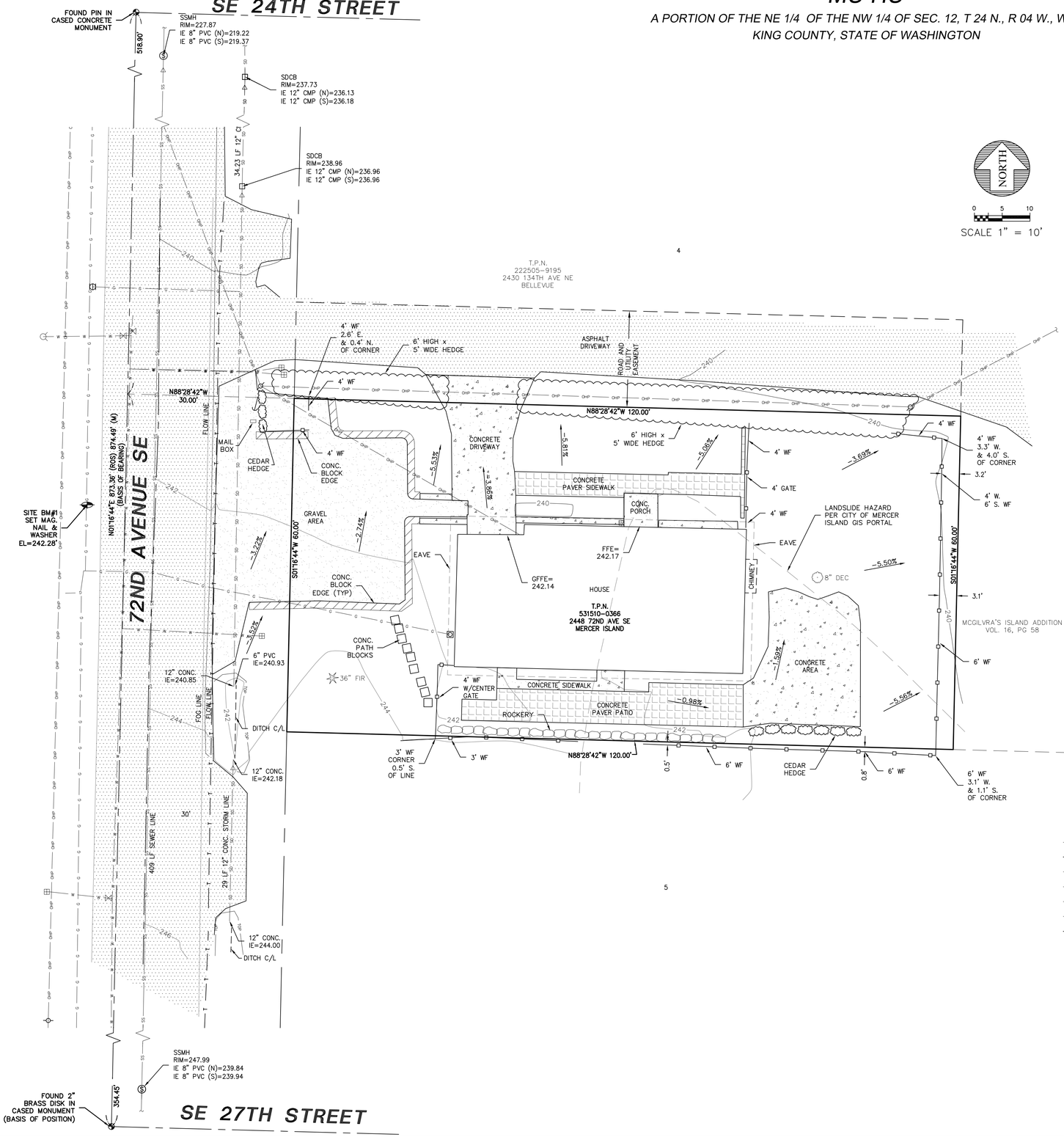
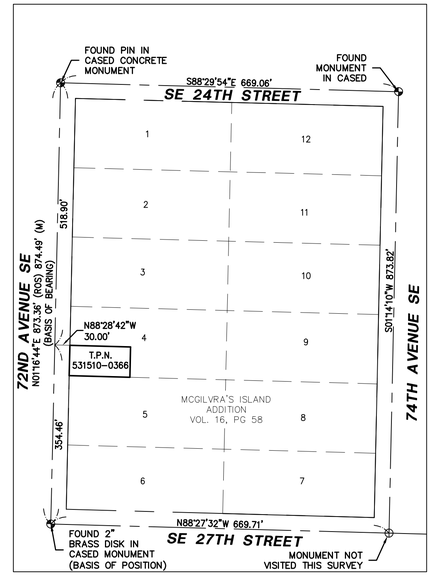
MU HU

A PORTION OF THE NE 1/4 OF THE NW 1/4 OF SEC. 12, T 24 N., R 04 W., W.M.
KING COUNTY, STATE OF WASHINGTON





CONTROL DETAIL 1"=150'

LEGEND

	FOUND MONUMENT IN CASE
	MONUMENT NOT VISITIED
	FOUND REBAR & CAP
	BENCHMARK
(ROS)	RECORD OF SURVEY 449/13
(M)	MEASURED
	WATER VALVE
	FIRE HYDRANT
	WATER METER
	IRRIGATION CONTROL VALVE
	SEWER MANHOLE
	CATCH BASIN
	GAS VALVE
	MAILBOX
	ROCKERY
	UTILITY POLE
	GUY ANCHOR
	GAS METER
OHP	OVERHEAD POWER LINE
T	FIBER OPTIC LINE
W	WATER LINE
SD	STORM LINE
SS	SEWER LINE
G	GAS LINE
	WOOD FENCE (WF)
	HEDGE LINE
	EVERGREEN TREE
	DECIDUOUS TREE
	CONCRETE
	ASPHALT
	GRAVEL

SURVEY NOTES:

1. HORIZONTAL DATUM: NAD83-2011 EPOCH 2010.00 ESTABLISHED BY OBSERVATIONS TO THE WASHINGTON STATE REFERENCE NETWORK.

2. BASIS OF POSITION: HELD THE FOUND CONCRETE MONUMENT WITH 2" BRASS DISK, IN CASE, AT THE CENTERLINE INTERSECTION OF SE 27TH STREET AND 72ND AVE SE. (SEE MAP FOR LOCATION)

3. BASIS OF BEARING: HELD THE BEARING OF N01°16'44"E BETWEEN THE ABOVE NOTED BASIS OF POSITION AND FOUND CONCRETE MONUMENT WITH BRASS PIN, IN CASE, AT THE CENTERLINE INTERSECTION OF SE 24TH ST AND 72ND AVE SE. (SEE MAP FOR LOCATION)

THIS SURVEY HOLDS RECORD OF SURVEY RECORDED IN VOLUME 449 OF SURVEYS, PAGE 13, FOR THE BLOCK SHOWN HEREON.

A ROTATION OF 00°00'10" WAS APPLIED TO THE SURVEY IN TO BE ON THE ABOVE NOTED DATUM

4. THE FOLLOWING INFORMATION WAS ALSO REFERENCED IN PREPARING THE BOUNDARY SHOWN HERE ON:

A) RECORD OF SURVEY AS RECORDED IN VOLUME 396 OF SURVEYS, PAGE 297, RECORDS OF KING COUNTY, WA.

B) MCGILVRA'S ISLAND ADDITION, ACCORDING TO THE PLAT THEREOF RECORDRED IN VOLUME 16 OF PLATS, PAGE 58, RECORDS OF KING COUNTY, WASHINGTON.

C) KING COUNTY ASSESSOR'S MAP FOR THE NORTHWEST QUARTER OF SECTION 12, TOWNSHIP 24N, RANGE 4E, W.M.

5. VERTICAL DATUM: NAVD 88

MASTER BENCHMARK: WASHINGTON STATE REFERENCE NETWORK, ELEVATION WAS DETERMINED BY GNSS OBSERVATIONS ON SITE BM #1.

SITE BM #1: SET MAG NAIL WITH TAG IN ASPHALT 2.5 FEET WEST OF WEST FOG LINE ON 72ND AVE SE, +/- 30' SOUTHEAST OF FIRE HYDRANT. ELEVATION= 242.28 FEET

6. TRAVERSING AND DATA COLLECTION WERE PERFORMED USING A SPECTRA AND/OR TRIMBLE 5 SECOND TOTAL STATION. ALL FIELD WORK WAS PERFORMED, AND EQUIPMENT MAINTAINED, IN COMPLIANCE WITH WAC 332-130.

ADDITIONAL FIELD WORK WAS PERFORMED USING SPECTRA SP-80 GNSS POSITIONING SYSTEMS, THE WASHINGTON STATE REFERENCE NETWORK, AND/OR THE NATIONAL GEODETIC SURVEY'S ONLINE POSITIONING USER SERVICE (OPUS).

7. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES UNLESS OTHERWISE NOTED.

8. MONUMENTS SHOWN AS FOUND AND TOPOGRAPHIC INFORMATION SHOWN HEREON ARE THE RESULT OF A SURVEY BY ENCOMPASS, COMPLETED IN JANUARY 2022.

9. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT. OTHER EASEMENTS AND ENCUMBRANCES MAY EXIST ON THIS PROPERTY THAT ARE NOT SHOWN HEREON.

10. THE LEGAL DESCRIPTION SHOWN HEREON IS PER STATUTORY WARRANTY DEED AS RECORDED UNDER RECORDING NO. 20161129002481, RECORDS OF PIERCE COUNTY, WASHINGTON.

11. THE SUBJECT PROPERTY CONTAINS 7,200 SQUARE FEET OR 0.165 ACRES MORE OR LESS.

12. THE PURPOSE OF THIS EXHIBIT IS TO SHOW EXISTING CONDITIONS ON THE SUBJECT PROPERTY.

13. THE AVERAGE CONTOUR ELEVATION WITHIN THE VICINITY OF THE BUILDING FOOTPRINT IS ACCURATE WITHIN 6 INCHES VERTICALLY AND HORIZONTALLY FROM ACTUAL ELEVATIONS.

LEGAL

THE SOUTH 60 FEET OF THE WEST 120 FEET OF LOT 4, BLOCK 5, MCGILVRA'S ISLAND ADDITION, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 16 OF PLATS, PAGE 58, IN KING COUNTY, WASHINGTON;

TOGETHER WITH AN EASEMENT FOR ROAD AND UTILITY PURPOSES OVER THE SOUTH 17.33 FEET OF THE NORTH 77.33 FEET OF THE WEST 120 FEET OF SAID LOT 4, BLOCK 5, MCGILVRA'S ISLAND ADDITION.

REVISIONS		
DESCRIPTION	BY	DATE

KEVIN M. REESE — WASHINGTON — 49911 — REGISTERED PROFESSIONAL LAND SURVEYOR

BOUNDARY TOPOGRAPHIC SURVEY FOR MU HU

Encompass
ENGINEERING & SURVEYING
Western Washington Division
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250 • Fax: (425) 391-3055
Eastern Washington Division
407 Southwater Blvd. • Cle Elum, WA 98922 • Phone: (509) 674-7433 • Fax: (509) 674-7419

JOB NO.	21782
DATE	10/26/22
SCALE	1"=10'
DESIGNED	N/A
DRAWN	LFM
CHECKED	JLS
APPROVED	KMR
SHEET	1 OF 1

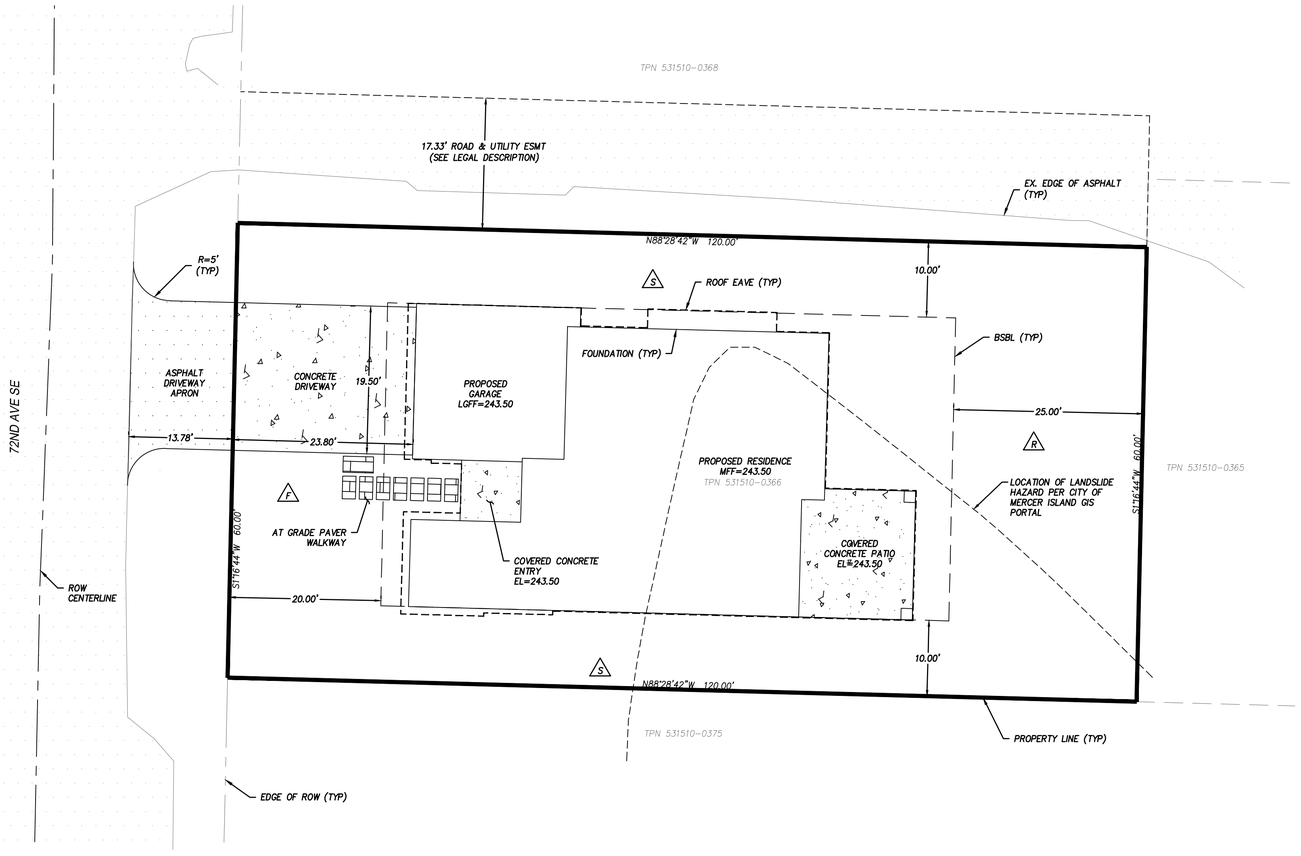
HU RESIDENCE

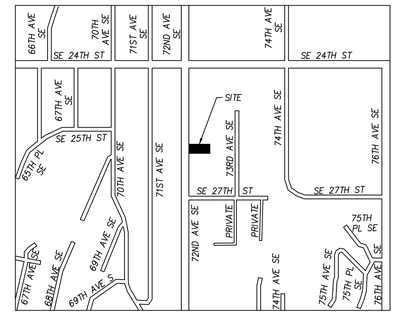
SE 1/4 OF SE 1/4 OF SECTION 12, T. 24 N., R. 04 E., W.M.
CITY OF MERCER ISLAND, KING COUNTY, STATE OF WASHINGTON

NORTH

0 5 10

SCALE 1" = 10'





VICINITY MAP
NTS

PROJECT TEAM:

OWNER:	HU MU 2448 72ND AVE SE MERCER ISLAND, WA 98040 (469) 396-6167
CIVIL ENGINEER/ SURVEYOR:	BRIANA BENNINGTON, PE / KEVIN REESE, PLS ENCOMPASS ENGINEERING & SURVEYING 165 N.E. JUNIPER STREET, SUITE 201 ISSAQUAH, WA 98027 (425) 392-0250
ARCHITECT:	PAUL MONSEF, RA ATERA DESIGN STUDIO, LLC 451 DUVALL AVE NE, SUITE 115 RENTON, WA 98059 (425) 306-2758
GEOTECHNICAL ENGINEER:	MARC McGINNIS, PE GEOTECH CONSULTANTS, INC. 2401 10TH AVE E SEATTLE, WA 98102 (425) 747-5618

SITE DATA:

SITE ADDRESS:	2448 72ND AVE SE MERCER ISLAND, WA 98040
SITE AREA:	7,200 SF (0.165 AC) - AS SURVEYED
TAX PARCEL:	531510-0366

UTILITY DISTRICT INFORMATION:

WATER/SEWER:	CITY OF MERCER ISLAND (206) 275-7608
FIRE DISTRICT:	MERCER ISLAND FIRE DEPARTMENT (206) 275-7607
CABLE TV:	COMCAST (800) 934-6489
GAS/ELECTRIC:	PUGET SOUND ENERGY (888) 321-7779

ZONING INFORMATION:

ZONING:	R-9.6
(F) FRONT YARD SETBACK:	20'
(S) SIDE YARD SETBACK:	10'
(R) REAR YARD SETBACK:	25'

ON-SITE IMPERVIOUS COVERAGE:

HOUSE (ROOF):	2,383 SF
UNCOVERED PAVER WALKWAY:	45 SF
UNCOVERED CONCRETE DRIVEWAY (ON-SITE)*:	444 SF
TOTAL:	2,872 SF (39.89%)

*NOTE: AN ADDITIONAL 312 SF OF PROPOSED ASPHALT DRIVEWAY IS LOCATED OFF-SITE IN THE PUBLIC ROW.

LEGAL DESCRIPTION:

THE SOUTH 60 FEET OF THE WEST 120 FEET OF LOT 4, BLOCK 5, MCGILVRA'S ISLAND ADDITION, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 16 OF PLATS, PAGE 58, IN KING COUNTY, WASHINGTON;

TOGETHER WITH AN EASEMENT FOR ROAD AND UTILITY PURPOSES OVER THE SOUTH 17.33 FEET OF THE NORTH 77.33 FEET OF THE WEST 120 FEET OF SAID LOT 4, BLOCK 5, MCGILVRA'S ISLAND ADDITION.

EXISTING UTILITY NOTE:

ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.

CONTRACTOR RESPONSIBILITY:

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

DISCREPANCIES:

IF THERE ARE ANY DISCREPANCIES BETWEEN DIMENSIONS IN DRAWINGS AND EXISTING CONDITIONS WHICH WILL AFFECT THE WORK, THE CONTRACTOR SHALL BRING SUCH DISCREPANCIES TO THE ATTENTION OF THE ENGINEER FOR ADJUSTMENT BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF ALL WORK AND FOR THE COORDINATION OF ALL TRADES, SUBCONTRACTORS, AND PERSONS ENGAGED UPON THIS CONTRACT.

GENERAL NOTES:

1. SPECIAL INSPECTIONS BY CITY INSPECTOR ARE REQUIRED DURING CONSTRUCTION. GENERAL CONTRACTOR TO COORDINATE.
2. ALL EXISTING ON-SITE STRUCTURES AND ASSOCIATED UTILITIES TO BE DEMOLISHED, REMOVED, AND/OR ABANDONED PER APPLICABLE JURISDICTIONAL REQUIREMENTS.
3. DEFICIENCIES, WHETHER CAUSED BY CONTRACTOR OPERATIONS OR NOT CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL MAINTAIN ROADS AND STREETS ADJACENT TO THE PROJECT LIMITS WHEN AFFECTED BY THE CONTRACTOR'S OPERATION. THE CONTRACTOR SHALL REMOVE OR REPAIR ANY CONDITION RESULTING FROM THE WORK THAT MIGHT IMPEDE TRAFFIC OR CREATE A HAZARD. PUBLIC ROADWAYS SHALL BE BROOMED CLEAN AT THE END OF EACH WORK DAY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, AND ANY OTHER DEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC AND PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF THE WORK COVERED BY THE CONTRACT.
6. ROCKERIES AND/OR RETAINING WALLS TO BE CONSTRUCTED PER GEOTECHNICAL AND/OR STRUCTURAL ENGINEER'S PLANS AND SPECIFICATIONS.
7. ALL CONSTRUCTION TECHNIQUES AND MATERIALS SHALL BE PER CITY OF MERCER ISLAND STANDARDS/SPECIFICATIONS.

SITE IMPROVEMENT NOTES:

1. THE PROPOSED PROJECT CONSISTS OF INSTALLING SITE UTILITIES, INSTALLING THE STRUCTURE FOUNDATIONS, BACKFILLING AND FINAL GRADING. THE WORK WILL REQUIRE THE CONSTRUCTION OF TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES. ANY TEMPORARY SHORING AND/OR PERMANENT RETAINING WALLS THAT MAY BE REQUIRED SHALL BE ADDRESSED BY THE PROJECT STRUCTURAL AND GEOTECHNICAL ENGINEERS.
2. EXISTING UTILITIES HAVE BEEN SHOWN FOR CONVENIENCE BASED ON SURVEY MAPPING OF THE PROJECT SITE AND ADJACENT CITY RIGHT-OF-WAY. THE CONTRACTOR SHALL LOCATE ALL PRIMARY AND SECONDARY UTILITIES (I.E.: SIDE SEWERS, GAS, ELECTRICAL, COMMUNICATIONS, WATER, STORM DRAINAGE, ETC.) VIA POTHOLING PRIOR TO CONSTRUCTION. CONFLICTS WITH ANY PROPOSED CONSTRUCTION ELEMENTS SHALL BE RESOLVED PRIOR TO BEGINNING CONSTRUCTION. A CONFLICT IS GENERALLY DEFINED AS A UTILITY THAT IS LOCATED WITHIN A ZONE 3 FEET OR LESS BELOW OR BESIDE, OR 5 FEET OR LESS ABOVE ANY UTILITY.
3. PROTECTION OF CITY IMPROVEMENTS WITHIN ROW SHALL TAKE PLACE AT ALL TIMES DURING CONSTRUCTION.
4. ANY WORK BEYOND THE LIMITS OF THE PROPERTY LINES SHALL REQUIRE A CONSTRUCTION EASEMENT TO BE REVIEWED AND APPROVED BY THE CITY PRIOR TO BEGINNING CONSTRUCTION.
5. SOIL SHALL BE AMENDED PER CITY STANDARDS. SEE SOIL AMENDMENT NOTES ON SHEET 2.
6. THE CONTRACTOR SHALL HAVE APPROVED PLANS, STANDARD NOTES, STANDARD DETAILS AND SPECIFICATIONS AVAILABLE ON JOBSITE.

SHEET INDEX:

TITLE	NO.
COVER SHEET & SITE PLAN	1
TESC PLAN	2
TESC DETAILS	3
GRADING & UTILITY PLAN	4
CONSTRUCTION DETAILS	5

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

REVISIONS

DESCRIPTION	BY	DATE
REVISED PER CITY COMMENTS #1	BLB	10/27/2022
REVISED PER CITY COMMENTS #2	BLB	03/06/2023
REVISED PER CITY COMMENTS #3	BLB	05/01/2023

BRIANA BENNINGTON — STATE OF WASHINGTON — 21036187 — REGISTERED PROFESSIONAL ENGINEER

05/01/2023

HU RESIDENCE
2448 72ND AVE SE - MERCER ISLAND, WA 98040
COVER SHEET & SITE PLAN

Encompass
ENGINEERING & SURVEYING
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250
Western Washington Division
407 Swiftwater Blvd. • Cle Elum, WA 98922 • Phone: (509) 674-7433
Eastern Washington Division

JOB NO.	21782
DATE	05/01/2023
SCALE	1"=10'
DESIGNED	BLB
DRAWN	PMS
CHECKED	CP
APPROVED	CP
SHEET	1 of 5

FILENAME: J:\21\21782 - HU\ENGINEERING\PLAN SHEETS\1 - COVER.DWG

HU RESIDENCE

SE 1/4 OF SE 1/4 OF SECTION 12, T. 24 N., R. 04 E., W.M.
CITY OF MERCER ISLAND, KING COUNTY, STATE OF WASHINGTON

NORTH

0 5 10

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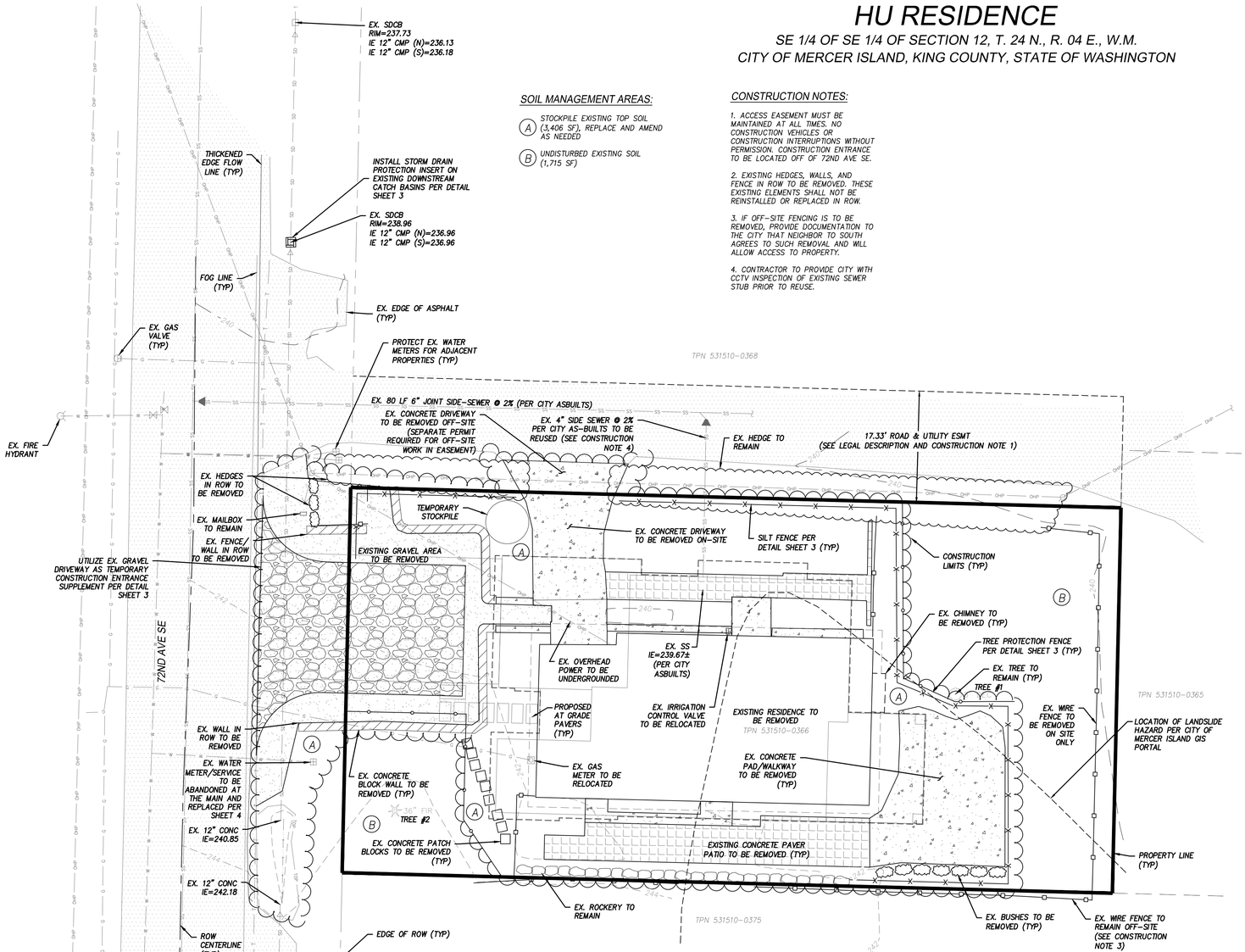

SOIL MANAGEMENT AREAS:

(A) STOCKPILE EXISTING TOP SOIL (3,406 SF), REPLACE AND AMEND AS NEEDED

(B) UNDISTURBED EXISTING SOIL (1,715 SF)

CONSTRUCTION NOTES:

1. ACCESS EASEMENT MUST BE MAINTAINED AT ALL TIMES. NO CONSTRUCTION VEHICLES OR CONSTRUCTION INTERRUPTIONS WITHOUT PERMISSION. CONSTRUCTION ENTRANCE TO BE LOCATED OFF OF 72ND AVE SE.

2. EXISTING HEDGES, WALLS, AND FENCE IN ROW TO BE REMOVED. THESE EXISTING ELEMENTS SHALL NOT BE REINSTALLED OR REPLACED IN ROW.

3. IF OFF-SITE FENCING IS TO BE REMOVED, PROVIDE DOCUMENTATION TO THE CITY THAT NEIGHBOR TO SOUTH AGREES TO SUCH REMOVAL AND WILL ALLOW ACCESS TO PROPERTY.

4. CONTRACTOR TO PROVIDE CITY WITH CCTV INSPECTION OF EXISTING SEWER STUB PRIOR TO REUSE.

EROSION & SEDIMENT CONTROL NOTES:

1. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

2. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.

3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

4. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.

5. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED (E.G., ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.

6. THE ESC FACILITIES SHALL BE INSPECTED BY THE PERMITTEE/CONTRACTOR DAILY DURING NON-RAINFALL PERIODS, EVERY HOUR (DAYLIGHT) DURING A RAINFALL EVENT, AND AT THE END OF EVERY RAINFALL, AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED. WRITTEN RECORDS SHALL BE KEPT DOCUMENTING THE REVIEWS OF THE ESC FACILITIES.

7. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.

8. ALL DENUDED SOILS MUST BE STABILIZED WITH AN APPROVED TESC METHOD (E.G. SEEDING, MULCHING, PLASTIC COVERING, CRUSHED ROCK) WITHIN THE FOLLOWING TIMELINES:

* APRIL 1 TO OCTOBER 31 – SOILS MUST BE STABILIZED WITHIN 7 DAYS OF GRADING.
* NOVEMBER 1 TO MARCH 31 – SOILS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING.

9. AT NO TIME SHALL MORE THAN 1' OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

10. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

11. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION OR DISPERSION SYSTEM, THE FACILITY SHALL NOT BE USED AS A TEMPORARY SETTLING BASIN. NO UNDERGROUND DETENTION TANK, DETENTION VAULT, OR SYSTEM WHICH BACKS UNDER OR INTO A POND SHALL BE USED AS A TEMPORARY SETTLING BASIN.

12. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE RATE (EXAMPLE: ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).

13. WHERE STRAW MULCH IS REQUIRED FOR TEMPORARY EROSION CONTROL, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2".

14. ALL EROSION/SEDIMENTATION CONTROL PONDS WITH A DEAD STORAGE DEPTH EXCEEDING 6" MUST HAVE A PERIMETER FENCE WITH A MINIMUM HEIGHT OF 3'.

15. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF MERCER ISLAND STANDARDS AND SPECIFICATIONS.

16. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF MERCER ISLAND INSPECTOR.

17. A COPY OF THE APPROVED EROSION CONTROL PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

18. ALL LOTS ADJOINING OR HAVING ANY NATIVE GROWTH PROTECTION EASEMENTS (NGPE) SHALL HAVE A 4' HIGH TEMPORARY CONSTRUCTION FENCE (CYCLONE OR PLASTIC MESH) SEPARATING THE LOT (OR BUILDABLE PORTIONS OF THE LOT) FROM THE AREA RESTRICTED BY THE NGPE AND SHALL BE INSTALLED PRIOR TO ANY GRADING OR CLEARING AND REMAIN IN PLACE UNTIL A DWELLING IS CONSTRUCTED AND OWNERSHIP TRANSFERRED TO THE FIRST OWNER/OCCUPANT.

19. CLEARING LIMITS SHALL BE DELINEATED WITH A CLEARING CONTROL FENCE. THE CLEARING CONTROL FENCE SHALL CONSIST OF A 6-FT. HIGH CHAIN LINK FENCE ADJACENT THE DRIP LINE OF TREES TO BE SAVED, WETLAND OR STREAM BUFFERS, AND SENSITIVE SLOPES. CLEARING CONTROL FENCES ALONG WETLAND OR STREAM BUFFERS OR UPSLOPE OF SENSITIVE SLOPES SHALL BE ACCOMPANIED BY AN EROSION CONTROL FENCE. IF APPROVED BY THE CITY, A FOUR-FOOT HIGH ORANGE MESH CLEARING CONTROL FENCE MAY BE USED TO DELINEATE CLEARING LIMITS IN ALL OTHER AREAS.

20. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER EQUIPMENT. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.

21. ANY CATCH BASINS COLLECTING RUNOFF FROM THE SITE, WHETHER THEY ARE ON OR OFF THE SITE, SHALL HAVE THEIR GRATES COVERED WITH FILTER FABRIC DURING CONSTRUCTION. CATCH BASINS DIRECTLY DOWNSTREAM OF THE CONSTRUCTION ENTRANCE OR ANY OTHER CATCH BASIN AS DETERMINED BY THE CITY INSPECTOR SHALL BE PROTECTED WITH A "FILTER FABRIC SOCK" OR EQUIVALENT.

22. THE WASHED GRAVEL BACKFILL ADJACENT TO THE FILTER FABRIC FENCE SHALL BE REPLACED AND THE FILTER FABRIC CLEANED IF IT IS NONFUNCTIONAL BY EXCESSIVE SILT ACCUMULATION AS DETERMINED BY THE CITY OF KIRKLAND. ALSO, ALL INTERCEPTOR SWALES SHALL BE CLEANED IF SILT ACCUMULATION EXCEEDS ONE-QUARTER DEPTH.

23. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1' AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40 %-70 % PASSING; 2"-4" ROCK/30 %-40 % PASSING; AND 1"-2" ROCK/10 %-20 % PASSING.

24. IF ANY PART(S) OF THE CLEARING LIMIT BOUNDARY OR TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN IS/ARE DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.

25. ALL PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF.

26. DO NOT FLUSH CONCRETE BY-PRODUCTS OR TRUCKS NEAR OR INTO THE STORM DRAINAGE SYSTEM. IF EXPOSED AGGREGATE IS FLUSHED INTO THE STORM SYSTEM, IT COULD MEAN RE-CLEANING THE ENTIRE DOWNSTREAM STORM SYSTEM, OR POSSIBLY RE-LAYING THE STORM LINE.

27. PRIOR TO OCTOBER 1 OF EACH YEAR (THE BEGINNING OF THE WET SEASON), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. THE IDENTIFIED DISTURBED AREA SHALL BE SEEDED WITHIN ONE WEEK AFTER OCTOBER 1. A SITE PLAN DEPICTING THE AREAS TO BE SEEDED AND THE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

28. IF A SEDIMENT POND IS NOT PROPOSED, A BAKER TANK OR OTHER TEMPORARY GROUND AND/OR SURFACE WATER STORAGE TANK MAY BE REQUIRED DURING CONSTRUCTION, DEPENDING ON WEATHER CONDITIONS.

29. ANY AREA TO BE USED FOR INFILTRATION OR PERVIOUS PAVEMENT (INCLUDING A 5-FOOT BUFFER) MUST BE SURROUNDED BY SILT FENCE PRIOR TO CONSTRUCTION AND UNTIL FINAL STABILIZATION OF THE SITE TO PREVENT SOIL COMPACTION AND SILTATION BY CONSTRUCTION ACTIVITIES.

POST-CONSTRUCTION SOIL MANAGEMENT

THE LAWN AND LANDSCAPE AREAS ARE REQUIRED TO PROVIDE POST-CONSTRUCTION SOIL QUALITY AND DEPTH IN ACCORDANCE WITH BMP T5.13. THE PROJECT CIVIL ENGINEER MUST PROVIDE A LETTER OF CERTIFICATION TO ENSURE THAT THE LAWN AND LANDSCAPE AREAS ARE MEETING THE POST-CONSTRUCTION SOIL QUALITY AND DEPTH REQUIREMENTS SPECIFIED ON THE APPROVED PLAN SET PRIOR TO FINAL INSPECTION OF THE PROJECT.

BMP T5.13: POST-CONSTRUCTION SOIL QUALITY AND DEPTH (FROM 2014 DEPT. OF ECOLOGY SWMMW)
NATURALLY OCCURRING (UNDISTURBED) SOIL AND VEGETATION PROVIDE IMPORTANT STORMWATER FUNCTIONS INCLUDING: WATER INFILTRATION; NUTRIENT, SEDIMENT, AND POLLUTANT ADSORPTION; SEDIMENT AND POLLUTANT BIOFILTRATION; WATER INTERFLOW STORAGE AND TRANSMISSION; AND POLLUTANT DECOMPOSITION. THESE FUNCTIONS ARE LARGELY LOST WHEN DEVELOPMENT STRIPS AWAY NATIVE SOIL AND VEGETATION AND REPLACES IT WITH MINIMAL TOPSOIL AND SOD. NOT ONLY ARE THESE IMPORTANT STORMWATER FUNCTIONS LOST, BUT SUCH LANDSCAPES THEMSELVES BECOME POLLUTION GENERATING PERVIOUS SURFACES DUE TO INCREASED USE OF PESTICIDES, FERTILIZERS AND OTHER LANDSCAPING AND HOUSEHOLD/INDUSTRIAL CHEMICALS, THE CONCENTRATION OF PET WASTES, AND POLLUTANTS THAT ACCOMPANY ROADSIDE LITTER.
ESTABLISHING SOIL QUALITY AND DEPTH REGAINS GREATER STORMWATER FUNCTIONS IN THE POST DEVELOPMENT LANDSCAPE, PROVIDES INCREASED TREATMENT OF POLLUTANTS AND SEDIMENTS THAT RESULT FROM DEVELOPMENT AND HABITATION, AND MINIMIZES THE NEED FOR SOME LANDSCAPING CHEMICALS, THUS REDUCING POLLUTION THROUGH PREVENTION.
ESTABLISHING A MINIMUM SOIL QUALITY AND DEPTH IS NOT THE SAME AS PRESERVATION OF NATURALLY OCCURRING SOIL AND VEGETATION. HOWEVER, ESTABLISHING A MINIMUM SOIL QUALITY AND DEPTH WILL PROVIDE IMPROVED ON-SITE MANAGEMENT OF STORMWATER FLOW AND WATER QUALITY.
SOIL ORGANIC MATTER CAN BE ATTAINED THROUGH NUMEROUS MATERIALS SUCH AS COMPOST, COMPOSTED WOODY MATERIAL, BIOSOLIDS, AND FOREST PRODUCT RESIDUALS. IT IS IMPORTANT THAT THE MATERIALS USED TO MEET THE SOIL QUALITY AND DEPTH BMP BE APPROPRIATE AND BENEFICIAL TO THE PLANT COVER TO BE ESTABLISHED. LIKEWISE, IT IS IMPORTANT THAT IMPORTED TOPSOILS IMPROVE SOIL CONDITIONS AND DO NOT HAVE AN EXCESSIVE PERCENT OF CLAY FINES.

STEP 1
IDENTIFY AREAS OF THE SITE THAT WILL NOT BE DISTURBED DURING CONSTRUCTION (CLEARED, GRADED, OR DRIVEN ON). FENCE THOSE AREAS TO PREVENT IMPACTS DURING CONSTRUCTION. IF NEITHER SOILS NOR VEGETATION ARE DISTURBED, THESE AREAS DO NOT REQUIRE AMENDMENT.

STEP 2
IN DISTURBED AREAS (COMPACTED BY CONSTRUCTION TRAFFIC):
- SCARIFY THE TOP 4 INCHES OF SUBSOIL
- USE A CAT-MOUNTED RIPPER, TRACTOR-MOUNTED DISC, OR TILLER TO MIX THE FIRST LIFT OF TOPSOIL INTO THE SUBSOIL (KNOWN AS SCARIFYING, RIPPING, OR TILLING)
- USE THE EQUIPMENT LISTED IN THE PREVIOUS BULLET TO SCARIFY (TILL OR RIP) SOILS TO A DEPTH OF 12 INCHES BEFORE TILLING IN AT LEAST 8 INCHES OF COMPOST

STEP 3
THREE OPTIONS TO RESTORE DISTURBED SOILS INCLUDE:
OPTION 1: TILL COMPOST (1.75 INCHES FOR TURF AREAS; 3 INCHES FOR PLANTING BEDS) INTO EXISTING SOIL, OR

OPTION 2: STOCKPILE AND REUSE EXISTING TOPSOIL (AMEND IF NEEDED TO MEET 5% ORGANIC MATTER CONTENT FOR TURF AREAS; 10% ORGANIC MATTER CONTENT FOR PLANTING BEDS), OR

OPTION 3: IMPORT 6 INCHES OF COMPOST-AMENDED TOPSOIL (25% COMPOST FOR TURF AREAS; 40% COMPOST FOR PLANTING BEDS) AND SCARIFY (TILL OR RIP) INTO EXISTING SOIL IN TWO 3-INCH LIFTS

TREE PROTECTION MEASURES

BELOW IS A LIST OF GENERAL TREE PROTECTION MEASURES REQUIRED BY THE CITY OF MERCER ISLAND. PLEASE REFER TO THE ARBORIST REPORT BY ARBORISTS NORTHWEST FOR ADDITIONAL SITE-SPECIFIC TREE PROTECTION MEASURES.

TREE PROTECTION FENCING FOR DEMOLITION:

- TREE PROTECTION FENCES WILL NEED TO BE PLACED AROUND EACH TREE OR GROUP OF TREES TO BE RETAINED.
- TREE PROTECTION FENCES ARE TO BE PLACED ACCORDING TO THE ATTACHED DRAWINGS.
- TREE PROTECTION FENCES MUST BE INSPECTED AND APPROVED BY THE CITY PRIOR TO THE BEGINNING OF ANY DEMOLITION OR CONSTRUCTION WORK ACTIVITIES.
- NOTHING MUST BE PARKED OR STORED WITHIN THE TREE PROTECTION FENCES–NO EQUIPMENT, VEHICLES, SOIL, DEBRIS, OR CONSTRUCTION SUPPLIES OF ANY SORTS.
- THE AREA OUTSIDE THE TREE PROTECTION FENCES IS THE WORK/DEVELOPMENT ZONE.
- THE AREA INSIDE THE TREE PROTECTION FENCING IS THE TREE PROTECTION ZONE.
- FENCES SHALL BE ANCHORED SO THEY CAN NOT BE MOVED

SIGNS:
- THE TREE PROTECTION FENCES NEED TO BE CLEARLY MARKED WITH THE FOLLOWING OR SIMILAR TEXT IN FOUR INCH OR LARGER LETTERS:
  "TREE PROTECTION FENCE
  DO NOT ENTER THIS AREA
  DO NOT PARK OR STORE MATERIALS
  WITHIN THE PROTECTION AREA"

- ANY QUESTIONS, CONTACT MERCER ISLAND CODE COMPLIANCE: (206) 275-7712 CODECOMPLIANCE@MERCERGOV.ORG
- TREE PROTECTION FENCES MUST BE INSPECTED AND APPROVED BY THE CITY PRIOR TO ANY DEMOLITION OR CLEAN-UP WORK BEGINNING.
- ANY EXCAVATION, INCLUDING FOUNDATION, NEAR TREES 1 AND 2 SHALL HAVE ARBORIST SUPERVISION
- MINIMIZE OVER EXCAVATION FOR FOUNDATIONS
- THE ARBORIST SHALL SUPERVISE TREE/SHRUB REMOVAL– AVOID ALL DAMAGE TO EXCEPTIONAL AND CITY TREE ROOTS

MULCH:
- THE AREA WITHIN THE TREE PROTECTION FENCING MUST BE COVERED WITH WOOD CHIPS, HOG FUEL, OR SIMILAR MATERIALS TO A DEPTH OF 6 TO 8 INCHES. THE MATERIALS SHOULD BE PLACED PRIOR TO BEGINNING CONSTRUCTION AND REMAIN UNTIL THE TREE PROTECTION FENCING IS TAKEN DOWN.

CANOPY PRUNING:
- THE CANOPIES OF SOME OF THE TREES MAY NEED TO PROPERLY PRUNED TO ALLOW FOR EQUIPMENT, BUILDING, AND CONSTRUCTION CLEARANCE. THE PRUNING MUST BE DONE BY AN INTERNATIONAL SOCIETY OF ARBORICULTURE, (ISA) CERTIFIED ARBORIST USING CURRENT INDUSTRY STANDARD PRUNING TECHNIQUES. (ANSI A300 PRUNING STANDARDS AND ANSI Z133.1 SAFETY STANDARDS AS WELL AS ALL OSHA, WISHA, AND LOCAL STANDARDS MUST BE FOLLOWED.)
- PLANT DEBRIS CAN BE CHIPPED AND UTILIZED ON SITE FOR THE MULCH UNDER THE TREES.

DEMOLITION AND REMOVAL OF THE EXISTING IMPROVEMENTS:
- WHEN DEMOLITION OCCURS, CONSTRUCTION EQUIPMENT MUST BE KEPT OUTSIDE THE TREE PROTECTION ZONE.
- DEMOLITION MUST BE FOLLOW THIS PROCESS TO PROTECT THE LONG TERM SURVIVABILITY OF THE TREES:
- AN INTERNATIONAL SOCIETY OF ARBORICULTURE, (ISA) CERTIFIED ARBORIST MUST BE WORKING WITH AND IN CONTROL OF ALL EQUIPMENT OPERATORS.
- THE CERTIFIED ARBORIST SHOULD BE OUTFITTED WITH A SHOVEL, HAND PRUNERS, A PAIR OF LOPPERS, A HANDSAW, AND A POWER SAW (A RECIPROCATING SAW, SUCH AS A "SAWSALL" IS RECOMMENDED).

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

FILENAME: J:\21\21782 - MG HU\ENGINEERING\PLAN SHEETS\2 - TESC.DWG

REVISIONS		
DESCRIPTION	BY	DATE
REVISED PER CITY COMMENTS #1	BLB	10/27/2022
REVISED PER CITY COMMENTS #2	BLB	03/06/2023
REVISED PER CITY COMMENTS #3	BLB	05/01/2023

BRIAN L. BENNINGTON — STATE OF WASHINGTON — 21036187 — REGISTERED PROFESSIONAL ENGINEER

05/01/2023

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Western Washington Division
Eastern Washington Division
407 Swiftwater Blvd • Cle Elum, WA 98922 • Phone: (509) 674-7433

JOB NO.	21782
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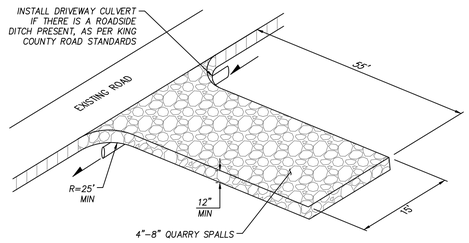
SCALE	1"=10'
DESIGNED	BLB
DRAWN	PMS
CHECKED	CP
APPROVED	CP
SHEET	2 of 5

HU RESIDENCE

SE 1/4 OF SE 1/4 OF SECTION 12, T. 24 N., R. 04 E., W.M.
CITY OF MERCER ISLAND, KING COUNTY, STATE OF WASHINGTON

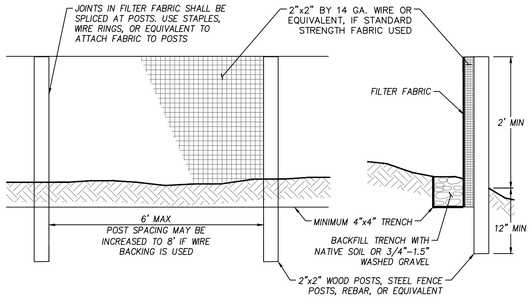


MAINTENANCE:

1. QUARRY SPALLS (OR HOG FUEL) SHALL BE ADDED IF THE PAD IS NO LONGER IN ACCORDANCE WITH THE SPECIFICATIONS.
2. IF THE ENTRANCE IS NOT PREVENTING SEDIMENT FROM BEING TRACKED ONTO PAVEMENT, THEN ALTERNATIVE MEASURES TO KEEP THE STREETS FREE OF SEDIMENT SHALL BE USED. THIS MAY INCLUDE STREET SWEEPING, AN INCREASE IN THE DIMENSIONS OF THE ENTRANCE, OR THE INSTALLATION OF A WHEEL WASH. IF WASHING IS USED, IT SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK, AND WASH WATER SHALL DRAIN TO A SEDIMENT TRAP OR POND.
3. ANY SEDIMENT THAT IS TRACKED ONTO PAVEMENT SHALL BE REMOVED IMMEDIATELY BY SWEEPING. THE SEDIMENT COLLECTED BY SWEEPING SHALL BE REMOVED OR STABILIZED ON SITE. THE PAVEMENT SHALL NOT BE CLEANED BY WASHING DOWN THE STREET, EXCEPT WHEN SWEEPING IS INEFFECTIVE AND THERE IS A THREAT TO PUBLIC SAFETY. IF IT IS NECESSARY TO WASH THE STREETS, A SMALL SUMP MUST BE CONSTRUCTED. THE SEDIMENT WOULD THEN BE WASHED INTO THE SUMP WHERE IT CAN BE CONTROLLED. WASH WATER MUST BE PUMPED BACK ONTO THE SITE AND CAN NOT DISCHARGE TO SYSTEMS TRIBUTARY TO SURFACE WATERS.
4. ANY QUARRY SPALLS THAT ARE LOOSENED FROM THE PAD AND END UP ON THE ROADWAY SHALL BE REMOVED IMMEDIATELY.
5. IF VEHICLES ARE ENTERING OR EXITING THE SITE AT POINTS OTHER THAN THE CONSTRUCTION ENTRANCE(S), FENCING SHALL BE INSTALLED TO CONTROL TRAFFIC.

CONSTRUCTION ENTRANCE DETAIL

NO SCALE

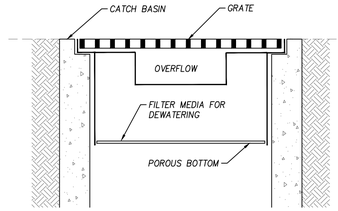


MAINTENANCE:

1. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
2. IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT TRAP OR POND.
3. IT IS IMPORTANT TO CHECK THE UPHILL SIDE OF THE FENCE FOR SIGNS OF THE FENCE CLOGGING AND ACTING AS A BARRIER TO FLOW AND THEN CAUSING CHANNELIZATION OF FLOWS PARALLEL TO THE FENCE. IF THIS OCCURS, REPLACE THE FENCE OR REMOVE THE TRAPPED SEDIMENT.
4. SEDIMENT MUST BE REMOVED WHEN THE SEDIMENT IS 6 INCHES HIGH.
5. IF THE FILTER FABRIC (GEOTEXTILE) HAS DETERIORATED DUE TO ULTRAVIOLET BREAKDOWN, IT SHALL BE REPLACED.

SILT FENCE

NO SCALE



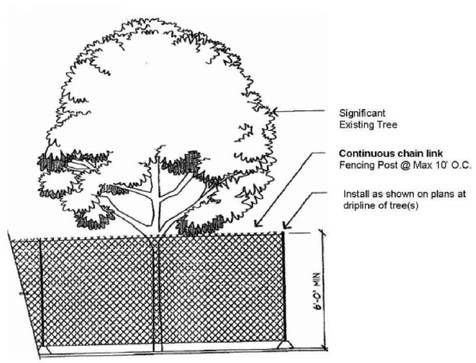
NOTE: THIS DETAIL IS ONLY SCHEMATIC. ANY INSERT IS ALLOWED THAT HAS A MIN. 0.5 C.F. OF STORAGE, THE MEANS TO DEWATER THE STORED SEDIMENT, AN OVERFLOW, AND CAN BE EASILY MAINTAINED.

MAINTENANCE STANDARDS

1. ANY ACCUMULATED SEDIMENT ON OR AROUND THE FILTER FABRIC PROTECTION SHALL BE REMOVED IMMEDIATELY. SEDIMENT SHALL NOT BE REMOVED WITH WATER, AND ALL SEDIMENT MUST BE DISPOSED OF AS FILL ON-SITE OR HAULED OFF-SITE.
2. ANY SEDIMENT IN THE CATCH BASIN INSERT SHALL BE REMOVED WHEN THE INSERT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE. THE FILTER MEDIA FOR THE INSERT SHALL BE CLEANED OR REPLACED AT LEAST MONTHLY.
3. REGULAR MAINTENANCE IS CRITICAL FOR BOTH FORMS OF CATCH BASIN PROTECTION. UNLIKE MANY FORMS OF PROTECTION THAT FAIL GRADUALLY, CATCH BASIN PROTECTION WILL FAIL SUDDENLY AND COMPLETELY IF NOT MAINTAINED PROPERLY.

CATCH BASIN PROTECTION DETAIL

NO SCALE



Six-foot high temporary chain link fence shall be placed as shown on plans. Fence shall completely encircle tree(s). Install fence posts using pier blocks only. Avoid driving posts or stakes into major roots.

Make a clean straight cut to remove damaged portion of root for all roots over 1" in diameter damaged during construction. ***All*** exposed roots shall be temporarily covered with damp burlap and covered with soils the same day, if possible, to prevent drying. If not possible, burlap must be kept moist at all times.

Work with the protection fencing shall be done manually. No stockpiling of materials, soil, debris, vehicle traffic, or storage of equipment or machinery shall be allowed within the limit of the fencing.

Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.

The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.

TREE PROTECTION FENCE DETAIL

NO SCALE

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

REVISIONS

DESCRIPTION	BY	DATE
REVISED PER CITY COMMENTS #1	BLB	10/27/2022
REVISED PER CITY COMMENTS #2	BLB	03/06/2023
REVISED PER CITY COMMENTS #3	BLB	05/01/2023

BRIANA BENNINGTON — STATE OF WASHINGTON — 21061987 — REGISTERED PROFESSIONAL ENGINEER

05/01/2023

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Western Washington Division
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JOB NO.	21782
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APPROVED	CP
SHEET	3 of 5

FILENAME: J:\21\21782 - MU HU\ENGINEERING\PLAN SHEETS\2 - TESC.DWG

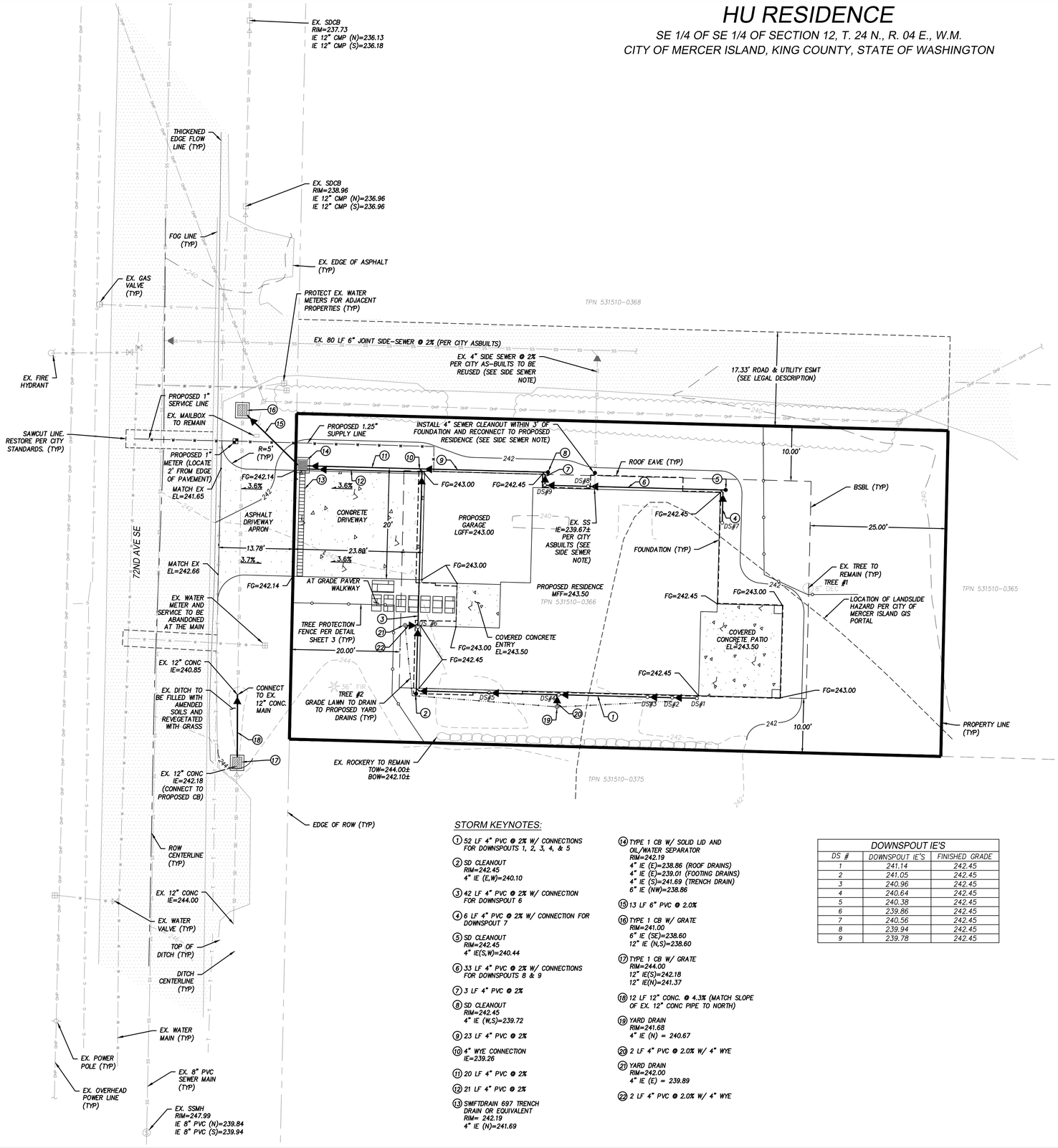
HU RESIDENCE

SE 1/4 OF SE 1/4 OF SECTION 12, T. 24 N., R. 04 E., W.M.
CITY OF MERCER ISLAND, KING COUNTY, STATE OF WASHINGTON

NORTH

0 5 10

SCALE 1" = 10'



STORM KEYNOTES:

1. 52 LF 4" PVC @ 2% W/ CONNECTIONS FOR DOWNSPOUTS 1, 2, 3, 4, & 5
2. SD CLEANOUT RIM=242.45 4" IE (E,W)=240.10
3. 42 LF 4" PVC @ 2% W/ CONNECTION FOR DOWNSPOUT 6
4. 6 LF 4" PVC @ 2% W/ CONNECTION FOR DOWNSPOUT 7
5. SD CLEANOUT RIM=242.45 4" IE(S,W)=240.44
6. 33 LF 4" PVC @ 2% W/ CONNECTIONS FOR DOWNSPOUTS 8 & 9
7. 3 LF 4" PVC @ 2%
8. SD CLEANOUT RIM=242.45 4" IE (W,S)=239.72
9. 23 LF 4" PVC @ 2%
10. 4" WYE CONNECTION IE=239.26
11. 20 LF 4" PVC @ 2%
12. 21 LF 4" PVC @ 2%
13. SWIFTDRAIN 697 TRENCH DRAIN OR EQUIVALENT RIM= 242.19 4" IE (N)=241.69
14. TYPE 1 CB W/ SOLID LID AND OIL/WATER SEPARATOR RIM=242.19 4" IE (E)=238.86 (ROOF DRAINS) 4" IE (E)=239.01 (FOOTING DRAINS) 4" IE (S)=241.69 (TRENCH DRAIN) 6" IE (NW)=238.86
15. 13 LF 6" PVC @ 2.0%
16. TYPE 1 CB W/ GRATE RIM=241.00 6" IE (SE)=238.60 12" IE (N,S)=238.60
17. TYPE 1 CB W/ GRATE RIM=244.00 12" IE(S)=242.18 12" IE(N)=241.37
18. 12 LF 12" CONC. @ 4.3% (MATCH SLOPE OF EX. 12" CONC PIPE TO NORTH)
19. YARD DRAIN RIM=241.68 4" IE (N) = 240.67
20. 2 LF 4" PVC @ 2.0% W/ 4" WYE
21. YARD DRAIN RIM=242.00 4" IE (E) = 239.89
22. 2 LF 4" PVC @ 2.0% W/ 4" WYE

DOWNSPOUT IE'S

DS #	DOWNSPOUT IE'S	FINISHED GRADE
1	241.14	242.45
2	241.05	242.45
3	240.96	242.45
4	240.64	242.45
5	240.38	242.45
6	239.86	242.45
7	240.56	242.45
8	239.94	242.45
9	239.78	242.45

ARCHITECTURAL, STRUCTURAL & GEOTECHNICAL NOTES

1. THESE PLANS ARE APPROVED FOR STANDARD ROAD AND DRAINAGE IMPROVEMENTS ONLY. PLANS FOR STRUCTURES SUCH AS RETAINING WALLS REQUIRE A SEPARATE REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. SPECIAL INSPECTIONS FOR GEOTECHNICAL AND/OR STRUCTURAL ASPECTS OF OF THE PROJECT MAY BE REQUIRED DURING VARIOUS STAGES OF THE PROJECT. CONTRACTOR TO BE RESPONSIBLE FOR COORDINATION AND OBTAINING INSPECTIONS WHEN AND WHERE NECESSARY.
3. SEE ARCHITECTURAL PLANS FOR BUILDING SECTIONS AND ALL LOCATIONAL/DIMENSIONAL ASPECTS OF BUILDINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ALL BUILDING AND RETAINING WALL DETAILS.
5. COORDINATE ALL SITE CIVIL CONSTRUCTION WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL/PLUMBING AND LANDSCAPE PLANS AND IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS.
6. PRIOR TO CONSTRUCTION THE EARTHWORK/GENERAL CONTRACTOR TO BE COMPLETELY FAMILIAR WITH THE GEOTECHNICAL REPORT AND RECOMMENDATIONS. PLEASE REVIEW GEOTECH CONSULTANTS, INC'S REPORT DATED JANUARY 12, 2022 AND CONTACT MARC MCGINNIS, PE ON ANY QUESTIONS OR CONCERNS REGARDING HIS RECOMMENDATIONS.

STRUCTURAL NOTES

1. THESE PLANS ARE APPROVED FOR STANDARD ROAD AND DRAINAGE IMPROVEMENTS ONLY. PLANS FOR STRUCTURES MAY REQUIRE A SEPARATE REVIEW AND APPROVAL.
2. ROCKERIES ARE CONSIDERED TO BE A METHOD OF BANK STABILIZATION AND EROSION CONTROL. ROCKERIES SHALL NOT BE CONSTRUCTED TO SERVE AS RETAINING WALLS. GEOTECHNICAL ENGINEERING MAY BE NECESSARY.

BUILDING STAKING NOTE:

CONTRACTOR TO USE ARCHITECTURAL PLANS FOR ACCURATE LOCATION & CONSTRUCTION STAKING OF ALL SITE IMPROVEMENTS SUCH AS BUILDINGS, DRIVEWAYS, WALLS, WALKS, PATIOS & OTHER APPURTENANCES ON THE PROPERTY.

DRAINAGE NOTES:

1. PROOF OF LIABILITY INSURANCE SHALL BE SUBMITTED TO THE CITY PRIOR TO THE PRECONSTRUCTION MEETING.
2. ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT 7-02.3(1). THIS SHALL INCLUDE LEVELING AND COMPACTING THE TRENCH BOTTOM, THE TOP OF THE FOUNDATION MATERIAL, AND ANY REQUIRED PIPE BEDDING, TO A UNIFORM GRADE SO THAT THE ENTIRE PIPE IS SUPPORTED BY A UNIFORMLY DENSE UNYIELDING BASE.
3. STEEL PIPE SHALL BE GALVANIZED AND HAVE ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE (KCRS 7.03).
4. ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, NOT LOCATED WITHIN A TRAVELED ROADWAY OR SIDEWALK, SHALL HAVE SOLID LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS.
5. ALL CATCH BASIN GRATES SHALL BE STAMPED "OUTFALL TO STREAM, DUMP NO POLLUTANTS".
6. ALL DRIVEWAY CULVERTS LOCATED WITHIN RIGHT-OF-WAY SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FROM THE EDGE OF THE DRIVEWAY TO THE BOTTOM OF THE DITCH. CULVERTS SHALL HAVE BEVELED END SECTIONS TO MATCH THE SIDE SLOPE.
7. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1 FOOT, AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"– 8" ROCK/40%–70% PASSING; 2"–4" ROCK/30%–40% PASSING; AND –2" ROCK/10%–20% PASSING.

GRADING NOTES:

1. ALL CUT MATERIAL GENERATED DURING THE PROJECT THAT IS NOT ACCEPTABLE FOR USE AS COMPACTED FILL MATERIAL AT ANOTHER LOCATION ON-SITE MUST BE HAULED TO AN APPROVED LOCATION OFF-SITE.
2. THE ON-SITE TOPOGRAPHICAL MAPPING WAS PROVIDED BY ENCOMPASS ENGINEERING @ SURVEYING.
3. ALL TEMPORARY OR PERMANENT SLOPES SHALL NOT EXCEED 2.5H:1V UNLESS APPROVED BY A GEOTECHNICAL ENGINEER.
4. FILL MATERIAL PLACED UNDER BUILDING FOUNDATIONS OR PAVEMENT SHALL BE CRUSHED BASE ROCK OR COMPACTED STRUCTURAL FILL IN ACCORDANCE TO WSDOT STANDARD SPECIFICATIONS.
5. ROCKERY AND/OR RETAINING WALLS GREATER THAN FOUR (4) FEET IN HEIGHT REQUIRES A BUILDING PERMIT.
6. IT WILL BE THE PERMITEE'S RESPONSIBILITY TO SUCCESSFULLY CAP AND ABANDON ALL EXISTING UTILITIES WITHIN THE DEVELOPMENT IN ACCORDANCE TO THE GOVERNING UTILITY AGENCY.

SIDE SEWER NOTE:

CCTV INSPECTION OF THE EXISTING 4" SIDE SEWER TO THE MAIN IS REQUIRED TO BE PROVIDED TO THE CITY PRIOR TO REUSE. IF THE RESULT OF THE INSPECTION IS NOT IN SATISFACTORY CONDITION, AS DETERMINED BY THE INSPECTOR, REPLACEMENT OF THE EXISTING SIDE SEWER IS REQUIRED.

GRADING QUANTITIES:

CUT= 5 CY
FILL= 30 CY
NET= 25 CY± (FILL)
*CONTRACTOR TO VERIFY

SOIL AMENDMENT NOTE:

SOIL AMENDMENT REQUIRED FOR ALL DISTURBED PERVIOUS SURFACES. (APPROXIMATELY 16.6 CY)

FOOTING DRAIN NOTE:

ALL FOOTING DRAINS AROUND THE FOUNDATION ARE TO BE 4" PERFORATED PIPE @ IE = 239.45. DO NOT CONNECT FOOTING DRAINS TO ROOF DRAIN SYSTEM. PIPE FOOTING DRAINS TO PROPOSED ONSITE CATCH BASIN VIA SOLID 4" PVC @ 2% MINIMUM SLOPE (SEE STORM KEYNOTE 12).

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BRIAN BENNICOUSE — STATE OF WASHINGTON — 21036187 — REGISTERED PROFESSIONAL ENGINEER

05/01/2023

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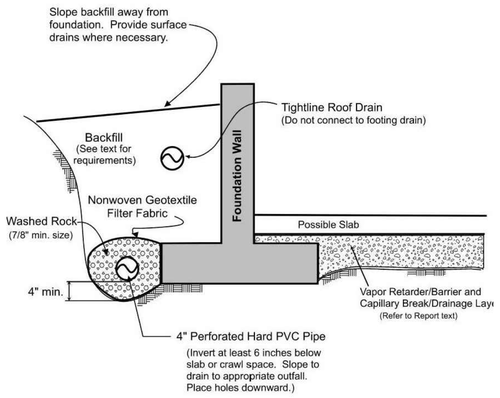
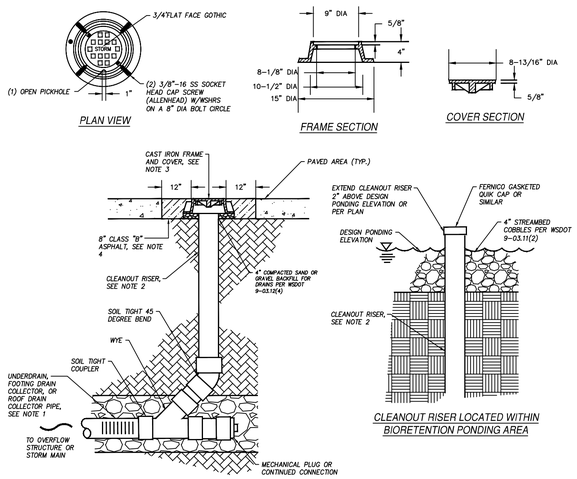


NOTES:
(1) In crawl spaces, provide an outlet drain to prevent buildup of water that bypasses the perimeter footing drains.
(2) Refer to report text for additional drainage, waterproofing, and slab considerations.

ROOF/FOOTING DRAIN DETAIL

NO SCALE



NOTES:

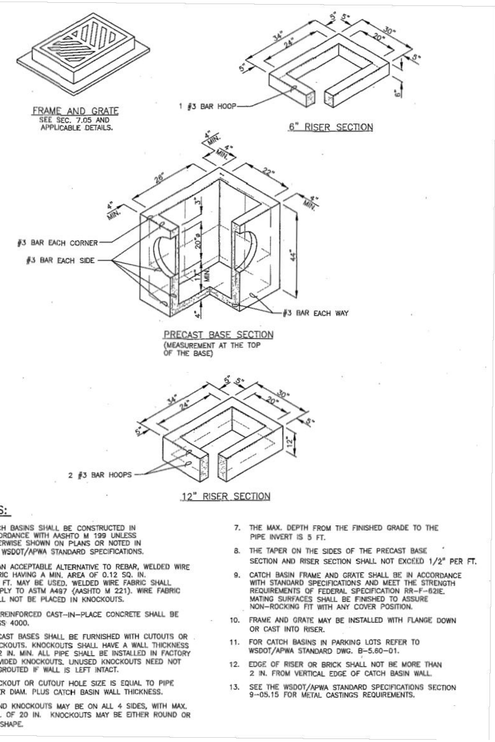
1. *DIAMETER TO BE 6-INCHES MINIMUM PRIVATE, 8-INCHES MINIMUM PUBLIC. UNDERDRAIN PIPE.*
2. *CLEANOUT RISER SHALL BE SAME SIZE AND MATERIAL AS CONNECTED UNDERDRAIN, FOOTING DRAIN COLLECTOR, OR ROOF DRAIN COLLECTOR PIPE.*
3. *FRAME AND COVER SHALL BE EJ PRODUCT NO. 00367549801 OR APPROVED EQUAL. COVER TO BE LOCKING WITH ALLEN HEAD BOLT, MARKED "STORM".*
4. *FOR CLEANOUTS FULLY OR PARTIALLY WITHIN UNPAVED AREAS OUTSIDE OF BIORETENTION PONDING AREA, POUR 8" THICK, 2'X2' SQUARE CONCRETE COLLAR AROUND FRAME. CONCRETE COLLAR SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.*

GENERAL NOTES:

1. *CLEANOUTS FOR UNDERDRAIN, FOOTING DRAIN COLLECTOR, AND ROOF DRAIN COLLECTOR PIPES SHALL BE INSTALLED AT A MINIMUM OF EVERY 100 FEET, AT EVERY 90 DEGREE OR SECOND 45 DEGREE BEND, AT THE END OF EVERY COLLECTOR PIPE, AND AT EACH END OF AN UNDERDRAIN PIPE NOT CONNECTED TO AN OVERFLOW STRUCTURE. CLEANOUTS SHALL BE INSTALLED TO ALLOW FOR MAINTENANCE ACCESS TO ALL PIPES.*
5. *ALL FITTINGS SHALL BE SOIL TIGHT.*
6. *CLEANOUT RISER SHALL BE LOCATED OUTSIDE OF BIORETENTION PONDING WHERE POSSIBLE.*
7. *CLEANOUTS SHALL NOT BE LOCATED WITHIN THE STREET TRAVEL LANE, UNLESS OTHERWISE APPROVED BY THE CITY.*

STORM CLEANOUT DETAIL

NO SCALE



NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQ. IN. PER FT. MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2 IN. MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20 IN. KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5 FT.
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621E. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. 8-5.60-01.
12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2 IN. FROM VERTICAL EDGE OF CATCH BASIN WALL.
13. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 9-05.15 FOR METAL CASTINGS REQUIREMENTS.

TYPE 1 CATCH BASIN DETAIL

NO SCALE

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

REVISIONS		
DESCRIPTION	BY	DATE
REVISED PER CITY COMMENTS #1	BLB	10/27/2022
REVISED PER CITY COMMENTS #2	BLB	03/06/2023
REVISED PER CITY COMMENTS #3	BLB	05/01/2023

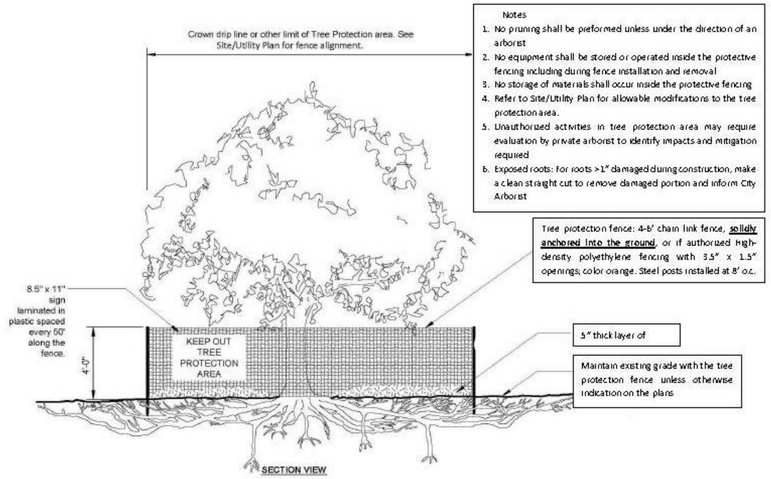
BRIAN L. BENNINGTON — STATE OF WASHINGTON — 21096187 — REGISTERED PROFESSIONAL ENGINEER

05/01/2023

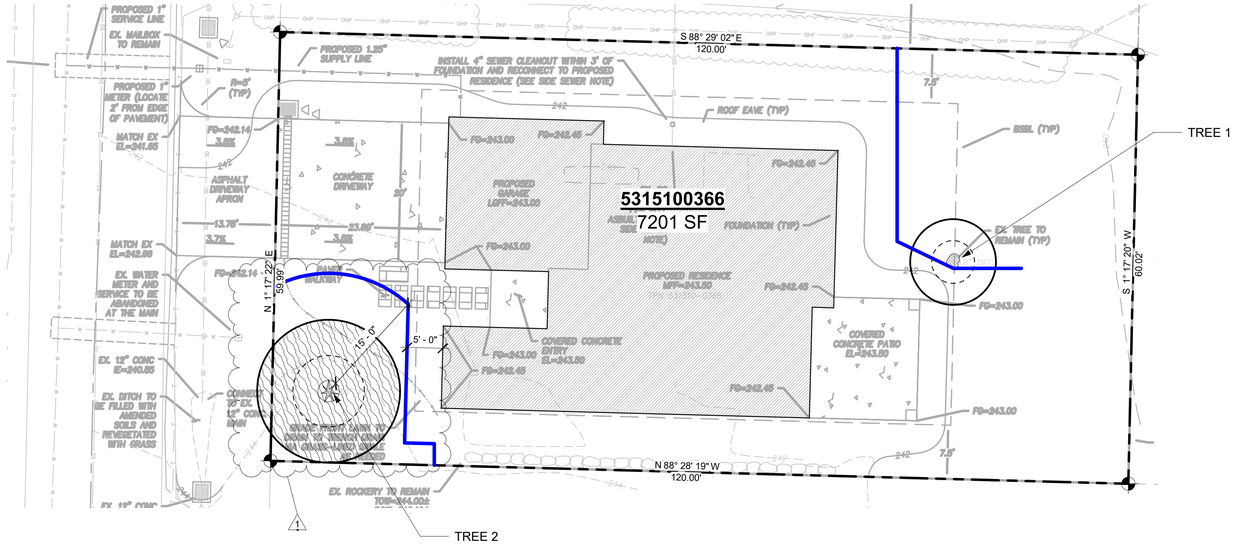
HU RESIDENCE
2448 72ND AVE SE - MERCER ISLAND, WA 98040
CONSTRUCTION DETAILS

Encompass
ENGINEERING & SURVEYING
Western Washington Division
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250
Eastern Washington Division
407 Swiftwater Blvd. • Cle Elum, WA 98922 • Phone: (509) 674-7433

JOB NO.	21782
DATE	05/01/2023
SCALE	NTS
DESIGNED	BLB
DRAWN	PMS
CHECKED	CP
APPROVED	CP
SHEET	5 of 5



2 Mercer Island Tree Protection Detail
1/4" = 1'-0"



ARBORISTS SITE PLAN
1" = 10'-0"

0' 5' 10' 40' NORTH

	TREE DRIP LINE (DL)
	DIAMETER STANDARD HEIGHT (DSH)
	EVERGREEN TREE
	DECIDUOUS TREE
	TREE TO BE REMOVED
	TREE PROTECTION FENCING
	NEW TREE
	MULCH COVER - 5"-6"

TREE #	TREE TYPE		DBH	DRIPLINE	CONDITION	RETAIN OR REMOVE
1.	JAPANESE MAPLE	*ACER PALMATUM*	8.8	12'	GOOD	RETAIN
2.	DOUGLAS FIR	*PSEUDOTSUGA MENZIESII*	32	20'	FAIR	RETAIN

PREPARED BY:

NEAL BAKER
ARBORISTS NW.COM
ISA CERT. PN1075A
TRAQ ISA (TREE RISK ASSESSMENT QUALIFIED)
MEMBER AREA & SOCA
PH: 206 779 2579

arboristsNW

Arborists NW is a full spectrum arboricultural, consulting and landscape design and installation provider. When you think tree and landscape services, think Arborists NW.

ONLINE: https://arboristsnw.com/
PHONE: 206-779-2579
EMAIL: neal@arboristsnw.com

No.	Description	Date
1	Sub 2 City Comment Response	03/13/23

HU PROJECT
2448 72nd AVE SE Mercer Island, WA.

HU PROJECT

ARBORIST TREE PLAN

Project number	22021
Date	--
Drawn by	CW
Checked by	NB
	X100
Scale	As indicated

3/14/2023 8:45:43 PM

HU RESIDENCE

ABBREVIATIONS

A.C.T.	ACOUSTICAL CLG TILE
BLK'G	BLOCKING
CD	CARBON MONOXIDE DETECTOR
CLG	CEILING
C.T.	COMMON TRUSS
CLR	CLEAR
COMP	COMPOSITION
CONC	CONCRETE
DBL	DOUBLE
DIA	DIAMETER
F.D.	FLOOR DRAIN
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
F.F.	FINISH FLOOR
FLR	FLOOR
FRM'G	FRAMING
G.T.	GIRDER TRUSS
G.W.B.	GYPSUM WALL BOARD
GYP	GYPSUM
HDWD	HARDWOOD
HDWR	HARDWARE
HT	HEIGHT
H.M.	HIP MASTER
MFR	MANUFACTURER
MIL	MILLIMETERS
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
PLYW'D	PLYWOOD
P.T.	PRESSURE TREATED
REFER	REFRIGERATOR
R.A.	RETURN AIR
R.O.	ROUGH OPENING
R&S	ROD AND SHELF
S.A.	SUPPLY AIR
SCHD	SCHEDULE
SD	SMOKE DETECTOR
SH	SHELVES
SHT	SHEET
SHWR	SHOWER
SIM	SIMILAR
S.S.	STAINLESS STEEL
STOR	STORAGE
SUSP	SUSPENDED
TEL	TELEPHONE
THERM	THERMOSTAT
TYP	TYPICAL
U.C.L.	UNDERCABINET LIGHTS
U.N.O.	UNLESS NOTED OTHERWISE
V	VINYL
VB	VAPOR BARRIER
V.C.T.	VINYL COMPOSITION TILE
VTOS	VENT TO OUTSIDE
W.C.	WATER CLOSET
W.P.	WATER PROOF
w/	WITH
w/o	WITHOUT
WD	WOOD
W/D	WASHER AND DRYER

TYP WINDOW NOTES:

1. SEE ARCHITECTURAL FLOOR PLANS FOR WINDOW LOCATIONS AND DESIGNATIONS. SEE ELEVATIONS & BUILDING SECTIONS FOR WINDOW HEAD/SILL LOCATIONS.
2. ALL RESIDENTIAL WINDOWS ARE BASED UPON COEUR D'ALENE VINYL WINDOWS. EXCEPT AS NOTED.
3. NOT USED
4. WINDOW DIMENSIONS SHOWN ARE SUGGESTED ROUGH OPENINGS, NET DIMENSIONS TO BE PER MANUFACTURER. VERIFY WITH MFR.
5. ALL WINDOWS TO BE FIXED UNLESS SHOWN/NOTED OTHERWISE.
6. PROVIDE SAFETY GLAZING PER KEYNOTE P-4 AS LOCATED ON FLOOR PLANS.
7. GLAZING TO BE PER ENERGY COMPLIANCE NOTES. SEE SHEETS A000 - A002

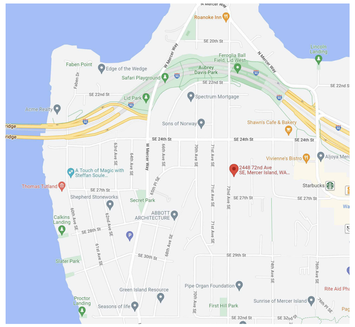
TYP DOOR NOTES:

1. ALL RESIDENTIAL SLIDING GLASS DOORS ARE BASED ON COEUR D' ALENE VINYL SLIDING DOORS.
2. GLAZING TO BE PER ENERGY COMPLIANCE NOTES. SEE SHEETS A000 - A002.
3. PROVIDE SAFETY GLAZING PER GENERAL NOTES.
4. NOT USED.
5. PROVIDE MIN 0.20 U-VALUE AT SOLID CORE FLUSH DOORS WHERE EXPOSED TO AMBIENT TEMPERATURE.

FIRE PROTECTION SYSTEMS:
NFPA 13D FIRE SPRINKLER SYSTEM TO BE INSTALLED PER NFPA 13D SAND CoMI STANDARDS. SEPARATE FIRE PERMIT REQUIRED.

2

VICINITY MAP



ENERGY CODE NOTES

ENERGY COMPLIANCE

PROPOSED RESIDENCE TO COMPLY WITH THE PRESCRIPTIVE REQUIREMENTS OF THE 2018 W.S.E.C. - SEE WSEC FORM/REQUIREMENTS ON SHEET A002.

MECHANICAL VENTILATION REQUIREMENTS

PROPOSED RESIDENCE TO COMPLY WITH THE PRESCRIPTIVE VENTILATION REQUIREMENTS OF SECTION M1507 OF THE IRC.

AN INTERMITTENT WHOLE HOUSE VENTILATION SYSTEM INTEGRATED WITHIN THE FORCED AIR SYSTEM

**SEE THE *MECHANICAL VENTILATION M1507 OF THE WA STATE RESIDENTIAL CODE* SECTION ON SHEET A002

[HEATING OPTION #2] HEAT PUMP

[1.3] EFFICIENT BUILDING ENVELOPE:
PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:

- FENESTRATION U ,= 0.28
- FLOOR R-38
- SLAB ON GRADE R-10 PERIMETER AND UNDER ENTIRE
- SLAB BELOW GRADE SLAB R-10 PERIMETER AND UNDER ENTIRE SLAB

[3.5] HIGH EFFICIENCY HVAC EQUIPMENT:
AIR-SOURCE, CENTRALLY DUCTED HEAT PUMP WITH MINIMUM HSPF OF 11.0.
PROPOSED MODEL:

- HITACHI MINI VRF 208/230V HEAT PUMP SYSTEM
- EFFICIENCY: 11.0 HSPF

HEAT PUMP SUPPLEMENTARY HEAT, IF PROVIDED, SHALL BE PER R403.1.2.

- AT FINAL INSPECTION THE AUXILIARY HEAT LOCK OUT CONTROL SHALL BE SET TO 35°F OR LESS.

[4.2] HIGH EFFICIENCY HVAC DISTRIBUTION:
HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R403.3.7.

- LOCATING SYSTEM COMPONENTS IN CONDITIONED CRAWL SPACES IS NOT PERMITTED UNDER THIS OPTION.
- ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION.
- DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.

THE MINIMUM FLOOR/CEILING INSULATION MAY BE INSTALLED TO THE NON CONDITIONED SIDE, WITH DUCT WORK ABOVE WITHIN THE AIR CAVITY, PROVIDED THAT CONTINUOUS INSULATION IS INSTALLED TOP OF THE CEILING BELOW AND IS COMBINED WITH PERIMETER INSULATION THAT MEETS OR EXCEEDS THE R-VALUE REQUIREMENTS FOR WALLS.

[5.5] EFFICIENT WATER HEATING 5C:
THE PROPOSED WATER HEATING SYSTEM SHALL INCLUDE A HIGH EFFICIENCY WATER HEATER WITH A MINIMUM EF OF 0.91.

PROPOSED MODEL:

- RUUD® HYBRID BUILDER RESIDENTIAL ELECTRIC WATER HEATER, MODEL PRO H80 T2RU310BM
- UNIFORM ENERGY FACTOR: 3.5

NOTE:

- FIELD INSPECTOR TO VERIFY RECEIPT OF BLOWER DOOR TEST
- FIELD INSPECTOR TO VERIFY RECEIPT OF DUCT LEAKAGE TEST

PROJECT INFO

PROJECT ADDRESS:

2448 72ND AVENUE SOUTHEAST
MERCER ISLAND, WA, 98040

BUILDER:

ATERA HOMES, LLC
451 DUVALL AVE NE, SUITE 115
RENTON, WA, 98059

CONTACT: MILTON ORELLANA
PHONE: (425) 306-2758
EMAIL: build@aterahomes.com

DESIGNER:

ATERA DESIGN STUDIO, LLC
451 DUVALL AVE NE, SUITE 115
RENTON, WA 98059

CONTACT: MILTON ORELLANA
PHONE: (425) 306-2758
EMAIL: studio@aterahomes.com

ENGINEER:

L2 ENGINEERS, LLC
17848 NE 198TH PLACE
WOODINWILLE, WA 98072

CONTACT: BRIAN LOSHBOUGH, P.E.
PHONE: (206) 251-2346
EMAIL: BRIAN@L2ENGINEERS.COM

SCOPE OF WORK:

CONSTRUCT A NEW 2,996 SQ FT SINGLE FAMILY RESIDENCE.

BIDDER DESIGN:

ELECTRICAL, MECHANICAL, PLUMBING, MFR TRUSS CONNECTIONS, EXTERIOR CLADDING TO BE BIDDER DESIGNED/DEFERRED SUBMITTAL (PER 106.3.4.2)

LEGAL DESCRIPTION:

THE SOUTH 60 FEET OF THE WEST 120 FEET OF LOT 4, BLOCK 5, MCGILVRA'S ISLAND ADDITION, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 16 OF PLATS, PAGE 58, IN KING COUNTY, WASHINGTON; TOGETHER WITH AN EASEMENT FOR ROAD AND UTILITY PURPOSES OVER THE SOUTH 17.33 FEET OF THE NORTH 77.33 FEET OF THE WEST 120 FEET OF SAID LOT 4, BLOCK 5, MCGILVRA'S ISLAND ADDITION.

CODE INFORMATION:

GENERAL INFORMATION:

BUILDING AREAS:	SEE SQUARE FOOTAGE SCHED. THIS SHEET.
CODE COMPLIANCE:	*2018 INTERNATIONAL BUILDING CODE* *2018 INTERNATIONAL RESIDENTIAL CODE* *2018 UNIFORM PLUMBING CODE* *2018 WASHINGTON STATE ENERGY CODE* *2018 WASHINGTON STATE AMENDMENTS*
CONTR. CLASS:	TYPE Vb CONSTRUCTION
GLAZING:	SEE ENERGY CODE NOTES SHT A000
PARCEL #:	531510-0366
ZONE:	R9.6

PARCEL DESCRIPTION:

PROPERTY TYPE:	R - RESIDENTIAL SINGLE
PRESENT USE:	FAMILY(RES USE/ZONE)
LOT AREA:	7,200 SF

AREA, SQUARE FOOTAGE...

Name	Area
Garage	435 SF
Main Floor	1539 SF
Upper Floor	1022 SF
Gross Building Area: 3	2996 SF
Covr'd Patio	246 SF
Covr'd Porch	61 SF
Exterior Area: 2	308 SF
Grand total: 5	3303 SF

DRAWING INDEX

NUMBER	SHEET NAME	REV. ID	REV. DATE
A000	COVER SHEET	2	********TBD**********
A001	CODE NOTES	1	20230125
A002	ENERGY NOTES		
A003	ENERGY/VENTING CALCULATIONS		
A100	SURVEY		
A101	SITE PLAN & AREA/HT CALCULATIONS	2	********TBD**********
A301	MAIN FLOOR		
A401	UPPER FLOOR	1	20230125
A501	ROOF PLAN	1	20230125
A601	ELEVATIONS	2	*********TBD**********
A701	SECTIONS	1	20230125
A702	SECTIONS	1	20230125
A703	SECTIONS	1	20230125
A704	SECTIONS	1	20230125
ARCHITECTURAL 'A': 14			
S001	STRUCTURAL NOTES & DETAILS		
S002	STRUCTURAL NOTES		
S101	FOUNDATION/MAIN FLOOR FRAMING PLAN		
S102	UPPER FLOOR/MAIN ROOF FRAMING PLAN		
S103	ROOF FRAMING PLAN		
S201	FOUNDATION HOLDOWNS		
S202	MAIN FLOOR SHEARWALLS & UPPER FLOOR HOLDDOWNS		
S203	UPPER FLOOR SHEARWALLS		
S301	SIMPSON HOLDOWN & TENSION TIES STANDARD DTLS		
S302	SIMPSON HOLDOWN & TENSION TIES STANDARD DTLS		
S303	SIMPSON HOLDOWN & TENSION TIES STANDARD DTLS		
STRUCTURAL 'S': 11			
D101	FOUNDATION & FRAM'G DETAILS		
D102	FRAMING DETAILS		
D201	STAIR & RAILING DETAILS	1	20230125
D301	ROOF DETAILS		
D401	SPECIALTY DETAILS	2	*********TBD**********
DETAIL 'D': 5			

SYMBOLS & LEGEND:

NEW WALL: INFILL PHASE

EXISTING WALL: SHELL / CORE PHASE

GRID LINES

SIM
1 A101
SHEET LAYOUT DESIGNATION: VIEW # / SHEET #

EXIST. CONTOURS

SHT #
ELEVATION DESIGNATION: VIEW # / SHEET #

NEW CONTOURS

003
DOOR TAG:
-SEE DOOR SCHEDULE.

01
WINDOW TAG:
-SEE WINDOW SCHEDULE

sw#
SHEARWALL TAG: SEE SHEARWALL SCHEDULE

EXHAUST FAN PER M1507:
-50 CFM MIN., TYP. U.N.O.
-100 CFM MIN. @ KITCH.

HDH
INDICATES STRUCTURAL KEYNOTE WITH INDEXED NUMBER.
SEE STRUCTURAL KEYNOTE SCHEDULE.

WHOLE HOUSE EXHAUST FAN:
-SEE *MECHANICAL VENTILATION REQUIREMENTS* UNDER THE *ENERGY CODE NOTES* ON SHT A000 FOR THE PROPOSED VENTILATION RATE.
-MAX SOUND RATING 1.0 SONE
-MIN. SOUND RATING 0.1IN W.C.
-SEE M1505.4 ON SHT A002

SD
110V SMOKE DETECTOR PER R314:
-W/ DISCONNECTION SWITCH & BATTERY BACKUP & INTERCONNECTIVITY PER R314.4.

T
THERMOSTAT:
-PROVIDE 2x8 BLK'G AT 51" A.F.F.

CD
CARBON MONOXIDE DETECTOR PER R315: W/ INTERCONNECTIVITY PER R315.5

T
24HR TIMER TO W.H. FAN
-SEE M1505.4.2 ON SHT A002

HD
HEAT DETECTOR PER IRC314.2.3 w/ INTERCONNECTIVITY PER R314.4.1

WH
FURNACE/WATER HEATER:
-PROVIDE COMBUSTIONABLE AIR FROM OUTSIDE.
-PROVIDE PRESSURE RELIEF LINE TO OUTSIDE.
FURN
-SECURE WATER HEATER TOP & BOTTOM.

No.	Date	Description
1	20230125	SUB2 City Comment Submittal
2	*******TBD*******	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

PERMIT SET

COVER SHEET

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A000

SCALE 24X36: 1 : 1
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

3/15/2023 8:48:21 AM Autodesk Docs://2104 Hu Residence, Mercer Island/2104 05CD_Hu Residence, Mercer Island.rvt

CHAPTER 1: ADMINISTRATION

R101 TITLE, SCOPE AND PURPOSE

1. THIS COVERSHEET HAS BEEN PREPARED IN A GENERIC OUTLINE FORM FOLLOWING THE STANDARDS SET BY THE INTERNATIONAL RESIDENTIAL CODE (IRC). NOT ALL ITEMS ARE NECESSARILY REQUIRED TO COMPLETE THIS SPECIFIC PROJECT, COORDINATE PLANS WITH IRC.
2. THIS SET OF WORKING DRAWINGS IS CONSIDERED A "BUILDER SET" AND DOES NOT INCLUDE SPECIFICATIONS OR BUILDING MATERIALS LIST. THEREFORE IT IS THE CONTRACTOR/OWNER RESPONSIBILITY TO PROVIDE AND COORDINATE SPECIFICATIONS, INCLUDING PRODUCT SELECTION AND INSTALLATION OR ASSEMBLY. ITEMS CALLED OUT ARE DONE SO FOR CONVENIENCE ONLY.
3. DO NOT SCALE THESE DRAWINGS FOR CRITICAL DIMENSIONS. VERIFY ALL DIMENSIONS AND DATUM'S BEFORE COMMENCING WORK AND BE RESPONSIBLE FOR THEIR ACCURACY AND REPORT DISCREPANCIES / OMISSIONS TO THE DESIGNER IMMEDIATELY.

CHAPTER 3: BUILDING PLANNING

R301 DESIGN CRITERIA

[B] R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA. BUILDINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN THE IRC. ADDITIONAL CRITERIA SHALL BE ESTABLISHED BY THE LOCAL JURISDICTION AND SET FORTH IN TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA.

GROUND SNOW LOAD:	25
WIND SPEED:	PER STRUCT SHEETS
SEISMIC DESIGN CATEGORY:	
SUBJECT TO DAMAGE FROM:	
WEATHERING:	MODERATE
FROST LINE DEPTH:	18"
TERMITE:	MODERATE
WINTER DESIGN TEMP:	26
ICE SHIELD UNDERLAYMENT REQUIRED:	NO
FLOOD HAZARDS:	
AIR FREEZING INDEX:	113
MEAN ANNUAL TEMP:	53

301.4 DEAD LOAD.
THE ACTUAL WEIGHTS OF MATERIALS AND CONSTRUCTION SHALL BE USED FOR DETERMINING DEAD LOAD. DEAD LOADS USED FOR THIS PROJECT ARE AS FOLLOWS:

FLOOR:	15 PSF
ROOF:	12 PSF
WALLS:	10 PSF

301.5 LIVE LOAD.
THE MINIMUM UNIFORMLY DISTRIBUTED LIVE LOAD SHALL BE AS PROVIDED IN

TABLE R301.5.
TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS

ATTICS WITH STORAGE:	20 PSF
WITHOUT STORAGE:	10 PSF
DECKS:	40 PSF
EXTERIOR BALCONIES:	60 PSF
FIRE ESCAPES:	40 PSF
GUARDRAILS AND HANDRAILS:	200 PLF
GUARDRAIL IN-FILL COMPONENTS:	200 PLF
PASSENGER VEHICLE GARAGES	200 PSF
ROOMS OTHER THAN SLEEPING ROOMS:	40 PSF
SLEEPING ROOMS:	30 PSF
STAIRS:	40 PSF

301.6 ROOF LOAD.
ROOF SHALL BE DESIGNED FOR THE LIVE LOAD INDICATED IN TABLE R301.6 THE SNOW LOAD INDICATED IN TABLE R301.2(1), WHICHEVER IS GREATER.

TABLE R301.6
MINIMUM ROOF LIVE LOADS IN POUNDS-FORCE PER SQUARE

ROOF SLOPE:	TRIBUTARY LOADED AREA IN S.F. FOR ANY STRUCTURAL MEMBER		
	0 to 200	2001 to 600	Over 600
FLAT OR RISE LESS THAN 4" PER FOOT (1:3).	20	16	12
RISE LESS 4" PER FLOOR (1:3) to 12" PER FOOT (1:1).	16	14	12
RISE 12" PER FOOT (1:1) AND GREATER.	12	12	12

301.8 NOMINAL SIZES.
...WHERE DIMENSIONS OF LUMBER ARE SPECIFIED, THEY SHALL BE DEEMED TO BE NOMINAL DIMENSIONS UNLESS SPECIFICALLY DESIGNATED AS ACTUAL DIMENSIONS.

R317 PROTECTION AGAINST DECAY

317.1 LOCATION REQUIRED.
IN AREAS SUBJECT TO DECAY DAMAGE AS ESTABLISHED BY TABLE R301.2(1) LOCATIONS REQUIRED BY SECTION R317.1, SHALL BE PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1 FOR THE SPECIES, PRODUCT, PRESERVATIVE AND END USE. PRESERVATIVES SHALL BE LISTED IN SECTION 4 OF AWPA U1
317.1.1 FIELD TREATMENT
FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4.

6.1 GENERAL

- ALL CUTS, HOLES AND INJURIES SUCH AS ABRASIONS OR HOLES FROM REMOVAL OF NAILS AND SPIKES WHICH MAY PENETRATE THE TREATED ZONE SHALL BE FIELD TREATED. AN AWPA ACCEPTED PRESERVATIVE SYSTEM, DETERMINED APPROPRIATE IN ACCORDANCE WITH AWPA M4 SECTION 7, SHALL BE USED FOR FIELD TREATMENT.
- APPLY PRESERVATIVES IN ACCORDANCE WITH THE PRODUCT LABEL.
- COAT ANY SURFACE THAT IS EXPOSED BY DAMAGE OR FIELD FABRICATION WHILE NOT USING EXCESS PRESERVATIVE.
- ANY EXCESS PRESERVATIVE NOT ABSORBED BY THE WOOD PRODUCT SHALL BE CLEANED FROM THE SURFACE PRIOR TO THE USE OF THE PRODUCT.
- BORED HOLES FOR CONNECTORS OR BOLTS MAY BE TREATED BY PUMPING COAL- TAR ROOFING CEMENT MEETING ASTM D5643 INTO HOLES USING A GREASE GUN OR SIMILAR DEVICE.
- CAREFUL ATTENTION SHOULD BE GIVEN TO MATERIALS PLACED INTO WET ENVIRONMENTS.
- AREA TO BE TREATED SHALL BE CLEAN, DRY AND FREE OF EXCESS PRESERVATIVE.

7.1 PRESERVATIVES

- THE PRESERVATIVE SYSTEM FOR FIELD TREATMENT SHALL BE DETERMINED BY THE TYPE OF PRESERVATIVE ORIGINALLY USED TO PROTECT THE PRODUCT.
- THE PRESERVATIVES DESIGNATED IN AWPA M4 SECTIONS 7.1.1, AND 7.1.2 ARE SUITABLE ALTERNATIVES WHEN NO MATCH CAN BE FOUND.

317.1.2 GROUND CONTACT.
ALL WOOD IN CONTACT WITH THE GROUND SHALL BE APPROVED
PRESSURE-PRESERVATIVE-TREATED WOOD SUITABLE FOR GROUND CONTACT USE

317.3 FASTENERS.
FASTENERS FOR PRESSURE PRESERVATIVE AND FIRE-RETARDANT-TREATED WOOD SHALL BE OF HOT-DIPPED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.
EXCEPTION:

1. ONE-HALF-INCH DIAMETER OR GREATER STEEL BOLTS.
2. FASTENERS OTHER THAN NAILS AND TIMBER RIVETS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B 695, CLASS 55 MINIMUM

CHAPTER 4: FOUNDATIONS

R401 GENERAL

401.1 APPLICATION.
THE PROVISIONS SET FORTH IN CHAPTER 4 OF THE IRC SHALL CONTROL THE DESIGN AND CONSTRUCTION OF THE FOUNDATION AND FOUNDATION SPACES FOR ALL BUILDINGS. IN ADDITION TO THE PROVISIONS OF THIS CHAPTER, THE DESIGN AND CONSTRUCTION OF FOUNDATIONS IN AREAS PRONE TO FLOODING AS ESTABLISHED BY TABLE R301.2(1) SHALL MEET THE PROVISIONS OF SECTION R322.

401.4 SOIL TESTS.
IN AREAS LIKELY TO HAVE EXPANSIVE, COMPRESSIBLE, SHIFTING OR OTHER UNKNOWN SOIL CHARACTERISTICS, THE BUILDING OFFICIAL SHALL DETERMINE WHETHER TO REQUIRE A SOIL TEST TO DETERMINE THE SOIL'S CHARACTERISTICS AT A PARTICULAR LOCATION,
401.4.1 GEOTECHNICAL EVALUATION.
SEE SECTION SOILS AND FOUNDATION ON SHEET S001 FOR PRESSUMED LOADING

R402 MATERIALS

402.2 CONCRETE.
CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2 . CONCRETE SUBJECT TO WEATHERING AS INDICATED IN TABLE R301.2(1) SHALL BE AIR ENTRAINED AS SPECIFIED IN TABLE R402.2

TABLE R402.2
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE

TYPE OF LOCATIONS OF CONC. CONSTRUCTION	TRIBUTARY LOADED AREA IN SQUARE FEET FOR ANY STRUCTURAL MEMBER		
	NEGLIGIBLE	MODERATE	SEVERE
BASEMENT WALLS, FNDN'S EXPOSED TO WEATHER.	2,500 psi	2,500 psi	2,500 psi
BASEMENT SLABS & INTERIOR SLABS ON GRADE, EXCEPT GAR. FLOOR SLABS.	2,500 psi	2,500 psi	2,500 psi
BASEMENT WALLS, FNDN WALLS, EXTERIOR WALLS EXPOSED TO WEATHER.	2,500 psi	3,000 psi	3,000 psi
PORCHES, CARPORT SLABS & STEPS EXPOSED TO WEATHER & GARAGE FLOOR SLABS.	2,500 psi	3,000 psi	3,500 psi

R403 FOOTINGS

403.1 GENERAL.
ALL EXTERIOR WALLS SHALL BE SUPPORTED ON CONTINUOUS SOLID OR FULLY GROUTED MASONRY OR CONCRETE FOOTINGS, WOOD FOUNDATIONS, OR OTHER APPROVED STRUCTURAL SYSTEMS, WHICH SHALL BE OF SUFFICIENT DESIGN TO ACCOMMODATE ALL LOADS ACCORDING TO SECTION R301 AND BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R403, OF THE IRC . FOOTINGS SHALL BE SUPPORTED ON UNDISTURBED NATURAL SOILS OR ENGINEERED FILL.

403.1.4.1 FROST PROTECTION.
FOUNDATION WALLS, PIERS AND OTHER PERMANENT SUPPORTS OF BUILDINGS AND STRUCTURES SHALL BE PROTECTED FROM FROST BY EXTENDING FOOTINGS BELOW THE FROST LINE AS SPECIFIED IN TABLE R301.2(1)...
EXCEPTION: DECKS NOT SUPPORTED BY A DWELLING NEED NOT BE PROVIDED WITH FOOTINGS THAT EXTEND BELOW THE FROST LINE.

403.1.6 FOUNDATION ANCHORAGE.
WHEN BRACED WALL PANELS ARE SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS, THE WALL WOOD SILL PLATE SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH SECTION 403.1.6, OF THE IRC.

- SILL PLATE SHALL BE ANCHORED TO THE FOUNDATION WITH ANCHOR BOLTS SPACED A MAXIMUM OF 6 FEET ON CENTER. THERE SHALL BE A MINIMUM OF TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12 INCHES FROM EACH END OF THE PLATE SECTION.
- BOLTS SHALL BE AT LEAST 1/2 INCH IN DIAMETER AND SHALL EXTEND A MINIMUM OF 7 INCHES INTO MASONRY OR CONCRETE.
- SILLS AND SOLE PLATES SHALL BE PROTECTED AGAINST DECAY AND TERMITES WHERE REQUIRED BY SECTIONS R318 AND R319, OF THE IRC.

EXCEPTION: FOUNDATION ANCHOR STRAPS, SPACED AS REQUIRED TO PROVIDE EQUIVALENT ANCHORAGE TO 1/2-INCH-DIAMETER ANCHOR BOLTS.

403.1.6.1 FOUNDATION ANCHORAGE IN SEISMIC DESIGN CATEGORIES D0, D1, D2, AND E.

IN ADDITION TO THE REQUIREMENTS OF SECTION R403.1.6 , THE FOLLOWING REQUIREMENTS SHALL APPLY TO WOOD LIGHT-FRAME STRUCTURES IN SEISMIC DESIGN CATEGORIES D1 AND D2.

- 1/4" X 3" X 3" PLATE WASHERS CONFORMING TO SECTION R602.11.1 SHALL BE USED ON EACH BOLT.
- INTERIOR BRACED WALL PLATES SHALL HAVE ANCHOR BOLTS SPACED AT NOT MORE THAN 6 FEET ON CENTER AND LOCATED WITHIN 12 INCHES FROM THE ENDS OF EACH PLATE SECTION WHEN SUPPORTED ON A CONTINUOUS FOUNDATION.
- INTERIOR BEARING WALL SOLE PLATES SHALL HAVE ANCHOR BOLTS SPACED AT NOT MORE THAN 6 FEET ON CENTER AND LOCATED WITHIN 12 INCHES FROM THE ENDS OF EACH PLATE SECTION WHEN SUPPORTED ON A CONTINUOUS FOUNDATION.
- THE MAXIMUM ANCHOR BOLT SPACING SHALL BE 4 FEET FOR BUILDINGS OVER TWO STORIES IN HEIGHT.
- STEPPED CRIPPLE WALLS SHALL CONFORM TO SECTION R602.11.3.

R404 FOUNDATION WALLS

404.1 CONCRETE AND MASONRY FOUNDATION WALLS.
CONCRETE AND MASONRY FOUNDATION WALLS SHALL BE SELECTED AND CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R404.1.3 OF THE IRC OR IN ACCORDANCE WITH ACI 318, NCMA TR68-A OR ACI 530/ASCE 5/TMS 402 OR OTHER APPROVED STRUCTURAL STANDARDS.

404.3 WOOD SILL PLATES.
WOOD SILL PLATES SHALL BE A MINIMUM OF 2-INCH BY 4-INCH NOMINAL LUMBER. SILL PLATE ANCHORAGE SHALL BE IN ACCORDANCE WITH SECTIONS R403.1.6 AND R602.11.

CHAPTER 5: FLOORS

R501 GENERAL

501.1 APPLICATION.
FLOOR CONSTRUCTION SHALL BE IN ACCORDANCE TO THE PROVISIONS SET FORTH IN CHAPTER 5 OF THE IRC.

501.2 REQUIREMENTS.
FOR FLOOR CONSTRUCTION LOADING, SEE SECTION R301.

CHAPTER 6: WALL CONSTRUCTION

R601 GENERAL

R601.1 APPLICATION.
WALL CONSTRUCTION SHALL BE IN ACCORDANCE TO THE PROVISIONS SET FORTH IN CHAPTER 6 OF THE IRC.

R601.2 REQUIREMENTS.
FOR WALL CONSTRUCTION LOADING, SEE SECTION R301.

R602.3. DESIGN & CONSTRUCTION
SEE TABLE R602.3(1) ON THIS SHEET FOR FASTENER / NAILING SCHEDULE

R613 EXTERIOR WINDOWS AND GLASS DOORS

613.1 GENERAL.
THE PROVISIONS SET FORTH IN SECTION 613 OF THE IRC, SHALL CONTROL THE PERFORMANCE AND CONSTRUCTION REQUIREMENTS FOR EXTERIOR WINDOW SYSTEMS INSTALLED IN WALL SYSTEMS. WATERPROOFING, SEALING AND FLASHING SYSTEMS ARE NOT INCLUDED IN THE SCOPE OF THIS SECTION.

613.2 PERFORMANCE.
EXTERIOR WINDOWS AND DOORS SHALL BE DESIGNED TO RESIST THE DESIGN WIND LOADS SPECIFIED IN TABLE R301.2(2) ADJUSTED FOR HEIGHT AND EXPOSURE PER TABLE R301.2(3).

CHAPTER 7: WALL COVERING

R701 GENERAL

701.1 APPLICATION.
THE PROVISIONS SET FORTH IN CHAPTER 7 OF THE IRC, SHALL CONTROL THE DESIGN AND CONSTRUCTION OF THE INTERIOR AND EXTERIOR WALL COVERING FOR ALL BUILDINGS.

701.2 INSTALLATION.
PRODUCTS SENSITIVE TO ADVERSE WEATHER SHALL NOT BE INSTALLED UNTIL ADEQUATE WEATHER PROTECTION FOR THE INSTALLATION IS PROVIDED. EXTERIOR SHEATHING SHALL BE DRY BEFORE APPLYING EXTERIOR COVER.

CHAPTER 8: ROOF-CEILING CONSTRUCTION

R801 GENERAL

801.1 APPLICATION.
THE PROVISIONS SET FORTH IN CHAPTER 8 OF THE IRC, SHALL CONTROL THE DESIGN AND CONSTRUCTION OF THE ROOF-CEILING SYSTEM FOR ALL BUILDINGS.

801.2 REQUIREMENTS.
ROOF AND CEILING CONSTRUCTION SHALL BE CAPABLE OF ACCOMMODATING ALL LOADS IMPOSED ACCORDING TO SECTION R301 AND OF TRANSMITTING THE RESULTING LOADS TO THE SUPPORTING STRUCTURAL ELEMENTS.

801.3 ROOF DRAINAGE.
IN AREAS WHERE EXPANSIVE OR COLLAPSIBLE SOILS ARE KNOWN TO EXIST, ALL DWELLINGS SHALL HAVE A CONTROLLED METHOD OF WATER DISPOSAL FROM ROOFS THAT WILL COLLECT AND DISCHARGE ALL ROOF DRAINAGE TO THE GROUND SURFACE AT LEAST 5 FEET FROM FOUNDATION WALLS OR TO AN APPROVED DRAINAGE SYSTEM.

CHAPTER 9: ROOF ASSEMBLIES

R901 GENERAL

901.1 SCOPE.
THE PROVISIONS SET FORTH IN CHAPTER 9 OF THE IRC, SHALL GOVERN THE DESIGN, MATERIALS, CONSTRUCTION AND QUALITY OF ROOF ASSEMBLIES.

UNIFORM PLUMBING CODE

PROTECTION OF PIPING, MATERIALS, AND STRUCTURES

SECTION 313.12 RATPROOFING

a. STRAINER PLATES ON DRAIN INLETS SHALL HAVE ½-INCH OPENINGS MAX.
b. METER BOXES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT RATS CANNOT ENTER A BLDG BY FOLLOWING THE SERVICE PIPES FROM THE BOX INTO THE BLDG.
c. WHERE OPENINGS HAVE BEEN MADE IN WALLS, FLOORS, OR CLGS FOR THE PASSAGE OF PIPES, SUCH OPENINGS SHALL BE CLOSED AND PROTECTED BY THE INSTALLATION OF APPROVED METAL COLLARS SECURELY FASTENED TO THE ADJOINING STRUCTURE.
d. TUB WASTE OPENINGS IN FRAMED CONSTRUCTION TO CRAWL SPACES AT OR BELOW THE FIRST FLOOR SHALL BE PROTECTED BY THE INSTALLATION OF APPROVED METAL COLLARS OR METAL SCREEN, WITH ½-INCH OPENINGS MAX, AND SECURELY FASTENED TO THE ADJOINING STRUCTURE.

GENERAL CONSTRUCTION SPECS. AND CODE COMPLIANCE (2018 IRC, UPC & 2018 W.S.E.C.)

No.	Date	Description
1	20230125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

PERMIT SET

CODE NOTES

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A001

SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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Window, Skylight and Door Schedule

Project Information	Contact Information
HU RESIDENCE	ATERA DESIGN STUDIO
2448 72ND AVE SE	451 DUVALL AVE NE STE 115, RENTON
MERCER ISLAND	studio@aterahomes.com

	Ref.	U-factor	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
Exempt Swinging Door (24 sq. ft. max.)	44	0.20	1	2	8	8	0	21.3	4.27
Exempt Glazed Fenestration (15 sq. ft. max.)								0.0	0.00

Vertical Fenestration (Windows and doors)

Component Description	Ref.	U-factor	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
DBL CASEMENT + PICTURE	10	0.28	2	8	0	6	0	96.0	26.88
CASEMENT	20	0.28	2	2	0	4	0	18.0	5.04
CASEMENT	21	0.28	1	2	8	4	0	11.3	3.15
CASEMENT	22	0.28	1	2	8	6	0	15.0	4.20
CASEMENT	23	0.28	1	3		4	0	13.5	3.78
HORZ SLIDING - DBL VENT	30	0.28	2	8	0	5	0	80.0	22.40
HORZ SLIDING - DBL VENT	31	0.28	1	8	0	6	0	48.0	13.44
HORZ SLIDING - HALF VENT	32	0.28	1	5	0	5	0	25.0	7.00
HORZ SLIDING - HALF VENT	33	0.28	1	5	0	6	0	30.0	8.40
HORZ SLIDING - HALF VENT	34	0.28	1	6		5	0	30.0	8.40
PICTURE	40	0.28	2	2	0	2	0	8.0	2.24
PICTURE	41	0.28	2	2	6	1	6	7.5	2.10
PICTURE	42	0.28	3	3	0	1	6	13.5	3.78
PICTURE	43	0.28	1	3	0	5	0	15.0	4.20
PICTURE	44	0.28	1	4	0	2	0	8.0	2.24
PICTURE	45	0.28	4	5	0	1	6	30.0	8.40
PICTURE	46	0.28	3	5	0	4	0	60.0	16.80
PICTURE	47	0.28	3	5	0	6	0	90.0	25.20
PICTURE	48	0.28	2	6	0	1	6	18.0	5.04
PICTURE	49	0.28	1	6	0	4	0	24.0	6.72
PICTURE	50	0.28	1	6	0	6	0	36.0	10.08
PICTURE	51	0.28	1	6	2	1	6	9.3	2.59
PICTURE	52	0.28	2	8	0	1	6	24.0	6.72
								0.0	0.00

		0.0 0.00
Sum of Vertical Fenestration Area and UA		710.0 198.80
Vertical Fenestration Area Weighted U = UA/Area		0.28

Overhead Glazing (Skylights)

Component Description	Ref.	U-factor	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
SKYLIGHT	80	0.50	1	4		4		16.0	8.00
								0.0	0.00
								0.0	0.00
								0.0	0.00
								0.0	0.00
								0.0	0.00
Sum of Overhead Glazing Area and UA								16.0	8.00
Overhead Glazing Area Weighted U = UA/Area									0.50
***Total Sum of Fenestration Area and UA** (for heating system sizing calculations)*								747.3	211.07

Simple Heating System Size: Washington State

This heating system sizing calculator is based on the Prescriptive Requirements of the 2018 Washington State Energy Code (WSEC) and ACCA Manuals J and S. This tool will calculate heating loads only. ACCA procedures for sizing cooling systems should be used to determine cooling loads.

Please complete the green drop-downs and boxes that are applicable to your project. As you make selections in the drop-downs for each section, some values will be calculated for you. If you do not see the selection you need in the drop-down options, please contact the WSU Energy Program at energycode@energy.wsu.edu or (360) 956-2042 for assistance.

Project Information	Contact Information
HU RESIDENCE	ATERA DESIGN STUDIO
2448 72ND AVE SE	451 DUVALL AVE NE STE 115, RENTON
MERCER ISLAND	studio@aterahomes.com

Heating System Type: ○ All Other Systems ◉ Heat Pump

To see detailed instructions for each section, place your cursor on the word "Instructions"

Design Temperature
Instructions: Mercer Island — Design Temperature Difference (ΔT) = 45
(ΔT = Indoor (70 degrees) - Outdoor Design Temp)

Area of Building
Conditioned Floor Area — Instructions: Conditioned Floor Area (sq ft) = 2,996
Average Ceiling Height — Instructions: Average Ceiling Height (ft) = 10.3
Conditioned Volume = 30,709

		U-Factor	X	Area	=	UA
Glazing and Doors	Instructions: U-0.28	0.280		731		204.68
Skylights	Instructions:	0.50		16		8.00
Insulation: Attic	Instructions: Select R Value	No selection		0		---
Single Rafter or Joist Vaulted Ceilings	Instructions: R-38 Vented	0.027		0		
Above Grade Walls *(see Figure 1)*	Instructions: R-21 Intermediate	0.056		3,796		212.55
Floors	Instructions: R-38	0.025		1,782		44.55
Below Grade Walls *(see Figure 1)*	Instructions: R-21 Interior	0.042		0		
		F-Factor	X	Length		UA
Slab Below Grade *(see Figure 1)*	Instructions: No Slab Below Grade in this project	0.303		0		---
Slab on Grade *(see Figure 1)*	Instructions: No Slab on Grade in this project	---		0		

Location of Ducts
Instructions: Conditioned Space — Duct Leakage Coefficient = 1.00

Sum of UA	469.78	
Envelope Heat Load *Sum of UA x ΔT*	21,140	Btu / Hour
Air Leakage Heat Load *Volume x 0.6 x ΔT x 0.018*	14,925	Btu / Hour
Building Design Heat Load *Air leakage + envelope heat loss*	36,065	Btu / Hour
Building and Duct Heat Load *Ducts in unconditioned space: sum of building heat loss x 1.19 Ducts in conditioned space: sum of building heat loss x 1*	36,065	Btu / Hour
Maximum Heat Equipment Output *Building and duct heat loss x 1.40 for forced air furnace Building and duct heat loss x 1.25 for heat pump*	45,081	Btu / Hour

Figure 1:

(07/01/22)

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2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective February 1, 2021)

These requirements apply to all IRC building types, including detached one- and two-family dwellings and multiple single-family dwellings (townhouses).

Project Information	*Contact Information*
HU RESIDENCE	PAUL MONSEF
2448 72ND AVE SE	studio@aterahomes.com

Instructions: This single-family project will use the requirements of the Prescriptive Path below and incorporate the minimum values listed. Based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Provide all information from the following tables as building permit drawings: Table R402.1 - Insulation and Fenestration Requirements by Component, Table R406.2 - Fuel Normalization Credits and 406.3 - Energy Credits.

Authorized Representative		*Date*	06/09/2022

All Climate Zones (Table R402.1.1)	R-Value [a]	U-Factor [a]
Fenestration U-Factor [b]	n/a	0.30
Skylight U-Factor [b]	n/a	0.50
Glazed Fenestration SHGC [b,e]	n/a	n/a
Ceiling [f]	49 [i]	0.026
Wood Frame Wall [d,h]	21 int	0.056
Floor	30	0.029
Below Grade Wall [c,h]	10/15/21 int + TB	0.042
Slab [g,i] R-Value & Depth	10, 2 ft	n/a

a. *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity that is less than the label or design thickness of the insulation, the compressed *R*-value of the insulation from Appendix Table A101.4 shall not be less than the *R*-value specified in the table.
b. The fenestration *U*-factor column excludes skylights.
c. "10/15/21 +5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21 +5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "5TB" means R-5 thermal break between floor slab and basement wall.
d. R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.
e. For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.
f. R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.
g. For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for *climate zone 5* of ICC 400.
h. Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78% of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.

2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective February 1, 2021)

Each dwelling unit ***in a residential building*** shall comply with sufficient options from Table R406.2 (fuel normalization credits) and Table 406.3 (energy credits) to achieve the following minimum number of credits. To claim this credit, the building permit drawings shall specify the option selected and the maximum tested building air leakage, and show the qualifying ventilation system and its control sequence of operation.

1. **Small Dwelling Unit: 3 credits**
   Dwelling units less than 1,500 sf in conditioned floor area with less than 300 sf of fenestration area. Additions to existing building that are greater than 500 sf of heated floor area but less than 1,500 sf.
2. **Medium Dwelling Unit: 6 credits**
   All dwelling units that are not included in #1 or #3
3. **Large Dwelling Unit: 7 credits**
   Dwelling units exceeding 5,000 sf of conditioned floor area
4. **Additions less than 500 square feet: 1.5 credits**
   All other additions shall meet 1-3 above

Before selecting your credits on this Summary table, review the details in Table 406.3 (Single Family), on page 4.

Summary of Table R406.2

Heating Options	Fuel Normalization Descriptions	Credits - select ONE heating option	User Notes
1	Combustion heating minimum NAECA[b]	0.0	☐
2	Heat pump[c]	1.0	☑
3	Electric resistance heat only - furnace or zonal	-1.0	☐
4	DHP with zonal electric resistance per option 3.4	0.5	☐
5	All other heating systems	-1.0	☐

Energy Options	Energy Credit Option Descriptions	Credits - select ONE energy option from each category [a]	User Notes
1.1	[illegible]	0.5	☐
1.2	Efficient Building Envelope	1.0	☐
1.3	Efficient Building Envelope	0.5	☑ .028 + R38 Floors
1.4	Efficient Building Envelope	1.0	☐
1.5	Efficient Building Envelope	2.0	☐
1.6	Efficient Building Envelope	3.0	☐
1.7	Efficient Building Envelope	0.5	☐
2.1	Air Leakage Control and Efficient Ventilation	0.5	☑
2.2	Air Leakage Control and Efficient Ventilation	1.0	☐
2.3	Air Leakage Control and Efficient Ventilation	1.5	☐
2.4	Air Leakage Control and Efficient Ventilation	2.0	☐
3.1[d]	High Efficiency HVAC	1.0	☐
3.2	High Efficiency HVAC	1.0	☐
3.3[d]	High Efficiency HVAC	1.5	☐
3.4	High Efficiency HVAC	1.5	☐
3.5	High Efficiency HVAC	1.5	☑
3.6[d]	High Efficiency HVAC	2.0	☐
4.1	High Efficiency HVAC Distribution System	0.5	☑
4.2	High Efficiency HVAC Distribution System	1.0	☐

2018 WASHINGTON STATE / IRC EXHAUST SYSTEM REQUIREMENTS

M1505 MECHANICAL VENTILATION

M1505.1 SOURCE SPECIFIC VENTILATION
WHERE LOCAL EXHAUST OR WHOLE-HOUSE MECHANICAL VENTILATION IS PROVIDED, THE EQUIPMENT SHALL BE DESIGNED IN ACCORDANCE SECTION M1505
a. SEE TABLE M1505.4.3 FOR MINIMUM VENTILATION RATES.

M1505.2 RECIRCULATION OF AIR.
EXHAUST AIR FROM BATHROOMS AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR CIRCULATED TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS, TOILET ROOMS AND KITCHENS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS INSIDE THE BUILDING.

M1505.3 EXHAUST EQUIPMENT.
EXHAUST EQUIPMENT SERVING SINGLE DWELLING UNITS SHALL BE LISTED AND LABELED AS PROVIDING THE MINIMUM REQUIRED AIRFLOW IN ACCORDANCE WITH ANSI/AMCA 210-ANSI/ASHRAE 51.

M1505.4 WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH SECTIONS M1505.4.1 THROUGH M1505.4.4.

M1601 DUCT CONSTRUCTION
M1601.1 DESIGN
DUCT SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISION OF THIS SECTION AND ACCA MANUAL D, THE APPLIANCE MANUFACTURER'S INSTALLATION INSTRUCTIONS, OR OTHER APPROVED METHODS.

M1601.1.1 ABOVE GROUND DUCTS
a. DISCHARGE TEMP LIMIT OF 250 DEGREES FAHRENHEIT
b. LABEL WITH UL 181 AND INSTALLED TO MANUF. SPECS
c. FIELD-FABRICATED, SHOP-FABRICATED, AND FLEXIBLE DUCT CONSTRUCTION SHALL CONFORM TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE EXCEPT AS ALLOWED BY TABLE M1601.1.1 GALVANIZED STEEL SHALL CONFORM TO ASTM A 653
d. GYPSUM PERMITTED PROVIDED AIR TEMP IS LESS THAN 125 DEGREES F AND NOT SUBJECT TO CONDENSATION
e. DUCT SYSTEMS SHALL BE CONSTRUCTED OF MATERIALS OF LESS THAN 200 FLAME SPREAD INDEX
f. STUD WALL CAVITIES, SEE 7.1-7.5

M1601.2 VIBRATION ISOLATORS
VIBRATION ISOLATORS INSTALLED BETWEEN MECHANICAL EQUIPMENT AND DUCTS SHALL BE FABRICATED FROM APPROVED MATERIALS LIST AND SHALL NOT EXCEED 10" IN LENGTH.

M1601.3 DUCT INSULATION MATERIALS
DUCT INSULATION MATERIALS TO CONFORM TO THE FOLLOWING:
1. DUCT COVERS AND LININGS TO MEET ASTM E 84 OR UL 723, AND ASTM E 2231
2. DUCT COVERINGS AND LININGS SHALL MEET ASTM C 411
3. REFLECTIVE DUCT INSULATION SHALL BE VISIBLE AT INTERVALS NO GREATER 36". R-VALUE IS DETERMINED IN ACCORDANCE WITH ASTM C 1668

M1601.4 INSTALLATION
DUCT INSTALLATION SHALL COMPLY WITH SECTIONS M1601.1.1 THROUGH M1601.4.10

M1701 COMBUSTION AIR
M1701.1 SCOPE
SOLID FUEL-BURNING APPLIANCES SHALL BE PROVIDED WITH COMBUSTION AIR IN ACCORDANCE WITH THE APPLIANCE MANUFACTURER'S INSTALLATION INSTRUCTIONS. METHODS OF PROVIDING COMBUSTION AIR IN THIS CHAPTER DO NOT APPLY TO FIREPLACES, FIREPLACE STOVES AND DIRECT-VENT APPLIANCES. THE REQUIREMENTS FOR COMBUSTION AND DILUTION AIR FOR GAS-FIRED APPLIANCES SHALL BE IN ACCORDANCE WITH CHAPTER 24.

2018 WASHINGTON STATE ENERGY REQUIREMENTS

CHAPTER 3 GENERAL REQUIREMENTS
R301 CLIMATE ZONES
CLIMATE ZONES FROM TABLE R301.1 SHALL BE USED IN DETERMINING THE APPLICABLE REQUIREMENTS FROM CHAPTER 4. KING, SNOHOMISH & PIERCE COUNTY – 4C (MARINE)
R302 DESIGN CONDITIONS
THE INTERIOR DESIGN TEMPERATURES USED FOR HEATING AND COOLING LOAD CALCULATIONS SHALL BE A MAXIMUM OF 72°F FOR HEATING AND MINIMUM OF 75°F FOR COOLING. THE HEATING OR COOLING OUTDOOR DESIGN TEMPERATURES SHALL BE SELECTED FROM APPENDIX RC.

CHAPTER 4 RESIDENTIAL ENERGY EFFICIENCY
R401 GENERAL
A PERMANENT CERTIFICATE SHALL BE POSTED WITHIN 36" OF THE ELECTRICAL DISTRIBUTION PANEL PER WSEC R401.3. THE CERTIFICATE SHALL LIST THE PREDOMINANT R-VALUES OF INSULATION INSTALLED IN OR ON CEILING/ROOF, WALLS, FOUNDATION (SLAB, BASEMENT WALL, CRAWLSPACE WALL AND/OR FLOOR), AND DUCTS OUTSIDE THE CONDITIONED SPACES; U-FACTORS FOR FENESTRATION; AND THE SOLAR HEAT GAIN COEFFICIENT (SHGC) OF FENESTRATION. THE CERTIFICATE SHALL ALSO LIST THE TYPE AND EFFICIENCY OF HEATING, COOLING, AND SERVICE WATER HEATING EQUIPMENT.
R402 BUILDING THERMAL ENVELOPE
THE BUILDING THERMAL ENVELOPE WILL MEET THE REQUIREMENTS OF SECTIONS R402.1.1 THROUGH R402.1.6

VERTICAL U-FACTOR:	0.28
SKYLIGHT U-FACTOR:	0.50
CEILING R-VALUE:	R-49 OR R-38 IF VAULTED (0.026)
WOOD FRAME WALL:	R-21 (0.056) + INSULATED HEADERS W/ R-10
FLOOR:	R-30 (0.029)
BELOW GRADE WALL:	R-21 + THERMAL BREAK (0.047)
SLAB ON GRADE:	R-10 / L=24"

R402.2.1 CEILINGS WITH ATTIC SPACES
WHERE SECTION R402.1.1 WOULD REQUIRE R-49 IN THE CEILING, INSTALLING R-38 OVER 100 PERCENT OF THE CEILING AREA REQUIRING INSULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENT FOR R-49 WHEREVER THE FULL HEIGHT OF UNCOMPRESSED R-38 INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES. THIS REDUCTION SHALL NOT APPLY TO THE U-FACTOR ALTERNATIVE APPROACH IN SECTION R402.1.3 AND THE TOTAL UA ALTERNATIVE IN SECTION R402.1.4.
R402.2.1.1 LOOSE INSULATION IN ATTIC SPACES
OPEN-BLOWN OR POURED LOOSE FILL INSULATION MAY BE USED IN ATTIC SPACES WHERE THE SLOPE OF THE CEILING IS NOT MORE THAN 3 FEET IN 12 AND THERE IS AT LEAST 30 INCHES OF CLEAR DISTANCE FROM THE TOP OF THE BOTTOM CHORD OF THE TRUSS OR CEILING JOIST TO THE UNDERSIDE OF THE SHEATHING AT THE ROOF EDGE.
R402.2.3 EAVE BAFFLE
FOR AIR PERMEABLE INSULATIONS IN VENTED ATTICS, A BAFFLE SHALL BE INSTALLED ADJACENT TO SOFFIT AND EAVE VENTS. BAFFLES SHALL MAINTAIN AN OPENING EQUAL OR GREATER THAN THE SIZE OF THE VENT. THE BAFFLE SHALL EXTEND OVER THE TOP OF THE ATTIC INSULATION. THE BAFFLE SHALL BE PERMITTED TO BE ANY SOLID MATERIAL.
R402.2.4 ACCESS HATCHES AND DOORS
ACCESS DOORS FROM CONDITIONED SPACES TO UNCONDITIONED SPACES (E.G., ATTICS AND CRAWL SPACES) SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON THE SURROUNDING SURFACES.

R402.2.7 FLOORS
FLOOR INSULATION SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT WITH THE UNDERSIDE OF THE SUBFLOOR DECKING. INSULATION SUPPORTS SHALL BE INSTALLED SO SPACING IS NO MORE THAN 24-INCHES ON CENTER. FOUNDATION VENTS SHALL BE PLACED SO THAT THE TOP OF THE VENT IS BELOW THE LOWER SURFACE OF THE FLOOR INSULATION.
a. PROVIDE R-10 CONTINUOUS INSULATION UNDER HEATED SLAB ON GRADE FLOORS PER R402.2.9.1.
b. PROVIDE CLASS I VAPOR RETARDER AT CRAWL SPACE & LAP 12" AT SEAMS AND EXTEND TO FOUNDATION WALL.
R402.2.8 BELOW-GRADE WALLS
EXTERIOR WALL INSULATION USED ON THE EXTERIOR (COLD) SIDE OF THE WALL SHALL EXTEND FROM THE TOP OF THE BELOW-GRADE WALL TO THE TOP OF THE FOOTING AND SHALL BE APPROVED FOR BELOW-GRADE USE. ABOVE-GRADE INSULATION SHALL BE PROTECTED. INSULATION USED ON THE INTERIOR (WARM) SIDE OF THE WALL SHALL EXTEND FROM THE TOP OF THE BELOW-GRADE WALL TO THE BELOW-GRADE FLOOR LEVEL AND SHALL INCLUDE R-5 RIGID BOARD PROVIDING A THERMAL BREAK BETWEEN THE CONCRETE WALL AND THE SLAB.
ABOVE GRADE WALLS: PROVIDE FACE STAPLED BATTS TO AVOID COMPRESSION. *PROVIDE MIN R-10 INSULATION AT WALL HEADER.* (R402.1.1[M])
R402.4 AIR LEAKAGE
THE BUILDING THERMAL ENVELOPE SHALL BE CONSTRUCTED TO LIMIT AIR LEAKAGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS R402.4.1 THROUGH R402.4.4. PROVIDE AN AIR BARRIER AND INSULATION INSTALLATION PER TABLE R402.1.1
a. THE *BUILDING THERMAL ENVELOPE* SHALL COMPLY WITH SECTIONS R402.4.1.1 AND R402.4.1.2 PER R402.4.1 THE SEALING METHODS BETWEEN DISSIMILAR MATERIALS SHALL ALLOW FOR DIFFERENTIAL EXPANSION AND CONTRACTION.
b. THE COMPONENTS OF THE *BUILDING THERMAL ENVELOPE* AS LISTED IN TABLE R402.4.1.1 SHALL BE INSTALLED PER R402.4.1. WHERE REQUIRED BY THE *CODE OFFICIAL*, AN *APPROVED* THIRD PARTY SHALL INSPECT ALL COMPONENTS AND VERIFY COMPLIANCE.
c. THE BUILDING OR DWELLING UNIT SHALL BE TESTED PER R402.4.1.2 AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING 5.0 AIR CHANGES PER HOUR. TESTING SHALL BE CONDUCTED WITH A BLOWER DOOR AT A PRESSURE OF 0.2 INCHES W.G.
d. NEW WOOD-BURNING FIREPLACES SHALL HAVE TIGHT-FITTING FLUE DAMPERS AND OUTDOOR COMBUSTION AIR PER R402.4.2
e. WINDOWS, SKYLIGHTS AND SLIDING GLASS DOORS SHALL HAVE AN AIR INFILTRATION RATE PER R402.4.2
f. RECESSED LUMINARIES INSTALLED IN THE *BUILDING THERMAL ENVELOPE* SHALL BE TYPE IC-RATED AND CERTIFIED UNDER ASTM E283 AS HAVING AN AIR LEAKAGE RATE PER R402.4.4

R403 SYSTEMS
R403.1 AT LEAST ONE THERMOSTAT SHALL BE PROVIDED FOR EACH SEPARATE HEATING AND COOLING SYSTEM.
a. WHERE THE PRIMARY HEATING SYSTEM IS A FORCED-AIR FURNACE, AT LEAST ONE PROGRAMMABLE THERMOSTAT PER DWELLING UNIT SHALL BE INSTALLED PER R403.1.1
b. UNITARY AIR COOLED HEAT PUMPS SHALL INCLUDE CONTROLS PER R403.1.2
R403.3 DUCTS AND AIR HANDLERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTIONS R403.2.1 THROUGH R403.2.3
a. DUCTS SHALL BE INSULATED TO A MINIMUM OF R-8 PER R403.3.1
b. DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED PER R403.3.2
c. AIR HANDLERS SHALL HAVE A MANUFACTURER'S DESIGNATION FOR AN AIR LEAKAGE IN ACCORDANCE WITH ASHRAE 193 PER R403.3.2.1
d. PER R403.3.5, BUILDING FRAMING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMS. INSTALLATION OF DUCTS IN EXTERIOR WALLS, FLOORS OR CEILINGS SHALL NOT DISPLACE REQUIRED ENVELOPE INSULATION.
R403.4 MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS ABOVE 105°F OR BELOW 55°F SHALL BE INSULATED TO A MINIMUM OF R-6.
a. PIPING INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE PER R403.4.1
R403.5 ENERGY CONSERVATION MEASURES FOR SERVICE HOT WATER SYSTEMS SHALL BE IN ACCORDANCE WITH SECTIONS R403.5.1 THROUGH R403.5.5
a. CIRCULATING HOT WATER SYSTEMS SHALL BE INSTALLED PER R403.5.1.1
b. INSULATION FOR HOT WATER PIPE SHALL HAVE A MINIMUM THERMAL RESISTANCE (*R*-VALUE) OF R-3. (R403.5.3)
c. ALL ELECTRIC WATER HEATERS IN UNHEATED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON AN INCOMPRESSIBLE, INSULATED SURFACE WITH A MINIMUM THERMAL RESISTANCE OF R-10. (R403.5.5)
R404 POWER AND LIGHTING SYSTEMS
R404.1 A MINIMUM OF 75 PERCENT OF PERMANENTLY INSTALLED LAMPS IN LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS.
a. PER R404.1.1 FUEL GAS LIGHTING SYSTEMS SHALL NOT HAVE CONTINUOUSLY BURNING PILOT LIGHTS.
R405 SIMULATED PERFORMANCE
CRITERIA FOR COMPLIANCE USING SIMULATED ENERGY PERFORMANCE ANALYSIS SHALL MEET THE REQUIREMENTS OF SECTION R401.2. SUCH ANALYSIS SHALL INCLUDE HEATING, COOLING, AND SERVICE WATER HEATING ENERGY ONLY.
a.

2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective February 1, 2021)

Summary of Table R406.2 (cont.)

Energy Options	Energy Credit Option Descriptions (cont.)	Credits - select ONE energy option from each category [a]	User Notes
5.1[d]	Efficient Water Heating	0.5	☐
5.2	Efficient Water Heating	0.5	☐
5.3	Efficient Water Heating	1.0	☐
5.4	Efficient Water Heating	1.5	☐
5.5	Efficient Water Heating	2.0	☑ PRO H80 T2RU310BM
5.6	Efficient Water Heating	2.5	☐
6.1[e]	Renewable Electric Energy (3 credits max)	1.0	☐
7.1	Appliance Package	0.5	☐
	Total Credits	6.0	CLEAR FORM

a. An alternative heating source sized at a maximum of 0.5 W/sf (equivalent) of heated floor area or 500 W, whichever is bigger, may be installed in the dwelling unit.
b. Equipment listed in Table C403.3.2(4) or C403.3.2(5)
c. Equipment listed in Table C403.3.2(1) or C403.3.2(2)
d. You cannot select more than one option from any category EXCEPT in category 5. Option 5.1 may be combined with options 5.2 through 5.6. See Table 406.3.
e. 1.0 credit for each 1,200 kWh of electrical generation provided annually, up to 3 credits max. See the complete Table R406.2 for all requirements and option descriptions.

Please print only pages 1 through 3 of this worksheet for submission to your building official.

GENERAL CONSTRUCTION SPECS. AND CODE COMPLIANCE (2018 IRC, UPC & 2018 W.S.E.C.)

No.	Date	Description

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

PERMIT SET

ENERGY NOTES

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A002

SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

Area Schedule (Energy/Venting Calculations)			
Name	Area	Perimeter	Level
FLOOR INSUL	1541 SF	180'-0"	Level 1
CLG - FLAT	507 SF	118'-0"	Level 2
CLG - FLAT	126 SF	39'-6"	Level 2
CLG - FLAT	53 SF	25'-6"	Level 2
FLOOR INSUL	42 SF	33'-0"	Level 2
FLOOR INSUL	199 SF	64'-0"	Level 2
CLG - FLAT	482 SF	97'-0"	T.O. PL LVL2
CLG - VAULT	383 SF	76'-0"	T.O. PL LVL2
CLG - VAULT	167 SF	48'-0"	T.O. PL LVL2
CLG - VAULT	103 SF	36'-6"	T.O. PL LVL2

CRAWL SPACE VENTING									
			AREA CALCULATIONS			VENTS REQUIRED		VENTING PROVIDED	
NAME	AREA	PERIMETER	NET AREA	NET FREE AREA	VENTING REQUIRED	VENT SIZE: 14" x 8" VENT AT .75 EFF	TOTAL VENTS REQUIRED	TOTAL VENTS SHOWN	TOTAL VENTING AREA PROVIDED
I	1404 SF	178'-8"	1404 SF	300	4.68 SF	0.583	8.03	16	9 SF

ROOF VENTING SCHEDULE

		AREA CALCULATIONS			EAVE/PARAPET VENTING			ROOF JACKS			
						CALCULATIONS			CALCULATIONS		
NAME	GROSS AREA	NET VENTABLE AREA	REQUIRED VENTING	% AT EAVES	REQUIRED EAVE	LF OF VENT	PROVIDED	REQUIRED JACKS	# OF JACKS	AREA PROVIDED	NOTES
1A	437 SF	0 SF	0.00 SF	0%	0.00 SF	0	0.00 SF	0.00 SF	0	0.00 SF	SPRAY FOAM PER PLANS
1B	38 SF	0 SF	0.00 SF	0%	0.00 SF	0	0.00 SF	0.00 SF	0	0.00 SF	SPRAY FOAM PER PLANS
1C	97 SF	0 SF	0.00 SF	0%	0.00 SF	0	0.00 SF	0.00 SF	0	0.00 SF	SPRAY FOAM PER PLANS
2A	1013 SF	0 SF	0.00 SF	0%	0.00 SF	0	0.00 SF	0.00 SF	0	0.00 SF	SPRAY FOAM PER PLANS

SPRAY FOAM NOTES:

1. WHERE SPRAY FOAM IS NOTED ON THE PLANS, NO VENTING IS REQUIRED: PROVIDE MIN 2" CLOSED CELL SPRAY FOAM INSULATION DIRECTLY TO THE UNDERSIDE OF THE ROOF/FLOOR SHEATHING.
2. PROVIDE SOLID EAVE BLOCKING, TYP
3. A COPY OF THE ICC-ES REPORT FOR THE INSULATION PRODUCT MUST BE PROVIDED ON SITE FOR THE FIELD INSPECTOR.
4. THE APPLIED SPRAY FOAM MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS BY A CERTIFIED INSTALLER

CRAWL SPACE VENTING NOTES:

1. THE UNCONDITIONED, UNDER-FLOOR, SPACE BETWEEN THE BOTTOM OF THE FLOOR JOISTS AND THE EARTH UNDER ANY BUILDING SHALL HAVE VENTILATION OPENINGS THROUGH FOUNDATION WALLS OR EXTERIOR WALLS.
2. A GROUND COVER OF SIX MIL (0.006 INCH THICK BLACK POLYETHYLENE OR APPROVED EQUAL SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES. THE GROUND COVER SHALL BE OVERLAPPED SIX INCHES MINIMUM AT THE JOINTS AND SHALL EXTEND TO THE FOUNDATION WALL.

THE GROUND COVER MAY BE OMITTED IN CRAWL SPACES IF THE CRAWL SPACE HAS A CONCRETE SLAB FLOOR WITH A MINIMUM THICKNESS OF TWO INCHES

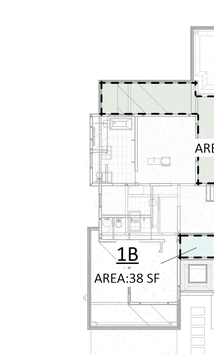
3. THE MINIMUM NET AREA OF VENTILATION OPENINGS SHALL NOT BE LESS THAN 1 SQUARE FOOT FOR EACH 300 SQUARE FEET OF UNDER-FLOOR AREA. REQUIRED OPENINGS SHALL BE EVENLY PLACED TO PROVIDE CROSS VENTILATION OF THE SPACE EXCEPT ONE SIDE OF THE BUILDING SHALL BE PERMITTED TO HAVE NO VENTILATION OPENINGS.
4. VENTILATION OPENINGS SHALL BE COVERED FOR THEIR HEIGHT AND WIDTH WITH ANY OF THE FOLLOWING MATERIALS PROVIDED THAT THE LEAST DIMENSION OF THE COVERING SHALL NOT EXCEED 1/4 INCH:
   - A. PERFORATED SHEET METAL PLATES NOT LESS THAN 0.070 INCH THICK.
   - B. EXPANDED SHEET METAL PLATES NOT LESS THAN 0.047 INCH THICK.
   - C. CAST-IRON GRILL OR GRATING.
   - D. EXTRUDED LOAD-BEARING BRICK VENTS.
   - E. HARDWARE CLOTH OF 0.035 INCH (0.89 MM) WIRE OR HEAVIER.
   - F. CORROSION-RESISTANT WIRE MESH, WITH THE LEAST DIMENSION BEING 1/8 INCH

5 WSEC ENERGY CALCS - MAIN
SCALE: 1/16" = 1'-0"

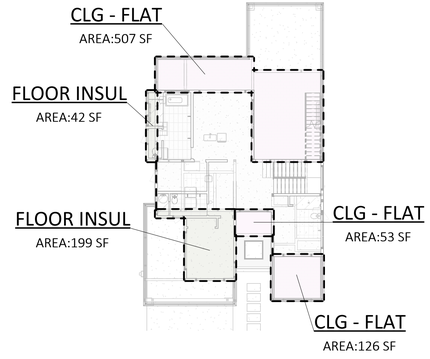
AREA SCHEDULE ...	
NAME	AREA
Garage	435 SF
Main Floor	1539 SF
Upper Floor	1022 SF
	2996 SF
Covr'd Patio	246 SF
Covr'd Porch	61 SF
	308 SF
	3303 SF

F.A.R. COVERAGE CALCULATIONS:
SITE AREA: 7,200.06 SF
MAX LOT COVERAGE: 45% OF NET LOT AREA, OR 3,000 SF, WHICHEVER IS LESS. *19.02.020. D.3.A.*

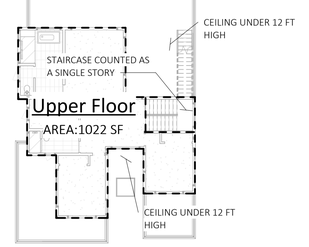
PROPOSED FLOOR AREA: 2,996 SF
PROPOSED F.A.R.: 41.6%



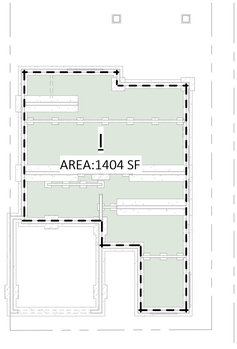
7 ROOF VENTING - MAIN
SCALE: 1/16" = 1'-0"



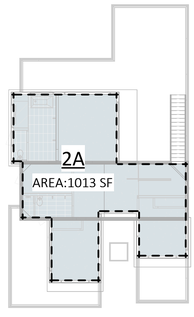
4 WSEC ENERGY CALCS - UPPER
SCALE: 1/16" = 1'-0"



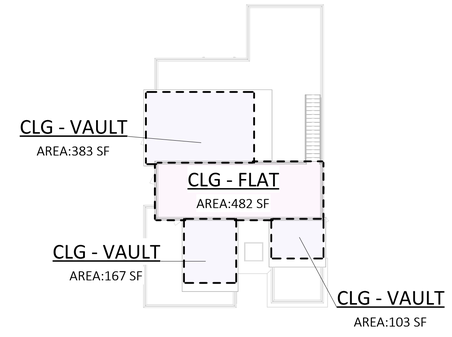
2 GROSS AREA PLAN - UPPER
SCALE: 1/16" = 1'-0"



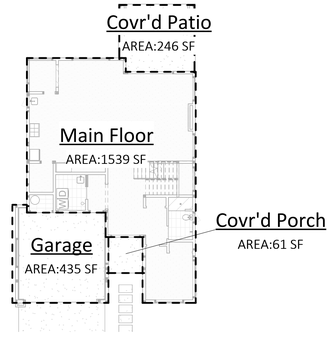
8 CRAWL SPACE VENTING CALCS
SCALE: 1/16" = 1'-0"



6 ROOF VENTING - UPPER
SCALE: 1/16" = 1'-0"



3 WSEC ENERGY CALCS - ROOF
SCALE: 1/16" = 1'-0"



1 GROSS AREA PLAN - MAIN
SCALE: 1/16" = 1'-0"

No.	Description	Date

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

ENERGY/VENTING CALCULATIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A003

SCALE 24X36: 1/16" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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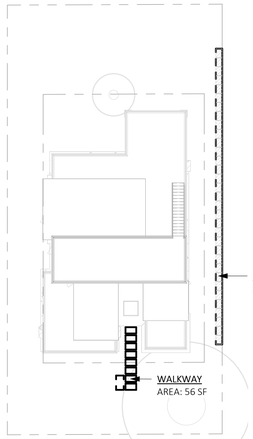


HARDSCAPE COVERAGE CALCULATIONS:

SITE AREA: 7,200.06 SF

LOT SLOPE 0-15%

MAX HARDSCAPES: 9% *(648 SF)*

EXISTING HARDSCAPE:

EXST'G HARDSCAPE: 1,262 SF
REMOVED HARDSCAPE: 1,073 SF
HARDSCAPE TO REMAIN: 189 SF

PROPOSED COVERAGES:

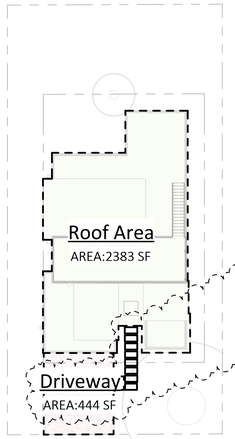
PROPOSED HARDSCAPES: 56 SF

TOTAL HARDSCAPE:

TOTAL HARDSCAPE: 245 SF
% OF LOT AREA: 3.4%

3 HARDSCAPE COVERAGE CALCS

SCALE: 1" = 20'-0"



LOT COVERAGE CALCULATIONS:

SITE AREA: 7,200.06 SF

LOT SLOPE 0-15%

MAX LOT COVERAGE: 40% *(2,880 SF)*

PROPOSED COVERAGES:

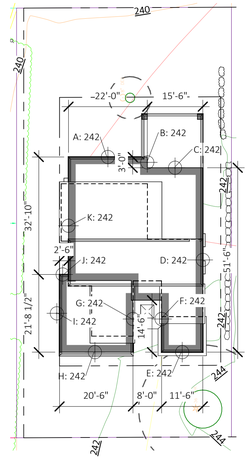
PROPOSED IMPERVIOUS: 2,826 SF
% OF LOT AREA: 39.25%

Area Schedule - Lot Coverage

Name	Area
Driveway	444 SF
Roof Area	2383 SF
Grand total: 2	2826 SF

2 LOT COVERAGE CALCS

SCALE: 1" = 20'-0"



TREE RETENTION SCHEDULE

MARK	RETAINED	DIAMETER AT BREADTH HEIGHT EXISTING	DIAMETER AT BREADTH HEIGHT RETAINED D.B.H.	TYPE SPECIES
A	Yes	32"	32"	DOUGLAS FIR
B	Yes	8"	8"	JAPANESE MAPLE
2		40"	40"	

TREE RETENTION CALCS

TOTAL TREES RETAINED	40"
TOTAL TREES TO BE REMOVED	0"
PROPOSED TREE RETENTION %	100%

A.B.E. CHART

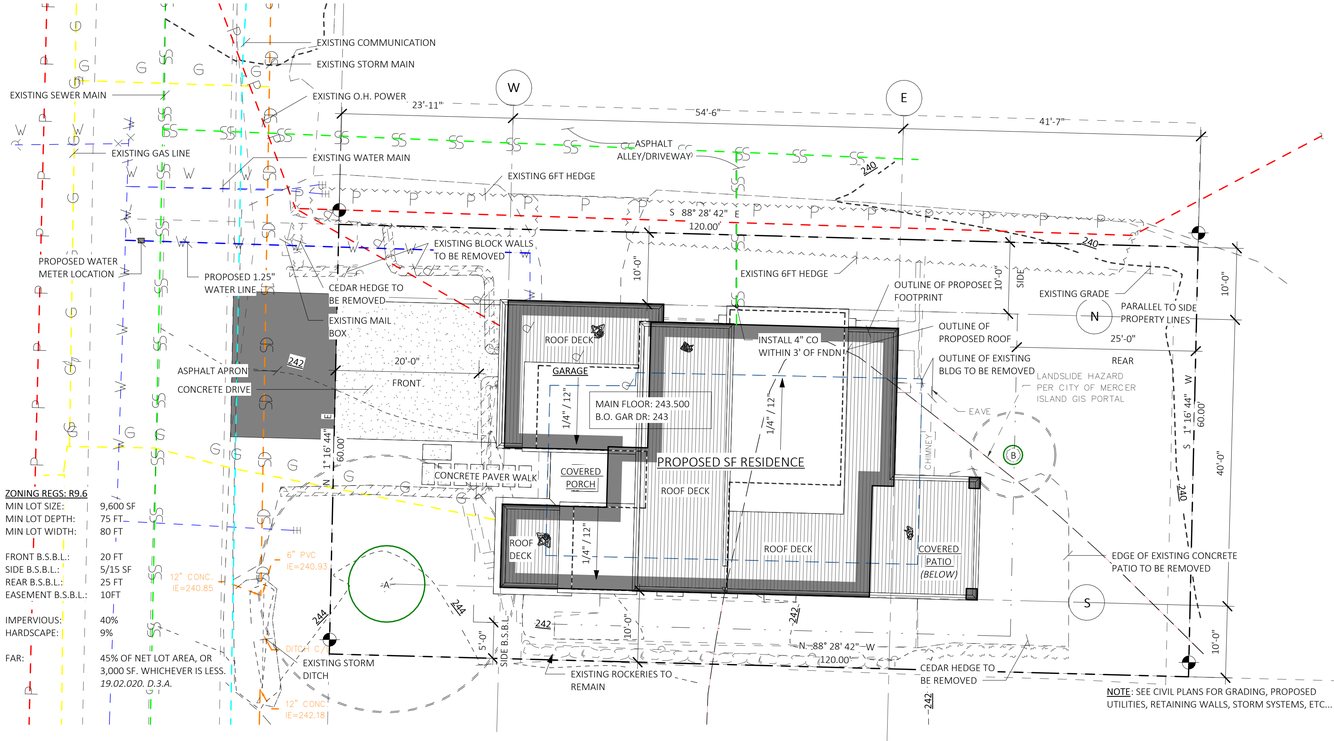
A.B.E. ID	A.B.E.	SEGMENT LENGTH	A.B.E. * LENGTH
A	242	22	5324
B	242	3	726
C	242	15.5	3751
D	242	51.5	12463
E	242	11.5	2783
F	242	14.5	3509
G	242	14.5	3509
H	242	21.25	5142.5
I	242	21.9	5299.8
J	242	3.25	786.5
K	242	32.9	7961.8
Grand total: 11		211.8	51255.6

AVERAGE BLDG ELEVATION CALCULATIONS:

51,255.6 / 211.8 = 242 A.B.E.

1 AVERAGE BLDG HT CALCULATIONS

SCALE: 1" = 20'-0"



ZONING REGS: R9.6

MIN LOT SIZE:	9,600 SF
MIN LOT DEPTH:	75 FT
MIN LOT WIDTH:	80 FT
FRONT B.S.B.L.:	20 FT
SIDE B.S.B.L.:	5/15 SF
REAR B.S.B.L.:	25 FT
EASEMENT B.S.B.L.:	10FT
IMPERVIOUS:	40%
HARDSCAPE:	9%
FAR:	45% OF NET LOT AREA, OR 3,000 SF. WHICHEVER IS LESS. *19.02.020. D.3.A.*

SEE SHEET A002 FOR F.A.R. CALCULATIONS

0' 5' 10' 40'

No.	Date	Description
1	20220125	SUB2 City Comment Submittal
2	*****TBD*****	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

SITE PLAN & AREA/HT CALCULATIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A101

SCALE 24X36: As indicated

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

DOOR SCHEDULE

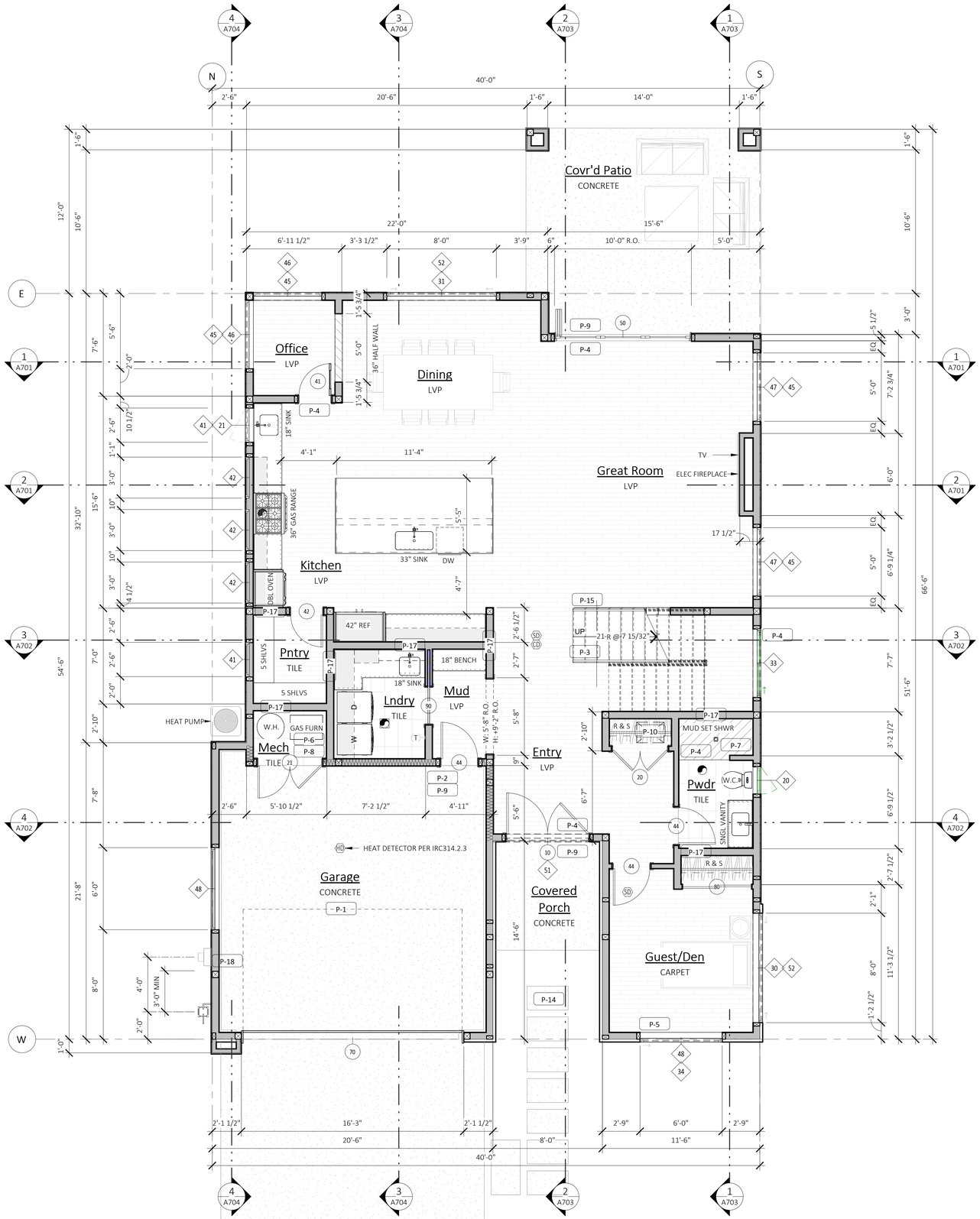
TYPE MARK	DESCRIPTION	SIZE		COUNT	DOOR PANEL	
		WIDTH	HT		CONTRUCTION	GLAZING AREA
10	HINGED DOUBLE EXTERIOR - ENTRY	6'-0"	8'-0"	1	S.C.	0 SF
20	HINGED DOUBLE INTERIOR PANEL	4'-0"	8'-0"	1	S.C.	0 SF
21	HINGED DOUBLE INTERIOR PANEL	4'-8"	8'-0"	1	S.C.	0 SF
22	HINGED DOUBLE INTERIOR PANEL	5'-0"	8'-0"	1	S.C.	0 SF
30	HINGED - SINGLE - EXTERIOR - FULL LITE	3'-0"	8'-0"	1	S.C.	0 SF
40	HINGED - SINGLE - INTERIOR - FULL LITE	2'-4"	7'-0"	1	S.C.	0 SF
41	HINGED - SINGLE - INTERIOR - FULL LITE	2'-4"	8'-0"	1	S.C.	0 SF
42	HINGED - SINGLE - INTERIOR	2'-4"	8'-0"	4	S.C.	0 SF
43	HINGED - SINGLE - INTERIOR	2'-6"	8'-0"	2	S.C.	0 SF
44	HINGED - SINGLE - INTERIOR	2'-8"	8'-0"	3	S.C.	0 SF
50	LA CANTINA FOLDING DOOR	10'-0"	9'-11 1/2"	1		0 SF
60	2-PANEL SLIDING GLASS DOOR	6'-0"	8'-0"	2	VINYL	96 SF
61	3-PANEL SLIDING GLASS DOOR	10'-0"	7'-10"	1	VINYL	78 SF
70	OVERHEAD GARAGE DOOR	16'-0"	9'-0"	1		0 SF
80	SLIDING CLOSET - BI-PASS	5'-0"	8'-0"	1	H.C.	0 SF
81	SLIDING CLOSET - BI-PASS	6'-0"	8'-0"	2	H.C.	0 SF
90	SLIDING INTERIOR POCKET	2'-8"	8'-0"	1	S.C.	0 SF

Grand total: 25 — 174 SF

WINDOW SCHEDULE

TYPE MARK	STYLE	SIZE			COUNT	IS EGRESS
		WIDTH	HT	AREA		
10	Double Casement + Picture	8'-0"	6'-0"	96 SF	2	No
20	Casement	2'-0"	4'-6"	18 SF	2	No
21	Casement	2'-6"	4'-6"	11 SF	1	Yes
22	Casement	2'-6"	6'-0"	15 SF	1	Yes
23	Casement	3'-0"	4'-6"	14 SF	1	Yes
30	Horz Sliding Dbl-Vent	8'-0"	5'-0"	80 SF	2	Yes
31	Horz Sliding Dbl-Vent	8'-0"	6'-0"	48 SF	1	Yes
32	Horz Sliding Half-Vent	5'-0"	5'-0"	25 SF	1	Yes
33	Horz Sliding Half-Vent	5'-0"	6'-0"	30 SF	1	Yes
34	Horz Sliding Half-Vent	6'-0"	5'-0"	30 SF	1	Yes
40	Picture	2'-0"	2'-0"	8 SF	2	No
41	Picture	2'-6"	1'-6"	8 SF	2	No
42	Picture	3'-0"	1'-6"	14 SF	3	No
43	Picture	3'-0"	5'-0"	15 SF	1	No
44	Picture	4'-0"	2'-0"	8 SF	1	No
45	Picture	5'-0"	1'-6"	30 SF	4	No
46	Picture	5'-0"	4'-0"	60 SF	3	No
47	Picture	5'-0"	6'-0"	90 SF	3	No
48	Picture	6'-0"	1'-6"	18 SF	2	No
49	Picture	6'-0"	4'-0"	24 SF	1	No
50	Picture	6'-0"	6'-0"	36 SF	1	No
51	Picture	6'-2"	1'-6"	9 SF	1	No
52	Picture	8'-0"	1'-6"	24 SF	2	No
80	Skylight	4'-0"	4'-0"	16 SF	1	

Grand total: 40 — 726 SF



GENERAL PLAN NOTES:

1. SEE SHEET A001 FOR GENERAL CONSTRUCTION SPECIFICATIONS.
2. SEE BUILDING ELEVATIONS FOR WINDOW OPERATION.
3. SEE "TYPICAL BUILDING MATERIALS" LIST ON THE ELEVATION SHEET(s).
4. FOR THE SYMBOLS & LEGEND SEE SHEET A000.
5. SEE STRUCTURAL SHEETS FOR SHEARWALL DESIGNATIONS & HOLDDOWNS AND SHEET(s) S201-S203 FOR SHEARWALL DETAILS/ SCHEDULE.
6. SEE SHEET A201-A301 FOR WINDOWS SCHEDULE.
   SEE SHEET A201-A301 FOR DOOR SCHEDULE.
   SEE ELEVATIONS SHEETS FOR WINDOW OPERATION.
7. WINDOW DIMENSIONS SHOWN ARE SUGGESTED NOMINAL/ROUGH OPENINGS, NET DIMENSIONS TO BE PER MANUFACTURER.

KEYNOTES - FLOORPLAN

ID	DESCRIPTION
P-1	GARAGE/HOUSE OCCUPANCY SEPARATION. PER IRC R302.6 a) 1/2" GYP. AT GARAGE SIDE BETWEEN RESIDENCE AND ATTIC. b) 5/8" TYPE 'X' GYP SEPARATING HABITABLE ROOMS ABOVE. c) 1/2" GYP. AT WALLS SUPPORTING HABITABLE ROOMS ABOVE."
P-2	DOOR BETWEEN GARAGE AND HOUSE SHALL BE EQUIPED WITH A SELF-CLOSING DEVICE, AND BE A MIN 1 3/8" THICK SOLID WOOD DOOR OR 20 MIN. F.R. DOOR. PER IRC SECTION R302.5.1
P-3	STAIR ASSEMBLY: PER IRC SECTION R311.7" a) WIDTH 36" MIN.; HEADROOM 6'-8" MIN. b) RISER 7-3/4" MAX.; TREAD 10" MIN. c) TOP OF HANDRAIL AT 34" MIN. AND 38" MAX ABOVE TREAD NOSING d) HANDRAIL WIDTH 1-1/4" MIN. AND 2" MAX. e) INSTALL FIRE BLOCKING IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. f) COVER USABLE SPACE UNDER STAIR WITH 1/2" GYP."
P-4	SAFETY GLAZING PER IRC SECTION R308.4
P-5	EGRESS WINDOW PER IRC SECTION R310. PROVIDE MIN NET CLEARANCE OF 5 SF AT GRADE FLOOR OPENINGS AND 5.7 SF ABOVE. MIN SILL HEIGHT TO BE 44" A.F.F.
P-6	IGNITERS: A) FOR GAS FIRED APPLIANCES IN GARAGE TO BE 18" MIN ABOVE TOP OF SLAB, PROVIDE (2) LAYERS OF FLOOR SHEATHING OVER FRAMING.. PER IRC SECTION G2408. B) HEAT-PRODUCING EQUIPMENT AND APPLIANCES SHALL BE INSTALLED TO MAINTAIN THE REQUIRED CLEARANCES TO COMBUSTIBLE CONSTRUCTION AS SPECIFIED IN THE LISTING AND MANUFACTURER'S INSTRUCTIONS. PER IRC G2408.5
P-7	COVER WALLS ADJACENT TO TUBS AND SHOWERS WITH NONABSORBENT MATERIAL TO 72" ABOVE DRAIN INLETS. PER IRC SECTION R307.2. FOR GROUND FLR WASTE OPENING REQ SEE UPC NOTES ON SHT A001
P-8	HIGH EFFICIENCY GAS FURNACE, SIZE PER WSEC PRESCRIPTIVE ENERGY CODE COMPLIANCE FORMS. a) PROVIDE DUCT LEAKAGE, SEALING & TESTING PER WSEC 502 & 503. b) THERMOSTAT PER WSEC 503.8. c) SEE WSEC NOTES ON SHEET A001
P-9	7-3/4 MAX. RISER WITH 10" MIN. TREAD DEPTH. IF MORE THAN (4) RISERS HANDRAIL REQUIRED PER IRC SECTION R311.7.7. a) PROVIDE 36"x36" MIN. LANDING AT EXTERIOR DOORS PER IRC SECTION R311.3
P-10	PROVIDE CRAWL SPACE ACCESS, MIN. 18" X 24" UNOBSTRUCTED ACCESS. PER IRC SECTION R408.4
P-14	SEE SITE PLAN FOR EXTENT OF WALKS AND DRIVEWAYS.
P-15	36" MIN. GUARDRAIL. AT STAIRS SLOPES AT 36" ABOVE STAIR NOSINGS. PER SEE IRC SECTION 312
P-17	2x6 WALL FOR PLUMBING / HVAC.
P-18	A PERMANENT CERTIFICATE SHALL BE POSTED WITHIN 36" OF THE ELECTRICAL DISTRIBUTION PANEL. SEE SECTION M1505.4 ON SHEET A002 THE MAIN ELECTRICAL PANEL SHALL HAVE A RESERVED SPACE FOR FUTURE SOLAR ELECTRIC INSTALLATION PER IRC T103.9. A PERMANENT CERTIFICATE FOR SOLAR-READY ZONE IS TO BE POSTED PER IRC T103.10.

AREA SCHEDULE ...

NAME	AREA
Garage	435 SF
Main Floor	1539 SF
Upper Floor	1022 SF
	2996 SF
Covr'd Patio	246 SF
Covr'd Porch	61 SF
	308 SF
	3303 SF

No. | Description | Date

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

MAIN FLOOR

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A301

SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%, SCALE DRAWINGS ACCORDINGLY.

DOOR SCHEDULE

TYPE MARK	DESCRIPTION	SIZE		COUNT	DOOR PANEL	
		WIDTH	HT		CONTRUCTION	GLAZING AREA
10	HINGED DOUBLE EXTERIOR - ENTRY	6'-0"	8'-0"	1	S.C.	0 SF
20	HINGED DOUBLE INTERIOR PANEL	4'-0"	8'-0"	1	S.C.	0 SF
21	HINGED DOUBLE INTERIOR PANEL	4'-8"	8'-0"	1	S.C.	0 SF
22	HINGED DOUBLE INTERIOR PANEL	5'-0"	8'-0"	1	S.C.	0 SF
30	HINGED - SINGLE - EXTERIOR - FULL LITE	3'-0"	8'-0"	1	S.C.	0 SF
40	HINGED - SINGLE - INTERIOR - FULL LITE	2'-4"	7'-0"	1	S.C.	0 SF
41	HINGED - SINGLE - INTERIOR - FULL LITE	2'-4"	8'-0"	1	S.C.	0 SF
42	HINGED - SINGLE - INTERIOR	2'-4"	8'-0"	4	S.C.	0 SF
43	HINGED - SINGLE - INTERIOR	2'-6"	8'-0"	2	S.C.	0 SF
44	HINGED - SINGLE - INTERIOR	2'-8"	8'-0"	3	S.C.	0 SF
50	LA CANTINA FOLDING DOOR	10'-0"	9'-11 1/2"	1		0 SF
60	2-PANEL SLIDING GLASS DOOR	6'-0"	8'-0"	2	VINYL	96 SF
61	3-PANEL SLIDING GLASS DOOR	10'-0"	7'-10"	1	VINYL	78 SF
70	OVERHEAD GARAGE DOOR	16'-0"	9'-0"	1		0 SF
80	SLIDING CLOSET - BI-PASS	5'-0"	8'-0"	1	H.C.	0 SF
81	SLIDING CLOSET - BI-PASS	6'-0"	8'-0"	2	H.C.	0 SF
90	SLIDING INTERIOR POCKET	2'-8"	8'-0"	1	S.C.	0 SF

Grand total: 25 — 174 SF

WINDOW SCHEDULE

TYPE MARK	STYLE	SIZE			COUNT	IS EGRESS
		WIDTH	HT	AREA		
10	Double Casement + Picture	8'-0"	6'-0"	96 SF	2	No
20	Casement	2'-0"	4'-6"	18 SF	2	No
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22	Casement	2'-6"	6'-0"	15 SF	1	Yes
23	Casement	3'-0"	4'-6"	14 SF	1	Yes
30	Horz Sliding Dbl-Vent	8'-0"	5'-0"	80 SF	2	Yes
31	Horz Sliding Dbl-Vent	8'-0"	6'-0"	48 SF	1	Yes
32	Horz Sliding Half-Vent	5'-0"	5'-0"	25 SF	1	Yes
33	Horz Sliding Half-Vent	5'-0"	6'-0"	30 SF	1	Yes
34	Horz Sliding Half-Vent	6'-0"	5'-0"	30 SF	1	Yes
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41	Picture	2'-6"	1'-6"	8 SF	2	No
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43	Picture	3'-0"	5'-0"	15 SF	1	No
44	Picture	4'-0"	2'-0"	8 SF	1	No
45	Picture	5'-0"	1'-6"	30 SF	4	No
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50	Picture	6'-0"	6'-0"	36 SF	1	No
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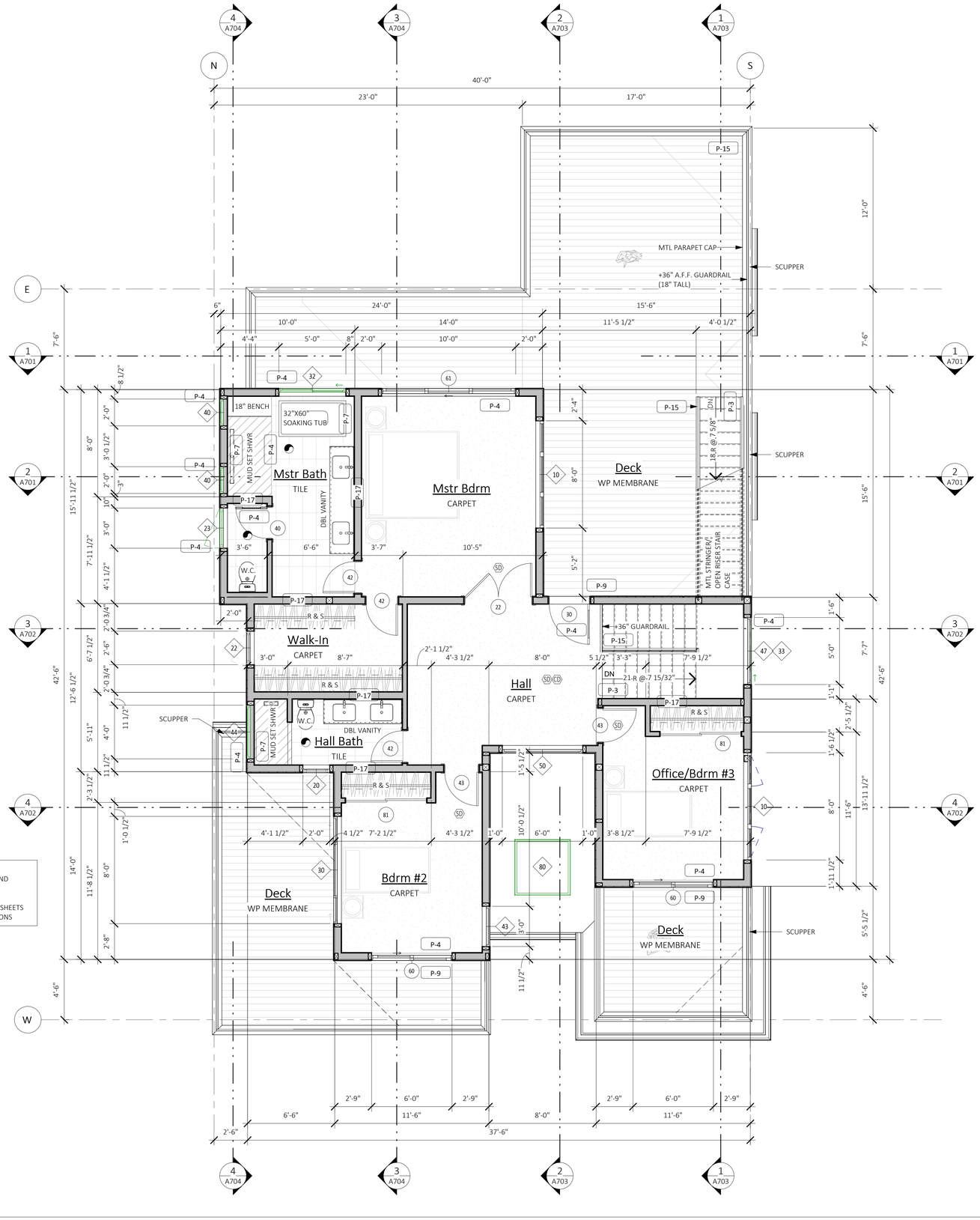
Grand total: 40 — 726 SF



NOTE:
SPECIAL INSPECTION OF THE ROOF MEMBRANE AND PEDESTAL DECKING INSTALLATION REQUIRED.

SEE SHEETD401 FOR WATERPROOF DECKING CUT SHEETS AND DETAILS. INSTALL PER MFR RECOMMENDATIONS

GENERAL PLAN NOTES:

1. SEE SHEET A001 FOR GENERAL CONSTRUCTION SPECIFICATIONS.
2. SEE BUILDING ELEVATIONS FOR WINDOW OPERATION.
3. SEE "TYPICAL BUILDING MATERIALS" LIST ON THE ELEVATION SHEET(s).
4. FOR THE SYMBOLS & LEGEND SEE SHEET A000.
5. SEE STRUCTURAL SHEETS FOR SHEARWALL DESIGNATIONS & HOLDDOWNS AND SHEET(s) S201-S203 FOR SHEARWALL DETAILS/ SCHEDULE.
6. SEE SHEET A201-A301 FOR WINDOWS SCHEDULE.
   SEE SHEET A201-A301 FOR DOOR SCHEDULE.
   SEE ELEVATIONS SHEETS FOR WINDOW OPERATION.
7. WINDOW DIMENSIONS SHOWN ARE SUGGESTED NOMINAL/ROUGH OPENINGS, NET DIMENSIONS TO BE PER MANUFACTURER.

KEYNOTES - FLOORPLAN

ID	DESCRIPTION
P-1	GARAGE/HOUSE OCCUPANCY SEPARATION. PER IRC R302.6 a) 1/2" GYP. AT GARAGE SIDE BETWEEN RESIDENCE AND ATTIC. b) 5/8" TYPE 'X' GYP SEPARATING HABITABLE ROOMS ABOVE. c) 1/2" GYP. AT WALLS SUPPORTING HABITABLE ROOMS ABOVE."
P-2	DOOR BETWEEN GARAGE AND HOUSE SHALL BE EQUIPED WITH A SELF-CLOSING DEVICE, AND BE A MIN 1 3/8" THICK SOLID WOOD DOOR OR 20 MIN. F.R. DOOR. PER IRC SECTION R302.5.1
P-3	STAIR ASSEMBLY: PER IRC SECTION R311.7" a) WIDTH 36" MIN.; HEADROOM 6'-8" MIN. b) RISER 7-3/4" MAX.; TREAD 10" MIN. c) TOP OF HANDRAIL AT 34" MIN. AND 38" MAX ABOVE TREAD NOSING d) HANDRAIL WIDTH 1-1/4" MIN. AND 2" MAX. e) INSTALL FIRE BLOCKING IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. f) COVER USABLE SPACE UNDER STAIR WITH 1/2" GYP."
P-4	SAFETY GLAZING PER IRC SECTION R308.4
P-5	EGRESS WINDOW PER IRC SECTION R310. PROVIDE MIN NET CLEARANCE OF 5 SF AT GRADE FLOOR OPENINGS AND 5.7 SF ABOVE. MIN SILL HEIGHT TO BE 44" A.F.F.
P-6	IGNITERS: A) FOR GAS FIRED APPLIANCES IN GARAGE TO BE 18" MIN ABOVE TOP OF SLAB, PROVIDE (2) LAYERS OF FLOOR SHEATHING OVER FRAMING.. PER IRC SECTION G2408. B) HEAT-PRODUCING EQUIPMENT AND APPLIANCES SHALL BE INSTALLED TO MAINTAIN THE REQUIRED CLEARANCES TO COMBUSTIBLE CONSTRUCTION AS SPECIFIED IN THE LISTING AND MANUFACTURER'S INSTRUCTIONS. PER IRC G2408.5
P-7	COVER WALLS ADJACENT TO TUBS AND SHOWERS WITH NONABSORBENT MATERIAL TO 72" ABOVE DRAIN INLETS. PER IRC SECTION R307.2. FOR GROUND FLR WASTE OPENING REQ SEE UPC NOTES ON SHT A001
P-8	HIGH EFFICIENCY GAS FURNACE, SIZE PER WSEC PRESCRIPTIVE ENERGY CODE COMPLIANCE FORMS. a) PROVIDE DUCT LEAKAGE, SEALING & TESTING PER WSEC 502 & 503. b) THERMOSTAT PER WSEC 503.8. c) SEE WSEC NOTES ON SHEET A001
P-9	7-3/4 MAX. RISER WITH 10" MIN. TREAD DEPTH. IF MORE THAN (4) RISERS HANDRAIL REQUIRED PER IRC SECTION R311.7.7. a) PROVIDE 36"x36" MIN. LANDING AT EXTERIOR DOORS PER IRC SECTION R311.3
P-10	PROVIDE CRAWL SPACE ACCESS, MIN. 18" X 24" UNOBSTRUCTED ACCESS. PER IRC SECTION R408.4
P-14	SEE SITE PLAN FOR EXTENT OF WALKS AND DRIVEWAYS.
P-15	36" MIN. GUARDRAIL. AT STAIRS SLOPES AT 36" ABOVE STAIR NOSINGS. PER SEE IRC SECTION 312
P-17	2x6 WALL FOR PLUMBING / HVAC.
P-18	A PERMANENT CERTIFICATE SHALL BE POSTED WITHIN 36" OF THE ELECTRICAL DISTRIBUTION PANEL. SEE SECTION M1505.4 ON SHEET A002 THE MAIN ELECTRICAL PANEL SHALL HAVE A RESERVED SPACE FOR FUTURE SOLAR ELECTRIC INSTALLATION PER IRC T103.9. A PERMANENT CERTIFICATE FOR SOLAR-READY ZONE IS TO BE POSTED PER IRC T103.10.

AREA SCHEDULE ...

NAME	AREA
Garage	435 SF
Main Floor	1539 SF
Upper Floor	1022 SF
	2996 SF
Covr'd Patio	246 SF
Covr'd Porch	61 SF
	308 SF
	3303 SF

No.	Date	Description
1	20230125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

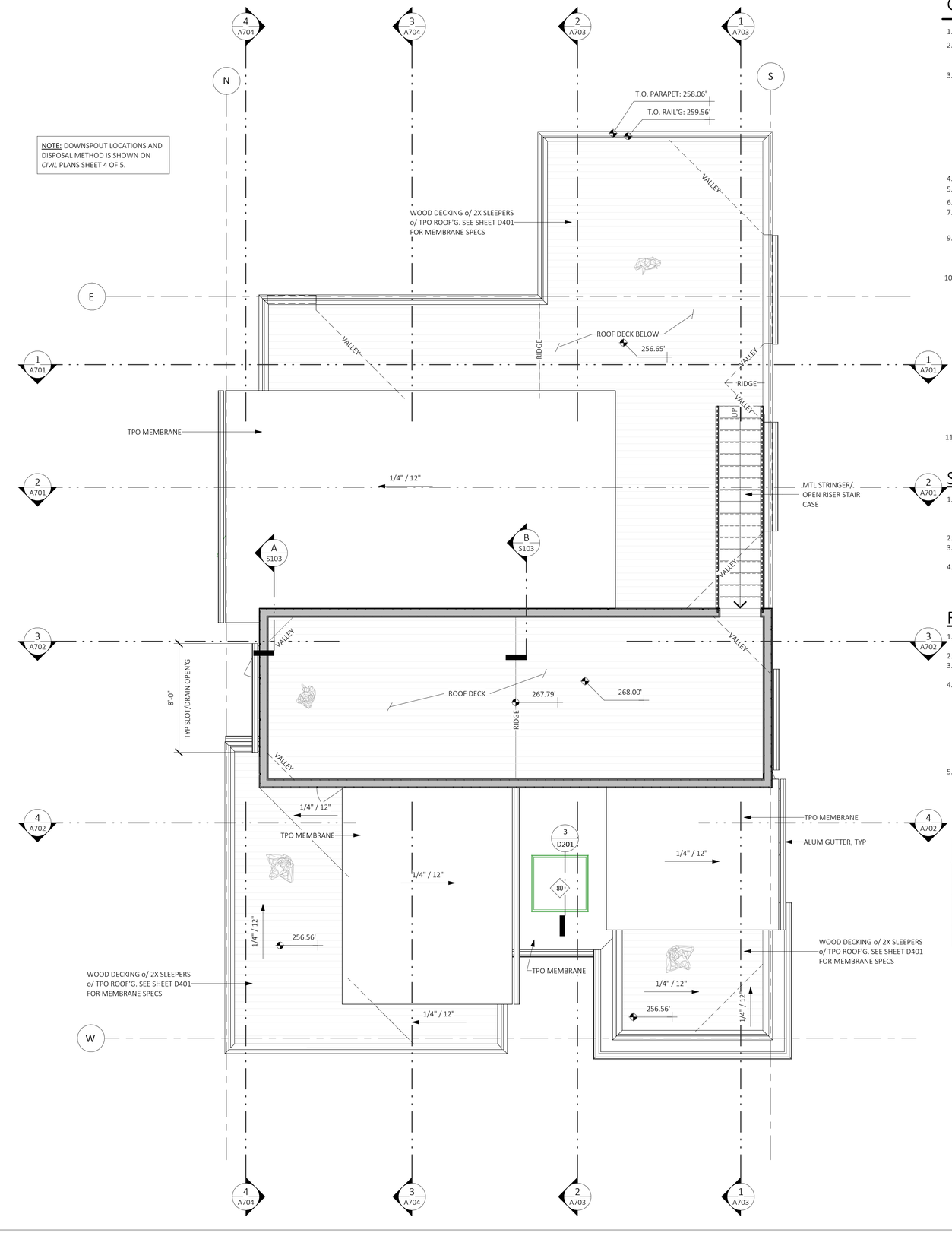
PERMIT SET

UPPER FLOOR

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A401

SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.



GENERAL FRAMING NOTES:

1. SEE SECTION R301, SHEET A001 FOR GENERAL DESIGN CRITERIA.
2. SEE STRUCTURAL SHEETS FOR FOR SHEARWALL DESIGNATIONS & HOLDDOWNS AND SHEET(s) S201-S203 FOR SHEARWALL DESIGNATIONS/ SCHEDULE.
3. TRUSS DESIGN BY MANUFACTURER. TRUSS DESIGN DRAWINGS SHALL BE PREPARED PER IRC SECTION R802.10.1 AND SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND APPROVED PRIOR TO INSTALLATION.
   * TRUSS DESIGN PER IRC SECTION R802.10.2
   * FIELD ALTERATIONS MUST BE DESIGNED BY MFR. PER IRC SECTION R802.10.4
   * SEE STRUCTURAL PLANS FOR DESIGN LOADS.
   * TRUSS MFR TO PROVIDE ADEQUATE BEARING AREA TO RESOLVE REACTION (PERPENDICULAR TO GRAIN) AT ALL HIGHLY LOADED GIRDER TRUSSES.
4. PROVIDE 2x4 RAFTER/TRUSS TAIL - TYP. U.N.O.
5. ROOF PITCH: EXTERIOR PER ELEVATIONS & INTERIOR PER SECTIONS.
6. ROOF FRAMING SPACING, 24" o.c. U.N.O.
7. SEE ELEVATIONS AND/OR SECTIONS FOR ROOF PITCH,PLATE HEIGHT AND HEADER HEIGHT.
9. FASTENERS: ALL FRAMING SHALL BE NAILED IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS. POSITIVE CONNECTIONS SHALL BE PROVIDED WHERE POSTS AND BEAM OR GIRDER CONSTRUCTION IS USED TO SUPPORT FLOOR FRAMING.
10. INSTALL 2X FIREBLOCKING PER R302.11 AS FOLLOWS:
    a) IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS, VERT AT THE CLG AND FLR LEVELS AND HORZ AT INTERVALS NOT EXCEEDING 10 FEET.
    b) AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERT AND HORZ SPACES SUCH AS OCCUR AT SOFFITS, DROP CLGS AND COVE CLGS.
    c) IN CONCEALED SPACES BTWN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
    d) AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
    THE INTEGRITY OF ALL FIREBLOCKS SHALL BE MAINTAINED.
11. SEE SHT A003 FOR ROOF & CRAWL SPACE AREA VENTILATION CALCULATIONS

SPRAY FOAM NOTES:

1. WHERE SPRAY FOAM IS NOTED ON THE PLANS, NO VENTING IS REQUIRED: PROVIDE MIN 2" CLOSED CELL SPRAY FOAM INSULATION DIRECTLY TO THE UNDERSIDE OF THE ROOF/FLOOR SHEATHING.
2. PROVIDE SOLID EAVE BLOCKING, TYP
3. A COPY OF THE ICC-ES REPORT FOR THE INSULATION PRODUCT MUST BE PROVIDED ON SITE FOR THE FIELD INSPECTOR.
4. THE APPLIED SPRAY FOAM MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS BY A CERTIFIED INSTALLER

ROOF VENTING NOTES:

1. (4) 2" DIA EAVE VENTS PER BLOCK= 5.024 SQ. IN. / L.F. (80% NET FREE AREA)
2. ROOF JACKS = 50 SQ. IN. EACH
3. INSTALL ONE LOW ROOF JACK, WITHIN 36" OF EAVE, FOR EVERY 12 LF OF EAVE WITHIN 60" OF PROPRTY LINE.
4. MINIMUM NET AREA SHALL BE NOT LESS THAN 1 S.F. PER 150 S.F. OF ATTIC AREA OR 1 S.F. PER 300 S.F. OF ATTIC AREA IF NOT LESS THAN 40 PERCENT, BUT NOT MORE THAN 50 PERCENT, OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY.
   A. THE BALANCE OF THE REQUIRED VENTILATION PROVIDED SHALL BE LOCATED IN THE BOTTOM ONE-THIRD OF THE ATTIC SPACE.
5. AS AN ALTERNATIVE, THE NET FREE CROSS-VENTILATION AREA MAY BE REDUCED TO 1/300 WHEN A CLASS I OR II VAPOR BARRIER IS INSTALLED ON THE WARM-IN-WINTER SIDE OF THE CEILING.

KEYNOTES - FRAMING

ID	DESCRIPTION
FR-4	UPSET - BOTTOM OF BEAM EVEN w/ BOTTOM OF JOISTS. TOP OF BEAM EXTENDS ABOVE JOISTS.
FR-5	TOP OF BEAM IS FLUSH w/ BOTTOM OF JOISTS w/ NO TOP PLATE. CUT ADJACENT FRAMING MEMBERS INTO BEAM FOR ADEQUATE SUPPORT.
FR-9	TOP OF BEAM 5" BELOW TOP OF JOISTS TO ALLOW FOR HVAC.

No.	Date	Description
1	20230125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059
ATERA HOMES

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

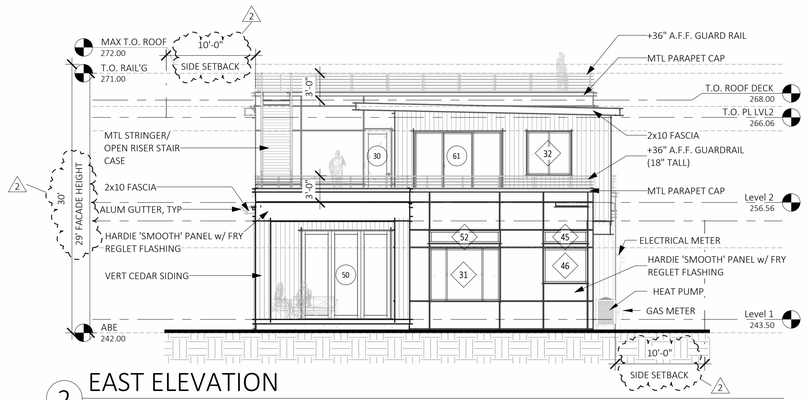
PERMIT SET

ROOF PLAN

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

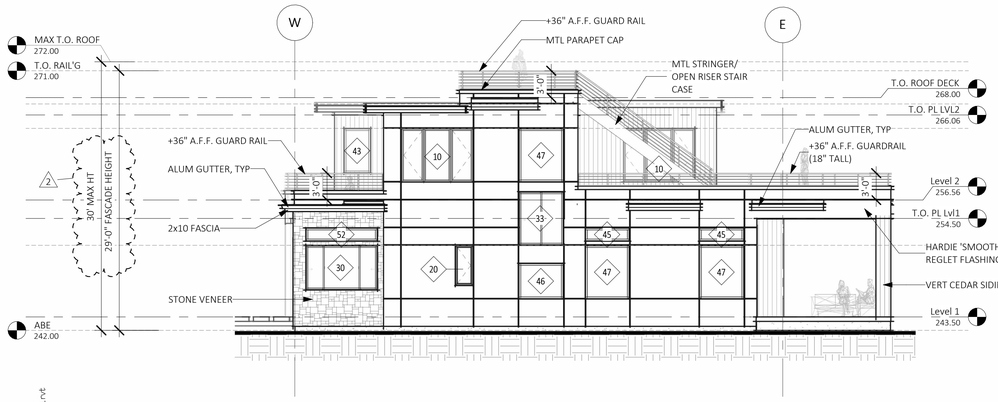
A501

SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.



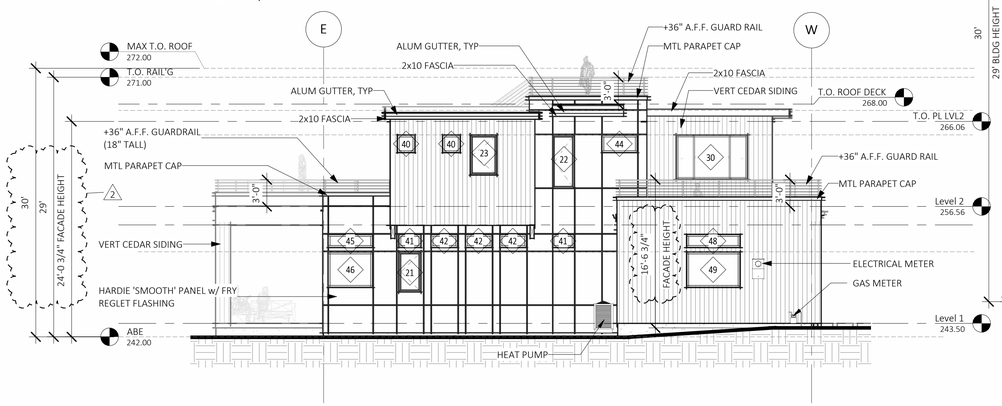
2 EAST ELEVATION

SCALE: 1/8" = 1'-0"



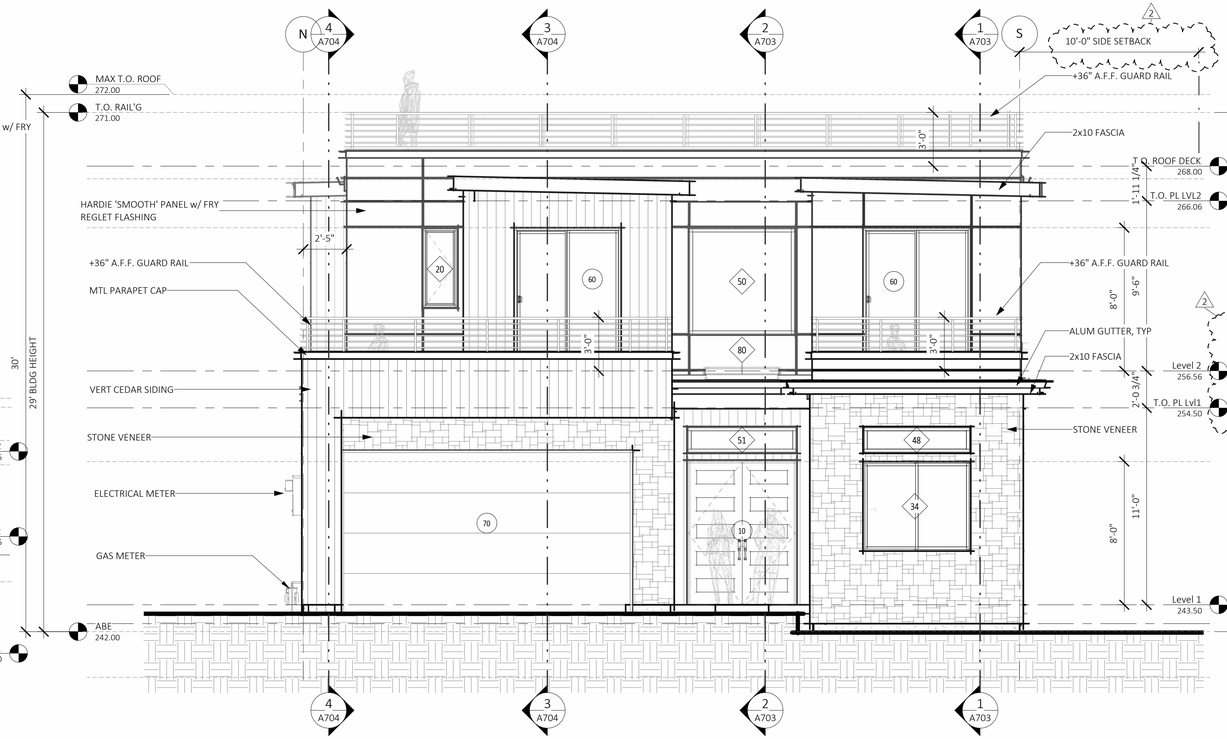
4 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



3 NORTH ELEVATION

SCALE: 1/8" = 1'-0"



1 WEST ELEVATION

SCALE: 1/4" = 1'-0"

TYPICAL BUILDING MATERIALS:

ROOF CONSTRUCTION

ROOFING:	TPO MEMBRANE
BUILDING PAPER:	PER MFR
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	PER PLANS
INSULATION:	R-49 BLOWN IN (R-38 VAULTED)
SOFFIT:	T&G WHERE NOTED
GWB:	5/8" GWB

FLOOR CONSTRUCTION

FLOORING:	FINISH PER PLANS
SUBFLOOR:	3/4" T&G (PLYWOOD, COMPLY OR EQUAL)
FRAMING:	PER PLANS
INSULATION:	R-38 BATT
SOFFIT:	HARDIA PANEL WHERE NOTED

EXTERIOR WALL CONSTRUCTION

SIDING MATERIAL:	PER ELEVATIONS
BUILDING PAPER:	15# BUILDING PAPER
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	2x6 STUDS AT 16" oc U.N.O.
INSULATION:	R-21 BATT w/ INTEGRAL VAPOR BARRIER
GWB:	1/2" GWB

TRIM

WINDOW: (WITH NO BRICK MOLD)	'Z' FLASHING
CORNER BOARDS:	INSIDE: 2x2 OUTSIDE: 'X' FLASHING
FASCIA:	2x8 (PER DETAILS) U.N.O.

ELEVATION NOTES:

1. INSTALL APPROVED CORROSION-RESISTANT FLASHING, TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS PER R708.3. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT ALL OF THE FOLLOWING LOCATIONS:
   A. EXTERIOR WINDOW AND DOOR OPENINGS. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE.
   B. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CONSTRUCTION WITH FRAME OR STUCCO WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO COPINGS.
   C. UNDER AND AT THE ENDS OF MASONRY, WOOD OR METAL COPINGS AND SILLS.
   D. CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM.
   E. WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL OR FLOOR ASSEMBLY OF WOOD-FRAME CONSTRUCTION.
   F. AT WALL AND ROOF INTERSECTIONS.
   G. AT BUILT-IN GUTTERS.
2. PER IRC R703.12.1, ADHERED MASONRY VENEER IS REQUIRED TO HAVE THE FOLLOWING CLEARANCES:
   A. 4" MINIMUM ABOVE THE EARTH
   B. 2" MINIMUM ABOVE PAVED AREAS, AND
   C. 1/2" MINIMUM ABOVE EXTERIOR WALKING SURFACES WHICH ARE SUPPORTED BY THE SAME FOUNDATION THAT SUPPORTS THE EXTERIOR WALL.
3. STONE VENEER TO BE SUPPLIED BY ELDORADO STONE OR APPROVED EQUAL. STONE VENEER MAXIMUM WEIGHT 15 psf.

No.	Date	Description
1	20230125	SUB2 City Comment Submittal
2	******TBD******	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

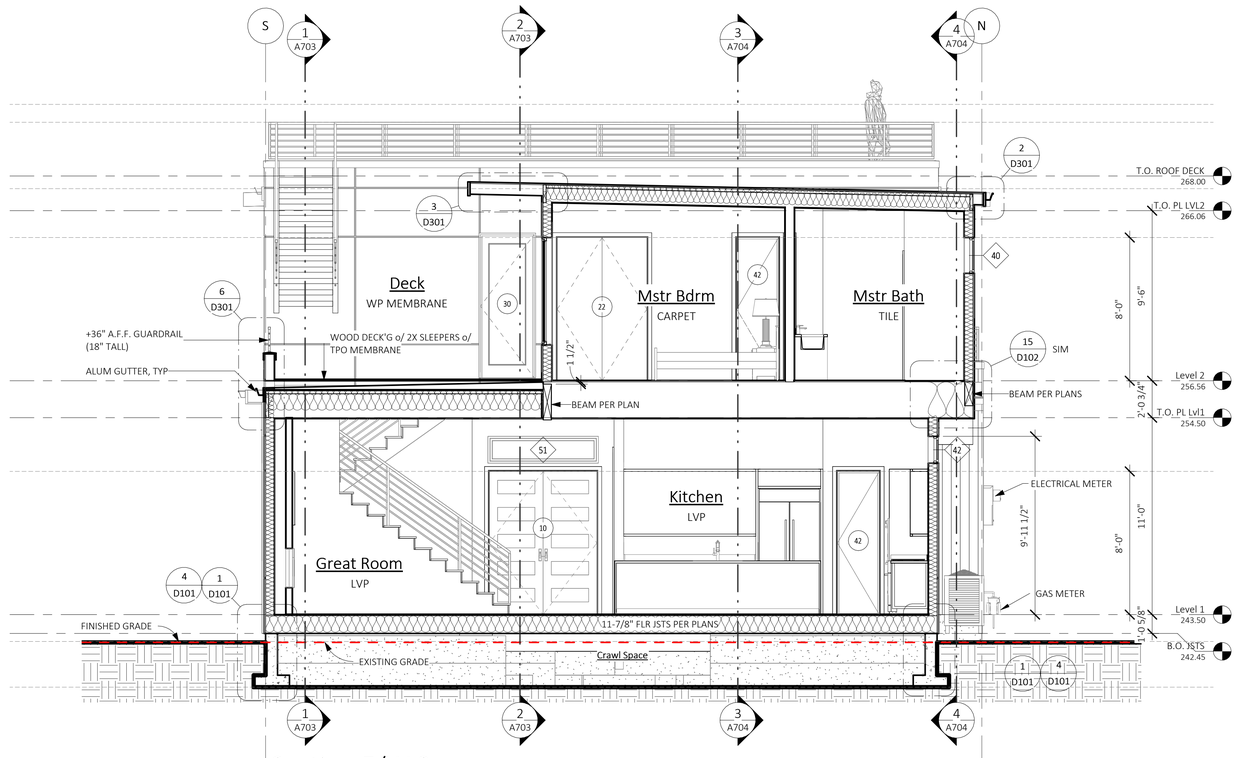
ELEVATIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A601

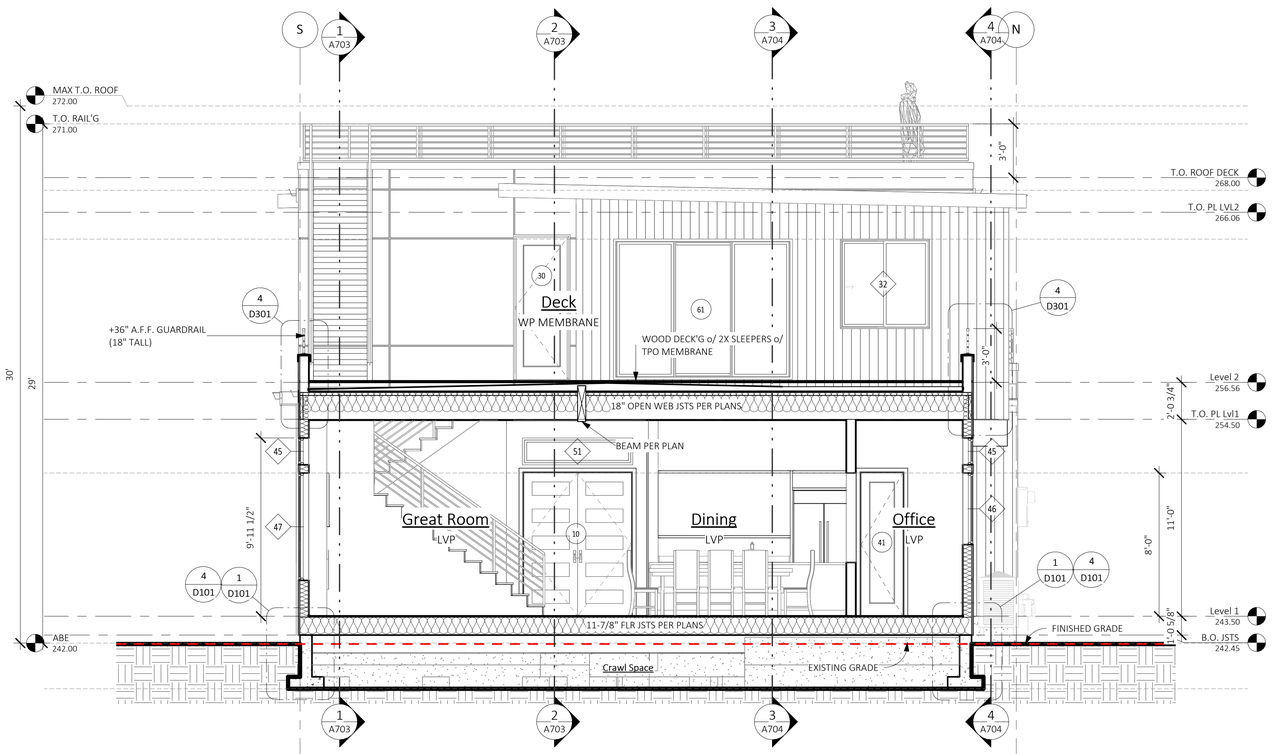
SCALE 24X36: As indicated
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

3/15/2023 8:48:13 AM Autodesk Docs://21014 Hu Residence, Mercer Island/21014 05CD_Hu Residence_Mercer Island.rvt



2 Section E/W 2

SCALE: 1/4" = 1'-0"



1 Section E/W 1

SCALE: 1/4" = 1'-0"

TYPICAL BUILDING MATERIALS:

ROOF CONSTRUCTION

ROOFING:	TPO MEMBRANE
BUILDING PAPER:	PER MFR
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	PER PLANS
INSULATION:	R-49 BLOWN IN (R-38 VAULTED)
SOFFIT:	T&G WHERE NOTED
GWB:	5/8" GWB

FLOOR CONSTRUCTION

FLOORING:	FINISH PER PLANS
SUBFLOOR:	3/4" T&G (PLYWOOD, COMPLY OR EQUAL)
FRAMING:	PER PLANS
INSULATION:	R-38 BATT
SOFFIT:	HARDIA PANEL WHERE NOTED

EXTERIOR WALL CONSTRUCTION

SIDING MATERIAL:	PER ELEVATIONS
BUILDING PAPER:	15# BUILDING PAPER
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	2x6 STUDS AT 16" oc U.N.O.
INSULATION:	R-21 BATT w/ INTEGRAL VAPOR BARRIER
GWB:	1/2" GWB

TRIM

WINDOW: (WITH NO BRICK MOLD)	'Z' FLASHING
CORNER BOARDS:	INSIDE: 2x2 OUTSIDE: 'X' FLASHING
FASCIA:	2x8 (PER DETAILS) U.N.O.

No.	Date	Description
1	20230125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

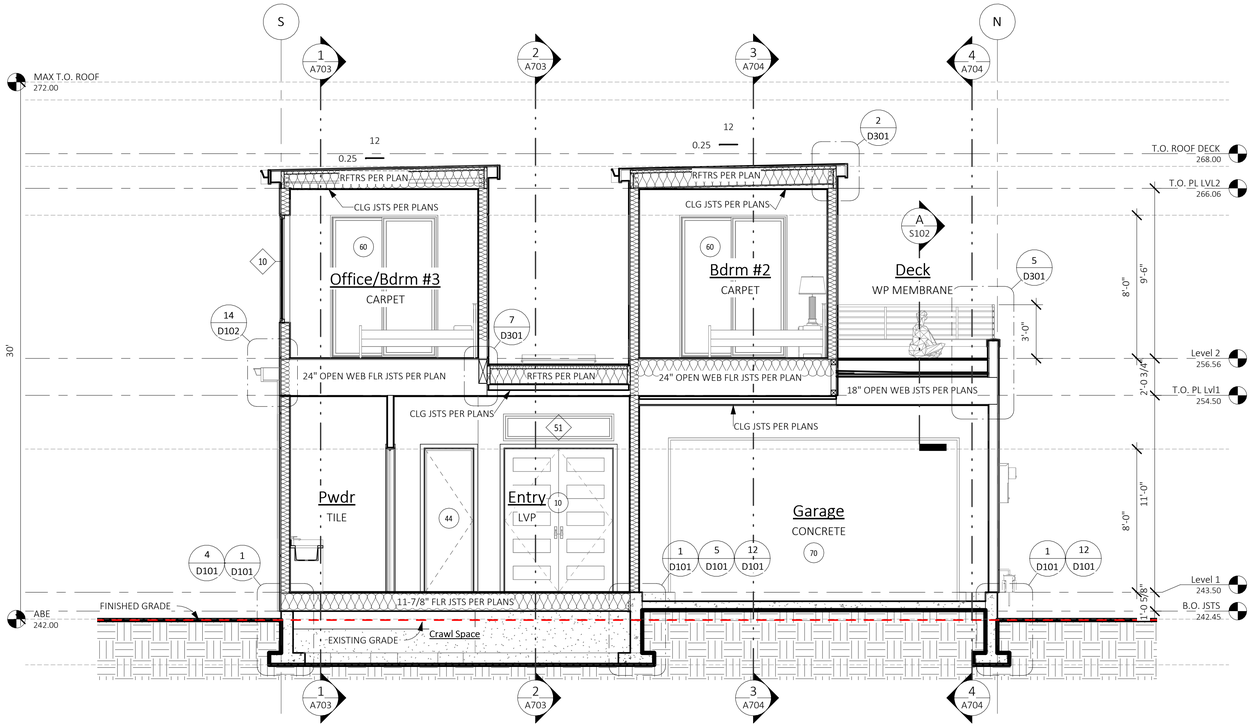
SECTIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A701

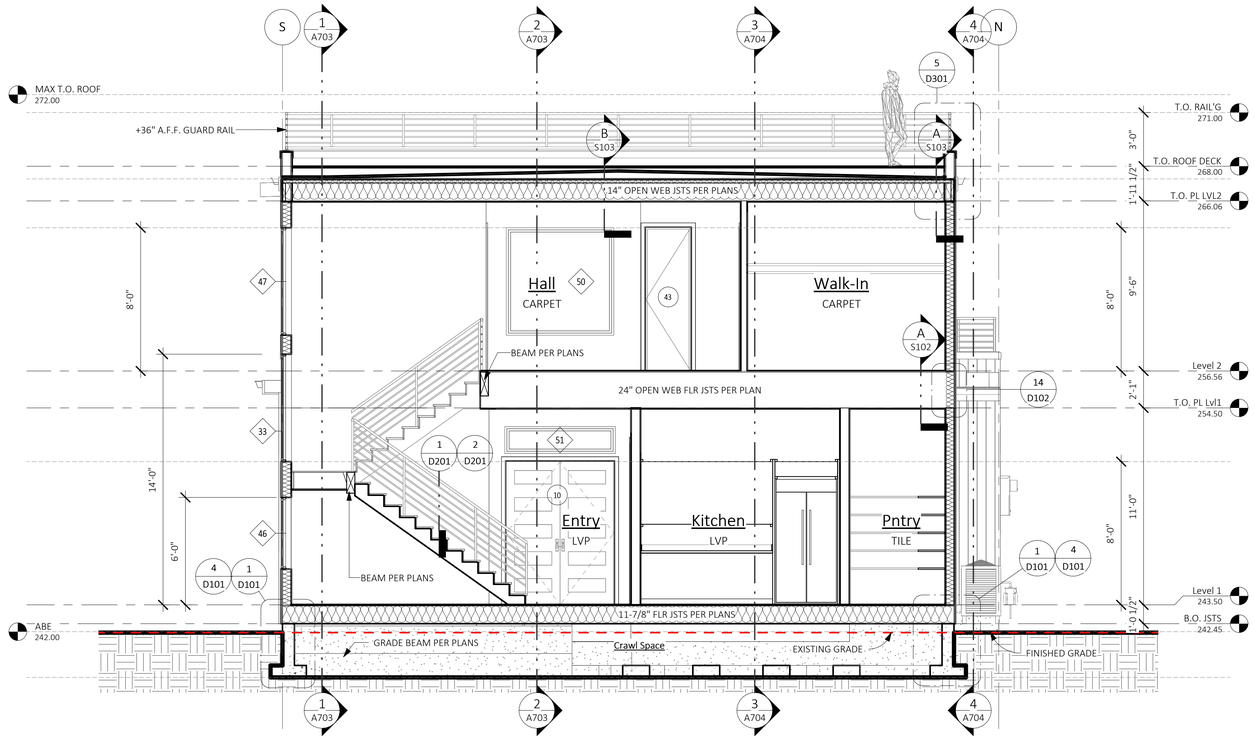
SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

3/15/2023 8:48:20 AM Autodesk Docs://21014 Hu Residence, Mercer Island/21014 05CD_Hu Residence, Mercer Island.rvt



4 Section E/W 4

SCALE: 1/4" = 1'-0"



3 Section E/W 3

SCALE: 1/4" = 1'-0"

TYPICAL BUILDING MATERIALS:

ROOF CONSTRUCTION

ROOFING:	TPO MEMBRANE
BUILDING PAPER:	PER MFR
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	PER PLANS
INSULATION:	R-49 BLOWN IN (R-38 VAULTED)
SOFFIT:	T&G WHERE NOTED
GWB:	5/8" GWB

FLOOR CONSTRUCTION

FLOORING:	FINISH PER PLANS
SUBFLOOR:	3/4" T&G (PLYWOOD, COMPLY OR EQUAL)
FRAMING:	PER PLANS
INSULATION:	R-38 BATT
SOFFIT:	HARDIA PANEL WHERE NOTED

EXTERIOR WALL CONSTRUCTION

SIDING MATERIAL:	PER ELEVATIONS
BUILDING PAPER:	15# BUILDING PAPER
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	2x6 STUDS AT 16" oc U.N.O.
INSULATION:	R-21 BATT w/ INTEGRAL VAPOR BARRIER
GWB:	1/2" GWB

TRIM

WINDOW: (WITH NO BRICK MOLD)	'Z' FLASHING
CORNER BOARDS:	INSIDE: 2x2 OUTSIDE: 'X' FLASHING
FASCIA:	2x8 (PER DETAILS) U.N.O.

No.	Date	Description
1	20220125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

SECTIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A702

SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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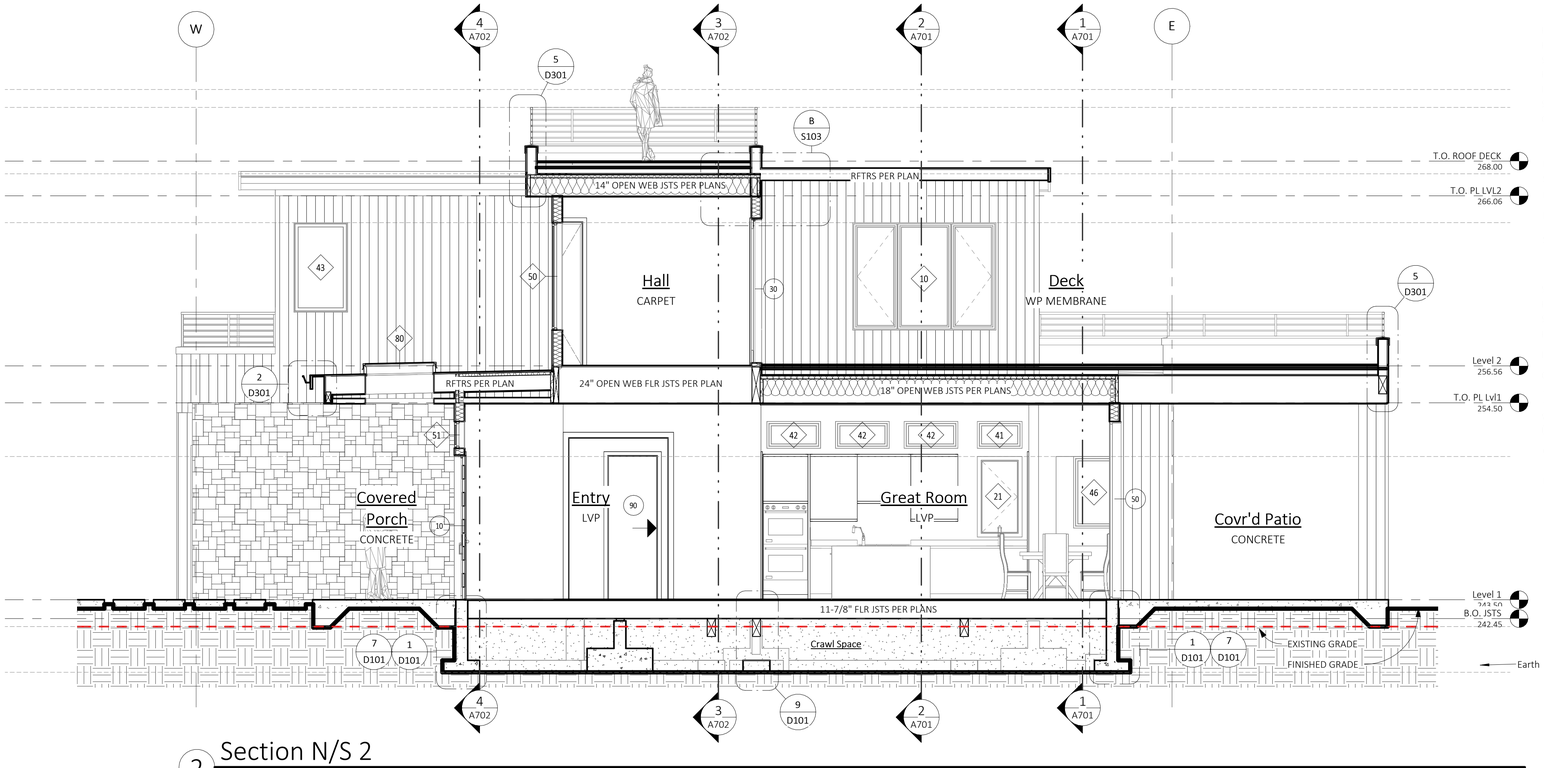
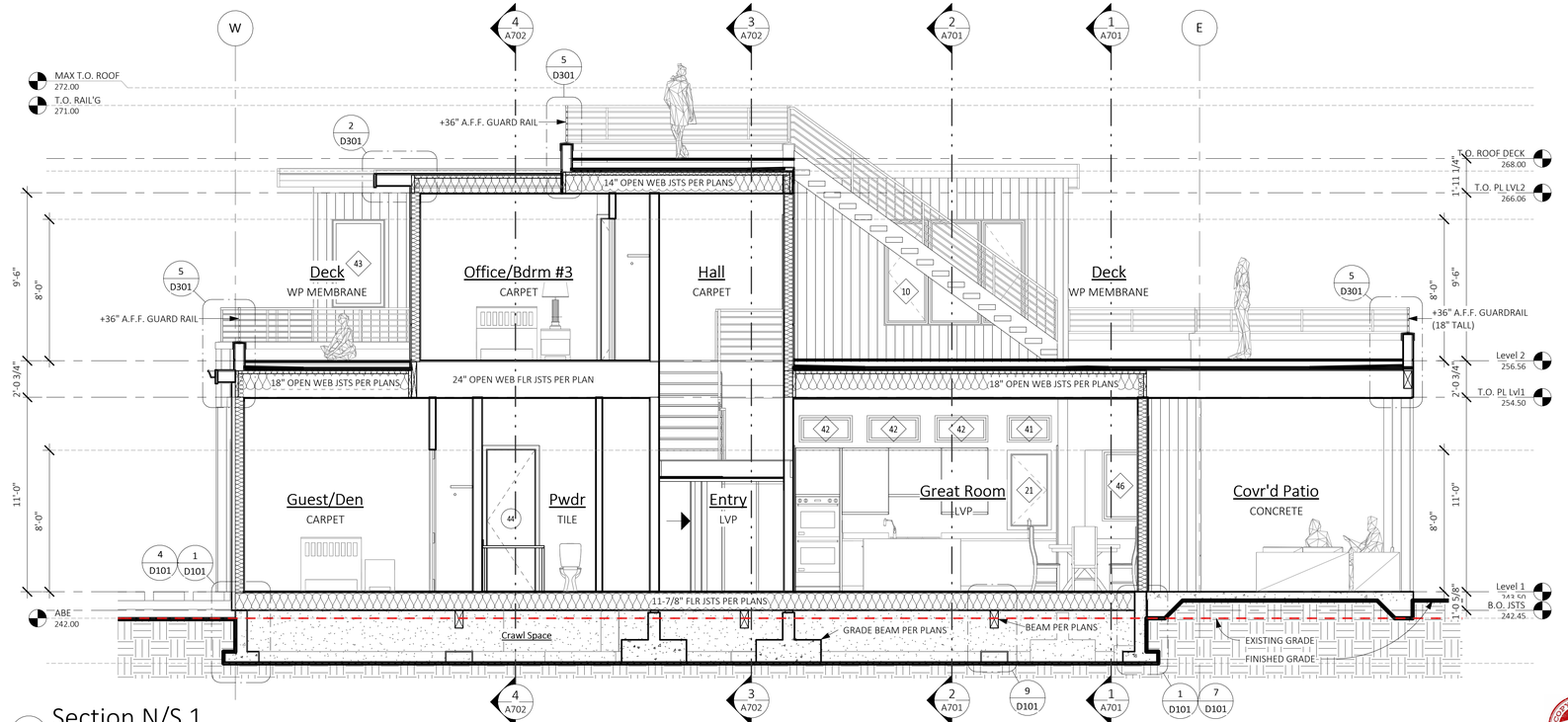


2 Section N/S 2

SCALE: 1/4" = 1'-0"



1 Section N/S 1

SCALE: 1/4" = 1'-0"

TYPICAL BUILDING MATERIALS:

ROOF CONSTRUCTION

ROOFING:	TPO MEMBRANE
BUILDING PAPER:	PER MFR
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	PER PLANS
INSULATION:	R-49 BLOWN IN (R-38 VAULTED)
SOFFIT:	T&G WHERE NOTED
GWB:	5/8" GWB

FLOOR CONSTRUCTION

FLOORING:	FINISH PER PLANS
SUBFLOOR:	3/4" T&G (PLYWOOD, COMPLY OR EQUAL)
FRAMING:	PER PLANS
INSULATION:	R-38 BATT
SOFFIT:	HARDIA PANEL WHERE NOTED

EXTERIOR WALL CONSTRUCTION

SIDING MATERIAL:	PER ELEVATIONS
BUILDING PAPER:	15# BUILDING PAPER
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	2x6 STUDS AT 16" oc U.N.O.
INSULATION:	R-21 BATT w/ INTEGRAL VAPOR BARRIER
GWB:	1/2" GWB

TRIM

WINDOW: (WITH NO BRICK MOLD)	'Z' FLASHING
CORNER BOARDS:	INSIDE: 2x2 OUTSIDE: 'X' FLASHING
FASCIA:	2x8 (PER DETAILS) U.N.O.

No.	Date	Description
1	20230125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

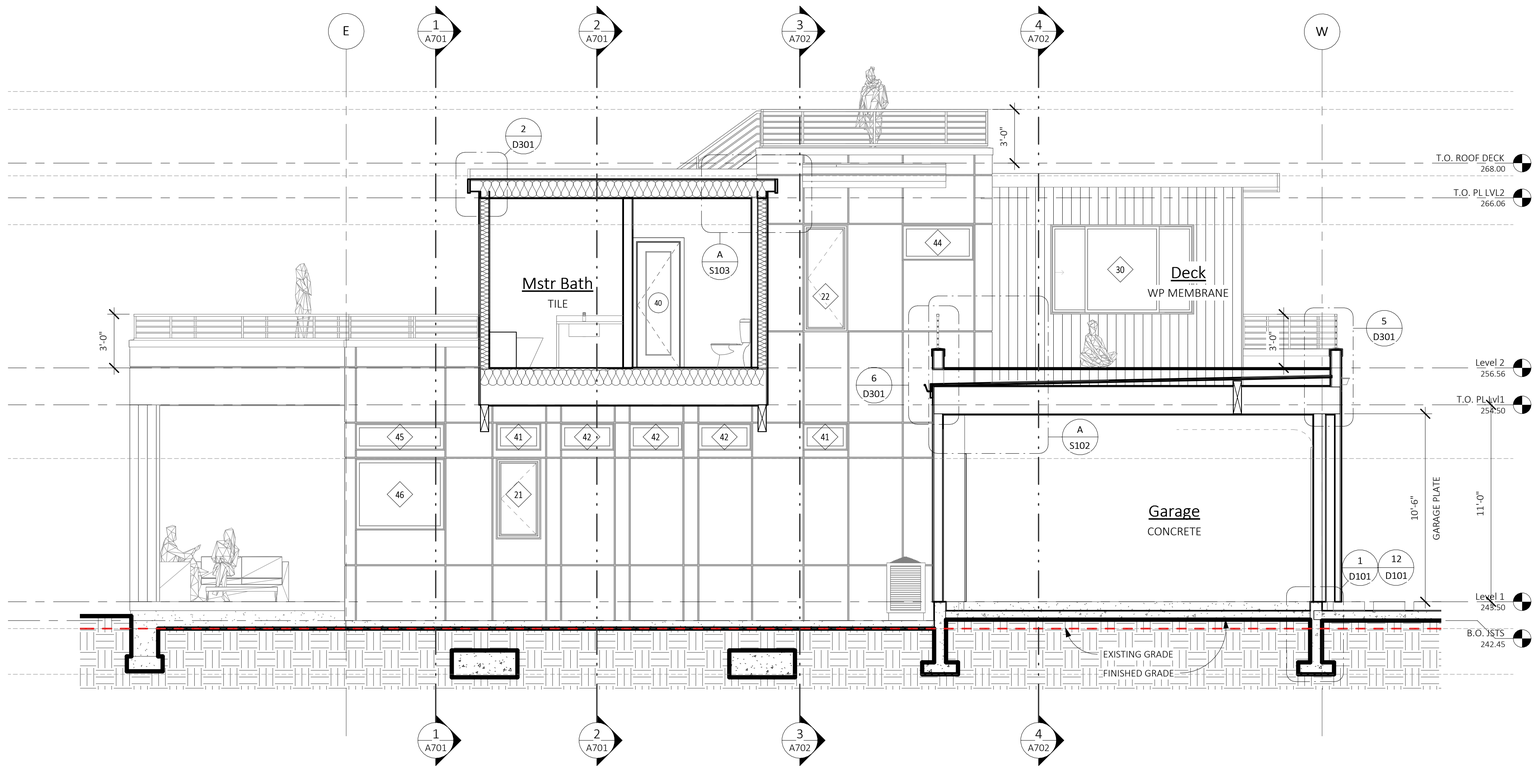
SECTIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A703

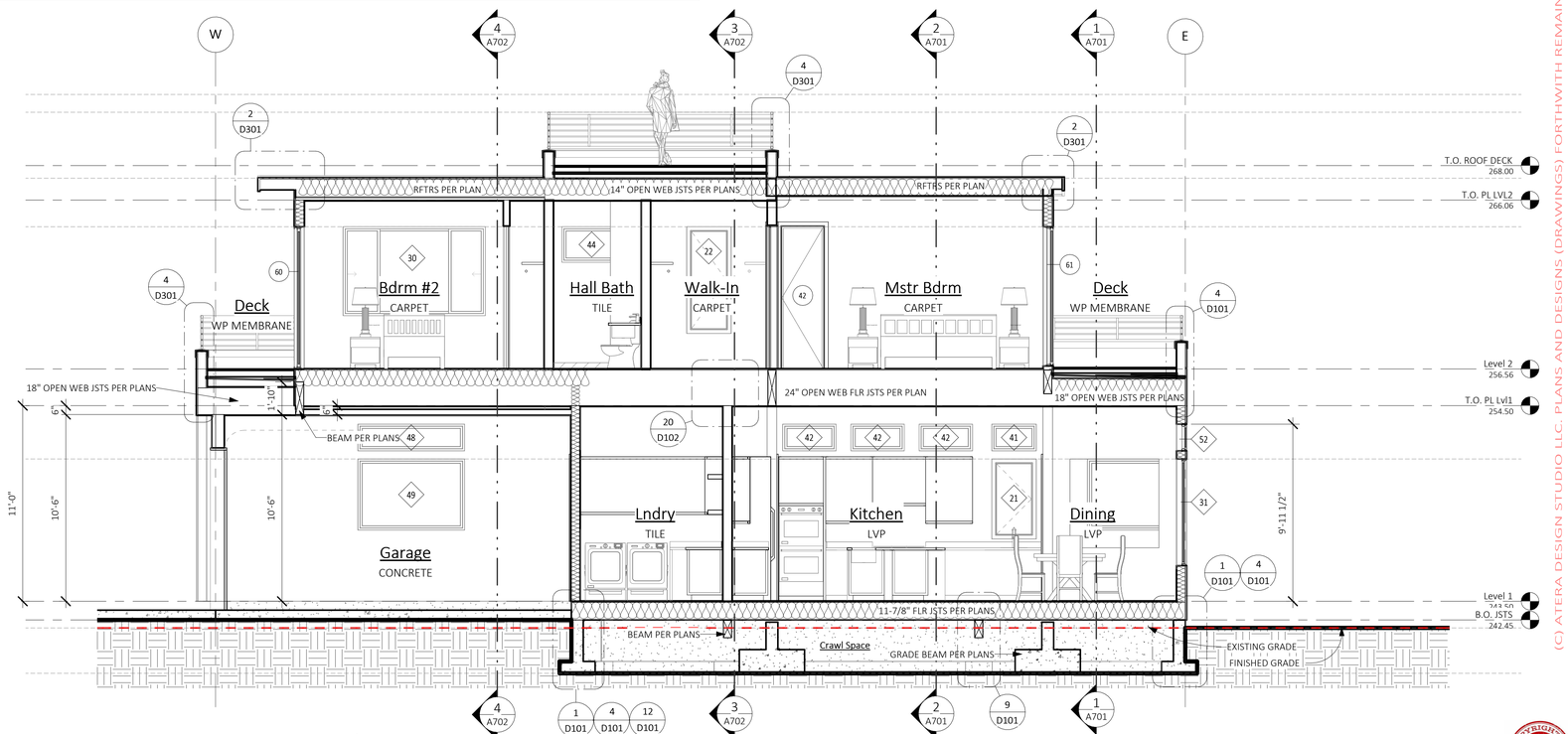
SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

3/15/2023 8:48:41 AM Autodesk Docs://2014 Hu Residence, Mercer Island/2014 05CD_Hu Residence_Mercer Island.rvt



4 Section N/S 4

SCALE: 1/4" = 1'-0"



3 Section N/S 3

SCALE: 1/4" = 1'-0"

TYPICAL BUILDING MATERIALS:

ROOF CONSTRUCTION

ROOFING:	TPO MEMBRANE
BUILDING PAPER:	PER MFR
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	PER PLANS
INSULATION:	R-49 BLOWN IN (R-38 VAULTED)
SOFFIT:	T&G WHERE NOTED
GWB:	5/8" GWB

FLOOR CONSTRUCTION

FLOORING:	FINISH PER PLANS
SUBFLOOR:	3/4" T&G (PLYWOOD, COMPLY OR EQUAL)
FRAMING:	PER PLANS
INSULATION:	R-38 BATT
SOFFIT:	HARDIA PANEL WHERE NOTED

EXTERIOR WALL CONSTRUCTION

SIDING MATERIAL:	PER ELEVATIONS
BUILDING PAPER:	15# BUILDING PAPER
SHEATHING:	PER SHEARWALL SCHEDULE
FRAMING:	2x6 STUDS AT 16" oc U.N.O.
INSULATION:	R-21 BATT w/ INTEGRAL VAPOR BARRIER
GWB:	1/2" GWB

TRIM

WINDOW: (WITH NO BRICK MOLD)	'Z' FLASHING
CORNER BOARDS:	INSIDE: 2x2 OUTSIDE: 'X' FLASHING
FASCIA:	2x8 (PER DETAILS) U.N.O.

No.	Date	Description
1	20230125	SUB2 City Comment Submittal

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

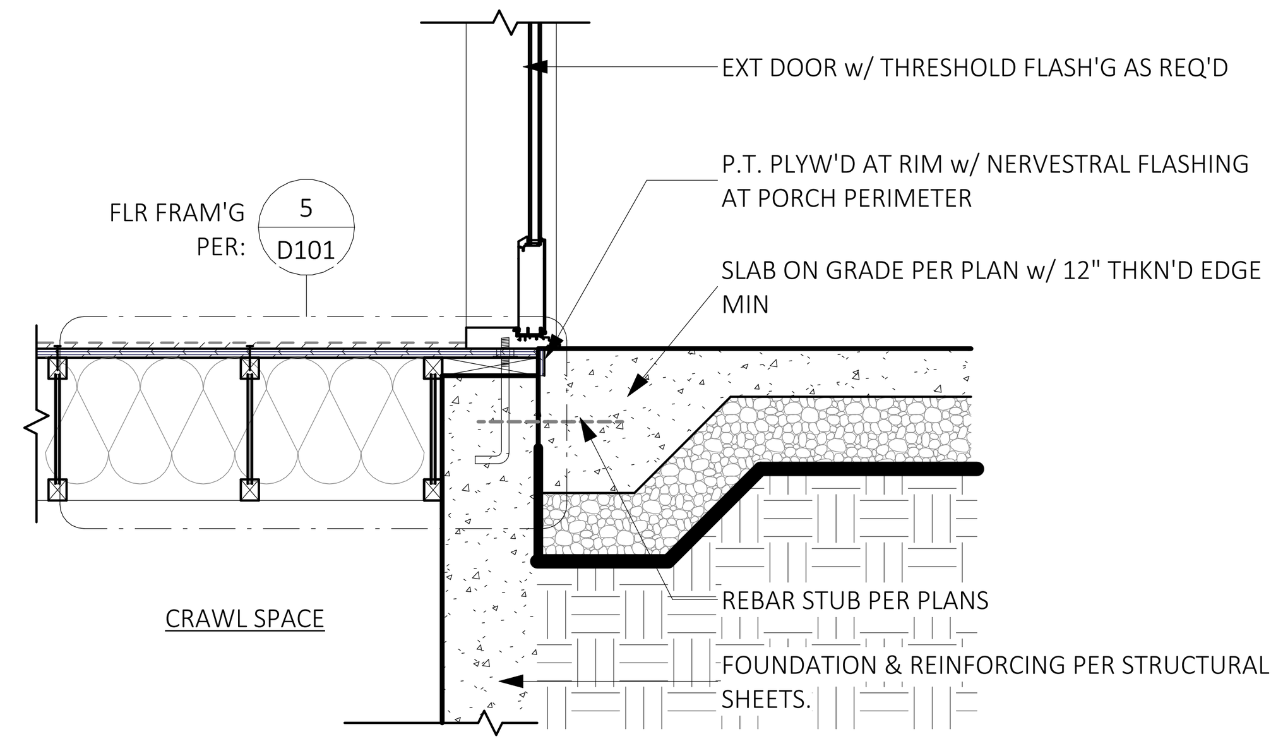
SECTIONS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

A704

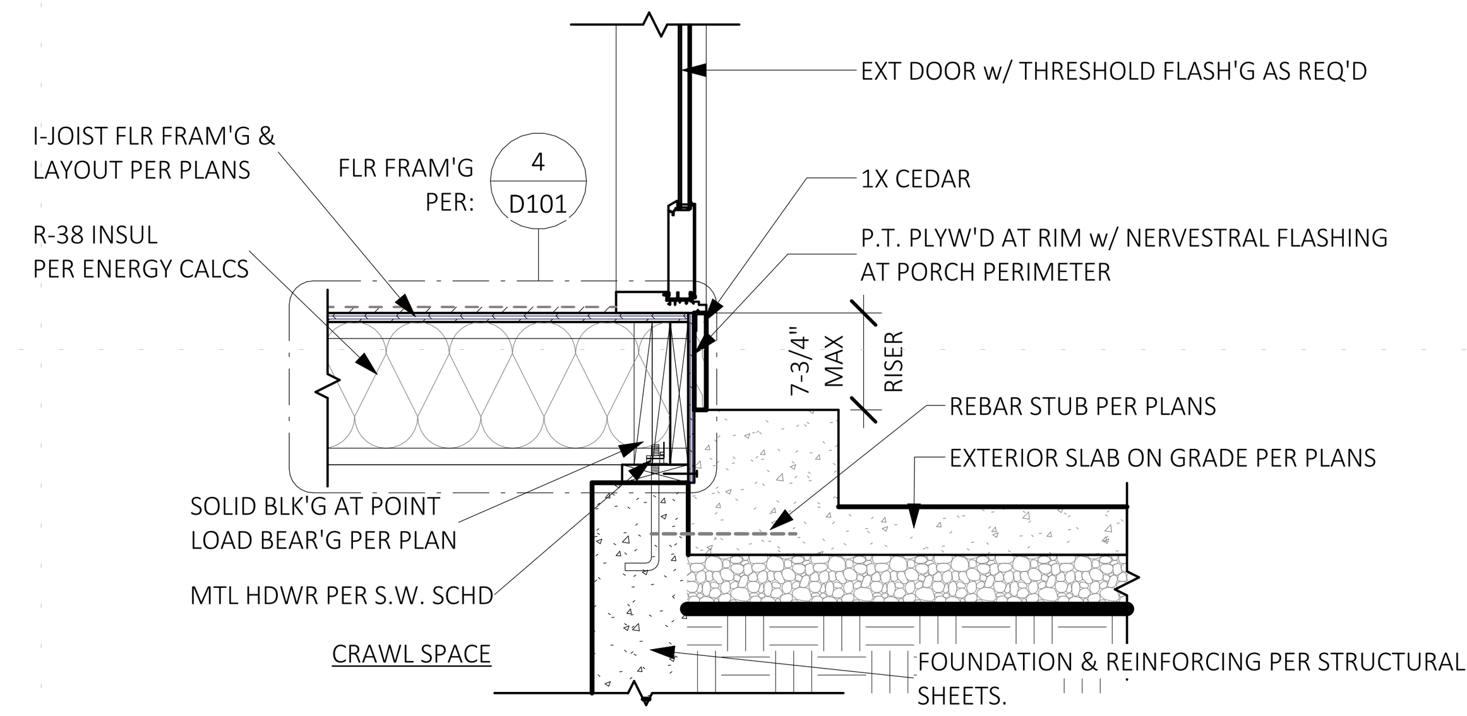
SCALE 24X36: 1/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

FNDN SCHEDULE - TYP									
MAX UNBAL FILL	FOOTING						STEM WALL		
	DEPTH	WIDTH	TOE	HEEL	LONGITUDAL BAR	TRANSVERSE BAR	WIDTH	HORIZONTAL REINFORCING	VERTICAL REINFORCING
2'-6"	8"	1'-6"	5"	5"	(3) #4 BAR CONT BOT	#4 AT 8" O.C.	8"	#4 HORZ BAR CENTERED AT 12" O.C.	#4 VERT BAR CENTERED AT 12" O.C.
4'-0"	11"	2'-8"	8"	1'-4"	(2) #4 BAR CONT TOP & BOT	PER DETAILS	8"	#4 HORZ BAR CENTERED AT 12" O.C.	#4 VERT BAR CENTERED AT 12" O.C.



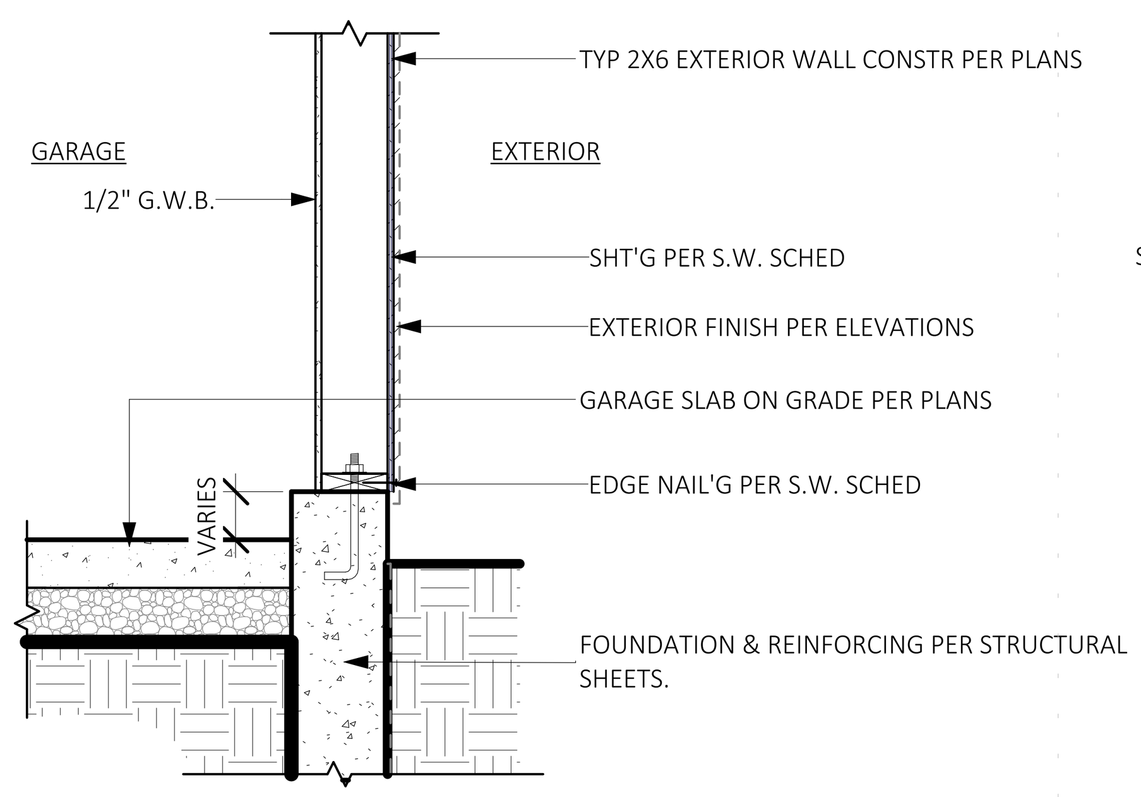
7 FRAM'G / FNDN - DROPPED JOISTS

SCALE: 3/4" = 1'-0"



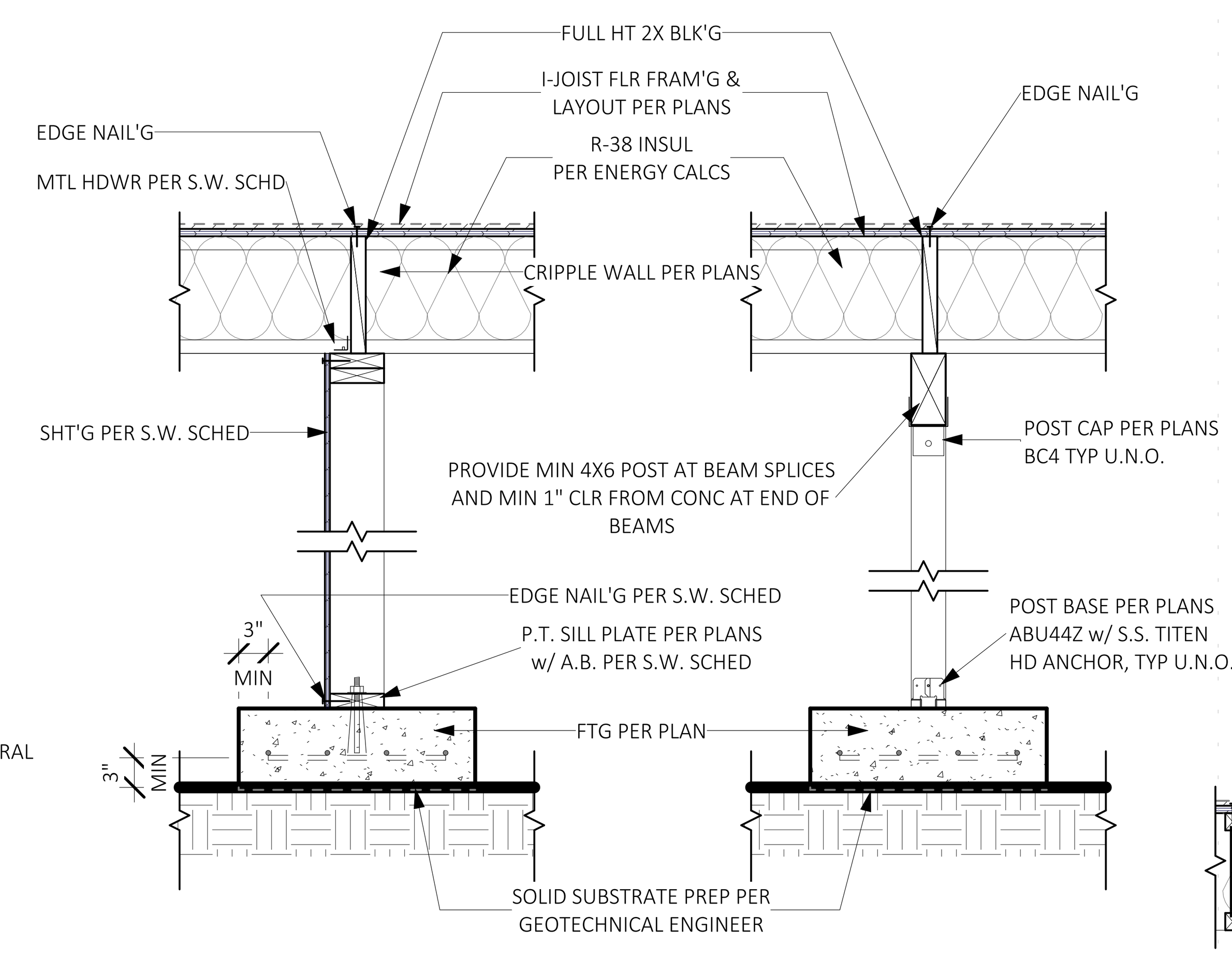
6 FRAM'G / FNDN - JOIST OVER

SCALE: 3/4" = 1'-0"



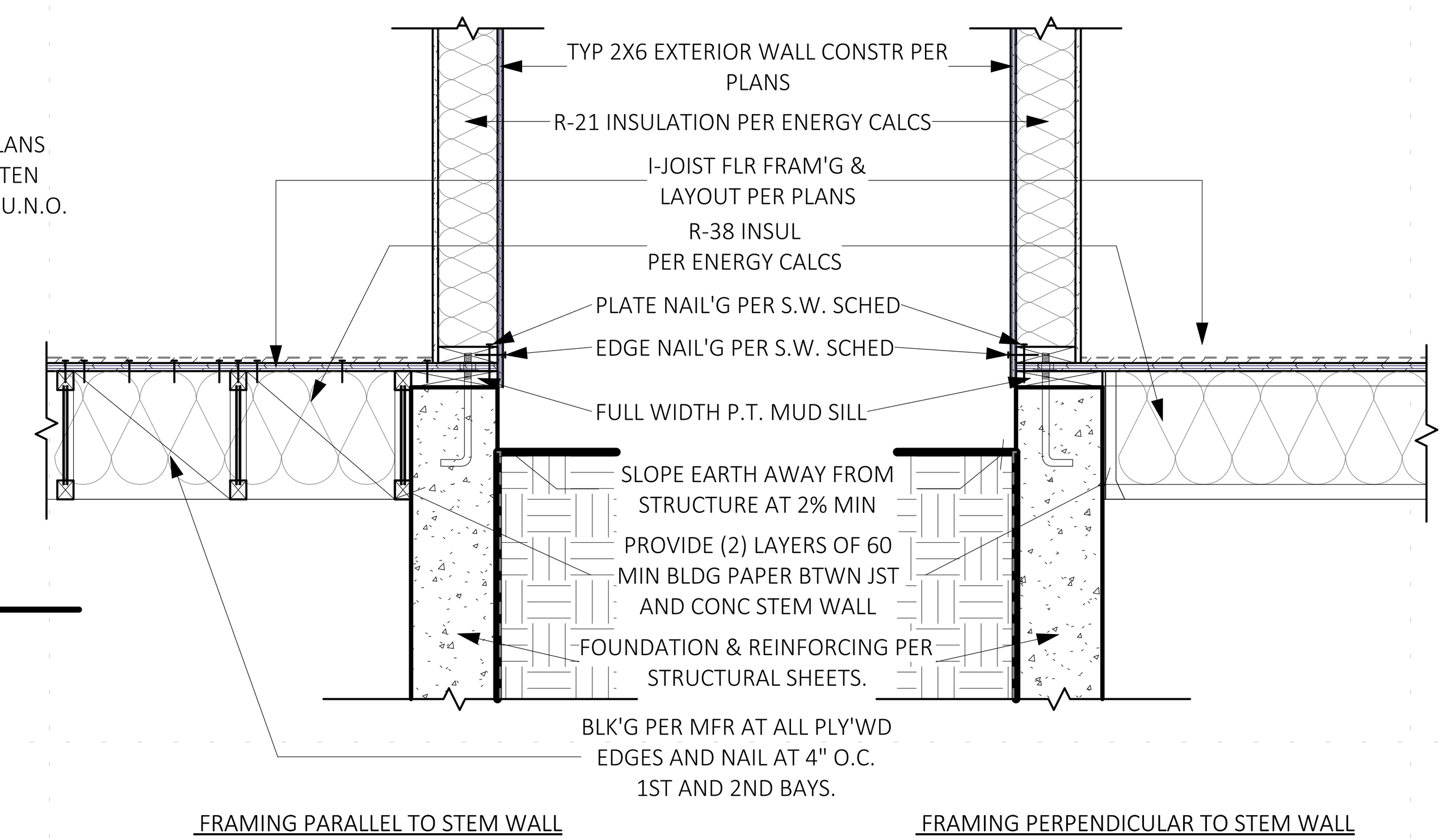
12 SLAB AT STEM WALL

SCALE: 3/4" = 1'-0"



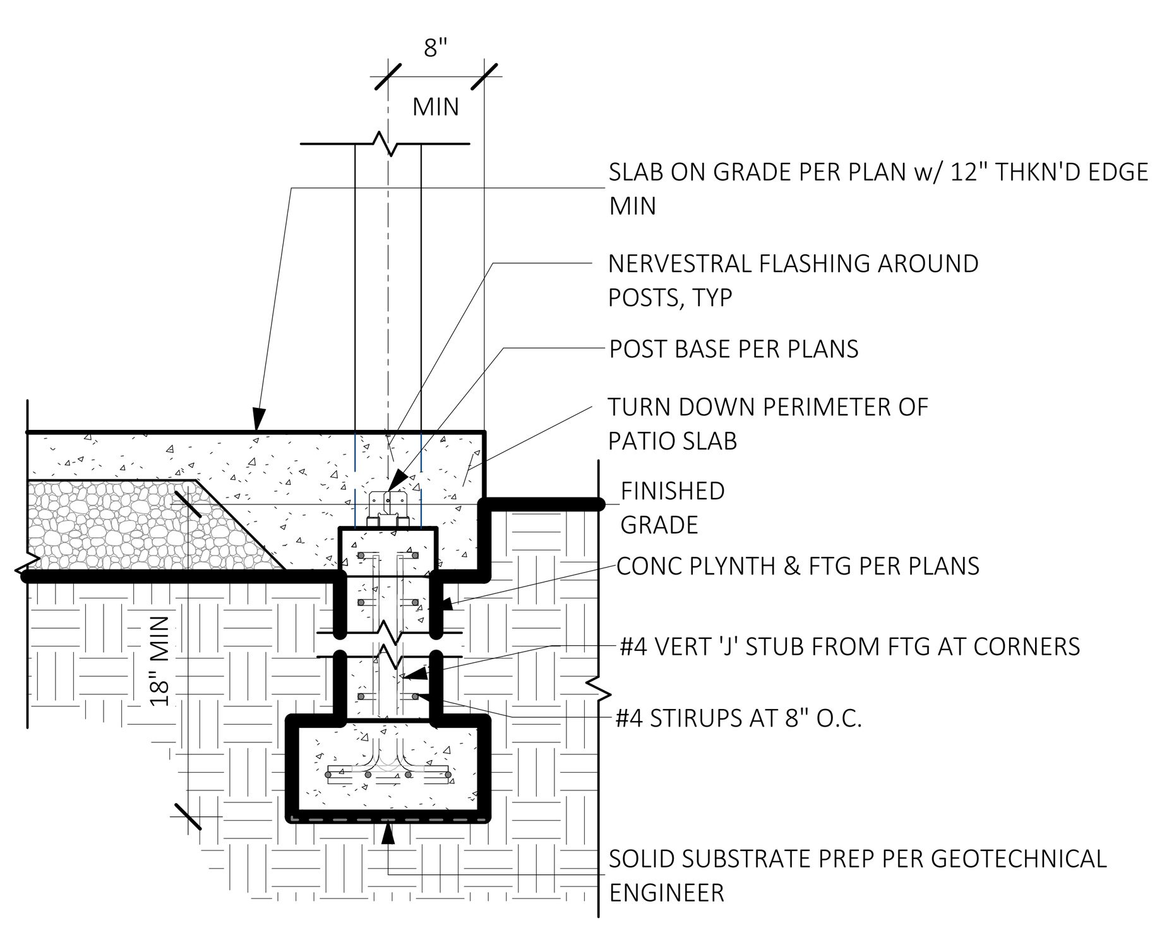
9 FRAM'G / FNDN - JOIST OVER

SCALE: 3/4" = 1'-0"



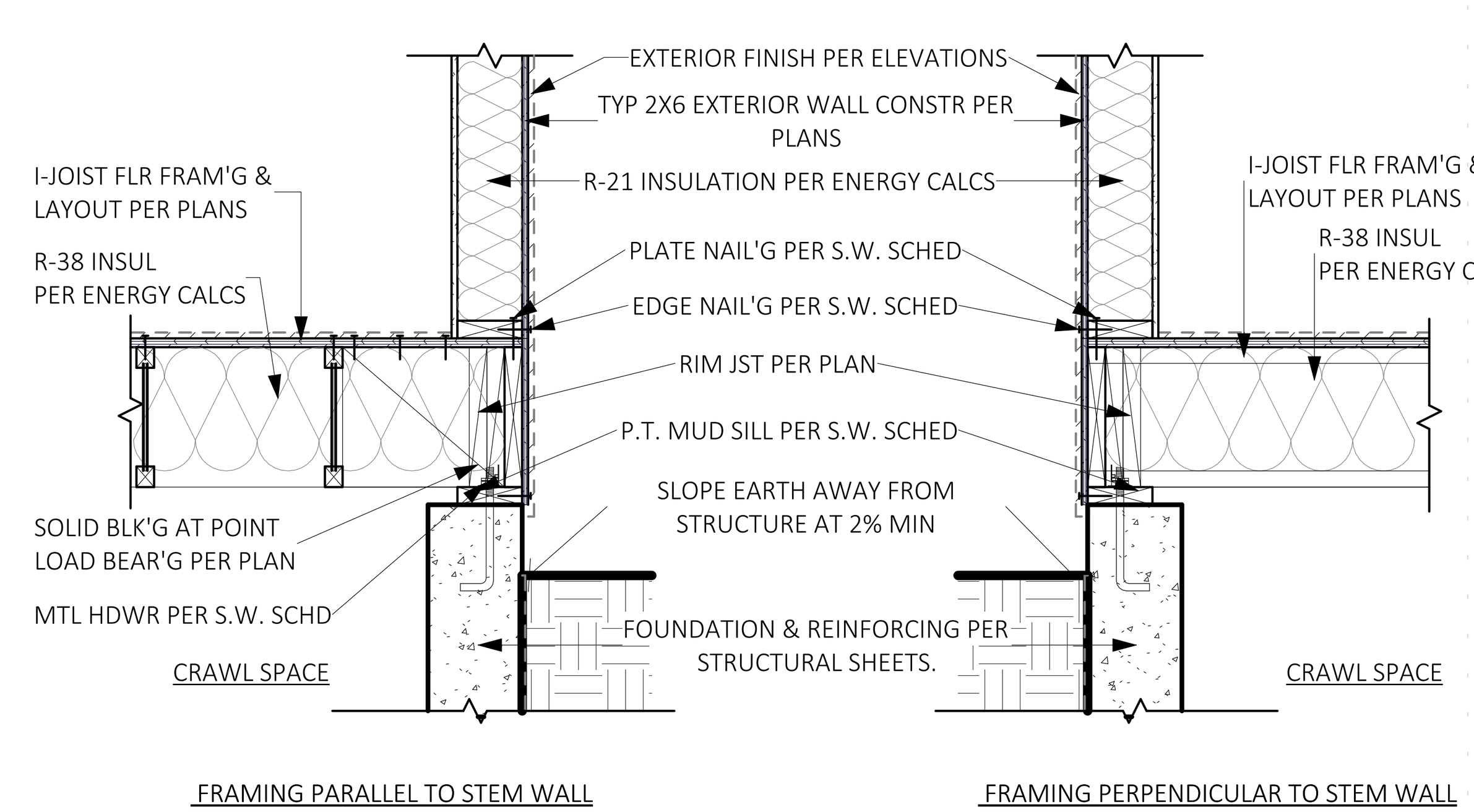
5 FRAM'G / FNDN - DROPPED JOISTS

SCALE: 3/4" = 1'-0"



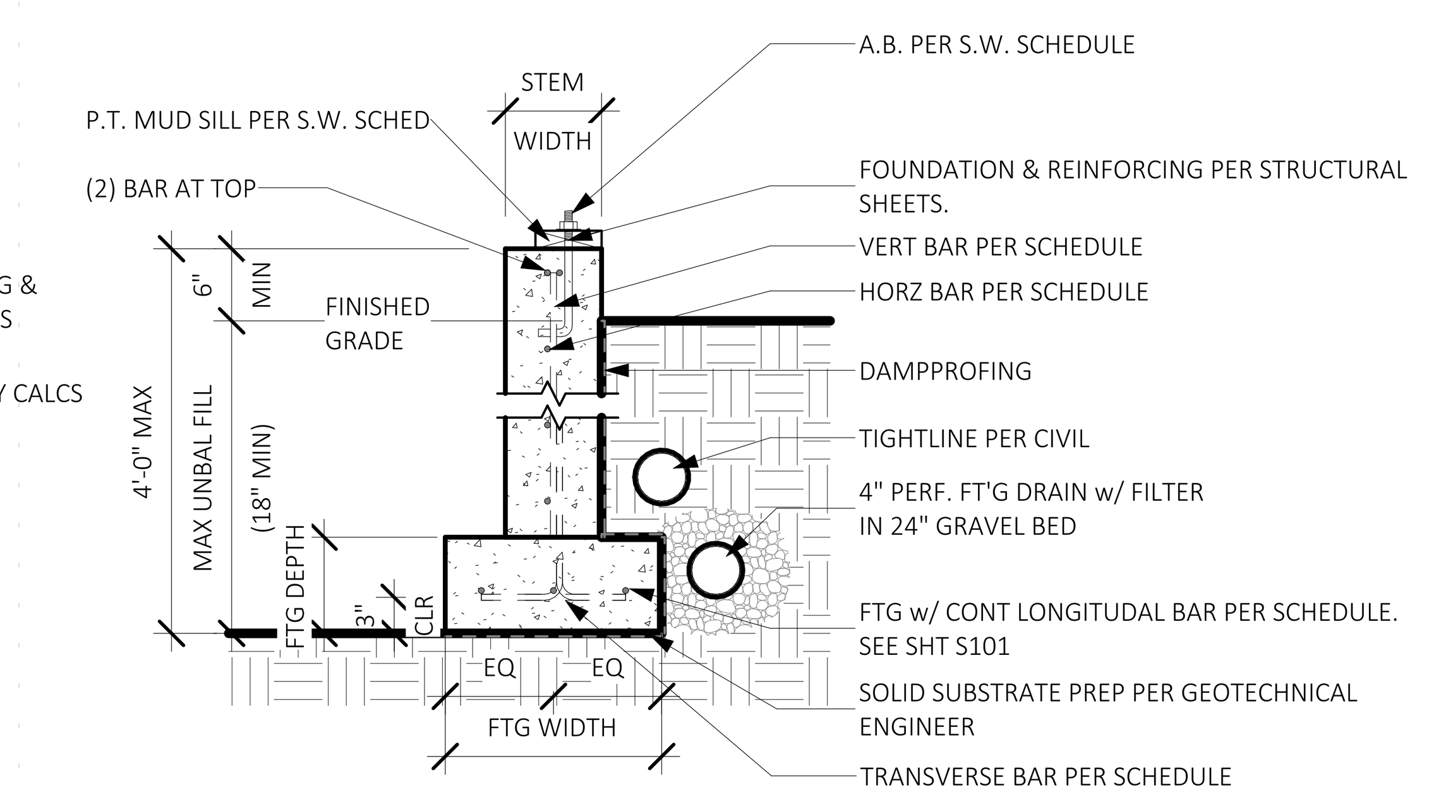
11 FRAM'G / FNDN - JOIST OVER

SCALE: 3/4" = 1'-0"



4 FRAM'G / FNDN - JOIST OVER

SCALE: 3/4" = 1'-0"



NOTE:
ALL REINFORCEMENT SHALL BE ACCURATELY PLACED AND ADEQUATELY SUPPORTED PRIOR TO CONCRETE INSPECTION. SEE SHEET A001

1 FOUNDATION DETAIL - TYP

SCALE: 3/4" = 1'-0"

NOTE: THIS IS A STANDARD DETAILS SHEET PREPARED FOR SINGLE FAMILY HOUSING TYPE V NONRATED CONSTRUCTION. THESE DETAILS HAVE BEEN PREPARED TO COVER GENERAL CONSTRUCTION CONDITIONS. NOT ALL DETAILS ON THIS SHEET ARE NECESSARILY INCORPORATED INTO THIS PROJECT. COORDINATE WITH PLANS.

No.	Date	Description

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

STANDARD DETAIL SHEET

PERMIT SET

FOUNDATION & FRAM'G DETAILS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29
DRAWN BY: SPM

D101

SCALE 24X36: 3/4" = 1'-0"
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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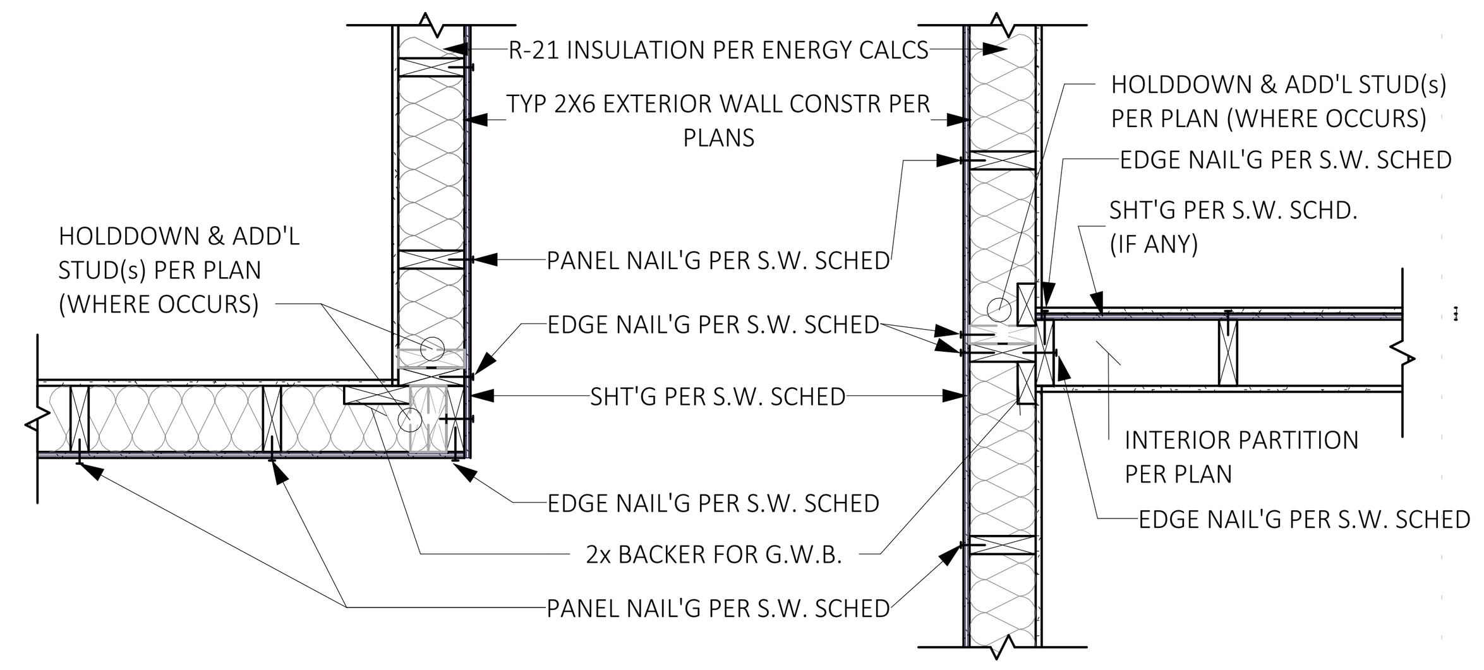
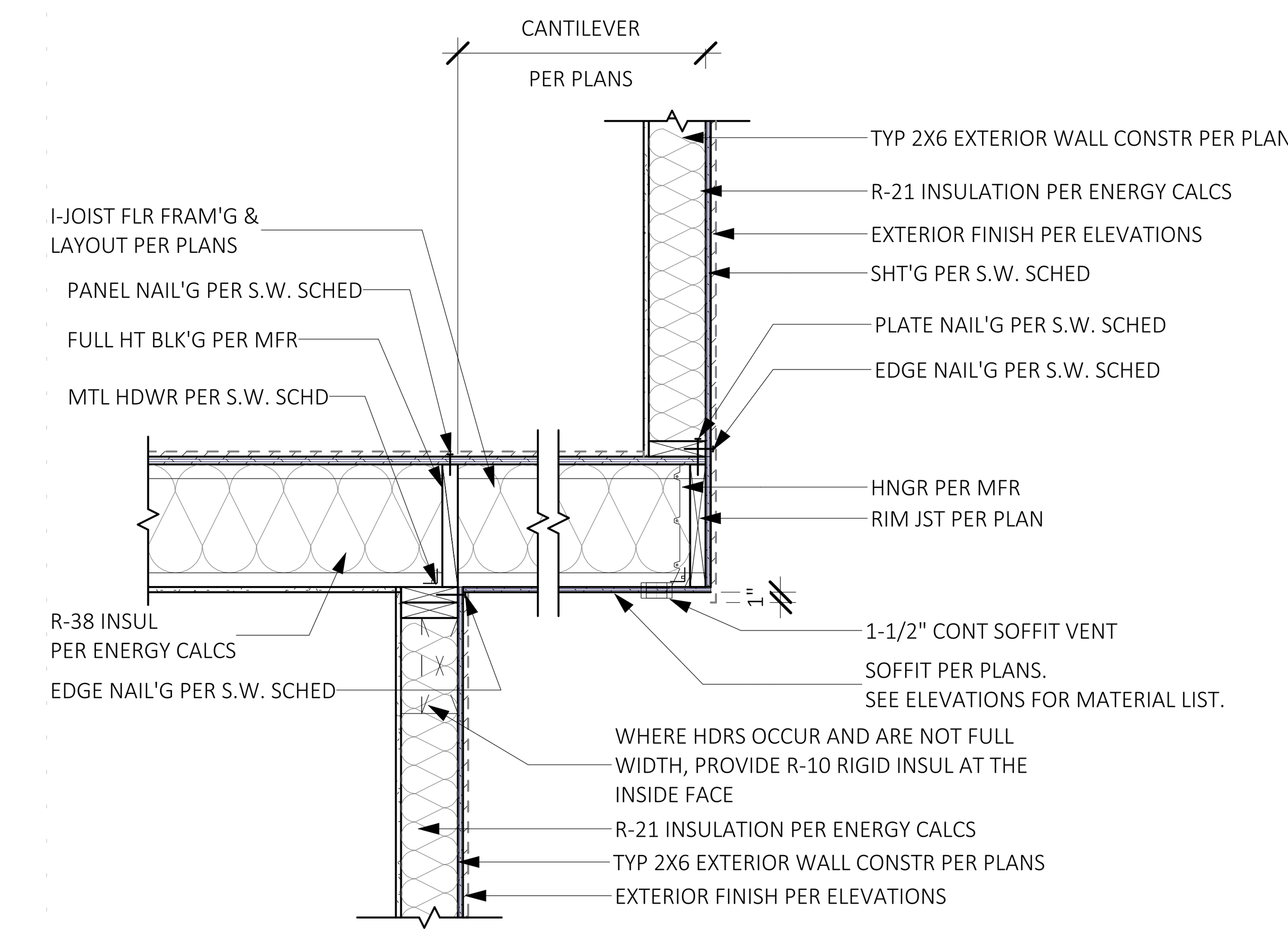
3/15/2023 8:48:47 AM



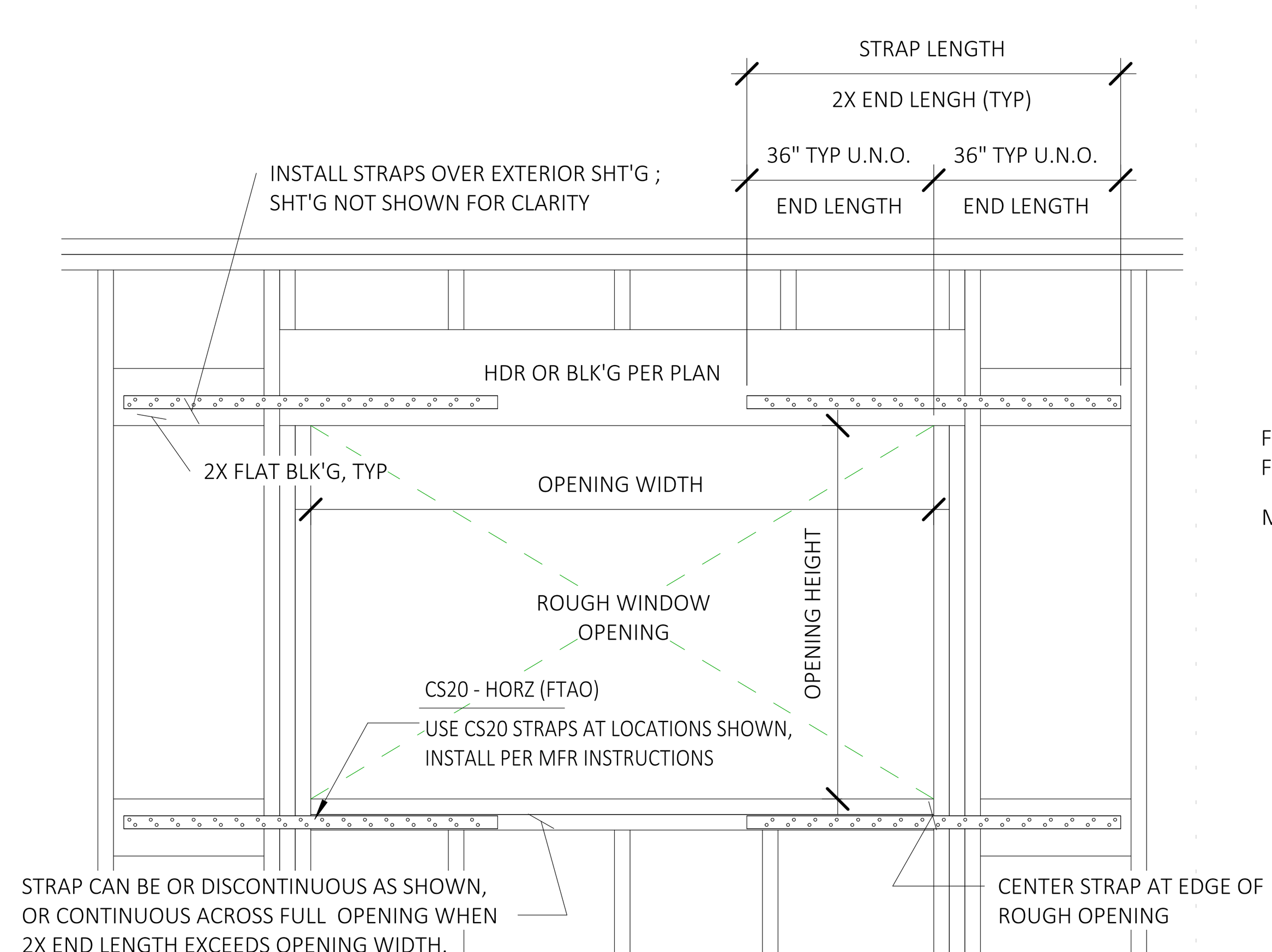
22 INT/EXT WALL FRAMING DETAIL

SCALE: 3/4" = 1'-0"



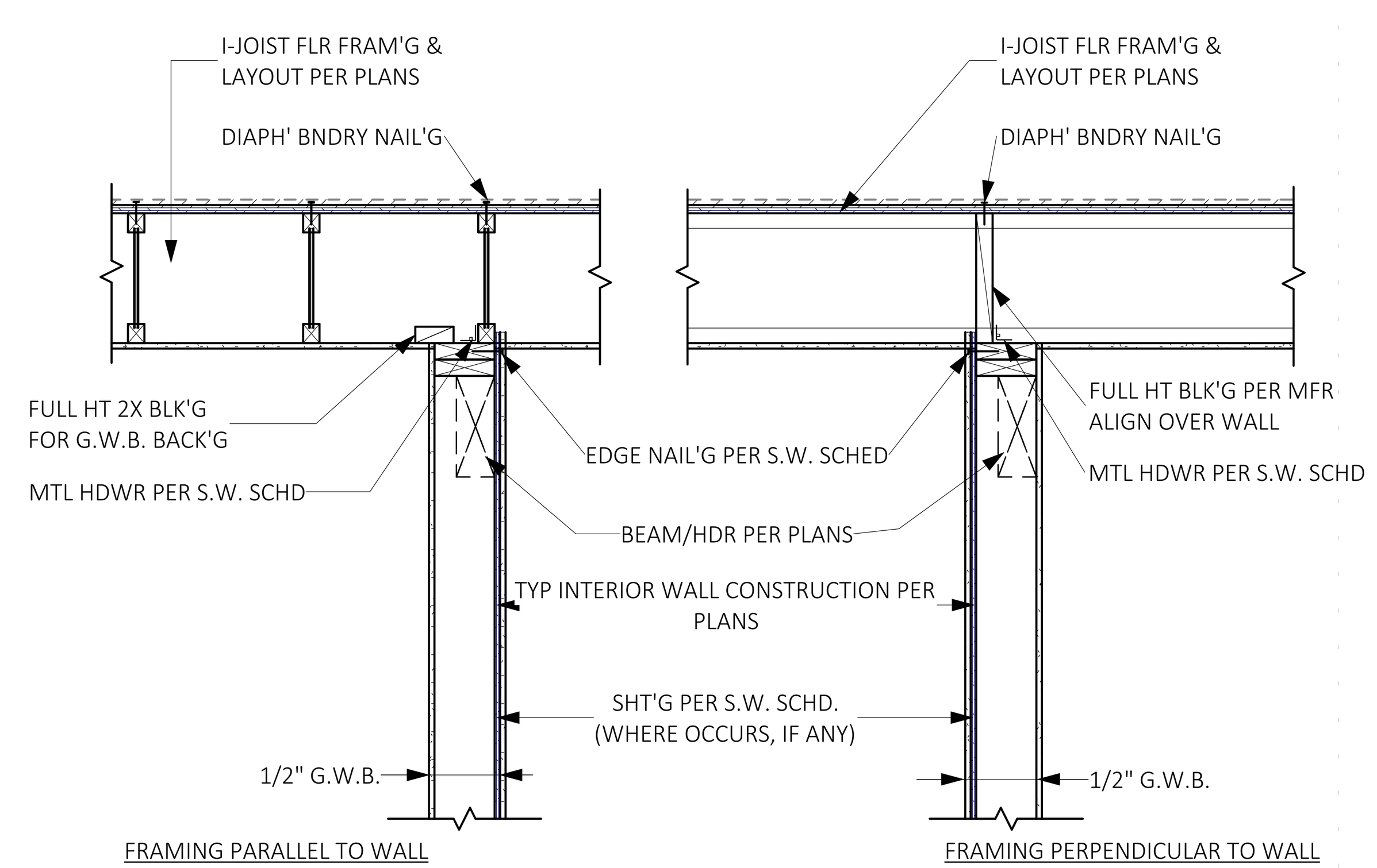
15 CANTILEVERED FRM'G AT EXT WALL

SCALE: 3/4" = 1'-0"



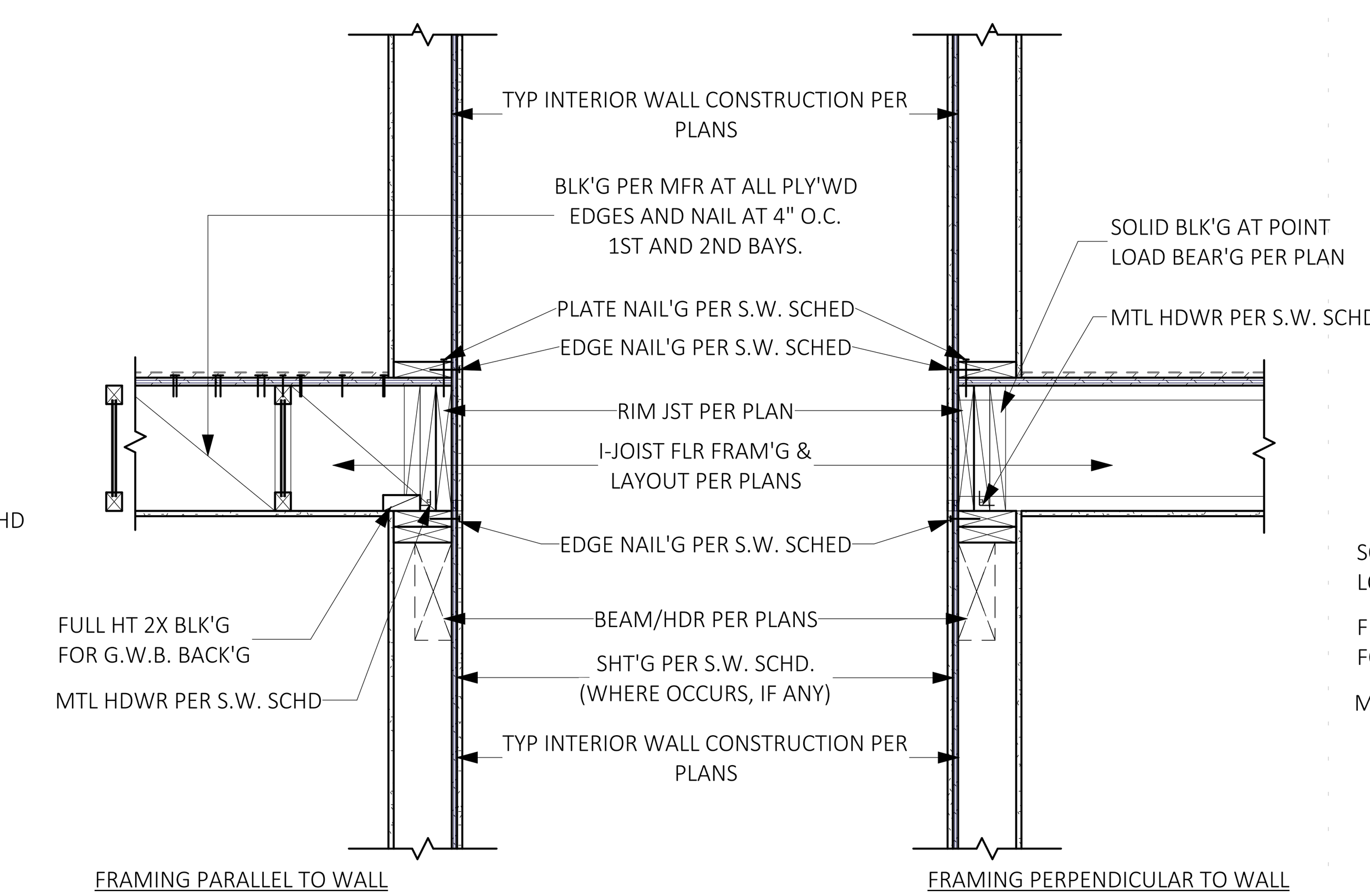
23 FORCE TRANSFER AT OPENING

SCALE: 3/4" = 1'-0"



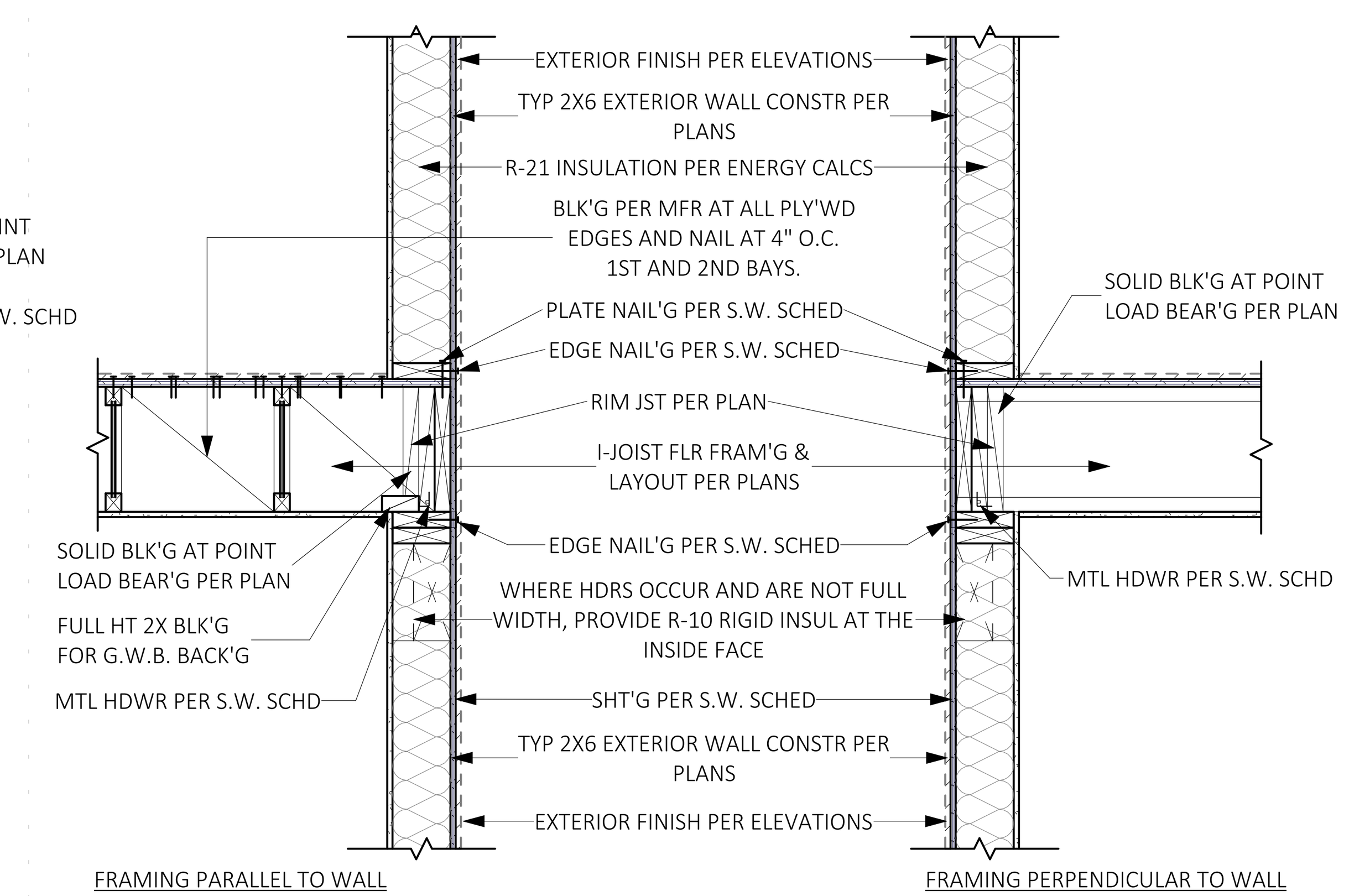
20 INTERIOR WALL TO FLOOR JOISTS ABOVE

SCALE: 3/4" = 1'-0"



17 INTERIOR WALL/FLOOR JOISTS - STACKED

SCALE: 3/4" = 1'-0"



14 EXTERIOR WALL TO FLOOR JOISTS

SCALE: 3/4" = 1'-0"

Autodesk Docs://21014 Hu Residence, Mercer Island/21014 0SCD, Hu Residence, Mercer Island.rvt

3/15/2023 8:48:48 AM

NOTE: THIS IS A STANDARD DETAILS SHEET PREPARED FOR SINGLE FAMILY HOUSING TYPE V NONRATED CONSTRUCTION. THESE DETAILS HAVE BEEN PREPARED TO COVER GENERAL CONSTRUCTION CONDITIONS. NOT ALL DETAILS ON THIS SHEET ARE NECESSARILY INCORPORATED INTO THIS PROJECT. COORDINATE WITH PLANS.

STANDARD DETAIL SHEET

No. | Date | Description

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

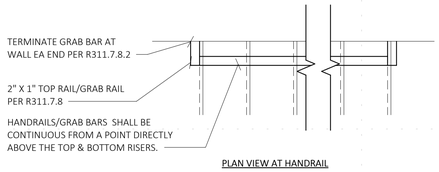
FRAMING DETAILS

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

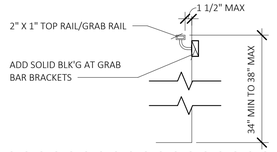
D102

SCALE 24X36: 3/4" = 1'-0"

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.



PLAN VIEW AT HANDRAIL

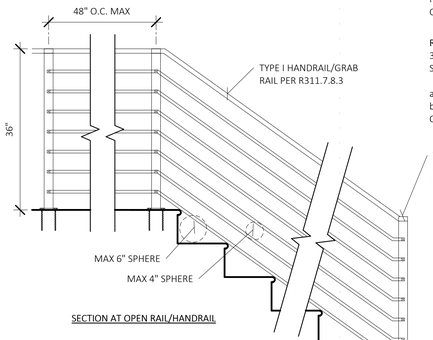


SECTION AT HANDRAIL

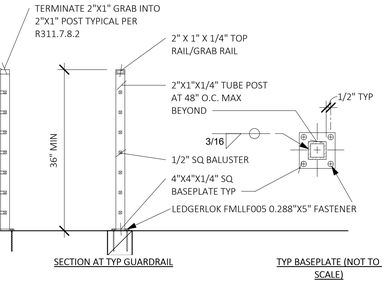
HANDRAILS SHALL BE PROVIDED ON AT LEAST ONE SIDE OF EACH CONTINUOUS RUN OF TREADS OR FLIGHT WITH FOUR OR MORE RISERS.

RAIL ASSEMBLY: POWDER COATED ASTM A513 STEEL RAIL PER MFR. MIN 36" HIGH GUARDRAIL. AT STAIRS SLOPE GUARD BTWN 34" & 38" ABOVE STAIR NOSING PER R312.1.2.2

a) PROVIDE MAX OPENINGS OF 4" PER R312.1.3.
b) PROVIDE MAX 6" DIAMETER OPENINGS AT THE TRIANGULAR OPENINGS ON THE OPEN SIDE OF SLOPED STAIR GUARDS PER R312.1.3.1



SECTION AT OPEN RAIL/HANDRAIL

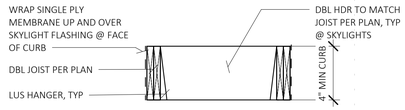


SECTION AT TYP GUARDRAIL

TYP BASEPLATE (NOT TO SCALE)

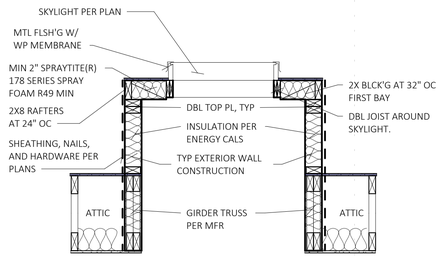
2 TYP RAILING/GRAB BAR DETAIL

SCALE: 3/4" = 1'-0"



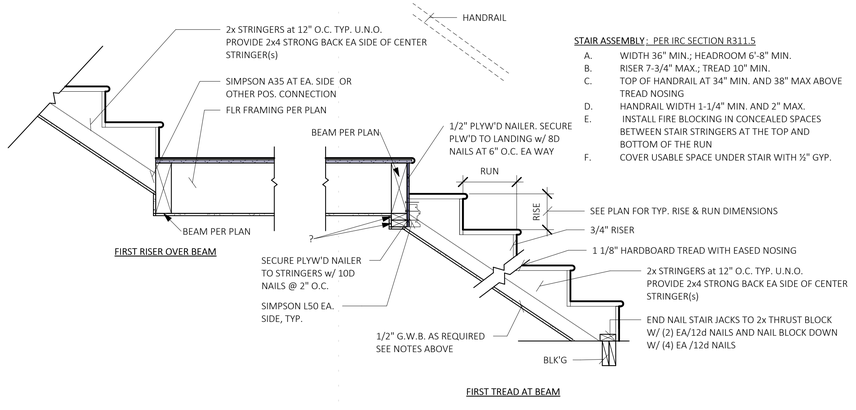
4 ROOF - SKYLIGHT CURB

SCALE: 3/4" = 1'-0"



3 ROOF - SKYLIGHT

SCALE: 3/4" = 1'-0"



FIRST RISER OVER BEAM

FIRST TREAD AT BEAM

STAIR ASSEMBLY : PER IRC SECTION R311.5

A. WIDTH 36" MIN.; HEADROOM 6'-8" MIN.
B. RISER 7-3/4" MAX.; TREAD 10" MIN.
C. TOP OF HANDRAIL AT 34" MIN. AND 38" MAX ABOVE TREAD NOSING
D. HANDRAIL WIDTH 1-1/4" MIN. AND 2" MAX.
E. INSTALL FIRE BLOCKING IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN
F. COVER USABLE SPACE UNDER STAIR WITH ½" GYP.

1 STAIR SECTION DETAIL

SCALE: 3/4" = 1'-0"

No.	Date	Description
1	20220125	SUB2 City Comment Submittal

BRYAN J. LOSHBAUGH — STATE OF WASHINGTON — 53214 — REGISTERED PROFESSIONAL ENGINEER

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

STANDARD DETAIL SHEET

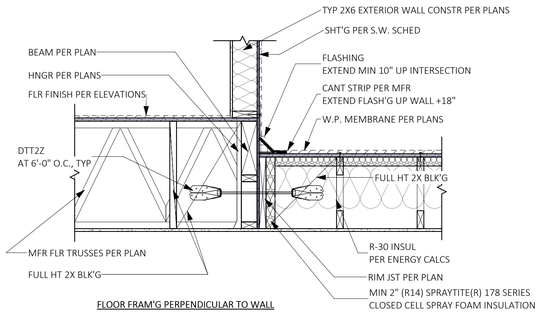
STAIR & RAILING DETAILS

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

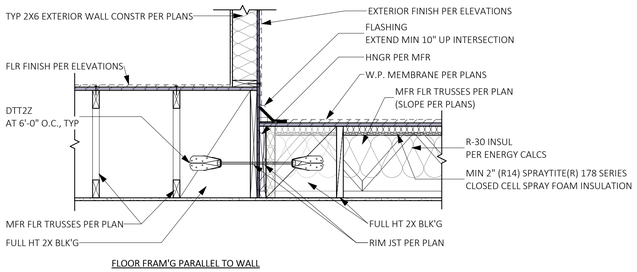
D201

SCALE 24X36: 3/4" = 1'-0"

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.



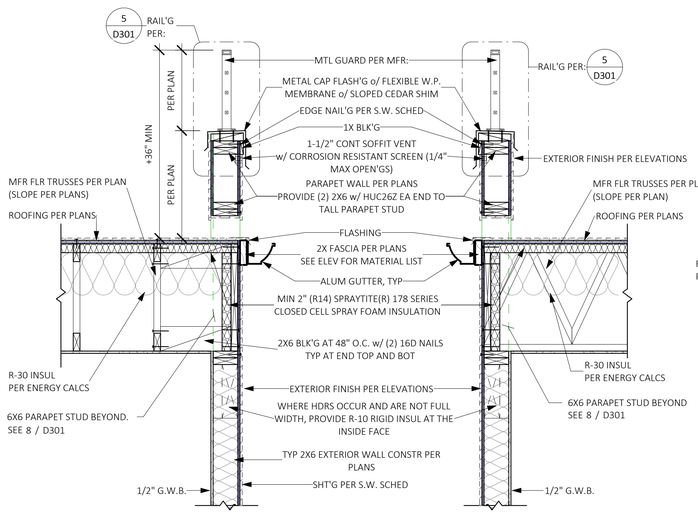
FLOOR FRAM'G PERPENDICULAR TO WALL



FLOOR FRAM'G PARALLEL TO WALL

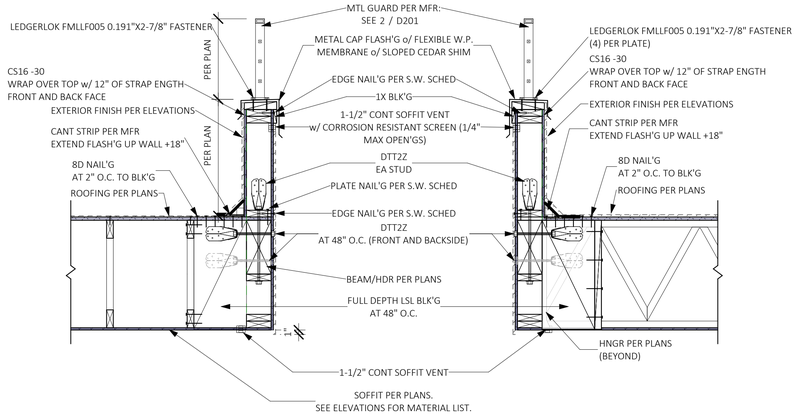
7 BALCONY/WALL CONNECTION

SCALE: 3/4" = 1'-0"



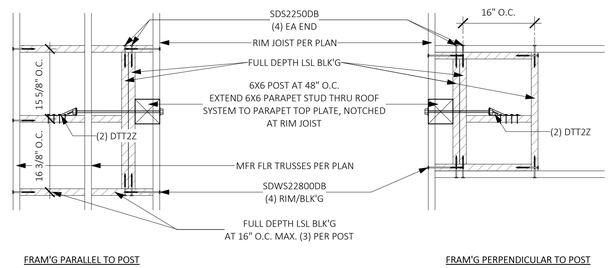
6 PARAPET DETAIL w/ GUTTER

SCALE: 3/4" = 1'-0"



5 PARAPET DETAIL AT PORCH

SCALE: 3/4" = 1'-0"

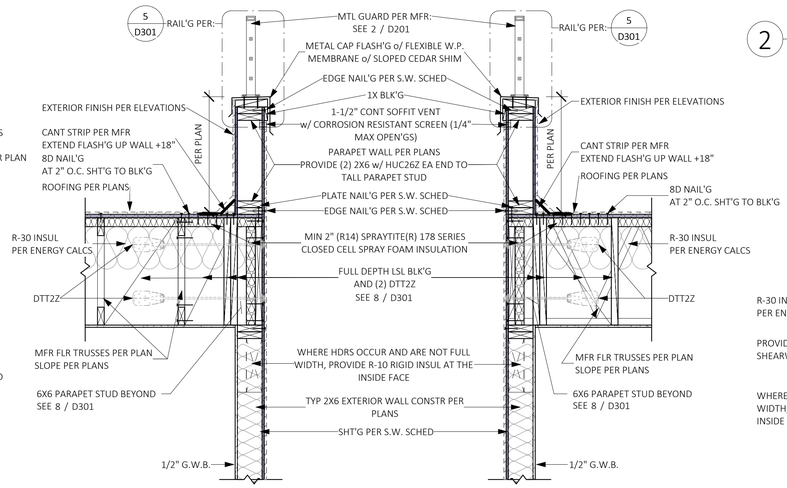


FRAM'G PARALLEL TO POST

FRAM'G PERPENDICULAR TO POST

8 PLAN VIEW AT PARAPET STUD

SCALE: 3/4" = 1'-0"

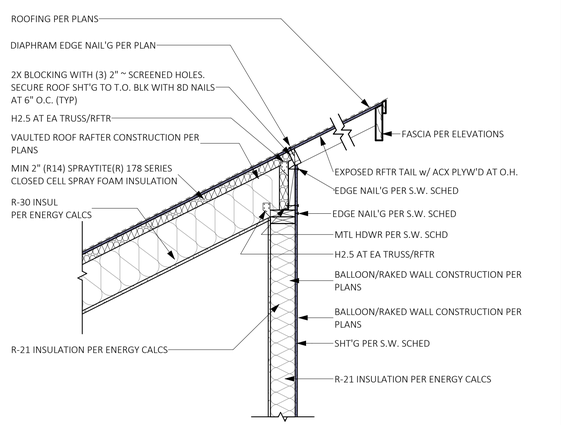


FRAM'G PARALLEL TO POST

FRAM'G PERPENDICULAR TO POST

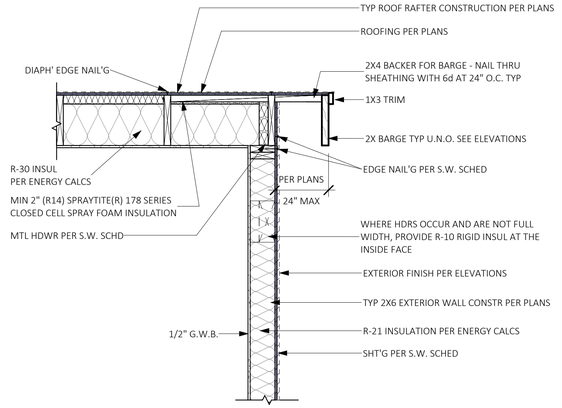
4 PARAPET DETAIL

SCALE: 3/4" = 1'-0"



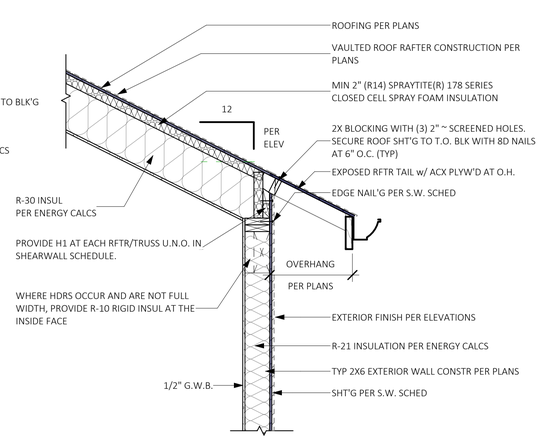
3 EAVE DETAIL - RAFTER

SCALE: 3/4" = 1'-0"



2 GABLE END DETAIL- VAULT'D RFTR

SCALE: 3/4" = 1'-0"



1 EAVE DETAIL - VAULTED RAFTER

SCALE: 3/4" = 1'-0"

No.	Date	Description

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

01/13/2023

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

ROOF DETAILS

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

D301

SCALE 24X36: 3/4" = 1'-0"

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

STANDARD DETAIL SHEET

POLYCOAT PRODUCTS
A Division of American Polymers Corp.

POLYCOAT-AQUASEAL® 5000

Single Component, Bitumen Modified Waterproofing Membrane System

Technical Data Sheet

POLYCOAT - AQUASEAL® 5000 SYSTEM

System Description:

Polycoat-Aquaseal® 5000 is a single component, liquid applied, bitumen modified, coal tar free, moisture cured polyurethane waterproofing membrane. It is available in three application versions: Horizontal (H), Vertical (V), and Water Catalyzing (WC) – available only in horizontal. Polycoat-Aquaseal® 5000 is in complete compliance with SCAQMD air quality standards, and has VOC levels equal to or less than 100 grams per liter.

FEATURES	
• Economical	• User Friendly
• Labor Saving	• Resistant to Bacteria
• Meets the Criteria of ASTM C-836 and E-96	

TYPICAL USES	
• Bridges	• Tunnels
• Planters	• Basements
• Between Slabs	• Foundation Walls
• Shower Pans	• Water Storage Tanks

Approved City of Los Angeles RR# 25935

Color: Black

Packaging: 5 gallon (18.9 liter) pail. 55 gallon drum, net fill 50 gallons (189 liters)

Mixing For Polycoat-Aquaseal® 5000H / 5000V

Before application, Polycoat-Aquaseal® 5000 should be thoroughly mixed using a mechanical mixer at slow speed to ensure a homogeneous material. Take care not to allow entrapment of air into the material.

Mixing For Polycoat-Aquaseal® 5000WC-H:

Before application, mix Polycoat-Aquaseal® 5000WC using a mechanical mixer at slow speed. Mix Polycoat-Aquaseal® 5000WC with water (water must be added) at a ratio of one quart of water to five gallons of Polycoat-Aquaseal® 5000WC. This will yield 5¼ gallons of membrane. The mixing ratio is 20 parts Polycoat-Aquaseal® 5000WC membrane to 1 part of water (20:1). Use care not to allow the entrapment of air into the mixture.

Polycoat-Aquaseal® 5000 (100 VOC) Properties:

Based on Drawn Down Film	5000H Horizontal	5000V Vertical	5000WC-H Water Catalyzed	Green Concrete
Hardness, ASTM D-2240	50 ± 5 Shore A	45 ± 5 Shore A	25 ± 5 Shore A	**Polycoat-Aquaseal® 5000 May be applied to Green Concrete.** (1) Prime the wall with a thin (5 mil) application of Aquaseal 5000V diluted with a manufacturer approved and AQMD compliant solvent at a ratio of 1 quart of solvent per 5 gallons of Aquaseal 5000. The coverage rate for this prime coat should be around 200 square feet per gallon. This should fill all of the bug holes in a poured wall that typically cause outgassing resulting in pin holing in the coating. (2) Follow Step 1 with a standard two to three coat application of Aquaseal 5000V at 30 mils per coat (50 square feet per gallon) depending on whether a 60 or 90 mil application is desired. The standard Aquaseal 5000 may be applied to both fully cured (28 days for poured in place and 10 days after grouting for block) and green concrete.
Tear Resistance, Die C, ASTM D-624	40 ± 20 pli 21 ± 3.5 kNm	35 ± 10 pli 14 ± 2 kNm	50 ± 5 pli 8.8 ± 0.9 kNm	
Tensile Strength, ASTM D-412	350 ± 50 psi 3.45 ± 0.3 Mpa	350 ± 50 psi 2.1 ± 0.3 Mpa	300 ± 50 psi 2.1 ± 0.3 Mpa	
Ultimate Elongation, ASTM D-412	300 ± 50%	300 ± 50%	650 ± 50%	
Specific Gravity	1.32	1.23	1.12	
Total Solids by Weight, ASTM D-236	92 ± 3%	92 ± 3%	95 ± 1%	
Total Solids by Volume, ASTM D-2697	90 ± 3%	90 ± 3%	94 ± 1%	
Viscosity at 80°F (27°C)	5000 ± 2000 cps	40,000 ± 20,000 cps	-	
Service Temperature	- 25°F to 200°F - 31.7°C to 93.3°C	- 25°F to 200°F - 31.7°C to 93.3°C	-	
Volatile Organic Compounds, ASTM D-2369-81	0.83 lb/gal 100 gm/liter	0.83 lb/gal 100 gm/liter	<0.5 lb/gal <60 gm/liter	

14722 Spring Ave ♦ Santa Fe Springs, CA 90670-5108 USA ♦ Tel: 562-802-8834 ♦ Fax: 562-921-7363 ♦ www.polycoatusa.com

Joints, Cracks and Flashing:

Apply a stripe coat of Polycoat-Aquaseal® 5000 over all cracks up to 1/16" in width. All cracks over 1/16" in width must be caulked with a polyurethane sealant.

All metal flashings must be primed with manufacturer's recommended primer.

Application:

Polycoat-Aquaseal® 5000 may be applied with a brush, squeegee, trowel, roller or airless sprayer. Over smooth surfaces, such as poured-in-place concrete, apply Polycoat-Aquaseal® 5000 evenly in two 30 mil coats.

Polycoat-Aquaseal® 5000WC-H (Water Catalyzed) can be applied at any thickness.

Curing:

At 75°F (24°C) and 50% relative humidity, allow each coat of Polycoat-Aquaseal® 5000 Vertical, Horizontal and Green Concrete to cure 16 hours minimum.

Cure time will vary depending on temperature and humidity. If more than 48 hours pass between coats the surface must be re-primed.

For Polycoat-Aquaseal® 5000 WC applications, at 75°F (24°C) and 50% relative humidity, allow coating to cure a minimum of 2-4 hours before proceeding to subsequent coats. Cure time will vary depending on temperature and humidity If more than 48 hours pass between coats the surface must be re-primed.

Polycoat-Aquaseal® 5000 is very sensitive to heat and moisture. Higher temperatures and/or high humidity will accelerate the cure time. Use caution in thickness of application. Limit single coat thickness to 30-40 wet mils.

Equipment Cleanup:

Equipment should be cleaned with an environmentally safe solvent, as permitted under local regulations, immediately after use.

Storage:

Polycoat-Aquaseal® 5000 has a shelf life of one (1) year from date of manufacture in original, factory-sealed containers when stored indoors at a temperature between 60-95°F (15-35°C).

Limitations:

Surfaces must be dry, clean and free of foreign matter.

Not UV stable.

Cannot withstand direct wear or abrasion.

Containers that have been opened must as soon as possible.

Do not dilute under any circumstance.

The following conditions must not be coated with Polycoat Products deck coating systems or products: on grade slabs, split slabs with a between slab membrane, sandwich slabs with insulation, and slabs over unvented metal pan.

Warning:

This product contains Aromatic Hydrocarbons, Isocyanates and Solvent.

Limited Warranty:

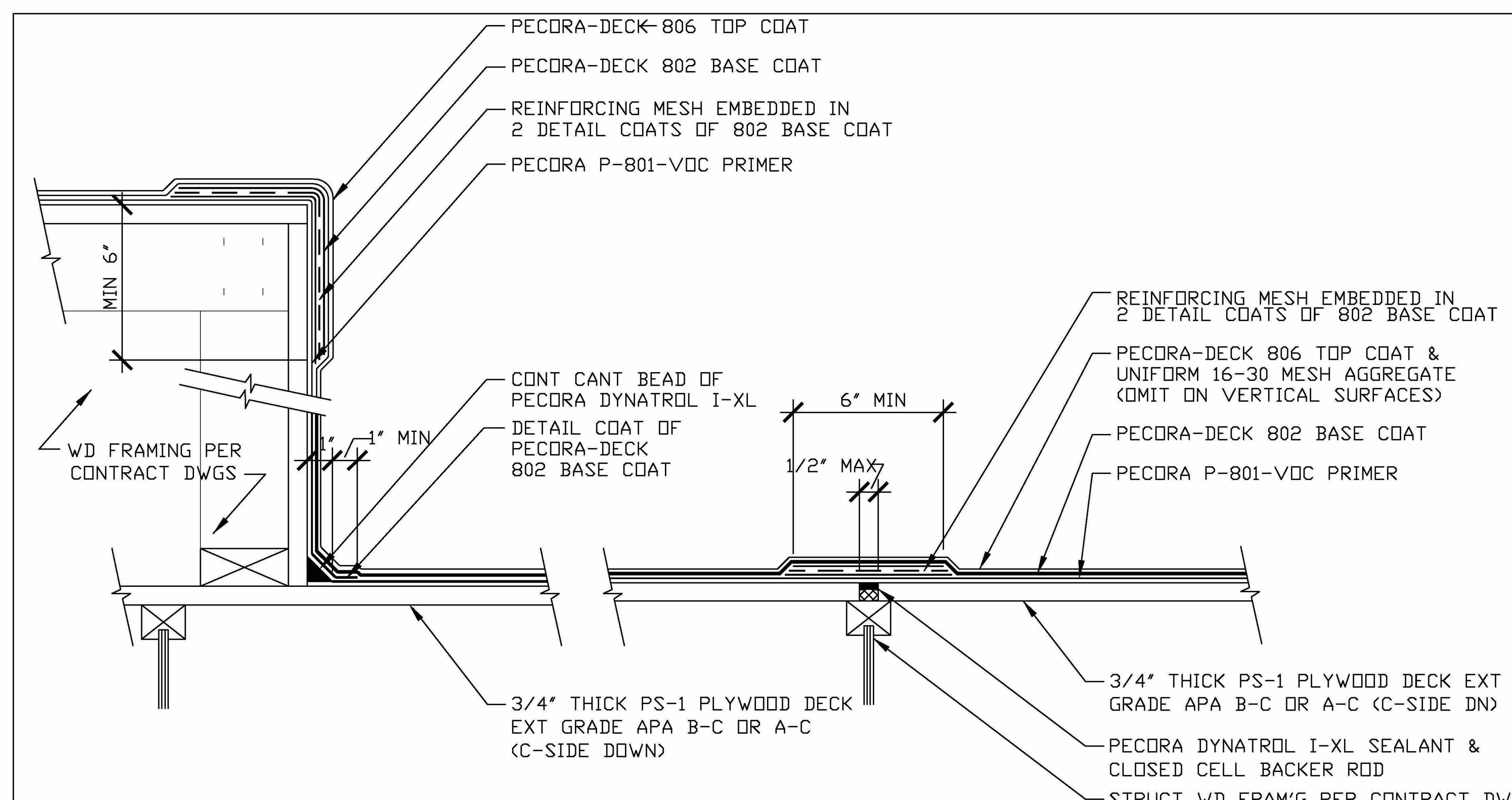
Please read all information in the general guidelines, product data sheets, guide specifications and material safety data sheets (MSDS) before applying material. Published technical data and instructions are subject to change without notice. Contact your local Polycoat Products representative or visit our website for current technical data and instructions.

Polycoat Products warrants its products to be free of manufacturing defects and that they will meet Polycoat Products current published physical properties. Polycoat Products warrants that its products, when properly installed by a state licensed waterproofing contractor according to Polycoat Products guide specifications and product data sheets over a sound, properly prepared substrate, will not allow water migration for a period of one (1) year. Seller's and manufacturer's sole responsibility shall be to replace that portion of the product of this manufacturer which proves to be defective. There are no other warranties by Polycoat Products of any nature whatsoever expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. Polycoat Products shall not be liable for damages of any sort, including remote or consequential damages resulting from any claimed breach of any warranty whether expressed or implied. Polycoat Products shall not be responsible for use of this product in a manner to infringe on any patent held by others. In addition, no warranty or guarantee is being issued with respect to appearance, color, fading, chalking, staining, shrinkage, peeling, normal wear and tear or improper application by the applicator. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. Polycoat Products reserves the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator.

Disclaimer:

All guidelines, recommendations, statements, and technical data contained herein are based on information and tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. It is the users responsibility to satisfy himself, by his own information and test, to determine suitability of the product for his own intended use, application and job situation and user assumes all risk and liability resulting from his use of the product. We do not suggest or guarantee that any hazard listed herein are the only ones which may exist. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements, whether in writing or oral, other than those contained herein shall not be binding upon the manufacturer, unless in writing and signed by a corporate officer of the manufacturer. Technical and application information is provided for the purpose of establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and Polycoat Products makes no claim that these tests or any other tests, accurately represent all environments.

Rev. 8/1/13



TYPICAL INSIDE & OUTSIDE CORNERS
REF: CONTRACT DWG 8/D402

TYPICAL PLYWOOD JOINT TREATMENT

NOTES:

1. WHERE PECORA 800 WATERPROOF MEMBRANE IS NOTED ON CONTRACT DWGS., PROVIDE PECORA-DECK 8313 PLYWOOD DECK PEDESTRIAN DECK COATING SYSTEM AS DETAILED.
2. THE FOLLOWING REINFORCING MESH PRODUCTS ARE ACCEPTABLE TO PECORA CORP. FOR PLYWOOD JOINT & CORNER REINFORCEMENT:
   - TIETEX T-272 BY TIETEX INTERNATIONAL
   - PERMAGLAS MESH PG-242 BT SAINT GOBAIN
   - WEB SEAL TAPE BY ETRNABOND
3. PECORA CORP IS NOT A LICENSED DESIGN PROFESSIONAL IN THE STATE OF WASHINGTON AND IS THEREFORE NOT RESPONSIBLE FOR THE ROOF DECK DESIGN, INCLUDING STRUCTURAL FRAMING & SHEATHING.

BEHRINGER RESIDENCE, 7916 E MERCER WAY, MERCER ISLAND, WA
WALKING DECK COATING DETAILS
PECORA-DECK 8313, PLYWOOD DECK
NO SCALE | MAY 3, 2019 | DRAWING NO.: 050319.01

Pecora Corporation is a manufacturer of building materials-not a licensed design professional. Details prepared by Pecora Corporation are schematic only and are offered as a guide for the convenience of Pecora Corporation's customers.

PECORA CORPORATION®
Architectural Weatherproofing Products
U.S.A. • since 1862

No.	Date	Description
1	20230125	SUB2 City Comment Submittal
2	*******TBD******	SUB2 City Comment Submittal
	**	

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

ATERA HOMES

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

PERMIT SET

SPECIALTY DETAILS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29

D401

SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

STRUCTURAL NOTES

GENERAL REQUIREMENTS

BUILDING CODE & REFERENCE STANDARDS:
THE "INTERNATIONAL BUILDING CODE" (IBC), 2018 EDITION, AS ADOPTED AND MODIFIED BY THE CITY OF CITY, GOVERNS THE DESIGN AND CONSTRUCTION OF THIS PROJECT. REFERENCE TO A SPECIFIC SECTION IN THE CODE DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE ENTIRE MATERIALS REFERENCE STANDARDS NOTED BELOW. THE LATEST EDITION OF THE MATERIALS REFERENCE STANDARDS SHALL BE USED.

SCOPE OF STRUCTURAL WORK:
STRUCTURAL DESIGN OF A NEW HOUSE.

DEFINITIONS:
THE FOLLOWING DEFINITIONS APPLY TO THESE GENERAL NOTES:
· "STRUCTURAL ENGINEER OF RECORD" (EOR) - THE STRUCTURAL ENGINEER WHO IS LEGALLY RESPONSIBLE FOR STAMPING & SIGNING THE STRUCTURAL DOCUMENTS FOR THE PROJECT. THE EOR IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM.
· "SPECIALTY STRUCTURAL ENGINEER" (SSE) - A LICENSED PROFESSIONAL ENGINEER, NOT THE EOR, WHO PERFORMS SPECIALTY STRUCTURAL ENGINEERING SERVICES NECESSARY TO COMPLETE THE STRUCTURE, WHO HAS EXPERIENCE AND TRAINING IN THE SPECIFIC SPECIALTY. THE GENERAL CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER WHO IS RESPONSIBLE FOR THE DESIGN, FABRICATION AND INSTALLATION OF SPECIALTY-ENGINEERED ELEMENTS SHALL RETAIN THE SSE. SUBMITTALS SHALL BE STAMPED AND SIGNED BY THE SSE. DOCUMENTS STAMPED AND SIGNED BY THE SSE SHALL BE COMPLETED BY OR UNDER THE DIRECT SUPERVISION OF THE SSE WITH A PE OR SE LICENSE ISSUED BY THE STATE OF WASHINGTON.
· "DEFERRED SUBMITTALS - DEFERRED SUBMITTAL IS ENGINEERING WORK TO BE DESIGNED-BY-OTHERS OR BIDDER-DESIGNED.

NOTE PRIORITIES:
NOTES ON THE INDIVIDUAL DRAWINGS SHALL GOVERN OVER THESE GENERAL NOTES.

SPECIFICATIONS:
REFER TO THESE NOTES, STRUCTURAL DRAWINGS, AND ARCHITECTURAL DRAWINGS WHICH SERVE AS SPECIFICATIONS FOR THIS PROJECT.

STRUCTURAL DETAILS:
THE STRUCTURAL DRAWINGS ARE INTENDED TO SHOW THE GENERAL CHARACTER AND EXTENT OF THE PROJECT AND ARE NOT INTENDED TO SHOW ALL DETAILS OF THE WORK.

ARCHITECTURAL DRAWINGS:
REFER TO THE ARCHITECTURAL DRAWINGS FOR INFORMATION INCLUDING, BUT NOT LIMITED TO: DIMENSIONS, ELEVATIONS, SLOPES, DOOR AND WINDOW OPENINGS, NON-BEARING WALLS, CURTAIN WALLS, STAIRS, ELEVATORS, CURBS, DRAINS, DEPRESSIONS, RAILINGS, WATERPROOFING, FINISHES AND OTHER NONSTRUCTURAL ITEMS.

STRUCTURAL RESPONSIBILITIES:
THE EOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE PRIMARY STRUCTURE IN ITS COMPLETED STATE.

CONTRACTOR RESPONSIBILITIES:
THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND ALL JOB RELATED SAFETY STANDARDS SUCH AS OSHA AND WSHA. THE CONTRACTOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL THE STRUCTURE IS COMPLETED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN THE CONSTRUCTION DOCUMENTS AND THE REQUIREMENTS FOR EXECUTING IT PROPERLY.

THE CONTRACTOR SHALL SUBMIT PLANS SHOWING THE LOCATION, WEIGHT, SIZE AND ANCHORAGE OF ALL HANGERS SUPPORTING ALL MECHANICAL, ELECTRICAL, PLUMBING OR SPRINKLER LOADS IN EXCESS OF 50 POUNDS. ALL ROOF-MOUNTED EQUIPMENT SHALL BE INCLUDED ON THESE PLANS AND SHALL SHOW THE WEIGHTS, SIZES, MOUNTING/ATTACHMENT DETAILS, AND LOCATIONS. SUBMIT PLANS TO THE EOR FOR REVIEW PRIOR TO INSTALLATION.

DISCREPANCIES:
IN CASE OF DISCREPANCIES BETWEEN THESE GENERAL NOTES, THE CONTRACT DRAWINGS AND SPECIFICATIONS, AND/OR REFERENCE STANDARDS, THE EOR SHALL DETERMINE WHICH SHALL GOVERN. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR BEFORE PROCEEDING WITH THE WORK. ACCORDINGLY, ANY CONFLICT IN OR BETWEEN THE CONTRACT DOCUMENTS SHALL NOT BE A BASIS FOR ADJUSTMENT IN THE CONTRACT PRICE.

SITE VERIFICATION:
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR CONSTRUCTION. CONFLICTS BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE EOR BEFORE PROCEEDING WITH THE WORK. ALL UNDERGROUND UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO EXCAVATION OR DRILLING.

ADJACENT UTILITIES:
THE CONTRACTOR SHALL DETERMINE THE LOCATIONS OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO EXCAVATION. ANY UTILITY INFORMATION SHOWN ON THE DRAWINGS AND DETAILS IS APPROXIMATE AND NOT NECESSARILY COMPLETE.

DESIGN CRITERIA

CONSTRUCTION LOADS:
LOADS ON THE STRUCTURE DURING CONSTRUCTION SHALL NOT EXCEED THE DESIGN LOADS OR THE CAPACITY OF THE PARTIALLY COMPLETED CONSTRUCTION.

SNOW LOAD:
THE ROOF SNOW LOAD IS DETERMINED BY USING CHAPTER 7 OF ASCE 7-16 IN ACCORDANCE WITH IBC SECTION 1608 AND WITH THE FOLLOWING FACTORS:

MINIMUM ROOF DESIGN LOAD: *25 PSF WITHOUT DRIFT*
GROUND SNOW LOAD, PG: *20 PSF*
IMPORTANCE FACTOR, IS: *1.0*
FLAT ROOF SNOW LOAD, PF: *25 PSF*
THERMAL FACTOR, CT: *1.0*

WIND DESIGN:
WIND LOAD IS DETERMINED USING CHAPTER 28 OF ASCE 7-16 IN ACCORDANCE WITH IBC SECTION 1609 WITH THE FOLLOWING FACTORS:

BASIC WIND SPEED V = *97 MPH*
WIND IMPORTANCE FACTOR IW = *1.0*
EXPOSURE CATEGORY = *B*
RISK CATEGORY= *II*
KZT = *1.6*

SEISMIC DESIGN:
EARTHQUAKE DESIGN IS DETERMINED USING CHAPTER 12 ASCE 7-16 IN ACCORDANCE WITH IBC CHAPTER 16 WITH THE FOLLOWING FACTORS:

IMPORTANCE FACTOR IE = *1.0*
RISK CATEGORY = *II*
SS = *1.395 G*
SI = *0.486 G*
SITE CLASS = *D*
SDS = *1.116 G*
SDI = *0.590 G*
SEISMIC DESIGN CATEGORY= *D*

WOOD STRUCTURE (SUPER-STRUCTURE):
BASIC SEISMIC FORCE RESISTING SYSTEM: A-15 (BEARING WALL SYSTEMS) LIGHT-FRAMED WALLS WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE

ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE, PER ASCE 7-10, SECTION 12.8

R= *6.5*
CS= *0.172*
CD= *4*
W= *122K*
Ω= *2.5+*
ρ= *1.3*

DESIGN BASE SHEAR:
DESIGN BASE SHEAR (*WIND GOVERNED*), V[*ULT*] = *15.86 (N/S)*, V[*ASD*] = *6.4 (E/W)*

DEFLECTIONS:
FLOOR TOTAL LOAD DEFLECTION LIMIT: *L/360*
FLOOR LIVE LOAD DEFLECTION LIMIT: *L/480*
ROOF TOTAL LOAD DEFLECTION LIMIT: *L/240*
ROOF LIVE LOAD DEFLECTION LIMIT: *L/360*

LIVE LOADS: (HOUSE)

ROOF (LIVE): *20 PSF*
ROOF (SNOW) *25 PSF*
BALCONIES AND DECKS: *1.5X OCCUPANCY SERVED*
RESIDENTIAL FLOOR: *40 PSF*
RESIDENTIAL GARAGE: *40 PSF*
STAIRS & LANDINGS: *40 PSF OR 300LB (4"X4" SQR)*
GUARD RAILS: *50 PLF*

DEFERRED SUBMITTAL LOADS:
ALL PRE-ENGINEERED, PRE-FABRICATED, PRE-MANUFACTURED, OR OTHER PRODUCTS DESIGNED BY OTHERS SHALL BE DESIGNED FOR THE TRIBUTARY DEAD AND LIVE LOADS PLUS WIND, EARTHQUAKE, AND COMPONENT, AND CLADDING LOADS WHEN APPLICABLE. DESIGN SHALL CONFORM TO THE PROJECT DRAWINGS AND SPECIFICATIONS, REFERENCE STANDARDS, AND GOVERNING.

ROOF DEAD LOAD: *15 PSF*
ROOF SNOW LOAD: *25 PSF*
FLOOR DEAD LOAD: *15 PSF*
FLOOR LIVE LOAD: *40 PSF*
STAIRS & LANDINGS: *40 PSF OR 300LB (4"X4" SQR)*
GUARD RAILS: *50 PLF OR 200 LB POINT LOAD*

SUBMITTALS

SHOP DRAWINGS SHALL BE SUBMITTED TO THE DESIGNER/EOR PRIOR TO ANY FABRICATION OR CONSTRUCTION FOR ALL STRUCTURAL ITEMS AS NOTED BELOW. THE CONTRACTOR SHALL REVIEW AND PLACE A SHOP DRAWINGS STAMP ON THE SUBMITTAL BEFORE FORWARDING TO THE EOR. SUBMITTALS SHALL BE MADE IN TIME TO PROVIDE A MINIMUM OF ONE WEEK FOR REVIEW BY THE EOR. ADDITIONAL SUBMITTALS REQUIRED FOR THIS PROJECT ARE SPECIFIED IN THE SPECIFIC SECTIONS BELOW.

REFERENCE THE INDIVIDUAL MATERIAL SECTION FOR SPECIFIC INFORMATION TO BE INCLUDED IN THE SUBMITTAL. IF THE SHOP DRAWINGS DIFFER FROM OR ADD TO THE DESIGN OF THE STRUCTURAL DRAWINGS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF THE WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER WHO IS RESPONSIBLE FOR THE DESIGN.
- CONCRETE REINFORCING
- EMBEDDED STEEL ITEMS
- GLULAM BEAMS
- TJI's

ALTERNATES:
PRODUCT OR MANUFACTURER COMPONENTS SPECIFIED IN THESE DRAWINGS ARE USED AS THE BASIS OF DESIGN FOR THIS PROJECT. ALTERNATES FOR SPECIFIED ITEMS MAY BE SUBMITTED TO THE EOR FOR REVIEW. HOWEVER, CONTRACTOR SHALL SUBMIT A CURRENT ICC-ESR/IAPMO-ER REPORT IDENTIFYING THAT AN ALTERNATIVE COMPONENT HAS THE SAME OR GREATER LOAD CAPACITY THAN THE SPECIFIED ITEM.

SHOP DRAWING REVIEW:
REVIEW BY THE DESIGNER/EOR IS FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT AND THE CONTRACT DOCUMENTS. DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE EOR, AND THEREFORE, MUST BE VERIFIED BY THE GENERAL CONTRACTOR. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, NOR DEPARTURES THEREFROM.

THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY; FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; FOR SELECTING FABRICATION PROCESSES; FOR TECHNIQUES OF ASSEMBLY; AND FOR PERFORMING WORK IN A SECURE MANNER. WHEN SHOP DRAWINGS (COMPONENT DESIGN DRAWINGS) DIFFER FROM OR ADD TO THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS THEY SHALL BE DESIGNED AND STAMPED BY THE RESPONSIBLE SSE. ALLOW ONE WEEK FOR EOR REVIEW TIME.

DEFERRED SUBMITTALS:
PER IBC SECTION 107.3.4.1, DRAWINGS, CALCULATIONS, AND PRODUCT DATA FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED-BY-OTHERS SHALL BEAR THE SEAL AND SIGNATURE OF THE WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER (SSE) WHO IS RESPONSIBLE FOR THE DESIGN AND SHALL BE SUBMITTED TO THE ARCHITECT/EOR AND THE BUILDING DEPARTMENT FOR REVIEW PRIOR TO FABRICATION. ALLOW ONE WEEK FOR EOR REVIEW TIME.

THE SSE SHALL SUBMIT STAMPED AND SIGNED CALCULATIONS AND SHOP DRAWINGS TO THE EOR FOR REVIEW. REVIEW OF THE SSE'S SHOP DRAWINGS IS FOR GENERAL COMPLIANCE WITH DESIGN CRITERIA AND COMPATIBILITY WITH THE DESIGN OF THE PRIMARY STRUCTURE AND DOES NOT RELIEVE THE SSE OF RESPONSIBILITY FOR THAT DESIGN. ALL NECESSARY BRACING, TIES, ANCHORAGE, AND PROPRIETARY PRODUCTS SHALL BE FURNISHED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS OR THE SSE'S DESIGN DRAWINGS AND CALCULATIONS. SUBMITTED DRAWINGS SHALL INDICATE ALL REACTION FORCES IMPARTED TO THE PRIMARY STRUCTURE. THE DESIGN OF THE CONNECTION TO THE PRIMARY STRUCTURE IS THE RESPONSIBILITY OF THE SUPPLIER AND SSE. SUBSEQUENT TO EOR REVIEW, EOR WILL FORWARD DEFERRED SUBMITTAL DOCUMENTS TO THE BUILDING OFFICIAL WITH NOTATION INDICATING THAT THE DOCUMENTS HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

DEFERRED SUBMITTALS INCLUDE THE FOLLOWING:
- HANDRAILS & GUARDRAILS
- PREFABRICATED WOOD TRUSSES
- PREFABRICATED METAL STAIRS
- OPEN WEB WOOD JOISTS

COMPONENTS:
ACCORDANCE WITH ASCE 7-10, CHAPTER 13 AND THE PROJECT SPECIFICATIONS. NONSTRUCTURAL COMPONENTS DESIGNED BY OTHERS SHALL NOT INDUCE TORSIONAL LOADING INTO SUPPORTING STEEL STRUCTURAL MEMBERS WITHOUT ADDITIONAL BRACING OF THOSE MEMBERS TO ELIMINATE TORSIONAL FORCES. TORSIONAL BRACING SHALL BE DESIGNED BY THE NONSTRUCTURAL COMPONENT DESIGNER AND APPROVED BY THE EOR. ANCHORAGE TO THE PRIMARY STRUCTURE IS PER THE BIDDER-DESIGN CONTRACTOR OR SUPPLIER.

TESTS & INSPECTIONS INSPECTIONS:
ALL CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL IN ACCORDANCE WITH IBC SEC 110. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED INSPECTIONS WITH THE BUILDING OFFICIAL. SUBMIT COPIES OF ALL INSPECTION REPORTS TO THE ARCHITECT/EOR FOR REVIEW. THE BUILDING OFFICIAL MAY ACCEPT INSPECTION OF AND REPORTS BY APPROVED INSPECTION AGENCIES IN LIEU OF BUILDING OFFICIAL'S INSPECTIONS. THE CONTRACTOR SHALL OBTAIN APPROVAL OF BUILDING OFFICIAL TO USE THE THIRD-PARTY INSPECTION AGENCY AND CONTRACTOR SHALL ALERT THE ARCHITECT/EOR AS SUCH.

SOILS AND FOUNDATIONS

REFERENCE STANDARDS:
CONFORM TO IBC CHAPTER 18 "*SOILS AND FOUNDATIONS.*"

GEOTECHNICAL REPORT:
RECOMMENDATIONS CONTAINED IN:
- *GEOTECHNICAL ENGINEERING STUDY BY:* GEOTECH CONSULTANTS, INC. MEMO "FOUNDATION AND CRITICAL AREA CONSIDERATIONS, AND INFILTRATION FEASIBILITY ASSESSMENT" PROPOSED NEW RESIDENCE 2448 - 72ND AVE SE, MERCER ISLAND, WASHINGTON, DATED JANUARY 12, 2022

GEOTECHNICAL INSPECTION:
SITE SOIL CONDITIONS, FILL PLACEMENT, AND LOAD-BEARING REQUIREMENTS SHALL BE AS REQUIRED BY SECTION 1705.6 AND TABLE 1705.6. ASSUMED VALUES SHALL BE FIELD VERIFIED BY THE BUILDING OFFICIAL PRIOR TO PLACING CONCRETE. THE BUILDING OFFICIAL SHALL BE PERMITTED TO WAIVE THE REQUIREMENT FOR A GEOTECHNICAL INVESTIGATION WHERE SATISFACTORY DATA FROM ADJACENT AREA IS AVAILABLE THAT DEMONSTRATES AN INVESTIGATION IS NOT NECESSARY FOR ANY OF THE CONDITIONS IN SECTIONS 1803.5.1 - 1803.5.6 AND SECTIONS 1803.5.10 - 1803.5.11.

DESIGN SOIL VALUES:
ALLOWABLE SOIL BEARING PRESSURE

2,500 PSF DL + LL

3,333 PSF DL + LL + SEISMIC/WIND

PASSIVE PRESSURE: *250 PCF*
ACTIVE PRESSURE: *35 PCF*
COEFFICIENT OF FRICTION: *0.4*

SLABS-ON-GRADE & FOUNDATIONS :
ALL SLABS-ON-GRADE AND FOUNDATIONS SHALL BEAR ON STRUCTURAL COMPACTED FILL OR COMPETENT NATIVE SOIL PER THE GEOTECHNICAL REPORT OR AS NOTED IN THESE DOCUMENTS. EXTERIOR PERIMETER FOOTINGS SHALL BEAR NOT LESS THAN 18 INCHES BELOW FINISH GRADE, OR AS REQUIRED BY THE GEOTECHNICAL ENGINEER AND THE BUILDING OFFICIAL. INTERIOR FOOTINGS SHALL BEAR NOT LESS THAN 12 INCHES BELOW FINISH FLOOR.

FOUNDATION STEM WALLS :
UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE MAXIMUM UNBALANCED SOIL CONDITION FOR ALL FOUNDATION STEM WALLS (DIFFERENCE IN ELEVATION BETWEEN INTERIOR AND EXTERIOR SOIL GRADES) SHALL BE 2'-6". MAINTAIN A MINIMUM 8" SEPARATION BETWEEN FINISH GRADE AND UNTREATED WOOD FRAMING.

BACKFILLING:
BACKFILL BEHIND RETAINING AND FOUNDATION WALLS SHALL BE OF FREE-DRAINING MATERIAL PLACED IN MAXIMUM LOOSE LIFTS OF 12" OR AS DIRECTED BY THE GEOTECHNICAL REPORT. BACKFILL BEHIND WALLS SHALL NOT BE PLACED BEFORE THE WALL IS PROPERLY SUPPORTED BY THE FLOOR SLAB OR TEMPORARY BRACING. BACKFILL SHALL BE COMPACTED USING HAND-OPERATED EQUIPMENT ONLY. THE CONTRACTOR SHALL REFRAIN FROM OPERATING HEAVY EQUIPMENT BEHIND RETAINING AND FOUNDATION WALLS WITHIN A DISTANCE EQUAL TO OR GREATER THAN THE HEIGHT OF THE WALL, UNLESS OTHERWISE APPROVED BY THE EOR. ALL TOPSOIL ORGANICS AND LOOSE SURFACE SOIL SHALL BE REMOVED FROM BENEATH FILL SUPPORTING CONCRETE SLAB OR PAVING.

CAST-IN-PLACE CONCRETE REFERENCE STANDARDS :
CONFORMS TO THE LATEST EDITIONS OF THE FOLLOWING: (1) ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY". (2) IBC CHAPTER 19.

FIELD REFERENCE :
THE CONTRACTOR SHALL KEEP A COPY OF ACI FIELD REFERENCE MANUAL, SP-15, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) WITH SELECTED ACI AND ASTM REFERENCES."

CONCRETE MIXTURES :
CONFORM TO ACI 318 CHAPTER 19 " CONCRETE: DESIGN AND DURABILITY REQUIREMENTS. "

MATERIALS:
CONFORM TO ACI 318 CHAPTERS 19 & 20.

SUBMITTALS:
PROVIDE ALL SUBMITTALS REQUIRED BY ACI 301 SEC 4.1.2. SUBMIT MIX DESIGNS FOR EACH MIX IN THE TABLE BELOW.

SPECIAL INSPECTIONS :
IN ADDITION TO THE INSPECTIONS REQUIRED BY IBC SEC 110, A SPECIAL INSPECTOR SHALL BE HIRED BY THE OWNER AS AN INDEPENDENT THIRD-PARTY INSPECTOR TO PERFORM THE SPECIAL INSPECTIONS PER IBC CH. 17. SPECIAL INSPECTIONS SHALL BE PERFORMED BY AN APPROVED TESTING AGENCY AS OUTLINED IN THE SPECIAL INSPECTION SCHEDULE, THE CONTRACT DOCUMENTS, AND/OR THE PROJECT SPECIFICATION. SPECIAL INSPECTIONS SHALL MEET THE REQUIREMENTS OUTLINES IN THE SPECIFIC MATERIALS SECTIONS OF IBC SEC 1705. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING THE INSPECTIONS, PER THE CITY/BUILDING OFFICIAL.

PREFABRICATED CONSTRUCTION:
ALL PREFABRICATED CONSTRUCTION SHALL CONFORM TO THE INSPECTION REQUIREMENTS OF THE SAME MATERIAL OR CONSTRUCTION TYPE USED FOR THIS PROJECT.

SPECIAL INSPECTIONS SHALL BE PERFORMED PER THE STRUCTURAL INSPECTION SCHEDULE:

ITEM	CI	PI	REFERENCE STANDARD	IBC REFERENCE	REMARKS
CONCRETE					
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.		X	ACI 318 CH 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4	
2. REINFORCING BAR WELDING			AWS D1.4, ACI 318: 26.6.4		
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706:		X			
B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND		X			
C. INSPECT ALL OTHER WELDS.	X				
3. INSPECT ANCHORS CAST IN CONCRETE.		X	ACI 318: 17.8.2		
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS					
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED	X		ACI 318:17.8.2.4		
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.		X	ACI 318: 17.8.2		
5. VERIFY USE OF REQUIRED DESIGN MIX.		X	ACI 318: CH 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3	
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS,	X		ASTM C172, ASTM C31, ACI 318: 26.4, 26.12	1908.10	
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X		ACI 318: 26.5	1908.6, 1908.7, 1908.8	
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X	ACI: 26.5.3-26.5.5	1908.9	
9. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X	ACI 318: 26.11.1.2(B)		
SOILS					
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X			ADDITIONAL REQUIREMENTS PER SOILS REPORT AND AS REQUIRED BY GEOTECHNICAL ENGINEER OF RECORD
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X			
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		X			
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF	X				
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED		X			
WOOD					
1. FABRICATION OF HIGH-LOAD DIAPHRAGMS.		X		1705.5.1	
A. VERIFY STRUCTURAL PANEL GRADE AND THICKNESS					
B. VERIFY NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES.					
C. VERIFY NAIL OR STAPLE DIAMETER AND LENGTH, NUMBER OF FASTENER LINES, AND SPACING BETWEEN					
2. SCREW ATTACHMENT, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE MAIN LATERAL		X			
3. FIELD GLUING OPERATIONS OF ELEMENTS OF THE MAIN LATERAL RESISTING SYSTEMS.	X				ONLY APPLIES TO GLUING OPERATIONS
SCHEDULE NOTES:					
1. ITEMS MARKED WITH AN 'X' REQUIRE INSPECTION BY A SPECIAL INSPECTOR APPROVED BY THE BUILDING OFFICIAL.					
2. CI: CONTINUOUS INSPECTION DURING PROGRESS OF WORK BY SPECIAL INSPECTOR.					
3. PI: PERIODIC INSPECTION BY SPECIAL INSPECTOR AS REQUIRED FOR CONFORMANCE OF WORK.					
4. TESTING AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE OWNER, BUILDING OFFICIAL, AND CONTRACTOR.					

No. Date Description

BRIAN J. LOSHBOUGH
STATE OF WASHINGTON
53214
REGISTERED PROFESSIONAL ENGINEER
01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

PERMIT SET

STRUCTURAL NOTES & DETAILS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29
DRAWN BY: SPM

S001

SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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TABLE OF MIX DESIGN REQUIREMENTS

MEMBER TYPE/LOCATION	STRENGTH	TEST AGE	MAXIMUM AGGREGATE	EXPOSURE CLASSIFICATION	MAXIMUM W/C RATIO	MINIMUM AIR CONTENT
FOUNDATIONS, RETAINING WALLS, AND THEIR FOOTINGS:	4,500 PSI	28	1"	F2, C0	0.45	4.5%
EXTERIOR SLABS-ON-GRADE:	5,000 PSI	28	1"	F3, C2	0.40	6.0%

MIX DESIGN NOTES:

1. **W/C RATIO:** WATER-CEMENTITIOUS MATERIAL RATIOS SHALL BE BASED ON THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS. RATIOS NOT SHOWN IN THE TABLE ABOVE ARE CONTROLLED Bm Y STRENGTH REQUIREMENTS.
2. **CEMENTITIOUS CONTENT:**
   A. THE USE OF FLY ASH, OTHER POZZOLANS, SILICA FUME, OR SLAG SHALL CONFORM TO ACI 301 SEC 4.2.2 MAXIMUM AMOUNT OF FLY ASH SHALL BE 20% OF TOTAL CEMENTITIOUS CONTENT UNLESS REVIEWED AND APPROVED OTHERWISE BY EOR.
3. **AIR CONTENT:** CONFORM TO ACI 301 SEC 4.2.2.4. HORIZONTAL EXTERIOR SURFACES IN CONTACT WITH THE SOIL REQUIRE ENTRAINED AIR. USE EXPOSURE CATEGORY F0, S0, W0, AND C0 UNLESS NOTED OTHERWISE. TOLERANCE IS +/- 1.5%. AIR CONTENT SHALL BE MEASURED AT POINT OF PLACEMENT.
4. **EXPOSURE CLASSIFICATION:** THE MIX DESIGN PROVIDED SHALL MEET THE REQUIREMENTS OF ACI 318 CHAPTER 19, BASED ON THE EXPOSURE CLASSIFICATION INDICATED IN THE TABLE ABOVE.
5. **SLUMP:** UNLESS OTHERWISE SPECIFIED OR PERMITTED, CONCRETE SHALL HAVE AT THE POINT OF DELIVERY, A SLUMP OF 4 " +/- 1 " . FOR ADDITIONAL CRITERIA, REFERENCE ACI 301 SEC 4.2.2.2.
6. **NON-CHLORIDE ACCELERATOR:** NON-CHLORIDE ACCELERATING ADMIXTURE MAY BE USED IN CONCRETE SLABS PLACED AT AMBIENT TEMPERATURES BELOW 50F AT THE CONTRACTOR'S OPTION.

FORMWORK:
CONFORM TO ACI 301 SEC 2 "FORMWORK AND FORM ACCESSORIES." REMOVAL OF FORMS SHALL CONFORM TO SEC 2.3.2 EXCEPT STRENGTH INDICATED IN SEC 2.3.2.5 SHALL BE 0.75 f'C.

MEASURING, MIXING, AND DELIVERY :
CONFORM TO ACI 301 SEC 4.3.

HANDLING, PLACING, CONSTRUCTING, AND CURING :
CONFORM TO ACI 301 SEC 5.

EMBEDDED ITEMS:
POSITION AND SECURE IN PLACE EXPANSION JOINT MATERIAL, ANCHORS AND OTHER STRUCTURAL AND NON-STRUCTURAL EMBEDDED ITEMS BEFORE PLACING CONCRETE. CONTRACTOR SHALL REFER TO MECHANICAL, ELECTRICAL, PLUMBING, AND ARCHITECTURAL DRAWINGS AND COORDINATE ALL OTHER EMBEDDED ITEMS.

TESTING AND ACCEPTANCE:
TESTING: OBTAIN SAMPLES AND CONDUCT TESTS IN ACCORDANCE WITH ACI 301 SEC 1.6.4.2. ADDITIONAL SAMPLES MAY BE REQUIRED TO OBTAIN CONCRETE STRENGTHS AT ALTERNATE INTERVALS THAN SHOWN BELOW.

- CURE 4 CYLINDERS FOR 28-DAY TEST. TEST 1 CYLINDER AT 7 DAYS, TEST 2 CYLINDERS AT 28 DAYS, AND HOLD 1 CYLINDER IN RESERVE FOR USE AS THE EOR DIRECTS. AFTER 56 DAYS, UNLESS NOTIFIED BY THE EOR TO THE CONTRARY, THE RESERVE CYLINDER MAY BE DISCARDED WITHOUT BEING TESTED FOR SPECIMENS MEETING 28-DAY STRENGTH REQUIREMENTS.

ACCEPTANCE: STRENGTH IS SATISFACTORY WHEN:

- THE AVERAGES OF ALL SETS OF 3 CONSECUTIVE TESTS EQUAL OR EXCEED THE SPECIFIED STRENGTH. NO INDIVIDUAL TEST FALLS BELOW THE SPECIFIED STRENGTH BY MORE THAN 500 PSI. A "TEST" FOR ACCEPTANCE IS THE AVERAGE STRENGTH OF THE TWO CYLINDERS TESTED AT THE SPECIFIED TEST AGE.

CONCRETE REINFORCEMENT:

REFERENCE STANDARDS: CONFORM TO:

1. ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE. " SEC 3 " REINFORCEMENT, AND REINFORCEMENT SUPPORTS."
2. IBC CHAPTER 19, CONCRETE.
3. ACI 318 AND ACI 318R.
4. ACI SP-66 "ACI DETAILING MANUAL" INCLUDING ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
5. CRSI MSP-2 "MANUAL OF STANDARD PRACTICE."
6. ANSI/AWS D1.4 "STRUCTURAL WELDING CODE - REINFORCING STEEL."

SUBMITTALS:
CONFORM TO ACI 301 SEC 3.1.1 "SUBMITTALS, DATA, AND DRAWINGS." SUBMIT PLACING DRAWINGS SHOWING FABRICATION DIMENSIONS AND LOCATIONS FOR PLACEMENT OF REINFORCEMENT AND REINFORCEMENT SUPPORTS.

MATERIALS:
REINFORCING BARS: ASTM A615, GRADE 60, DEFORMED BARS.
SMOOTH WELDED WIRE FABRIC: ASTM A185
DEFORMED WELDED WIRE FABRIC: ASTM A497
BAR SUPPORTS: CRSI MSP-2, CHAPTER 3 "BAR SUPPORTS."
TIE WIRE: 16.5 GAGE OR HEAVIER, BLACK ANNEALED.

WELDING:
BARS SHALL NOT BE WELDED UNLESS AUTHORIZED. WHEN AUTHORIZED, CONFORM TO ACI 301, SEC 3.2.2.2. "WELDING" AND PROVIDE ASTM A706, GRADE 60 REINFORCEMENT.

PLACING:
CONFORM TO ACI 301, SEC 3.3.2 "PLACEMENT." PLACING TOLERANCES SHALL CONFORM TO SEC 3.3.2.1 "TOLERANCES."

CONCRETE COVER:
CONFORM TO THE FOLLOWING COVER REQUIREMENTS FROM ACI 301, TABLE 3.3.2.3

- CONCRETE CAST AGAINST EARTH: 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER (#5 & SMALLER): 1-1/2"
- CONCRETE EXPOSED TO EARTH OR WEATHER (#6 & LARGER): 2"
- BARS IN SLABS AND WALLS: 3/4"

SPLICES & DEVELOPMENT LENGTH :
CONFORM TO ACI 301, SEC 3.3.2.7. LAP ALL CONTINUOUS REINFORCEMENT AND CORNER BARS PER SCHEDULE. THE SPLICES AND DEVELOPMENT LENGTHS INDICATED ON INDIVIDUAL SHEETS CONTROL OVER THE SCHEDULE.

USE CLASS B SPLICES UNLESS OTHERWISE NOTED. MECHANICAL CONNECTIONS MAY BE USED WHEN APPROVED BY THE EOR.
**WWF TO BE LAPPED A MINIMUM 8" ON ALL SIDES AND EDGES*.

REINFORCING BAR CHART			
BAR SIZE	TOP BARS	OTHER BARS	DEVELOPMENT LENGTH, Ld
#4	33"	25"	19"
#5	41"	31"	24"
#6	48"	37"	29"
#7	70"	54"	41"
#8	80"	62"	47"
#9	90"	70"	53"
#10	100"	78"	59"
#11	110"	85"	65"
SCHEDULE NOTES:			
1. ALL LENGTHS ARE IN INCHES AND FOR f'c= 4,000 PSI.			
2. "TOP BARS" ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12" OF CONC IS CAST IN THE MEMBER BELOW THE BAR.			
3. FOR f'c = 5,000 PSI USE 90% OF LENGTH.			
4. FOR f'c = 3,000 PSI USE 115% OF LENGTH.			

FIELD BENDING:
CONFORM TO ACI 301 SEC 3.3.2.8. "FIELD BENDING OR STRAIGHTENING." BAR SIZES #3 THROUGH #5 MAY BE FIELD BENT COLD THE FIRST TIME. OTHER BARS REQUIRE PREHEATING. DO NOT TWIST BARS.

CORNERS BARS:
PROVIDE MATCHING-SIZED "L" CORNER BARS FOR ALL HORIZONTAL WALL AND FOOTING BARS WITH THE APPROPRIATE SPLICE LENGTH, UNO.

TYPICAL CONCRETE REINFORCEMENT :
UNLESS NOTED ON THE PLANS, CONCRETE WALLS SHALL HAVE THE FOLLOWING MINIMUM REINFORCEMENT. CONTRACTOR SHALL CONFIRM MINIMUM REINFORCEMENT OF WALLS WITH EOR PRIOR TO REBAR FABRICATION.

WOOD FRAMING REFERENCE STANDARDS:
CONFORM TO:

1. IBC CHAPTER 23 "WOOD."
2. NDS AND NDS SUPPLEMENT - "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION."
3. ANSI/TPI 1 "NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION."
4. BCSI 2013 " BUILDING COMPONENT SAFETY INFORMATION. "

IDENTIFICATION:
ALL SAWN LUMBER AND PRE-MANUFACTURED WOOD PRODUCTS SHALL BE IDENTIFIED BY THE GRADE MARK OR A CERTIFICATE OF INSPECTION ISSUED BY THE CERTIFYING AGENCY.

MATERIALS:

SAWN LUMBER:
CONFORM TO GRADING RULES OF WWPA, WCLIB, OR NLGA. FINGER JOINTED STUDS ACCEPTABLE AT INTERIOR NON-STRUCTURAL WALLS ONLY.

MEMBER USE	SIZE	SPECIES	GRADE
STUDS & PLATES	2X4,3X4,2X6,3X6	DF	NO. 2
POSTS	4X4, 4X6, 4X8	DF	NO. 2
BEAMS	4X8 -- 4X12	DF	NO. 2
BEAMS	6X8 -- 6X12	DF	NO. 2
POSTS	6X	DF	NO. 2
P.T. FRAMING	ALL	HF	NO. 2

GLUED LAMINATED TIMBER:
CONFORM TO AITC 117 "STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFTWOOD SPECIES, MANUFACTURING AND DESIGN" AND ANSI/AITC A190.1 "STRUCTURAL GLUED LAMINATED TIMBER." GLUED LAMINATED MEMBER BEAMS SHALL NOT BE CAMBERED, UNLESS SHOWN OTHERWISE ON THE PLANS OR SPECIFICATIONS.

MEMBER USE	SIZES	SPECIES	STRESS CLASS	USES
BEAMS	ALL	DF/DF	24F-V4	ALL SPANS

WOOD STRUCTURAL SHEATHING (PLYWOOD) :
WOOD APA-RATED STRUCTURAL SHEATHING INCLUDES: ALL VENEER PLYWOOD, ORIENTED STRAND BOARD, WAFERBOARD, PARTICLEBOARD, T1-11 SIDING, AND COMPOSITES OF VENEER AND WOOD BASED MATERIAL. CONFORM TO PRODUCT STANDARDS PS-1-95 AND PS-2-92 OF THE U.S. DEPT. OF COMMERCE AND THE AMERICAN PLYWOOD ASSOCIATION (APA)

MINIMUM APA RATING

LOCATION	THICKNESS	SPAN RATING	PLYWOOD GRADE	EXPOSURE
ROOF	19/32"	40/20	C-D	1
FLOOR	23/32" T&G	24 OC	STURD-I-FLOOR	1
WALLS	15/32"	32/16	C-D	1

JOIST HANGERS AND CONNECTORS :
SIMPSON STRONG-TIE COMPANY INC. AS SPECIFIED IN THEIR LATEST CATALOGS WAS USED AS THE BASIS OF DESIGN FOR THIS PROJECT. ALTERNATE CONNECTORS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY HAVE CURRENT ICC-ESR/IAPMO-ER APPROVAL FOR EQUIVALENT OR GREATER LOAD CAPACITIES AND ARE REVIEWED AND APPROVED BY THE EOR PRIOR TO ORDERING.

CONNECTORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE 1/2 OF THE NAILS OR BOLTS IN EACH MEMBER. UNLESS NOTED OTHERWISE ALL NAILS SHALL BE FULL LENGTH COMMON. NAIL STRAPS TO WOOD FRAMING AS LATE AS POSSIBLE IN THE FRAMING PROCESS TO ALLOW THE WOOD TO SHRINK AND THE BUILDING TO SETTLE.

NAILS AND STAPLES :
CONFORM TO IBC SEC 2303.6 "NAILS AND STAPLES." UNLESS NOTED ON PLANS, NAIL PER IBC TABLE 2304.10.1. UNLESS NOTED OTHERWISE ALL NAILS SHALL BE COMMON. NAIL SIZES SPECIFIED ON THE DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

COMMON NAILS

SIZE	LENGTH	DIAMETER
8D	2-1/2"	0.131"
10D	3"	0.148"
16D	3-1/2"	0.162"
16D SINKER	3-1/4'	0.148"

LAG BOLTS/BOLTS :
CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.

WOOD HOLDOWNS:
HOLDOWNS SPECIFIED ARE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY INC. ADDITIONAL FRAMING MEMBERS SHALL BE PROVIDED PER THE MANUFACTURER'S REQUIREMENTS. ACCEPTABLE EQUIVALENT PRODUCT SUBSTITUTIONS ARE AVAILABLE FROM OTHER MANUFACTURERS WITH EOR APPROVAL. DO NOT COUNTERSINK HOLDOWN BOLTS.

ENGINEERED WOOD PRODUCTS (EWP) :
THE FOLLOWING MATERIALS ARE BASED ON LUMBER MANUFACTURED BY TRUSJOIST BY WEYERHAEUSER. TRUS-JOIST BY WEYERHAEUSER WAS USED AS THE BASIS OF DESIGN FOR THIS PROJECT. ALTERNATE PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY HAVE CURRENT ICC-ESR/IAPMO-ER APPROVAL FOR EQUIVALENT OR GREATER LOAD AND STIFFNESS PROPERTIES AND ARE REVIEWED AND APPROVED BY THE EOR. A HUD MATERIAL RELEASE FORM IS REQUIRED FOR ALL MANUFACTURED WOOD PRODUCTS LISTED BELOW.

A. PARALLEL STRAND LUMBER (PSL) : CONFORM TO ICC ES REPORT NO. ESR-1387, CCMC REPORT NO. 11161-R, OR NES REPORT NO. NER-481. USE 2.2E UNLESS NOTED OTHERWISE.
B. LAMINATED STRAND LUMBER (LSL) : CONFORM TO ICC ES REPORT NO. ESR-1387, CCMC REPORT NO. 12627-R, OR NES REPORT NO. NER – 481.
C. I-JOISTS : CONFORM TO ICC ES REPORT NO. ER-1153. PRODUCTS SHALL BE TESTED AND EVALUATED IN ACCORDANCE WITH ASTM D5055. THE MANUFACTURER SHALL DESIGN THE JOISTS FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. JOISTS SHALL HAVE WOOD CHORDS AND SOLID WOOD WEBS.
D. OPEN WEB WOOD JOISTS (OWWJ): CONFORM TO ICC ES REPORT NO. [PFC-4354/ESR-1774] OR NES REPORT NO. NER– 148. THE MANUFACTURER SHALL DESIGN THE JOISTS FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. JOISTS SHALL HAVE WOOD CHORDS AND EITHER WOOD OR METAL WEBS.

NAILING REQUIREMENTS :
PROVIDE MINIMUM NAILING IN ACCORDANCE WITH IBC TABLE 2304.10.1 "FASTENING SCHEDULE" EXCEPT AS NOTED ON THE DRAWINGS. NAILING FOR ROOF/FLOOR DIAPHRAGMS/SHEAR WALLS SHALL BE PER DRAWINGS. NAILS SHALL BE DRIVEN FLUSH AND SHALL NOT FRACTURE THE SURFACE OF SHEATHING.

STANDARD LIGHT-FRAME CONSTRUCTION :
UNLESS NOTED ON THE DRAWINGS, CONSTRUCTION SHALL CONFORM TO IBC SEC 2308 "CONVENTIONAL LIGHT-FRAME CONSTRUCTION" AND IBC SEC 2304 "GENERAL CONSTRUCTION REQUIREMENTS."

1. WALL FRAMING (UNLESS NOTED OTHERWISE ON PLANS AND DETAILS) ALL INTERIOR WALLS SHALL BE 2X4 @ 16"OC AND ALL EXTERIOR WALLS SHALL BE 2X6 @ 16"OC. PROVIDE (2) BUNDLED STUDS MIN AT WALL ENDS AND EACH SIDE OF ALL OPENINGS. ALL SOLID SAWN LUMBER BEAMS AND HEADERS SHALL BE SUPPORTED BY A MINIMUM OF (2) TRIM AND (1) KING STUD AND ALL GLULAM OR ENGINEERED WOOD BEAMS AND HEADERS BY (2) TRIM AND (2) KING STUDS. PROVIDE MINIMUM (2) 2X8 HEADERS AT ALL INTERIOR AND EXTERIOR WALL OPENINGS. STITCH-NAIL BUNDLED STUDS WITH (2) 10D @ 12"OC. PROVIDE SOLID BLOCKING THRU FLOORS TO SUPPORTS BELOW FOR BEARING WALLS AND POSTS. ATTACH BOTTOM PLATES OF STUD WALLS TO WOOD FRAMING BELOW WITH 16D @ 12"OC OR TO CONCRETE WITH 5/8"-DIA. ANCHOR BOLTS X 7" EMBEDMENT AT 48"OC. REFER TO SHEAR WALL SCHEDULE FOR SPECIFIC SHEATHING, STUD, AND NAILING REQUIREMENTS AT SHEAR WALLS. PROVIDE GYPSUM SHEATHING ON INTERIOR SURFACES AND PLYWOOD SHEATHING ON EXTERIOR SURFACES.
2. ROOF/FLOOR FRAMING : (UNLESS NOTED OTHERWISE ON PLANS AND DETAILS) PROVIDE DOUBLE JOISTS/RAFTERS UNDER ALL PARALLEL BEARING PARTITIONS AND SOLID BLOCKING AT ALL BEARING POINTS. PROVIDE DOUBLE JOISTS AROUND ALL ROOF/FLOOR OPENINGS. MULTI-JOISTS/RAFTERS SHALL BE STITCH-NAILED TOGETHER WITH (2)10D @ 12"OC. PROVIDE ROOF SHEATHING EDGE EIPS CENTERED BETWEEN FRAMING AT UNBLOCKED PLYWOOD EDGES. ALL FLOOR SHEATHING SHALL HAVE TONGUE AND GROOVE JOINTS OR BE SUPPORTED BY SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF ROOF/FLOOR SHEATHING. ROOF/FLOOR SHEATHING SHALL BE LAID FACE GRAIN PERPENDICULAR TO FRAMING MEMBERS.

MOISTURE CONTENT:
WOOD MATERIAL USED FOR THIS PROJECT SHALL HAVE MAXIMUM MOISTURE CONTENT OF 19% EXCEPT FOR THE PRESSURE-TREATED WOOD SILL PLATE. REFER TO TESTING & INSPECTIONS FOR THE VERIFICATION OF THESE LIMITS. THE MAXIMUM MOISTURE CONTENT REQUIRED MAY BE LESS THAN 19% WHEN BASED ON A PARTICULAR CLADDING/INSULATION SYSTEM. REFER TO THE ARCHITECT'S DRAWINGS, AND PROJECT SPECIFICATIONS, OR WITH CLADDING INSTALLER FOR MAXIMUM RECOMMENDED MOISTURE CONTENT.

CLADDING COMPATIBILITY:
THE ARCHITECT/OWNER SHALL REVIEW THE CLADDING AND INSULATION SYSTEMS PROPOSED FOR THE PROJECT WITH RESPECT TO THEIR PERFORMANCE OVER WOOD STUDS WITH MOISTURE CONTENTS GREATER THAN 19%. EIFS SYSTEMS SHOULD BE AVOIDED ON WOOD-FRAMED PROJECTS DUE TO PROBLEMS WITH MOISTURE-PROOFING.

PRESERVATIVE TREATMENT :
WOOD MATERIALS ARE REQUIRED TO BE "TREATED WOOD" UNDER CERTAIN CONDITIONS IN ACCORDANCE WITH IBC SEC 2304.12 "PROTECTION AGAINST DECAY AND TERMITES. " CONFORM TO THE APPROPRIATE STANDARDS OF THE AMERICAN WOOD-PRESERVERS ASSOCIATION (AWPA) FOR SAWN LUMBER, GLUED LAMINATED TIMBER, ROUND POLES, WOOD PILES, AND MARINE PILES. FOLLOW AMERICAN LUMBER STANDARDS COMMITTEE (ALSC) QUALITY ASSURANCE PROCEDURES. PRODUCTS SHALL BEAR THE APPROPRIATE MARK.

METAL CONNECTORS/PT WOOD :
ALL METAL HARDWARE AND FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE STAINLESS STEEL TYPE 316L. AT THE OWNER'S RISK AND DISCRETION, HOT-DIPPED GALVANIZED METAL HARDWARE AND FASTENERS MAY BE INVESTIGATED FOR USE IN LIEU OF STAINLESS STEEL PROVIDED THAT THE FINISH HAS A MINIMUM ZINC CONTENT OF AT LEAST 1.85 OZ./SF AND ITS USE IS COORDINATED BY THE CONTRACTOR AND WOOD SUPPLIER FOR THE EXPECTED ENVIRONMENT AND MOISTURE EXPOSURE FOR APPROPRIATE USE BASED ON THE METHOD OF PRESERVATIVE TREATMENT OF THE WOOD.

No.	Date	Description

BRYAN T. LOSHBAUGH — STATE OF WASHINGTON — 23214 — REGISTERED PROFESSIONAL ENGINEER
01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

STRUCTURAL NOTES

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S002

SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

FOOTING SCHEDULE

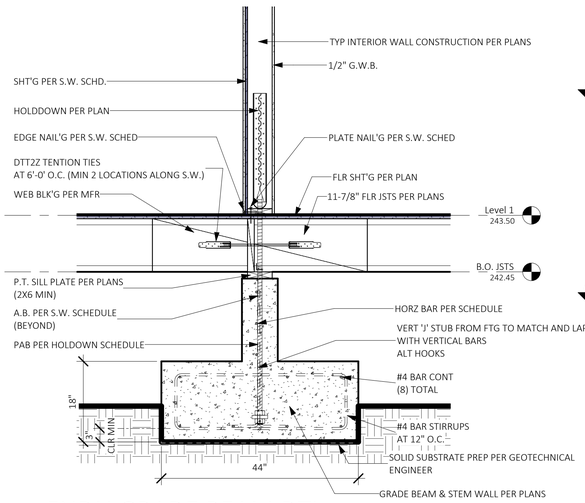
MARK	SIZE	REINFORCING	DETAIL
181810	18" X 18" X 10" THK	(3) #4 BOT BAR EA WAY	DTL 9/D101
363612	36" X 36" X 12" THK	(4) #4 BAR EA WAY TOP & BOT	DTL 9/D101
364812	36" X 48" X 12" THK	#4 BAR AT 10" O.C. EA WAY TOP & BOT	DTL 9/D101
Footing-MAT-Rectangular: 25			
242410-18X18	24" X 24" X 10" THK	(3) #4 BAR EA WAY TOP & BOT. PROVIDE 18" SQ PLYNTH w/ (4) #4 BAR VERT	DTL 11/D101
Footing-MAT-Rectangular w Plynth: 2			

BEAM SCHEDULE - MAIN...

ID	SIZE
1.1	4X8, TYP
1.3	5-1/2"X9-1/4" PSL

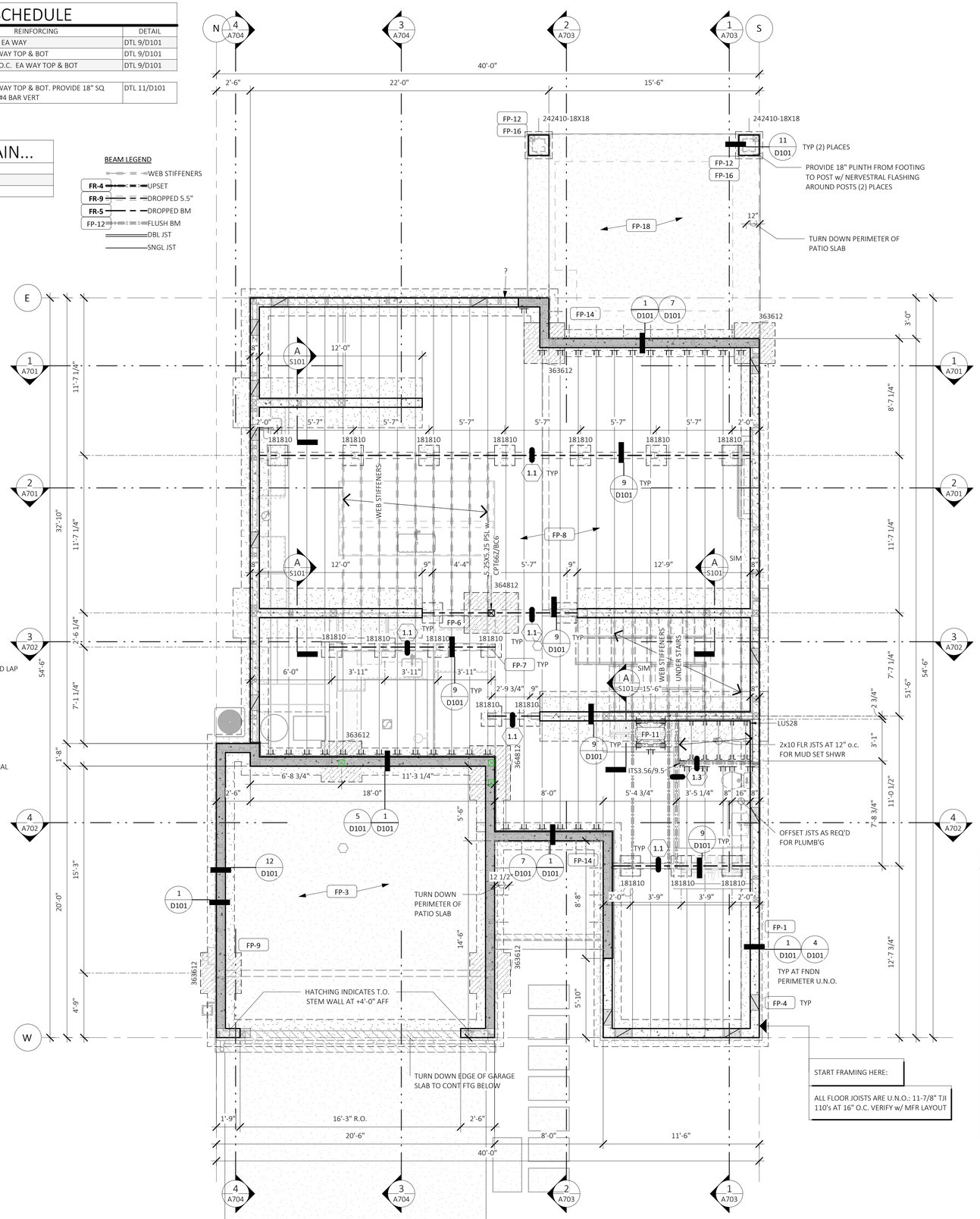
BEAM LEGEND

- WEB STIFFENERS
- FR-4 — UPSET
- FR-9 — DROPPED 5.5"
- FR-5 — DROPPED BM
- FP-12 — FLUSH BM
- DBL JST
- SNGL JST



A FNDN GRADE BEAM DTL

SCALE: 3/4" = 1'-0"



SYMBOLS & LEGEND:

- POINT LOAD FROM ABOVE. PROVIDE SOLID BLK'G THROUGH JOIST SYSTEM
- (1) 2x STUD
- (2) 2x STUD, TYP. LARGER MEMBERS AS NOTED ON PLANS
- SIMPSON OR OTHER APPROVED ALTERNATE HANGER. USE ALL REQUIRED FASTENERS
- (#) INDICATES BEAM CALCULATION WITH INDEXED NUMBER
- WALL ABOVE
- BEARING WALL BELOW
- BEARING WALL AVOVE
- NON BEARING WALL BELOW
- SHEARWALL BELOW

GENERAL FRAMING NOTES:

1. SEE SHEET S001 FOR GENERAL DESIGN CRITERIA.
2. SEE SHEET(s) S201-203 FOR SHEARWALL DESIGNATIONS, HOLDDOWNS, AND SHEARWALL SCHEDULE.
3. U.N.O. ALL HEADERS ARE: 4x8 DF #2 (UP TO 8' SPAN) TRIMMER STUD UP TO 6'-0" SPAN AND PROVIDE (2) TRIMMER STUDS OVER 6'-0" U.N.O.
4. TRUSS DESIGN BY MANUFACTURER. TRUSS DESIGN DRAWINGS SHALL BE PREPARED PER IRC SECTION R802.10.1 AND SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND APPROVED PRIOR TO INSTALLATION.
   * TRUSS DESIGN PER IRC SECTION R802.10.2
   * FIELD ALTERATIONS MUST BE DESIGNED BY MFR. PER IRC SECTION R802.10.4
   * SEE SHEET(s) S001 FOR DESIGN LOADS.
   * TRUSS MFR TO PROVIDE ADEQUATE BEARING AREA TO RESOLVE REACTION (PERPENDICULAR TO GRAIN) AT ALL HIGHLY LOADED GIRDER TRUSSES.
5. PROVIDE 2x4 RAFTER/TRUSS TAIL - TYP. U.N.O.
6. ROOF PITCH: EXTERIOR PER ELEVATIONS & INTERIOR PER SECTIONS.
7. ROOF FRAMING SPACING, 24" o.c. U.N.O.
8. SEE ELEVATIONS AND/OR SECTIONS FOR ROOF PITCH,PLATE HEIGHT AND HEADER HEIGHT.
9. FRAMING LUMBER: FRAMING LUMBER SHALL BE MARKED IN ACCORDANCE TO W.C.L.B. STANDARD GRADING RULES FOR WEST COAST LUMBER #16, LATEST EDITION. ALL KILN DRIED MIN. 19.
   a) JOIST AND RAFTERS: SEE SHT S002
   b) BEAMS AND STRINGERS: SEE SHT S002
   c) POST AND TIMBERS: SEE SHT S002
   d) STUDS, PLATES, AND MISC. LIGHT FRAMING: SEE SHT S002
   e) TJI'S AND MICROLAMS: PER MANUFACTURER.
   f) GLUE LAMINATED TIMBER: SEE SHT S002
   g) ALL OTHER LUMBER: HEM-FIR STANDARD OR BETTER.
   h) PLYWOOD/ORIENTED STRAND BOARD (OSB): SEE SHT S002
   i) WALL SHEATHING: SEE SHT S002
   j) FLOOR SHEATHING: 23/32" APA RATED STRUCTURAL SHT'G FACE GRAIN PERP TO FLR FRAM'G W/ 10d @ 6" OC PANEL EDGES, & 12" O.C. FIELD, UNBLOCKED, TYP U.N.O.
   k) ROOF SHEATHING: 15/32" APA RATED STRUCTURAL SHT'G FACE GRAIN PERP TO FFLR FRAM'G W/ 10d @ 6" OC PANEL EDGES, & 12" O.C. FIELD, UNBLOCKED, TYP
   L) OTHER: AS NOTED ON DRAWINGS, SEE SHT S002
10. FASTENERS: ALL FRAMING SHALL BE NAILED IN ACCORDANCE WITH TABLE R602.3(1) OF THE IRC. SEE SHEET A001
    * POSITIVE CONNECTIONS SHALL BE PROVIDED WHERE POSTS AND BEAM OR GIRDER CONSTRUCTION IS USED TO SUPPORT FLOOR FRAMING.
11. INSTALL 2X FIREBLOCKING PER R302.11 AS FOLLOWS:
    a) IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS, VERT AT THE CLG AND FLR LEVELS AND HORZ AT INTERVALS NOT EXCEEDING 10 FEET.
    b) AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERT AND HORZ SPACES SUCH AS OCCUR AT SOFFITS, DROP CLGS AND COVE CLGS.
    c) IN CONCEALED SPACES BTWN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
    d) AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
    THE INTEGRITY OF ALL FIREBLOCKS SHALL BE MAINTAINED.
12. SEE SHT A002 FOR ROOF & CRAWL SPACE AREA VENTILATION CALCULATIONS

KEYNOTES - FOUNDATION

ID	DESCRIPTION
FP-1	CONCRETE STEM WALL 8" WIDE w/ FTG PER DETAILS.
FP-3	CONCRETE SLAB ON GRADE SHALL BE 4" THICK STEEL TROWLED FINISH w/ W1.4xW1.4 WWF ON 4" GRANULAR FILL. SLOPE TO AND PROVIDE THICKENED EDGE AT O.H. GAR DOOR. PER IRC SECTION R506
FP-4	14"x8" CRAWL SPACE VENT INSTALLED IN RIM JOIST. SEE CRAWL SPACE CALCULATIONS ON SHEET A003.
FP-6	BEAM LINE PER PLAN w/ SOLID BLK'G OVER. PROVIDE MIN 1" CLEARANCE FROM CONCRETE AT ENDS OF BEAM.
FP-7	4x4 POST - TYP. U.N.O. PROVIDE 4x6 AT BEAM SPLICES AND PROVIDE POSITIVE CONNECTION PER IRC SECTION R407.3
FP-8	6 MIL BLACK POLYETHYLENE GROUND COVER OR APPROVED EQ. OVERLAP EDGES 12" MIN AT JOINTS AND EXTEND UP FOUNDATION WALL. PER WSEC 502.1.6.7.
FP-9	ELECTRICAL SERVICE: VERIFY LOCATION WITH SITE CONDITIONS
FP-11	PROVIDE CRAWL SPACE ACCESS, MINIMUM 18" X 24" UNOBSTRUCTED ACCESS PER IRC SECTION R408.3. INSULATE AND WEATHER-STRIP PER ENERGY REQUIREMENTS (WSEC 502.1.4.4). ALLOW 18" MINIMUM SPACE UNDER WOOD JOISTS AND 12" MINIMUM SPACE UNDER WOOD GIRDERS.
FP-12	MAT FOOTING PER FTG SCHEDULE. SEE DETAILS FOR ADDITIONAL INFORMATION.
FP-14	#4 REBAR STUB-OUT AT 24" O.C. AROUND PERIMETER OF CONC. PORCH/PATIO.
FP-16	EXTEND PIER MIN. 18" BELOW SURROUNDING GRADE. PER IRC TABLE R301.2.
FP-18	CONCRETE SLAB ON GRADE SHALL BE 4" THICK STEEL BRUSHED FINISH w/ W1.4xW1.4 WWF ON 4" GRANULAR FILL. AT EXTERIOR PATIOS, SLOPE AWAY FROM BLDG 2% MIN. PER IRC SECTION R506.

No.	Date	Description

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

01/13/2023

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

FOUNDATION/MAIN FLOOR FRAMING PLAN

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S101

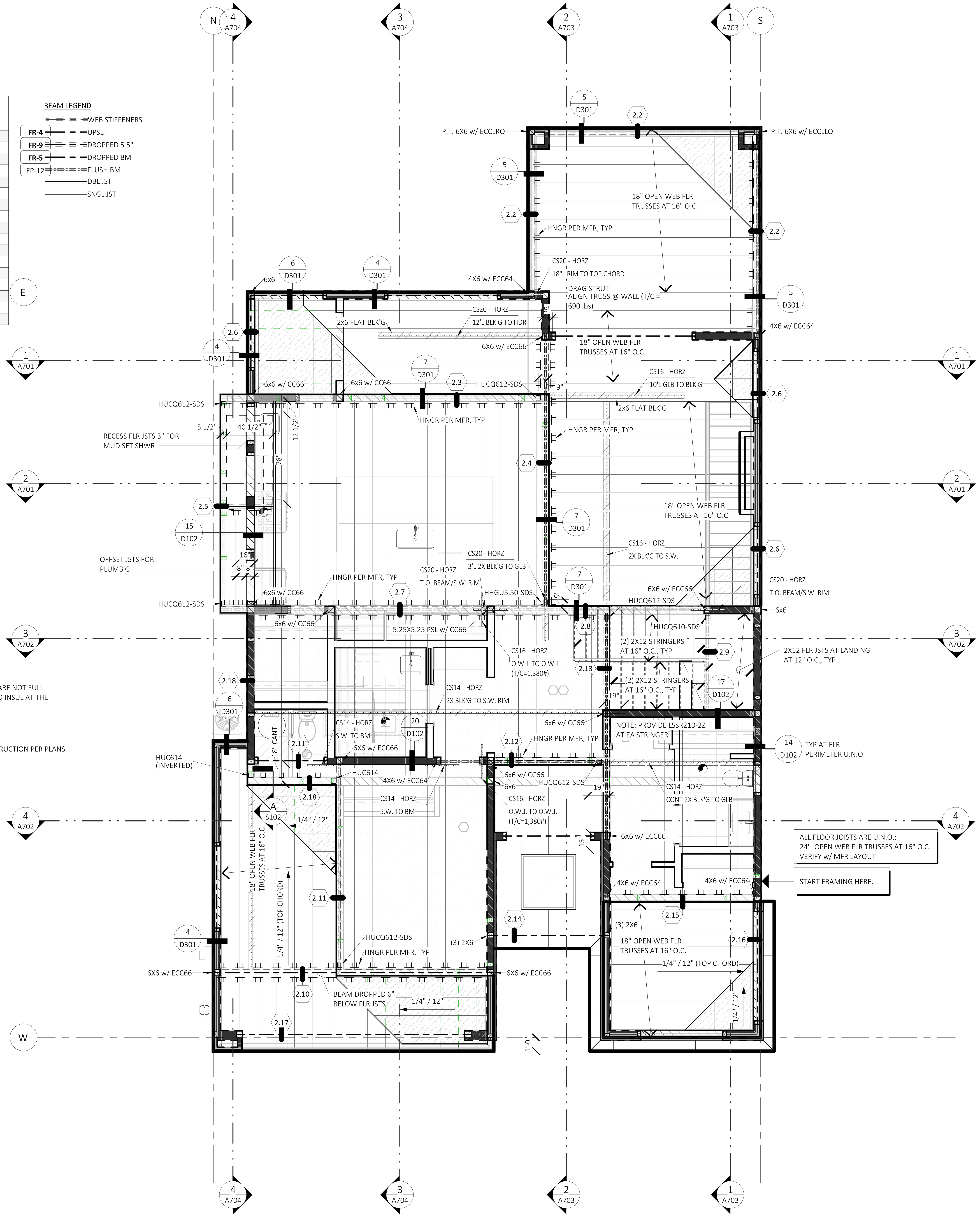
SCALE 24X36: As indicated

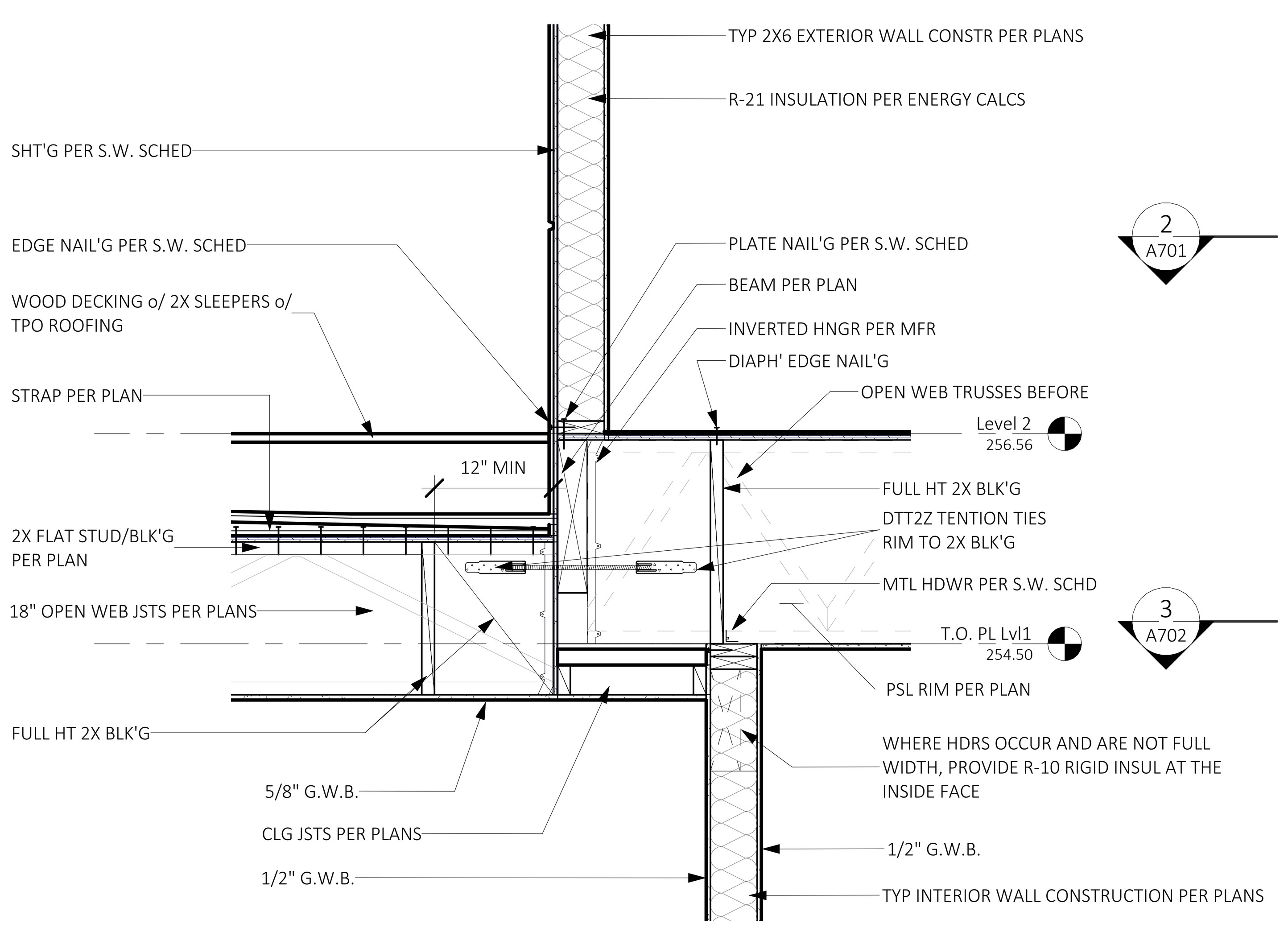
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

3/15/2023 8:48:31 AM Autodesk Docs://21014 Hu Residence, Mercer Island/21014 OSCD, Hu Residence, Mercer Island.rvt

BEAM SCHEDULE - UPPER FRAMING

ID	SIZE
2.2	5-1/2" X 12" GLB
2.3	5-1/2" X 16" GLB (3-SPAN)
2.4	5-1/4"X24" PSL
2.5	5-1/2" X 16" GLB
2.6	3-1/2" X 9" GLB
2.7	5-1/2" X 20" GLB (3-SPAN)
2.8	5-1/2" X 20" GLB
2.9	6X14
2.10	5-1/4"X22" PSL
2.11	5-1/2" X 12" GLB
2.12	5-1/2" X 12" GLB (2-SPAN)
2.13	5-1/2" X 14" GLB (2-SPAN)
2.14	4X8
2.15	3-1/2" X 10-1/2" GLB
2.16	3-1/2" X 9" GLB
2.17	5-1/2" X 12" GLB
2.18	3-1/2"X18" PSL RIM





A Cant Floor/Deck Connection
SCALE: 3/4" = 1'-0"

SYMBOLS & LEGEND:

- POINT LOAD FROM ABOVE. PROVIDE SOLID BLK'G THROUGH JOIST SYSTEM
- (1) 2x STUD
- (2) 2x STUD, TYP. LARGER MEMBERS AS NOTED ON PLANS
- SIMPSON OR OTHER APPROVED ALTERNATE HANGER. USE ALL REQUIRED FASTENERS
- INDICATES BEAM CALCULATION WITH INDEXED NUMBER
- WALL ABOVE
- NON BEARING WALL BELOW
- BEARING WALL BELOW
- SHEARWALL BELOW
- BEARING WALL AVOVE

GENERAL FRAMING NOTES:

1. SEE SHEET S001 FOR GENERAL DESIGN CRITERIA.
2. SEE SHEET(s) S201-203 FOR SHEARWALL DESIGNATIONS, HOLDDOWNS, AND SHEARWALL SCHEDULE.
3. U.N.O. ALL HEADERS ARE: 4x8 DF #2 (UP TO 8' SPAN) TRIMMER STUD UP TO 6'-0" SPAN AND PROVIDE (2) TRIMMER STUDS OVER 6'-0" U.N.O.
4. TRUSS DESIGN BY MANUFACTURER. TRUSS DESIGN DRAWINGS SHALL BE PREPARED PER IRC SECTION R802.10.1 AND SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND APPROVED PRIOR TO INSTALLATION.
   * TRUSS DESIGN PER IRC SECTION R802.10.2
   * FIELD ALTERATIONS MUST BE DESIGNED BY MFR. PER IRC SECTION R802.10.4
   * SEE SHEET(s) S001 FOR DESIGN LOADS.
   * TRUSS MFR TO PROVIDE ADEQUATE BEARING AREA TO RESOLVE REACTION (PERPENDICULAR TO GRAIN) AT ALL HIGHLY LOADED GIRDER TRUSSES.
5. PROVIDE 2x4 RAFTER/TRUSS TAIL - TYP. U.N.O.
6. ROOF PITCH: EXTERIOR PER ELEVATIONS & INTERIOR PER SECTIONS.
7. ROOF FRAMING SPACING, 24" o.c. U.N.O.
8. SEE ELEVATIONS AND/OR SECTIONS FOR ROOF PITCH,PLATE HEIGHT AND HEADER HEIGHT.
9. FRAMING LUMBER: FRAMING LUMBER SHALL BE MARKED IN ACCORDANCE TO W.C.L.B. STANDARD GRADING RULES FOR WEST COAST LUMBER #16, LATEST EDITION. ALL KILN DRIED MIN. 19.
   a) JOIST AND RAFTERS: SEE SHT S002
   b) BEAMS AND STRINGERS: SEE SHT S002
   c) POST AND TIMBERS: SEE SHT S002
   d) STUDS, PLATES, AND MISC. LIGHT FRAMING: SEE SHT S002
   e) TJI'S AND MICROLAMS: PER MANUFACTURER.
   f) GLUE LAMINATED TIMBER: SEE SHT S002
   g) ALL OTHER LUMBER: HEM-FIR STANDARD OR BETTER.
   h) PLYWOOD/ORIENTED STRAND BOARD (OSB): SEE SHT S002
   i) WALL SHEATHING: SEE SHT S002
   j) FLOOR SHEATHING: 23/32" APA RATED STRUCTURAL SHT'G FACE GRAIN PERP TO FLR FRAM'G W/ 10d @ 6" OC PANEL EDGES, & 12" O.C. FIELD, UNBLOCKED, TYP U.N.O.
   k) ROOF SHEATHING: 15/32" APA RATED STRUCTURAL SHT'G FACE GRAIN PERP TO FFLR FRAM'G W/ 10d @ 6" OC PANEL EDGES, & 12" O.C. FIELD, UNBLOCKED, TYP
   L) OTHER: AS NOTED ON DRAWINGS, SEE SHT S002
10. FASTENERS: ALL FRAMING SHALL BE NAILED IN ACCORDANCE WITH TABLE R602.3(1) OF THE IRC. SEE SHEET A001
   * POSITIVE CONNECTIONS SHALL BE PROVIDED WHERE POSTS AND BEAM OR GIRDER CONSTRUCTION IS USED TO SUPPORT FLOOR FRAMING.
11. INSTALL 2X FIREBLOCKING PER R302.11 AS FOLLOWS:
   a) IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS, VERT AT THE CLG AND FLR LEVELS AND HORZ AT INTERVALS NOT EXCEEDING 10 FEET.
   b) AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERT AND HORZ SPACES SUCH AS OCCUR AT SOFFITS, DROP CLGS AND COVE CLGS.
   c) IN CONCEALED SPACES BTWN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
   d) AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
   THE INTEGRITY OF ALL FIREBLOCKS SHALL BE MAINTAINED.
12. SEE SHT A002 FOR ROOF & CRAWL SPACE AREA VENTILATION CALCULATIONS

KEYNOTES - FRAMING

ID	DESCRIPTION
FR-4	UPSET - BOTTOM OF BEAM EVEN w/ BOTTOM OF JOISTS. TOP OF BEAM EXTENDS ABOVE JOISTS.
FR-5	TOP OF BEAM IS FLUSH w/ BOTTOM OF JOISTS w/ NO TOP PLATE. CUT ADJACENT FRAMING MEMBERS INTO BEAM FOR ADEQUATE SUPPORT.
FR-9	TOP OF BEAM 5" BELOW TOP OF JOISTS TO ALLOW FOR HVAC.

No.	Date	Description

BRIAN J. LOSHBOUGH · STATE OF WASHINGTON · 53214 · REGISTERED PROFESSIONAL ENGINEER
01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
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HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

UPPER FLOOR/MAIN ROOF FRAMING PLAN

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S102

SCALE 24X36: As indicated

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

Autodesk Docs://21014 Hu Residence, Mercer Island/21014 05CD, Hu Residence, Mercer Island.rvt

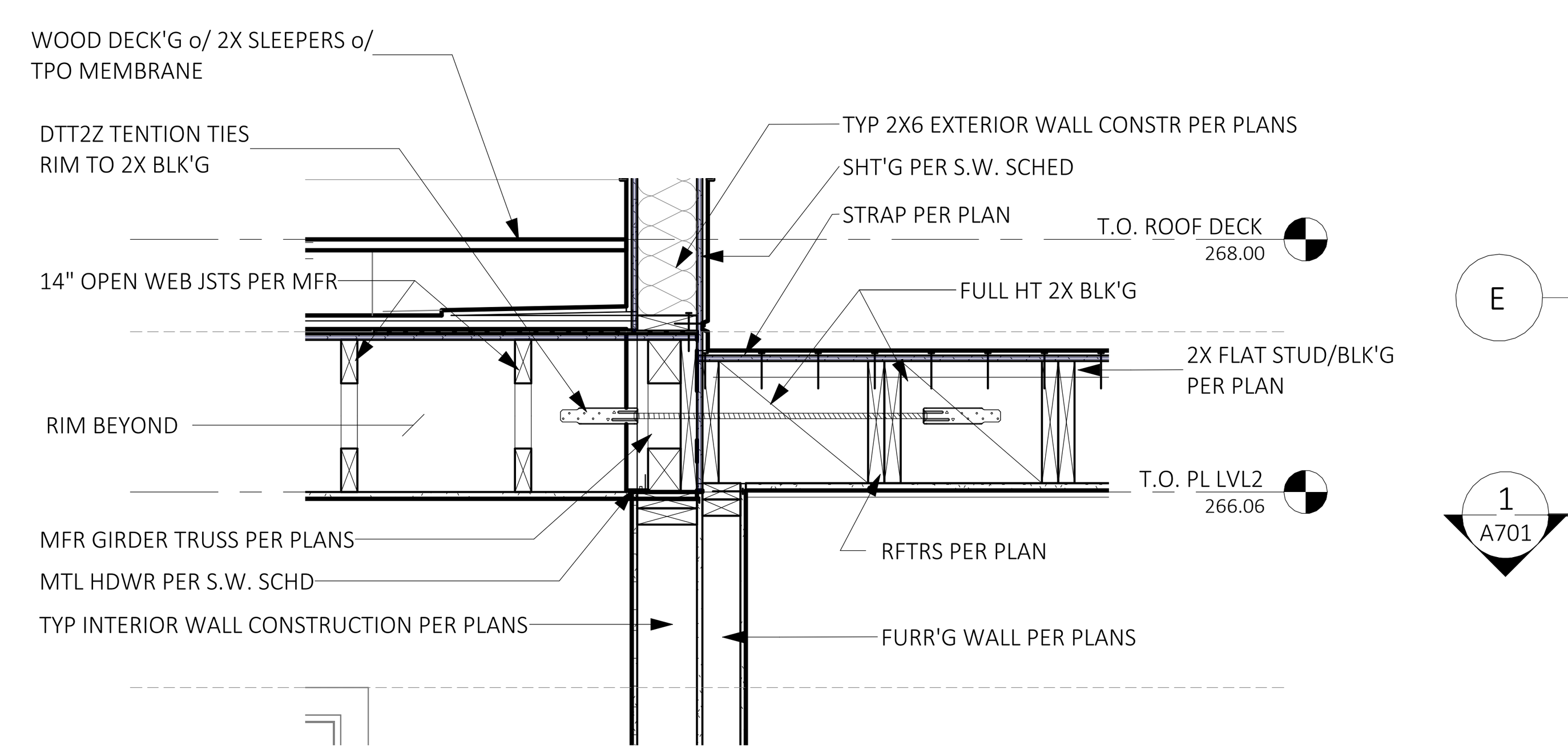
3/15/2023 8:48:38 AM

BEAM SCHEDULE - UPPER ROOF

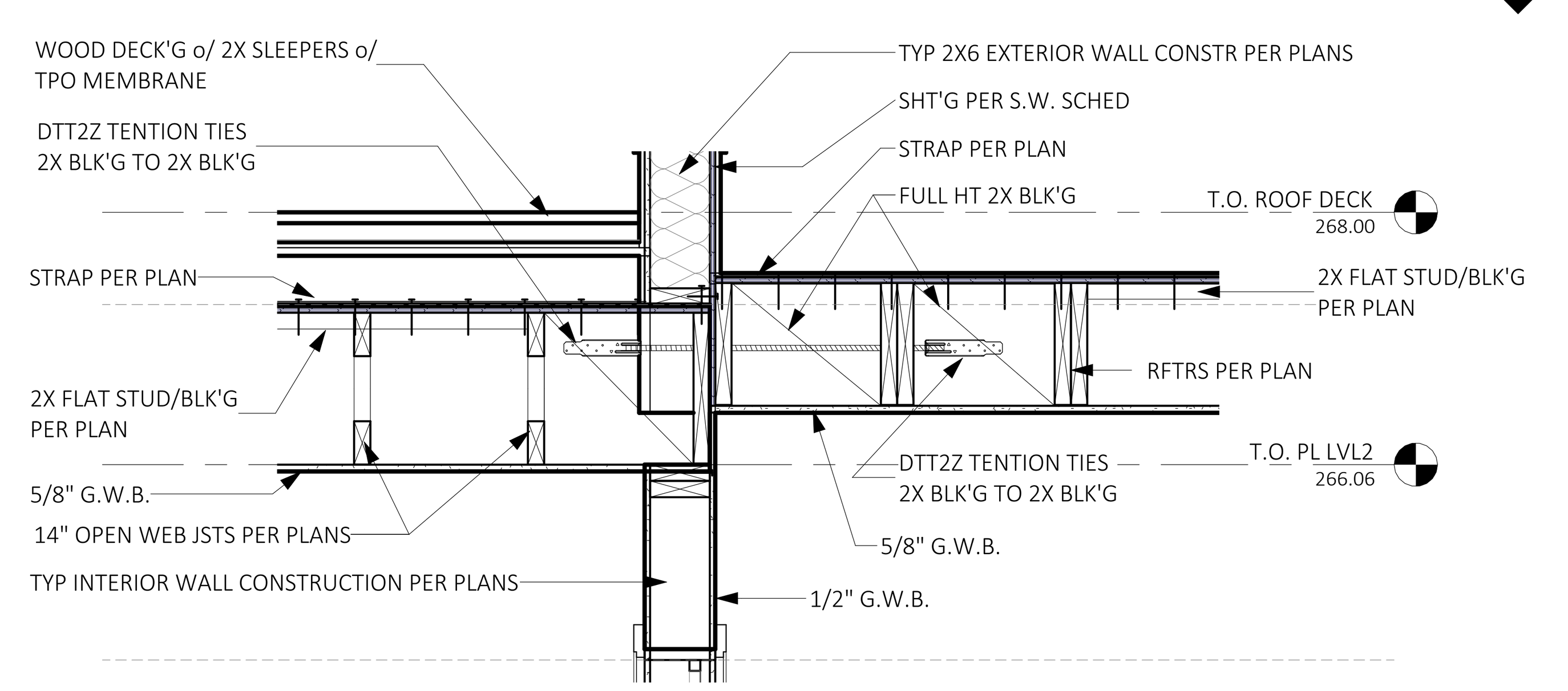
ID	SIZE
3.1	4X8
3.2	5-1/2" X 7-1/2" GLB

BEAM LEGEND

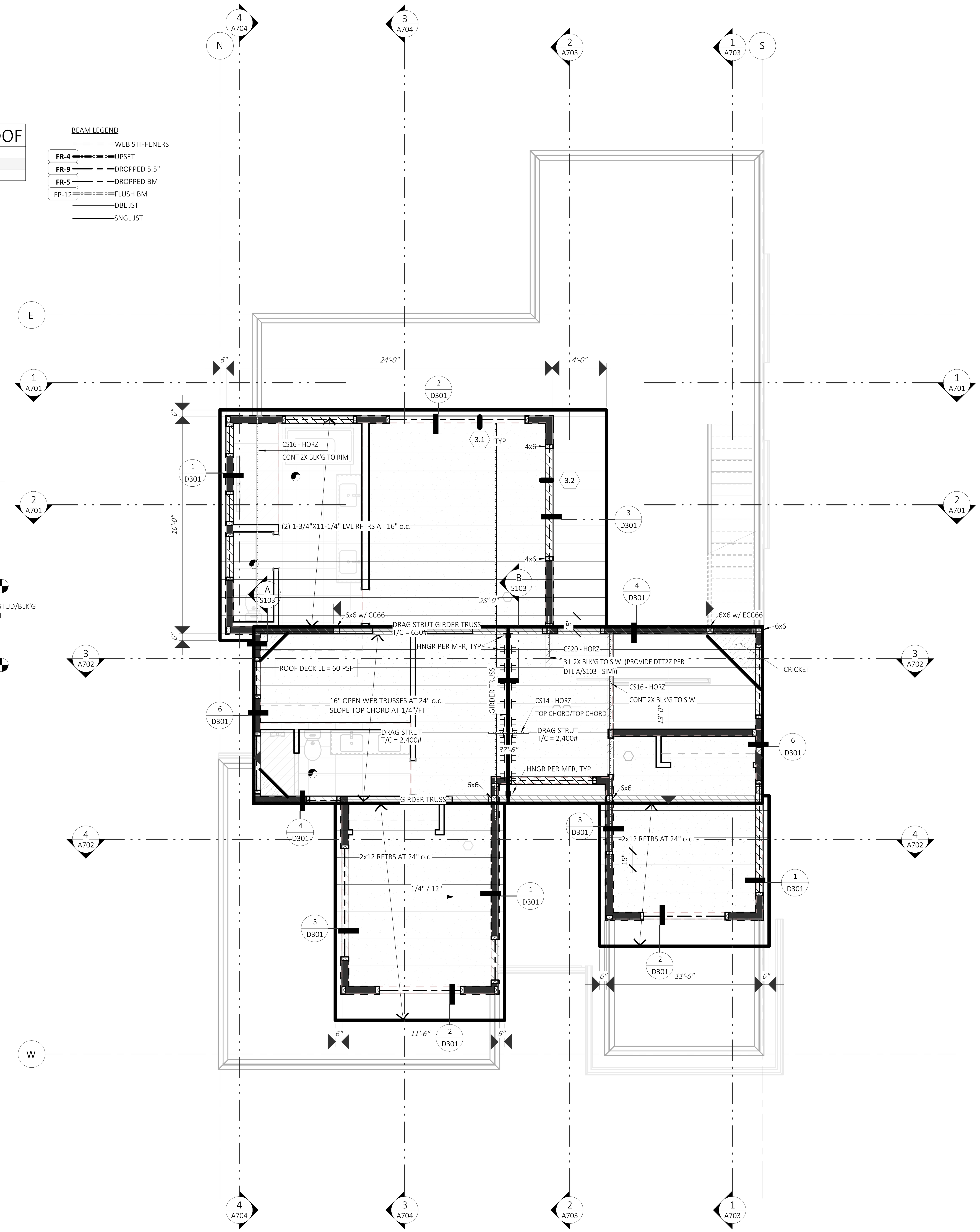
- WEB STIFFENERS
- FR-4 UPSET
- FR-9 DROPPED 5.5"
- FR-5 DROPPED BM
- FP-12 FLUSH BM
- DBL JST
- SNGL JST



A DTTZ AT ROOF
SCALE: 3/4" = 1'-0"



B DTTZ AT ROOF
SCALE: 3/4" = 1'-0"



SYMBOLS & LEGEND:

- POINT LOAD FROM ABOVE. PROVIDE SOLID BLK'G THROUGH JOIST SYSTEM
- (1) 2x STUD
- (2) 2x STUD, TYP. LARGER MEMBERS AS NOTED ON PLANS
- SIMPSON OR OTHER APPROVED ALTERNATE HANGER. USE ALL REQUIRED FASTENERS
- INDICATES BEAM CALCULATION WITH INDEXED NUMBER
- WALL ABOVE
- NON BEARING WALL BELOW
- BEARING WALL BELOW
- SHEARWALL BELOW
- BEARING WALL AVOVE

GENERAL FRAMING NOTES:

1. SEE SHEET S001 FOR GENERAL DESIGN CRITERIA.
2. SEE SHEET(s) S201-203 FOR SHEARWALL DESIGNATIONS, HOLDDOWNS, AND SHEARWALL SCHEDULE.
3. U.N.O. ALL HEADERS ARE: 4x8 DF #2 (UP TO 8' SPAN) TRIMMER STUD UP TO 6'-0" SPAN AND PROVIDE (2) TRIMMER STUDS OVER 6'-0" U.N.O.
4. TRUSS DESIGN BY MANUFACTURER. TRUSS DESIGN DRAWINGS SHALL BE PREPARED PER IRC SECTION R802.10.1 AND SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND APPROVED PRIOR TO INSTALLATION.
   * TRUSS DESIGN PER IRC SECTION R802.10.2
   * FIELD ALTERATIONS MUST BE DESIGNED BY MFR. PER IRC SECTION R802.10.4
   * SEE SHEET(s) S001 FOR DESIGN LOADS.
   * TRUSS MFR TO PROVIDE ADEQUATE BEARING AREA TO RESOLVE REACTION (PERPENDICULAR TO GRAIN) AT ALL HIGHLY LOADED GIRDER TRUSSES.
5. PROVIDE 2x4 RAFTER/TRUSS TAIL - TYP. U.N.O.
6. ROOF PITCH: EXTERIOR PER ELEVATIONS & INTERIOR PER SECTIONS.
7. ROOF FRAMING SPACING, 24" o.c. U.N.O.
8. SEE ELEVATIONS AND/OR SECTIONS FOR ROOF PITCH,PLATE HEIGHT AND HEADER HEIGHT.
9. FRAMING LUMBER: FRAMING LUMBER SHALL BE MARKED IN ACCORDANCE TO W.C.L.B. STANDARD GRADING RULES FOR WEST COAST LUMBER #16, LATEST EDITION. ALL KILN DRIED MIN. 19.
   a) JOIST AND RAFTERS: SEE SHT S002
   b) BEAMS AND STRINGERS: SEE SHT S002
   c) POST AND TIMBERS: SEE SHT S002
   d) STUDS, PLATES, AND MISC. LIGHT FRAMING: SEE SHT S002
   e) TJI'S AND MICROLAMS: PER MANUFACTURER.
   f) GLUE LAMINATED TIMBER: SEE SHT S002
   g) ALL OTHER LUMBER: HEM-FIR STANDARD OR BETTER.
   h) PLYWOOD/ORIENTED STRAND BOARD (OSB): SEE SHT S002
   i) WALL SHEATHING: SEE SHT S002
   j) FLOOR SHEATHING: 23/32" APA RATED STRUCTURAL SHT'G FACE GRAIN PERP TO FLR FRAM'G W/ 10d @ 6" OC PANEL EDGES, & 12" O.C. FIELD, UNBLOCKED, TYP U.N.O.
   k) ROOF SHEATHING: 15/32" APA RATED STRUCTURAL SHT'G FACE GRAIN PERP TO FFLR FRAM'G W/ 10d @ 6" OC PANEL EDGES, & 12" O.C. FIELD, UNBLOCKED, TYP
   L) OTHER: AS NOTED ON DRAWINGS, SEE SHT S002
10. FASTENERS: ALL FRAMING SHALL BE NAILED IN ACCORDANCE WITH TABLE R602.3(1) OF THE IRC. SEE SHEET A001
    * POSITIVE CONNECTIONS SHALL BE PROVIDED WHERE POSTS AND BEAM OR GIRDER CONSTRUCTION IS USED TO SUPPORT FLOOR FRAMING.
11. INSTALL 2X FIREBLOCKING PER R302.11 AS FOLLOWS:
    a) IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS, VERT AT THE CLG AND FLR LEVELS AND HORZ AT INTERVALS NOT EXCEEDING 10 FEET.
    b) AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERT AND HORZ SPACES SUCH AS OCCUR AT SOFFITS, DROP CLGS AND COVE CLGS.
    c) IN CONCEALED SPACES BTWN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
    d) AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
    THE INTEGRITY OF ALL FIREBLOCKS SHALL BE MAINTAINED.
12. SEE SHT A002 FOR ROOF & CRAWL SPACE AREA VENTILATION CALCULATIONS

KEYNOTES - FRAMING

ID	DESCRIPTION
FR-4	UPSET - BOTTOM OF BEAM EVEN w/ BOTTOM OF JOISTS. TOP OF BEAM EXTENDS ABOVE JOISTS.
FR-5	TOP OF BEAM IS FLUSH w/ BOTTOM OF JOISTS w/ NO TOP PLATE. CUT ADJACENT FRAMING MEMBERS INTO BEAM FOR ADEQUATE SUPPORT.
FR-9	TOP OF BEAM 5" BELOW TOP OF JOISTS TO ALLOW FOR HVAC.

No.	Date	Description

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, WA 98059

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

PERMIT SET

ROOF FRAMING PLAN

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S103

SCALE 24X36: As indicated
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

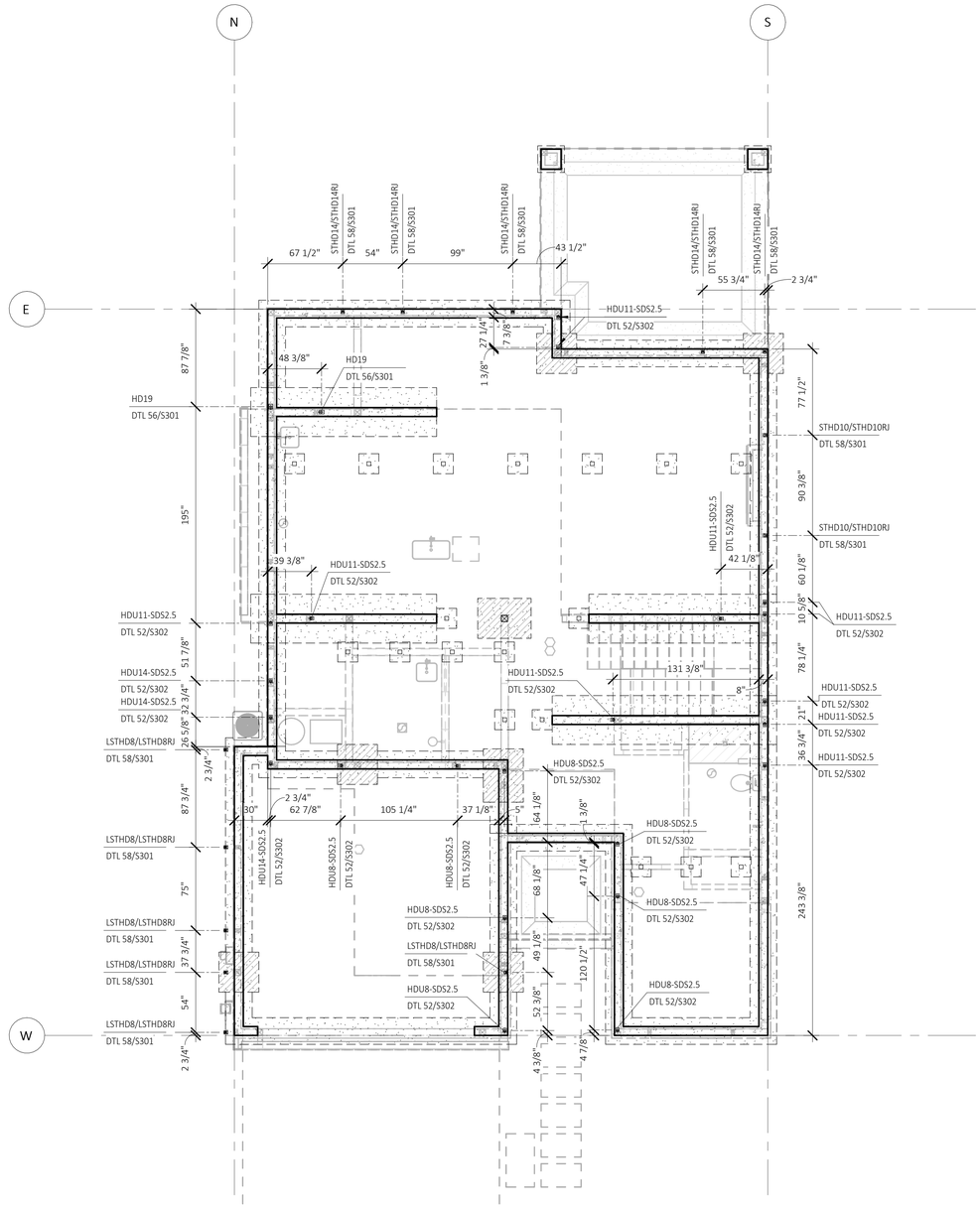
Holdowns and Tension Tie SCHEDULE

TYPE	MIN END STUD	FASTENERS			DETAIL	Count	Manufacturer	ALLOWABLE UPLIFT (DF / HF)
		ANCHOR BOLT	NAILS/SCREWS	CONCRETE ANCHOR				
CS16-11"			(22) 10d		DTL 272/S303	4	Simpson Strong Tie or EQ	1705 / --
CS14-15"			(30) 10d		DTL 272/S303	2	Simpson Strong Tie or EQ	2490 / --
CMSTC16-20"			(58) 16d SINKER		DTL 272/S303	8	Simpson Strong Tie or EQ	4960 / --
(2) HDU11-SDS2.5 2	4X	1"	(30) SDS 1/4"X2 1/2"	[redacted]	DTL 52/S302	2	Simpson Strong Tie or EQ	9535 / --
FLOOR TO FLOOR								
LSTHD8/LSTHD8RJ	(2) 2X		(20) 0.148 X 3-1/4"		DTL 58/S301	6	Simpson Strong Tie or EQ	1610 / --
STHD10/STHD10RJ	(2) 2X		(28) 0.148 X 3-1/4"		DTL 58/S301	2	Simpson Strong Tie or EQ	2175 / --
STHD14/STHD14RJ	(2) 2X		(30) 0.148 X 3-1/4"		DTL 58/S301	5	Simpson Strong Tie or EQ	3500 / --
HDU8-SDS2.5	4X6	7/8"	(20) SDS 1/4"X2 1/2"	PAB6	DTL 52/S302	8	Simpson Strong Tie or EQ	7870 / 6580
HDU11-SDS2.5	4X8	1"	(30) SDS 1/4"X2 1/2"	PAB7	DTL 52/S302	11	Simpson Strong Tie or EQ	11175 / 9610
HDU14-SDS2.5	6X6	1"	(36) SDS 1/4"X2 1/2"	PAB8	DTL 52/S302	3	Simpson Strong Tie or EQ	14445 / 12425
HD19	6X6	1-1/4"	(5) 1" BOLTS	PAB10	DTL 56/S301	2	Simpson Strong Tie or EQ	19070 / 16210
HOLDDOWN								
MSTC48B3	(2) 2X		REF DETAIL		DTL 269/S303	9	Simpson Strong Tie or EQ	3795 / 3900
MSTC66B3Z	4X		REF DETAIL		DTL 269/S303	1	Simpson Strong Tie or EQ	4490 / --
OVERHANG								

WOOD FRAMED SHEARWALL SCHEDULE

FOR HF OR DF FRAMING WITH 8D COMMON NAILS (2018 IBC)

SHEARWALL TYPE	WALL SHT'G APA RATED	EDGE NAIL'G	BOT PLATE CONNECTION	FRAM'G CONNECTION AT WALL BELOW	MIN RIM THICKNESS	FRAM'G AT PANEL EDGES	BLK'G AT PANEL EDGES	P.T. 2X SILL,		P.T. 3X SILL	
								ANCHOR BOLT	SHEAR CAPACITY (WIND/SEISMIC)	ANCHOR BOLT	SHEAR CAPACITY (WIND/SEISMIC)
sw6	15/32"	8D AT 6" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 18" O.C.	1-1/4"	2X	2X	5/8" DIA AT 48" O.C.	242 / 339	5/8" DIA AT 60" O.C.	242 / 339
sw4	15/32"	8D AT 4" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 12" O.C.	1-3/4"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 32" O.C.	353/495	5/8" DIA AT 40" O.C.	353/495
sw3	15/32"	8D AT 3" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 10" O.C.	1-3/4"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 24" O.C.	456 / 637	5/8" DIA AT 32" O.C.	456 / 637
sw2	15/32"	8D AT 2" O.C.	(2) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 6" O.C.	3-1/2"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 18" O.C.	595 / 832	5/8" DIA AT 24" O.C.	595 / 832
2sw4	15/32" BOTH SIDES	8D AT 4" O.C.	(3) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 5" O.C.	3-1/2"	3X	3X	[redacted]		5/8" DIA AT 24" O.C.	707 / 990
2sw3	15/32" BOTH SIDES	8D AT 3" O.C.	(3) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 8" O.C. AND A35 AT 8" O.C.	3-1/2"	3X	3X			5/8" DIA AT 16" O.C.	911 / 1274
2sw2	15/32" BOTH SIDES	8D AT 2" O.C.	(3) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 6" O.C. AND A35 AT 6" O.C.	3-1/2"	3X	3X			5/8" DIA AT 12" O.C.	1190 / 1469



SHEARWALL LEGEND:

- [#] SHEARWALL TAG: SEE SHEARWALL SCHEDULE AND STRUCTURAL NOTES ON THIS SHEET.
  - ALL EXTERIOR WALLS TO BE sw6 SHEAR WALLS U.N.O.
  - FOR WALL CONSTRUCTION FOR WALLS THAT EXTEND THRU WINDOWS SHEATH ABV AND BELOW WINDOW & STRAP PER DETAL ON SHEET D101
- HDDN DET #/# INDICATES STRUCTURAL KEYNOTE FOR HOLDOWN WITH INDEXED NUMBER. SEE STRUCTURAL KEYNOTE SCHEDULE THIS SHEET. SEE STRUCTURAL NOTES ON SHEET S101
- EXTENT OF SHEARWALL
- SHEARWALL BELOW

SHEAR WALL NOTES

1. ALL NAILS ARE COMMON, UNO. REFERENCE GENERAL STRUCTURAL NOTES FOR NAIL DIAMETER AND LENGTH.
2. REFERENCE SHEAR WALL KEY DETAIL FOR DESCRIPTION OF TERMS.
3. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF SHEAR WALLS ARE TYPICALLY AT WINDOWS, DOORWAYS OR AS SHOWN ON PLAN.
4. EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING IS REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS. REFERENCE HOLDOWN SCHEDULE & DETAILS FOR ADDITIONAL INFORMATION.
5. INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS UNO IN SCHEDULE. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH EDGE NAILING AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND EDGE NAILING AT 6"OC WHERE STUDS ARE SPACED AT 24"
6. SIMPSON STRONG-TIE "A35" MAY BE USED IN LIEU OF "LTP5." "LT2P" CLIPS SHALL BE ORIENTED LENGTHWISE 1 (HORIZONTAL) AT PLATE TO RIM. USE 0.131" x1 NAILS WHERE CLIPS ARE ATTACHED DIRECTLY TO FRAMING. USE Ø 2 1 0.131" x2 WHERE CLIPS ARE INSTALLED OVER SHEATHING. Ø 2
7. (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF SINGLE 3x STUD. DOUBLE 2x STUDS SHALL BE SECURED TOGETHER WITH FASTENERS OF THE SAME DIAMETER AND SPACING AS THE BOTTOM PLATE ATTACHMENT PER SCHEDULE.
8. WHERE SHEATHING IS APPLIED ON BOTH SIDES OF A SHEAR WALL AND NAIL SPACING IS LESS THAN 6"OC ON EITHER SIDE, THE WIDTH OF THE NAILED FACE OF THE FRAMING MEMBER SHALL BE 3" NOMINAL OR GREATER AT ADJOINING PANEL EDGES AND NAILS AT ALL PANEL EDGES SHALL BE STAGGERED. ALTERNATIVELY, PANELS SHALL BE STAGGERED SO THAT EDGE JOINTS ON OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUD.
9. ANCHOR BOLTS SHALL BE PROVIDED WITH MINIMUM 0.229"x 3"x 3" HOT-DIPPED GALVANIZED STEEL PLATE WASHERS PER DETAILS ON DRAWINGS. EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE PROVIDE AN ANCHOR BOLT AT EACH END OF EACH PLATE AND SHALL BE AT LEAST 7 TIMES THE ANCHOR BOLT DIAMETER FROM THE ENDS OF THE PLATE, BUT NOT MORE THAN 1 THE TABULATED ANCHOR BOLT SPACING OR 12", WHICHEVER IS LESS. SEE ANCHOR BOLT DETAIL FOR PLATE 2 5 WASHER REQUIREMENTS. [ALT: " 8 ØX8" TITEN HD ANCHOR SCREWS MAY BE USED IN LIEU OF ANCHOR BOLTS AT EXISTING CONCRETE, WITH PLATE WASHER & SPACING REQUIREMENTS PER SCHEDULE.]
10. PROVIDE HOT-DIPPED GALVANIZED NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC.) AT ALL PRESSURE TREATED LUMBER. REFERENCE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
11. PANELS MAY BE INSTALLED HORIZONTALLY IF STUDS ARE SPACED AT 16"OC MAX.
12. STAGGER EDGE NAILING.
13. THE TOP EDGE OF THE WOOD STRUCTURAL PANEL SHALL BE ATTACHED TO THE UPPER TOP PLATE. ROOF OR UPPER LEVEL UPLIFT CONNECTORS SHALL BE ON THE SAME SIDE OF THE WALL AS THE SHEATHING.
14. THE BOTTOM EDGE OF THE WOOD STRUCTURAL PANEL SHALL EXTEND TO AND BE ATTACHED TO THE BOTTOM OR SILL PLATE.
15. REFERENCE DETAIL BELOW FOR STAGGERED NAIL AND SCREW SPACING AT RIM BOARDS.
16. WALL TYPE ACCEPTABLE WITH TRUSJOIST AND BOISE CASCADE RIM JOIST AND BLOCKING.

No. Description Date

JOHN J. LOSHBOUGH STATE OF WASHINGTON 22114 REGISTERED PROFESSIONAL ENGINEER

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

FOUNDATION HOLDOWNS

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S201

SCALE 24X36: 3/16" = 1'-0"

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

Holdowns and Tension Tie SCHEDULE

TYPE	MIN END STUD	FASTENERS			DETAIL	Count	Manufacturer	ALLOWABLE UPLIFT (DF / HF)
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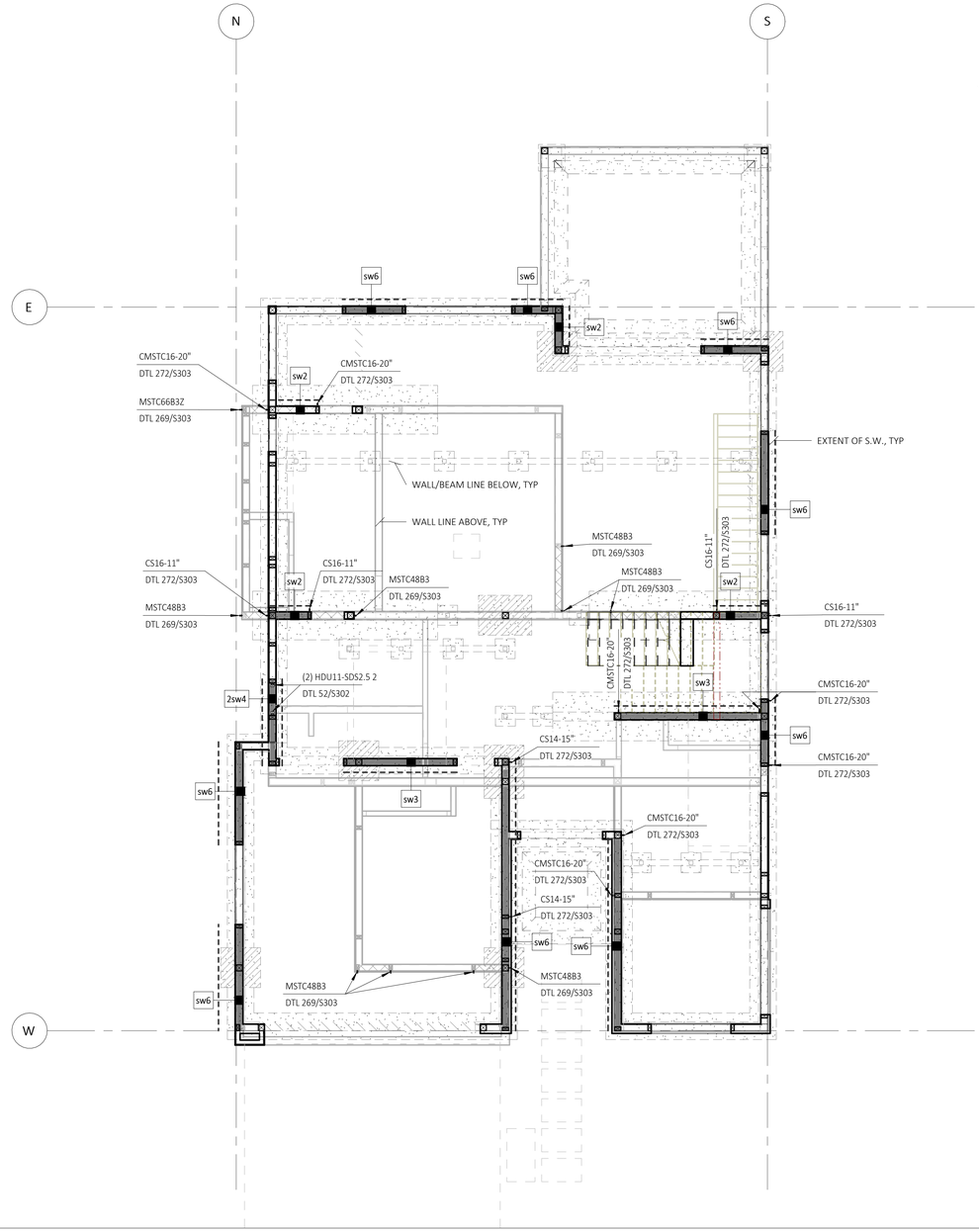
CS14-15"			(30) 10d		DTL 272/S303	2	Simpson Strong Tie or EQ	2490 / --
CMSTC16-20"			(58) 16d SINKER		DTL 272/S303	8	Simpson Strong Tie or EQ	4960 / --
(2) HDU11-SDS2.5 2	4X	1"	(30) SDS 1/4"X2 1/2"	[redacted]	DTL 52/S302	2	Simpson Strong Tie or EQ	9535 / --
FLOOR TO FLOOR								
LSTHD8/LSTHD8RJ	(2) 2X		(20) 0.148 X 3-1/4"		DTL 58/S301	6	Simpson Strong Tie or EQ	1610 / --
STHD10/STHD10RJ	(2) 2X		(28) 0.148 X 3-1/4"		DTL 58/S301	2	Simpson Strong Tie or EQ	2175 / --
STHD14/STHD14RJ	(2) 2X		(30) 0.148 X 3-1/4"		DTL 58/S301	5	Simpson Strong Tie or EQ	3500 / --
HDU8-SDS2.5	4X6	7/8"	(20) SDS 1/4"X2 1/2"	PAB6	DTL 52/S302	8	Simpson Strong Tie or EQ	7870 / 6580
HDU11-SDS2.5	4X8	1"	(30) SDS 1/4"X2 1/2"	PAB7	DTL 52/S302	11	Simpson Strong Tie or EQ	11175 / 9610
HDU14-SDS2.5	6X6	1"	(36) SDS 1/4"X2 1/2"	PAB8	DTL 52/S302	3	Simpson Strong Tie or EQ	14445 / 12425
HD19	6X6	1-1/4"	(5) 1" BOLTS	PAB10	DTL 56/S301	2	Simpson Strong Tie or EQ	19070 / 16210
HOLDDOWN								
MSTC48B3	(2) 2X		REF DETAIL		DTL 269/S303	9	Simpson Strong Tie or EQ	3795 / 3900
MSTC66B3Z	4X		REF DETAIL		DTL 269/S303	1	Simpson Strong Tie or EQ	4490 / --
OVERHANG								

WOOD FRAMED SHEARWALL SCHEDULE

FOR HF OR DF FRAMING WITH 8D COMMON NAILS (2018 IBC)

SHEARWALL TYPE	WALL SHT'G APA RATED	EDGE NAIL'G	BOT PLATE CONNECTION	FRAM'G CONNECTION AT WALL BELOW	MIN RIM THICKNESS	FRAM'G AT PANEL EDGES	BLK'G AT PANEL EDGES	P.T. 2X SILL,		P.T. 3X SILL	
								ANCHOR BOLT	SHEAR CAPACITY (WIND/SEISMIC)	ANCHOR BOLT	SHEAR CAPACITY (WIND/SEISMIC)
sw6	15/32"	8D AT 6" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 18" O.C.	1-1/4"	2X	2X	5/8" DIA AT 48" O.C.	242 / 339	5/8" DIA AT 60" O.C.	242 / 339
sw4	15/32"	8D AT 4" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 12" O.C.	1-3/4"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 32" O.C.	353/495	5/8" DIA AT 40" O.C.	353/495
sw3	15/32"	8D AT 3" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 10" O.C.	1-3/4"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 24" O.C.	456 / 637	5/8" DIA AT 32" O.C.	456 / 637
sw2	15/32"	8D AT 2" O.C.	(2) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 6" O.C.	3-1/2"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 18" O.C.	595 / 832	5/8" DIA AT 24" O.C.	595 / 832
2sw4	15/32" BOTH SIDES	8D AT 4" O.C.	(3) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 5" O.C.	3-1/2"	3X	3X	[redacted]		5/8" DIA AT 24" O.C.	707 / 990
2sw3	15/32" BOTH SIDES	8D AT 3" O.C.	(3) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 8" O.C. AND A35 AT 8" O.C.	3-1/2"	3X	3X			5/8" DIA AT 16" O.C.	911 / 1274
2sw2	15/32" BOTH SIDES	8D AT 2" O.C.	(3) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 6" O.C. AND A35 AT 6" O.C.	3-1/2"	3X	3X			5/8" DIA AT 12" O.C.	1190 / 1469



SHEARWALL LEGEND:

#	SHEARWALL TAG: SEE SHEARWALL SCHEDULE AND STRUCTURAL NOTES ON THIS SHEET. - ALL EXTERIOR WALLS TO BE sw6 SHEAR WALLS U.N.O. - FOR WALL CONSTRUCTION FOR WALLS THAT EXTEND THRU WINDOWS SHEATH ABV AND BELOW WINDOW & STRAP PER DETAL ON SHEET D101
HDDN DET #/#	INDICATES STRUCTURAL KEYNOTE FOR HOLDOWN WITH INDEXED NUMBER. SEE STRUCTURAL KEYNOTE SCHEDULE THIS SHEET. SEE STRUCTURAL NOTES ON SHEET S101
– – –	EXTENT OF SHEARWALL
– – –	SHEARWALL BELOW

SHEAR WALL NOTES

1. ALL NAILS ARE COMMON, UNO. REFERENCE GENERAL STRUCTURAL NOTES FOR NAIL DIAMETER AND LENGTH.
2. REFERENCE SHEAR WALL KEY DETAIL FOR DESCRIPTION OF TERMS.
3. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF SHEAR WALLS ARE TYPICALLY AT WINDOWS, DOORWAYS OR AS SHOWN ON PLAN.
4. EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING IS REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS. REFERENCE HOLDOWN SCHEDULE & DETAILS FOR ADDITIONAL INFORMATION.
5. INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS UNO IN SCHEDULE. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH EDGE NAILING AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND EDGE NAILING AT 6"OC WHERE STUDS ARE SPACED AT 24"
6. SIMPSON STRONG-TIE "A35" MAY BE USED IN LIEU OF "LTP5." "LT2P" CLIPS SHALL BE ORIENTED LENGTHWISE 1 (HORIZONTAL) AT PLATE TO RIM. USE 0.131" x1 NAILS WHERE CLIPS ARE ATTACHED DIRECTLY TO FRAMING. USE Ø 2 1 0.131" x2 WHERE CLIPS ARE INSTALLED OVER SHEATHING. Ø 2
7. (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF SINGLE 3x STUD. DOUBLE 2x STUDS SHALL BE SECURED TOGETHER WITH FASTENERS OF THE SAME DIAMETER AND SPACING AS THE BOTTOM PLATE ATTACHMENT PER SCHEDULE.
8. WHERE SHEATHING IS APPLIED ON BOTH SIDES OF A SHEAR WALL AND NAIL SPACING IS LESS THAN 6"OC ON EITHER SIDE, THE WIDTH OF THE NAILED FACE OF THE FRAMING MEMBER SHALL BE 3" NOMINAL OR GREATER AT ADJOINING PANEL EDGES AND NAILS AT ALL PANEL EDGES SHALL BE STAGGERED. ALTERNATIVELY, PANELS SHALL BE STAGGERED SO THAT EDGE JOINTS ON OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUD.
9. ANCHOR BOLTS SHALL BE PROVIDED WITH MINIMUM 0.229"x 3"x 3" HOT-DIPPED GALVANIZED STEEL PLATE WASHERS PER DETAILS ON DRAWINGS. EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE PROVIDE AN ANCHOR BOLT AT EACH END OF EACH PLATE AND SHALL BE AT LEAST 7 TIMES THE ANCHOR BOLT DIAMETER FROM THE ENDS OF THE PLATE, BUT NOT MORE THAN 1 THE TABULATED ANCHOR BOLT SPACING OR 12", WHICHEVER IS LESS. SEE ANCHOR BOLT DETAIL FOR PLATE 2 5 WASHER REQUIREMENTS. [ALT: " 8 ØX8" TITEN HD ANCHOR SCREWS MAY BE USED IN LIEU OF ANCHOR BOLTS AT EXISTING CONCRETE, WITH PLATE WASHER & SPACING REQUIREMENTS PER SCHEDULE.]
10. PROVIDE HOT-DIPPED GALVANIZED NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC.) AT ALL PRESSURE TREATED LUMBER. REFERENCE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
11. PANELS MAY BE INSTALLED HORIZONTALLY IF STUDS ARE SPACED AT 16"OC MAX.
12. STAGGER EDGE NAILING.
13. THE TOP EDGE OF THE WOOD STRUCTURAL PANEL SHALL BE ATTACHED TO THE UPPER TOP PLATE. ROOF OR UPPER LEVEL UPLIFT CONNECTORS SHALL BE ON THE SAME SIDE OF THE WALL AS THE SHEATHING.
14. THE BOTTOM EDGE OF THE WOOD STRUCTURAL PANEL SHALL EXTEND TO AND BE ATTACHED TO THE BOTTOM OR SILL PLATE.
15. REFERENCE DETAIL BELOW FOR STAGGERED NAIL AND SCREW SPACING AT RIM BOARDS.
16. WALL TYPE ACCEPTABLE WITH TRUSJOIST AND BOISE CASCADE RIM JOIST AND BLOCKING.

No.	Description	Date

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

MAIN FLOOR SHEARWALLS & UPPER FLOOR HOLDDOWNS

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S202

SCALE 24X36: 3/16" = 1'-0"

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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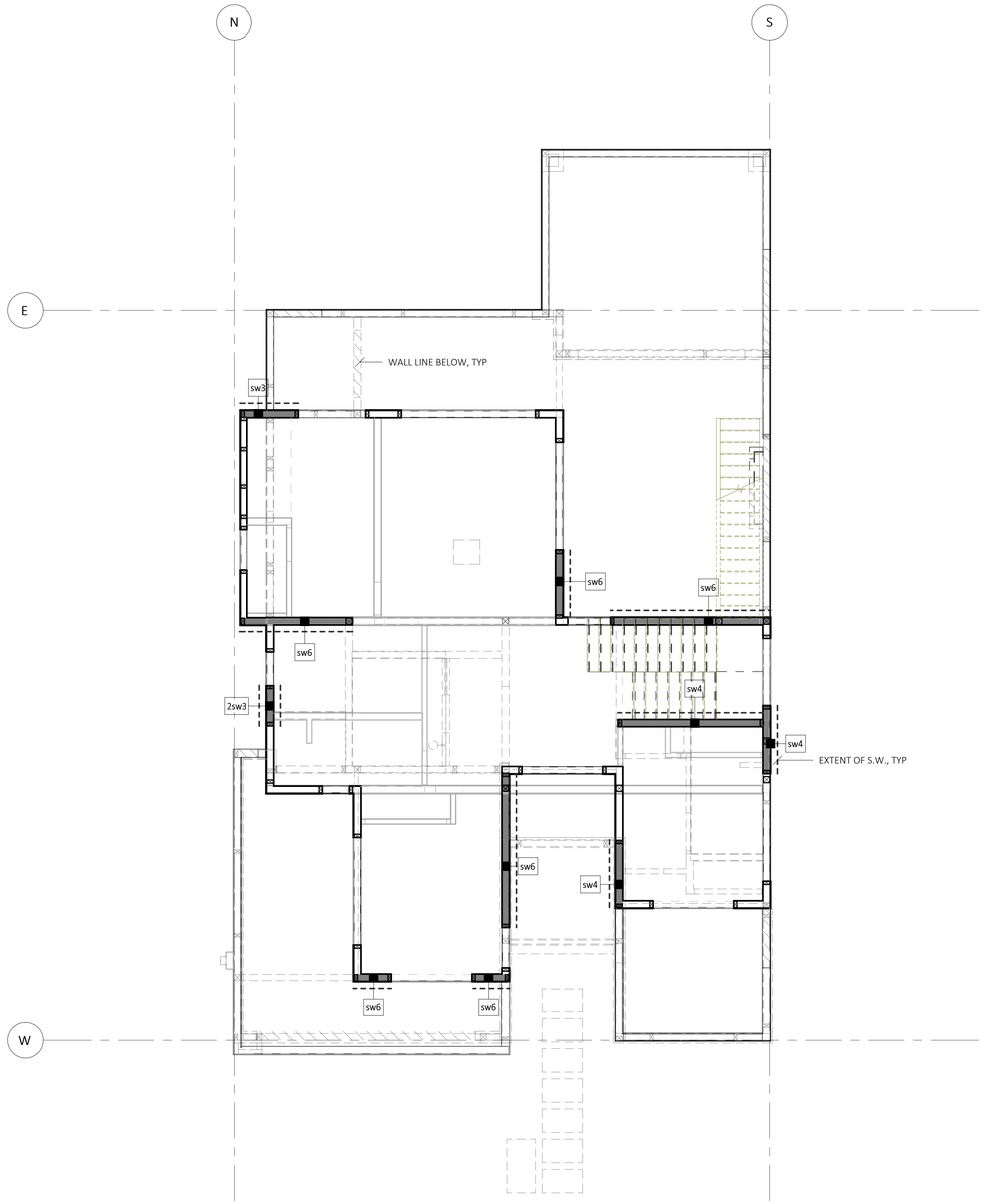
Holdowns and Tension Tie SCHEDULE

TYPE	MIN END STUD	FASTENERS			DETAIL	Count	Manufacturer	ALLOWABLE UPLIFT (DF / HF)
		ANCHOR BOLT	NAILS/SCREWS	CONCRETE ANCHOR				
CS16-11"			(22) 10d		DTL 272/S303	4	Simpson Strong Tie or EQ	1705 / --
CS14-15"			(30) 10d		DTL 272/S303	2	Simpson Strong Tie or EQ	2490 / --
CMSTC16-20"			(58) 16d SINKER		DTL 272/S303	8	Simpson Strong Tie or EQ	4960 / --
(2) HDU11-SDS2.5 2	4X	1"	(30) SDS 1/4"X2 1/2"	[redacted]	DTL 52/S302	2	Simpson Strong Tie or EQ	9535 / --
FLOOR TO FLOOR								
LSTHD8/LSTHD8RJ	(2) 2X		(20) 0.148 X 3-1/4"		DTL 58/S301	6	Simpson Strong Tie or EQ	1610 / --
STHD10/STHD10RJ	(2) 2X		(28) 0.148 X 3-1/4"		DTL 58/S301	2	Simpson Strong Tie or EQ	2175 / --
STHD14/STHD14RJ	(2) 2X		(30) 0.148 X 3-1/4"		DTL 58/S301	5	Simpson Strong Tie or EQ	3500 / --
HDU8-SDS2.5	4X6	7/8"	(20) SDS 1/4"X2 1/2"	PAB6	DTL 52/S302	8	Simpson Strong Tie or EQ	7870 / 6580
HDU11-SDS2.5	4X8	1"	(30) SDS 1/4"X2 1/2"	PAB7	DTL 52/S302	11	Simpson Strong Tie or EQ	11175 / 9610
HDU14-SDS2.5	6X6	1"	(36) SDS 1/4"X2 1/2"	PAB8	DTL 52/S302	3	Simpson Strong Tie or EQ	14445 / 12425
HD19	6X6	1-1/4"	(5) 1" BOLTS	PAB10	DTL 56/S301	2	Simpson Strong Tie or EQ	19070 / 16210
HOLDDOWN								
MSTC48B3	(2) 2X		REF DETAIL		DTL 269/S303	9	Simpson Strong Tie or EQ	3795 / 3900
MSTC66B3Z	4X		REF DETAIL		DTL 269/S303	1	Simpson Strong Tie or EQ	4490 / --
OVERHANG								

WOOD FRAMED SHEARWALL SCHEDULE

FOR HF OR DF FRAMING WITH 8D COMMON NAILS (2018 IBC)

SHEARWALL TYPE	WALL SHT'G APA RATED	EDGE NAIL'G	BOT PLATE CONNECTION	FRAM'G CONNECTION AT WALL BELOW	MIN RIM THICKNESS	FRAM'G AT PANEL EDGES	BLK'G AT PANEL EDGES	P.T. 2X SILL,		P.T. 3X SILL	
								ANCHOR BOLT	SHEAR CAPACITY (WIND/SEISMIC)	ANCHOR BOLT	SHEAR CAPACITY (WIND/SEISMIC)
sw6	15/32"	8D AT 6" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 18" O.C.	1-1/4"	2X	2X	5/8" DIA AT 48" O.C.	242 / 339	5/8" DIA AT 60" O.C.	242 / 339
sw4	15/32"	8D AT 4" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 12" O.C.	1-3/4"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 32" O.C.	353/495	5/8" DIA AT 40" O.C.	353/495
sw3	15/32"	8D AT 3" O.C.	(2) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 10" O.C.	1-3/4"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 24" O.C.	456 / 637	5/8" DIA AT 32" O.C.	456 / 637
sw2	15/32"	8D AT 2" O.C.	(2) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 6" O.C.	3-1/2"	3X OR (2) 2X	3X OR FLAT 2X	5/8" DIA AT 18" O.C.	595 / 832	5/8" DIA AT 24" O.C.	595 / 832
2sw4	15/32" BOTH SIDES	8D AT 4" O.C.	(3) ROWS 16D COMMON AT 6" O.C. STAGGERED	LPTS'S AT 5" O.C.	3-1/2"	3X	3X	[redacted]		5/8" DIA AT 24" O.C.	707 / 990
2sw3	15/32" BOTH SIDES	8D AT 3" O.C.	(3) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 8" O.C. AND A35 AT 8" O.C.	3-1/2"	3X	3X			5/8" DIA AT 16" O.C.	911 / 1274
2sw2	15/32" BOTH SIDES	8D AT 2" O.C.	(3) ROWS 16D COMMON AT 4" O.C. STAGGERED	LPTS'S AT 6" O.C. AND A35 AT 6" O.C.	3-1/2"	3X	3X			5/8" DIA AT 12" O.C.	1190 / 1469



SHEARWALL LEGEND:

- [#] SHEARWALL TAG: SEE SHEARWALL SCHEDULE AND STRUCTURAL NOTES ON THIS SHEET.
  - ALL EXTERIOR WALLS TO BE sw6 SHEAR WALLS U.N.O.
  - FOR WALL CONSTRUCTION FOR WALLS THAT EXTEND THRU WINDOWS SHEATH ABV AND BELOW WINDOW & STRAP PER DETAL ON SHEET D101
- HDDN DET #/# INDICATES STRUCTURAL KEYNOTE FOR HOLDOWN WITH INDEXED NUMBER. SEE STRUCTURAL KEYNOTE SCHEDULE THIS SHEET. SEE STRUCTURAL NOTES ON SHEET S101
- EXTENT OF SHEARWALL
- SHEARWALL BELOW

SHEAR WALL NOTES

1. ALL NAILS ARE COMMON, UNO. REFERENCE GENERAL STRUCTURAL NOTES FOR NAIL DIAMETER AND LENGTH.
2. REFERENCE SHEAR WALL KEY DETAIL FOR DESCRIPTION OF TERMS.
3. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF SHEAR WALLS ARE TYPICALLY AT WINDOWS, DOORWAYS OR AS SHOWN ON PLAN.
4. EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING IS REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS. REFERENCE HOLDOWN SCHEDULE & DETAILS FOR ADDITIONAL INFORMATION.
5. INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS UNO IN SCHEDULE. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH EDGE NAILING AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND EDGE NAILING AT 6"OC WHERE STUDS ARE SPACED AT 24"
6. SIMPSON STRONG-TIE "A35" MAY BE USED IN LIEU OF "LTP5." "LT2P" CLIPS SHALL BE ORIENTED LENGTHWISE 1 (HORIZONTAL) AT PLATE TO RIM. USE 0.131" x1 NAILS WHERE CLIPS ARE ATTACHED DIRECTLY TO FRAMING. USE Ø 2 1 0.131" x2 WHERE CLIPS ARE INSTALLED OVER SHEATHING. Ø 2
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16. WALL TYPE ACCEPTABLE WITH TRUSJOIST AND BOISE CASCADE RIM JOIST AND BLOCKING.

No. | Description | Date

BRIAN L. OSBORNE, STATE OF WASHINGTON, 53214, REGISTERED PROFESSIONAL ENGINEER

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

UPPER FLOOR SHEARWALLS

PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

S203

SCALE 24X36: 3/16" = 1'-0"

* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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LSTHD/STHD

Strap-Tie Holdowns

This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

The STHD is an embedded strap-tie holdown offering high load and a staggered nail pattern to help minimize splitting. The STHD incorporates many features that aid correct installation and improve performance. When installed on the forms with the StrapMate® strap holder the unique design of the STHD delivers enhanced stability before and during the pour to help prevent both parallel and perpendicular movement (relative to the form). This results in accurate positioning of the strap and reduced possibility of spalling.

Features

- The pattern allows for nailing to the edges of double 2x's
- Strap nail slots are countersunk to provide a lower nail head profile
- The slots below the embedment line enable increased front-to-back concrete bond and help to reduce spalling
- Rim joist (RJ) models accommodate up to a 17" clear span without any loss of strap nailing

Material: LSTHD8, LSTHD8RJ — 14 gauge; all others — 12 gauge

Finish: Galvanized

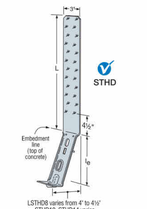
Installation:

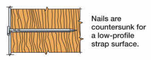
- See Holdown and Tension Tie General Notes on pp. 49–50.
- Use tables for both standard concrete and post-tension slab installations.
- Install before concrete pour with a StrapMate, or other holding device.
- Nail strap from the bottom up. Install strap plumb.
- Strap may be bent one full cycle (bent horizontal 90° then bent vertical) to aid wall placement, but may cause spalling behind the strap. If the spall is 1" or less, measured from the embedment line to the bottom of the spall, full loads apply. 1" to 4" spalls for LSTHD8 achieve 0.9 times table loads. STHD10 and STHD14 achieve full load for spalls less than 4". Any portion of the strap left exposed should be protected against corrosion.
- Other than where noted in the two-pour detail, do not install where: (a) A horizontal cold joint exists within the embedment depth between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load, or the slab is designed to resist the load imposed by the anchor; or (b) Slabs are poured over concrete block foundation walls.
- Additional studs attached to the shearwall studs or post may be required by the designer for wall sheathing nailing.
- Wood shrinkage after strap installation across horizontal members may cause strap to buckle outward.
- For installations in severe corrosion environments, refer to **strongtie.com/cipcorrosion** for additional considerations.
- See installation illustrations on p. 60 for *rebar information.*

For Two-Pour Installation for Downturn Footings

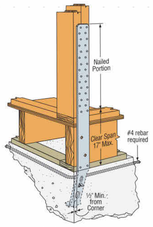
- For STHD10 installed through a 4"-thick slab, use the equivalent 8"-stemwall loads of the LSTHD8
- For STHD14 installed through a 4"-thick slab, use the equivalent 8"-stemwall loads of the STHD10
- For STHD14 installed through a 6"-thick slab, use the equivalent 8"-stemwall loads of the LSTHD8

Codes: See p. 11 for Code Reference Key Chart





Nails are countersunk for a low-profile strap surface.



Typical STHD14RJ Rim Joist Application

HDB/HD

Holdowns

Simpson Strong-Tie offers a wide variety of bolted holdowns offering low-deflection performance for a range of load requirements.

The HD3B is a light-duty holdown designed for use in shearwalls and braced-wall panels, as well as other lateral applications.

The HD5B, HD7B and HD9B bolted holdowns incorporate the proven design of our HDQ8 SDS-style holdown and feature a unique seat design which greatly minimizes deflection under load. HDB and HD holdowns are self-jigging, ensuring that the code-required minimum of seven bolt diameters from the end of the post is met. They can be installed directly on the sill plate or raised above it and are suitable for back-to-back applications where eccentricity is a concern. HDBs and HDs are designed to provide loads for intermediate-load-range shearwalls, braced-wall panels and lateral applications.

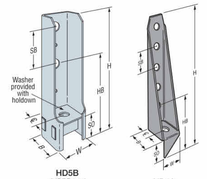
Material: See table

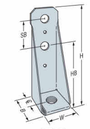
Finish: HD3B/HD5B/HD7B/HD9B — Galvanized;
HD — Simpson Strong-Tie gray paint; HDG available.
For stainless steel options, see engineering letter L-C-SSHD at **strongtie.com**.

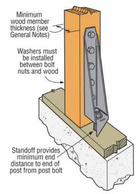
Installation:

- See Holdown and Tension Tie General Notes on pp. 49–50
- Bolt holes shall be a minimum of ⅛" to a maximum of ¼" larger than the bolt diameter (per 2015/2018 NDS, section 12.1.3.2)
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut (BPs are required in the City and County of Los Angeles)
- HD and HDB holdowns are self-jigging and will ensure minimum bolt end distance when installed flush with the sill plate
- Standard cut washer is required under the anchor nut for HD12 with 1" anchor and HD19 with 1¼" anchors

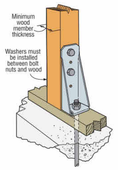
Codes: See p. 11 for Code Reference Key Chart



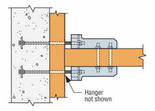




Vertical HD19 Installation



Vertical HD3B Installation



Horizontal HDB Installation
(plan view)

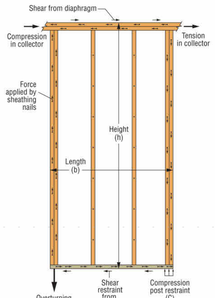
General Information and Notes

Holdowns and tension ties represent key components that comprise a continuous load path. In light-frame construction, holdowns are typically used to resist uplift due to shearwall overturning or wind uplift forces. In panelized roof construction, holdowns are used to anchor the concrete or masonry walls to the roof framing.

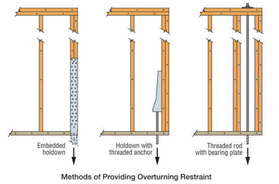
Holdowns can be separated into two categories — post-installed or cast-in-place. Cast-in-place holdowns, such as the STHD holdowns or the PA purlin anchors are installed at the time of concrete placement and attached to wood framing with nails. Cast-in-place holdowns are an economical anchorage solution with allowable loads up to 5,300 lb.

After the concrete has been placed, post-installed holdowns are attached to anchor bolts during wall framing. They are attached to the wood framing with nails, Strong-Drive® SD Connector screws and Strong-Drive SDS Heavy-Duty Connector screws or bolts. Post-installed holdowns have have allowable loads ranging from about 850 lb. up to nearly 20,000 lb.

The Post-to-Foundation Designer is a quick way to specify a holdown and the applicable anchorage to meet your project design requirements. Visit **app.strongtie.com/pfd**.



Idealized Force Diagram on Full-Height Shearwall Segment
(sheathing not shown)



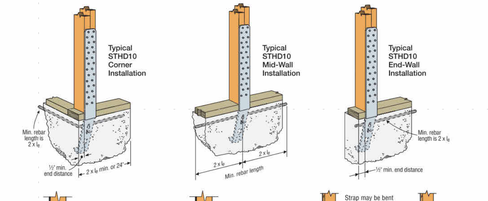
Methods of Providing Overturning Restraint

Post-to-Foundation Designer
app.strongtie.com/pfd

Site-Built Shearwall Designer
strongtie.com/webapps/sitebuiltshearwalldesigner

LSTHD/STHD

Strap-Tie Holdowns (cont.)



Single-Pour Rebar Installation
**Maintain minimum rebar cover, per ACI-318 concrete code requirements.*

Two-Pour Installation for Downturn Footings

Brick-Ledge Installation with Step

Brick-Ledge Installation Without Step

StrapMate®

Strap Holder

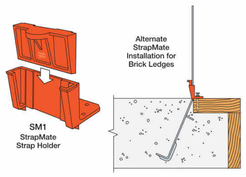
The StrapMate is designed to keep the STHD and LSTHD straps vertically aligned during the concrete pour to minimize possibility of spalling. The friction fit allows for quick and easy installation.

Features:

- The StrapMate is reusable
- Works with STHD, LSTHD
- Designed to fit ¾" plywood forms up to 1¾" LVL forms and larger
- The strap is positioned off the front edge of the form board

Material: Engineered composite plastic

Model No.	Nails (in.)
SM1	(2) 0.131 x 2½ Duplex



LSTHD/STHD

Strap-Tie Holdowns (cont.)

Tension Loads for STHD Installations

Min. Stemwall (in.)	Model No.		Strap Length (L)		l_e (in.)	Required Nails (in.)	Uncracked			Cracked			Code Ref.
	Standard	Rim Joist	Standard (in.)	Rim Joist (in.)			Midwall	Corner	Endwall	Midwall	Corner	Endwall	
Wind and SDC A&B – Allowable Tension Loads for DF/SP/SPF/HF (160)													
6	LSTHD8	LSTHD8RJ	18⅛	32⅛	8	(20) 0.148 x 3¼	2,985	2,590	1,620	2,565	2,225	1,395	IBC, FL
	STHD10	STHD10RJ	24⅛	38⅛	10	(24) 0.148 x 3¼	3,535	3,535	1,960	2,910	2,910	1,635	
	STHD14	STHD14RJ	26⅛	39⅝	14	(30) 0.148 x 3¼	4,935	4,935	3,065	4,935	4,935	3,065	
8	LSTHD8	LSTHD8RJ	18⅛	32⅛	8	(20) 0.148 x 3¼	2,985	2,590	2,135	2,565	2,225	1,835	
	STHD10	STHD10RJ	24⅛	38⅛	10	(28) 0.148 x 3¼	4,755	4,075	3,015	4,020	3,350	2,480	
	STHD14	STHD14RJ	26⅛	39⅝	14	(30) 0.148 x 3¼	5,285	5,285	4,410	5,285	5,285	4,410	
SDC C–F – Allowable Tension Loads for DF/SP/SPF/HF (160)													
6	LSTHD8	LSTHD8RJ	18⅛	32⅛	8	(16) 0.148 x 3¼	2,270	2,090	1,220	2,250	1,950	1,220	IBC, FL
	STHD10	STHD10RJ	24⅛	38⅛	10	(18) 0.148 x 3¼	2,750	2,750	1,615	2,550	2,550	1,435	
	STHD14	STHD14RJ	26⅛	39⅝	14	(22) 0.148 x 3¼	3,695	3,695	2,685	3,695	3,695	2,685	
8	LSTHD8	LSTHD8RJ	18⅛	32⅛	8	(16) 0.148 x 3¼	2,615	2,125	1,635	2,250	1,950	1,610	
	STHD10	STHD10RJ	24⅛	38⅛	10	(20) 0.148 x 3¼	3,400	2,940	2,295	3,400	2,940	2,175	
	STHD14	STHD14RJ	26⅛	39⅝	14	(24) 0.148 x 3¼	3,815	3,815	3,500	3,815	3,815	3,500	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. Concrete shall have a minimum compressive strength of f'_c = 2,500 psi.
3. 0.148" x 3" or 0.148" x 2 ½" nails may be used as a direct replacement for the required nails shown in the table with no load reduction when they are installed directly over framing or over ½" maximum structural sheathing.
4. Use the number of nails listed in the table or as otherwise specified. In many cases, not all nail holes will be filled. Nail strap from the bottom up.
5. Deflection at the highest allowable loads for installations over wood double studs is as follows: Installed on framing: LSTHD8 = 0.099", STHD10 = 0.117", and STHD14 = 0.118". Installed over ½" maximum structural sheathing: LSTHD8 = 0.114", STHD10 = 0.146", and STHD14 = 0.164".
6. To obtain LRFD values, multiply ASD seismic load values by 1.43 and wind load values by 1.67.
7. Per 2012, 2015, 2018 and 2021 IBC, Section 1613.1, detached one- and two-family dwellings in Seismic Design Category (SDC) C may use "Wind and SDC A&B" allowable loads.
8. Minimum center-to-center spacing is three times the required embedment, 3 x l_e, for STHD strap-tie holdowns acting in tension simultaneously. Midwall installation is based on 1.5 x l_e end distance.
9. See technical bulletin T-C-SCLCLM at **strongtie.com** for installation on structural composite lumber posts or columns.
10. For brick ledge applications, use full loads shown for STHD14 installed in 8" stem wall.
11. For slab-on-grade installation, use full loads shown for LSTHD/STHD installed in 8" stemwall.
12. **Fasteners:** Nail dimensions are listed diameter by length. See pp. 21–22 for fastener information.

Spall Reduction System for STHD Holdown

Features

- Built-in tab
- StrapMate® locator line
- Additional diamond hole in RJ versions

Benefits

Built-in Tab:

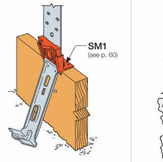
- Reduces spalling and costly retrofits
- No additional labor to install
- Holds STHD away from form board

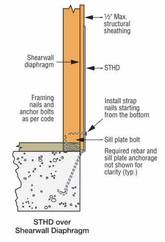
StrapMate Locator Line:

- Easy inspection to ensure proper location
- Allows adjustment without removing STHD

Additional Diamond Hole:

- One more fastener to help prevent the STHD RJ models from bowing out at the rim joist section





STHD over Shearwall Diaphragm

HDB/HD

Holdowns (cont.)

These products are available with additional corrosion protection. For more information, see p. 14.

Model No.	Material		Dimensions (in.)								Fasteners (in.)		Minimum Wood Member Size (in.)	Allowable Tension Loads (160)		Deflection at Highest Allowable Load	Code Ref.
	Base (in.)	Body (ga.)	HB	SB	W	H	B	CL	SO	Anchor Dia.-Bolt	Stud Bolts		DF/SP	SPF/HF		
HD3B	—	12	4⅛	2½	2⅛	8⅛	2⅛	1⅝	⅝	⅝	(2)	⅝	1½ x 3½	1,895	1,610	0.156	IBC, FL, LA
													2½ x 3½	2,525	2,145	0.169	
													3 x 3½	3,130	3,050	0.12	
													3½ x 3½	3,130	3,050	0.12	
HD5B	⅝	10	5¼	3	2½	9⅛	2½	1¼	2	⅝	(2)	¾	1½ x 3½	2,405	2,070	0.153	
													2½ x 3½	3,750	3,190	0.129	
													3 x 3½	4,505	3,785	0.156	
													3½ x 3½	4,935	4,195	0.15	
HD7B	⅞	10	5¼	3	2½	12⅛	2½	1¼	2	⅞	(3)	¾	3 x 3½	6,645	5,650	0.142	
													3½ x 3½	7,310	6,215	0.154	
													3½ x 4½	7,345	6,245	0.155	
HD9B	⅛	7	6⅛	3½	2⅞	14	2½	1¼	2⅜	⅞	(3)	⅞	3½ x 3½	7,740	6,580	0.159	
													3½ x 4½	9,920	8,430	0.178	
													3½ x 5½	9,920	8,430	0.178	
													3½ x 7¼	10,035	8,530	0.179	
HD12	⅛	3	7	4	3½	20⅝	4¼	2¼	3⅜	1	(4)	1	3½ x 3½	11,350	9,215	0.171	
													3½ x 4½	12,665	10,765	0.171	
													5½ x 5½	14,220	12,085	0.162	
										1¼	(4)	1	3½ x 3½	11,775	9,215	0.171	
													3½ x 4½	13,335	11,055	0.177	
													3½ x 7¼	15,435	13,120	0.194	
													5½ x 5½	15,510	12,690	0.162	
HD19	⅛	3	7	4	3½	24½	4¼	2¼	3⅜	1¼	(5)	1	3½ x 7¼	16,735	14,225	0.191	
													5½ x 5½	16,775	12,690	0.2	
										1¼	(5)	1	3½ x 7¼	19,360	15,270	0.18	
													5½ x 5½	19,070	16,210	0.137	

1. To achieve published loads, machine bolts shall be installed with the nut on the opposite side of the holdown. If this orientation is reversed, the designer shall reduce the allowable loads shown per NDS requirements when bolt threads are in the shear plane.
2. All references to bolts are for structural quality through bolts (not lag screw or carriage bolts) equal to or better than ASTM A307, Grade A.
3. HD19 with 1¼" anchor rod requires No.1 post (or better) to achieve published loads.

General Information and Notes (cont.)

Holdown and Tension Tie General Notes:

a. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed. Reduce where other loads govern.

b. To obtain LRFD values for cast-in-place holdowns (STHD and PA), multiply ASD seismic load values by 1.43 and wind load values by 1.67. For post-installed holdowns, multiply allowable loads by 1.4. See evaluation reports for LRFD deflections.

c. Use all specified fasteners.

d. The designer must specify anchor bolt type, length and embedment. See pp. 32–34 and 38–39 for SB and SSTB anchor bolts and pp. 42–43 for PAB anchor bolts. See pp. 44–45 for anchor recommendations for each holdown.

e. Simpson Strong-Tie® Anchor Designer is available for quick and easy design of anchors for wind and seismic conditions as well as cracked and uncracked concrete. See **strongtie.com/anchordesigner**.

f. Anchor bolt nut should be finger tight plus ⅙ to ⅓ turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken not to over-tighten the nut. Impact wrenches should not be used.

g. Post or beam by designer. Minimum no. 2 or better unless noted otherwise. Tabulated loads are based on installation into the wide face of a minimum 3½" wide solid or built-up post or beam (in a 3½" wall), unless noted otherwise. Posts may consist of multiple members provided they are connected independently of the holdown fasteners. See **strongtie.com/posts** for common post allowable loads.

h. Holdowns are for use in vertical or horizontal applications.

i. Tension values are valid for holdowns installed flush or raised off the sill plate.

j. Deflection at Allowable Tension Load is determined by testing on wood posts and includes fastener slip, holdown deformation and anchor rod elongation for holdowns installed 6" above top of concrete (4½" for HTT). Holdowns may be installed any height above top of concrete without load reduction provided that additional elongation of the anchor rod is accounted for. Holdown deflections may be linearly reduced for design loads less than the allowable load.

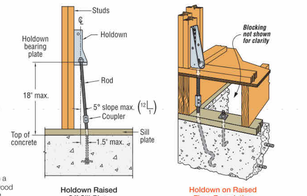
k. To accommodate a 1½" max. offset anchor bolt, holdowns may be installed raised up to 18" above the top of concrete with no load reduction provided that additional elongation of the anchor rod is accounted for.

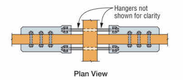
l. Tabulated loads for bolted holdowns may be doubled when holdowns are installed on opposite sides of the wood member. Designer must evaluate the allowable load of the wood member and the anchorage.

m. Tabulated loads for nailed or screwed holdowns may be doubled when holdowns are installed on opposite sides of the wood member. Member must be thick enough to prevent opposing holdown fastener interference or the holdowns are offset to eliminate fastener interferences. Designer must evaluate the allowable load of the wood member and the anchorage. See **strongtie.com/posts** for common post allowable loads.

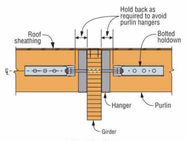
n. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers known as the narrow face. Values in the tables reflect installation into the wide face. See technical bulletin T-C-SCLCLM at **strongtie.com** for load reductions due to narrow face installations.

o. Some holdown models are available in stainless steel. Refer to engineering letter L-C-SSHD for stainless-steel holdown allowable loads.



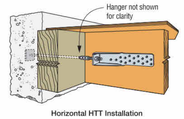


Plan View



Elevation View

Purlin-to-Purlin Cross-Tie Detail



Horizontal HTT Installation

No.	Date	Description

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

01/13/2023

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

PERMIT SET

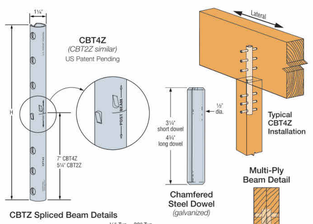
STANDARD DETAIL SHEET

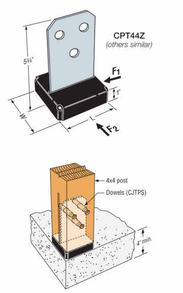
SIMPSON HOLDOWN & TENSION TIES STANDARD DTLS

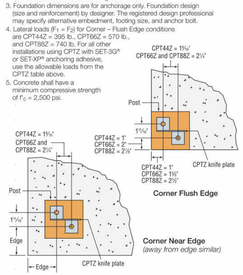
PROJECT NO:	21014
ISSUE DATE:	2022/06/29
DRAWN BY:	SPM

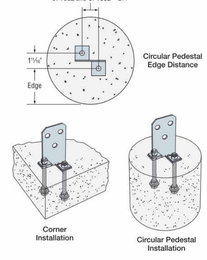
S301

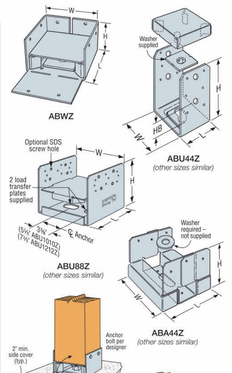
SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

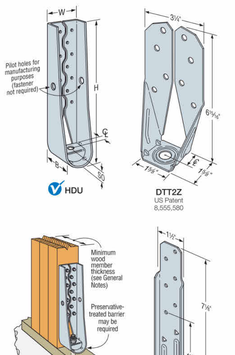


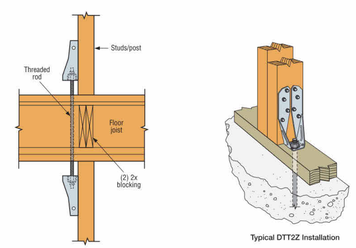












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Simpson Strong-Tie® Wood Construction Connectors — CBTZ — Concealed Beam Tie

86

Simpson Strong-Tie® Wood Construction Connectors — CPTZ — Concealed Post Tie

70

Simpson Strong-Tie® Wood Construction Connectors — ABA/ABU/ABW — Adjustable and Standoff Post Bases

68

Simpson Strong-Tie® Wood Construction Connectors — HDU/DTT — Holdowns

52

Simpson Strong-Tie® Wood Construction Connectors — CPTZ — Concealed Post Tie (cont.)

71

Simpson Strong-Tie® Wood Construction Connectors — ABA/ABU/ABW — Adjustable and Standoff Post Bases (cont.)

69

Simpson Strong-Tie® Wood Construction Connectors — HDU/DTT — Holdowns (cont.)

53

NOTE: THIS IS A STANDARD DETAILS SHEET PREPARED FOR SINGLE FAMILY HOUSING TYPE V NONRATED CONSTRUCTION. THESE DETAILS HAVE BEEN PREPARED TO COVER GENERAL CONSTRUCTION CONDITIONS. NOT ALL DETAILS ON THIS SHEET ARE NECESSARILY INCORPORATED INTO THIS PROJECT. COORDINATE WITH PLANS.

STANDARD DETAIL SHEET

No.	Date	Description

BRIAN J. LOSHBOUGH
53214
01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE

2448 72nd AVE SE, Mercer Island

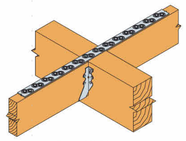
PERMIT SET

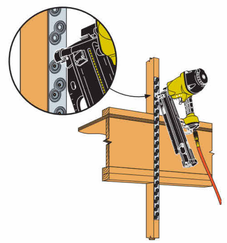
SIMPSON
HOLDOWN &
TENSION TIES
STANDARD DTLS

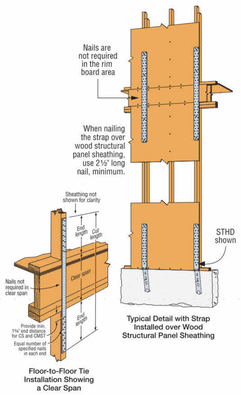
PROJECT NO: 21014
ISSUE DATE: 2022/06/29
DRAWN BY: SPM

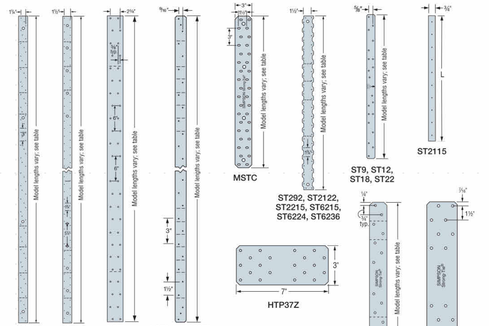
S302

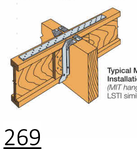
SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

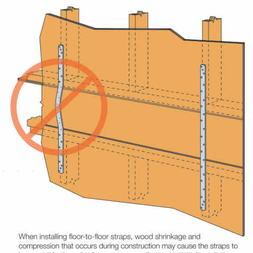


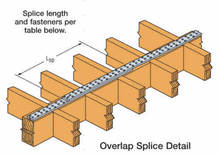


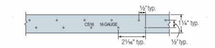


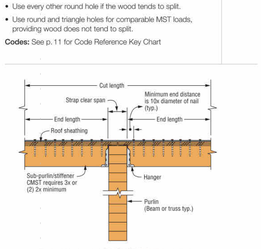


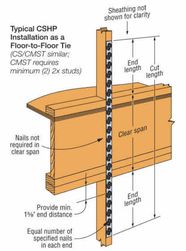


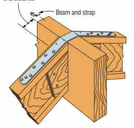


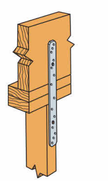


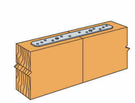


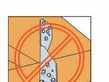


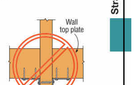


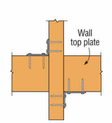


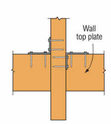












Simpson Strong-Tie® Wood Construction Connectors

CS/CMST/CMSTC/CSHP

Coiled Straps (cont.)

▶ These products are available with additional corrosion protection. For more information, see p. 14.

SS For stainless-steel fasteners, see p. 21.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

Model No.	Total L	Ga.	DF/SP Fasteners (in.)	DF/SP End Length (in.)	SPF/HF Fasteners (in.)	SPF/HF End Length (in.)	Allowable Tension Loads (160)	Code Ref.
CMST12	40'	12	(74) 0.162 x 2½	33	(84) 0.162 x 2½	38	9,215	IBC, FL, LA
			(86) 0.148 x 2½	39	(98) 0.148 x 2½	44	9,215	
CMST14	52½'	14	(56) 0.162 x 2½	26	(66) 0.162 x 2½	30	6,475	
			(66) 0.148 x 2½	30	(76) 0.148 x 2½	34	6,475	
CMSTC16	54'	16	(50) 0.148 x 3¼	20	(58) 0.148 x 3¼	25	4,690	
CS14	100'	14	(26) 0.148 x 2½	15	(30) 0.148 x 2½	16	2,490	
			(30) 0.131 x 2½	16	(36) 0.131 x 2½	19	2,490	
SS CS16	150'	16	(20) 0.148 x 2½	11	(22) 0.148 x 2½	13	1,705	
			(22) 0.131 x 2½	13	(26) 0.131 x 2½	15	1,705	
CS20	250'	20	(12) 0.148 x 2½	7	(14) 0.148 x 2½	9	1,030	
			(14) 0.131 x 2½	9	(16) 0.131 x 2½	9	1,030	
CSHP18	75'	18	(14) 0.148 x 2½	9	(16) 0.148 x 2½	10	1,540	
			(16) 0.131 x 2½	10	(18) 0.131 x 2½	11	1,540	
CSHP20	75'	20	(12) 0.148 x 2½	8	(12) 0.148 x 2½	8	1,160	
			(12) 0.131 x 2½	8	(14) 0.131 x 2½	9	1,160	

1. See pp. 266–267 for Straps and Ties General Notes.
2. Calculate the connector value for a reduced number of nails as follows:

$$\text{Allowable Load} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Load}$$

Example: CMSTC16 in DF/SP with 40 nails total.
(Half of the nails in each member being connected)

$$\text{Allowable Load} = \frac{\text{40 Nails (Used)}}{\text{50 Nails (Table)}} \times 4{,}690\text{ lb.} = 3{,}752\text{ lb.}$$

3. See p. 274 for alternate nailing and lap splice information.
4. **Fasteners:** Nail dimensions are listed diameter by length. See pp. 21–22 for fastener information.

Typical CSHP Installation
(CS/CMST similar)

Typical CSHP Installation

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

MST/MSTA/MSTC

Strap Ties (cont.)

Codes: See p. 11 for Code Reference Key Chart

▶ These products are available with additional corrosion protection. For more information, see p. 14.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

Floor to Floor Span Table

Model No.	Clear Span (in.)	Fasteners (Total) (in.)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)
MSTA49	18	(26) 0.148 x 2½	2,020	2,020
	16	(26) 0.148 x 2½	2,020	2,020
MSTC28	18	(12) 0.148 x 3¼	1,150	995
	16	(16) 0.148 x 3¼	1,535	1,330
MSTC40	24	(20) 0.148 x 3¼	1,920	1,660
	18	(28) 0.148 x 3¼	2,690	2,325
	16	(32) 0.148 x 3¼	3,070	2,655
MSTC52	24	(36) 0.148 x 3¼	3,455	2,990
	18	(44) 0.148 x 3¼	4,225	3,650
	16	(48) 0.148 x 3¼	4,610	3,985
MSTC66	30	(48) 0.148 x 3¼	4,775	4,130
	24	(54) 0.148 x 3¼	5,375	4,645
	18	(64) 0.148 x 3¼	5,850	5,505
	16	(68) 0.148 x 3¼	5,850	5,850
MSTC78	30	(64) 0.148 x 3¼	5,850	5,505
	24	(72) 0.148 x 3¼	5,850	5,850
	18	(76) 0.148 x 3¼	5,850	5,850
▶ MST37	24	(14) 0.162 x 2½	1,720	1,500
	18	(20) 0.162 x 2½	2,460	2,140
	16	(22) 0.162 x 2½	2,705	2,355
▶ MST48	24	(26) 0.162 x 2½	3,210	2,780
	18	(32) 0.162 x 2½	3,950	3,425
	16	(34) 0.162 x 2½	4,200	3,640
▶ MST60	30	(34) 0.162 x 2½	4,605	3,995
	24	(40) 0.162 x 2½	5,240	4,700
	18	(46) 0.162 x 2½	6,235	5,405
▶ MST72	30	(48) 0.162 x 2½	6,505	5,640
	24	(54) 0.162 x 2½	6,730	6,345
	18	(62) 0.162 x 2½	6,730	6,475

See footnotes below.

Typical Detail with Strap Installed over Wood Structural Panel Sheathing

Floor-to-Floor Tie Installation Showing a Clear Span

Model No.	Ga.	Dimensions (in.) W	Dimensions (in.) L	Fasteners (Total) Nails (in.)	Fasteners (Total) Bolts Qty.	Fasteners (Total) Bolts Dia.	Allowable Tension Loads (DF/SP) Nails (160)	Allowable Tension Loads (DF/SP) Bolts (160)	Allowable Tension Loads (SPF/HF) Nails (160)	Allowable Tension Loads (SPF/HF) Bolts (160)	Code Ref.
▶ MST27	12	2¹⁄₁₆	27	(30) 0.162 x 2½	4	½	3,700	2,165	3,210	2,000	IBC, FL, LA
▶ MST37		2¹⁄₁₆	37½	(42) 0.162 x 2½	6	½	5,070	3,030	4,495	2,800	
▶ MST48		2¹⁄₁₆	48	(50) 0.162 x 2½	8	½	5,310	3,675	5,190	3,395	
▶ MST60	10	2¹⁄₁₆	60	(68) 0.162 x 2½	10	½	6,730	4,490	6,475	4,150	
▶ MST72		2¹⁄₁₆	72	(68) 0.162 x 2½	10	½	6,730	4,490	6,475	4,150	

1. See pp. 266–267 for Straps and Ties General Notes.
2. Install bolts or nails as specified by designer. Bolt and nail values may not be combined.
3. Allowable bolt loads are based on parallel-to-grain loading and minimum member thickness: MST – 2½".
4. Splitting may be a problem with installations on lumber smaller than 3½"; either fill every nail hole with 0.148" x 1½" nails or fill every other hole with 0.162" x 2½" nails. Reduce the allowable load based on the size and quantity of fasteners used.
5. **Fasteners:** Nail dimensions are listed diameter by length. See pp. 21–22 for fastener information.

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

HRS/ST/HTP/LSTA/LSTI/MST/MSTA/MSTC/MSTI

Strap Ties

Straps are designed to transfer tension loads in a wide variety of applications.

HRS — Heavy strap designed for installation on the edge of 2x members. The HRS416Z installs with Strong-Drive® SDS Heavy-Duty Connector screws.

HTP — Heavy tie plate designed for installation on the side of 2x4 or larger members.

LSTA and MSTA — Designed for use on the edge of 2x members, with a nailing pattern that reduces the potential for splitting.

LSTI and MSTI — Light and medium straps that are suitable where pneumatic-nailing is necessary through diaphragm decking and wood chord open-web trusses.

MST — High-capacity strap that can be installed with either nails or bolts. Suitable for double 2x member connections or greater.

MSTC — High-capacity strap that utilizes a staggered nail pattern to help minimize wood splitting. Nail slots have been countersunk to provide a lower nail head profile.

Finish: Galvanized. Some products are available in stainless steel, ZMAX® coating or black powder coat (add PC to SKU); contact Simpson Strong-Tie. See Corrosion Information, pp. 12–15.

Installation: Use all specified fasteners; see General Notes

Options: Special sizes can be made to order; contact Simpson Strong-Tie

Codes: See p. 11 for Code Reference Key Chart

MSTC and RPS meet code requirements for reinforcing cut members (16 gauge) at top plate and RPS at sill plate.
International Residential Code® — 2012 /2015/2018/2021
R602.6.1
International Building Code® — 2012 2308.9.8;
2015/2018/2021 2308.5.8

(For RPS, refer to p. 309. For CTS218 compression and tension strap, see p. 307.)

MSTI

MST

LSTI

LSTA and MSTA
(pilot holes not shown)

MSTC

ST292, ST2122, ST2215, ST6215, ST6224, ST6236

ST9, ST12, ST18, ST22

ST2115

HTP37Z

HRS

HRS416Z

Typical MSTI Installation
(MIT hanger shown)
LSTI similar

Typical LSTI Installation

Typical HRS Installation

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

Straps and Ties General Notes

These general notes are provided to ensure proper installation of Simpson Strong-Tie straps and ties.

a. The (160) loads have been increased for wind or earthquake loading, with no further increase allowed. Reduce where other loads govern.
b. When installing strap over wood structural panel sheathing, use 2½"-long nails minimum.
c. SD screws are Simpson Strong-Tie® Strong-Drive® SD Connector screws. See pp. 21–22 for additional fastener information.
d. For straight straps in tension, use half of the fasteners in each member being connected to achieve the listed loads.
e. Tension loads apply for uplift when installed vertically.
f. Field-bending straps is not recommended unless otherwise noted.
g. If wood splitting is a concern, consider spacing the nails at every other location.
h. The cut length of coil strap shall be equal to twice the “end length” noted in the tables plus the clear-span dimension.
i. Straps 16 ga. and heavier can be fillet welded to structural steel members. The designer shall specify the weld size and length. Welding and specification shall be in compliance with the current American Welding Society ANSI/AWS D1.3, Structural Welding Code – Sheet Steel.

Load Adjustment Factors for Optional Fasteners Used with Straight Straps

Connector Table Nail	Replacement Fastener	Allowable Load Adjustment Factor
0.131" x 1½"	#9 x 1½" SD Connector screw	1.00
0.131" x 2½"	0.131" x 1½"	1.00
	#9 x 1½" SD Connector screw	1.00
0.148" x 1½"	#9 x 1½" SD Connector screw	1.00
	0.131" x 1½"	0.83
0.148" x 2½" 0.148" x 3" 0.148" x 3¼"	0.131" x 1½"	0.83
	0.131" x 2½"	0.83
	0.148" x 1¼"	1.00[6]
	0.148" x 1½"	1.00[6]
	0.148" x 2½"	1.00
	0.148" x 3¼"	1.00
	#9 x 1½" SD Connector screw	1.00
	#9 x 2½" SD Connector screw	1.00
0.162" x 2½" 0.162" x 3½"	0.148" x 1½"	0.84[5]
	0.148" x 2½"	0.84
	0.148" x 3"	0.84
	0.148" x 3¼"	0.84
	0.162" x 2½"	1.00[6]
	#10 x 1½" SD Connector screw	1.00
	#10 x 2½" SD Connector screw	1.00

1. Allowable load adjustment factors shown in the table are applicable to all straight straps throughout this catalog, except as noted in the footnotes below.
2. Some products have been tested specifically with alternative fasteners and have allowable load adjustment factors or reduced capacities published on the specific product page. Values published on the product page may be used in lieu of using this table.
3. For straps installed over wood structural panel sheathing, use a 2½"-long fastener minimum.
4. This table does not apply to straps made of steel thicker than 10 ga.
5. Where noted, use 0.80 for 10 ga., 11 ga., and 12 ga. products when using SPF lumber.
6. Where noted, use 0.92 for 10 ga., 11 ga., and 12 ga. products when using SPF lumber.

When installing floor-to-floor straps, wood shrinkage and compression that occurs during construction may cause the straps to bow out if both ends of the strap are nailed during initial installation.

To prevent this, filling all fastener holes in the strap (including the rim joist area) will limit the bowing. Alternatively, fill the holes in the top of the strap before the roof is installed and then filling the bottom half of the strap after will also help reduce bowing.

Not Sure How Much Coil Strap You Need?

Simpson Strong-Tie has a web-based app, the **Coil Strap Calculator**, which can help you quickly determine the cut length of each strap and the total amount of coil strap needed for each application on a project.

For more information or to access, go to **strongtie.com/webapps**.

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

CS/CMST/CMSTC/CSHP

Coiled Straps (cont.)

Lap splicing of coiled straps can be used to extend standard strap lengths for designing continuous drag elements and diaphragm chord members. The Strap Lap Splices table provides the minimum splice length (L_{sp}) and fasteners, within the splice length, to achieve the highest allowable capacity of the strap.

The Allowable Loads for Alternative Nailing table provides information for coiled straps when installed with different nailing schedules. The highest allowable load given for each model is limited by the steel capacity.

The Engineer/Designer of Record must evaluate and determine the adequacy of the coiled strap’s lap splice and alternative nailing applications to meet their design loads.

Overlap Splice Detail

Strap Lap Splices

Model No.	Ga.	Strap Lap Splice: Minimum Fasteners per Splice	Strap Lap Splice: Min. Splice Length, L_{sp} (in.)
CMST12	12	(18) 0.162 x 2½	18
		(22) 0.148 x 2½	21
CMST14	14	(13) 0.162 x 2½	14
		(15) 0.148 x 2½	15
CMSTC16	16	(11) 0.162 x 2½	10
		(11) 0.148 x 2½	10
CS14	14	(6) 0.148 x 2½	9
		(7) 0.131 x 2½	10
CS16	16	(5) 0.148 x 2½	8
		(6) 0.131 x 2½	9
CS20	20	(5) 0.148 x 2½	8
		(5) 0.131 x 2½	8
CSHP18	18	(7) 0.148 x 2½	9
		(7) 0.131 x 2½	9
CSHP20	20	(6) 0.148 x 2½	8
		(7) 0.131 x 2½	9

1. See pp. 266–267 for Straps and Ties General Notes.
2. 0.148" x 2½" nails can be replaced by 0.148" x 3¼" nails. No other nail substitution is allowed for lap splices.
3. Refer to the applicable code for minimum edge distance and minimum end distance.
4. No strap modification is allowed and the splice must meet both the minimum number of fasteners and the minimum splice length.

Allowable Loads for Alternative Nailing

Model No.	Ga.	Total Coil Length (ft.)	Fasteners (in.)	DF/SP Allowable Tension Loads (160)	End Length (in.): Nail Installed in Every Hole	End Length (in.): Nail Installed in Every Other Hole
CMST12	12	40	(66) 0.162 x 2½	8,415	30	58
			(58) 0.162 x 2½	7,395	27	51
			(50) 0.162 x 2½	6,375	23	44
			(76) 0.148 x 2½	8,320	35	66
			(68) 0.148 x 2½	7,445	31	59
			(60) 0.148 x 2½	6,570	28	52
CMST14	14	52.5	(48) 0.162 x 2½	5,615	22	42
			(40) 0.162 x 2½	4,680	19	35
			(32) 0.162 x 2½	3,745	15	28
			(58) 0.148 x 2½	5,770	27	51
			(50) 0.148 x 2½	4,975	23	44
			(42) 0.148 x 2½	4,180	20	37
CMSTC16	16	54	(42) 0.162 x 2½	4,690	17	32
			(34) 0.162 x 2½	3,875	14	26
			(26) 0.162 x 2½	2,965	11	20
			(18) 0.162 x 2½	2,050	8	14
			(48) 0.148 x 2½	4,610	19	35
			(40) 0.148 x 2½	3,840	16	29
			(32) 0.148 x 2½	3,070	13	23
			(24) 0.148 x 2½	2,305	10	17
			(16) 0.148 x 2½	1,535	7	11
CS14	14	100	(24) 0.148 x 2½	2,390	13	23
			(22) 0.148 x 2½	2,190	13	22
			(28) 0.131 x 2½	2,340	15	27
			(26) 0.131 x 2½	2,170	15	27
CS16	16	150	(18) 0.148 x 2½	1,700	11	18
			(16) 0.148 x 2½	1,510	9	15
			(20) 0.131 x 2½	1,570	11	19
			(18) 0.131 x 2½	1,415	11	18
CS20	20	250	(10) 0.148 x 2½	915	6	10
			(12) 0.131 x 2½	910	7	11
CSHP18	18	75	(12) 0.148 x 2½	1,440	8	14
			(10) 0.148 x 2½	1,200	8	12
			(14) 0.131 x 2½	1,445	9	16
			(12) 0.131 x 2½	1,240	8	14
CSHP20	20	75	(10) 0.148 x 2½	1,150	8	12
			(8) 0.148 x 2½	920	6	10
			(10) 0.131 x 2½	985	8	12
			(8) 0.131 x 2½	790	6	10

1. See pp. 266–267 for Straps and Ties General Notes.
2. **Fasteners:** Nail dimensions are listed diameter by length. See pp. 21–22 for fastener information.

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

CS/CMST/CMSTC/CSHP

Coiled Straps

Coiled straps are continuous utility straps which can be cut to length at the jobsite. The patent-pending CSHP high-performance coil strap features a raised embossment that makes it easy to install with a power framing nailer. This tested feature provides improved performance — resulting in fewer nails, shorter straps and overall lower installed cost. CMSTC provides countersunk nail slots for lower profile when installed with 0.148" x 3¼" sinkers.

Finish: Galvanized. Some products available in ZMAX® coating; see Corrosion Information, pp. 12–15. CS may be ordered in stainless steel (order CS16SS-R).

Material: See table

Installation:

- Use all specified fasteners; see General Notes.
- Wood shrinkage after strap installation across horizontal wood members may cause strap to buckle outward.
- Refer to the applicable code for minimum nail penetration and minimum wood edge and end distances.
- The table shows the maximum allowable loads and the nails required to obtain them. Fewer nails may be used; reduce the allowable load as shown in the table notes or in the Straps and Ties General Notes on pp. 266-267.
- For lap slice and alternate nailing information, refer to p. 274.
- The cut length of the strap shall be equal to twice the “End Length” noted in the table plus the clear span dimension.
- CS/CSHP straps are available in 25' lengths (add -R to model no.).

CSHP:

- The colored dot must be installed facing out.
- Designed to be installed with a power framing nailer using concentric, full round-head nails.

CMST:

- Use every other round hole if the wood tends to split.
- Use round and triangle holes for comparable MST loads, providing wood does not tend to split.

Codes: See p. 11 for Code Reference Key Chart

CSHP
US Patent Pending
Colored dots indicate nailing face and strap model. CSHP18: Orange — CSHP20: Black

CS16 Hole Pattern
(all other CS straps similar)

CMST14 Hole Pattern
(CMST12 similar)

CMSTC16 Hole Pattern

Gauge stamped on part for easy identification

Typical Horizontal CS/CMST/CSHP Installation

Typical CSHP Installation as a Floor-to-Floor Tie
(CS/CMST similar; CMST requires minimum (2) 2x studs)

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

HRS/ST/HTP/LSTA/LSTI/MST/MSTA/MSTC/MSTI

Strap Ties (cont.)

Codes: See p. 11 for Code Reference Key Chart

▶ These products are available with additional corrosion protection. For more information, see p. 14.

SS For stainless-steel fasteners, see p. 21.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

Model No.	Ga.	Dimensions (in.) W	Dimensions (in.) L	Fasteners (Total) (in.)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)	Code Ref.
ST2115	20	¾	16⁵⁄₁₆	(10) 0.162 x 2½	660	660	IBC, FL, LA
LSTA9		1¼	9	(8) 0.148 x 2½	740	635	
LSTA12		1¼	12	(10) 0.148 x 2½	925	795	
LSTA15		1¼	15	(12) 0.148 x 2½	1,110	955	
LSTA18		1¼	18	(14) 0.148 x 2½	1,235	1,115	
LSTA21		1¼	21	(16) 0.148 x 2½	1,235	1,235	
LSTA24		1¼	24	(18) 0.148 x 2½	1,235	1,235	
LSTA30	18	1¼	30	(22) 0.148 x 2½	1,640	1,640	
LSTA36		1¼	36	(24) 0.148 x 2½	1,640	1,640	
MSTA9		1¼	9	(8) 0.148 x 2½	750	650	
SS MSTA12		1¼	12	(10) 0.148 x 2½	940	810	
▶ MSTA15		1¼	15	(12) 0.148 x 2½	1,130	970	
SS MSTA18		1¼	18	(14) 0.148 x 2½	1,315	1,135	
▶ MSTA21		1¼	21	(16) 0.148 x 2½	1,505	1,295	
SS MSTA24		1¼	24	(18) 0.148 x 2½	1,640	1,460	
▶ MSTA30	16	1¼	30	(22) 0.148 x 2½	2,050	1,825	
SS MSTA36		1¼	36	(26) 0.148 x 2½	2,050	2,050	
MSTA49		1¼	49	(26) 0.148 x 2½	2,020	2,020	
ST9		1¼	9	(8) 0.162 x 2½	885	765	
ST12		1¼	11⅝	(10) 0.162 x 2½	1,105	955	
ST18		1¼	17¾	(14) 0.162 x 2½	1,420	1,335	
ST22		1¼	21⅝	(18) 0.162 x 2½	1,420	1,420	
▶ HRS6	12	1⅜	6	(6) 0.148 x 2½	605	530	
▶ HRS8		1⅜	8	(10) 0.148 x 2½	1,010	880	
▶ HRS12		1⅜	12	(14) 0.148 x 2½	1,415	1,230	
ST292	20	2¹⁄₁₆	9⁵⁄₁₆	(12) 0.162 x 2½	1,260	1,120	
ST2122		2¹⁄₁₆	12¹³⁄₁₆	(16) 0.162 x 2½	1,530	1,510	
ST2215		2¹⁄₁₆	16⁵⁄₁₆	(20) 0.162 x 2½	1,875	1,875	
ST6215	16	2¹⁄₁₆	16⁵⁄₁₆	(20) 0.162 x 2½	2,090	1,910	
ST6224		2¹⁄₁₆	23⁵⁄₁₆	(28) 0.162 x 2½	2,535	2,535	
ST6236	14	2¹⁄₁₆	33¹³⁄₁₆	(40) 0.162 x 2½	3,845	3,845	
▶ MSTI26	12	2¹⁄₁₆	26	(26) 0.148 x 1½	2,745	2,380	
▶ MSTI36		2¹⁄₁₆	36	(36) 0.148 x 1½	3,800	3,295	
▶ MSTI48		2¹⁄₁₆	48	(48) 0.148 x 1½	5,070	4,390	
▶ MSTI60		2¹⁄₁₆	60	(60) 0.148 x 1½	5,070	5,070	
MSTI72		2¹⁄₁₆	72	(72) 0.148 x 1½	5,070	5,070	
HTP37Z	16	3	7	(20) 0.148 x 1½	900	690	
MSTC28		3	28¼	(36) 0.148 x 3¼	3,460	2,990	
MSTC40		3	40¼	(52) 0.148 x 3¼	4,735	4,315	
MSTC52		3	52¼	(62) 0.148 x 3¼	4,735	4,735	
MSTC66	14	3	65¾	(76) 0.148 x 3¼	5,850	5,850	
MSTC78		3	77¾	(76) 0.148 x 3¼	5,850	5,850	
▶ HRS416Z	12	3¼	16	(16) ¼ x 1½ SDS	2,835	2,305	—
LSTI49	18	3¾	49	(32) 0.148 x 1½	2,970	2,560	IBC, FL, LA
LSTI73		3¾	73	(48) 0.148 x 1½	4,205	3,840	

1. See pp. 266–267 for Straps and Ties General Notes.
2. **Fasteners:** Nail dimensions are listed diameter by length. SDS screws are Simpson Strong-Tie® Strong-Drive SDS Heavy-Duty Connector screws. See pp. 21–22 for fastener information.

Typical LSTA Installation
(hanger not shown)
Bend strap one time only, max. 12/12 joist pitch.

Typical LSTA18 Installation

Typical MSTA15 Installation

Straps and Ties

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Simpson Strong-Tie® Wood Construction Connectors

Straps and Ties General Notes

Considerations for Hurricane Tie Selection

1. What is the uplift load?
2. What is the parallel-to-plate load?
3. What is the perpendicular-to-plate load?
4. What is the species of wood used for the rafter and the top plates? (Select the load table based on the lowest performing species of wood.)
5. Will the hurricane tie be nailed into both top plates or the upper top plate only?
6. What load or loads will the hurricane tie be taking?

Simultaneous Loads

When a connector is loaded simultaneously in more than one direction, the allowable load must be evaluated as option 1 or 2.

Option 1: Unity Equation

For all connectors use the following equation:

Design Uplift / Allowable Uplift + Design Lateral Parallel to Plate / Allowable Lateral Parallel to Plate + Design Lateral Perpendicular to Plate / Allowable Lateral Perpendicular to Plate < 1.0.

The three terms in the unity equation are due to the possible directions that exist to generate force on a connector. The number of terms that must be considered for simultaneous loading is at the sole discretion of the designer and is dependent on their method of calculating wind forces and the utilization of the connector within the structural system.

Option 2: 75% Rule

As an alternative, certain roof-to-wall connectors (embedded truss anchors, pp. 254–255, seismic and hurricane ties, pp. 276–279, and twist straps, p. 283) can be evaluated using the following: The design load in each direction shall not exceed the published allowable load in that direction multiplied by 0.75.

7. Select hurricane tie based on performance, application, installed cost and ease of installation.

Some hurricane ties and twist straps can be installed in pairs to achieve a higher load. Both connectors shall be the same model. Refer to the *High Wind Guide, F-C-HWG*, at strongtie.com.

Install diagonally across from each other for minimum 2x truss.

Products can be on the same side of the wall provided they are configured as shown.

Avoid a Misinstallation

Do not make new holes or overdrive nails.

Nailing into both sides of a single 2x truss may cause the wood to split.

Straps and Ties

267

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NOTE: THIS IS A STANDARD DETAILS SHEET PREPARED FOR SINGLE FAMILY HOUSING TYPE V NONRATED CONSTRUCTION. THESE DETAILS HAVE BEEN PREPARED TO COVER GENERAL CONSTRUCTION CONDITIONS, NOT ALL DETAILS ON THIS SHEET ARE NECESSARILY INCORPORATED INTO THIS PROJECT. COORDINATE WITH PLANS.

No.	Date	Description

01/13/2023

L2 ENGINEERS
17848 NE 198TH PLAVE
WOODINVILLE, WA 98072

ATERA DESIGN STUDIO
451 DUVALL AVE NE,
RENTON, W A 98059

HU RESIDENCE
2448 72nd AVE SE, Mercer Island

STANDARD DETAIL SHEET

PERMIT SET

SIMPSON
HOLDOWN &
TENSION TIES
STANDARD DTLS

PROJECT NO: 21014
ISSUE DATE: 2022/06/29
DRAWN BY: SPM

S303

SCALE 24X36:
* NOTE: 11X17 SETS ARE REDUCED 50%; SCALE DRAWINGS ACCORDINGLY.

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