# **ABBREVIATIONS**

P.LAM.

REQ'D

U.N.O.

WSCT.

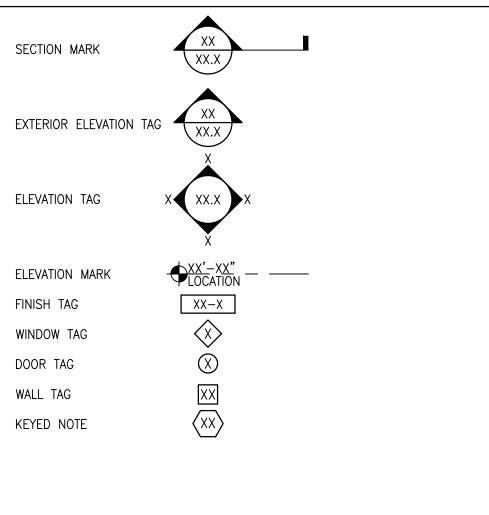
SCHED.

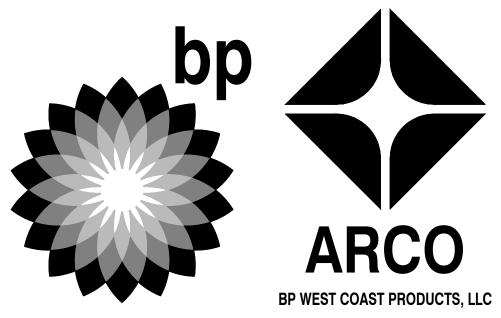
PLYWD.

&	AND	I.D.
L	ANGLE	INSUL.
0	AT	INT.
Ę	CENTERLINE	JT.
ø	DIAMETER OF ROUND	KIT.
#	POUND OR NUMBER	LAM. LAV.
(E)	EXISTING	LAV. LT.
(R)	RELOCATED	L.E.D.
(N)	NEW	MAX.
À.É.F.	ABOVE FINISH FLOOR	M.C.
A.D.	AREA DRAIN	MECH.
ADJ.	ADJUSTABLE	MEMB.
AGGR.	AGGREGATE	MTL.
AL.	ALUMINUM	MFR.
APPROX.		MIN.
ARCH. ASB.	ARCHITECTURAL ASBESTOS	MIR.
ASB. ASPH.	ASPHALT	MISC.
BD.	BOARD	М.О.
BITUM.	BITUMINOUS	MTD.
BLDG.	BUILDING	MUL.
BLKG.	BLOCKING	N.
BM.	BEAM	N.I.C.
BOT.	BOTTOM	NO. OF
CAB.	CABINET	NOM.
CEM.	CEMENT	N.T.S. 0.A.
CER.	CERAMIC	O.A. OBS.
C.I.	CAST IRON	0D3. 0.C.
CLG.	CEILING	0.0. 0.D.
CLKG.	CAULKING	OFF.
CLO.	CLOSET	OPNG.
CLR./CL.	CLEAR	OPP.
C.O.	CASED OPENING	PL.
COL.	COLUMN	P.LAM.
CONC.	CONCRETE	PLAS.
CONN.	CONNECTION	PLYWD.
CONSTR.	CONSTRUCTION CONTINUOUS	PR.
CONT. CTSK.	COUNTERSUNK	PT.
CISK. CNTR.	COUNTER	PTN.
CTR.	CENTER	Q.T.
DBL.	DOUBLE	QSR
DEPT.	DEPARTMENT	ROR
DET.	DETAIL	R.D.
DIA.	DIAMETER	REF.
DIM.	DIMENSION	REFR.
DISP.	DISPENSER	RGTR. REINF.
DN.	DOWN	REQ'D
D.O.	DOOR OPENING	REQ D
DR.	DOOR	RM.
DWR.	DRAWER	R.O.
D.S.	DOWNSPOUT	R.W.L.
DWG.	DRAWING	S.
E.	EAST	S.C.
EA.	EACH	SCHED
E.J. EL.	EXPANSION JOINT ELEVATION	S.D.
EL. ELEC.	ELECTRICAL	SECT.
ELEC. E.P.	ELECTRICAL PANELBOARD	SH.
EQ.	EQUAL	SHR.
EQPT.	EQUIPMENT	SHT.
EXST.	EXISTING	SIM.
EXP.	EXPANSION	SPEC.
EXT.	EXTERIOR	SQ. S.S.
F.E.	FIRE EXTINGUISHER	5.5. STD.
F.F.	FLOOR FINISH	STD. STL.
FDN.	FOUNDATION	STOR.
FIN.	FINISH	STRL.
FL.	FLOOR	SYM.
FLASH'G	FLASHING	T.B.S.
FLUOR.	FLUORESCENT	TRD
F.O.C. F.O.F.	FACE OF CONCRETE FACE OF FINISH	Т.В.
F.O.F. F.O.S.	FACE OF FINISH FACE OF STUD	T.C.
F.U.S. FPRF.	FIREPROOF	TEL.
F.S.	FLOOR SINK	TER.
FT.	FOOT OR FEET	T&G
FTG.	FOOTING	THK.
FURR.	FURRING	T.P. T.P.D.
FUT.	FUTURE	T.V.
G.A.	GAUGE	T.W.
GALV.	GALVANIZED	TYP.
GL.	GLASS	UNF.
GR.	GRADE	U.N.O.
GSM	GALVANIZED SHEET METAL	VERT.
GYP.	GYPSUM	V.C.T.
G.W.B.	GYPSUM WALL BOARD	W.
H.B.	HOSE BIBB HOLLOW CORE	W/
H.C. HDWD.	HARDWOOD	W.B.
HDWD. HDWE.	HARDWOOD	W.C.
H.M.	HOLLOW METAL	WD.
HORIZ.	HORIZONTAL	W/O
HR.	HOUR	WP.
HT.	HEIGHT	WSCT.
		WT.

INSIDE DIAMETER INSULATION INTERIOR JOINT KITCHEN LAMINATE LAVATORY LIGHT LIGHT EMITTING DIODE MAXIMUM MEDICINE CABINET MECHANICAL MEMBRANE METAL MANUFACTURER MINIMUM MIRROR MISCELLANEOUS MASONRY OPENING MOUNTED MULLION NORTH NOT IN CONTRACT NO. OR # NUMBER NOMINAL NOT TO SCALE OVERALL OBSCURE ON CENTER OUTSIDE DIAMETER OFFICE OPENING OPPOSITE PLATE PLASTIC LAMINATE PLASTER PLYWOOD PAIR POINT PARTITION QUARRY TILE QUICK SERVE RESTAURANT R OR RAD. RADIUS ROOF DRAIN REFERENCE REFRIGERATOR REGISTER REINFORCED REQUIRED RESILIENT ROOM ROUGH OPENING RAIN WATER LEADER SOUTH SOLID CORE SCHEDULE SOAP DISPENSER SECTION SHELF SHOWER SHEET SIMILAR SPECIFICATION SQUARE STAINLESS STEEL STANDARD STEEL STORAGE STRUCTURAL SYMMETRICAL TO BE SPECIFIED TREAD TOWEL BAR TOP OF CURB TELEPHONE TERRAZZO TONGUE & GROOVE THICK TOP OF PAVEMENT TOILET PAPER DISPENSER TELEVISION TOP OF WALL TYPICAL UNFINISHED UNLESS NOTED OTHERWISE VERTICAL VINYL COMPOSITE TILE WEST WITH WALL BASE WATER CLOSET WOOD WITHOUT WATERPROOF WAINSCOT WEIGHT

## SYMBOLS



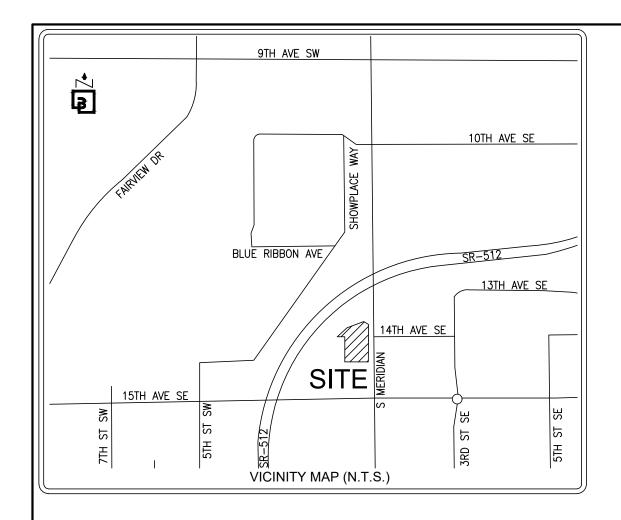


# ARCO 3400 am/pm **1402 S MERIDIAN PUYALLUP, WA 98371 GENERAL PROJECT NOTES**

- ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE BUILDING CODES AND LOCAL RESTRICTIONS. CONTRACTORS MUST COMPLY WITH CONTRACTOR REGISTRATION REQUIREMENTS OF ALL GOVERNING AUTHORITIES. THE GENERAL BUILDING PERMITS SHALL BE PAID FOR BY THE OWNER UNLESS AGREED OTHERWISE. ALL OTHER PERMITS SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR DIRECTLY RESPONSIBLE. ALL REQUIRED CITY, COUNTY AND/OR STATE LICENSES SHALL BE ACQUIRED AND PAID FOR BY THE INDIVIDUAL SUBCONTRACTOR
- IT IS THE INTENT OF THE OWNER, THE ARCHITECT AND THEIR CONSULTANTS, THAT ALL WORK DEPICTED IN THESE DRAWINGS AND SPECIFICATIONS IS TO BE PROVIDED BY THE GENERAL CONTRACTOR. ANY REFERENCES TO THE CONTRARY THROUGHOUT THE CONSTRUCTION DOCUMENTS OR SPECIFICATIONS IS NOT INTENDED. ADDITIONALLY CONTRACTOR IS TO REFER TO THE BID DOCUMENT PACKET AND/OR OWNER'S SCOPE OF WORK DOCUMENT(S) WHICH SHALL TAKE PRECEDENCE OVER SCOPE THAT MAY BE PRESENTED IN THIS SET OF CONSTRUCTION DOCUMENTS OR SPECIFICATIONS. THE SCOPE OF WORK DOCUMENT IS INTENDED TO IDENTIFY ALL OWNER SUPPLIED ITEMS OR WORK PROVIDED BY OTHERS. ABSENCE OF THESE DOCUMENTS MEANS ALL WORK NOTED IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR UNLESS THE OWNER HAS SPECIFIED OTHERWISE DURING THE BID PROCESS
- APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION AS THE APPROVED PLANS. CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF PLANS ON THE PREMISES IN GOOD CONDITION AT ALL TIMES. THIS SHALL INCLUDE ALL ADDENDA AND CHANGE ORDERS.
- DISCREPANCIES BETWEEN PORTIONS OF THE CONTRACT DOCUMENTS, DRAWINGS AND SPECIFICATIONS ARE NOT INTENDED. THE CONTRACTOR IS TO CLARIFY ANY SUCH DISCREPANCIES WITH THE ARCHITECT OR PROJECT MANAGER PRIOR TO COMMENCING WORK. STATED DIMENSIONS TAKE PRECEDENCE OVER GRAPHICS, DO NOT SCALE DRAWINGS TO DETERMINE LOCATIONS. THE ARCHITECT OR PROJECT MANAGER SHALL BE NOTIFIED OF ANY SUCH DISCREPANCIES PRIOR TO CONTINUING WITH WORK.
- IT IS THE INTENT OF THE ARCHITECT THAT THIS WORK BE IN CONFORMANCE WITH ALL REQUIREMENTS OF THE BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS TYPE OF CONSTRUCTION AND OCCUPANCY. THE CONTRACTOR SHALL NOTIFY ARCHITECT IMMEDIATELY OF CONFLICTS WITH GOVERNING CODE REQUIREMENTS BEFORE PROCEEDING FURTHER WITH THE AFFECTED WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES AND TO PROTECT THEM FROM DAMAGE. CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THE WORK.
- THE CONTRACTOR TO PROVIDE FIRE SPRINKLER SYSTEM AND ALARM SYSTEM (WHEN REQUIRED BY CODE AND NOTED AS REQUIRED BY THESE PLANS) IN ACCORDANCE WITH NFPA REQUIREMENTS. FIRE SPRINKLER CONTRACTOR IS TO SUBMIT COMPLETE SHOP DRAWINGS, LAYOUT AND RELATED DATA TO BUILDING DEPARTMENT AND FIRE MARSHAL FOR APPROVAL PRIOR TO INSTALLATION.
- 8. FOR CONSTRUCTION DETAILS NOT SHOWN, USE THE MANUFACTURER'S APPROVED SHOP DRAWINGS/DATA SHEETS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE IN THE WORK EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.
- 9. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL FOOD SERVICE EQUIPMENT AND COORDINATE LOCATION OF ALL UTILITIES INCLUDING FLOOR SINKS, FLOOR DRAINS, SLOPES/SLAB DEPRESSIONS AND RAISED CURBS, ELECTRICAL AND PLUMBING AND STUBOUTS FOR FUTURE EQUIPMENT WHERE NOTED.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE JOB IS IN PROGRESS AND UNTIL BUILDING IS OCCUPIED. 11. ALL DEBRIS SHALL BE REMOVED FROM PREMISES REGULARLY AND ALL AREAS SHALL
- BE LEFT IN A CLEAN (BROOM) CONDITION AT ALL TIMES. 12. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF
- THE OCCUPANTS AND WORKERS AT ALL TIMES. 13. CONTRACTOR SHALL PROVIDE TEMPORARY WATER, POWER, TELEPHONE, FACSIMILE OR METHOD TO RECEIVE E-MAIL, PRINTER AND TOILET FACILITIES AS REQUIRED.
- 14. GENERAL CONTRACTOR IS RESPONSIBLE FOR RECEIVING, UNLOADING, UN-CRATING, INSTALLATION AND HOOKUP OF ALL FOOD SERVICE EQUIPMENT AND OTHER OWNER OR VENDOR FURNISHED ITEMS. 15. GENERAL CONTRACTOR IS REQUIRED TO LABEL ALL ELECTRICAL PANELS, PLUMBING
- VALVES, AND ROOF TOP EQUIPMENT WITH PLASTIC PHENOLIC ENGRAVED PLATES ATTACHED TO IDENTIFY THE EQUIPMENT USE OR PURPOSE. 16. CONTRACTOR SHALL SUPPLY, LOCATE AND BUILD INTO THE WORK ALL INSERTS,
- ANCHORS, ANGLES, PLATES, OPENINGS, SLEEVES, HANGERS, SLAB DEPRESSIONS AND PITCHES AS MAY BE REQUIRED TO ATTACH AND ACCOMMODATE OTHER WORK. SPECIAL INSPECTION REQUIREMENTS MAY APPLY TO ALL STRUCTURAL EMBEDMENTS OR POST INSTALLED ANCHORS. CONTRACTOR SHALL CONFIRM REQUIREMENTS PRIOR TO INSTALLATION.
- 17. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE MEANS AND METHODS FOR ERECTION PROCEDURE AND SEQUENCE OF THE CONSTRUCTION. CONTRACTOR TO INSURE THE SAFETY OF ALL INSTALLED IMPROVEMENTS, BUILDINGS AND THEIR COMPONENT PARTS DURING ERECTION.
- 18. MATERIALS LISTED IN DRAWINGS ARE BASED ON DESIGN INTENT. ALTERNATE SPECIFICATIONS MAY BE ACCEPTED PROVIDED THEY CLOSELY MATCH AND ARE DEEMED EQUAL TO SPECIFIED MATERIAL. GENERAL CONTRACTOR IS TO SUBMIT PROPOSED SAMPLES OF SUBSTITUTIONS, ALONG WITH SAMPLE OF THAT SPECIFIED IN DRAWINGS FOR REVIEW BY THE ARCHITECT OR PROJECT MANAGER. SUBSTITUTIONS WILL ONLY BE APPROVED IF SPECIFIED MATERIAL IS PROVEN TO BE UNAVAILABLE WITHIN A REASONABLE TIME FRAME OR THE SUBSTITUTION IS A BENEFIT TO THE OWNER RELATED TO COST OR SCHEDULE TIME SAVINGS.
- 19. THE PROJECT BOUNDARIES SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE OWNERS ATTENTION IMMEDIATELY BEFORE PROCEEDING WITH CONSTRUCTION.
- 20. ALL LABOR, MATERIALS AND INSTALLATIONS MUST COMPLY WITH THE CODES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCY WHICH EXISTS BETWEEN THE REQUIREMENTS BY THE PLANS, SPECIFICATIONS, SAID CODES, RULES AND REGULATIONS, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT, IN WRITING FOR RESOLUTION. IF ANY CHANGE IN THE PLANS AND / OR SPECIFICATIONS OCCURS AS A RESULT OF THE REQUIREMENTS OF THE LIFE SAFETY CODE (NFPA 101) OR ANY OTHER AUTHORITIES HAVING JURISDICTION AFTER THE SUBMISSION OF BIDS, THEN THE BIDDERS WILL BE GIVEN THE OPPORTUNITY TO ADJUST THEIR BIDS, IF NECESSARY, ONLY FOR THE CHANGE.
- 21. THE CONTRACTOR SHALL COORDINATE THE WORK WITH MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ALL NECESSARY OPENINGS AND PENETRATIONS THROUGH WALLS, CEILING AND FLOORS.
- 22. ALL EXPOSED PIPES, CONDUITS OR DUCTS IN FINISHES AREAS, WHETHER SHOWN ON DRAWINGS OR NOT, SHALL BE FURRED OUT WITH GYPSUM BOARD. 23. LOCATION OF ACCESS DOORS SUPPLIED BY MECHANICAL TRADES AND INSTALLED BY
- OTHERS SHALL BE DETERMINED IN THE FIELD THROUGH COORDINATION OF TRADES, LOCATION OF LIGHT FIXTURES SHALL GOVERN POSITION OF DUCTS AND PIPES FOR WHICH ACCESS DOORS ARE REQUIRED. ACCESS DOORS SHALL NOT BE PLACED IN INACCESSIBLE POSITIONS OR IN THE WAY OF LIGHTS, GRILLS, REGISTERS, CONCEALED BY CASEWORK, ECT.

PROJECT DATA	SITE VICINITY MAP	SITE KEY PLAN
PROJECT ADDRESS:         1402 SOUTH MERIDIAN,         PUYALLUP, WA 98371         ASSESSOR'S PARCEL NUMBER:         773000-028-1 & 773000-028-8: TITLE PARCEL A         773000-003-1 & 773000-002-1: TITLE PARCEL B         ZONING:         GENERAL COMMERCIAL (GC)         SITE AREA:         51,520 S.F. (1.18 AC)         BUILDINGS:         CONVENIENCE STORE         CONSTRUCTION TYPE: V-B (NON SPRINKLERED)         USE GROUP: M         GROSS AREA: 3,349 S.F.         CANOPY         CONSTRUCTION TYPE: II-B         USE GROUP: M         GROSS AREA: 6,321 S.F.         CAR WASH         CONSTRUCTION TYPE: V-B         USE GROUP: B	Ave SW We show SW Ph Ave SE Ph Ave S	NA-512 TRASH ENCLOSURE C-STORE FUELING CANOPY ð ð ð CAR WASH
GROSS AREA: 1,158 S.F. <u>PARKING REQUIREMENTS</u> NO. OF SPACES REQUIRED: 1 SPACE PER 300 SQUARE FEET 3,349/300 = 11.16 NO. OF SPACES PROVIDED: 21 NO. OF ACCESSIBLE PARKING: 1 VAN ACCESSIBLE PER 1–25 AUTO STALLS NO. OF BICYCLE PARKING: 1 PER 25 AUTO STALLS (2 PROVIDED) NO. OF EV PARKING: PER IBC WA AMENDMENT 429, M-OCCUPANCY IS EXEMPT FROM PROVIDING EV CHARGING INFRASTRUCTURE WHEN IT DOES NOT DESIGNATE EMPLOYEE PARKING. HOWEVER, TWO (2) EV PARKING SPACES ARE PROVIDED. <u>OCCUPANCY LOAD CALCULATION</u> SEE SHEET G1.3	APPLICANT/DEVELOPERSTRUCTURAL ENGINEER (CANOPY)BP PRODUCTS, NA PO BOX 696049PERRY BUILDERS 12405LOCKSLEY LANE AUBURN, CA CONTACT: RANDALL ARNOLD RANDALL.ARNOLD@BP.COM PHONEPERRY BUILDERS 12405LOCKSLEY LANE AUBURN, CA CONTACT: ANDALL ARNOLD PHONEARCHITECTBARGHAUSEN CONSULTING ENGINEERS, INC. 18215 72ND AVE. SOUTH KENT, WA 98032PLUMBING, MECHANICAL ELECTRICAL ENGINEER ABOSSEIN ENGINEERING LLC. 2100 11TH AVE NE BELLEVUE, WA 98004 CONTACT: MONIKA UEHLIN PHONE: 425-251-6222 EXT. 7491CIVIL ENGINEER BARGHAUSEN CONSULTING ENGINEERS, INC. CONTACT: ALEX WHITE PHONE: 425-251-6222BARGHAUSEN CONSULTING ENGINEERS, INC. 18215 72ND AVE. SOUTH KENT, WA 98032 CONTACT: ALEX WHITE PHONE: 425-251-6222BARGHAUSEN CONSULTING ENGINEERS, INC. 18215 72ND AVE. SOUTH KENT, WA 98032 CONTACT: JEFF VARLEY PHONE: 425-251-6222BARGHAUSEN CONSULTING ENGINEERS, INC. 18215 72ND AVE. SOUTH KENT, WA 98032 CONTACT: JEFF VARLEY PHONE: 425-251-6222STRUCTURAL ENGINEER PCS STRUCTURAL SOLUTIONS B11 FIRST AVENUE, SUITE 620 SEATTLE, WA CONTACT: JACK PINKARD PHONE: 206.292.5076STRUCTURAL SOLUTIONS B11 FIRST AVENUE, SUITE 620 SEATTLE, WA CONTACT: JACK PINKARD PHONE: 206.292.5076	
SCOPE OF WORK CONSTRUCTION OF NEW 3,349 S.F. ARCO AM/PM CONVENIENCE STORE WITH 4,607 S.F. FUEL CANOPY (49'x94') WITH EIGHT (8) MULTI PRODUCT DISPENSERS, AND TWO (2) UNDERGROUND STORAGE TANKS. CAR WASH AND ASSOCIATED SITE IMPROVEMENTS.	ZONING AND LAND USEFIRECITY OF PUYALLUPSOUTH PIERCE COUNTYPLANNING SERVICESFIRE & RESCUE333 SOUTH MERIDIAN902 7TH STREET N.W.PUYALLUP, WA 98371253-864-4165BUILDINGENVIRONMENTAL - FUELCITY OF PUYALLUPWASHINGTON STATEBUILDING SERVICES/FIRE PROTECTIONDEPARTMENT OF ECOLOGY733 SOUTH MERIDIANPUYALLUP, WA 98371PUYALLUP, WA 98371CITY OF PUYALLUPBUILDING SERVICES/FIRE PROTECTIONWASHINGTON STATEDEPARTMENT OF ECOLOGYP.O. BOX 47655PUYALLUP, WA 98371OLYMPIA, STATE 98504253-864-4165360-407-7382ENVIRONMENTAL - FOODAIR QUALITYTACOMA-PIERCE COUNTYPUGET SOUND CLEAN AIR AGENCYHEALTH DEPARTMENT1904 THIRD AVENUE3629 S. D STREETSEATTLE, WA 981017ACOMA, WA 98418206-689-4063253-649-1706ELECTRICSANITARY SEWERDEPARTMENT OF LABOR ANCITY OF PUYALLUPP.O. BOX 44000PUBLIC WORKSP.O. BOX 440001100 39TH AVENUE S.E.OLYMPIA, STATE 98504PUYALLUP, WA 98371360-902-5800253-841-5505360-902-5800	
<ul> <li><b>PERMITTED SEPERATELY</b></li> <li>SIGNAGE UNDER SEPARATE PERMIT</li> <li>ELECTRICAL SHEETS ARE FOR REFERENCE ONLY - PERMIT WILL BE ISSUED BY L&amp;I</li> </ul>	PERMIT SUBMITTAL DATES <ul> <li>10/04/2023</li> </ul>	
APPLICABLE CODESBUILDING CODE :2018 INTERNATIONAL BUILDING CODE*PLUMBING CODE:2018 UNIFORM PLUMBING CODE*ELECTRICAL CODE:2018 NATIONAL ELECTRICAL CODEMECHANICAL CODE:2018 INTERNATIONAL MECHANICAL CODE AND INTERNATIONAL FUEL GAS CODE*ENERGY CODE:2018 WASHINGTON STATE ENERGY CODE	PERMIT ISSUE DATES	
FIRE CODE:       2018 INTERNATIONAL FIRE CODE*         ACCESSIBILITY CODE:       ICC/ANSI A117.1-2009         LOCAL CODES:       PUYALLUP MUNICIPAL CODE         *AS AMENDED BY STATE AND LOCAL JURISDICTION		

	OF DRAWINGS	— hn
CAR WAS	SH	bp
<u>GENERAL</u>		
G1.1	COVER SHEET	
SURVEY 1 OF 2	ALTA & NSPS LAND TITLE SURVEY	
2 OF 2	ALTA & NSPS LAND TITLE SURVEY	
LANDSCAPE		
	LANDSCAPE PLAN	
ARCHITECTURAL AS1.0	ARCHITECTURAL SITE PLAN	
A7.1	ARCHITECTURAL SPECIFICATIONS	
A7.2	ARCHITECTURAL SPECIFICATIONS	
A7.3 A7.4	ARCHITECTURAL SPECIFICATIONS ARCHITECTURAL SPECIFICATIONS	
A7.4 A7.5	ARCHITECTURAL SPECIFICATIONS ARCHITECTURAL SPECIFICATIONS	
A7.6	ARCHITECTURAL SPECIFICATIONS	
ARCHITECTURAL		ARCO
CWA0.1 CWA1.1	CARWASH CODE PLAN CONSTRUCTION FLOOR PLAN	
CWA1.1 CWA1.2	REFLECTED CEILING PLAN AND ROOF PLAN	BP WEST COAST PRODUCTS, LLC
CWA2.1	EXTERIOR ELEVATIONS	
CWA2.3 CWA2.4	INTERIOR ELEVATIONS INTERIOR ELEVATIONS	
CWA2.4 CWA3.1	BUILDING SECTIONS	
CWA3.2	WALL SECTIONS	
CWA4.1	DETAILS	
CWA5.1 CWQ1.1	WINDOW SCHEDULE CAR WASH EQUIPMENT PLAN	
STRUCTURAL (C/		
CWS0.1	CAR WASH EQUIPMENT ANCHORAGE	Barahausan
CWS0.2	GENERAL NOTES AND HEIGHT BAR FOUNDATION DETAIL	Barghausen Consulting Engineers, I
CWS1.1 CWS2.1	CAR WASH PLANS DETAILS	l consulung ⊏ngineers, i
CWS2.1 CWS2.2	DETAILS	18215 72nd Avenue South
CWS2.3	DETAILS	Kent, WA 98032
CWS2.4	DETAILS GENERAL NOTES	425.251.6222
CWS3.1 CWS3.2	GENERAL NOTES GENERAL NOTES	barghausen.com
CWS3.2	GENERAL NOTES	
CWS3.4	GENERAL NOTES	NO. DATE REVISION DESCRIPTI
ELECTRICAL E0.2	SPECIFICATIONS	
E0.2 ES1.0	ELECTRICAL SITE PLAN	
ELECTRICAL (CAP		
CWE1.0	CARWASH LIGHTING PLAN	
CWE2.0 CWE2.1	CARWASH POWER PLAN CARWASH PANEL SCHEDULE	5
<u>PLUMBING</u>		
P0.1	PLUMBING LEGEND, SCHEDULES & CALCULATIONS	
P0.2	GENERAL NOTES & CALCULATIONS	
P0.3 P4.2	PLUMBING SPECIFICATIONS PLUMBING DETAILS III	
PLUMBING (CAR		
CWP1.1	CARWASH WASTE AND VENT PLAN	
CWP1.3	CARWASH WATER AND ROOF PLAN	
CWP2.0 CARWASH EQUI	CARWASH RISER DIAGRAMS PMENT (FOR REFERENCE ONLY)	SEAL:
SHEET 1 OF 10	GENERAL NOTES	▶10697
SHEET 2 OF 10	EQUIPMENT PLAN	REGISTERED
SHEET 3 OF 10 SHEET 4 OF 10	PLUMBING PLAN PLUMBING PLAN	
SHEET 4 OF 10 SHEET 5 OF 10	ELECTRICAL PLAN	DANIEL B GOALWIN
SHEET 6 OF 10	ELECTRICAL PLAN	A STATL OF WASHINGTON
SHEET 1 OF 4	INSTALL/TSS LIGHTS	
SHEET 2 OF 4	INSTALL/TSS LIGHTS INSTALL/TSS LIGHTS	EXP: 08/05/24
SHEET 3 OF 4 SHEET 4 OF 4	INSTALL/ISS LIGHTS INSTALL/TSS LIGHTS	
		DEVELOPMENT INFORMATION:
		ARCO NTI
		3400 am/pm
		FUEL CANOPY w/ 6 MP
		SITE ADDRESS:
		1402 S MERIDIAN PUYALLUP, WA 98371
		FACILITY #7184
		DESIGNED BY: ALLIANCE Z&DM:
		CHECKED BY: ALLIANCE 2&2DM:
		DRAWN BY: ALLIANCE PM:
		VERSION: PROJECT NO:
		21730
		COVER SHEE
		SHEET NO:
		G1.1



### SURVEY INFORMATION:

HORIZONTAL DATUM - BASIS OF BEARINGS: NAD 83/2011 WASHINGTON STATE COORDINATE SYSTEM, SOUTH ZONE, ESTABLISHED BY GPS OBSERVATION UTILIZING THE WASHINGTON STATE REFERENCE NETWORK. THE BASIS OF BEARINGS IS N 00°33'46" E BETWEEN THE FOUND 2" BRASS DISK AT THE INTERSECTION OF S. MERIDIAN ST. & 15TH AVE SW AND THE FOUND 2" IRON PIPE W/TACK IN MONUMENT CASE AT THE INTERSECTION OS S. MERIDIAN ST. & THE ON/OFF RAMP TO SR 512.

VERTICAL DATUM VERTICAL DATUM FOR THIS SURVEY IS NAVD88 ESTABLISHED FROM WSDOT MONUMENT ID NO. 247. ELEVATION = 80.449' (NAVD88)

LOT AREA  $52,078 \pm SF (1.20 \pm AC)$ 

ADDRESS 1402 S. MERIDIAN, PUYALLUP, WA 98371

#### TAX PARCEL NUMBER

773000-028-1 & 773000-028-8: TITLE PARCEL A 773000-003-1 & 773000-002-1: TITLE PARCEL B REFERENCE SURVEYS:

PIERCE COUNTY SHORT PLAT – AFN 8706010381 (1987) WSDOT SR 512 96TH ST TO JCT. SR 167, DATED MAY 23, 1968

DATE OF SURVEY: THIS SURVEY REPRESENTS VISIBLE PHYSICAL IMPROVEMENT CONDITIONS EXISTING ON MARCH 22, 2022 & JULY 14, 2023. ALL SURVEY CONTROL INDICATED AS "FOUND" WAS RECOVERED FOR THIS PROJECT IN MARCH OF 2022 & JULY OF 2023.

#### FLOOD INFORMATION:

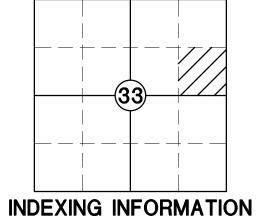
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INFORMATION: FIRM (FLOOD INSURANCE RATE MAP) MAP NO. 53053C0341E PANEL 341 OF 1375, DATED MARCH 7, 2017. THE SUBJECT PROPERTY IS IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

### ZONING INFORMATION:

(A ZONING REPORT WAS NOT FURNISHED FOR THIS SITE) SURVEYOR'S NOTES:

- THE BOUNDARY CORNERS AND LINES DEPICTED ON THIS MAP REPRESENT DEED LINES ONLY, AND DON'T PURPORT TO SHOW OWNERSHIP LINES THAT MAY OTHERWISE BE DETERMINED BY A COURT OF LAW. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.
- UNDERGROUND UTILITIES AND FEATURES DEPICTED HEREON ARE BASED ON FIELD OBSERVATION, MARKINGS, DEVELOPMENT PLANS, AND/OR AVAILABLE RECORD DOCUMENTS ONLY. THE TRUE LOCATION, NATURE AND/OR EXISTENCE OF BELOW GROUND FEATURES, DETECTED OR UNDETECTED, SHOULD BE VERIFIED.
- ABOVE REFERENCED TITLE REPORT UNLESS OTHERWISE NOTED.
- THIS SURVEY HAS DEPICTED ALL VISIBLE OCCUPATIONAL INDICATORS (IE. FENCE LINES, BUILDINGS, WALLS, ETC. - SEE MAP FOR PARTICULARS) PER W.A.C. 332-130. LINES OF OCCUPATION, AS DEPICTED, MAY INDICATE AREAS OF POTENTIAL CLAIMS OF UNWRITTEN OWNERSHIP. THIS SURVEY HAS ONLY DEPICTED THE RELATIONSHIP BETWEEN LINES OF OCCUPATION AND DEEDED LINES OF RECORD. NO RESOLUTION OF OWNERSHIP BASED ON UNWRITTEN RIGHTS HAS BEEN MADE BY THIS SURVEY OR BY ANY PERSONNEL OF BARGHAUSEN CONSULTING ENGINEERS, INC.
- THIS IS A FIELD TRAVERSE SURVEY. TOPCON GT AND TOPCON HYPER HR GPS AND DELL TABLET DATA COLLECTOR WERE USED TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN W.A.C. 332-130-090. ALL INSTRUMENTS AND EQUIPMENT HAVE BEEN MAINTAINED IN ADJUSTMENT ACCORDING TO MANUFACTURERS' SPECIFICATIONS AND USED BY APPROPRIATELY TRAINED PERSONNEL.
- SET FORTH IN THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS IN SECTION 3(E).
- ELEMENTS AND FEATURES DEPICTED HEREON SATISFY THE REQUIREMENTS STATED WITHIN W.A.C. 332-130-145 FOR TOPOGRAPHIC MAPS, INCLUDING THE FOLLOWING: THE SOURCE OF THE CONTOURS SHOWN HEREON ARE BASED UPON DIRECT FIELD OBSERVATIONS. THE CONTOUR ACCURACY IS PER NATIONAL MAPPING STANDARDS, ONE HALF OF THE CONTOUR INTERVAL (1'). THE PURPOSE OF THIS SURVEY IS TO MAP THE CURRENT CONDITIONS FOR ENGINEÈRING DESIGN.
- BARGHAUSEN CONSULTING ENGINEERS, INC. SURVEY CREWS DETECTED NO OBSERVABLE EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS ON THE SUBJECT PROPERTY.
- EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
- THERE IS EVIDENCE OF PHYSICAL ACCESS TO PUBLIC RIGHT-OF-WAY.

### TWP. 20N R.4E



N.T.S.

# ALTA/NSPS LAND TITLE SURVEY

PIERCE COUNTY SHORT PLAT OF MERIDIAN CENTER – AFN 77–315 (1977) PLAT OF SOURWINE'S ACRE LOTS - VOL 8 PLATS, PAGE 10 (1905)

ALL DISTANCES SHOWN HEREON ARE GROUND MEASUREMENTS IN U.S. SURVEY FEET.

THE LEGAL DESCRIPTION AND SPECIAL EXCEPTIONS SHOWN HEREON ARE PER THE

• THIS SURVEY MEETS OR EXCEEDS THE "RELATIVE POSITIONAL PRECISION" REQUIREMENTS

• THE RECORD DESCRIPTION FOR THE SUBJECT PROPERTY MATHEMATICALLY CLOSES.

• BARGHAUSEN CONSULTING ENGINEERS, INC. SURVEY CREWS DETECTED NO OBSERVABLE • THERE IS NO VISIBLE EVIDENCE OF ANY CEMETERIES OR BURIAL GROUNDS.

### TITLE INFORMATION:

#### TITLE COMMITMENT

ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM STEWART TITLE GUARANTY COMPANY COMMITMENT NO. 21000200719, DATED JULY 29, 2021 AT 8:00 AM. INCLUDED ARE APPURTENANT EASEMENTS AND ADJOINING DEEDS FOR UNPLATTED LOTS, IF ANY. IN PREPARING THIS MAP, BARGHAUSEN CONSULTING ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS BARGHAUSEN CONSULTING ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY SAID COMMITMENT. BARGHAUSEN CONSULTING ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND THEREFORE BARGHAUSEN CONSULTING ENGINEERS, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.

LEGAL DESCRIPTION

(PER ABOVE REFERENCED TITLE REPORT) PARCEL A: (773000-028-1 & 773000-028-8)

LOT 1 AND THE NORTH 15 FEET OF THE EAST 178.33 FEET OF "COMMON ACCESS TRACT A", OF PIERCE COUNTY SHORT PLAT RECORDED UNDER RECORDING NO. 77-315, RECORDS OF PIERCE COUNTY WASHINGTON, FORMERLY BEING DESCRIBED AS THE NORTH 161.5 FEET OF THE WEST 178.33 FEET OF THE EAST 188.33 FEET OF LOT 20, SOURWINE'S ACRE LOTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 8 OF PLATS, PAGE 10, RECORDS OF PIERCE COUNTY, WASHINGTON; TOGETHER WITH THAT PORTION OF 14TH AVENUE SW, VACATED BY ORDINANCE NO. 2304 ABUTTING THEREON AND ATTACHED THERETO, RECORDED UNDER RECORDING NO. 9206040385.

PARCEL A1: RIGHTS TO USE THAT PORTION OF THE WITHIN DESCRIBED PROPERTY LYING WITHIN COMMON ACCESS TRACT "A" OF SIDE SHORT PLAT, FOR INGRESS, EGRESS, AND INSTALLATION AND MAINTENANCE OF UTILITIES, AS SET FORTH AND DELINEATED ON PIERCE COUNTY SHORT PLAT NO. 77-315;

EXCEPT ANY PORTION LYING WITHIN PARCEL A ABOVE. PARCEL A2

AN EASEMENT FOR INGRESS AND EGRESS AS SET FORTH IN DOCUMENTS ENTITLED "STATUTORY WARRANTY DEED" AS RECORDED UNDER RECORDING NUMBERS 2741876 AND 2792268. PARCEL B: (773000-003-1 & 773000-002-1)

LOT 2, SOURWINE'S ACRE LOTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 8 OF PLATS, PAGE 10, RECORDS OF PIERCE COUNTY, WASHINGTON; EXCEPT THAT PORTION LYING WITHIN STATE HIGHWAY NO. SR-512, 96TH STREET TO JUNCTION SR-167;

TOGETHER WITH THAT PORTION OF 14TH AVENUE SW, VACATED BY ORDINANCE NO. 2304 ABUTTING THEREON AND ATTACHED THERETO, RECORDED UNDER RECORDING NO. 9206040385 SITUATE IN THE COUNTY OF PIERCE, STATE OF WASHINGTON.

SPECIAL EXCEPTIONS: (PER ABOVE REFERENCED TITLE REPORT)

ITEMS 1 THOUGH 18 ARE NOT SURVEY RELATED.

19. TEMPORARY RIGHT, PERMIT, LICENSE AND EASEMENT TO USE AND OCCUPY A PORTION OF SAID LOT 20 FOR THE PURPOSE OF CONSTRUCTING HIGHWAY SLOPES AND OPERATING ALL NECESSARY MACHINERY AND EQUIPMENT THEREON AT ANY AND ALL TIMES UNTIL COMPLETION OF CONSTRUCTION FOR STATE RAD NO. 512 AS APPROPRIATED BY THE STATE OF WASHINGTON IN PIERCE COUNTY SUPERIOR COURT CAUSE NO. 198127. AFTER COMPLETION OF CONSTRUCTION, ALL RIGHTS OF EASEMENT SHALL BE EXTINGUISHED. AFFFCTS PARCEL A

(BLANKET IN NATURE)(POTENTIALLY EXTINGUISHED)

20. RELINQUISHMENT OF ACCESS TO STATE HIGHWAY AND OF LIGHT, VIEW AND AIR BY DEED TO THE STATE OF WASHINGTON: RECORDED: NOVEMBER 19, 1966 RECORDING NO .: 2321816

AFFFCTS: PARCEL A (APPLIES TO OFFSITE ADJACENT PROPERTY)

21. RELINQUISHMENT OF ACCESS TO STATE HIGHWAY AND OF LIGHT, VIEW AND AIR BY DEED TO THE STATE OF WASHINGTON: OCTOBER 20, 1975 RECORDED:

2632004 RECORDING NO .: AFFECTS: PARCEL B

(BLANKET IN NATURE)

22.	EASEMENT	AND	THE	TERMS	AND	COND	ITIONS .	THERE	EOF:		
	GRANTEE:			PUC	GET S	OUND	POWER	AND	LIGHT	COMPANY	
	PURPOSE:			ELE	CTRIC	TRAN	ISMISSIC	ON AN	VD/OR	DISTRIBUTION	SYSTEM

EAST 10 FEET OF PARCEL A AND INCLUDES OTHER PROPERTY MAY 26, 1976

RECORDING NO .: (PLOTTED HEREON)

AFFECTS

**RECORDED:** 

23. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM PURPOSE:

2667305

AFFECTS: PORTION OF PARCEL A AND INCLUDES OTHER PROPERTY RECORDED: MAY 26, 1976 RECORDING NO .: 2667306

(BLANKET IN NATURE)

24. COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENTS CONTAINED IN SHORT PI AT· RECORDED: MAY 25, 1977 RECORDING NO.: 77-315

(PLOTTED HEREON)(COMMON ACCESS TRACT "A")

Man MATTHEW K. ABBAS, PLS MABBAS@BARGHAUSEN.COM

25. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: PURPOSE:       INGRESS, ECRESS AND UTILITIES         AFFCTS:       PORTION OF TRACT A LYING WITHIN PARCEL A RECORDED:       ANUARY 16, 1958         RECORDED:       JAULARY 16, 1958       FURPOSE:         PURPOSE:       INGRESS, ECRESS AND UTILITIES         RECORDED:       JAULARY 16, 1958         RECORDING NO:       2782268         (PUOTED HERERM)       INGRESS AND CONDITIONS THEREOF: PURPOSE:         PURPOSE:       INGRESS AND CONDITIONS THEREOF: PURPOSE:         PURPOSE:       INGRESS AND CONDITIONS THEREOF: PURPOSE:         PURPOSE:       INTER SPACE         PURPOSE:       CONDITIONS THEREOF: GRAVIEE:         CIT:       OF PURPOSE         VENTED:       THERE MINPORENTS AND CONDITIONS THEREOF: GRAVIEE:         CIT:       OF PURPOSE         PURPOSE:       CONDITIONS THEREOF: CIT:         PURPOSE:       CONDITIONS THEREORING AND MINITIONING PURPOSE         PURPOSE:       CONDITIONS THEREORING AND MINITIONING PURPOSE <t< th=""><th>1 7/18/23 KJR MKA MKA ADDED TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO No. Date By Ckd. Appr.</th><th>Title: ALTA/NSPS LAND TIT PTN OF THE SE1/4, OF THE N TWP. 20 N., RGE 4 I CITY OF PUYALLUP, PIER WASHINGTON ST</th></t<>	1 7/18/23 KJR MKA MKA ADDED TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO No. Date By Ckd. Appr.	Title: ALTA/NSPS LAND TIT PTN OF THE SE1/4, OF THE N TWP. 20 N., RGE 4 I CITY OF PUYALLUP, PIER WASHINGTON ST
PLOTOD HEREON)         28. MUTUAL MAINTENANCE AGREEMENT AND THE TERMS AND CONDITIONS THEREOF: RECORDING NO: 9105170239 AFFECTS: PARCEL A         (NOT SURVEY RELATED)         29. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: GAS PIPELINE OF PIPELINES AFFECTS: NORTHERLY PORTION OF PARCEL A RECORDED: MARCH 30, 1992 RECORDING NO: 9203300111         (PLOTED HEREON)         30. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: CITY OF PUYALLUP PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND AFFECTS: SOUTH 30 FEET OF PARCEL B RECORDING NO:: 9206040382         (PLOTED HEREON)         31. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: CITY OF PUYALLUP PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND AFFECTS: SOUTH 30 FEET OF PARCEL B RECORDING NO:: 9206040382         (PLOTED HEREON)         31. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: CITY OF PUYALLUP PURPOSE: STORWMATER, SANITARY AND WATERMAIN PIPE LINE AND AFFECTS: NORTH 30 FEET OF PARCEL A RECORDING NO:: 9206040382         (PLOTED HEREON)         31. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: CITY OF PUYALLUP PURPOSE: STORWMATER, SANITARY AND WATERMAIN PIPE LINE AND AFFECTS: NORTH 30 FEET OF PARCEL A RECORDING NO:: 9206040383         (PLOTED HEREON)(OFFSITE ADJACENT EASEMENT)         32. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: CITY OF PUYALLUP PURPOSE: STORWATER, SANITARY AND WATERMAIN PIPE LINE AND         32. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: CITY OF FUYALLUP PURPOSE: STORWATER, SANITARY AND WATERMAIN PIPE LINE AND		For: BP FUELS NA
AFFECTS: NORTH 30 FEET OF PARCEL A RECORDED: JUNE 4, 1992 RECORDING NO.: 9206040384 (PLOTTED HEREON) 33. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM AFFECTS: PORTION OF PARCEL B RECORDED: JULY 28, 1992 RECORDING NO.: 9207280563 (PLOTTED HEREON)(OFFSITE ADJACENT EASEMENT) 34. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM AFFECTS: PORTION OF PARCEL A RECORDING NO.: 9207280563 (PLOTTED HEREON)(UPSTIE ADJACENT EASEMENT) 34. EASEMENT AND THE TERMS AND CONDITIONS THEREOF: GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM AFFECTS: PORTION OF PARCEL A RECORDED: JULY 28, 1992 RECORDING NO.: 9207280564 (PLOTTED HEREON)		Designed     Scale:       Drawn     AEF       Drawn     MEA       Checked     MKA       Approved     MKA       Date     7/19/23
SURVEYOR'S CERTIFICATION: To: BP PRODUCTS NORTH AMERICA INC., A MARYLAND CORPORATION AND STEWART TITLE GUARANTY COMPANY THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS AND INCLUDES ITEMS 2, 3, 4, 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16, 17, 18, AND 19 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MARCH 22, 2022. DATE OF PLAT OR MAP: JULY 19, 2023. 7/19/12023	$\frac{R_{1}}{S_{4}} \times \frac{R_{8}}{K} = \frac{R_{1}}{S_{4}} \times \frac{R_{1}}{K} = \frac{R_{1}}{S_{4}} \times \frac{R_{1}}{K} = \frac{R_{1}}{K} \times \frac{R_{1}}{K} \times \frac{R_{1}}{K} \times \frac{R_{1}}{K} = \frac{R_{1}}{K} \times $	er       Barghausen       Barghausen       Barghausen       Barghausen       Barghausen       Barghausen       Barghausen       Barghausen       Salvsurvey/21730-T001.dwg       730\survey/21730-T001.dwg

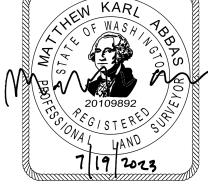
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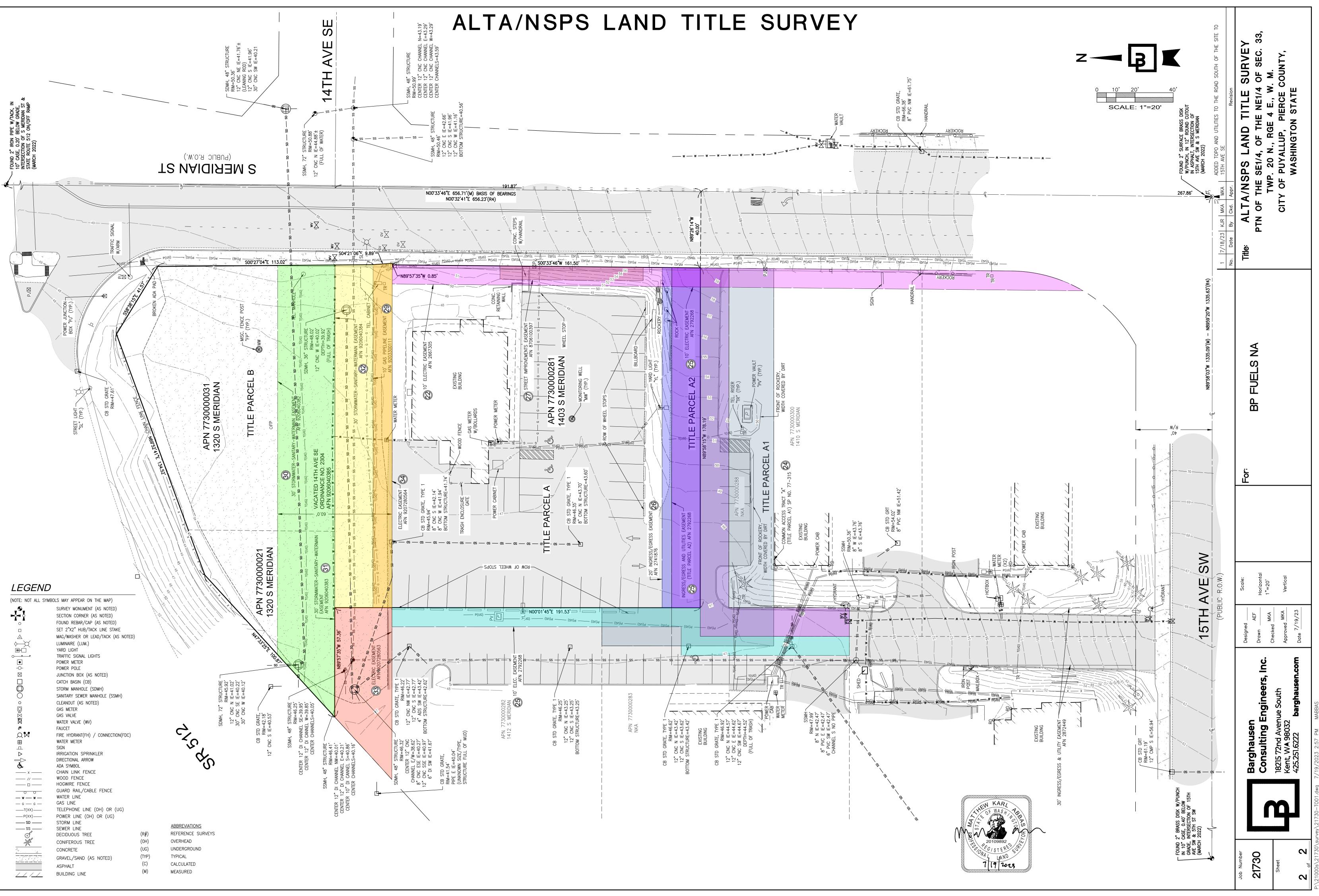
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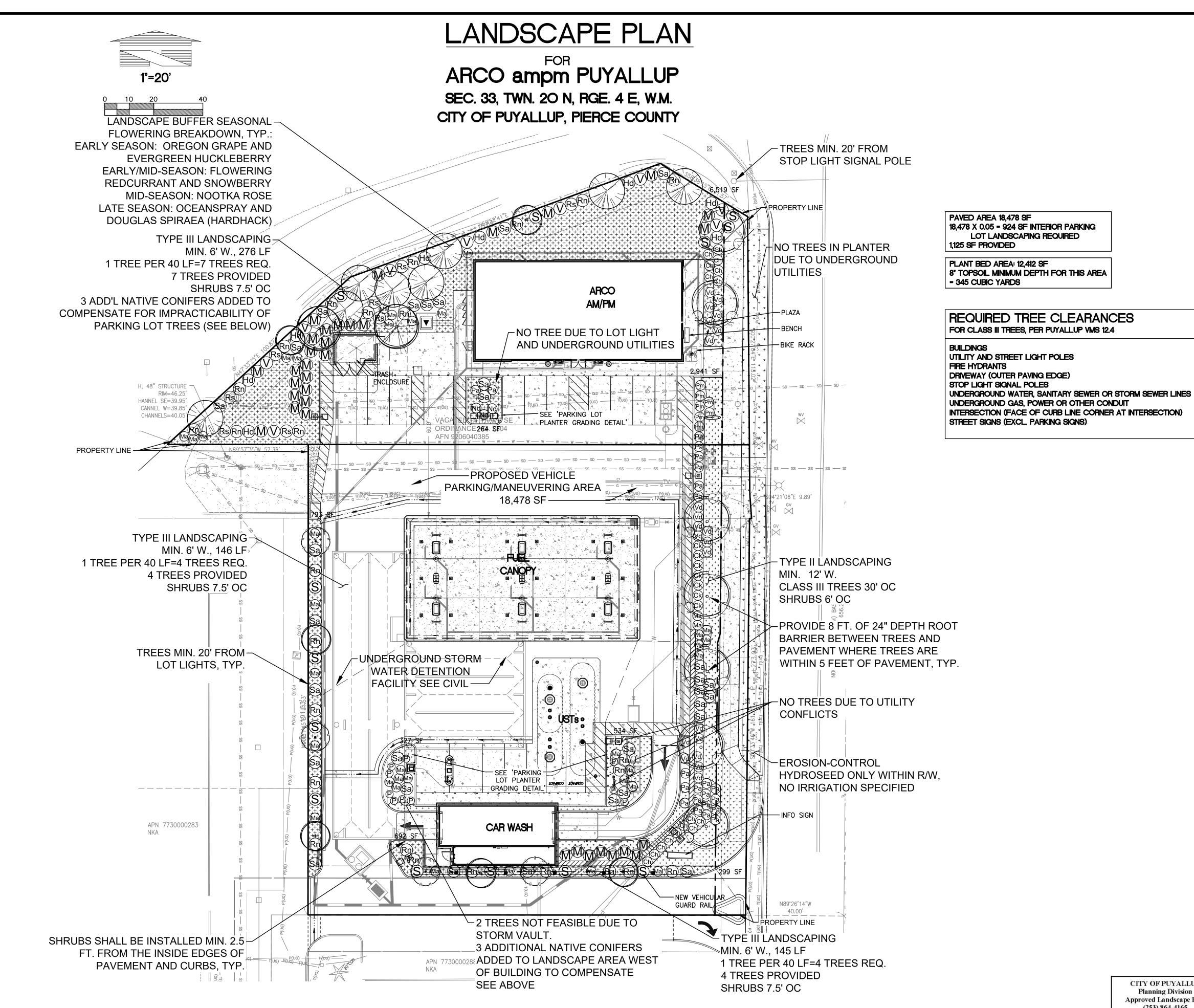
21730

WASHINGTON REGISTRATION NO. 20109892

7/19/2023 DATE





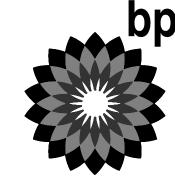


### UTILITY CONFLICT NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE AT 811 48 HOURS IN ADVANCE AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.



Know what's **below**. Call before you dig. Dial 811

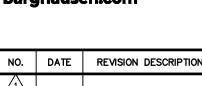






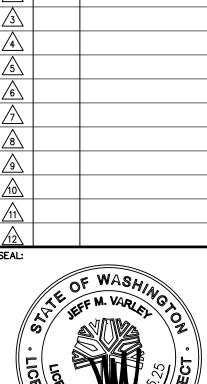
#### Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com



30' LEADING SIDE,

10' TRAILING SIDE





DEVELOPMENT INFORMATION:

**ARCO NTI** 3400 am/pm FUEL CANOPY w/ 6 MPD's

SITE ADDRESS: SWC S MERIDIAN @ HIGHWAY 512 PUYALLUP, WASHINGTON

# FACILITY #TBD

ESIGNED B ALLIANCE Z&DM CHECKED BY: P REPM: RAWN BY: LIANCE PM: VERSION: ROJECT NO:

# 21730 DRAWING TITLE:

LANDSCAPE PLAN
SHEET NO:

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS

**APPROVED** 

CITY OF PUYALLUP WATER PURVEYOR

AND/OR OMISSIONS ON THESE PLANS.

FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE WATER

PURVEYOR.

CITY OF PUYALLUP **Planning Division Approved Landscape Plan** (253) 864-4165

### Date:

THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS, FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE PLANNING MANAGER, DESIGNEE, OR PROJECT

PLANNER. NOTE: If street trees are required, Call Planning Division for final inspection: (253) 864-4165 (Option 3 Root Barriers are required around street trees in accordance with city standard detail. Top soil shall be

installed in accordance with city standards - field verification required. Failure to install top soil and root barriers in accordance with city standards may result in rejection of installation.

LOT LANDSCAPING REQUIRED

### ${ \ \ \, } \quad \underline{ CONSTRUCTION \ NOTES}$

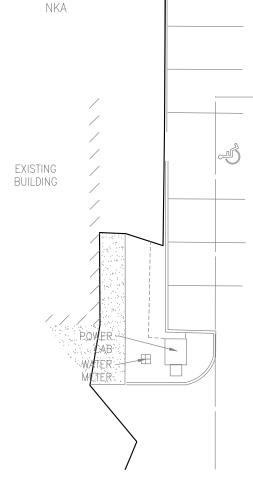
- 1. CONVENIENCE STORE.
- 2. CAR WASH.
- 3. FUEL CANOPY.
- 4. UNDERGROUND STORAGE TANKS. SEE FUEL PLANS FOR DETAILS.
- 5. TRASH ENCLOSURE AND CONCRETE TRASH ENCLOSURE SLAB. REFER TO G1.4 AND G1.5
- 6. ON-SITE ASPHALT PAVEMENT. SEE CIVIL DRAWINGS.
- 7. ON-SITE CONCRETE PAVEMENT. SEE CIVIL DRAWINGS. PROVIDE EXPANSION AND CONTROL JOINTS PER CIVIL DRAWINGS.
- 8. BARRIER CURB. SEE CIVIL DRAWINGS.
- 9. CURB AND GUTTER. SEE CIVIL DRAWINGS.
- 10. CONCRETE SIDEWALK, WIDTH VARIES. SEE CIVIL DRAWINGS.
- 11. ACCESSIBLE PARKING STALL AND AISLE. SEE CIVIL DRAWINGS.
- 12. BOLLARD MOUNTED ACCESSIBLE PARKING STALL SIGNAGE. SEE CIVIL DRAWINGS.
- 13. PARKING STALL WITH 4" WIDE WHITE REFLECTIVE PAINT STRIPE (TYP.). SEE CIVIL DRAWINGS.

14. BOLLARD (TYP.). SEE CIVIL DRAWINGS.

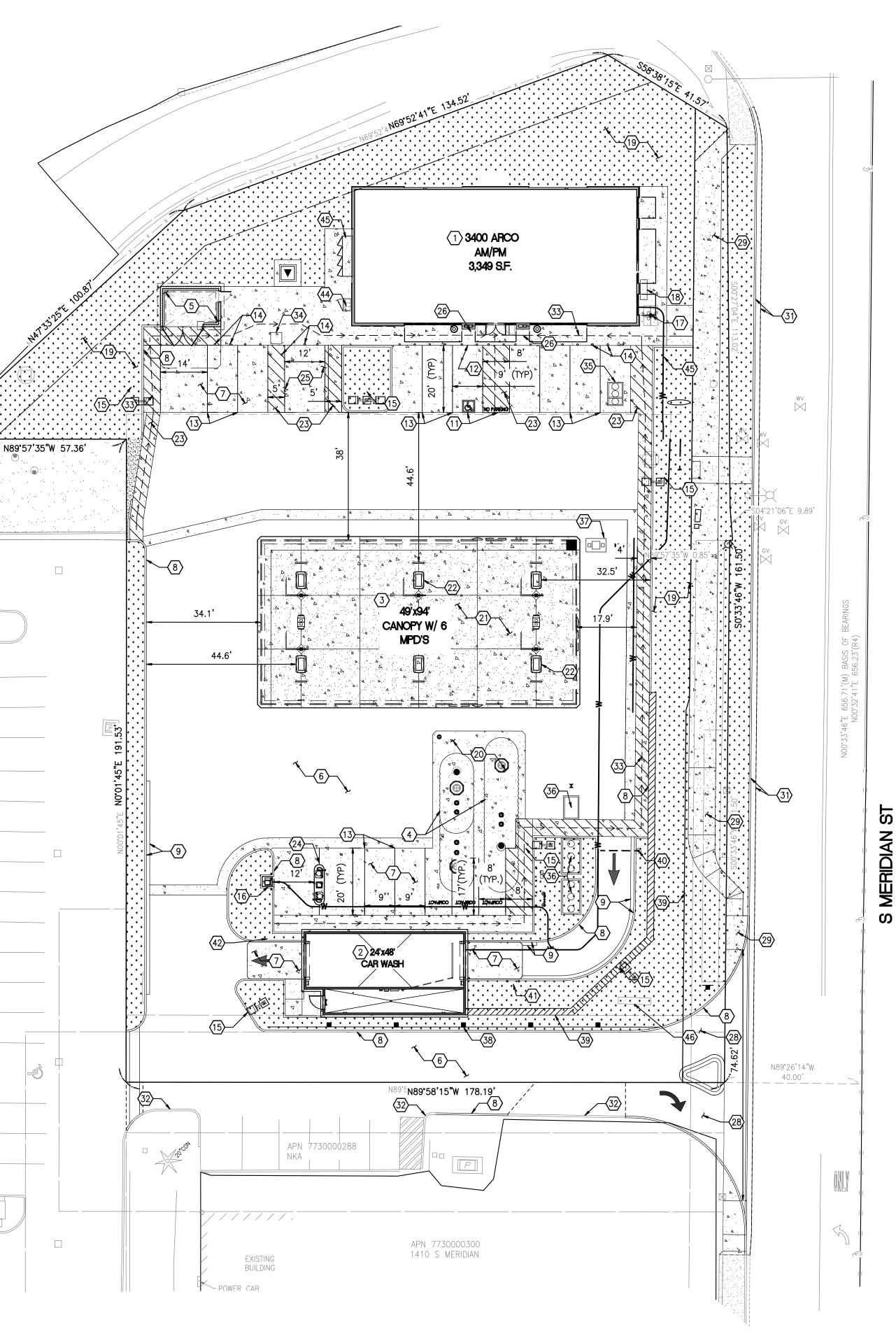
- 15. LOT LIGHT. SEE DETAIL ON-SITE PHOTOMETRIC PLANS FOR MORE DETAILS. COORDINATE ALL CONDUIT RUNS, WIRING REQUIREMENTS, LOT LIGHT BASE, ETC. WITH ELECTRICAL PLANS. SEE CIVIL DRAWINGS.
- 16. AIR/WATER UNIT. ARCHITECTURAL PLANS FOR MORE DETAILS.
- 17. BICYCLE STORAGE. SEE CIVIL DRAWINGS.
- 18. SEATING BENCH.
- 19. LANDSCAPING. SEE LANDSCAPE PLANS.
- 20. CONCRETE TANK FUEL SLAB. SEE FUEL PLANS FOR DESIGN.
- 21. UNDER CANOPY CONCRETE SLAB. SEE ARCHITECTURAL PLANS FOR DETAILS.
- **22. FUEL DISPENSERS WITH HOOP BOLLARDS (TYP.).** SEE FUEL PLANS FOR DETAILS.
- 23. PAVEMENT MARKINGS 4" WIDE WHITE PAINTED STRIPES @ 2' O.C/45" ANGLE. SEE CIVIL DRAWINGS.
- 24. VACUUM UNIT. REFER TO ARCHTIECTURAL CAR WASH DRAWINGS, 01/CWA4.2.
- 25. VAN ACCESSIBLE AND STANDARD EV CHARGING STATION, SEE CIVIL DRAWINGS.
- 26. TRASH RECEPTACLE (TYP).
- 27. CONCRETE DRIVEWAY PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.17. CIVIL DRAWINGS.
- 28. CONCRETE DRIVEWAY PER CITY OF PUYALLUP STANDARD DRAWING NO. 01.02.16. CIVIL DRAWINGS.
  29. CONCRETE SIDEWALK PER CITY OF PUYALLUP STANDARD DRAWING NO.
- 01.02.01. SEE CIVIL DRAWINGS. 30. TYPE I CURB RAMP PER CITY OF PUYALLUP STANDARD DRAWING NO.
- 01.02.19. SEE CIVIL DRAWINGS. 31. OFF-SITE CURB AND GUTTER PER CITY OF PUYALLUP STANDARD DRAWING
- NO. 01.02.09. SEE CIVIL DRAWINGS.
- 32. PROTECT EXISTING CURB/CURB AND GUTTER TO REMAIN.
- **33. ACCESSIBLE PATH.** REFER TO CIVIL GRADING PLAN FOR SLOPE REQUIREMENTS.
- 34. FREEWIRE EV CHARGING STATION TO BE INSTALLED
- 35. GREASE INTERCEPTOR. REFER TO CIVIL AND PLUMBING DRAWINGS.
- **36. WATER RECLAIM TANKS AND SEPARATOR.** REFER TO CAR WASH, PLUMBING AND CIVIL DRAWINGS FOR CONTINUATION
- 37. SAND-OIL-WATER SEPARATOR. REFER TO CIVIL DRAWINGS.
- 38. VEHICLE GUARD RAIL. REFER TO CIVIL AND STRUCTURAL DRAWINGS.
- 39. RETAINING WALL. REFER TO CIVIL AND STRUCTURAL DRAWINGS.
- 40. CAR WASH OVERHEAD HEIGHT WARNING BAR. REFER TO ARCHITECTURAL CAR WASH DRAWINGS AND STRUCTURAL DETAILS.
- 41. CAR WASH PAY STATION. REFER TO ARCHITECTURAL CAR WASH DRAWINGS.
- 42. DRYER COUNT DOWN DISPLAY. REFER TO CAR WASH DRAWINGS.
- 43. PROPANE EXCHANGE CAGE
- 44. ELECTRICAL SWITCHGEAR. REFER TO ELECTRICAL DRAWINGS.
- 45. PROPOSED NEW MONUMENT SIGN. PERMITTED SEPARATELY.
- 46. EXISTING POLE SIGN TO BE RESURFACED WITH ARCO/AMPM SIGNAGE. PERMITTED SEPARATELY.

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APN 7730000283

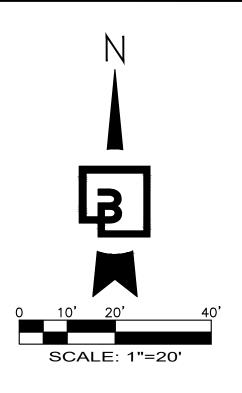






### GENERAL NOTES

1. SEE CIVIL FOR ADDITIONAL INFO 2. SEE ELECTRICAL FOR ADDITIONAL INFO



ARCO BP WEST COAST PRODUCTS, LLC
Barghausen Consulting Engineers, Inc 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com
NO.     DATE     REVISION DESCRIPTION       1
1         1           1         1           1         1
DAMIEL B GOALWIN STATE OF WASHINGTON EXP: 08/05/24 DEVELOPMENT INFORMATION: ARCO NTI 3400 am/pm
FUEL CANOPY w/ 6 MPD's
1402 S MERIDIAN PUYALLUP, WA 98371
FACILITY #7184         DESIGNED BY:       ALLIANCE Z&DM:
CHECKED BY: BP REPM: DRAWN BY: ALLIANCE PM:
VERSION: _ PROJECT NO: _ 21730
ARCHITECTURAL SITE PLAN
SHEET NO:
AS1.0

SPECIFICATIONS	

SPECIFICATIONS	
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<u>DIVISION 2 — SITE WORK</u> 02010 — SUBSURFACE INVESTIGATION 02282 — TERMITE CONTROL (OPTIONAL)	A7.1 A7.1
<u>DIVISION 3 – CONCRETE</u> 03300 – CAST–IN–PLACE CONCRETE	A7.1/A7.2
<u>DIVISION 4 – MASONRY</u> 04200 – UNIT MASONRY 04700 – SIMULATED MASONRY	A7.2 A7.2
<u>DIVISION 5 – METALS</u> 05500 – METAL FABRICATIONS	A7.2
<u>DIVISION 6 – WOOD AND PLASTIC</u> 06100 – ROUGH CARPENTRY 06192 – PREFABRICATED WOOD TRUSSES	A7.2/A7.3 A7.3
DIVISION 7 — THERMAL AND MOISTURE PROTECTION 07210 — BUILDING INSULATION 07410 — PREFORMED METAL ROOF PANELS 07420 — ALUMINUM COMPOSITE METAL PANEL SYS. 07542 — TPO MEMBRANE ROOFING 07600 — FLASHING AND SHEET METAL 07901 — JOINT SEALERS	A7.3
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DIVISION 9 — FINISHES 09200 — GYPSUM DRYWALL 09220 — PORTLAND CEMENT PLASTER (STUCCO) 09250 — METAL SUPPORT ASSEMBLIES 09300 — TILE 09511 — ACOUSTICAL PANEL CEILINGS 09540 — FIBER REINFORCED PANELS (FRP) 09650 — RESILIENT FLOORING 09900 — PAINTING	A7.5/A7.6 A7.6

<u>DIVISION 10 – SPECIALTIES</u> 10800 – TOILET ACCESSORIES

<u> DIVISION 11 – EQUIPMENT</u>

11400 - FOOD SERVICE EQUIPMENT (SEE SHEET Q2.1) DIVISION 12 - FURNISHINGS

<u>DIVISION 13 – SPECIAL CONSTRUCTION</u>

<u>DIVISION 14 – CONVEYING SYSTEMS</u> NOT USED

<u>DIVISION 15 – MECHANICAL</u> SEE PLUMBING AND MECHANICAL DRAWINGS SEE FUEL SYSTEM DRAWINGS

### <u>DIVISION 16 – ELECTRICAL</u> SEE ELECTRICAL DRAWINGS

END OF SECTION

01095 - PROJECT COORDINATION PART 1 – GENERAL

#### 1.01 SUMMARY

A. This section specifies administrative and supervisory requirements necessary for project coordination including, but not necessarily limited to general installation provisions, cleaning and protection.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

A. Inspection of conditions: require the installer of each major component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

A7.6

- . Manufacturer's instructions: comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- . Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement
- . Visual effects: provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- . Recheck measurements and dimensions, before starting each installation.
- 3. Install each component during weather conditions and project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose
- Mounting heights: where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
- 3.02 CLEANING AND PROTECTION
- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at substantial completion
- B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging
- C. Limiting exposures: supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION

<u>01300 – SUBMITTALS</u>

installation in the Work

PART 1 – GENERAL

- 1.01 DESCRIPTION A. This section describes the process for submitting documents and samples to the Architect of Record, Engineer of Record and/or Client Construction Project Manager for their review and approval prior to
- 3. In general, submittals will not be required for those items which conform precisely to the products and/or manufacturers specified herein. Alternative manufacturers or substituted materials will require submittal for approval by the Architect of Record, Engineer of Record, and/or Client Construction Project Manager. Submittals for alternative manufacturers or materials shall indicate, on the submittal, that they are submitted as a requested substitution and shall indicate how the alternative meets or exceeds the characteristics of the specified item.
- tems noted as "Deferred Submittal" such as roof trusses, prefabricated structures, and other structural items require submittal for review and approval by the Engineer or Record, and the local Building Official
- ). Items noted "Submit to <u>X</u> for verification of <u>Y</u>", require submittal for approval by Architect of Record or Engineer of Record.
- E. Provide four copies of drawings, calculations, product data, certifications, and test reports. . Provide three material samples, approximately 3"x5" showing color range and textures, when requested
- for verification. PART 2 - NOT USED

PART 3 – NOT USED

END OF SECTION

01400 - TESTING AND QUALITY CONTROL

PART 1 – GENERAL 1.01 DESCRIPTION

- A. This section covers general requirements for quality control and testing of the work, including: Inspection procedures.
- Requirements:

- 3. Testing firm, laboratory or agency Geotechnical (soils or foundation) enginee
- Coordination of tests and inspections. Tests costs and reports.
- Inspections, continuous and special Contractor furnished assistance
- Verification of conditions.
- 10. Individual sections of the Specification may contain specific test procedures to be performed in accordance with this section. Refer to each specific section. 1.02 GENERAL QUALITY CONTROL
- A. General test requirements: materials and products provided under the contract are subject to testing
- and inspection for compliance with requirements of Contract Documents. B. Testing firm, laboratory or agency: licensed organization meeting the requirements of ASTM E329, and referred to in sections of the Specification. Perform all testing under supervision and control of the aeotechnical engineer who performed the initial aeotechnical report.
- C. Disaualified materials: any material shipped or delivered to the site by the Contractor from the source of supply prior to having satisfactorily passed the required testing and inspection, prior to the PART 2 - PRODUCTS - NOT USED receipt of a notice from the Architect or Owner that such testing and inspection will not be required. shall not be incorporated in the work.

1.03 COORDINATION OF TESTS AND INSPECTIONS

- A. Contractor shall initiate and coordinate testing and inspections required by Contract Documents and public authorities having jurisdiction of the work.
- B. Notification: Contractor shall notify the Owner sufficiently in advance of the manufacture of materials or products to be supplied by him, which, by requirements of the Contract Documents, must be tested at the source of supply in order that the Owner may arrange for the testing.
- 1.04 TESTS SAMPLES AND PROCEDURES A. Test samples: provide and deliver samples of materials and products to be tested at no extra cost to Owner. Test samples will be selected by the Architect, inspector or testing firm and not by the Contractor.
- B. Test procedures: testing firm shall perform testing in accordance with ASTM or other methods of testing specified for the various materials and products specified. If no procedure or test method is specified, testing shall conform to material or product specification referenced unless otherwise directed by Owner. The testing firm shall tag, seal, label, record or otherwise suitably identify the materials and products for testing and no such materials and products shall be used in the work until the test result reports are submitted and approved, excepting only the materials and products specified to be placed or installed prior to testing.
- C. Repetition of test: repeat applicable tests at specified intervals, whenever the source of supply is changed, or whenever the characteristics of the materials and products change or vary in opinion of Owner or Architect.
- 1.05 TEST REPORTS:
- A. Provide copies of each test result report, signed and certified by the testing firm's supervising engineer. Copies shall be provided as follows: 1. Owner — 1 copy
- 2. Architect 1 copy . Structural engineer (structural tests only) — 1 copy
- Contractor 2 copies. 5. Building department - 1 copy, if required.
- 1.06 INSPECTIONS, CONTINUOUS AND SPECIAL
- A. Perform by registered deputy or special inspectors (hereinafter termed inspector) as required by Contract Documents and building codes. During the course of work under inspection, each inspector shall submit detailed reports relative to progress and condition of work including variances from the Contract Documents, and stipulating dates, hours and locations of the inspections.
- B. Approvals required by others: if the laws, ordinances, rules, regulations or orders of any public agency having jurisdiction require any of the work to be specifically inspected, tested and approved by authority other than the Owner, Architect or Contractor, the Contractor shall give all required notices and make arrangements, shall deliver to the Architect the certificates of inspection, testing, or approval of such agency and shall pay all costs therefore unless provided in the Contract Documents.
- C. All costs for special inspections shall be included in base bid.

1.07 CONTRACT FURNISHED ASSISTANCE

- A. Whenever requested, Contractor shall provide access, facilities and labor assistance as necessary for duties to be performed at the site by testing firm and inspector including providing ladders, hoisting, temporary utilities and like services at no cost to Owner. 1.08 VERIFICATION OF CONDITIONS
- A. Prior to installation of any portion of the work, the Contractor shall arrange for correction of defects in existing workmanship, materials and products, or conditions that may adversely affect the work to be installed. Installation of materials and products on work in-place constitutes acceptance by Contractor as being in proper condition to receive the materials and products to be applied and waiver of claim that work in-place is defective as pertains to warranty requirements, excluding unascertainable or concealed conditions. Where the specification requires a material or product to be installed under supervision of the material or product manufacturer or his representative, manufacturer or his representative also shall inspect the work in-place and issue a letter of approval to Owner

1.09 MECHANICAL

- A. Ten working days prior to final acceptance by Owner, all mechanical systems shall be one hundred percent completed and shall be inspected and approved by the Owner or his authorized representatives. Contractor shall submit copies of air balance report to Owner with close out package PART 2 – PRODUCTS – NOT USED
- PART 3 EXECUTION NOT USED
- END OF SECTION
- 01500 TEMPORARY FACILITIES AND CONTROLS
- PART 1 GENERA

1.01 STORAGE

- A. The Contractor shall supply an over the road double door type minimum 8' x 40' well secured cleaned, weather-tight, safe storage trailer with pin lock for his use to store new Owner furnished items (equipment, decor, furniture, etc.).
- 1.02 TEMPORARY TELEPHONE
- A. The Contractor shall set up temporary telephone and fax service by line or cellular, and the Contractor shall be responsible for temporary telephone costs and charges. Temporary service shall not be discontinued until project is completed and Contractor leaves the site. 1.0.3 TEMPORARY LIGHTING AND POWER

A. Provide adequate lighting at all points of construction areas where natural or existing lighting is

insufficient for the proper performance of the work. B. Provide and pay for electrical service and include temporary poles, transformers, meters, wiring, panels, circuits and ground fault protection, and fittings at locations requiring power, until occupancy by Owner.

C. Provide generators to meet needs of construction in the event commercial power is unavailable.

- 1.04 TEMPORARY TOILET FACILITIES: A. Provide and pay for temporary toilet facilities on site in compliance with requirements of the
- department of health. Maintain toilet facilities in good working order and remove at the end of construction.
- 1.05 TEMPORARY WATER
- A. Provide and pay for all water required for work and including piping, hoses, and valves from source to points on the site where needed. Regardless of source, there will be no additional cost to Owner. 1.06 SAFETY
- A. General Contractor is responsible for all on site safety from ground-breaking until occupancy.
- PART 2 PRODUCTS NOT USED
- PART 3 EXECUTION NOT USED END OF SECTION
- <u>01600 MATERIALS AND EQUIPMENT</u>

PART 1 – GENERAL

- 1.01 REQUIREMENTS
- A. Materials and equipment incorporated into the work. Conform to applicable specifications, standards and all applicable codes.
- 1. Comply with size, make, type and quality specified or as may be otherwise specifically approved in writing by the Architect. 2. Manufactured and fabricated products: design, fabricate and assemble in accordance with the
- est engineering and shop practices Two or more items of the same kind shall be identical, by the same manufacturer 4. Do not use materials or equipment for any purpose other than that for which it was designed
- 1.02 MANUFACTURER'S INSTRUCTIONS

the Architect for further instructions.

or is specified.

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain copies of such instructions from the manufacturer of the product.
- B. Maintain one set of complete instructions at jobsite during installation and until completion and acceptance.

D. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with

C. Handle, install, connect, clean, condition and adjust products in strict accordance with such

instructions and in conformity with specified requirements.

1. Do not proceed with work without clear instructions.

#### E. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

#### 1.03 TRANSPORTATION AND HANDLING

A. Arrange deliveries of products in accordance with construction schedules; coordinate to avoid conflict with work and conditions at site. B. Deliver products in manufacturer's original sealed containers or packaging, with identifying labels

intact and leaible. 1. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling and damage to products and packaaina.

D. General Contractor shall use Subcontractor or supplier name as consignee on all shipments to job site. Neither Owner's corporate name nor trade name shall be used as consignee.

PART 3 - EXECUTION - NOT USED

<u>01620 – STORAGE AND PROTECTION</u> PART 1 - GENERAL

### 1.01 REQUIREMENTS

END OF SECTION

1.02 STORAGE

A. Provide secured storage and protection for products to be incorporated into the work (see section 01500 part 1.01).

A. Store products immediately on delivery, and protect until installed in the work.

B. Store in accordance with manufacturer's instructions, with seals and labels intact and legible. C. Store products subject to damage by elements in substantial weather tight enclosures.

D. Maintain temperatures within ranges required by manufacturer's instructions. Provide humidity control for sensitive products, as required by manufacturer's instructions.

Store unpacked products on shelves, in bins, or in neat piles, accessible for inspection. Provide substantial platforms, blocking or skids to support fabricated products above ground and to prevent soiling and staining. 4. Cover products, subject to discoloration or deterioration from exposure to the elements. with impervious sheet coverings. Provide adequate ventilation to avoid condensation. 5. Store loose granular materials on solid surfaces such as paved areas, or provide plywood or

sheet materials to prevent mixing with foreign matter. Provide surface drainage to prevent flow or ponding of rainwater.

Prevent contamination with chemically injurious matter or liquid Arrange storage in a manner to provide easy access.

9. Materials not stored on jobsite shall be stored in a bonded warehouse

1.0.3 MAINTENANCE OF STORAGE

A. Maintain periodic system of inspection of stored products on scheduled basis to assure that: B. State of storage facilities is adequate to provide required conditions.

Required environmental conditions are maintained on continuing basis.

Surfaces of products exposed to elements are not adversely affected.

C. Any weathering of products, coatings or finishes is unacceptable under the requirements of Contract

). Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package. Comply with manufacturer's instructions on scheduled

1.04 PROTECTION AFTER INSTALLATION:

A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work. Control traffic to prevent damage to equipment and surfaces.

Provide coverings to protect finished surfaces from damage. Cover projections, wall corners, and jambs, sills and soffits of openings, in areas used for traffic and for passage of products in subsequent work.

PART 2 - PRODUCTS - NOT USED PART 3 - EXECUTION - NOT USED

01710 - CLEANING AND TEMPORARY SERVICES PART 1 - GENERAL

1.01 REQUIREMENTS

FND OF SECTION

by operations.

2.01 MATERIALS

A. Maintain premises and public properties free from accumulations of waste, debris and rubbish,

1. At completion of work, remove waste material, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for public occupancy and health department inspection.

1.02 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. Cleaning for a specified product or work specifically specified in the Specification's section for that PART 2 - PRODUCTS

A. Use only cleaning materials recommended by the manufacturer of the product to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer. PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

A. Execute cleaning to ensure that grounds and public properties are maintained free from accumulations of waste materials and rubbish. Wet down dry materials and rubbish to lay dust and prevent blowing dust. At reasonable intervals during progress of work, clean site and public properties and dispose of waste materials, debris and rubbish. Provide on site containers for collection of waste materials, debris and rubbish. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.

B. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as needed basis until building is ready for occupancy.

1. Handle materials in a controlled manner with as few handlings as possible. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces. Remove all visible manufacturer's labels, nameplates, or other identifying devices.

3. Once building is enclosed, maintain design temperature as set forth on mechanical plan. 3.02 FINAL CLEANING

A. Employ experienced workman for final cleaning. In preparation for substantial completion or public occupancy and health department inspection, conduct final inspection of sight-exposed interior and exterior surfaces and of concealed spaces.

B. Remove grease, dust, dirt, stains and protective coverings from equipment and materials, from sight exposed in interior and exterior finished surfaces; polish surfaces so designed to shine on actual

C. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces. D. Pressure clean all concrete and asphalt surfaces; rake clean other surfaces on grounds

E. Replace air conditioning filters at construction completion. Clean ducts, blowers and coils, if air conditioning units were operated without filters during construction. Maintain cleaning until project or portion thereof, is occupied by Owner.

02010 - SUBSURFACE INVESTIGATION

PART 1 – GENERAL

F. Clear all roof drains and overflow drains.

END OF SECTION

1.01 DESCRIPTION

A. Geotechnical investigation (subsurface soils tests) for the project site has been performed and a report of that investigation has been completed PART 2 - PRODUCTS

2.01 SUBSURFACE INFORMATION

A. Log of borings indicates materials penetrated at specific locations. Owner and/or Architect assume no responsibility for any conclusions or interpretations made by Contractor related to information included in the report. Should Contractor require additional information concerning subsurface conditions, he may without cost to Owner, make additional investigations. Should additional investigations produce information different from that in soil report, notify Owner in writing. PART 3 - EXECUTION

3.01 REQUIREMENT A. Contractor shall read and otherwise become completely familiar with contents of soil report, including but not limited to its recommendations for preparation of subsoil, bases, sub-bases and fill and construction of building foundations and parking surfaces in compliance with recommendations in report. Should discrepancy be found between the requirements of soil report and the Drawings and/or Specifications, notify Owner in writing prior to beginning work. Contractor to use soils

engineer of record per section 01400

END OF SECTION

02282 - TERMITE CONTROL PART 1 – GENERAL

1.01 SUMMAR

A. This section includes provisions and procedures governing the furnishing and installation of soi treatment for termite control. This section is applicable ONLY WHEN REQUIRED BY LOCAL BUILDING REGULATIONS

orms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf

finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.

C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide

wood inserts for forming keyways, reglets, recesses, and the like for easy removal

crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top

After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling

when surface produces a ringing sound as trowel is moved over surface.

1.02 SUBMITTALS A. Submit manufacturer's technical data and application instructions for each product.

1.03 QUALITY ASSURANCE

- A. Comply with manufacturer's instructions and recommendations for work in addition to requirements of
- this section, including preparation of substrate and application. B. Engage a professional pest control operator, licensed in accordance with regulations of the State for
- application of soil treatment solution C. Use only pesticides, which bear a federal registration number of the U.S. environmental protection
- agency 1.04 PROJECT CONDITIONS
- A. Do not apply soil treatment solution until excavating, filling and grading operations are completed,
- except as otherwise required in construction operations B. Do not apply soil treatment to excessively wet soils or during inclement weather.
- C. Comply with handling and application instructions of the soil toxicant manufacturer.

1.05 SPECIFIC PRODUCT WARRANTY

- A. Furnish written warranty certifying that applied soil termiticide treatment will prevent infestation of subterranean termites and, that if subterranean termite activity is discovered during warranty period, Contractor will re-treat soil and repair or replace damage caused by termite infestation.
- B. Provide warranty for a period of 5 years from date of treatment, signed by applicator and
- C. Provide a renewable service agreement option to provide inspections and re- treatment after the initial warranty period expires. the service agreement shall further state that in the event of damage during the warranty period, the Contractor shall make repairs to structurally damaged surfaces due to the infestation of subterranean termites up to and including a cost of \$25,000.
- PART 2 PRODUCTS

2.01 SOIL TREATMENT SOLUTION

- A. Use an emulsible concentrate termiticide for dilution with water, specially formulated to prevent infestation by termites. Fuel oil will not be permitted as a diluent. Provide a solution consisting of one of following chemical elements and concentrations:
- "Dursban TC" (chloropyrifos); 1.0 percent in water solution. 2. "Pryfon 6" (methylethyl-benzoate); 1.3 oz. of product per 10 sq. ft. in water solution.
- B. Other solutions may be used as recommended by applicator if also approved by the Architect and approved for intended application by manufacturer and jurisdictional authorities.

C. Use only soil treatment solutions which are not injurious to planting.

PART 3 - EXECUTION 3.01 APPLICATION

- A. Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. B. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placement of compacted fill under slabs, if recommended by toxicant manufacturer.
- C. Mix chemicals (from sealed containers) with water at the jobsite, then apply soil treatment solution only at rates described by the manufacturer on the product label and in compliance with local, state and federal laws
- D. Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs when areas are covered by other construction. E. Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or
- other construction activities following application. END OF SECTION

03300 - CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes provisions and procedures governing the installation of cast-in-place concrete, including formwork, reinforcing, design, placement procedures, curing, and finishes.
- B. Cast-in-place concrete includes, but is not limited to the following:
- 1. Foundations and footings. Slabs-on-grade (interior) Equipment pads and bases.
- 1.02 SUBMITTALS
- A. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish

materials, sealers, hardeners, and other material if requested by Architect

- B. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.
- C. Laboratory test reports for concrete materials and design strengths
- 1.03 QUALITY ASSURANCE
- A. Codes and standards: comply with provisions of the following codes, specifications, and standards except where more stringent requirements are shown or specified: American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
- ACI 318. "Building Bode Requirements for Reinforced Concrete." Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."
- B. Concrete testing service: engage a testing agency acceptable to Building Official to perform material evaluation tests and to test concrete mixes.
- C. Materials and installed work may require testing and retesting at any time during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

concrete surface.

CRSI specifications.

class 2).

exposed concrete.

D. Water. Potable.

that cause spalling.

2.03 CONCRETE MATERIALS

not support chair legs.

2.02 REINFORCING MATERIALS (Refer to Structural Drawings)

B. Ties and stirrups: ASTM A-615, grade 40 or 60, deformed.

D. Welded wire fabric: ASTM A-185, welded steel wire fabric

A. Reinforcing bars: ASTM A-615, grade 60, deformed.

C. Steel wire: ASTM A-82, plain, cold drawn steel

acceptable to Architect and Structural Engineer.

to Architect and Structural Engineer.

- A. Forms for unexposed finish concrete: plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- B. Form release agent provide commercial formulation form release agent with compounds that will not bond with, stain, or adverse effect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

C. Form ties: factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to

prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will

1. Provide ties that, when removed, will leave holes not larger than 1 inch in diameter in the

E. Supports for reinforcement: bolsters, chairs, spacers, and other devices for spacing, supporting, and

2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms,

A. Portland cement: ASTM C LSO, type I. Use one brand of cement throughout project unless otherwise

B. Fly ash: ASTM C 618, type F, except that loss on ignition of class f fly ash shall not exceed 6%.

C. Normal-weight aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for

1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances

2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of

adequate strength and durability by special tests or actual service may be used when acceptable

fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will

provide supports with legs that are protected by plastic (CRSI, class 1) or stainless steel (CRSI,

leave no metal closer than 1-1/2 inches to the plane of the exposed concrete surface.

		CLIENT:
E. Admixtures, general: provide concrete admixtures that contain no more than 0.1 percent chloride ions. F. Air-entraining admixture: ASTM C 260, certified by manufacturer to be compatible with other required	D. Provide temporary openings for clean—outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous	bo d
admixtures. Subject to compliance with requirements, provide one of the following:	locations. E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips	
<ol> <li>Darex Aea or Daravair, W.R. Grace &amp; Co.</li> <li>MB-VR or Small-air, Master Builders, Inc.</li> <li>Sealtight Aea, W.R. Meadows, Inc.</li> </ol>	fabricated to produce uniform smooth lines and tight edge joints. F. Provisions for other trades: provide openings in concrete formwork to accommodate work of other	
<ol> <li>Sika AER, Sika Corp.</li> <li>Water-reducing admixture: ASTM C 494, type A. Subject to compliance with requirements, provide one</li> </ol>	trades. Determine size and location of openings in consiste formatic to accommodate work of other items. Accurately place and securely support items built into forms.	
<ol> <li>water requirements, provide one of the following:</li> <li>1. Eucon WR-75. Euclid Chemical Co.</li> </ol>	G. Cleaning and tightening: thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alianment.	
<ol> <li>WRDA, W.R. Grace &amp; co.</li> <li>Pozzolith Normal or Polyheed, Master Builders, Inc.</li> </ol>	3.03 VAPOR RETARDER/BARRIER INSTALLATION	
4. Plastocrete 161, Sika Corp. H. High-range water-reducing admixture: ASTM C 494, type F or type G. Subject to compliance with	A. General: place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.	
requirements, provide one of the following: 1. Eucon 37, Euclid Chemical co.	B. Lap joints 6 inches and seal with manufacturers recommended mastic or pressure-sensitive tape.	
<ol> <li>WRDA 19 or Daracem, W.R. Grace &amp; co.</li> <li>Rheobuild or Polyheed, Master Builders, Inc.</li> <li>Sikament 300, Sika Corp.</li> </ol>	C. Seal all penetrations through vapor barrier. D. Repair all punctures or tears prior to concrete placement.	
I. Water-reducing, accelerating admixture: ASTM C 494, type E. Subject to compliance with requirements, provide one of the following:	3.04 PLACING REINFORCEMENT	
<ol> <li>Accelguard 80, Euclid Chemical Co.</li> <li>Daraset, W.R. Grace &amp; Co.</li> </ol>	A. General: comply with concrete reinforcing steel institute's recommended practice for "placing reinforcing bars," for details and methods of reinforcement placement and supports and as specified.	
3. Pozzutec 20, Master Builders, Inc. J. Water-reducing, retarding admixture: ASTM C 494, type D. Subject to compliance with requirements,	<ol> <li>Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.</li> </ol>	ARCO
provide one of the following: 1. Eucon Retarder 75. Euclid Chemical Co.	B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.	BP WEST COAST PRODUCTS, LLC
<ol> <li>Daratard-17, W.R. Grace &amp; Co.</li> <li>Pozolith R, Master Builders, Inc.</li> <li>Plastiment, Sika Corporation.</li> </ol>	C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Architect.	
2.04 RELATED MATERIALS	D. Place reinforcement to maintain minimum coverage as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete	
A. Gravel sub base: washed 3/4" gravel.	placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.	
B. Vapor barrier: provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows: <ol> <li>Detected according to ASTM</li> </ol>	E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.	
<ol> <li>Polyethylene sheet not less than 6 mils thick.</li> <li>C. Moisture-retaining curing cover: one of the following, complying with ASTM C 171.</li> </ol>	3.05 JOINTS	
<ol> <li>Waterproof paper.</li> <li>Polyethylene film.</li> <li>Polyethylene-coated burlap.</li> </ol>	A. Construction joints: locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.	Barghausen
D. Water—based membrane curing compound: ASTM C 309, type 1, class B, with a maximum volatile	<ol> <li>Provide keyways at least I-1/2 inches deep in construction joints in wall and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.</li> <li>Place construction joints perpendicular to main reinforcement. Continue reinforcement across</li> </ol>	Consulting Engineers, Inc.
organic compound (VOC) rating of 350 mg per liter. Moisture loss not more than 0.55 kg/sq. meter when applied at 200 sq. ft./gal.	construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements. 3. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.	18215 72nd Avenue South
E. Liquid membrane—forming curing compound: liquid—type membrane—forming curing compound with minimum solids content of 22% on resin material, complying with ARM C 309, type 1, class B. Moisture loss not more than 0.55 kg/sq. meter when applied at 200 sq. ft./gal.	B. Contraction (control) joints in slabs—on—grade: construct contraction joints in slabs—on—grade to form panels of patterns as shown. Use saw cuts 1/8 inch wide by one—fourth of slab depth or	Kent, WA 98032 425.251.6222
F. Liquid membrane-forming curing compound: liquid-type membrane-forming curing compound with minimum of 18% solids-content on resin material, complying with ARM C-309, type 1, class B.	inserts 1/4 inch wide by one-third of slab depth, unless otherwise indicated. 1. Form contraction joints by inserting pre-molded plastic, hardboard, or fiberboard strip into fresh	barghausen.com
Moisture loss not more than 0.55 kg/sq. meter when applied at 200 sq. ft/gal. 1. Product: Provide crystal clear seal by Lambert Corp; Orlando, FL; (407) 41-2940 or (800)	<ol> <li>contraction joints by instituting pro involved picture, indicating on incontraction and any into institution of a surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris</li> <li>Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible</li> </ol>	
432-4746. G. Bonding agent: ASTM C-1059. Where concrete placement will be protected (interior) or delayed, use	after slab finishing as may be safely done without dislodging aggregate. 3. If joint pattern is not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible (at column centerline, half bays, third days).	NO.     DATE     REVISION DESCRIPTION
re-wettable type 1 bonding agent. Where concrete will be applied immediately after application of bonding agent, use non-re-wettable acrylic type ii.	3.06 INSTALLING EMBEDDED ITEMS	
<ol> <li>Re-wettable type: provide polyvinyl acetate type; Hibond by Lambert Corp; Orlando, FL; (407) 841-2940 or (800)432-4746.</li> <li>Non-re-wettable type: provide acrylic type; Acrylbond by Lambert Corp; Orlando, fl; (407)</li> </ol>	A. General: set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast—in—place concrete. Use setting drawings, diagrams, instructions, and directions provided by supplier of items to be attached.	
841–2940 or (800) 432–4746.	<ul> <li>B. Forms for slabs: set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed</li> </ul>	
<ul> <li>H. Epoxy adhesive: ASTM C 881, two-component, 100% solids material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit project requirements.</li> </ul>	strips using strike-off templates or compacting -type screeds.	
<ol> <li>Sealer/Hardener; Liquid type penetrating sealer / hardeners of manufacturer noted on Drawings. Apply materials per manufacturer's directions.</li> <li>A DE DEDODDITIONING AND DESIGNING MIXES</li> </ol>	<ul> <li>A. General: coat contact surfaces of forms with an approved, form-coating compound before placing reinforcement.</li> </ul>	
<ul> <li>2.05 PROPORTIONING AND DESIGNING MIXES</li> <li>A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing</li> </ul>	B. Do not allow excess form—coating material to accumulate in forms or come into contact with in—place concrete surfaces against which fresh concrete will be placed. Apply according to	
agency acceptable to Architect for preparing and reporting proposed mix designs. 1. Do not use the same testing agency for field quality control testing.	manufacturer's instructions.	
<ol> <li>Do not use the same testing agency for hera quarky control testing.</li> <li>Limit use of fly ash to not exceed 25 percent of cement content by weight.</li> <li>B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15</li> </ol>	A. Inspection: before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.	
days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.	B. General: comply with ACI 304, "guide for measuring, mixing, transporting, and placing concrete", and as specified.	SEAL:
C. Design mixes to provide normal weight concrete with properties as follows: as specified in structural drawings.	<ol> <li>Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section</li> </ol>	REGISTERED
D. Slump limits: proportion and design mixes to result in concrete slump at point of placement as follows:	cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.	A ARCHITECT
<ol> <li>Ramps, slabs, and sloping surfaces: not more than 3 inches.</li> <li>Reinforced foundation systems: not less than 3 inches and not more than 5 inches.</li> <li>Concrete containing high-range water-reducing admixture (superplasticizer): not more than 8</li> </ol>	C. Placing concrete in forms: deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.	DANIEL B GOALWIN STATE OF WASHINGTON
inches after adding admixture to site-verified 2-3 inch slump concrete. 4. Masonry fill concrete only: not less than 8", or more than 11". 5. All other concrete: not less than 3 inches, or more than 5 inches	<ol> <li>Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with</li> </ol>	
<ol> <li>Slumps for pumped concrete shall be taken at the discharge end of the hose.</li> <li>Addition of water at the site to increase slump is prohibited.</li> </ol>	ACI 309. 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place	EXP: 08/05/24
E. Adjustment to concrete mixes: mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect. Laboratory test data for revised mix design and strength results must be	vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of	
submitted to and accepted by Architect before using in work.	reinforcement and other embedded items without causing mix to segregate. D. Placing concrete slabs: deposit and consolidate concrete slabs in a continuous operation, within limits	
<ul> <li>A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.</li> </ul>	of construction joints, until completing placement of a panel or section. 1. Consolidate concrete during placement operations so concrete is thoroughly worked around	
B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 Deg F (10	reinforcement, other embedded items and into corners. E. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to	
Deg C). C. Use high-range water-reducing admixture in pumped concrete, concrete for industrial slabs, Architectural concrete parking structure slabs, concrete required to be watertight, and concrete with	smooth surface free of humps or hollows. Do not a disturb slab surfaces prior to beginning finishing operations.	
Architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water-cement ratios below 0.50. D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add	<ol> <li>Maintain reinforcing in proper position on chairs during concrete placement.</li> <li>F. Cold-weather placement comply with provisions of ACI 306 and as follows. Protect concrete work</li> </ol>	DEVELOPMENT INFORMATION: ARCO NTI
air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 5_to_7 percent with a tolerance of plus or minus 1-1/2 percent.	from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.	3400 am/pm
E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.	<ol> <li>When air temperature has fallen to or is expected to fall below 40 Deg F (4 Deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 Deg F (10 Deg C) and not more than 80 Deg F (27 Deg C) at point of placement.</li> </ol>	FUEL CANOPY w/ 6 MPD's
2.07 CONCRETE MIXING	<ol> <li>Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.</li> </ol>	
A. Job—site mixing: mix concrete materials in appropriate drum—type batch machine mixer. For mixers of 1 cu. yd. Or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity	G. Hot—weather placement when hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.	SITE ADDRESS:
larger than 1 cu. yd., increase minimum $1-1/2$ minutes of mixing time by 15 seconds for each additional cu. yd.	<ol> <li>Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 Deg F (32 Deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.</li> </ol>	1402 S MERIDIAN
<ol> <li>Provide batch ticket for each batch discharged and used in the work indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.</li> </ol>	Using liquid nitrogen to cool concrete is Contractor's option. 2. Cover reinforcing steel with water—soaked burlap if it becomes too hot, so steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.	PUYALLUP, WA 98371
B. Ready-mixed concrete: comply with requirements of ASTM C 94, and as specified.	<ol> <li>Fog spray forms, reinforcing steel and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.</li> <li>Use water-reducing retarding admixture when required by high temperatures, low humidity, or</li> </ol>	FACILITY #7184
<ol> <li>When air temperature is between 85 Deg F (30 Deg C) and 90 Deg F (32 Deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes and when air temperature is above 90 Deg F (32 Deg C), reduce mixing and delivery tune to 60 minutes.</li> </ol>	other adverse placing conditions, as acceptable to Architect. 3.09 FINISHING FORMED SURFACES	FACILITY # / 184       DESIGNED BY:     ALLIANCE Z&DM:
PART 3 - EXECUTION	A. Rough-formed finish: provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished work or concealed by other construction. This is the concrete surface having the concreted by form foreign embedded with the balance and deferition encourse respondence of the surface having	CHECKED BY: BP REPM:
3.01 GENERAL A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with	texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.	DRAWN BY: ALLIANCE PM: VERSION: PROJECT NO:
placement of forms and reinforcing steel. 1. Before proceeding with concrete foundation work structural fill under building slab shall be complete and approved by the approved testing laboratory.	B. Related unformed surfaces: at tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed	21730
3.02 FORMS	surfaces unless otherwise indicated. 3.10 MONOLITHIC SLAB FINISHES	DRAWING TITLE:
A. General: design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and	A. Scratch finish: apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish	ARCHITECTURAL
position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits: 1. Provide class a tolerances for concrete surfaces exposed to view.	flooring material, and where indicated. After placing slabs, finish surface to tolerances of f(f) 15 (floor flatness) and f(l) 13 (floor levelness) measured according to ASTM E 1155. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes,	SPECIFICATIONS
<ol> <li>Provide class c tolerances for other concrete surfaces.</li> <li>B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment,</li> </ol>	brooms, or rakes. B. Trowel finish: apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to	SHEET NO:
location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the work. Use selected materials to obtain required	be covered with resilient flooring, carpet, ceramic or quarry tie, paint, or another thin film-finish coating system.	

- 03300 CAST-IN-PLACE CONCRETE, PART 3 EXECUTION (CONTINUED)
- Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of f(f) 20 (floor flatness) and f(I) 17 (floor levelness) measured according to ASTM E 1155. Grind smooth any surface defects that would telegraph through applied floor covering system.
- D. Trowel and fine broom finish: where ceramic or quarry tile is to be installed with thin—set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.
- E. Non—slip broom finish: apply a non—slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated
- Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- 3.11 MISCELLANEOUS CONCRETE ITEMS
- A. Fillina in: fill in holes and openinas left in concrete structures for passage of work by other trades. unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Equipment bases and foundations: provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment to template at correct elevations. complying with diagrams or templates of manufacturer furnishing machines and equipment.
- 3.12 CONCRETE CURING AND PROTECTION
- A. General: protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- c. Curing methods: cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified below Curing compound: apply on exposed interior slabs and on exterior slabs, walks, and curbs as
- a. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- b. Use membrane type curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
- Moisture curing: one of the following methods:
- Use continuous water-fog spray Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4\_inch lap over adjacent absorptive covers.
- Moisture-retaining cover curing: cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- D. Chemically-hardened exposed concrete slabs: apply concrete hardener only to moisture-cured concrete slabs. Do not apply on uncured slabs, colored concrete, or over membrane-cured slabs. After slabs are a minimum of 10-days old, spray apply or pour hardener evenly to slabs with squeegee. Puddles of excess hardener should be mopped up
- . Curing formed surfaces: cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as
- . Curing unformed surfaces: cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.
- 1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed. 3.13 REMOVING FORMS
- A. General: formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 Deg F (10 Dea C) for 24 hours after placina concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- 3. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field cured specimens representative of concrete location or
- . Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports
- 3.14 CONCRETE SURFACE REPAIRS
- Patching defective areas: repair and patch defective areas with cement mortar immediately afte removing forms, when acceptable to Architect
- B. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a no. 16 mesh sieve, using only enough water as required for handling and placing.
- 1. Cut out honeycombs, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and
- brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried. For surfaces exposed to view, blend white portland cement and standard portland cement so. when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous
- locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface. Repairing unformed surfaces: test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as
- specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface
- defects include crazing and cracks in excess of 0.01 inch wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
- Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter,
- by cuffing out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

. Repair isolated random cracks and single holes 1 inch or less in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Place dry-pack before bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. keep patched area continuously moist for at least 72 hours.

- 3.15 QUALITY CONTROL TESTING DURING CONSTRUCTION
- Q. General: the Contractor will employ the geotechnical engineer of record to perform tests and to submit test reports.
- . Sampling and testing for quality control during concrete placement may include the following, as directed by Architect
- 1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed. Air content: ASTM C 173, volumetric method for lightweight or normal weight concrete: ASTM C
- 231, pressure method for normal weight concrete; one for each day's pour of each type of air entrained concrete. Concrete temperature: ASTM C 1064; one test hourly when air temperature is 40 Deg F (4 Deg
- C) and below, when 80 Deg F (27 Deg C) and above, and one test for each set of compressive-strength specimens Compression test specimen: ASTM C 31: one set of four standard cylinders for each
- compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required
- Compressive-strength tests: ASTM C 39; one set for each day's pour exceeding 5 cu.yd. Plus additional sets for each 50 cu. Yd. More than the first 25 cu. Yd. Of each concrete class placed in any one day, one specimen tested at 7 days, two specimens tested at 28 days, and
- one specimen retained in reserve for later testing if required. Masonry fill concrete: ASTM C-1019 in accordance with ACI 530.1 specifications for masonry structures.
- . When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than fiv are used.
- . When total quantity of a given class of concrete is less than 50 cu. Yd., Architect may waive strength testing if adequate evidence of satisfactory strength is provided.
- I. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete
- . Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 PSI
- W. Test results will be reported in writing to Architect, structural engineer, ready—mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

- X. Nondestructive testing: impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- Additional tests: the testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored complying with ASTM C 42, or by other methods as directed.
- END OF SECTION 04200 - UNIT MASONRY
- PART 1 GENERAL
- 1.01 SUMMARY
- A. This section includes the following:
- 1. Concrete unit masonry
- 1.02 SYSTEM PERFORMANCE REQUIREMENTS
- A. Provide unit masonry that develops the following installed compressive strengths (f'm): For concrete unit masonry: as follows:. F'm = 1900 PSI.
- 1.03 SUBMITTALS
- A. General: submit the following in accordance with conditions of contract and Division 1 Specification
- B. Product data for each different masonry unit, accessory, and other manufactured product indicated, including specified strength requirements.
- C. Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 details and detailing of concrete reinforcing" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement
- D. Samples for initial selection purposes of the following: 1. Unit masonry samples in small—scale form showing full extent of colors and textures available
- for each different exposed masonry unit required. E. Material certificates for the following signed by manufacturer and Contractor certifying that each material complies with requirements
- Each different cement product required for mortar and grout including name of manufacturer, brand, type, and weight slips at time of delivery. Each material and arade indicated for reinforcing bars
- Each type and size of joint reinforcement. Each type and size of anchors, ties, and metal accessories.
- F. Material test reports from a qualified independent testing laboratory employed and paid by Contractor indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:
- Mortar complying with property requirements of ASTM C 270. . Grout mixes. Include description of type and proportions of grout ingredients. See concrete specifications for masonry arout.
- Masonry units. . Cold-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.
- H. Hot-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.
- Qualification data for firms and persons specified in "quality assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, telephone numbers, names of Architects and Owners, and other information specified. K. Results from tests and inspections performed by Owner's representatives will be reported promptly and in writing to Architect and Contractor.
- 1.04 QUALITY ASSURANCE
- A. Unit masonry standard: comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures," except as otherwise indicated. 1. Revise ACI 530.1/ASCE 6 to exclude sections and articles 15.1.2, 15.1.3, and to modify article
- 2.1.1.4 by deleting requirement for installing vent pipes and conduits built into masonry. B. Inspecting laboratory gualifications: to gualify for employment in performing tests and inspection
- specified in this section, an independent testing laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM C 1093, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the work.
- 1.05 PROJECT CONDITIONS
- A. Protection of masonry: during erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress
- 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place. Where one with of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Stain prevention; prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Remove immediately any arout, mortar, and soil that come in contact with
- . Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface. Protect sills, ledges, and projections from mortar droppings. Protect surfaces of window and door frames, as well as similar products with painted and
- integral finishes from mortar droppings. C. Cold-weather construction: comply with referenced unit masonry standard for cold-weather construction and the followina:
- 1. Do not lay masonry units that are wet or frozen. 2. Remove masonry damaged by freezing conditions.
- D. Hot-weather construction: comply with referenced unit masonry standard.
- PART 2 PRODUCTS
- 2.01 MATERIALS, GENERAL
- A. Comply with referenced unit masonry standard and other requirements specified in this section applicable to each material indicated.
- 2.02 CONCRETE MASONRY UNITS
- A. General: comply with requirements indicated below applicable to each form of concrete masonry unit
- Provide special shapes where indicated and as follows: a. For lintels, corners, jambs, sash, control joints, headers, bonding, and other special
- Bullnose units for outside corners unless otherwise indicated. Square-edged units for outside corners, except where indicated as bullnose.
- Size: provide concrete masonry units complying with requirements indicated below for size that are manufactured to specified face dimensions within tolerances specified in the applicable
- referenced ASTM specification concrete masonry units. 3. Concrete masonry units: manufactured to specified dimensions of 3/8 inch less than nominal widths by nominal heights by nominal lengths indicated on Drawings. I. Provide Type II, non-moisture-controlled units.
- B. Hollow load-bearing concrete masonry units: ASTM C 90, grade N and as follows:
- 1. Unit compressive strength: provide units with minimum average net area compressive strength indicated below. a. 1900 PS
- 2.03 MORTAR AND GROUT MATERIALS

. Hydrated lime: ASTM C 207, type S

F. Agaregate for grout: ASTM C 404.

C. Deformed reinforcing wire: ASTM A 496.

D. Plain welded wire fabric: ASTM A 185.

G. Water: clean and potable.

and this article

2.05 JOINT REINFORCEMENT

100 percent passing the no. 16 sieve.

2.04 REINFORCING STEEL (Refer to Structural Drawings)

. Steel reinforcing bars: material and grade as follows

1. Billet steel complying with ASTM A 615, grade 60.

- A. Portland cement: ASTM C 150, type | or ||, except type ||| may be used for cold-weather construction. Provide natural color or white cement as required to produce required mortar color
- B. Masonry cement ASTM C 91 1. For colored pigmented mortars use premixed colored masonry cements of formulation required to
- produce color indicated, or if not indicated, as selected from manufacturer's standard ormulations. 2. For colored aggregate mortars use masonry cement of natural color or white as required to produce mortar color indicated.
- C. Ready-mixed mortar: cementitious materials, water, and aggregate complying with requirements specified in this article, combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASC 1142

. Aggregate for mortar: ASTM C 144, except for joints less than 1/4 inch use aggregate graded with

H. Compressive strength of mortar and grout: 2500 psi minimum or as indicated on structural drawings.

A. General: provide reinforcing steel complying with requirements of referenced unit masonry standard

1. White mortar aggregates: natural white sand or ground white stone.

1. Galvanized carbon steel wire, coating class as required by referenced unit masonry standard for application indicated. B. Description: welded-wire units prefabricated with deformed continuous side rods and plain cross rods

into straight lengths of not less than 10 feet, with prefabricated corner and tee units, and complying with requirements indicated below:

Wire diameter for side rods: 0.1483 inch (9 gauge). Wire diameter for cross rods: 0.1483 inch (9 gauge).

For single-with masonry provide type as follows with single pair of side rods: Ladder design with perpendicular cross rods spaced not more than 16 inches o.c. Truss design with continuous diagonal cross rods spaced not more than 16 inches o.c. C. Available manufacturers: subject to compliance with requirements, manufacturers offering joint

reinforcement that may be incorporated in the work include, but are not limited to, the followina: AA Wire Products Co.

Dur-o-wal, Inc. Heckman Building Products, Inc Hohmann & Barnard, Inc. Masonry Reinforcing Corp. of America.

National Wire Products Industries. Southern Construction Products, Inc

2.06 TIES AND ANCHORS, GENERAL

#### A. General: provide ties and anchors specified in subsequent articles that comply with requirements for metal and size of referenced unit masonry standard and of this article.

B. Galvanized carbon steel wire: ASTM A 82, coating class as required by referenced unit masonry standard for application indicated.

C. Steel plates and bars: ASTM A 36, shop painted with 2 coats of coal—tar epoxy—polyamide paint complying with SSPC Paint-16 to comply with SSPC-PA1 ("Paint Application Specification No. 1") and SSPC-SP6 ("Commercial Blast Cleaning") for surface preparation.

D. Steel plates and bars: ASTM A 36, hot-dip galvanized to comply with ASTM A 123 or ASTM A 153, Class B3, as applicable to size and form indicated.

E. Stainless steel plates and bars: ASTM A 666, Type 304, temper as required to support loads imposed without exceeding allowable design stresses. F. Wall ties: rectangular or z-shaped fabricated of 3/16" steel wire. Length to extend across wythe to

within 1/2" to 3/4" of face of masonry in which ties are placed. G. Available manufacturers: subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

AA Wire Products Co. Dur-o-wal, Inc. Heckman Building Products, Inc.

Hohmann & Barnard, Inc. Masonry Reinforcing Corp. of America National Wire Products Industries.

2.07 POST-INSTALLED ANCHORS

Southern Construction Products, Inc

#### A. Anchors as described below, with capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing laboratory.

Type: expansion anchors (sleeve anchors) Corrosion protection: carbon steel components zinc-plated to comply with ASTM B 633, Class FE/ZN 5 for class SC 1 service condition (mild). Use stainless steel anchors for exterior

3. For cast-in-place and post-installed anchors in concrete: capability to sustain, without failure, a load equal to 4 times loads imposed by masonry. 2.08 MASONRY CLEANERS

A. Job-mixed detergent solution: solution of trisodium phosphate (1/2-cup dry measure) and laundry detergent (1/2-cup dry measure) dissolved in one gallon of water.

B. Job-mixed muriatic solution: solution of 1 part muriatic acid and 10 parts clean water, mixed in a nonmetallic container with acid added to water.

C. Proprietary acidic cleaner: manufacturer's standard-strength, general-purpose cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry surfaces of type indicated below without discoloring or damaging masonry surfaces; expressly approved for intended use by manufacturer of masonry units being cleaned:

1. For masonry not subject to metallic oxidation stains use formulation consisting of a concentrated blend of surface-acting acids, chelating, and wetting agents.

For dark colored masonry not subject to metallic oxidation stains, use formulation consisting of a liquid blend of surface-acting acids and special inhibitors. 3. For masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of organic and inorganic acids and special inhibitors. 4. Available products: subject to compliance with requirements, a product that may be used to clean unit masonry surfaces includes, but is not limited to, the following:

a. "Sure Klean No. 600 Detergent." Prosoco. Inc . "Sure Klean No. 101 Lime Solvent," Prosoco., Inc.

#### c. "Sure Klean Vana Trol," Prosoco, Inc. 2.09 MORTAR AND GROUT MIXES

indicated.

3.01 EXAMINATION

A. General: do not add admixtures including coloring pigments, air-entraining agents, accelerators retarders, water repellent agents, antifreeze compounds, or other admixtures, unless otherwise

1. Do not use calcium chloride in mortar or grout

B. Mortar for unit masonry: Type S, complying with ASTM C 270, proportion specification. C. Mortar for unit masonry: comply with ASTM C 270, property specification for job-mixed mortar and

ASTM C 1142 for ready-mixed mortar, of types indicated below:

Limit cementitious materials in mortar to Portland cement-lime. 2. For all masonry unless otherwise indicated:

D. Grout for unit masonry see concrete specifications.

2.10 SOURCE QUALITY CONTROL

A. Concrete masonry unit tests: for each type, class, and grade of concrete masonry unit indicated, units will be tested by qualified independent testing laboratory for strength, absorption, and moisture content per ASTM C 140

PART 3 - EXECUTION

A. Examine conditions, with installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry. 1. For the record, prepare written report, endorsed by installer, listing conditions detrimental to

performance of unit masonry. B. Examine rough-in and built-in construction to verify actual locations of piping connections prior to

C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION, GENERAL

A. Comply with referenced unit masonry standard and other requirements indicated applicable to each type of installation included in project.

B. Thickness: build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated

C. Leave openings for equipment to be installed before completion of masonry. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.

D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting where possible.

3.03 CONSTRUCTION TOLERANCES

below

A. Comply with construction tolerances of referenced unit masonry standard. 3.04 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less than-half-size units at corners, jambs, and where possible at other locations. B. Lay up walls to comply with specified construction tolerances, with courses accurately spaced and

coordinated with other construction. C. Bond pattern for exposed masonry: lay exposed masonry in the following bond pattern; do not use units with less that nominal 4-inch horizontal face dimensions at corners or jambs.

. One-half running bond with vertical joint in each course centered on units in courses above and D. Lay concealed masonry with all units in a wythe in running bond. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions

at corners or jambs E. Stopping and resuming work: in each course, rake back I/2-unit length for one-half running bond or 1/3-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly (if required), and remove loose masonry units and mortar

prior to laying fresh masonry. F. Built-in work: as construction progresses, build-in items specified under this and other sections of the Specifications Fill in solidly with masonry around built-in items 1. Where built-in items are to be embedded in cores of hollow masonry "F" units, place a layer of

metal lath in the joint below and rod mortar or grout into core. 2. Fill cores in hollow concrete masonry units with grout 3 courses (24 inches) under begring plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.05 MORTAR BEDDING AND JOINTING

A. Lay hollow concrete masonry units as follows:

- With full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and
- pilasters, and where adjacent to cells or cavities to be filled with aout For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.
- B. Cut joints flush for masonry walls to be concealed or to be covered by other materials, unless otherwise indicated.

#### C. Mortar joints: tooled concave joints.

- 3.06 HORIZONTAL JOINT REINFORCEMENT
- A. General: provide continuous horizontal pint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcing a minimum of 6 inches.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated. C. Provide continuity at corners and wall intersections by use of prefabricated "I" and "t' sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.
- 3.07 MOVEMENT (CONTROL AND EXPANSION) JOINTS
- A. General: install control and expansion joints in unit masonry where indicated. Build in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
- B. Form control joints in concrete masonry as follows 1. Fit bond breaker strips into hollow contour in ends of block units on one side of control joint.
- Fill the resultant core with grout and rake joints in exposed faces. Install preformed control joint aaskets designed to fit standard sash block Install special shapes designed for control joints. Install bond breaker strips at joint. Keep head joints free and clear of mortar or rake joint.

3.08 FIELD QUALITY CONTROL

- A. Testing frequency: tests and evaluations listed in this article will be performed during construction for each 5000 sq. Ft. of wall area or portion thereof.
- Mortar properties will be tested per property specification of ASTM C 270. Mortar composition and properties will be evaluated per ASTM C 780. Grout compressive strength will be sampled and tested per ASTM C 1019.
- B. Evaluation of quality control tests: in absence of other indications of noncompliance with requirements, masonry will be considered satisfactory if results from construction quality control tests comply with minimum requirements indicated.

3.09 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units and in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: during the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings, and adjacent construction to provide a neat, uniform appearance, prepared for application of sealants.
- C. Final cleaning: after mortar is thoroughly set and cured, clean exposed masonry as follows:
- 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or 2. Test cleaning methods on sample wall panel; leave 1/2 panel un-cleaned for comparisor
- purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of
- Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape. Wet wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing
- thoroughly with clear water. 5. Clean brick by means of bucket and brush hand-cleaning method described in BIA "technical note no. 20 revised" using the following masonry cleaner: Job-mixed detergent solution
- b. Job-mixed acidic solution. D. Proprietary acidic cleaner; apply in compliance with directions of acidic cleaner manufacturer
- E. Clean concrete masonry by means of cleaning method indicated in NCMA TEK 45 applicable to type of stain present on exposed surfaces.

F. Protection: provide final protection and maintain conditions, in a manner acceptable to installer, that ensure unit masonry is without damage and deterioration at time of substantial completion.

END OF SECTION

<u>04700 – SIMULATED MASONRY</u> PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes materials and procedures for installation of lightweight manufactured simulated store and masonry veneers, which are adhered to the exterior of the structure, and serve as the exterior

1.02 SUBMITTALS

- A. Submit the following in accordance with Section 01300:
- 1. Manufacturer's product data for simulated masonry veneer, accessories, setting materials, and 2. Manufacturer's detailed installation instructions, and evidence of minimum of five year's experience in the production of simulated masonry veneer.
- 1.03 PROJECT CONDITIONS
- A. Environmental Requirements: Minimum air temperature of 40 F degrees prior to, during, and for 48 hours after completion of work. Store delivered stone in a dry place above 40 F degrees minimum for a minimum of 24 hours before installation
- PART 2 PRODUCTS
- 2.01 ACCEPTABLE MANUFACTURERS
- A. Provide simulated masonry veneer products as indicated on the drawings.

c. Mortar/Grout color: As indicated on Drawinas

A. Moisture Barrier: Install per manufacturer's instructions.

Verify that all substrates are clean and securely installed.

C. Leave surfaces thoroughly clean and free of mortar or other soiling.

3. Do not commence work until defective conditions have been corrected

B. Metal Lath: Install metal lath over moisture barrier per manufacturer's instructions

C. Mortar scratch coat: Apply 3/8" scratch coat of mortar to metal lath and allow to dry for 48

hours. Apply bonding agent to back side of simulated masonry per manufacturer's instructions

A. Remove excess mortar and smears using a wire brush or steel wool within 1 to 2 hours of

A. This section includes provisions and procedures governing the design, engineering, fabrication,

Applications where framing and supports are not specified in other sections.

B. Metal fabrications for the work include, but are not limited to, the following:

D. Install simulated masonry per manufacturer's instruction in pattern indicated on Drawings. Joints to be

2.02 MATERIALS

A. Provide installation pattern and color as indicated on the drawings. Provide corner pieces, sills, and flashing.

B. Setting materials

PART 3 - EXECUTION

A. Examine site conditions:

installed

3.02 INSTALLATION

concave tooled

B. Do not use acid cleaners.

05500 - METAL FABRICATIONS

Rough hardware.

Miscellaneous steel trim.

1.02 SYSTEM PERFORMANCE REQUIREMENTS

5. Shelf and relieving angles

furnishing and installation of metal fabrications.

Loose bearing and leveling plates.

3.03 CLEANING

END OF SECTION

1.01 SUMMARY

PART 1 – GENERAL

3.01 EXAMINATION AND PREPARATIONS

- 1. Moisture Barrier
- a. Tyvek Stucco Wrap, by E.I. Dupont. Provide manufacturer's approved tape at joints and b. 30 lb/100 s.f. ASTM D226, non—perforated asphalt saturated organic felt.
- Metal Lath: ASTM C847, 18 gauge self furring, galvanized 3.4 lb expanded metal lath. Fasteners: Galvanized staples, nails or screws of size, spacing and type as recommended by the simulated masonry manufacturer.

Verify that exterior wall receptacles, junction boxes, and projecting structural items have been

4. Mortar/Grout: a. Type S Mortar, complying with ASTM C270, using ASTM C150 cement, Type1 or 2. b. Masonry sand, complying with ASTM C144

#### A. Design, engineer, fabricate, and install the metal fabrications to withstand the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections. Apply each load to produce the maximum stress in each respective

component of each metal fabrication.

under "Quality Assurance" article.

that indicated for this project.

dimensions. Allow for trimming and fitting.

standards for stretcher-leveled sheet.

E. Galvanized steel sheet: quality as follows:

2.02 GROUT AND ANCHORING CEMENT

nonmetallic grouts:

2.03 FASTENERS

2.04 PAINT

work.

as supported rails, unless otherwise indicated.

"Euco NS Grout"; Euclid Chemical Co.

"Five Star Grout": Five Star Products. Inc

"Masterflow 713"; Master Builders.

"Vibropruf #11": Lambert Corp.

the type, grade, and class required.

C. Lag bolts: square head type, FS FF-B-561

D. Machine screws: cadmium plated steel, FS FF&92.

F. Plain washers: round, carbon steel, FS FF-W-92.

complying with FS FF-B-575, grade 5.

B. Zinc chromate primer: FS TT-P-645.

resistance of base metals.

and similar items.

where water may accumulate

Remove welding flux immediately.

Obtain fusion without undercut or overlap.

2.05 FABRICATION, GENERAL

E. Wood screws: flat head carbon steel, FS FF-S-111.

B. Steel plates, shapes, and bars: ASTM A 36.

1.05 PROJECT CONDITIONS

PART 2 - PRODUCTS

2.01 FERROUS METALS

1.04 QUALITY ASSURANCE

delay in the work.

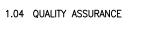
1.03 SUBMITTALS

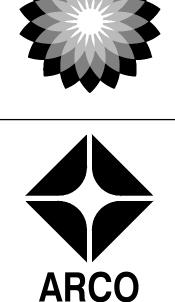
preparation.

- A. Product data for products used in miscellaneous metal fabrications, including paint products and
- B. Shop drawinas detailing fabrication and erection of each metal fabrication indicated. Include plans.
- elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other . Where installed metal fabrications are indicated to comply with certain design loadings, include
- structural computations, material properties, and other information needed for structural analysis that has been signed and sealed by the gualified professional engineer who was responsible for their
- D. Samples representative of materials and finished products as may be requested by Architect. E. Welder certificates signed by Contractor certifying that welders comply with requirements specified
- F. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project name, addresses, names of Architects and Owners, and other information specified.
- A. Fabricator shall be a firm experienced in successfully producing metal fabrications similar to that indicated for this project, with sufficient production capacity to produce required units without causing
- B. Qualify welding processes and welding operators in accordance with AWS D1.1 Structural Welding Code-- Steel," D13 "Structural Welding Code - Sheet Steel".
- C. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.
- D. Engineering shall be provided by a professional engineer licensed to practice in the state where the project is located and experienced in providing engineering services of the kind indicated that have resulted in the successful installation of metal fabrications similar in material, design, and extent to
- A. Field measurements: check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of
- Where field measurements cannot be made without delaying the work, the contractor shall guarantee dimensions and may proceed with fabrication of products without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to the guaranteed
- A. Metal surfaces, general: for metal fabrications exposed to view upon completion of the work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference
- C. Steel tubing: product type (manufacturing method) and as follows:
- 1. Cold-formed steel tubing: ASTM A 500, grade as indicated below. a. Grade A, unless otherwise indicated or required for design loading.
- D. Uncoated structural steel sheet product type (manufacturing method), quality, and grade, as follows: 1. Cold-rolled structural steel sheet: ASTM A 611, grade as follows:
- a. Grade A, unless otherwise indicated or required by design loading.
- Structural quality: ASTM A 446; Grade A, unless another grade required for design loading, and G90 coating designation unless otherwise indicated. 2. Commercial quality. ASTM A 526, G90 coating designation unless otherwise indicated F. Brackets, flanges and anchors: cast or formed metal are to be of the same type material and finish
- G. Concrete inserts: threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers, and shims as required, hot-dip galvanized per
- H. Welding rods and bare electrodes: select in accordance with AWS specifications for the metal alloy to
- A. Non-shrink nonmetallic grout: premixed, factory-packaged, non-staining, non-corrosive, nonga arout complying with CE CRD- C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.
- B. Products: subject to compliance with requirements, provide one of the following non-shrink
- A. Provide zinc—coated fasteners for exterior use or where built into exterior walls. Select fasteners for
- B. Bolts and nuts: regular hexagon head type, ASTM A 307, Grade A.
- G. Drilled-in expansion anchors: expansion anchors complying with FS FF-S-325, group VIII (anchors, expansion, non-drilling), type I (internally threaded tubular expansion anchor); and machine bolts
- H. Toggle bolts: tumble-wing type, FS FF-B-588, type, class, and style as required. I. Lock washers: helical spring type carbon steel, FS FF-W-84.
- A. Shop primer for ferrous metal: manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field—applied topcoats despite prolonged exposure complying with performance requirements of FS
- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials
- indicated or specified for various components of each metal fabrication. B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp
- C. Shear and punch metals cleanly and accurately. Remove burrs D. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent\_metal corners to smallest radius possible without causing grain separation or otherwise impairing
- F. Remove sharp or rough areas on exposed traffic surfaces. G. Weld corners and seams continuously to comply with AWS recommendations and the following:
- 1. Use materials and methods that minimize distortion and develop strength and corrosion
- At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent. H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever
- possible. Use exposed fasteners of type indicated or, if not indicated. Phillips set-head (countersunk) screws or bolts. Locate joints where least conspicuous. I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space
- anchoring devices to provide adequate support for intended use. J. Shop assembly: pre-assemble items in shop to areatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated
- K. Cut. reinforce. drill and tap miscellaneous metal work as indicated to receive finish hardware, screws,
- L. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes

### 2.06 ROUGH HARDWARE

- A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in division 6 sections.
- B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers. 2.07 LOOSE BEARING AND LEVELING PLATES
- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.
- 2.08 LOOSE STEEL LINTELS A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
- B. Weld adjoining members together to form a single unit where indicated. C. Size loose lintels for equal bearing of one inch per foot of clear span but not less than 8 inches bearing at each side of openings, unless otherwise indicated
- D. Galvanize loose steel lintels located in exterior walls.
- 2.09 MISCELLANEOUS FRAMING AND SUPPORTS
- A. Provide steel framing and supports for applications indicated or which are not a part of structural steel framework, as required to complete work . Fabricate units to sizes, shapes, profiles indicated or as required to receive adjacent other
- construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.
- C. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed. . Except as otherwise indicated, space anchors  $\dot{24}$  inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide x 1/4 inch x 8 inches long.
- D. Galvanize miscellaneous framing and supports in exterior locations.
- 2.10 MISCELLANEOUS STEEL TRIM
- A. Provide shapes and sizes indicated for profiles shown. Unless otherwise indicated, fabricate units from structural steel shapes, plates, and steel bars, with continuously welded joints and smooth exposed edges. Use concealed field splices wherever possible provide cutouts, fittings, and anchorages as required for coordination of assembly and installation with other work.
- B. Galvanize miscellaneous framing and supports in the following locations:
- 1. Exterior locations. 2. Interior locations where indicated
- 2.11 FINISHES, GENERAL
- A. Comply with NAAMM metal finishes manual for recommendations relative to application and designations of finishes. B. Finish metal fabrications after assembly.
- 2.12 STEEL AND IRON FINISHES
- A. Galvanizing: apply zinc-coating by the hot-dip process compliance with the following requirements: ASTM A 153 for galvanizing iron and steel hardware.
- 2. ASTM A 123 for galvanizing both fabricated and un-fabricated iron and steel products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch thick and heavier.
- B. Preparation for shop priming: prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
- 1. Exteriors (SSPC Zone 1B): SSPC—SP6 "Commercial Blast Cleaning." 2. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning:
- C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finish or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.
- PART 3 EXECUTION 3.01 PREPARATION
- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.
- 3.02 INSTALLATION, GENERAL A. Fastening to in-place construction: provide anchorage devices and fasteners where necessary for
- securing miscellaneous metal fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through—bolts, lag bolts, wood screws, and other connectors as required.
- B. Cuffing, fitting, and placement: perform cutting, drilling, and fitting required for installation of miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.
- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units which have been hot-dip aglvanized after fabrication, and are intended for bolted or screwed field connections.
- E. Field welding: comply with AWS code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, methods used in correcting welding work, and the following: 1. Use materials and methods that minimize distortion and develop strength and corrosion
- resistance of base metal Obtain fusion without undercut or overlap. Remove welding flux immediately.
- 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches those adjacent. F. Corrosion protection: coat concealed surfaces of aluminum that will come into contact with arout.
- concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer 1. Coat interior as well as exterior surfaces of tubular items, or "dip" to ensure proper corrosion
- protection. 3.03 ADJUSTING AND CLEANING
- A. Touch-up painting: immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
- B. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils. C. For galvanized surfaces clean welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.
- END OF SECTION
- <u>06100 ROUGH CARPENTRY</u> (Refer also to Structural Drawings)
- PART 1 GENERAL 1.01 SUMMARY
- A. This section includes provisions and procedures governing the furnishing and installation of rough carpentry including, but not limited to, the following:
- Framing with dimension lumber. Wood grounds, nailers, and blocking. Wood furring.
- . Sheathing. 1.02 DEFINITIONS
- A. Rough carpentry includes carpentry work not specified as part of other sections and generally not
- exposed, unless otherwise specified. 1.03 CERTIFICATION
- A. Material certificates for dimensional lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use as well as design values approved by the board of review of American Lumber Standards Committee.
- B. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material: . For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards 2. For water-borne treated products include statement that moisture content of treated materials
- was reduced to levels indicated prior to shipment to project site. 3. Warranty of chemical treatment manufacturer for each type of treatment. Research reports or evaluation reports of the model code organization acceptable to authorities
- having jurisdiction evidencing compliance of the following wood products with specified requirements and building code in effect for project.
- Engineered wood products.
- Board sheathina. Air infiltration barriers
- Metal framing anchors. Power driven fasteners

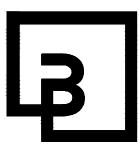




bp

CLIENT:

BP WEST COAST PRODUCTS, LLC



Barghausen
Consulting Engineers, Inc

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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DEVELOPMENT INFORMATION:

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designed by

CHECKED BY:

DRAWN BY

DRAWING TITLE:

SHEET NO:

**ARCO NTI** 

3400 am/pm

FUEL CANOPY w/ 6 MPD's

**1402 S MERIDIAN** 

PUYALLUP, WA 98371

**FACILITY #7184** 

ARCHITECTURA

**SPECIFICATIONS** 

A7.2

ALLIANCE Z&DM

BP REPM:

ALLIANCE PM:

PROJECT NO:

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06100 - ROUGH CARPENTRY, PART 1 - GENERAL (CONTINUED)

- A. Single-source responsibility for engineered wood products: obtain each type of engineered wood products from one source from a single manufacturer
- B. Testing laboratory gualifications: to gualify for acceptance, an independent testing laboratory must demonstrate to Architect's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the work.

PART 2 - PRODUCTS

- 2.01 LUMBER, GENERAL
- A. Lumber standards: furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) board of review.
- B. Inspection agencies: inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
- WCLIB \_ West Coast Lumber Inspection Bureau. WWPA Western Wood Products Association.
- C. Grade stamps: provide lumber with each piece factory—marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacina, and mill.
- 1. For exposed lumber furnish pieces with grade stamps applied to ends or back of each piece; omit grade stamps entirely and provide certificates of grade compliance issued by inspection agency.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use
- F. Provide dressed lumber. S4S. unless otherwise indicated.
- F. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated 2.02 DIMENSION LUMBER
- A. For light, non-load bearing, framing provide "stud," "no. 3," or "standard" grade lumber for stud framing (2 to 4 inches thick, 2 to 4 inches wide, 10 feet and shorter) and "stud" or "no. 3" arade
- for other light framing (2 to 4 inches thick, 2 to 6 inches wide), any species. B. For structural light framing (2 to 4 inches thick, 2 to 4 inches wide), provide the following grade and species
- 1. "No. 2" grade. 2. Same species as indicated for structural framing grade below.
- C. For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:
- 1. "No 2" grade 2. Douglas Fir graded under WWPA rules, or approved equal of the same properties as indicated
- 3. Any species and grade that complies with the following requirements for species group as
- defined in table 8.1a of N.F.P.A national design specification, for extreme fiber stress in bending "fb" for single and repetitive members, and for modules of elasticity "e": a. Group II species, "fb" of 900 PSI and fv of 180 PSI
- D. For exposed framing lumber provide material complying with the following requirements:
- 1. Definition: exposed framing refers to dimension lumber that is not concealed by other
- construction and is indicated to receive a stained or natural finish. 2. Grading: material hand—selected at factory from lumber of species and grade indicated below that complies with "Appearance" grade requirements of ALSC national grading rule; issue
- inspection certificate of inspection agency for selected material. 3. Interior exposed framing: no. 2 hemfir graded under WWPA rules.

4. Exterior exposed framing: no. 1 western red cedar.

- 2.03 MISCELLANEOUS LUMBE
- A. Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar
- members. B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative
- ). Grade: "standard" arade liaht-framina-size lumber of any species or board-size lumber as required. "No. 3 common" or "standard" grade boards per WCLIP or WWPA rules or "no. 2 boards" per WWPA rules
- 2.04 ENGINEERED WOOD PRODUCTS
- A Provide engineered wood products for which current model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance for the application indicated with specified requirements and the building code in effect for this project.
- B. Laminated veneer lumber: lumber manufactured by laminating wood veneers in a continuous press using an exterior-type adhesives complying with ASTM D 2559 to produce members with arain of veneers parallel with their lengths and complying with the following requirements:
- Veneer characteristics: Douglas Fir or Southern Pine veneers of varying thickness by widths and lengths standard with manufacturer, end-jointed with a lap-joint, butt joint, or scarf joint. Allowable design stresses: as follows, determined from empirical data or by rational engineering
- analysis, and demonstrated by comprehensive testing performed by a gualified independent testing
- 3. Extreme fiber stress in bending (fb): 2800 PSI (for12-inch deep members).
- 4. Modules of elasticity (e): 2,000,000 PSI 5. Tension parallel to arain (ft): 1850 PSI
- Compression parallel to grain (fc): 2700 PSI
- Compression perpendicular to grain: 400 PSI and 500 PSI perpendicular and parallel to alue line. 8. Horizontal shear (fv): 285 PSI and 190 PSI perpendicular and parallel to glue line. 9. Sizes: 1-3/4 inches thick by depth and length indicated. 10. Sizes: as indicated.
- Available products: subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
- 1. Laminated Veneer Lumber. (L.V.L.), headers and beams,"
- a. Micro Lam, Truss Joist Mcmillen GP Lam, Georgia Pacific
- c. Gang Lam, Louisiana Pacific
- 2.05 CONSTRUCTION PANELS, GENERAL
- A. Construction panel standards: comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood construction panels and, for products not manufactured under PS 1 provisions, with APA PRP-108.
- 3. Trademark: furnish construction panels that are each factory—marked with APA trademark evidencing compliance with grade requirements.
- 2.06 CONSTRUCTION PANELS, SPECIFIC
- A. Provide APA performance-rated panels complying with requirements designated under each application for grade designation, span rating, exposure durability classification, edge detail (where applicable), and thickness where construction panels are indicated for concealed types of applications.
- . Wall sheathing: for use as typical wall sheathing, provide (osb) oriented strand board with grade. Designation, APA rated sheathing exterior, in thickness indicated, or, if not otherwise indicated, not less than 5/8" nominal thickness.
- . Wall sheathing: for use as shear wall sheathing, provide plywood panels with grade designation, APA rated structural 1 rated sheathing exterior, in thickness indicated, or, if not otherwise
- indicated, not less than 5/8" nominal thickness. Roof sheathing: for use as roof decking, provide plywood panels with grade designation, APA
- sturd—i—floor exterior, tongue and groove, sized for span, in thickness indicated, or, if not
- otherwise indicated, not less than 5/8" nominal thickness. 4. Plywood backing panels: for kitchen shelving, provide plywood panels with grade designation, APA C-D plugged exposure exterior, in thickness indicated, or, if not otherwise indicated, not less
- than 5/8" nominal thickness. 5. Electrical backing panels: for mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with arade designation, APA C-D plugged Exposure 1, in
- thickness indicated, or, if not otherwise indicated, not less than 1/2" nominal thickness. 6. Millwork panels: for all interior finish millwork, provide hardwood plywood panels with grade
- designation, APA A Exposure 1, in thicknesses indicated on construction documents, but in no case less than 5/8" nominal thickness.
- 2.07 AIR INFILTRATION BARRIER / WATER-RESISTANT MEMBRANE
- A. Woven polvolefin sheet, 0.005 inch thick, with a moisture vapor transmission rate of 70 arams/sa Meter/24 hours per ASTM E 96, procedure and a flame spread rating not exceeding 25 per ASTM E
- B. Available products: subject to compliance with requirements, air infiltration barriers / water-resistant membranes that may be incorporated in the work include, but are not limited to, the followina: . "Barricade Building Wrap," Simplex Products Division, Anthony Industries, Inc.
- 2. Tyvek Housewrap," Fibers Department, du Pont Company. 2.08 FASTENERS
- A. Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel, where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
- C. Nails, wire and brads: FS FF-N-105.
- D. Power driven fasteners: national evaluation report NER-272.
- E. Wood screws: ANSI B18.6.1
- F. Lag bolts: ANSI B18.2.1.
- G. Bolts: steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers galvanize for exterior applications.

- 2.09 METAL FRAMING ANCHORS
- A. General: provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following
- 1. Current evaluation/research reports: provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with the building code in effect for this 2. Allowable design loads: provide products for which manufacturer publishes allowable design loads
- that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory
- B. Galvanized steel sheet: steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for coating designation g60 and with ASTM A 446, Grade A (structural quality); ASTM A 526 (commercial quality); or ASTM A 527 (lock-forming quality); as standard with manufacturer for type of anchor indicated. 1. Use advanized steel framing anchors and bolts for rough carpentry exposed to weather, in
- around contact, or in area of high relative humidity, and where indicated. C. Acceptable manufacturer: Simpson Strong-tie Company.
- 2.10 MISCELLANEOUS MATERIALS
- . Adhesives for field aluing panels to framing: formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturer.
- 2.11 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS
- A. Comply with applicable requirements of AWPA Standards C2 (lumber) and C9 (plywood) where lumber or plywood is indicated as preservative-treated wood or is specified herein to be treated. Mark each treated item with the AWPB or SPIB auglity mark requirements
- B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf for interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
- C. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
- D. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete. E. Wood framing members less than 8 inches above grade.
- F. Wood floor plates installed over concrete slabs directly in contact with earth
- G. Pressure-treat wood members in contact with the ground or fresh water with water-borne preservatives to a minimum retention of 0.40 pcf
- H. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.
- PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Use galvanized nails and screws for all exterior exposed framing. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials make tight connections between members. Install fasteners without splitting of wood; pre-drill as required. 3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS
- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work; form to shapes as shown and cut as required for true line and level o work to be attached. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Install permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2inches wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.
- 3.03 WOOD FRAMING, GENERAL A. Framing standard: comply with N.F.P.A. "Manual for Wood Frame Construction," unless otherwise

Table 2304.10.1 - Fastening Schedule of the International Building Code.

- B. Framing with engineered wood products: install framing composed of engineered wood products to comply with manufacturer's directions
- C. Install framing members of size and spacing indicated
- D. Anchor and nail as shown, and to comply with the following:

International Building Code.

E. Do not splice structural members between supports.

or anchor plates to supporting construction.

spaced 16 inches o.c., as indicated.

A. Cover sheathing with air infiltration barrier as follows:

width of studs. Set headers on edge and support on jamb studs.

1. Apply plastic sheet to comply with manufacturer's printed directions.

<u>06192 - PREFABRICATED WOOD TRUSSES</u> (Refer also to Structural Drawings)

truss-to-truss connections, and truss-to-framing connections

requirements and building code in effect for project.

2. Apply air infiltration barrier to cover upstanding flashing with 4-inch overlap.

B. Standards: comply with N.F.P.A. "National Design Specification for Wood Construction"

C. Submittals: in addition to product data for truss components submit the following

wood trusses supplied for project comply with specified requirements.

testing agency acceptable to Architect and authorities having jurisdiction.

A. General: furnish and install open—web trusses consisting of wooden top and bottom chords and

tubular steel web members as indicated on the Drawings and as specified herein, including all

1. Shop drawings showing sizes, design values, materials, and dimensional relationships of

components as well as bearing and anchorage details. Provide shop drawings that have been

Design calculations for all trusses and truss-to-truss connections that indicate design loadings

allowable stresses, and connection capacities. Calculations shall be signed and stamped by a

professional engineer legally authorized to practice in the jurisdiction where project is located.

4. Research reports or evaluation reports of the model code organization acceptable to authorities

having jurisdiction evidencing compliance of fire-retardant-treated wood with specified

D. Single-source engineering responsibility: provide trusses engineered by the truss manufacturer to

support superimposed dead and live loads indicated, with design approved and certified by a

E. Fabricator's auglifications: a firm that participates in a recognized auglity assurance program that

involves inspection by SPIB; Timber Products Inspection, Inc. or other independent inspection and

professional engineer legally authorized to practice in jurisdiction where project is located.

Product certificate, signed by officer of fabricating firm, certifying that metal-plate-connected

signed and stamped by a professional engineer legally authorized to practice in jurisdiction where

Building Code.

6 inches o.c.

Framina.

END OF SECTION

PART 1 – GENERAL

1.01 REQUIREMENTS

project is located.

3.05 AIR INFILTRATION BARRIER

3.04 STUD FRAMING

- 1. National evaluation report no. NER-272 for pneumatic or mechanical driven staples, P-nails, and 2.01 INSULATING MATERIALS, GENERAL allied fasteners. Published requirements of manufacturer of metal framing anchors.
- "Recommended nailing schedule" of referenced framing standard and with N.F.P.A. "National Design Specifications for Wood Construction."

7. Table 2306.3 (1) - Allowable Shear for Wood Structural Panel Shear Walls of the International

F. Firestop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling

closely fitted wood blocks of nominal 2-inch-thick lumber of the same width as framing members.

A. Arrange studs so that wide face of stud is perpendicular to direction of wall or partition and narrow

face is parallel install single bottom plate and double top plates using 2-inch-thick members whose

widths equal that of studs; except single top plate may be used for non-load-bearing partitions. Nail

1. For exterior walls and load-bearing structural walls install 2-inch by 6-inch wood studs spaced

framing as shown and as required for support of facing materials, fixtures, specialty items, and trim.

C. Frame openings with multiple studs and headers. Install nailed header members of thickness equal to

For non-bearing partitions, install double-jamb studs and headers not less than 4 inches deep

For load-bearing partitions, install triple-jamb studs for all openings unless otherwise indicated.

Install headers of depth shown, or if not shown, as recommended by N.F.P.A. "Manual for House

for openings 3 feet and less in width, and not less than 6 inches deep for wider openings.

2. For interior partitions and walls install 2-inch by 4-inch or 2-inch by 6-inch wood studs

B. Construct corners and intersections with not less than 3 studs. Install miscellaneous blocking and

line of the top story. Where firestops are not automatically provided by the framing system used, use

6. Table 2306.2 (2) - Allowable Shear for Wood Structural Panel Blocked Diaphragms of the

### F. Handle and store trusses with care to avoid damage from bending, overturning or other cause. PART 2 - PRODUCTS

#### A. Lumber: provide dressed lumber S4S, grade marked, complying with PS 20 and requirements indicated. Moisture content: seasoned, with 19 percent maximum moisture content at time of dressing and shipment. Any species and grade complying with the following species group as defined in table 8.1a of N.F.P.A national design specification: Group II species, "FB" of 1200/1400 PSI for single/repetitive member use, "E" of 1.600.000 PSI.

#### B. Fasteners: of size and type indicated that comply with the following requirements. Where trusses are exposed to weather or to high relative humidity, provide hot-dip zinc-coated fasteners per ASTM A 153 or AISI type 304 stainless steel fasteners.

#### Nails, wire, brads, and staples: FS FF-N-105. Power driven fasteners: national evaluation report NER-272.

#### Wood screws: ANSI B18.6.1 Lag bolts: ANSI B18.2.1.

2.01 MATERIALS

2.02 FABRICATION

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

1.02 DEFINITIONS

1.03 SUBMITTALS

1.04 QUALITY ASSURANCE

widths, and lenaths,

2.02 PRODUCTS

perms

Β.

- Bolts: steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers
- C. Metal framing anchors: provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following: Current evaluation/research reports: provide products for which model code evaluation/research
- reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with the building code in effect for this Allowable design loads: as published by manufacturer and determined from empirical data or by
- rational engineering analysis and verified through comprehensive testing by a qualified independent testing laboratory. Galvanized steel sheet: zinc-coated by hot-dip process to comply with ASTM A 525, coating designation G60, and complying with ASTM A 446, Grade A; ASTM A 526; or ASTM A 527.

### A. Fabricate and assemble trusses to provide units of configuration indicated, with closely fitted joints and connector pins securely fastened to wood members. Cut truss members to accurate lengths.

angles, and sizes to produce close-fitting joints with wood-to-wood bearing in assembled units Fabricate metal connector pins to size, configuration, thickness, and anchorage details required to withstand design loadings for types of joint designs indicated. Assemble truss members in design configuration indicated using itas or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances specified to produce design camber indicated 2.03 INSTALLATION

A. General: erect and brace trusses to comply with applicable requirements of referenced standards. Where trusses do not fit, return them to fabricator and replace with trusses of correct size; do not alter trusses in the field. Erect trusses with plane of truss webs vertical (plumb) and parallel to each other, located accurately at desian spacing indicated. Hoist trusses in place by means of lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of- plane bending or other causes. Anchor trusses securely at all bearing points to comply with methods and details indicated. Install permanent bracing and related components to enable trusses to maintain design spacing, withstand live and dead loads including lateral loads, and to comply with other indicated requirements. Do not cut or remove truss member

#### 07210 - BUILDING INSULATION

A. This section includes provisions and procedures governing the furnishing and installation of building insulation including, but not limited to, the following:

Concealed building insulation in batt form. Board-type rigid insulation for underslab installation at walk-in freezer Board type rigid insulation for below-grade foundation perimeter installation.

Roof insulation is specified in Section 07531.

C. Interior Acoustical Insulation is specified in Section 09200

#### A. Thermal resistivity: where the thermal resistivity of insulation products are designated by "R-values, they represent the reciprocal of thermal conductivity (K-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistance is expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTI to flow through one square foot per hour at mean temperatures indicated.

A. Product data for each type of insulation product specified.

#### A. Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by U.L. or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization

Surface burning characteristic, ASTM E 84 Fire resistance ratinas: ASTM E 119

### Combustion characteristics: ASTM E 130

B. Obtain each type of building insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work PART 2 - PRODUCTS

A. Provide insulating materials that comply with specified requirements and with referenced standards. B. Preformed units: sizes to fit applications indicated, selected from manufacturer's standard thicknesses.

- C. Foundation perimeter insulation and underslab rigid insulation: Extruded polystyrene closed cell, boards of thicknesses indicated, with aged K—value of 0.17, (aged at 50% R.H. and 73—deg. For 180 days), 15-Ibs. per cu. ft. minimum density comply with Fed. Spec. HH-I-530, Type I Grade 2; manufacturer's standard sizes. (Expanded polystyrene will not be accepted.
- D. Faced mineral fiber blanket/batt insulation: 6 1/4" R-21 value for wall insulation. Wall insulation to be foil faced in areas not covered by gypsum board., all other areas to be kraft paper faced. Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 forType III, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less); foil—scrim—kraft or foil—scrim—polyethylene vapor-retarder membrane on one face, and as follows:
- 1. Mineral fiber type: fibers manufactured from glass or slag.

#### A. Extruded Polystyrene board insulation: subject to compliance with requirements, provide insulation

#### products of the following manufactures: Dow Corporation

Atlas Energy Corporation Owens/Corning

B. Glass fiber insulation: subject to compliance math requirements, provide insulation products of one of the following manufacturers:

#### Certain Teed Corp. Owens/Corning Fiberglass Corp

### 2.03 ACCESSORIES

A. Corrosion resistant fasteners as recommended by insulation manufacturer for insulation and substrate

### 2.04 VAPOR RETARDERS

A. Polyethylene vapor retarder: ASTM D 4397, 6.0 mils thick, with a maximum permeance rating of 0.13 B. Tape for vapor retarder: pressure sensitive tape of type recommended by vapor retarder manufacturer

#### for sealing joints and penetrations in vapor retarder. PART 3 - EXECUTION

### 3.01 FXAMINATION

A. Examine substrates and conditions with installer present, for compliance with requirements of the sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

A. Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections that might puncture vapor retarders.

3.03 INSTALLATION, GENERAL A. Comply with insulation manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation. B. Extend insulation full thickness as indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.

#### 3.04 UNDERSLAB INSTALLATION

A. Install underslab insulation around building foundation perimeter in locations indicated on drawings. B. Install recessed insulation at walk-in freezer locations as indicated on drawings.

3.05 INSTALLATION OF GENERAL BUILDING INSULATION A. Apply insulation units to substrate by method indicated, complying with manufacturer's

recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

- B. Seal joints between closed-cell (non-breathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer. 3.06 INSTALLATION OF VAPOR RETARDERS
- A. General: extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose fiber insulation
- B. Seal overlapping joints in vapor retarders with adhesives or tane per vapor retarder manufacturer's printed directions. Seal butt joints and fastener penetrations with tape of type recommended by vapor retarder manufacturer. Locate all joints over framina members or other solid substrates.
- C. Firmly attach vapor retarders to substrates with mechanical fasteners or adhesives as recommended by vapor retarder manufacturer D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders
- with tape of type recommended by vapor retarder manufacturer to create an airtight seal between penetrating objects and vapor retarder.
- E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with tape or another layer of vapor retarder.

### 3.07 PROTECTION

A. Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation

#### END OF SECTION

- 07410 PREFORMED METAL ROOF PANELS
- Part 1 GENERAL
- 1.01 SECTION INCLUDES
- A. Furnish and install metal wall and/or roof panels and accessories in accordance with applicable drawings and this specification. Alternate products to be considered equal must be approved by the Architect via an addendum 10 days prior to bid date. 1.02 RELATED SECTIONS

#### A. 07210 Building Insulation

#### B. 07600 Flashing and Sheet Meta C. 07901 Sealants (Joint Sealers)

- 1.0.3 SUBMITTALS
- A. Shop drawings shall be prepared for architect's approval and shall show metal panel wall and/or roof system, including fastening (attachment) methods, joinery, sealing methods, accommodations of thermal movement, accessories required and erection procedures.
- 1. If required, 3 samples of panel material shall be furnished for approval of gauge, color, finish material, and profile.
- C. Two copies of manufacturer's literature for the metal panel wall or roof system. D. A manufacturer's Certificate of Compliance certifying that the metal panel to be supplied meets or exceeds the requirements specified
- 1.04 QUALITY ASSURANCE
- A. Taylor Metal Versa-Span products establish the level of quality required.
- B. Panel system installer shall be experienced with the installation of metal wall and roof systems on projects with similar scope and complexity, and acceptable to panel manufacturer.
- C. Panel supplier shall furnish calculations confirming structural adequacy if requested.
- D. Painted surfaces of metal panels shall meet all specified criteria printed in the manufacturer's literature. Where possible, field measurements shall be taken prior to metal panel and flashing

#### 1.05 — Product Delivery, Handling and Storage

- A. Protect panel finish per panel manufacturer's recommendations. Store materials in accordance with panel manufacturer's recommendations
- Part 2 PRODUCTS 2.01 PANEL SYSTEM
- A. The panel system shall be of such profile and gauge to withstand a load requirement of 25 psf,
- with a deflection limitation of L/60 for aluminum and L/180 for steel. B. All metal panels required to complete the installation shall consist of:
- Panel profile shall be 24 aauge Versa-Span 18"flat pan. The outside exposed surface of all exterior panels shall receive a two-coat factory color finish of Kynar 500 per ASTM A 653-94.
- C. Flashings and Closures Metal flashings shall be fabricated from the same metal, gauge and finish as the exterior panels, unless shown otherwise on the drawings. Profile closure strips shall be placed re shown on the drawinas and fabricated from metal or
- D. Fasteners Exterior panels shall be fastened with concealed clip system in accordance with the manufacturer's recommendations for exposure, snow loading, and uplift 2.03 ACCESSORIES
- A. All exposed fasteners shall be self-tapping 300 series stainless steel.
- B. All self-drilling fasteners shall be protected with a corrosion resistant finish.
- C. All Sealants (caulking) shall be compatible with panel materials.
- PART 3 EXECUTION
- 3.01 INSPECTION
- A. Structural steel (or substructure) required for metal panel attachment shall be level and plumb.
- B. Structural steel (or substructure) shall be structurally sound as determined by Architect/Engineer
- C. Structural steel (or substructure) shall be free of defects detrimental to metal panel work.
- D. The contractor shall examine the alianment of the structural steel (or substructure) before installing any metal panels and shall not proceed with installation if the structural steel (or substructure) is not alianed to the tolerances established by the AISC Code of Standard Practice. 3.02 INSTALLATION
- A. Field erection of all metal panels and accessories to be accomplished using qualified field mechanics and safety practices.
- B. Metal panels should be erected level and plumb, in proper alignment and relation to structural steel (or substructure) and established lines. Panel erection must be started correctly and held true to
- C. Metal panel and accessory erection shall be in accordance with an approved set of shop drawings. D. Panel and accessory attachments (anchorage) shall be structurally sound, and per engineering
- recommendations, if required
- 3.03 ADJUSTING AND CLEANING
- A. Replace panels that have received irreparable damage.
- B. Repair panels with minor damage.
- C. Clean all foreign material from panel (building) gutter system when applicable.

adapters, and masking (as required) for a complete watertight installation.

D. Remove strippable film coating (if used) as soon as possible after surrounding material has been

A. This section includes Aluminum faced composite panels with mounting system. Panel mounting

system including anchorages, shims, furring, fasteners, gaskets and sealants, related flashing

A. Aluminum Association Construction Manual - Aluminum sheet metal work and building construction

F. ASTM D 2794: Resistance of organic coatings to the effects of rapid deformation (impact)

H. ASTM D 2247: Practice for testing water resistance or coatings in 100% relative humidity.

G. ASTM D 1308: Effect of household chemicals on clear and pigmented organic finishes.

J. ASTM D 1929: Standard test method for determining ignition temperature of plastics.

K. ASTM D 635: Standard test method for rate of burning and/or extent and time of burning of

END OF SECTION

1.02 References and standards

plastics in a horizontal position.

PART 1 GENERAL

7.1. Genera

07420 - ALUMINUM COMPOSITE METAL PANEL SYSTEM

B. ASTM B 117: Method of salt spray (fog) testing

C. ASTM D 1781: Climbing drum peel test for adhesives

E. ASTM D 3363: Method for film hardness by pencil test.

D. ASTM D 3359: Methods for measuring adhesion by tape test.

I. ASTM D 1735: Method for water fog testing of organic coatings.

		for operating and related p		water	exposure	apparatus	(carbon-arc	type)	for te	estir
M. ASTM E 8	84: Surface b	urning charac	teristics of	buildi	ng materi	als.				

locations for blocking and embedded items

Oakdale Avenue, Racine, WI (262-636-0070).

ASTM D 635 Requires a CC1 classification

- Colors: 1.0 mil (+/-0.2 mil).

- Clear: 0.50 mil (+/-0.05 mil).

– Test method: ASTM D 3359

#600 scotch tape.

- Test method: ASTM D 2247

- No checking, crazing, adhesion loss.

B. Panels shall be 4mm thick (.157")

1.04 Product delivery, handling and storage

1.03 Submittals

PART 2 PRODUCTS

7.1. Composite panels

C. Product Performance

1. Bond Integrity

2. Fire Performance

1. Color:

4. Impact:

Adhesion:

6. Humidity resistance:

Salt spray resistance:

Outdoor Weather exposure:

9. Chemical resistance:

2.03 Panel Fabrication

D. Tolerances

E. System characteristics

aluminum windows.

from damage

noted on drawings.

following minimum standards:

the full span.

shall not exceed 1/16.

obtain the following results.

F. System type

building code.

design temperature of 70°F.

shall not be acceptable.

AA5000 series (anodized material).

C. Panel weight: 4mm (0.157"): 1.12 lbs./ft2

2. Coating thickness:

#### A. Shop drawings: indicate layout, configuration, unit identification marks, connection details, support items, dimensions, openings, edge details, and relationship to adjacent components. Indicate

B. Samples: submit two panels approximately 4" x 6" illustrating surface finish, color, texture and gloss, These samples may include evaluation reports and/or test reports supporting the use of the product.

#### A. Panel finish and edges shall be protected in transit by crates and interleafed coated paper. Panels 2.04 Accessories shall have a protective film over the finish to be removed after installation is complete B. Materials shall be stored in an area safe from damage and protected from the weather

A. Panels shall be Alucobond material manufactured by Federal Heath Visual Communications, 1840

#### When tested for bond integrity, in accordance with ASTM D1781 (simulating resistance to panel delamination), there shall be no adhesive failure of the bond a) between the core and the skin nor b) cohesive failure of the core itself below the following values:

Peel Strength: 115 N mm/mm (22.5 in lb/in) as manufactured 115 N mm/mm (22.5 in lb/in) after 21 days soaking in water at 70°F

ASTM E 84 Flame Spread Index must be less than 25, Smoke Developed Index must be less ASTM D 1929 A self ignition temperature of 650oF or greater

#### D. Finishes: Coil coated KYNAR 500 or HYLAR 5000 based polyvinylidence fluoride (PVDF) or fluoro ethylene-alkyl vinyl ehter (FEVE) resin in conformance with the following general requirements of

#### - Standard color as selected by the architect. - Custom color to be match by the panel supplier.

- 3. Hardness: ASTM D 3363; HB minimum using Eagle Turquoise Pencil
  - Test method: ASTM D 2794: Gardner variable impact tester with 5/8" mandrel. - Coating shall withstand reverse impact of 1.5"/pounds per mil substrate thickness. - Coating shall adhere tightly to metal when subjected to #600 scotch tape pick-off test. Slight minute cracking permissible. No removal of film to substrate.
  - Coating shall not pick off when subjected to an 11"x11"x 1/16" grid and taped with
  - No formation of blisters when subject to condensing water fog at 100% relative humidity and 100 degree Fahrenheit for 4000 hours.
  - Test method: ASTM B 117; Expose coating system to 4000 hours, using 5% NaCl solution. - Corrosion creepage from scribe line: 1/16" max. - Minimum blister rating of 8 within the test specimen field.
  - Ten-year exposure at 45 degree angle facing south Florida exposure. - Maximum color change of 5 delta E units as calculated in accordance with ASTM D
  - Maximum chalk rating of 8 in accordance with ASTM D 4214
  - ASTM D 1308 utilizing 10% muriatic acid for an exposure time of 15 minutes. No loss of film adhesion or visual change when viewed by the ungided eve ASTM D 1308 utilizing 20% sulfuric acid for an exposure time of 18 hours. No loss of
  - film adhesion or visual change when viewed by the unaided eye. - AAMA 2605 utilizing 70% reagent grade nitric acid vapor for an exposure time of 30 minutes. Maximum color change of 5 delta E units as calculated in accordance with ASTM

#### A. Composition: Two sheets of aluminum sandwiching a solid core of extruded thermoplastic material formed in a continuous process with no qlues or adhesives between dissimilar materials. The core material shall be free of voids and/or air spaces and not contain foamed insulation material. Products laminated sheet by sheet in a batch process using glues or adhesives between materials

- B. Aluminum face sheets: Thickness: 0.50mm (0.0197") (nominal), Alloy: AA300 series (painted material)
- 1. Panel Bow: Maximum 0.8% of any 1828mm (72") panel dimension. 2. Panel Dimensions: Field fabrication shall be allowed where necessary, but shall be kept to an
- absolute minimum. All fabrication shall be done under controlled shop conditions when poss . Panel lines, breaks, and anales shall be sharp, true, and surfaces free from warp and buckle. 4. Maximum deviation from panel flatness shall be 1/8" in 5'0" on panel in any direction for assembled units. (Non-accumulative - No Oil Cannina)
- Plans, elevations, details, characteristics, and other requirements indicated are based upon standards by one manufacturer. It is intended that other manufacturers, receiving prior approval, may be acceptable, provided their details and characteristics comply with size and profile
- requirements, and material/performance standards. 2. System must not generally have any visible fasteners, telegraphing or fastening on the panel faces or any other compromise of a neat and flat appearanc 3. System shall comply with the applicable provisions of the "Metal Curtain Wall. Window. Storefront.
- and Entrance Guide Specifications Manual" by AAMA and ANSI/AAMA 302.9 requirements for 4. Fabricate panel system to dimension, size, and profile indicated on the drawings based on a
- 5. Fabricate panel system so that no restraints can be placed on the panel, which might result in compressive skin stresses. The installation detailing shall be such that the panels remain flat
- regardless of temperature change and at all times remain air and water tight. 6. The finish side of the panel shall have a removable plastic film applied prior to fabrication, which shall remain on the panel during fabrication, shipping, and erection to protect the surface

### 1. Rout and return dry: System must provide a perimeter aluminum extrusion with integral weather-stripping as detailed on drawings. No field sealant required in joints unless specifically

- G. System performance: Composite panels shall be capable of withstandina building movements and weather exposures based on the following test standards required by the Architect and/or the local
- 1. Wind load: If system tests are not available, mock-ups shall be constructed and tests performed under the direction of an independent third party laboratory, which show compliance to the
  - Panels shall be designed to withstand the Design Wind Load based upon the local building code, but in no case less than 20 pounds per square foot (psf) and 30 psf on parapet and corner panels. Wind load testing shall be conducted in accordance with ASTM E330 to
  - Normal to the plane of the wall between supports, deflection of the secured perimeter-framing members shall not exceed L/175 or 3/4", whichever is less.
  - Normal to the plane of the wall, the maximum panel deflection shall not exceed L/60 of
  - Maximum anchor deflection shall not exceed 1/16".
  - At 1-1/2 times design pressure, permanent deflections of framing members shall not exceed L/100 of span length and components shall not experience failure or gross permanent distortion. At connection points of framing members to anchors, permanent set

- ng 2. Air/water system test: If system tests are not available, mock-ups shall be constructed and tests performed under the direction of an independent third party laboratory, which show compliance to the following minimum standards:
  - Air Infiltration When tested in accordance with ASTM E283, air infiltration at 1.57 psf must not exceed 0.06 cfm/ft<sup>2</sup> of wall area.
  - Water Infiltration Water infiltration is defined as uncontrolled water leakage through the exterior face of the assembly. Systems not using a construction sealant at the panel joints (i.e. Rout and Return Dry and Rear Ventilated Systems) shall be designed to drain any water leakage occurring at the joints. No water infiltration shall occur in any system under a differential static pressure of 6.24 psf after 15 minutes of exposure in accordance with ASTM E331

- A. Extrusions, formed members, sheet, and plate shall conform with ASTM B209 and the recommendations of the manufacturer
- B. Panel stiffeners, if required, shall be structurally fastened or restrained at the ends and shall be secured to the rear face of the composite panel with silicone of sufficient size and strength to maintain panel flatness. Stiffener material and/or finish shall be compatible with the silicone.
- C. Sealants and gaskets within the panel system shall be as per manufacturer's standards to meet performance requirements.
- D. Fabricate flashing materials from 0.030" minimum thickness aluminum sheet painted to match the adjacent curtain wall / panel system where exposed. Provide a lap strap under the flashing at abutted conditions and seal lapped surfaces with a full bed of non-hardening sealant.
- E. Fasteners (concealed/exposed/non-corrosive): Fasteners as recommended by panel manufacturer. Do not expose fasteners except where unavoidable and then match finish of adjoining metal PART 3 - EXECUTION

### 3.01 Inspection

- A. Panel substructure shall be level and plumb within 1/4" over 20ft.
- B. Panel substructure shall be within agreed upon dimensions +/-1".
- C. Panel substructure shall be structurally sound as determined by Architect/Engineer and be free of defects detrimental to work
- D. Cutouts for signs and power stub outs shall be ready for connection to signs as required.
- E. Waterproofing shall be completed on all frame and masonry surfaces.
- F. Parapet caps and flashing shall be complete.
- G. Panel installer shall inspect substructure and shall not proceed with work until any deviations are
- 3.02 INSTALLATION A. Erect panels plumb, level, and true.

#### B. Attachment system shall allow for the free and noiseless vertical and horizontal thermal movement due to expansion and contraction for a material temperature range of -20°F to +180°F. Buckling of panels, opening of joints, undue stress on fasteners, failure of sealants or any other detriment effects due to thermal movement will not be permitted. Fabrication, assembly, and erection procedure shall account for the ambient temperature at the time of the respective operation.

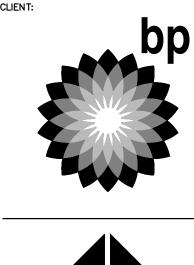
- C. Panels shall be erected in accordance with an approved set of shop drawings.
- D. Anchor panels securely per engineering recommendations and in accordance with approved shop drawings to allow for necessary thermal movement and structural support.
- E. Conform to panel fabricator's instructions for installation of concealed fasteners
- F. Do not install component parts that are observed to be defective, including warped, bowed, dented, abraised, and broken members.
- G. Do not cut, trim, weld, or braze component parts during erection in a manner which would damage the finish, decrease strength, or result in visual imperfection or a failure in performance. Return component parts which require alteration to shop for refabrication, if possible, or for replacement with new parts.
- H. Separate dissimilar metals and use gasketed fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals. 3.03 ADJUSTING AND CLEANING
- A. Remove and replace panels damaged beyond repair as a direct result of the panel installation. After installation, panel repair and replacement shall become the responsibility of the general contractor.
- B. Repair panels with minor damage
- C. Remove masking (if used) as soon as possible after installation. Masking intentionally left in place after panel installation on an elevation, shall become the responsibility of the general contractor.
- D. Any additional protection, after installation, shall be the responsibility of the general contractor.
- E. Make sure weep holes and drainage channels are unobstructed and free of dirt and sealants. F. Final cleaning shall not be part of the work of this section.

### END OF SECTION

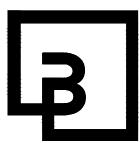
- 07542 TPO MEMBRANE ROOFING
- PART 1 GENERAL
- 1.01 SUMMARY
- A. This section includes fully adhered thermoplastic TPO membrane roofing system including roof membrane, sheet and metal flashings, insulation, and other auxiliary materials as specified. All items are to be provided by the Contractor.
- B. The following types of work are specified, but not limited to:
- . Rigid insulation 2. Tapered insulation
- 3. Insulation protection board
- 4. Flashina materials 5. Protective walkway pads
- . Wood nailers 7. Pourable sealer
- 8. Adhesives and sealants
- C. Related work specified elsewhere:
- 1. 07600 Flashing and Sheet Metal
- 1.02 REFERENCES
- A. Standard Reference: The NRCA Roofing and Waterproofing Manual published by the National Roofing Contractors Association, latest edition.
- B. Regulatory Requirements:
- 1. Factory Mutual Engineering Corporation (FM): Roof covering must conform with FMRC Approval Standards to resist wind, hail, leakage, corrosion, ultraviolet weathering and expected foot traffic. A copy of the roofing manufacturer's FM Approval Report showing compliance shall be provided to the Architect of Record and/or Owner prior to acceptance of bid. FM wind uplift classification. UL Class 1, and all other manufacturer or reaulatory reauirements shall be as indicated on drawings.

### C. General:

- . Final Payment: To assure all punch list items are complete to owner's satisfaction, final application for payments will be accompanied with a punch list. Upon completion of the punch list items, and written acknowledgment from the Architect of Record that all items are complete, the retained portion of the final payment will be processed.
- 1.03 SUBMITTALS
- A. Shop Drawings: Complete installation details showing the following:
- 1. Roof plan showing dimensions, slope, and typical detailed locations. 2. Perimeter and penetration details and flashing details.
- 3. Roof membrane sheet layout and fastening system.
- B. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install their roofing system.







Barghausen	
Consulting Engineers,	Inc

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Kent, WA 98032	
425.251.6222	
barghausen.com	

NO. DATE REVISION DESCRIPTION

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<u> </u>				
	-			
SEAL:				
EXP: 08/05/24				
DEVELOPMENT INFORMATION: ARCO NTI 3400 am/pm FUEL CANOPY w/ 6 MPD's				
SITE ADDRESS:				
1402 S MERIDIAN PUYALLUP, WA 98371				
	LIT	Y #7184		
DESIGNED BY:		ALLIANCE Z&DM:		
CHECKED BY:		BP REPM:		
DRAWN BY:		ALLIANCE PM:		
VERSION:				
	-	PROJECT NO: 21730		
DRAWNG TITLE:	-	PROJECT NO:		



### 07542 - TPO MEMBRANE ROOFING. PART 1 - GENERAL (CONTINUED)

#### C. Manufacturer Certificates:

- Material Certificate: Signed by roofing manufacturer certifying that retained and new materials and components comply with Project Specifications and that materials furnished are compatible with one another and the adjacent work and are new and first quality.
- System Design Certificate: Signed by roofing manufacturer certifying that roofing system design complies with requirements specified in "Performance Requirements" Article for the geographic location of the
- 3. Include manufacturer's written approval of project details, materials, fastener pattern for insulation and
- membrane, and warranty requirements for the specific project substrate and location.

Maintenance Data: Manufacturer's complete recommended maintenance procedures for the roofing system. including precautions and warnings to prevent damage and deterioration to the roof system.

E. Warranty: Roof manufacturer's Limited Warranty with Product Data Submittal, including evidence of application for warranty.

#### . Manufacturer's Reports

- Manufacturer's pre-installation notice
- 2. Roof manufacturer's review of contract documents and written acceptance of application for warrants 3. Inspection Reports: At completion of each inspection, two copies of manufacturer's field quality control reports of field inspections, including two copies of warranty shop drawing and manufacturer's final inspection punch list
- G. The Contractor shall submit a letter stating that he has reviewed all conditions of installation and installation details, and that installation is in compliance with manufacturers' recommendations. Also that all materials used for the roof installation are acceptable to the roofing manufacturer.

### 1.04 QUALITY ASSURANCE

A. Installer Qualifications:

- 1. A gualified firm that is approved, authorized, or licensed by the roofing system manufacturer to install the manufacturer's product and that is eligible to receive manufacturer's warranty. a. When installing roofing membrane utilizing induction welding (Firestone Building Products; InvisiWeld System) installers shall have successfully completed a training course provided by the roofing
- membrane manufacturer prior to welding. 2. A single applicator with a minimum of five years previous successful experience in installations of similar systems with two years experience seaming the specified system. 3. Job Superintendent Requirements:
- a. Present at the job site at all times when work is being performed. b. Supervise workers as required to ascertain workmanship, progress and adherence to details
- c. Responsible for schedule and coordination. d. Authority to make binding commitments upon Contractor at the Project site.

#### B. Pre-Installation Notification

- 1. Two weeks prior to commencement of roofing installation, contact manufacturer to verify fastener types/frequency and a secured approval of the system design to ensure that the roofing system is registered properly.
- a. Utilize manufacturer's standard pre-installation notification form (PIN).
- b. Form must be completed and submitted to manufacturer to obtain warranty.
- c. Complete the pre-installation notification form (PIN) online. Go to manufacturer's website www.firestonebpco.com/contractors and log into contractor area using contractor license number and

#### C. Pre-installation Conference: Conduct conference at Project site.

- 1. Prior to roofing installation, conduct a pre-installation conference at the project site.
- 2. Attendance: Contractor, Roofing installer, job superintendent and roof manufacturer's technical representative
- 3. Agenda: a. Maintaining water tightness of the building during roof installation, including night seal procedures.

#### 1.05 DELIVERY AND STORAGE

A. All materials provided by the membrane manufacturer shall be delivered with appropriate packaging labels indicating appropriate warnings, storage conditions, lot numbers and usage instructions.

B. Materials shall be delivered dry in manufacturer's original, unopened package and be properly stored off the around on pallets, minimum 4" high and off the roof. Completely cover all material with canvas tarpaulins to prevent the intrusion of water. Plastic covers will not be acceptable. 1.06 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

### 1.07 WARRANTY

- . Owner's standard form covering repairs required to correct defects due to faulty materials or workmanship, and to otherwise maintain the roof in a watertight condition and to correct all other
- defects without regard to watertightness. Any repair shall be done at the expense of the Contractor . Warranty Work against the following:
- a. Leakage of water or moisture through roofing and flashing.
- b. Leakage of water or moisture inside the building or within the construction. c. Leakage of roofing material inside or outside the building.
- d. Blistering, tearing, alligatoring and other defects.
- e. Other objectionable defects.
- f. Any failure in roofing and flashing causing the roof system to become unserviceable in any manner. 3. In event that any of the work does not perform as warranted, provide the following without cost to the a. Immediate repair and correction of defective work using roof manufacturer's compatible materials and
- approved installation methods. Match original Work. b. Immediate repair to other building construction or furnishings damaged as a result of defective work.
- c. Full warranty for not less than two years on repairs from the date of completion of such repairs. 4. The Owner reserves the right to make emergency repairs to protect the building contents from damage without invalidating manufacturer's warranty and guarantee. Written notice of such repairs shall be made
- in the prescribed time.
- 5. Warranty Period: 2 years from date of Owner's final acceptance

#### B. Roofing System Manufacturer:

- 1. Roofing manufacturer must provide the Owner with their standard warranty or better. Warranty shall cover workmanship and materials required to maintain a watertight condition and a roof system free of defects.
- 2. Submit a Material Certification Form to certify that materials made available by the membrane manufacturer are used throughout the project where needed.
- 3. Warranty Period: 20 years from date of Owner's final acceptance.

#### C. Deliver warranties to Owner before final payment is made

#### PART 2 - PRODUCTS 2.01 MANUFACTURERS

A. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from the same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

#### 2.02 PERFORMANCE REQUIREMENTS

- A. Installed roofing and components shall be in accordance with the roofing system manufacturer's current published application procedures, the general recommendation of the NRCA, and requirements of the Authority Having Jurisdiction (AHJ), for the specific building location, building height, substrate type, and roofing system manufacturer's specified warranty.
- B. Installed roof system must comply with all codes and regulations of authorities having jurisdiction including but not limited to wind uplift, flame spread, and hail resistance.
- C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEL 7
- D. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

#### 2.03 MEMBRANE ROOFING

- A. Fabric-Reinforced Thermoplastic Polyolefin Sheet: ASTM D 6878, internally scrim reinforced, uniform, flexible TPO sheet 1. Products:
- a. Firestone Building Products Company; Ultra—Ply TPO. b. No substitutions allowed
- Membrane:
- a. Exposed Face Color: White.
- b. Thickness (ASTM D751 & ANSI/RMA IPR-1): 60 mils minimum.
- c. Breaking Strength (ASTMD751, Grab Method): 200 lb. minimum. d. Tearing Strength (ASTM D751), Tongue Tear: 120 lbf.
- e. Dimensional stability (ASTM D 1204): 6 hours at 158 deg. F, 1.0 percent maximum.
- f. Low Temperature Bend: ASTM D 2136: -40 degrees F Maximum.
- g. Ply Adhesion: ASTM D 413, Strip specimen, Type A, Machine Method, 8.0 lbs per inch minimum.

#### 2.04 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

- B. Sheet Flashing: Manufacturer's standard unreinforced thermoplastic polyolefin sheet flashing, 60 mils thick, minimum, of same color as sheet membrane.
- C. Coated Metal: G90 galvanized steel, TPO coated on one side, color to match roofing membrane, as supplied by the roof system manufacturer, minimum 24 gauge, 0.028-inch for flashed metal details.
- D. Bonding Adhesive: Roofing membrane manufacturer's standard TPO bonding adhesive.
- E. Insulation Fastening Plates: Manufacturer's approved corrosion resistant plates as furnished and approved by roof system manufacturer for specific application
- F. Fasteners (Insulation and membrane): Manufacturer's approved #15 heavy duty, self tapping series 300, screws as furnished and/or warranted in writing by roofing system manufacturer.
- G. Induction Welding Plates: Firestone Building Products; InvisiWeld plates.
- H. Water Cutoff Mastic: As furnished by membrane manufacturer for this system.
- I. Inside Corners and Outside Corners and Molded Pipe Flashings: Pre-molded components as furnished by membrane manufacturer for this system
- J. Night Seal: As furnished by membrane manufacturer for this system.
- K. Other miscellaneous materials shall be manufacturer's best grade available and approved in writing by the roof system manufacturer for the specific application

### 1. General Construction Sealants: One-part non-priming gun-grade urethane sealant.

- 2. Roofing Sealants: Sealants used in contact with roofing system shall be roofing membrane manufacturer's approved sealant used to seal penetrations through the membrane system or
- miscellaneous sealant applications that come in contact with roofing system.

#### 3. Backer Rod: Where required for sealant joints.

2.05 ROOF INSULATION

#### A. Polyisocyanurate Board Insulation: Rigid closed cell polyisocyanurate foam ASTM C 1289, Type II, glass-fiber mat facer on both major surfaces. Manufactured or approved by TPO membrane roofing manufacturer. See Drawings for total insulation thickness or required R-value

- 1. Products:
- a. Firestone Building Products Company; ISO 95+ b No substitutions allowed
- 2. Compressive Strength: ASTM D 1621, minimum 20 psi.
- 3. Density: Minimum 2 lbs/pcf.
- 4. Insulation thickness: Insulation shall be built up to the thickness indicated using a minimum of 2 layers with staggered joints.
- a. Minimum Thickness per Laver: 1 inch. 5. Tapered insulation where indicated on roof plan. Minimum thickness 1/2 inch, factory sloped at 2 times

#### 2.06 PROTECTION BOARD

- A. Materials recommended by roofing system manufacturer for intended use and compatible with membrane

#### 2.07 WALKWAYS

A. Flexible Walkways: Minimum of 30-inches by 30-inches factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16 inch thick as furnished by roofing system

A. Examine roof areas for conditions that would prevent the proper application of new roofing and verify the

2. Deck and substrates are clean, smooth and free from depressions, waves, projections, defects and

4. Surfaces in contact with any single ply material are free from bitumen, grease, oil or other foreign

7. Roof equipment, openings, curbs, pipes, sleeves, ducts, vents and blocking members are solidly and

8. Work has been completed where possible for other trades that require work or traffic on the roofing

B. Correct or complete any conditions requiring correction or completion prior to the installation of the roofing

C. Verify the location of interior ducts, electrical lines, piping, conduit, and/or similar obstructions. Perform work

1. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation

4. Stagger the end joints of the primary insulating layer; stagger joints top to bottom on multiple layer

5. Butt joints tight allowing no more than 1/4-inch wide gap between units. Fill any gaps larger than

8. Cut and fit insulation neatly at roof perimeter and roof penetrations to reduce openings to a minimum.

10. Prior to application of membrane, remove foreign matter, gravel, etc. from the substrate. Gravel or

11. Install temporary water cut off at completion of each day's work and remove upon resumption of work.

3. Install tapered crickets along the high side of all penetrations areater than 6 feet in width. Slope of

4. Taper insulation a minimum of 24-inches in each direction around scuppers and drains to provide for

1. Install roofing membrane in accordance with the manufacturer's installation instructions. Cut sheets to

Position membrane over substrate without stretching membrane. Allow membrane to relax one-half hour

point. Prevent moisture migration into the roof system. Complete flashings, terminations, and seals in

4. Execute work so membrane can be temporarily sealed on a down slope surface at the end of each day

with night seal. Tie off with a water stop to the structural deck to prevent water flow into the new

location to meet roofing system manufacturer's specified warranty. Do not use induction welding plates

5. Secure perimeter in accordance with manufacturer's recommended procedures for building height and

C. Ensure that the installed roofing will not be marked, spotted, stained, or damaged. Power washing of the

A. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer

and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane

B. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and

A. Membrane Lap Splices: 6 inches wide, minimum. Locate field splices at roof drains outside drain sump.

membrane may be required if surface staining is deemed unacceptable to the Owner.

C. Apply membrane roofing with side laps shingled with slope of roof deck where possible

Begin installation of roofing system at the highest point of the Project area and work to the lowest

minimum of 2 times the roof slope. Crickets are not required at skylight curbs.

9. Prior to application of membrane, secure loose areas so that no board movement or warpage exist

Fully adhere the insulation to the substrate in accordance with roofing system manufacturer's criteria for

A. Broom clean roof surface immediately prior to roofing application. Debris under roof membrane is

wind uplift in Project location to meet roofing system manufacturer's specified warranty.

Install roof insulation directly over the substrate except where otherwise indicated.

6. Do not rupture or deform the surface, facer, or structure of the insulation by handling.

debris between the substrate and the roof membrane is not acceptable.

A. Install protection board according to manufacturer's installation instructions.

maximum size possible in order to minimize seams.

6. Materials are completely dry and free from ice and snow, including substrate, deck, insulation and roofing

5. Surfaces in contact with roofing membrane are free from sharp edges, fins or projections.

1. Decking, curbing, renovation, and wall substrate construction has been completed.

3. Wood nailers are properly installed to receive roofing system.

membrane as applicable. Confirm dryness by moisture meter.

system. Notify the Owner in writing of any unacceptable conditions.

D. Start of work constitutes acceptance of deck substrate and site conditions.

to avoid contact with the above-mentioned items.

7. Do not use warped or bent insulation boards.

1. Install tapered insulation as required.

Install additional insulation as outlined above

Fill openings 1/4-inch or larger with insulation.

PART 3 - EXECUTION

3.01 EXAMINATION

damaae.

properly set.

3.02 PREPARATION

3.0.3 INSULATION INSTALLATION

A. Primary Insulating Layer

1/4-inch.

B. Tapered Insulation

proper drainage.

3.04 PROTECTION BOARD INSTALLATION

3.05 MEMBRANE INSTALLATION, GENERAL

before bonding and flashing.

area on a daily basis.

roofing installation.

for edge securement.

to inspect and approve seams.

3.07 MEMBRANE SPLICING

3.06 ADHERED MEMBRANE ROOFING INSTALLATION

#### B. Allow top sheet to fall freely into place over bottom ply without wrinkling or stretching

C. Insure that surfaces to be spliced are cleaned, primed and dirt free. Use automatic hot air welding equipment approved by the roof system manufacturer for field seams. Seam small work and repairs with hand 1. Install minimum 1-1/2 inch wide weld.

#### D. Probe laps each day to verify seams are bonded. In addition, perform random lap test sample checks (including checks at start of each day) to verify peel strength. Caulk cut edges by applying manufacturer's seam sealant, if required

- A. Walls, Parapets, Mechanical Equipment Curbs,
- 1. Install flashing at roof penetrations, interruptions, and any roof intersection including roof edges with vertical or sloped surfaces in accordance with manufacturer's recommended procedures and Drawings. 2. Curbs, projections and risewall conditions require a minimum 8-inch height for base flashings and
- 3. Apply manufacturer's bonding adhesive to both underside of flashing and surface to which it is to be bonded, at a rate of approximately 1 gallon per 50 sq.ft of surface coverage. 4. Do not apply bonding adhesive to portion of flashing that overlaps onto itself. Use seam tape where membrane overlaps itse 5. Allow bonding adhesive to dry to a finger touch until it does not string or stick to a dry finger. Roll the flashing into dry adhesive. Care must be taken to assure that flashing does not bridge where there
- is any change of direction. Mechanically fasten top all of flashing under or through appropriate counter flashing with approved fasteners as shown on Drawings. 7. Install flashings for vents, pipe, soil vents and other round projections in accordance with manufacturer's recommendations and Drawinas.
- 8. Install uncured or preformed flashing membrane as required to form a continuous membrane seal in each corner or change in plane. 9. Waterproof and positively secure flashings with termination bar at the top and sides to prevent seepage
- behind or into the flashing or roofing system. B. Other Penetrations
- 1. Flash penetrations passing through membrane in accordance with the manufacturer's recommended procedure, Specifications and Drawings 2. Seal flashing directly to the penetration passing through the membrane system
- Pipes, Round Supports; a. Flash pipes with pre-moulded pipe flashings where their installation is possible.
- b. Where molded pipe flashings cannot be installed, use field fabricated pipe seals. 4. Pipe Clusters and Unusually Shaped Penetrations: Flash pipe clusters and unusually shaped penetrations which prohibit the installation of field fabricated pipe seals with hooded sheet metal boxes. Provide
- penetration boxes with solid sheet metal face closures. Slope piping away from the penetration flashing Provide removable tops. a. Limit the use of pitch pans and sealer to specific Owner-approved locations. Provide rain-tight umbrellas/hoods for pitch pans.
- 3.09 WALKWAY INSTALLATION

3.08 FLASHING

- A General: Do not install flexible walkways within 6 feet of a roof perimeter
- B. Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive or seam tape according to roofing system manufacturer's written instructions. Hot air weld perimeters to the

### 3.10 FIELD QUALITY CONTROL

field membrane.

3.11 CLEANING

END OF SECTION

1.01 SUMMARY

and finishes.

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Owner.
- B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements
- C. Submit manufacturer's Letter of Acceptance (refer to attached sample).
- A. Exterior: Remove debris, adhesives and sealant from surfaces including removal of marks, spots, stains, and sediment from the finished roof surface and power washing of the membrane if the surfaces are deemed unacceptable by the Owner.
- Interior: Work related dirt, debris, drippage, spills, etc.
- 07600 FLASHING AND SHEET METAL
- PART 1 GENERAL

#### A. This section includes provisions and procedures governing the fabrication, furnishing and installation of flashing, sheet metal, and integral accessories, including but not limited to, the following:

- Metal counter flashing and base flashing (if any). Metal wall flashing and expansion joints
- Exposed metal trim/fascia units. 4. Miscellaneous sheet metal accessories.
- 1.02 PROJECT CONDITIONS
- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials
- PART 2 PRODUCTS
- 2.01 SHEET METAL FLASHING AND TRIM MATERIALS
- A. Zinc-coated steel: commercial quality with 0.20 percent copper, ASTM A 526 except ASTM A 527 for lock-forming, G90 hot-dip galvanized, mill phosphatized where indicated for painting; 0.0359-inch thick (20 gauge) except as otherwise indicated.
- B. Solder: provide 50 50 tin/lead solder (ASTM B 32), with rosin flux.
- C. Fasteners: same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- D. Mastic sealant: polyisobutylene; nonhardening, nonskinning, non-drying, nonmiarating sealant. E. Elastomeric sealant: generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 7
- section "Joint Sealers." F. Adhesives: type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.
- G. Reglets: metal units of type and profile indicated, compatible with flashing indicated, noncorrosive.
- H. Metal accessories: provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material- being installed, noncorrosive, size and gage required for performance.
- 2.02 FABRICATED UNITS
- A. Shop fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Fabricate non-moving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- C. Expansion provisions: where lapped or bayonet-type expansion provisions in work cannot be used or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic seglant (concegled within joints).
- B. Roof system manufacturer's representative shall be on site at the start of project to supervise operations and D. Sealant joints: where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
  - E. Separations: provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
  - 2.03 ELASTIC EXPANSION JOINTS
  - A. Provide factory-fabricated units of size and profile indicated, complete with prefabricated corner units. intersection unit, and splicing materials. Provide complete with elastic sheet flashing forming the primary joint membrane, in a supported, "bellows" arrangement designed for securement to both sides of expansion joints. Underside of bellows insulated with adhesively applied, flexible, closed-cell rubber or plastic not less than 3/8-inch thick.
  - B. Type: metal flanged edges, 3 to 4 inches wide, formed to profiles as indicated to fit curbs and designed for nailing to curb substrate. Provide metal flanges in the following thicknesses: 1. Zinc-coated steel: 0.0179 inch (26 gage).

- C. Looped bellows vs width: 5 to 6 inches, exclusive of flanges.
- D. Manufacturers: subject to compliance with requirements, provide products by one of the following:

3.03 INSTALLATION OF JOINT SEALERS

sealant movement capability.

3.04 CLEANING

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

1. Elastomeric sealant standard: ASTM C 962.

A. Comply with joint sealer manufacturers' printed installation instructions applicable to products and

B. Installation of sealant backings: install joint fillers of type indicated to provide support of sealants

nstalled sealants relative to joint widths which allow optimum sealant movement capability.

during application and at position required to produce the cross sectional shapes and depths of

C. Installation of sealants: install sealants by proven techniaues that result in sealants directly contacting

D. Tooling of nonsag seglants; immediately after seglant application and prior to time skinning or curing

pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants

begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air

from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent

1. Provide concave joint configuration per figure 6a in ASTM C 962, unless otherwise indicated.

and providing uniform, cross sectional shapes and depths relative to joint widths which allow optimum

and fully wetting joint substrates, completely filling recesses provided for each joint configurations

applications indicated, except where more stringent requirements apply.

1. For exterior joints: provide appropriate "elastomeric" sealant.

surfaces or are not approved by sealant manufacturer.

08111 - STANDARD STEEL DOORS AND FRAMES

doors, frames, and integral accessories.

E. Provide factory primed doors and frames to be field painted.

Steel Doors and Frames" ANSI/SDI-100 and as herein specified.

(insulated) applications.

1.02 SUBMITTALS

1.03 QUALITY ASSURANCE

PART 2 - PRODUCTS

the following:

2. Ceco Corp.

aalvanized frames.

aalvanized steel faces.

Fabricate frames with mitered, coped, or welded corners.

2. Form exterior frames from 16 gauge galvanized steel.

Comply with ANSI/SDI -100 requirements.

minimum 16 gauge inverted steel channels.

the Door and Hardware Institute.

PART 3 - EXECUTION

3.01 INSTALLATION

cold rolled steel.

2.05 FABRICATION

screws and bolts.

2.03 DOORS

2.02 MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

1. Amweld Building Products, Inc.

3. Steelcraft Manufacturing Co.

A60 or G60 coating designation, mill phosphatized.

- 1. AFCO Products, Inc. 2. Celotex Corporation
- 3. International Permalite/Roofing Components Group.
- 4. Manville/Roofing Systems Division (#EJ-4).
- 5. York Manufacturing, Inc.
- 2.04 WARRANTY
- A. All sheetmetal and flashings to have a 2 year material and workmanship warranty.
- PART 3 EXECUTION
- 3.01 INSTALLATION REQUIREMENTS
- A. Comply with manufacturer's installation instructions and recommendations and with SMACNA "Architectural Sheet Metal Manual" except as otherwise indicated. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof
- B. Install realets to receive counter flashing in a manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division 3 sections Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of ivision 4 sections.
- C. Install counter flashing in reglets, either by snap-in seal arrangement or by welding in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure
- D. Nail flanges of expansion joint units to curb nailers, at maximum spacing of 6 inches o.c. fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof
- END OF SECTION
- <u>07901 JOINT SEALANTS</u>
- PART 1 GENERAL
- 1.01 SUMMARY
- A. This section includes provisions and procedures governing the furnishing and installation of joint sealers for the following locations:
- 1. Exterior joints in vertical surfaces
- Non-traffic horizontal surfaces as indicated below a. Joints between different materials listed above.
- b. Perimeter joints between materials listed above and frames of doors and windows. c. Other joints as indicated.
- 1.02 SYSTEM PERFORMANCES
- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.
- 1.03 PROJECT CONDITIONS
- A. Joint width conditions: do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- B. Joint substrate conditions: do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.
- PART 2 PRODUCTS
- 2.01 MATERIALS. GENERAL
- A. Compatibility: provide joint sealers, joint filers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors: provide color of exposed joint sealers as selected to match adjacent materials from manufacturer's standard colors.
- 2.02 ELASTOMERIC JOINT SEALANTS
- A. Elastomeric sealant standard: ASTM C 920. Subject to compliance with requirements, provide one o the following:
- 1. One part nonsag urethane sealant for use nt:
- a. "Dynatrol L"; Pecora Corp.
- b. "Sonolastic NP 1"; Sonneborn Building Products Div. c. "Dymonic"; Tremco Inc.
- 2. One part pourable urethane sealant for use T:
- a. "NR 201 Urexpan"; Pecora Corp. b. "Sonolastic SL 1"; Sonneborn Building Products Div.
- 3. Butyl polyisobutylene tape sealant:
- a. "Extru Seal Tape"; Pecora Corp.
- b. "Shim Seal Tape"; Pecora Corp.
- c. "PTI 606"; Protective Treatments, Inc d. Tremco 440 Tape"; Tremco Inc.
- 2.03 JOINT SEALANT BACKING
- A. Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic foam joint fillers: preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing plastic foam of material indicated below, nonabsorbent to water and as: and of size. shape and density to control sealant depth and otherwise contribute to producing optimum sealan erformance. Either open cell polvurethane foam or closed cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer, for cold applied sealants only.
- C. Elastomeric tubing joint fillers: neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 Deg F (-15 Deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- D. Bond breaker tape: polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inferable joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self adhesive tape where applicable.
- 2.04 MISCELLANEOUS MATERIALS
- A. Primer: provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer substrate tests
- B. Cleaners for nonporous surfaces: provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.
- C. Masking tape: provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.
- PART 3 EXECUTION 3.01 FXAMINATION

3.02 PREPARATION

recommendations of joint sealer manufacturers.

bond, do not allow spillage or migration onto adjoining surfaces.

A. Examine joints indicated to receive joint sealers, with installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

A. Surface cleaning of joints: clean out joints immediately before installing joint sealers to comply with

manufacturer based on preconstruction joint sealer substrate tests or prior experience. Apply primer

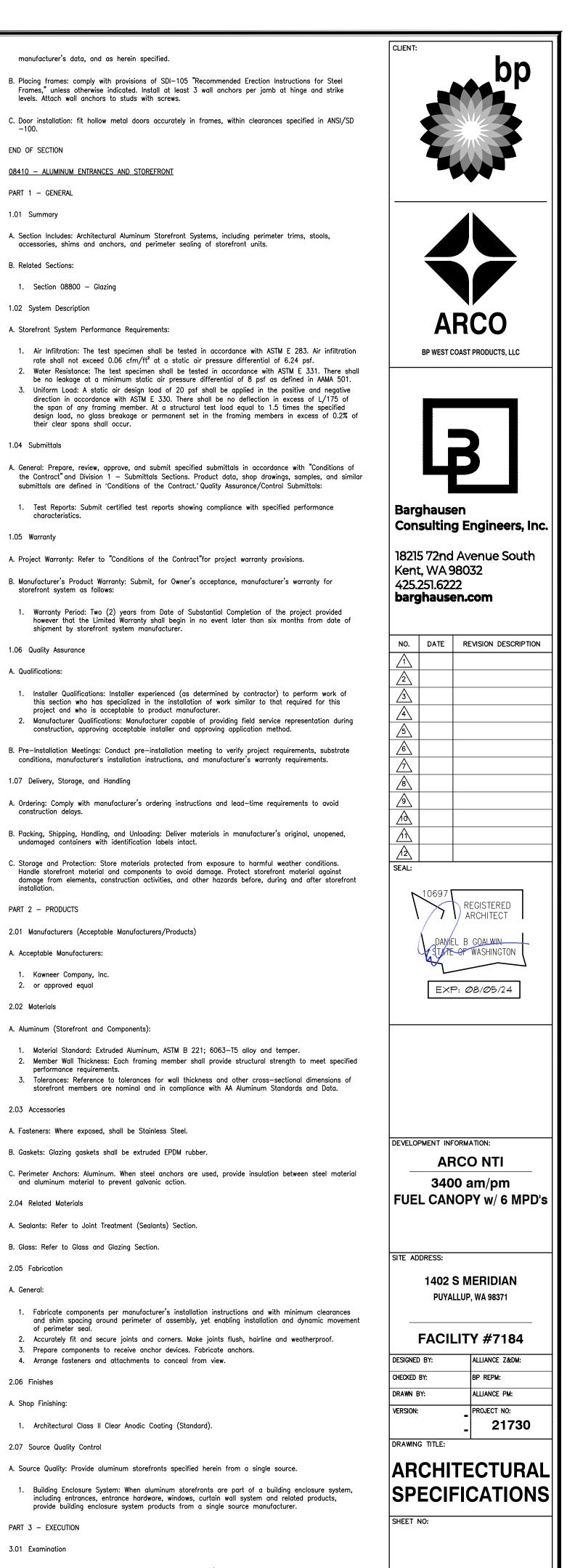
. Masking tape: use masking tape where required to prevent contact of sealant with adjoining surfaces

required to remove sealant smears. Remove tape immediately after tooling without disturbing joint

which otherwise would be permanently stained or damaged by such contact or by cleaning methods

to comply with joint sealer manufacturer s recommendations. Confine primers to areas of joint sealer

B. Joint primina: prime joint substrates where indicated or where recommended by joint sealer



**A7.**4

1.02 System Description A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and A. Storefront System Performance Requirements: with cleaning materials approved by manufacturers of joint sealers and of products in which joints their clear spans shall occur. 1.04 Submittals A. This section includes provisions and procedures governing the furnishing and installation of steel B. Doors: seamless, hollow or composite construction standard steel doors. C. Frames: pressed steel frames and interior glazed panels of welded unit type. characteristics. D. Assemblies: provide standard steel door and frame assemblies as required for thermal rated 1.05 Warranty storefront system as follows A. Product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes. shipment by storefront system manufacturer. A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard 1.06 Quality Assurance A. Qualifications A. Available manufacturers: subject to compliance with reauirements, manufacturers offering standard steel doors and frames which may be incorporated in the work include; but are not limited to 1.07 Delivery, Storage, and Handling construction delays. A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A undamaged containers with identification labels intact B. Galvanized steel sheets: zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, or drawing quality, ASTM A 642, hot dipped galvanized in accordance with ASTM A 525, with C. Supports and anchors: fabricate of not less than 18-gauge sheet steel; galvanized where used with installation PART 2 - PRODUCTS D. Inserts, bolts, and fasteners: manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize in compliance with ASTM A 153, class C or C as applicable. 2.01 Manufacturers (Acceptable Manufacturers/Products) F. Shop applied primer paint: rust—inhibitive enamel or paint, either air drving or baking, suitable as a A. Acceptable Manufacturers base for specified finish paints complying with ANSI a224.1, test procedure and acceptance criteria for prime painted steel surfaces for steel doors and frames." apply after fabrication. 1. Kawneer Company, Inc. 2. or approved equal 2.02 Materials A. Provide metal doors of SDI grades and models specified below or as indicated on Drawings or A. Aluminum (Storefront and Components): 1. Exterior doors: ANSI/SDI 100, Grade III, extra heavy duty, model 4, minimum 16 gauge B. Provide metal frames for doors and other openings, of types and styles as shown on Drawings and performance requirements. schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 18 gauge 2.03 Accessories A. Fasteners: Where exposed, shall be Stainless Steel C. Plaster guards: provide minimum 26 gauge steel plaster guards or mortar boxes at back of hardware B. Gaskets: Glazing gaskets shall be extruded EPDM rubber. and aluminum material to prevent galvanic action. A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that 2.04 Related Materials cannot be permanently factory-assembled before shipment, to assure proper assembly at project site.

manufacturer's data, and as herein specified.

END OF SECTION

PART 1 - GENERAL

B. Related Sections:

1. Section 08800 - Glazing

1.01 Summary

1. Clearances: not more than 1/8 inch at jambs and heads. Not more than 3/4 inch at bottom. B. Tolerances: comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames." C. Fabricate exterior doors, panels, and frames from galvanized sheet steel in accordance with SDI-112.

Close top and bottom edges of exterior doors as integral part of door construction or by addition of D. Exposed fasteners: unless otherwise indicated, provide countersunk flat or oval heads for exposed

E. Thermally rated (insulating) assemblies: at exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C 236 or ASTM C 976 on fully operable door assemblies.

1. Provide thermally rated assemblies with u factor of 0.41 BTU/(hr x sq ft x deg F) or better F. Hardware preparation: prepare doors and frames to receive mortised and concealed hardware in accordance with final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI a115 series specifications for door and frame preparation for

Locate hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames," published by

H. Shop painting: clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

Glazing stops: minimum 20 gauge steel. Provide non-removable stops on secure side of interior panels. Provide screw applied removable glazing beads on inside of glass panels.

> A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive storefront system and sill plate is level in accordance with manufacturer's acceptable tolerances.

B. Glass: Refer to Glass and Glazing Section.

of perimeter seal.

2.05 Fabrication

2.06 Finishes

A. Shop Finishing:

2.07 Source Quality Control

PART 3 - EXECUTION

3.01 Examination

A. General:

08410 - ALUMINUM ENTRANCES AND STOREFRONT, PART 3 - EXECUTION (CONTINUED) 1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show

recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays 3.02 Installation

A. General: Install storefront systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.

1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points. 2. Weathertight Construction: Install sill members and other members in a bed of sealant or with joint filler o gaskets, to provide weathertight construction. Coordinate installation with wall flashings and other components of

#### **B** Related Products Installation Requirements

Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sealants) Section.

a. Refer to Division 7 Joint Treatments (Sealants) for installation requirements.

C. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

2. Glass: Refer to Division 8 Glass And Glazing Section.

- 3.03 Field Quality Control
- A. Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
- Testing: Testing shall be performed by a qualified independent testing agency. Refer to Division 1 Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
- a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft<sup>2</sup>, whichever is greater. b. Water Penetration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.24 psf.
- B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions

#### 3.04 Protection and Cleaning

- A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum storefront system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.
- B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of

#### END OF SECTION

08710 - FINISH HARDWARE

### PART 1 – GENERAL

1.01 SUMMAR

A. Furnish labor and material to complete hardware work indicated, as specified herein, or as may be required by actual conditions at building

#### B. The work in this section shall include the furnishing of all items of finish hardware as herein after specified or necessary to complete the building, except those items which are specifically excluded from this section of the specification. label indicating fire door to be equipped with fire exit hardware and provide UL label on exit device indicating "fire exit hardware"

1.03 SUBMITTALS

- A. Provide product data for each type of product shown in the Door Hardware Schedule.
- B. Where multiple models, finishes or other descriptive information is indicated on the contractor's product submittal, indicate which items shown are to be provided.
- C. The finish hardware supplier shall prepare and submit to the Architect four (4) copies of a complete schedule identifying each door and each set number, following the door numbering system. Supplier shall submit the schedule for review, make corrections as directed and submit the corrected schedule for final approval. Approv of schedule will not relieve Contractor of the responsibilities for furnishing all necessary hardware, and correct

#### 1.04 JOB CONDITIONS

- A. Coordination: coordinate hardware with other work. Tag each item or package separately with identification related to the final hardware schedule and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and simil requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations for installation.
- B. Templates: furnish hardware templates to each fabricator of doors, frames, and other work to be ry—prepared for the installation of hardware. Coordinate with the shop drawings of other work to confi that adequate provisions are made for the proper installation of hardware.

### PART 2 - PRODUCTS

- 2.01 MATERIALS AND FABRICATION
- A. Fasteners: provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- B. Furnish all necessary screws, bolts, expansion shields and other devices, as required for proper hardware installation. The hardware supplier shall assume all responsibility for correct quantities.
- C. Provide phillips flat head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
- D. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

#### 2.02 MANUFACTURERS

- A. Provide the products indicated in the Door Hardware Schedule.
- 1. Screws: provide Phillips flat head screws complying with the following requirements: a. For metal doors and frames install machine screws into drilled and tapped hole. b. For wood doors and frames install wood screws.
- c. Finish screw heads to match surface of hinges or pivots. Hinge pins: except as otherwise indicated, provide hinge pins as follows:
- a. Out-swing exterior doors: non-removable pins.
- b. Out-swing corridor doors with locks: non-removable pins. c. Interior doors: non-rising pins
- Tips: flat button and matching plug, finished to match leaves. 4. Number of hinges: provide number of hinges indicated but not less than 3 hinges per door leaf for doors 9 inches or less in height and one additional hinge for each 30 inches of additional height.

#### 2.03 LOCK CYLINDERS AND KEYING

A. Provide the products indicated in the Door Hardware Schedule

- B. Standard system: except as otherwise indicated, provide new master key system for project. Review the keying system with the Owner and provide the type required.
- 1. Equipment locks with manufacturer's special 5-pin tumbler cylinder with construction master key feature that permits voiding of construction keys without cylinder removal.
- C. Key material: provide keys of nickel silver only.
- D. Key quantity furnish 2 change keys for each lock, 4 master keys for each master system. Stamp all permanent master keys with key set number and "do not duplicate". Identify permanent keys in envelopes and send directly to Owner by registered mail.
- 2.04 LOCKS, LATCHES, AND BOLTS
- A. Provide the products indicated in the Door Hardware Schedule.
- B. Strikes: provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.
- Provide flat lip strikes for locks with 3-piece, anti-friction latch bolts as recommended by manufacturer.
- C. Lock throw provide 1/2 inch minimum throw of latch for bored and pre-assembled types of locks and 3/4 inch minimum throw of latch for mortise locks. Provide 1 inch minimum throw for all dead bolts 2.05 DOOR CLOSERS

### A. Provide the products indicated in the Door Hardware Schedule

2.06 TRIM AND PLATES

- A. Provide the products indicated in the Door Hardware Schedule
- B. Countersink holes and furnish S.S screws
- 2.07 WEATHERSTRIPING
- A. Provide Weatherstriping which is durable and appropriate for the location and use.

#### 2.08 THRESHOLDS

- A. Provide the products indicated in the Door Hardware Schedule
- B. Thresholds shall be supplied at all exterior doors and other locations shown on the door schedule, or as called

### 2.09 EXIT DEVICES

for on the drawings

A. All devices shall be in types and functions specified in the Door Hardware Schedule. All devices must be listed under "Panic Hardware" in accident equipment list of Underwriters Laboratories. All labeled doors with "Fire Exit Hardware" must have labels attached and be in strict accordance with UL. 2.10 DOOR STOPS

- B. Door stops shall be furnished for all doors to prevent damage to doors or hardware from striking adjacent walls
- 2.12 HARDWARE FINISHES
- A. Provide the finishes indicated in the Door Hardware Schedule.

A. Provide the products indicated in the Door Hardware Schedule.

- B. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- D. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

# PART 3 - EXECUTION

the substrates involved.

3.01 INSTALLATION

- A. Mount hardware units at heights indicated in following applicable publications except as specifically indicated or required to comply with governing regulations and except as otherwise directed by the Architect.
- 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 sections. Do not install surface mounted items until finishes have been completed on
- C. Set units level plumb, and true to line and location. Adjust and reinforce the attachment substitute as necessary for proper installation and operation
- D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards
- E. Set thresholds for exterior doors in full bed of butyl rubber or polyisobutylene mastic sealant.
- F. Weatherstripping and seals: comply with manufacturer's instructions and recommendations

NWWDA industry standard I.S.1.7, "Hardware Locations for Wood Flush Doors."

3.02 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

#### Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating

B. Clean adjacent surfaces soiled by hardware installation.

C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

END OF SECTION

<u>08716 – AUTOMATIC DOOR</u>

PART 1 – GENERAL 1.01 SECTION INCLUDES

#### A. Automatic bi-parting sliding door operator is overhead concealed, electro-mechanical microprocessor controlled manufactured by Besam Inc. Local certified Besam distributor to perform installation. Besam Program Module to be used by installer during installation. For the name and number of your local Besam distributor contact the

- factory at (800) 752-9290 or (609) 443-5800. B. Related Sections
- Section 08410 Aluminum entrances and storefronts
- Section 08710 Door hardware
- Division 1600 Electrical Section 08800 — Glazing

#### 5. Section 07910 - Joint Sealants

1.04 SUBMITTALS

manufacturer's standard data.

1.06 QUALITY ASSURANCE

1.07 QUALIFICATIONS

1.08 WARRANTY

Besam's warranty certificate

PART 2 PRODUCTS

2.01 MANUFACTURER

2.02 EQUIPMENT

1.05 OPERATION AND MAINTENANCE DATA

1.02 REFERENCES - (Codes & Approvals)

#### A. Unit described complies with current ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian

Doors. Unit is listed with ANSI/UL 325-1997 standard for Door, Drapery, Gate, Louver, and Window Operators

- 1.03 PERFORMANCE REQUIREMENTS
- A. Automatic door equipment accommodates medium to heavy pedestrian traffic and up to the following weights for active leaf doors: 175 pound (80 kg) for bi-part.
- B. Motion and presence detection system capable of operations within 20°F (-28°C) and 125°F (52°C), and is unaffected by ambient light or ultrasonic frequencies.
- C. Manufacturer has tested bi-parting sliding door operator at full load for over 4,000,000 cycles.

A. Product Data: Submit manufacturer's product data and standard details for automatic doors.

A. Spare parts list and owners manual are available from the manufacture

outside contractors or answering services will not be accepted.

National Standard for Power Operated Pedestrian Doors and local applicable codes.

ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian Doors.

D. Standard bi-parting door package header capable of spanning 15'0" (4572mm) without intermediate supports. For packages without transom over 15'0" (4572mm), provide two equally spaced supports. For packages with transom over 15'0" (4572mm), provide sag rods through transom.

B. Shop Drawings: Submit shop drawings for the fabrication and installation of automatic door, sidelites, operators

and associated components of the work. Include anchors, hardware and other components not included in

A. Local certified Besam distributor to install operator in accordance with current ANSI/BHMA 156.10 American

A. Company specializing in manufacturing the products specified in this section shall have minimum ten years'

placing door(s) in operation, an AAADM technician should inspect the doors for compliance with current

experience and be a member of the American Association of Automatic Door Manufacturers (AAADM). Prior to

B. Manufacturer to provide FACTORY owned central dispatch system for warranty service throughout North America.

A. Besam's automatic door components are warranted to be free of defects in materials or workmanship under

normal use for a period of one year from the date of shipment from Besam's factory when the components

have been installed by an authorized Besam distributor. Abuse, misuse, modification or improper repair or service

workmanship if any necessary return charges are prepaid. Components repaired or replaced under this warranty are warranted only for the remainder of the period covered by this warranty. For expanded warranty terms see

A. Provide Series SL 500 automatic overhead concealed, fixed sidelites, medium stile, bi—parting sliding door system as manufactured by Besam, Inc. Hightstown, N.J. 08520. Perform installation by the local certified Besam

A. SL 500 overhead operator automatic bi-parting sliding door package consisting of:

by unauthorized technicians negates this warranty. During the period of this warranty Besam, at its sole option, will repair or replace any Besam automatic door component or parts thereof found to be defective in material or

System to be available 24 hours a day, 365 days per year with a factory employee (not an answering service

to obtain malfunction information and dispatch appropriate service agency to the customer location. Toll free

1-800-95-BESAM to be prominently displayed on header of each operator. To insure quality service dispatching,

#### Aluminum frames, with sidelites and active door leafs. Bi-parting door operator with microprocessor electronic controls.

Operator housing, door carriers.

2.03 AUTOMATIC SLIDING DOOR PACKAGE

A. Operator

C. Operation and Safety:

B. Motion Sense

door closing cycle.

2.06 FINISHES

PART 3 EXECUTION

3.01 EXAMINATION

END OF SECTION

<u>08800 - GLAZING</u>

1.01 SUMMARY

Window units.

Vision lites.

1.03 SUBMITTALS

1.04 QUALITY ASSURANCE

Operating unit is a microprocessor control and electro-mechanical operator. The unit consists of a 1/8 hp, DC motor and a mechanical drive assembly. The microprocessor system automatically defines and sets the opening and closing speeds and checks of the door system. Mechanical limit switches will not be accepted. The control includes an adjustable time delay (1 to 30 seconds). Software incorporates a self diagnosing system for easy serviceability. Microprocessor control capable of accepting options such as electric locks, battery back-up units, etc. without the need for additional control mechanisms (such as, relays, power supplies, etc.).

B. Aluminum Frames and Door:

luminum frames and doors for the Besam system fabricated of 6063-T5 alloy. Header capable of spanning 15'0" (4572mm) without intermediate supports. With header in place, doors are height of 82 3/4" (2102mm). Vertical jambs are 1 3/4" (44mm) x 4 1/2" (114mm) extruded aluminum. The header is 8 1/4"W (206mm) 7"H (178mm) and incorporates a hinge point which locks cover in place or allows access for adjustments. Doo leaf fabrication is narrow (or medium) stile extrusions. Extrusion used for exterior glass stops to be non-removable security type glazing bead to prevent unauthorized entry.

Automatic sliding doors shall be powered by means of an electric motor and mechanical gear assembly transmitted to the active leaf(s) by a fiberalass reinforced tooth drive belt. Signals received by the motor from actuation controls shall power the door(s) to the open position. The opening cycle shall be slowed by means of

nicroprocessor generated signal that electronically reduces voltage to the motor. The doors shall then complete the opening at slow speed until the door encounters the mechanical stop. The door(s) are powered closed after remaining in the open position for the pre-set time delay. The door(s return at the normal closing speed until they encounter a signal from the microprocessor at which point, speed is reduced, slowing the doors to creep speed until they reach the fully closed position.

EMERGENCY BREAKAWAY: The system shall be equipped with emergency release hardware which allows for the active leaf(s) to swing out in the direction of earess. On active leaf(s) only packages, the exterior active leaf(s) shall swing out 90 degrees from any position. Breakaway pressure shall be field adjustable to local Building Code requirements, but will be factory set at 50 pounds maximum in accordance with current ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian Doors.

4. WATCHDOG MONITORING: Microprocessor software is designed to constantly monitor system operations. Should door(s) speed, motor function or operations deviate from design criteria ranges, the Watchdog control circuit assumes command of the system and shuts down the automatic function by holding door(s) open. A secondar supervisory circuit monitors the main Watchdog control circuit every 255 door cycles, ready to perform as a backup. 2.04 MOTION SENSOR CONTROL DEVICE

A. Activating Devices:

Automatic swinging door package is equipped with a doorway monitoring system to control door opening, closing and hold open functions. The system is center-mounted above the doorway threshold on both sides of the automatic swinging door header and provides both motion and presence detection. The automatic door equipment contains an additional integral sensing device that automatically reverse the door(s) should an obstruction be encountered during the closing cycle, returning the door(s) to the full open position. When an obstruction is encountered in the opening cycle, the door comes to a complete stop.

Built into the sensing system is an adjustable motion detection field running the complete width of the doorway (max. 84" [2134mm]) and up to 60" (1524mm) out from the doorway. C. Presence Detection

The presence zone runs the complete width of the door opening (max. 84") and extends up to 24" on either side of the active leaf. The system shall detect motionless people or equivalent. The detector remains energized and monitors the doorway at all times. The presence detection zone shall not be turned off before or during the

Microprocessor software controlling presence detection is programmed to provide a 'learn mode' so that self—adjustment to changes in floor conditions will be made automatically. The entire system will not be false impulsed by rain, snow, or frost and complies with current ANSI/BHMA 156.10 American National Standard for Power Derated Pedestrian Doors for detection field sizes and function. Functions are de—activated through the Besarr position switch system when doors are not in use.

#### 2.05 ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Electrical Characteristics: The D.C. motor shall not exceed 5 amps current draw. Electrical: dedicated 115V. 60 Hz, 10 amp incoming power with a solid earth ground connection for each automatic door package (two packages on a 20 amp circuit). Provide two low voltage 18 gauge stranded wires from automatic operator t remote (50 feet max.) activation devices (if required).

A. All exposed aluminum surfaces are clear anodized (AAC22A31), unless noted otherwise in the drawings.

A. Verify the openings are plumb and are dimensioned properly. Insure adequate support has been provided at the operator header. Proceed with the installation only after conditions are deemed satisfactory. 3.02 INSTALLATION & ADJUSTMENT

A. Install equipment in accordance with manufactures installation instructions. Adjust equipment per instructions and current ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian Doors.

PART 1 – GENERAL

A. This section includes glazing for the following products including those specified in other sections where glazing requirements are specified by reference to this section:

#### Entrances and other doors

1.02 SYSTEM PERFORMANCE REQUIREMENTS

A. Glass design: glass thicknesses indicated on drawings are for detailing only. Contractor is to confirm glass thickness by analyzing project loads and in-service conditions. Provide glass lites for the various size openings in the thickness and strength (annealed or heat-treated) to meet or exceed the following criteria: Minimum glass thickness, nominally, of lites in exterior walls is 6.0 mm (0.23 inch).

B. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sly heat loss.

1. Temperature change (range): 120 deg F(67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

A. Product data for each glass product and glazing material indicated.

A. Glazing publications: comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this section or in referenced standards.

1. FGMA publications: "FGMA Glazing Manual." Sigma publications: TM-3000 "Vertical Glazing Guidelines".

B. Safety glass: products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials. Provide safety glass permanently marked with certification label of safety glazing certification council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

C. Insulating glass certification program: provide insulating glass units permanently marked either on spacers or at least one component lite of units with appropriate certification label of Insulating Glass Certification Council (IGCC). PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Available products: subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the products specifie 2.02 PRIMARY FLOAT GLASS PRODUCTS

A. Float glass: ASTM C 1036, Type I (transparent glass, flat), class as indicated below, and quality (glazing select),

B. Refer to requirements for sealed insulating glass units for performance characteristics of assembled units composed of clear glass, coated or uncoated, relative to visible light transmittance, U-values, shading coefficient, and visible reflectance.

2.03 HEAT-TREATED (TEMPERED) FLOAT GLASS

A. Uncoated, clear, heat-treated float glass: ASTM C 1048, condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 (clear), quality (glazing select), kind FT (fully tempered) unless otherwise indicated.

B. Uncoated, clear, heat-treated float glass: ASTM C 1048, condition A (uncoated surfaces), Type I (transparent glass, flat), Class 2 (clear heat-absorbing and light-reducing), guality Q3 (glazing select), performance characteristics for 6.0-mm t hick (0.23-inch thick) glass matching those indicated for annealed primary float alass; kind as indicated C. Manufacturers: subject to compliance with requirements, provide heat-treated glass by one of the following

AFG Industries, Inc. 2. Cardinal IG.

Tempglass.

- Falconer Glass Industries
- Guardian Industries Corp. . PPG Industries, Inc
- 2.04 INSULATING GLASS PRODUCTS
- A. Sealed insulating glass units: preassembled units consisting of organically sealed lites of glass separated by dehydrated air spaces complying with ASTM E774 and with other requirements indicated.

For properties of individual glass lites making up units, refer to requirements specified previously, applicable to types, classes, kinds, and conditions of glass products comprising lites of insulating glass units. 2. U-values are expressed as BTU/hour x sq. ft. x deg F.

2.04 FURRING AND LATHING

C. Color pigment: mineral oxide type, color as shown on the Drawings.

C. Underlayment: asphalt saturated no. 30 felt. non-perforated.

D. Water: clean, fresh, potable and free of mineral or organic matter which can affect plaster.

A. Metal lath at walls ASTM C847; flat diamond self furring mesh, galvanized, 2.5 lb/yd. Of weight to suit

B. Metal lath at soffits ASTM C847; flat diamond non-furred and non-backed mesh, galvanized, 3.4 lb/yd.

2.05 ELASTOMERIC GLAZING SEALANTS

A. Compatibility: select glazing sealants and tapes of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.

B. Suitability: comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installatio

C. Colors: provide color of exposed joint sealants selected to match adjacent materials from manufacturer's full range of standard colors for products of type indicated.

D. Elastomeric alazing sealant standard: ASTM C 920.

2.06 GLAZING TAPES

A. Products: subject to compliance with requirements, provide one of the following:

Back-bedding mastic glazing tape without spacer rod: a. PTI 303 alazina tape (without shim). Protective Treatments. Inc.

b. Tremco 440 Tape, Tremco Inc Back-bedding mastic glazing tape with spacer rod:

a. PTI 303 glazing tape (with shim), Protective Treatments, Inc. b. Pre-shimmed Tremco 440 Tape, Tremco, Inc.

2.07 GLAZING GASKETS

A. Dense compression gaskets: molded or extruded gaskets of material selected by installer, compatible with adjacent materials and complying with applicable standards of elastomer, and of profile and hardness required to maintain watertight seal.

B. Soft compression gaskets: extruded or molded closed cell integrally skinned gaskets of material selected by installer, compatible with adjacent materials, and complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal.

C. Manufacturers: subject to compliance with requirements, provide products by one of the following companies.

Advanced Elastomer Systems, L.P. 2. Tremco, Inc.

2.08 MISCELLANEOUS GLAZING MATERIALS

- A. General: provide products of material, size, and shape complying with referenced glazing standard, requirements of B. Portland cement plaster system (stucco) nanufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, primers and sealers: type recommended by sealant or gasket manufacturer

C. Setting blocks: elastomeric material with a shore a durometer hardness of 85 plus or minus 5.

D. Spacers: elastomeric blocks or continuous extrusions with a shore a durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated

- E. Edge blocks: elastomeric material of hardness needed to limit glass lateral movement (side-walking)
- Plastic foam joint fillers: preformed, compressible, resilient, nonstaining, nonextruding, nonoutgassing, strips of closed-cell plastic foam of density, size, and shape to control sealant depth and otherwise contribute to produce optimum sealant performance.

2.09 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

PART 3 - EXECUTION

during installation.

3.01 GLAZING, GENERAL

A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publicat

B. Glazing channel dimensions as indicated on drawings provide necessary bite on glass, minimum edge and face , and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by project cond

C. Protect glass from edge damage during handling and installation as follows:

1. Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label. 2. Remove damaged glass from project site and legally dispose of off site. Damaged glass is glass with edge

damage or other imperfections that, when installed, weaken glass and impair performance and appearance. D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction

E. Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard,

unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass sizes larger than 50 united inches (length plus height)

sealant-substrate testina.

<u>09200 – GYPSUM DRYWALL</u>

PART 1 - GENERAL

END OF SECTION

1.01 WORK INCLUDED

A. Interior walls of wood studs or metal studs and avosum board

B. Suspended interior gypsum board ceilings and soffits

C. Acoustical insulation in gypsum board walls.

D. Install all blocking concealed in gypsum board walls as required for items which require blocking.

1.02 QUALITY ASSURANCE

A. Requirements, abbreviations and acronyms for reference standards are defined in section 01090

B. GA-GA-216 recommended specifications for the application and finishing of gypsum board

C. ASTM C754 - installation of steel framing members to receive screw-attached gypsum wallboard, backing board, or water-resistant backing board

Standard gypsum board: square cut ends, tapered edges; maximum permissible lengths; thickness as indicated

2. Fire rated gypsum board: USG's Firecode "C" or Gold Bond's "Fire Shield", maximum permissible lengths;

3. Moisture-resistant gypsum board: chemically treated multi-layered face and back paper and water-resistan

B. Screws: Self-drilling, self-tapping, type "S". Sizes are recommended by gypsum board manufacturer for wall

"DensShield" for 1/2" thickness and Georgia-Pacific "DensShield" "firestop" type "X" for 5/8" thickness

Tile backer board: maximum permissible lengths, thickness and indicated on the drawings. Georgia-Pacific

D. S HH-I-521D- installation blankets, thermal mineral fiber for ambient temperatures.

tapered edges, type "X" thickness as indicated on drawings.

gypsum core; maximum permissible lengths; thickness as indicated on drawings.

A. Provide gypsum wallboard accessories in accordance with Gypsum Association GA-216.

PART 2 - PRODUCTS

2.01 GYPSUM BOARD

A. Provide gypsum wallboard materials in accordance with recommendations of GA-216.

B. Acceptable manufacturers

U.S. Gypsum National Gypsum

3. Georgia Pacific

on drawings

C. Interior avpsum board

2.02 GYPSUM BOARD ACCESSORIES

and ceiling applications

C. For interior work:

	lengths; expanded metal flanges, with square edges.
<ol> <li>Corner beads: Galvanized steel with paper tape wings, 1-3/4" wide.</li> <li>Edge trim: Galvanized metal.</li> </ol>	E. Corner bead formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with bullnosed edge.
<ol> <li>Reinforcing tape, joint compound, adhesive, water, fasteners: in accordance with gypsum association GA-216.</li> <li>PART 3 - EXECUTION</li> </ol>	F. Base screed formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible
3.01 INSTALLATION OF FRAMING FOR GYPSUM BOARD CEILINGS	lengths; expanded metal flanges, with beveled edge. G. Corner mesh formed zinc minimum 26 gage thick; expanded flanges shaped to permit complete embedding in
A. Coordinate locations of hangers with other work.	plaster; minimum 2 inches wide; galvanized finish.
B. Install ceiling furring independent of walls, columns, and above ceiling work.	H. Anchorage methods nails, staples, or other approved metal supports, of type and size to suit application, galvanized to rigidly secure lath and associated metal accessories in place.
C. Space main carrying channels at maximum 48" on center, not more than 6" from perimeter walls. Lap splices minimum 12" and secure together 2" from each end of splice.	2.05 CEMENT PLASTER MIXES
D. Place furring channels perpendicular to carrying channels at spacings indicated on drawings not more than 12" from perimeter walls. Lap splices 8" and secure together 1" from each end of splice.	A. Proportion and mix cement plaster in accordance with PCA Plaster (stucco) Manual and ANSI A42-2-1971.
E. Reinforce openings in ceiling suspension system, which interrupt main carrying channels or furring channels, with	<ul> <li>B. Finish coat: premix in accordance with manufacturer's instructions.</li> <li>C. Mix only as much plaster as can be used prior to initial set.</li> </ul>
lateral channel bracing. Extend bracing minimum 24" past each end of openings. F. Laterally brace entire suspension system where required.	D. Add color pigments to finish coat in accordance with manufacturer's instructions. Ensure uniformity of mix and
3.02 INSTALLATION OF INTERIOR GYPSUM BOARD	coloration. E. Mix materials dry, to uniform color and consistency, before adding water.
A. Install gypsum board in accordance with recommendations of gypsum association GA-216.	F. Add air entrainment admixtures to all coats to provide 5-7 percent entrainment.
B. For non-rated walls: Erect single layer standard gypsum board in direction most practical and economical, with ends and edges occurring over firm bearing.	G. Protect mixtures from freezing, frost, contamination, and evaporation.
C. For fire rated walls:	H. Do not re-temper mixes after initial set has occurred.
<ol> <li>Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.</li> <li>For double layer applications, erect first layer vertically, with edges and ends occurring over firm bearings. Place second layer perpendicular to first layer.</li> </ol>	PART 3 - EXECUTION
3. Items built into fire rated walls (i.e. fire extinguisher cabinets) shall be "boxed" in or enclosed with the same construction as the rated wan.	3.01 EXAMINATION A. Verify surfaces and site conditions are ready to receive work under this section.
D. Treat cut edges and holes in moisture resistant gypsum board with sealant.	B. Masonry: verify joints are cut flush and surface is ready to receive work of this section. Verify no bituminous or
E. Corner beads: Place at outside corners. Use longest practical lengths. Place edge trim where gypsum board abuts dissimilar materials.	water repellent coatings exist on masonry surface.
F. Tape, fill and sand joints, edges, corners, openings and fixings, to produce surface ready to receive surface finishes. Feather—coat onto adjacent surfaces so that camber is a maximum 1/16 inch.	A. Dampen masonry surfaces to reduce excessive suction.
END OF SECTION	3.03 INSTALLATION - LATHING MATERIALS
	A. Apply one ply of felt underlayment over substrate; weather lap edges 4 inches minimum. Fasten in place.
<u>09220 – PORTLAND CEMENT PLASTER (STUCCO)</u> PART 1 – GENERAL	B. Apply metal lath taut, with long dimension perpendicular to supports.
1.01 SECTION INCLUDES	C. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.
A. Metal furring and lathing.	D. Lap sides of diamond mesh lath a minimum 1-1/2 inches. E. Attach metal lath to supports using fastening method recommended by manufacturer to suit back-up material.
B. Portland cement plaster system (stucco)	F. All openings, plaster edges or where plaster edges terminate against dissimilar materials, provide plaster screeds.
C. Smooth and special rendered surface finish.	Use vented screed at perimeter.
1.02 RELATED SECTIONS	A. Continuously reinforce internal angles with corner mesh, return metal lath 3 inches from corner to form the angle
A. Unit Masonry: Section 04200 B. Rough Carpentry: Section 06100	reinforcement; fasten at perimeter edges only.
C. Joint Sealants: Section 07901	<ul> <li>B. Place corner bead at external wall corners; fasten at outer edges of lath only.</li> <li>C. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.</li> </ul>
D. Gypsum Drywall: Section 09200	D. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in
E. Tile: Section 09300	place. E. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.
1.03 REFERENCES	3.05 PLASTERING
A. ASTM C150 - portland cement.	A. Apply Portland cement plaster (stucco) in a three-coat application over metal lath with thickness not less than 7/0° is leasting as indicated as derivers.
B. ASTM C206 - finishing hydrated lime. C. ASTM C631 - bonding compounds for interior plastering.	<ul><li>7/8" in locations as indicated on drawings. Scratch, brown and finish coat shall be applied as follows:</li><li>1. First (scratch) coat: shall be applied to metal reinforcement with sufficient material and pressure so that it is</li></ul>
D. ASTM C897 — aggregate for job—mixed portland cement based plasters.	shoved through the metal reinforcement to completely embed the reinforcement. a. Thickness of scratch coat shall be approximately 3/8". Before scratch coat has hardened, it shall be evenly scratched with a standard scratcher to provide good mechanical key for the second or brown coat.
E. PCA (Portland Cement Association) — plaster (stucco) manual.	<ol> <li>Scratch ed with a standard scratcher to provide good mechanical key for the second of brown coat.</li> <li>Scratch coat shall be continuously moist cured for not less than 48 hours after application.</li> <li>Second (brown) coat: shall be applied not sooner than 48 hours after application of scratch coat. Before</li> </ol>
1.04 SYSTEM DESCRIPTION	applying the brown coat, the surfaces of scratch coat shall be dampened evenly to obtain uniform suction. a. Thickness of brown coat shall be a minimum of 3/8" total thickness and shall be applied in two applications or coats, one immediately following the other.
A. Fabricate vertical elements to limit finish surface to 1/180 deflection under lateral point load of 100 lbs.	<ul> <li>b. Surface shall be brought to a true, even surface by floating or rodding and left rough, ready to receive finish coat.</li> </ul>
B. Fabricate horizontal elements to limit finish surface to 1/240 deflection under superimposed dead load and wind uplift loads.	<ul> <li>c. Brown coat shall be continuously moist for 48 hours after application and then allowed to dry.</li> <li>Finish coat of cement plaster work shall be laid out to permit completion of an entire surface in one operation. If this is impracticable, the plastering shall be carried to some natural breaking point as approved by the</li> </ul>
1.05 SUBMITTALS	Owner. a. Finish coat shall be applied not sooner than 7 days after the application of preceding coat. Before applying finish coat, the surface of preceding coat shall be dampened evenly to obtain uniform suction.
A. Submit under provisions of Section 01300 Submittals.	3.06 TOLERANCES
<ul> <li>B. Product data: provide data on plaster materials, characteristics and limitations of products specified.</li> <li>C. Samples: submit two samples, 12 x 12 inch in size illustrating finish color and texture.</li> </ul>	A. Maximum variation from true flatness: 1/8 inch in 10 feet.
1.06 QUALITY ASSURANCE	3.07 CLEAN-UP
1. Perform work in accordance with PCA Plaster (stucco) Manual.	A. Upon completion of the work of this section, remove related debris from premises.
1.07 QUALIFICATIONS	END OF SECTION
A. Applicator: company specializing in performing the work of this section with minimum three years' experience and/or approved by manufacturer.	<u>09250 METAL SUPPORT ASSEMBLIES</u> PART 1 - GENERAL
1.08 MOCKUP	1.01 SUMMARY
A. Provide mockup of plaster system with accessories.	A. Section includes: Formed metal stud framing, furring, and accessories as shown on drawings and as specified.
B. Construct mockup, 4 feet long by 4 feet wide, illustrating surface finish and color.	1.02 QUALITY ASSURANCE
C. Locate where directed. D. Mockup may remain as part of the work.	
	A. Perform work in accordance with ASTM C 754 requirements.
1.09 ENVIRONMENTAL REQUIREMENTS	PART 2 - PRODUCTS
1.09 ENVIRONMENTAL REQUIREMENTS A. Do not apply plaster when substrate or ambient air temperature is less than 50 degrees F or anticipated to drop	
1.09 ENVIRONMENTAL REQUIREMENTS	<ul> <li>PART 2 - PRODUCTS</li> <li>2.01 MANUFACTURERS</li> <li>A. Furnish products of one of the following manufacturers, except as approved by the Client representative, subject to compliance with specification requirements:</li> <li>1. American Studco Inc.</li> </ul>
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B. Verify that conditions are ready to receive work, field measurements are as shown on drawinas, and that

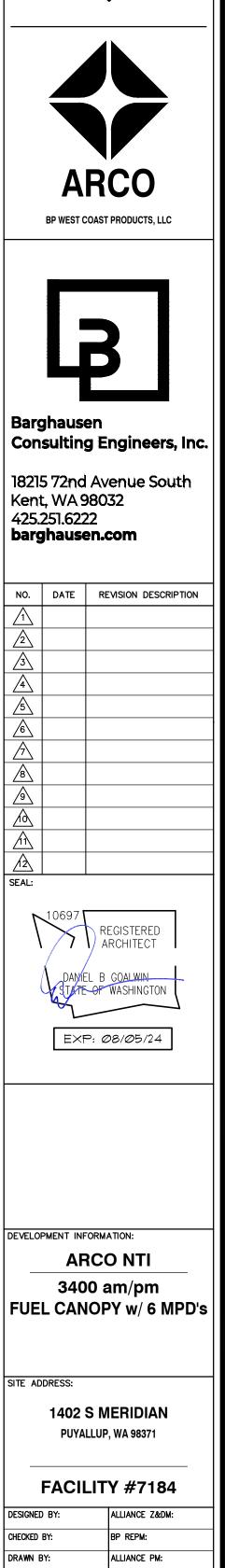
B. Align and secure top and bottom runners to substrate at 24 inches (600mm) o.c.

rough-in utilities are in proper location

3.02 METAL STUD ERECTION

C. Beginning of installation means acceptance of substrate.

A. Install stud framing in accordance with ASTM C 754.



bp

A7.5

ARCHITECTURA

SPECIFICATIONS

PROJECT NO:

21730

VERSION

DRAWING TITLE:

SHEET NO:

D. Casing bead formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible

- 09250 METAL SUPPORT ASSEMBLIES, PART 3 EXECUTION (CONTINUED)
- C. Fit runners under and above openings; secure intermediate studs at spacing of wall studs.
- D. Install studs vertically at 16 inches (400mm) O.C.; unless indicated otherwise on drawings. Install felt strips between wall and stud where studs abut exterior walls.
- E. Connect studs to tracks using fastener method.
- F. Door opening framing: Install double studs at doorframe jambs. Install stud tracks on each side of opening, at frame head height, and between studs and adjacent studs.
- E. Backing and blocking: Provide backing and blocking attached to studs. Bolt or screw steel channels to studs. Install backing and blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, and hardware.
- F. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work placed in or behind partition framina.
- G. Splice studs with 8 inch (200mm) nested lap, secure each stud flange with flush head screw.
- H. Construct corners using minimum three studs.
- I. Brace stud—framing system and make rigid.
- J. Coordinate erection of studs with requirements of door and window frame supports and attachments.
- K. Alian stud web openings.
- .. Refer to drawings for indication of partitions extending to ceiling only and for partitions extending through ceiling to structure above. Maintain clearance under structural building members to avoid deflection transfer to study. Provide nested extended leg ceiling runners or proprietary slip track.
- M. Coordinate placement of insulation in multiple stud spaces made inaccessible after stud framing erection.

3.03 WALL FURRING INSTALLATION

- A. Erect wall furring for direct attachment to concrete, brick masonry and concrete walls.
- B. Erect furring channels vertically. Secure in place to substrate on alternate channel flanges at maximum 24 inches (600mm).
- C. Space furring channels maximum 16 inches (400mm) on centers.
- D. Install furring channels directly attached to concrete and brick masonry and concrete walls, as applicable in accordance with manufacturer's instructions.
- END OF SECTION

<u>09300 – TILE</u>

- PART 1 GENERAL
- 1.01 SUMMARY
- A. This section includes the following:
- 1. Wall tile 2. Floor tile.
- 1.02 SUBMITTALS
- A. General: submit the following in accordance with conditions of contract and Division 1 specification sections.
- B. Product data for each type of product specified.
- C. Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces. 1. Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordingte them with tile joint locations.
- D. Samples for initial selection purposes in form of manufacturer's color chart consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.
- E. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected. . Each type and composition of tile and for each color and texture required, at least 12 inches
- square, mounted on plywood or hardboard backing and grouted. 2. Full size units of each type of trim and accessory for each color required
- F. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and installer.
- G. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.
- 1.03 QUALITY ASSURANCE
- A. Single source responsibility for tile: obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.
- B. Single source responsibility for setting and grouting materials: obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Installer qualifications: engage an experienced installer who has successfully completed tile installations similar in material, design, and extent to that indicated for project.
- D. Provide master grade certificate for all materials used.
- 1.04 PROJECT CONDITIONS
- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at 50 deg F (10 deg C:) or more in tiled areas during installation and for 7
- days after completion
- PART 2 PRODUCTS
- 2.01 MANUFACTURERS
- A. Tile: as listed on Drawings.
- B. Mortar bed: thinset bond coat, dry-set cementitious mortar, ANSI A118.1. C. Sill sealer: latex Portland cement mortar; ANSI A118.4, composition as follows:
- 1. Latex additive (water emulsion) of type described below, serving as replacement for part or all of gauging water, combined at job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer. 2. Latex type: manufacturer's standard.
- D. Control joint membrane: use Mapei plasti/lastic crack isolation membrane over all control joints and other floor slab gaps over 1/16"
- 2.02 PRODUCTS, GENERAL
- 09300 TILE, PART 2 PRODUCTS
- A. ANSI standard for ceramic tile: comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.
- B. ANSI standard for tile installation materials: comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- 1. Mounting: where factory mounted tile is required, provide back or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.
- 2.03 TILE PRODUCTS
- A. Wall tile: provide flat tile complying with the following requirements:
- 1. Nominal facial dimensions: as indicated on the drawings.
- 2. Nominal thickness as indicated on the drawings. 3. Face as indicated on the drawings.

- B. Trim units: provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements
- 1. Size: as indicated, coordinated with sizes and coursing of adjoining flat tile where applicable. 2. Shapes: as follows, selected from manufacturer's standard shapes:
- a. Base for thinset mortar installations: cove base with bullnos b. External corners for thinset installations: surface bullnose.
- c. Internal corners: field-butted square corners, except use covered base and cap angle pieces designed to member with stretcher shapes.
- PART 3 EXECUTION

3.01 MIXING MORTARS AND GROUT

A. Mix mortars and arouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

3.02 EXAMINATION

- A. Examine substrates and areas where the will be installed, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
- B. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
- C. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
- D. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.03 PREPARATION

A. Blending: for tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. not factory blended, either return to manufacturer or blend tiles at project site before installing.

3.04 INSTALLATION, GENERAL

- A. ANSI tile installation standard: comply with parts of ANSI 108 series of tile installation standards included under "American national standard specifications for the installation of ceramic tile" that apply to type of setting and grouting materials and methods indicated.
- B. TCA installation guidelines: TCA "handbook for ceramic tile installation"; comply with TCA installation methods indicated.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully arind cut edges of tile abutting trim, finish, or built-in items for straight glianed joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars or covers overlap tile.
- E. Jointing pattern: unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.
- 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so extent of each sheet is not apparent in finished work.
- F. Lay out tile wainscots to next full tile beyond dimensions indicated.
- G. Expansion joints: locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.

- H. Grout tile to comply with the requirements of the following installation standards:
- 1. For ceramic tile grouts (sanded Portland cement, dry-set, commercial Portland cement, and
- latex Portland cement grouts), comply with ANSI A108.10. 2. For chemical resistant epoxy grouts, comply with ANSI A108.6.

3.05 WATERPROOFING FOR THINSET TILE INSTALLATIONS

- . Install waterproofing in compliance with waterproofing manufacturer's instructions to produce c waterproof membrane of uniform thickness bonded securely to substrate.
- B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that
- it is watertight 3.06 WALL THE INSTALLATION METHODS

- A. Install types of tile designated for wall application to comply with requirements indicated below for setting bed methods, TCA installation methods related to subsurface wall conditions, and grout types:
- 1. Organic adhesive: ANSI A108.4. a. Gypsum board, interior: TCA W242. b. Grout: latex Portland cement.

3.07 CLEANING AND PROTECTION

END OF SECTION

PART 1 – GENERAL

1.02 QUALITY ASSURANCE

system (if any).

1.03 PROJECT CONDITIONS

for final occupancy.

1.04 EXTRA MATERIALS

1 01 SUMMARY

09511 - ACOUSTICAL PANEL CEILINGS

without delaying progress of the work.

properties without delaying progress of the work.

- A. Cleaning: upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
- Remove latex Portland cement grout residue from tile as soon as possible. 2. Unalazed tile may be cleaned with acid solutions only when permitted by tile and arout nanufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

B. Finished tile work: leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

- C. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of substantial completion.
- 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

A. This section includes acoustical panel ceilings installed with exposed suspension systems.

ceilings similar in material, design, and extent to those indicated for project.

A. Installer qualifications: engage an experienced installer who has successfully completed acoustical

B. Single source responsibility for ceiling units: obtain each type of acoustical ceiling unit from a single

C. Single source responsibility for suspension system: obtain each type of suspension system from a

1. Obtain suspension system from same manufacturer that produces acoustical ceiling units.

D. Coordination of work: coordinate layout and installation of acoustical ceiling units and suspension

A Space enclosure: do not install interior acoustical ceilinas until space is enclosed and weatherproof.

wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient

conditions of temperature and humidity will be continuously maintained at values near those indicated

including light fixtures, HVAC equipment, fire—suppression system components (if any), and partition

system components with other construction that penetrates ceilinas or is supported by them.

single source with resources to provide products of consistent quality in appearance and physical

source with resources to provide products of consistent quality in appearance and physical properties

#### B. Deliver extra materials to Owner. Furnish extra materials described below that match products nstalled, are packaged with protective covering for storage, and are identified with appropriate labels.

1. Acoustical ceiling units: furnish quantity of full-size units equal to 2.0 percent of amount

- 2. Exposed suspension system components: furnish quantity of each exposed component equal to 2.0 percent of amount installed
- 2.01 ACOUSTICAL CEILING UNIT

PART 2 - PRODUCTS

requirements.

- A. Standard for acoustical ceiling units: as scheduled on drawings. Ceiling tile installed in food preparation areas shall be non-water-absorbent and washable.
- 2.02 METAL SUSPENSION SYSTEMS, GENERAL
- A. Standard for metal suspension systems: provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635
- B. Finishes and colors: provide manufacturer's standard factory-applied finish for type of system
- 1. High humidity finish: comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high humidity finishes are indicated.
- C. Attachment devices: size for 5 times the design load indicated in ASTM C 635, Table 1, direct hung unless otherwise indicated
- D. Wire for hangers and ties: ASTM A 641, class 1 zinc coating, soft temper.
- 1. Gage: provide wire sized so stress at 3 times hanger design load (ASTM C 635, Table 1 direct-hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).
- E. Edae moldinas and trim: metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
- 1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension
- 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly. 3. For narrow faced suspension systems, provide suspension system manufacturer's standard edge moldings that match width and configuration of exposed runners.
- 2.03 MISCELLANEOUS MATERIALS
- A. Concealed acoustical sealant: nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant complying with requirement specified in Division 7 Section "Joint Sealers."
- PART 3 EXECUTION 3.01 EXAMINATION

member.

ceilina plans.

3.04 CLEANING

END OF SECTION

1.01 SUMMARY

iurisdiction

- ${\tt w}$  Examine substrates and structural framing to which ceiling system attaches or abuts, with installe present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.
- 3.02 PREPARATION A. Coordination: furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with eflected ceiling plans.
- 3.03 INSTALLATION A. General: install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and CISCA "Ceiling Systems Handbook."
- 1. Standard for installation of ceiling suspension systems: comply with ASTM C 636.
- B. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected
- C. Suspend ceiling hangers from building structural members and as follows:
- Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means. 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that
- interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures 4. Do not attach hangers to steel deck tabs.
- Space hangers not more than 4'-0" along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
- 1. Sealant bed: apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0'. Miter corners accurately and connect securely.
- F install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- <u>09540 FIBER REINFORCED PANELS (FRP)</u> PART 1 – GENERAL
- A. Section includes application of fiber reinforced plastic (FRP) wall panels, including trim moldings. Extent of FRP wall panels is shown on drawings.
- 1.02 QUALITY ASSURANCE
- A. Fire performance characteristics: provide FRP wall panels, with surface burning characteristics as indicated below, which have been determined by testing assemblies of identical materials and construction according to ASTM E 84 by a testing organization acceptable to authorities having
- Flame spread: 25 or less. Smoke developed: 450 or less.
- 1.03 PROJECT CONDITIONS
- A. Do not begin installation until spaces to receive FRP wall panels have been enclosed and maintained at approximately the same humidity and temperature conditions as planned for occupancy. Maintain temperature and humidity as recommended by panel manufacturer.
- PART 2 PRODUCTS

2.01 FRP WALL PANELS, GENERAL

- B. FRP panels: provide the manufacturer's standard size USDA approved, mold and mildew resistant panels; fabricated from fiberglass reinforced plastic, minimum thickness required for UL Class 3 fire-resistance rating, with embossed surface and integral color.
- Manufacture a. See drawinas
- b. Or approved equal B. Accessories: provide the manufacturer's standard color matched high impact resistant PVC moldings

- to match panels
- C. Adhesives: provide manufacturer's recommended adhesive, primer, and sealer, produced expressly for use with FRP panels on substrate as shown on drawings. Provide materials which are mildew-resistant and nonstaining.
- PART 3 EXECUTION
- 3.01 INSTALLATION
- A. Install FRP wall panels in locations indicated with vertical surfaces and edges plumb, top edges level, and in alignment with other panels, scribed to fit adjoining work accurately at borders and at penetrations. Comply with panel manufacturer's printed instructions for installation of panels using type of mounting accessories as recommended by manufacturer. 1. Cut units to be at least 50 percent of unit width. Butt joints tightly.
- B. Anchor paneling to supporting substrate with adhesive; install splined-connection strips and similar associated trim to comply with manufacturer's recommendations. Do not face nail unless otherwise
- C. Remove and replace panels which are damaged and are unacceptable to Architect.
- END OF SECTION
- <u>09650 RESILIENT FLOORING</u>
- PART 1 GENERAL
- 1.01 DESCRIPTION
- A. This section includes inspection and surface preparation of substrate and installation of resilient floor finish materials.
- 1.02 SUBMITTALS
- A. Submit manufacturer's product data, installation instructions, and maintenance instructions.
- B. Submit three 6"x6" samples to Architect or Construction Project manager for color, pattern, and texture confirmation.
- 1.03 PROJECT/SITE CONDITIONS
- N. Store delivered materials in a dry conditioned (minimum 70 F degree) space for a minimum of 48 hours prior to installation. Verify concrete floor slabs are cured and dry, via moisture testing, per manufacturer's directions
- PART 2 PRODUCTS
- 2.01 FLOORING MATERIAL
- A. Provide flooring material by the manufacturer, in the color, pattern, texture, and sizes as indicated on drawings.
- PART 3 EXECUTION
- 3.01 EXAMINATION AND PREPARATION OF SUBSTRATE
- A. Inspect areas where tile is to be installed. Concrete is to be dry and free of cracks, ridges, paint, curing compounds, drywall compound, dirt, and other foreign deposits whose presence would interfere with installation of flooring.
- B. Repair cracks, holes, and depressions with approved trowelable leveling compounds as required. . Test concrete substrate for moisture and bond adhesion where required per manufacturer's
- instructions.
- D. Vacuum clean all substrates to be covered with tile immediately before tile installation.
- E. Apply slab primer if recommended by flooring manufacturer, prior to applying adhesive. 3.02 INSTALLATION
- A. Install tile per manufacturer's instructions. Install tile parallel with axis of room unless otherwise
- B. Install square directional tile using "Quarter Turn" method where each tile is rotated 90 degrees from its adjoining tile, unless otherwise indicated.
- C. Adhere tiles to substrate without producing gaps, bumps, telegraphing of substrate, or other visible arities in the finished work
- D. Barricade tiled area from foot traffic for duration recommended by manufacturer.
- 3.03 CLEANING AND PROTECTING
- A. Remove visible adhesive and other surface blemishes. Do not wash floor until after interval recommended by manufacturer.
- B. Protect flooring against damage from subsequent construction foot traffic.
- END OF SECTION
- <u>09900 PAINTING</u>
- PART 1 GENERAL
- 1.01 SUMMARY
- A. This section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.
- 1. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.
- B. Paint exposed surfaces whether or not colors are designated in the drawings, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. It color or finish is not designated, the Architect will select from standard colors or finishes available.
- Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment
- C. Painting is not allowed on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels, D. "Paint" includes coatina systems materials, primers, emulsions, enamels, stains, sealers and fillers,
- and other applied materials whether used as prime, intermediate, or finish coats.
- 1.02 QUALITY ASSURANCE
- A. Single source responsibility: provide primers and undercoat paint produced by the same manufacturer
- B. Coordination of work: review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers 1. Notify the Architect of problems anticipated using the materials specified.
- C. Field samples: on wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full coat finish samples on at least 100 sq. ft. of surface until required sheen, color and texture are obtained; simulate finished lighting conditions for review of in-place work.
- 1. Final acceptance of colors will be from job-applied samples.
- D. Material auglity: provide the manufacturer's best auglity trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable
- 1.03 PROJECT CONDITIONS
- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- B. Apply solvent thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).
- C. Do not apply paint in rain, fog, or mist, when the relative humidity exceeds 85 percent, at temperatures less than 5 deg F (3 deg C) above the dew point, or to damp or wet surfaces. 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and "conditioned" within temperature limits specified by the manufacturer during application and drying periods.
- PART 2 PRODUCTS

# A. Masonry: Alkyd masonry sealer from manufacturer shown on drawings

### B. Wood: Alkyd enamel underbody from manufacturer shown on drawings

#### C. Plaster/drywall: Provide from manufacturer shown on drawings

2.01 MANUFACTURERS

2.02 PRIMERS

A. Paint manufacturer: See drawings

B. Stain manufacturer: See drawings

high-gloss alkyd enamel.

1. Zinc chromate primer

2.03 MISCELLANEOUS MATERIALS

interior wood surfaces:

PART 3 - EXECUTION

3.01 EXAMINATION

3.02 PREPARATION

primed by others.

occurs on backside

the shop coat.

directions

3.0.3 APPLICATION

from coil stock by mechanical methods.

for substrate and type of material being applied.

thickness equivalent to that of flat surfaces.

formation of a durable paint film

installation of equipment.

adhesion of the undercoat.

black paint

deterioration.

manufacturer.

materials and residue.

before using.

immediately upon delivery.

mechanical methods of surface preparation.

1. Galvanized metal latex primer.

and conditions within a particular area.

D. Alkyd-type zinc chromate primer: primers used for priming ferrous metals on the exterior under

E. Galvanized metal primer: primer used to prime interior and exterior zinc-coated (galvanized) metal

A. Paste wood filler: solvent-based, air-drying, paste-type wood filler for use on open-grain wood on

A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected. Start of painting will be construed as the applicator's acceptance of surfaces

A. General procedures: remove hardware and hardware accessories, plates, machined surfaces, liahting fixtures, and similar items in place that are not to be painted, or provide surface applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, new painted surfaces.

B. Surface preparation: clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and re-prime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates

2. Cementitious materials: prepare concrete, concrete masonry block, and cement plaster surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove alaze. If hardeners or sealers have been used to improve curing, use

a. Use abrasive blast cleaning methods if recommended by the paint manufacturer. b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that

permitted in manufacturer's printed directions. c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etchina cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, and rinse; allow to dry and vacuum before painting.

C. Wood: clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

1. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of primer. After priming, fill holes and imperfections n finish surfaces with putty or plastic wood filer. Sand smooth when dried. 2. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling

3. When transparent finish is required, backprime with spar varnish. 4. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction

5. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer PART 1 - GENERAL

D Ferrous metals: clean populatized ferrous metal surfaces that have not been shop coated; remove oil, arease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.

1. Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC SP 10. 2. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before

3. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as

E. Galvanized surfaces: clean galvanized surfaces with non-petroleum based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated

F. Materials preparation: carefully mix and prepare paint materials in accordance with manufacturer's

1. Maintain containers used in mixing and application of paint in a clean condition, free of foreign 2. Stir material before application to produce a mixture of uniform density stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material

3. Use only thinners approved by the paint manufacturer, and only within recommended limits. . Tinting: tint each undercoat a lighter shade to facilitate identification of each coat where multiple

coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited

A. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to

1. Provide finish coats that are compatible with primers used 2. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even

smooth surface in accordance with the manufacturer's directions 3. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film

4. The term "exposed surfaces" includes areas visible when permanent or built—in fixtures, connector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired

5. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final 6. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular

7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces. 8. Finish interior of wall and base cabinets and similar field-finished casework to match exterior. 9. Finish exterior doors on tops, bottoms, and side edges same as exterior faces. 10. Sand lightly between each succeeding enamel or varnish coat.

11. Omit primer on metal surfaces that have been shop-primed and touch up painted.

B. Scheduling painting: apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface

1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of

D. Minimum coating thickness: apply materials at not less than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire system as recommended by the

. Mechanical and electrical work: painting mechanical and electrical work is limited to items exposed in D. Baby changer: Contractor furnished and installed. mechanical equipment rooms and in occupied spaces.

F. Prime coats: before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing. G. Stipple enamel finish: roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.

H. Pigmented (opaque) finishes: completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

I. Transparent (clear) finishes: use multiple coats to produce a glass smooth surface film of even Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections

J. Completed work: match approved samples for color. Texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

3.04 FIELD QUALITY CONTROL

1. Provide satin finish for final coats.

A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:

B. The Owner will engage the services of an independent testing laboratory to sample the paint material being used. Samples of material delivered to the project will be taken, identified, sealed, and certified in the presence of the Contractor.

C. The testing laboratory will perform appropriate tests for the following characteristics as required by

1.	Quantitative	materials	analysis
2.	Abrasion res	sistance.	

- 3. Apparent reflectivity. 4. Flexibility.
- 5. Washability.
- 6. Absorption. Accelerated weathering.
- 8. Dry opacity. 9. Accelerated yellowness
- 10. Recoating. 11. Shining
- 12. Color retention. 13. Alkali and mildew resistance
- D. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are noncompatible.

3.05 CLEANING

A. Cleanup: at the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

B. Upon completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

3.06 PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

B. Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.07 SCHEDULED PAINTING

A. Provide painting as scheduled in architectural drawings.

END OF SECTION

<u>10800 - TOILET ACCESSORIES</u>

A. This section includes toilet accessory items scheduled and indicated on the drawings

1.02 PROJECT CONDITIONS

A. Coordination: Coordinate accessory locations, installation and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning and servicing of toilet accessory items.

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturers: subject to compliance with requirements, toilet accessories are as scheduled and detailed on the Drawings.

2.02 FABRICATION

PART 2 - PRODUCTS

A. Surface mounted toilet accessories, general: except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

B. Recessed toilet accessories, general: except where otherwise indicated, fabricate units of all welded construction, without mitered corners. Hana doors or access panels with full-length stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.

C. Framed mirror units, general: fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamper proof glass installation and prevent accumulation of moisture, as follows:

1. Provide galvanized steel backing sheet, not less than 22 gauge (.034 inch) and full mirror size, with non-absorptive filler material. Corrugated cardboard is not an acceptable filler material. D. Mirror unit hangers: provide system of mounting mirror units that will Pin it rigid, tamper-proof, and

theft proof installation, as follows:

1. One-piece galvanized steel wall hanger device with spring action locking mechanism to hold mirror unit in position with no exposed screws or bolts. PART 3 - EXECUTION

3.01 INSTALLATION

A. Install toilet accessory units in accordance with manufacturers' instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.

B. Secure mirrors to walls in concealed, tamper-proof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, in accordance with manufacturer's instructions for type of substrate involved

C. Provide backing plates and anchors for grab bars as required by wall construction, to withstand a downward load of at least 250 LBF, complying with ASTM F 446 3.02 ADJUSTING AND CLEANING

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.

B. Clean and polish all exposed surfaces in strict accordance with manufacturer's recommendations after removing temporary labels and protective coating.

3.03 SCHEDULE OF ACCESSORIES

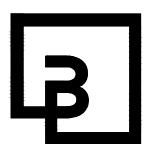
- A. Toilet tissue dispenser: Contractor furnished and installed.
- B. Soap dispenser: Contractor furnished and installed

C. Recessed paper towel dispenser and waste receptacle: Contractor furnished and installed.

END OF SECTION

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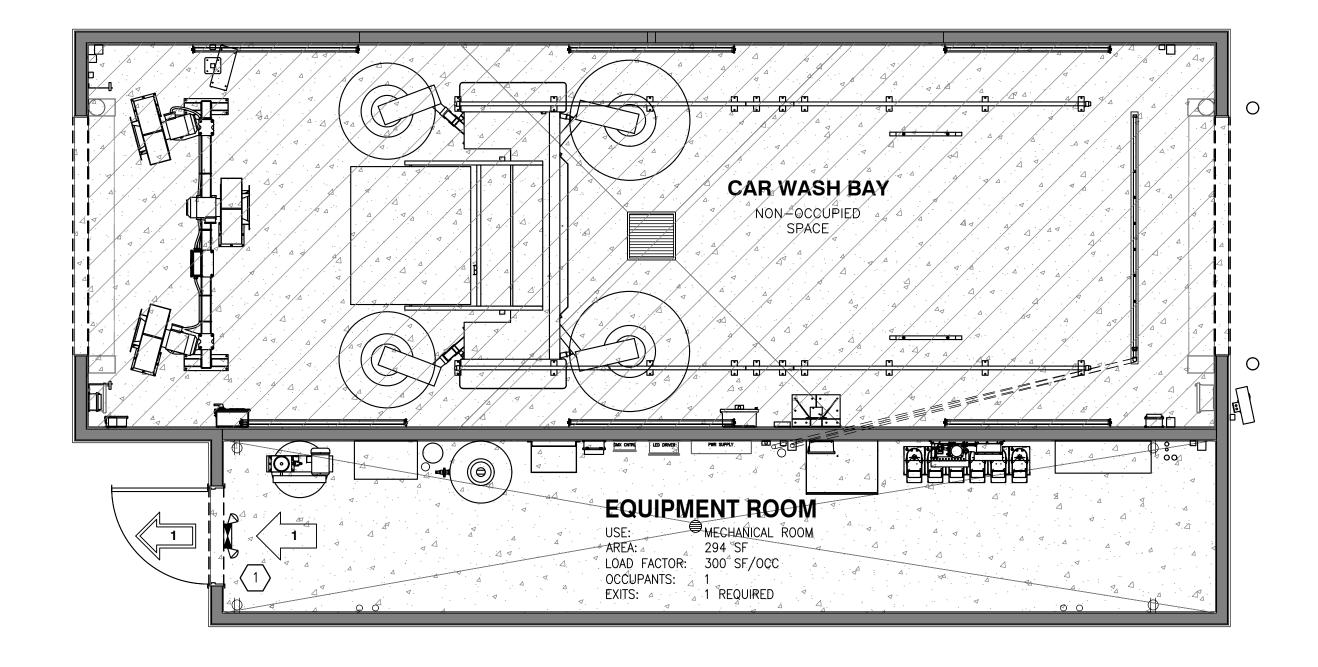




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FUE	AF 340 L CAN DRESS: 1402 PUYA	RCO NTI 00 am/pm IOPY w/ 6 MPD's S MERIDIAN
FUE	AF 340 L CAN DRESS: 1402 PUYA FACII	RCO NTI 0 am/pm IOPY w/ 6 MPD's S MERIDIAN LLUP, WA 98371
FUE	AF 340 L CAN DORESS: 1402 PUYA FACII	RCO NTI 0 am/pm 10PY w/ 6 MPD's S MERIDIAN LLUP, WA 98371
FUE	AF 340 L CAN DRESS: 1402 PUYA FACII	RCO NTI 00 am/pm 10PY w/ 6 MPD's S MERIDIAN LLUP, WA 98371
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**CONSTRUCTION FLOOR PLAN** - / SCALE: 1/4"=1'−0"

[]

### **CODE INFORMATION:**

#### APPLICABLE CODES:

2018 INTERNATIONAL BUILDING CODE W/WASHINGTON STATE AMENDMENTS 2018 INTERNATIONAL MECHANICAL CODE W/WASHINGTON STATE AMENDMENTS 2018 UNIFORM PLUMBING CODE W/WASHINGTON STATE AMENDMENTS 2018 WASHINGTON STATE ENERGY CODE ICC/ANSI A117.1 2009 ACCESSIBILITY

#### SCOPE OF WORK:

REMODEL OF AN EXISTING BANK BUILDING INTO A CAR WASH WITH AN EQUIPMENT/MECHANICAL ROOM, A UNISEX BATHROOM, AN OFFICE AND A BREAK ROOM

USE AND OCCUPANCY CLASSIFICATION:

IBC SECTION 304.1, BUSINESS GROUP 'B' MERCANTILE GROUP 'B' INCLUDES THE USE OF A BUILDING, OR PORTION THEREOF, FOR OFFICE, PROFESSIONAL SERVICE TYPE TRANSACTIONS ETC. THESE INCLUDE A CAR WASH.

202 DEFINITION OF AN OCCUPIABLE SPACE.

ROPOSED BUIL CONSTRUCTION ISE GROUP:		CAR	<u>WASH</u> : V-B "B", BUSIN
ROPOSED BUIL	DING AR	EA:	GROUP B ( W/ THE F
			<u>CAR WASH</u> TOTAL ARE

SPRINKLERS:

### **CODE ANALYSIS:**

IBC SECTION 504.1, BUILDING HEIGHT AND NUMBER OF STORIES ALLOWABLE BUILDING HEIGHT AND NUMBER OF STORIES SHALL BE DETERMINED BASED ON THE TYPE OF CONSTRUCTION, OCCUPANCY CLASSIFICATION AND AUTOMATIC SPRINKLERS.

\* ASSUME GROUP "B", BUSINESS, WITH TYPE VB CONSTRUCTION AND NON-SPRINKLERED

IBC TABLE 504.3, ALLOWABLE BUILDING HEIGHT MAXIMUM ALLOWABLE HEIGHT, GROUP B: 40 FEET

\*PROPOSED HEIGHT: 18'-11"; COMPLIES

IBC TABLE 504.4, ALLOWABLE STORIES MAXIMUM NUMBER OF STORIES, GROUP B: 2 STORIES

\*PROPOSED STORIES: 1; COMPLIES

IBC SECTION 506.1, BUILDING AREA ALLOWABLE BUILDING AREA SHALL BE DETERMINED BASED ON THE TYPE OF CONSTRUCTION, OCCUPANCY CLASSIFICATION, AUTOMATIC SPRINKLERS AND THE AMOUNT OF BUILDING FRONTAGE ON A PUBLIC WAY.

IBC TABLE 506.2, ALLOWABLE BUILDING AREA MAXIMUM ALLOWABLE AREA, GROUP B: 9,000 SQUARE FEET

IBC SECTION 508.3, NON-SEPARATED OCCUPANCIES BUILDINGS OR PORTIONS OF BUILDINGS THAT COMPLY WITH THE PROVISIONS OF THIS SECTION SHALL BE CONSIDERED NON-SEPARATED OCCUPANCIES.

IBC SECTION 508.3.2 ACCESSIBLE BUILDING AREA, HEIGHT & STORIES THE ACCESSIBLE AREA, HEIGHT & STORIES OF THE BUILDING SHALL BE BASED ON THE MOST RESTRICTED ALLOWANCES FOR THE OCCUPANCY GROUPS CONSIDERED

IBC SECTION 508.3.3 SEPARATION NO SEPARATION IS REQUIRED BETWEEN NON-SEPARATED OCCUPANCIES

IBC SECTION 602.5, TYPE V TYPE V CONSTRUCTION IS THAT TYPE OF CONSTRUCTION IN WHICH THE STRUCTURAL ELEMENTS, EXTERIOR WALLS AND INTERIOR WALLS ARE OF ANY MATERIALS PERMITTED BY THIS CODE.

TABLE 601, FIRE RESISTANCE RATING FOR BUILDING ELEMENTS FOR TYPE V-B CONSTRUCTION IN HOURS PRIMARY STRUCTURAL FRAME: 0 EXTERIOR BEARING WALLS: 0 INTERIOR BEARING WALLS: 0 EXTERIOR NON-BEARING WALLS: SEE TABLE 602 INTERIOR NON-BEARING WALLS: 0 FLOOR CONSTRUCTION: 0 ROOF CONSTRUCTION: 0

TABLE 602, FIRE RESISTANCE FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE

DISTANCE	CONST. TYPE	OCC. GR
X<5	VB	В
5 = X <10</td <td>VB</td> <td>В</td>	VB	В
10 =X<30</td <td>VB</td> <td>В</td>	VB	В
X>/=30	VB	В

\*ALL EXTERIOR WALLS HAVE A FIRE SEPARATION DISTANCE OF AT LEAST 10'-0"

IBC TABLE 1004.5, FLOOR AREAS PER OCCUPANT SEE PLAN BELOW FOR OCCUPANCY CALCULATIONS

IBC SECTION 1006.2.1, EGRESS BASED ON OCCUPANT LOAD TWO EXITS OR EXIT ACCESS DOORWAYS SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR COMMON PATH OF EGRESS TRAVEL EXCEEDS THE VALUES IN TABLE 1006.2.1.

IBC SECTION 1008.2.1, ILLUMINATION LEVEL UNDER NORMAL POWER THE MEANS OF ILLUMINATION LEVEL SHALL NOT BE LESS THAN 1 FOOT CANDLE AT THE WALKING SURFACE.

IBC SECTION 1008.3.1, EMERGENCY POWER FOR ILLUMINATION IN THE EVENT OF POWER FAILURE, AN EMERGENCY ELECTRICAL SYSTEM SHALL ILLUMINATE THE FOLLOWING AREAS: AISLES, CORRIDORS, EXIT ACCESS STAIRWAYS AND RAMPS.

\*RESTROOMS AND WASH TUNNEL ARE NON-OCCUPIED SPACES PER SECTION

NESS

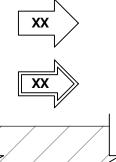
OCCUPANCY (CAR WASH FOLLOWING):

H BUILDING: 2,652 SQ. FT. EA: 2,652 SQUARE FEET NONE (NOT REQUIRED)

\*TOTAL PROPOSED BUILDING AREA: 2,652 SQUARE FEET; COMPLIES

<u>GROUP RATING</u>

## CODE PLAN LEGEND



NUMBER OF OCCUPANTS EXITING A ROOM OR SPACE CUMULATIVE NUMBER OF OCCUPANTS EXITING AN AREA OR BUILDING

- NON-OCCUPIED SPACE

### CODE PLAN KEYED NOTES

 $\langle 1 \rangle$  EMERGENCY EXIT LIGHTING PER ELECTRICAL

### **CODE ANALYSIS cont.:**

IBC SECTION 1009.1, ACCESSIBLE MEANS OF EGRESS ACCESSIBLE SPACES SHALL BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS. WHERE MORE THAN ONE MEANS OF EGRESS ARE REQUIRED, EACH ACCESSIBLE PORTION OF THE SPACE SHALL HAVE NOT LESS THAN TWO ACCESSIBLE MEANS OF EGRESS.

IBC SECTION 1010.1.1, SIZE OF DOORS THE MINIMUM WIDTH OF EACH DOOR OPENING SHALL BE SUFFICIENT FOR THE OCCUPANT LOAD AND SHALL PROVIDE A CLEAR WIDTH OF 32 INCHES MINIMUM.

IBC SECTION 1010.1.2.1, DIRECTION OF SWING DOORS SHALL SWING IN THE DIRECTION OF TRAVEL WHERE SERVING A ROOM OR AREA CONTAINING AN OCCUPANT LOAD OF 50 OR MORE PERSONS.

IBC SECTION 1010.1.9, DOOR OPERATIONS EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

IBC SECTION 1013.1, EXIT SIGNS, WHERE REQUIRED EXITS AND EXIT ACCESS DOORS SHALL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF TRAVEL.

EXCEPTION 1: EXIT SIGNS ARE NOT REQUIRED IN ROOMS OR AREAS THAT REQUIRE ONLY ONE EXIT OR EXIT ACCESS.

IBC SECTION 1013.4, RAISED CHARACTER AND BRAILLE EXIT SIGNS A SIGN STATING "EXIT" IN RAISED CHARACTERS AND BRAILLE AND COMPLYING WITH ICC ANSI A117.1 SHALL BE PROVIDED ADJACENT TO EACH EXIT DISCHARGE DOOR.

IBC SECTION 1103.2.9 EQUIPMENT SPACES SPACES FREQUENTED ONLY BY SERVICE PERSONNEL FOR MAINTENANCE, REPAIR OR OCCASIONAL MONITORING OF EQUIPMENT ARE NOT REQUIRED TO COMPLY WITH THIS CHAPTER

IBC TABLE 2902.1, MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES WATER CLOSETS OCCUPANCY

	WAILN GLUGLIG	LAVAIUNILS
	UNISEX	UNISEX
В	1/500	1/750

OCCUPANTS: B 6 OCCUPANTS

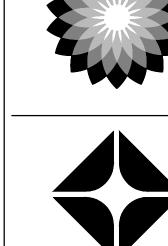
TOTAL REQUIRED PLUMBING FIXTURES: UNISEX = 1 WATER CLOSET AND 1 LAV

PLUMBING FIXTURES PROVIDED: 0 WATER CLOSET AND 0 LAV, URINAL NOT PROVIDED ADJACENT C-STORE HAS (2) UNISEX WATER CLOSETS AND (2) LAVS

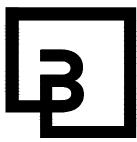
WSEC 402.1.1.2, SEMI-HEATED BUILDINGS THE CAR WASH BUILDING IS CONSIDERED SEMI-HEATED AND IS TO MEET THE REQUIREMENTS OF THIS SECTION

<u>WSEC\_C402.5.1, AIR\_BARRIER</u> A CONTINUOUS AIR BARRIER SHALL BE PROVIDED THROUGHOUT THE BUILDING THERMAL ENVELOPE (CONDITIONED SPACE)

WSEC C402.5.1.2, BUILDING TEST THE BUILDING SHALL BE TESTED AND MEET THE AIR LEAKAGE RATES REQUIRED







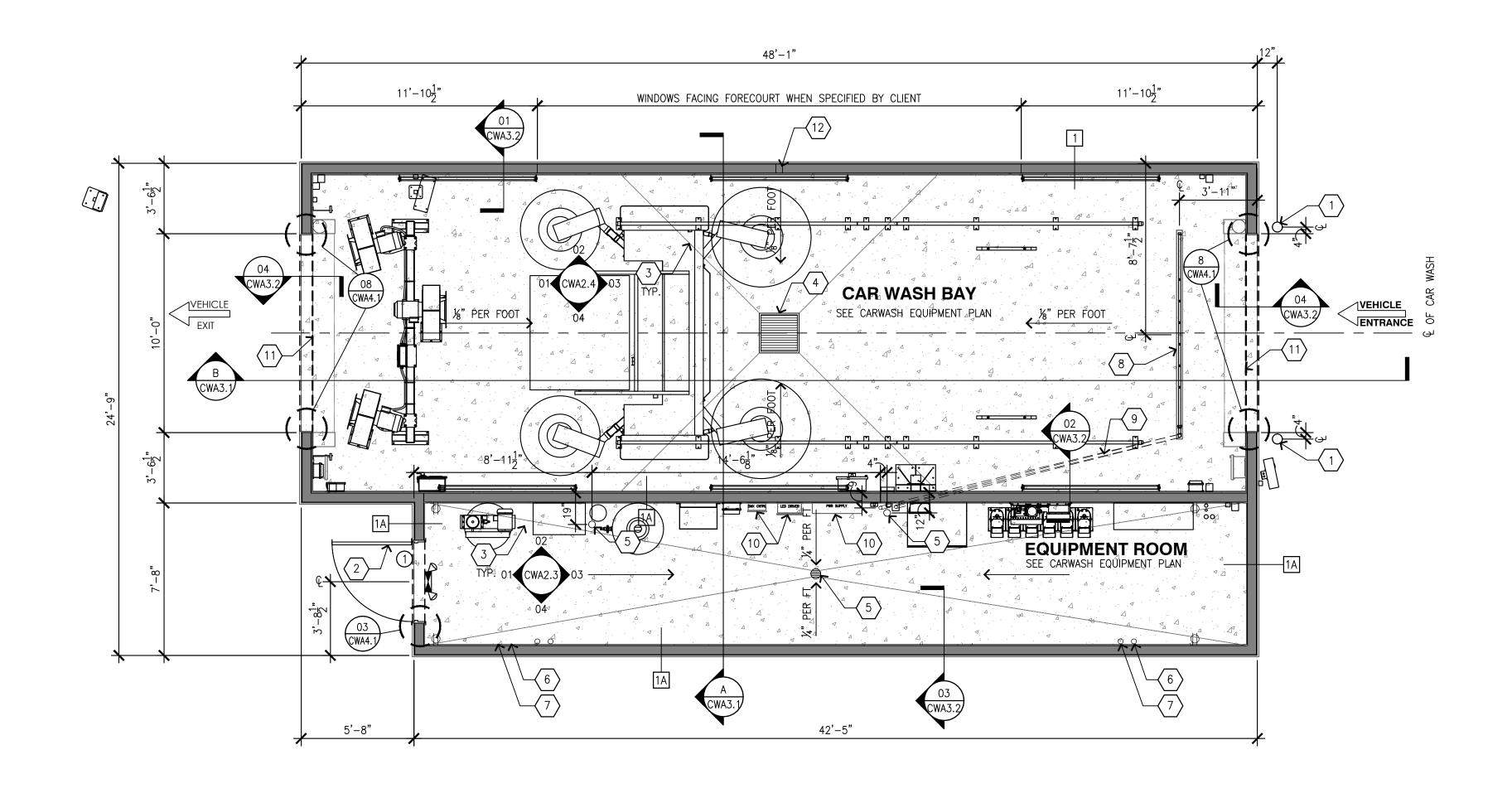
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# DOOR NOTES / HARDWARE

(1) EQUIPMENT EXTERIOR DOOR:

- 1-1/2 PAIR FULL MORTISED STAINLESS STEEL BUTT HINGES  $(4-1/2)^{*}x4-1/2^{*}$  NRP)
- (4-1/2"x4-1/2" NRP) • KICK DOWN DOOR HOLDER, HAGER 270C S1
- 12"x40" EXTERIOR STAINLESS STEEL KICK PLATE
  30"x40" INTERIOR STAINLESS STEEL KICK PLATE
- LEVER HANDLE WITH KEY OUTSIDE AND PUSH BUTTON INSIDE
  LOCKSET (ANSI F82/SCHLAGE D50BD LESS CORE, RHODES
- LEVER 625, BEST CORE W/ 625 FINISH

	DOOR SCHEDULE							
TYPE	SIZE	QTY	MFR/MODEL	MATERIAL	FRAME	RATING	HARDWARE	REMARKS
1	4'-0"x7'-0"x1-3/4"	1		18 GA. INSULATED METAL	16 GA. INSULATED METAL	N/A	1	DOOR AND FRAME FACTORY PRIMED

## CONSTRUCTION FLOOR PLAN

### **GENERAL NOTES**

- A. ALL DIMENSIONS ARE TO FACE OF PLYWOOD/FOUNDATION UNLESS NOTED OTHERWISE.B. ALL DENOTED DIMENSIONS ARE TO BE USED. PLANS SHALL NOT BE SCALED.
- C. EXTERIOR AND INTERIOR WALLS ARE 2x6, SEE STRUCTURAL PLANS FOR FRAMING REQUIREMENTS. D. REFER TO SHEET CWQ1.1 FOR THE CAR WASH EQUIPMENT PLAN AND SCHEDULE.
- E. ALL CONDUITS SHALL BE CONCEALED IN THE WALL AND TERMINATIONS SHALL BE PER THE
- DIMENSIONED PLAN AND ELEVATIONS. CONFIRM TERMINATION LOCATIONS WITH CAR WASH EQUIPMENT INSTALLER PRIOR INSTALLING THE CONDUITS.
- F. TERMINATIONS SHALL BE AT THE BACK OF SURFACE MOUNTED BOXES AND EQUIPMENT IF FEASIBLE.
- G. ALL PIPING SHALL BE CONCEALED IN THE WALL. H. ALL WALL & CEILING PENETRATIONS IN THE CAR WASH BAY SHALL BE SEALED.
- I. FLAME SPREAD CLASSIFICATIONS FOR INTERIOR WALLS SHALL COMPLY WITH LOCAL CODES.
- J. FIRE EXTINGUISHERS (2A:10B:C) SHALL BE INSTALLED AT CAR WASH BAY AND MECHANICAL ROOM. CONFIRM FINAL DETAILS WITH LOCAL FIRE INSPECTOR.

### **KEYED NOTES**

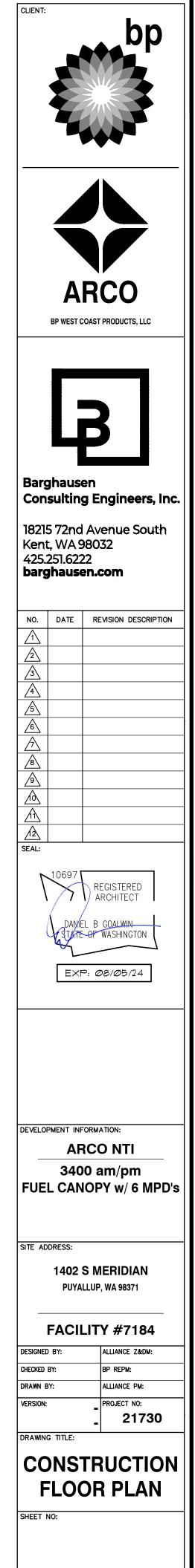
 $\left(1\right)$  6"ø x 48" high bollard filled with concrete, refer to detail on civil plans

- $\left< 2 \right>$  Equipment room door, refer to door schedule
- 3 DEPRESSED SLAB, REFER TO STRUCTURAL SLAB PLAN
- $\overline{4}$  catch basin, refer to plumbing plans
- 5 FLOOR DRAIN, REFER TO PLUMBING PLANS
- 6 ROOF DRAIN, REFER TO PLUMBING PLANS AND CIVIL PLANS FOR CONTINUATION.
- $\overline{7}$  roof overflow drain, refer to plumbing plans
- 8 3-1/2" WIDE x 1-1/2" DEEP x 10'-6" LENGTH TRENCH BY GC FOR UNDERCAR MANIFOLD, REFER TO DETAIL 12/CWA4.1 & STRUCTURAL PLANS
- MANIFOLD, REFER TO DETAIL 12/CWA4.1 & STRUCTURAL PLANS
- 9 2" ABS SCH 40 SLEEVE WITH 90 DEGREE SWEEPS AT BOTH ENDS WITH A MODULAR PIPE SEALING SYSTEM FOR THE UNDER CAR MANIFOLD HIGH PRESSURE HOSE
- $\langle 10 \rangle$  power supply, Led driver and DMX controller placed near center of bay for CABLE reach.

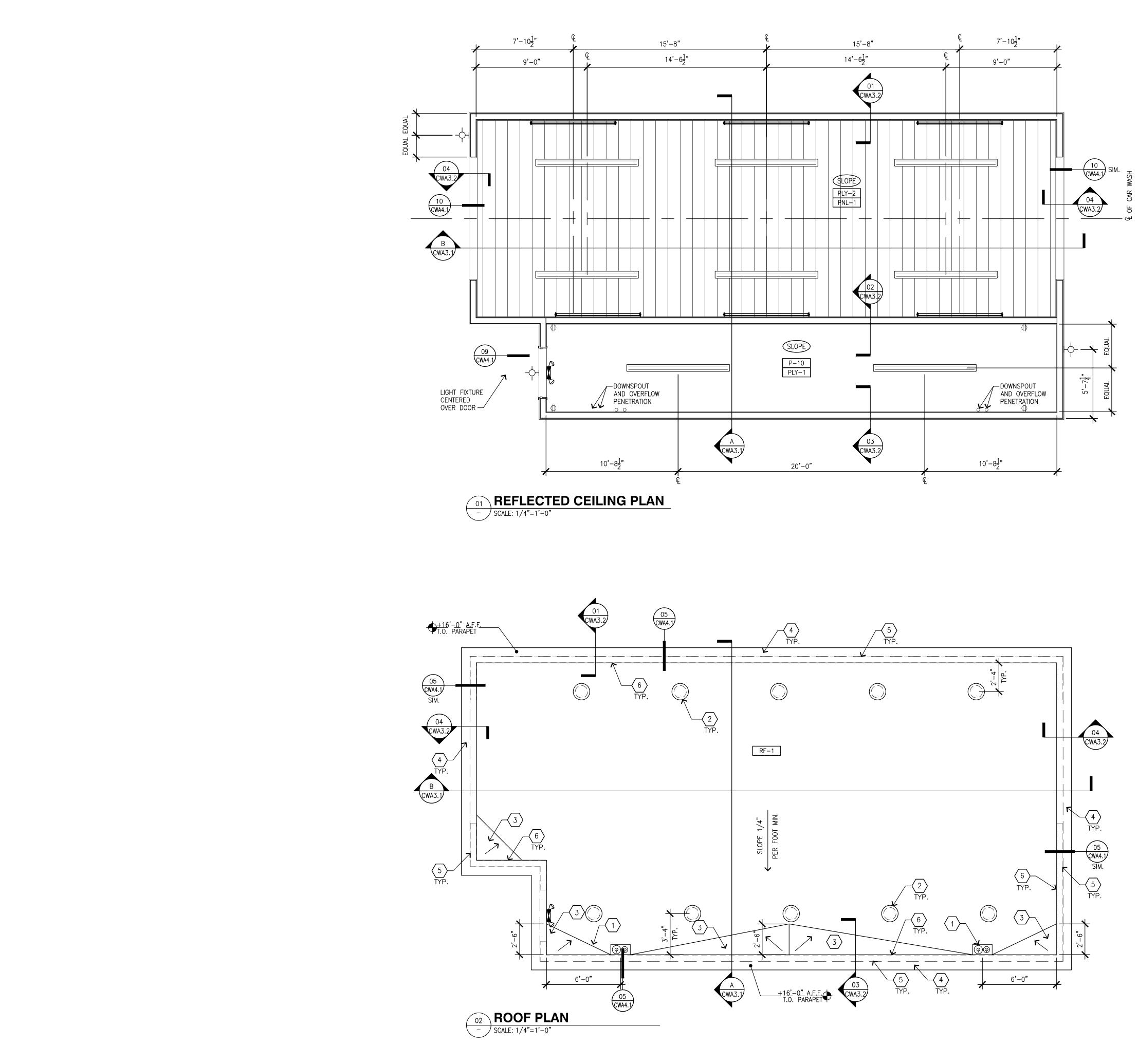
### WALL LEGEND



- 1 2x6 STUDS @ 16"o.c.
- 1A 2x6 STUDS @ 16"o.c. W/ R-21 BATT INSULATION



**CWA1.1** 



### **CEILING GENERAL NOTES**

- A. ALL DIMENSIONS SHOWN ON REFLECTED CEILING PLAN ARE FROM FACE OF PLYWOOD, UNLESS NOTED OTHERWISE.
- ALL DENOTED DIMENSIONS ARE TO BE USED. PLANS SHALL NOT BE SCALED. C. ALL CONDUITS SHALL BE CONCEALED IN THE WALL & CEILING. TERMINATIONS
- SHALL BE PER THE DIMENSIONED PLAN. LIGHT FIXTURE CONDUIT TERMINATIONS SHALL BE AT THE BACK OF THE FIXTURE.
- REFER TO ELECTRICAL LIGHTING PLAN FOR LIGHTING SPECIFICATIONS AND FIXTURE MOUNTING HEIGHTS.
- H. ALL PIPING SHALL BE CONCEALED IN THE WALL & CEILING.I. ALL WALL & CEILING PENETRATIONS IN THE CAR WASH BAY SHALL BE SEALED.
- J. REFER TO SYMBOL (X'-X'') FOR ALL CEILING HEIGHTS ON PLAN.

### **FINISH SYMBOLS**

### SUBSTRATE

- PLY-1 5%" PLYWOOD, REFER TO STRUCTURAL FOR SPECIFICATION
- PLY-2 5%" PLYWOOD (CDX), REFER TO STRUCTURAL FOR SPECIFICATION
- PNL-1 ½" EXTRUTECH PANELS, #P1300-WHITE

### PAINT COLOR

P-10 BENJAMIN MOORE, PM-28, "LINEN WHITE", SEMI-GLOSS FINISH

### **CEILING LEGEND**

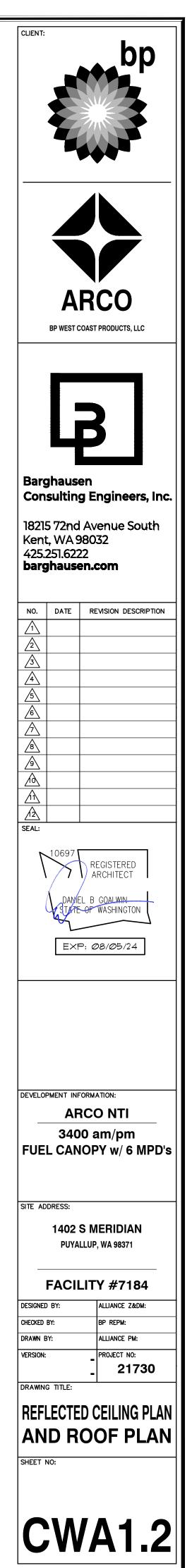
- (EM) DENOTES EMERGENCY BACKUP LIGHTING
  - LED SURFACED MOUNTED LINEAR FIXTURE
- LED WALL MOUNTED LINEAR FIXTURE
  - -OH LED EXTERIOR WALL MOUNTED FIXTURE
  - EXIT SIGN W/ EMERGENCY LIGHTING
  - $\Phi$  overhead wall receptacles

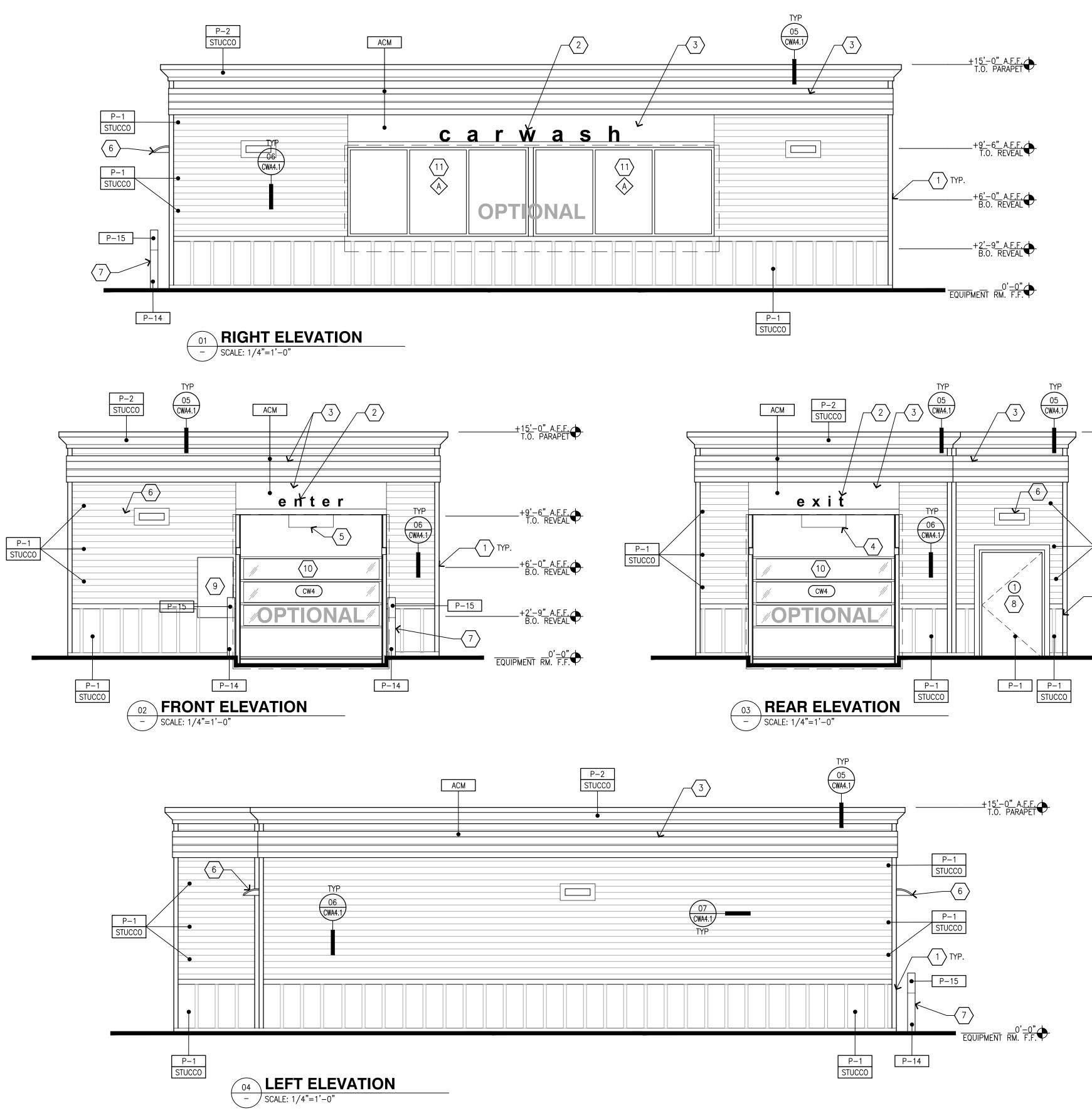
### **ROOF GENERAL NOTES**

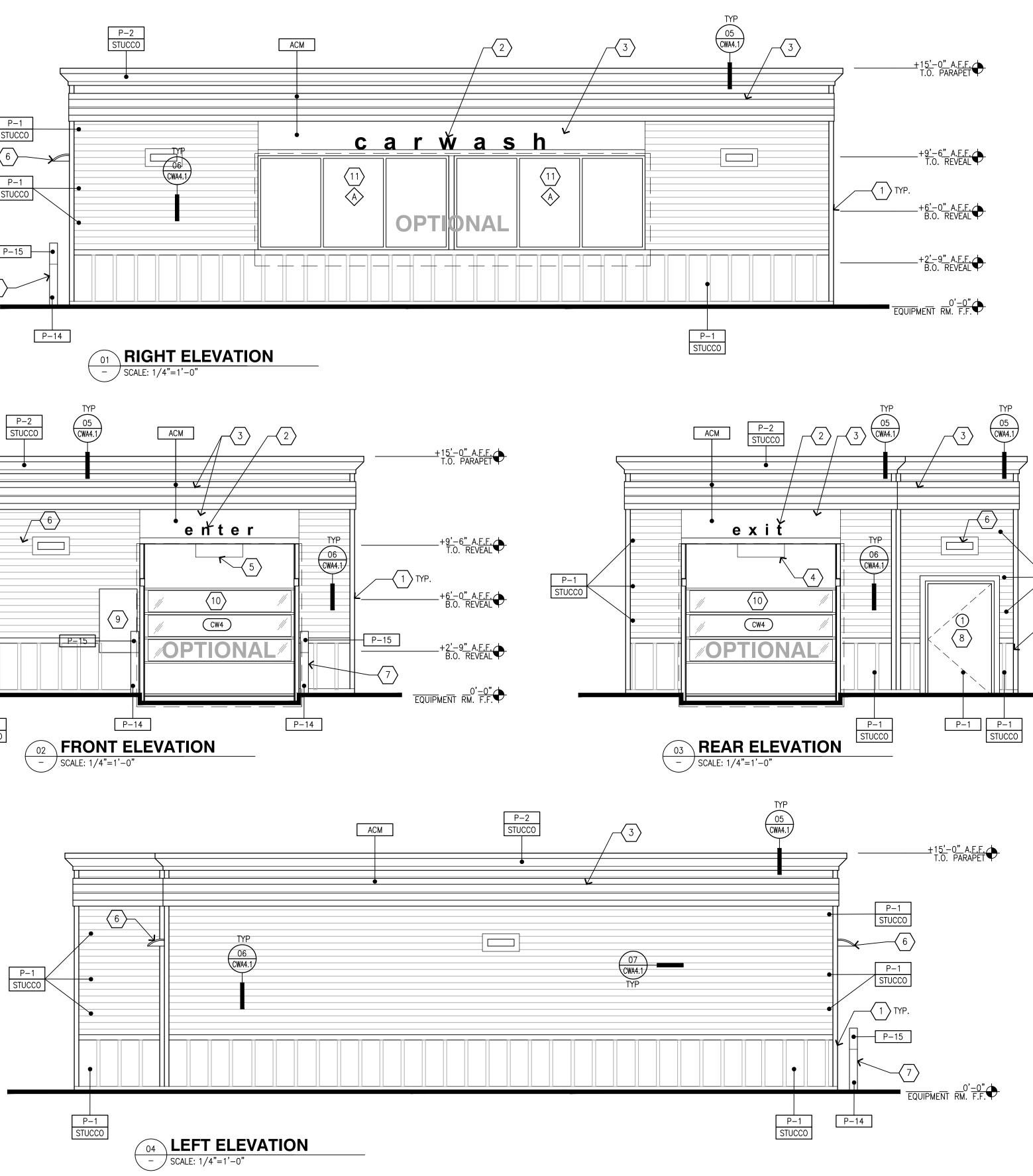
- A. REFER TO SPECIFICATIONS BOOK FOR ROOF SYSTEM, INCLUDING GUARANTEES, CURBS, FLASHING, AND ECT.
- B. REFER TO ROOFING MANUFACTURERS WRITTEN INSTRUCTIONS AND DETAILS FOR ROOFING SYSTEM INSTALLATION. CONTRACTOR TO PROVIDE COMPLETE ROOFING PACKAGE PER MANUFACTURERS RECOMMENDATIONS.
- C. ROOF ASSEMBLY SHALL COMPLY WITH U.L. I-90 AND FM CLASS "B" RATINGS INCLUDING COPING, FLASHING, PARAPET WALL, AND ROOF SYSTEM.
- D. DO NOT STOCKPILE EQUIPMENT OR MATERIALS ON THE ROOF STRUCTURE, UNLESS APPROVED IN WRITING BY THE ARCHITECT, STRUCTURAL ENGINEER, AND THE TRUSS MANUFACTURER.
- E. GENERAL CONTRACTOR IS TO PROVIDE TEMPORARY CONSTRUCTION PERIMETER GUARDRAIL TO COMPLY WITH CODE OF FEDERAL REGULATIONS 29 CFT 1926, SUBPART M (OSCA), GUARDRAIL TO BE 42" HEIGHT AND BE ABLE TO WITHSTAND 200 POUNDS AT TOP EDGE. F. ALL DIMENSIONS SHOWN ON ROOF PLAN ARE FROM FACE OF
- PLYWOOD, UNLESS NOTED OTHERWISE.
- G. REFER TO PLUMBING PLANS FOR VENT PIPE PENETRATION AND CURB DETAILS. ALL ROOF PENETRATIONS SHALL BE THROUGH THE CURBS, UNLESS NOTED OTHERWISE.

### **KEYED NOTES**

- $\langle 1 \rangle$  ROOF DRAIN AND OVERFLOW PER DETAIL 04/CWA4.1
- 2 ROOF VENT PER DETAIL 11/CWA4.1. VENTS SHALL BE
- CENTERED BETWEEN JOISTS
- $\langle 3 \rangle$  TAPERED INSULATION CRICKET @ 1" PER FOOT
- $\langle 4 \rangle$  shop formed pre-finished metal coping, refer to DETAIL 05/CWA4.1
- $\left< 5 \right>$  face of exterior wall below
- $\langle 6 \rangle$  face of parapet wall
- ROOFING
- RF-1 TPO ROOFING MEMBRANE WITH PROTECTION BOARD AND 3" EXPANDED POLYSTYRENE RIGID INSULATION







### CLIENT:





B

### **KEYED NOTES**

 $\left< 1 \right> 1$  " REVEAL

- $\left< 2 \right>$  VINYL LETTERS APPLIED TO ACM
- $\overline{3}$  VINYL DECAL APPLIED TO ACM
- $\langle 4 \rangle$  "NO ENTRY" SIGN
- 5 VOVERHEAD CLEARANCE BAR
- 6 WALL MOUNTED LED FIXTURE
- $\left(7\right)$  concrete filled bollard, refer to detail 5/cwa4.2
- $\langle 8 \rangle$  metal door & frame
- $\langle 9 \rangle$  INSTRUCTIONAL SIGN PANEL

### **COLOR LEGEND**

P-1	BENJAMIN MOORE, 1030, "BRANDY CREAM", SATIN FINISH
P-2	BENJAMIN MOORE, 2121–30, "PEWTER", HIGH GLOSS
P-14	BP PEARL – BENJAMIN MOORE, OC-8, "ELEPHANT TUSK"
P-15	BP YELLOW – BENJAMIN MOORE, 2022–10, "YELLOW"

### MATERIAL LEGEND

\_\_\_+1<u>5'</u>-0<u>"</u> A.<u>F.F.</u> T.O. PARAPET

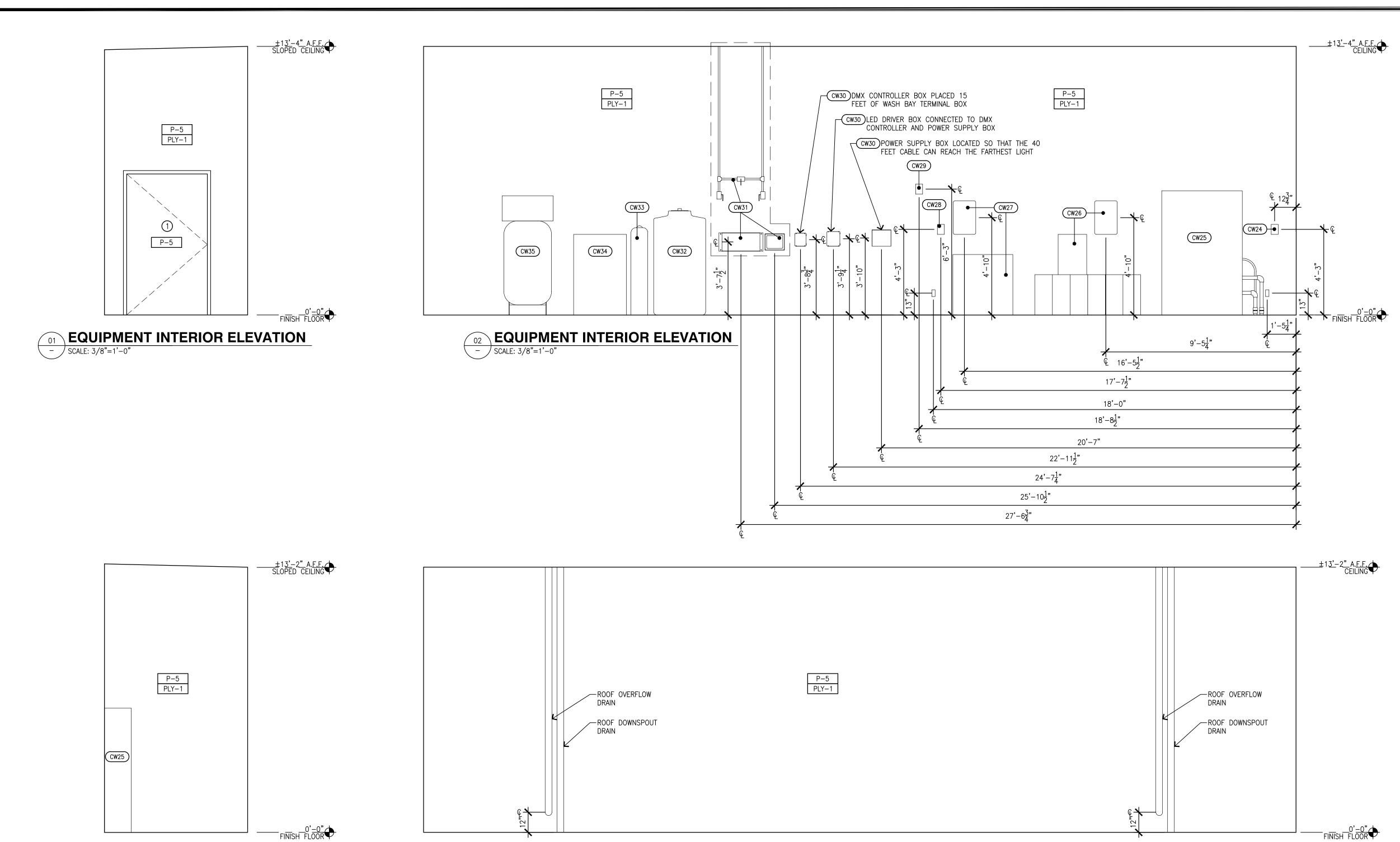
STUCCO 7%" CEMENT PLASTER, INSTALLED PER MFG. SPECIFICATIONS; TEXTURE: FINE SAND FINISH ACM ALUMINUM COMPOSITE MATERIAL

P-1 STUCCO

- 1 TYP.

EQUIPMENT RM. F.F.

-	Barghausen Consulting Engineers, Inc.							
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425.	Kent, WA 98032 425.251.6222							
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SHEET 1	NO:							
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O3 EQUIPMENT INTERIOR ELEVATION - SCALE: 3/8"=1'-0"

## **GENERAL NOTES**

- A. REFER TO SHEET CWQ1.1 FOR EQUIPMENT PLAN AND SCHEDULE.
  B. ALL CONDUITS SHALL BE CONCEALED IN THE WALL AND TERMINATIONS SHALL BE PER THE DIMENSIONED PLAN AND ELEVATIONS. CONFIRM TERMINATION LOCATIONS WITH CAR WASH EQUIPMENT INSTALLER PRIOR INSTALLING THE CONDUITS.
  C. TERMINATIONS SHALL BE AT THE BACK OF SURFACE MOUNTED BOXES AND EQUIPMENT IF FEASIBLE.

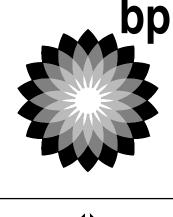
## **FINISH SYMBOLS**

### PAINT COLOR

P–5 BENJAMIN MOORE, 2121–70, "CHANTILLY LACE" SEMI–GLOSS FINISH

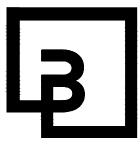
# SUBSTRATE

PLY-1 TYPE: 5/8" PLYWOOD



CLIENT:

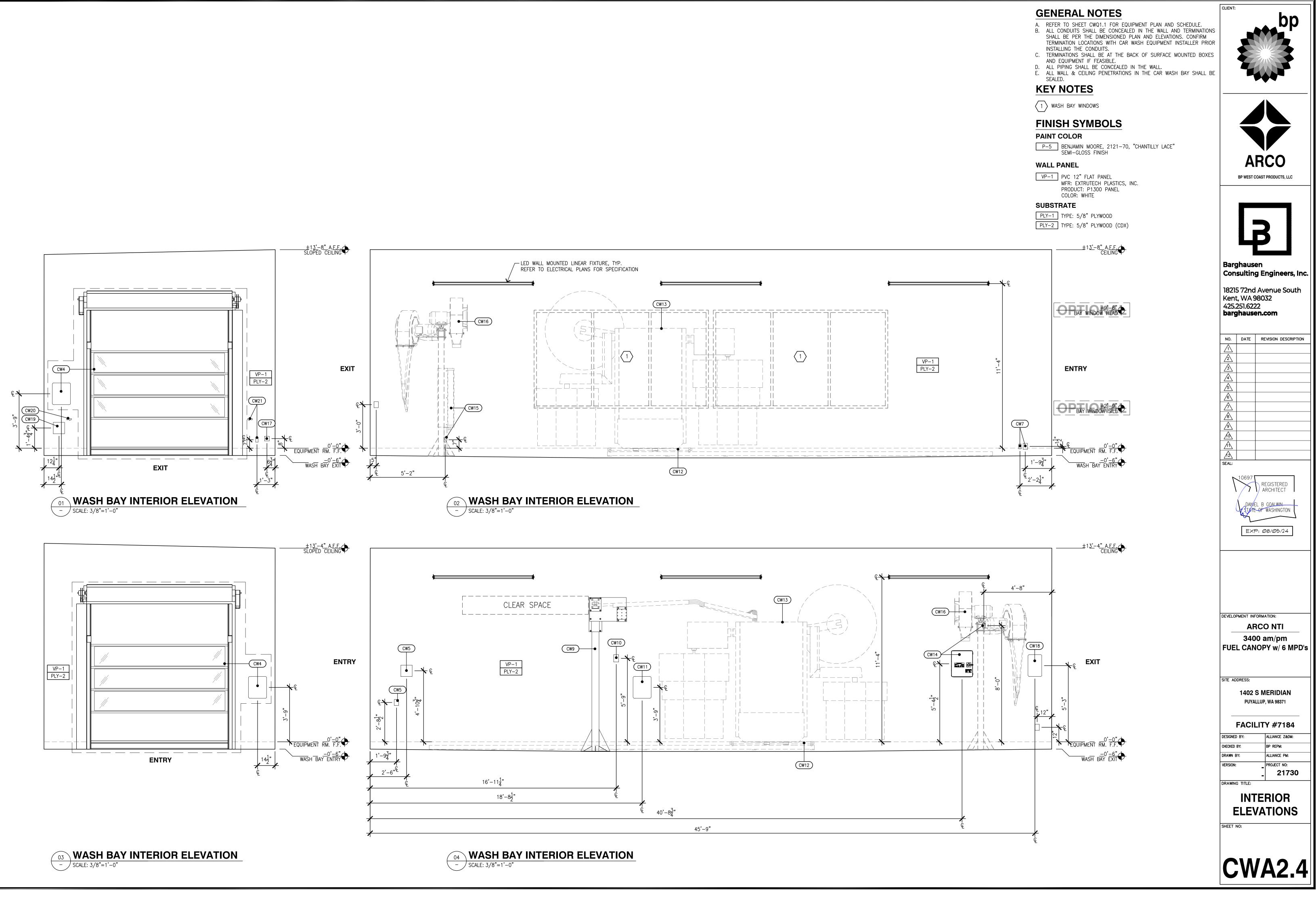


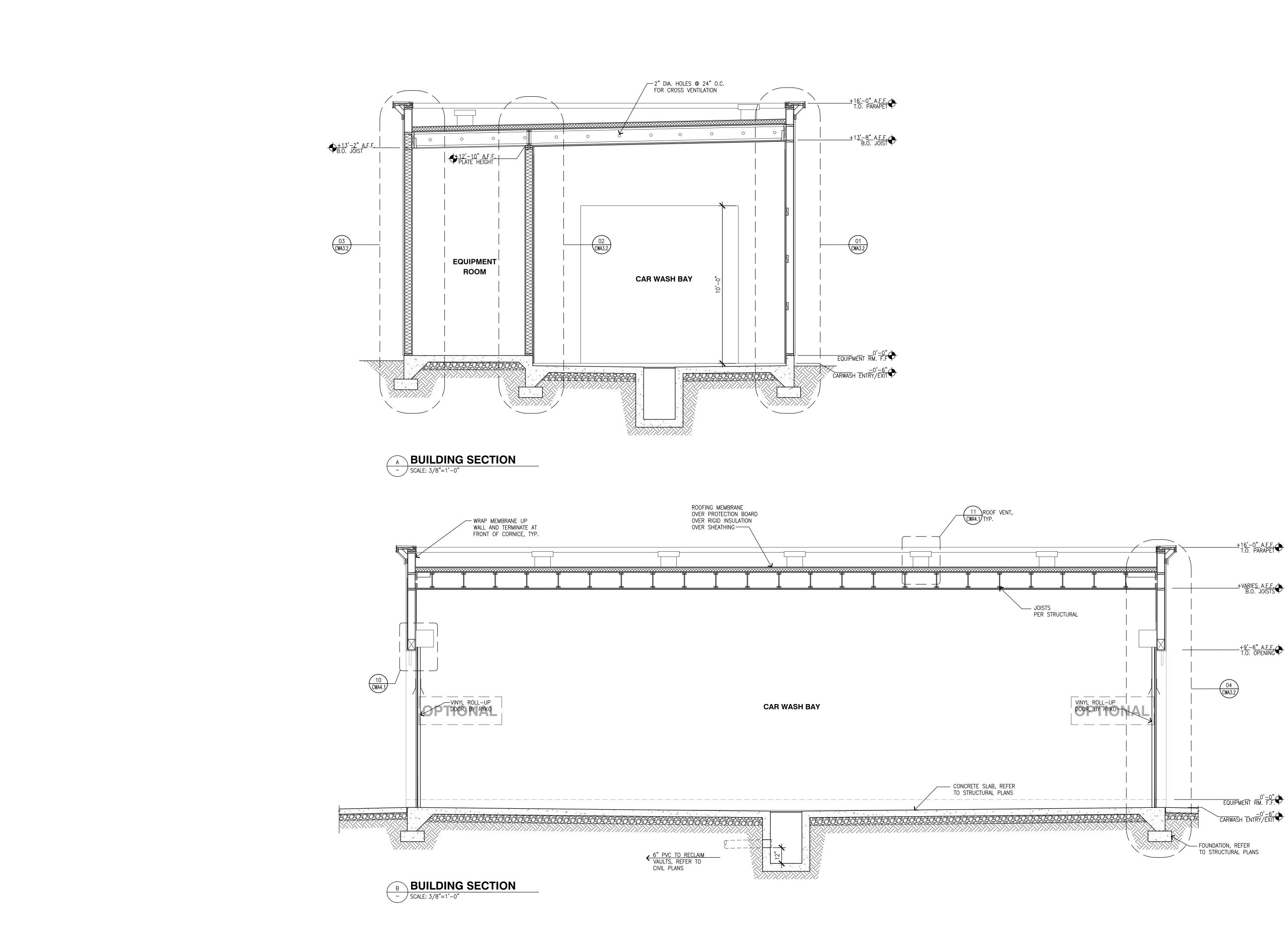


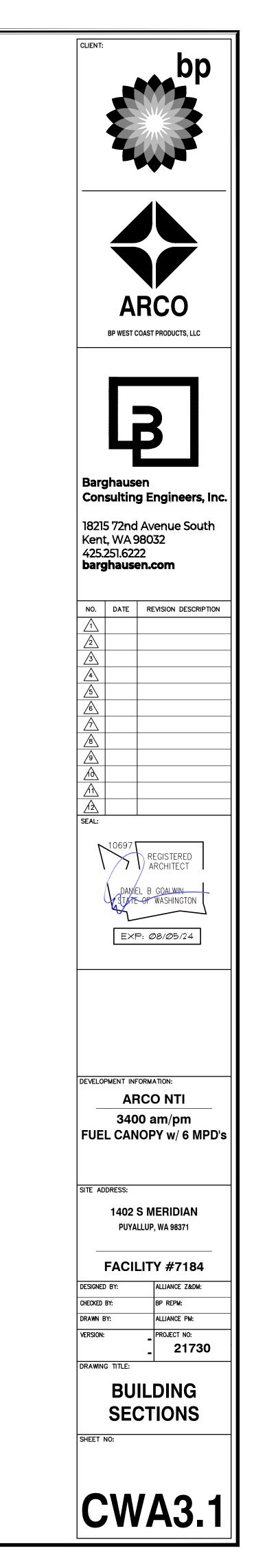
### Barghausen Consulting Engineers, Inc.

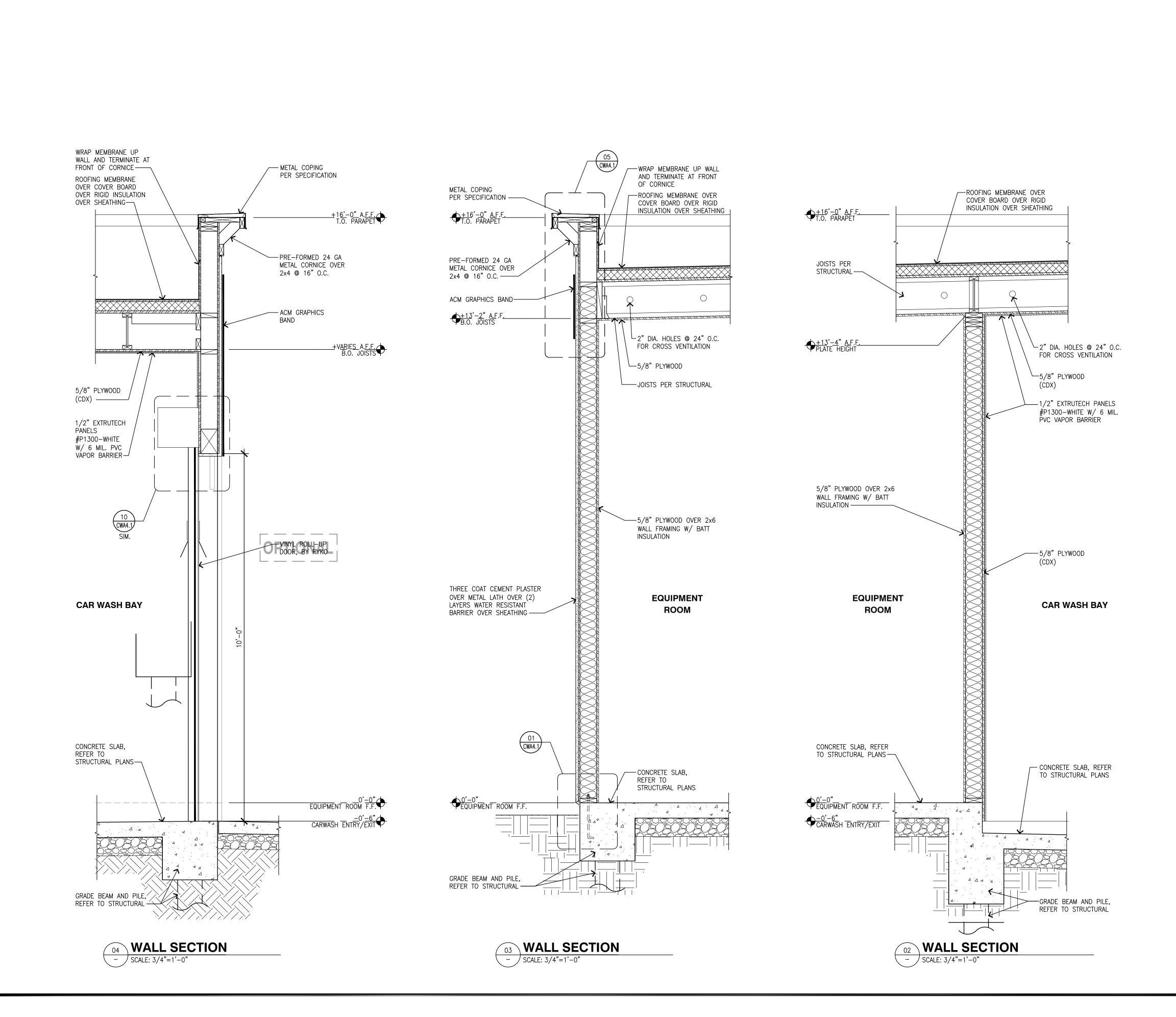
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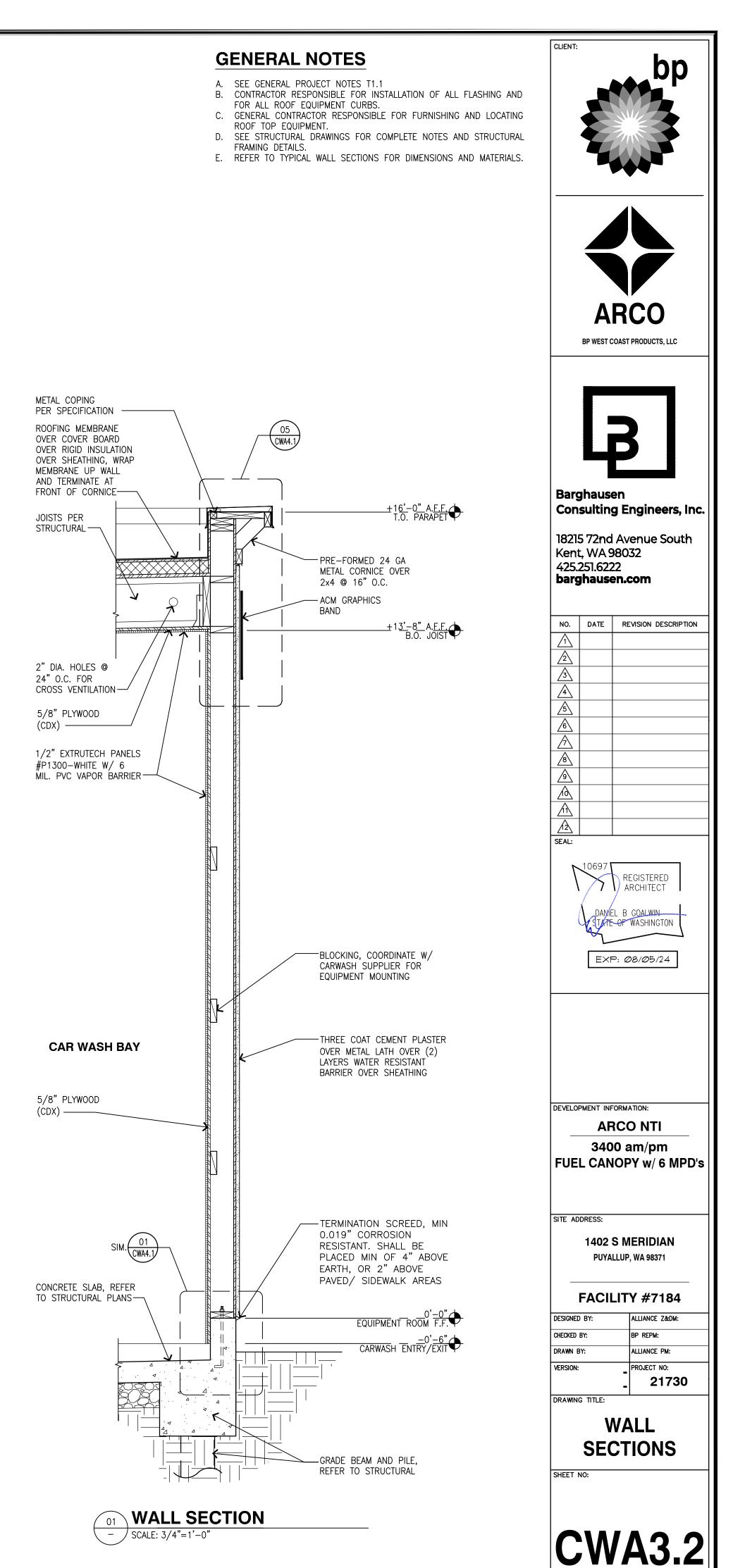
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	PUYA	S MERIDIAN LLUP, WA 98371
		LITY #7184
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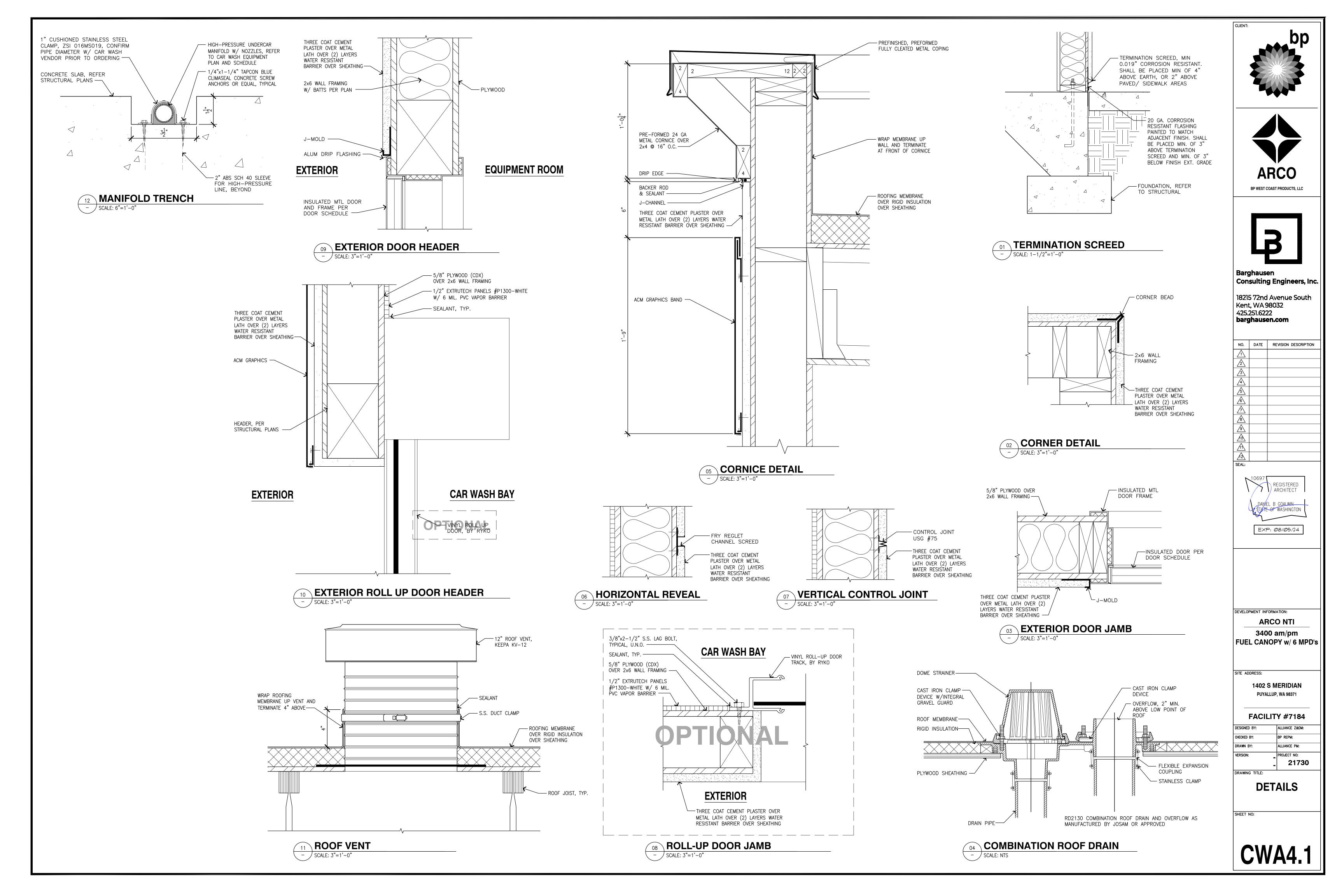


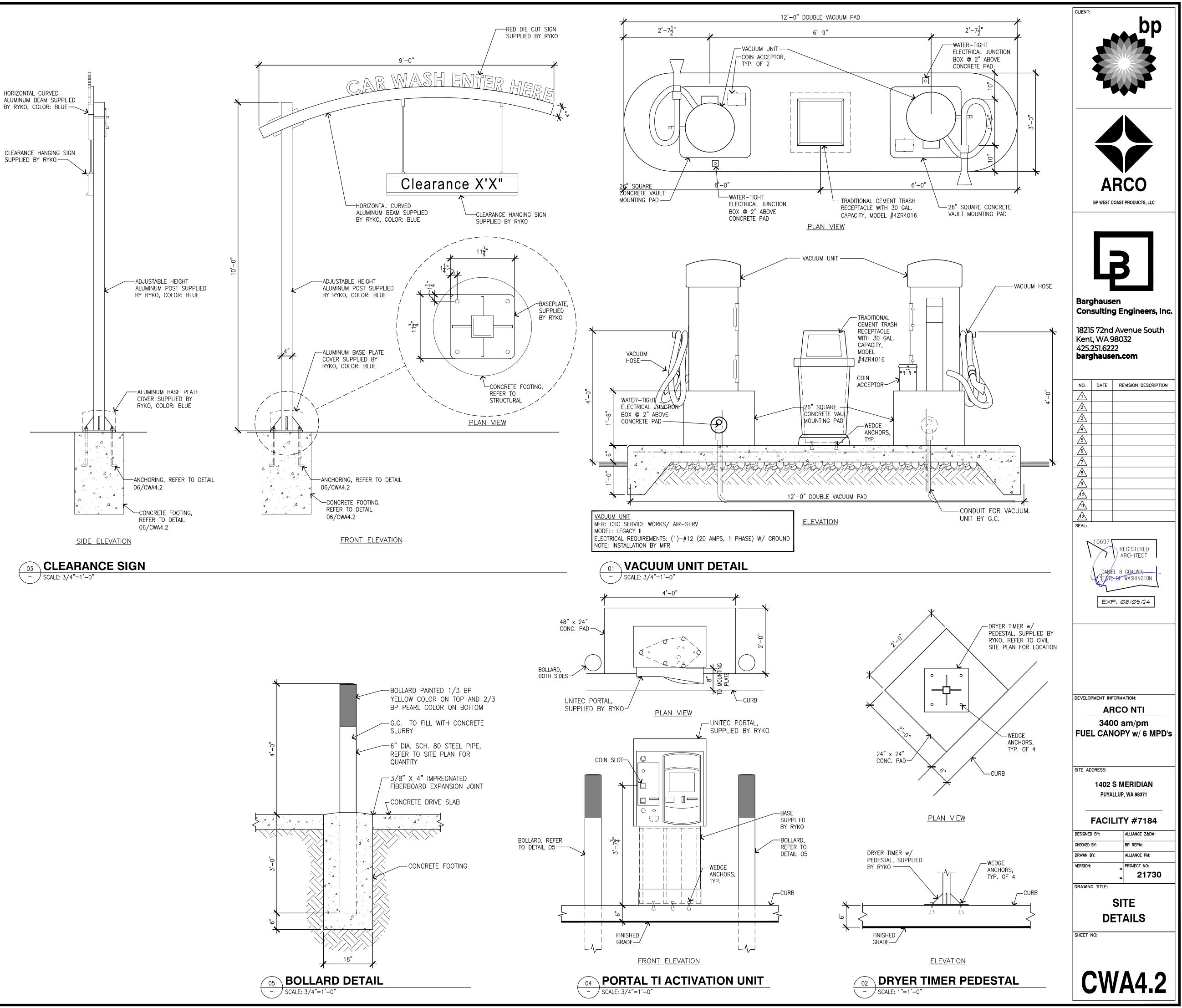




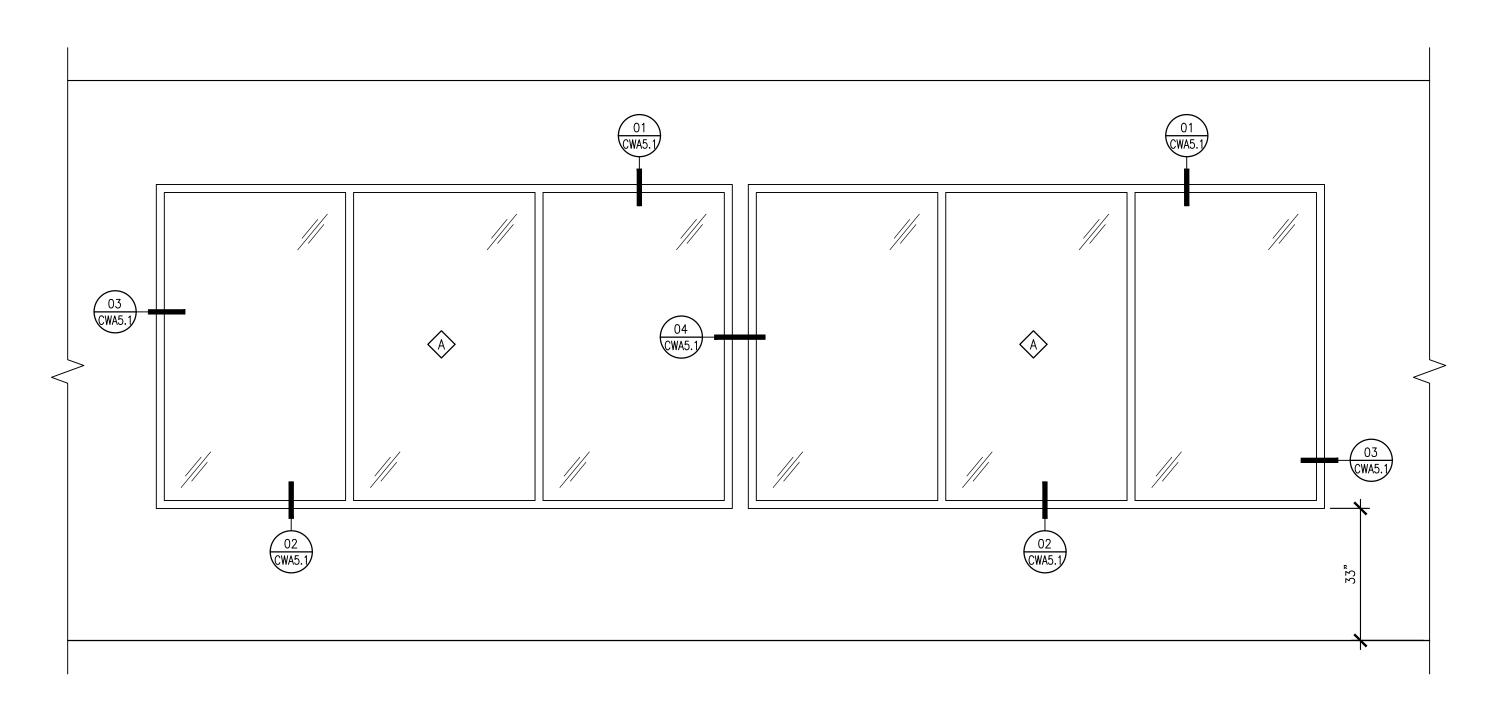


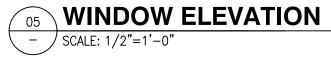






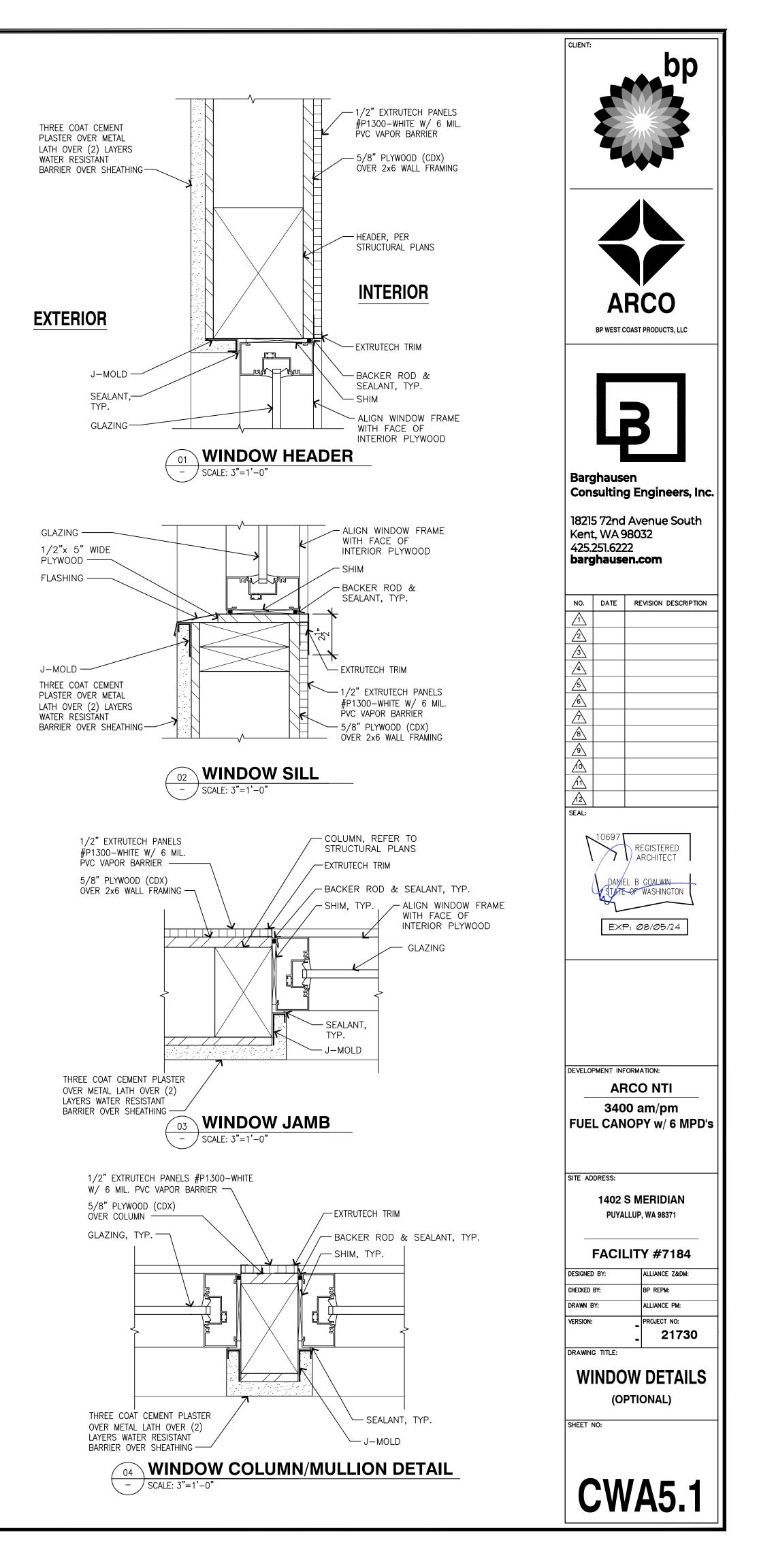






	WINDOW SCHEDULE					
TYPE	SIZE	QTY	MFR/MODEL	GLAZING	FRAME	REMARKS
$\land$	12'-0"W x 6'-9"H	2	KAWNEER TRIFAB 451 FRAMING	1/4" TEMPERED GLAZING	CLEAR ANODIZED ALUMINIUM	G.C. SHALL VERIFY ROUGH OPENING SIZE PRIOR TO ORDERING

# N



# EQUIPMENT SCHEDULE

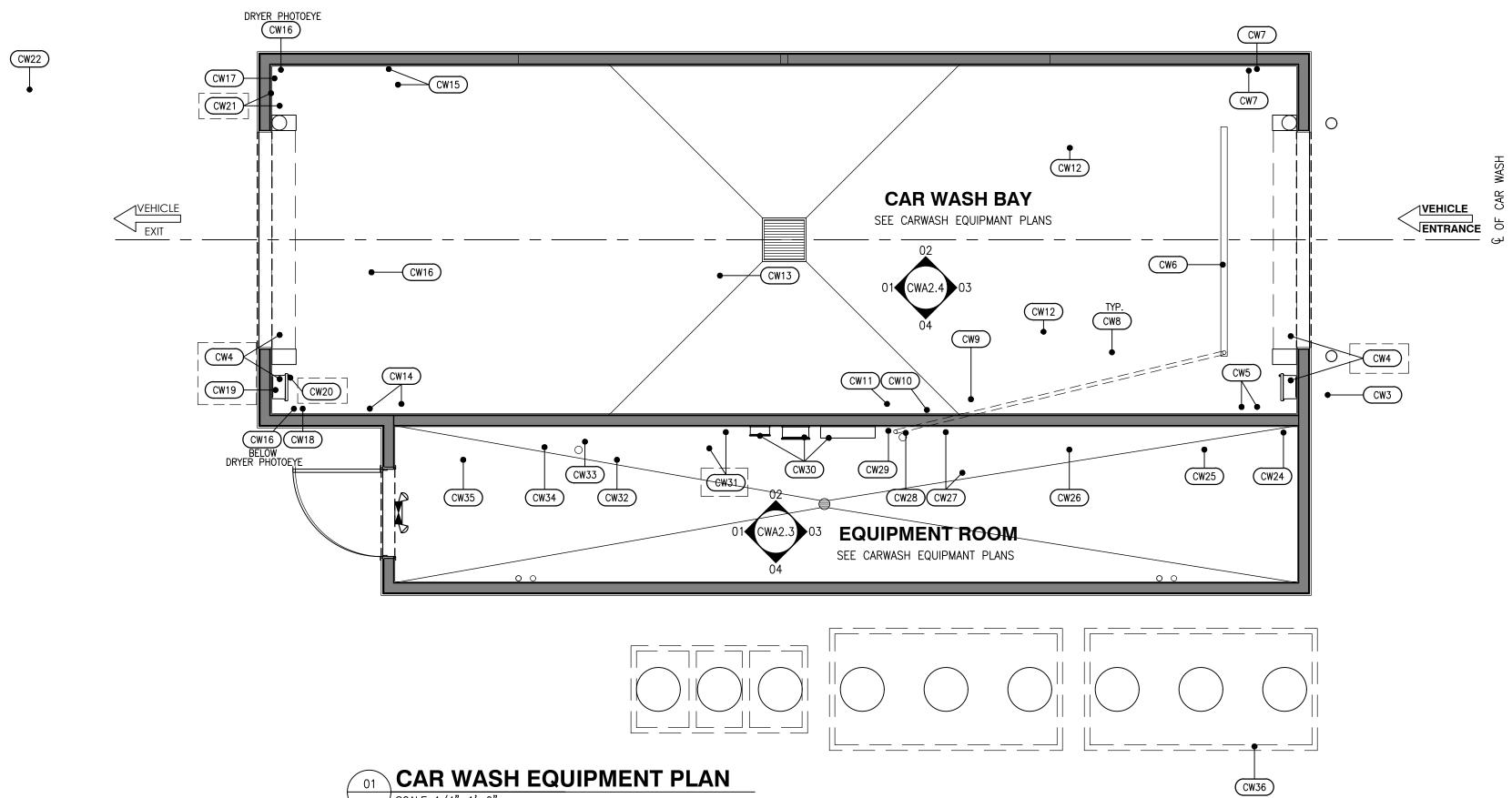
NO.	ITEM / DESCRIPTION	REMARKS	NO.	ITEM / DESCRIPTION	REMARKS
CW1	ENTRANCE ARCH WITH CLEARANCE BAR	REFER TO SITE PLAN FOR LOCATION	CW18	COMMUNICATION INTERFACE BOX (WITH TOUCH SCREEN AND E-STOP)	
CW2	UNITEC PORTAL TI ACTIVATION		CW19	AUTO DOOR RELAY BOX	
CW3	3 MESSAGE LIGHTED ENTRANCE SIGN	J-BOX FURNISHED AND INSTALLED BY G.C.	CW20	AUTO DOOR PHOTOEYE W/ BRACKET	
CW4	AIRLIFT XRS PREMIUM PLUS VINYL ROLL UP DOOR WITH CONTROL BOX (2 PLACES)	ELECTRIC OPERATOR, COLOR: BEIGE		AUTO DOOR PHOTOEYE W/ BRACKET	J-BOX FURNISHED AND INSTALLED BY G.C.
CW5	UNDERCAR ENTRANCE ACTIVATION WALL MOUNT PHOTOEYE AND RELAY BOX	J-BOX FURNISHED AND INSTALLED BY G.C.	CW22	SLIMLINE DRYER COUNT DOWN TIMER SIGN	
CW6	HIGH PRESSURE TRENCH MOUNTED UNDERCAR MANIFOLD (Z1000)	REFER TO SHEET CWA1.1 FOR TRENCH LOCATION AND SIZE	CW23	UNITEC P.O.S. INTERFACE	ACTUAL LOCATION OF ITEM WILL BE NEAR POINT OF SALE IN C-STORE.
CW7	UNDERCAR ENTRANCE ACTIVATION BOX WITH WALL MOUNT PHOTOEYE		CW24	FRESH WATER BACKUP VALVE ASSY	J-BOX FURNISHED AND INSTALLED BY G.C.
CW8	SOFTGLOSS FLOOR TRACKS		CW25	EV ULTRACLEAR RECLAIM SYSTEM 40 GPM W/ OZONE	
CW9	SOFTGLOSS FLOOR MOUNT BOOM STAND		CW26	OFFBOARD CHEMICAL INJECTION PUMP/ WITH CHEMICAL CONTAINERS	
CW10	SOFTGLOSS CABLE MOUNT BRACKET		CW27	ONBOARD HP PUMP W/ CONTROL BOX	
CW11	WASH BAY TERMINAL BOX WITH REMOTE BAY BUZZER KIT		CW28	HP DIVERTER VALVES	
CW12	LOW PROFILE GUIDE RAILS (2 PLCS)		CW29	OFFBOARD RINSE VALVE/R.O.	J-BOX FURNISHED AND INSTALLED BY G.C.
(CW13)	SOFTGLOSS WASH MACHINE		CW30	TSS DMX CONTROLLER-LED DRIVER- POWER SUPPLY LED LIGHTS	POSITIONED NEAR CENTER OF BAY FOR CABLE REACH
(CW14)	AIR KNIFE DRYER CONTROL CABINET	J-BOX FOR DRYER CONNECTION BE FURNISHED AND INSTALLED BY G.C.	CW31	BOOST PUMP SYSTEM AL	IF REQUIRED
CW15	WALL MOUNTED 8 SEGMENT LIGHTED SIGN	J-BOX FURNISHED AND INSTALLED BY G.C.	CW32	165 GALLON R.O. STORAGE TANK	
CW16	AIR KNIFE DRYER (30HP) WITH WALL MOUNT PHOTOEYE	J-BOX FACTORY INSTALLED AT CENTER DRYER FACING DOOR	CW33	CARBON FILTER	
CW17	DUAL THERMOSTAT ASSY	LOCATE THE THERMOSTAT BULBS ON THE OUTSIDE OF THE NORTH WALL OUT OF DIRECT SUNLIGHT.	CW34	RAINMAKER III R.O. SYSTEM	
		THIS WILL THEN LOCATE THE POSITION OF THE POSITION OF THE THERMOSTAT ASSY APPROXIMATELY 4 FT AWAY. TAKE CARE NOT TO CRIMP CAPILLARY	CW35	AIR COMPRESSOR, 5 HP, 3 PH	
		TUBES LEADING TO THE THERMOSTAT BULBS.	CW36	UNDERGROUND RECLAIM TANKS	REFER TO SITE PLAN FOR LOCATION

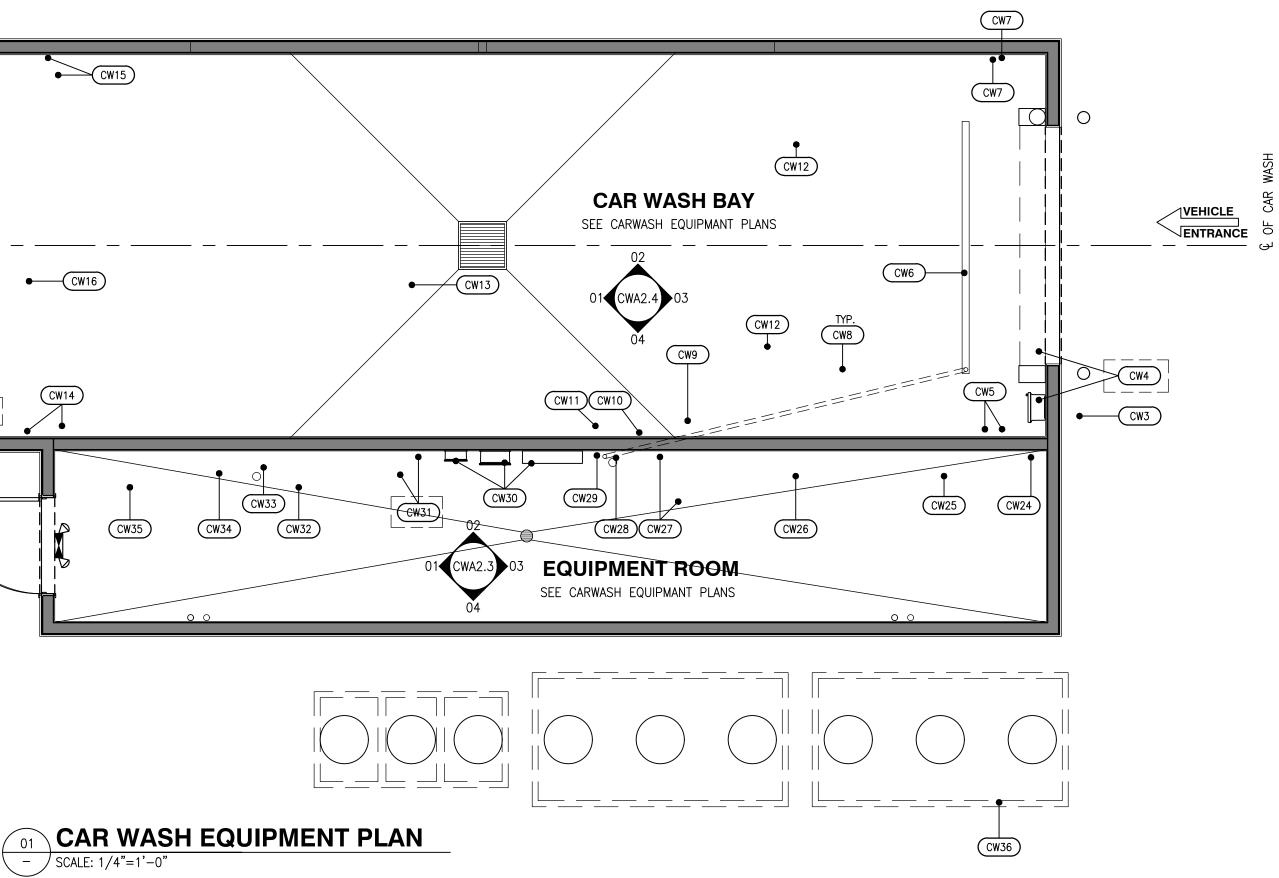
1. CONTRACTOR SHALL RESPONSIBLE TO HARD PIPE PLUMBING AND ELECTRICAL TO ALL CAR WASH EQUIPMENT. ALL CONDUITS AND PIPING SHALL BE CONCEALED IN THE WALLS AND ALL PENETRATIONS IN CAR WASH BAY SHALL BE SEALED. VERIFY SCOPE OF WORK WITH RYKO PRIOR TO CONSTRUCTION.

2. VINYL ROLL UP DOORS NOT REQUIRED IN CALIFORNIA, UNLESS REQUIRED BY THE AUTHORITY HAVING JURISDICTION OR, IF NEEDED FOR SECURITY PURPOSES.

3. BOOSTER PUMP IS ONLY REQUIRED WHEN THE WATER PRESSURE TO THE SITE IS LESS THAN 40 PSI. CONFIRM WATER PRESSURE WITH WATER DISTRICT PRIOR TO REQUESTING PLANS FROM RYKO. REFER TO THE WATER REQUIREMENTS NOTED ON THIS SHEET AND PLUMBING SHEET CWP2.0

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### WATER REQUIREMENTS

MINIMUM 1" SERVICE AT 40 PSI WITH 35 GPM FLOW RATE. MAXIMUM 1" SERVICE AT 150 PSI WITH 40 GPM FLOW RATE.

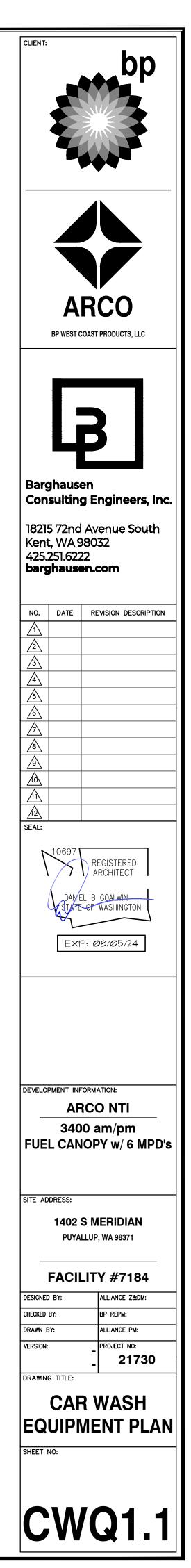
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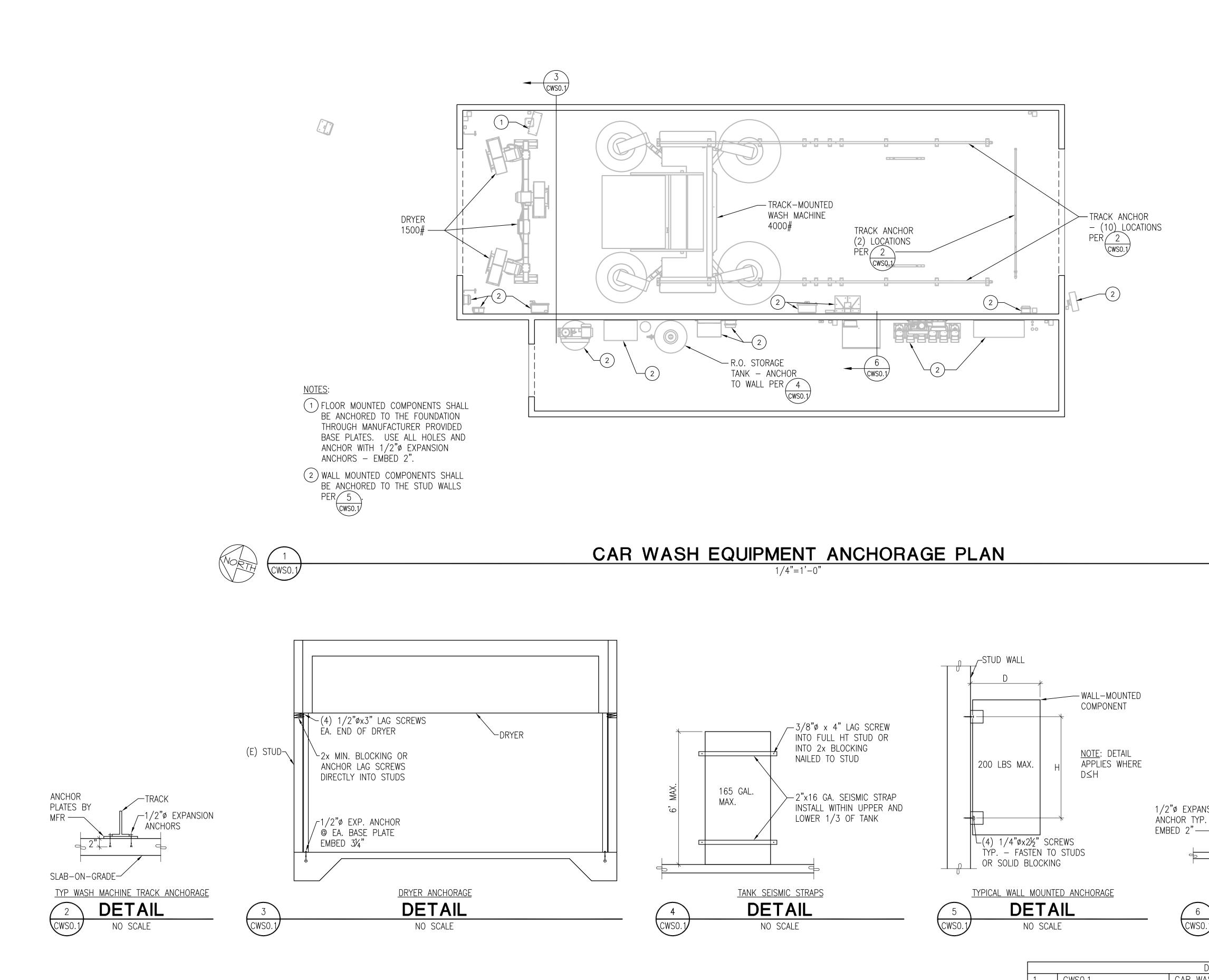
CW23

CW1

CW2

0





EMBED 2"     Defendence       Image: Serie Address:     1402 S MERIDIAN       PUVALUP, WA 98371     PUVALUP, WA 98371       Image: Serie Address:     1402 S MERIDIAN       PUVALUP, WA 98371     PUVALUP, WA 98371       Image: Serie Address:     1402 S MERIDIAN       PUVALUP, WA 98371     PUVALUP, WA 98371       Image: Serie Address:     1402 S MERIDIAN       Image: Serie Address: Serie Address:     1730       Image: Serie Address: Serie Address: Serie Address: Serie Address: Serie A	TRACK ANCHOR - (10) LOCATIONS PER 2 (WSD) 2			CLIENT:       bp         Image: Construction of the second sec
MAX. H APPLIES WHERE DSH 1/2"® EXPANSION ANCHOR TYP EMBED 2" 4. CVCRVS SIAB 5. CURB BY OTHERS 1/2"® EXPANSION ANCHOR TYP EMBED 2" EMBED 2" 5. CURB BY OTHERS 5. CURB	WALL-MOUNTED			SEAL:
DELOCKING DELOCKING DELOCKING DETAIL NO SCALE DETAIL NO SCALE DETAIL NO SCALE DETAIL NO SCALE DETAIL NO SCALE DETAIL NO SCALE DESIGNED DY: JJP AUJANCE ZADIN: DRAWING INDEX DRAWING INDE	MAX. H APPLIES WHERE $D \le H$ $1/2"\phi$ EXPANSION ANCHOR TYP. – EMBED 2"–		SLAB	ARCO NTI 3400 am/pm FUEL CANOPY w/ 6 MPD's
8     CWS3.1     GENERAL NOTES       9     CWS3.2     GENERAL NOTES	BLOCKING DETAIL NO SCALE DRAWING 1 CWS0.1 CAR WASH EQUI 2 CWS0.2 3 CWS1.1 4 CWS2.1 5 CWS2.2 6 CWS2.2 6 CWS2.3 7 CWS2.4 8 CWS3.1 CAR WASH PLAN DETAILS 5 CWS2.4 0 ETAILS 6 CWS3.1 CAR WASH PLAN CAR W	INDEX PMENT ANCHORAGE AND HEIGHT BAR FOUNDATION DETAIL IS		1402 S MERIDIAN         PUYALLUP, WA 98371         FACILITY #7184         DESIGNED BY: JJP         ALLIANCE Z&DM:         CHECKED BY: JJP         DRAWN BY: MCS         DRAWN BY: MCS         VERSION: PROJECT NO:         21730         DRAWING TITLE:         CAR WASH         DRAWING TITLE:

### GENERAL NOTES

THE FOUNDATION HAS BEEN DESIGNED TO RESIST CODE REQUIRED VERTICAL AND LATERAL FORCES AFTER THE CONSTRUCTION OF ALL STRUCTURAL ELEMENTS HAS BEEN COMPLETED. STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THIS RESPONSIBILITY INCLUDES BUT IS NOT LIMITED TO JOB SITE SAFETY; ERECTION MEANS, METHODS, AND SEQUENCES; TEMPORARY SHORING FORMWORK, AND BRACING; USE OF EQUIPMENT AND CONSTRUCTION PROCEDURES. PROVIDE ADEQUATE RESISTANCE TO LOADS ON THE STRUCTURES DURING CONSTRUCTION PER SEI/ASCE STANDARD NO. 37-02 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION." ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT. WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK. THE GENERAL CONTRACTOR SHALL VERIFY AND COORDINATE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION.

<u>STANDARDS</u>

ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING OFFICIAL OR APPLICABLE JURISDICTION.

### DESIGN CRITERIA

VERTICAL LOADS: ACTUAL DEAD LOAD OF COMPONENT

LATERAL FORCES

WIND: 97 MPH EXP. B

F=qzGC<sub>f</sub>A<sub>f</sub>

- VELOCITY PRESSURE, qz = 18.4 psf
- GUST EFFECT FACTOR, G = 0.9
- EXTERNAL PRESSURE COEFFICIENT,  $C_{f} = 1.75$  $- A_{f} = AREA OF COMPONENT$

 $\underline{SEISMIC:} \quad V = CsW$ 

$$Cs = 0.14 \text{ Sps Ie} \leq \frac{Sps}{(\frac{R}{Ie})} \leq \frac{Sp1}{(\frac{R}{Ie})T}$$

- Cs MIN. FROM SEI/ASCE 7-10 SECTION 15.4
- SEISMIC IMPORTANCE FACTOR, Ie = 1.0
- OCCUPANCY CATEGORY = I
- SPECTRAL RESPONSE ACCELERATIONS Ss = 1.27 & S1 = 0.44 - SITE CLASS PER TABLE 1615.1 = D
- SPECTRAL RESPONSE COEFFICIENTS SDS = 0.85 & SD1 = 0.54 SEISMIC DESIGN CATEGORY = D - W = DEAD LOAD OF COMPONENT
- ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE ANALYSIS
- RESPONSE MODIFICATION FACTOR PER SEI/ASCE 7-16 TABLE 15.4-2 R = 2.0

- Cs = 0.42

### <u>CONCRETE</u>

CONCRETE: SHALL BE MADE WITH PORTLAND CEMENT ASTM C-150 TYPE II OR TYPE I AND SHALL BE READY MIXED PER ASTM C-94.

MIX DESIGNS: THE CONTRACTOR SHALL DESIGN CONCRETE MIXES THAT, MEET OR EXCEED THE REQUIREMENTS OF THE CONCRETE MIX TABLE. THE MIX DESIGNS SHALL FACILITATE ANTICIPATED PLACEMENT METHODS, WEATHER, REBAR CONGESTION, ARCHITECTURAL FINISHES, CONSTRUCTION SEQUENCING, STRUCTURAL DETAILS, AND ALL OTHER FACTORS REQUIRED TO PROVIDE A STRUCTURALLY SOUND, AESTHETICALLY ACCEPTABLE FINISHED PRODUCT. WATER REDUCING ADMIXTURES MAY BE USED TO MEET THESE REQUIREMENTS. MAXIMUM SLUMP SHALL BE 5".

ADMIXTURES: ADMIXTURES SHALL BE BY MASTER BUILDERS, W.R. GRACE, OR PRE-APPROVED EQUAL. ALL MANUFACTURERS RECOMMENDATIONS SHALL BE FOLLOWED.

WATER: SHALL BE CLEAN AND POTABLE.

ITEM	DESIGN f'c (PSI) (1)	MAX. W/C RATIO	MIN. (3) FLYASH (PCY)	MAX. AGGREGATE SIZE (IN)	NOTES	MIN. CEMENTITOUS (2) MATERIAL (SACKS/YARD)
FOUNDATIONS	2500 @ 28 DAYS	0.45		3/4		5-1/2"

CONCRETE MIX NOTES:

1. CONCRETE SHALL BE AIR ENTRAINED. TOTAL AIR CONTENT (PERCENT BY VOLUME OF CONCRETE) SHALL NO BE LESS THAN 5% OR MORE THAN 7%.

2. TOTAL CEMENTITOUS MATERIAL IS THE SUM OF ALL CEMENT PLUS FLYASH.

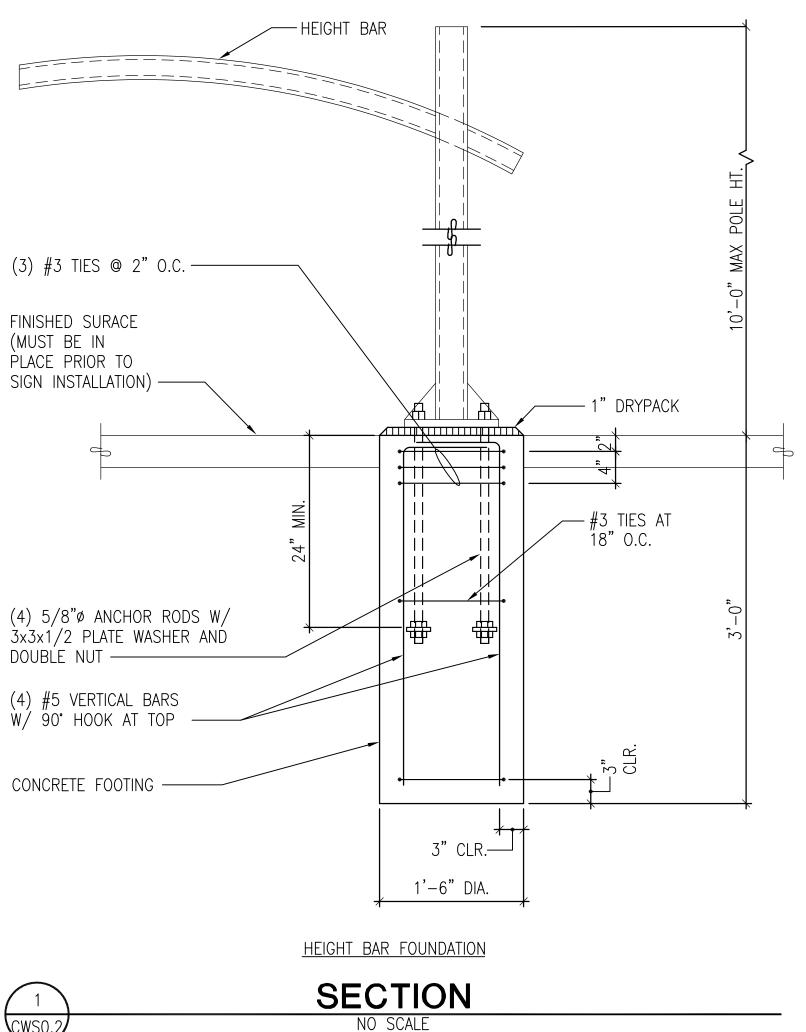
3. AT THE CONTRACTORS OPTION FLYASH MAY BE SUBSTITUTED FOR CEMENT BUT SHALL NOT EXCEED 25% BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL.

NON-SHRINK GROUT: MASTER BUILDERS "MASTERFLOW 555" OR PRE-APPROVED EQUAL. GROUT SHALL CONFORM TO CRD-C621 AND ASTM C1107 GRADE B WHEN TESTED AT A FLUID CONSISTENCY PER CRD- C611-85 FOR 30 MINUTES. GROUT MAY BE PLACED FROM A 25 SECOND FLOW TO A STIFF PACKING CONSISTENCY. FILL OR PACK ENTIRE SPACE UNDER PLATES OR SHAPES. NO GROUTING SHALL BE DONE BELOW 40° F.

METAL REINFORCEMENT (CONCRETE):

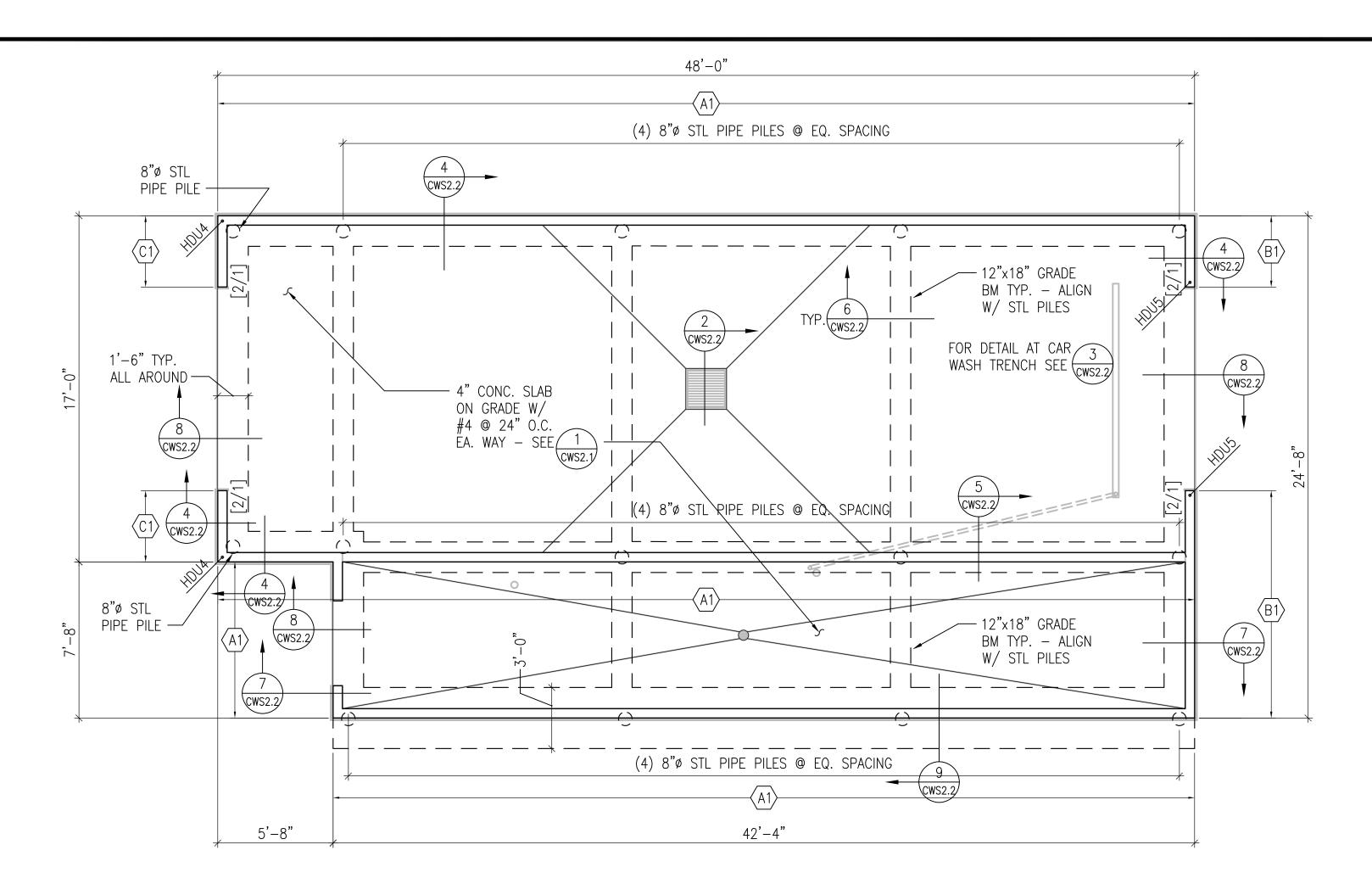
REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 40 OR 60. PLACE PER ACI 315 AND ACI 318. LAP SPLICES SHALL BE 48 BAR DIAMETERS UNLESS NOTED OTHERWISE.

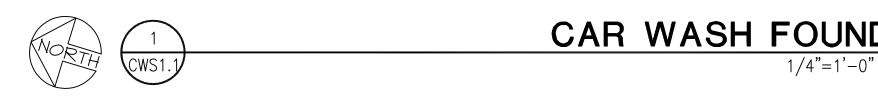
STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION MATERIAL PROPERTIES <u>OTHER SHAPES AND PLATES</u>: ASTM A36 (Fy = 36 KSI) ANCHOR RODS (A.B.): ASTM F1554, GRADE 36, CLASS 2A

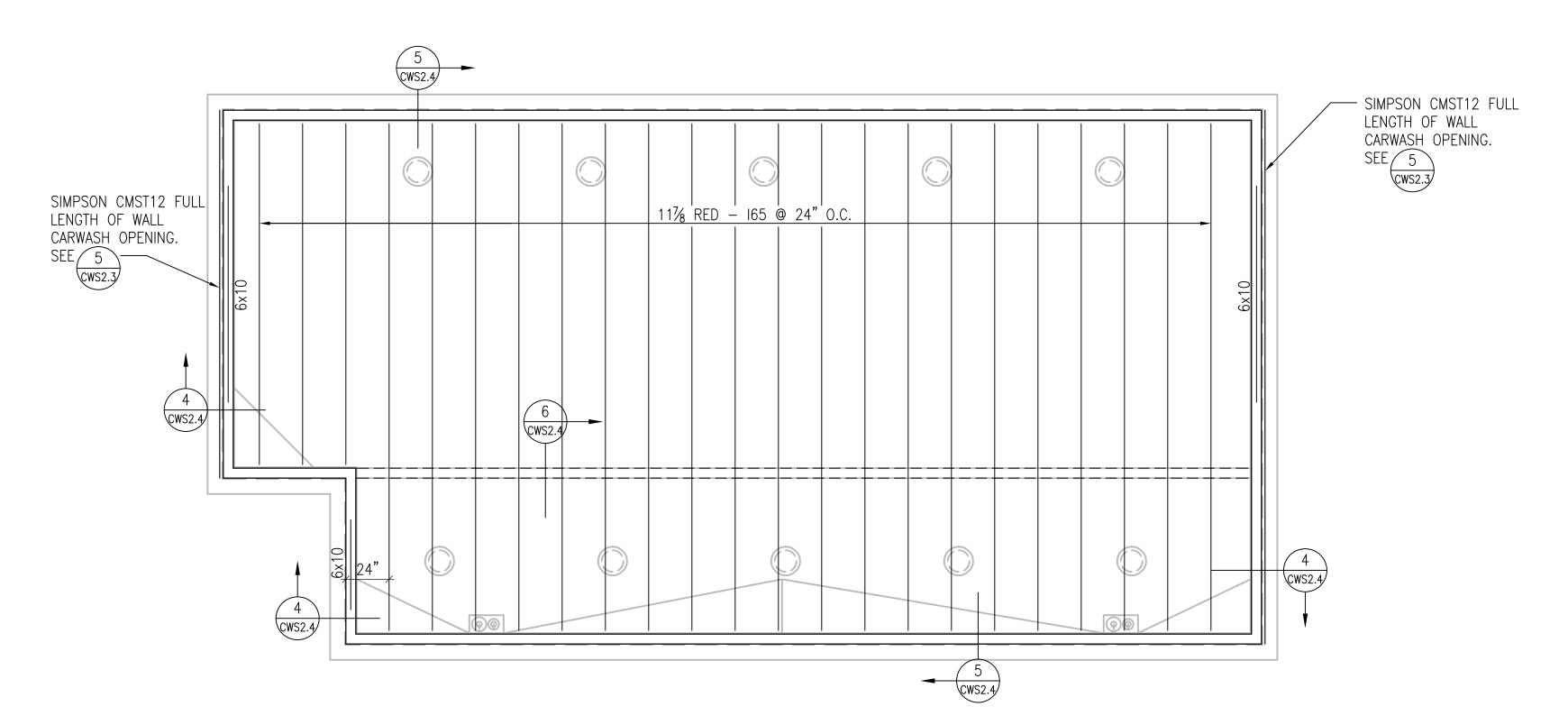




CLIENT:
ARCO BP WEST COAST PRODUCTS, LLC
Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South Kent, WA 98032 425.251.6222 <b>barghausen.com</b>
NO.         DATE         REVISION DESCRIPTION           -         10/04/23         BID SET           1         -         -
SEAL:
JOSEPH JOSEPH OF WASH CF CF C
DEVELOPMENT INFORMATION: ARCO NTI 3400 am/pm FUEL CANOPY w/ 6 MPD's SITE ADDRESS:
1402 S MERIDIAN PUYALLUP, WA 98371 FACILITY #7184
DESIGNED BY: JPP ALLIANCE Z&DM: CHECKED BY: BAM BP REPM:
DRAWN BY: MCS ALLIANCE PM: VERSION: PROJECT NO: 21730
_ 21730 DRAWING TITLE: GENERAL NOTES AND HEIGHT BAR FOUNDATION DETAIL
SHEET NO:
<b>CWS0.2</b>











<u>FOUNDAT</u>	ION NOTES	
1.		E ALL DIMENSIONS WITH ARCHITE F. UNLESS NOTED OTHERWISE.
2.		INDICATES WOOD STUD WALL. 16"O.C. MAXIMUM UNLESS NOT SHEATHING AT ALL EXTERIOR W ALL PANEL EDGES (PROVIDE 2× EDGES) AND 10d @ 12"O.C. UNLESS NOTED OTHERWISE. SEE NAILING.
3.	<u>ل</u>	- INDICATES CONCRETE WALL GRA OTHERWISE. SEE CWS2.1 FOR
4.	H	INDICATES HOLDOWN. SEE 1/C
6.		INDICATES DEPRESSED OR SLOP LOCATION SEE ARCHITECTURAL I
7.	FOR TYPIC	AL CONCRETE SLAB-ON-GRADE
8.		AL STEPS IN FOOTING AND FOUN /CWS2.1 AND 1/CWS2.1.
9.	FOR TYPIC 5/CWS2.1.	AL EXCAVATION LIMITATIONS IN T
10.	(A1)	INDICATES SPECIAL WOOD STUD FOR SCHEDULE.
11.	$\bigcirc$	INDICATES 8"Ø STEEL PIPE PILE PILE DETAILS AND INSTALLATION

# CAR WASH FOUNDATION PLAN

### <u>ROOF FRAMING NOTES</u>

- A.F.F. UNLESS NOTED OTHERWISE.
- 3
- $\mid$  >
- INTERMEDIATE FRAMING. TYPICAL UNLESS NOTED OTHERWISE.
- STRUCTURE SEE CWS2.4.
- REQUIREMENTS.

# CAR WASH ROOF FRAMING PLAN

1/4"=1'-0"

TECTURAL DRAWINGS. FINISH FLOOR =

WOOD STUDS SHOULD BE SPACED @ TED OTHERWISE. PROVIDE 15/32" WOOD WALLS NAILED WITH 10d @ 6" O.C. AT 2x BLOCKING AT UNSUPPORTED PANEL . AT INTERMEDIATE FRAMING TYPICAL EE NOTE 11 FOR ADDITIONAL SHEAR WALL

RADE BEAM 1'-6" UNLESS NOTED R TYPICAL FOUNDATION DETAILS.

/CWS2.2, AND 4/CWS2.3.

PED SLABS. FOR SLOPE AND EXACT DRAWINGS.

DETAILS SEE CWS2.1.

JNDATION CONSTRUCTION JOINTS SEE

THE PROXIMITY OF FOUNDATIONS SEE

SHEAR WALL. SEE 6/CWS2.3

BELOW. SEE GENERAL NOTES FOR N REQUIREMENTS.

1. COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. FINISH FLOOR = 0'-0''

2.  $\Rightarrow = = = = \Rightarrow$  INDICATES STRUCTURAL WALL EXTENDING TO ROOF STRUCTURE.

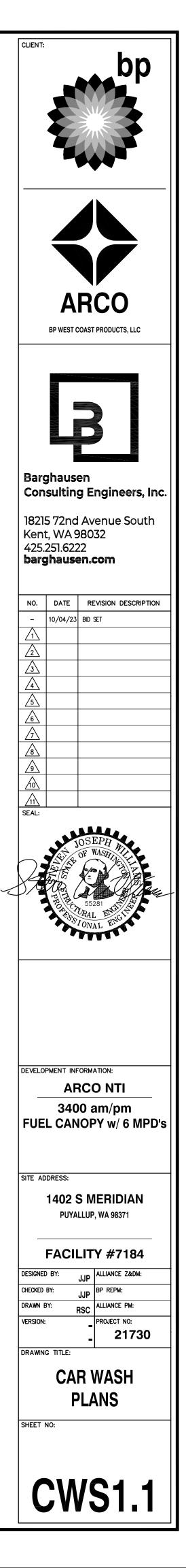
MINDICATES HEADER IN WALL BELOW SEE 5/CWS2.3.

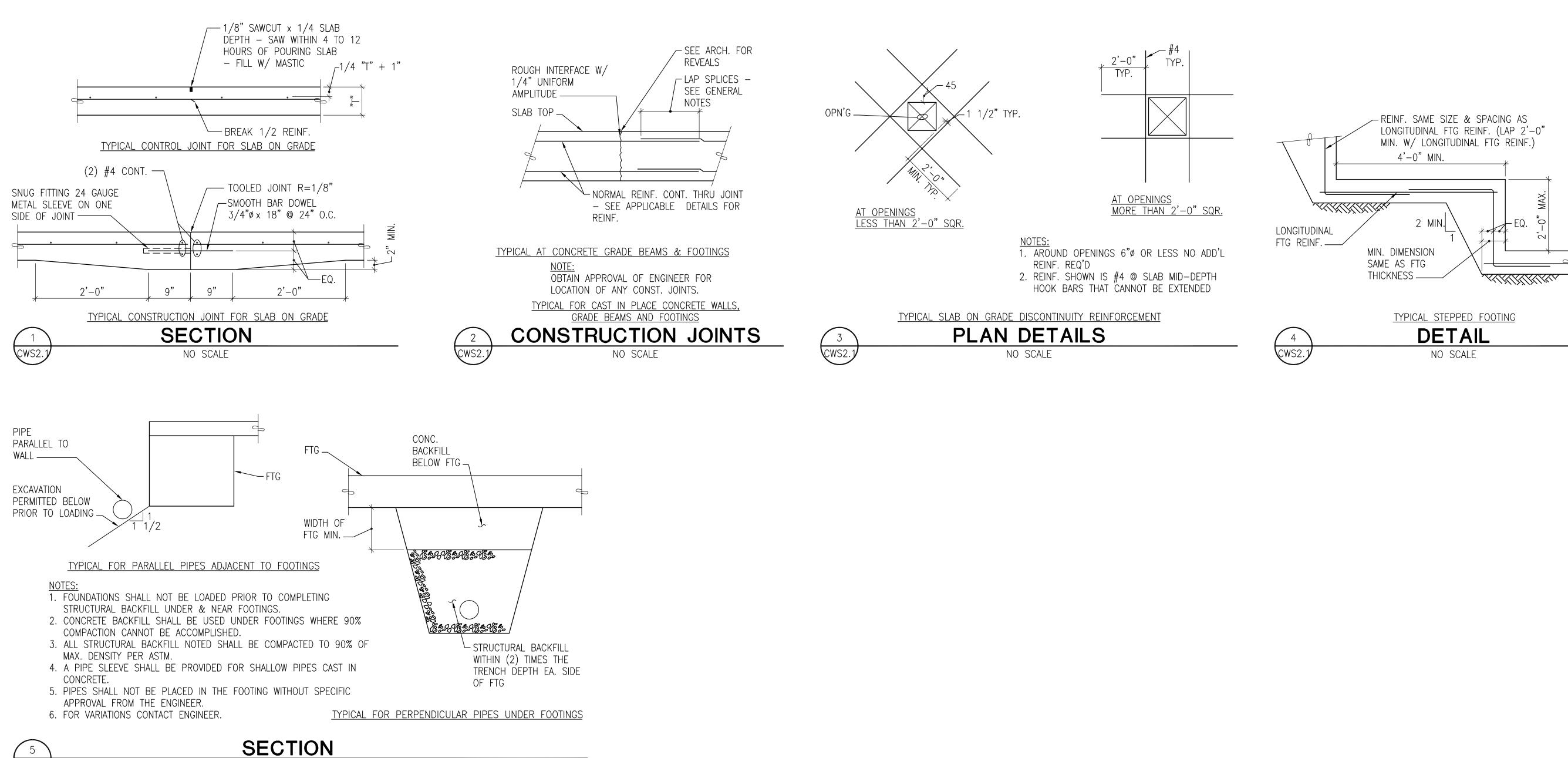
INDICATES PENETRATION IN ROOF STRUCTURE.

5. PROVIDE 23/32" T&G WOOD SHEATHING OVER ENTIRE ROOF STRUCTURE. NAIL WOOD ROOF SHEATHING WITH 10d @ 6" O.C. AT ALL SUPPORTED PANEL EDGES AND 10d @ 10" O.C. AT

6. FOR SUPPORT OF MISCELLANEOUS MECHANICAL EQUIPMENT AND PIPES FROM ROOF

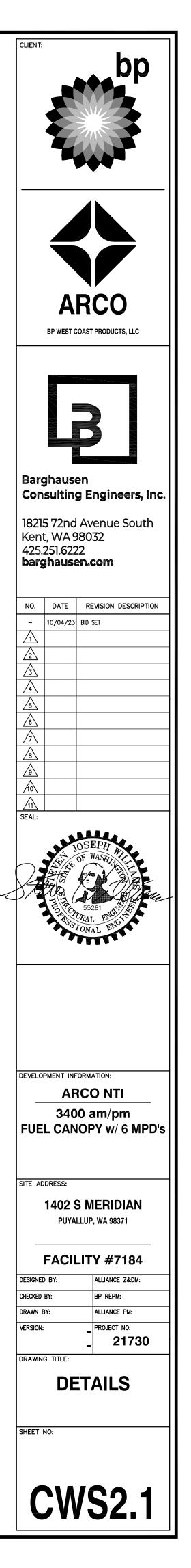
7. ROOF TRUSSES ARE A DEFERRED SUBMITTAL ITEM, SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE, AND THE PACKAGE SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD. SEE GENERAL NOTES FOR ADDITIONAL

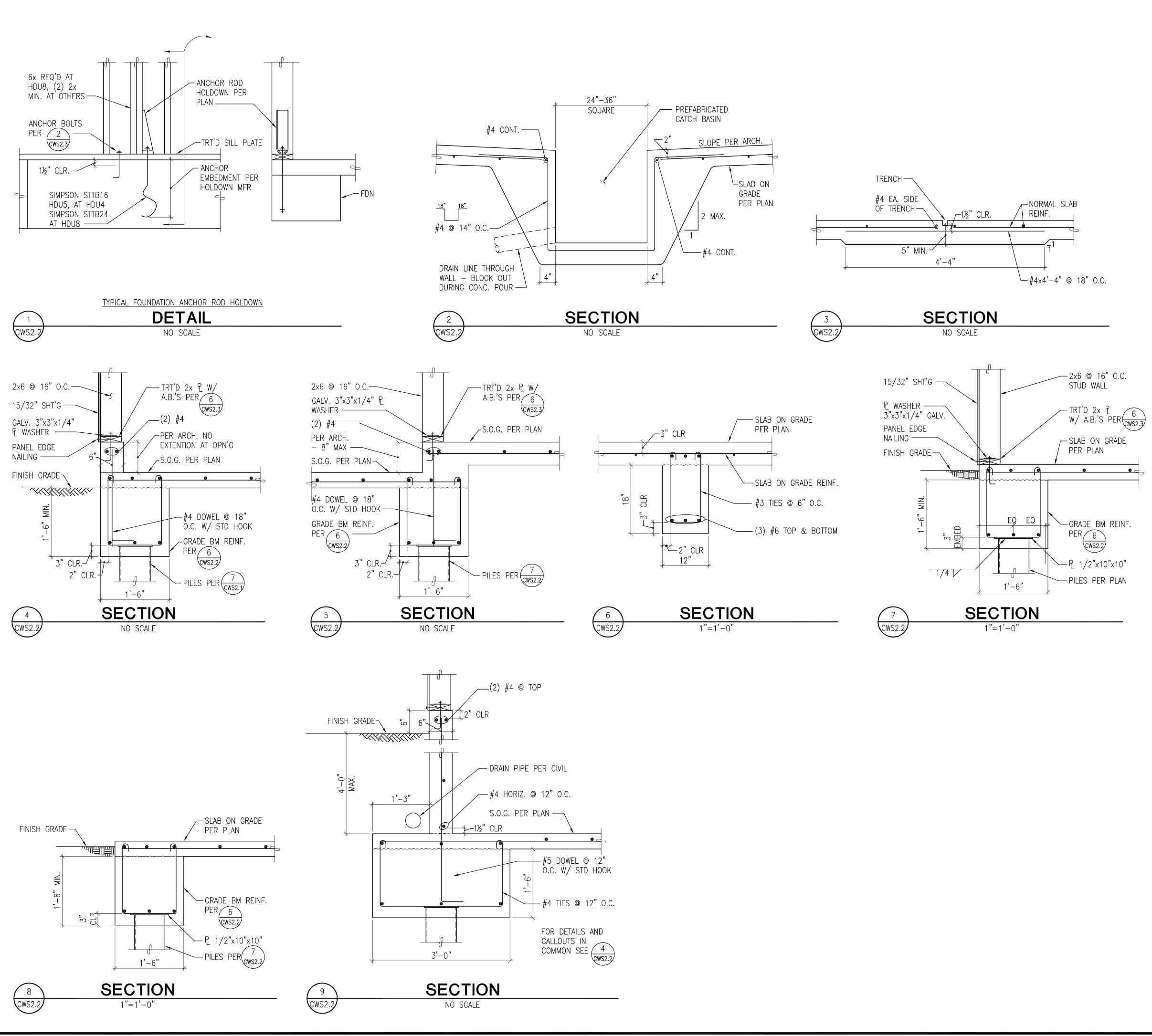




NO SCALE

CWS2.1



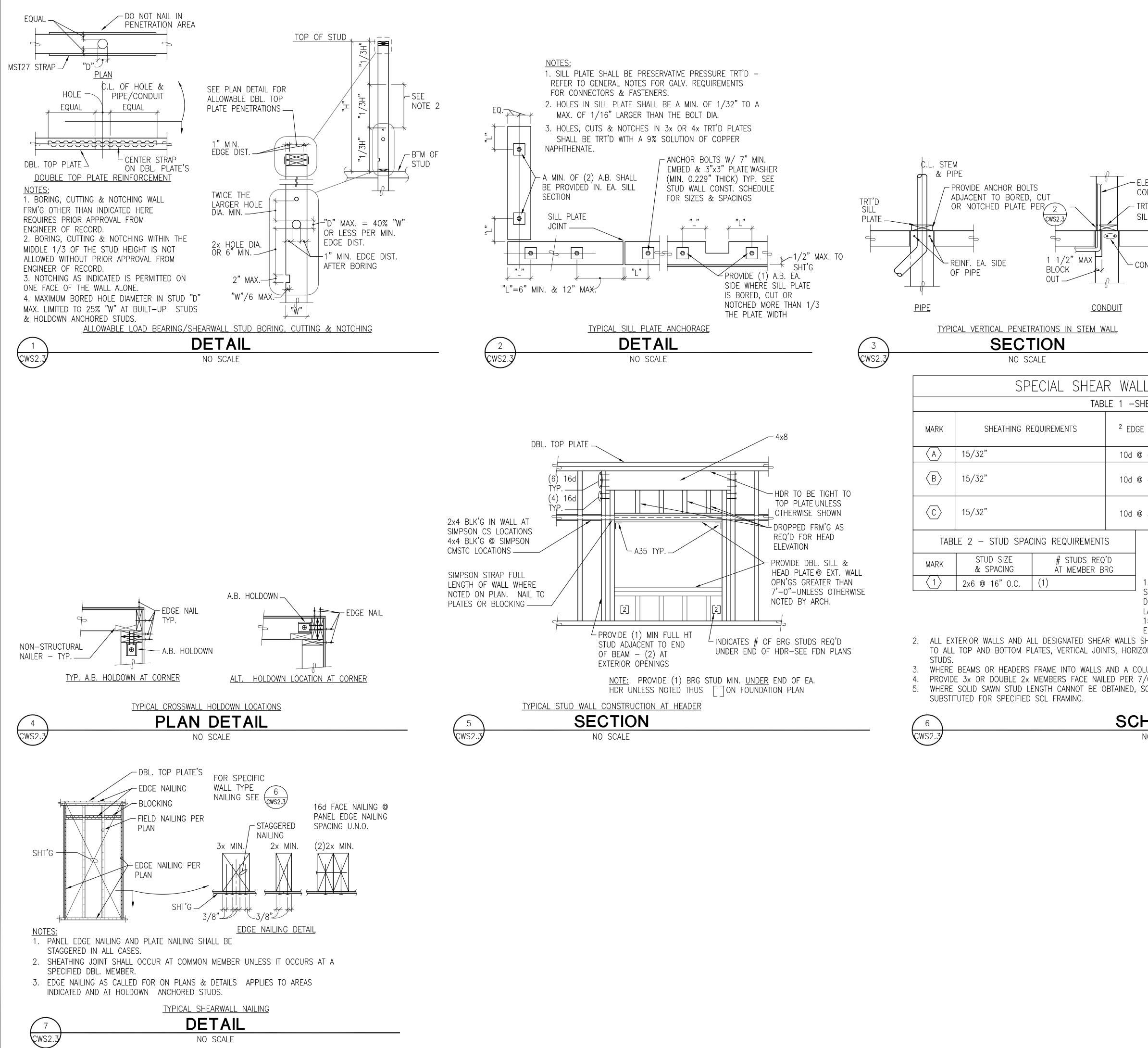


<image/>
Barghausen Consulting Engineers, Inc.18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com
NO.         DATE         REVISION DESCRIPTION           -         10/04/23         BID SET           1         -         -           2         -         -           3         -         -           3         -         -           4         -         -           5         -         -           6         -         -           6         -         -           1         -         -           8         -         -           1         -         -           10         -         -           10         -         -           10         -         -           10         -         -           10         -         -           10         -         -           11         -         -           10         -         -           10         -         -           10         -         -           11         -         -           10         -         -           10         -         -           <
DEVELOPMENT INFORMATION: ARCO NTI 3400 am/pm FUEL CANOPY w/ 6 MPD's
SITE ADDRESS: 1402 S MERIDIAN PUYALLUP, WA 98371 FACILITY #7184 DESIGNED BY: ALLIANCE Z&DM: CHECKED BY: BP REPM: DRAWN BY: ALLIANCE PM: VERSION: PROJECT NO: 21730 DRAWING TITLE: DETAILS
SHEET NO: CWS2.2

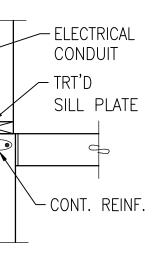
SLAB ON GRADE

6

└──₧ 1/2"x10"x10" — PILES PER PLAN



- 2. ALL EXTERIOR WALLS AND ALL DESIGNATED SHEAR WALLS SH TO ALL TOP AND BOTTOM PLATES, VERTICAL JOINTS, HORIZON
- 3. WHERE BEAMS OR HEADERS FRAME INTO WALLS AND A COLU
- 5. WHERE SOLID SAWN STUD LENGTH CANNOT BE OBTAINED, SC



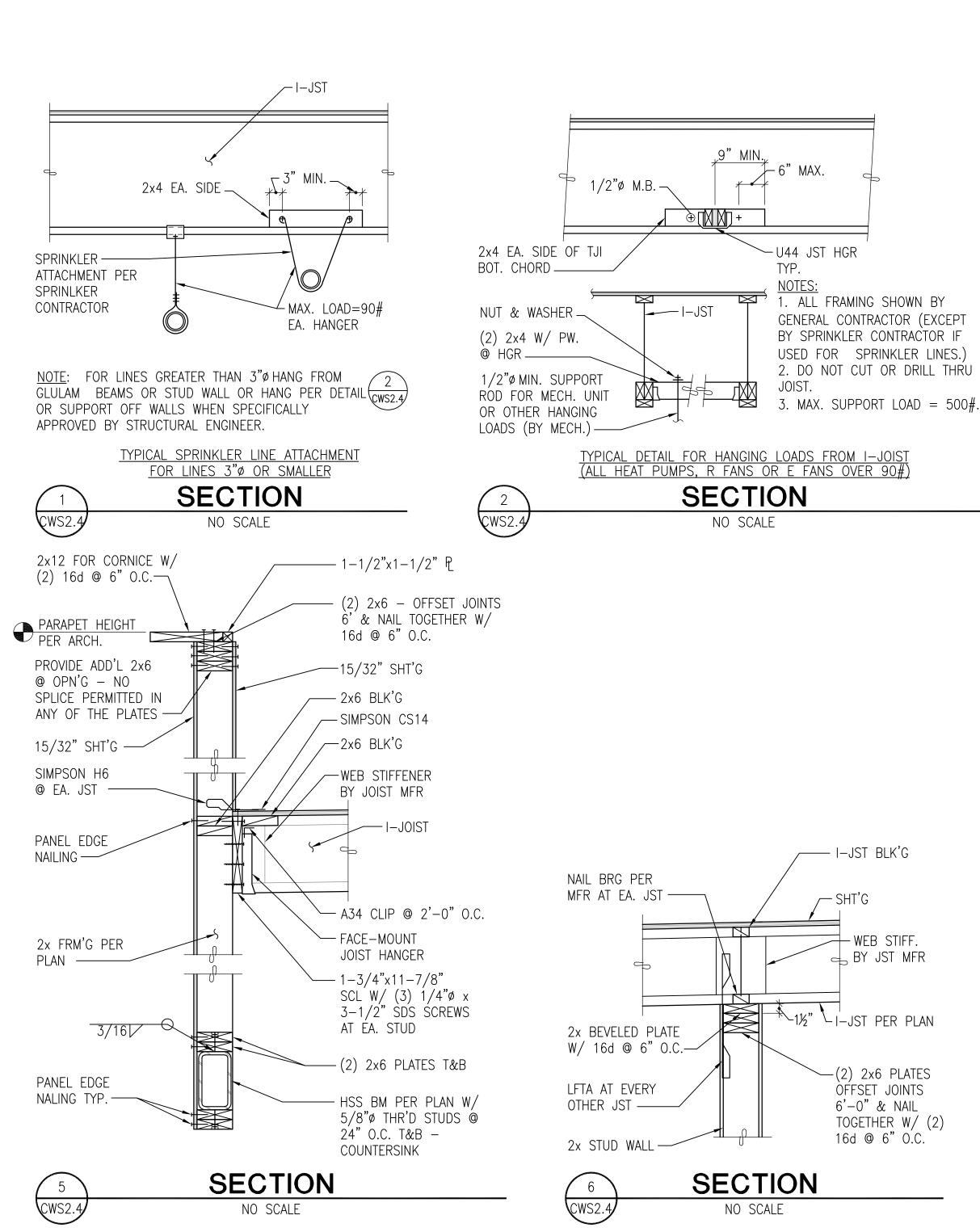
<u>CONDUIT</u>

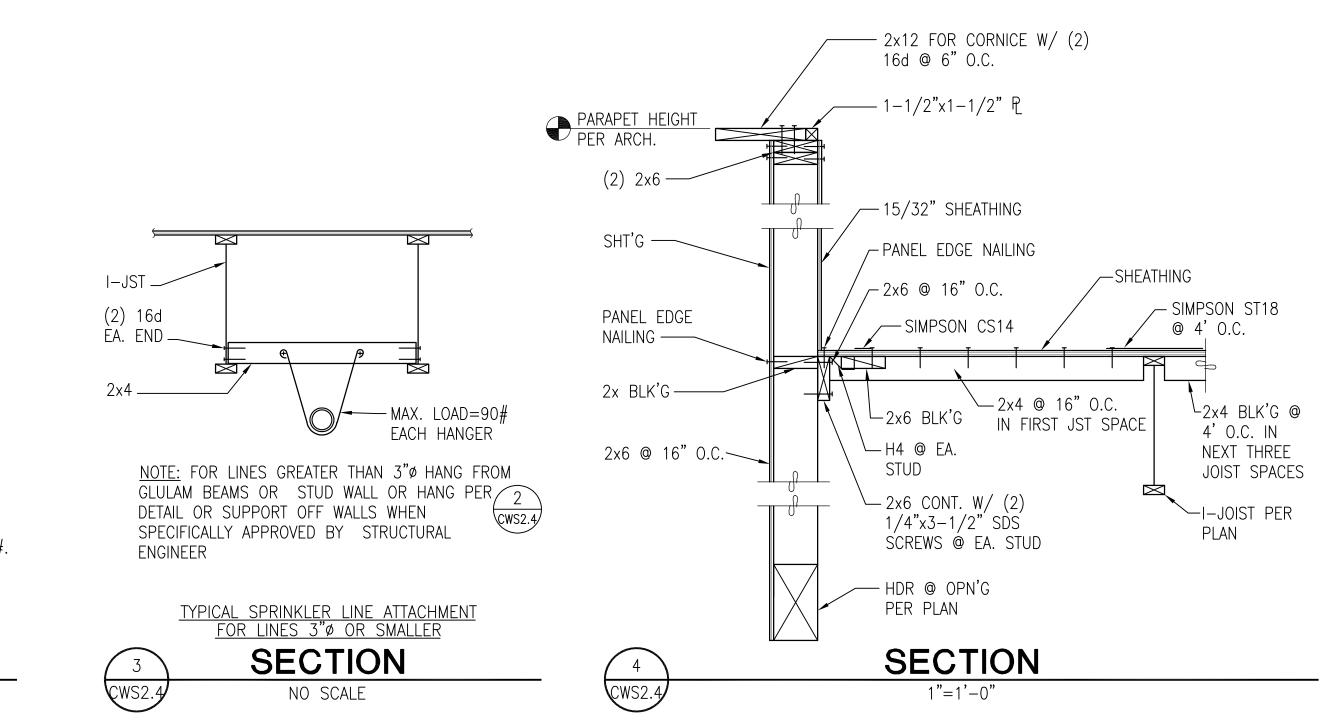
HEAI	R WALL CONS	STRUCTION S	CHEDULE			barg
TAB	LE 1 – SHEAR WALL	REQUIREMENTS				NO.
	<sup>2</sup> EDGE NAILING	FIELD NAILING	SOLE NAILING	5/8" ANCHOR BOLT SPACING (7" EMBED)		- 1 2 A
	10d @ 6" O.C.	10d @ 12" O.C.	16d @ 6"O.C.	48" O.C.		3
	10d @ 4" O.C.	10d @ 12" O.C.	1/4" SDS SCREWS @ 3" O.C.	16"O.C.		4       5       6       7       8       9
	10d @ 3" O.C.	10d @ 12" O.C.	1/4" SDS SCREWS @ 3" O.C.	16" O.C.		
AL JOIN WALLS	S 'D RG 1. XX SHOWN ON DESIGNATED LAYOUT ABOY 15/32" WOO EDGES AND R WALLS SHALL BE BL ITS, HORIZONTAL BLOCK AND A COLUMN IS NO	COND CHARACTER INDI <u>DTES:</u> INDICATES SPECIAL S STRUCTURAL DRAWINGS SPECIAL. STUD LAYO VE WHERE APPLICABLE D SHEATHING AND BE 12" O.C. IN FIELD UN OCKED AT ALL SHEATH KED JOINTS, WALL COF T CALLED OUT, PROVID	TES SPECIAL STUD SPACI CATES SPECIAL SHEAR W TRUCTURAL WALL TYPE. S ARE 2×6 AT 16" O.C. UT SHALL MATCH FRM'G . ALL EXTERIOR WALLS NAILED WITH 10d AT 6" LESS DESIGNATED SPECIA HING EDGES. EDGE NAILIN RNERS, AND HOLDOWN AN OE BUILT-UP COLUMN EDGES WHERE INDICATED SOLID SAWN FRAMING M	ALL REQUIREMENTS ALL WALLS UNLESS MEMBER SHALL HAVE O.C. AT AL. NG APPLIES NCHORED	PER TABLE 1	SEAL:
	SCHEDU NO SCALE	LE			-	DEVELOP
						FUEI
					-	SITE ADI
					-	DESIGNED
					-	CHECKED E DRAWN B' VERSION:
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ARCO BP WEST COAST PRODUCTS, LLC Barghausen **Consulting Engineers, Inc.** 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com DATE REVISION DESCRIPTION 10/04/23 BID SET ALLA OPMENT INFORMATION: ARCO NTI 3400 am/pm IEL CANOPY w/ 6 MPD's ADDRESS: 1402 S MERIDIAN PUYALLUP, WA 98371 FACILITY #7184 IED BY: ALLIANCE Z&DM: BP REPM: ALLIANCE PM: PROJECT NO: 21730 ING TITLE: DETAILS **CWS2.3** 

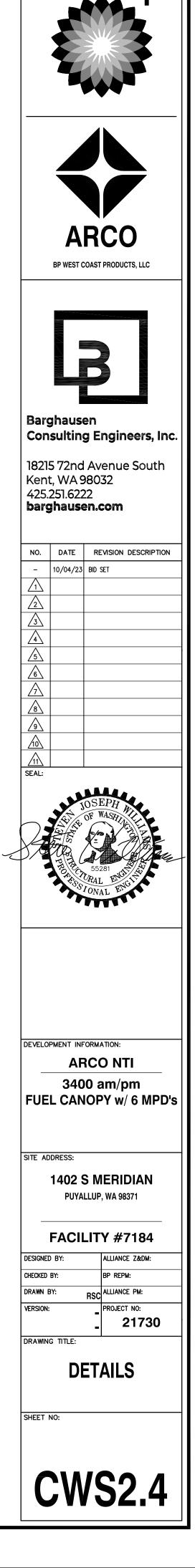
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### GENERAL NOTES

THESE GENERAL NOTES ARE TO BE USED AS A SUPPLEMENT TO THE SPECIFICATIONS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATIONS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK. THE GENERAL CONTRACTOR SHALL VERIFY AND COORDINATE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. THE STRUCTURE HAS BEEN DESIGNED TO RESIST CODE SPECIFIED VERTICAL AND LATERAL FORCES AFTER THE CONSTRUCTION OF ALL STRUCTURAL ELEMENTS HAS BEEN COMPLETED. STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THIS RESPONSIBILITY INCLUDES BUT IS NOT LIMITED TO JOB SITE SAFETY; ERECTION MEANS, METHODS, AND SEQUENCES; TEMPORARY SHORING, FORMWORK, BRACING; USE OF EQUIPMENT AND CONSTRUCTION PROCEDURES. PROVIDE ADEQUATE RESISTANCE TO LOADS ON THE STRUCTURES DURING CONSTRUCTION PER SEI/ASCE STANDARD NO. 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION."

CONSTRUCTION OBSERVATION BY THE STRUCTURAL ENGINEER IS FOR GENERAL CONFORMANCE WITH DESIGN ASPECTS ONLY AND IS NOT INTENDED IN ANY WAY TO REVIEW THE CONTRACTOR'S CONSTRUCTION PROCEDURES.

#### STANDARDS

ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING OFFICIAL OR APPLICABLE JURISDICTION.

#### CONTRACT DRAWINGS/DIMENSIONS

ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. CONSULTANT DRAWINGS BY OTHER DISCIPLINES ARE SUPPLEMENTARY TO ARCHITECTURAL DRAWINGS. REPORT DIMENSIONAL OMISSIONS OR DISCREPANCIES BETWEEN ARCHITECTURAL DRAWINGS AND STRUCTURAL, MECHANICAL, ELECTRICAL OR CIVIL DRAWINGS TO ARCHITECT PRIOR TO PROCEEDING WITH WORK.

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS. PRIMARY STRUCTURAL ELEMENTS ARE DIMENSIONED ON STRUCTURAL PLANS AND DETAILS AND OVERALL LAYOUT OF STRUCTURAL PORTION OF WORK. SOME SECONDARY ELEMENTS ARE NOT DIMENSIONED, SUCH AS WALL CONFIGURATIONS, INCLUDING EXACT DOOR AND WINDOW LOCATIONS, ALCOVES, SLAB SLOPES AND DEPRESSIONS, CURBS, ETC. VERTICAL DIMENSIONAL CONTROL IS DEFINED BY ARCHITECTURAL WALL SECTIONS AND BUILDING SECTIONS. STRUCTURAL DETAILS SHOW DIMENSIONAL RELATIONSHIPS TO CONTROL DIMENSIONS DEFINED BY ARCHITECTURAL DRAWINGS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

### DESIGN CRITERIA

VERTICAL LOADS

AREA	DESIGN DEAD LOAD (1)	LIVE LOAD	CONCENTRATED LOADS
ROOF	20 PSF	25 PSF	300#

1. INCLUDES UP TO 5 PSF OF ADDITIONAL DEAD LOAD FOR SOLAR READINESS

#### LATERAL FORCES

LATERAL FORCES ARE TRANSMITTED BY DIAPHRAGM ACTION OF ROOF TO SHEAR WALLS. LOADS ARE THEN TRANSFERRED TO FOUNDATION BY SHEAR WALL ACTION WHERE ULTIMATE DISPLACEMENT IS RESISTED BY PASSIVE PRESSURE OF EARTH AND/OR SLIDING FRICTION. OVERTURNING IS RESISTED BY DEAD LOAD OF THE STRUCTURE.

#### WIND:

THE BUILDING MEETS THE CRITERIA TO USE THE "ENCLOSED, PARTIALLY ENCLOSED, AND OPEN BUILDINGS OF ALL HEIGHTS PROCEDURE" PER ASCE 7–16.

- EXPOSURE CATEGORY = B
- BASIC WIND SPEED (3 SEC. GUST), VULT = 97 MPH
- RISK CATAGORY PER TABLE 1.5-1 = II
- TOPOGRAPHIC FACTOR Kzt = 1.0
- INTERNAL PRESSURE COEFFICIENT (ENCLOSED) =  $\pm$  0.18 - COMPONENTS AND CLADDING LOADS, SEE THE FOLLOWING TABLES:

ROOF SURFACES <sup>1</sup>						
EFFECTIVE WIND		NEGATIVE PRESSURES (PSF)				
AREA	(PSF)		ZONE <sup>3</sup>			
	ALL ZONES	1'	1	2	3	
10 SF	16.0	-16.0	-21.9	-28.9	-39.4	
20 SF	16.0	-16.0	-20.5	-27.0	-35.7	
50 SF	16.0	-16.0	-18.5	-24.6	-30.7	
100 SF	16.0	-16.0	-17.1	-22.7	-27.0	
	WALL SURFACES AND ROOF OVERHANGS <sup>1</sup>					
	POSITIVE PRE	SSURE (PSF)	NEGATIVE PRE	ESSURE (PSF)		
EFFECTIVE WIND AREA		ZONE <sup>2</sup>				
	4	5	4	5		
10 SF	16.0	16.0	-16.0	-18.4		
20 SF	16.0	16.0	-16.0	-17.2		
50 SF	16.0	16.0	-16.0	-16.0		
100 SF	16.0	16.0	-16.0	-16.0		
500 SF	16.0	16.0	-16.0	-16.0		

1. VALUES SHOWN IN TABLE ARE GROSS ULTIMATE WIND PRESSURES.

2. WALL ZONES ARE AS DEFINED BY FIGURE 30.3-1 FOR ASCE 7-16 IN LOW RISE BUILDINGS.

3. ROOF ZONES ARE AS DEFINED BY FIGURES 30.3-2 THROUGH 30.3-7 IN ASCE 7-16 FOR LOW RISE BUILDINGS.

SEISMIC: (ASCE 7-16) V = CsWWHERE  $Cs = \frac{SDS}{DS}$ : WITH  $\left(\frac{1}{\text{Ie}}\right)$ Cs MINIMUM = 0.044 SpsIe  $\geq 0.01$ OR Cs MINIMUM =  $\frac{0.5S1}{5}$  FOR S1 > 0.6g Cs MAXIMUM =  $T(\frac{1}{I_{O}})$  FOR  $T \leq T_{L}$ ΟR Cs MAXIMUM =  $T2(\frac{R}{T_{P}})$  FOR T >  $T_{L}$ 

SEISMIC IMPORTANCE FACTOR. I = 1.0RISK CATEGORY OF BUILDING PER TABLE 1.5-1 = IISPECTRAL RESPONSE ACCELERATIONS  $S_s = 1.268 S_1 = 0.437$ SITE CLASS PER TABLE 20.3-1 = FDESIGN SPECTRAL RESPONSE ACCELERATIONS SDS = 0.845 & SD1 = 0.543 SEISMIC DESIGN CATEGORY = DW = EFFECTIVE SEISMIC WEIGHT OF BUILDING = 36.6 KIPSANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE RESPONSE MODIFICATION FACTOR PER TABLE 12.2-1, R = 6.5Cs = 0.130DESIGN BASE SHEAR V = 4.8 KIPS

PIPES, DUCTS AND MECHANICAL EQUIPMENT SUPPORTED OR BRACED FROM STRUCTURE. CONFORM TO SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. PUBLICATION "SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS". SPRINKLER LINE ATTACHMENTS SHALL CONFORM TO NFPA PAMPHLET 13.

FOUNDATION DESIGN CRITERIA (REFER TO GEOTECHNICAL ENGINEERING REPORT BY KRAZAN AND ASSOCIATES. INC. DATED MAY 6, 2022).

#### SOIL BEARING PRESSURE: 1500 PSF

PASSIVE RESISTANCE: 300 PCF (INCLUDES F.O.S. > 1.5) COEFFICIENT OF FRICTION: 0.35 (INCLUDES F.O.S.  $\geq$  1.5) \*1/3 INCREASE ALLOWED FOR SEISMIC OR WIND LOADING

ALL FOOTINGS SHALL BEAR ON DEEP FOUNDATIONS EXTENDING BELOW THE DEEPER LIQUEFIABLE SOILS. CONTRACTOR SHALL EXERCISE EXTREME CARE DURING EXCAVATION TO AVOID DAMAGE TO BURIED LINES, TANKS, AND OTHER CONCEALED ITEMS. UPON DISCOVERY, DO NOT PROCEED WITH WORK UNTIL RECEIVING WRITTEN INSTRUCTIONS FROM ARCHITECT. A COMPETENT REPRESENTATIVE OF THE OWNER SHALL INSPECT ALL FOOTING EXCAVATIONS FOR SUITABILITY OF BEARING SURFACES PRIOR TO PLACEMENT OF REINFORCING STEEL. PROVIDE DRAINAGE AND DEWATERING AROUND ALL WORK TO AVOID WATER-SOFTENED FOOTINGS.

STEEL PIPE PILES PIPE PILES: 8" NOMINAL DIAMETER GALVANIZED SCHEDULE 40 = 25K ALLOWABLE AXIAL COMPRESSION.

4' MINIMUM EMBED INTO UNDERLYING DENSE TO VERY DENSE SAND AND GRAVEL OR AS OTHERWISE APPROVED BY GEOTECHNICAL ENGINEER BASED ON OBSERVATIONS DURING PILE DRIVING, WHICHEVER IS DEEPER.

TESTING: ALLOWABLE LOADS TO BE VERIFIED BY LOAD TESTS IN ACCORDANCE WITH ASTM D-1143 "QUICK LOAD TEST". A MINIMUM OF 3% OF THE TOTAL PILES SHALL BE TESTED A MINIMUM OF ONE TIME AND MAXIMUM OF 5 TIMES PER PILE.

MATERIAL: PIPE PILES – ASTM A252 GR3 (Fy = 45 KSI).

INSTALLATION: INSTALL IN A TRUE VERTICAL POSITION. REFER TO THE GEOTECHNICAL REPORT TO DETERMINE THE GENERALIZED SUBSURFACE PROFILES, DRIVEABILITY, SOIL PROPERTIES, CONSTITUENTS, EXISTING SITE FEATURES AND CONDITIONS, AND LOAD TESTING PROTOCALS.

TIP DESIGN: TIP DESIGN SHALL BE PER CONTRACTOR AND TAKE INTO CONSIDERATION INSTALLATION **REQUIREMENTS.** 

INDICATOR PILES: THE LENGTH OF THE PILE REQUIRED AND THE PILE INSTALLATION SHALL BE VERIFIED IN THE FIELD BY A QUALIFIED INSPECTOR WHO WILL EVALUATE THE CONTRACTOR'S OPERATION AND COLLECT, INTERPRET AND RECORD DATA. A MINIMUM OF TWO INDICATOR PILES SHALL BE DRIVEN BEFORE ORDERING PRODUCTION PILES TO ESTIMATE THE TRUE PILE LENGTHS AND DETERMINE DRIVING CHARACTERISTICS AND PROBLEMS. A QUALIFIED INSPECTOR SHALL EVALUATE INSTALLATION OF INDICATOR PILES.

#### CONCRETE

CAST-IN-PLACE CONCRETE

MIX DESIGNS: THE CONTRACTOR SHALL DESIGN CONCRETE MIXES THAT MEET OR EXCEED THE REQUIREMENTS OF THE CONCRETE MIX TABLE. THE MIX DESIGNS SHALL FACILITATE ANTICIPATED PLACEMENT METHODS, WEATHER, REBAR CONGESTION, ARCHITECTURAL FINISHES, CONSTRUCTION SEQUENCING, STRUCTURAL DETAILS, AND ALL OTHER FACTORS REQUIRED TO PROVIDE A STRUCTURALLY SOUND, AESTHETICALLY ACCEPTABLE FINISHED PRODUCT. WATER REDUCING ADMIXTURES WILL LIKELY BE REQUIRED TO MEET THESE REQUIREMENTS. CONCRETE MIX DESIGNS SHALL CLEARLY INDICATE THE TARGET SLUMP. SLUMP TOLERANCE SHALL BE  $\pm 1-1/2$  INCHES.

AGGREGATE: COARSE AND FINE AGGREGATE SHALL CONFORM TO ASTM C33

CEMENT: CEMENT SHALL CONFORM TO ASTM C150, TYPE II PORTLAND CEMENT, UNLESS NOTED OTHERWISE.

FLYASH: SHALL CONFORM TO ASTM C618 CLASS C OR F, MAXIMUM LOSS OF IGNITION SHALL BE 1.0%.

SLAG: GROUND GRANULATED BLAST-FURNACE (GGBF) SLAG SHALL CONFORM TO ASTM C989 GRADE 100 OR 120.

ALTERNATE MIX DESIGNS: VARIATIONS TO THE MIX DESIGN PROPORTIONS MAY BE ACCEPTED IF SUBSTANTIATED IN ACCORDANCE WITH ACI 318, CHAPTER 19. PROVIDE SUBMITTALS A MINIMUM OF TWO WEEKS PRIOR TO BID FOR DETERMINATION OF ACCEPTABILITY.

ADMIXTURES: ADMIXTURES SHALL BE BY MASTER BUILDERS, W.R. GRACE, OR PRE-APPROVED EQUAL. ALL MANUFACTURERS RECOMMENDATIONS SHALL BE FOLLOWED.

WATER: SHALL BE CLEAN AND POTABLE.

MAXIMUM CHLORIDE CONTENT: THE MAXIMUM WATER SOLUBLE CHLORIDE CONTENT SHALL NOT EXCEED 0.15% BY WEIGHT OF CEMENTITIOUS MATERIAL UNLESS NOTED OTHERWISE.

CONCRETE EXPOSED TO WEATHER: PROVIDE 5.0% TOTAL AIR CONTENT FOR ALL CONCRETE EXPOSED TO WEATHER. TOTAL AIR CONTENT IS THE SUM OF ENTRAINED AIR PROVIDED BY ADMIXTURES AND NATURALLY OCCURRING ENTRAPPED AIR. AIR CONTENT SHALL BE TESTED PRIOR TO BEING PLACED IN THE PUMP HOPPER OR BUCKET; IT IS NOT REQUIRED TO BE TESTED AT THE DISCHARGE END OF THE PUMP HOSE. THE TOLERANCE ON ENTRAPPED AIR SHALL BE +2.0% AND -1.5% WITH THE AVERAGE OF ALL TESTS NOT LESS THAN THE SPECIFIED AMOUNT.

TOTAL CEMENTITIOUS MATERIAL: THE SUM OF ALL CEMENT PLUS FLYASH AND SLAG. AT THE CONTRACTORS OPTION FLYASH OR SLAG MAY BE SUBSTITUTED FOR CEMENT BUT SHALL NOT EXCEED 25% BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL. IN NO CASE SHALL THE AMOUNT OF FLYASH OR SLAG BE LESS THAN REQUIRED BY THE CONCRETE MIX DESIGN TABLE. FOOTING MIXES SHALL CONTAIN NOT LESS THAN 5 SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD, ALL OTHER MIXES SHALL CONTAIN NOT LESS THAN 5-1/2SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD. UNLESS NOTED OTHERWISE.

ITEM	DESIGN f'c (PSI) (AT 28 DAYS U.N.O.)	MAX. W/C RATIO	MIN. FLYASH OR SLAG (PCY)	AGGREGATEG RADING ASTM AASHTO	NOTES
SLABS ON GRADE – UNO	4000	0.45	100	57 OR 67	1
ARCHITECTURALLY EXPOSED SLABS ON GRADE	4000	0.45	100	57 OR 67	1, 2
FOUNDATIONS – UNO	3000	0.50		57 OR 67	
STEM WALLS AND OTHER WALLS EXPOSED TO EARTH OR WEATHER	4500	0.45	100	57 OR 67	
ALL OTHER CONCRETE	4000	0.50		57 OR 67	

#### CONCRETE MIX NOTES:

1. MAXIMUM WATER CONTENT 240 PCY.

PLUS" SHALL BE USED.

#### CONCRETE PLACEMENT

PLACE CONCRETE FOLLOWING ALL APPLICABLE ACI RECOMMENDATIONS. CONCRETE SHALL BE PROPERLY CONSOLIDATED PER ACI 309 USING INTERIOR MECHANICAL VIBRATORS, DO NOT OVER-VIBRATE. CONCRETE SHALL BE POURED MONOLITHICALLY BETWEEN CONSTRUCTION OR EXPANSION JOINTS. IF CONCRETE IS PLACED BY THE PUMP METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE, THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE REINFORCING. WEATHER FORECASTS SHALL BE MONITORED AND ACI RECOMMENDATIONS FOR HOT AND COLD WEATHER CONCRETING SHALL BE FOLLOWED AS REQUIRED CONCRETE SHALL NOT FREE FALL MORE THAN 5 FEET DURING PLACEMENT WITHOUT WRITTEN APPROVAL OF STRUCTURAL ENGINEER.

FLOATING & FINISHING OPERATIONS:

ARE ACCEPTABLE.

#### FORMED SURFACES

FORMWORK	C
ALL SURFACES EXPOSED TO PUB	L
ALL SURFACES RECEIVING A COU OR STUCCO, UNLESS NOTED OTH	
ALL OTHER SURFACES, UNLESS N	1(

#### COLD WEATHER PLACEMENT

- THE MEAN DAILY TEMPERATURE DROPS BELOW 40° F."
- WITH HEATERS IS PERMISSIBLE.
- MAY BE REQUIRED TO ATTAIN THESE TEMPERATURES.

CONDITION OF PLACEMENT AND C

MIN. TEMP. FRESH CONCRETE AS FOR WEATHER INDICATED. DEGREE

MIN. TEMP. FRESH CONCRETE AS DEGREES F.

MAX. ALLOWABLE GRADUAL DROP HOURS AFTER END OF PROTECTIO

2. THIS MIX SHALL CONTAIN 1 GALLON PER CY OF 'ECLIPSE' SHRINKAGE REDUCING ADD MIXTURE BY W.R. GRACE OR APPROVED ALTERNATE. FOR CONCRETE REQUIRING AN AIR ENTRAINMENT ADMIXTURE, "ECLIPSE

WATER SHALL NOT BE ADDED TO THE CONCRETE SURFACE DURING FLOATING & FINISHING OPERATIONS. PRE-APPROVED EVAPORATION RETARDER SPECIFICALLY DESIGNED FOR FLOATING & FINISHING OPERATIONS

CLASS OF SURFACE PER ACI TABLE 347 TABLE 3.1				
ITEM	CLASS OF FINISH			
BLIC VIEW, UNLESS NOTED OTHERWISE	А			
RSE TEXTURED COATING SUCH AS PLASTER IERWISE	В			
NOTED OTHERWISE	С			

1. COLD WEATHER IS DEFINED BY ACI 306 AS "A PERIOD WHEN FOR MORE THAN 3 SUCCESSIVE DAYS

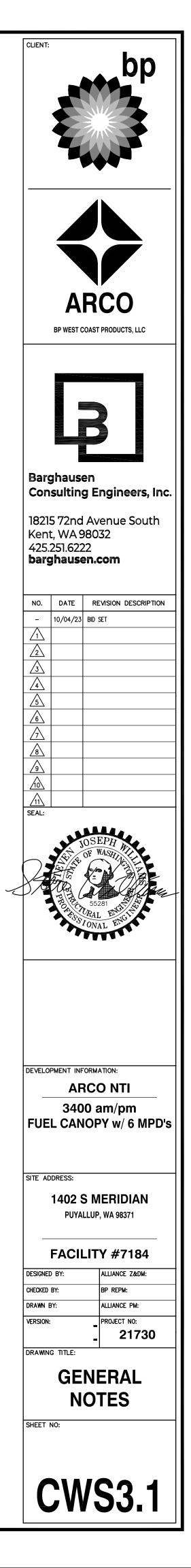
2. NO CONCRETE SHALL BE PLACED ON FROZEN OR PARTIALLY FROZEN GROUND. THAWING THE GROUND

3. CONCRETE MIX TEMPERATURES SHALL BE AS SHOWN BELOW. HEATING OF WATER AND/OR AGGREGATES

4. THE CONCRETE MAY REQUIRE PROTECTION FOR 4-7 DAYS AFTER POURING. IF TEMPERATURES REMAIN BELOW FREEZING, INSULATING BLANKET COVERAGE IS REQUIRED. IF TEMPERATURES ARE SLIGHTLY BELOW FREEZING (30° F MIN.) AT NIGHT AND ABOVE FREEZING DURING THE DAY, KRAFT PAPER WITH COMPLETE COVERAGE MAY BE USED IN LIEU OF INSULATED BLANKETS.

5. NO ADDITIVES CONTAINING CHLORIDES SHALL BE USED. USE "POZZUTEC 20+" BY MASTER BUILDERS OR "POLARSET" BY W.R. GRACE OR PRE-APPROVED EQUAL.

CURING		WALLS & SLABS	FOOTINGS
S MIXED ES F.	ABOVE 30°F. 0 TO 30°F. BELOW 0°F.	60° 65° 70°	55° 60° 65°
S PLACED AND MAINTAINED,		55°	50°
IN TEMP. ON, DEGREI	THROUGHOUT FIRST 24 ES F.	50°	40°



HOT OR WINDY WEATHER PLACEMENT

HOT WEATHER IS DEFINED BY ACI 305 AS "ANY COMBINATION OF HIGH AIR TEMPERATURE, LOW RELATIVE HUMIDITY, AND WIND VELOCITY, TENDING TO IMPAIR THE QUALITY OF FRESH HARDENED CONCRETE.. ACI 305 FIGURE 2.1.5 SHALL BE USED BY THE CONTRACTOR TO ESTIMATE THE RATE OF EVAPORATION. WHEN THE ESTIMATED RATE OF EVAPORATION IS GREATER THAN 0.2 PSF/HOUR THE PLACEMENT SHALL BE CONSIDERED A HOT WEATHER PLACEMENT. PRECAUTIONS AGAINST PLASTIC SHRINKAGE CRACKING ARE NECESSARY. PRECAUTIONS TAKEN BY THE CONTRACTOR VARY DEPENDING UPON THE FACTORS ASSOCIATED WITH WATER EVAPORATION AND INCLUDE BUT ARE NOT LIMITED TO:

- 1. LIMITING CONCRETE TEMPERATURE TO 100°F AT TIME OF PLACEMENT.
- 2. APPLICATION OF AN EVAPORATION RETARDER.
- 3. USE OF FOG SPRAY.
- 4. REDUCTION OF POUR SIZE.
- 5. PLACING CONCRETE AT NIGHT.
- CONTROL AND CONSTRUCTION JOINTS

CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF ACI 301 SECTIONS 2.2.2.5 AND 5.3.2.6. SPECIAL BONDING METHODS PER SECTION 5.3.2.6 SHALL BE SATISFIED BY ITEM 4 BELOW UNLESS OTHERWISE DETAILED ON THE STRUCTURAL DRAWINGS. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN ON PLAN OR ADDITIONAL CONSTRUCTION JOINTS ARE REQUIRED SUBMIT PROPOSED JOINTING FOR STRUCTURAL ENGINEERS APPROVAL. PROVIDE CONSTRUCTION JOINTS AS INDICATED BELOW UNLESS NOTED OTHERWISE ON THE PLANS

- 1. SLABS ON GRADE. PROVIDE CONSTRUCTION AND/OR CONTROL JOINTS AT 16 FEET O.C. MAXIMUM FOR UNEXPOSED SLABS ON GRADE AND 12 FEET O.C. FOR EXPOSED SLABS ON GRADE. COORDINATE JOINTS WITH ARCHITECTURAL DRAWINGS.
- 2. BONDING AGENT. WHERE BONDING AGENT IS SPECIFICALLY CALLED OUT ON THE STRUCTURAL DRAWINGS USE "WELD CRETE" BY LARSON PRODUCTS CORPORATION OR PRE-APPROVED EQUAL. FOLLOW ALL MANUFACTURERS RECOMMENDATIONS.
- 3. ATTACHMENT OF NEW CONCRETE TO EXISTING: WHERE SHOWN, ROUGHEN CONCRETE TO A MINIMUM AMPLITUDE OF 1/4" USING IMPACT HAMMER. REMOVE ALL LOOSE OR DAMAGED CONCRETE, THOROUGHLY FLUSH ALL SURFACES WITH POTABLE WATER, AIR BLAST WITH OIL FREE COMPRESSED AIR TO REMOVE ALL WATER.

#### EMBEDDED ITEMS

- 1. NO ALUMINUM ITEMS SHALL BE EMBEDDED IN ANY CONCRETE.
- 2. ALL EMBED PLATES SHALL BE SECURELY FASTENED IN PLACE.
- 3. ALL EMBEDDED STEEL ITEMS EXPOSED TO EARTH SHALL BE GALVANIZED.
- 4. ALL EMBEDDED STEEL ITEMS EXPOSED TO WEATHER SHALL BE PAINTED UNLESS NOTED AS GALVANIZED. SEE DRAWINGS AND SPECIFICATIONS FOR PAINT, PRIMER, AND GALVANIZING REQUIREMENTS

#### CONCRETE CURING AND SEALING

CURING PROCEDURES SHALL COMMENCE IMMEDIATELY AFTER FINISHING CONCRETE TO MAINTAIN CONCRETE IN A MOIST CONDITION. VERIFY CURING AND/OR SEALING PRODUCTS ARE COMPATIBLE WITH FLOOR COVERINGS SHOWN ON THE ARCHITECTURAL DRAWINGS. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS. SLABS ARE DEFINED AS SLABS ON GRADE, CONCRETE ON METAL DECK, ELEVATED POST-TENSIONED OR MILD REINFORCED DECKS, AND TOPPING SLABS

ITEM	CONCRETE CURING NOTES
SLABS EXPOSED TO EARTH OR WEATHER OR VEHICLE OR FORKLIFT TRAFFIC INCLUDING LOADING DOCKS	1, (3 OR 4 OR 5), 6
ALL OTHER SLABS	1, (3 OR 4 OR 5)
FORMED SURFACES EXCLUDING FOUNDATIONS	2
ALL OTHER CONCRETE	NONE

#### CONCRETE CURING NOTES:

- 1. WHEN THE ESTIMATED EVAPORATION RATE IS GREATER THAN 0.2 PSF/HOUR, PROVIDE A SPRAY APPLIED EVAPORATION RETARDER IMMEDIATELY AFTER CONCRETE PLACEMENT. THE EVAPORATION RATE MAY BE CALCULATED PER ACI 305 FIGURE 2.1.5.
- 2. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND, CONFORMING TO ASTM C309 TYPE 1 CLASS B SPECIFICATIONS. PER MANUFACTURERS RECOMMENDATIONS TO ALL FORMED SURFACES IMMEDIATELY AFTER FORM REMOVAL. NOT REQUIRED IF FORMWORK REMAINS IN PLACE FOR MORE THAN 7 DAYS.
- 3. PROVIDE PRE-APPROVED CONTINUOUS WET CURE METHOD FOR A MINIMUM OF 14 DAYS.
- 4. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND, CONFORMING TO ASTM C309 TYPE 1 CLASS B SPECIFICATIONS OR ASTM C1315 TYPE 1 CLASS A SPECIFICATIONS, PER MANUFACTURERS RECOMMENDATIONS IMMEDIATELY AFTER FINAL FINISHING. CURING COMPOUND SHALL BE COMPATIBLE WITH ARCHITECTURAL FLOOR COVERINGS AND SEALERS.
- 5. PROVIDE 'ULTRACURE MAX' MOISTURE RETAINING COVER BY MCTECH GROUP, OR APPROVED EQUAL, FOR A MINIMUM OF 14 DAYS.
- 6. APPLY A SILANE SEALER WITH MINIMUM SOLIDS CONTENT OF 40% PER MANUFACTURERS RECOMMENDATIONS.

#### <u>GROUT</u>

NON-SHRINK GROUT: MASTER BUILDERS "MASTERFLOW 928" OR PRE-APPROVED EQUAL. GROUT SHALL CONFORM TO CRD-C621 AND ASTM C1107 WHEN TESTED AT A FLUID CONSISTENCY PER CRD- C611-85 FOR 30 MINUTES. GROUT MAY BE PLACED FROM A 25 SECOND FLOW TO A STIFF PACKING CONSISTENCY. FILL OR PACK ENTIRE SPACE UNDER PLATES OR SHAPES. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PREPARATION, INSTALLATION, AND CURING.

### REINFORCING STEEL

REINFORCING STEEL SHALL CONFORM TO:

ASTM A615, GRADE 60 TYPICAL UNLESS NOTED OTHERWISE.

DETAIL FABRICATE AND PLACE PER ACI 315 AND ACI 318.

WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A185. LAP ONE FULL MESH ON SIDES AND ENDS, BUT NOT LESS THAN 8 INCHES. WELDED WIRE REINFORCING SHALL BE SUPPORTED TO WITHSTAND CONCRETE PLACEMENT. PULLING OF MESH INTO PLACE AFTER PLACEMENT IS NOT ALLOWED.

RE	EINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE, Fy=60 KSI (UNLESS NOTED OTHERWISE)					
BAR	MINIMUM LAP SPLICE LENGTHS ("Ls") MINIMUM DEVELOPMENT LENGTHS ("Ld")			MINIMUM EMBEDMENT LENGTH FOR		
SIZE	TOP BARS (1)	OTHER BARS	TOP BARS (1)	OTHER BARS	STANDARD END HOOKS ("Ldh")	
#3	2'-0"	1'-6"	1'-6"	1'-3"	0'-7"	
#4	2'-8"	2'-0"	2'-0"	1'-7"	0'-9"	
<b>#</b> 5	3'-4"	2'-7"	2'-7"	2'-0"	1'-0"	
#6	4'-0"	3'-1"	3'-1"	2'-4"	1'-2"	
#7	5'-10"	4'-6"	4'-6"	3'-6"	1'-5"	
#8	6'-8"	5'-2"	5'-2"	3'-11"	1'-7"	

#### SPLICE TABLE NOTE:

1. "TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

#### REINFORCING STEEL COVER

PROVIDE CONCRETE COVER OVER REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE.

CONCRETE CAST AGAINST EARTH 3"
EXPOSED TO WEATHER OR EARTH 2"
WALLS AND SLABS NOT EXPOSED TO WEATHER 3/4"

### POST-INSTALLED ANCHORS

POST-INSTALLED ANCHORS: SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE STRUCTURAL ENGINEER PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH REBAR. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. INSTALLER SHALL BE QUALIFIED AND TRAINED BY THE MANUFACTURER. HOLES SHALL BE HAMMER DRILLED ONLY (ROTARY DRILLED ONLY AT UNREINFORCED MASONRY - NO HAMMER TOOLS).

SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED FOR APPROVAL A MINIMUM OF 2 WEEKS PRIOR TO BID, ALONG WITH CALCULATIONS THAT ARE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER (LICENSED IN THE STATE IN WHICH THE PROJECT OCCURS) DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE.

CONCRETE ANCHORS:

- ADHESIVE ANCHORS: HILTI HIT-HY 200 (ICC-ESR-3187), HILTI HIT-RE 500 V3 (ICC-ESR-3814), DEWALT PURE 110+ (ICC-ESR-3298) OR SIMPSON SET-3G (ICC-ESR-4057) OR PRE-APPROVED EQUAL.
  - \*CONCRETE SHALL BE A MINIMUM OF 21 DAYS OLD AT TIME OF INSTALLATION. \*CONCRETE SHALL BE IN THE TEMPERATURE RANGE AS REQUIRED BY THE CONCRETE MANUFACTURER.
  - \*HOLE SHALL BY HAMMER-DRILLED ONLY. \*DO NOT INSTALL IN WATER-FILLED HOLES. \*INSTALLER OF HORIZONTAL OR UPWARDLY INCLINED (ANY POSITION EXCEPT DIRECTLY DOWNWARD) ANCHORS SHALL ALSO BE CERTIFIED BY THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.
- EXPANSION ANCHORS: KWIKBOLT TZ (ICC ESR-1917) BY HILTI, INC., OR PRE-APPROVED EQUAL. - SCREW ANCHORS: KWIK HUS-EZ (ICC ESR-3027) BY HILTI, INC., OR PRE-APPROVED EQUAL.

### STRUCTURAL STEEL

DETAILING, FABRICATION AND ERECTION

ALL WORKMANSHIP SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION, 15TH EDITION, THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS JULY 7, 2016, THE AISC CODE OF STANDARD PRACTICE, JUNE 15, 2016 AND THE AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, JULY 12, 2016.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDES AND JOINT PREPARATIONS THAT INCLUDE BUT ARE NOT LIMITED TO, ERECTION ANGLES, LIFT HOLES, AND OTHER AIDES, WELDING PROCEDURES, REQUIRED ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, WELD EXTENSION TABS, COPES, SURFACE ROUGHNESS VALUES AND TAPERS OF UNEQUAL PARTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLIANCE WITH ALL CURRENT OSHA REQUIREMENTS.

HOLES, COPES OR OTHER CUTS OR MODIFICATIONS OF THE STRUCTURAL STEEL MEMBERS SHALL NOT BE MADE IN THE FIELD WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.

#### MATERIAL PROPERTIES

SHAPES AND PLATES: ASTM A36 (Fy = 36 KSI) TYP. U.N.O.; ASTM A572 (Fy = 50 KSI) WHERE INDICATED

HOLLOW STRUCTURAL SECTIONS: RECTANGULAR & SQUARE – ASTM A500 GRADE C (Fy = 50 KSI) ROUND - ASTM A500 GRADE C (Fy = 46 KSI)

STRUCTURAL STEEL PIPES : ASTM A53, GRADE B, TYPE E OR S (Fy = 35 KSI)

MACHINE BOLTS (M.B.): ASTM A307, GRADE A

ANCHOR BOLTS (A.B.): ASTM F1554, GRADE 55, UNLESS NOTED OTHERWISE, ASTM F1554, GRADE 105 WHERE INDICATED.

### WELDING

<u>CERTIFICATION</u>: ALL WELDING SHALL BE PERFORMED BY WABO/AWS CERTIFIED WELDERS. WELDERS SHALL BE PREQUALIFIED FOR EACH POSITION AND WELD TYPE WHICH THE WELDER WILL BE PERFORMING.

V-NOTCH RATINGS AS FOLLOWS: GRAVITY FRAME

WELD TYPE	FILLER METAL TENSILE STRENGTH	CHARPY V–NOTCH (CVN) RATING
FILLET	70 KSI	
PARTIAL PENETRATION	70 KSI	
COMPLETE PENETRATION	70 KSI	20 FT-LBS @ 40 DEG F

WELDED CONNECTIONS INSPECTION:

1. ALL WELDING SHALL BE CHECKED BY VISUAL MEANS AND BY OTHER METHODS DEEMED NECESSARY BY THE WELDING INSPECTOR.

D1.1.

ALL WELDS FOUND TO BE DEFECTIVE SHALL BE REPAIRED AND REINSPECTED BY THE SAME METHODS ORIGINALLY USED, AND THIS REPAIR AND REINSPECTION SHALL BE PAID FOR BY THE CONTRACTOR.

GENERAL REQUIREMENTS

PER SECTION 9.1.

ADHESIVE ANCHOR RODS: ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.

HEADED STUDS: SHALL BE "H4L HEADED CONCRETE ANCHORS" FOR STUDS 5/8" DIAMETER AND SMALLER AND "S3L SHEAR CONNECTORS" FOR STUDS 3/4" DIAMETER AND LARGER AS MANUFACTURED BY NELSON STUD WELDING, INC. OR PRE-APPROVED EQUAL AND SHALL CONFORM TO AWS D1.1. ALL HEADED STUDS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS USING A NELSON WELD GUN, UNLESS NOTED OTHERWISE ON DETAILS. ALL WELDS SHALL BE MADE AND INSPECTED IN ACCORDANCE WITH AWS D1.1.

FINISH: STRUCTURAL STEEL SHALL BE PRIMER PAINTED, UNLESS NOTED OTHERWISE, AND SHALL BE CLEAN OF LOOSE RUST, LOOSE MILL SCALE, OIL, GREASE AND OTHER FOREIGN SUBSTANCES AND SHALL MEET THE REQUIREMENTS OF SSPC-SP1. WHERE STRUCTURAL STEEL IS NOTED TO BE PAINTED, ALL AREAS COMPRISING THE FAYING SURFACES OF BOLTED CONNECTIONS MADE WITH SLIP-CRITICAL TYPE BOLTS (A325SC OR A490SC) SHALL COMPLY WITH THE REQUIREMENTS OF THE RCSC SPECIFICATION. WHERE STRUCTURAL STEEL IS NOTED TO BE GALVANIZED, IT SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, A384, AND A385. ALL SURFACES WITHIN TWO INCHES OF ANY FIELD WELD LOCATION SHALL BE FREE OF MATERIALS THAT WOULD PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES. FIELD TOUCH-UP OF PRIMED, PAINTED, AND GALVANIZED SURFACES SHALL BE PERFORMED TO REPAIR COATING ABRASIONS, AS WELL AS TO PROTECT ALL AREAS AT CONNECTIONS.

### CARPENTRY :

NAILS: CONNECTION DESIGNS ARE BASED ON NAILS WITH THE FOLLOWING PROPERTIES:

PENNYWEIGHT	DIAMETER (INCHES)	LENGTH (INCHES)
8d	0.131	2-1/2
10d	0.148	3
16d	0.148	3-1/2
20d	0.192	4

ALL NAILS AND STAPLES SHALL CONFORM TO ASTM F1667 INCLUDING SUPPLEMENT 1. FOR DIAPHRAGM OR SHEAR WALL NAILING THE FOLLOWING FASTENER TYPES MAY BE USED AT EQUIVALENT SPACING TO THAT SPECIFIED ON PLANS.

FASTENER TYPE	DIAMETER (INCHES)	LENGTH (INCHES)	EQUIV	ALENT SP (INCHES)	
8d COMMON WIRE	0.131	2-1/2	6	4	3
8d "DIPPED GALV. BOX" 8d "SHINY BOX" 14 GA. STAPLES 16 GA STAPLES	0.131 0.113 0.080 0.072	2-1/2 2-1/2 1-1/2* 1-1/2*	6 4-1/2 6 5	4 3 4 3	3 2-1/2 3 -
10d COMMON WIRE	0.148	3	6	4	3
10d "HOT DIPPED GALV. BOX" 10d "SHINY BOX"	0.148 0.131	3 3	6 4-1/2	4 3	3 2-1/4
16d COMMON WIRE	0.162	3-1/2	6	4	3
16d SINKER NAIL	0.148	3-1/4	5	3-1/4	2-1/2

\* BASED ON 15/32" PLYWOOD OR OSB.

STRUCTURAL STEEL: WELD IN ACCORDANCE WITH "STRUCTURAL WELDING CODE" AWS D1.1.

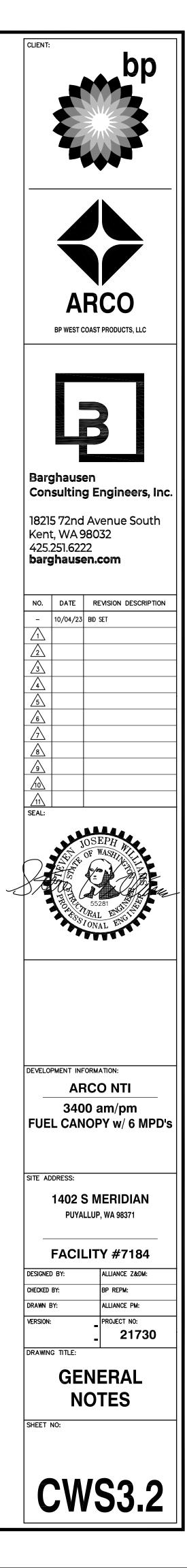
WELD TABS (ALSO KNOWN AS WELD "EXTENSION" TABS OR "RUN OFF" TABS) SHALL BE USED. AFTER THE WELD HAS BEEN COMPLETED THE WELD TABS SHALL BE REMOVED AND THE WELD END GROUND TO A SMOOTH CONTOUR. WELD "DAMS" OR "END DAMS" SHALL NOT BE USED.

THE PROCESS CONSUMABLES FOR ALL WELD FILLER METAL INCLUDING TACK WELDS, ROOT PASS AND SUBSEQUENT PASSES DEPOSITED IN A JOINT SHALL BE COMPATIBLE.

ALL WELD FILLER METAL AND WELD PROCESS SHALL PROVIDE THE TENSILE STRENGTH AND CHARPY

THE STANDARDS OF ACCEPTANCE FOR WELDS TESTED BY ULTRASONIC METHODS SHALL CONFORM TO AWS

BOLTED CONNECTIONS INSPECTION: CONNECTIONS MADE WITH BEARING TYPE BOLTS SHALL BE INSPECTED



WOOD SHEATHING (STRUCTURAL): SHEATHING ON ROOF SURFACES SHALL BE PLYWOOD ONLY. SHEATHING ON FLOOR AND WALLS SHALL BE PLYWOOD OR ORIENTED STRAND BOARD (OSB). PLYWOOD SHEATHING SHALL BE 5-PLY MINIMUM WHERE INDICATED AS PERFORMANCE CATAGORY 3/4" OR THICKER. WOOD SHEATHING SHALL BE "STRUCTURAL I" CONFORMING TO PS1-09 AND/OR PS2-10. ALL PANELS SHALL BEAR THE STAMP OF AN APPROVED GRADING AGENCY. SPAN RATING SHALL BE PROVIDED AS FOLLOWS: ROOF FRAMING AT 48" O.C. (48/24); ROOF FRAMING AT 24"O.C. (32/16); WALLS (32/16); ALL WOOD SHEATHED WALLS SHALL BE BLOCKED AT ALL PANEL EDGES UNLESS NOTED OTHERWISE.

<u>GLUE-LAMINATED MEMBERS</u>: CONFORM TO ANSI/AITC A190.1. MEMBERS SHALL BE COMBINATION 24F-V4 DOUGLAS FIR (DF) FOR SIMPLE SPANS; AND 24F-V8 DF FOR CANTILEVERED AND/OR CONTINUOUS SPANS (Fb=2400 PSI, Fv=265 PSI, E=1.8X10<sup>6</sup> PSI); AND DF COMBINATION 2 FOR COLUMNS.

ARCHITECTURAL APPEARANCE GRADE WHERE EXPOSED TO VIEW; INDUSTRIAL APPEARANCE WHERE NOT EXPOSED TO VIEW. ALL MEMBERS TO HAVE EXTERIOR GLUE AND HAVE AN APPROVED GRADE STAMP. CAMBER AS SHOWN ON STRUCTURAL DRAWINGS.

FRAMING LUMBER: STANDARDS. EACH PIECE SHALL BEAR THE GRADE TRADEMARK OF THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB), WESTERN WOOD PRODUCTS ASSOCIATION (WWPA), OR OTHER AGENCY ACCREDITED BY THE AMERICAN LUMBER STANDARD COMMITTEE (ALSC) TO GRADE UNDER ALSC CERTIFIED GRADING RULES.

<u>SPECIES AND GRADE</u> (BASE DESIGN VALUE)

- 1. 6x BEAMS AND HEADERS. "DOUG FIR-LARCH" NO. 1 (Fb=1350 PSI, Fv=170 PSI)
- 2. 2x TO 4x JOISTS, PURLINS AND HEADERS. "DOUG FIR-LARCH" NO. 2 (Fb=900 PSI, Fv=180 PSI) OR "HEM-FIR" NO. 1 (Fb=975 PSI, Fv=150 PSI)
- 3. 6x POSTS AND COLUMNS. "DOUG FIR-LARCH" NO. 1 (Fc=1000 PSI)
- 4. EXTERIOR STUDS, INTERIOR BEARING WALLS AND 4x COLUMNS. "DOUG FIR-LARCH" NO. 2 (Fb= 900 PSI, Fc=1350 PSI) OR "HEM-FIR" NO. 1 (Fb=975 PSI, Fc=1350 PSI).
- 5. INTERIOR NON-BEARING STUD WALLS. "DOUG FIR-LARCH" NO. 2 (Fb=900 PSI. Fc=1350 PSI) OR "HEM-FIR" NO. 1 (Fb=975 PSI, Fc=1350 PSI)
- 6. 2x & 3x T&G DECKING: "DOUG FIR-LARCH" COMMERCIAL (Fb=1450 PSI, E=1700 KSI)
  7. THE MINIMUM GRADE OF ALL OTHER STRUCTURAL FRAMING. "DOUG FIR-LARCH" NO. 2 (Fb= 900 PSI, Ex 1750 PSI)
- Fc=1350 PSI), OR "HEM-FIR" NO. 1 (Fb=975 PSI, Fc=1350 PSI). 8. UTILITY & STANDARD GRADES NOT PERMITTED.

STRUCTURAL COMPOSITE LUMBER (SCL): SHALL BE MANUFACTURED BY REDBUILT LLC., OR PRE-APPROVED EQUAL IN ACCORDANCE WITH APPROVED SHOP AND INSTALLATION DRAWINGS CONFORMING TO A CURRENT EVALUATION REPORT.

MIINIMUM DESIGN VALUES:

- 1. 2x SCL: Fb = 1700 PSI, Fv = 285 PSI, E = 1300 KSI
- 2. 1-3/4" SCL: Fb = 2600 PSI, Fv = 285 PSI, E = 1800 KSI 3. 3-1/2" SCL: Fb = 2900 PSI, Fv = 285 PSI, E = 2000 KSI
- 4. 5-1/4" SCL: Fb = 2900 PSI, Fv = 285 PSI, E = 2000 KSI
- 5. RIMBOARD: APA/EWS PERFORMANCE RATED RIM (PRR-401)

MEMBERS HAVE BEEN DESIGNED TO SERVICEABILITY AND OTHER PERFORMANCE BASED REQUIREMENTS, WHICH MAY EXCEED MINIMUM DESIGN LOADS AND CODE REQUIREMENTS. SUBSTITUTIONS MUST MEET OR EXCEED MOMENT, SHEAR, AND STIFFNESS OF THOSE MEMBERS SPECIFIED AT THE SAME DEPTH AND SPACING.

#### PRESERVATIVE TREATED WOOD REQUIREMENTS:

TREATMENTS OTHER THAN THOSE LISTED BELOW ARE NOT PERMITTED.

		APPLICATION	SPECIFIED MATERIAL	PRESERVATIVE TREATMENT (1)	CONNECTORS & FASTENERS (2)(3)
	Υ	TOP PLATES & LEDGERS ON	2x, 4x, 6x (FIR), OR GLULAM (SP)	SBX	GALV (G60)
JRE		CONCRETE OR MASONRY WALLS (4)		ACQ, CBA, CA	GALV (G185)
EXPOSURE		FRAMING, DECKING, POSTS &	2x, & 4x (FIR)	ACQ, CBA, CA	GALV (G185)
EXF	$\vdash$	LEDGERS	2x, & 4x (CEDAR)	NONE	GALV (G90)
	WE	BEAMS & COLUMNS	6x (FIR), OR GLULAM (SP)	ACQ, CBA, CA	GALV (G185)
			6x OR GLULAM (CEDAR)	NONE	GALV (G90)

1.CCA: CHROMATED COPPER ARSENATE NOT PERMITTEDFIR: DOUG-FIR OR HEM-FIR<br/>SP: SOUTHERN PINESBX: DOT SODIUM BORATESP: SOUTHERN PINE

ACQ: ALKALINE COPPER QUAT

CBA & CA: COPPER AZOLE

- 2. CONNECTORS: JOIST HANGERS, STRAPS, FRAMING CONNECTORS, COLUMN CAPS AND BASES, ETC. FASTENERS: MACHINE BOLTS, ANCHOR BOLTS AND LAG SCREWS WITH ASSOCIATED PLATE WASHERS AND NUTS. NAILS, SPIKES, WOOD SCREWS, ETC.
- 3. G60, G90 & G185 PER ASTM A653 FOR COLD-FORMED STEEL CONNECTORS. BATCH/POST HOT-DIP GALVANIZED PER ASTM A123 FOR CONNECTORS AND ASTM A153 STRUCTURAL STEEL CONNECTORS. HOT-DIP GALVANIZED PER ASTM A153 FOR FASTENERS OR MECHANICALLY GALVANIZED FASTENERS PER ASTM B695, CLASS 55 OR GREATER.
- 4. AT CONTRACTORS OPTION, LEDGERS AND TOP PLATES A MINIMUM OF 8 FEET ABOVE GRADE ON CONCRETE OR MASONRY WALLS MAY BE UN-TREATED IF COMPLETELY SEPARATED FROM THE WALL BY A SELF ADHERING ICE & WATER SHIELD BARRIER (40 MIL MINIMUM).

<u>GENERAL REQUIREMENTS</u>: PROVIDE MINIMUM NAILING PER IBC TABLE 2304.10.1 OR MORE, AS OTHERWISE SHOWN. STAGGER ALL NAILING TO PREVENT SPLITTING OF WOOD MEMBERS. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESERVATIVE TREATED WITH THE EXCEPTION OF INTERIOR CONCRETE TOPPINGS ON WOOD FLOOR SYSTEMS. HOLES AND CUTS IN 3x OR 4x PLATES SHOULD BE TREATED WITH A 9% SOLUTION OF COPPER NAPHTHENATE. BOLT HOLES IN WOOD MEMBERS SHALL BE A MINIMUM OF 1/32" TO A MAXIMUM OF 1/16" LARGER THAN THE BOLT DIAMETER. PROVIDE CUT WASHERS WHERE BOLT HEADS, NUTS AND LAG SCREW HEADS BEAR ON WOOD. PROVIDE A MINIMUM 3"x3"x0.229" PLATE WASHER ON ALL ANCHOR BOLTS WHICH CONNECT MUD SILLS TO FOUNDATION. DO NOT NOTCH OR DRILL STRUCTURAL MEMBERS, EXCEPT AS ALLOWED BY IBC SECTIONS 2308.4.2.4, 2308.5.9, 2308.5.10 AND 2308.7.4 OR AS RESTRICTED BY PLANS OR DETAILS, OR AS APPROVED PRIOR TO INSTALLATION. REFER TO PRESERVATIVE TREATED WOOD REQUIREMENTS IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

<u>WOOD SHRINKAGE AND CONSOLIDATION</u>: SHRINKAGE OF WOOD MEMBERS AND CONSOLIDATION OF BEARING WALLS IS EXPECTED FROM TIME OF FRAMING UNTIL AFTER BUILDING IS PUT IN SERVICE. MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS SHALL BE CONSTRUCTED TO ACCOMODATE 1/4" OF TOTAL SETTLEMENT PER STORY. <u>FRAMING CONNECTORS</u>: SHALL CONFORM TO CURRENT EVALUATION REPORT AND BE MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, SAN LEANDRO, CA., OR PRE-APPROVED EQUAL. PROVIDE MAXIMUM SIZE AND QUANTITY OF NAILS OR BOLTS PER MANUFACTURER, EXCEPT AS NOTED OTHERWISE. PROVIDE LEAD HOLES AS REQUIRED TO PREVENT SPLITTING OF WOOD MEMBERS. REFER TO <u>PRESERVATIVE TREATED WOOD</u> <u>REQUIREMENTS</u> IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

LAG SCREWS: SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1. LAG SCREWS SHALL BE OF A DIAMETER INDICATED ON DRAWINGS WITH A MINIMUM OF 8x DIA. EMBEDMENT IN SUPPORTING MEMBER UNLESS NOTED OTHERWISE. CLEARANCE HOLE FOR THE SHANK SHALL BE THE SAME DIAMETER AS THE SHANK AND THE SAME DEPTH OF PENETRATION AS THE UNTHREADED PORTION OF THE SHANK. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 60 TO 75 PERCENT OF THE SHANK DIAMETER AND A LENGTH EQUAL TO AT LEAST THE LENGTH OF THE THREADED PORTION. THE THREADED PORTION OF THE SCREW SHALL BE INSERTED IN ITS LEAD HOLE BY TURNING WITH A WRENCH. SOAP OR OTHER LUBRICANT SHALL BE USED ON THE SCREWS OR IN THE LEAD HOLE TO FACILITATE INSERTION AND PREVENT DAMAGE TO THE SCREW. LAG SCREWS SHALL NOT BE DRIVEN WITH A HAMMER. REFER TO <u>PRESERVATIVE TREATED WOOD REQUIREMENTS</u> IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

<u>OPEN-WEB TRUSSES</u>: SHALL BE MANUFACTURED BY REDBUILT LLC, OR PRE-APPROVED EQUAL IN ACCORDANCE WITH APPROVED SHOP AND INSTALLATION DRAWINGS. MEMBERS SHALL BE DESIGNED UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF PROJECT. THE ENTIRE OPEN-WEB TRUSS ASSEMBLY SHALL BE AS APPROVED BY CURRENT EVALUATION REPORT. MEMBERS SHALL BE DESIGNED TO CARRY THE LOADS LISTED IN THE DESIGN CRITERION AND ANY ADDITIONAL LOADS INDICATED ON THE FRAMING PLANS AND DETAILS. THE TRUSS ENGINEER SHALL ASSUME ALL RESPONSIBILITY FOR THE WORK OF ALL SUBORDINATES INVOLVED IN THE PREPARATION OF THE TRUSS PLACEMENT PLANS AND TRUSS DESIGN DRAWINGS. TRUSSES SHALL BE PROVIDED TO COMPLETE THE ROOF AND/OR FLOOR FRAMING FROM THE SHEATHING TO THE SUPPORTING MEMBERS BELOW. MEMBER DESIGNATIONS ON PLANS ARE FOR TYPICAL UNIFORMLY LOADED CONDITIONS. MANUFACTURER SHALL PROVIDE ADDITIONAL MEMBERS AS REQUIRED TO SUPPORT SPECIAL LOADING CONDITIONS INDICATED ON DRAWINGS.

PROVIDE INSTALLATION DRAWINGS AND CALCULATIONS PRODUCED UNDER THE SUPERVISION OF AND BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF PROJECT. DETAIL DRAWINGS TO INDICATE MEMBER TYPES, SIZE, SPACING, BRIDGING, BLOCKING, CONNECTIONS, ANCHORING, BEARING PLATE AND OTHER PERTINENT DETAILS.

MEMBER DESIGN CALCULATIONS SHALL BE PROVIDED FOR STANDARD LOADING ALONG WITH DESIGN CHECKS FOR SPECIAL LOADING CONDITIONS WHICH INCLUDE FREE BODY DIAGRAMS, LOADING BREAK DOWN, DESCRIPTION OF LOADS (I.E. MECH UNIT, SUSPENDED WALL, ETC.) AND THE RATIONALE FOR LOADING DISTRIBUTION ON MULTIPLE MEMBERS. SUBMITTAL SHALL ALSO PROVIDE ANY DOCUMENTATION NECESSARY TO INTERPRET DATA INDICATED ON CALCULATIONS.

MEMBERS HAVE BEEN DESIGNED TO MEET SERVICEABILITY AND OTHER PERFORMANCE BASED REQUIREMENTS, WHICH MAY EXCEED MINIMUM DESIGN LOADS AND CODE REQUIREMENTS. SUBSTITUTIONS MUST MEET OR EXCEED MOMENT, SHEAR, AND STIFFNESS OF THOSE MEMBERS SPECIFIED AT THE SAME DEPTH AND SPACING.

REFER TO THE <u>FRAMING CONNECTORS</u> SECTION OF THESE GENERAL NOTES FOR REQUIREMENTS PLACED UPON CONNECTOR HARDWARE SPECIFIED BY TRUSS ENGINEER AND/OR PROVIDED BY TRUSS MANUFACTURER.

SPRINKLER LINE ATTACHMENTS SHALL CONFORM TO NFPA 13 AND COMMERCIAL PUBLICATION "SPRINKLER SYSTEM INSTALLATION WITH GUIDELINES FOR REDBUILT OPEN-WEB TRUSSES AND I-JOISTS". LOADS HUNG FROM JOIST NOT SPECIFICALLY IDENTIFIED ON STRUCTURAL DRAWINGS SHALL NOT EXCEED 30 POUNDS AT ANY ONE POINT, NOR SHALL TOTAL LOADS IN POUNDS ON ANY ONE JOIST EXCEED 8 TIMES THE JOIST SPAN IN FEET, UNLESS DETAILED OTHERWISE ON THE DRAWINGS. ATTACHMENT OF LOADS EXCEEDING 90 POUNDS SHALL BE APPROVED PRIOR TO INSTALLATION. DO NOT NOTCH OR DRILL THRU TRUSS MEMBERS.

### MISCELLANEOUS:

<u>PRE-APPROVED SUBSTITUTIONS</u>: SUBSTITUTIONS MAY BE ALLOWED ONLY IF THEY MEET THE REQUIREMENTS OF THESE GENERAL NOTES AND THE SPECIFICATIONS, AND IF COMPLETE WRITTEN ENGINEERING DATA FOR EACH CONDITION REQUIRED FOR THIS PROJECT IS PROVIDED TO THE STRUCTURAL ENGINEER TWO WEEKS PRIOR TO BID DATE AND APPROVED IN WRITTEN ADDENDA BY THE ARCHITECT. DATA IS TO INDICATE CODE BASIS BY YEAR, AUTHORITY FOR STRESSES AND STRESS INCREASES, IF ANY, AND AMOUNT OF EXPECTED DEFLECTION FOR FLEXURAL MEMBERS UNDER (1) TOTAL LOAD AND (2) LIVE LOAD ONLY. ALL INCREASED COSTS IN MECHANICAL, SPRINKLER, ELECTRICAL OR GENERAL INSTALLATION AND ANY ARCHITECTURAL OR STRUCTURAL REDESIGN RESULTING FROM SUBSTITUTION SHALL BE BORNE BY THE GENERAL CONTRACTOR.

### SHOP DRAWINGS/SUBMITTALS

THE FOLLOWING SHOP DRAWINGS/SUBMITTALS SHALL BE PROVIDED FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION OR DELIVERY.

		STRUCTURAL ENGR.	BLDG. DEPT.
1.	CONCRETE MIX DESIGNS	Х	Х
2.	REINFORCING STEEL SHOP DRAWINGS	Х	
3.	STRUCTURAL STEEL	Х	Х
4.	GLU-LAMINATED MEMBERS	Х	Х
5.	WOOD OPEN WEB TRUSSES	Х	Х
6.	CONTRACTOR'S STATEMENT OF RESPONSIBILITY	Х	Х

#### DEFERRED SUBMITTALS

THE FOLLOWING ARE NOT INCLUDED WITH THE BUILDING PERMIT DRAWINGS AND SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT AND THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL AS A DEFERRED SUBMITTAL. SUBMITTALS SHALL BE STAMPED BY AN ENGINEER LICENSED IN THE STATE OF THE PROJECT AS NOTED.

		ENGINEER STAMP REQUIRED
1.	WOOD OPEN-WEB TRUSSES AND I-JOISTS	PE

SPECIAL INSPECTION: SPECIAL INSPECTION SHALL BE PROVIDED BY AN INDEPENDENT TESTING LABORATORY PER THE REQUIREMENTS OF IBC CHAPTER 17 AND THE LOCAL BUILDING OFFICIAL OR APPLICABLE JURISDICTION AND THE CONTRACT DOCUMENTS. THE SPECIAL INSPECTOR SHALL SUBMIT INSPECTION REPORTS AND A FINAL SIGNED REPORT TO THE BUILDING OFFICIAL FOR THE ITEMS LISTED IN THE QUALITY ASSURANCE/SPECIAL INSPECTION SECTION:

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### STATEMENT OF SPECIAL INSPECTIONS:

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
SOILS	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		Х		IBC 1705.6
	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		Х		
	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		Х	_	
	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	Х			
	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		Х		
STRUCTURAL STEEL	MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS		Х		AISC 360 CHAPTER N5
	HIGH-STRENGTH BOLTING A. SNUG-TIGHT JOINTS		Х		AISC 360 CHAPTER N5
	MATERIAL VERIFICATION OF STRUCTURAL STEEL A. FOR STRUCTURAL STEEL, IDENTIFICATION		X	MANUFACTURER TO PROVIDE CERTIFIED MILL TEST REPORTS	AISC 360 CHAPTER N5 AISC 341 CHAPTER J6
	MARKINGS TO CONFORM TO AISC 360 B. MANUFACTURER'S CERTIFIED MILL TEST REPORTS		X		
	MATERIAL VERIFICATION OF WELD FILLER MATERIALS A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS LISTED IN GENERAL NOTES		X	MANUFACTURER TO PROVIDE CERTIFICATE OF COMPLIANCE	AISC 360 CHAPTER N5
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE		Х		
	INSPECTION OF WELDING A. COMPLETE AND PARTIAL JOINT PENETRATION	Х		SPECIAL INSPECTIONS IN THIS SECTION ARE WAIVED WHERE FABRICATION IS	AISC 360 CHAPTER N5 AISC 341 CHAPTER J6
	GROOVE WELDS B. MULTI-PASS FILLET WELDS	Х		PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND	AWS D1.1
	C. SINGLE-PASS FILLET WELDS > 5/16" D. PLUG AND SLOT WELDS	X X		APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5	
	E. SINGLE–PASS FILLET WELDS ≤ 5/16" F. FIELD–INSTALLED WELDED STUDS G. WELDING OF STAIRS AND RAILING SYSTEMS		X X X		
	INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS		Х		
STEEL PIPE PILES	S GEOTECHNICAL ENGINEER TO MONITOR INSTALLATION AND LOAD TESTING.	Х			
CONCRETE	INSPECT REINFORCEMENT, INCLUDING PRE-STRESSING TENDONS, AND VERIFY PLACEMENT		Х		ACI 318: CH 20, 25.2, 25 26.6-1 TO 26.6-3, IBC 1908.4
	ANCHORS CAST IN CONCRETE-PRIOR TO AND DURING PLACEMENT OF CONCRETE		Х		ACI 318: 17.8.2 AISC 360 SECTION N7
	VERIFY USE OF REQUIRED DESIGN MIX		Х		ACI 318, CH 19
	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	Х			ASTM C172, C31 ACI 318: 26.4, 26.12 IBC 1908.10
	MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		Х		ACI 318: 26.5.3 TO 26.5. IBC 1908.9
	MATERIAL VERIFICATION OF REINFORCEMENT STEEL FOR ASTM A615 REINFORCING		Х	MANUFACTURER SHALL PROVIDE MILL TEST REPORTS. CONTINUOUS	ACI 318: 26.6.4 AWS D1.4
				INSPECTION FOR ALL WELDS GREATER THAN 5/16" FILLET. PERIODIC INSPECTION FOR FILLET WELD 5/16" AND SMALLER	IBC 1705.3.1
	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (MECHANICAL ANCHORS INSTALLED IN ANY DIRECTION AND ADHESIVE ANCHORS INSTALLED DOWNWARD)		X	PERIODIC INSPECTION TO INCLUDE A QUANTITY OF 10% WITH A MINIMUM OF (5) ANCHORS INSPECTED PER INSTALLER ON A DAILY BASIS	ACI 318: 17.8.2 MFR EVAL REPORT MFR PUBLISHED INSTALLAT INSTRUCTIONS
	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (ADHESIVE ANCHORS INSTALLED HORIZONTAL OR UPWARDLY INCLINED)	Х			ACI 318: 17.8.2 MFR EVAL REPORT MFR PUBLISHED INSTALLAT INSTRUCTIONS
	TESTING OF MATERIALS		X		IBC 1705.3.2
WOOD FRAMING	SHEAR WALL NAILING		Х	SPECIAL INSPECTION NOT REQUIRED FOR FASTENER SPACING > 4" O.C.	IBC 1705.11.1, 1705.12.2 1705.5
	DIAPHRAGM NAILING		Х	SPECIAL INSPECTION NOT REQUIREDFOR FASTENER SPACING > 4" O.C.	IBC 1705.11.1, 1705.12.2 1705.5
	NAILING, BOLTING, AND ANCHORAGE OF COMPONENTS THAT ARE PART OF DRAG STRUTS, BRACES AND HOLD-DOWNS THAT ARE PART OF THE		Х		IBC 1705.11.1, 1705.12.2

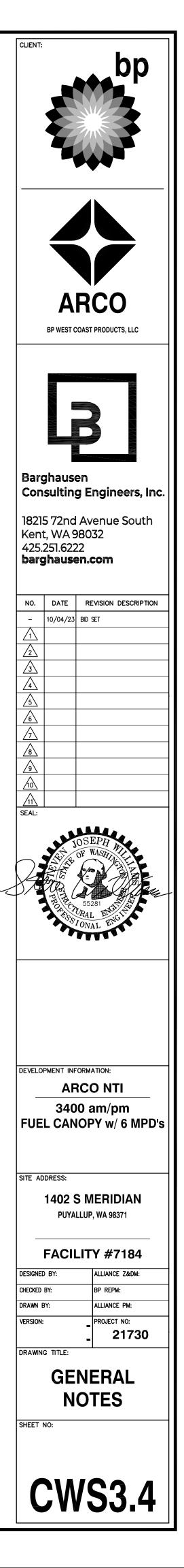
### TESTING AND SPECIAL INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER WORK IS PERFORMED ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO OWNER, CONTRACTOR, BUILDING OFFICIAL, ARCHITECT AND STRUCTURAL ENGINEER.

STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY THE STRUCTURAL ENGINEER OF RECORD OR DESIGNATED REPRESENTATIVE IN ACCORDANCE WITH IBC 1704.6. STRUCTURAL OBSERVATION SHALL BE PERFORMED AS FOLLOWS:

- » PERIODIC VISUAL OBSERVATION OF STRUCTURAL SYSTEMS FOR GENERAL CONFORMANCE TO CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES.
- » REVIEW OF TESTING AND INSPECTION REPORTS.
- » REPORTS SHALL BE PREPARED FOR EACH SITE VISIT AND SHALL BE DISTRIBUTED TO ARCHITECT.

GENERAL CONTRACTOR SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL INCLUDE ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.

			ABBREVIATION LIST		
@	AT	ELEV.	ELEVATOR	MTL	METAL
A.B.	ANCHOR BOLT	ENGR.	ENGINEER	N.F.	NEAR FACE
ADD'L	ADDITIONAL	EQ.	EQUAL	N.S.	NEAR SIDE
A.F.F.	ABOVE FINISH FLOOR	E.W.	EACH WAY	NTS	NOT TO SCALE
ALT.	ALTERNATE	EXP.	EXPANSION	0.C.	ON CENTER
ARCH.	ARCHITECTURAL	EXT.	EXTERIOR	OPN'G	OPENING
BLD'G	BUILDING	FDN	FOUNDATION	OPP.	OPPOSITE
BLK'G	BLOCKING	F.F.	FAR FACE	P.A.F.	POWDER ACTUATED FASTENER
BM	BEAM	FLR	FLOOR	PERP.	PERPENDICULAR
B.O.F.	BOTTOM OF FOOTING	F.O.M.	FACE OF MASONRY	P	PLATE
B.O.T.	BOTTOM	F.0.S.	FACE OF STUD	P.P.	PARTIAL PENETRATION
BRG	BEARING	FRM'G	FRAMING	P.P.T.	PRESERVATIVE PRESSURE TREATED
BTWN	BETWEEN	F.R.T.	FIRE RETARDANT TREATED	P.S.F.	POUNDS PER SQUARE FOOT
B.U.	BUILT UP	F.S.	FAR SIDE	PSL	PARALLAM
(C= )	CAMBER	FTG	FOOTING	P.T.	POST TENSION
CANT.	CANTILEVER	GA.	GAGE/GAUGE	PW.	PLYWOOD
C.F.S.	COLD-FORMED STEEL	GALV.	GALVANIZED	REINF.	REINFORCING
C.J.	CONTROL/CONSTRUCTION JOINT	GL.	GLULAM	REQ'D	REQUIRED
Ę	CENTERLINE	GR.	GRADE	SCHED.	SCHEDULE
CLR.	CLEARANCE	GWB	GYPSUM WALL BOARD	S.C.L.	STRUCTURAL COMPOSITE LUMBER
СМU	CONCRETE MASONRY UNIT	HDR	HEADER	SHT'G	SHEATHING
COL.	COLUMN	HGR	HANGER	SIM.	SIMILAR
CONC.	CONCRETE	HORIZ.	HORIZONTAL	S.O.G.	SLAB ON GRADE
CONN.	CONNECTION	HSS	HOLLOW STRUCTURAL SECTION	SQ.	SQUARE
CONST.	CONSTRUCTION	HT	HEIGHT	STD	STANDARD
CONT.	CONTINUOUS	INT.	INTERIOR	STIFF.	STIFFENER
CONTR.	CONTRACTOR	JST	JOIST	STL	STEEL
COORD.	COORDINATE	JT	JOINT	STRUCT.	STRUCTURAL
C.P.	COMPLETE PENETRATION	L	ANGLE	T&B	TOP & BOTTOM
CTR'D	CENTERED	L.L.	LIVE LOAD	T&G	TONGUE AND GROOVE
C.Y.	CUBIC YARD	LLH	LONG LEG HORIZONTAL	THR'D	THREADED
DBL.	DOUBLE	LLV	LONG LEG VERTICAL	T.O.F.	TOP OF FOOTING
D.F.	DOUGLAS FIR	LOC.	LOCATION	T.O.S.	TOP OF STEEL
dia. Or ø	DIAMETER	LSL	LAMINATED STRAND LUMBER	TRT'D	TREATED
DIAG.	DIAGONAL	LVL	LAMINATED VENEER LUMBER	TYP.	TYPICAL
DIM.	DIMENSION	MAX.	MAXIMUM	U.N.O.	UNLESS NOTED OTHERWISE
D.L.	DEAD LOAD	M.B.	MACHINE BOLT	U.T.	ULTRASONIC TESTED
DWG	DRAWING	MECH.	MECHANICAL	VERT.	VERTICAL
DWL	DOWEL	MEZZ.	MEZZANINE	W/	WITH
(E)	EXISTING	MFR	MANUFACTURER	W.P.	WORK POINT
EA.	EACH	MIN.	MINIMUM	WT	WEIGHT
E.F.	EACH FACE	MISC.	MISCELLANEOUS	W.W.R.	WELDED WIRE REINFORCING
EL.	ELEVATION				



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# SPECIFICATIONS

#### TRASH AND DEBRIS BOTH DURING CONSTRUCTION AND AT COMPLETION OF THE PROJECT. REA IN A CLEAN AND ORDERLY CONDITION.

' ELECTRICAL POWER AND LIGHTING THROUGHOUT THE CONSTRUCTION AND FINISHING OF THE USUAL REQUIREMENTS, PROVIDE AT LEAST THESE ITEMS: TRUCTION POWER TOOLS. PROVIDE GFI TEMPORARY CIRCUITS WITH COVERPLATES TO MEET

- OT-DIPPED GALVANIZED. LECTRO-GALVANIZED.

- COPPER OR ALUMINUM.
- ERGROUND AND THHN FOR DRY LOCATIONS.

- ON BOXES UNLESS INDICATED OTHERWISE ON THE DRAWINGS, WITH COVERS. E TYPE AND SIZE REQUIRED BY THE SERVING TELEPHONE COMPANY BUT NOT /8" DEEP WITH SINGLE-GANG RING AND SIERRA #S-754N SPLIT PLATE BUSHING. ES, HANDHOLES, AND MANHOLES
- NCRETE WITH TRAFFIC RATED STEEL COVERS. EXTENSIONS SHALL BE PROVIDED AS AGE FOR DUCT BANKS. DXES, 36" X 60" (MIN) FOR HANDHOLES, AND 6'X8'X6' (MIN) MANHOLES.

- 2.03 LIGHTING: A. FURNISH AS DESCRIBED IN THE LIGHTING FIXTURE SCHEDULE.
- B. SUPPORTS: PROPER SUPPORTS AND MOUNTING ACCESSORIES, SUCH AS HANGERS, STEMS, YOKES, PLASTER FRAMES, ETC. SHALL BE PROVIDED AS REQUIRED BY THE TYPE OF CEILING INSTALLED. WHERE SWIVEL CANOPIES OR BALL ALIGNERS ARE SPECIFIED, THEY SHALL CAUSE FIXTURE TO HANG PLUMB REGARDLESS OF CEILING SLOPE.
- C. FIXTURE DESIGNATION: FIXTURE TYPES ARE DESIGNATED ON DRAWINGS. WHERE ONLY ONE FIXTURE DESIGNATION IS SHOWN, IT APPLIES TO ALL FIXTURES IN THAT ROOM OR AREA. FOR EXACT FIXTURE COUNT AND LOCATION REFER TO REFLECTED CEILING
- D. WIRE 1-LAMP AND 3-LAMP FLUORESCENT FIXTURES IN TANDEM WHERE REQUIRED BY CODE.
- E. BALLASTS: ADVANCE, GE, OR APPROVED HIGH FREQUENCY ELECTRONIC, FULL LIGHT OUTPUT, ENERGY SAVING, CLASS "P", HIGH POWER FACTOR, ETL CERTIFIED, SOUND RATING "A" OR AS INDICATED ON DRAWINGS. F. G. G.
- EMERGENCY LIGHTING SHALL PROVIDE INITIAL ILLUMINATION OF AT LEAST AN AVERAGE OF 1 FOOT-CANDLE AND A MINIMUM AT ANY POINT OF 0.1 FOOT-CANDLE MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS MAY DECLINE TO 0.6 FOOT-CANDLE AVERAGE AND A MINIMUM OF 0.06 FOOT-CANDLE AT THE END OF 90 MINUTES. THIS COMMENT ALSO APPLIES TO SHEET A6.0. THIS SHALL BE VERIFIED DURING ONSITE INSPECTIONS.
- G. ELECTRICAL CONTRACTOR SHALL PROVIDE, TO THE LOCAL CITY FIRE MARSHAL'S OFFICE, DOCUMENTATION OF EMERGENCY LIGHTING LEVEL COMPLIANCE BY WAY OF AFTER-HOURS LIGHT METER TEST OR PHOTOMETRIC DOCUMENTATION IN ACCORDANCE WITH CBC § 1008.3.2, PRIOR TO SCHEDULING THE FINAL LIFE SAFETY INSPECTION. PLEASE ADD THIS REQUIREMENT TO THE GENERAL NOTES. AWAITING DOCUMENTATION FROM ELECTRICAL CONTRACTOR UPON INSTALLATION, BALANCING, AND COMMISSIONING. THIS SHALL BE VERIFIED DURING ONSITE INSPECTIONS. H. EXIT SIGNS SHALL BE PROVIDED WHERE THE EXITS AND/OR EXIT PATHS OF EGRESS TRAVEL THAT ARE NOT IMMEDIATELY VISIBLE TO THE OCCUPANTS SO THAT ALL ACCESS TO EXITS ARE READILY VISIBLE IN ACCORDANCE WITH IBC 1013. THIS SHALL BE VERIFIED DURING ONSITE INSPECTIONS.

2.04 FIRE ALARM SYSTEM: (WHEN REQUIRED)

- DESIGN/BUILT BY LICENSED FIRE ALARM CONTRACTOR AS REQUIRED BY THE CITY.
- A. IT SHALL BE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND HIS FIRE ALARM CONTRACTOR TO OBTAIN THE REQUIREMENTS AND APPROVAL FROM THE LOCAL FIRE MARSHAL ON ALL FIRE ALARM DEVICES AND WIRING REQUIRED.
- B. THE CONTRACTOR SHALL SUBMIT DRAWINGS TO THE CITY FOR DEFERRED APPROVAL OF THE COMPLETE FIRE ALARM SYSTEM DESIGN. PART 3 EXECUTION
- 3.01 GENERAL
- A. ELECTRIC SYSTEM LAYOUTS INDICATED ON THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT. GOVERN EXACT ROUTING OF CABLE AND WIRING AND THE LOCATIONS OF OUTLETS BY THE STRUCTURE AND EQUIPMENT SERVED. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS. B. CONSULT ALL OTHER DRAWINGS, VERIFY SCALES AND REPORT ANY DIMENSIONAL DISCREPANCIES OR OTHER CONFLICTS WITH OWNER
- BEFORE SUBMITTING BID. C. ALL HOME RUNS TO PANELBOARDS ARE INDICATED AS STARTING FROM THE OUTLET NEAREST THE PANEL AND CONTINUING IN THE
- GENERAL DIRECTION OF THAT PANEL. CONTINUE SUCH CIRCUITS TO THE PANEL AS THOUGH THE ROUTES WERE COMPLETELY INDICATED. TERMINATE HOMERUNS OF SIGNAL, ALARM, AND COMMUNICATION SYSTEMS IN A SIMILAR MANNER. D. AVOID CUTTING AND BORING HOLES THROUGH STRUCTURE OR STRUCTURAL MEMBERS WHEREVER POSSIBLE. OBTAIN PRIOR APPROVAL
- OF OWNER AND CONFORM TO ALL STRUCTURAL REQUIREMENTS WHEN CUTTING OR BORING THE STRUCTURE IS NECESSARY AND PERMITTED. E. FURNISH AND INSTALL ALL NECESSARY HARDWARE, HANGERS, BLOCKING, BRACKETS, BRACING, RUNNERS, ETC. REQUIRED FOR
- EQUIPMENT SPECIFIED UNDER THIS SECTION. INSTALLATION SHALL MEET SEISMIC 4 REQUIREMENTS. F. PROVIDE NECESSARY BACKING REQUIRED TO INSURE RIGID MOUNTING OF OUTLET BOXES.
- G. ELECTRICAL INSTALLATION IN PUBLIC LOCATIONS SHALL BE ACCESSIBLE AND INSTALLATION SHALL COMPLY WITH AMERICAN DISABILITIES ACT (ADA) REQUIREMENTS. ELECTRICAL INSTALLATION SHALL COMPLY WITH APPLICABLE CODES AS LISTED IN CONSTRUCTION DOCUMENTS.
- 3.02 WIRING METHODS
- A. WHEN CONDITIONS DETERMINED IN "A" ABOBE ARE NOT MET, INSTALL ALL WIRING IN RACEWAY, OR USE MC CABLE WHERE APPROVED BY ALL APPLICABLE CODES AND REGULATIONS. CONDUIT SHALL BE RIGID STEEL, IMC OR EMT AS FOLLOWS: 1. ABOVE GROUND: USE RIGID STEEL, IMC OR EMT.
- 2. WET LOCATIONS: RIGID STEEL OR IMC ONLY.
- 3. LOCATIONS SUBJECT TO MECHANICAL INJURY (0 TO 3 FT ABOVE FINISH FLOOR): RIGID STEEL OR IMC ONLY.
- 4. DRY LOCATIONS AND NOT SUBJECT TO MECHANICAL INJURY: EMT, IMC OR RIGID STEEL CONDUIT. 5. UNDERGROUND: USE PVC SCH. 40 WITH RIGID STEEL AT LAST TRANSITION TO ABOVE GROUND.
- 6. IN SLAB & INSIDE WALLS PVC SCH. 40.
- B. USE FLEXIBLE CONDUITS OR MC CABLE IN THE FOLLOWING APPLICATIONS:
- 1. FINAL CONNECTIONS TO MOTOR.
- 2. FINAL CONNECTIONS INTO AND OUT OF THE TRANSFORMER. 3. FINAL CONNECTIONS TO VIBRATING EQUIPMENT.
- 4. INTER-CONNECTIONS BETWEEN ALL LIGHT FIXTURES (NOT TO INCLUDE HOMERUN FROM FIXTURE OR DEVICE TO PANELBOARD, WHICH MUST BE RIGID). 5. FINAL CONNECTIONS WHERE RIGID CONDUIT IS NOT PRACTICAL.
- 6. IN WALLS (FOR LIGHT SWITCHES AND 120V POWER RECEPTACLES AND HVAC CONTROL EQUIPMENT).
- 3.03 INSTALLATION OF CONDUITS:
- A. GENERAL:
- RUN ALL CONDUIT CONCEALED UNLESS OTHERWISE NOTED OR SHOWN.
- RUN ALL CONDUIT PARALLEL TO OR AT RIGHT ANGLES TO CENTER LINES OF COLUMNS AND BEAMS. CONDUITS ABOVE CEILINGS SHALL NOT OBSTRUCT REMOVAL OF CEILING TILES, LIGHTING FIXTURES, AIR - 3
- DIFFUSERS, ETC. CONDUITS SHALL NOT CROSS ANY DUCT SHAFT OR AREA DESIGNATED AS FUTURE DUCT SHAFT
- HORIZONTALLY. CONDUIT RISERS WHEN ALLOWED IN DUCT SHAFT MUST BE COORDINATED WITH MECHANICAL WORK TO AVOID ANY CONFLICT.
- CONDUIT SUPPORTS:
- SUPPORT CONDUITS WITH UNDERWRITER'S LABORATORIES LISTED STEEL CONDUIT SUPPORTS AT INTERVALS REQUIRED BY THE NATIONAL ELECTRIC CODE. WIRES OR SHEET METAL STRIPS ARE NOT ACCEPTABLE FOR CONDUIT SUPPORT. USE CONDUIT HANGERS FOR ALL CONDUITS NOT DIRECTLY FASTENED TO STRUCTURE AND FOR ALL MULTIPLE CONDUIT RUNS. DO NOT ATTACH ANY CONDUIT TO MECHANICAL DUCTS OR PIPES. 2.
- INDIVIDUAL CONDUITS 1/2" AND 3/4" SIZE FOR LIGHTING MAY BE SUPPORTED FROM CEILING SUPPORT WIRES WITH CADDY CLIPS ONLY IF ACCEPTABLE TO LOCAL CODE. ONLY ONE CONDUIT IS PERMITTED TO BE ATTACHED TO ANY CEILING SUPPORT WIRE. HANG SUCH CONDUIT SO AS NOT TO AFFECT LEVEL OF CEILING. AVOID ATTACHING CONDUIT TO FAN PLENUMS. WHEN IT IS NECESSARY TO SUPPORT CONDUIT FROM FAN
- PLENUM, PROVIDE A LENGTH OF FLEXIBLE CONDUIT BETWEEN PORTION ATTACHED FAN PLENUM AND PORTION ATTACHED TO THE BUILDING TO MINIMIZE TRANSMISSION OF VIBRATION TO THE BUILDING STRUCTURE. CONDUIT PENETRATION:
- PENETRATING FIRE RATED FLOOR OR WALL: INSTALL CONDUIT IN CONDUIT SLEEVE OR FRAMED OPENING. SEAL PENETRATION WITH FIRE RETARDANT SEALANT SPECIFIED HEREIN.
- PENETRATING ROOF OR EXTERIOR WALL: AVOID PENETRATING ROOF OR EXTERIOR WALL WHERE POSSIBLE. WHERE PENETRATIONS ARE NECESSARY, BUILDING WEATHERPROOF INTEGRITY MUST BE PRESERVED. PENETRATING SOUND INSULATED OR AIR PLENUM WALL: INSTALL CONDUIT IN CONDUIT SLEEVE AND SEAL - 3
- PENETRATION AS DETAILED ON THE DRAWINGS. PENETRATING NON-FIRE RATED DRY WALL: CONDUIT SLEEVES ARE NOT REQUIRED. PENETRATIONS MUST BE SEALED WITH PLASTER PRIOR TO PAINTING. PENETRATIONS MADE AFTER WALL FINISH IS APPLIED MUST
- BE AS SMALL AS POSSIBLE AND PROVIDED WITH ESCUTCHEONS, ONE ON EACH SIDE OF WALL. PENETRATING SUSPENDED CEILING: CUT HOLE AS SMALL AS POSSIBLE TO PERMIT CONDUIT PENETRATION. PROVIDE ESCUTCHEON FOR EACH CONDUIT BELOW CEILING.

)4	CONNECTIONS TO EQUIPMENT:	
	GENERAL:	
	<ol> <li>FURNISH AND INSTALL REQUIRED POWER SUPPLY CONDUIT AND WIRING TO ALL EQUIPMENT. SEE BELOW FOR OTHER WIRING REQUIRED.</li> <li>FURNISH AND INSTALL A DISCONNECT SWITCH IMMEDIATELY AHEAD OF AND ADJACENT TO EACH MAGNETIC MOTOR STARTER OR APPLIANCE UNLESS THE MOTOR APPLIANCE IS LOCATED ADJACENT AND WITHIN SIGHT OF THE SERVING PANELBOARD, CIRCUIT BREAKER OR SWITCH. VERIFY ALL EQUIPMENT NAMEPLATE CURRENT RATINGS PRIOR TO INSTALLATION.</li> <li>INSTALL ALL ROUGH-IN WORK FOR EQUIPMENT FROM APPROVED SHOP DRAWINGS TO SUIT THE SPECIFIC REQUIREMENTS OF THE</li> </ol>	
	EQUIPMENT. 4. FURNISH AND INSTALL MANUAL THERMAL PROTECTION FOR ALL MOTORS NOT INTEGRALLY EQUIPPED WITH THERMAL PROTECTION. 5. FURNISH 120 VOLT POWER TO EACH CONTROL PANEL AND TIME SWITCH REQUIRING A SOURCE OF POWER TO OPERATE.	
)5	INSTALLATION OF WIRES: A. PULL NO WRE INTO ANY PORTION OF THE CONDUIT SYSTEM UNTIL ALL CONSTRUCTION WORK WHICH MIGHT DAMAGE THE WIRE HAS BEEN COMPLETED.	
	B. INSTALL ALL WIRE CONTINUOUS FROM OUTLET TO OUTLET OR TERMINAL TO TERMINAL. SPLICES IN CABLES WHEN REQUIRED SHALL BE MADE IN HANDHOLES, PULL BOXES OR JUNCTION BOXES. MAKE BRANCH CIRCUIT SPLICES IN OUTLET BOXES WITH 8" OF CORRECTLY COLOR-CODED TAILS LEFT IN THE BOX.	ARCO
	C. SPLICES IN WIRES AND CABLES SHALL BE MADE UTILIZING MATERIALS AND METHODS DESCRIBED HEREIN BEFORE.	
	D. MAKE ALL GROUND, NEUTRAL AND LINE CONNECTIONS TO RECEPTACLE AND WIRING DEVICE TERMINALS AS RECOMMENDED BY MANUFACTURER. PROVIDE GROUND JUMPER FROM OUTLET BOX TO GROUND TERMINAL OF DEVICES WHEN THE DEVICE IS NOT APPROVED FOR GROUNDING THROUGH THE MOUNTING SCREWS.	BP WEST COAST PRODUCTS, LLC
	<ul> <li>PROVIDE BRADY WIRE MARKERS WHERE NUMBER OF CONDUCTORS IN A BOX EXCEEDS FOUR.</li> <li>MEGGER AND RECORD INSULATION RESISTANCE OF ALL 600 VOLT INSULATED CONDUCTORS SIZE #4/0 AND LARGER USING 500 VOLT MEGGER FOR ONE MINUTE. MAKE TESTS WITH CIRCUITS ISOLATED FROM SOURCE AND LOAD.</li> </ul>	
06	INSTALLATION OF RECESSED LIGHT FIXTURES AND DEVICES A. ALL RECESSED LIGHT FIXTURES, BOXES, RECEPTACLES & OTHER DEVICES MOUNTED IN THE FIRE RATED CEILINGS OR	
	WALLS SHALL BE PROVIDED WITH AN APPROVED ENCLOSURE CARRYING THE SAME FIRE RATING AS THE CEILING OR WALL. B. OUTLET BOXES THAT OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO MAINTAIN THE FIRE RATING OF	<b>P</b>
)/	WIRE COLOR CODE: COLOR CODING SHALL BE CONTINUOUS FOR WIRE #12 THROUGH #10 AWG. PHASE CONDUCTORS #8 AND LARGER AND CONDUCTORS	Barghausen
	OF ANY SIZE IN CABLE ASSEMBLIES MAY HAVE COLORED PHASING TAPE AT TERMINATIONS. COLOR CODE WIRES AS FOLLOWS:	Consulting Engineers, Inc.
10	VOLTAGE PHASE A PHASE B PHASE C NEUTRAL GROUND 120/208V BLACK RED BLUE WHITE GREEN	18215 72nd Avenue South Kent, WA 98032
)8	IDENTIFICATION: A.      PROVIDE NAMEPLATES FOR SWITCHBOARDS, PANELBOARDS, AND ALL SIMILAR DEVICES.   NAMEPLATES SHALL BE SCREWED (NO	425.251.6222
	ADHESIVES) ENGRAVED BAKELITE OR PHOTO-ETCHED METALLIC NAMEPLATE IDENTIFICATION SHOWING PANEL DESIGNATION, VOLTAGE AND PHASE IN MINIMUM 1/4" HIGH LETTERS. B. PROVIDE DYMO LABELS ON ALL LIGHTING SWITCHES AND CONVENIENCE AND SPECIAL PURPOSE RECEPTACLES TO SHOW PANEL AND	barghausen.com
	CIRCUIT NUMBER TO WHICH THE DEVICE IS CONNECTED.	
	C. EACH PANELBOARD SHALL CONTAIN A METAL-FRAMED CIRCUIT DIRECTORY INSIDE COVER, WITH PLASTIC PROTECTOR.	NO. DATE REVISION DESCRIPTION
	D. PANELBOARD SCHEDULE: AFTER COMPLETION OF WORK, PROVIDE TYPEWRITTEN UPDATED PANELBOARD SCHEDULES FOR ALL PANELBOARDS.	
)9	GROUNDING:	
	A. ELECTRICAL SERVICE AND SEPARATELY DERIVED ALTERNATING CURRENT SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250-3 TO 250-26, INCLUSIVE.	
	B. GROUND NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT ENCLOSURES, FRAMES, CONDUCTOR RACEWAYS OR CABLE TRAYS TO PROVIDE A LOW IMPENDANCE PATH FOR LINE-TO-GROUND FAULT CURRENT AND TO BOND ALL NON-CURRENT	
	CARRYING METAL PARTS TOGETHER. PROVIDE GROUND CONDUCTOR IN EACH RACEWAY SYSTEM IN ADDITION TO CONDUCTORS SHOWN.	
	EQUIPMENT GROUND CONDUCTOR SHALL BE ELECTRICALLY AND MECHANICALLY CONTINUOUS FROM THE ELECTRICAL CIRCUIT SOURCE TO THE EQUIPMENT TO BE GROUNDED. SIZE GROUND CONDUCTORS PER NEC ARTICLE 250–95 UNLESS LARGER CONDUCTORS ARE	$\overline{\mathbb{A}}$
	SHOWN ON DRAWINGS. C. GROUNDING CONDUCTORS SHALL BE IDENTIFIED WITH GREEN INSULATION. WHERE GREEN INSULATION IS NOT AVAILABLE ON LARGER	
	SIZES, BLACK INSULATION SHALL BE USED SUITABLY IDENTIFIED WITH GREEN TAPE AT EACH JUNCTION BOX OR DEVICE ENCLOSURE.	
	END OF SECTION	
		SEAL:

	DEVELOPMENT IN	FORMATION:
	Al	RCO NTI
		00 am/pm NOPY w/ 6 MPD
	SITE ADDRESS:	
	@ PUYAL	S MERIDIAN HIGHWAY 512 LUP, WASHINGTON
3054	FACI	LITY #7184
	DESIGNED BY:	ALLIANCE Z&DM:
n	CHECKED BY:	BP REPM:
	DRAWN BY:	ALLIANCE PM:
J,	VERSION:	_ project no: _ 21730
ICAL	DRAWING TITLE:	FICATIONS
N ST 152	SHEET NO:	

ABOSSEIN #223



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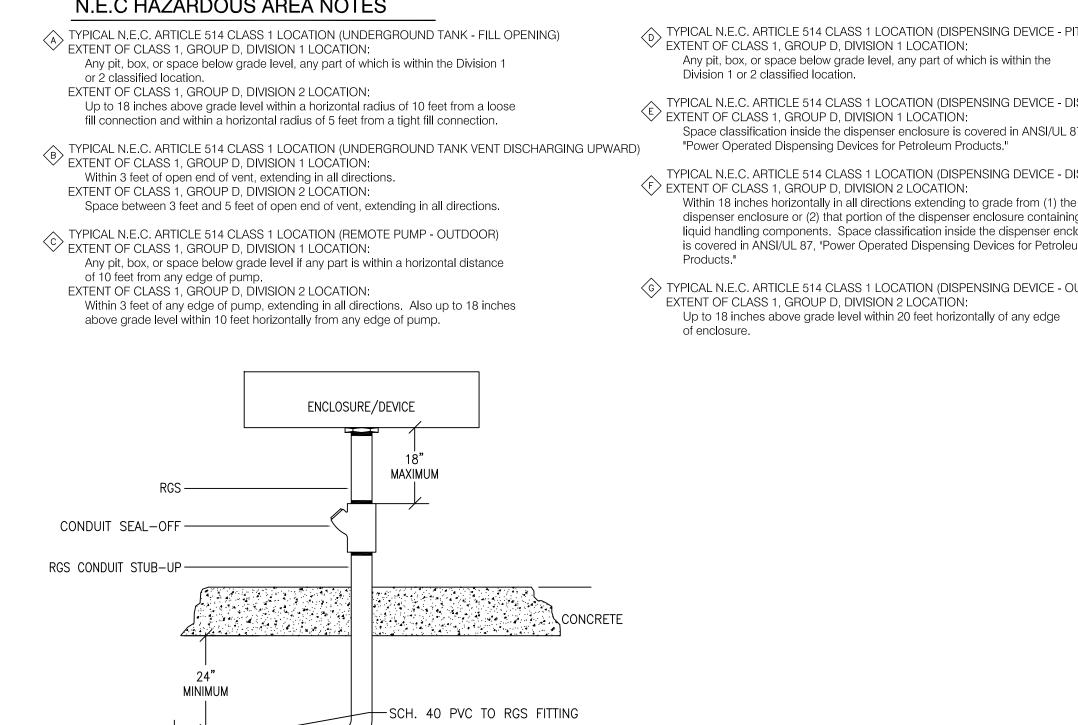
### **GENERAL NOTES:**

- 1. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH POWER COMPANY FOR EXACT SERVICE CONNECTION REQUIREMENTS AND INCLUDE ALL NECESSARY COST IN BID.
- 2. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE COMPANY FOR EXACT SERVICE CONNECTION REQUIREMENTS AND INCLUDE ALL NECESSARY COST IN BID.
- 3. ALL ELECTRICAL EQUIPMENT SHALL HAVE AIC RATINGS EQUIVALENT OR HIGHER THAN AVAILABLE FAULT CURRENTS PROVIDED BY POWER COMPANY.
- 4. A UTILITY LOCATE SHALL BE PERFORMED PRIOR TO COMMENCEMENT OF TRENCHING.
- 5. LIGHTING CONTACTOR (INTERIOR LIGHTING ONLY) IS LOCATED WITHIN CPI CABINET.
- 6. ALL LIGHTING FIXTURES TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 7. 'EM' AT LIGHT FIXTURE INDICATES LIGHT FIXTURE WITH EMERGENCY BACK UP. ALL EMERGENCY LIGHT FIXTURES SHALL BE SERVED FROM BATTERY BACKUP. EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED AND CIRCUITED PER THE LATEST CALIFORNIA ELECTRICAL CODE AND ALL LOCAL CODES (INSTALL A CENTRAL BATTERY SYSTEM WHERE THE USE OF INDIVIDUAL BATTERY UNITS ARE PROHIBITED BY LOCAL CODES). ALL EMERGENCY FIXTURES AND EXIT SIGNS SHALL BE CONNECTED TO UN-SWITCHED HOT LEG OF THE LOCAL LIGHTING CIRCUIT.
- 8. ALL EXTERIOR LIGHT FIXTURES TO BE CONTROLLED THROUGH THE LSI AIRLINK BLUE COMPLETE OUTDOOR LIGHTING WIRELESS MESH SYSTEM. AIRLINK BLUE SYSTEM INCLUDES DAYLIGHT AND MOTION SENSORS WITH DIMMING CONTROL CAPABLE OF AUTOMATICALLY SHUTTING OFF OUTDOOR LIGHTING WHEN DAYLIGHT IS AVAILABLE, EMPLOY AUTO FUNCTIONALITY WHEN AREA BECOMES OCCUPIED, AND CAPABLE OF PROVIDING CONTINUOUS DIMMING THROUGH A 50%-90% RANGE PER 2018 WSEC REQUIREMENTS. AIRLINK BLUE SYSTEM TO INCLUDE ASTRONOMICAL CLOCK AND TIME KEEPER AIRLINK BLUE COMPONENT FOR SCHEDULING CONTROLS SET PER 2018 WSEC REQUIREMENTS. ALL EXTERIOR LUMINAIRES TO INCLUDE FACTORY INTEGRATED BLUETOOTH RADIO/SENSOR CONTROLLERS. AIRLINK BLUE SYSTEM TO BE INITIALIZED VIA WEB APP AND FIELD COMMISSIONED VIA MOBILE APP TO THE OWNER'S REQUIREMENTS. ANY CHANGES OR UPDATES TO BE ACCOMPLISHED ON SITE VIA MOBILE APP.

### SHEET NOTES:

- 1 PROVIDE NEW LIGHT FIXTURE. INSTALL 3/4" PVC UNDERGROUND CONDUIT CONTAINING: (2) #10 THWN CU. AND (1) #10 CU EGC. FOR PARKING LOT LIGHTING. EXTEND CONDUIT BACK TO AIRLINK BLUE CONTROLS.
- (2) PROVIDE AND INSTALL ESO SWITCH. INCLUDE ALL ASSOCIATED CONDUIT AND WIRE FOR COMPLETE INSTALLATION PER CEC 514.11 AND NFPA 30A SECTION 6.7. RUN WIRE IN 1" PVC-COATED RGS CONDUIT AND STUB UP WITH RGS. SEE DETAIL 3/E2.3. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION. SEE DETAIL IN TANK DRAWINGS FOR ELEVATION.
- 3 PROVIDE AND INSTALL ESO SWITCH. COORDINATE EXACT LOCATION(S) WITH OWNER PRIOR TO INSTALLATION.
- (4) PROVIDE 3/4" PVC UNDERGROUND CONDUIT AND (3) #10 THHN CU. WIRE (U.O.N.) FOR NEW AIR STATION. MAKE CONNECTION WITH WATER TIGHT FLEX, BOXES AND COVERS AS REQUIRED BY MANUFACTURER. FIELD VERIFY EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- 5 PROVIDE (1) 3" PVC CONDUIT WITH 1/4" PULL STRING FOR TELEPHONE. FIELD VERIFY EXACT VAULT LOCATION WITH SERVICE PROVIDER PRIOR TO INSTALLATION.
- (6) PROVIDE (1) 1–1/2" CONDUIT FOR INSTALLATION OF ELECTRIC VEHICLE CHARGING STATION. 100A 208 VOLT 30 MIN. CAP AND MARK CONDUIT AS REQUIRED FOR ACCESS.
- (7) PROVIDE (2) 1" PVC-COATED RGS SPARE UNDERGROUND CONDUITS TO FOR FUTURE VENT DIAGNOSTICS TO INTRINSICALLY SAFE AND POWER WIRÉWAYS INSIDE STORE (NEXT TO EPC CABINET).
- (8) ALL SITE LIGHT POLE FIXTURES TO INCLUDE LSI AIRLINK BLUE LIGHTING SYSTEM MOTION DETECTOR MOUNTED ON LIGHT POLE. UPON ACTIVATION OF EITHER
- MOTION DETECTOR, ALL SITE POLE LIGHTS TO TRIGGER AT FULL BRIGHTNESS AND RETURN TO 50% BRIGHTNESS AFTER 15 MINUTES OF VACANCY. (9) 60W HEAT TRACER LOCATED IN RPBA HOT BOX, REFER TO CIVIL UTILITY PLANS FOR EXACT LOCATION.
- (10) PROPOSED SOLAR ZONE PER 2018 WSEC REQUIREMENTS.
- (1) PROVIDE (1) 3/4" CONDUIT AND CONTROL WIRE TO CLOSEST EMERGENCY STOP BUTTON FOR CONNECTION TO VEHICLE CHARGING STATION.
- (12) PROPOSED UTILITY TRANSFORMER EXACT LOCATION TO BE VERIFIED.

### N.E.C HAZARDOUS AREA NOTES





SCH. 40

PVC CONDUIT

CALLOUT	SYMBOL		DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT VA	TOTAL VA	LUMENS / LAMP	VOLTS	NOTES	QUANTII
51	_	(1) 31.59W LED	SURFACE MOUNTED STRIP LIGHT	0-10V DIMMABLE	SURFACE	LSI EG3-4-LED-4L-DA-S-UNV-DIM-50-80	31.59	31.59	4508	120V 1P 2W	TRASH/RECYCLE ROOM W/ EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION, 4508 LUMENS, 143.42 LUMENS/WATT	
S2	┏-□	(1) 63W LED	LED POLE LIGHT	ELECTRONIC	POLE	LSI SLM-LED-09L-SIL-FT-50-70CRI-SINGLE-16'POLE+2'BASE	63	63	9657	208V 2P 2W	PARKING LOT, INCLUDE LSI AIRLINK BLUE SENSOR.	6

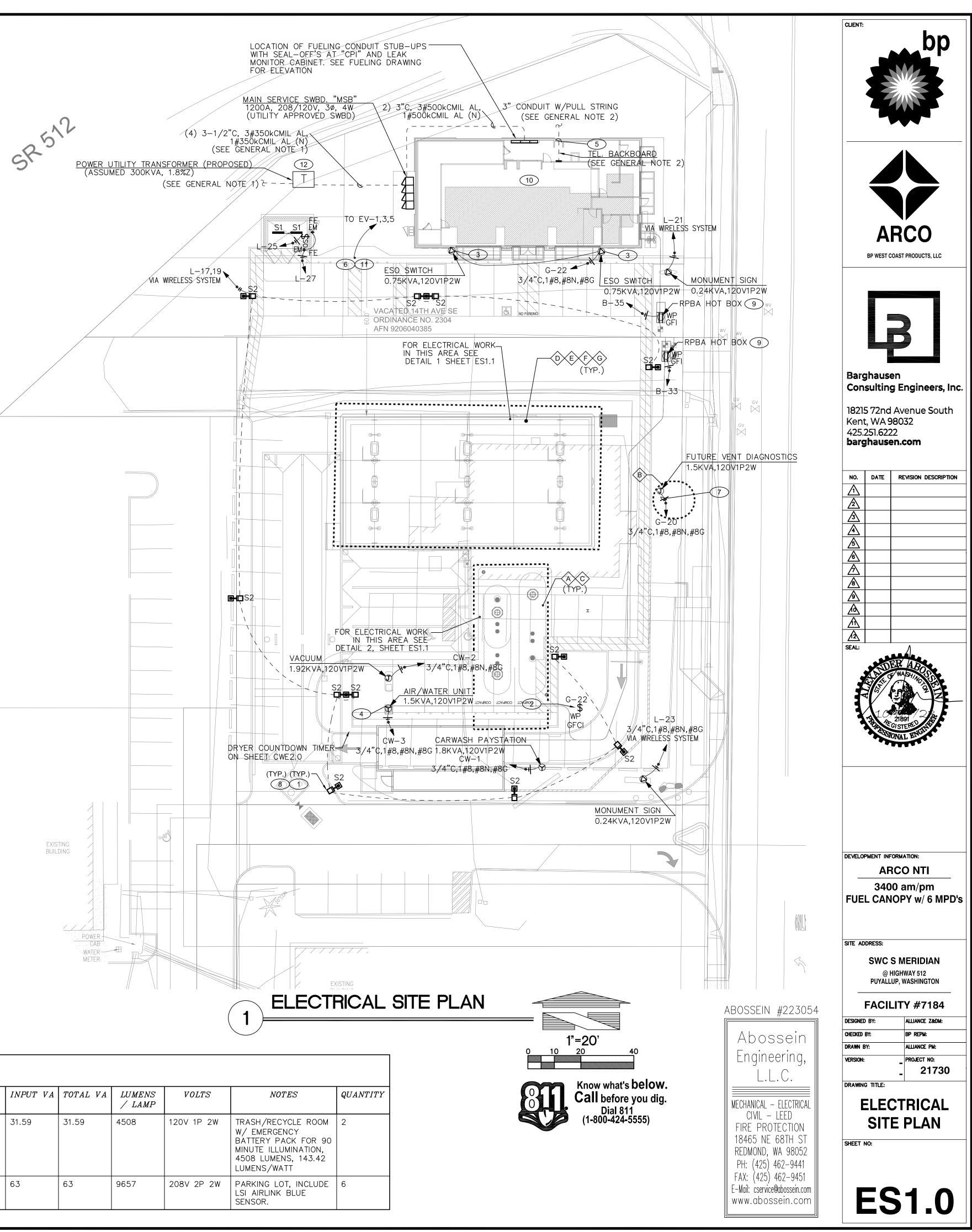
TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE - PITS) Any pit, box, or space below grade level, any part of which is within the

TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE - DISPENSER) Space classification inside the dispenser enclosure is covered in ANSI/UL 87,

TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE - DISPENSER)

dispenser enclosure or (2) that portion of the dispenser enclosure containing liquid handling components. Space classification inside the dispenser enclosure is covered in ANSI/UL 87, "Power Operated Dispensing Devices for Petroleum

C TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE - OUTDOOR) Up to 18 inches above grade level within 20 feet horizontally of any edge



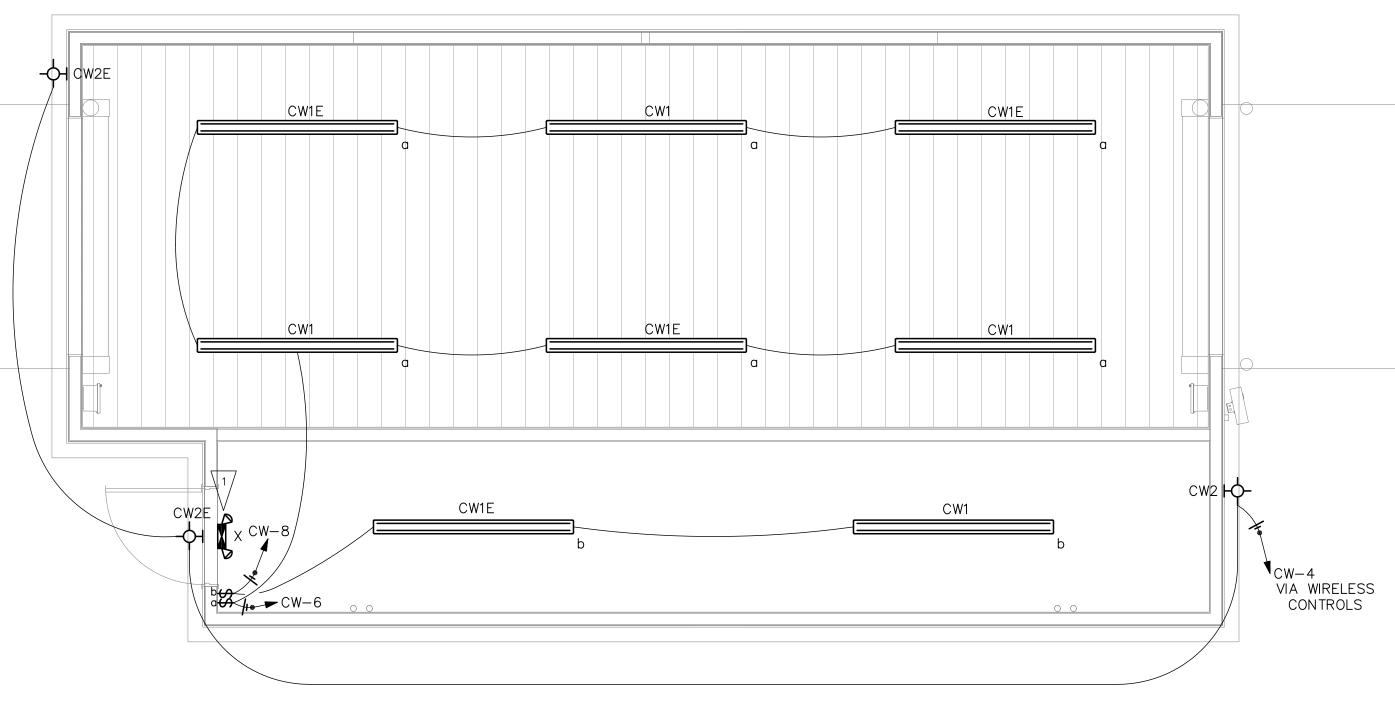
CARW	CARWASH LUMINAIRE SCHEDULE										
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT VA	TOTAL VA	VOLTS	NOTES	QUANTITY
CW1	[]	(1) 75W LED	ENCLOSED AND GASKETED LED FIXTURE	0-10V DIMMABLE	CEILING	LSI EG3-8-LED-11L-DA-S-UNV-DIM-50-80-OMSWL-STANDARD MOUNTING-STANDARD LATCHING	75	75	120V 1P 2W	CARWASH BAY, 10650 LUMENS, 74.25 LUMENS/WATT	4
CW1E	[]	(1) 75W LED	ENCLOSED AND GASKETED LED FIXTURE	BATTERY	CEILING	LSI EG3-8-LED-11L-DA-S-UNV-DIM-50-80-OMSWL-EM-STANDARD MOUNTING-STANDARD LATCHING	75	75	120V 1P 2W	CARWASH BAY, 10650 LUMENS, 74.25 LUMENS/WATT, INCLUDES 1400 LUMEN EMERGENCY BATTERY BACKUP FOR 90 MINUTES OF EMERGENCY ILLUMINATION.	4
CW2	ф	(1) 47W LED	WALL MOUNTED LED LIGHT	0-10V DIMMABLE	WALL	LSI XWM-3-LED-06L-50-UE-MSV-IMSBT1	47	47	120V 1P 2W	EXTERIOR SIDE & REAR WALLS, INCLUDES INTEGRAL MOTION AND PHOTOCELL SENSOR, 142 LUMENS/WATT EFFICACY	1
CW2E	ф	(1) 47W LED	WALL MOUNTED LED LIGHT	BATTERY	WALL	LSI XWM-3-LED-06L-50-UE-MSV-IMSBT1-BB	47	47	120V 1P 2W	EXTERIOR SIDE & REAR WALLS, INCLUDES INTEGRAL MOTION AND PHOTOCELL SENSOR, 142 LUMENS/WATT EFFICACY	2
Х		(1) 0.7W LED	EXIT SIGN W/ BATTERY BACKUP	BATTERY	UNIVERSAL	LSI EX-R-U-WB-WH-SD2	0.7	0.7	120V 1P 2W	CARWASH MECHANICAL ROOM EGRESS, W/EMERGENCY BATTERY PACK FOR 90 MINUTE ILLUMINATION	1

ALL EQUIPMENT IN CARWASH SHALL BE RATED FOR WET LOCATION. CONDUITS USED IN WET LOCATION TO BE PVC SCHEDULE 40. BOXES USED IN WET LOCATIONS TO BE THREADED HUBS. ALL CONDUCTORS TO BE RATED FOR WET LOCATION.

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NOTES: 1. REFER TO CARWASH DRAWINGS, CARWASH VENDOR TO FURNISH & CONNECT ALL CARWASH LIGHTING SHOWN.

- MOUNTED FIXTURES.
- CONNECTED TO UN-SWITCHED HOT LEG OF THE LOCAL LIGHTING CIRCUIT.
- EXTERIOR LUMINAIRES TO INCLUDE FACTORY INTEGRATED BLUETOOTH RADIO/SENSOR VIA MOBILE APP TO THE OWNER'S REQUIREMENTS. ANY CHANGES OR UPDATES TO BE ACCOMPLISHED ON SITE VIA MOBILE APP.





## FLAG NOTES

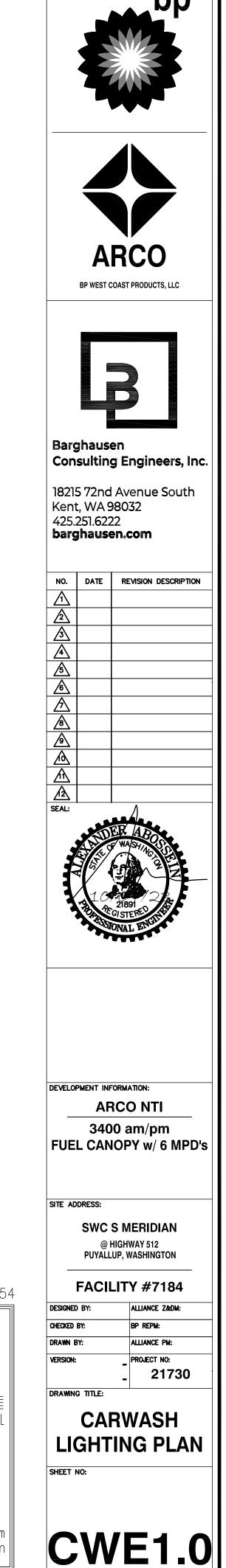
2. REFER TO LIGHTING SHEET E1.0 FOR LOCATION AND INFORMATION ON ALL EXTERIOR BUILDING

3. 'EM' AT LIGHT FIXTURE INDICATES LIGHT FIXTURE WITH EMERGENCY BACK UP. ALL EMERGENCY LIGHT FIXTURES SHALL BE SERVED FROM BATTERY BACKUP. EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED AND CIRCUITED PER THE LATEST CALIFORNIA ELECTRICAL CODE AND ALL LOCAL CODES (INSTALL A CENTRAL BATTERY SYSTEM WHERE THE USE OF INDIVIDUAL BATTERY UNITS ARE PROHIBITED BY LOCAL CODES). ALL EMERGENCY FIXTURES AND EXIT SIGNS SHALL BE

4. ALL EXTERIOR LIGHT FIXTURES TO BE CONTROLLED THROUGH THE LSI AIRLINK BLUE COMPLETE OUTDOOR LIGHTING WIRELESS MESH SYSTEM. AIRLINK BLUE SYSTEM INCLUDES DAYLIGHT AND MOTION SENSORS WITH DIMMING CONTROL CAPABLE OF AUTOMATICALLY SHUTTING OFF OUTDOOR LIGHTING WHEN DAYLIGHT IS AVAILABLE, EMPLOY AUTO FUNCTIONALITY WHEN AREA BECOMES OCCUPIED, AND CAPABLE OF PROVIDING CONTINUOUS DIMMING THROUGH A 50%-90% RANGE PER TITLE 24 130.2 (c). AIRLINK BLUE SYSTEM TO INCLUDE ASTRONOMICAL CLOCK AND TIME KEEPER AIRLINK BLUE COMPONENT FOR SCHEDULING CONTROLS SET PER TITLE 24 130.2 (c) 2. ALL CONTROLLERS. AIRLINK BLUE SYSTEM TO BE INITIALIZED VIA WEB APP AND FIELD COMMISSIONED

1 EMERGENCY PATHWAY AND EXIT LIGHTS SHALL BE CONNECTED TO LOCAL LIGHTING CIRCUIT AHEAD OF ALL SWITCHES AND TIMERS.

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



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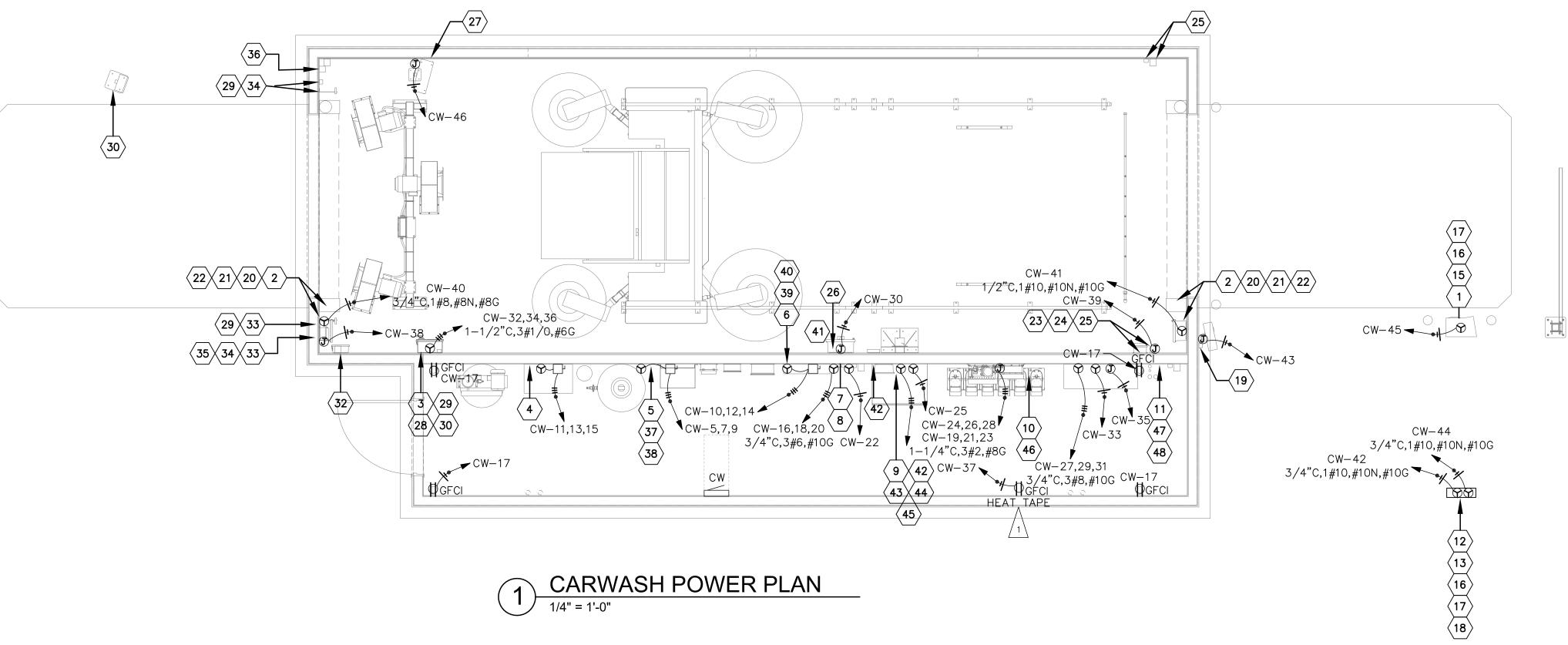
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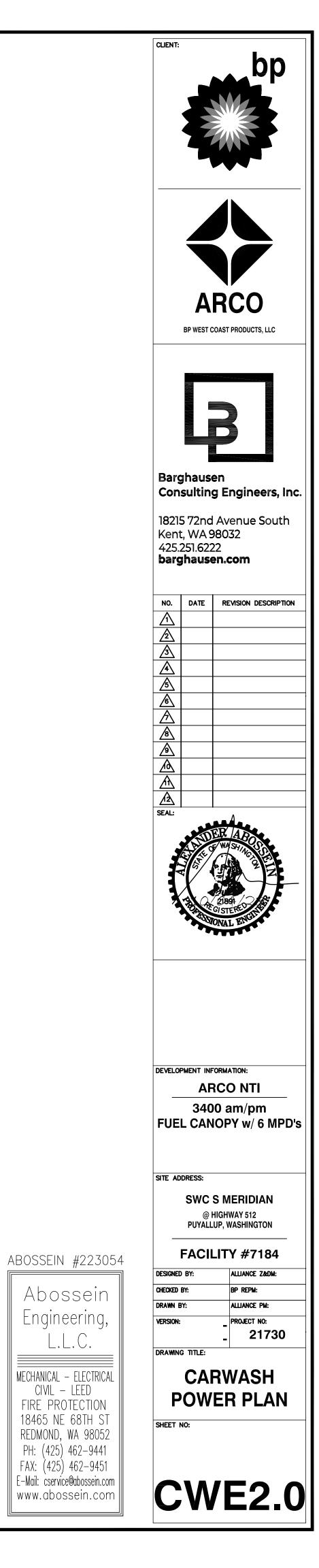
	CARWASH	EQUIF	PMENT S	CHEDULE									
	CALLOUT	SYMBOL	VOLTS	VOLTS AND PHASE	AMPS	MCA	МОСР	KVA	HP	LOAD TYPE	CIRCUIT	WIRE CALLOUT	DISCONNECT
	19 – 3–MESSAGE LIGHTED ENTRANCE SIGN JBOX	J	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		LIGHTING	CW-43	1/2"C,1#12,#12N,#12G	JUNCTION BOX
FLAG NOTES	27 – 8 SEGMENT LIGHTED SIGN JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		LIGHTING	CW-46	1/2"C,1#12,#12N,#12G	JUNCTION BOX
COORDINATE HEAT TAPE LOCATION WITH PLUMBING. FINAL CONNECTION TO OCCUR AFTER LOCATION AND COORDINATION WITH PLUMBING. PER NEC 426.28, HEAT TAPE TO BE EQUIPMENT	4 – AIR COMPRESSOR 5HP 3PH	Ø∩Ľ	208V 3P 3W	208V 3-PH 3W	17.54	20	20	6.32	5 HP	MOTOR	CW-11,13,15	1/2"C,3#12,#12G	NON-FUSED
GROUND FAULT PROTECTED AS PART OF DEICING OR SNOW MELTING EQUIPMENT THAT IS SENSITIVE TO LEAKAGE CURRENTS OF 6mA TO 50mA, AND IS NOT THE SAME AS GFCI USED FOR	3 – AIR KNIFE DRYER/CONTROL CABINET	Ŷ	208V 3P 3W	208V 3-PH 3W	92.31	115.5	120	33.26	30 HP	MOTOR	CW-32,34,3	61—1/2"C,3#1/0,#6G	HARDWIRED CONNECTION
PERSONAL PROTECTION THAT TRIPS AT 5mA(+-1mA)	2 – AIRLIFT DOORS CONTROL BOX	Ŷ	120V 1P 2W	120V 1-PH 2W	20	25	30	2.4	1.5 HP	MOTOR	CW-41	1/2"C,1#10,#10N,#10G	HARDWIRED CONNECTION
A. ALL ELECTRICAL FITTINGS TO BE WATERTIGHT. ANY FIXTURES IN	2 – AIRLIFT DOORS CONTROL BOX	Ŷ	120V 1P 2W	120V 1-PH 2W	20	25	30	2.4	1.5 HP	MOTOR	CW-40	3/4"C,1#8,#8N,#8G	HARDWIRED CONNECTION
THE VICINITY OF WASH UNIT TO BE WATER TIGHT INCLUDING LIGHTS. BOXES USED IN WET LOCATIONS TO BE THREADED HUBS.	33 – AUTO DOOR RELAY JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-38	1/2"C,1#12,#12N,#12G	JUNCTION BOX
ALL CONDUCTORS TO BE RATED FOR WET LOCATIONS. B. DRILL A $1/4$ " DIAMETER DRAIN HOLE IN THE BOTTOM OF ALL	6 – BOOST PUMP SYSTEM CONTROL BOX	Ŷ∩,	208V 3P 3W	208V 3-PH 3W	14.99	19	20	5.4		NONCONTINUOUS	CW-10,12,14	- 1/2"C,3#12,#12G	NON-FUSED
JUNCTION BOXES THAT ARE LOCATED IN THE WASH BAY. C. NO CONDUITS MAY ENTER THE TOP OF ANY ENCLOSURE.	CARWASH PAYSTATION	Ŷ	120V 1P 2W	120V 1-PH 2W	15	15	20	1.8		NONCONTINUOUS	CW-1	3/4"C,1#8,#8N,#8G	HARDWIRED CONNECTION
D. ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL	11 – EV ULTRACLEAR RECLAIM SYSTEM 120V	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-33	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
CONNECTIONS AS REQUIRED FOR A FULLY COMPLETE AND OPERABLE SYSTEM.	11 – EV ULTRACLEAR RECLAIM SYSTEM 208V	Ŷ	208V 3P 3W	208V 3-PH 3W	24.98	31.25	40	9		NONCONTINUOUS	CW-27,29,3	13/4"C,3#8,#10G	HARDWIRED CONNECTION
E. ELECTRICAL CONTRACTOR TO FIELD VERIFY ALL CONDITIONS PRIOR TO BID.	11 – EV ULTRACLEAR RECLAIM SYSTEM JBOX	J	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-35	1/2"C,1#12,#12N,#12G	JUNCTION BOX
F. REFER TO RYKO ELECTRICAL DESIGN DRAWINGS FOR LOW-VOLTAGE COMMUNICATION AND CONTROL WIRING.	25 – FLOOR MOUNT PHOTOEYE	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-39	1/2"C,1#12,#12N,#12G	JUNCTION BOX
G. REFER TO CARWASH DRAWINGS FROM CARWASH VENDOR TO FURNISH & CONNECT ALL CARWASH EQUIPMENT.	10 – OFFBOARD CHEMICAL INJECTION PUMP	J	208V 3P 3W	208V 3-PH 3W	7.85	10	20	2.83	2 HP	MOTOR	CW-24,26,2	81/2"C,3#12,#12G	JUNCTION BOX
H. ALL EQUIPMENT IN CARWASH SHALL BE RATED FOR WET LOCATION. CONDUITS USED IN WET LOCATION TO BE PVC SCHEDULE 40. BOXES USED IN WET LOCATIONS TO BE THREADED HUBS. ALL CONDUCTORS TO BE RATED FOR WET LOCATION.	9 – ONBOARD H.P. PUMP CONTROL BOX 120V	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-25	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
I. WITHIN THE CARWASH BAY, ALL CONDUITS ARE TO BE CONCEALED WITHIN THE WALL AND ARE NOT TO BE SURFACE MOUNTED/EXPOSED.	9 – ONBOARD H.P. PUMP CONTROL BOX 208V	Ŷ	208V 3P 3W	208V 3-PH 3W	59.96	75	80	21.6		NONCONTINUOUS	CW-19,21,2	31—1/4"C,3#2,#8G	HARDWIRED CONNECTION
J. MINIMIZE THE USAGE OF JUNCTION BOXES THROUGHOUT THE CARWASH TUNNEL.	5 – RAINMAKER III R.O. SYS W/REPRESSURIZATION	\$°℃'	208V 3P 3W	208V 3-PH 3W	14.99	19	20	5.4		NONCONTINUOUS	CW-5,7,9	1/2"C,3#12,#12G	NON-FUSED
	26 – REMOTE BAY BUZZER KIT JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-30	1/2"C,1#12,#12N,#12G	JUNCTION BOX
ΝΟΤΓ.	13 – ROUTER	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-44	3/4"C,1#10,#10N,#10G	HARDWIRED CONNECTION
NOTE: REFER TO CARWASH DRAWINGS, CARWASH VENDOR TO FURNISH	1 – UNITEC PORTAL TI ACTIVATION	Ŷ	120V 1P 2W	120V 1-PH 2W	8	10	20	0.96		NONCONTINUOUS	CW-45	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
& CONNECT ALL CARWASH EQUPMENT.	12 – UNITED POS INTERFACE	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-42	3/4"C,1#10,#10N,#10G	HARDWIRED CONNECTION
RATED FOR WET LOCATION. CONDUITS USED IN WET LOCATION TO BE PVC	VACUUM	J	120V 1P 2W	120V 1-PH 2W	16	20	20	1.92		MOTOR	CW-2	3/4"C,1#8,#8N,#8G	JUNCTION BOX
SCHEDULE 40. BOXES USED IN WET LOCATIONS TO BE THREADED HUBS. ALL CONDUCTORS TO BE RATED FOR	8 – WASH BAY TERMINAL BOX 120V	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-22	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
WET LOCATION.	7 – WASH BAY TERMINAL BOX 208V	Ŷ	208V 3P 3W	208V 3-PH 3W	34.97	44	50	12.6		NONCONTINUOUS	CW-16,18,2	03/4"C,3#6,#10G	HARDWIRED CONNECTION

ALL EQUIPMENT IN CARWASH SHALL BE RATED FOR WET LOCATION. CONDUITS USED IN WET LOCATION TO BE PVC SCHEDULE 40. BOXES USED IN WET LOCATIONS TO BE THREADED HUBS. ALL CONDUCTORS TO BE RATED FOR
USED IN WET LOCATION TO BE PVC
LOCATIONS TO BE THREADED HUBS.
ALL CONDUCTORS TO BE RATED FOR

CALLOUT	SYMBOL	VOLTS	VOLTS AND PHASE	AMPS	MCA	MOCP	KVA	HP	LOAD TYPE	CIRCUIT	WIRE CALLOUT	DISCONNECT
9 — 3-MESSAGE IGHTED ENTRANCE SIGN JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		LIGHTING	CW-43	1/2"C,1#12,#12N,#12G	JUNCTION BOX
27 – 8 SEGMENT IGHTED SIGN JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		LIGHTING	CW-46	1/2"C,1#12,#12N,#12G	JUNCTION BOX
H – AIR COMPRESSOR 5HP 3PH		208V 3P 3W	208V 3-PH 3W	17.54	20	20	6.32	5 HP	MOTOR	CW-11,13,15	1/2"C,3#12,#12G	NON-FUSED
3 – AIR KNIFE DRYER/CONTROL CABINET	Ŷ	208V 3P 3W	208V 3-PH 3W	92.31	115.5	120	33.26	30 HP	MOTOR	CW-32,34,3	61—1/2"C,3#1/0,#6G	HARDWIRED CONNECTION
2 – AIRLIFT DOORS CONTROL BOX	Ŷ	120V 1P 2W	120V 1-PH 2W	20	25	30	2.4	1.5 HP	MOTOR	CW-41	1/2"C,1#10,#10N,#10G	HARDWIRED CONNECTION
2 – AIRLIFT DOORS CONTROL BOX	Ŷ	120V 1P 2W	120V 1-PH 2W	20	25	30	2.4	1.5 HP	MOTOR	CW-40	3/4"C,1#8,#8N,#8G	HARDWIRED CONNECTION
33 – AUTO DOOR RELAY JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-38	1/2"C,1#12,#12N,#12G	JUNCTION BOX
5 – BOOST PUMP SYSTEM CONTROL BOX		208V 3P 3W	208V 3-PH 3W	14.99	19	20	5.4		NONCONTINUOUS	CW-10,12,14	1/2"C,3#12,#12G	NON-FUSED
CARWASH PAYSTATION	Ŷ	120V 1P 2W	120V 1-PH 2W	15	15	20	1.8		NONCONTINUOUS	CW-1	3/4"C,1#8,#8N,#8G	HARDWIRED CONNECTION
1 – EV ULTRACLEAR RECLAIM SYSTEM 120V	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-33	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
1 – EV ULTRACLEAR RECLAIM SYSTEM 208V	$\mathfrak{G}$	208V 3P 3W	208V 3-PH 3W	24.98	31.25	40	9		NONCONTINUOUS	CW-27,29,3	13/4"C,3#8,#10G	HARDWIRED CONNECTION
1 – EV ULTRACLEAR RECLAIM SYSTEM JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-35	1/2"C,1#12,#12N,#12G	JUNCTION BOX
25 — FLOOR MOUNT PHOTOEYE	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-39	1/2"C,1#12,#12N,#12G	JUNCTION BOX
0 - OFFBOARD CHEMICAL INJECTION PUMP	Ĵ	208V 3P 3W	208V 3-PH 3W	7.85	10	20	2.83	2 HP	MOTOR	CW-24,26,2	81/2"C,3#12,#12G	JUNCTION BOX
9 – ONBOARD H.P. PUMP CONTROL BOX 20V	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-25	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
9 — ONBOARD H.P. PUMP CONTROL BOX 208V	Ŷ	208V 3P 3W	208V 3-PH 3W	59.96	75	80	21.6		NONCONTINUOUS	CW-19,21,23	₿1—1/4"C,3#2,#8G	HARDWIRED CONNECTION
5 – RAINMAKER III R.O. SYS V/REPRESSURIZATION	Ŷ~Ū'	208V 3P 3W	208V 3-PH 3W	14.99	19	20	5.4		NONCONTINUOUS	CW-5,7,9	1/2"C,3#12,#12G	NON-FUSED
26 – REMOTE BAY BUZZER KIT JBOX	Ĵ	120V 1P 2W	120V 1-PH 2W	1.5	1.9	20	0.18		NONCONTINUOUS	CW-30	1/2"C,1#12,#12N,#12G	JUNCTION BOX
3 – ROUTER	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-44	3/4"C,1#10,#10N,#10G	HARDWIRED CONNECTION
– UNITEC PORTAL TI ACTIVATION	$\mathfrak{O}$	120V 1P 2W	120V 1-PH 2W	8	10	20	0.96		NONCONTINUOUS	CW-45	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
2 – UNITED POS NTERFACE	$\mathfrak{O}$	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-42	3/4"C,1#10,#10N,#10G	HARDWIRED CONNECTION
/ACUUM	Ĵ	120V 1P 2W	120V 1-PH 2W	16	20	20	1.92		MOTOR	CW-2	3/4"C,1#8,#8N,#8G	JUNCTION BOX
3 — WASH BAY ERMINAL BOX 120V	Ŷ	120V 1P 2W	120V 1-PH 2W	15	19	20	1.8		NONCONTINUOUS	CW-22	1/2"C,1#12,#12N,#12G	HARDWIRED CONNECTION
' — WASH BAY ERMINAL BOX 208V	<b></b>	208V 3P 3W	208V 3-PH 3W	34.97	44	50	12.6		NONCONTINUOUS	CW-16,18,20	03/4"C,3#6,#10G	HARDWIRED CONNECTION

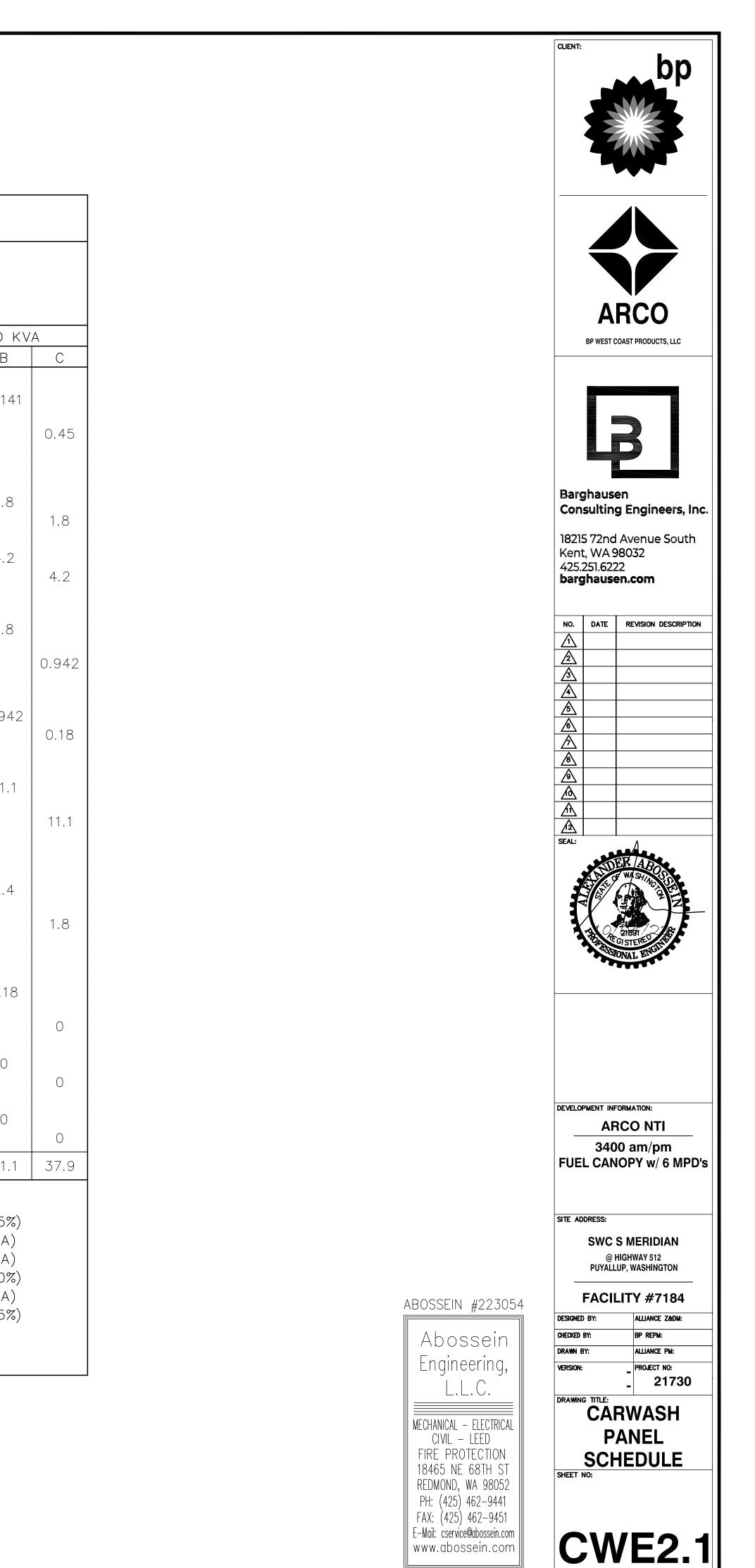


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	$\bigwedge $
MOUN FED	I CARW NTING S FROM M PROVI
CKT #	CKT BKR
1 3	20/1 20/1
5	20/3
7	
9 11 13	 20/3 
15 17	 20/1
19 21	80/3 
23 25	 20/1
27 29	40/3 
31 33	 20/1
35	20/1
37	20/1
39	20/1
41	30/1
43	20/1
45	20/1
47 49 51 53 55 57 59	20/1 20/1 20/1 20/1 20/1 20/1 20/1
	LIG LAF OTH RE( KIT

SL MS	RFACE SB-4	BUS AM NEUTRA	208Y/12 1PS 400 L 100%				AIC 42,000 Main BKR Mlo Lugs standard		
dvid	E MEANS TO LOCK BREAKER IN	OPEN	POSITION	FOR AL	_L MO <sup>-</sup>	FORS PER	R NEC 430.102		
T २	CIRCUIT DESCRIPTION		LOAD KV	A C	СКТ #	CKT BKR	CIRCUIT DESCRIPTION		_OAD k
· /1	CARWASH PAYSTATION	A 1.8		<u> </u>	2			A 1.92	
/1	AIR/WATER UNIT	1.0	1.5		4	20/1 20/1	VACUUM Exterior carwash em Backup lighting, lighting	1.92	0.14
3	5 – RAINMAKER III R.O. SYS W/REPRESSURIZATION	1.0		1.8	6	20/1	INTERIOR CARWASH EM BACKUP LIGHTING, LIGHTING		
		1.8			8	20/1	EM BACKUP LIGHTING, LIGHTING	0.15	
13	4 – AIR COMPRESSOR 5HP		1.8	2.11	10 12	20/3 I	6 – BOOST PUMP SYSTEM Control box		1.8
0	3PH	2.11		2.11	14			1.8	
/1	CARWASH MECHANICAL ROOM Receptacle		2.11	0.72	16 18	50/3 	7 – WASH BAY TERMINAL BOX 208V		4.2
3	9 - ONBOARD H.P. PUMP	7.2			20			4.2	
	CONTROL BOX 208V		7.2		22	20/1	8 – WASH BAY TERMINAL BOX 120V		1.8
/1	9 — ONBOARD H.P. PUMP Control box 120V	1.8		7.2	24 26	20/3 	10 – OFFBOARD CHEMICAL INJECTION PUMP	0.942	
′3	11 – EV ULTRACLEAR		3		28				0.94
	RECLAIM SYSTEM 208V			3	30	20/1	26 – REMOTE BAY BUZZER KIT JBOX		
/1	11 – EV ULTRACLEAR	3	1.8		32 34	110/3 	3 – AIR KNIFE DRYER/CONTROL CABINET	11.1	11.1
/1	RECLAIM SYSTEM 120V 11 – EV ULTRACLEAR RECLAIM SYSTEM JBOX			0.18	36				
/1	HEAT TAPE	0.1			38	20/1	33 – AUTO DOOR RELAY JBOX	0.18	
/1	25 — FLOOR MOUNT Photoeye		0.18		40	30/1	2 – AIRLIFT DOORS CONTROL BOX		2.4
/1	2 – AIRLIFT DOORS CONTROL BOX			2.4	42	20/1	12 – UNITED POS INTERFACE		
/1	19 – 3–MESSAGE LIGHTED ENTRANCE SIGN JBOX	0.18			44	20/1	13 – ROUTER	1.8	
/1	1 – UNITEC PORTAL TI ACTIVATION		0.96		46	20/1	27 – 8 SEGMENT LIGHTED SIGN JBOX		0.18
/1 /1	SPACE SPACE			0	48	20/1	SPACE		
/1	SPACE		0		50 52	20/1 20/1	SPACE SPACE		0
/1	SPACE			0	54	20/1	SPACE		
/1 /1	SPACE	0			56	20/1	SPACE	0	
/1	SPACE SPACE		0	0	58 60	20/1 20/1	SPACE SPACE		
						TO	TAL CONNECTED KVA BY PHASE	40.1	41.1
	CONN KVA CAL	C KVA					CONN KVA CAL	C KVA	
_IGH	TING 1.1 1.38		(125%)			CON	ITINUOUS 0 0		(125%
	GEST MOTOR 33.3 41.6		(125%)				TING 0 0		(N/A)
	ER MOTORS         15.9         15.9		(100%)	\ \			OLING 0 0		(N/A)
	EPTACLES 0.72 0.72 HEN EQUIP 0 0		(50%>10 (N/A)	)			ICONTINUOUS 68.1 68.1 ERSE 0 0		(100%) (N/A)
							ERED DEMAND 0 0		(125%)
							AL KVA 119 128 ANCED 3-PHASE AMPS 354		



## WATER HAMMER ARRESTER SCHEDULE

MARK	MANUFACTURER/ MODEL #	FIXTURE UNITS	INLET SIZE	REMARKS
WHA-A	PPP SC-500	1-11	1/2"	PER PDI STANDARD PDI-WH 201
WHA-B	PPP SC-750	12-32	3/4"	PER PDI STANDARD PDI-WH 201
WHA-C	PPP SC-1000	33–60	1"	PER PDI STANDARD PDI-WH 201

## ELECTRIC WATER HEATER SIZING

FIXT. ID	QTY	DESCRIPTION	DEMAND	TOTAL						
LV-1	2	LAVATORY	5 GPH	10 GPH						
G16A	1	HANDSINK	5 GPH	5 GPH						
G7	1	MOP SINK	15 GPH	15 GPH						
G9B	1	3–COMPARTMENT SINK 45 GPH 45 GPH								
		SUB	TOTAL =	75 GPH						
HOT WAT 60 GPH	DEMAND FACTOR: 0.8 HOT WATER DEMAND: 0.8 X 75 GPH = 60 GPH ENERGY INPUT CALCULATIONS: 60 GPH X 0.149 = 8.94 KW									
MODEL	MODEL A.O. SMITH, DRE-52-12									

MODELA.O. SMITH, DRE-52-12RECOVERY RATE74 GPH @ 100°FELECTRICAL INPUTTEMPERATURE RISESTORAGE CAPACITY12 KW50 GALLONS

### DOMESTIC HOT WATER CIRCULATING PUMP SCHEDULE

DESIGNATION:	HWCP-1
ZONE:	BUILDING
MANUFACTURER:	GRUNDFOS
MODEL:	UP15-18B7
TYPE:	INLINE
G.P.M.:	3
HEAD (FT-H20):	12
RPM:	2940
MOTOR FLA:	0.74
VOLTAGE:	115
PHASE:	1
WEIGHT (LBS):	6.7
REMARKS:	(1)(2)(3)
(1) ALL BRONZE PUMP,	125 PSI MIN. RATED.
(2) WITH 1" FLANGE CO	NNECTION.

(3) COORD. WITH ELEC'L CONTRACTOR FOR POWER TO PUMP.

GREASE INTECEPTOR SIZING									
QTY	DESCRIPTION	WASTE F.U.PER FIXTURE							
1	MOP SINK	3	3						
1	3-COMP SINK	3	3						
1	HAND SINK	2	2						
1	FLOOR DRAIN	2	2						
7	FLOOR SINK	2	14						
	TOTAL		26						
	UPC TABLE 10- GRAVITY GREASE INTERCEPT								
DFU	'S INTERC	CEPTOR VC	LUME						
8	500 G	GALLONS							
21	750 G	O GALLONS							
35		000 GALLONS							
90	1250	GALLONS							

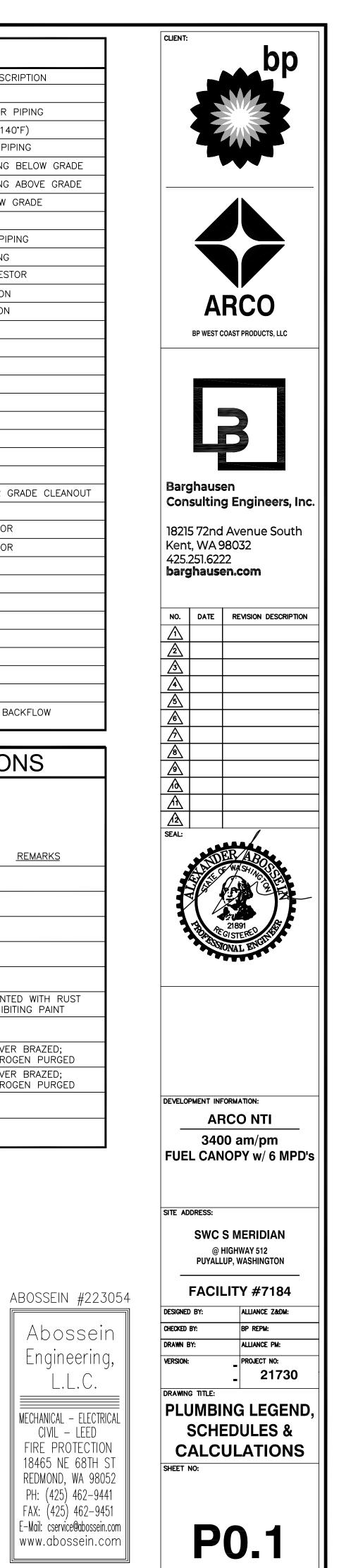
	1			T -			ИD	NG FIXTURE SCHEDULE
FIXT. ID	DESCRIPTION	MANUFACTURER	MODEL	W	ROUGH-	CW	HW	REMARKS
WC-1	WATER CLOSET(F.T.)	AMERICAN STANDARD	CHAMPION PRO 3195A.101	4"	2"	1/2"	_	ADA COMFORT HEIGHT, TWO-PEICE TANK TYPE TOILET, VITREOUS CHINA, ELONGATED BOWL, WHITE # 4225A.164 TANK, 1.25 GPF, WITH AMERICAN STANDARD 5901.100SS WHITE OPEN FRONT SEAT LESS COVER.
_V-1	LAVATORY	AMERICAN STANDARD	LUCERNE 0355.012.020	2"	1-1/2"	1/2"	1/2"	WALL MOUNTED, WHITE VITREOUS CHINA, 3 FAUCET HOLES, CONCEALED ARMS SUPPORT, AMERICAN STANDARD 6053.205.V035 SENSOR FAUCET SET FOR MAXIMUM 0.2 GALLONS PER CYCLE. PROVIDE UNDER DECK THERMOSTATIC MIXING VALVE; AND FLAT GRID DRAIN, WITH TRUEBRO LAVGUARD 102
A1C	CAPPUCCINO MACH	CURTIS	G3 PRIMO PCGT63099	_	-	1/2"	_	SEE ARCHITECTURAL PLANS
A33	BEAN-TO-CUP	SCHAERER	040381- 00051EUS	1-1/2"	_	1/2"	_	SEE ARCHITECTURAL PLANS
BIB	FROZEN BEVERAGE DISPENSER	CORNELIUS	621460041 VIPER SHORT	_	_	1/2"	_	SEE ARCHITECTURAL PLANS
B2A	FOUNTAIN TOP ICE MAKER (CUBED)	HOSHIZAKI	KMD- 860MRJ	1/4"	_	1/2"	_	SEE ARCHITECTURAL PLANS
32B	FOUNTAIN TOP	SCOTSMAN	NO922R 	3/4"	_	1/2"	_	SEE ARCHITECTURAL PLANS
B12A	INTERACTIVE DRINK DISPENSER	CORNELIUS	621058578, IDC PRO	3/4"	_	1/2"	_	SEE ARCHITECTURAL PLANS
B15	F'REAL BLENDER	F'REAL	FRLB6	3/4"	_	1/2"		SEE ARCHITECTURAL PLANS
D10	WALK-IN COOLER EVAPORATOR COIL	HEATCRAFT	LEC0130AS7 AMAB0200	3/4"	_	_	_	SEE ARCHITECTURAL PLANS
D11	WALK-IN FREEZER EVAPORATOR COIL	HEATCRAFT	LEC0120BS6 EMAB0200	3/4"	_	_	_	SEE ARCHITECTURAL PLANS
G6A	ICE MAKER	SCOTSMAN	ERC311	3/4"	_	1/2"		SEE ARCHITECTURAL PLANS
G7	MOP SINK	FIAT	-32A MSB-3624	3"	2"	1/2"	1/2"	24''X 36'' X 10'', SHIPPING WEIGHT 50LBS. PROVIDE WIHT FIAT # 830–AA FAUCET
G8	ELECTRIC WATER	A.O.SMITH	DRE-52-12	3/4"ID	_	3/4"	3/4"	COMMERCIAL ELECTRIC WATER HEATER, ELECTRIC INPUT 18KW, 3PH, 50A. RECOVERY RATE 74 @ 100°F TEMPERATURE RISE, STORAGE CAPACITY 50 GALLONS. WATER HEATER SHALL HAVE A MINIMUM EFFICIENCY OF 0.93
G9B	3-COMPARTMENT SINK	ADVANCE TABCO	FC-3-1824 -18RL	3"	2"	1/2"	1/2"	18''X24'' STAINLESS STEEL. WITH G9E FAUCET FISHER # 2210 RATED FOR 1.15 GPM @ 60 PSI
G11	WATER PURICIFATION	EVERPURE	EV9437-10	_		1"		SEE ARCHITECTURAL PLANS
	SYSTEM		LV9437-10					
G16A	HANDSINK	ADVANCE TABCO	7–PS–41	2"	1-1/2"	1/2"	1/2"	OVERALL SINK DIMENSION IS 20"x24", BOWL IS 14"X16" STAINLESS STEEL. WELDED 7'-3/4" HIGH SIDE SPLASHES. 2.2 GPM
G54	CARBONATOR	McCANNS	"BIG MAC" E400397	_	_	1/2"	_	SEE ARCHITECTURAL PLANS
G10B	MED. CONDIMENT ISLAND	SHOPCO	_	1"	_	1/2"	-	SEE ARCHITECTURAL PLANS
-D-1	FLOOR DRAIN	ZURN	Z-415S	2"	1-1/2'	, _	_	6"X6" SQUARE STRAINER, WITH 1/2" TRAP PRIMER. CONNECTION OR APPROVED EQUAL.
-S-1	FLOOR SINK	ZURN	Z-1901	3"	2"	_	_	12" X 12" RECEPTOR 8" SUMP DEPTH. OR APPROVED EQUAL.
	FLOOR SINK	ZURN	Z-1901	2"	2"	_	_	12" X 12" RECEPTOR 8" SUMP DEPTH. OR APPROVED EQUAL.
ET—1	EXPANSION TANK	AMTROL	ST-5	_	-	1/2"	-	MODEL ST-5, 2.0 GALLONS, STEEL SHELL, POLYPROPYLENE LINER, BUTYL DIAPHRAGM, FACTORY PRECHARGE AT 40 PSIG, MAXIMUM OPERATING TEMPERATURE = 200°F, MAXIMUM WORKING PRESSURE = 150 PSIG.
HWCP-1	HOT WATER RETURN CIRCULATING PUMP	GRUNDFOS	UP15-18B7	_	_	_	3/4"	3 GPM @ 12 FTHD, 115V/1PH/60Hz, 1/25HP, 25 WATTS, WITH TIME CLOCK AND AQUASTAT. COORDINATE WITH OWNER FOR TIMER SETTINGS. MOUNT PUMP 5FT ABOVE FINISHED FLOOR.
MV-1	THERMOSTATIC MIXING VALVE	WATTS	LFMMV-M1	_	_	3/4"	3/4"	POINT-OF-USE MIXING VALVE, BRONZE BODY CONSTRUCTION. SET OUTLET TEMPERATURE AT 105°F.
TP-1	TRAP PRIMING VALVE	PPP	PR-500	_	_	1/2"	_	PRESSURE DROP ACTIVATED TRAP PRIMER.
WCO-1	FLOOR CLEAN OUT	ZURN	Z1443–ZB	VRY	_	_	_	WALL CLEANOUT, DURA — COATED CAST IRON BODY, GAS AND WATERTIGHT ABS TAPERED THREAD PLUG, AND NICKEL BRONZE SECUR SQUARE, SMOOTH WALL ACCESS COVER AND FRAME. OR APPROVED EQUAL.
FCO-1	FLOOR CLEAN OUT	ZURN	Z1440-ZB	VRY	_	_	_	"LEVEL-TROL" ADJUSTABLE FLOOR CLEANOUT, DURA-COATED CAST IRON BODY WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLU AND ROUND SCORIATED CAST IRON EXTRA-HEAVY-DUTY SECURED TOP ZB, ADJUSTABLE TO FINISHED FLOOR, OR APPROVED EQUAL.
COTG-1	CLEANOUT TO GRADE	ZURN	Z1474	4"	_	_	_	HEAVY DUTY CLEANOUT HOUSING. DURA-COATED CAST IRON BODY WITH INTEGRAL ANCHOR FLANGE, SECURED SCORIATED COVER WITH LIFTING DEVICE. W/ Z1400, OR APPROVED EQUAL.
WHA-1	WATER HAMMER ARRESTOR	ZURN	Z170	_	-	3/4"	_	SHOKTROL WATER HAMMER ARRESTOR, STAINLESS STEEL CONSTRUCTION. OR APPROVED EQUAL.
RD-1	ROOF/OVERFLOW DRAIN	ZURN	Z165-NH, -Z-G-SS, -VP-SC-E	3"	_	_	_	Ø8-3/8 COMBINATION MAIN ROOF &OVERFLOW DRAIN W/ LOW SILHOUETTE DOMES DOUBLE TOP-SET® DECK PLATE. OUTLET NO-HUB, PIPE SIZE 4"Ø, BODY WITH DOME 4-1/2" DOME HEIGHT, GALVANIZED CAST IRON, STAINLESS STEEL MESH SCREEN OVER DOME, SECONDARY CLAMPING COLLAR W/ STATIC EXTENSION. VANDAL PROOF SECURED TOP. OR APPROVED EQUAL.
DD-1	OVERFLOW DRAIN	ZURN	Z198-G	3"	_	_	_	PARAPET SCUPPER SLEEVE, DURA-COATED CAST IRON BODY WITH FIXED POSITION COMBINATION MEMBRANE FLASHING FLANGE AND CLAMP AND PARAPET WALL FACE CLOSING, GALVANIZED CAST IRON. OR APPROVED EQUAL.
HB-1	HOSE BIB	ACORN	8151		_	3/4"	_	WITH ANTI-SIPHON VACUUM BREAKER. INTEGRAL STOP, LOCKING DOOR, S.S. BOX MOUNT HOSE BIBB. MOUNT 24" ABOVE GRADE
HB-2	HOSE BIB	ACORN	8121 LF		_	3/4"	_	WITH VACUUM BREAKER, MOUNT HOSE BIBB 12" ABOVE FINISHED FLOOR
	POST HYDRANT	WOODFORD	SRH-MS		_	3/4"		WITH DUAL CHECK SPOUT, 3/4" HOSE CONNECTION AND GALVANIZED STEEL STANDPIPE WITHOUT DRAIN OUTLET.

PLU	MBING	LEGEND
SYMBOL	ABBREVIATION	DESCRIPTION
	CW	COLD WATER PIPING
FCW	FCW	FILTERED COLD WATER PIPING
	HW	HOT WATER PIPING (140°F)
	HWR	HOT WATER RETURN PIPING
	SS OR W	SOIL OR WASTE PIPING BELOW GRADE
	SS OR W	SOIL OR WASTE PIPING ABOVE GRADE
GW	GW	GREASE WASTE BELOW GRADE
	V	VENT PIPING
CD	CD	CONDENSATE DRAIN PIPING
D	ID	INDIRECT DRAIN PIPING
<b>O</b>	WHA	WATER HAMMER ARRESTOR
•	P.O.C.	POINT-OF-CONNECTION
IFZ		GAS COCK WITH UNION
]		CAPPED
⊢-		UNION
O	UP	PIPE UP
Ə	DN	PIPE DOWN
<del></del>	DN	PIPE TEE DOWN
<u>—ю́</u>	BV	BALL VALVE
	CV	CHECK VALVE
<b>—</b>	RED	REDUCER
_©_	PUMP	
•	FCO/GCO	FLOOR CLEANOUT OR GRADE CLEANOUT
I <del>L</del>	WCO	WALL CLEANOUT
	AFF	ABOVE FINISHED FLOOR
	BFF	BELOW FINISHED FLOOR
	BG	BELOW GROUND
	(E)	EXISTING
	(N)	NEW
	NTS	NOT TO SCALE
	IE	INVERT ELEVATION
	QTY.	QUANTITY
	V.I.F.	VERIFY IN FIELD
	FU	FIXTURE UNIT
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER

Ν	<b>/</b> ATERIA	LS	SP	EC	٦F	IC	A1	<b>FIONS</b>
<u>S</u>	ERVICES	CAST IRON NO-HUB	GALV. STEEL SCH 40	BLACK STEEL SCH 40	TYPE M COPPER	TYPE L COPPER	TYPE K COPPER	REMARKS
COLD WATER	ABOVE GROUND BELOW GROUND					۲	•	
HOT WATER	ABOVE GROUND BELOW GROUND					•	•	
WASTE	ABOVE GROUND BELOW GROUND	•						
VENT	ABOVE GROUND BELOW GROUND	•						
INDIRECT WASTE	INDOOR OUTDOOR				•			
NATURAL GAS	INDOOR OUTDOOR		•	0				PAINTED WITH RUST INHIBITING PAINT
STORM DRAIN	ABOVE GROUND BELOW GROUND	•						
C02	ABOVE GROUND					۵		SILVER BRAZED; NITROGEN PURGED
CO2 VENT	ABOVE GROUND					٠		SILVER BRAZED; NITROGEN PURGED
CONDENSATE PIPE	ABOVE GROUND				•			

DR	AWING SCHEDULE
SHT. NO.	DESCRIPTION
P0.1	PLUMBING LEGEND, SCHEDULES & CALCULATIONS
P0.2	GENERAL NOTES & CALCULATIONS
P0.3	PLUMBING SPECIFICATIONS
P1.0	PLUMBING ROUGH-IN PLAN
P1.1	SANITARY DRAINAGE & VENT PLUMBING PLAN
P1.2	DOMESTIC WATER SUPPLY PLUMBING PLAN
P1.3	PLUMBING ROOF PLAN
P2.0	RISER DIAGRAMS
P4.0	PLUMBING DETAILS – I
P4.1	PLUMBING DETAILS – II
P4.2	PLUMBING DETAILS – III
CWP1.1	CARWASH WASTE AND VENT PLANS
CWP1.3	CARWASH WATER AND ROOF PLAN
CWP2.0	CARWASH RISER DIAGRAMS

L.L.C.



PIPE SIZING INFORMATION											F	FIXTURE UNITS (	CALC	CULA	<b>ATIO</b>	NS	
City main (source) water pressure		55	.0 psi	<== Info	rmation prov	vided by: Pu	yallup 2	53-841-5512		FIXT ID	QTY	DESCRIPTION		ATER PIPI		WASTE	
Water meter loss (psi)		3	.0 psi				1	Dept.		FIXT ID (ITEM)		DESCRIPTION	F.U.PER FIXTURE	TOTAL CW F.U.	TOTAL HW F.U.	F.U.PER FIXTURE	TOTA SS F
Backflow preventer loss		10	.0 psi							PLUME	BING F	IXTURES					
Pressure losses between meter	and bldg. (psi)	0	.0 psi	Explan	ation: losse	s to bldg.				WC-1	2	WATER CLOSET (FLUSH TANK)	2.5	5	_	4	8
ater pressure at building entry:		42	.0 psi	If water	pressure ex	ceeds 80PS	I, press	ure regulator is	req'd	LV-1	2	LAVATORY	1	1.5	1.5	1	2
				_	R	Regulator Rec	quired:	no		A1C	1	CAPPUCCINO MACHINE	0.5	1	-	0.5	1
laximum available water pressure for dist	ribution:	42	.0 psi			PRV Set	Point:	n/a		A33	3	BEAN-TO-CUP	0.5	1.5	_	0.5	1.
UILDING WATER PRESSURE LOSS:										B1B	1	FROZEN BEVERAGE DISPENSER	0.5	0.5	_	_	-
Elevation loss	4.3	3 psi	Ma	x. fixture l	height from	source:	<b>10</b> t	ft at 0.433 psi/ft		B2A	1	FOUNTAIN ICE MAKER (CUBED)	0.5	0.5	_	0.5	0.5
<b>Backflow preventer loss</b>		psi (incl	ude all devices	downstrea	am of PRV)			-		B2B	1	FOUNTAIN ICE MAKER (NUGGET)	0.5	0.5	_	0.5	0.
Min. fixture pressure	30.	0 psi (at n	nost remote fix	ture)						B12A	2	INTERACTIVE DRINK DISPENSER	1	2	_	0.5	1.
Total pressure loss	34.3	3 psi								B15	1	F'REAL BLENDER	1	0.5	_	0.5	0
	42.0	0 psi	(maximum s	urailable ur	ater pressure	for distribut	tion)			G7	1	MOP SINK	3	2,25	2.25	3	
		3 psi	(minus tota		-	: IOI distribut	1011)			G6A	1	ICE MAKER	1	1	_	1	1
Remaining available pressure:		7 psi		i pressure i	(033)					G9B	1	3-COMPARTMET SINK	_	_	_	6	6
remaining available probate.		, ber								G9E	1	3-COMP. SINK PRE-RINSE FAUCET	3	2.25	2.25	_	-
Longest piping run	15	0 ft	7.7 psi	x 1	100 ft					G16A	1	HAND SINK	2	3.0	3.0	2	2
x add'l fitting factor of 1.3		0 ft	200 ft	_						G54	1	CARBONATOR	1	1		_	-
-										TG10B	1	MEDIUM REFRIGERATED CONDIMENT	_	_		2	2
fax. allowable pressure loss for pipe s	izinş 3.84:	5 psi/100f	ft							FD-1	3	FLOOR DRAIN	_	_	-	2	6
										FS-1	1	FLOOR SINK	_	_	-	9	9
										FS-2	6	FLOOR SINK	_	_	_	2	1
COLD WATER PIPE SIZING TABL	LE			HC	DT WATER	PIPE SIZIN	NG TAE	LE		HB-1	2	HOSE BIBB	2.5	5	_	_	-
		Flow				F	low			HB-2	2	HOSE BIBB	2.5	5.0	-	_	-
FIX. UNITS	FIX. UNITS	Rate	Velocity	P	IPE FIX.	UNITS A	Rate	Velocity		HB-3	1	HOSE BIBB	2.5	2.5	-	-	-
PIPE SIZE (flush tank)	(flush valve)	(gpm)	(ft/s)	S	IZE (flus)	h tank) (g	gpm)	(ft/s)					TOTAL	30.75	9.00		58
1/2" 1	-	2.4	3.2	1	./2"		2.5	3.4		NOTES	 i:				L		<u>.</u>
3/4" 7	-	6.1	4.0	3	3/4"	7	6.5	4.2		1. WA	TER S	UPPLY FIXTURE UNITS ARE BASED ON	-				
1" 18	_	13	47		1"	18	13	5.0		2. DR	ainage	FIXTURE UNITS ARE BASED ON CPC,	CHAPTER	K— / TABLE	<u> </u>		

			Flow	
	FIX. UNITS	FIX. UNITS	Rate	Velocii
PIPE SIZE	(flush tank)	(flush valve	) (gpm)	(ft/s)
1/2"	1	-	2.4	3.2
3/4"	7	-	6.1	4.0
1"	18	-	13	4.7
1-1/4"	32	-	21	5.3
1-1/2"	60	16	33	5.9
2"	215	102	68	7.0
2-1/2"	479	365	120	8.0
3"	748	700	171	8.0
4"	1755	1755	300	8.0
6"	4480	4480	670	8.0

|--|

101.10			
		Flow	
PIPE	FIX. UNITS	Rate	
SIZE	(flush tank)	(gpm)	
1/2"	1	2.5	
3/4"	7	6.5	
1"	18	13	
1-1/4"	30	20	
1-1/2"	49	28	
2"	123	49	
2-1/2"	245	75	
3"	406	107	
4"	840	187	
6"	2765	419	

BACKFLOW PREVENTER
NATER

NOIES AS MANUFACTURED BY "WATTS" OR EQUAL: RPBA = REDUCED PRESSURE #009QTDCVA = DOUBLE CHECK #007QTAVB = VACUUM BREAKER

- VALVES TO BE LINE SIZE.
- INSTALL AT THE FOLLOWING LOCATIONS (MINIMUM) A. DCVA AT ICE MAKER
- B. RPBA AT COFFEE BREWER/ESPRESSO MACHINE (IF INSTALLED)
- C. RPBA AT BEVERAGE BAR/CARBONATOR (POP MACHINE PIPING DOWNSTREAM OF CARBONATOR SHALL BE PLASTIC IN ORDER TO AVOID CARBONIC POISONING. D. BACKFLOW PREVENTERS SHALL BE MOUNTED
- MAXIMUM 5 FEET ABOVE FLOOR PER UPC 2015, SEC. 603.4.3. DISCHARGE DRAINS WITH AIRGAP, TYP.

BACKFLOW PREVENTERS SHALL BE FULLY INSTALLED AND TESTED PRIOR TO PRE-OPENING INSPECTION

	SPACES IN WHICH THE PLUMBING WORK WILL BE INSTALLED.
2	BECAUSE OF THE NATURE AND SCALE OF THE DRAWINGS, CERTAIN E UNIONS, FITTINGS, ELBOWS, ETC., MAY NOT BE SHOWN. WHERE SUC SECTIONS OF THE SPECIFICATIONS, OR WHERE THEY ARE REQUIRED CODES AND REGULATIONS, THEY SHALL BE FURNISHED AND INSTALLE OWNER. THE DRAWINGS INDICATE GENERAL LOCATIONS OF PIPING, E SIMILAR. THE EXACT LOCATION TO BE DETERMINED BY THE CONTRA THE JOB.
3	ALL EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINS MECHANICAL INJURY OR THEFT. PLUMBING FIXTURES SHALL BE COV AFTER INSTALLATION AND SHALL BE THOROUGHLY CLEANED AFTER CO
4	ALL MATERIALS SUCH AS VALVES, FITTINGS, PIPING, EQUIPMENT, PUM PROPERLY PROTECTED, AND ALL PIPING OPENINGS SHALL BE TEMPO FOR THE WORK UNDER HIS CHARGE, ON A DAILY BASIS, AT THE EN PREVENT OBSTRUCTION AND DAMAGE. <u>THE ABOVE REQUIREMENTS AR</u>
5	THE CONTRACTOR SHALL SEE THAT ALL MATERIALS, INSTALLATION AND ACCORDANCE WITH THE LATEST EDITION OF ALL APPLICABLE CODES, AND ALL COUNTY AND LOCAL CITY CODES OR ORDINANCES, INCLUDIN HEALTH, FEDERAL AND STATE ENVIRONMENTAL PROTECTION REGULATION STATE ENERGY CODES AND UTILITY REGULATORY AGENCIES.
6	ALL WORK SHALL BE FURTHER PERFORMED IN ACCORDANCE WITH TH UNDERWRITERS, THE PLUMBING AND BUILDING CODES, NATIONAL ELE OCCUPATIONAL SAFETY AND HEALTH ACT, THE AMERICAN GAS ASSOCI SPECIFIC CODES AS MAY BE REFERRED TO IN THE INDIVIDUAL SECTI
7	PIPE SIZES SHOWN ON THE DRAWINGS ARE THE MINIMUM SIZES ALL MINIMUM, EXCEPT WHEN THE CODE MINIMUM SIZE IS LARGER THAN
8	THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONTRACT PF ALL TIMES, ON WHICH HE SHALL ACCURATELY RECORD THE ACTUAL AS WORK PROGRESSES, MARK CHANGES MADE WHETHER RESULTING FORMAL CHANGE ORDERS OR OTHER INSTRUCTIONS ISSUED BY THE
9	THE PLUMBING CONTRACTOR SHALL INDICATE PROGRESS BY COLORIN ASSOCIATED APPURTENANCES EXACTLY AS THEY ARE ERECTED AND I
10	MARK ALL PIPE SIZES AND LOCATIONS DURING CONSTRUCTION. ALSO AND VARIOUS EQUIPMENT, APPARATUS, AND ASSOCIATED APPURTENAN CONSTRUCTION.
11	AT THE COMPLETION OF THE JOB THESE PRINTS, INCORPORATING CH NOTED ON MARKED-UP PRINTS, INCLUDING DIMENSIONED LOCATIONS LIMITS OF BUILDING, SHALL BE SUBMITTED TO THE ENGINEER FOR FI PRINTS WILL BE RETURNED WITH APPROPRIATE COMMENTS AND RECO PRINTS TOGETHER WITH CORRELATED PRINTS INDICATING ALL THE REV OF WORK, SHALL FORM THE BASIS FOR PREPARING A SET OF RECO
12	WHERE PIPING, AND OTHER PLUMBING APPURTENANCES PASS THROUG FLOORS, INSTALL A FIRE-STOP THAT PROVIDES AN EFFECTIVE BARRIE SMOKE AND GASES. FIRE-STOP MATERIAL SHALL BE UL APPROVED, CLEARANCES BETWEEN RACEWAYS AND OPENINGS. FLOOR, EXTERIOR MADE WATERTIGHT AS APPROVED BY THE ADMINISTRATIVE AUTHORITY.
13	ARRANGE AND INSTALL PIPING APPROXIMATELY AS INDICATED, STRAIGH POSSIBLE. FORM RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS, PARTITIONS AND CEILINGS, OFFSETTING ONLY WHERE NECESSA INTERFERENCE WITH OTHER MECHANICAL ITEMS. LOCATE GROUPS OF SPACE THEM AT A DISTANCE TO PERMIT ACCESS FOR SERVICING VAL
14	WATER PIPING SHALL BE PITCHED TO POINTS OF DRAINAGE WITH CO
15	INSTALL HORIZONTAL PIPING AS HIGH AS POSSIBLE WITHOUT SAGS O
16	GRADE DRAINAGE AT UNIFORM SLOPE OF NOT LESS THAN $1/4$ " PER WHEN APPROVED BY ADMINISTRATIVE AUTHORITY, PIPE SIZE 4" AND L THAN $1/8$ " PER FOOT.
17	WHERE CHANGES IN PIPE SIZES OCCUR, USE ONLY REDUCING FITTIN
18	FOR DRAINAGE PIPING CHANGES IN DIRECTION, USE LONG SWEEP WH SWEEP 1/4 BENDS, OR COMBINATION WYE AND 1/8 BENDS; USE SA HORIZONTAL BRANCHES DISCHARGING TO STACKS.
19	INSTALL SECTIONALISING VALVES AND ON EACH BRANCH LINE TO MUL READILY ACCESSIBLE LOCATION, DO NOT CONCEAL. DO NOT LOCATE V INDICATED ON PLANS. LOCATE ANGLE STOP VALVES BELOW THE SINK
20	WATER SUPPLY TO ALL FIXTURES AND CONTAINERS SHALL BE SO INS BACK SIPHONAGE OF POLLUTED WATER. ALL SUPPLIES SHALL BE EI FIXTURE OR SEPARATED FROM THE DRAINAGE END BY MEANS OF AN
21	PROVIDE PIPING AND FIXTURE TRAPS. CONNECT TO FIXTURES AND O'SPECIFIED AS REQUIRING SOIL, WASTE, DRAIN AND VENT FACILITIES.
~~	

- 23 FOUR INCHES.
- 25

- AND PROPERLY LABELED.

- 32 FAUCET CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING,
- THAN 5 POUNDS.

- CODE.
- MUST BE MADE.
- THE ENTIRE BLDG.
- OPENINGS.
- 39 PLASTIC PIPES ARE NOT PERMITTED TO BE INSTALLED WITHIN THE AIR PLENUM SPACE. WASTE PIPING WITHIN THE CEILING SPACE.
- TO CALLING FOR FINAL INSPECTION.

## **J**.U 5.0 5.0 5.0 5.0 5.0 5.0 5.0

# **GENERAL NOTES**

PLUMBING CONTRACT DRAWINGS ARE IN PART DIAGRAMMATIC, COVERING THE SCOPE OF WORK AND GENERAL ARRANGEMENT OF THE EQUIPMENT, PIPING, ETC., AND THE APPROXIMATE SIZE OF EQUIPMENT AND MATERIALS. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THE PLUMBING WORK. PLUMBING CONTRACTOR SHALL CONSULT GENERAL, SPRINKLER, HEATING/VENTILATING/AIR CONDITIONING CONTRACT AND ELECTRICAL DRAWINGS TO FAMILIARIZE HIMSELF WITH THAT WORK AND TO VERIFY THE SPACES IN WHICH THE PLUMBING WORK WILL BE INSTALLED.

> AND SCALE OF THE DRAWINGS, CERTAIN BASIC PLUMBING ITEMS SUCH AS , ETC., MAY NOT BE SHOWN. WHERE SUCH ITEMS ARE REQUIRED BY OTHER CATIONS. OR WHERE THEY ARE REQUIRED BY THE NATURE OF THE WORK OR BY THEY SHALL BE FURNISHED AND INSTALLED AT NO ADDITIONAL COST TO THE INDICATE GENERAL LOCATIONS OF PIPING, EQUIPMENT, DUCTWORK AND CATION TO BE DETERMINED BY THE CONTRACTOR TO BEST FIT THE LAYOUT OF

> TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, AND CHEMICAL OR HEFT. PLUMBING FIXTURES SHALL BE COVERED WITH HEAVY PAPER COVERINGS SHALL BE THOROUGHLY CLEANED AFTER COMPLETION OF THE PROJECT.

> VALVES. FITTINGS, PIPING, EQUIPMENT, PUMPS, COILS, ETC., SHALL BE ND ALL PIPING OPENINGS SHALL BE TEMPORARILY CLOSED BY THE CONTRACTOR IS CHARGE. ON A DAILY BASIS, AT THE END OF EACH WORKING DAY, SO AS TO ND DAMAGE. THE ABOVE REQUIREMENTS ARE MANDATORY.

SEE THAT ALL MATERIALS, INSTALLATION AND WORKMANSHIP IS PERFORMED IN ATEST EDITION OF ALL APPLICABLE CODES, LAWS, OR ORDINANCES OF THE STATE, OCAL CITY CODES OR ORDINANCES, INCLUDING ALL STATE OR LOCAL BOARD OF TATE ENVIRONMENTAL PROTECTION REGULATIONS, ND UTILITY REGULATORY AGENCIES.

THER PERFORMED IN ACCORDANCE WITH THE NATIONAL BOARD OF FIRE BING AND BUILDING CODES, NATIONAL ELECTRICAL CODE, THE D HEALTH ACT, THE AMERICAN GAS ASSOCIATION, AND ALL SUCH OTHER BE REFERRED TO IN THE INDIVIDUAL SECTIONS OF THE SPECIFICATIONS. THE DRAWINGS ARE THE MINIMUM SIZES ALLOWED REGARDLESS OF THE CODE

THE CODE MINIMUM SIZE IS LARGER THAN THAT SHOWN. MAINTAIN A CURRENT SET OF CONTRACT PRINTS ON THE CONSTRUCTION SITE AT SHALL ACCURATELY RECORD THE ACTUAL INSTALLATION OF ALL PLUMBING WORK. MARK CHANGES MADE WHETHER RESULTING FROM JOB CONDITIONS, ADDENDA,

G OR OTHER INSTRUCTIONS ISSUED BY THE ENGINEER. OR SHALL INDICATE PROGRESS BY COLORING IN VARIOUS PIPES, FIXTURES, AND ICES EXACTLY AS THEY ARE ERECTED AND INSTALLED.

LOCATIONS DURING CONSTRUCTION. ALSO, MARK LOCATIONS OF ALL VALVES APPARATUS, AND ASSOCIATED APPURTENANCES AS ERECTED WEEKLY DURING

HE JOB THESE PRINTS, INCORPORATING CHANGES, ADDENDA AND ADDED DATA RINTS, INCLUDING DIMENSIONED LOCATIONS OF UNDERGROUND PIPING BEYOND BE SUBMITTED TO THE ENGINEER FOR FINAL REVIEW AND COMMENT. THE ED WITH APPROPRIATE COMMENTS AND RECOMMENDATIONS. THESE CORRECTED CORRELATED PRINTS INDICATING ALL THE REVISIONS, ADDITIONS AND DELETIONS THE BASIS FOR PREPARING A SET OF RECORD DRAWINGS.

PLUMBING APPURTENANCES PASS THROUGH FIRE PARTITIONS, FIRE WALLS, OR STOP THAT PROVIDES AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, -STOP MATERIAL SHALL BE UL APPROVED, PACKED TIGHT AND COMPLETELY FILL CEWAYS AND OPENINGS. FLOOR, EXTERIOR WALL, AND ROOF SEALS SHALL ALSO BE ROVED BY THE ADMINISTRATIVE AUTHORITY.

ING APPROXIMATELY AS INDICATED, STRAIGHT, PLUMB AND AS DIRECT AS ANGLES OR PARALLEL LINES WITH BUILDING WALLS. KEEP PIPES CLOSE TO EILINGS, OFFSETTING ONLY WHERE NECESSARY TO FOLLOW WALLS AND AVOID MECHANICAL ITEMS. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER; ICE TO PERMIT ACCESS FOR SERVICING VALVES.

PITCHED TO POINTS OF DRAINAGE WITH CONSTANT UNIFORM SLOPE. ING AS HIGH AS POSSIBLE WITHOUT SAGS OR HUMPS.

ORM SLOPE OF NOT LESS THAN 1/4" PER FOOT TOWARD THE POINT OF DISPOSAL. INISTRATIVE AUTHORITY, PIPE SIZE 4" AND LARGER MAY HAVE A SLOPE OF NOT LESS

SIZES OCCUR, USE ONLY REDUCING FITTINGS.

NGES IN DIRECTION. USE LONG SWEEP WHERE POSSIBLE. OTHERWISE. SHORT COMBINATION WYE AND 1/8 BENDS; USE SANITARY TEE BRANCHES ONLY FOR SCHARGING TO STACKS.

ALVES AND ON EACH BRANCH LINE TO MULTI-FIXTURE GROUPS. LOCATE VALVES IN A TION, DO NOT CONCEAL. DO NOT LOCATE VALVE SYSTEMS BELOW HORIZONTAL UNLESS ATE ANGLE STOP VALVES BELOW THE SINK OR WATER CLOSET.

XTURES AND CONTAINERS SHALL BE SO INSTALLED AS TO PREVENT POSSIBLE UTED WATER. ALL SUPPLIES SHALL BE EITHER ABOVE THE FLOOD RIM OF THE ROM THE DRAINAGE END BY MEANS OF AN APPROVED VACUUM BREAKERS. TURE TRAPS. CONNECT TO FIXTURES AND OTHER EQUIPMENT INDICATED OR

22 LAY ALL PIPING TRUE TO LINE AND GRADE, FIT ENDS TOGETHER, MATCH SO THAT SEWER OR DRAIN WILL HAVE SMOOTH AND UNIFORM INSERT. FOLLOW LOCATIONS AND ELEVATIONS AT SITE. AS THE PIPE LAYING PROGRESSES, CLEAR PIPE INTERIOR OF CEMENT, DIRT, AND OTHER FOREIGN MATERIALS. DURING WORK STOPPAGE PERIODS, PROVIDE EFFECTIVE PLUGS OR COVERS FOR OPEN ENDS OF PIPE AND DRAINS.

PROVIDE CLEANOUTS WHERE INDICATED AND AT INTERVALS OF 100' OR AS REQUIRED BY LOCAL PLUMBING CODE AND WHERE REQUIRED AT CHANGES OF DIRECTIONS OF SOIL AND WASTE STACKS. INSTALL CLEANOUTS SO AS TO BE ACCESSIBLE FOR EASY REMOVAL AND TO PROVIDE CLEARANCE FOR RODDING. CLEANOUTS SHALL BE THE SAME SIZE AS PIPE SERVED EXCEPT THAT NO CLEANOUT NEED BE LARGER THAN

24 EXTEND VENT PIPES 12 INCHES ABOVE ROOF AND 10FT MINIMUM AWAY FROM ANY FRESH AIR INTAKES AND AT LEAST 48 INCHES AWAY FROM A PARAPET WALL.

SANITARY VENT PIPING SHALL BE GRADED SO THAT THE AIRFLOW TO THE OUTSIDE WILL BE CONTINUOUSLY UPWARD AND SO THAT NO LOW POINTS WILL BE DRAINED.

26 MAKE TIGHT CONNECTION BETWEEN WATER CLOSET FLANGES AND EARTHENWARE FIXTURE BY MEANS OF AN APPROVED MOLDED WAX RING OR SETTING COMPOUND AND BOLTING. 27 VENTS: PROVIDE FLASHING FOR STACKS PASSING THROUGH ROOF. MAKE WATER-TIGHT AT ROOF. DO NOT

LOCATE VENT THROUGH ROOF LESS THAN 24 INCHES FROM A PARAPET WALL.

28 ALL PLUMBING FIXTURES AND PIPING ARE TO BE LISTED BY AN APPROVED LISTING AND TESTING AGENCY

29 COORDINATE ALL LOCATIONS, SIZES, AND ELEVATIONS OF ALL SLEEVES THROUGH WALLS, BEAMS, SLABS AND FOOTING WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS. ALL PIPES SLEEVING THROUGH FOOTINGS SHALL HAVE A SLEEVE DIAMETER OF TWO PIPE SIZES OVER THE PIPE PASSING THROUGH THE FOOTING. NO PIPE TO BE PLACED THROUGH FOOTING UNLESS APPROVED BY THE STRUCTURAL ENGINEER.

30 ALL PIPES SHALL BE PROTECTED AT THE POINT THEY CROSS BUILDING EXPANSION JOINT, EITHER WITH AN EXPANSION FITTINGS OR IN ANOTHER MANNER ACCEPTABLE TO THE ENGINEER.

31 PLUMBING CONTRACTOR SHALL CONNECT ALL GAS PIPING TO ALL GAS RELATED UNITS PER PLAN WITH LISTED AND APPROVED GAS SHUT-OFF VALVE, SEDIMENT TRAP, AND UNION.

PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER 33 PENETRATION OF FLOOR/CEILING ASSEMBLIES AND ASSEMBLIES REQUIRED TO HAVE A FIRE-RESISTANCE

RATING SHALL BE PROTECTED IN ACCORDANCE WITH THE BUILDING CODE. 34 WHERE WATER PRESSURE WITHIN A BUILDING EXCEEDS 80 PSI, AN APPROVED WATER-PRESSURE REDUCING VALVE CONFORMING TO ASSE 1003 WITH STRAINER SHALL BE INSTALLED TO REDUCE THE PRESSURE IN THE BUILDING WATER DISTRIBUTION PIPING TO 80 PSI STATIC OR LESS.

35 DISINFECTION OF POTABLE WATER SYSTEM SHALL COMPLY WITH THE LOCAL AND THE STATE PLUMBING

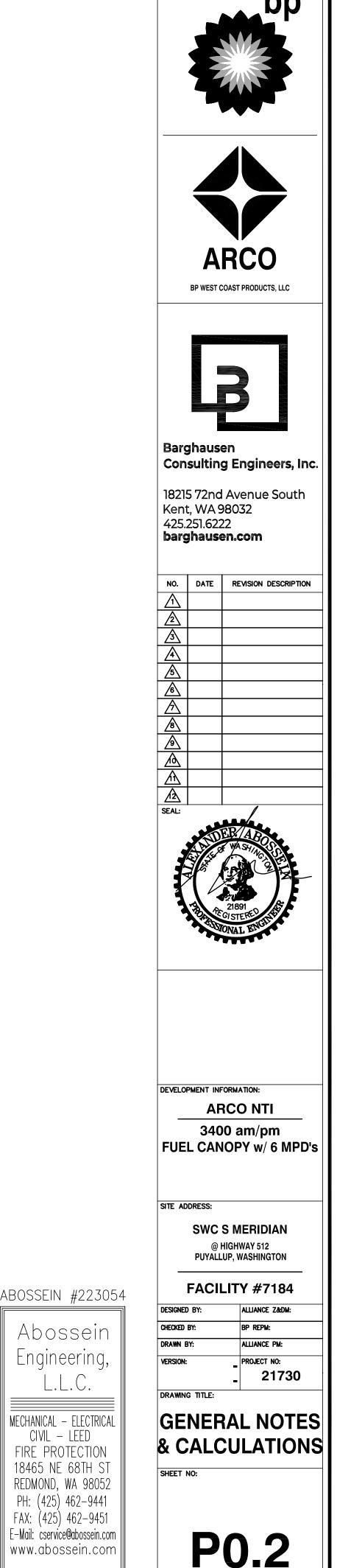
36 PROPER ACCESS MUST BE PROVIDED FOR THE TESTING AND MAINTENANCE OF THE BACKFLOW PREVENTER. IF THE BACKFLOW PREVENTER IS INSTALLED MORE THAN 5'-0" ABOVE THE FLOOR, SPECIAL PROVISIONS

37 PROVIDE AND INSTALL A SINGLE GAS ISOLATION VALVE FOR THE MULTIPLE GAS METER BANKS FOR

38 ALL PIPING SHALL MAINTAIN AT LEAST 5'-0" CLEARANCE IN FRONT OF THE HVAC SUPPLY AND RETURN

40 HUNG WASTE PIPING SHALL BE STRUCTURALLY SUPPORTED AS TIGHT AS POSSIBLE BELOW THE STRUCTURAL BEAMS TO GAIN MORE HEAD SPACE AS IT PITCH TOWARDS THE LOWEST POINT TO KEEP 41 CONTRACTOR TO PROVIDE AND INSTALL QUICK DISCONNECT GAS LINES AT ALL COOKING EQUIPMENT.

42 NO NON-METALLIC PIPING IS ALLOWED WITHIN THE RETURN-AIR PLENUMS. 43 AIR BARRIER TESTING REPORTS SHALL BE SUBMITTED TO THE CITY OF LACEY BUILDING DEPARTMENT PRIOR



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### 1.00 – GENERAL

### <u>SECTION 15400 - PLUMBING</u>

1.01 DESCRIPTION OF WORK

#### Furnish all labor, materials, equipment and services required for and/or reasonably

completion of the following work. A. Sanitary waste and vent piping system including connections to building sewer a B. Domestic hot and cold water systems including water heater, and related access Connection to building water as shown.

- C. Plumbing fixtures, trim and accessories including installation and support.
- D. Flashing and sealing of roof and exterior wall penetrations for water tightness. E. Caulking and sealing of floor and wall penetrations and formed shaft penetrations
- . Backing for securing fixtures, trim and piping.
- G. Access doors where shown or required by code.
- H. Hangers, supports, and guides.I. Cleanup of debris and final cleanup of drains, fixtures and equipment.
- J. Record drawings and operating manuals. K. License, permits and associated fees.

L. Cutting, drilling and patching for all surfaces in relation to plumbing work. M. Condensate drains from HVAC equipment, and gas piping

1.02 RELATED WORK INCLUDED UNDER OTHER SECTIONS

A. HVAC and Electrical Work. 15500 and 16000 B. Fire Protection Work 153000 (if applicable)

1.03 EXAMINATION OF SITE

A. Visit site before submitting bid and check location of all existing conditions which will affect this work, verify dimensions and locations shown on drawings and cover all costs. Contractor shall assume reasonable variations or minor omissions and shall complete proposed work without additional cost. Failure to visit site will not lessen responsibility or entitle additional compensation for work not included in proposal.

B. Visit site of the work, compare it with the drawings and specifications as to the work is to be performed, ascertain and check all conditions and elevations and take may affect the work. No allowance shall subsequently be made for any extra exper failure or neglect under this requirement to make such examination, including exami working conditions or such other difficulties visually observed during site visit. Cont becoming completely familiar with the architectural and structural conditions and limi the building and to provide all labor, tools and materials required to produce a com installation as indicated on the plans, specifications, and required by the code.

#### 1.04 DRAWINGS

The accompanying drawings shall be considered part of these specifications. Work materials shown on the drawings and not mentioned in the specifications and vice versa shall be executed as if specifically mentioned or shown in both. The drawings shall be considered as schematic in nature and minor modifications of the work to comply with the structure as found shall be made.

#### 1.05 RULES AND REGULATIONS

A. All work and material shall be in full accordance with the latest rules and regulations of the State Fire Marshal and other applicable State and local rules and regulations. Nothing in these drawings or specifications shall be construed to permit work not conforming to these codes.

B. Furnish without any extra charge any additional material and labor when required to comply with these laws, ordinances and codes regardless of whether shown or mentioned in these specifications of drawings.

C. All work and material shall be in accordance with the Landlord's Mech/Elect. Des Criteria. All contractors shall obtain a copy from the Lndlord's Tenant Coordinator Mall Operations manager and become familiar with the requirements contained within prior to bidding the job. Where Landlord's requirements conflict with Codes or Ordinances the strictest interpretation shall apply.

#### 1.06 SUBMITTALS

A. Submit for review to the Owner a complete and all-inclusive list of equipment materials proposed for use (6 copies), accompanied by manufacturer's data sheets. Data shall be forwarded in a single package written 15 days after award of contrac Submit six blackline prints and one reproducible shop drawing showing proposed plur installation. Include sizes, locations and other required information to coordinate installation with other trades.

B. Within 5 days after award of contract, submit 6 copies of a letter stating any materials that contractor wishes to substitute, to the Owner for approval. Include such information as manufacturer's name, type of material, certified ratings, overall appearance, and necessary information to explain function and operation of material. All proposed substitutions shall be equal in quality, design, utility and appearance to material, equipment or method specified.

#### 1.07 AS-BUILT DRAWINGS

A set of plumbing plans will be furnished to the Contractor on which he shall indicate the installation "as-built" as the work progresses. Upon completion of the work, a set of reproducible drawings shall be obtained from the Owner at cost, and changes as noted on the record set of prints shall be incorporated thereon. This set of reproducibles, along with one set of blueprints, shall be delivered to the Owner upon completion and before final acceptance of the project.

#### 1.08 GUARANTEE

The Contractor shall leave the entire installation in complete working order free from any defective material, workmanship or finish. He shall guarantee to repair or replace, without charge, defects due to faulty workmanship or material for a period of one year from the date of filing of the Notice of Completion.

1.09 OPERATION MANUALS AND OWNER INSTRUCTIONS A. Provide complete operation and maintenance manuals covering all Plumbing

systems and equipment that have been installed. Three (3) copies of the manual s be bound in hardback binders.

B. Provide instructions to owner as to operation of all equipment. Instruction period to commence for minimum of (2) hours and shall be scheduled at owner's convenience.

#### 1.10 CUTTING AND PATCHING

A. The contractor shall do all cutting, drilling and patching which may be required for the installation of the work under this Section of the Specifications. B. Patching shall be of the same workmanship, material, and finish and shall match accurately all surrounding construction in a manner satisfactory to the Owner. No cutting of the structure shall be permitted without written approval of the Owner.

#### 2.00 - MATERIALS - PIPING

Building drain and vent piping materials shall comply with the local authority having All sanitary system materials shall be listed by an approved listing agency.

A. Interior Underground Sanitary and Waste Piping: No-Hub C.I. pipe and fittings or 40. Where cast iron pipe, fittings and stainless steel couplings are used they shall tested in accordance with standards referenced in the 2019 CPC Table 701.2. Pipes shall be marked with country of origin, manufacture's name or registered trademark in the product standards, the third party certifier's mark, and the class of the pipe

B. Interior Suspended Sanitary and Vent Piping:

1. 3" and Larger - No-Hub C.I. or ABS DWV sch 40. 2. 2" and Smaller - Schedule 40 galvanized steel pipe with screwed durham cas iron fittings for waste and vent

C. Interior Domestic Water Piping Above Ground: 3" and Smaller - Type L hard tempered copper with solder end fittings. 95-5 tin and antimony solder jointing (lead-free).

D. Outdoor Above Ground Domestic Water Piping: 3" and Smaller - Type L hard tempered copper with solder end fittings. 95-5 tin and antimony solder jointing (lead-free).

E. Domestic Water Piping Below Ground:

Type K copper pipe shall be used. When piping is installed within a building and under a installed without joints. When joints are unavoidable, they shall be brazed. a.Protective pipe covering shall be factory or field applied accordingly to manufacturers b.2 ½" or larger: Products shall be Polyken No. 1027 primer and Polyken No. 910 tape overlap required.

c.2" and smaller: Products shall be 10 mil plastic sleeve protector.

## **SPECIFICATIONS**

	F. Condensate Drain Piping: Copper water tube ASTM B88, Type "M", solder with 95—5 solder, lead—free type.
ly incidental to the	2.01 PIPE FLASHINGS
ly incidental to the	AS APPROVED BY ROOF MEMBRANE MANUFACTURER.
ssories and controls.	2.02 VALVES
ons.	A. Gate Valves: Red & White 204 or equal, 3" and smaller. B. Check Valves: Red & White 238 or equal, 3" and smaller. C. Ball Valves: Nibco 580—70 or equal, 3" and smaller.
	2.03 PLUMBING FIXTURES AND TRIM:
	Plumbing fixtures to be furnished and installed under this contract. See plumbing fixture schedule.
	2.04 PIPE HANGERS AND SUPPORTS
	A. Superstrut, Grinnell, or approved equal.
	B. Installation per manufacturer's recommendations. C. Pipe hangers shall have non—metallic felt or elastomeric liner or wrap applied to the pipe for electrolytic protection where hangers and supports are used to support copper tubing or pipe. The liner or wrap shall be designed to allow expansion or contraction of the piping.
	2.05 PIPE SLEEVES
d the conditions under which	Shall be provided to protect all piping through concrete and masonry walls. Annular spaces between sleeves and pipes shall be filled or caulked in an approved manner. Annular spaces between sleeves and pipes in fire—resistance—rated assemblies shall be filled or tightly caulked in accordance with the building code. All underslab cast iron piping shall be covered with polyethylene sleeve (polywrap) and contractor must follow manufacturer's manual for proper installation.
ake all measurements which spense or claims due to amination of restricted	2.06 TEMPERATURE AND PRESSURE RELIEF VALVE
Initiation of restricted ontractor is responsible for limitations which will exist in	Temperature & pressure relief valve shall discharge full line size to an approved waste receptor through an air gap as indicated on plans or 6" minimum, 24" maximum.
completely concealed	2.07 SCALD GUARD PROTECTION
	Provide and install lavatory scald protection for waste piping and hot water piping.
e and	2.08 DOMESTIC PIPING INSULATION
igs to	A. Provide and install "insulation protection shield" for piping with foam or fiberglass insulation.
	B. Insulate all rainwater piping with 1" thick fiberglass insulation below the deck up to 25 feet of horizontal run.
	C. Insulate all horizontal waste piping (Hung) with 1—1/2" thick fiberglass insulation above noise sensitive areas ONLY.
ind	D. Insulate all domestic water piping to meet California Energy Code Table 120.3—A. Pipes less than 1" diameter require 1" of insulation if operating between 105—140°F, and 1.5" of insulation if operating over 140°F. All piping outside the building or on roof shall be insulated with 1—1/2" thick Armstrong Armaflex or approved equal, and sections butted firmly together.
red	E. Insulate all condensate drain piping with $1/2$ " thick Armstrong Armaflex or equal, and sections butted
	firmly together. F. Insulate all hot water piping with 1" thick fiberglass insulation.
Design or chin	G. Provide and install scald guard protection/insulation under sinks with exposed p-traps and hot water supplies.
	H. Minimum R—values for hot water piping insulation having pipe diameter of less than or equal to 2'' is R—4, for larger than 2'' diameter is R—6. I. All outdoor insulation shall be protected with aluminum jacket.
and	2.09 CLEANOUT
ts. ract. plumbing	A. Accessible cleanout shall be provided at the base of each waste stack and rainwater leaders. Additional cleanout shall be provided in a drainage line for each horizontal change of direction exceeding 135 degrees. Cleanout must be provided on a horizontal drain line exceeding 5ft or more in length serving sinks or urinals. An approved type of 2—way cleanout fitting shall be installed outside of a building at the lower end of a building drain and extended to grade.
/	2.10 WATER HEATER
of	A. Provide anchors and straps to resist horizontal displacement due to earthquake motion. B. Strapping shall be located upper $1/3$ and lower $1/3$ of its vertical dimensions. Straps shall be a minimum 2"x16 gage properly secured to wall studs. Elevate water heater at least 4" minimum above the finished floor with an approved base. Provide a 22 gage water tight drain pan, corrosion resistant, at the bottom of the water heater. Drain pan shall have a $3/4$ " drain line to be discharged into an approved receptor by means of an air gap. A properly sized thermal expansion tank shall be provided at the water heater. Hot water supply for the lavatories and hand sinks shall not exceed 110°F temperature.
and all is	2.11 TRENCHING
	A. All trenches deeper than the footing of any building or structure and paralleling the same shall be at least 45 degrees therefrom. 3.00 — INSTALLATION AND EXECUTION
or	3.01 GENERAL
od	A. Cast—Iron Hubless with stainless steel shielded coupling shall be supported horizontally at every other joint, unless over 4 feet, then support each joint adjacent to joint, not to exceed 18", brace at not more than 40ft intervals, support at each horizontal branch connection. Hangers shall not be placed on the coupling. Support vertical pipes at the base and each floor not to exceed 15ft. Hangers and Supports for all piping shall comply with the CPC 2010 Table 3–2.
shall	3.02 SPECIAL REQUIREMENTS, RESPONSIBILITIES AND TESTING
s	A. Install piping generally level, free of traps and unnecessary bends, to conform with building requirements. Pipe to be free of defects, and installed to avoid any possible galvanic action by isolating dissimilar metals. B. Test and record available domestic water pressure in static and dynamic conditions For dynamic testing record pressure and flow rate in gallons per minute.
d	Transmit this information to the engineer before proceeding with the work.
lo	C. Provide all tests specified hereinafter and as otherwise required. Provide all test equipment, including test pumps, gauges, instruments and other equipment required. Pressure gauges used shall be graduated in increments not greater than 5 pounds per square inch No plumbing or drainage system or part thereof shall be covered, concealed, or put into use unless it has been specified. Conduct all tests in the presence of the Owner's representative, and obtain the necessary jurisdictional authority inspections.
ng jurisdiction.	D. Apply a water test to the waste, and vent systems whether in its entirety or in sections; if applied to the entire system, tightly close all openings in the piping except the highest opening, and fill the system with water to the point of overflow.
or ABS DWV sch. II be listed and bes and fitting ark as defined ipe or fitting.	If the system is tested in sections, tightly plug each opening except for the highest opening of the section under test, and fill each section with water, but test with no less than a 10' head of water. In testing successive sections, test at least the upper 10' of the next preceding section so that no joint or pipe in the building (except the uppermost 10' of the system) shall have been submitted to a test of less than a 10' head of water. Keep water in the system or in the portion under test for at least 24 hours before inspection starts, with the system tight at all points.
n	E. Domestic water system shall be tested and proved tight under a pressure of not less than 120 PSI. Piping must stand the test for a period of 24 hours without leaking.
n	F. Chlorination of the domestic cold and hot water piping systems in accordance with standard testing procedures and local health department requirements. Testing by a firm such as Bennet—Marine or equal. Submit certificate of satisfactory test results.
	G. Upon completion of testing, certify to the Architect, in writing that the
a concrete slab, it shall be s written instructions. pe coating, 10 mil, minimum	specified tests have been performed and that the installation complies with the specified requirements.

3.03 PIPING INSTALLATION

permitted except for bell shaped copper bushings. piping or equipment - Epco, or equal. special care. Show no tool marks or threads at fittings. D. Cap openings in piping during construction.

G. Escutcheons: Fit exposed pipes passing through floors, walls or ceilings with escutcheons. Manufacture special sizes of escutcheons from steel and prime coat same. Cut in round, rectangular or square space to provide a clean appearance acceptable to the Architect. H. Support piping independently of equipment to which it is connected. I. Make copper solder joints with 95/5 solder, or silfos; clean surfaces to be joined free of oil, grease, rust or oxides and apply Flux to each joint before

heating assembly. Divisions, requiring plumbing connections.

3.04 SUBSTITUTIONS

A. One or more makes of materials and methods may have been specified to establish the standard of quality, workmanship, finish and design required, but other materials or methods equal or better in quality, workmanship, finish, design, and guaranteed performance, may be submitted for review and approval as substitution. All substitutions are subject to review and approval by Architect, Engineer, and Owner.

B. Substitutions shall be requested in a written form and shall be accompanied with a signed statement that proposed substitution is equal, or better than specified. Additional documentation to substantiated proposed substitution may be required by Owner, Architect, and Engineer. Contractor shall submit as directed.

C. Contractor shall accompany request for substitution letter with a completed CSI Substitution Form include the comparison for following: Performance Data Dimensions

Costs and Delivery Schedule 4. Listed and Approved

request form assuring that: 1. Dimensions has been verified with project conditions and has coordinated with other trades. Substitution does not affect dimensions shown on drawings. 2. He shall pay and burden the costs for changes to the project including redesign, reengineering and review of substitution. Only one engineering review time is allowed for each product substitution. Contractor shall be responsible for additional review time and shall bay Architect and Engineer's time at their professional rate schedule. 3. He has confirmed that the proposed substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements. 4. He has confirmed that maintenance and service parts will be locally available for the proposed substitution.

E. Cost savings resulting from substitution shall be returned to the contract or the Owner if the substitution is permitted.

F. No work involving materials submitted for substitution shall proceed until written acceptance is received from the Owner. The Owner is the final judge of acceptability of preferred substitutions.

A. Coordinate work with other trades to avoid conflict and to provide correct rough-in and connection for equipment furnished under other trades that require plumbing connections. Inform Contractors of other trades of the required access to and clearances around equipment to maintain service ability and code compliance.

B. Verify equipment dimensions and requirements with provisions specified under this Section. Check actual job conditions before fabricating work. Report necessary changes in time to prevent needless work. Changes or additions, subject to additional compensation, which are made without written authorization and an agreed price, shall be at the Contractor's risk and expense.

3.06 MARKING AND IDENTIFICATION

3.05

A. All domestic cold water, hot water, sanitary sewer, sanitary vent, condensate drain, and natural gas piping shall have visible permanent labels at every 20 feet, the direction of normal flow shall be clearly shown, at least once per room, and shall be visible from the floor level. The minimum size of the letters shown on table 6-1 below. Valves shall be labeled with stenciled or stamped metal tags bearing the name of the system they carry.

> $K - 1 K_{1}$ 1 1/2 - 2 2 ½ – 6 8 - 10

A. Make changes in size of pipe with reducing fittings; bushings will not be

B. Install dielectric insulating unions in water piping between copper piping and ferrous C. Install exposed polished chrome connections from fixtures or equipment with

E. Provide 85% red brass pipe IPS, in connection to faucets, flush valves, hose bibbs or similar items requiring rigid piping. Extend brass pipe from fixture to point where piping can be securely fastened to building construction. All exposed piping and stop valves in connection to fixtures shall be chrome plated brass. F. Install unions adjacent to valves and where necessary to facilitate disassembly

J. Rough-in and make final connections to all other equipment furnished under other

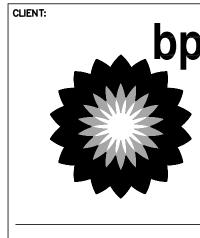
D. A written signed statement from the General Contractor shall accompany substitution

COORDINATION

<u>TABLE 6-1</u>

PIPE SIZE (INCHES) SIZE OF LETTER (INCHES)

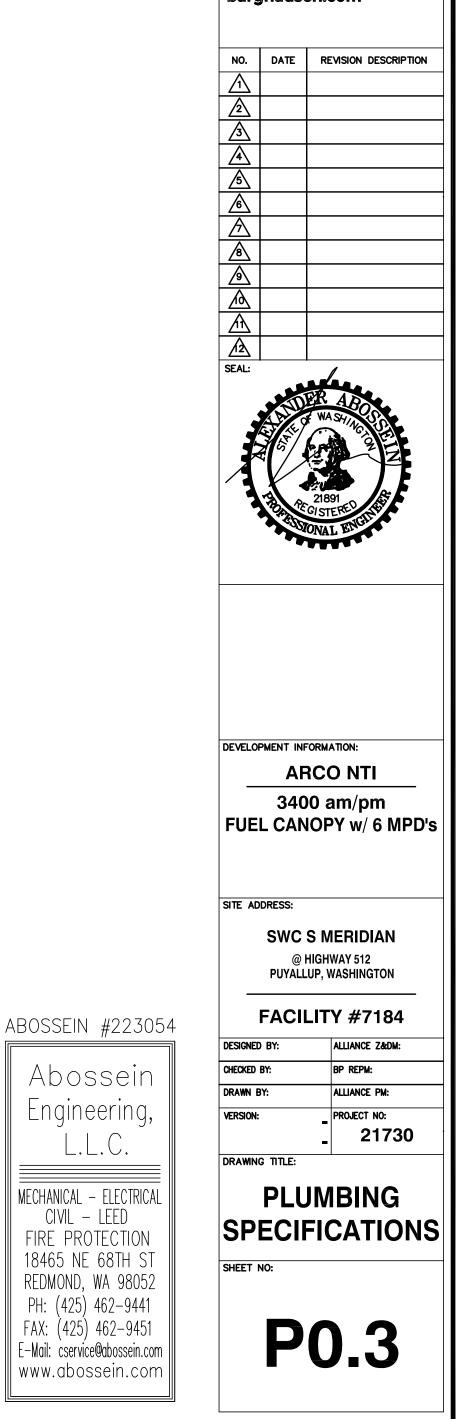
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### Barghausen **Consulting Engineers, Inc.**

18215 72nd Avenue South Kent. WA 98032 425.251.6222 barghausen.com



Abossein

Engineering

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MECHANICAL – ELECTRICAL

CIVIL – LEED

FIRE PROTECTION

18465 NE 68TH ST

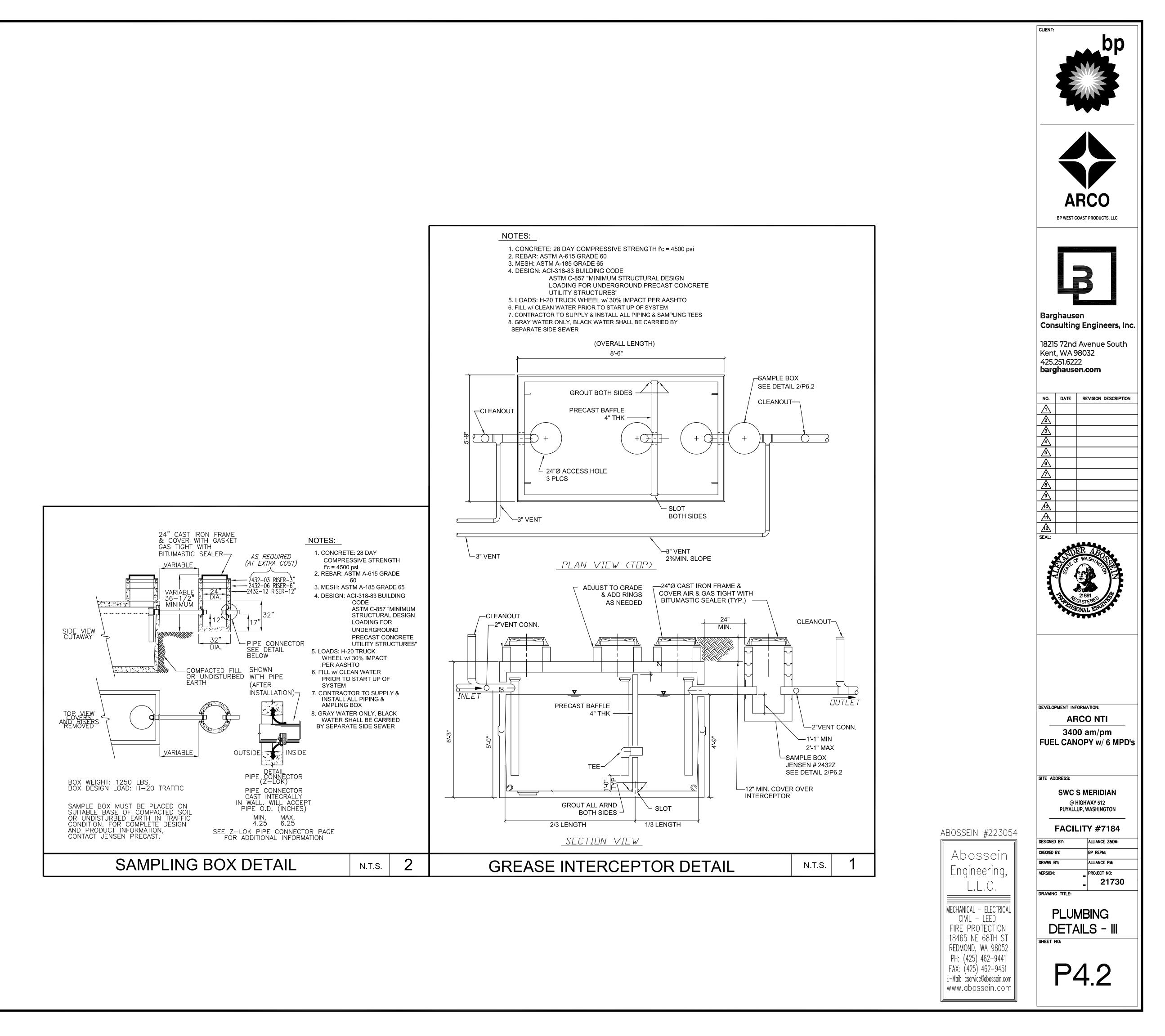
REDMOND. WA 98052

PH: (425) 462-9441

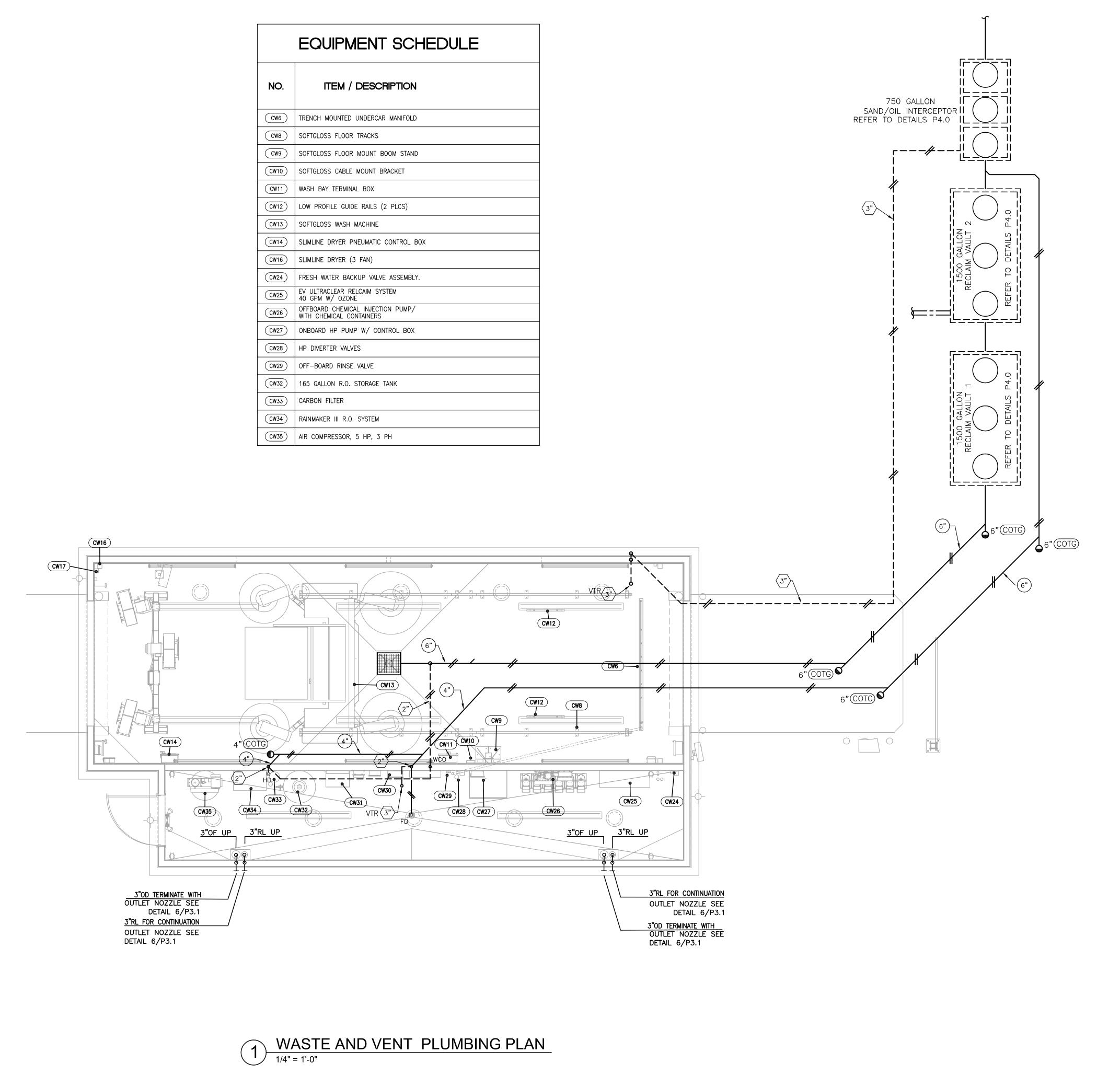
FAX: (425) 462-9451

E-Mail: cservice@abossein.com

www.abossein.com



	EQUIPMENT SCHEDULE
NO.	ITEM / DESCRIPTION
CW6	TRENCH MOUNTED UNDERCAR MANIFOLD
CW8	SOFTGLOSS FLOOR TRACKS
CW9	SOFTGLOSS FLOOR MOUNT BOOM STAND
(CW10)	SOFTGLOSS CABLE MOUNT BRACKET
(CW11)	WASH BAY TERMINAL BOX
CW12	LOW PROFILE GUIDE RAILS (2 PLCS)
(CW13)	SOFTGLOSS WASH MACHINE
(CW14)	SLIMLINE DRYER PNEUMATIC CONTROL BOX
<b>CW16</b>	SLIMLINE DRYER (3 FAN)
<b>CW24</b>	FRESH WATER BACKUP VALVE ASSEMBLY.
(CW25)	EV ULTRACLEAR RELCAIM SYSTEM 40 GPM W/ OZONE
<b>CW26</b>	OFFBOARD CHEMICAL INJECTION PUMP/ WITH CHEMICAL CONTAINERS
CW27	ONBOARD HP PUMP W/ CONTROL BOX
CW28	HP DIVERTER VALVES
<b>CW29</b>	OFF-BOARD RINSE VALVE
CW32	165 GALLON R.O. STORAGE TANK
CW33	CARBON FILTER
CW34	RAINMAKER III R.O. SYSTEM
(CW35)	AIR COMPRESSOR, 5 HP, 3 PH



### GENERAL NOTES

- 1) COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND FOOTINGS AND FINALIZE THE EXACT ROUTING OF ALL PIPES WITH STRUCTURAL AND AT SITE PRIOR AND DURING THE CONSTRUCTION.
- 2) COORDINATE WITH ARCHITECTURAL AND AT SITE FOR EXACT LOCATION OF ALL PLUMBING FIXTURES.
- 3) ALL FIXTURES REQUIRING PLUMBING SHALL BE CONNECTED TO BUILDING WASTE, VENT, COLD WATER AND HOT WATER SYSTEM AS REQUIRED BY THE CODES. WASTE AND VENT PIPE SIZES SHALL NOT BE SMALLER THAN UPC 2015 TABLE 703.2. 4) INSTALL CLEANOUTS PER UPC 2015 SECTION 707, SIZED PER TABLE 707.1 AND AS
- REQUIRED BY LOCAL JURISDICTIONS. ALL CLEANOUTS SHALL BE LOCATED IN WALLS/FLOORS IN A NOT HIGHLY VISIBLE LOCATION AS APPROVED BY THE ARCHITECT. 5) CONNECT TO EACH FIXTURE, EQUIPMENT, ETC. WITH ALL ACCESSORIES, VALVES. VACUUM
- BREAKERS, REGULATORS, UNION, ETC., AS REQUIRED AND AS RECOMMENDED BY THE MANUFACTURERS. 8) COORDINATE WITH THE STRUCTURAL ENGINEER AND GENERAL CONTRACTOR TO PROVIDE
- STRUCTURAL SUPPORT FOR ALL EQUIPMENT. 7) PLUMBING CONTRACTOR SHALL COORDINATE PLUMBING VENT STACKS WITH THE HVAC
- CONTRACTOR TO MAINTAIN A MINIMUM OF 10 FT. FROM THE OUTSIDE AIR INTAKES.
- 8) ALL ROOF PENETRATIONS SHALL BE MINIMUM 5 FEET AWAY FROM AREA/OCCUPANCY SEPARATION WALLS. 9) COMPLETE INSTALLATION OF THE PLUMBING SYSTEM SHALL BE PER THE LOCAL CODE BOOK, PLUMBING AND HEALTH CODES AND REGULATIONS AS
- ADOPTED BY THE LOCAL JURISDICTIONS. 10) ALL EQUIPMENT SHALL BE FREE FROM DEFECTS IN MATERIAL, WORKMANSHIP AND SHALL BE OF THE KIND AND QUALITY DESCRIBED HEREIN.
- 11) PLUMBING CONTRACTOR SHALL CONNECT TO EACH PIECE OF EQUIPMENT WITH ALL REQUIRED ACCESSORIES AND IN ACCORDANCE WITH DRAWINGS, MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODES.
- 12) INSTALL SHUT OFF VALVES/STOPS AT HOT AND COLD WATER SUPPLY TO EACH FIXTURE EQUIPMENT PER CODE.
- 13) INSTALL ALL TRAP ARMS SUCH THAT THE MAXIMUM LENGTH WILL NOT EXCEED THE CODE REQUIREMENTS. ALL TRAPS WITHOUT HAVING CONTINUOUS WATER DISCHARGE TO BE PROTECTED AGAINST TRAP EVAPORATION. 14) VENT LENGTH SHALL NOT EXCEED 2015-UPC-TABLE-703.2.
- 15) ALL DRAINAGE PIPING INSIDE BUILDING SHALL BE SLOPED AT MINIMUM 1/4" PER FOOT (2%) UNLESS OTHERWISE APPROVED BY LOCAL JURISDICTIONS. (OTHER THAN 28 SLOPE WILL REQUIRE ADJUSTMENT FACTOR [0.80 FOR 1% SLOPE] FOR TOTAL F.U. COUNT CAPACITIES
- PER UPC 2015 TABLE 703.2) 16) ALL WATER PIPING SHALL BE INSTALLED ON THE WARM SIDE OF INSULATION.
- 17) ALL PLUMBING, PIPING AND EQUIPMENT SHALL CONFORM TO SMACNA & LOCAL REGULATIONS FOR SEISMIC RESTRAINTS.
- 18) ALL PIPING SHALL BE INSULATED PER THE STATE ENERGY CODE.
- 19) VERIFY OVERFLOW DRAIN REQUIREMENTS FOR DISCHARGE WITH LOCAL
- JURISDICTION PRIOR TO CONSTRUCTION. 20) PROVIDE HEAT TAP ON PLUMBING IN CARWASH BAY.

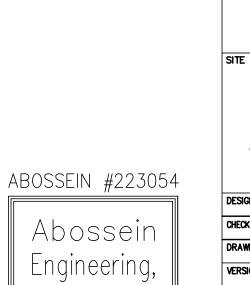
### PLUMBING FIXTURE SCHEDULE

MARK	EQUIPMENT	DISCRIPTION	SUPPLY PIPING	WASTE N PIPING	ANUFACTURER/ MODEL	NOTES
HB-1	HOSE BIBB	ANTI-SIPHON, AUTOMATIC DRAINING, FREEE=PROOF TYPE WITH NICKEL BRONZE COVER	3/4"CW	SEE PLAN	ZURN #Z-1321-C-04	$\langle 1 \rangle$
FD-1	FLOOR DRAIN	PVC FLOOR DRAIN WITH PVC TOP HOUSING, PVC FLASHING COLLAR AND WITH CAST METAL RING AND ROUND STRAINER		SEE PLAN	SIOUX CHEIF 863-44NQ	2 3
TP-1	TRAP PRIMER		1/2"		ZURN SANI-GUARD Z-1022	
CB-1	CATCH BASIN	24"X24" POLYETHYLENE BODY CATCH BASIN WITH BLACK ACID RESISTANT COATED DUCTILE IRON GRATE AND FRAME.		4"	ZURN Z-887	
HD-1	HUB DRAIN	HUB DRAIN FOR RAINMAKER RO SYSTEM			BRADLEY S19-620	
NOTEO						

NOTES

 $\begin{pmatrix} 1 \\ WALL \end{pmatrix}$  USE 4" WALL HYDRANT, ROUTE COLD WATER DROP INSIDE 6" WALL.  $\begin{pmatrix} 2 \\ \end{pmatrix}$  FLOOR DRAINS SHALL HAVE TRAP PRIMERS INSTALL.

 $\langle 3 \rangle$  ZURN AND WATTS ARE ACCEPTABLE ALTERNATES.



L.L.C. MECHANICAL – ELECTRICAL CIVIL – LEED FIRE PROTECTION 18465 NE 68TH ST REDMOND, WA 98052 PH: (425) 462-9441 FAX: (425) 462–9451 E-Mail: cservice@abossein.com

www.abossein.com



Consulting Engineers, Inc.

18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com

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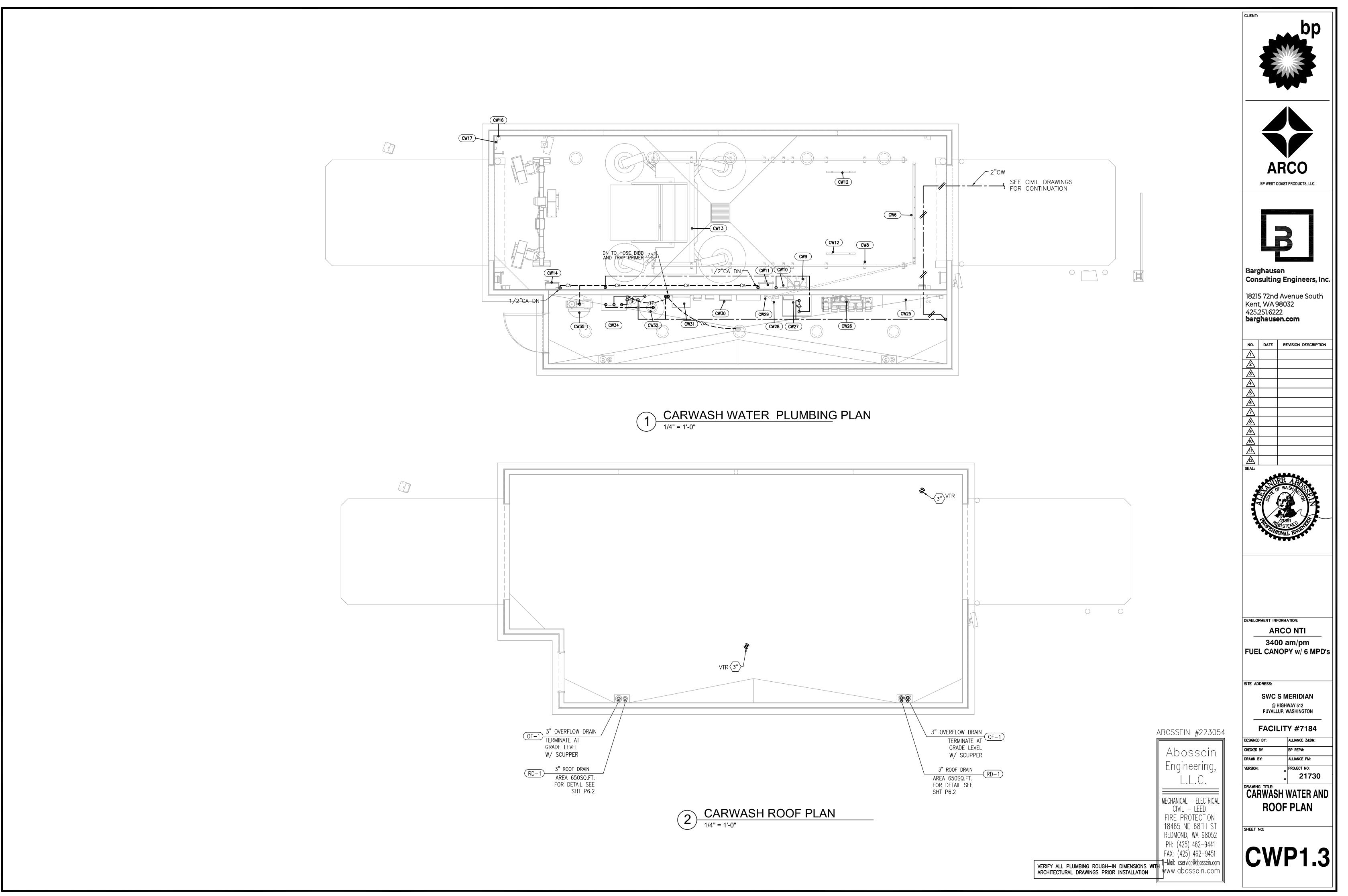
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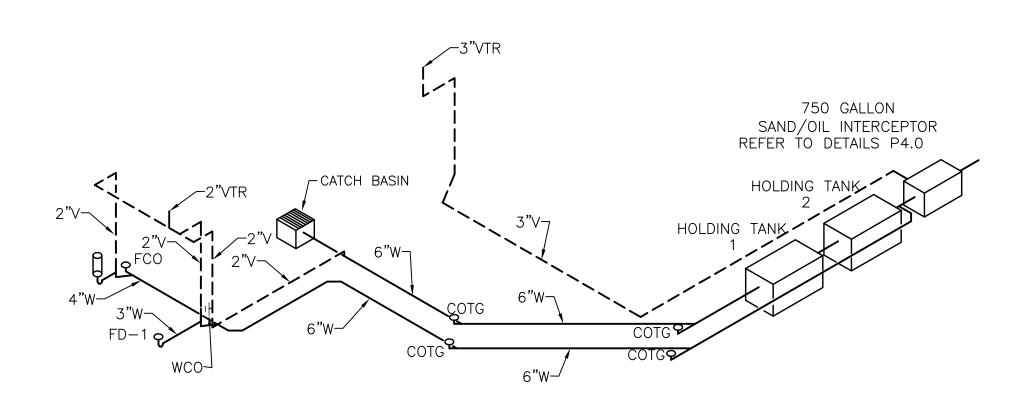
**CARWASH WASTE** AND VENT PLAN

SHEET NO:

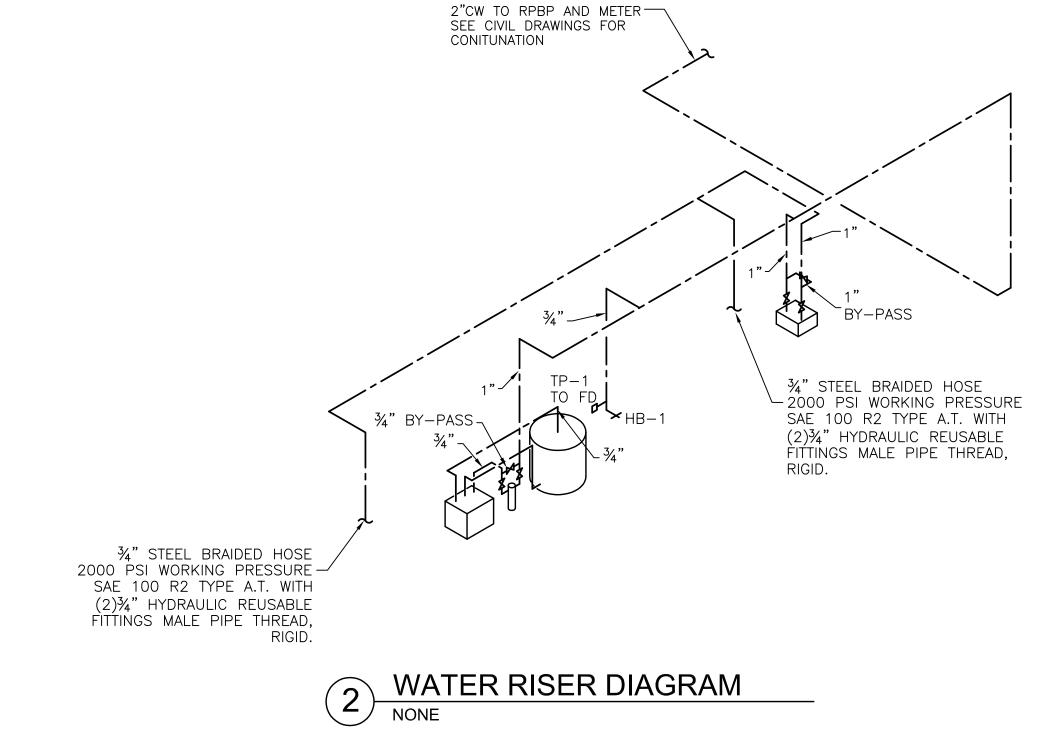
**CWP1.1** 

VERIFY ALL PLUMBING ROUGH-IN DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR INSTALLATION









## EQUIPMENT SCHEDULE

NO.	ITEM / DESCRIPTION
<b>CW6</b>	TRENCH MOUNTED UNDERCAR MANIFOLD
<b>CW8</b>	SOFTGLOSS FLOOR TRACKS
CW9	SOFTGLOSS FLOOR MOUNT BOOM STAND
(CW10)	SOFTGLOSS CABLE MOUNT BRACKET
(CW11)	WASH BAY TERMINAL BOX
(CW12)	LOW PROFILE GUIDE RAILS (2 PLCS)
(CW13)	SOFTGLOSS WASH MACHINE
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(CW27)	ONBOARD HP PUMP W/ CONTROL BOX
CW28	HP DIVERTER VALVES
(CW29)	OFF-BOARD RINSE VALVE
(CW32)	165 GALLON R.O. STORAGE TANK
(CW33)	CARBON FILTER
(CW34)	RAINMAKER III R.O. SYSTEM
(CW35)	AIR COMPRESSOR, 5 HP, 3 PH

## GENERAL NOTES 1) COORDINATE WITH STRUCTURAL FOR EXACT LOCATION OF ALL STRUCTURAL FRAMING AND

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## PLUMBING FIXTURE SCHEDULE

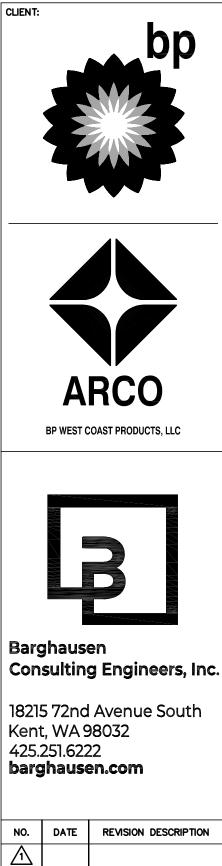
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FD-1	FLOOR DRAIN	PVC FLOOR DRAIN WITH PVC TOP HOUSING, PVC FLASHING COLLAR AND WITH CAST METAL RING AND ROUND STRAINER		SEE PLAN	SIOUX CHEIF 863-44NQ	2 3
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CB-1	CATCH BASIN	24"X24" POLYETHYLENE BODY CATCH BASIN WITH BLACK ACID RESISTANT COATED DUCTILE IRON GRATE AND FRAME.		4"	ZURN Z-887	
HD-1	HUB DRAIN	HUB DRAIN FOR RAINMAKER RO SYSTEM			BRADLEY S19-620	

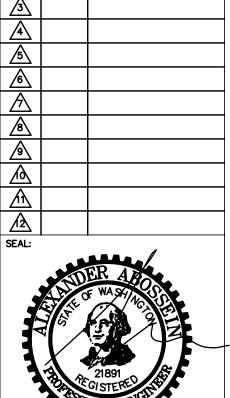
### NOTES:

 $\langle 1 \rangle$  USE 4" WALL HYDRANT, ROUTE COLD WATER DROP INSIDE 6"

 $\langle 2 \rangle$  Wall. Floor drains shall have trap primers install.

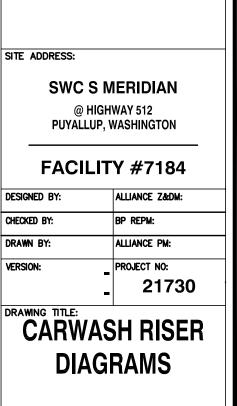
 $\langle 3 \rangle$  ZURN AND WATTS ARE ACCEPTABLE ALTERNATES.





2





**CWP2.0** 

SHEET NO:

DEVELOPMENT INFORMATION:

**ARCO NTI** 

3400 am/pm FUEL CANOPY w/ 6 MPD's

#### **GENERAL NOTES:**

- -ALL ELECTRICAL FITTINGS TO BE WATERTIGHT. ANY FIXTURES IN VICINITY OF WASH UNIT TO BE WATER TIGHT INCLUDING LIGHTS.
- -ALL ELECTRICAL WIRING, INCLUDING CONTROL WIRING, TO BE FURNISHED AND INSTALLED BY ELECTRICIAN.
- -CONTROL WIRING CONDUIT AND WIRE AS WELL AS HIGH VOLTAGE CONDUIT AND WIRE TO BE FURNISHED AND INSTALLED BY ELECTRICIAN.
- -ACCESS POINT THRU BAY WALL PROVIDED BY OTHERS.
- -INTERCONNECTING PIPING FOR ABOVE GROUND RECLAIM SYSTEM PROVIDED AND INSTALLED BY PLUMBER.
- -AIR LINE PIPING FURNISHED AND INSTALLED BY PLUMBER.
- -DRILL A 1/4" DIAMETER DRAIN HOLE IN THE BOTTOM OF ALL JUNCTION BOXES THAT ARE LOCATED IN THE WASH BAY.
- -ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CUSTOMER UNLESS OTHERWISE SPECIFIED.
- -CONSULT YOUR LOCAL RYKO REPRESENTATIVE FOR DIMENSIONS OTHER THAN SHOWN.
- -TERMINATE ALL PIPES WITH FEMALE PIPE THREADS UNLESS OTHERWISE NOTED.
- -ALL DIMENSIONS TO BE CLEAR SPACE DIMENSIONS.
- -DO NOT USE WIRE LARGER OR SMALLER THAN THOSE SPECIFIED.
- -ALL WIRES #16 AWG AND SMALLER ARE TO BE TFFN STRANDED.
- -ALL WIRES #14 AWG AND LARGER ARE TO BE THHN STRANDED.
- -NO CONDUITS MAY ENTER THE TOP OF ANY ENCLOSURE.
- -BUILDING DETAILS ARE FOR ILLUSTRATION, AND ARE NOT INTENDED FOR CONSTRUCTION, PURCHASER SHOULD CONSULT WITH A PROPERLY CERTIFIED ENGINEER, CONTRACTOR, OR ARCHITECT WITH RESPECT TO COMPLIANCE WITH LOCAL SAFETY AND BUILDING CODES, FOR NECESSARY PERMITS AND LICENSES, AND FOR APPROPRIATE CONNECTIONS OF ALL UTILITIES.

FORM #19477-081 REV A 9/15	/11
#19477-081 REV A	/15
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R X X X	RYKO <sup>®</sup> SOLUTIONS. INC.		All specifications	PRODUCT						
GRI	GRIMES, IOWA, 50111 U.S.A.		subject to change	SOFTGLOSS						
	GENERAL NOTES									
	ARCO CAR WASH	SCALE AS NOTED	SCALE DATE AS NOTED 9/12/23							
	1402 3 MERIUIAN AVE PUYALLUP, WA	DRAWN	CHK'D		A	666-6666	REVISED LOCATIOON RECLAIM TANKS BY CIVIL PRINT	KS	KS 9/20/23 KS	KS
	98371	KS	X N						20/21/0	
REV.	REV. DWG NO.	APVD	DATE		1	666-666	RELEASING DRAWING	S Y	KX 8/13/23 KX	S X
A	22798-595	KS	9/13/23		LTR	ECO	DESCRIPTION	BY	BY DATE	APVD

FOR CUSTOMER USE ONL

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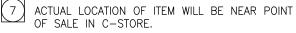
SHEET 1 OF 10

NOTES: RECOMMENDED SLOPE OF FLOOR IN BAY IS 1/8" PER FOOT. EXCESSIVE SLOPE MAY AFFECT OPERATION OF THE MACHINE.

2 RECOMMENDED PLACEMENT OF TRACKS IN BAY SHOULD BE 4FT-6IN FROM NEAREST OBSTRUCTION.

TRENCH IN BAY FOR UNDERCAR MANIFOLD MEASURES 1-1/2" WIDE x 2" DEEP x 10'-2" LENGTH (BY OTHERS).

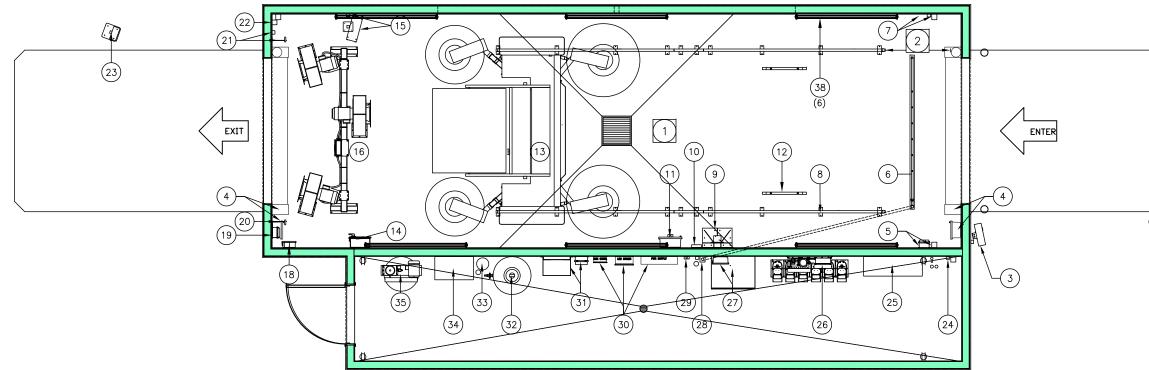
ACTUAL LOCATION OF THESE ITEMS MAY VARY. RECOMMENDED LOCATION SHOWN.



8 FIRST LOCATE THE THERMOSTAT BULBS ON THE OUTSIDE OF THE NORTH WALL OUT OF DIRECT SUNLIGHTL THIS WILL THEN LOCATE THE POSITION OF THE THERMOSTAT ASSY APPROXIMATELY 4FT AWAY. TAKE CARE NOT TO CRIMP CAPILLARY TUBES LEADING TO THERMOSTAT BULBS.



(18) REVISION A LOCATED THE RECLAIM TANKS AS POSITIONED BY THE ARCHITECT CIVIL PRINT. SEE CIVIL PRINT FOR ADDITIONAL INFORMATION.



WASH BAY SHOWN MEASURES 47'-0" LONG x 16'-0" WIDE. EQUIPMENT ROOM SHOWN MEASURES 41'-4" LONG x 7'-1 1/2" WIDE.

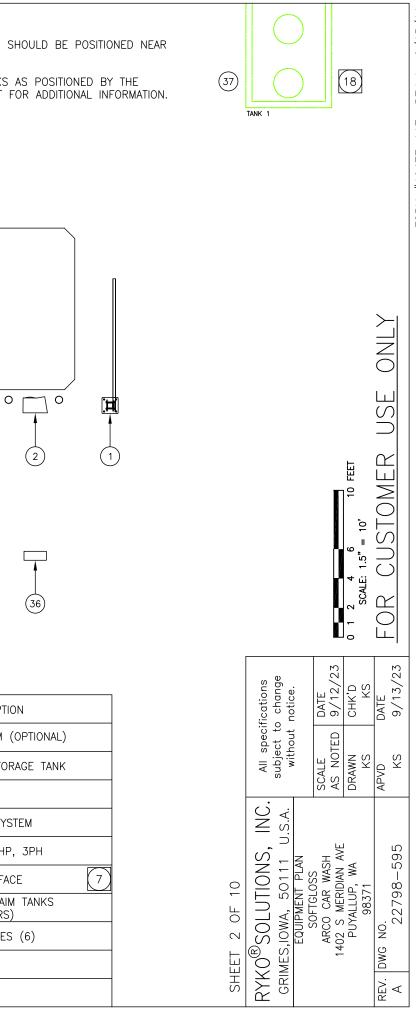
J-BOX REQUIRED PROVIDED BY OTHERS.

(4)

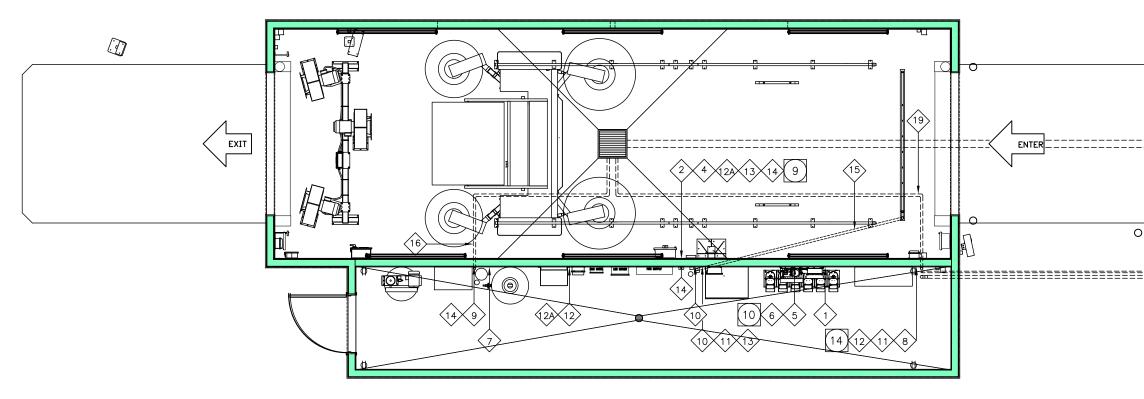
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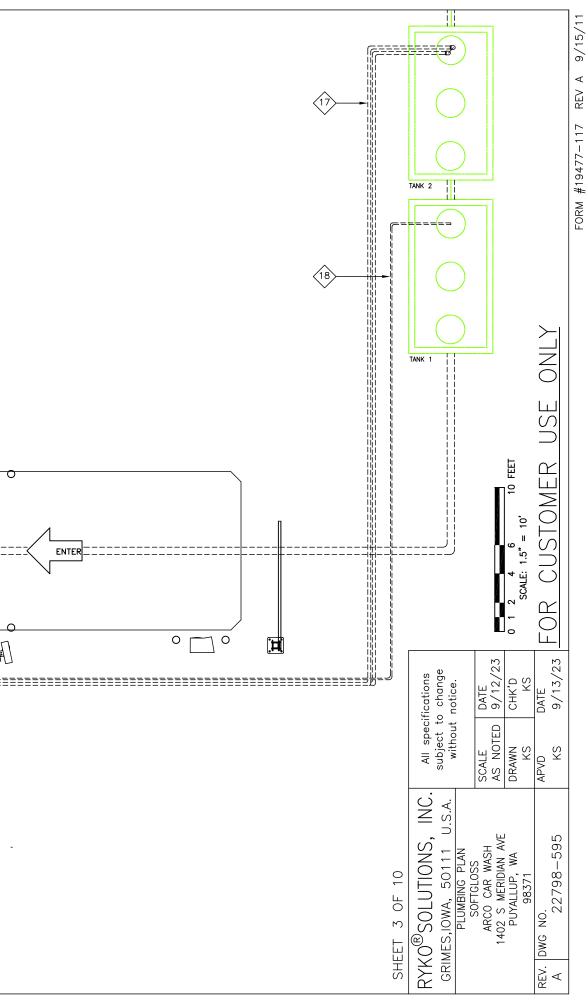
EQUIPMENT	LEGEND:	PROVIDED	ΒY	RYKO	UNLESS	NOTED.

		1		1			
REFERENCE NUMBER	DESCRIPTION	REFERENCE NUMBER	DESCRIPTION	REFERENCE NUMBER	DESCRIPTION	REFERENCE NUMBER	DESCRIPTIO
	ENTRANCE ARCH w/CLEARANCE BAR 6		WASH BAY TERMINAL BOX WITH REMOTE BAY BUZZER KIT	21	AUTO DOOR PHOTOEYE W/BRACKET & 5 AIR KNIFE DRYER PHOTOEYE LOCATION	31	BOOST PUMP SYSTEM (C
2	UNITEC PORTAL TI ACTIVATION	12	LOW PROFILE GUIDE RAILS (2 PLCS)	22	DUAL THERMOSTAT ASSY	32	165 GALLON R.O. STORA
3	3 MESSAGE LIGHTED ENTRANCE SIGN 5	13	SOFTGLOSS WASH MACHINE	23	DRYER COUNT DOWN TIMER SIGN	33	CARBON FILTER
4	AIRLIFT XRS VINYL ROLL UP DOORS WITH CONTROL BOX (OPTIONAL)	14	AIR KNIFE DRYER CONTROL CABINET	24	FRESH WATER BACKUP VALVE ASSY 5	34	RAINMAKER III R.O. SYST
5	UNDERCAR ENTRANCE ACTIVATION 5	(15)	8 SEGMENT LIGHTED SIGN (WALL MT) 5	25	EV ULTRACLEAR RECLAIM SYSTEM 40GPM w/OZONE	35	AIR COMPRESSOR, 5HP,
6	HIGH PRESSURE TRENCH MOUNTED 3	16	AIR KNIFE DRYER (30HP)	26	OFFBOARD CHEMICAL INJECTION PUMP/ WITH CHEMICAL CONTAINERS	(36)	UNITEC P.O.S. INTERFACE
7	UNDERCAR ENTRANCE ACTIVATION BOX WALL MNT PHOTOEYE	(17)		27)	ONBOARD HP PUMP W/CONTROL BOX	37	UNDERGROUND RECLAIM (PROVIDED BY OTHERS)
8	SOFTGLOSS FLOOR TRACKS	18	COMMUNICATION INTERFACE BOX (WITH TOUCH SCREEN AND E-STOP)	28	HP DIVERTER VALVES 5	38	TSS LED BAY FIXTURES
9	SOFTGLOSS FLOOR MOUNT BOOM STAND	(19)	AUTO DOOR RELAY BOX	29	OFFBOARD RINSE VALVE/R.O. 5		
(10)	SOFTGLOSS CABLE MOUNT BRACKET	20	AUTO DOOR PHOTOEYE W/BRACKET & AIR KNIFE DRYER PHOTOEYE LOCATION	30	TSS DMX CONTROLLER-LED DRIVER		



FORM #19477-117 REV A 9/15/11

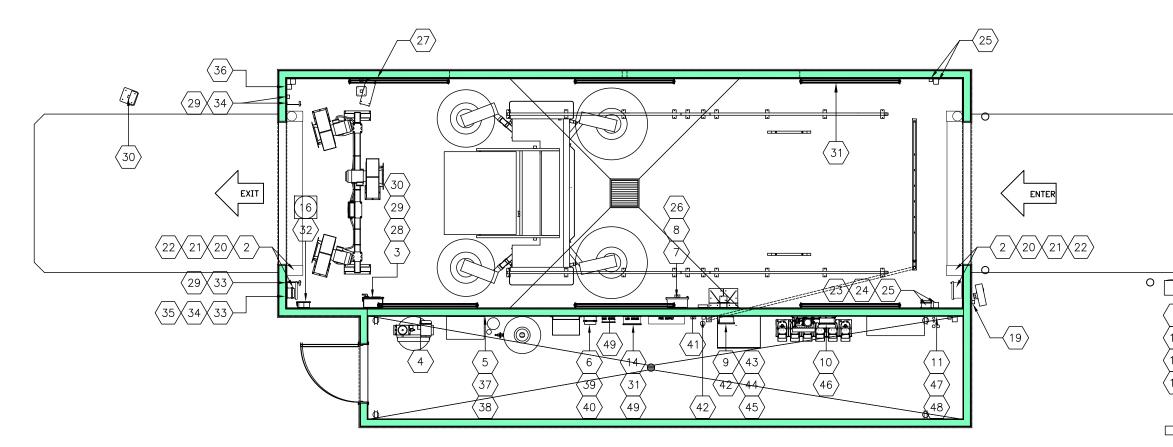




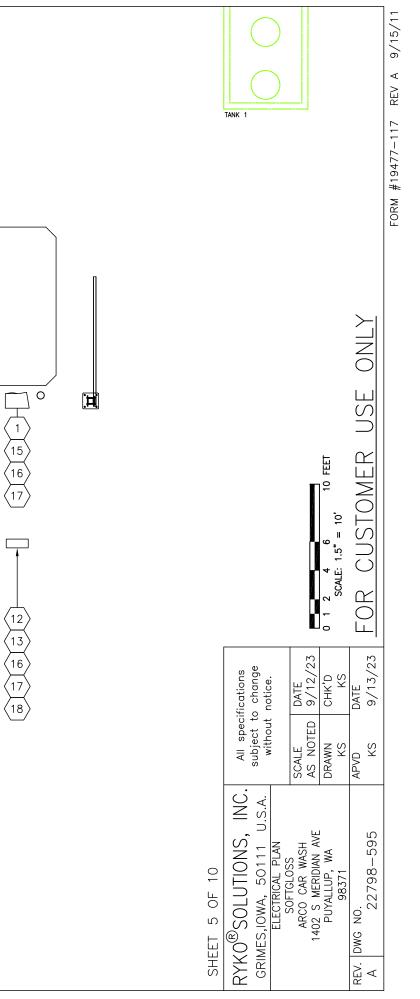
PLUMBING CHART													
MBER SIZE DESCRIPTION	ORIGIN	TERMINUS	THREADING/ VALVE AT ORIGIN	THREADING/ VALVE AT TERMINUS	NOTES	REFERENCE NUMBER	SIZE	DESCRIPTION	ORIGIN	TERMINUS	THREADING/ VALVE AT ORIGIN	THREADING/ VALVE AT TERMINUS	NOTES
1         3/8"         AIR TO OFFBOARD CHEMICAL INJECTION PUMP	COMPRESSED AIR SUPPLY	WALL NEXT TO PUMP BOX	N/A	3/8" FPT SHUT-OFF VALVE	4 SCFM, 80 PSI MIN, 150 PSI MAX		1"	RECLAIM WATER TO HIGH PRESSURE PUMP	RECLAIM WATER	WALL NEXT TO PUMP BASE	N/A	1" FPT SHUT-OFF VALVE	18 GPM FLOW RATE @ 0–70 PSI
2 3/8" AIR TO WASH BAY WALL	COMPRESSED AIR SUPPLY	LEFT WASH BAY WALL	N/A	3/8" FPT SHUT-OFF VALVE	5 SCFM, 100 PSI MIN, 125 PSI MAX			RECLAIM WATER TO BOOST					FILTER WATER TO 10 MICRON OR LESS.
3							1	PUMP (12A) BOOSTED WATER TO WASH BAY WALL	INCOMING FRESH WATER	LEFT WASH BAY WALL	N/A	1" FPT SHUT-OFF VALVE	
4     3/4"     FRESH WATER TO WASH BAY WALL	INCOMING FRESH WATER	WALL	N/A	3/4" FPT SHUT-OFF VALVE			3/4	HIGH PRESS LINE FROM HP PUMP TO WASH BAY WALL	ONBOARD HP PUMP	LEFT WASH BAY WALL	,	TERMINATE T WITH 3/4" FPT	HIGH PRESSURE LINE (3000 PSI) MUST BE USI
5 3/4" FRESH WATER TO OFFBOARD CHEMICAL INJECTION PUMP	INCOMING FRESH WATER	INJECTION PUMP	N/A	SHUT-OFF VALVE				R.O. WATER TO WASH BAY WALL	RO RINSE VALVE ASSY	WALL	N/A	1" FPT SHUT-OFF VALVE	N/A
6 3/4" FRESH WATER TO COLOR WAVE VALVE ASSEMBLY	INCOMING FRESH WATER	INJECTION PUMP	N/A	3/4" FPT SHUT-OFF VALVE		15		HIGH PRESSURE LINE TO TRENCH UNDERCAR MANIFOLD		UNDERCAR MANIFOLD	N/A	N/A	HIGH PRESSURE LINE (3000 PSI) MUST BE US
7         3/4"         FRESH FILTER         WATER TO CARBON	INCOMING FRESH WATER			3/4" FPT SHUT-OFF VALVE	8 GPM @ 30 PSI MIN 85 PSI MAX		2"	FLOOR DRAIN FOR RAINMAKER III R.O. SYSTEM	FLOOR DRAIN	SANITARY SEWER	N/A	N/A	N/A
8         1"& 1/2"         FRESH WATER TO EV ULTRACLEAR RECLAIM	INCOMING FRESH WATER	RECLAIM	1/2 " & 1" FPT SHUTOFF	1/2 " & 1" FPT SHUTOFF	15 GPM @ 40 PSI MIN, 125 PSI MAX		2"	SUCTION LINES TO RECLAIM	EV ULTRA CLEAR RECLAIM	TANK THREE OF RECLAIM SYSTEM	2"FPT	2" FULL FLAPPER CHECK VALVES	
9 3/4" FILTERED WATER TO RAINMAKER III R.O. SYSTEM	CARBON FILTER	RAINMAKER III R.O. SYSTEM	N/A	3/4" FPT SHUT-OFF VALVE	N/A		1"	OZONE/AREATION LINE	EV ULTRACLEAR RECLAIM	TANK ONE OF RECLAIM SYSTEM	1"FPT	NONE	
10 1" HP RECLAIM WATER TO HP DIVERTER VALVE ASSY	RECLAIM WATER	HP DIVERTER VALVE ASSY	N/A	1" FPT SHUT-OFF VALVE	N/A	19	2"	SAND TRAP/COLLECTION PIT	EV ULTRACLEAR RECLAIM	SAND TRAP/ COLLECTION PIT	2" FPT	NONE	
<ul> <li>12) CONNECT THE OUTLET OF THE AREATI THE ¾" HOSE TO THE 1" OUTLET ON DIRECTLY INTO RECLAIM TANK FARTHER TO PROTECT THE HOSE FROM BEING</li> <li>13) ATTACH THE 1" HOSE TO THE 2" OUTLET OI THE 1" HOSE TO THE 2" OUTLET OI THE 1" HOSE FROM COMING OUT WI IS NOT PRESENT, ROUTE THE 1" HOSE TO THE TRENCH IN THE CENT THE HOSE FROM BEING DRIVEN OVER</li> <li>14) 1" FRESH WATER LINE IS USED FOR THE EV ULTRACLEAR RECLAIM SYSTEM</li> </ul>	THE FLOOR. IF TH ST FROM THE SUCT DRIVEN OVER. HE SHIPPING KIT TO N THE FLOOR. INSE HEN WATER IS FLOV DSE TO THE TRENCH ER OF THE WASH E FRESH WATER BACK	HE FLOOR OUTLET FION LINES. IF NEC O THE OUTLET OF ERT ENOUGH 1" HO WING THROUGH IT. H IN THE CENTER BAY. USE A HOSE	IS NOT PRESEN CESSARY, USE A THE 1" SOLENO DSE INTO THE 2 IF THE 2" OUT OF THE WASH H PROTECTION PL	T, ROUTE THE ¾ HOSE PROTECTION DID VALVE. ROUTE 2" OUTLET TO KEEP LET ON THE FLOOF BAY. ROUTE THE 1	HOSE   PLATE								RYKO <sup>C</sup> SOLUTIONS, INC.     All specifications       GRIMES,IOWA, 50111     U.S.A.       PLUMBING PLAN     subject to change       SOFTGLOSS     without notice.       ARC0 CAR WASH     SCALE       1402 S MERIDIAN AVE     DRAWN       PUMLUP, WA     KS       PLOK     PLUNBING PLAN       SOFTGLOSS     SCALE       ARC0 CAR WASH     DATE       ARC0 CAR WASH     PLATE       AR NO TED     PL12/23       PLATE     PLATE       PLATE

15 REFER TO SHEET 6 FOR ELECTRICAL CHART.

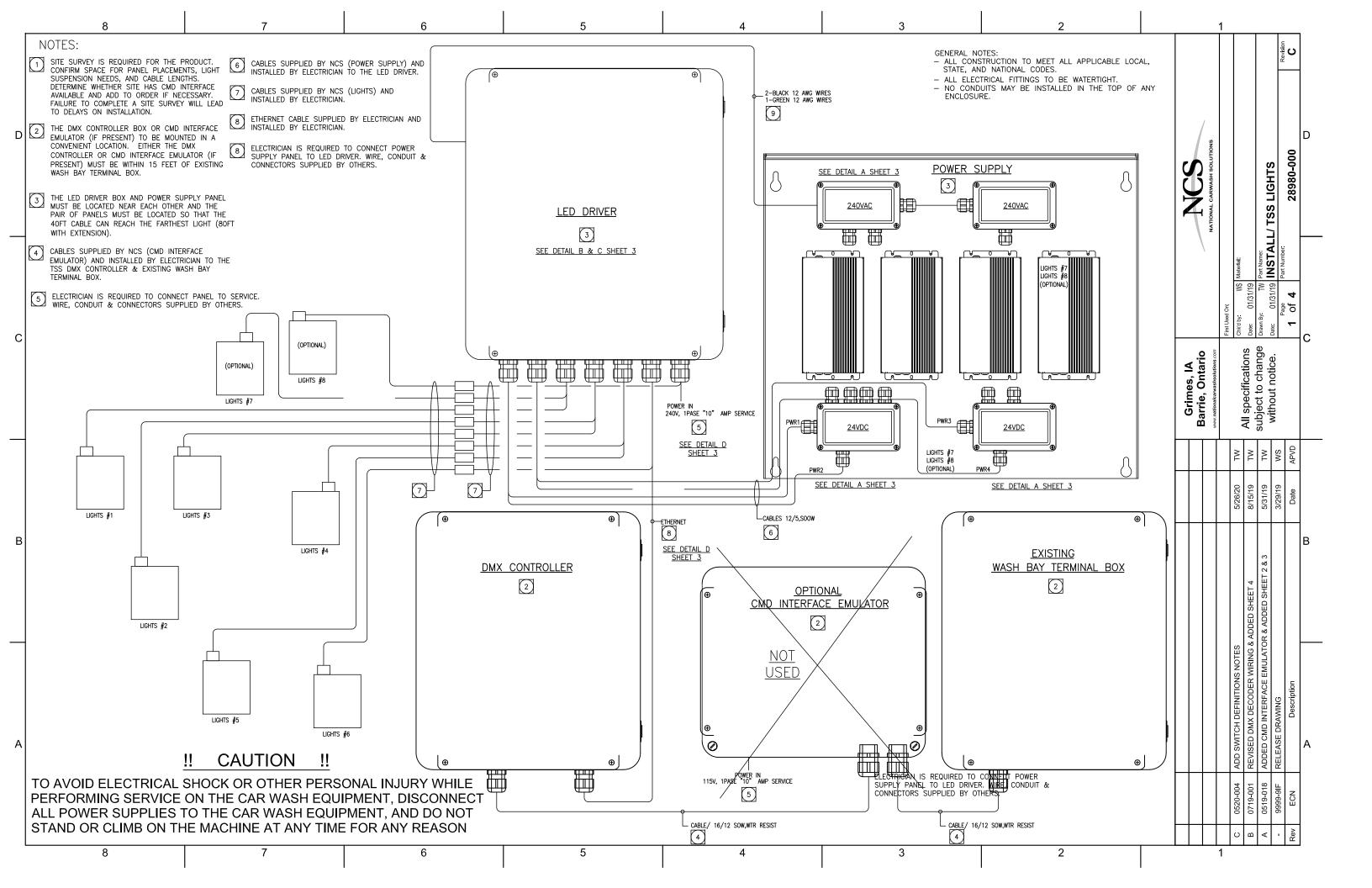
LOCATE COMMUNICATION INTERFACE BOX IN A CLEARLY VISIBLE AND QUICKLY ACCESSIBLE LOCATION WHERE THE OPERATOR CAN REACH IT TO STOP THE MACHINE IN AN EMERGENCY.



NOTES:



						ELECTRICA	AL CH	IART						
EFERENCE NUMBER	ORIGIN	TERMINUS	QTY	WIRE/CABLE SIZE	CONDUIT	NOTES	REFERENC NUMBER		TERMINUS	QTY	WIRE/CABLE SIZE	CONDUIT	NOTES	
$\langle 1 \rangle$	ELECTRICAL SERVICE	UNITEC PORTAL TI ACTIVATION	1	3-#14 AWG WIRES BLACK/WHITE/GREEN	3/4-1"	8 AMP, SINGLE PHASE, 120 VAC DEDIICATED POWER	26	WASH BAY TERMINAL BOX	REMOTE BAY BUZZER KIT	2	#14 AWG WIRES	1/2"	(J-BOX BY OTHERS)	
2	ELECTRICAL SERVICE	AIRLIFT XRS ROLL UP DOORS CONTROL BOX	2		AS REQD	20 AMP, SINGLE PHASE, 120VAC	27	WASH BAY TERMINAL BOX	8 SEGMENT LIGHTED SIGN	9 1	#14 AWG WIRES #14 AWG GREEN WIRE	3/4"	(J-BOX BY OTHERS)	
3	ELECTRICAL SERVICE	AIR KNIFE DRYER/ CONTROL CABINET	1		AS REQD	92.4 FLA, 208VAC, 3 PHASE OR 84 FLA, 230VAC, 3 PHASE	28	WASH BAY TERMINAL BOX	AIR KNIFE DRYER/ELEC- TRICAL CONTROL CABINET	12 1	#16 AWG WIRES #16 AWG GREEN WIRE	3/4"		
4	ELECTRICAL SERVICE	AIR COMPRESSOR, 5HP, 3PH	1		AS REQD	16 AMP, 3 PHASE, 208/230VAC W/GROUND	29	AIR KNIFE DRYER/ELEC- TRICAL CONTROL CABINET	PHOTOEYES FOR DRYER		CABLES SUPPLIED WITH PHOTOEYES (2)	1/2"		
5	ELECTRICAL SERVICE	RAINMAKER III R.O. SYS W/REPRESSURIZATON	1		AS REQD	15 AMP, 3 PHASE, 208/230VAC W/GROUND	30	AIR KNIFE DRYER/ELEC- TRICAL CONTROL CABINET	DRYER COUNT DOWN TIMER DISPLAY	6 1	#16 AWG WIRES #16 AWG GREEN WIRE	1/2"		
6	ELECTRICAL SERVICE	BOOST PUMP SYSTEM CONTROL BOX	1		AS REQD	15 AMP, 3 PHASE, 208/230 VAC (W/DISCONNECT WITHIN SIGHT)	31	ALL WIRING REQUIREMENTS THRU 10 DRAWING 28980	5 FOR TSS LIGHTS AND CON -000 FOR INSTALLATION	ROLLERS	SHOWN ON SHEET 7	AS REQD	SEE SHEET 7 THRU 10	
$\langle 7 \rangle$	ELECTRICAL SERVICE	WASH BAY TERMINAL BOX	1		AS REQD	35 AMP, 3 PHASE, 208/230VAC	32	WASH BAY TERMINAL BOX	COMMUNICATION INTERFACE BOX	4 1	#14 AWG WIRES #14 AWG GREEN WIRE	1/2"		
8	ELECTRICAL SERVICE	WASH BAY TERMINAL BOX	1		AS REQD	15 AMP, SINGLE PHASE, 120 VAC				I	4 PAIR SHIELDED CABLE SUPPLIED BY RYKO WITH MACHINE BOOM			
9	ELECTRICAL SERVICE	ONBOARD H.P. PUMP CONTROL BOX	1		AS REQD	60 AMP, 3 PHASE, 208/230 VAC 15 AMP, SINGLE PHASE, 120VAC	33	AUTO DOOR RELAY BOX	PHOTOEYE W/DOOR BRACKET (DRIVER SIDE)		CABLE PROVIDED	1/2"		
(10)	ELECTRICAL SERVICE	OFFBOARD CHEMICAL INJECTION PUMP	1		AS REQD	10 AMP, 3 PHASE, 208/230 VAC (J-BOX BY OTHERS)	34	AUTO DOOR RELAY BOX	PHOTOEYE W/DOOR BRACKET (PASSENGER SD)		CABLE PROVIDED	1/2"	(J-BOX BY OTHERS)	– ГЦ (/
11	ELECTRICAL SERVICE	EV ULTRACLEAR RECLAIM SYSTEM	1		AS REQD	25 AMP, 3 PHASE, 208/230 VAC 15 AMP, SINGLE PHASE, 120VAC	35	WASH BAY TERMINAL BOX	, , ,	4	#14 AWG WIRES	1/2"		-
12	ELECTRICAL SERVICE	UNITED P.O.S. INTERFACE	1		AS REQD	15 AMP, SINGLE PHASE, 120VAC RECEPTACLE	36	WASH BAY TERMINAL BOX	DUAL THERMOSTAT ASSY	3	#14 AWG WIRES	1/2"	SEE SHEET 2 NOTE 8 FOR MOUNTING LOCATION	
13	ELECTRICAL SERVICE	ROUTER	1		AS REQD	15 AMP, SINGLE PHASE, 120VAC RECEPTACLE	37	WASH BAY TERMINAL BOX	RAINMAKER III R.O. SYSTEM	5 1	#14 AWG WIRES #14 AWG GREEN WIRE	1/2"		
14	ELECTRICAL SERVICE	TSS LED DRIVER	1		AS REQD	10 AMP, 240VAC, SINGLE PHASE	38	RAINMAKER III R.O. SYSTEN	R.O. STORAGE TANK FLOAT SWITCH	2	#14 AWG WIRES	1/2"		
		-					39	WASH BAY TERMINAL BOX	BOOST PUMP CONTROL BOX	5	#14 AWG WIRES	1/2"		
15	WASH BAY TERMINAL BOX	UNITEC PORTAL TI ACTIVATION	10 1	#14 AWG WIRES #14 AWG GREEN WIRE	3/4-1"		40	BOOST PUMP CONTROL BOX	BOOST PUMP MOTOR	3 1	#14 AWG WIRES #14 AWG GREEN	1/2"		
(16)	UNITEC PORTAL TI ACTIVATION	UNITEC P.O.S. INTERFACE (INSIDE STORE)	INTERCOM PHONE NETWORK	1 2PR / 4 COND	3/4-1"		41	WASH BAY TERMINAL BOX	OFFBOARD RINSE VALVE/ R.O.	3	#14 AWG WIRES	1/2"		ິ 
17	UNITEC PORTAL TI ACTIVATION	UNITEC ROUTER	1	CAT 5 COMMUNICATION CABLE	3/4-1"		42	ONBOARD HP PUMP CONTROL BOX	HP DIVERTER VALVE ASSEMBLY	4	#14 AWG WIRES	1/2"	e e.	<u>,</u>
18	UNITEC ROUTER	INTERNET REQUIRED	1	AS REQUIRED	3/4-1"		43	WASH BAY TERMINAL BOX	ONBOARD H.P. PUMP CONTROL BOX	5	#14 AWG WIRES	1/2"	t notice.	DATE
19	WASH BAY TERMINAL BOX	3 MESSAGE LIGHTED ENTRANCE SIGN	4 1	#14 AWG WIRES #14 AWG GREEN WIRE	1/2"	(J-BOX BY OTHERS)	44	ONBOARD HP PUMP CONTROL BOX	PUMP INLET WATER SOLENOID JUNCTION BOX	2	#14 AWG WIRES	1/2"		ç
20	WASH BAY TERMINAL BOX	AIRLIFT DOORS CONTROL BOX (ENTRANCE & EXIT)	6	#14 AWG WIRES	1/2"		45	ONBOARD HP PUMP CONTROL BOX	ONBOARD HP PUMP MOTOR	3 1	#6 OR 10 AWG WIRES #6 OR 10 AWG GREEN	3/4"	All subjection of the subjecti	APVD
21	, , ,	AIRLIFT DOOR MOTOR (POWER)	4	#12 AWG WIRES RED,WHITE,BLACK,GRN	1/2"		46	WASH BAY TERMINAL BOX	OFFBOARD CHEMICAL	2 1 10	#14 AWG WIRES #14 AWG GREEN WIRE	3/4"	INC.	
22	BOX (ENTRANCE & EXIT)	PHOTOEYE TRANSMITTER AND RECEIVER		PROVIDED BY AIRLIFT	1/2"		47	WASH BAY TERMINAL BOX	(J-BOX BY OTHERS) EV ULTRACLEAR RECLAIM	10 4	#18 AWG WIRES #14 AWG WIRES	1/2"		
23	ONBOARD HP PUMP CONTROL BOX	ENTRANCE ACTIVATION RELAY BOX (UNDERCAR)	4	#14 AWG WIRES	1/2"		48	EV ULTRACLEAR RECLAIM	SYSTEM	2	#14 AWG WIRES	1/2"	T 6 OF 10 SOLUTIONS, SOLUTIONS, ES,IOWA, 50111 L ELECTRICAL PLAN SOFICLOSS ARCO CAR WASH 1402 S MERIDIAN AVE PUYALLUP, WA	1/0
24	ENTRANCE ACTIVATION RELAY BOX (UNDERCAR)	FLOOR MOUNT PHOTOEYE (DRIVER SIDE)		CABLE PROVIDED	1/2"			SYSTEM LED DRIVER (TSS LIGHTS)	VALVE SOLENOID DMX CONTROLLER	1	(J-BOX BY OTHERS)	AS REQD	6 0F SOLU OWA, ILECTRIC SOFT SOFT RCO C PUYALL	NO.
25	ENTRANCE ACTIVATION RELAY BOX (UNDERCAR)	FLOOR MOUNT PHOTOEYE (PASSENGER SIDE)		CABLE PROVIDED	1/2"	(J-BOX BY OTHERS)	49	PROVIDED AND INSTALLED	BY ELECTRICIAN		CABLE		SHEET 6 RYKO <sup>®</sup> S GRIMES,IC EL EL 1402 P	DWG N





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DMX CONTROLLER

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 $\triangle$ DEFAULT SETTINGS FOR SWITCHES ON THE FRONT OF THE DMX CONTROLLER; IDLE SHOW ENABLE:MANUAL LIGHT DISABLE CONTROL: WASH CLOSED IDLE SHOW SELECTOR: DEFAULT

#### SWITCH DEFINITIONS:

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#### IDLE SHOW ENABLE CONTROL:

ALLOWS THE IDLE SHOW TO BE ENABLED MANUALLY OR VIA THE TIMER INSIDE THE BOX. MANUAL MODE HAS THE IDLE SHOW ENABLED AND ON ALL THE TIME WHILE STILL ALLOWING THE IN WASH SHOW TO RUN. TIMER MODE ENABLES THE IDLE SHOW ON A SCHEDULE CONTROLLED BY THE TIMER MODULE INSIDE THE BOX. PROGRAM TIMER ACCORDING TO CUSTOMER REQUIREMENTS, TIME OUTPUT IS ON FOR IDLE SHOW TO BE ENABLED. TIMER INSTRUCTIONS SHOULD BE INCLUDED WITH CONTROL BOX OR CAN BE FOUND VIA A GOOGLE SEARCH FOR THE TIMER MODEL NUMBER.

#### LIGHT DISABLE CONTROL:

ALLOWS THE LIGHTS TO BE DISABLED MANUALLY (TURNED OFF) OR ONLY DISABLED WHEN THE WASH CLOSED SIGNAL IS ACTIVE, I.E. ANY TIME THE COIN BOX WOULD SHOW THE CAR WASH IS CLOSED OR OUT OF ORDER. THE INTENT HERE IS TO AUTOMATICALLY TURN OFF ANY LIGHT DISPLAY INCLUDING ANYTIME THE IDLE SHOW MAY BE RUNNING IF THE WASH IS INOPERATIVE AND NOT ATTRACT CUSTOMERS TO A NON-WORKING WASH.

#### IDLE SHOW SELECTOR:

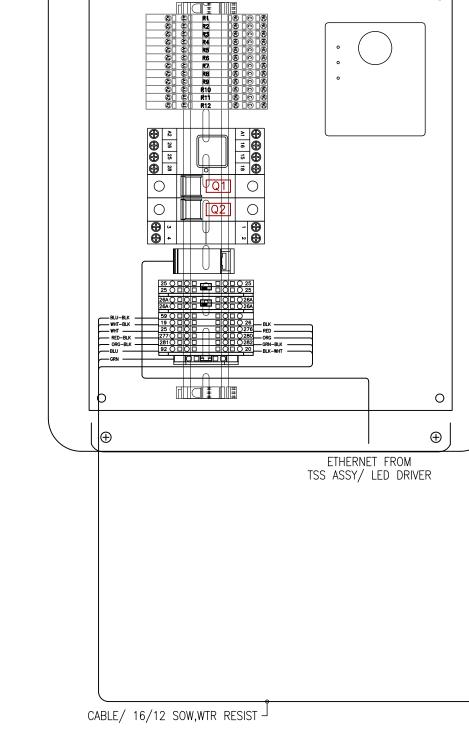
DEFAULT SHOW: MULTI COLOR EFFECT WITH DIFFERENT EFFECTS AND TRANSITIONS BETWEEN MANY DIFFERENT COLORS DESIGNED TO CATCH THE EYE AND DRAW CUSTOMERS IN.

ALTERNATE 1: RED WHITE AND BLUE THEME FOR 4<sup>TH</sup> OF JULY AND OTHER PATRIOTIC HOLIDAYS ALTERNATE 2: RED AND GREEN HOLIDAY COLOR SHOW

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			SGMX OR RADIUS         NOTES:         Image:	EXISTING           WASH BAY TERMINAL BO           GND         GRN           26         BLK           25         WHT           19         WHT/ BLK           20         BLV/WHT           59         BLU/BLK           92         BLU           276         RED           281         ORG/BLK           282         GRN/BLK
CABLE	E/ 16/12 SOW,WTR RESIST $^{ m J}$			
	CAL SHOCK OR OTHER PI			
ALL POWER SUPPL	ICE ON THE CAR WASH E IES TO THE CAR WASH E N THE MACHINE AT ANY			

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