ABBREVIATIONS

&	AND	I.D.	INSIDE DIAMETER
L	ANGLE	INSUL.	INSULATION
@	AT	INT.	INTERIOR
℄	CENTERLINE	JT.	JOINT
ø	DIAMETER OF ROUND	KIT.	KITCHEN
#	POUND OR NUMBER	LAM.	LAMINATE
(E)	EXISTING	LAV.	LAVATORY
(R)	RELOCATED	LT.	LIGHT
(N)	NEW	L.E.D.	LIGHT EMITTING DIODE
A.F.F.	ABOVE FINISH FLOOR	MAX.	MAXIMUM
A.D.	AREA DRAIN	M.C.	MEDICINE CABINET
ADJ.	ADJUSTABLE	MECH.	MECHANICAL
AGGR.	AGGREGATE	MEMB.	MEMBRANE
AL.	ALUMINUM	MTL.	METAL
APPROX.	APPROXIMATE	MFR.	MANUFACTURER
ARCH.	ARCHITECTURAL	MIN.	MINIMUM
ASB.	ASBESTOS	MIR.	MIRROR
ASPH.	ASPHALT	MISC.	MISCELLANEOUS
BD.	BOARD	M.O.	MASONRY OPENING
BITUM.	BITUMINOUS	MTD.	MOUNTED
BLDG.	BUILDING	MUL.	MULLION
BLKG.	BLOCKING	N.	NORTH
BM.	BEAM	N.I.C.	NOT IN CONTRACT
BOT.	BOTTOM	NO. OR #	NUMBER
CAB.	CABINET	NOM.	NOMINAL
CEM.	CEMENT	N.T.S.	NOT TO SCALE
CER.	CERAMIC	O.A.	OVERALL
C.I.	CAST IRON	OBS.	OBSCURE
CLG.	CEILING	O.C.	ON CENTER
CLKG.	CAULKING	O.D.	OUTSIDE DIAMETER
CLO.	CLOSET	OFF.	OFFICE
CLR./CL.	CLEAR	OPNG.	OPENING
C.O.	CASED OPENING	OPP.	OPPOSITE
COL.	COLUMN	PL.	PLATE
CONC.	CONCRETE	P.LAM.	PLASTIC LAMINATE
CONN.	CONNECTION	PLAS.	PLASTER
CONSTR.	CONSTRUCTION	PLYWD.	PLYWOOD
CONT.	CONTINUOUS	PR.	PAIR
CTSK.	COUNTERSUNK	PT.	POINT
CNTR.	COUNTER	PTN.	PARTITION
CTR.	CENTER	Q.T.	QUARRY TILE
DBL.	DOUBLE	QSR	QUICK SERVE RESTAURANT
DEPT.	DEPARTMENT	R OR RAD.	RADIUS
DET.	DETAIL	R.D.	ROOF DRAIN
DIA.	DIAMETER	REF.	REFERENCE
DIM.	DIMENSION	REFR.	REFRIGERATOR
DISP.	DISPENSER	RGTR.	REGISTER
DN.	DOWN	REINF.	REINFORCED
D.O.	DOOR OPENING	REQ'D	REQUIRED
DR.	DOOR	RESIL.	RESILIENT
DWR.	DRAWER	RM.	ROOM
D.S.	DOWNSPOUT	R.O.	ROUGH OPENING
DWG.	DRAWING	R.W.L.	RAIN WATER LEADER
E.	EAST	S.	SOUTH
EA.	EACH	S.C.	SOLID CORE
E.J.	EXPANSION JOINT	SCHED.	SCHEDULE
EL.	ELEVATION	S.D.	SOAP DISPENSER
ELEC.	ELECTRICAL	SECT.	SECTION
E.P.	ELECTRICAL PANELBOARD	SH.	SHELF
EQ.	EQUAL	SHR.	SHOWER
EQPT.	EQUIPMENT	SHT.	SHEET
EXST.	EXISTING	SIM.	SIMILAR
EXP.	EXPANSION	SPEC.	SPECIFICATION
EXT.	EXTERIOR	SQ.	SQUARE
F.E.	FIRE EXTINGUISHER	S.S.	STAINLESS STEEL
F.F.	FLOOR FINISH	STD.	STANDARD
FDN.	FOUNDATION	STL.	STEEL
FIN.	FINISH	STOR.	STORAGE
FL.	FLOOR	STRL.	STRUCTURAL
FLASH'G	FLASHING	SYM.	SYMMETRICAL
FLUOR.	FLUORESCENT	T.B.S.	TO BE SPECIFIED
F.O.C.	FACE OF CONCRETE	TRD	TREAD
F.O.F.	FACE OF FINISH	T.B.	TOWEL BAR
F.O.S.	FACE OF STUD	T.C.	TOP OF CURB
FPRF.	FIREPROOF	TEL.	TELEPHONE
F.S.	FLOOR SINK	TER.	TERRAZZO
FT.	FOOT OR FEET	T&G	TONGUE & GROOVE
FTG.	FOOTING	THK.	THICK
FURR.	FURRING	T.P.	TOP OF PAVEMENT
FUT.	FUTURE	T.P.D.	TOILET PAPER DISPENSER
G.A.	GAUGE	T.V.	TELEVISION
GALV.	GALVANIZED	T.W.	TOP OF WALL
GL.	GLASS	TYP.	TYPICAL
GR.	GRADE	UNF.	UNFINISHED
GSM	GALVANIZED SHEET METAL	U.N.O.	UNLESS NOTED OTHERWISE
GYP.	GYPSUM	VERT.	VERTICAL
G.W.B.	GYPSUM WALL BOARD	V.C.T.	VINYL COMPOSITE TILE
H.B.	HOSE BIBB	W.	WEST
H.C.	HOLLOW CORE	W/	WITH
HDWD.	HARDWOOD	W.B.	WALL BASE
HDWE.	HARDWARE	W.C.	WATER CLOSET
H.M.	HOLLOW METAL	WD.	WOOD
HORIZ.	HORIZONTAL	W/O	WITHOUT
HR.	HOUR	WP.	WATERPROOF
HT.	HEIGHT	WSCT.	WAINSCOT
		WT.	WEIGHT

SYMBOLS

SECTION MARK — XX / XX.X

EXTERIOR ELEVATION TAG — XX / XX.X

ELEVATION TAG — X / X XX.X X / X

ELEVATION MARK — XX'-XX" LOCATION

FINISH TAG — XX-X

WINDOW TAG — X

DOOR TAG — X

WALL TAG — XX

KEYED NOTE — XX

bp ARCO

BP WEST COAST PRODUCTS, LLC

ARCO 3400 am/pm
1402 S MERIDIAN
PUYALLUP, WA 98371

GENERAL PROJECT NOTES

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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

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
GROSS AREA: 1,158 S.F.

PARKING REQUIREMENTS

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.

OCCUPANCY LOAD CALCULATION

SEE SHEET G1.3

DEFERRED SUBMITTALS

- TRUSS SHOP DRAWINGS
- COOLER SHOP DRAWINGS

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.

PERMITTED SEPERATELY

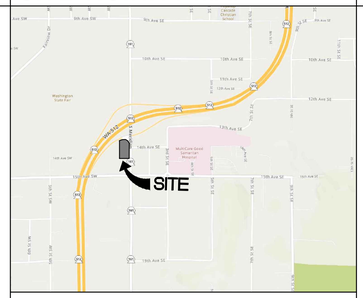
- SIGNAGE UNDER SEPARATE PERMIT
- ELECTRICAL SHEETS ARE FOR REFERENCE ONLY - PERMIT WILL BE ISSUED BY L&I

APPLICABLE CODES

BUILDING CODE :	2018 INTERNATIONAL BUILDING CODE*
PLUMBING CODE:	2018 UNIFORM PLUMBING CODE*
ELECTRICAL CODE:	2018 NATIONAL ELECTRICAL CODE
MECHANICAL CODE:	2018 INTERNATIONAL MECHANICAL CODE AND INTERNATIONAL FUEL GAS CODE*
ENERGY CODE:	2018 WASHINGTON STATE ENERGY CODE
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

SITE VICINITY MAP



PROJECT DIRECTORY

APPLICANT/DEVELOPER
BP PRODUCTS, NA
PO BOX 696049
SAN ANTONIO, TX 78269-9931
CONTACT: RANDALL ARNOLD
RANDALL.ARNOLD@BP.COM
PHONE

ARCHITECT
BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: MONIKA UEHLIN
PHONE: 425-251-6222 EXT. 7491

CIVIL ENGINEER
BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: ALEX WHITE
PHONE: 425-251-6222

LANDSCAPE ARCHITECT
BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: JEFF VARLEY
PHONE: 425-251-6222

STRUCTURAL ENGINEER
PCS STRUCTURAL SOLUTIONS
811 FIRST AVENUE, SUITE 620
SEATTLE, WA
CONTACT: JACK PINKARD
PHONE: 206.292.5076

STRUCTURAL ENGINEER (CANOPY)
PERRY BUILDERS
12405LOCKSLEY LANE
AUBURN, CA
CONTACT: LOGAN GRAVES
PHONE: 530-745-0580

PLUMBING, MECHANICAL ELECTRICAL ENGINEER
ABOSSEIN ENGINEERING LLC.
2100 11TH AVE NE
BELLEVUE, WA 98004
CONTACT: ALEX ABOSSEIN
PHONE: 425.462.9441

FUEL TANKS
BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
CONTACT: OMAR VASQUEZ
PHONE: 425.251.6222

DEVELOPMENT CONTACTS

ZONING AND LAND USE
CITY OF PUYALLUP
PLANNING SERVICES
333 SOUTH MERIDIAN
PUYALLUP, WA 98371
253-864-4165

BUILDING
CITY OF PUYALLUP
BUILDING SERVICES/FIRE PROTECTION
333 SOUTH MERIDIAN
PUYALLUP, WA 98371
253-864-4165

ENVIRONMENTAL - FOOD
TACOMA-PIERCE COUNTY
HEALTH DEPARTMENT
3629 S. D STREET
TACOMA, WA 98418
253-649-1706

STORMWATER, WATER QUALITY, SANITARY SEWER
CITY OF PUYALLUP
PUBLIC WORKS
1100 39TH AVENUE S.E.
PUYALLUP, WA 98371
253-841-5505

FIRE
SOUTH PIERCE COUNTY
FIRE & RESCUE
902 7TH STREET N.W.
PUYALLUP, WA 98371
253-538-6402

ENVIRONMENTAL - FUEL
WASHINGTON STATE
DEPARTMENT OF ECOLOGY
P.O. BOX 47655
OLYMPIA, STATE 98504
360-407-7382

AIR QUALITY
PUGET SOUND CLEAN AIR AGENCY
1904 THIRD AVENUE
SEATTLE, WA 98101
206-689-4063

ELECTRIC
WASHINGTON STATE
DEPARTMENT OF LABOR AN
INDUSTRIES (L&I)
P.O. BOX 44000
OLYMPIA, STATE 98504
360-902-5800

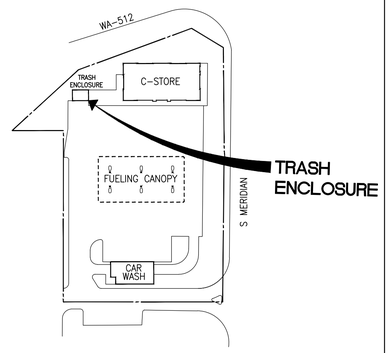
PERMIT SUBMITTAL DATES

- 10/04/2023

PERMIT ISSUE DATES

ARCO APPROVAL DATES

SITE KEY PLAN



INDEX OF DRAWINGS

TRASH ENCLOSURE

CLIENT:
bp 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		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

SEAL:
10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE ZADM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

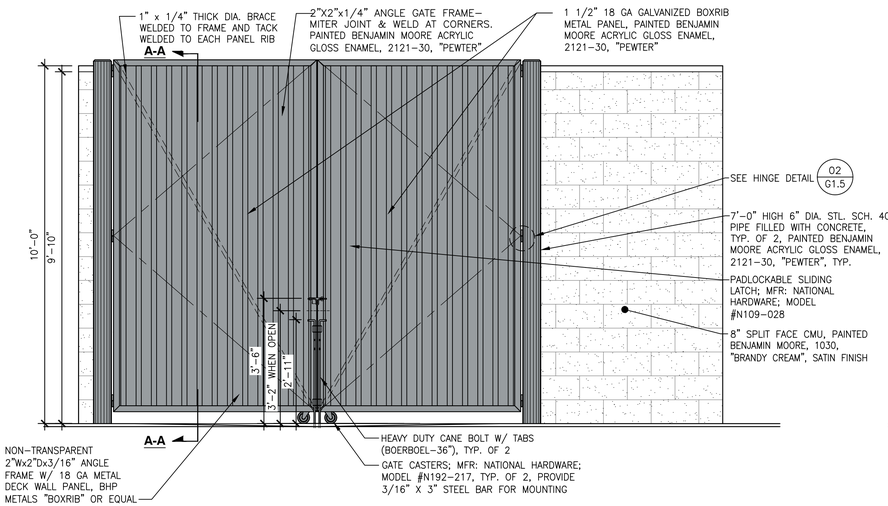
DRAWING TITLE:
COVER SHEET

SHEET NO:
G1.1

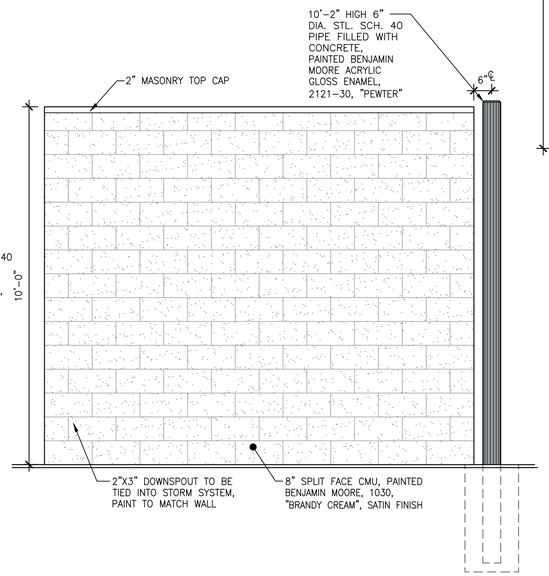
Dumpster Enclosures shall comply with City Standard Section 208.1:
1. Enclosures (with roof) shall be required for all new commercial and redevelopment projects where Minimum Requirement #1 though #5 or Minimum Requirement #1 though #9 are required, as outlined in the Ecology Manual. Enclosures shall be covered (roof) and fully enclosed to prevent precipitation from entering garbage dumpsters, containers, compactors, grease dumpsters and the enclosure floor. This does not exempt the requirement for watertight containers.
2. Enclosures shall be large enough for a garbage service vehicle to pick up and dump the waste without the container being rolled outside the enclosure. The gate opening shall be a minimum of 12 feet wide and swing open a minimum of 120 degrees from the closed position. Each gate shall also include a drop rod and receiving posts to keep the gate fixed, or pinned, in the open and closed position. The vertical clearance of the roof shall be a minimum of 15 feet and the minimum depth of the enclosure shall be 12 feet.
3. Where one (1) enclosure is utilized for both garbage and recycling services the gate opening shall be a minimum of 25 feet.
4. Enclosures should be located within 300' of the business or residence it is serving.
5. Enclosures shall be designed to allow walk-in access without having to open the main service gate.
6. Enclosures for compactors shall be designed on a case-by-case basis. The enclosure width, depth and vertical clearance shall be sized and evaluated based on the compactor and the use of the business or residence.
7. Enclosures should be strategically placed for accessibility and designed to accommodate the turning radius of a SU-30 single unit truck.
8. A grade break shall be provided around the enclosure to prevent runoff from entering the enclosure.
9. No stormwater catch basins or manholes should be located within 10 feet of the enclosure, if unavoidable the lid shall be solid and locking.
10. The interior floor of the enclosure area shall slope towards a Type I catch basin, or equivalent, and be plumbed to sanitary sewer.
11. Roof downspouts for enclosures shall be connected to an existing or new stormwater collection system and accounted for during design. Downspouts discharging over sidewalks and parking lots are prohibited.
12. When designing garbage enclosures, developers are encouraged to contact the garbage service provider to verify the location and access.
Revise the trash enclosure construction plans to comply the criteria above and indicate on the plans how each of the twelve items above are addressed. [CONSTRUCTION PLAN SET - TRASH CLOSURE, G1.4, sheet 2 of 18]

Revise trash closure drain to match catch basin type 1 per City standard detail 02.01.03 as depicted on the civil plans. [CONSTRUCTION PLAN SET - TRASH CLOSURE, G1.4, sheet 2 of 18]

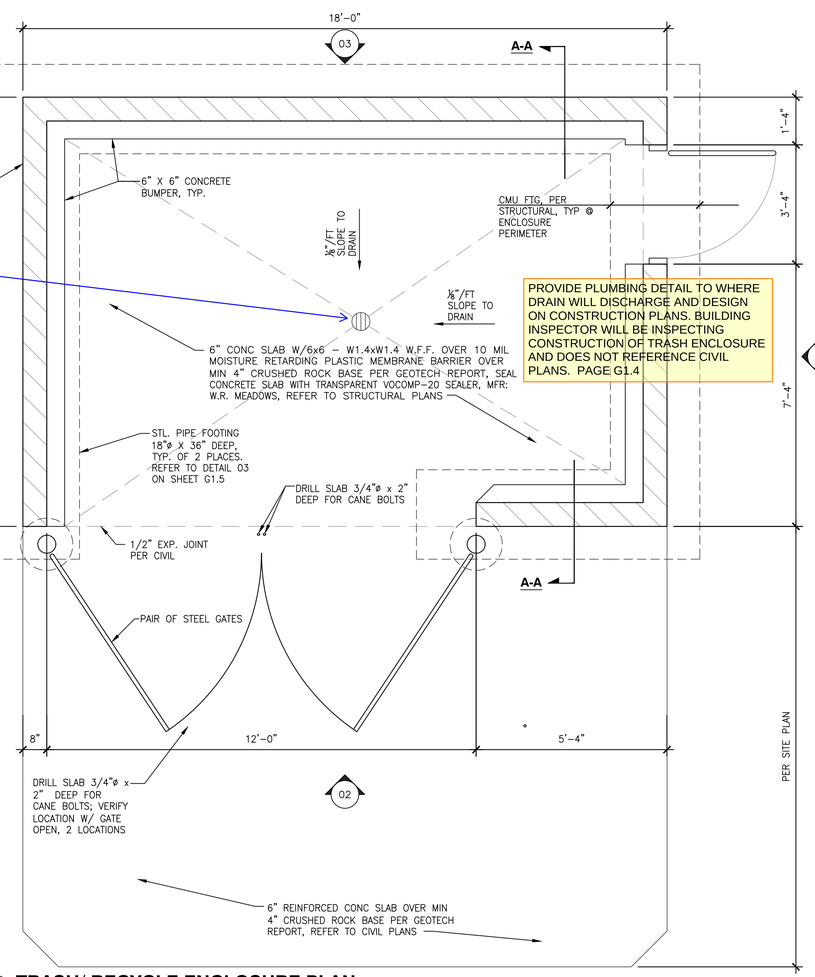
PROVIDE PLUMBING DETAIL TO WHERE DRAIN WILL DISCHARGE AND DESIGN ON CONSTRUCTION PLANS. BUILDING INSPECTOR WILL BE INSPECTING CONSTRUCTION OF TRASH ENCLOSURE AND DOES NOT REFERENCE CIVIL PLANS. PAGE G1.4



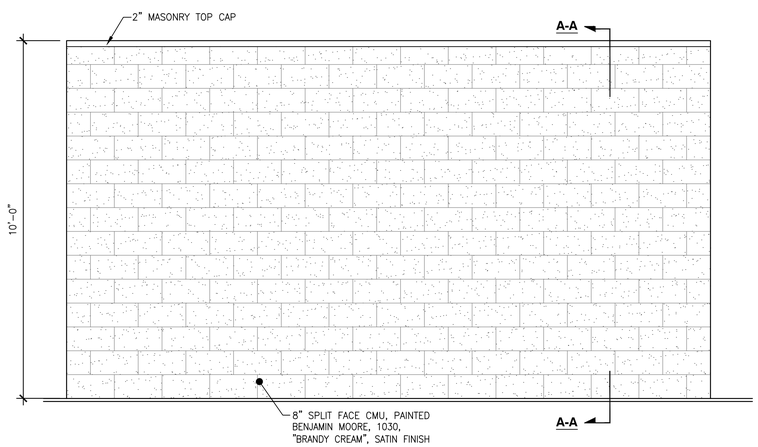
02 FRONT ELEVATION
SCALE: 1/2" = 1'–0"



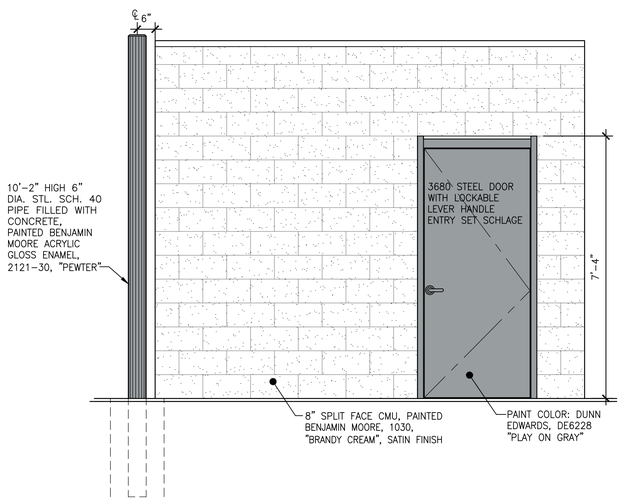
04 LEFT SIDE ELEVATION
SCALE: 1/2" = 1'–0"



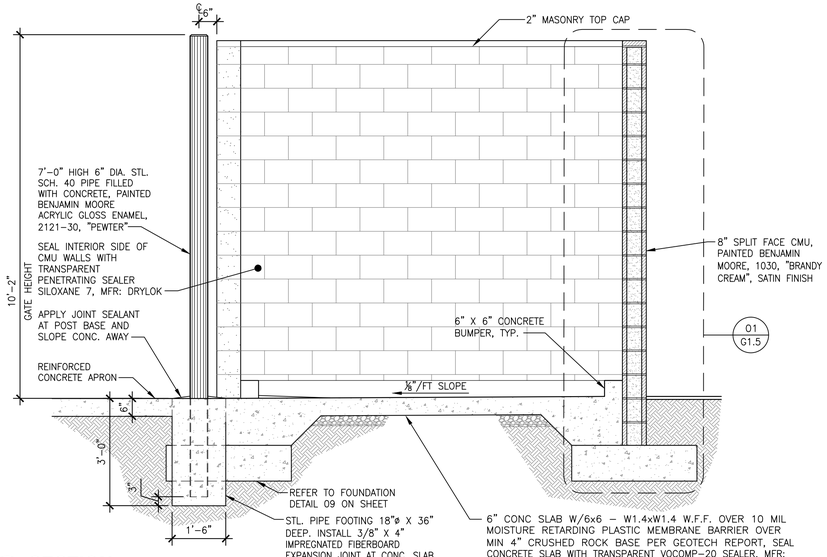
01 TRASH/ RECYCLE ENCLOSURE PLAN
SCALE: 1/2" = 1'–0"



03 REAR ELEVATION
SCALE: 1/2" = 1'–0"



05 RIGHT SIDE ELEVATION
SCALE: 1/2" = 1'–0"



AA SECTION
SCALE: 1/2" = 1'–0"

CLIENT:
bp
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		
2		
3		
4		
5		
6		
7		
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10		
11		
12		

SEAL:
10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
EXP: 08/05/24

DEVELOPMENT INFORMATION:
ARCO NTI
3400 am/pm
FUEL CANOPY w/ 6 MPD's

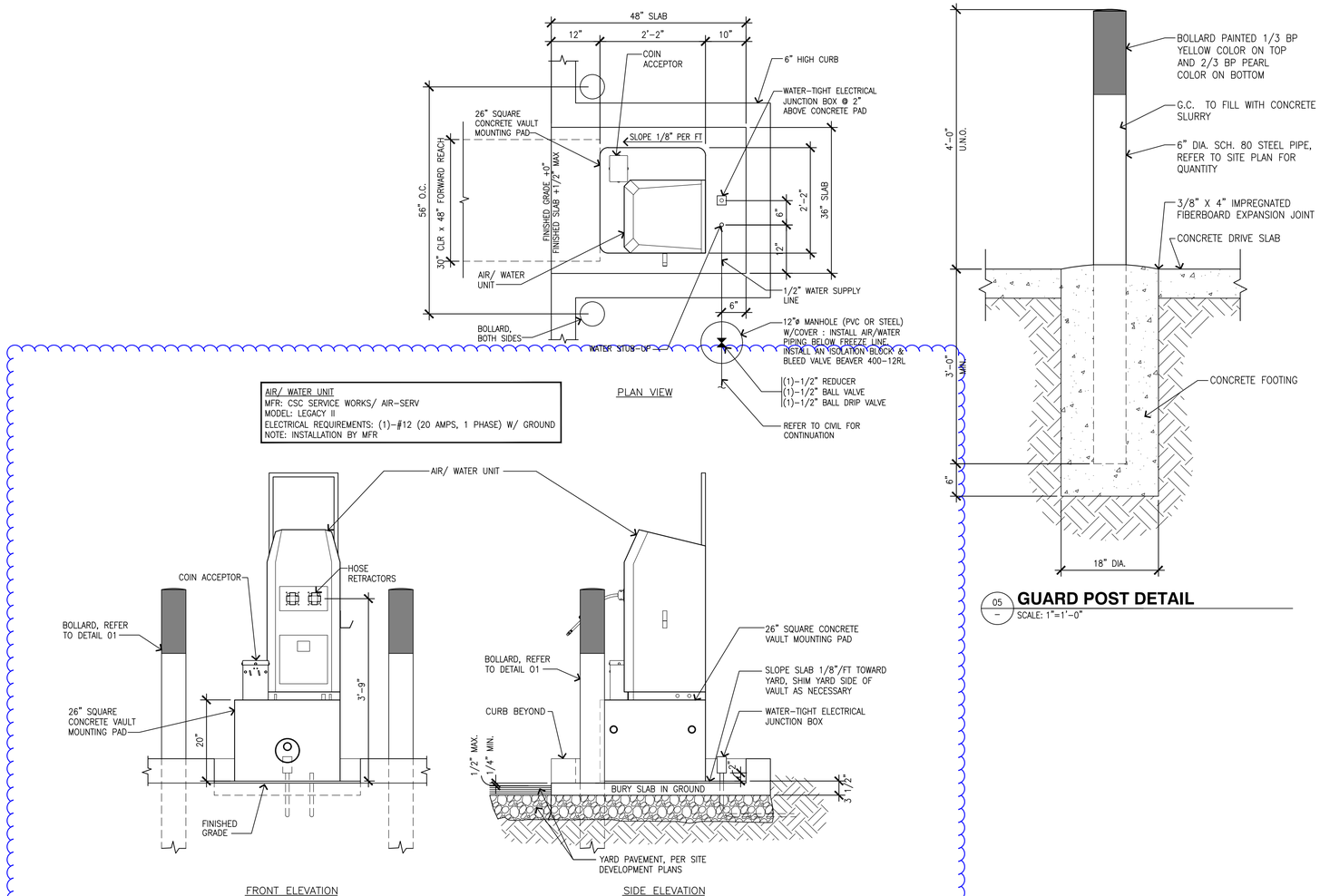
SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:
TRASH/ RECYCLE ENCLOSURE

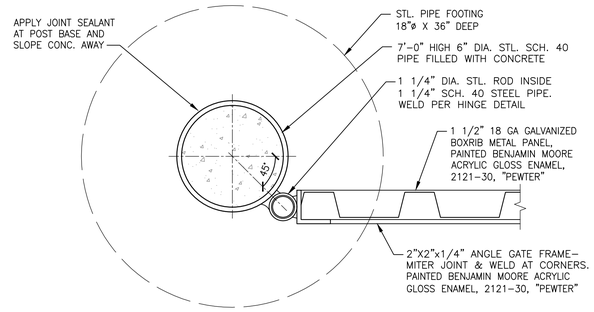
SHEET NO:
G1.4



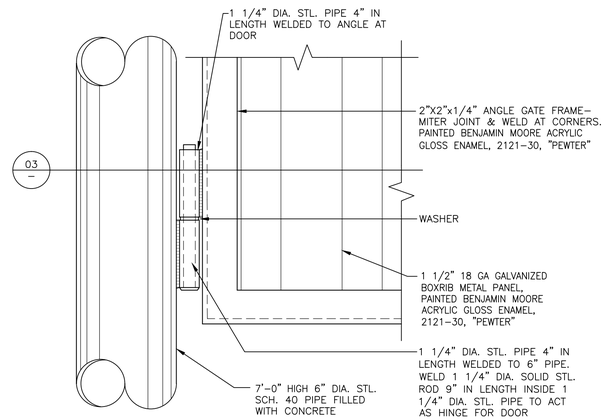
06 — **AIR/WATER UNIT DETAIL**
SCALE: 3/4"=1'-0"

Remove AIR/WATER UNIT DETAIL from trash enclosure construction plan set and relocate to car wash construction plan set since it will be located nearby and connected to the car wash water service as depicted on the civil plans. [CONSTRUCTION PLAN SET - TRASH CLOSURE, G1.5, sheet 3 of 18]

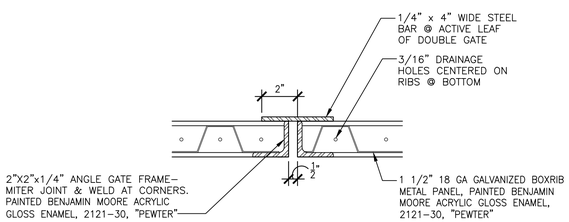
05 — **GUARD POST DETAIL**
SCALE: 1"=1'-0"



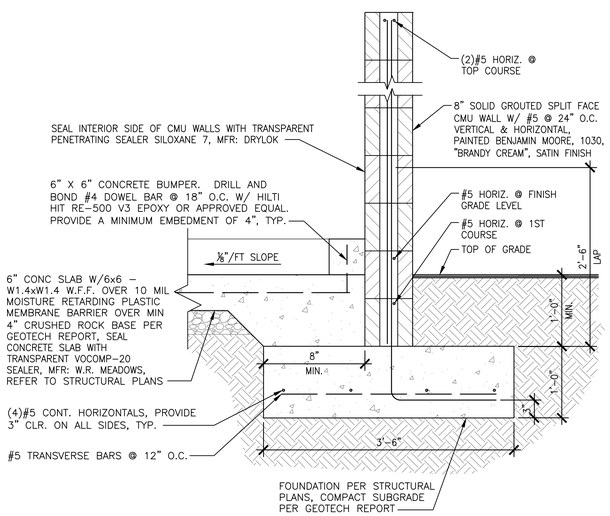
04 — **POST & HINGE DETAIL**
SCALE: N.T.S.



02 — **HINGE DETAIL**
SCALE: N.T.S.



08 — **BACK PLATE AT GATE DETAIL**
SCALE: N.T.S.



01 — **FOUNDATION/ FOOTING DETAIL**
SCALE: N.T.S.

CLIENT:
bp
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		
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SEAL:
10697 REGISTERED ARCHITECT
DANIEL B COALWIN
STATE OF WASHINGTON
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

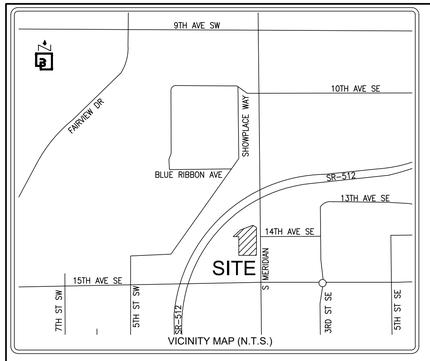
FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:
TRASH/ RECYCLE ENCLOSURE

SHEET NO:
G1.5

ALTA/NSPS LAND TITLE SURVEY



VICINITY MAP (N.T.S.)

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± SF (1.20± 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:
1. PIERCE COUNTY SHORT PLAT OF MERIDIAN CENTER – AFN 77-315 (1977)
2. PLAT OF SOURWINE'S ACRE LOTS – VOL 8 PLATS, PAGE 10 (1905)
3. PIERCE COUNTY SHORT PLAT – AFN 8706010381 (1987)
4. 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.

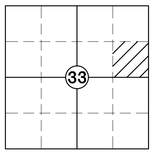
FLOOD INFORMATION:
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INFORMATION: FIRM (FLOOD INSURANCE RATE MAP) MAP NO. 53053C0341E PANEL 341 OF 1375, DATED MARCH 7, 2017. THE SUBJECT PROPERTY IS IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONING INFORMATION:
(A ZONING REPORT WAS NOT FURNISHED FOR THIS SITE)

SURVEYOR'S NOTES:

- ALL DISTANCES SHOWN HEREON ARE GROUND MEASUREMENTS IN U.S. SURVEY FEET.
- 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.
- THE LEGAL DESCRIPTION AND SPECIAL EXCEPTIONS SHOWN HEREON ARE PER THE 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.
- THIS SURVEY MEETS OR EXCEEDS THE "RELATIVE POSITIONAL PRECISION" REQUIREMENTS SET FORTH IN THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS IN SECTION 3(E).
- THE RECORD DESCRIPTION FOR THE SUBJECT PROPERTY MATHEMATICALLY CLOSES.
- 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 ENGINEERING 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.
- BARGHAUSEN CONSULTING ENGINEERS, INC. SURVEY CREWS DETECTED NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
- THERE IS NO VISIBLE EVIDENCE OF ANY CEMETERIES OR BURIAL GROUNDS.
- THERE IS EVIDENCE OF PHYSICAL ACCESS TO PUBLIC RIGHT-OF-WAY.

TWP. 20N R.4E



INDEXING INFORMATION
N.T.S.

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.
AFFECTS: 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
AFFECTS: 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:
RECORDED: OCTOBER 20, 1975
RECORDING NO.: 2632004
AFFECTS: PARCEL B
(BLANKET IN NATURE)

22. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: PUGET SOUND POWER AND LIGHT COMPANY
PURPOSE: ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM
AFFECTS: EAST 10 FEET OF PARCEL A AND INCLUDES OTHER PROPERTY
RECORDED: MAY 26, 1976
RECORDING NO.: 2667305
(PLOTTED HEREON)

23. 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 AND INCLUDES OTHER PROPERTY
RECORDED: MAY 26, 1976
RECORDING NO.: 2667306
(BLANKET IN NATURE)

24. COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENTS CONTAINED IN SHORT PLAT:
RECORDED: MAY 25, 1977
RECORDING NO.: 77-315
(PLOTTED HEREON)(COMMON ACCESS TRACT "A")

25. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
PURPOSE: INGRESS, EGRESS AND UTILITIES
AFFECTS: PORTION OF TRACT A LYING WITHIN PARCEL A
RECORDED: JANUARY 16, 1958
RECORDING NO.: 2792268
(PLOTTED HEREON)

26. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
PURPOSE: INGRESS AND EGRESS
AFFECTS: TRACT A OF SHORT PLAT 77-315
RECORDED: JUNE 8, 1977
RECORDING NO.: 2741876
(PLOTTED HEREON)

27. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: CONSTRUCTING, INSTALLING, REPAIRING AND MAINTAINING STREET IMPROVEMENTS ACCORDING TO THE PLAN ENTITLED "SOUTH MERIDIAN STREET IMPROVEMENTS"
AFFECTS: PARCEL A
RECORDED: JUNE 10, 1987
RECORDING NO.: 8706100397
(PLOTTED HEREON)

28. MUTUAL MAINTENANCE AGREEMENT AND THE TERMS AND CONDITIONS THEREOF:
RECORDED: MAY 17, 1991
RECORDING NO.: 9105170239
AFFECTS: PARCEL A
(NOT SURVEY RELATED)

29. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: WASHINGTON NATURAL GAS
PURPOSE: GAS PIPELINE OR PIPELINES
AFFECTS: NORTHERLY PORTION OF PARCEL A
RECORDED: MARCH 30, 1992
RECORDING NO.: 9203300111
(PLOTTED HEREON)

30. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND APPURTENANCES
AFFECTS: SOUTH 30 FEET OF PARCEL B
RECORDED: JUNE 4, 1992
RECORDING NO.: 9206040382
(PLOTTED HEREON)

31. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND APPURTENANCES
AFFECTS: NORTH 30 FEET OF PARCEL A
RECORDED: JUNE 4, 1992
RECORDING NO.: 9206040383
(PLOTTED HEREON)(OFFSITE ADJACENT EASEMENT)

32. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
GRANTEE: CITY OF PUYALLUP
PURPOSE: STORMWATER, SANITARY AND WATERMAIN PIPE LINE AND APPURTENANCES
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
RECORDED: JULY 28, 1992
RECORDING NO.: 9207280564
(PLOTTED HEREON)

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.

MATTHEW K. ABBAS, PLS — DATE 7/19/2023
WASHINGTON REGISTRATION NO. 20109892
MABBAS@BARGHAUSEN.COM

No.	Date	By	Ckd.	Appr.	Revision
1	7/18/23	KJR	MKA	MKA	ADDED TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO 15TH AVE SE

Title: **ALTA/NSPS LAND TITLE SURVEY**
PTN OF THE SE1/4, OF THE NE1/4 OF SEC. 33, TWP. 20 N., RGE 4 E., W. M.
CITY OF PUYALLUP, PIERCE COUNTY, WASHINGTON STATE

For: **BP FUELS NA**

Scale: Horizontal N/A Vertical

Designed AEF | Drawn MKA | Checked MKA | Approved MKA | Date 7/19/23

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032 **barghausen.com**
425.251.6222

Job Number 21730

Sheet 1 of 2

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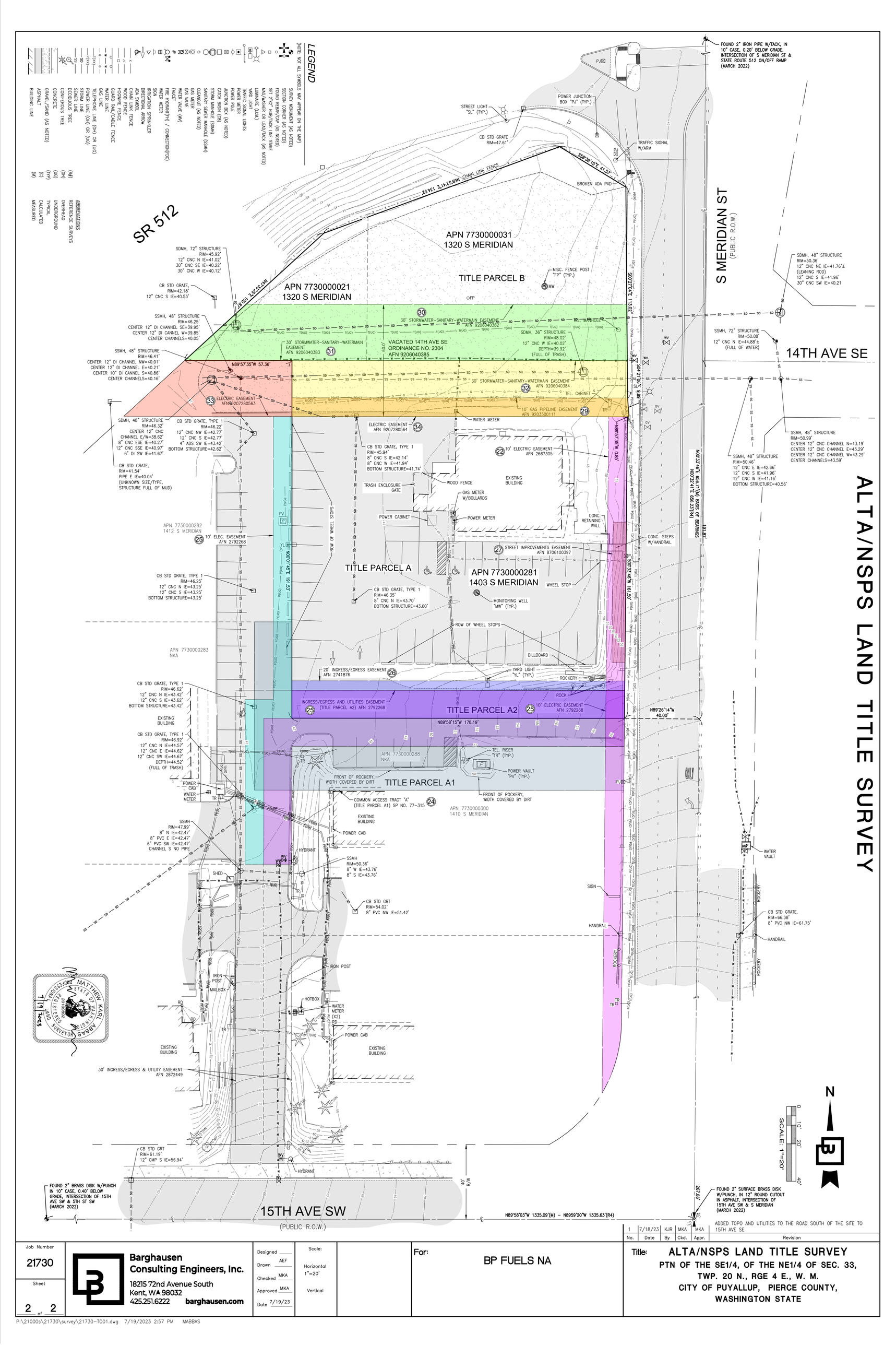


No.	Date	By	Ckd.	Appr.	Revision
1	7/18/23	KJR	MKA	MKA	ADDED TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO 15TH AVE SE

Job Number: 21730

Sheet: 2 of 2

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Designed: AEF
Drawn: MKA
Checked: MKA
Approved: MKA
Date: 7/19/23

Scale:
Horizontal 1"=20'
Vertical

For: BP FUELS NA

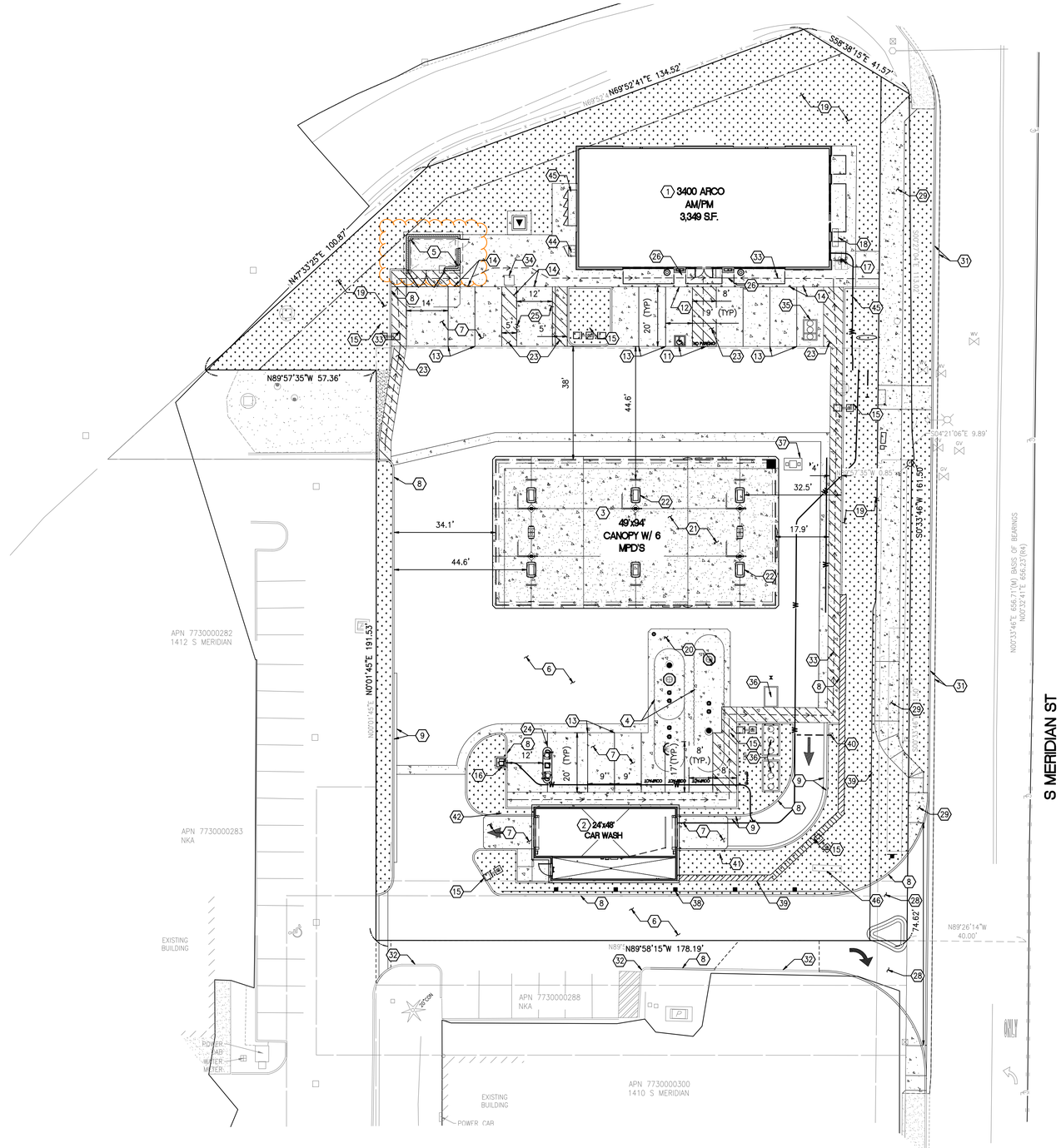
Title: **ALTA/NSPS LAND TITLE SURVEY**
PTN OF THE SE1/4, OF THE NE1/4 OF SEC. 33, TWP. 20 N., RGE 4 E., W. M.
CITY OF PUYALLUP, PIERCE COUNTY, WASHINGTON STATE

P:\21000s\21730\survey\21730-T001.dwg 7/19/2023 2:57 PM MABBAS

ARCHITECTURAL SITE PLAN

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.



N

0 10' 20' 40'

SCALE: 1"=20'

GENERAL NOTES

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

CLIENT:

bp

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		
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12		

SEAL:

10697 REGISTERED ARCHITECT
DANIEL B COALWIN
STATE OF WASHINGTON

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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL SITE PLAN

SHEET NO:

AS1.0

SPECIFICATIONS

TABLE OF CONTENTS

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.

B. 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.

D. Provide attachment and connection devices and methods necessary for securing work. Secure work true to line and level. Allow for expansion and building movement.

E. 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.

F. Recheck measurements and dimensions, before starting each installation.

G. 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.

I. 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 effects.

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

01300 – SUBMITTALS

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 installation in the Work.

B. 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.

C. Items 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.

D. Items noted "Submit to __X__ for verification of __Y__", 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.

F. 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:

1. Inspection procedures.
2. Requirements:
3. Testing firm, laboratory or agency.
4. Geotechnical (soils or foundation) engineer.
5. Coordination of tests and inspections.
6. Tests costs and reports.
7. Inspections, continuous and special.
8. Contractor furnished assistance.
9. 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 geotechnical engineer who performed the initial geotechnical report.

C. Disqualified 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 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.
3. Structural engineer (structural tests only) – 1 copy
4. 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 – GENERAL

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.

1.03 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

01600 – MATERIALS AND EQUIPMENT

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 best engineering and shop practices.
3. 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 or is specified.

1.02 MANUFACTURER'S INSTRUCTIONS

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.

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

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

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 legible.

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 packaging.

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 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

01620 – STORAGE AND PROTECTION

PART 1 – GENERAL

1.01 REQUIREMENTS

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

1.02 STORAGE

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.

1. Provide humidity control for sensitive products, as required by manufacturer's instructions.
2. Store unpacked products on shelves, in bins, or in neat piles, accessible for inspection.
3. 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.
6. Provide surface drainage to prevent flow or ponding of rainwater.
7. Prevent contamination with chemically injurious matter or liquid.
8. Arrange storage in a manner to provide easy access.
9. Materials not stored on jobsite shall be stored in a bonded warehouse.

1.03 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.

1. Required environmental conditions are maintained on continuing basis.
2. 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 Documents.

D. 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 basis.

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.

1. Control traffic to prevent damage to equipment and surfaces.
2. 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

END OF SECTION

01710 – CLEANING AND TEMPORARY SERVICES

PART 1 – GENERAL

1.01 REQUIREMENTS

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

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 work.

PART 2 – PRODUCTS

2.01 MATERIALS

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.
2. 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 finish.

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.

F. Clear all roof drains and overflow drains.

END OF SECTION

02010 – SUBSURFACE INVESTIGATION

PART 1 – GENERAL

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 SUMMARY

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

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 Contractor.

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:

1. "Dursban TC" (chlorpyrifos); 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.
2. Slabs-on-grade (interior)
3. 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:

1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
2. ACI 318, "Building Bode Requirements for Reinforced Concrete."
3. 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

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 leave no metal closer than 1-1/2 inches to the plane of the exposed concrete surface.
1. Provide ties that, when removed, will leave holes not larger than 1 inch in diameter in the concrete surface.

2.02 REINFORCING MATERIALS (Refer to Structural Drawings)

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

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

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

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

E. Supports for reinforcement: bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, class 1) or stainless steel (CRSI, class 2).

2.03 CONCRETE MATERIALS

A. Portland cement: ASTM C LS0, type I. Use one brand of cement throughout project unless otherwise acceptable to Architect and Structural Engineer.

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 exposed concrete.

1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
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 to Architect and Structural Engineer.

D. Water. Potable.

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 admixtures. Subject to compliance with requirements, provide one of the following:

1. Air-mix or Perma-air, Euclid Chemical Co.
2. Darex Aea or Daravair, W.R. Grace & Co.
3. MB-VR or Small-air, Master Builders, Inc.
4. Sealtight Aea, W.R. Meadows, Inc.
5. Sika AER, Sika Corp.

G. Water-reducing admixture: ASTM C 494, type A. Subject to compliance with requirements, provide one of the following:

1. Eucon WR-75, Euclid Chemical Co.
2. WRDA, W.R. Grace & co.
3. Pozzolith Normal or Polyheed, Master Builders, Inc.
4. Plastocrete 161, Sika Corp.

H. High-range water-reducing admixture: ASTM C 494, type F or type G. Subject to compliance with requirements, provide one of the following:

1. Eucon 37, Euclid Chemical co.
2. WRDA 19 or Daracem, W.R. Grace & co.
3. Rheobuild or Polyheed, Master Builders, Inc.
4. Sikament 300, Sika Corp.

I. Water-reducing, accelerating admixture: ASTM C 494, type E. Subject to compliance with requirements, provide one of the following:

1. Accelguard 80, Euclid Chemical Co.
2. Daraset, W.R. Grace & Co.
3. Pozzutec 20, Master Builders, Inc.

J. Water-reducing, retarding admixture: ASTM C 494, type D. Subject to compliance with requirements, provide one of the following:

1. Eucon Retarder 75, Euclid Chemical Co.
2. Daratard-17, W.R. Grace & Co.
3. Pozolith R, Master Builders, Inc.
4. Plastiment, Sika Corporation.

2.04 RELATED MATERIALS

A. Gravel sub base: washed 3/4" gravel.

B. Vapor barrier: provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows:

1. Polyethylene sheet not less than 6 mils thick.

C. Moisture-retaining curing cover: one of the following, complying with ASTM C 171.

1. Waterproof paper.
2. Polyethylene film.
3. Polyethylene-coated burlap.

D. Water-based membrane curing compound: ASTM C 309, type 1, class B, with a maximum volatile 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.

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.

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. 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) 432-4746.

G. Bonding agent: ASTM C-1059. Where concrete placement will be protected (interior) or delayed, use re-wettable type 1 bonding agent. Where concrete will be applied immediately after application of bonding agent, use non-re-wettable acrylic type ii.

1. Re-wettable type: provide polyvinyl acetate type; Hibond by Lambert Corp; Orlando, FL; (407) 841-2940 or (800)432-4746.
2. Non-re-wettable type: provide acrylic type; Acrylbond by Lambert Corp; Orlando, fl; (407) 841-2940 or (800) 432-4746.

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.

I. Sealer/Hardener; Liquid type penetrating sealer / hardeners of manufacturer noted on Drawings. Apply materials per manufacturer's directions.

2.05 PROPORTIONING AND DESIGNING MIXES

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 agency acceptable to Architect for preparing and reporting proposed mix designs.

1. Do not use the same testing agency for field quality control testing.
2. Limit use of fly ash to not exceed 25 percent of cement content by weight.

B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.

C. Design mixes to provide normal weight concrete with properties as follows: as specified in structural drawings.

D. Slump limits: proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps, slabs, and sloping surfaces: not more than 3 inches.
2. Reinforced foundation systems: not less than 3 inches and not more than 5 inches.
3. Concrete containing high-range water-reducing admixture (superplasticizer): not more than 8 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
6. Slumps for pumped concrete shall be taken at the discharge end of the hose.
7. Addition of water at the site to increase slump is prohibited.

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 submitted to and accepted by Architect before using in work.

2.06 ADMIXTURES

A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 Deg F (10 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 water-cement ratios below 0.50.

D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add 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.

E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

2.07 CONCRETE MIXING

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 larger than 1 cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd.

1. 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.

B. Ready-mixed concrete: comply with requirements of ASTM C 94, and as specified.

1. 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.

PART 3 – EXECUTION

3.01 GENERAL

A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with 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.

3.02 FORMS

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 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.
2. Provide class c tolerances for other concrete surfaces.

B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, 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 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 crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal

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 locations.

E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips 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 trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

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 alignment.

3.03 VAPOR RETARDER/BARRIER INSTALLATION

A. General: place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.

B. Lap joints 6 inches and seal with manufacturers recommended mastic or pressure-sensitive tape.

C. Seal all penetrations through vapor barrier.

D. Repair all punctures or tears prior to concrete placement.

3.04 PLACING REINFORCEMENT

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.

1. Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

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.

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 placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

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.

3.05 JOINTS

A. Construction joints: locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.

1. 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.
2. Place construction joints perpendicular to main reinforcement. Continue reinforcement across 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.

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 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 concrete until top 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
2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible 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).

3.06 INSTALLING EMBEDDED ITEMS

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.

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 strips using strike-off templates or compacting -type screeds.

3.07 PREPARING FORM SURFACES

A. General: coat contact surfaces of forms with an approved, form-coating compound before placing reinforcement.

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 manufacturer's instructions.

3.08 CONCRETE PLACEMENT

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.

B. General: comply with ACI 304, "guide for measuring, mixing, transporting, and placing concrete", and as specified.

1. 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 cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

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.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with 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 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 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 of construction joints, until completing placement of a panel or section.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around 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 smooth surface free of humps or hollows. Do not a disturb slab surfaces prior to beginning finishing operations.

1. Maintain reinforcing in proper position on chairs during concrete placement.

F. Cold-weather placement comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. 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.
2. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

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.

1. 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. 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.
3. Fog spray forms, reinforcing steel and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Architect.

3.09 FINISHING FORMED SURFACES

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 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.

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 surfaces unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

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 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, brooms, or rakes.

B. Trowel finish: apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tie, paint, or another thin film-finish coating system.

C. 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.

CLIENT:

bp

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
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SEAL:

10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: -	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL SPECIFICATIONS

SHEET NO:

A7.1

03300 – CAST-IN-PLACE CONCRETE, PART 3 – EXECUTION (CONTINUED)

1. 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(l) 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.

1. 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. Filling in: fill in holes and openings 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
1. Curing compound: apply on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
   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.
2. Moisture curing: one of the following methods:
   a. Use continuous water-fog spray.
   b. 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.
3. 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.

E. 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 applicable.

F. 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 Deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.

B. 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 members.

C. 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

A. Patching defective areas: repair and patch defective areas with cement mortar immediately after 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.
2. 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.

C. 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.

1. 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.
2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
3. 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 to Architect.
4. 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.

D. 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.

R. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. Masonry fill concrete: ASTM C-1019 in accordance with ACI 530.1 specifications for masonry structures.

S. 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 five are used.

T. 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.

U. 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.

V. 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.

Y. 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

<u>04200 – UNIT MASONRY</u>

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):

1. 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 sections.

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.

1. Each different cement product required for mortar and grout including name of manufacturer, brand, type, and weight slips at time of delivery.
2. Each material and grade indicated for reinforcing bars.
3. Each type and size of joint reinforcement.
4. 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:

1. Mortar complying with property requirements of ASTM C 270.
2. Grout mixes. Include description of type and proportions of grout ingredients. See concrete specifications for masonry grout.
3. Masonry units.

G. 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.

I. 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 qualifications: to qualify 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.
2. 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 grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.
2. Protect sills, ledges, and projections from mortar droppings.
3. 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 following:

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 required.

1. Provide special shapes where indicated and as follows:
   a. For lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
   b. Bullnose units for outside corners unless otherwise indicated.
   c. Square-edged units for outside corners, except where indicated as bullnose.
2. 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.
4. 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 PSI.

2.03 MORTAR AND GROUT MATERIALS

A. Portland cement: ASTM C 150, type I or II, except type III 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 formulations.
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.

D. Hydrated lime: ASTM C 207, type S.

E. Aggregate for mortar: ASTM C 144, except for joints less than 1/4 inch use aggregate graded with 100 percent passing the no. 16 sieve.

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

F. Aggregate for grout: ASTM C 404.

G. Water: clean and potable.

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

2.04 REINFORCING STEEL (Refer to Structural Drawings)

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

B. Steel reinforcing bars: material and grade as follows:
1. Billet steel complying with ASTM A 615, grade 60.

C. Deformed reinforcing wire: ASTM A 496.

D. Plain welded wire fabric: ASTM A 185.

2.05 JOINT REINFORCEMENT

A. General: provide joint reinforcement complying with requirements of referenced unit masonry standard and this article, formed from the following:

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:

1. Wire diameter for side rods: 0.1483 inch (9 gauge).
2. Wire diameter for cross rods: 0.1483 inch (9 gauge).
3. For single-with masonry provide type as follows with single pair of side rods:
   a. Ladder design with perpendicular cross rods spaced not more than 16 inches o.c.
   b. 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 following:

1. AA Wire Products Co.
2. Dur-o-wal, Inc.
3. Heckman Building Products, Inc
4. Hohmann & Barnard, Inc.
5. Masonry Reinforcing Corp. of America.
6. National Wire Products Industries.
7. 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:

1. AA Wire Products Co.
2. Dur-o-wal, Inc.
3. Heckman Building Products, Inc.
4. Hohmann & Barnard, Inc.
5. Masonry Reinforcing Corp. of America.
6. National Wire Products Industries.
7. Southern Construction Products, Inc.

2.07 POST-INSTALLED ANCHORS

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.

1. Type: expansion anchors (sleeve anchors)
2. 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 installations.
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.
2. 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
   b. "Sure Klean No. 101 Lime Solvent," Prosoco., Inc.
   c. "Sure Klean Vana Trol," Prosoco, Inc.

2.09 MORTAR AND GROUT MIXES

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

1. 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

3.01 EXAMINATION

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 installation.

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

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.
1. One-half running bond with vertical joint in each course centered on units in courses above and below.

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 l/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 bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.05 MORTAR BEDDING AND JOINTING

A. Lay hollow concrete masonry units as follows:

1. With full mortar coverage on horizontal and vertical face shells.
2. 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 gout.
3. 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 "l" 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.
2. Install preformed control joint gaskets designed to fit standard sash block.
3. 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.

1. Mortar properties will be tested per property specification of ASTM C 270.
2. Mortar composition and properties will be evaluated per ASTM C 780.
3. 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 chisels.
2. Test cleaning methods on sample wall panel; leave 1/2 panel un-cleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. 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.
4. 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:
   a. 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 stone and masonry veneers, which are adhered to the exterior of the structure, and serve as the exterior finish.

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 mortar.
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.

2.02 MATERIALS

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

B. Setting materials:

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

PART 3 – EXECUTION

3.01 EXAMINATION AND PREPARATIONS

A. Examine site conditions:

1. Verify that all substrates are clean and securely installed.
2. Verify that exterior wall receptacles, junction boxes, and projecting structural items have been installed.
3. Do not commence work until defective conditions have been corrected.

3.02 INSTALLATION

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

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.

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

3.03 CLEANING

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

B. Do not use acid cleaners.

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

END OF SECTION

<u>05500 – METAL FABRICATIONS</u>

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes provisions and procedures governing the design, engineering, fabrication, furnishing and installation of metal fabrications.

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

1. Rough hardware.
2. Loose bearing and leveling plates.
3. Applications where framing and supports are not specified in other sections.
4. Miscellaneous steel trim.
5. Shelf and relieving angles.

1.02 SYSTEM PERFORMANCE REQUIREMENTS

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.

1.03 SUBMITTALS

A. Product data for products used in miscellaneous metal fabrications, including paint products and grout.

B. Shop drawings 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 sections.

C. 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 qualified professional engineer who was responsible for their preparation.

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 under "Quality Assurance" article.

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.

1.04 QUALITY ASSURANCE

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 delay in the work.

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 that indicated for this project.

1.05 PROJECT CONDITIONS

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 work.

1. 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 dimensions. Allow for trimming and fitting.

PART 2 – PRODUCTS

2.01 FERROUS METALS

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 standards for stretcher-leveled sheet.

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

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.

E. Galvanized steel sheet: quality as follows:

1. 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 as supported rails, unless otherwise indicated.

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 ASTM A 153.

H. Welding rods and bare electrodes: select in accordance with AWS specifications for the metal alloy to be welded.

2.02 GROUT AND ANCHORING CEMENT

A. Non-shrink nonmetallic grout: premixed, factory-packaged, non-staining, non-corrosive, nongaseous grout 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 nonmetallic grouts:

1. "Euco NS Grout"; Euclid Chemical Co.
2. "Masterflow 713"; Master Builders.
3. "Five Star Grout"; Five Star Products, Inc.
4. "Vibropruf #11"; Lambert Corp.

2.03 FASTENERS

A. Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

B. Bolts and nuts: regular hexagon head type, ASTM A 307, Grade A.

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

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

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

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

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

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.

2.04 PAINT

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 TI-P-645.

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

2.05 FABRICATION, GENERAL

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 edges.

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 work.

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 resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. 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 greatest 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 installation.

K. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.

L. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

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

B. 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.
1. Except as otherwise indicated, space anchors 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:

1. 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 and levels.

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 galvanized 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
2. Obtain fusion without undercut or overlap.
3. 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 grout, 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:

1. Framing with dimension lumber.
2. Wood grounds, nailers, and blocking.
3. Wood furring.
4. 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:
1. 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.

C. 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.

1. Engineered wood products.
2. Board sheathing.
3. Air infiltration barriers.
4. Metal framing anchors.
5. Power driven fasteners.

1.04 QUALITY ASSURANCE

CLIENT:

bp

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		
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SEAL:

10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: -	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL SPECIFICATIONS

SHEET NO:

A7.2

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 qualifications: to qualify 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:

1. WCLIB _ West Coast Lumber Inspection Bureau.
2. 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 surfacing, 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.

E. 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" grade 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 below.
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 LUMBER

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 treatment.

D. Grade: "standard" grade light–framing–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 grain of veneers parallel with their lengths and complying with the following requirements:

1. 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.
2. Allowable design stresses: as follows, determined from empirical data or by rational engineering analysis, and demonstrated by comprehensive testing performed by a qualified independent testing laboratory:
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 grain (ft): 1850 PSI
6. Compression parallel to grain (fc): 2700 PSI
7. Compression perpendicular to grain: 400 PSI and 500 PSI perpendicular and parallel to glue 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.

C. 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
   b. 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.

B. 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.

1. 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.
2. 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.
3. 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 grade 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 polyolefin sheet, 0.005 inch thick, with a moisture vapor transmission rate of 70 grams/sq. Meter/24 hours per ASTM E 96, procedure and a flame spread rating not exceeding 25 per ASTM E 84.

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 following:

1. "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 project.
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 galvanized steel framing anchors and bolts for rough carpentry exposed to weather, in ground contact, or in area of high relative humidity, and where indicated.

C. Acceptable manufacturer: Simpson Strong–tie Company.

2.10 MISCELLANEOUS MATERIALS

A. Adhesives for field gluing 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 quality 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 fitted.

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 of 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 1–1/2 inches 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 indicated.

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:

1. National evaluation report no. NER–272 for pneumatic or mechanical driven staples, P–nails, and allied fasteners.
2. Published requirements of manufacturer of metal framing anchors.
3. "Recommended nailing schedule" of referenced framing standard and with N.F.P.A. "National Design Specifications for Wood Construction."
4. Table 2304.10.1 – Fastening Schedule of the International Building Code.
6. Table 2306.2 (2) – Allowable Shear for Wood Structural Panel Blocked Diaphragms of the International Building Code.
7. Table 2306.3 (1) – Allowable Shear for Wood Structural Panel Shear Walls of the International Building Code.

E. Do not splice structural members between supports.

F. Firestop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling line of the top story. Where firestops are not automatically provided by the framing system used, use closely fitted wood blocks of nominal 2–inch–thick lumber of the same width as framing members.

3.04 STUD FRAMING

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 or anchor plates to supporting construction.
1. For exterior walls and load–bearing structural walls install 2–inch by 6–inch wood studs spaced 16 inches o.c.
2. For interior partitions and walls install 2–inch by 4–inch or 2–inch by 6–inch wood studs spaced 16 inches o.c., as indicated.

B. Construct corners and intersections with not less than 3 studs. Install miscellaneous blocking and 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 width of studs. Set headers on edge and support on jamb studs.

1. For non–bearing partitions, install double–jamb studs and headers not less than 4 inches deep for openings 3 feet and less in width, and not less than 6 inches deep for wider openings.
2. 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 Framing."

3.05 AIR INFILTRATION BARRIER

A. Cover sheathing with air infiltration barrier as follows:

1. Apply plastic sheet to comply with manufacturer's printed directions.
2. Apply air infiltration barrier to cover upstanding flashing with 4–inch overlap.

END OF SECTION

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

PART 1 – GENERAL

1.01 REQUIREMENTS

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 truss–to–truss connections, and truss–to–framing connections.

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:

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 signed and stamped by a professional engineer legally authorized to practice in jurisdiction where project is located.
2. 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.
3. Product certificate, signed by officer of fabricating firm, certifying that metal–plate–connected wood trusses supplied for project comply with specified requirements.
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 requirements and building code in effect for project.

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

E. Fabricator's qualifications: a firm that participates in a recognized quality assurance program that involves inspection by SPIB; Timber Products Inspection, Inc. or other independent inspection and testing agency acceptable to Architect and authorities having jurisdiction.

F. Handle and store trusses with care to avoid damage from bending, overturning or other cause.

PART 2 – PRODUCTS

2.01 MATERIALS

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.

1. Nails, wire, brads, and staples: FS FF–N–105.
2. Power driven fasteners: national evaluation report NER–272.
3. Wood screws: ANSI B18.6.1.
4. Lag bolts: ANSI B18.2.1.
5. 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:

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 project.
2. 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.
3. 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.

2.02 FABRICATION

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 jigs 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 design 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 members.

END OF SECTION

<u>07210 – BUILDING INSULATION</u>

PART 1 – GENERAL

1.01 SUMMARY

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

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

B. Roof insulation is specified in Section 07531.

C. Interior Acoustical Insulation is specified in Section 09200.

1.02 DEFINITIONS

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 BTU to flow through one square foot per hour at mean temperatures indicated.

1.03 SUBMITTALS

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

1.04 QUALITY ASSURANCE

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.

1. Surface burning characteristic. ASTM E 84.
2. Fire resistance ratings: ASTM E 119.
3. Combustion characteristics: ASTM E 136.

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

2.01 INSULATING MATERIALS, GENERAL

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, widths, and lengths.

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–lbs. 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.

2.02 PRODUCTS

A. Extruded Polystyrene board insulation: subject to compliance with requirements, provide insulation products of the following manufactures:

1. Dow Corporation
2. Atlas Energy Corporation
3. Owens/Corning

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

1. Certain Teed Corp.
2. Owens/Corning Fiberglass Corp.

2.03 ACCESSORIES

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

2.04 VAPOR RETARDERS

A. Polyethylene vapor retarder: ASTM D 4397, 6.0 mils thick, with a maximum permeance rating of 0.13 perms.

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 EXAMINATION

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 tape 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 framing 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

<u>07410 – PREFORMED METAL ROOF PANELS</u>

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 Metal
C. 07901 Sealants (Joint Sealers)

1.03 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.

B. Samples:

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 fabrication.

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:

1. Panel profile shall be 24 gauge Versa–Span 18" flat pan.
2. 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 where shown on the drawings and fabricated from metal or synthetic rubber.

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 alignment 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 aligned 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 line.

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.

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

END OF SECTION

<u>07420 – ALUMINUM COMPOSITE METAL PANEL SYSTEM</u>

PART 1 GENERAL

7.1. General

A. This section includes Aluminum faced composite panels with mounting system. Panel mounting system including anchorages, shims, furring, fasteners, gaskets and sealants, related flashing adapters, and masking (as required) for a complete watertight installation.

1.02 References and standards

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

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

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

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

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

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

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

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

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

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 plastics in a horizontal position.

L. ASTM D 822: Practice for operating light and water exposure apparatus (carbon–arc type) for testing paint, varnish, lacquer and related products.

M. ASTM E 84: Surface burning characteristics of building materials.

1.03 Submittals

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

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.

1.04 Product delivery, handling and storage

A. Panel finish and edges shall be protected in transit by crates and interleafed coated paper. Panels 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.

PART 2 PRODUCTS

7.1. Composite panels

A. Panels shall be Alucobond material manufactured by Federal Heath Visual Communications, 1840 Oakdale Avenue, Racine, WI (262–636–0070).

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

C. Product Performance

1. Bond Integrity
   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
2. Fire Performance
   ASTM E 84 Flame Spread Index must be less than 25, Smoke Developed Index must be less than 450.
   ASTM D 1929 A self ignition temperature of 650oF or greater
   ASTM D 635 Requires a CC1 classification

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 AAMA 2605

1. Color:
   – Standard color as selected by the architect.
   – Custom color to be match by the panel supplier.
2. Coating thickness:
   – Colors: 1.0 mil (+/–0.2 mil).
   – Clear: 0.50 mil (+/–0.05 mil).
3. Hardness: ASTM D 3363; HB minimum using Eagle Turquoise Pencil
4. Impact:
   – 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.
5. Adhesion:
   – Test method: ASTM D 3359
   – Coating shall not pick off when subjected to an 11"x11"x 1/16" grid and taped with #600 scotch tape.
6. Humidity resistance:
   – Test method: ASTM D 2247
   – No formation of blisters when subject to condensing water fog at 100% relative humidity and 100 degree Fahrenheit for 4000 hours.
7. Salt spray resistance:
   – 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.
8. Outdoor Weather exposure:
   – 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 2244.
   – Maximum chalk rating of 8 in accordance with ASTM D 4214.
   – No checking, crazing, adhesion loss.
9. Chemical resistance:
   – 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 unaided eye.
   – 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 2244.

2.03 Panel Fabrication

A. Composition: Two sheets of aluminum sandwiching a solid core of extruded thermoplastic material formed in a continuous process with no glues 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 shall not be acceptable.

B. Aluminum face sheets: Thickness: 0.50mm (0.0197") (nominal), Alloy: AA300 series (painted material) AA5000 series (anodized material).

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

D. Tolerances

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 possible.
3. Panel lines, breaks, and angles 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 Canning)

E. System characteristics

1. 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 appearance.
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 aluminum windows.
4. Fabricate panel system to dimension, size, and profile indicated on the drawings based on a design temperature of 70°F.
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 from damage.

F. System type

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 noted on drawings.

G. System performance: Composite panels shall be capable of withstanding building movements and weather exposures based on the following test standards required by the Architect and/or the local building code.

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 following minimum standards:

   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 obtain the following results.

   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 the full span.

   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 shall not exceed 1/16.

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/ft² 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.

2.04 Accessories

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 corrected.

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 detrimental 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

<u>07542 – TPO MEMBRANE ROOFING</u>

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:

1. Rigid insulation
2. Tapered insulation
3. Insulation protection board
4. Flashing materials
5. Protective walkway pads
6. 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 regulatory requirements shall be as indicated on drawings.

C. General:

1. 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.

CLIENT:

bp

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		
2		
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SEAL:

10697
REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL SPECIFICATIONS

SHEET NO:

A7.3

07542 – TPO MEMBRANE ROOFING, PART 1 – GENERAL (CONTINUED)

C. Manufacturer Certificates:

1. 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.
2. 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 Project.
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.

D. 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.

F. Manufacturer's Reports:

1. Manufacturer's pre–installation notice.
2. Roof manufacturer's review of contract documents and written acceptance of application for warranty.
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 qualified 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 password.

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 ground 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

A. Contractor:

1. 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.
2. 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 Owner:
   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/SEI 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.
2. 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.

L. Sealants
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 Layer: 1 inch.
5. Tapered insulation where indicated on roof plan. Minimum thickness 1/2 inch, factory sloped at 2 times the roof slope.

2.06 PROTECTION BOARD

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

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 manufacturer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine roof areas for conditions that would prevent the proper application of new roofing and verify the following.
1. Decking, curbing, renovation, and wall substrate construction has been completed.
2. Deck and substrates are clean, smooth and free from depressions, waves, projections, defects and damage.
3. Wood nailers are properly installed to receive roofing system.
4. Surfaces in contact with any single ply material are free from bitumen, grease, oil or other foreign material.
5. Surfaces in contact with roofing membrane are free from sharp edges, fins or projections.
6. Materials are completely dry and free from ice and snow, including substrate, deck, insulation and roofing membrane as applicable. Confirm dryness by moisture meter.
7. Roof equipment, openings, curbs, pipes, sleeves, ducts, vents and blocking members are solidly and properly set.
8. Work has been completed where possible for other trades that require work or traffic on the roofing area.

B. Correct or complete any conditions requiring correction or completion prior to the installation of the roofing system. Notify the Owner in writing of any unacceptable conditions.

C. Verify the location of interior ducts, electrical lines, piping, conduit, and/or similar obstructions. Perform work to avoid contact with the above–mentioned items.

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

3.02 PREPARATION

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

3.03 INSULATION INSTALLATION

A. Primary Insulating Layer
1. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
2. Fully adhere the insulation to the substrate in accordance with roofing system manufacturer's criteria for wind uplift in Project location to meet roofing system manufacturer's specified warranty.
3. Install roof insulation directly over the substrate except where otherwise indicated.
4. Stagger the end joints of the primary insulating layer; stagger joints top to bottom on multiple layer applications.
5. Butt joints tight allowing no more than 1/4–inch wide gap between units. Fill any gaps larger than 1/4–inch.
6. Do not rupture or deform the surface, facer, or structure of the insulation by handling.
7. Do not use warped or bent insulation boards.
8. Cut and fit insulation neatly at roof perimeter and roof penetrations to reduce openings to a minimum. Fill openings 1/4–inch or larger with insulation.
9. Prior to application of membrane, secure loose areas so that no board movement or warpage exists.
10. Prior to application of membrane, remove foreign matter, gravel, etc. from the substrate. Gravel or debris between the substrate and the roof membrane is not acceptable.
11. Install temporary water cut off at completion of each day's work and remove upon resumption of work.

B. Tapered Insulation

1. Install tapered insulation as required.
2. Install additional insulation as outlined above.
3. Install tapered crickets along the high side of all penetrations greater than 6 feet in width. Slope a minimum of 2 times the roof slope. Crickets are not required at skylight curbs.
4. Taper insulation a minimum of 24–inches in each direction around scuppers and drains to provide for proper drainage.

3.04 PROTECTION BOARD INSTALLATION
A. Install protection board according to manufacturer's installation instructions.

3.05 MEMBRANE INSTALLATION, GENERAL

A. Roofing Membrane:
1. Install roofing membrane in accordance with the manufacturer's installation instructions. Cut sheets to maximum size possible in order to minimize seams.
2. Position membrane over substrate without stretching membrane. Allow membrane to relax one–half hour before bonding and flashing.
3. Begin installation of roofing system at the highest point of the Project area and work to the lowest point. Prevent moisture migration into the roof system. Complete flashings, terminations, and seals in area on a daily basis.
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 roofing installation.
5. Secure perimeter in accordance with manufacturer's recommended procedures for building height and location to meet roofing system manufacturer's specified warranty. Do not use induction welding plates for edge securement.

B. Roof system manufacturer's representative shall be on site at the start of project to supervise operations and to inspect and approve seams.

C. Ensure that the installed roofing will not be marked, spotted, stained, or damaged. Power washing of the membrane may be required if surface staining is deemed unacceptable to the Owner.

3.06 ADHERED MEMBRANE ROOFING INSTALLATION

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 roofing.

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

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

3.07 MEMBRANE SPLICING

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

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 welders.
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.

3.08 FLASHING

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 sleeves.
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 itself.
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.
6. 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 Drawings.
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.
3. 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 flashings. 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

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 field membrane.

3.10 FIELD QUALITY CONTROL

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).

3.11 CLEANING
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.

END OF SECTION

<u>07600 – FLASHING AND SHEET METAL</u>

PART 1 – GENERAL

1.01 SUMMARY

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:

1. Metal counter flashing and base flashing (if any).
2. Metal wall flashing and expansion joints.
3. 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 and finishes.

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, nonmigrating 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 sealant (concealed within joints).

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:

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 reglets 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 Division 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 system.

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
2. 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 of 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 gas; and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Either open cell polyurethane 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 and field 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 EXAMINATION

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.

3.02 PREPARATION

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

B. Joint priming: prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer s recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.

C. Masking tape: use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALERS

A. Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

1. Elastomeric sealant standard: ASTM C 962.

B. Installation of sealant backings: install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.

C. Installation of sealants: install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configurations and providing uniform, cross sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

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

D. Tooling of nonsag sealants: immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
1. Provide concave joint configuration per figure 6a in ASTM C 962, unless otherwise indicated.

3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

END OF SECTION

<u>08111 – STANDARD STEEL DOORS AND FRAMES</u>

PART 1 GENERAL

1.01 SUMMARY

A. This section includes provisions and procedures governing the furnishing and installation of steel doors, frames, and integral accessories.

B. Doors: seamless, hollow or composite construction standard steel doors.

C. Frames: pressed steel frames and interior glazed panels of welded unit type.

D. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (insulated) applications.

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

1.02 SUBMITTALS

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.

1.03 QUALITY ASSURANCE

A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI–100 and as herein specified.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Available manufacturers: subject to compliance with requirements, manufacturers offering standard steel doors and frames which may be incorporated in the work include; but are not limited to, the following:

1. Amweld Building Products, Inc.
2. Ceco Corp.
3. Steelcraft Manufacturing Co.

2.02 MATERIALS

A. Cold rolled steel sheets: commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.

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 A60 or G60 coating designation, mill phosphatized.

C. Supports and anchors: fabricate of not less than 18–gauge sheet steel; galvanized where used with galvanized frames.

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.

E. Shop applied primer paint: rust–inhibitive enamel or paint, either air drying or baking, suitable as a 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.

2.03 DOORS

A. Provide metal doors of SDI grades and models specified below or as indicated on Drawings or schedules:

1. Exterior doors: ANSI/SDI 100, Grade III, extra heavy duty, model 4, minimum 16 gauge galvanized steel faces.

B. Provide metal frames for doors and other openings, of types and styles as shown on Drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 18 gauge cold rolled steel.

1. Fabricate frames with mitered, coped, or welded corners.
2. Form exterior frames from 16 gauge galvanized steel.

C. Plaster guards: provide minimum 26 gauge steel plaster guards or mortar boxes at back of hardware cutouts.

2.05 FABRICATION

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 cannot be permanently factory–assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI –100 requirements.

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 minimum 16 gauge inverted steel channels.

D. Exposed fasteners: unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.

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 hardware.

G. 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 the Door and Hardware Institute.

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.

I. 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.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

B. Placing frames: comply with provisions of SDI–105 "Recommended Erection Instructions for Steel Frames," unless otherwise indicated. Install at least 3 wall anchors per jamb at hinge and strike levels. Attach wall anchors to studs with screws.

C. Door installation: fit hollow metal doors accurately in frames, within clearances specified in ANSI/SD –100.

END OF SECTION

<u>08410 – ALUMINUM ENTRANCES AND STOREFRONT</u>

PART 1 – GENERAL

1.01 Summary

A. Section Includes: Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.

B. Related Sections:

1. Section 08800 – Glazing

1.02 System Description

A. Storefront System Performance Requirements:

1. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft² at a static air pressure differential of 6.24 psf.
2. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 8 psf as defined in AAMA 501.
3. Uniform Load: A static air design load of 20 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.

1.04 Submittals

A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 – Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract." Quality Assurance/Control Submittals:

1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

1.05 Warranty

A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.

B. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for storefront system as follows:

1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by storefront system manufacturer.

1.06 Quality Assurance

A. Qualifications:

1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.

B. Pre–Installation Meetings: Conduct pre–installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.07 Delivery, Storage, and Handling

A. Ordering: Comply with manufacturer's ordering instructions and lead–time requirements to avoid construction delays.

B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

PART 2 – PRODUCTS

2.01 Manufacturers (Acceptable Manufacturers/Products)

A. Acceptable Manufacturers:

1. Kawneer Company, Inc.
2. or approved equal

2.02 Materials

A. Aluminum (Storefront and Components):

1. Material Standard: Extruded Aluminum, ASTM B 221; 6063–T5 alloy and temper.
2. Member Wall Thickness: Each framing member shall provide structural strength to meet specified performance requirements.
3. Tolerances: Reference to tolerances for wall thickness and other cross–sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.03 Accessories

A. Fasteners: Where exposed, shall be Stainless Steel.

B. Gaskets: Glazing gaskets shall be extruded EPDM rubber.

C. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

2.04 Related Materials

A. Sealants: Refer to Joint Treatment (Sealants) Section.

B. Glass: Refer to Glass and Glazing Section.

2.05 Fabrication

A. General:

1. Fabricate components per manufacturer's installation instructions and with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
2. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
3. Prepare components to receive anchor devices. Fabricate anchors.
4. Arrange fasteners and attachments to conceal from view.

2.06 Finishes

A. Shop Finishing:

1. Architectural Class II Clear Anodic Coating (Standard).

2.07 Source Quality Control

A. Source Quality: Provide aluminum storefronts specified herein from a single source.

1. Building Enclosure System: When aluminum storefronts are part of a building enclosure system, including entrances, entrance hardware, windows, curtain wall system and related products, provide building enclosure system products from a single source manufacturer.

PART 3 – EXECUTION

3.01 Examination

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.

CLIENT:

bp

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
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SEAL:

10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL SPECIFICATIONS

SHEET NO:

A7.4

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 or gaskets, to provide weathertight construction. Coordinate installation with wall flashings and other components of construction.
   a. Refer to Division 7 Joint Treatments (Sealants) for installation requirements.

B. Related Products Installation Requirements:

1. Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sealants) Section.
2. Glass: Refer to Division 8 Glass And Glazing Section.

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

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.

1. 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/ft², 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 debris.

END OF SECTION

<u>08710 – FINISH HARDWARE</u>

PART 1 – GENERAL

1.01 SUMMARY

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. Approval of schedule will not relieve Contractor of the responsibilities for furnishing all necessary hardware, and correct quantities.

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 similar 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 factory–prepared for the installation of hardware. Coordinate with the shop drawings of other work to confirm 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.
2. 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.
3. 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 90 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.

1. Provide flat lip strikes for locks with 3–piece, anti–friction latch bolts as recommended by manufacturer.

C. Lock throw provide l/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 for on the drawings.

2.09 EXIT DEVICES

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

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

B. Door stops shall be furnished for all doors to prevent damage to doors or hardware from striking adjacent walls or fixtures.

2.12 HARDWARE FINISHES

A. Provide the finishes 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

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

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 sections. Do not install surface mounted items until finishes have been completed on the substrates involved.

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.

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.

1. 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 equipment.

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

1. Section 08410 – Aluminum entrances and storefronts
2. Section 08710 – Door hardware
3. Division 1600 – Electrical
4. Section 08800 – Glazing
5. Section 07910 – Joint Sealants

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 and Systems.

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.

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.

1.04 SUBMITTALS

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

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 manufacturer's standard data.

1.05 OPERATION AND MAINTENANCE DATA

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

1.06 QUALITY ASSURANCE

A. Local certified Besam distributor to install operator in accordance with current ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian Doors and local applicable codes.

1.07 QUALIFICATIONS

A. Company specializing in manufacturing the products specified in this section shall have minimum ten years' experience and be a member of the American Association of Automatic Door Manufacturers (AAADM). Prior to placing door(s) in operation, an AAADM technician should inspect the doors for compliance with current ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian Doors.

B. Manufacturer to provide FACTORY owned central dispatch system for warranty service throughout North America. 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, outside contractors or answering services will not be accepted.

1.08 WARRANTY

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 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 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 Besam's warranty certificate.

PART 2 PRODUCTS

2.01 MANUFACTURER

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 Distributor.

2.02 EQUIPMENT

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

1. Aluminum frames, with sidelites and active door leafs.
2. Bi–parting door operator with microprocessor electronic controls.
3. Operator housing, door carriers.

2.03 AUTOMATIC SLIDING DOOR PACKAGE

A. Operator

1. 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:

1. Aluminum 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).
2. Vertical jambs are 1 3/4" (44mm) x 4 1/2" (114mm) extruded aluminum. The header is 8 1/4"W (206mm) x 7"H (178mm) and incorporates a hinge point which locks cover in place or allows access for adjustments. Door 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.

C. Operation and Safety:

1. Automatic sliding doors shall be powered by means of an electric motor and mechanical gear assembly transmitted to the active leaf(s) by a fiberglass 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 microprocessor 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.
2. 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.
3. 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 egress. 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 secondary 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:

1. 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.

B. Motion Sensor:

1. 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:

1. 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 door closing cycle.
2. 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 Operated Pedestrian Doors for detection field sizes and function. Functions are de–activated through the Besam 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 to remote (50 feet max.) activation devices (if required).

2.06 FINISHES

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

PART 3 EXECUTION

3.01 EXAMINATION

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.

END OF SECTION

<u>08800 – GLAZING</u>

PART 1 – GENERAL

1.01 SUMMARY

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:

1. Window units.
2. Vision lites.
3. 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:
1. 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.

1.03 SUBMITTALS

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

1.04 QUALITY ASSURANCE

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."
2. 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 specified.

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), class as indicated.

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), quality Q3 (glazing select), performance characteristics for 6.0–mm t hick (0.23–inch thick) glass matching those indicated for annealed primary float glass; kind as indicated.
C. Manufacturers: subject to compliance with requirements, provide heat–treated glass by one of the following companies.

1. AFG Industries, Inc.
2. Cardinal IG.
3. Falconer Glass Industries.
4. Guardian Industries Corp.
5. PPG Industries, Inc
6. Tempglass.

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.

1. 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.

2.05 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 installation.

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 glazing sealant standard: ASTM C 920.

2.06 GLAZING TAPES

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

1. Back–bedding mastic glazing tape without spacer rod:
   a. PTI 303 glazing tape (without shim), Protective Treatments, Inc.
   b. Tremco 440 Tape, Tremco Inc
2. 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.

1. 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 manufacturers 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).

F. 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

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 publications.

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

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 sealant–substrate testing.

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 bead.

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)

END OF SECTION

<u>09200 – GYPSUM DRYWALL</u>

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Interior walls of wood studs or metal studs and gypsum 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.

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

PART 2 – PRODUCTS

2.01 GYPSUM BOARD

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

B. Acceptable manufacturers:

1. U.S. Gypsum
2. National Gypsum
3. Georgia Pacific

C. Interior gypsum board:

1. Standard gypsum board: square cut ends, tapered edges; maximum permissible lengths; thickness as indicated on drawings.
2. Fire rated gypsum board: USG's Firecode "C" or Gold Bond's "Fire Shield", maximum permissible lengths; tapered edges, type "X" thickness as indicated on drawings.
3. Moisture–resistant gypsum board: chemically treated multi–layered face and back paper and water–resistant gypsum core; maximum permissible lengths; thickness as indicated on drawings.
4. Tile backer board: maximum permissible lengths, thickness and indicated on the drawings. Georgia–Pacific "DensShield" for 1/2" thickness and Georgia–Pacific "DensShield" "firestop" type "X" for 5/8" thickness.

2.02 GYPSUM BOARD ACCESSORIES

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

B. Screws: Self–drilling, self–tapping, type "S". Sizes are recommended by gypsum board manufacturer for wall and ceiling applications.
C. For interior work:

1. Corner beads: Galvanized steel with paper tape wings, 1–3/4" wide.
2. Edge trim: Galvanized metal.
3. Reinforcing tape, joint compound, adhesive, water, fasteners: in accordance with gypsum association GA–216.

PART 3 – EXECUTION

3.01 INSTALLATION OF FRAMING FOR GYPSUM BOARD CEILINGS

A. Coordinate locations of hangers with other work.

B. Install ceiling furring independent of walls, columns, and above ceiling work.

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.

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.

E. Reinforce openings in ceiling suspension system, which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 24" past each end of openings.

F. Laterally brace entire suspension system where required.

3.02 INSTALLATION OF INTERIOR GYPSUM BOARD

A. Install gypsum board in accordance with recommendations of gypsum association GA–216.

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.

C. For fire rated walls:
1. Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.
2. For double layer applications, erect first layer vertically, with edges and ends occurring over firm bearings. Place second layer perpendicular to first layer.
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.

D. Treat cut edges and holes in moisture resistant gypsum board with sealant.

E. Corner beads: Place at outside corners. Use longest practical lengths. Place edge trim where gypsum board abuts dissimilar materials.

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.

END OF SECTION

<u>09220 – PORTLAND CEMENT PLASTER (STUCCO)</u>

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Metal furring and lathing.

B. Portland cement plaster system (stucco)

C. Smooth and special rendered surface finish.

1.02 RELATED SECTIONS

A. Unit Masonry: Section 04200

B. Rough Carpentry: Section 06100

C. Joint Sealants: Section 07901

D. Gypsum Drywall: Section 09200

E. Tile: Section 09300

1.03 REFERENCES

A. ASTM C150 – portland cement.

B. ASTM C206 – finishing hydrated lime.

C. ASTM C631 – bonding compounds for interior plastering.

D. ASTM C897 – aggregate for job–mixed portland cement based plasters.

E. PCA (Portland Cement Association) – plaster (stucco) manual.

1.04 SYSTEM DESCRIPTION

A. Fabricate vertical elements to limit finish surface to 1/180 deflection under lateral point load of 100 lbs.

B. Fabricate horizontal elements to limit finish surface to 1/240 deflection under superimposed dead load and wind uplift loads.

1.05 SUBMITTALS

A. Submit under provisions of Section 01300 Submittals.

B. Product data: provide data on plaster materials, characteristics and limitations of products specified.

C. Samples: submit two samples, 12 x 12 inch in size illustrating finish color and texture.

1.06 QUALITY ASSURANCE

1. Perform work in accordance with PCA Plaster (stucco) Manual.

1.07 QUALIFICATIONS

A. Applicator: company specializing in performing the work of this section with minimum three years' experience and/or approved by manufacturer.

1.08 MOCKUP

A. Provide mockup of plaster system with accessories.

B. Construct mockup, 4 feet long by 4 feet wide, illustrating surface finish and color.

C. Locate where directed.

D. Mockup may remain as part of the work.

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 below 40 degrees F within 48 hours after application, nor more than 80 degrees F.

B. Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until cured.

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. The drawings were prepared and this specification written on the basis of using the products of United States Gypsum Company, Chicago, Illinois. Such is intended to establish minimum quality standards, not to limit competitive bidding. Products with equal or superior characteristics, by other manufacturers, are acceptable under conditions of the specifications and approval by the architect.

2.02 PLASTER BASE MATERIALS

A. Cement: ASTM C150, Type 1 Portland cement.

B. Lime: special finishing hydrated lime, ASTM C–206–68, Type S.

C. Aggregate: natural or manufactured sand, ASTM–C–144 graded in accordance with ANSI spec. A42–2 for stucco.

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

E. Bonding agent: ASTM C631; type recommended by manufacturer for bonding plaster to concrete masonry surfaces.

2.03 PLASTER FINISH MATERIALS

A. Cement: as specified for plaster base coat, white color.

B. Lime: as specified for plaster base coat.

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

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

2.04 FURRING AND LATHING

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

B. Metal lath at soffits ASTM C847; flat diamond non–furred and non–backed mesh, galvanized, 3.4 lb/yd.
C. Underlayment: asphalt saturated no. 30 felt, non–perforated.

D. Casing bead formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with square edges.

E. Corner bead formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with bullnosed edge.

F. Base screed formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with beveled edge.

G. Corner mesh formed zinc minimum 26 gage thick; expanded flanges shaped to permit complete embedding in plaster; minimum 2 inches wide; galvanized finish.

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.

2.05 CEMENT PLASTER MIXES

A. Proportion and mix cement plaster in accordance with PCA Plaster (stucco) Manual and ANSI A42–2–1971.

B. Finish coat: premix in accordance with manufacturer's instructions.

C. Mix only as much plaster as can be used prior to initial set.

D. Add color pigments to finish coat in accordance with manufacturer's instructions. Ensure uniformity of mix and coloration.

E. Mix materials dry, to uniform color and consistency, before adding water.

F. Add air entrainment admixtures to all coats to provide 5–7 percent entrainment.

G. Protect mixtures from freezing, frost, contamination, and evaporation.

H. Do not re–temper mixes after initial set has occurred.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify surfaces and site conditions are ready to receive work under this section.

B. Masonry: verify joints are cut flush and surface is ready to receive work of this section. Verify no bituminous or water repellent coatings exist on masonry surface.

3.02 PREPARATION

A. Dampen masonry surfaces to reduce excessive suction.

3.03 INSTALLATION – LATHING MATERIALS

A. Apply one ply of felt underlayment over substrate; weather lap edges 4 inches minimum. Fasten in place.

B. Apply metal lath taut, with long dimension perpendicular to supports.

C. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.

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.

F. All openings, plaster edges or where plaster edges terminate against dissimilar materials, provide plaster screeds. Use vented screed at perimeter.

3.04 INSTALLATION – ACCESSORIES

A. Continuously reinforce internal angles with corner mesh, return metal lath 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.

B. Place corner bead at external wall corners; fasten at outer edges of lath only.

C. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

D. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.

E. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.

3.05 PLASTERING

A. Apply Portland cement plaster (stucco) in a three–coat application over metal lath with thickness not less than 7/8" in locations as indicated on drawings. Scratch, brown and finish coat shall be applied as follows:

1. First (scratch) coat: shall be applied to metal reinforcement with sufficient material and pressure so that it is 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.
   b. Scratch coat shall be continuously moist cured for not less than 48 hours after application.
2. Second (brown) coat: shall be applied not sooner than 48 hours after application of scratch coat. Before 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.
   b. Surface shall be brought to a true, even surface by floating or rodding and left rough, ready to receive finish coat.
   c. Brown coat shall be continuously moist for 48 hours after application and then allowed to dry.
3. 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 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.

3.06 TOLERANCES

A. Maximum variation from true flatness: 1/8 inch in 10 feet.

3.07 CLEAN–UP

A. Upon completion of the work of this section, remove related debris from premises.

END OF SECTION

<u>09250 METAL SUPPORT ASSEMBLIES</u>

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes: Formed metal stud framing, furring, and accessories as shown on drawings and as specified.

1.02 QUALITY ASSURANCE

A. Perform work in accordance with ASTM C 754 requirements.

PART 2 – PRODUCTS

2.01 MANUFACTURERS
A. Furnish products of one of the following manufacturers, except as approved by the Client representative, subject to compliance with specification requirements:

1. American Studco Inc.
2. Gold Bond Building Products Div., National Gypsum.
3. CEMCO
4. Manufacturing members of the Metal Stud Manufacturer's Association, Corvallis, Oregon, (503) 757–8991

2.02 FRAMING MATERIALS

A. Load–bearing studs, runners and furring channels:

1. ASTM C 645, electro–galvanized to meet ASTM A 591, manufactured from steel supplied in accordance with ASTM A 653, Structural Quality Grade 33; G60 designation galvanized sheet steel.
2. Thickness: 20 gage (.80mm) gage for studs and runners.

B. Non–load–bearing Studs: C–shaped, non–load bearing rolled steel, punched for utility access, of size shown of drawings.

C. Ceiling runners: Cold or hot–rolled steel, meet ASTM C 754.

D. Furring and bracing members: Of same gauge, material and finish as studs, thickness to suit purpose.

E. Miscellaneous: Clips, brackets: shall be galvanized wire or sheet metal designed for attachment of furring members. Fasteners: to be GA 203, self–drilling, self–tapping screws. Anchorage devices: power driven, powder actuated, drilled expansion bolts or screws with sleeves as required for positive anchorage.

F. Primer: FS TT–P–645, for touch–up of galvanized surfaces.

PART 3 – EXECUTION

3.01 EXAMINATION

B. Verify that conditions are ready to receive work, field measurements are as shown on drawings, and that rough–in utilities are in proper location.

C. Beginning of installation means acceptance of substrate.

3.02 METAL STUD ERECTION

A. Install stud framing in accordance with ASTM C 754.
B. Align and secure top and bottom runners to substrate at 24 inches (600mm) o.c.

CLIENT:

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
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SEAL:

10697 REGISTERED ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: – –	PROJECT NO: 21730

DRAWING TITLE:

ARCHITECTURAL SPECIFICATIONS

SHEET NO:

A7.5

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 framing.

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. Align stud web openings.

L. 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 studs. 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

09300 – TILE

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 coordinate 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.
1. 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 bullnose
   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 grouts 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. If 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 grind cut edges of tile abutting trim, finish, or built-in items for straight aligned 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

A. Install waterproofing in compliance with waterproofing manufacturer's instructions to produce a 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 TILE 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

A. Cleaning: upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex Portland cement grout residue from tile as soon as possible.
2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer'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.

END OF SECTION

09511 – ACOUSTICAL PANEL CEILINGS

PART 1 – GENERAL

1.01 SUMMARY

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

1.02 QUALITY ASSURANCE

A. Installer qualifications: engage an experienced installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for project.

B. Single source responsibility for ceiling units: obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

C. Single source responsibility for suspension system: obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.
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 system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

1.03 PROJECT CONDITIONS

A. Space enclosure: do not install interior acoustical ceilings 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 for final occupancy.

1.04 EXTRA MATERIALS

B. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, 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 installed.
2. Exposed suspension system components: furnish quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 – PRODUCTS

2.01 ACOUSTICAL CEILING UNIT

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 requirements.

B. Finishes and colors: provide manufacturer's standard factory-applied finish for type of system indicated.

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. Edge moldings 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 member.
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

A. Examine substrates and structural framing to which ceiling system attaches or abuts, with installer 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 reflected 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 ceiling plans.

C. Suspend ceiling hangers from building structural members and as follows:

1. 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.
3. 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.
5. 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.
2. 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.

E. 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.

3.04 CLEANING

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.

END OF SECTION

09540 – FIBER REINFORCED PANELS (FRP)
PART 1 – GENERAL

1.01 SUMMARY

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 jurisdiction.

1. Flame spread: 25 or less.
2. 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.

1. Manufacturer:
   a. See drawings
   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 indicated.

C. Remove and replace panels which are damaged and are unacceptable to Architect.

END OF SECTION

09650 – RESILIENT FLOORING

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

A. 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.

C. 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 indicated.

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 irregularities 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

09900 – PAINTING

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. If color or finish is not designated, the Architect will select from standard colors or finishes available.

1. 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 coating 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 as the finish coats.

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 quality: provide the manufacturer's best quality 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

2.01 MANUFACTURERS

A. Paint manufacturer: See drawings

B. Stain manufacturer: See drawings

2.02 PRIMERS

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

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

1. Zinc chromate primer

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

1. Galvanized metal latex primer.

2.03 MISCELLANEOUS MATERIALS

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

PART 3 – EXECUTION

3.01 EXAMINATION

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 and conditions within a particular area.

3.02 PREPARATION

A. General procedures: remove hardware and hardware accessories, plates, machined surfaces, lighting 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 primed by others.
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 glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
   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 etching 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 in 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 occurs on backside.
5. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.

D. Ferrous metals: clean nongalvanized ferrous metal surfaces that have not been shop coated; remove oil, grease, 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 priming.
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 the shop coat.

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 from coil stock by mechanical methods.

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

1. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
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 before using.
3. Use only thinners approved by the paint manufacturer, and only within recommended limits.

G. 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.

3.03 APPLICATION

A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

A. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
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 thickness equivalent to that of flat surfaces.
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 protection.
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 installation of equipment.
6. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
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 deterioration.

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 adhesion of the undercoat.

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 manufacturer.

E. Mechanical and electrical work: painting mechanical and electrical work is limited to items exposed in 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 luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

1. Provide satin finish for final coats.

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

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 the Owner:

1. Quantitative materials analysis.
2. Abrasion resistance.
3. Apparent reflectivity.
4. Flexibility.
5. Washability.
6. Absorption.
7. 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

10800 – TOILET ACCESSORIES

PART 1 – GENERAL

1.01 SUMMARY

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.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

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

2.02 FABRICATION

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. Hang 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.

D. Baby changer: Contractor furnished and installed.

END OF SECTION

CLIENT:

bp

ARCO

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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SEAL:

10697
REGISTERED
ARCHITECT
DANIEL B GOALWIN
STATE OF WASHINGTON
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

FACILITY #7184

DESIGNED BY:	ALLIANCE Z&DM:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION: - -	PROJECT NO: 21730

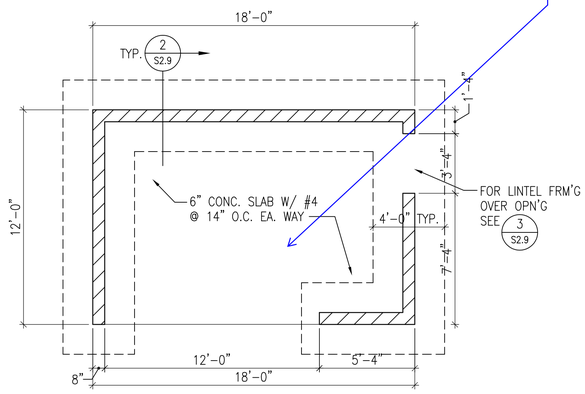
DRAWING TITLE:

ARCHITECTURAL SPECIFICATIONS

SHEET NO:

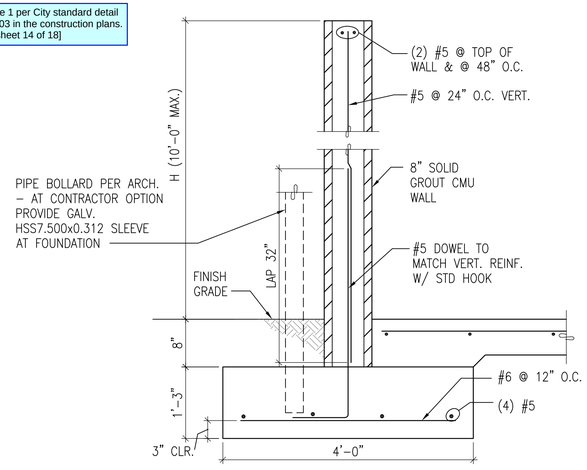
A7.6

Revise trash closure foundation to depict the catch basin type 1 per City standard detail 02.01.03 as required on the civil plans. Include detail 02.01.03 in the construction plans. [CONSTRUCTION PLAN SET - TRASH CLOSURE, S2.9, sheet 14 of 18]



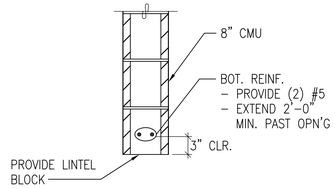
1 / 2.9 **TRASH ENCLOSURE FOUNDATION PLAN**

1/4"=1'-0"



2 / S2.9 **SECTION**

1"=1'-0"



3 / S2.9 **SECTION**

NO SCALE

CLIENT:

bp

ARCO

BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.

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NO.	DATE	REVISION DESCRIPTION
-	10/04/23	BID SET
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SEAL:

STEVEN JOSEPH WILLIAMS — STATE OF WASHINGTON — 55281 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

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:	SJW	ALLIANCE Z&DM:	
CHECKED BY:	SJW	BP REPM:	
DRAWN BY:	SAA	ALLIANCE PM:	
VERSION:	- -	PROJECT NO:	21730

DRAWING TITLE:

TRASH ENCLOSURE PLAN AND DETAILS

SHEET NO:

S2.9

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), V_{ULT} = 97 MPH
- RISK CATAGORY PER TABLE 1.5-1 = II
- TOPOGRAPHIC FACTOR Kzt = 1.0
- INTERNAL PRESSURE COEFFICIENT (ENCLOSED) = ± 0.18
- COMPONENTS AND CLADDING LOADS, SEE THE FOLLOWING TABLES:

ROOF SURFACES[1]					
EFFECTIVE WIND AREA	POSITIVE PRESSURES (PSF)	NEGATIVE PRESSURES (PSF)			
		ZONE[3]			
	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[1]				
EFFECTIVE WIND AREA	POSITIVE PRESSURE (PSF)		NEGATIVE PRESSURE (PSF)	
	ZONE[2]			
	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 = CsW

WHERE $C_s = \frac{S_{DS}}{\left(\frac{R}{I_e}\right)}$; WITH

C_s MINIMUM $= 0.044\, S_{DS} I_e \geq 0.01$

OR

C_s MINIMUM $= \frac{0.5 S_1}{\frac{R}{I_e}}$ FOR $S_1 > 0.6g$

C_s MAXIMUM $= \frac{S_{D1}}{T\left(\frac{R}{I_e}\right)}$ FOR $T \leq T_L$

OR

C_s MAXIMUM $= \frac{S_{D1} T_L}{T^2\left(\frac{R}{I_e}\right)}$ FOR $T > T_L$

SEISMIC IMPORTANCE FACTOR, I_e = 1.0
RISK CATEGORY OF BUILDING PER TABLE 1.5-1 = II
SPECTRAL RESPONSE ACCELERATIONS S_s = 1.268 S_1 = 0.437
SITE CLASS PER TABLE 20.3-1 = F
DESIGN SPECTRAL RESPONSE ACCELERATIONS S_{DS} = 0.845 & S_{D1} = 0.543
SEISMIC DESIGN CATEGORY = D
W = EFFECTIVE SEISMIC WEIGHT OF BUILDING = 109.2 KIPS
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE
RESPONSE MODIFICATION FACTOR PER TABLE 12.2-1, R = 6.5
Cs = 0.130
DESIGN BASE SHEAR V = 12.6 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, 2023).

SOIL BEARING PRESSURE: 1500 PSF

PASSIVE RESISTANCE: 300 PCF (INCLUDES F.O.S. ≥ 1.5)
COEFFICIENT OF FRICTION: 0.35 (INCLUDES F.O.S. ≥ 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.

SITE STRUCTURES BEARING ON SHALLOW FOUNDATIONS SHALL HAVE BEARING SOILS PREPARED PER THE GEOTECHNICAL REPORT. UNDOCUMENTED FILL AND SOFT NATIVE SOILS SHALL BE REMOVED TO A MINIMUM DEPTH OF TWO BELOW SPREAD FOOTINGS AND BACKFILLED WITH PROPERLY COMPACTED STRUCTURAL FILL.

FREE DRAINING BACKFILL MATERIAL FOR RETAINING

A CLEAN, FREE DRAINING, WELL GRADED GRANULAR MATERIAL CONFORMING TO ASTM D2487 GW OR SW WHOSE MAXIMUM PARTICLE SIZE DOES NOT EXCEED 3/4" AND WHOSE FINES CONTENT (MATERIAL PASSING THE NO. 200 SIEVE) DOES NOT EXCEED 5%,

WITH A MAXIMUM DUST RATIO $\frac{\text{\% PASSING U.S. NO. 200 SIEVE}}{\text{\% PASSING U.S. NO. 40 SIEVE}} = 2/3$ MAX.

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).

TIP DESIGN: TIP DESIGN SHALL BE PER CONTRACTOR AND TAKE INTO CONSIDERATION INSTALLATION REQUIREMENTS.

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.

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 ± 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 5-1/2 SACKS 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.
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 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:

WATER SHALL NOT BE ADDED TO THE CONCRETE SURFACE DURING FLOATING & FINISHING OPERATIONS. PRE-APPROVED EVAPORATION RETARDER SPECIFICALLY DESIGNED FOR FLOATING & FINISHING OPERATIONS ARE ACCEPTABLE.

FORMED SURFACES:

FORMWORK CLASS OF SURFACE PER ACI TABLE 347 TABLE 3.1	
ITEM	CLASS OF FINISH
ALL SURFACES EXPOSED TO PUBLIC VIEW, UNLESS NOTED OTHERWISE	A
ALL SURFACES RECEIVING A COURSE TEXTURED COATING SUCH AS PLASTER OR STUCCO, UNLESS NOTED OTHERWISE	B
ALL OTHER SURFACES, UNLESS NOTED OTHERWISE	C

COLD WEATHER PLACEMENT

1. COLD WEATHER IS DEFINED BY ACI 306 AS "A PERIOD WHEN FOR MORE THAN 3 SUCCESSIVE DAYS THE MEAN DAILY TEMPERATURE DROPS BELOW 40° F."
2. NO CONCRETE SHALL BE PLACED ON FROZEN OR PARTIALLY FROZEN GROUND. THAWING THE GROUND WITH HEATERS IS PERMISSIBLE.
3. CONCRETE MIX TEMPERATURES SHALL BE AS SHOWN BELOW. HEATING OF WATER AND/OR AGGREGATES MAY BE REQUIRED TO ATTAIN THESE TEMPERATURES.
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.

CLIENT:

bp

ARCO
BP WEST COAST PRODUCTS, LLC

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
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NO.	DATE	REVISION DESCRIPTION
-	10/04/23	BID SET
1		
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SEAL:

STEVEN JOSEPH WILLIAMS
STATE OF WASHINGTON
55281
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
[illegible]

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:	SJW	ALLIANCE Z&DM:	
CHECKED BY:	SJW	BP REPM:	
DRAWN BY:	SAA	ALLIANCE PM:	
VERSION:	-	PROJECT NO:	21730

DRAWING TITLE:
GENERAL NOTES

SHEET NO:
S3.1

CONDITION OF PLACEMENT AND CURING		WALLS & SLABS	FOOTINGS
MIN. TEMP. FRESH CONCRETE AS MIXED FOR WEATHER INDICATED. DEGREES F.	ABOVE 30° F. 0 TO 30° F. BELOW 0° F.	60° 65° 70°	55° 60° 65°
MIN. TEMP. FRESH CONCRETE AS PLACED AND MAINTAINED, DEGREES F.		55°	50°
MAX. ALLOWABLE GRADUAL DROP IN TEMP. THROUGHOUT FIRST 24 HOURS AFTER END OF PROTECTION, DEGREES 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.

GROUT

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.

REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE, Fy=60 KSI (UNLESS NOTED OTHERWISE)

BAR SIZE	MINIMUM LAP SPLICE LENGTHS ("Ls")		MINIMUM DEVELOPMENT LENGTHS ("Ld")		MINIMUM EMBEDMENT LENGTH FOR STANDARD END HOOKS ("Ldh")
	TOP BARS (1)	OTHER BARS	TOP BARS (1)	OTHER BARS	
#3	2'-0"	1'-6"	1'-6"	1'-3"	0'-7"
#4	2'-8"	2'-0"	2'-0"	1'-7"	0'-9"
#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.

MASONRY

SHALL BE TYPE S PER IBC. CONFORM TO ASTM C270. MINIMUM COMPRESSIVE STRENGTH = 1800 PSI.

MASONRY ASSEMBLIES : SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 21 OF THE IBC, AND SHALL BE TESTED PER SECTION 2105.1 OF THE IBC FOR COMPLIANCE WITH f'm. MINIMUM SPECIFIED COMPRESSIVE STRENGTH, f'm, SHALL BE 2000 PSI FOR CONCRETE MASONRY ASSEMBLIES AND 2500 PSI FOR HOLLOW CLAY MASONRY ASSEMBLIES.

HOLLOW CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C90. MINIMUM FACE SHELL THICKNESS AS DEFINED BY ASTM C90, SECTION 5.3.1. PROVIDE GRADE N, MEDIUM WEIGHT BLOCK WITH MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS NOTED ABOVE. CMU CONSTRUCTION SHALL BE SOLID GROUTED UNLESS NOTED OTHERWISE.

MORTAR

~~WELDED~~ BARS UNLESS NOTED OTHERWISE). DETAIL, FABRICATE AND PLACE PER ACI 315 AND ACI 318. SPLICES

GROUT : GROUT FOR POURING SHALL BE A FLUID CONSISTENCY. CONFORM TO ASTM C476 AND TMS 402. f'g=2500 PSI MINIMUM AT 28 DAYS.

GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACEMENT AND BEFORE LOSS OF PLASTICITY IN A MANNER TO FILL THE GROUT SPACE. GROUT POURS GREATER THAN 12 INCHES SHALL BE RECONSOLIDATED BY MECHANICAL VIBRATION 15 TO 20 MINUTES AFTER PLACEMENT TO MINIMIZE VOIDS DUE TO WATER LOSS. GROUT POURS 12 INCHES OR LESS IN HEIGHT SHALL BE MECHANICALLY VIBRATED, OR PUDDLED. COVER AND KEEP DRY ALL MASONRY WORK DURING CONSTRUCTION AND PREVENT MOISTURE ABSORPTION INTO MASONRY UNTIL THE ROOFING IS COMPLETE.

REINFORCING STEEL (MASONRY): REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60 (GRADE A706 FOR SHALL BE AS NOTED BELOW.

MINIMUM LAP SPLICE LENGTHS "L_d" FOR TYPICAL CONDITIONS (1)

BAR SIZE	CORNER BARS	FOUNDATION DOWELS (3)	VERTICAL WALL REINFORCING	HORIZONTAL WALL REINFORCING	LONG. LINTEL REINFORCING
#3	12"	12"	12"	12"	12"
#4	20"	20"	20"	20"	20"
#5	30"	30"	30"	30"	30"
#6	40"	40"	54"	40"	60"
#7	46"	46"	(2)	46"	(2)
#8	60"	60"	(2)	60"	(2)

(1) FOR SPECIAL SPLICE CONDITIONS, REFER TO STRUCTURAL DRAWINGS FOR LAP LENGTH REQUIREMENTS.
(2) MECHANICAL COUPLERS ARE REQUIRED.
(3) FOR LAP SPLICES OF FOUNDATION DOWELS IN CANTILEVERED WALLS, USE LAP SPLICE LENGTHS FOR VERTICAL WALL REINFORCING.

VERTICAL BAR POSITIONERS: VERTICAL REINFORCING SHALL BE SECURED AGAINST DISPLACEMENT PRIOR TO GROUTING BY "FIGURE 8" VERTICAL BAR POSITIONERS FOR SINGLY AND DOUBLY REINFORCED CELLS BY WIRE-BOND 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

STRUCTURAL STEEL: WELD IN ACCORDANCE WITH "STRUCTURAL WELDING CODE" AWS D1.1.

CERTIFICATION: 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.

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 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.

THE STANDARDS OF ACCEPTANCE FOR WELDS TESTED BY ULTRASONIC METHODS SHALL CONFORM TO AWS 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

BOLTED CONNECTIONS INSPECTION: CONNECTIONS MADE WITH BEARING TYPE BOLTS SHALL BE INSPECTED 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.

CLIENT: bp / 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
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SEAL:
STEVEN JOSEPH WILLIAMS, STATE OF WASHINGTON, 55281, STRUCTURAL ENGINEER, PROFESSIONAL ENGINEER

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:	SJW	ALLIANCE ZAOM:	
CHECKED BY:	SJW	BP REPM:	
DRAWN BY:	SAA	ALLIANCE PM:	
VERSION:	-	PROJECT NO:	21730

DRAWING TITLE:
GENERAL NOTES

SHEET NO:
S3.2

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)	EQUIVALENT SPACING (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.

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.

GLUE-LAMINATED MEMBERS: 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=1.8X10^6 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.

SPECIES AND GRADE (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, 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.

MINIMUM 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)
EXPOSURE	DRY	FOUNDATION SILL PLATES, TOP PLATES & LEDGERS ON CONCRETE OR MASONRY WALLS (4)	2x, 4x, 6x (FIR), OR GLULAM (SP)	SBX	GALV (G60)
				ACQ, CBA, CA	GALV (G185)
	WET	FRAMING, DECKING, POSTS & LEDGERS	2x, & 4x (FIR)	ACQ, CBA, CA	GALV (G185)
			2x, & 4x (CEDAR)	NONE	GALV (G90)
		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 PERMITTED
   SBX: DOT SODIUM BORATE
   ACQ: ALKALINE COPPER QUAT
   CBA & CA: COPPER AZOLE
   FIR: DOUG-FIR OR HEM-FIR
   SP: SOUTHERN PINE
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).

GENERAL REQUIREMENTS: 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.

WOOD SHRINKAGE AND CONSOLIDATION: 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.

FRAMING CONNECTORS: 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 PRESERVATIVE TREATED WOOD REQUIREMENTS 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 PRESERVATIVE TREATED WOOD REQUIREMENTS IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

OPEN-WEB TRUSSES: 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 FRAMING CONNECTORS 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:

PRE-APPROVED SUBSTITUTIONS: 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	X	X
2.	REINFORCING STEEL SHOP DRAWINGS	X	
3.	STRUCTURAL STEEL	X	X
4.	GLU-LAMINATED MEMBERS	X	X
5.	WOOD OPEN WEB TRUSSES	X	X
6.	CONTRACTOR'S STATEMENT OF RESPONSIBILITY	X	X

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:

CLIENT:
bp
ARCO
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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SEAL:
STEPHEN JOSEPH WILLIAMS, STATE OF WASHINGTON, 55281, REGISTERED PROFESSIONAL ENGINEER

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:	SJW	ALLIANCE Z&DM:	
CHECKED BY:	SJW	BP REPM:	
DRAWN BY:	SAA	ALLIANCE PM:	
VERSION:	-	PROJECT NO:	21730

DRAWING TITLE:
GENERAL NOTES

SHEET NO:
S3.3

STATEMENT OF SPECIAL INSPECTIONS:

SPECIAL INSPECTION: SPECIAL INSPECTION SHALL BE PROVIDED PER THE REQUIREMENTS OF IBC SECTION 1704 AND 1705 AND AS NOTED HEREIN.

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
SOILS	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X		IBC 1705.6
	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X		
	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X		
	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X			
	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X		
STRUCTURAL STEEL	MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS		X		AISC 360 CHAPTER N5
	HIGH-STRENGTH BOLTING A. SNUG-TIGHT JOINTS		X		AISC 360 CHAPTER N5
	MATERIAL VERIFICATION OF STRUCTURAL STEEL A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360 B. MANUFACTURER'S CERTIFIED MILL TEST REPORTS		X X	MANUFACTURER TO PROVIDE CERTIFIED MILL TEST REPORTS	AISC 360 CHAPTER N5 AISC 341 CHAPTER J6
	MATERIAL VERIFICATION OF WELD FILLER MATERIALS A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS LISTED IN GENERAL NOTES B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE		X X	MANUFACTURER TO PROVIDE CERTIFICATE OF COMPLIANCE	AISC 360 CHAPTER N5
	INSPECTION OF WELDING A. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS B. MULTI-PASS FILLET WELDS C. SINGLE-PASS FILLET WELDS > 5/16" D. PLUG AND SLOT WELDS E. SINGLE-PASS FILLET WELDS ≤ 5/16" F. FIELD-INSTALLED WELDED STUDS G. WELDING OF STAIRS AND RAILING SYSTEMS	X X X X	 X X X	SPECIAL INSPECTIONS IN THIS SECTION ARE WAIVED WHERE FABRICATION IS PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5	AISC 360 CHAPTER N5 AISC 341 CHAPTER J6 AWS D1.1
	INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS		X		
STEEL PIPE PILES	GEOTECHNICAL ENGINEER TO MONITOR INSTALLATION AND LOAD TESTING	X			
CONCRETE	INSPECT REINFORCEMENT, INCLUDING PRE-STRESSING TENDONS, AND VERIFY PLACEMENT		X		ACI 318: CH 20, 25.2, 25.3, 26.6-1 TO 26.6-3, IBC 1908.4
	ANCHORS CAST IN CONCRETE-PRIOR TO AND DURING PLACEMENT OF CONCRETE		X		ACI 318: 17.8.2 AISC 360 SECTION N7
	VERIFY USE OF REQUIRED DESIGN MIX		X		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	X			ASTM C172, C31 ACI 318: 26.4, 26.12 IBC 1908.10
	MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X		ACI 318: 26.5.3 TO 26.5.5 IBC 1908.9
	MATERIAL VERIFICATION OF REINFORCEMENT STEEL FOR ASTM A615 REINFORCING		X	MANUFACTURER SHALL PROVIDE MILL TEST REPORTS. CONTINUOUS INSPECTION FOR ALL WELDS GREATER THAN 5/16" FILLET. PERIODIC INSPECTION FOR FILLET WELD 5/16" AND SMALLER	ACI 318: 26.6.4 AWS D1.4 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 INSTALLATION INSTRUCTIONS
	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (ADHESIVE ANCHORS INSTALLED HORIZONTAL OR UPWARDLY INCLINED)	X			ACI 318: 17.8.2 MFR EVAL REPORT MFR PUBLISHED INSTALLATION INSTRUCTIONS
	TESTING OF MATERIALS		X		IBC 1705.3.2

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
MASONRY	PROPORTION OF SITE-PREPARED MORTAR		X		TMS 602, ART 2.1, 2.6A & 2.6C
	GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS AND ANCHOR BOLTS		X		TMS 602, ART 2.4B, &2.4H
	SAMPLE PANEL CONSTRUCTION	X		PERIODIC INSPECTION PERMITTED FOR RISK CATEGORY I, II, AND III STRUCTURES	TMS 602: ART 1.6D
	GROUT SPACE	X		PERIODIC INSPECTION PERMITTED FOR RISK CATEGORY I, II, AND III STRUCTURES	TMS 602: ART 3.2D & 3.2F
	PLACEMENT OF REINFORCEMENT, CONNECTORS AND ANCHOR BOLTS	X		PERIODIC INSPECTION PERMITTED FOR RISK CATEGORY I, II, AND III STRUCTURES	TMS 402: SECT. 6.1, 6.3.1, 6.3.6 & 6.3.7, TMS 602: ART 3.2E & 3.4
	PROPORTIONS OF SITE-PREPARED GROUT	X	X		TMS 602: ART 2.6B & 2.4G.1.b
	MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS		X		TMS 602: ART 1.5
	PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION		X		TMS 602: ART 3.3B
	SIZE, TYPE AND LOCATION OF STRUCTURAL MEMBERS	X			TMS 602: ART 3.3F
	TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	X		PERIODIC INSPECTION PERMITTED FOR RISK CATEGORY I, II, AND III STRUCTURES	TMS 402: SECT. 1.2.1(e), 6.2.1 & 6.3.1
	POST INSTALLED ANCHORS INTO MASONRY	X			MFR EVAL REPORT
	WELDING OF REINFORCEMENT	X			TMS 402: SECT. 6.1.6.1.2
	PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40° F) OR HOT WEATHER (TEMPERATURE ABOVE 90° F)		X		TMS 602 ART 1.8C & 1.8D
	PLACEMENT OF GROUT	X			TMS 602 ART 3.5 & 3.6C
	OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS	X			TMS 602 ART 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1/4B.3 & 1.4B.4

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.

CLIENT:

bp

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
-	10/04/23	BID SET
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SEAL:

STEVEN JOSEPH WILLIAMS
STATE OF WASHINGTON
22581
PROFESSIONAL ENGINEER

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:	SJW	ALLIANCE Z&DM:	
CHECKED BY:	SJW	BP REPM:	
DRAWN BY:	SAA	ALLIANCE PM:	
VERSION:	-	PROJECT NO:	21730

DRAWING TITLE:

GENERAL NOTES

SHEET NO:

S3.4

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	O.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	℄	PLATE
B.O.T.	BOTTOM	F.O.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
℄	CENTERLINE	GR.	GRADE	SCHED.	SCHEDULE
CLR.	CLEARANCE	GWB	GYPSUM WALL BOARD	S.C.L.	STRUCTURAL COMPOSITE LUMBER
CMU	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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