT INSTALLATION.
3. ALL WORK AND MATERIALS INDICATED ON THE THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
4. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.
5. PRIOR TO BIDDING, CONTRACTORS SHALL BECOME FAMILIAR WITH ALL PROJECT DOCUMENTS AND SURVEY THE SITE TO BECOME AWARE OF ALL EXISTING CONDITIONS AND SHALL NOTIFY THE OWNER IN WRITING ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN WITHIN THE DRAWINGS. NO EXTRA COMPENSATION SHALL BE AWARDED FOR THE CONTRACTOR'S FAILURE TO ALLOW FOR ANY EXISTING CONDITIONS THAT EFFECT HIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSIDERED EVIDENCE OF THE FACT THAT THE CONTRACTOR IS FULLY AWARE OF THESE CONDITION AND IS ABLE TO COMPLETE ALL WORK REQUIRED.
6. THE CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL AND STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL CONFIRM ALL NECESSARY DIMENSIONS, SYSTEM COMPONENT SPACE REQUIREMENTS, AND POINTS OF CONNECTIONS TO ALL EXISTING SYSTEM COMPONENTS, FIXTURES, AND EQUIPMENT.
7. THESE DRAWINGS AND LAYOUTS ARE DIAGRAMMATIC TO SHOW DESIGN INTENT AND INDICATE THE FINISHED REQUIREMENTS FOR THE PLUMBING SYSTEMS. IF NECESSARY, THE CONTRACTOR SHALL MAKE ANY MINOR ADJUSTMENTS TO THE SYSTEM OR ITS APPURTENANCES TO AVOID ANY CONFLICTS WITH BUILDING STRUCTURE OR THE WORK OF OTHER TRADES. IF DUE TO; ARCHITECTURAL, MECHANICAL, ELECTRICAL, OR STRUCTURAL INTERFERENCE, THE RETENTION OF EXISTING FACILITIES, OR FOR OTHER REASONS, THE CONTRACTOR MAY DESIRE TO INSTALL THE WORK IN A MANNER DIFFERENT FORM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO IMPLEMENTATION.
8. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WHETHER SHOWN WITHIN THE DRAWINGS OR NOT AND SHALL PROTECT THEM FROM ANY DAMAGE. CONTRACTOR PAY FOR ALL REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY THE WORK.
9. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO ENSURE THAT THE PLUMBING AND FIRE PROTECTION SYSTEMS ARE FULLY COORDINATED WITH ALL OTHER TRADES, VERIFY ALL EXISTING UTILITIES; LOCATION, SIZE, DEPTH, PRESSURE AND AVAILABILITY PRIOR TO STARTING WORK.
10. COORDINATE WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING ANY PLUMBING EQUIPMENT REQUIRING AN ELECTRICAL CONNECTION FOR AVAILABLE VOLTAGES PRIOR TO PURCHASING SAID EQUIPMENT.
11. KEEP ALL PIPING CLEAR OF ALL LOAD BEARING FOOTINGS.
12. UNDERGROUND STEEL PIPING, BOLTS, FLANGES, JOINTS AND COUPLINGS SHALL BE GIVEN HIGH QUALITY PROTECTIVE COATING SUCH AS 40 MIL EXTRUDED POLYETHYLENE, 20 MIL PLASTIC TAPE OVER PRIMER PER AWWA STANDARD C209 OR HOT APPLIED COAL TAR ENAMEL OR TAPE PER AWWA C203.
13. WHERE METALLIC PIPING PENETRATES CONCRETE STRUCTURE, SUCH AS FLOOR OR WALL, RUBBER SEALS, OR OTHER DIELECTRIC MATERIAL SHALL BE USED TO PREVENT PIPE CONTACT WITH CONCRETE AND REINFORCING STEEL.
14. PENETRATION OF RATED ASSEMBLIES SHALL BE FIRE STOPPED USING AN APPROVED MATERIAL BY UL AND SHALL HAVE AN F OR T RATING AS DETERMINED BY TESTS CONDUCTED IN ACCORDANCE WITH UBC.
15. THE CONTRACTOR SHALL COORDINATE ALL SHUT DOWN OF THE PLUMBING AND FIRE PROTECTION SYSTEMS WITH THE GENERAL CONTRACTOR AND/OR THE BUILDING ENGINEER AT A MINIMUM OF TWO WEEKS IN ADVANCE.
16. WHERE THERE IS A DISCREPANCY BETWEEN THE DRAWINGS AND THE PROJECT SPECIFICATIONS OR BUILDING STANDARDS, THE ARCHITECTS SHALL BE NOTIFIED OF THIS DISCREPANCY PRIOR TO PROCEEDING WITH THE WORK.
17. IF ANY EQUIPMENT OR MATERIAL FOR WHICH THE CONTRACTOR IN PLANNING ON UTILIZING IS DIFFERENT FROM THAT SPECIFIED SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL. THE SUBMITTAL SHALL INDICATE THAT THE SUBMITTED IS A SUBSTITUTION AND THE CREDIT DUE TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF ALL OTHER CHANGES RESULTING FROM THE SUBSTITUTION INCLUDING CHANGES IN THE WORK OF OTHER TRADES NECESSARY TO ACCOMMODATE THE REQUESTED SUBSTITUTION.
18. THE CONTRACTOR SHALL PROVIDE A COORDINATED SET OF SHOP DRAWINGS AND PRODUCT DATA ACCORDING TO THE SPECIFICATIONS FOR REVIEW AND APPROVAL PRIOR TO THE STARTING OF WORK AND THE PROCUREMENT OF ANY MATERIALS.

GENERAL NOTES (CONTINUATION)

19. THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A COMPLETE RECORD SET OF DRAWINGS. THESE PRINTS SHALL BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS. THIS SET OF DRAWINGS SHALL BE KEPT ON THE JOB SITE AND SHALL BE USED ONLY AS A RECORD SET. UPON COMPLETION OF THE WORK, AUTOCAD COPIES OF THE CONTRACT DRAWINGS SHALL OBTAINED FROM THE ARCHITECT, AND ALL CHANGES AS NOTED ON THE RECORD SET TO INCLUDE RFI'S SHALL BE INCORPORATED THEREON. THIS DOCUMENT WILL SERVE AS THE "AS-BUILT" RECORD SET. USE AUTOCAD VERSION 2008 OR LATER.
20. ALL SYMBOLS SHOWN ON THE SYMBOL LIST ARE NOT NECESSARILY USED ON THIS PROJECT.
21. ALL PLANS APPROVED BY GOVERNING AGENCIES SHALL BE KEPT IN A SECURE PLACE AND SHALL NOT BE USED BY WORKMEN. THE CONTRACTOR SHALL PROVIDE ALL SUBCONTRACTORS' CONSTRUCTION SETS REFLECTING SAME INFORMATION. THE CONTRACTOR SHALL ALSO MAINTAIN, IN GOOD CONDITION, ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS, ON PREMISES AT ALL TIMES, UNDER CARE OF THE JOB SUPERINTENDENT.
22. THE CONTRACTOR OR SUBCONTRACTORS SHALL NOT TAKE SCALE MEASUREMENTS FROM THE DRAWINGS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE. DETAIL DRAWINGS SHALL TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS.
23. ALL PLUMBING, AND ELECTRICAL WORK SHALL BE ANCHORED AND SUPPORTED PER SMACNA GUIDELINES. PLUMBING PIPES SHALL BE SUPPORTED AND BRACED PER 2010 UNIFORM PLUMBING CODE, SECTION 316. ELECTRICAL WORK SHALL BE SUPPORTED AND BRACED PER C.E.C.
24. PIPING, AND EQUIPMENT SHALL BE SEISMICALLY BRACED ACCORDANCE WITH GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPE SYSTEMS PUBLISHED BY SMACNA FOR SEISMIC LEVEL "A". CONNECTIONS, HANGERS, BRACED MEMBERS, AND ANCHORAGE SHALL MEET SMACNA REQUIREMENTS FOR SEISMIC LEVEL "A".
25. CONTRACTOR SHALL PROVIDE AND INSTALL ANY NECESSARY BLOCKING, BACKING, FURRING, AND FRAMING FOR ELECTRICAL, PLUMBING, EQUIPMENT, FIXTURES, AND OTHER MISCELLANEOUS ITEMS REQUIRING SAME.
26. CONTRACTORS IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. CONTRACTOR SHALL MAINTAIN STRUCTURAL INTEGRITY OF ALL WORK UNTIL ALL WORK IS COMPLETE.
27. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL REPLACEMENT OR REMEDY OF ANY FAULTY, IMPROPER, OR INFERIOR MATERIALS OR WORKMANSHIP WHICH APPEARS WITHIN ONE YEAR AFTER THE ACCEPTANCE OF THE WORK UNDER THIS CONTRACT, EXCEPT AS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.
28. CONTRACTOR SHALL PATCH AND REPAIR ALL EXISTING FINISHES THAT ARE AFFECTED BY THE WORK.
29. PAINT ALL EXPOSED PIPING TO MATCH BACKGROUND OR AS DIRECTED BY THE ARCHITECT.

BRACING NOTES

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-05 SECTION 13.3 AS DEFINED IN ASCE 7-05 SECTION 13.6.8, 13.6.7, 13.6.5.6, AND 2010 CBC, SECTIONS 1615A.1.20, 1615A.1.21 AND 1615A.1.22.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS OR THEY SHALL COMPLY WITH ONE OF THE OSHPD PRE-APPROVALS (OPA #) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

PLUMBING NOTES

1. THE CONTRACTOR SHALL PROVIDE A COMPLETE PLUMBING SYSTEM FOR THOSE AREAS INDICATED ON THE DRAWINGS, INCLUDING BUT NOT LIMITED TO, FIXTURE ROUGH-INS AND ALL UTILITY PIPING.
2. RUN ALL PLUMBING PIPING AS HIGH AS POSSIBLE TO STRUCTURE AND COORDINATE ROUTING WITH OTHER TRADES.
3. ALL PIPE BRANCH CONNECTIONS SHALL OFFSET. NO "BULL HEAD" CONNECTIONS WILL BE ALLOWED.
4. THE CONTRACTOR SHALL PROVIDE CHROME PLATED ANGLE STOPS ON ALL ISOLATION VALVES ON ALL EQUIPMENT.
5. SECURE ALL ESCUTCHEONS TIGHT TO WALL, OR SPUD.
6. GAS COCKS, COUPLINGS, & FLEXIBLE CONNECTIONS SHALL BE INSTALLED AT EACH GAS CONNECTION LOCATION & SHALL BE ACCESSIBLE FOR SERVICE.
7. ALL SHUT-OFF VALVES SHALL BE ACCESSIBLE.
8. CONTRACTOR SHALL DETERMINE THE LOCATION OF THE EXISTING UTILITIES, EXISTING LOADS, AND IF APPROPRIATE THE INVERT OF THE SANITARY LINES. THE CONTRACTOR SHALL ENSURE THAT THE EXISTING UTILITY MAINS HAVE ADEQUATE CAPACITY FOR THE FIXTURES WHICH ARE BEING CONNECTED TO IT. THE CONTRACTOR SHALL INSURE THAT THERE IS SUFFICIENT FALL FROM THE NEW FIXTURE LOCATION TO THE SANITARY MAIN. SHOULD IT BE NECESSARY TO REROUTE LINES DUE TO CONDITIONS FOUND IN THE FIELD OR IF THE INDICATED POINT OF CONNECTION CANNOT BE MADE TO THE LINES AS FOUND, THE CONTRACTOR SHALL BEFORE CONTINUING, NOTIFY THE ARCHITECT BEFORE INSTALLING ANY WORK WHICH MAY BE AFFECTED.
9. CONTRACTOR TO BED ALL PIPING WITHIN THE BUILDING IN SAND AND FILL TO 6 INCHES ABOVE TOP OF PIPE, COMPACT TO 95%, BACKFILL TRENCH WITH NATIVE SOIL AND COMPACT TO 95%, AND INSTALL A VAPOR BARRIER BELOW THE CONCRETE SLAB. THE VAPOR BARRIER SHALL BE APPROPRIATELY SEALED TO THE EXISTING VAPOR BARRIER.
10. CONTRACTOR TO BED ALL PIPING OUTSIDE THE BUILDING IN A BEDDING AND COVERAGE MATERIAL HAVING A SAND EQUIVALENT OF GREATER THAN 30 SAND, FILL TO 6 INCHES ABOVE TOP OF PIPE, COMPACT TO 95%, PLACE A MARKER TAPE ON TOP OF THE 6-INCH FILL MATERIAL, AND BACKFILL TRENCH WITH NATIVE SOIL AND COMPACT TO 95%.

DRAWING LIST

Sheet Number	Sheet Title
P0.0	GENERAL NOTES, LEGEND, TABLES & DRAWING LIST
P1.0	SITE PLAN
P2.0	FLOOR PLAN
P3.0	DETAILS

LEGEND

SYMBOL	ABBREV.	DESCRIPTION
——G——	G	FUEL GAS -8"W.C.
——MPG——	MPG	MEDIUM PRESSURE GAS
——(E)——	E	EXISTING
	GC	GAS COCK
		VALVE/COCK IN RISE/DROP
	GPR	GAS PRESSURE REGULATOR
	POD	POINT OF DISCONNECTION
	POC	POINT OF CONNECTION
X/X		PLUMBING FIXTURE IDENTIFICATION / ENLARGEMENT REFERENCE
X/X		PLUMBING EQUIPMENT IDENTIFICATION
X		PLUMBING KEY NOTE IDENTIFICATION
	&	AND
	@	AT
	CFH	CUBIC FEET PER HOUR
	EXIST	EXISTING
	TYP	TYPICAL
	SGV	SEISMIC GAS VALVE

SIZE TABLES

GAS PRESSURE REGULATOR SCHEDULE

ITEM	DESCRIPTION	LOCATION	MANUFACTURER		CAPACITY (5 PSI TO 8" WC)				ACTUAL LOAD (CFH)
			MAKE	MODEL	SIZE	SPRING COLOR	ORIFICE	FULLY OPEN	
GPR 1	SEISMIC GAS VALVE	TWO CLASS PORTABLE	AMERICAN METER CO.	1813C	3/4"	PURPLE	1/4"	338	132
GPR 2	SEISMIC GAS VALVE	THREE CLASS PORTABLE	AMERICAN METER CO.	1813C	3/4"	PURPLE	1/4"	338	198

SEISMIC GAS VALVE SCHEDULE

ITEM	DESCRIPTION	LOCATION	MANUFACTURER		SIZE	ACTUAL LOAD (CFH)
			MAKE	MODEL		
SGV 1	SEISMIC GAS VALVE	TWO CLASS PORTABLE	PACIFIC SEISMIC	VT311 (60)	1"	132
SGV 2	SEISMIC GAS VALVE	THREE CLASS PORTABLE	PACIFIC SEISMIC	VT312 (60)	1 1/4"	198

SITE MPG P.E. PIPE SIZE TABLE

BASED ON NATURAL GAS HAVING A SPECIFIC GRAVITY OF 0.60, PRESSURE SETTING OF 5 PSI, PRESSURE DROP OF 3.5 PSI. SIZE BASED FORMULAS FOUND IN NFPA 54 1400 FEET LENGTH

PIPE SIZE	CFH
1/2"	270
3/4"	537
1"	970
1 1/4"	1681
1 1/2"	2539
2"	4563
2 1/2"	12634
3"	24430
4"	67430

(ML) MEASURED LENGTH=930'

(TDL) TOTAL DEVELOPED LENGTH : (930)x(1.5 FITTINGS)=(1395')

BLDG. 8" W.C. METALLIC PIPE SIZE TABLE

BASED ON NATURAL GAS HAVING A SPECIFIC GRAVITY OF 0.60, PRESSURE SETTING LESS THAN 2 PSI, PRESSURE DROP OF .5"WC. SIZE BASED TABLE 12-8 IN THE 2010 CPC REFER TO LENGTHS LISTED BELOW

BUILDING	NORTH	EAST	SOUTH	WEST	NOT USED
(ML)	80	55	80	55	
(TDL)	120	82.5	120	82.5	
PIPE SIZE	CFH				
1/2"	44	52	44	52	NOT USED
3/4"	92	110	92	110	
1"	173	207	173	207	
1-1/4"	355	424	355	424	
1-1/2"	532	635	532	635	
2"	1020	1220	1020	1220	
2-1/2"	1630	1950	1630	1950	
3"	2890	3450	2890	3450	
4"	5890	7030	5890	7030	

(ML) MEASURED LENGTH
(TDL) TOTAL DEVELOPED LENGTH

EQUIPMENT GAS LOADS NORTH. BLDG.

EQUIPMENT	QTY	INDIVIDUAL CAPACITY (CFH)	SUBTOTAL (CFH)	REQUIRED PRESSURE
MECHANICAL UNIT	3	66	198	8"WC
TOTAL ——— 198 CFH				

EQUIPMENT GAS LOADS EAST BLDG.

EQUIPMENT	QTY	INDIVIDUAL CAPACITY (CFH)	SUBTOTAL (CFH)	REQUIRED PRESSURE
MECHANICAL UNIT	2	66	132	8"WC
TOTAL ——— 132 CFH				

EQUIPMENT GAS LOADS SOUTH BLDG.

EQUIPMENT	QTY	INDIVIDUAL CAPACITY (CFH)	SUBTOTAL (CFH)	REQUIRED PRESSURE
MECHANICAL UNIT	3	66	198	8"WC
TOTAL ——— 198 CFH				

EQUIPMENT GAS LOADS WEST BLDG.

EQUIPMENT	QTY	INDIVIDUAL CAPACITY (CFH)	SUBTOTAL (CFH)	REQUIRED PRESSURE
MECHANICAL UNIT	2	66	132	8"WC
TOTAL ——— 132 CFH				

APPLICABLE CODES AND STANDARDS

THE INSTALLATION SHALL COMPLY WITH REQUIREMENTS OF THE LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION AND INCLUDING THE FOLLOWING:

- 2010 CALIFORNIA ADMINISTRATIVE CODE (CAC)
  PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
- 2010 CALIFORNIA BUILDING CODE (CBC)
  PART 2, TITLE 24, CCR. BASED ON THE 2009 INTERNATIONAL BUILDING CODE (IBC)
- 2010 CALIFORNIA ELECTRICAL CODE (CEC)
  PART 3, TITLE 24, CCR. BASED ON THE 2008 NATIONAL ELECTRICAL CODE (NEC)
- 2010 CALIFORNIA MECHANICAL CODE (CMC)
  PART 4, TITLE 24, CCR. BASED ON THE 2009 UNIFORM MECHANICAL CODE (UMC)
- 2010 CALIFORNIA PLUMBING CODE (CPC)
  PART 5, TITLE 24, CCR. BASED ON THE UNIFORM PLUMBING CODE (UPC)
- 2008 CALIFORNIA ENERGY CODE
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 6
- 2010 CALIFORNIA FIRE CODE (CFC)
  PART 9, TITLE 24, CCR. BASED ON THE 2009 INTERNATIONAL FIRE CODE (IFC)
  RFC PD ORDINANCE 46
- 2010 CALIFORNIA REFERENCED STANDARDS CODE
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 12
- AMERICANS WITH DISABILITIES ACT (ADA)
  TITLE II – ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES (ADAG)
  1990 STATE FIRE MARSHAL REGULATIONS AND AMENDMENTS TO-DATE
- CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, CALIFORNIA STATE ACCESSIBILITY STANDARDS
  CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 19

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50% CD	05.31.11
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Mark Date Description
Issues/Revisions

LICENSED ARCHITECT — WADE DINE FRAZIER — NO. C24336 — RENEWS 6-30-13 — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — CHRIS E. RADTKE — No. M24519 — Exp. 9/30/12 — MECHANICAL — STATE OF CALIFORNIA

Approval:

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
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Drawn By:	AD
Checked By:	SN

Sheet Title:
GENERAL NOTES, LEGEND, TABLES & DRAWING LIST

Sheet Number:
P0.0