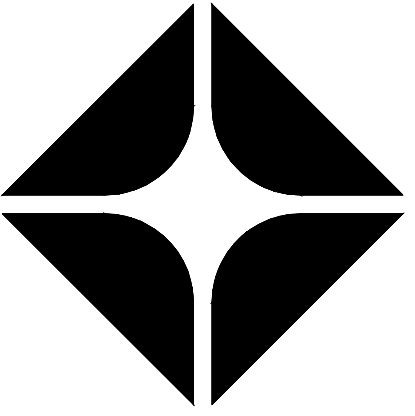
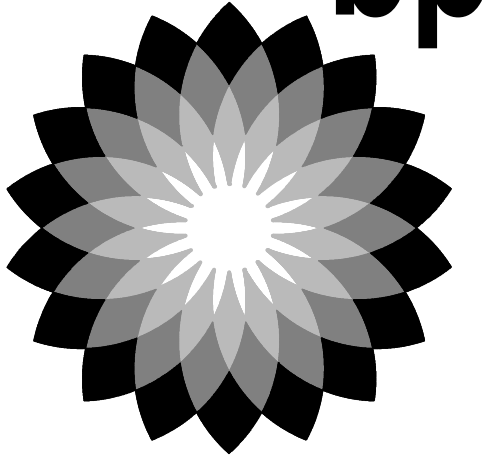


ABBREVIATIONS		
& L @ # (E) (R) (N) A.F.F. A.D. ADJ. ACGR. AL APPROX. ARCH. ASB. ASPH. BD. BITUM. BLDG. BLKG. BM. BOT. CAB. CEM. CER. C.I. CLG. CLKG. CLO. CLR./CL. C.O. COL. CONC. CONN. CONSTR. CONT. CTSK. CNTR. CTR. DBL. DEPT. DET. DIA. DIM. DISP. DN. D.O. DR. DWR. D.S. DWG. E. E.A. E.J. EL. ELEC. E.P.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

SYMBOLS	
SECTION MARK	
EXTERIOR ELEVATION TAG	
ELEVATION TAG	
ELEVATION MARK	
FINISH TAG	
WINDOW TAG	
DOOR TAG	
WALL TAG	
KEYED NOTE	



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 SUBROUTS 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 SUBSTITUTIONS 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

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	



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
12405 LOCKSLEY 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

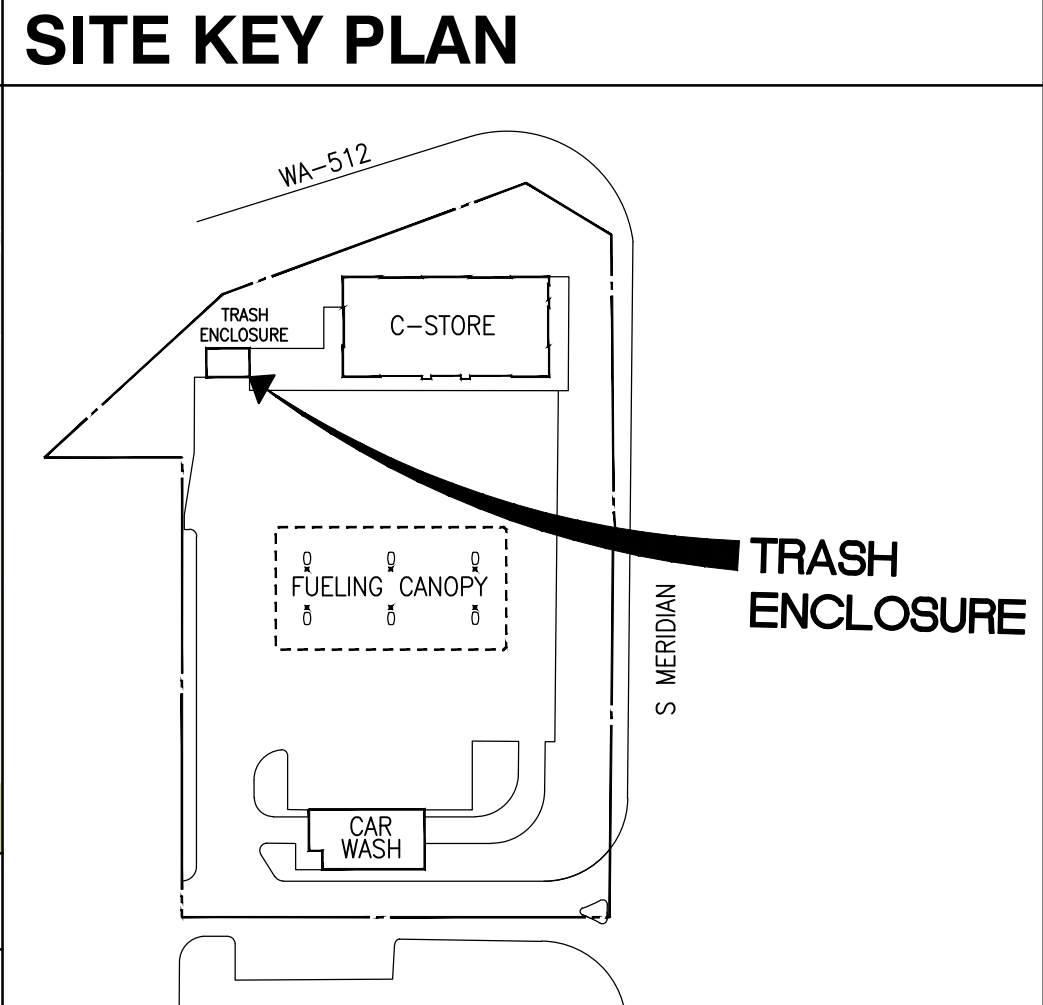
ZONING AND LAND USE
CITY OF PUYALLUP
PLANNING SERVICES
333 SOUTH MERIDIAN
PUYALLUP, WA 98371
253-864-4165
BUILDING
CITY OF PUYALLUP
BUILDING SERVICES/FIRE PROTECTION
333 SOUTH MERIDIAN
PUYALLUP, WA 98371
253-864-4165
ENVIRONMENTAL - FOOD
TACOMA-PIERCE COUNTY
HEALTH DEPARTMENT
3629 S. D STREET
TACOMA, 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
360-407-7362
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

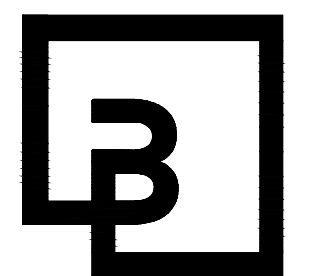
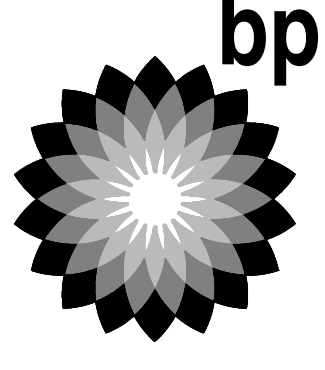
PERMIT ISSUE DATES



ARCO APPROVAL DATES

INDEX OF DRAWINGS	
TRASH ENCLOSURE	
GENERAL	
G1.1	COVER SHEET
G1.4	TRASH/ RECYCLE ENCLOSURE
G1.5	TRASH/ RECYCLE ENCLOSURE
SURVEY	
1 OF 2	ALTA & NSPS LAND TITLE SURVEY
2 OF 2	ALTA & NSPS LAND TITLE SURVEY
LANDSCAPE	
L1	LANDSCAPE PLAN
ARCHITECTURAL	
AS1.0	ARCHITECTURAL SITE PLAN
A7.1	ARCHITECTURAL SPECIFICATIONS
A7.2	ARCHITECTURAL SPECIFICATIONS
A7.3	ARCHITECTURAL SPECIFICATIONS
A7.4	ARCHITECTURAL SPECIFICATIONS
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A7.6	ARCHITECTURAL SPECIFICATIONS
STRUCTURAL	
S2.9	TRASH ENCLOSURE PLAN AND DETAILS
S3.1	GENERAL NOTES
S3.2	GENERAL NOTES
S3.3	GENERAL NOTES
S3.4	GENERAL NOTES
S3.5	GENERAL NOTES

CLIENT:



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

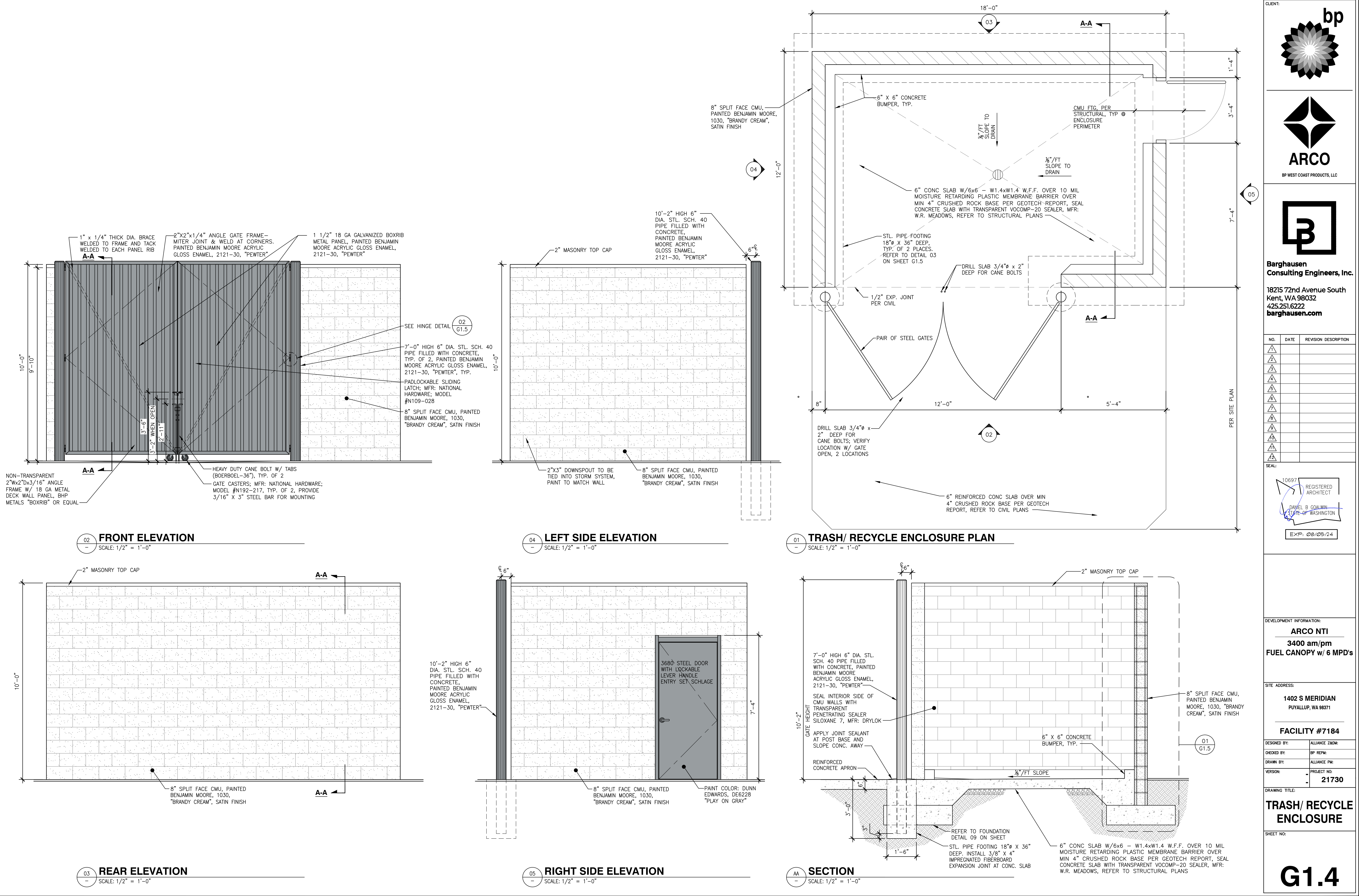
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CHECKED BY: BP REPA:
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VERSION: PROJECT NO: 21730

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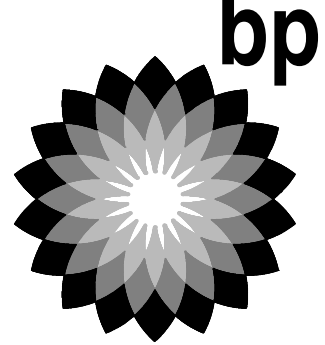
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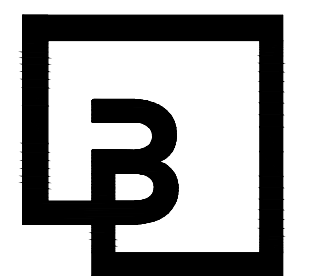
G1.1



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. COALMIN
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

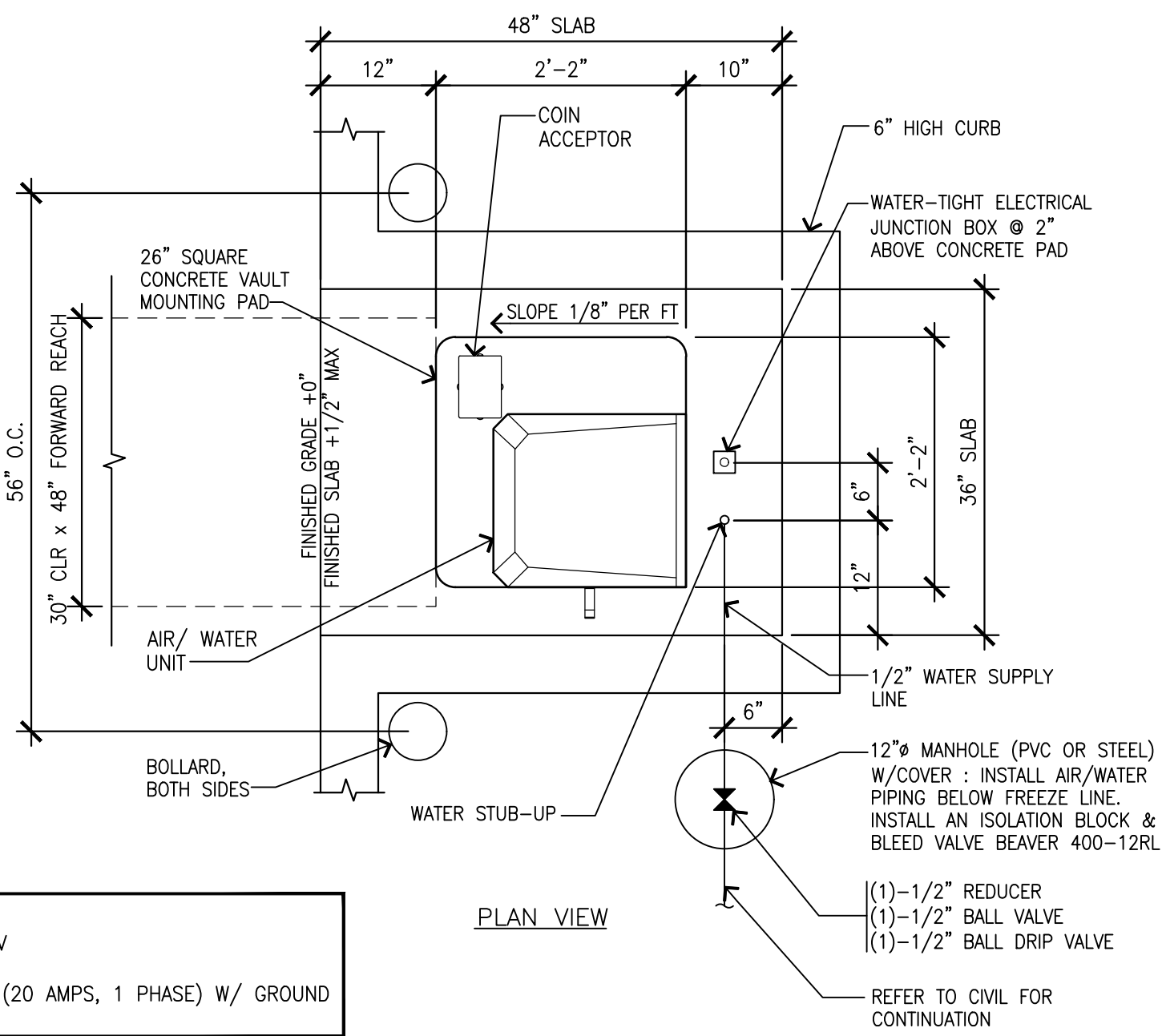
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VERSION: PROJECT NO:
21730

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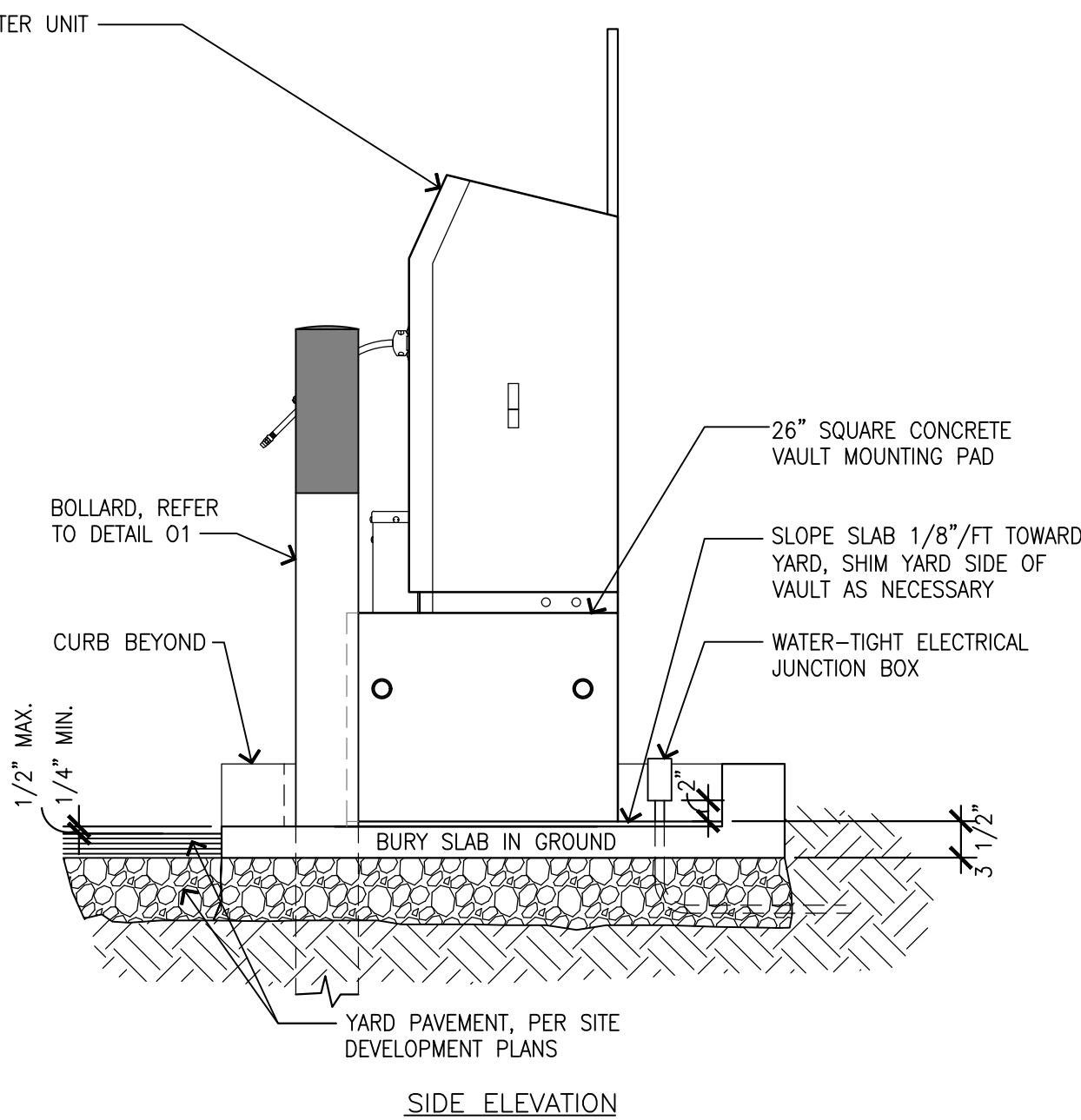
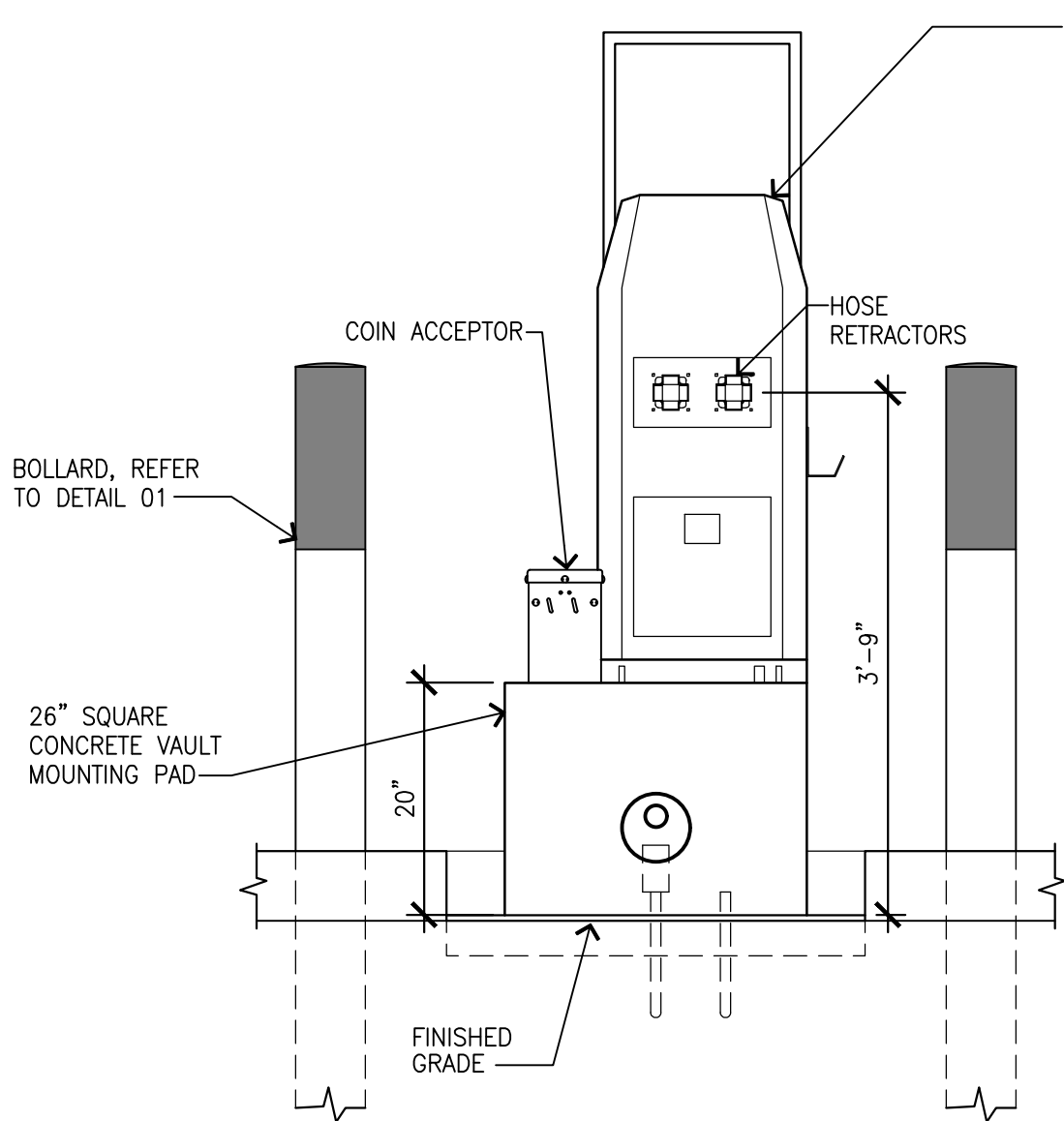
TRASH/ RECYCLE ENCLOSURE

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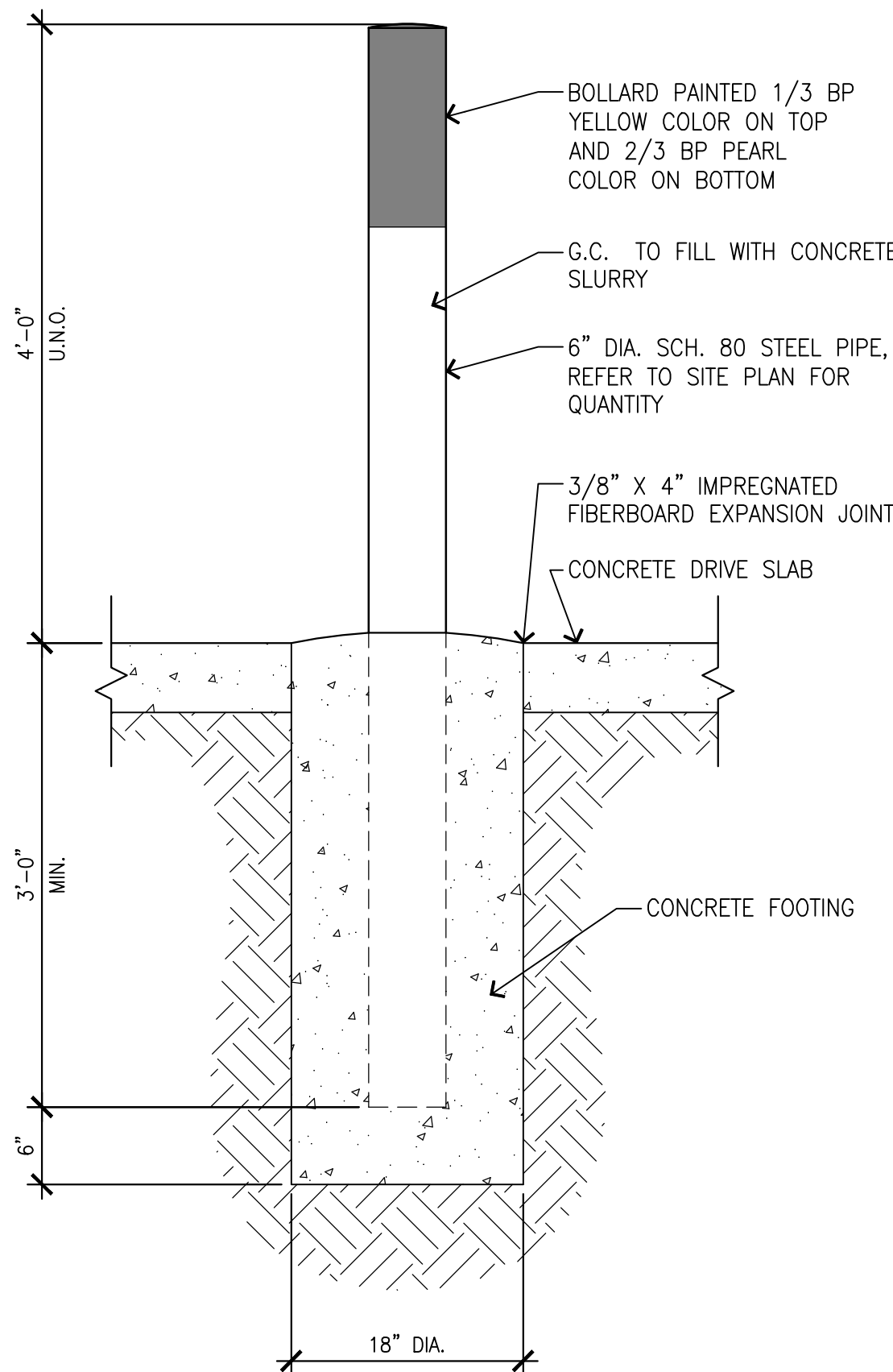
G1.4



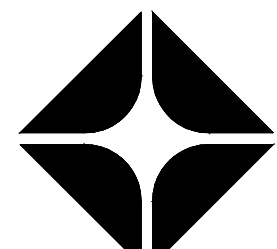
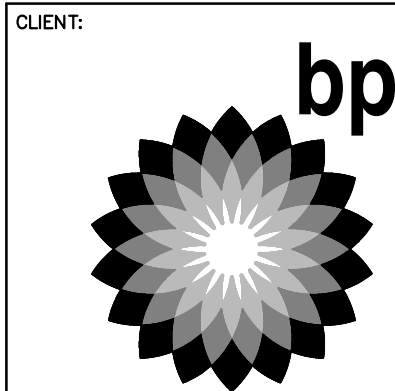
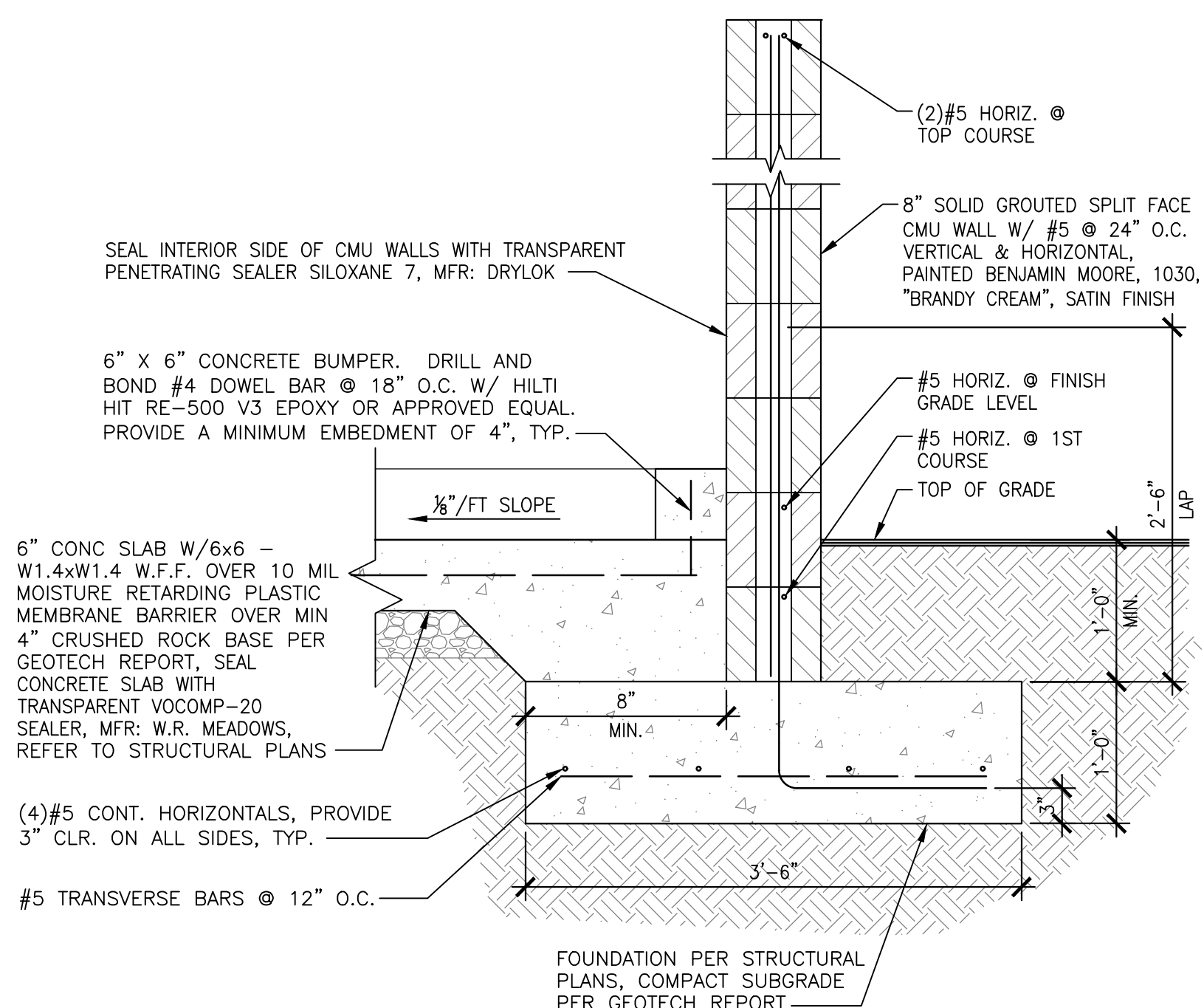
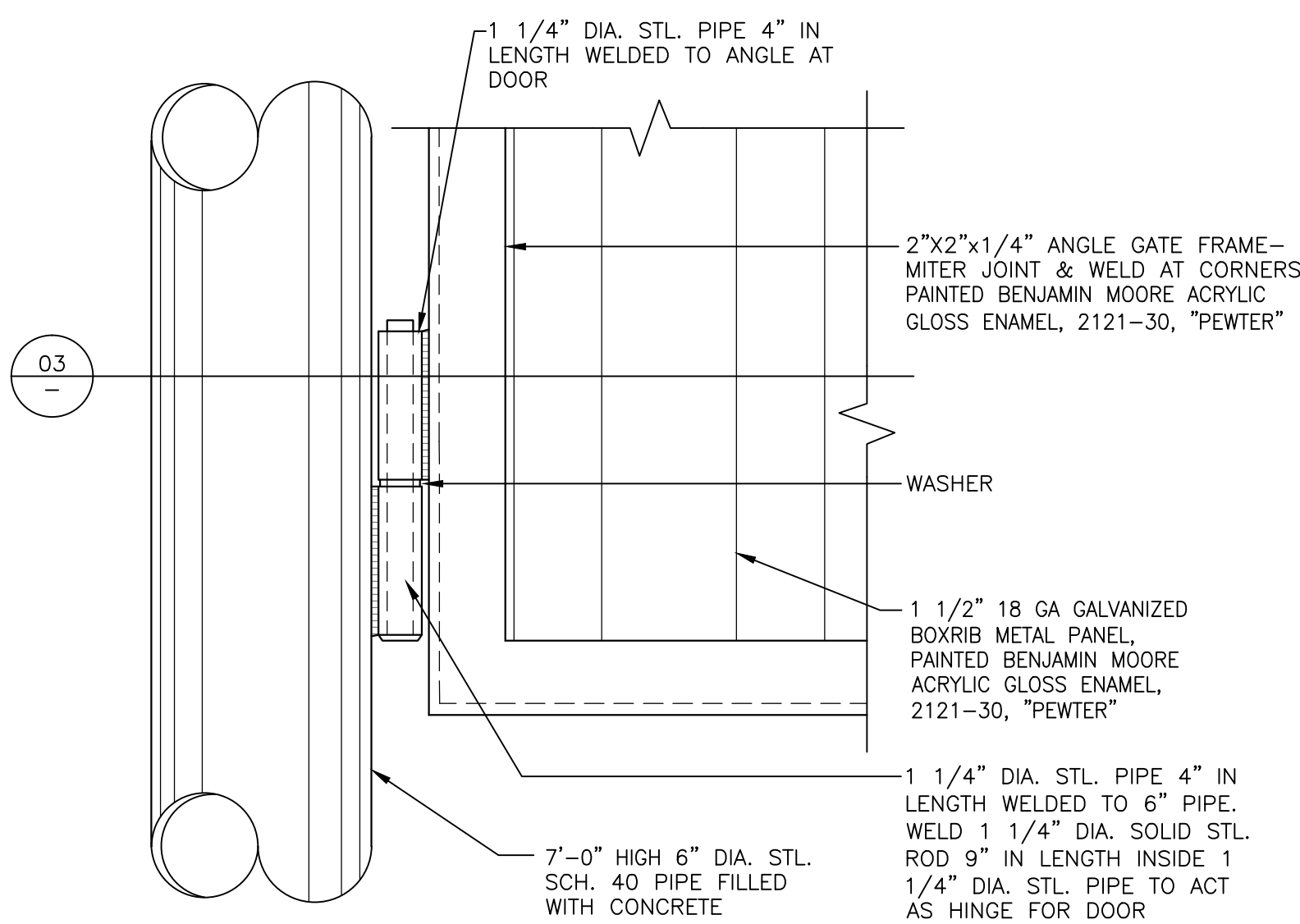
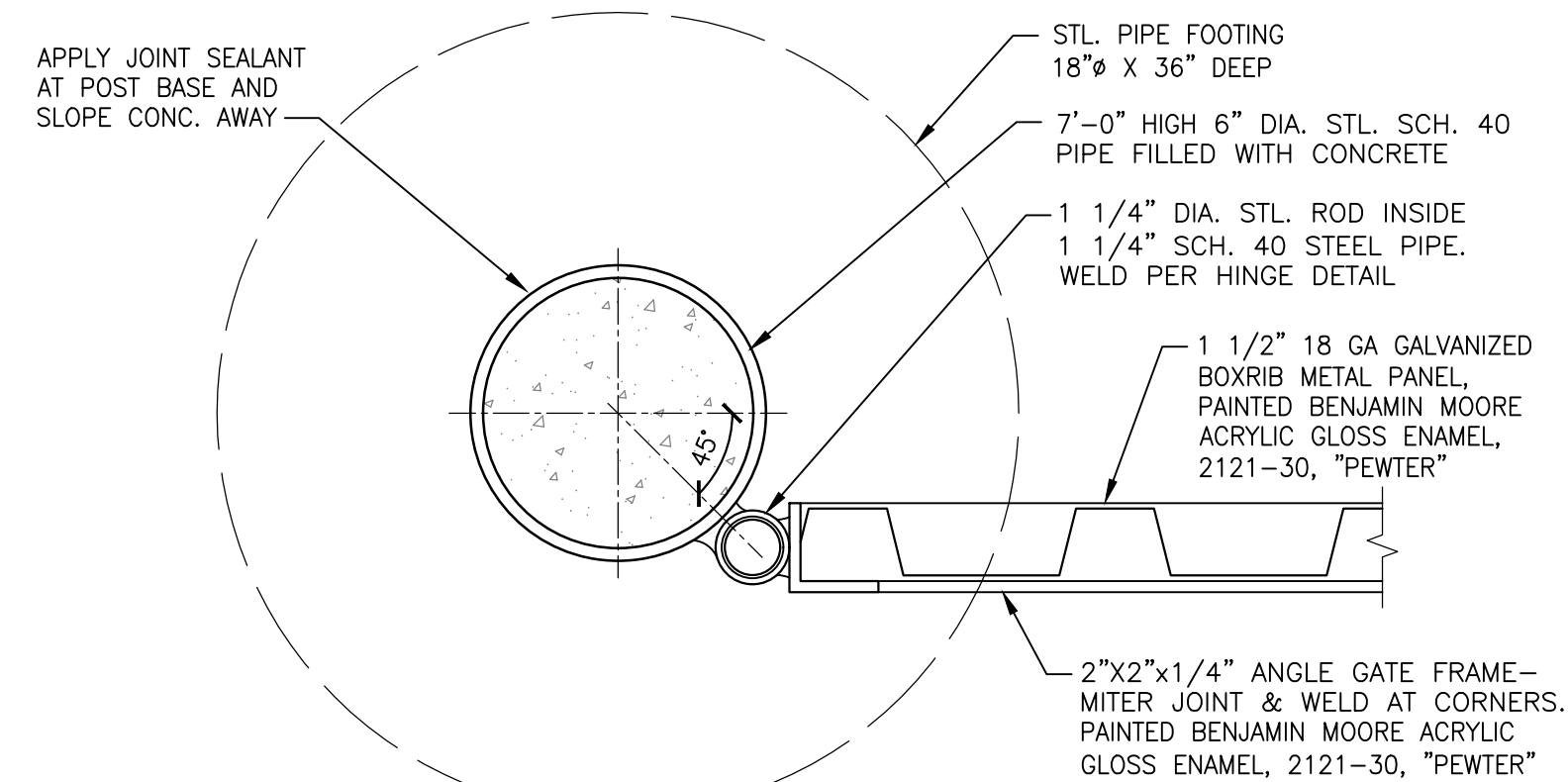
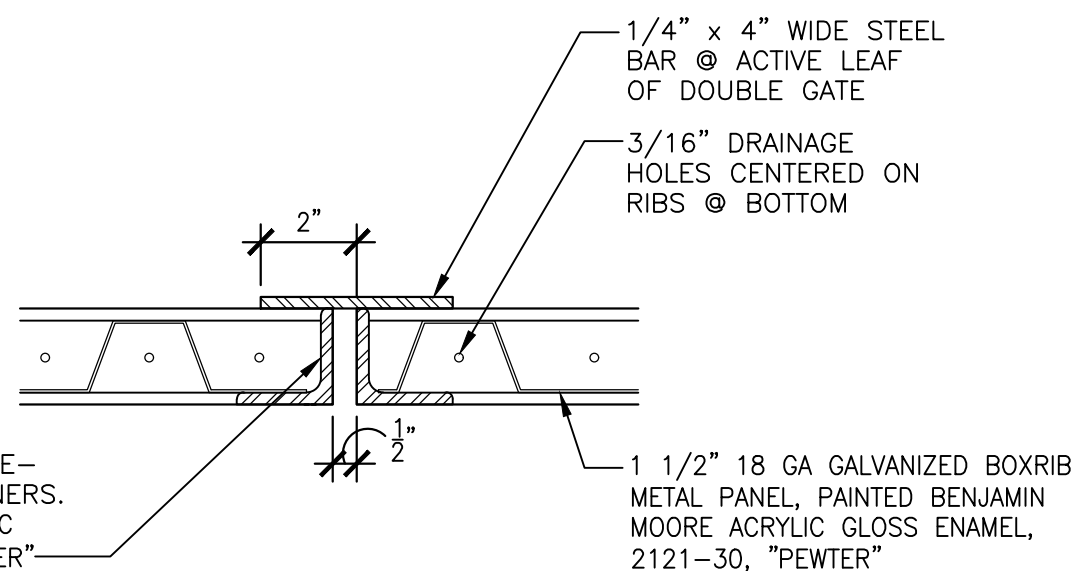
AIR/ WATER UNIT
MFR: CSC SERVICE WORKS/ AIR-SERV
MODEL: LEGACY II
ELECTRICAL REQUIREMENTS: (1)-#12 (20 AMPS, 1 PHASE) W/ GROUND
NOTE: INSTALLATION BY MFR



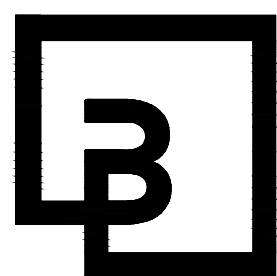
06 AIR/WATER UNIT DETAIL
SCALE: 3/4"=1'-0"



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



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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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

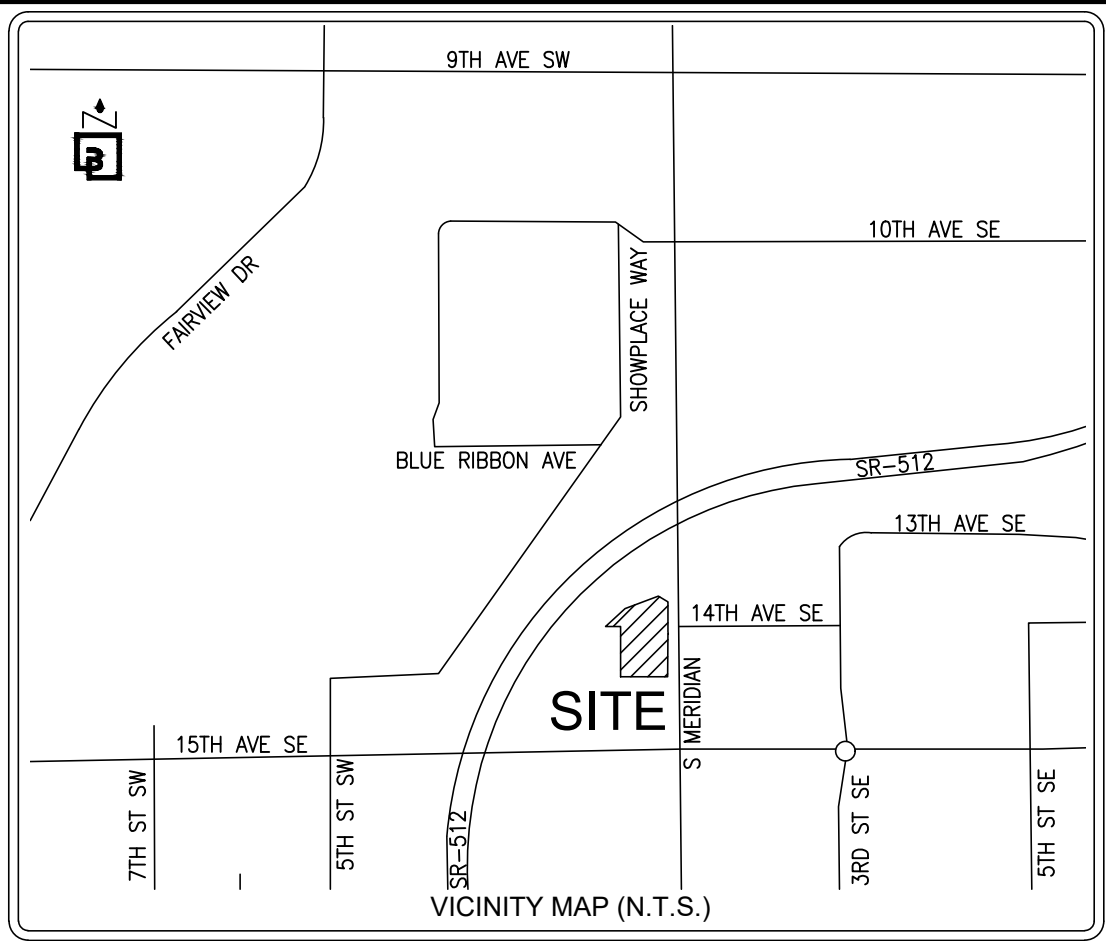
DESIGNED BY:	ALLIANCE ZADN:
CHECKED BY:	BP REPM:
DRAWN BY:	ALLIANCE PM:
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

TRASH/ RECYCLE ENCLOSURE

SHEET NO:

G1.5



VICINITY MAP (N.T.S.)

LEGEND

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- Survey monument (as noted)
- Section corner (as noted)
- Found rebar/cap (as noted)
- Set 2"x2" hub/tack line stake
- Mag/washer or lead/tack (as noted)
- Luminaire (lum.)
- Yard light
- Traffic signal lights
- Power meter
- Power pole
- Junction box (as noted)
- Catch basin (cb)
- Storm manhole (sdmh)
- Sanitary sewer manhole (ssmh)
- Cleanout (as noted)
- Gas meter
- Gas valve
- Water valve (wv)
- Faucet
- Fire hydrant (fh) / connection (fdc)
- Water meter
- Sign
- Irrigation sprinkler
- Directional arrow
- Ada symbol
- Chain link fence
- Wood fence
- Hogwire fence
- Guard rail/cable fence
- Water line
- Gas line
- Telephone line (oh) or (ug)
- Power line (oh) or (ug)
- Storm line
- Sewer line
- Deciduous tree
- Coniferous tree
- Concrete
- Gravel/sand (as noted)
- Asphalt
- Building line

(R#)

Reference surveys

(OH)

Overhead

(UG)

Underground

(TYP)

Typical

(C)

Calculated

(M)

Measured

- (R#)

Reference surveys
- (OH)

Overhead
- (UG)

Underground
- (TYP)

Typical
- (C)

Calculated
- (M)

Measured

FOUND 2" IRON PIPE W/TACK, IN
12" CONC. CHANNEL, INTERSECTION OF S MERIDIAN ST &
STATE ROUTE 512 ON/OFF RAMP
(MARCH 2022)

S MERIDIAN ST
(PUBLIC R.O.W.)

14TH AVE SE

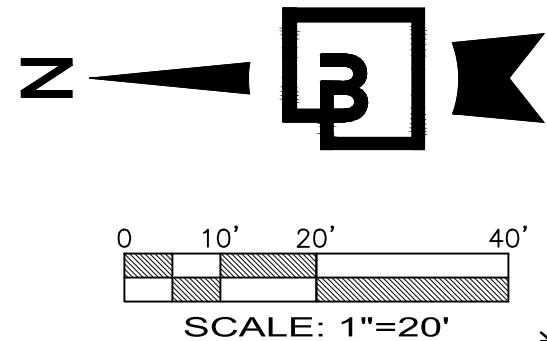
APN 7730000031
1320 S MERIDIAN

TITLE PARCEL B

APN 7730000021
1320 S MERIDIAN

SR 512

ALTA/NSPS LAND TITLE SURVEY



FOUND 2" SURFACE BRASS DISK
W/PUNCH, IN 12" ROUND OUTPUT
IN ASPHALT, INTERSECTION OF
15TH AVE SW & S MERIDIAN
(MARCH 2022)

ADDED TOPO AND UTILITIES TO THE ROAD SOUTH OF THE SITE TO
15TH AVE SE

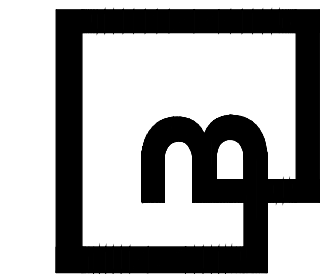
Revision	No.	Date	By	Chk.	Appr.
1	7/18/23	KJR	MKA		

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

Scale:	
Horizontal 1"=20'	Vertical
Designed _____	
AEF _____	
Drawn _____	
MKA _____	
Checked _____	
Approved _____	
MKA _____	
7/19/23	

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



Job Number
21730

Sheet
2 of 2

FOR
ARCO ampm PUYALLUP
SEC. 33, TWN. 20 N, RGE. 4 E, W.M.
CITY OF PUYALLUP, PIERCE COUNTY

TYPE III LANDSCAPING
MIN. 6' W., 146 LF
1 TREE PER 40 LF=4 TREES REQ
4 TREES PROVIDED
SHRUBS 7.5' OC

APN 7730000283
NKA

SHRUBS SHALL BE INSTALLED MIN. 2.5
FT. FROM THE INSIDE EDGES OF
PAVEMENT AND CURBS, TYP.

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



NO TREE DUE TO LOT LIGHT
AND UNDERGROUND UTILITIES

TYPE III LANDSCAPING
MIN. 6' W., 145 LF
1 TREE PER 40 LF=4 TREES REQ.
4 TREES PROVIDED
SHRUBS 7.5' OC

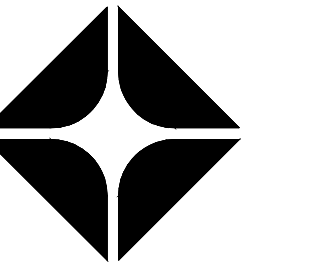
BUILDINGS	10'
UTILITY AND STREET LIGHT POLES	10'
FIRE HYDRANTS	5'
DRIVEWAY (OUTER PAVING EDGE)	7.5'
STOP LIGHT SIGNAL POLES	20'
UNDERGROUND WATER, SANITARY SEWER OR STORM SEWER LINES	10'
UNDERGROUND GAS, POWER OR OTHER CONDUIT	3'
INTERSECTION (FACE OF CURB LINE CORNER AT INTERSECTION)	30'
STREET SIGNS (EXCL. PARKING SIGNS)	30' LEADING SIDE, 10' TRAILING SIDE

Staff:
Date:

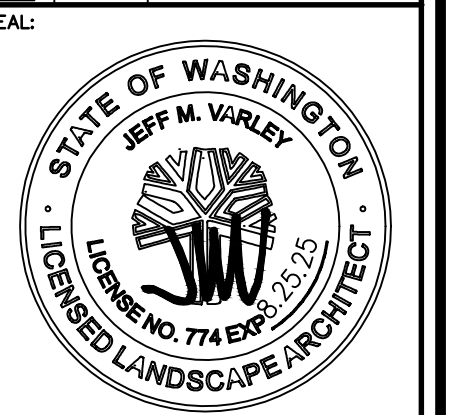
THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE PLANNING MANAGER, DESIGNER, OR PROJECT PLANNER.

NOTE: If street trees are required, Call Hazzard Division for final inspection: (253) 864-4165 (Option 3). Root Barriers are required around street trees in accordance with city standard detail. Top soil shall be installed in accordance with city standards - field verification required. Failure to install top soil and root barriers in accordance with city standards may result in rejection of installation.

NOTE: THIS APPROVAL IS VOID
AFTER 180 DAYS FROM APPROVAL
DATE.
THE CITY WILL NOT BE
RESPONSIBLE FOR ERRORS
AND/OR OMISSIONS ON THESE
PLANS.
FIELD CONDITIONS MAY DICTATE
CHANGES TO THESE PLANS AS
DETERMINED BY THE WATER
PURVEYOR.



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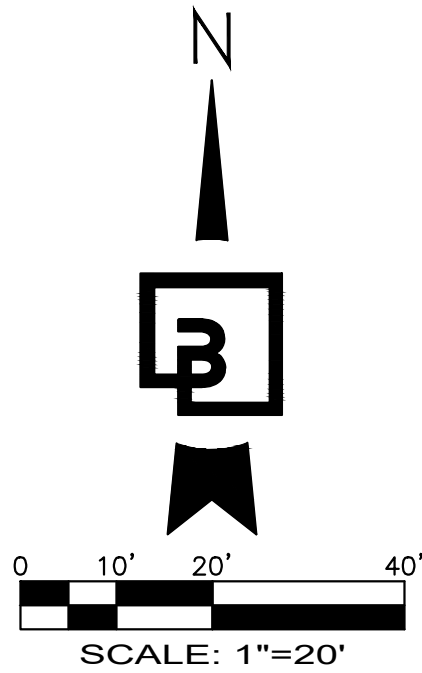
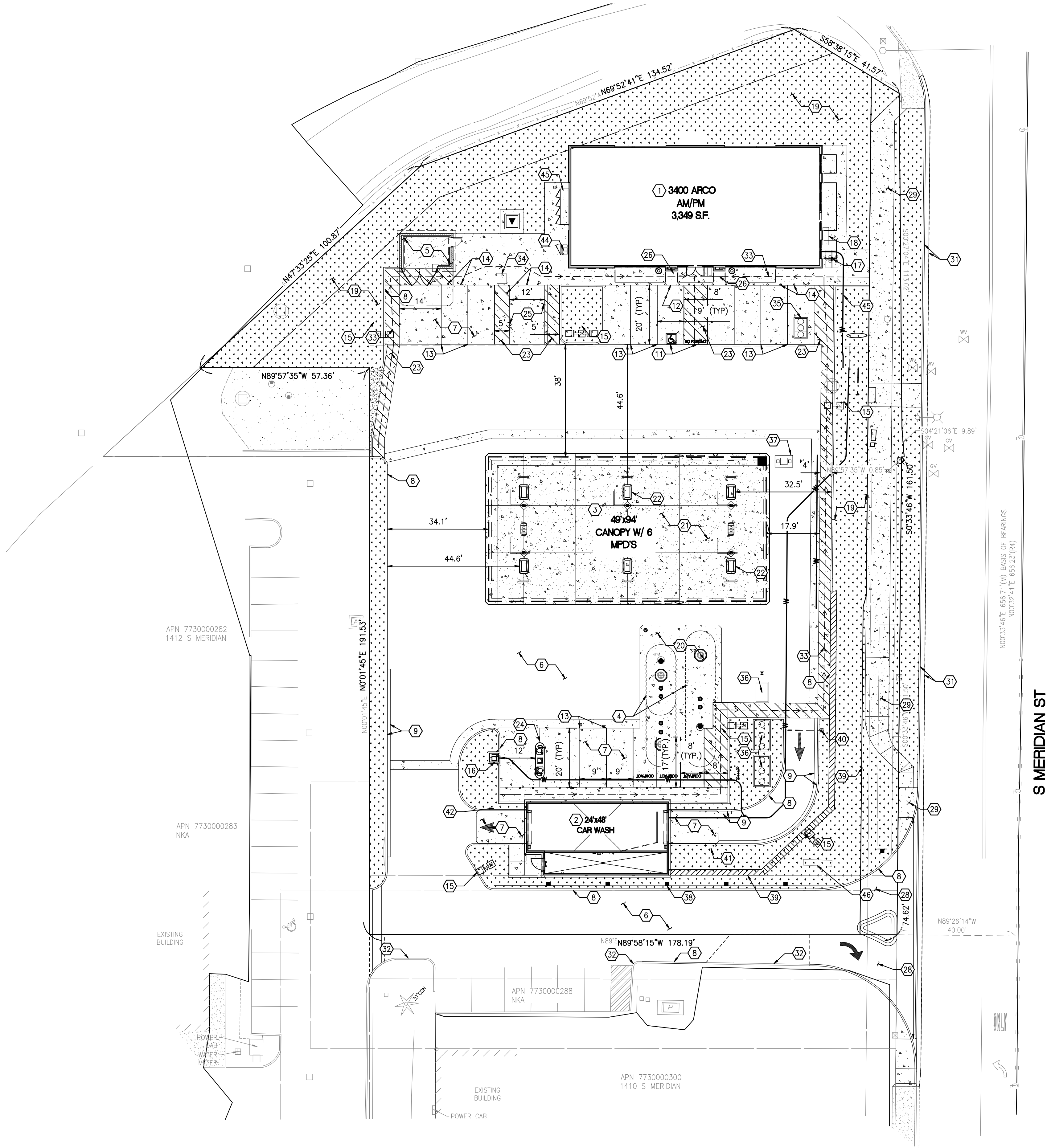


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CONSTRUCTION NOTES:

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 ARCHITECTURAL 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.

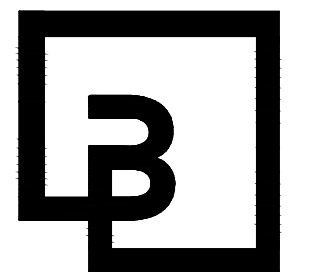
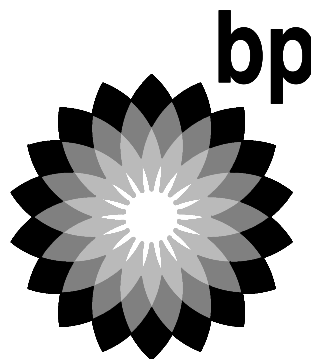
ARCHITECTURAL SITE PLAN



GENERAL NOTES

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

CLIENT:

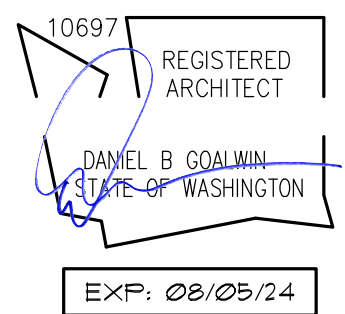


**Barghausen
Consulting Engineers, Inc.**

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

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SEAL:



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&D&C
CHECKED BY:	BP REPM
DRAWN BY:	ALLIANCE PM
VERSION:	PROJECT NO: 21730

DRAWING TITLE:

**ARCHITECTURAL
SITE PLAN**

SHEET NO:

AS1.0

04300 – 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) 20 (floor finishes) and (f) 17 (floor levels) 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 scuffing 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.

3.11.1 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. Fill holes and openings of other trades 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 final 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, 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. Record areas of coating to heavy rainfall within 3 hours after initial application. Maintain continuity of sealing 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 cover.
3. Moisture-retaining cover curing: cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends taped 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 forms: 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 of not less than 50 Deg F (10 Deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to be removed 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 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 the rods and bolts down to solid concrete with no case to a depth less than 1 inch. Mix 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 wet, blend white portland cement and standard portland cement so, when dry, patching mortar will match surrounding color. Provide test areas or inconspicuous locations to verify mortar 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 surfaces containing defects that affect the concrete's durability, surface finish, appearance, and/or appearance. Repair defects that affect the concrete's durability, surface finish, appearance, and/or appearance by grinding or otherwise repairing 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 or 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 tests for each 50 cu yd. More than 20 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 1037 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 comparison laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing in 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 may make additional tests of in-place concrete when test results indicate specific 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 core complying with ASTM C 42, or by other methods as directed.

END OF SECTION

04200 – UNIT MASONRY

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes the following:

1. Concrete unit masonry.

1.02 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops the following installed compressive strengths (f'm):

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 in 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 21.1.1.4 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 surfaces.

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: supply 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, shot, control joints, headers, bonding, and other special conditions.
- b. Bulnose 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 I, 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 I, 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 1.

- 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 in 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-wire 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-way, Inc.
3. Hedman 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 joint 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, for each different exposed masonry unit required.

- 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" 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-way, Inc.
3. Hedman 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 (leeve 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 applications.
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 types indicated below without discoloring or damaging masonry surfaces; expressly approved for intended use by manufacturer of masonry units being cleaned:

1. For fast-in-place and post-installed anchors in concrete: capability to sustain, without failure, a load equal to 4 times loads imposed by masonry.

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, proportion 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 by irregular 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 location 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 than 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 1/2-unit length for one-half running bond or 1/3-unit length for one-third running bond, do not touch. 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. Fit in solidly with masonry built-in items.

1. Where built-in items are to be embedded in cores of hollow masonry "T" units, place a layer of metal lath below specified compression strength by more than 500 PSI.

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 grout.
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 joint 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 "T" and "Y" sections. Cut and bend reinforcement units as directed by manufacturer for continuity of 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 over 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 with resin and seal with hot and cold rosin putty to prevent moisture loss and curing shrinkage.
2. Install prefabricated control joint gaskets designed to fit standard sash block.

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 Standards" 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 indicated are the following:

- 1. WCLB – West Coast Lumber Inspection Bureau.
- 2. WMPA – 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 finish pieces with grade stamps applied to ends or back of each piece; cut end 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. Some species are 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 WMPA 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 "F_b" for single and repetitive members, and for modulus of elasticity "E":
 - a. Group I species, "F_b" of 900 PSI and "E" 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 as finished, nailed, blocked, girding, and similar systems in grading rule.
- 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 WMPA 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 WCLB or WMPA rules or "No. 2 boards" per WMPA 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 by 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, and-glued with a top-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 (F_b): 2800 PSI (for 1½-inch deep members).
- 4. Modulus of elasticity (E): 2,000,000 PSI
- 5. Tension parallel to grain (F_t): 1850 PSI
- 6. Compression parallel to grain (F_c): 2700 PSI
- 7. Compression perpendicular to grain: 400 PSI and 500 PSI perpendicular and parallel to glue line.
- 8. Horizontal shear (F_v): 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, (LVL), 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 Standards for Construction and Industrial "Product" for plywood construction panels, or 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 (ash) 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 I-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 stud–in-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 blocking 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 blocking 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. Milwork panels: for all interior finish milwork, provide hardwood plywood panels with grade designation, APA A Exposure 1, in thickness 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," Simpler 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 brods: 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 conforming to model code requirements 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.

C. 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 AWWA 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 WPA 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 contact with roofing, flashing, vapor barriers, and wood waterproofing.

D. Wood nails, 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 AWWA 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 score 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 members 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 nails 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 2304.1(1) – Fastening Schedule of the International Building Code.
- 5. Table 2305.2 (2) – Allowable Shear for Wood Structural Panel Blocked Diagrams of the International Building Code.
- 6. Table 2306.3 (1) – Allowable Shear for Wood Structural Panel Shear Walls of the International Building Code.
- 7. 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 members, 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 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

06192 – PREFABRICATED WOOD TRUSSES (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, "F_b" of 1200/1400 PSI for wood-frame 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, brods, 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. Install trusses in place by means of lifting members or jacks by cut-off, plane bending 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. Install 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 cut-off, 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

07210 – BUILDING INSULATION

PART 1 – GENERAL

1.01 SUMMARY

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

- 1. Concealed building insulation in batt form.
- 2. Board-type rigid insulation for exterior installation of walk-in freezer.
- 3. Board type rigid insulation for below-grade foundation perimeter installation.

B. Roof insulation is specified in Section 0753.1.

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 homogeneous 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 identified to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL, 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. Prefomed units: sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.

C. Foundation perimeter insulation and underside rigid insulation: Extruded polystyrene closed cell, boards of thicknesses indicated, with aged K-value of 0.17, (aged at 50% RH, and 73–deg. F for 180 days), 1½-lb. per cu. ft. minimum density comply with Fed. Spec. HH–1–530, 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 face faced in areas not covered by gypsum board, all other areas to be kraft paper faced. Line of the top story. Where firestops are not automatically provided by the framing members, use closely fitted wood blocks of nominal 2–inch-thick lumber of the same width as framing members.

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 manufacturers:

- 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.

END OF SECTION

07240 – ALUMINUM COMPOSITE METAL PANEL SYSTEM

PART 1 GENERAL

1.1 General

A. This section includes Aluminum faced composite panels with mounting system. Panel mounting system including anchorms, 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 1928: Standard test method for determining impact resistance 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 braced 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.

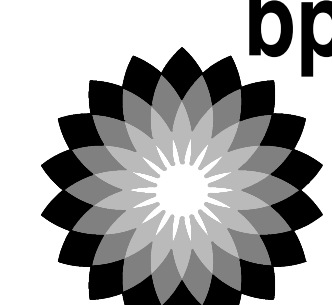
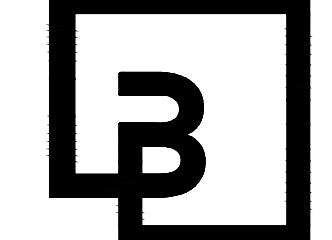
PART 2 PRODUCTS

7.1. Composite panels

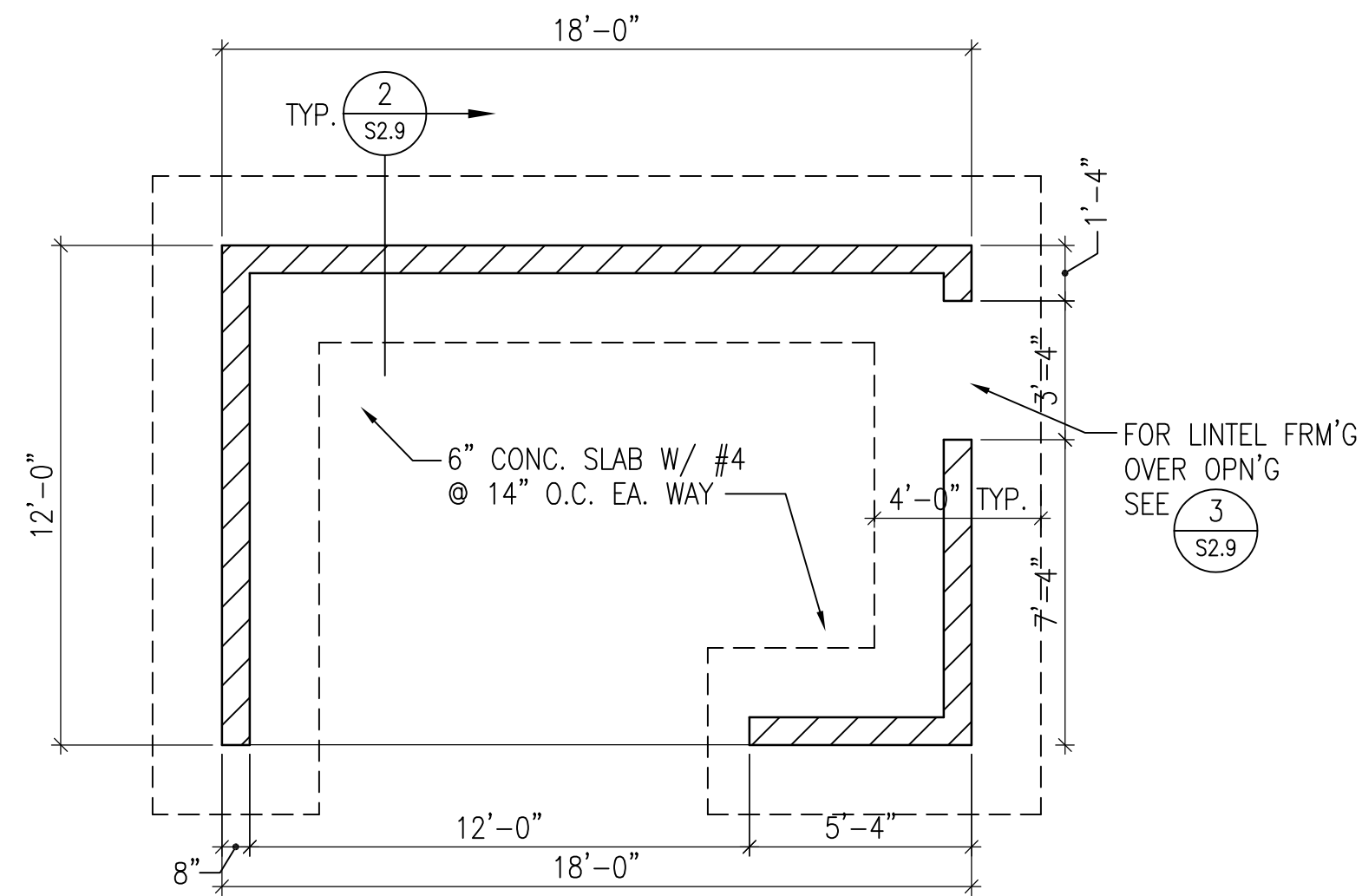
A. Panels shall be Alucobond material manufactured by Federal Health Visual Communications, 1840

Outside Avenue, Racine, WI (2

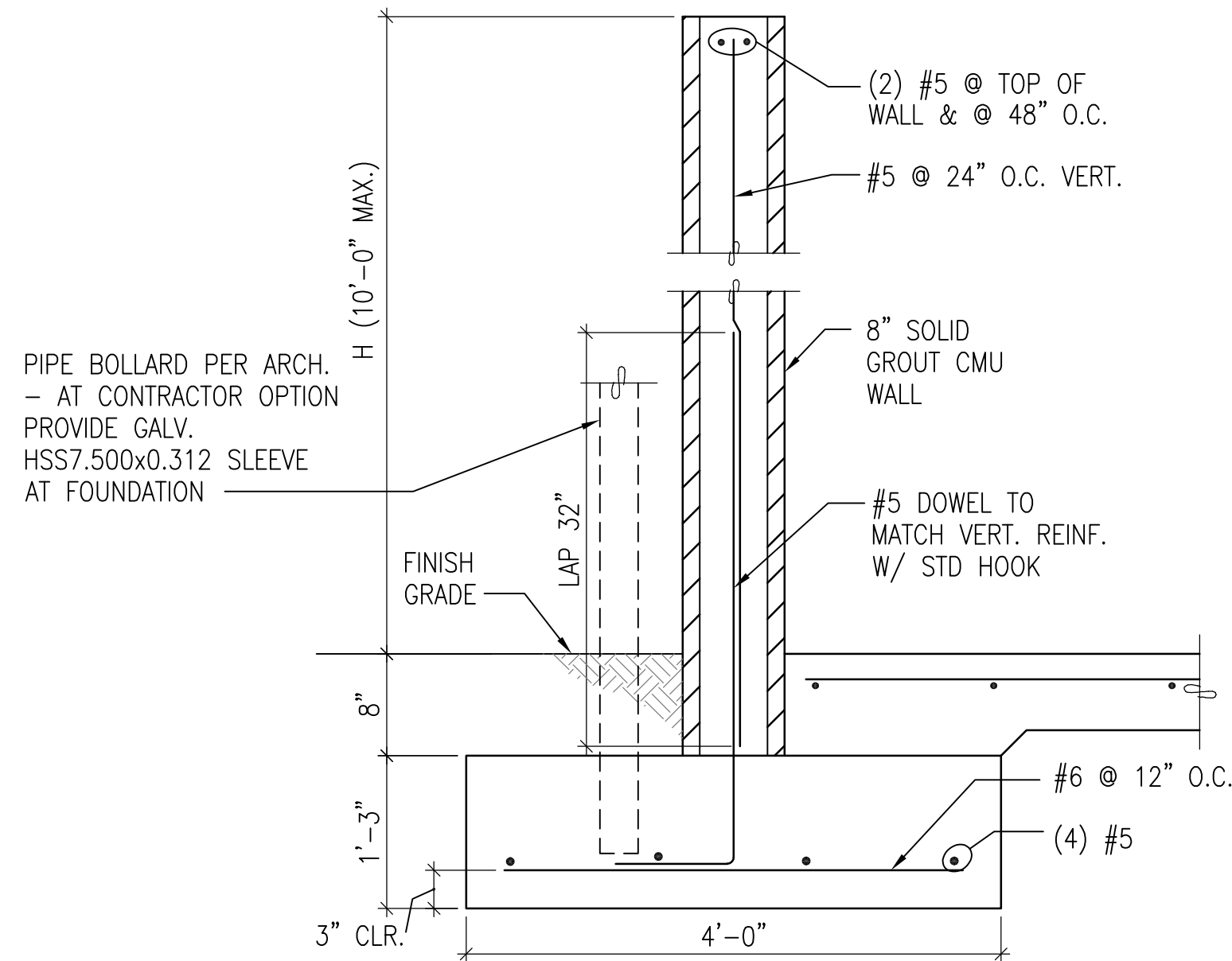
C. Manufacturer Certificates:		D. Maintenance Data: Manufacturer's complete recommended maintenance procedures for the roofing system, including precautions and warnings to prevent damage and deterioration to the roof system.		E. Warranty: Roof manufacturer's Limited Warranty with Product Data Submittal, including evidence of application for warranty.		F. Manufacturer's Reports:	
1. Material Certificate: Signed by roofing manufacturer certifying that related 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. 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.	
2. A single applicator with a minimum of five years previous successful experience in installations of similar systems with two years experience sealing 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.	
2. Form must be completed and submitted to manufacturer to obtain warranty.		3. Complete the pre-installation notification form (PIN) online. Go to manufacturer's website www.firestonebuilding.com/contractors and log into contractor area using contractor license number and password.		C. Pre-Installation Conference: Conduct conference of 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 PROTECTION 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, oilspotting and other defects.	
e. Other objectionable defects.		f. Any failure in roofing and flashing causing the roof system to become unserviceable in any manner.		g. 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 Certificate 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 NIAA, 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/AMA IPR-1): 60 mils minimum.		c. Breaking Strength (ASTM D751, Grab Method): 220 lb. minimum.		d. Tearing Strength (ASTM D751), Tongue Tear: 120 lb.		e. Dimensional stability (ASTM D 1204): 6 hours at 180 deg. F, 1.0 percent maximum.	
f. Low Temperature Bend: ASTM D 2136: +40 degrees F Maximum.		g. Py Adhesion: ASTM D 413, Strip specimen, Type A Machine Method, 80 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, 80 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; InvaliWeld 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 Details: 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, face or both major surfaces. Manufactured or approved by TPO membrane roofing manufacturer. See Drawings for total insulation thickness or required R-value.	
a. Firestone Building Products Company; ISO 95+		b. No substitutions allowed.		c. Compressive Strength: ASTM D 1621, minimum 20 psi.		d. Density: Minimum 2 lbs/sq.ft.	
e. Insulation thickness: Insulation shall be built up to the thickness indicated using a minimum of 2 layers with staggered joints.		f. Minimum Thickness per Layer: 1 inch.		g. 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 rollers are properly installed to receive roofing system.		4. Surfaces in contact with any single ply material are free from blumen, 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, face, 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.	
12. Taper insulation a minimum of 24-inches in each direction around scuppers and drains to provide for proper drainage.		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 daylight cuts.		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 work with high seal. Tie off with a water stop to the structural deck to prevent water flow into the 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 securing.		6. Roof system manufacturer's representative shall be on site at the start of project to supervise operations and to inspect and approve seams.	
7. 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 using fasteners, penetrations, and perimeter of roofing.	
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. Seant joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form movable joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).		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, compatible 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 movement to both sides of the joint.		B. Fabricate non-moving seams in sheet metal with flat-lock seams. Tin edges to be seamed, field 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. Seant joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form movable joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).	
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, compatible 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 movement to both sides of the joint.		B. Fabricate non-moving seams in sheet metal with flat-lock seams. Tin edges to be seamed, field 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. Seant joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form movable joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).		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. 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 and prior experience. Apply primer to both sides of 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.		PART 3 – EXECUTION	
3.01 EXAMINATION		A. Examine joints indicated to receive joint sealers, with installer present, for compliance with requirements for joint configurations, 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 and prior experience. Apply primer to both sides of 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.		PART 3 – EXECUTION		3.01 INSTALLATION	
A. Install standard steel doors, frames, and accessories in accordance with final shop drawings.		B. Provide factory primed doors and frames to be field painted.		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.		F. Doors: seamless, hollow or composite construction standard steel doors.		G. Frames: pressed steel frames and interior glazed panels of welded unit type.		H. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
I. Provide factory primed doors and frames to be field painted.		J. Doors: seamless, hollow or composite construction standard steel doors.		K. Frames: pressed steel frames and interior glazed panels of welded unit type.		L. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
M. Provide factory primed doors and frames to be field painted.		N. Doors: seamless, hollow or composite construction standard steel doors.		O. Frames: pressed steel frames and interior glazed panels of welded unit type.		P. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
Q. Provide factory primed doors and frames to be field painted.		R. Doors: seamless, hollow or composite construction standard steel doors.		S. Frames: pressed steel frames and interior glazed panels of welded unit type.		T. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
U. Provide factory primed doors and frames to be field painted.		V. Doors: seamless, hollow or composite construction standard steel doors.		W. Frames: pressed steel frames and interior glazed panels of welded unit type.		X. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
Y. Provide factory primed doors and frames to be field painted.		Z. Doors: seamless, hollow or composite construction standard steel doors.		AA. Frames: pressed steel frames and interior glazed panels of welded unit type.		AB. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
AC. Provide factory primed doors and frames to be field painted.		AD. Doors: seamless, hollow or composite construction standard steel doors.		AE. Frames: pressed steel frames and interior glazed panels of welded unit type.		AF. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
AG. Provide factory primed doors and frames to be field painted.		AH. Doors: seamless, hollow or composite construction standard steel doors.		AI. Frames: pressed steel frames and interior glazed panels of welded unit type.		AJ. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
AK. Provide factory primed doors and frames to be field painted.		AL. Doors: seamless, hollow or composite construction standard steel doors.		AM. Frames: pressed steel frames and interior glazed panels of welded unit type.		AN. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
AO. Provide factory primed doors and frames to be field painted.		AP. Doors: seamless, hollow or composite construction standard steel doors.		AQ. Frames: pressed steel frames and interior glazed panels of welded unit type.		AR. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
AS. Provide factory primed doors and frames to be field painted.		AT. Doors: seamless, hollow or composite construction standard steel doors.		AU. Frames: pressed steel frames and interior glazed panels of welded unit type.		AV. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
AW. Provide factory primed doors and frames to be field painted.		AX. Doors: seamless, hollow or composite construction standard steel doors.		AY. Frames: pressed steel frames and interior glazed panels of welded unit type.		AZ. Assemblies: provide standard steel door and frame assemblies as required for thermal rated (Insulated) applications.	
BA. Provide factory primed doors and frames to be field painted.		BB. Doors: seamless, hollow or composite construction standard steel doors.					

08410 – ALUMINUM ENTRANCES AND STOREFRONT, PART 3 – EXECUTION (CONTINUED) 1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show required 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. Disinfect Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points. 2. Weatheright Construction: Install all members and other members in a bed of sealant or with joint filler or gaskets, to provide weatheright construction. Coordinate installation with wall fastenings and other components of construction. a. Refer to Division 7 Joint Treatments (Sedants) for installation requirements. B. Related Products Installation Requirements: 1. Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sedants) Section. 2. Glaze: Refer to Division 8 Glass And Glazing Section. C. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and CANA 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 ANMA 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.	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. Operator A. All devices shall be in types and functions specified in the Door Hardware Schedule. All devices must be listed under "Panic Hardware" in current 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 A156.16, "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. NWMA industry standard (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 polybutylene 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 08710 – FINISH HARDWARE 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 of 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 thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items in 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-primed 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 surface 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 both 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. a. 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-swing pins. 3. Type: 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 key 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 LOOKS, LATCHES, AND BOLTS A. Provide the products indicated in the Door Hardware Schedule. B. Strikes: provide manufacturer's standard wrought bar strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated. C. Lock throw provide 1/2 inch minimum throw of latch for bare and pre-assembled types of locks and 3/4 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 WEATHERSTRIPPING A. Provide Weatherstripping which is durable and appropriate for the location and use.	1. AFO 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 E744 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 types of proven compatibility with other materials they will contact, including glass products, units 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-beding mastic glazing tape without spacer rod: a. FTI 303 glazing tape (without stain), Protective Treatments, Inc. b. Tremco 440 Tape, Tremco Inc. 2. Back-beding mastic glazing tape with spacer rod: a. FTI 303 glazing tape (with stain), Protective Treatments, Inc. b. Pre-assembled 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 applicable standards of foam, 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. PART 1 – GENERAL 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, nonshrinking, nonexpanding, nonswelling, 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 glass openings indicated for project, with edge and face clearances, edge and surface conditions, and lites 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 rise or drift glass with a pry bar. Rotate glass lites with fingers or bleeds 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 all 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 09200 – GYPSUM DRYWALL 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-216 recommended specifications for the application and finishing of gypsum board. C. ASTM C847 – installation of steel framing members to receive screw-attached gypsum wallboard, backing board, or water-resistant backing board. D. S HH-1-S21D- 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 T" 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. The backing board: maximum permissible lengths, thickness and indicated on the drawings. Georgia-Pacific "DensShield" for 1/2" thickness and Georgia-Pacific "DensShield" freestay 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 "T". Sizes are recommended by gypsum board manufacturer for wall and ceiling applications. C. For interior work:	lengths; expanded metal flanges, with square edges. 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 of 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 opening. 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 (e.g. fire extinguisher cabinets) shall be "boxed in" or enclosed with the same construction as the rated wall. 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 fittings, to produce surface ready to receive surface finishes. Feather-out joints into adjacent surfaces so that camber is a maximum 1/16 inch. END OF SECTION 09220 – PORTLAND CEMENT PLASTER (STUCCO) 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. The Section 09300 1.03 REFERENCES A. ASTM C150 – portland cement. B. ASTM C208 – finishing hydrated lime. C. ASTM C631 – bonding compounds for interior plastering. D. ASTM C987 – 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. 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 rise or drift glass with a pry bar. Rotate glass lites with fingers or bleeds 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 all 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 09200 – GYPSUM DRYWALL 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-2A-216 recommended specifications for the application and finishing of gypsum board. C. ASTM C847 – installation of steel framing members to receive screw-attached gypsum wallboard, backing board, or water-resistant backing board. D. S HH-1-S21D- 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 T" 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. The backing board: maximum permissible lengths, thickness and indicated on the drawings. Georgia-Pacific "DensShield" for 1/2" thickness and Georgia-Pacific "DensShield" freestay type "X" for 5/8" thickness. 2.02 PLASTER FINISH MATERIALS A. Cement: as specified for plaster base coat, white color. B. Lime: as specified for plaster base coat. 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 C831; 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 project. B. Metal lath at soffits ASTM C847; flat diamond non-furred and non-locked mesh, galvanized, 3.4 lb./yd. C. Underlayment: asphalt saturated no. 30 felt, non-perforated. D. Coating bead formed zinc; minimum 26 gauge thick; depth governed by plaster thickness; maximum possible	CLIENT:   BP WEST COAST PRODUCTS, LLC  Barghausen Consulting Engineers, Inc. 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com <table><tr><th>NO.</th><th>DATE</th><th>REVISION DESCRIPTION</th></tr><tr><td>1</td><td></td><td></td></tr><tr><td>2</td><td></td><td></td></tr><tr><td>3</td><td></td><td></td></tr><tr><td>4</td><td></td><td></td></tr><tr><td>5</td><td></td><td></td></tr><tr><td>6</td><td></td><td></td></tr><tr><td>7</td><td></td><td></td></tr><tr><td>8</td><td></td><td></td></tr><tr><td>9</td><td></td><td></td></tr><tr><td>10</td><td></td><td></td></tr><tr><td>11</td><td></td><td></td></tr><tr><td>12</td><td></td><td></td></tr><tr><td>13</td><td></td><td></td></tr><tr><td>14</td><td></td><td></td></tr><tr><td>15</td><td></td><td></td></tr><tr><td>16</td><td></td><td></td></tr><tr><td>17</td><td></td><td></td></tr><tr><td>18</td><td></td><td></td></tr><tr><td>19</td><td></td><td></td></tr><tr><td>20</td><td></td><td></td></tr><tr><td>21</td><td></td><td></td></tr><tr><td>22</td><td></td><td></td></tr><tr><td>23</td><td></td><td></td></tr><tr><td>24</td><td></td><td></td></tr><tr><td>25</td><td></td><td></td></tr><tr><td>26</td><td></td><td></td></tr><tr><td>27</td><td></td><td></td></tr><tr><td>28</td><td></td><td></td></tr><tr><td>29</td><td></td><td></td></tr><tr><td>30</td><td></td><td></td></tr><tr><td>31</td><td></td><td></td></tr><tr><td>32</td><td></td><td></td></tr><tr><td>33</td><td></td><td></td></tr><tr><td>34</td><td></td><td></td></tr><tr><td>35</td><td></td><td></td></tr><tr><td>36</td><td></td><td></td></tr><tr><td>37</td><td></td><td></td></tr><tr><td>38</td><td></td><td></td></tr><tr><td>39</td><td></td><td></td></tr><tr><td>40</td><td></td><td></td></tr><tr><td>41</td><td></td><td></td></tr><tr><td>42</td><td></td><td></td></tr><tr><td>43</td><td></td><td></td></tr><tr><td>44</td><td></td><td></td></tr><tr><td>45</td><td></td><td></td></tr><tr><td>46</td><td></td><td></td></tr><tr><td>47</td><td></td><td></td></tr><tr><td>48</td><td></td><td></td></tr><tr><td>49</td><td></td><td></td></tr><tr><td>50</td><td></td><td></td></tr><tr><td>51</td><td></td><td></td></tr><tr><td>52</td><td></td><td></td></tr><tr><td>53</td><td></td><td></td></tr><tr><td>54</td><td></td><td></td></tr><tr><td>55</td><td></td><td></td></tr><tr><td>56</td><td></td><td></td></tr><tr><td>57</td><td></td><td></td></tr><tr><td>58</td><td></td><td></td></tr><tr><td>59</td><td></td><td></td></tr><tr><td>60</td><td></td><td></td></tr><tr><td>61</td><td></td><td></td></tr><tr><td>62</td><td></td><td></td></tr><tr><td>63</td><td></td><td></td></tr><tr><td>64</td><td></td><td></td></tr><tr><td>65</td><td></td><td></td></tr><tr><td>66</td><td></td><td></td></tr><tr><td>67</td><td></td><td></td></tr><tr><td>68</td><td></td><td></td></tr><tr><td>69</td><td></td><td></td></tr><tr><td>70</td><td></td><td></td></tr><tr><td>71</td><td></td><td></td></tr><tr><td>72</td><td></td><td></td></tr><tr><td>73</td><td></td><td></td></tr><tr><td>74</td><td></td><td></td></tr><tr><td>75</td><td></td><td></td></tr><tr><td>76</td><td></td><td></td></tr><tr><td>77</td><td></td><td></td></tr><tr><td>78</td><td></td><td></td></tr><tr><td>79</td><td></td><td></td></tr><tr><td>80</td><td></td><td></td></tr><tr><td>81</td><td></td><td></td></tr><tr><td>82</td><td></td><td></td></tr><tr><td>83</td><td></td><td></td></tr><tr><td>84</td><td></td><td></td></tr><tr><td>85</td><td></td><td></td></tr><tr><td>86</td><td></td><td></td></tr><tr><td>87</td><td></td><td></td></tr><tr><td>88</td><td></td><td></td></tr><tr><td>89</td><td></td><td></td></tr><tr><td>90</td><td></td><td></td></tr><tr><td>91</td><td></td><td></td></tr><tr><td>92</td><td></td><td></td></tr><tr><td>93</td><td></td><td></td></tr><tr><td>94</td><td></td><td></td></tr><tr><td>95</td><td></td><td></td></tr><tr><td>96</td><td></td><td></td></tr><tr><td>97</td><td></td><td></td></tr><tr><td>98</td><td></td><td></td></tr><tr><td>99</td><td></td><td></td></tr><tr><td>100</td><td></td><td></td></tr></table> 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: CHECKED BY: DRAWN BY: VERSION: PROJECT NO: 21730 DRAWING TITLE: SHEET NO: A7.5	NO.	DATE	REVISION DESCRIPTION	1			2			3			4			5			6			7			8			9			10			11			12			13			14			15			16			17			18			19			20			21			22			23			24			25			26			27			28			29			30			31			32			33			34			35			36			37			38			39			40			41			42			43			44			45			46			47			48			49			50			51			52			53			54			55			56			57			58			59			60			61			62			63			64			65			66			67			68			69			70			71			72			73			74			75			76			77			78			79			80			81			82			83			84			85			86			87			88			89			90			91			92			93			94			95			96			97			98			99			100		
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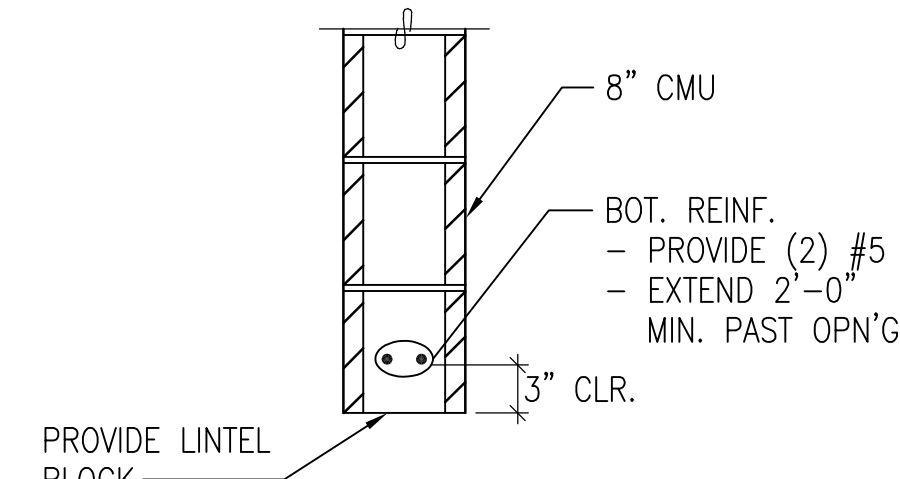
09250 – METAL SUPPORT ASSEMBLIES, PART 3 – EXECUTION (CONTINUED)	C. Fit runners under and above openings; secure intermediate studs at spacing of wall studs.	D. Install studs vertically at 16 inches (400mm) O.C.; unless indicated otherwise on drawings. Install felt strips between wall and stud where 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.	G. 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.	H. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work placed in or behind partition framing.	I. Coordinate erection of studs with requirements of door and window frame supports and attachments.	J. 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 edge leg 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: - Wall tile. - 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 the substrates and finished tile surfaces. Locate precisely each joint and crack in the substrates by measuring, record measurements on shop drawings, and coordinate them with the joint locations.	D. Samples for initial selection purposes in form of manufacturer's color chart consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.	E. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected. - Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted. - 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 required 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: thinslet bond coat, dry-set cementitious mortar, ANSI A118.1.	C. Sill sealer: latex Portland cement mortar; ANSI A118.4, composition as follows: - Latex additive (water emulsion) of type described below, serving as replacement for part or all of grouting water, combined with job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer. - Latex type: manufacturer's standard.	D. Control joint membrane: use Megal plastic/latic 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. 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: - Nominal facial dimensions: as indicated on the drawings. - Nominal thickness as indicated on the drawings. - 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: - Size: as indicated, coordinated with sizes and coursing of adjoining flat tile where applicable. - Shapes: as follows, selected from manufacturer's standard shapes: - Base for thinslet mortar installations: cove base with bullnose - External corners for thinslet installations: surface bullnose. - Internal corners: field-buffed square corners, except use covered base and cap angle pieces designed to member with stretcher shapes.	C. 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. - Acoustical ceiling units: furnish quantity of full-size units equal to 2.0 percent of amount installed. - 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. 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 anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.	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 system.	2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit perimeter of ceiling.	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: nonshrinking, 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.	1. Locate joints in the surfaces directly above joints in concrete substrates.	H. Grout tile to comply with the requirements of the following installation standards: - For ceramic tile grouts (standard Portland cement, dry-set, commercial Portland cement, and latex Portland cement grouts), comply with ANSI A108.10. - 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: - Organic adhesive: ANSI A108.4. - Gypsum board, interior: TCA W242. - 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. Remove latex Portland cement grout residue from tile as soon as possible.	B. 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 to 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 the tile is without damage or deterioration at time of substantial completion. - 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. - 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	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. Extend 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. - Flame spread: 25 or less. - Smoke developed: 450 or less.	1.03 PROJECT CONDITIONS	A. Do not begin installation until spaces to receive FRP wall panels have been enclosed and maintained at approximately the same humidity and temperature conditions as planned for occupancy. Maintain temperature and humidity as recommended by panel manufacturer.	PART 2 – PRODUCTS	2.01 FRP WALL PANELS, GENERAL	B. FRP panels: provide the manufacturer's standard size, USDA approved, mold and mildew resistant, panels fabricated from fiberglass reinforced plastic, minimum thickness required for UL Class 3 fire-resistance rating, with embossed surface and integral color.	1. Manufacturer: - See drawings - 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. Cut units to be at least 50 percent of unit width. Butt joints tightly.	B. Anchor paneling to supporting substrate with adhesive; install spliced-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, joint, 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. 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 prefabricated 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. 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 contains 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. 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.	B. Mechanical and electrical work: painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.	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. Zinc chromate primer	E. Galvanized metal primer: primer used to prime interior and exterior zinc-coated (galvanized) metal surfaces: 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 substrate 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. - 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. - 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 gloss. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. - Use abrasive blast cleaning methods if recommended by the paint manufacturer. - 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. - 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 sander/paper, 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 filler. Sand smooth when dried.	2. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backings 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 unpried 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, and loose mill scale by sandblasting or other mechanical cleaning. Use special mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council. - Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC-SP 10. - Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming. - 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. - Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue. - 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. - 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 is specified. Do not mix colors 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. - Provide finish coats that are compatible with primers used. - 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. - 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. - 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. - 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 or furniture. - Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint. - Paint back sides of access panels and removable or hinged covers to match exposed surfaces. - Finish interior of wall and base cabinets and similar field-finished casework to match exterior. - Finish exterior doors on tops, bottoms, and side edges same as exterior faces. - Sand lightly between each succeeding enamel or varnish coat. - 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. 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.	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, skip 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, skips, 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. 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: - Quantitative materials analysis. - Abrasion resistance. - Apparent reflectivity. - Flexibility. - Washability. - Absorption. - Accelerated weathering. - Dry opacity. - Accelerated yellowness. - Recoating. - Shining. - Color retention. - 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. 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 hinges. 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: 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: 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 change: Contractor furnished and installed.	END OF SECTION	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. 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: - Nominal facial dimensions: as indicated on the drawings. - Nominal thickness as indicated on the drawings. - 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: - Size: as indicated, coordinated with sizes and coursing of adjoining flat tile where applicable. - Shapes: as follows, selected from manufacturer's standard shapes: - Base for thinslet mortar installations: cove base with bullnose - External corners for thinslet installations: surface bullnose. - Internal corners: field-buffed square corners, except use covered base and cap angle pieces designed to member with stretcher shapes.	C. 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. - Acoustical ceiling units: furnish quantity of full-size units equal to 2.0 percent of amount installed. - 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. 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 anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.	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 system.	2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit perimeter of ceiling.	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: nonshrinking, 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.	1. Locate joints in the surfaces directly above joints in concrete substrates.	H. Grout tile to comply with the requirements of the following installation standards: <
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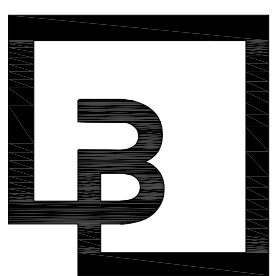
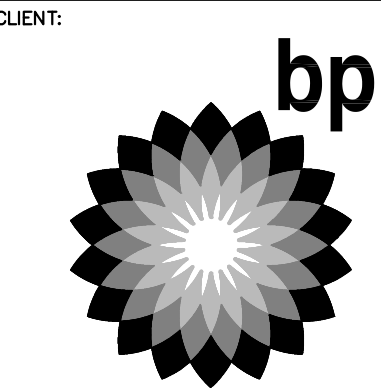
1
2.9
TRASH ENCLOSURE FOUNDATION PLAN
1/4"=1'-0"



2
S2.9
SECTION
1"=1'-0"



3
S2.9
SECTION
NO SCALE



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

NO.	DATE	REVISION	DESCRIPTION
-	10/04/23	BD	SET
1			
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8			
9			
10			



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

SITE ADDRESS:
1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

DESIGNED BY:	SJW	ALLIANCE ZADON:
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 $K_{zt} = 1.0$
- 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) $V = C_s W$

WHERE $C_s = \frac{S_{ps}}{(\frac{R}{I_e})}$; WITH

C_s MINIMUM = 0.044 $S_{ps} I_e \geq 0.01$
OR
 C_s MINIMUM = $\frac{0.5 S_1}{I_e}$ FOR $S_1 > 0.6g$

C_s MAXIMUM = $\frac{S_{p1}}{T(\frac{R}{I_e})}$ FOR $T \leq T_L$
OR
 C_s MAXIMUM = $\frac{S_{p1} T_L}{T^2(\frac{R}{I_e})}$ 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 $S_{ps} = 0.845$ & $S_{p1} = 0.543$
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, $R = 6.5$
 $C_s = 0.130$
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 ($F_y = 45$ 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 PROTOCOLS.

INDICATOR PILES: THE LENGTH OF THE PILE REQUIRED AND THE PILE INSTALLATION SHALL BE VERIFIED IN THE FIELD BY A QUALIFIED INSPECTOR WHO WILL EVALUATE THE CONTRACTOR'S OPERATION AND COLLECT, INTERPRET AND RECORD DATA. A MINIMUM OF TWO INDICATOR PILES SHALL BE DRIVEN BEFORE ORDERING PRODUCTION PILES TO ESTIMATE THE TRUE PILE LENGTHS AND DETERMINE DRIVING CHARACTERISTICS AND PROBLEMS. A QUALIFIED INSPECTOR SHALL EVALUATE INSTALLATION OF INDICATOR PILES.

CONCRETE

CAST-IN-PLACE CONCRETE

MIX DESIGNS: THE CONTRACTOR SHALL DESIGN CONCRETE MIXES THAT MEET OR EXCEED THE REQUIREMENTS OF THE CONCRETE MIX TABLE. THE MIX DESIGNS SHALL FACILITATE ANTICIPATED PLACEMENT METHODS, WEATHER, REBAR CONGESTION, ARCHITECTURAL FINISHES, CONSTRUCTION SEQUENCING, STRUCTURAL DETAILS, AND ALL OTHER FACTORS REQUIRED TO PROVIDE A STRUCTURALLY SOUND, AESTHETICALLY ACCEPTABLE FINISHED PRODUCT. WATER REDUCING ADMIXTURES WILL LIKELY BE REQUIRED TO MEET THESE REQUIREMENTS. CONCRETE MIX DESIGNS SHALL CLEARLY INDICATE THE TARGET SLUMP. SLUMP TOLERANCE SHALL BE $\pm 1-1/2$ INCHES.

AGGREGATE: COARSE AND FINE AGGREGATE SHALL CONFORM TO ASTM C33

CEMENT: CEMENT SHALL CONFORM TO ASTM C150, TYPE II PORTLAND CEMENT, UNLESS NOTED OTHERWISE.

FLYASH: SHALL CONFORM TO ASTM C618 CLASS C OR F, MAXIMUM LOSS OF IGNITION SHALL BE 1.0%.

SLAG: GROUND GRANULATED BLAST-FURNACE (GGBF) SLAG SHALL CONFORM TO ASTM C989 GRADE 100 OR 120.

ALTERNATE MIX DESIGNS: VARIATIONS TO THE MIX DESIGN PROPORTIONS MAY BE ACCEPTED IF SUBSTANTIATED IN ACCORDANCE WITH ACI 318, CHAPTER 19. PROVIDE SUBMITTALS A MINIMUM OF TWO WEEKS PRIOR TO BID FOR DETERMINATION OF ACCEPTABILITY.

ADMIXTURES: ADMIXTURES SHALL BE BY MASTER BUILDERS, W.R. GRACE, OR PRE-APPROVED EQUAL. ALL MANUFACTURERS RECOMMENDATIONS SHALL BE FOLLOWED.

WATER: SHALL BE CLEAN AND POTABLE.

MAXIMUM CHLORIDE CONTENT: THE MAXIMUM WATER SOLUBLE CHLORIDE CONTENT SHALL NOT EXCEED 0.15% BY WEIGHT OF CEMENTITIOUS MATERIAL UNLESS NOTED OTHERWISE.

CONCRETE EXPOSED TO WEATHER: PROVIDE 5.0% TOTAL AIR CONTENT FOR ALL CONCRETE EXPOSED TO WEATHER. TOTAL AIR CONTENT IS THE SUM OF ENTRAINED AIR PROVIDED BY ADMIXTURES AND NATURALLY OCCURRING ENTRAPPED AIR. AIR CONTENT SHALL BE TESTED PRIOR TO BEING PLACED IN THE PUMP HOPPER OR BUCKET; IT IS NOT REQUIRED TO BE TESTED AT THE DISCHARGE END OF THE PUMP HOSE. THE TOLERANCE ON ENTRAPPED AIR SHALL BE +2.0% AND -1.5% WITH THE AVERAGE OF ALL TESTS NOT LESS THAN THE SPECIFIED AMOUNT.

TOTAL CEMENTITIOUS MATERIAL: THE SUM OF ALL CEMENT PLUS FLYASH AND SLAG. AT THE CONTRACTORS OPTION FLYASH OR SLAG MAY BE SUBSTITUTED FOR CEMENT BUT SHALL NOT EXCEED 25% BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL. IN NO CASE SHALL THE AMOUNT OF FLYASH OR SLAG BE LESS THAN REQUIRED BY THE CONCRETE MIX DESIGN TABLE. FOOTING MIXES SHALL CONTAIN NOT LESS THAN 5 SACKS OF CEMENTITIOUS MATERIAL PER CUBIC YARD, ALL OTHER MIXES SHALL CONTAIN NOT LESS THAN 5-1/2 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)	AGGREGATE 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.

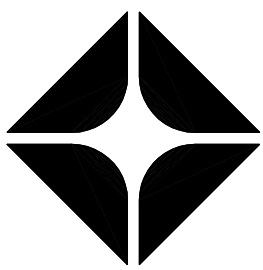
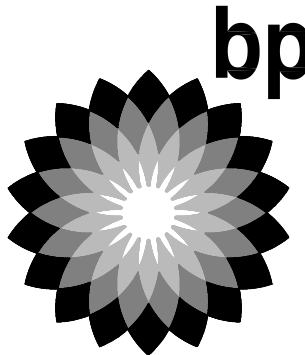
FORMED SURFACES:

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

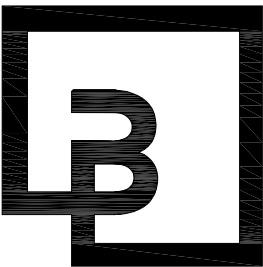
COLD WEATHER PLACEMENT

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 WEST COAST PRODUCTS, LLC



Barghausen Consulting Engineers, Inc.

18215 72nd Avenue South
Kent, WA 98032
425.251.6222
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NO.	DATE	REVISION DESCRIPTION
-	10/04/23	BD SET
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SEAL:



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 ZADM:
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)

AS DEFINED BY ASTM C90, SECTION 5.3.1. COMPRESSIVE STRENGTH AS NOTED ABOVE.

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.

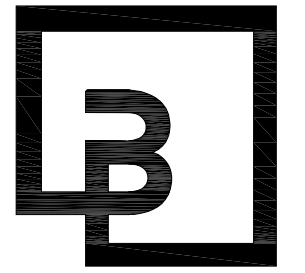
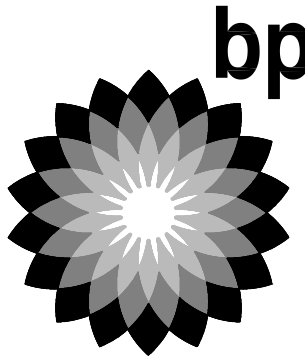
GENERAL REQUIREMENTS

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.

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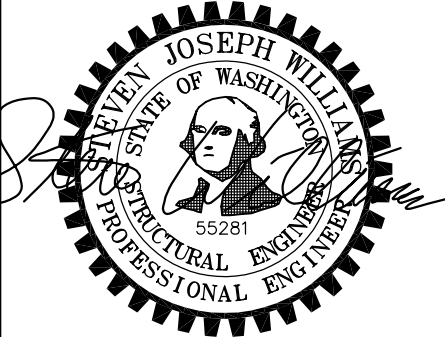


Barghausen Consulting Engineers, Inc.

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NO.	DATE	REVISION	DESCRIPTION
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SEAL:



DEVELOPMENT INFORMATION:

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

SITE ADDRESS:

1402 S MERIDIAN
PUYALLUP, WA 98371

FACILITY #7184

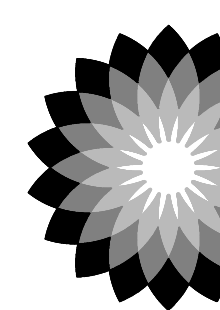
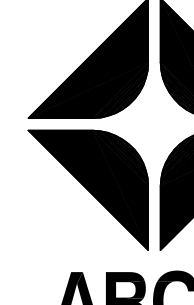
DESIGNED BY: SJW	ALLIANCE ZONE:
CHECKED BY: SJW	BP REPAIR:
DRAWN BY: SAA	ALLIANCE PM:
VERSION:	PROJECT NO:
-	21730

DRAWING TITLE:

GENERAL NOTES

SHEET NO:

S3.2

bp   ARCO BP WEST COAST PRODUCTS, LLC			
B Barghausen Consulting Engineers, Inc. 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com			
NO.	DATE	REVISION	DESCRIPTION
-	10/04/2013	BD	SET
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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&M: CHECKED BY: SJW BP REPM: DRAWN BY: SAA ALLIANCE PM: VERSION: PROJECT NO: - 21730			
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 ACI 318: 17.8.2 AISC 360 SECTION N7 ACI 318, CH 19
	ANCHORS CAST IN CONCRETE-PRIOR TO AND DURING PLACEMENT OF CONCRETE		X		
	VERIFY USE OF REQUIRED DESIGN MIX		X		
	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	

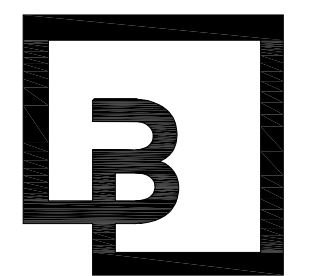
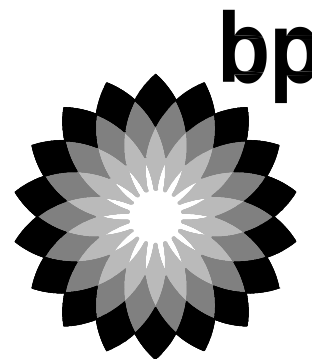
TESTING AND SPECIAL INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER WORK IS PERFORMED ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO OWNER, CONTRACTOR, BUILDING OFFICIAL, ARCHITECT AND STRUCTURAL ENGINEER.

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:

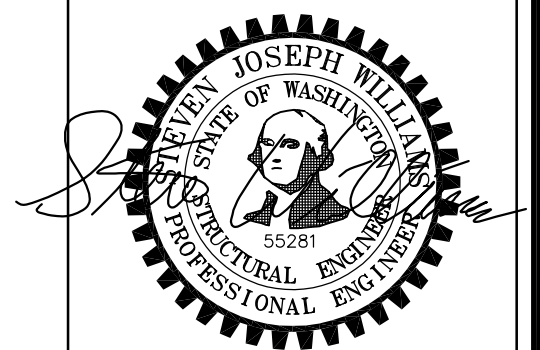


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Consulting Engineers, Inc.**

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

NO.	DATE	REVISION	DESCRIPTION
-	10/04/23	BID	SET
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

SEAL:



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

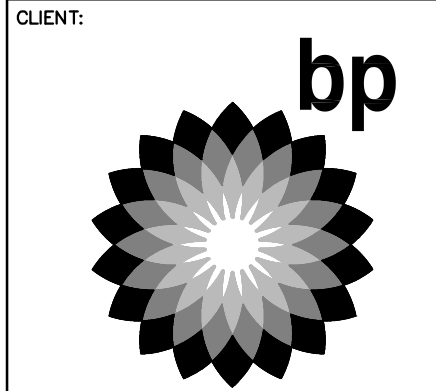
DRAWING TITLE:

GENERAL NOTES

SHEET NO:

S3.4

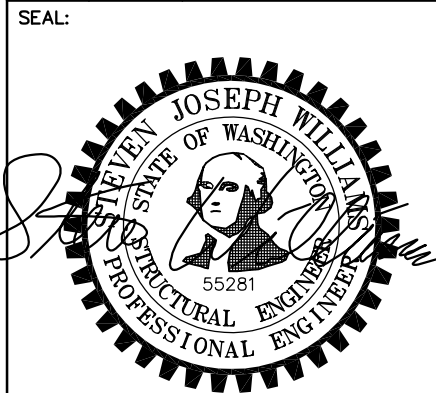
ABBREVIATION LIST					
@	AT	ELEV.	ELEVATOR	MTL	METAL
A.B.	ANCHOR BOLT	ENGR.	ENGINEER	N.F.	NEAR FACE
ADD'L	ADDITIONAL	EQ.	EQUAL	N.S.	NEAR SIDE
A.F.F.	ABOVE FINISH FLOOR	E.W.	EACH WAY	NTS	NOT TO SCALE
ALT.	ALTERNATE	EXP.	EXPANSION	O.C.	ON CENTER
ARCH.	ARCHITECTURAL	EXT.	EXTERIOR	OPN'G	OPENING
BLD'G	BUILDING	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	PL	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
CL	CENTERLINE	GR.	GRADE	SCHED.	SCHEDULE
CLR.	CLEARANCE	GWB	GYPSTUM 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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