ROUTT COUNTY
REGIONAL BUILDING DEPARTMENT

Proudly Serving Rural Routt County * City of Steamboat Springs * Town of Hayden * Town of Oak Creek * Town of Yampa * Routt County School

Date: 06/23/2021

Address: 27225 COUNTY ROAD 14, OAK CREEK	Property Use: VAC
Owner: HUYSER, JACK MICAL	Lot Area: 16.94
Parcel ID: 302600002	Year Built: 0
Zoning: MRE	Book Page:

Building TB-21-692

RCRBD Record Set
T.A.

07/12/2021

To: James Henry

Design information:

Occupancy Classification: R3, U
Character and Use: One-Family Residence w/ attached Garage
Number of Stories: 3
Type of Construction: Type V-B
Occupant Load: <10

✓**Items noted below do not require a response or comment back during the Plan Review in order for us to approve this permit. The Items below are required and will be checked by field inspectors. Please take time to review these items in advance of starting any work to ensure your project is ready for inspection.**

1. Separate Electrical Plumbing Permits must be applied for and obtained prior to any work being done within these trades. Note Electrical and Plumbing trades are protected by the State, Licensed Contractors must apply and perform this work on all Commercial Properties, and additionally their employees working on these projects must be registered or licensed with the State of Colorado and work directly under Licensed Individual managing the project.
    - On Residential Properties owners are allowed to apply for the permit and perform their own Electrical and Plumbing work if this is their primary residence and they sign and complete our Home Owner Agreement form.

2. Separate Mechanical Permits must be applied for and obtained prior to any work being done within this trade. Mechanical Contractors must be registered and approved by the Routt County Regional Building Department.
3. The adopted codes in Routt County are the 2018 ICC model codes to include APPENDIX F

RADON CONTROL METHODS. The components of a passive submembrane depressurization system shall be installed during construction but this does not mean you have to install the full system, just through the Soil-gas-retarder.

4. Deferred Submittal Required: Heat Load Calculations and heating information for the new construction must be submitted prior to Electrical, Plumbing, and Mechanical Permits being issued.
5. Deferred Submittal: Applicant to provide information on how Whole House Ventilation requirements will be met in accordance with IEEC R403.6 and 403.6.1 and IRC M1507.3.
6. Deferred Blower Door Test Certificate of Compliance: The building or dwelling unit (except within the Town of Hayden) must complete a Blower Door Test with a passing score of Equal/Less than 3 air changes per hour (3ACH), this certificate must be present for our Inspectors prior to approval of a Temporary Certificate of Occupancy/ Certificate of Occupancy. Please also upload this Blower Door Certificate to the Building Department Permit Record, or email this to our staff and they will upload the document.
7. The Routt County Building Department has developed the Residential Private Garage Floor Drain Policy. This Policy outlines the regulations per Jurisdiction on private residential garage floor drains throughout Routt County, ask Routt County personnel for policy.
8. R308 Glazing. Except as indicated in Section R308.1.1, each pane of glazing installed in hazardous locations as defined in SectionR308.4 shall be provided with a manufacturer's or installer's label, designating the type and thickness of glass and the safety glazing standard with which it complies, which is visible in the final installation. The label shall be acid etched, sandblasted, ceramic-fired, embossed mark, or shall be of a type which once applied cannot be removed without being destroyed. Exceptions: Tempered spandrel glass may be identified by the manufacturer with a removable paper label.
9. Fenestration U-factors windows and doors less than or equal to 0.30 will be required. This will apply for all glazing in windows and doors. The builder shall leave the National Fenestration Rating Council (NFRC) labels on all windows and doors with glazing at time of rough inspections so inspectors can verify the glazing requirements.
10. Bath Exhaust ducts if ran in unconditioned space must be done in insulated duct.
11. R321.1 Premises identification. Approved numbers or addresses shall be provided for all new buildings in such a position as to be plainly visible and legible from the street or road fronting the property.
12. R316.4 Thermal barrier. Unless otherwise allowed in Section R316.5, foam plastic shall be separated from the interior of a building by an approved thermal barrier of not less than 1/2-inch (12.7 mm) gypsum wallboard, 23/32-inch (18.2 mm) wood structural panel or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.
13. SECTION R314 SMOKE ALARMS
    R314.1 General. Smoke alarms shall comply with NFPA 72 and Section R314.
    R314.1.1 Listings. Smoke alarms shall be listed in accordance with UL 217. Combination smoke and carbon mon-oxide alarms shall be listed in accordance with UL 217 and UL 2034.

    R314.2 Where required. Smoke alarms shall be provided in accordance with this section.
    R314.2.1 New construction. Smoke alarms shall be pro-vided in dwelling units.
    R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. on each additional story of the dwelling, including basements and habitable attics and not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section R314.3.

SECTION R315
CARBON MONOXIDE ALARMS
R315.1 General. Carbon monoxide alarms shall comply with Section R315.
R315.1.1 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 2034 and UL 217.
R315.2 Where required. Carbon monoxide alarms shall be provided in accordance with Sections R315.2.1 and R315.2.2.
R315.2.1 New construction. For new construction, car-bon monoxide alarms shall be provided in dwelling units where either or both of the following conditions exist.
1. The dwelling unit contains a fuel-fired appliance.
2. The dwelling unit has an attached garage with an opening that communicates with the dwelling unit.
R315.3 Location. Carbon monoxide alarms in dwelling units shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning appliance is located within a bedroom or its attached bath-room, a carbon monoxide alarm shall be installed within the bedroom.
R315.4 Combination alarms. Combination carbon monoxide and smoke alarms shall be permitted to be used in lieu of carbon monoxide alarms.
R315.5 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.
Exceptions:
1. Carbon monoxide alarms shall be permitted to be battery operated where installed in buildings without commercial power.
2. Carbon monoxide alarms installed in accordance with Section R315.2.2 shall be permitted to be battery powered.

Reviewed by: Ted Allen Date: June 23, 2021

MICAL HUYSER

Not in ATMOS ENERGY CORPORATION'S Service area. No Atmos Energy natural gas in area.
ATMOS ENERGY CORPORATION

Conditionally approved- pending resubmittal of site plan with access width, grade, turning radius, turnaround, and turnouts meeting Fire Dept. access requirements or if unable to meet requirements submittal of fire sprinkler and monitored fire alarm plans and permits. No inspections past foundation until the above is resolved.)
www.steamboatsprings.net for details.

PJ4910-1
Fire Prevention
In: 06/15/2021
Out:06/16/2021

OWNER

MICAL HUYSER
27225 COUNTY ROAD 14,
ROUTT COUNTY, COLORADO
STEAMBOAT, CO 90477
970-846-4447

DESIGNER

JAKE'S DRAFTING SERVICE, INC.
426 OAK ST.
STEAMBOAT SPRINGS, CO 80477
970-879-7929
WWW.JAKESDRAFTING.COM

GEOTECHNICAL ENGINEER

NWCC, INC.
BRIAN LEN, PE
2580 COPPER RIDGE DRIVE
STEAMBOAT SPRINGS, CO 80487
970-879-7888
WWW.NWCCUSA.COM

STRUCTURAL ENGINEER

MICHAEL EHRLICH STRUCTURAL-
ENGINEERING, INC.
MIKE EHRLICH, PE
3260 APRES SKI WAY
STEAMBOAT SPRINGS, CO 80487
970-879-3866
STRUCTURALENGINEERING.VPWEB.COM

CONTRACTOR

ALBERTINI CONSTRUCTION, INC.
BOB ALBERTINI
PO BOX 775768
STEAMBOAT SPRINGS, CO 80477
(970)-879-9650

FINISH SCHEDULE

No.	ROOM	FLOOR FINISH	BASE FINISH	WALL FINISH	CEILING FINISH	COMMENTS
100	MECH	CONCRETE				
101	STORAGE					
102	WINE CELLAR	CONCRETE				
103	STUDIO	CONCRETE				
104	HALLWAY	WOOD				
105	STORAGE	TILE				
106	FAMILY ROOM	WOOD				
107	BATH	TILE				
108	CLOSET	CARPET				
109	HALLWAY	WOOD				
110	BED	CARPET				
111	BATH	TILE				
112	BED	CARPET				
201	LOUNGE	WOOD				
201	GARAGE	CONCRETE				
202	OFFICE	TIMBER				
202	BREAKFAST NOOK	TILE				
203	KITCHEN	TILE				
203	LAUNDRY	TILE				
204	MASTER CLO.					
205	MASTER BATH					
206	POWDER					
207	MASTER BEDROOM	CARPET				
208	MC	TILE				
208	ENTRY	WOOD				
209	DINING ROOM	WOOD				
209	POWDER ROOM	TILE				
212	PANTRY	TILE				
213	STAIRS	WOOD				
216	DOG WASH	FIBREGLASS				

LIST OF ABBREVIATIONS

A/K/A	ALSO KNOWN AS
&	AND
@	AT
~ OR APPROX	APPROXIMATELY
Ø	DIAMETER
EBO	ENGINEERED BY OTHERS
FOC	FACE OF CONCRETE
FOS	FACE OF STUD OR FRAMING
FT	FOOT / FEE
FFE	FINISH FLOOR ELEVATION
H	HEIGHT
IN	INCH (ES)
LVL	LAMINATED-VENEER LUMBER
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
#	NUMBER
OC	ON CENTER
||	PARALLEL
T OR PERP	PERPENDICULAR
# OR LB	POUNDS
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT OR CCA	PRESSURE TREATED
REBAR	REINFORCING STEEL
REQ'D	REQUIRED
R.N.R.	RECOMMENDED NOT REQUIRED
□ OR SQ.FT	SQUARE FOOT / FEET
T&G	TONGUE AND GROOVE
T&B	TOP AND BOTTOM
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
W	WIDTH
W/	WITH
WWM	WELDED WIRE MESH
()	QUANTITY
BUC	BUILD UP COLUMN
FOF	FACE OF FRAMING
LRP	LATERAL RESTRAINT PANEL

ELECTRICAL LEGEND

- METER / METER W/ DISCONNECT
- 200A 42C — SERVICE PANEL, SIZE AS NOTED
- 110 VAC DUPLEX RECEPTACLE
- 110 VAC DUPLEX RECEPTACLE, BOTTOM HALF SWITCHED
- GFI — 110 VAC DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTER
- WP — 110 VAC DUPLEX RECEPTACLE, GFIC PROTECTED, WEATHERPROOF
- REF — 110 VAC DUPLEX RECEPTACLE, REFRIGERATOR OR DEDICATED
- ARC — 110 VAC DUPLEX RECEPTACLE, ARC-FAULT PROTECTED
- 220 VAC RECEPTACLE, AMPERAGE NOTED
- PLUG MOULD
- SWITCH
- 3 WAY SWITCH
- 4 WAY SWITCH
- DIMMER SWITCH
- SWITCH, MOMENTARY
- SWITCH, WATER PROOF
- SWITCH, TIMED
- M — EXHAUST FAN, CFM NOTED, VENT TO OUTSIDE, W/ DAMPER
- LIGHT/ EXHAUST FAN UNIT
- FLUORESCENT FIXTURE
- RECESSED FIXTURE
- SURFACE MOUNT FIXTURE, DECORATIVE
- WALL MOUNT FIXTURE, DECORATIVE
- RECESSED FIXTURE, WALL WASH
- TRACK LIGHT
- S — SMOKE DETECTOR
- C — CARBON MONOXIDE DETECTOR
- TELEPHONE JACK
- TV — TELEVISION JACK
- MM — MULTI MEDIA JACK
- T — THERMOSTAT
- OH — OVERHEAD DOOR OPERATOR
- PHOTO CELL W/ MOTION DETECTOR

AREA NOTE

HOUSE DATA	
CONSTRUCTION TYPE	VB
OCCUPANCY	R3/U1
BUILDING AREAS	
LOWER LEVEL FINISHED	1826 SQ FT
MAIN LEVEL FINISHED	1681 SQ FT
UPPER LEVEL FINISHED	0 SQ FT
UNFINISHED AREAS	253 SQ FT
FINISHED BASEMENT	0 SQ FT
TOTAL	4086 SQ FT
GARAGE	1240 SQ FT
CARPORT	0 SQ FT
DECKS	120 SQ FT
PORCHES	241 SQ FT

HATCH LEGEND

- UNDISTURBED SOIL
- COMPACTED FILL
- WASHED ROCK
- SAND FILL
- CONCRETE
- MASONRY - BRICK OR CONCRETE BLOCK
- BATT INSULATION
- RIGID INSULATION
- CONTINUOUS STRUCTURAL FRAMING MEMBER
- BLOCKING (NOT CONTINUOUS)
- WOOD FINISH MATERIAL
- PLYWOOD OR OTHER STRUCTURAL PANEL
- NEW CONSTRUCTION
- FUTURE CONSTRUCTION
- EXISTING TO REMAIN
- EXISTING TO DEMOLISH

PLUMBING LEGEND

- M — WATER METER
- G — GAS METER
- SHUT OFF VALVE
- HOSE BIB, FROST PROOF
- H C — WASHER VALVE & DRAIN BOX
- V — CENTRAL VACUUM

MECHANICAL LEGEND

- BOILER — BOILER
- WH — WATER HEATER OR SIDE ARM STORAGE TANK
- HEAT EXCHANGER
- M — EXHAUST FAN, CFM NOTED, VENT TO OUTSIDE, W/ DAMPER
- FLUE PIPE, SIZE NOTED
- R — RADON GAS VENT STACK
- AIR DELIVERY DUCT, SIZE AS NOTED
- AIR DELIVERY VERTICAL RISER, SIZE AS NOTED
- AIR RETURN VERTICAL RISER, SIZE AS NOTED

DEMO LEGEND

DEMO LEGEND	
	EXISTING TO REMAIN
	EXISTING TO BE DEMOLISHED
	NEW WORK

DRAFTING SERVICE, INC.
P.O. BOX 774121
426 OAK STREET
STEAMBOAT SPRINGS, COLORADO
970.879.7929
FAX 970.879.8709
JAKES@SPRINGSIPS.COM

"STRUCTURE ONLY"

RCRBD Record Set
T.A.
06/23/2021

COVER FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
File	21006COVO
Date	8JUNE21
Drawn	VMM
Checked	JMH
Re'd	8JUNE21
Rev'd	

Sheet Number
COV
SHEET 1 OF 17

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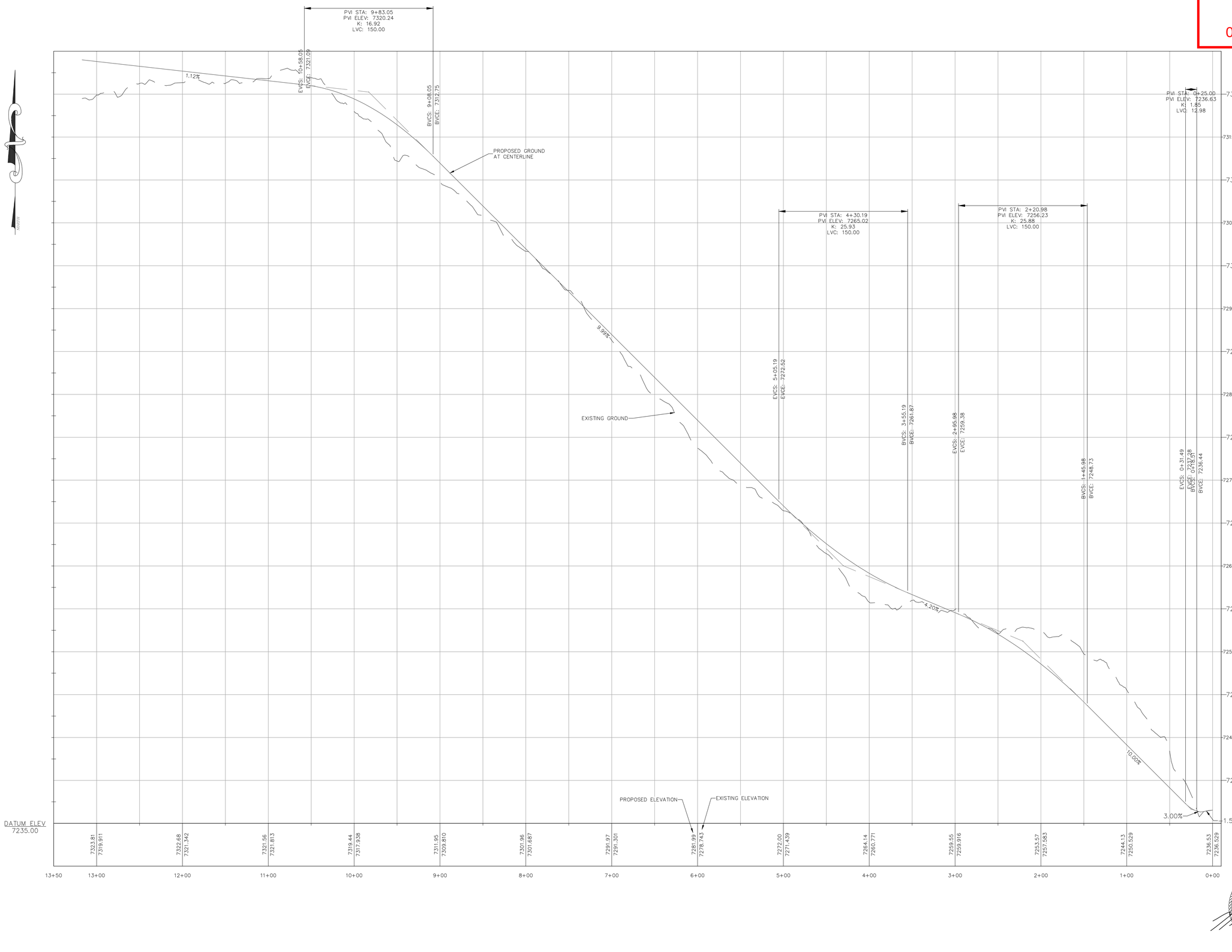
RCRBD Record Set
T.A.

07/12/2021



FOUR POINTS SURVEYING ENGINEERING

440 S. Lincoln Ave, Suite 4A
P.O. Box 775966
Steamboat Springs, CO 80487
(970)-871-6772
www.fourpointsse.com

No.	DATE	REVISIONS	INT
1	7/2/21	ADD FIRE TURNOUTS	MDM

HUYSER SUBDIVISION - LOT 2

TBD, COUNTY ROAD 14.
STEAMBOAT SPRINGS, CO 80487

Horizontal Scale

5' 0 10' 20' 30'

1" = 10'

Contour Interval = 2 ft

DATE: 3-8-21
JOB #: 1077-014
DRAWN BY: RS
DESIGN BY: MDM
REVIEW BY:

IF THIS DRAWING IS PRESENTED IN A FORMAT OTHER THAN 24" X 36", THE GRAPHIC SCALE SHOULD BE UTILIZED.

DRAWING:

DRIVEWAY PROFILE

SHEET #

2

COLORADO LICENSED
Matthew D. McGee
0044949
PROFESSIONAL ENGINEER

VOLUME:

CUT = 1,775 CY
FILL = 1,295 CY

AREA OF DISTURBANCE FOR DRIVE ONLY = 0.87 ACRES

RCRBD Record Set
T.A.

07/12/2021

FOUR POINTS SURVEYING ENGINEERING

440 S. Lincoln Ave, Suite 4A
P.O. Box 775966
Steamboat Springs, CO 80487
(970)-871-6772
www.fourpointsse.com

No.	DATE	REVISIONS	INT
1	7/2/21	ADD FIRE TURNOUTS	MDM

(UNPLATTED)

476.55
N89° 07' 38"W

SET 1½" ORANGE PLASTIC CAP ON 24" LONG #5 REBAR, PLS 38024, FLUSH TO GROUND

N00° 54' 08"E
97.45

FOUND 1½" YELLOW PLASTIC CAP ON #5 REBAR PLS 12881

VACATED NORTH LINE OF STETTNER SUBDIVISION

S00° 52' 22"W
204.76

SET 1½" ORANGE PLASTIC CAP ON 24" LONG #5 REBAR, PLS 38024, FLUSH TO GROUND

455.16
N89° 07' 38"W

BEARING ON THE WEST LINE LOT 2 HUYSER SUBDIVISION DIFFERS FROM THE STETTNER SUBDIVISION FINAL PLAT AS RECORDED AT FILE NO. 10575 OF ROUTT COUNTY RECORDS DUE TO THE MEASURED DISTANCE BETWEEN FOUND PROPERTY CORNERS

N00° 41' 22"E
812.07

N00°16'06"W (P)
812.34 (P)

PROPOSED SWALE

PROPOSED HOUSE
GFFE=7324.50
FFE=7326.18

2% CROSS SLOPE

VIEW TO TOP GONDOLA BUILDING

LOT 2
HUYSER SUBDIVISION
16.94 ACRES

16.0'
72.0'
FIRE TURNAROUND
R45.0'

TRANSITION TO 2% CROSS SLOPE

PR DITCH

FIRE TURNOUT

40.0'
10.0'
R80.0'

14.0'
CENTER OF 14-FT WIDE DRIVE – 2% CROWN (SEE PROFILE)

R150.0'

R80.0'

FIRE TURNOUT

40.0'
10.0'
R80.0'

PR DITCH

PR DITCH

R80.0'

ELECTRIC PEDESTAL

TELEPHONE PEDESTAL

FOUND 1½" YELLOW PLASTIC CAP ON #5 REBAR PLS 12881

S21° 16' 27"W
40.61

N06° 31' 47"E
41.55

FOUND 1½" ORANGE PLASTIC CAP ON 24" LONG #5 REBAR, PLS 38024, FLUSH TO GROUND

WEST LINE OF RCR 14 RIGHT OF WAY

N00° 48' 08"W
148.69

N15° 50' 43"E
103.49

PARCEL PURCHASED BY ROUTT COUNTY AS DESCRIBED IN RECEPTION NO. 703490

0+00

GATE

INSTALL 35 LF 18" CULVERT SET IN EXISTING DITCH

N02° 21' 51"E
196.80

N04° 35' 48"W
229.58

FOUND 1½" YELLOW PLASTIC CAP ON #5 REBAR PLS 12881

N88° 52' 08"E (P)
658.14 (P)

N88° 52' 08"E
658.01'

N88° 52' 08"E
410.28'

N88° 52' 08"E
247.73'

FOUND 1½" YELLOW PLASTIC CAP ON #5 REBAR PLS 12881

S85° 07' 39"E
259.26

S85° 04' 03"E
7.69

FOUND 1½" YELLOW PLASTIC CAP ON #5 REBAR PLS 12881

FOUND 1½" ALUMINUM CAP ON #5 REBAR, PLS 29039

LOT 1
GHOST CREEK
RANCH SUBDIVISION

LOT 2
GHOST CREEK
RANCH SUBDIVISION

COLORADO LICENSED
Matthew D. McLeod
0044949
PROFESSIONAL ENGINEER

HUYSER SUBDIVISION - LOT 2
TBD, COUNTY ROAD 14.
STEAMBOAT SPRINGS, CO 80487

Horizontal Scale
50' 0 25' 50'
1" = 50'

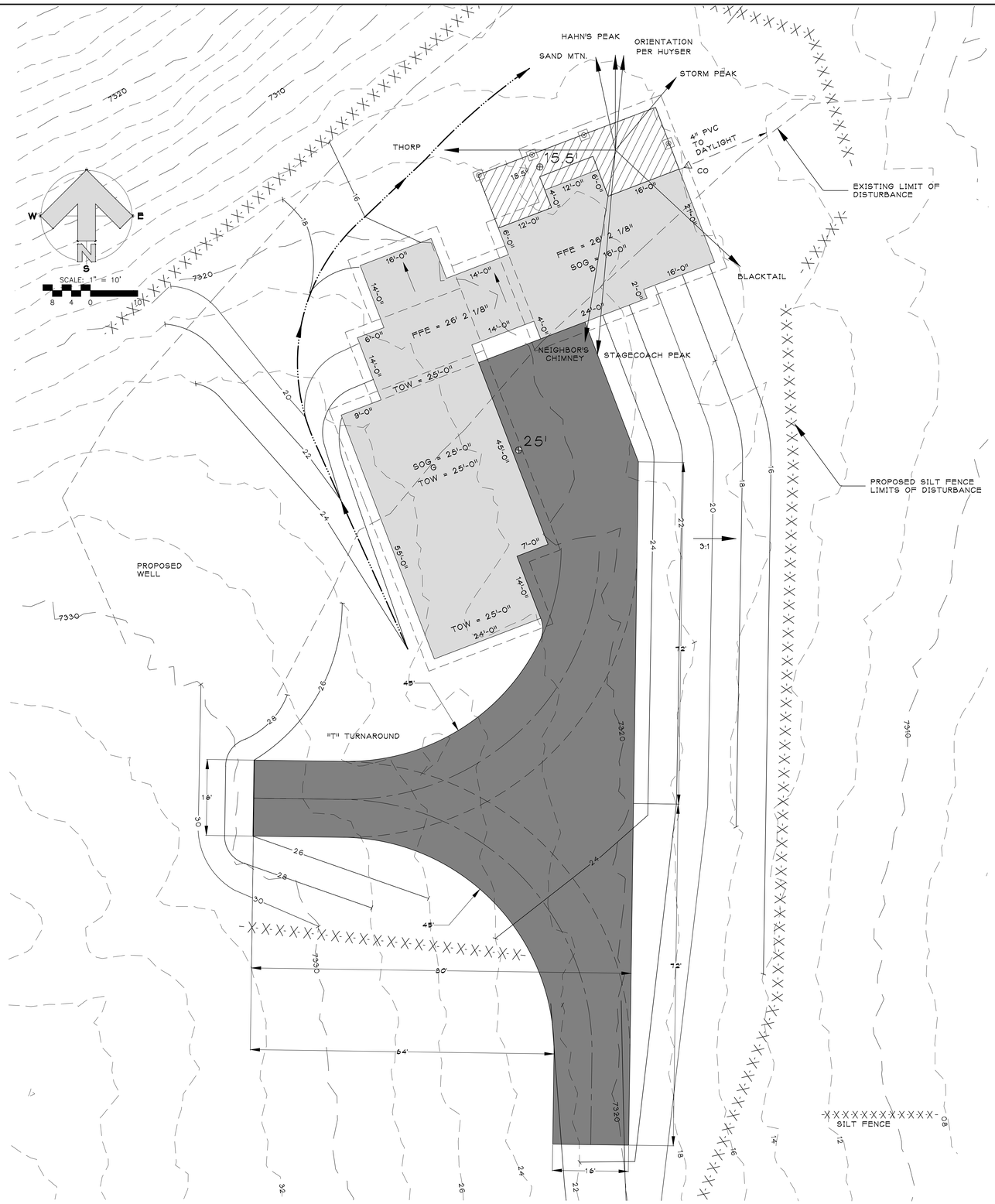
Contour Interval = 2 ft

DATE:	3-8-21
JOB #:	1077-014
DRAWN BY:	RS
DESIGN BY:	MDM
REVIEW BY:	

IF THIS DRAWING IS PRESENTED IN A FORMAT OTHER THAN 24" X 36", THE GRAPHIC SCALE SHOULD BE UTILIZED.

DRAWING: **DRIVEWAY PLAN**

SHEET #
1



ZONED : AF

SETBACKS : FRONT 80' AND 50' SIDE & REAR

PARCEL ID # : 302600002

STREET ADDRESS : 27225 COUNTY ROAD 14

LEGAL DESCRIPTION : LOT 2, HUYSER SUBDIVISION SUBDIVISION, ROUTT COUNTY, COLORADO.

SITE PLAN

SCALE 1"=10'

NOTES:
THERE ARE NO NO WATER BODIES, RIVERS, STREAMS, LAKES, RESERVOIRS OR PONDS WITHIN 50' OF THE PROPOSED STRUCTURE
ALL DISTURBED AREAS TO BE REVEGATATED
SURVEY DATA FROM FOUR POINTS SURVEYING & ENGINEERING, MODIFIED BY JAKE'S DRAFTING SERVICE, INC.

RCRBD Record Set
T.A.
07/12/2021

CSMP STANDARD NOTES :

1. THIS PLAN SHALL BE KEPT ON SITE AT ALL TIMES AND UPDATED TO REFLECT ANY CHANGES.

2. CONCRETE WASTE & WASHOUT WATER FROM MIXING TRUCKS SHALL BE CONTAINED ON SITE, REMOVED FROM THE SITE & PROPERLY DISPOSED. MATERIALS SHOULD NOT ENTER STATE WATERS.

3. CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION & ESTABLISHING ANY REQUIRED PERMANENT BEST MANAGEMENT PRACTICES (BMPS).

4. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL LOCAL, STATE, AND FEDERAL LAWS & OBTAINING ALL REQUIRED PERMITS.

5. CLEARING OR GRADING SHALL NOT BEGIN UNTIL ALL SEDIMENT CONTROL DEVICES HAVE BEEN INSTALLED.

6. THE CONTRACTOR SHALL PROMPTLY REMOVE ALL SEDIMENT, MUD & CONSTRUCTION DEBRIS THAT MAY ACCUMULATE IN THE RIGHT OF WAY, PRIVATE PROPERTY, OR WATER WAYS AS A RESULT OF THE CONSTRUCTION ACTIVITIES.

7. ALL INGRESS, EGRESS POINTS AND VEHICLE ACCESS POINTS ONTO DISTURBED SITE MUST BE STABILIZED WITH A VEHICLE TRACKING CONTROL PAD.

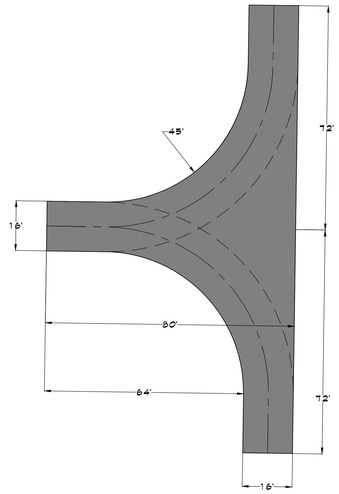
8. SOIL STABILIZATION MEASURES SHALL BE IN PLACE AND AREAS ARE TO BE REVEGETATED:
(1) FOR STOCKPILES, IF INACTIVE FOR MORE THAN 30 DAYS
(2) FOR AREAS OF LAND DISTURBANCE WITHIN ONE GROWING SEASON.

9. INLET PROTECTION SHALL BE INSTALLED IN CONJUNCTION WITH STORM DRAIN INLETS WHERE DRAINAGE AREA IS NOT VEGETATED.

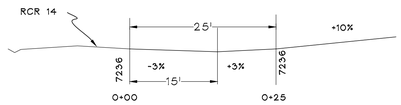
10. BMPS SHALL BE USED, MODIFIED & MAINTAINED WHENEVER NECESSARY TO REFLECT CURRENT CONDITIONS. BMPS SHALL BE INSPECTED WEEKLY & AFTER EVERY PRECIPITATION EVENT. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM BMPS WHEN THE SEDIMENT LEVEL REACHES ½ THE HEIGHT OF THE BMP.

11. EMERGENCY ACCESS MUST BE KEPT OBSTACLE FREE & PASSABLE AT ALL TIMES.

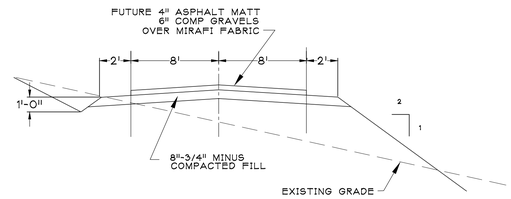
NOTE: PROVIDE LIGHTNING PROTECTION SYSTEM
(DESIGN BY OTHERS)



"T" TURNAROUND

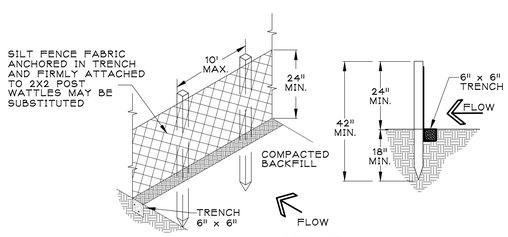


1 CR 14 / DRIVEWAY INTERSECTION DETAIL



DRIVEWAY SECTION

1"= 10'



SILT FENCE

SEE SITE PLAN/ROAD GRADING BY FOUR POINTS ENGINEERING SHEET 3

DRAFTING SERVICE, INC.
P.O. BOX 774121
426 OAK STREET
STEAMBOAT SPRINGS, COLORADO
970.879.7429
FAX 970.879.8709
JAKES@SPRINGSIPS.COM

Jake's

"STRUCTURE ONLY"

FLOOR PLANS, SECTIONS, ELEVATIONS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION, INC. (970)879-9650

Job # 21.006
File21006C10
Date 01JUN21
Drawn SKI
Checked JMH
Re'd 02JUN21
Rev'd

Sheet Number
C1
SHEET 1 OF 17

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TABLE R301.2(1) CLIMATIC & GEOGRAPHIC DESIGN CRITERIA - CLIMATE ZONE 7

GROUND SNOW LOAD	WIND DESIGN		SEISMIC DESIGN CATEG	DAMAGE FROM			WINTER DESIGN TEMP	ICE BARRIER REQ'D	FLOOD HAZARD FIRM	AIR FREEZE INDEX	MEAN ANNUAL TEMP
	SPEED (MPH)	TOPO EFFECT		WEATH-ERING	FROST DEPTH	TERMITE					
Pg=110	115	NO	C	SEVERE	48"	SLIGHT	-15°	YES	4FEB05	2239	40-45 F

MANUAL J DESIGN CRITERIA

ELEVATION	7325
ALTITUDE CORRECTION	0.77
LATITUDE	40° NORTH
WINTER DESIGN TMPERATURE (-15°-70°) DIFFERENCE	85° F
SUMMER DSIGN TEMPERATURE (85° -75°) DIFFERENCE	10° F

LIVE LOADS USED IN DESIGN

ROOF	80 PSF
UNINHABITABLE ATTICS	20 PSF
ATTICS	30 PSF
FLOORS	40 PSF
FLOOR @ SLEEPING ROOMS	30 PSF
PASSENGER VEHICLE GARAGE FLOOR	50 PSF
DECK	80 PSF
PORCH	70 PSF
WIND	EXPOSURE B
MAXIMUM SOIL BEARING PRESSURE	4,000 PSF
MINIMUM DEAD LOAD PRESSURE	1,000 PSF
EQUIVALENT FLUID PRESSURE (EFP)	55 PSF

REFER TO SOILS REPOT 21-12096 BY NWCC, INC. ALL ALL RECOMMENDATIONS REFERENCED IN THE SOILS REPORT SHALL BE ADHERED TO, UNLESS OTHERWISE NOTED (UON).

AS NOTED IN THE SOILS REPORT, EXPANSIVE SOILS WERE ENCOUNTERED AT THIS SITE. THE OWNER IS AWARE OF THE RISKS ASSOCIATED WITH SWELLING SOILS AND HAS APPROVED THE USE OF THE "ALTERNATE FOUNDATION RECOMMENDATION" IN THE DESIGN OF THIS FOUNDATION.

REGULATORY REQUIREMENTS

ALL CONSTRUCTION SHALL CONFORM TO THE 2018 INTERNATIONAL RESIDENTIAL CODE (INCLUDING APPENDIX CHAPTERS E & Q) AND STANDARDS AS ADOPTED AND/OR AMENDED BY THE ROUTT COUNTY REGIONAL BUILDING DEPARTMENT AND THE FOLLOWING:
2020 NATIONAL ELECTRICAL CODE (NEC) (2018 IRC SPECIFICATIONS ARE NOTED)
2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
LOCAL UTILITY REGULATIONS
ALL COUNTY CODES AND ORDINANCES
APPLICABLE PROTECTIVE COVENANTS OF THE SUBDIVISION

ALL WORK EXECUTED IN ANY PUBLIC RIGHT-OF-WAY OR ON PUBLIC PROPERTY SHALL BE COMPLETED ACCORDING TO THE SPECIFICATIONS AND REQUIREMENTS OF THAT GOVERNING BODY.

0. SPECIAL NOTICE

THESE SPECIFICATIONS ARE GENERIC IN NATURE, SOME SECTIONS OR DIVISIONS MAY NOT BE APPLICABLE. SEE SPECIAL CONDITIONS FOR ADDITIONAL INFORMATION.

SECTIONS NOTED MAY HAVE BEEN WORDSMITHED TO COMPLY WITH LOCAL CODE AMMENDMENTS, CONTRACTOR OR OWNER PREFERENCES OR BY JDS, INC. REFER TO CODE SECTIONS NOTED FOR ALTERNATIVES AND/OR SPECIFIC REQUIREMENTS.

THESE PLANS AND SPECIFICATIONS DEPICT THE WORK REQUIRED TO CONSTRUCT A NEW SINGLE FAMILY RESIDENCE W/ ATTACHED GARAGE OVER A WALK OUT BASEMENT.

SPECIAL INSPECTIONS REQUIRED

1. GENERAL REQUIREMENTS

EVERY PERMIT ISSUED SHALL BECOME INVALID UNLESS THE WORK ON THE SITE AUTHORIZED IS COMMENCED WITHIN 180 DAYS AFTER ISSUANCE OR IF THE WORK AUTHORIZED IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS. ALL BUILDING PERMITS SHALL AUTOMATICALLY EXPIRE THREE YEARS FROM THE DATE OF ISSUANCE.

EVERY ATTEMPT HAS BEEN TAKEN TO AVOID OR ELIMINATE ERRORS DURING THE PREPARATION OF THESE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON THESE PLANS WITH ACTUAL FIELD CONDITIONS.

IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE THE INTERFACE BETWEEN ALL TRADES AND SUBCONTRACTORS, SO AS TO PRESENT A COMPLETE AND FINISHED PRODUCT.

ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODES AND ORDINANCES, AS AMENDED, AND SHALL BE DONE TO THE HIGHEST STANDARDS OF CRAFTSMANSHIP BY JOURNEYMEN OF THEIR RESPECTIVE TRADES.

THESE DOCUMENTS DO NOT INCLUDE PROVISIONS FOR JOB SITE SAFETY. JOB SITE SAFETY AND PROTECTION OF ADJACENT PROPERTIES DURING CONSTRUCTION SHALL BE CONTRACTORS RESPONSIBILITY.

ALL CONTRACTORS SHALL CARRY WORKMAN'S COMPENSATION, CONTRACTORS LIABILITY, PERSONAL INJURY AND COMPREHENSIVE AUTOMOBILE AND PROPERTY DAMAGE INSURANCE. GENERAL CONTRACTOR TO CARRY "BUILDERS RISK" INSURANCE. OWNER TO CARRY FIRE INSURANCE ON THE COMPLETED STRUCTURE.

THE GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL BUILDING PERMITS, USE TAX, SALES TAX, AND INSPECTION FEES. SPECIAL INSPECTORS WHEN REQUIRED, SHALL BE EMPLOYED BY THE OWNER, ENGINEER RESPONSIBLE FOR THE DESIGN OR AN AGENT OF THE OWNER, BUT NOT BY THE CONTRACTOR OR ANY OTHER PERSON RESPONSIBLE FOR THE WORK.

ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE SUBJECT TO A ONE YEAR WARRANTY.

BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN 4 INCHES (102 MM) IN HEIGHT WITH A STROKE WIDTH OF NOT LESS THAN 0.5 INCH (12.7 MM). WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED. (IRC R319.1)

GENERAL CONTRACTOR IS TO PROVIDE THE OWNER WITH A BOUND COPY OF ALL INSPECTION REPORTS, BUILDING DEPARTMENT CORRESPONDENCE; EQUIPMENT MANUALS, DATED WARRANTIES AND INSTALLATION & MAINTENANCE INSTRUCTIONS; CERTIFICATE OF OCCUPANCY, AND LIEN WAIVERS OR RELEASES FROM ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO FINAL PAYMENT. THE GENERAL CONTRACTOR SHALL FAMILIARIZE THE OWNER WITH THE OPERATION OF ALL EQUIPMENT AND APPLIANCES AND CLEARLY LABEL ALL SAFETY VALVES AND CONTROLS FOR THE MAJOR HOUSE SYSTEMS.

MATERIAL SIZES NOTED ON THE PLANS ARE THE MINIMUM ACCEPTABLE. THE USE OF LARGER SIZE, OR STRONGER MATERIALS IS ACCEPTABLE FOR EASE OF CONSTRUCTION OR AESTHETICS. VERIFY THE USE OF ALL SUBSTITUTED MATERIALS WITH THE ENGINEER OF RECORD AND JAKE'S DRAFTING SERVICE, INC.

ALL MATERIALS, FIXTURES & EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND LOCAL CODES.

2. SITE CONSTRUCTION

CONTRACTOR SHALL PROVIDE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO PERFORM ALL SITE WORK SHOWN OR SPECIFIED IN THESE DOCUMENTS.

FIELD LOCATE ALL UTILITY LINES PRIOR TO ANY CONSTRUCTION ACTIVITY.

STRIP SITE OF EXISTING TOPSOIL AND STOCKPILE FOR RE-USE IN LANDSCAPING. REFER TO SITE PLAN FOR EXTENT OF STRIPPING AND PROPOSED STOCKPILE LOCATION.

THE SLOPE OF CUT OR FILL SURFACES SHALL BE NO STEEPER THAN 2:1 (50% SLOPE). UON

ALL FOOTINGS ARE TO BE PLACED ON FIRM, UNDISTURBED NATURAL SOIL. TOPSOIL, LOOSE NATURAL SOILS, ALL EXISTING FILL MATERIALS WITHIN THE FOUNDATION EXCAVATIONS SHALL BE REMOVED AND THE FOOTINGS EXTENDED DOWN TO MORE COMPETENT EXISTING SOILS. NOTIFY THE SOIL ENGINEER WHEN EXCAVATION IS COMPLETED SO THAT CONDITIONS MAY BE INSPECTED PRIOR TO PLACEMENT OF ANY FILL OR CONCRETE.

WASHED ROCK OR EARTHEN FILL USED TO SUPPORT THE FOUNDATIONS OF ANY BUILDING SHALL BE PLACED IN ACCORDANCE WITH THE SOIL INVESTIGATION REPORT AND ACCEPTED ENGINEERING PRACTICE. A REPORT OF SATISFACTORY PLACEMENT OF FILL, PREPARED BY A QUALIFIED SOIL ENGINEER, SHALL BE REQUIRED. THIS REPORT SHOULD BE PROVIDED TO THE BUILDING INSPECTOR AT THE TIME OF FOOTING INSPECTION.

ALL FOOTING BEARING ELEVATIONS SHOWN ARE ASSUMED. EXACT BEARING ELEVATIONS SHALL BE VERIFIED IN THE FIELD WITH ACTUAL CONDITIONS BY THE CONTRACTOR AND WITH THE APPROVAL OF THE ENGINEER AND THE OWNER.

CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS A MINIMUM OF 4" WHERE MASONRY VENEER IS USED AND A MINIMUM OF 6" ELSEWHERE. (IRC R404.1.6)

PROVIDE FOUNDATION PERIMETER DRAINAGE SYSTEM PER IRC SECTION R405 AND DETAILS PROVIDED.

THESE PLANS SPECIFY THAT IMPORTED GRANULAR BACKFILL MATERIAL IS REQUIRED FOR BACKFILLING FOUNDATION AND/OR RETAINING WALLS BECAUSE THEIR USE RESULTS IN LOWER LATERAL EARTH PRESSURES. A LETTER DOCUMENTING PLACEMENT OF THE GRANULAR BACKFILL MATERIAL SHALL BE FILED WITH THE BUILDING DEPARTMENT. THE LETTER OF DOCUMENTATION SHALL BE TYPEWRITTEN AND SIGNED BY THE HOMEOWNER OR GENERAL CONTRACTOR AND THE EXCAVATION CONTRACTOR RESPONSIBLE FOR PLACEMENT OF THE BACKFILL MATERIAL.

BACKFILL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL FLOOR SLABS HAVE BEEN PLACED AND THE WALL HAS SUFFICIENT STRENGTH AND HAS BEEN ANCHORED TO THE FLOOR ABOVE OR HAS BEEN SUFFICIENTLY BRACED TO PREVENT DAMAGE BY THE BACKFILL. (IRC R404.1.7)

EXCEPTION: BRACING IS NOT REQUIRED FOR WALL SUPPORTING LESS THEN 4 FEET OF UNBALANCED BACKFILL.

LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6 INCHES WITHIN THE FIRST 10 FEET (IRC R401.3).

EXCEPTION: IMPERVIOUS SURFACES SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING

ALL UTILITY LINES SHALL BE EXTENDED FROM THE BUILDING TO THE UTILITY CONNECTION AS REQUIRED. CO-ORDINATE WITH THE APPROPRIATE UTILITY COMPANY AND BURIED CABLE LOCATION SERVICE AT 800.922.1987 OR 811

ELECTRIC - FROM METER PANEL TO TRANSFORMER OR SERVICE PANEL TO 200 AMP METER PEDESTAL, CO-ORDINATE WITH YAMPA VALLEY ELECTRIC ASSOCIATION, 970.879.1160.

SEWER - FROM 5 FEET OUTSIDE THE FOUNDATION TO SEPTIC TANK TO LEACH FIELD, SEE DESIGN BY NWCC, INC..

WATER - FROM 5 FEET OUTSIDE THE FOUNDATION TO 2,500 GALLON BURIED STORAGE TANK TO WELL HEAD, SEE DESIGN BY OTHERS.

TELEPHONE - FROM TELEPHONE BOX TO PEDESTAL, CO-ORDINATE WITH CENTURYLINK, 800.244.1111. MAINTAIN 18" MINIMUM COVER.

GAS - FROM POINT OF CONNECTION TO BURIED 1,000 GALLON LPG TANK, SEE SITE PLAN.

CABLE TELEVISION - FROM TELEVISION SERVICE PANEL TO DISH ANTENNA, CO-ORDINATE WITH SERVICE PROVIDER.

3. CONCRETE

CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO COMPLETE ALL CONCRETE SHOWN OR NOTED IN THESE DOCUMENTS.

AS NOTED IN THE SOILS REPORT, EXPANSIVE SOILS WERE ENCOUNTERED AT THIS SITE. REFER TO THE SOILS REPORT FOR SPECIAL PRECAUTIONS AND CONSTRUCTION DETAILS..

FORMS SHALL RESULT IN A FINAL STRUCTURE THAT CONFORMS TO SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE DESIGN DRAWINGS, AND SPECIFICATIONS.

CENTER ALL FOOTINGS UNDER WALLS OR COLUMNS UNLESS OTHERWISE NOTED ON PLANS.

ALL CONCRETE WORK AND REINFORCEMENT DETAILING SHALL BE IN ACCORDANCE WITH ACI BUILDING CODE 318. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS CONFORMING TO ASTM A615 AND SHALL BE GRADE 40 MINIMUM OR AS SHOWN ON THE PLANS. ALL REINFORCEMENT SHALL BE COLD BENT UNLESS OTHERWISE PERMITTED BY THE BUILDING OFFICIAL.

PROVIDE CONCRETE ENCASED ELECTRODE (UFER GROUND) PER SECTION E3608.1.2. CO-ORDINATE EXACT REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM 185 AND SHALL BE LAPPED (1) FULL MESH AT SPLICES AND BE TIED TOGETHER.

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT,
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
CONCRETE EXPOSED TO EARTH OR WEATHER = 1-1/2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
SLABS, WALLS, JOISTS = 3/4"
BEAMS, COLUMNS = 1-1/2"
DEPTH OF FOOTING ABOVE BOTTOM REINFORCEMENT SHALL BE 6" MINIMUM.

NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE ENGINEER. LAP SPLICES, WHERE PERMITTED, SHALL BE A MINIMUM OF (30) BAR DIAMETERS FOR #4 BAR, GRADE 60 AND (25) BAR DIAMETERS FOR #5 BAR, GRADE 40, PER TABLE R608.5.4(1). MAKE ALL BARS CONTINUOUS AROUND CORNERS. PLACE (2) #5 BARS WITH 2'-0" PROJECTION AROUND ALL OPENINGS IN CONCRETE WALLS, SLABS AND BEAMS.

CONTINUOUS TOP AND BOTTOM BARS IN WALLS SHALL BE SPLICED AS FOLLOWS: TOP BARS AT MIDSPAN, BOTTOM BARS AT SUPPORTS.

PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ACI 318. WHERE PROVIDED IN SLABS ON GROUND, REINFORCEMENT SHALL BE SUPPORTED TO REMAIN IN PLACE FROM THE CENTER TO THE UPPER 1/3 OF THE SLAB FOR THE DURATION OF THE CONCRETE PLACEMENT. (R506.2.4)

ALL CAST-IN-PLACE CONCRETE SHALL BE MADE WITH TYPE II A PORTLAND CEMENT, FIVE-SACK MIX, WITH 5% MINIMUM TO 7% MAXIMUM ENTRAINED AIR AND 3/4" MAXIMUM STONE AGGREGATE SIZE. CONCRETE SHALL DEVELOP 2,500 PSI COMPRESSIVE STRENGTH IN 28 DAYS FOR BASEMENT SLABS AND WALLS, 3,000 PSI FOR WALLS EXPOSED TO WEATHER AND 3,500 PSI FOR PATIOS, STEPS, GARAGE SLAB AND WEATHER EXPOSED CONCRETE. MATERIALS USED TO PRODUCE CONCRETE AND TESTING THEREOF SHALL COMPLY WITH THE APPLICABLE STANDARDS LISTED IN CHAPTER 3 OF ACI 318 OR ACI 332. CONCRETE SHALL BE PLACED WITH A 4" MAXIMUM SLUM, SHALL NOT BE PLACED ON FROZEN, MUDDY OR SATURATED SOIL AND SHALL BE PROTECTED FROM FREEZING FOR 7 DAYS.

CONCRETE (OTHER THAN HIGH-EARLY-STRENGTH) SHALL BE MAINTAINED ABOVE 50 DEGREES FAHRENHEIT AND IN A MOIST CONDITION FOR AT LEAST THE FIRST SEVEN DAYS AFTER PLACEMENT. HIGH-EARLY STRENGTH CONCRETE SHALL BE MAINTAINED ABOVE 50 DEGREES FAHRENHEIT AND IN A MOIST CONDITION FOR AT LEAST THE FIRST THREE DAYS. FROZEN MATERIALS OR MATERIALS CONTAINING ICE SHALL NOT BE USED. DURING HOT WEATHER, PROPER ATTENTION SHALL BE GIVEN TO INGREDIENTS, PRODUCTION METHODS, HANDLING, PLACING, PROTECTION AND CURING TO PREVENT EXCESSIVE CONCRETE TEMPERATURES OR WATER EVAPORATION THAT MAY IMPAIR REQUIRED STRENGTH OR SERVICE ABILITY OF THE MEMBER OR STRUCTURE.

NO ADMIXTURES SHALL BE USED WITHOUT APPROVAL BY THE FOUNDATION ENGINEER. WHEN CALCIUM CHLORIDE IS USED AS AN ADMIXTURE, NO GALVANIZED STEEL SHALL BE PLACED INTO CONCRETE AS REINFORCEMENT, INSERTS OR DUCT OR PIPE PENETRATIONS.

DURING COLD WEATHER, PROVIDE TEMPORARY HEAT AS REQUIRED TO PREVENT "FROST DAMAGE" TO ALL FOOTINGS, WALLS, SLABS AND PIERS.

CONDUITS AND PIPES OF ALUMINUM SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE UNLESS SUFFICIENTLY COATED TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.

CONCRETE SHALL BE THOROUGHLY CONSOLIDATED DURING PLACEMENT AND BE THOROUGHLY WORKED AROUND REINFORCEMENT AND EMBEDDED FIXTURES AND INTO CORNERS OF FORMS.

SLABS, FOOTINGS AND WALLS SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT A THIRD POINT OF SPAN WITH VERTICAL BULKHEADS, DOWELS AND SHEAR KEYS, UNLESS OTHERWISE SHOWN. ALL CONSTRUCTION JOINTS SHALL BE AS DETAILED OR REVIEWED BY THE ENGINEER.

FLOOR SLABS SHALL BE POURED IN WHOLE OR IN CHECKER PATTERN, AVOIDING RE-ENTRANT CORNERS, WITH CONSTRUCTION JOINTS LOCATED UNDER PARTITIONS WHERE PRACTICAL AND WITH NO DIMENSION EXCEEDING THE RECOMMENDATION IN THE SOIL REPORT OF 12 FEET , AND AS SHOWN ON THE PLANS.

CONCRETE FINISH SHALL BE STEEL TROWELED FOR INTERIOR FLOOR SLABS AND BROOM FINISH FOR EXTERIOR WALKS. VERIFY WITH OWNER LOCATION AREA AND EXTENTS OF OPTIONAL 3/8" EXPOSED AGGREGATE SURFACE. 6X6 - 10X10 - (2.9 X 2.9) WOVEN WIRE FABRIC (WWF) IS RECOMMENDED FOR INSLAB RADIANT HEAT AND ALL EXTERIOR SLABS. FIBROUS MESH REINFORCEMENT IS ACCEPTABLE FOR INTERIOR SLABS ONLY, WITHOUT APPROVAL OF THE ENGINEER.

FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSE INTERIOR SPACES AND FLOORS BELOW GRADE SHALL BE DAMPPROOFED FROM THE TOP OF THE FOOTING TO THE FINISHED GRADE. (R406.1)

1. BITUMINOUS COATING.
2. SIXTY-MIL (1.5 MM) SOLVENT-FREE LIQUID-APPLIED SYNTHETIC RUBBER.

EXCEPTION: ORGANIC-SOLVENT-BASED PRODUCTS SUCH AS HYDROCARBONS, CHLORINATED HYDROCARBONS, KETONES AND ESTERS SHALL NOT BE USED FOR ICF WALLS WITH EXPANDED POLYSTYRENE FORM MATERIAL. USE OF PLASTIC ROOFING CEMENTS, ACRYLIC COATINGS, LATEX COATINGS, MORTARS AND PARGINGS TO SEAL ICF WALLS IS PERMITTED. COLD-SETTING ASPHALT OR HOT ASPHALT SHALL CONFORM TO TYPE C OF ASTM D 449. HOT ASPHALT SHALL BE APPLIED AT A TEMPERATURE OF LESS THAN 200°F (93°C).

ALL JOINTS IN MEMBRANE WATERPROOFING SHALL BE LAPPED AND SEALED WITH AN ADHESIVE COMPATIBLE WITH THE MEMBRANE.

4. MASONRY

CONTRACTOR SHALL PROVIDE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO LAY UP MASONRY AS SHOWN OR SPECIFIED IN THESE DOCUMENTS. ALL WORK SHALL BE PLUMB, SQUARE AND TRUE WITH FILLED JOINTS.

PROVIDE MASONRY ROCK VENEER WITH SAND STONE CAP AT LOCATIONS NOTED ON PLANS. ADHERED, LIGHT WEIGHT, SYNTHETIC VENEER SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. ANCHORED STONE OR MASONRY VENEER SHALL BE INSTALLED PER IRC SECTION R703.8; TABLE R703.8 AND FIGURE R703.8. FLOOR FRAMING SYSTEM IS DESIGNED PER IRC SECTION R703.8.1 TO SUPPORT THE ADDITIONAL LOAD OF THE INTERIOR VENEER AND LIMIT DEFLECTION AND SHRINKAGE TO 1/600 OF THE SPAN.

MORTAR FOR USE IN MASONRY CONSTRUCTION SHALL COMPLY WITH ASTM C270. THE TYPE OF MORTAR SHALL BE IN ACCORDANCE WITH SECTIONS R606.2.8 OR R606.2.11 AND SHALL MEET THE PROPORTION SPECIFICATIONS OF TABLE R606.2.8. MASONRY CEMENT SHALL NOT BE USED.

UNLESS OTHERWISE NOTED, PROVIDE LOOSE LINTELS AS FOLLOWS: (ONE ANGLE FOR EACH 4" OF WALL THICKNESS WITH 4" MIN. BEARING ON EACH END)
OPENINGS TO 4'-6" - ANGLE 4" X 3" X 1/4" THICK
OPENINGS FROM 4'-6" TO 6'-0" - ANGLE 5" X 3-1/2" X 5/16" THICK
OPENINGS FROM 6'-0" TO 7'-0" - ANGLE 6" X 3-1/2" X 5/16" THICK
THE LONG LEG OF THE ANGLE SHALL BE VERTICAL
MAXIMUM OF 2 STORIES OF MASONRY VENEER ABOVE. SEE IRC R703.8.3.2
STEEL LINTELS SHALL BE SHOP COATED W/ RUSS INHIBITIVE PAINT.

5. METALS

ALL STRUCTURAL STEEL AND MISCELLANEOUS EMBEDDED ITEMS SHALL CONFORM TO ASTM A36.
ALL BOLTS (INCLUDING ANCHOR BOLTS) SHALL CONFORM TO ASTM A307.
PIPE COLUMNS SHALL CONFORM TO ASTM A53, GRADE B.
TUBE SHAPES SHALL CONFORM TO ASTM 500, GRADE B, 46 KSI YIELD.

STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH LATEST PROVISIONS OF AISC "MANUAL OF STEEL CONSTRUCTION".

ALL SURFACES (INSIDE & OUTSIDE) OF STEEL COLUMNS SHALL BE GIVEN A SHOP COAT OF RUST INHIBITIVE PAINT. EXCEPT FOR CORROSION RESISTANT STEEL (R407.2) STEEL LINTELS SHALL BE SHOP COATED WITH A RUST INHIBITIVE PAINT OR CORROSION RESISTANT COATING (R703.8.3)

WELDING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH "STRUCTURAL WELDING CODE-STEEL", ANSI/AWS D1.1-90.

MINIMUM WELDS TO BE PER AISC AND/OR AWS, BUT NOT LESS THAN 3/16" CONTINUOUS FILLET UNLESS OTHERWISE NOTED. QUALITY CONTROL SHALL BE PER AWS. USE E70XX ELECTRODES. ALL WELDING TO BE PERFORMED BY CERTIFIED WELDERS, IN AN APPROVED FABRICATOR'S SHOP.

WHEN REQUIRED A QUALIFIED SPECIAL INSPECTOR SHALL OBSERVE ALL FIELD WELDING OF STRUCTURAL MEMBERS OR CONNECTIONS FOR CONFORMANCE WITH THE APPROVED STRUCTURAL DESIGN. THE SPECIAL INSPECTOR SHALL SUBMIT A SIGNED REPORT, STATING CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS. THE REPORT SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT PRIOR TO REQUESTING ROUGH FRAMING INSPECTIONS, OR THE REPORT MAY BE MADE AVAILABLE TO A FIELD INSPECTOR AT THE TIME THE ROUGH FRAMING INSPECTION. SPECIAL INSPECTIONS IF REQUIRED SHALL BE AT THE OWNER'S EXPENSE.

MISCELLANEOUS CLIPS, ANCHORS AND CONNECTORS SHALL BE SIMPSON "STRONG TIE" OR ICBO APPROVED EQUAL, UNLESS OTHERWISE NOTED. REFER TO SIMPSON CATALOG FOR APPROPRIATE NAILING WHEN NOT SPECIFIED ON PLANS. PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

RAMSET PLATES TO BE ATTACHED TO STEEL WITH POWDER ACTUATED 1/8"Φ DRIVEPINS, 1/4" Φ THREADED STUDS WELDED TO STEEL OR 1/4"Φ LAG BOLTS @ 16" OC, STAGGERED. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR POWDER ACTUATED ANCHOR INSTALLATION.

EXPANSION BOLTS SHALL BE "WEG-IT", "REDHEAD" OR APPROVED EQUAL. MINIMUM EMBEDMENT SHALL BE 1-1/2" FOR 1/2" DIAMETER BOLTS AND 2" FOR 5/8" DIAMETER BOLTS. EPOXY GROUTED REBAR OR ANCHOR BOLT CONNECTIONS SHALL BE MADE WITH SIMPSON "EPOXY-TIE" AND PER MANUFACTURER'S INSTRUCTIONS.

ANCHOR BOLTS SHALL BE 1/2" DIAMETER WITH 7" MINIMUM EMBEDMENT AND SUFFICIENT EXPOSED LENGTH FOR CONNECTION OF PLATE OR SILLS PLUS FULL NUT PENETRATION WITH WASHER. ANCHOR BOLTS SHALL BE PLACED AT 4' OC (UON) AND BETWEEN 4"-12" OF PLATE ENDS AND CORNERS. PROVIDE (2) ANCHOR BOLTS (MIN) PER PLATE OR SILL. BOLT SHALL BE LOCATED IN THE MIDDLE 1/3 OF THE WIDTH OF THE PLATE. (IRC R403.1.6)

6. CARPENTRY

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO FRAME UP, SHEATH AND TRIM OUT BUILDING AS SHOWN OR SPECIFIED IN THESE DOCUMENTS.

AS NOTED IN THE SOILS REPORT, EXPANSIVE SOILS WERE ENCOUNTERED AT THIS SITE. ALL INTERIOR NON-BEARING PARTITIONS RESTING ON CONCRETE FLOOR SLABS SHOULD BE PROVIDED WITH A SLIP JOINT AT THE BOTTOM PER FIGURE #_ IN THE SOILS REPORT OR SLIP JOINT DETAIL PROVIDED WITH THESE PLANS.

ALL 2" FRAMING LUMBER SHALL BE STRESS RATED, S-DRY DOUGLAS FIR OR LARCH (DF-L) S4S, #2 OR BETTER. ALL SOLID TIMBER BEAMS AND POSTS SHALL BE S-DRY DOUGLAS FIR OR LARCH (DF-L) S4S, # 1 OR BETTER.

GLUE LAMINATED BEAMS (GL) SHALL BE AITC STRESS RATED TO COMBINATION SYMBOL 24F-V4 FOR SIMPLE SPANS AND 24F-V8 FOR MULTI SPANS AND CANTILEVERS, ARCHITECTURAL APPEARANCE GRADE. THE PORTIONS OF GLU-LAMINATED TIMBERS EXPOSED TO WEATHER AND NOT PROPERLY PROTECTED BY A ROOF, EVE OR SIMILAR COVERING SHALL BE PRESSURE TREATED WITH PRESERVATIVE. (IRC R317.1.5)

PREFABRICATED WOOD MEMBERS SHALL BE OF THE TYPE NOTED ON THE PLANS AND SHALL BE MICRO-LAM (LVL), TIMBERSTRAND (LSL), PARALLAM (PSL), OR TJI AS MANUFACTURED BY TRUS-JOIST MACMILLAN OR APPROVED EQUAL. I-JOISTS AND LAMINATED LUMBER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED ENGINEERING PRACTICE. THE DESIGN & MANUFACTURE OF METAL PLATE CONNECTED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1. THE DESIGN DRAWINGS SHALL BE PREPARED BY A COLORADO REGISTERED PROFESSIONAL ENGINEER. TRUSS DESIGN DRAWINGS SHALL BE PREPARED IN COMPLIANCE WITH IRC SECTION R502.11.1 & R802.10.1 AND SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND APPROVED PRIOR TO INSTALLATION. TRUSS DESIGN DRAWINGS SHALL BE PROVIDED WITH THE SHIPMENT OF TRUSSES DELIVERED TO THE JOB SITE. SEE IRC SECTION R502.11.4 FOR MINIMUM DESIGN REQUIREMENTS AND SPECIFIED INFORMATION. LOAD DURATION FACTOR SHALL BE 1.00. IT IS RECOMMENDED THAT JDS, INC. OR THE ENGINEER OF RECORD REVIEW TRUSS SCHEMATICS PRIOR TO ACCEPTANCE OF THE FABRICATOR'S ORDER.

CUTS, NOTCHES AND HOLES BORED IN TRUSSES, STRUCTURAL COMPOSITE LUMBER, STRUCTURAL GLUE-LAMINATED MEMBERS, CROSS LAMINATED TIMBER MEMBERS OR I-JOISTS ARE PROHIBITED EXCEPT WHERE PERMITTED BY THE MANUFACTURER'S RECOMMENDATIONS OR WHERE THE EFFECTS OF SUCH ALTERATIONS ARE SPECIFICALLY CONSIDERED IN THE DESIGN OF THE MEMBER BY A REGISTERED DESIGN PROFESSIONAL. (R502.8.2)

PLYWOOD SHEATHING SHALL BE STRUCTURAL 1, C-D, EXT-APA FOR ALL USES, MEETING THE MINIMUM APA RATING OR THICKNESS NOTED ON THE PLANS. ROOF AND FLOOR SHEATHING SHALL BE PLACED WITH THE 8'-0" DIMENSION PERPENDICULAR TO THE FRAMING, STAGGER END JOINTS. PLYWOOD FLOOR SHALL BE TONGUE AND GROOVED, AND GLUED AND NAILED AT SUPPORTS. WALL SHEATHING MAY BE PLACED VERTICAL OR HORIZONTALLY WITH ALL HORIZONTAL JOINTS BLOCKED AND EDGE NAILED. NAIL ROOF SHEATHING WITH 8D (PENNY) NAILS AT 6" OC AT THE EDGES AND 12" OC IN THE FIELD. NAIL FLOOR SHEATHING WITH 10D RING SHANKS AT 6" OC AT THE EDGES AND 12" OC IN THE FIELD. HIGH FOOT TRAFFIC AREAS SHALL BE SCREWED AT 6" OC. NAIL WALL SHEATHING WITH 8D (PENNY) NAILS AT 6" OC AT THE EDGES AND 12" OC IN THE FIELD.

STRUCTURAL INSULATED SHEATHING (SIS) SHALL BE ZIP SYSTEM R-SHEATHING R-6 AS MANUFACTURED BY HUBER ENGINEERED WOODS. SHEATHING PANELS SHALL BE INSTALLED VERTICALLY W/ ALL JOINTS AND EDGES BACKED BY FRAMING, PER MANUFACTURER'S PUBLISHED INSTALLATION MANUAL AND 1CC-ESR-3373 (SEE ATTACHED). NAILING FOR 16" OC FRAMING TO BE 0.131" Φ SHANKS W/ 1-1/2" MINIMUM PENETRATION INTO STUD, 3" OC @ EDGES & 12" OC FIELD. THIS NAILING PROVIDES 255 PLF ALLOWABLE SHEAR. COUNTERSINKING OF FASTENERS IS ACCEPTABLE. ALL SEAMS & JOINTS BETWEEN BOARDS SHALL BE COVERED W/ ZIP SYSTEM CONSTRUCTION TAPE OR ZIP SYSTEM LIQUID FLASH. REFER TO ZIP SYSTEM INSTALLATION MANUAL FOR DETAILS NOT PROVIDED ON THESE PLANS.

PROVIDE 1X4 CROSS BRIDGING OR 2X_ BLOCKING AT NOT OVER 8' ON CENTER FOR ALL SOLID WOOD JOISTS, UNLESS BOTH EDGES OF THE MEMBER ARE HELD IN LINE. PROVIDE SOLID BLOCKING BETWEEN JOISTS AT ALL SUPPORTS, BEAMS OR BEARING WALLS. PROVIDE SOLID BLOCKING AT 24" OC UNDER ALL PARTITIONS RUNNING PARALLEL TO JOISTS AND AT CENTERLINE OF WALLS RUNNING PERPENDICULAR TO JOISTS. SOLID BLOCKING IN ROOF SYSTEMS SHALL NOT INTERFERE WITH COLD ROOF VENTILATION.

ALL SOLID WOOD OR STEEL COLUMN SUPPORTS SHALL BE CONTINUOUS THROUGH FRAMING AND SHALL BEAR DIRECTLY ON ANOTHER COLUMN OR BEAM OR OTHERWISE TRANSFERRED TO THE FOUNDATION. MULTIPLE STUD COLUMNS MAY BEAR DIRECTLY ON A WALL PLATE IF PROVIDED WITH FULL WIDTH BLOCKING THROUGH FRAMING SYSTEM.

DRAFTSTOPPING MATERIALS SHALL BE NOT LESS THAN 1/2 INCH GYPSUM BOARD, 3/8" WOOD STRUCTURAL PANELS OR OTHER APPROVED MATERIALS ADEQUATELY SUPPORTED. DRAFTSTOPPING SHALL BE INSTALLED PARALLEL TO THE FLOOR FRAMING MEMBERS. (IRC R502.12.1 AND R302.12)

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. (R302.11)

FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:

1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
   1.1. VERTICALLY AT THE CEILING AND FLOOR LEVELS.
   1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).
2. AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. 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.
5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.

EXCEPT AS PROVIDED IN SECTION R302.11, ITEM 4, FIREBLOCKING SHALL CONSIST OF THE FOLLOWING MATERIALS. (R302.11.1)

1. TWO-INCH (51 MM) NOMINAL LUMBER.
2. TWO THICKNESSES OF 1-INCH (25.4 MM) NOMINAL LUMBER WITH BROKEN LAP JOINTS.
3. ONE THICKNESS OF 23/32-INCH (18.3 MM) WOOD STRUCTURAL PANELS WITH JOINTS BACKED BY 23/32-INCH (18.3 MM) WOOD STRUCTURAL PANELS.
4. ONE THICKNESS OF 3/4-INCH (19.1 MM) PARTICLEBOARD WITH JOINTS BACKED BY 3/4-INCH (19.1 MM) PARTICLEBOARD.
5. ONE-HALF-INCH (12.7 MM) GYPSUM BOARD.
6. ONE-QUARTER-INCH (6.4 MM) CEMENT-BASED MILLBOARD.
7. BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER OR OTHER APPROVED MATERIALS INSTALLED IN SUCH A MANNER AS TO BE SECURELY RETAINED IN PLACE.
8. CELLULOSE INSULATION INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 119 OR UL 263, FOR THE SPECIFIC APPLICATION.

WOOD COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE PRESERVATIVE TREATED WOOD.

EXCEPTION:
1. COLUMNS EXPOSED TO THE WEATHER OR IN BASEMENTS WHERE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH AND THE EARTH IS COVERED BY AN APPROVED IMPERVIOUS MOISTURE BARRIER.
2. COLUMNS IN ENCLOSED CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING WHEN SUPPORTED BY A CONCRETE PIER OR METAL PEDESTAL AT A HEIGHT MORE THAN 8 INCHES (203 MM) FROM EXPOSED EARTH AND THE EARTH IS COVERED BY AN IMPERVIOUS MOISTURE BARRIER.
3. DECK POSTS SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING NOT LESS THAN 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH. (IRC R317.1.4)

SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB WHICH IS IN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER SHALL BE PRESSURE-PRESERVATIVE TREATED WOOD IN ACCORDANCE WITH AWPA U1 OR FOUNDATION REDWOOD. (IRC R317.1)

FASTENERS INCLUDING NUTS AND WASHERS IN PRESSURE PRESERVATIVE & FIRE RETARDANT TREATED WOOD ABOVE GRADE SHALL BE HOT DIPPED ZINC COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.. STAPLES SHALL BE STAINLESS STEEL. (IRC R317.3.1)

EXCEPTIONS:
1. 1/2" DIAMETER OR GREATER STEEL BOLTS
3. PLAIN CARBON STEEL FASTENERS IN SBX/DOT AND ZINC BORATE PRESERVATIVE-TREATED WOOD IN AN INTERIOR, DRY ENVIRONMENT SHALL BE PERMITTED.

THE ENDS OF EACH JOIST, BEAM OR GIRDER SHALL HAVE NOT LESS THAN 1-1/2 INCHES BEARING ON WOOD OR METAL AND NOT LESS THAN 3 INCHES ON MASONRY OR CONCRETE OR TO BE SUPPORTED BY APPROVED JOIST HANGERS. JOISTS FRAMING FROM OPPOSITE SIDES OVER A BEARING SUPPORT SHALL LAP A MINIMUM OF 3 INCHES AND BE NAILED TOGETHER W/ A MINIMUM OF (3) 10d FACE NAILS. JOISTS FRAMING INTO THE SIDE OF A BEAM OR GIRDER, SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OF THE APPROPRIATE SIZE AND CAPACITY. (IRC R502.6.)

NOTCHES IN SOLID LUMBER JOISTS, RAFTERS OR BEAMS SHALL NOT EXCEED 1/6 OF THE MEMBER DEPTH, SHALL NOT BE LONGER THAN 1/3 OF THE MEMBER DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE 1/3 OF THE SPAN. NOTCHES AT THE ENDS OF THE MEMBER SHALL NOT EXCEED 1/4 OF THE MEMBER DEPTH. THE TENSION SIDE OF MEMBERS 4" OR GREATER SHALL NOT BE NOTCHED EXCEPT AT THE ENDS OF THE MEMBERS. THE DIAMETER OF HOLES BORED OR CUT INTO MEMBERS SHALL NOT EXCEED 1/3 THE DEPTH OF THE MEMBER. HOLES SHALL NOT BE CLOSER THAN 2 INCHES TO THE TOP OR BOTTOM OF THE MEMBER OR TO ANY OTHER HOLE OR NOTCH LOCATED IN THE MEMBER. (IRC R502.8) SEE FIGURE R502.8.

CUTS, NOTCHES AND HOLES BORED IN TRUSSES, STRUCTURAL COMPOSITE LUMBER, STRUCTURAL GLUE LAMINATED MEMBERS, CROSS LAMINATED TIMBER MEMBERS OR I-JOISTS ARE PROHIBITED EXCEPT WHERE PERMITTED BY THE MANUFACTURER'S RECOMMENDATIONS OR WHERE THE EFFECTS OF SUCH ALTERATIONS ARE SPECIFICALLY CONSIDERED IN THE DESIGN OF THE MEMBER BY A REGISTERED PROFESSIONAL ENGINEER. (IRC R502.8.2) (IRC R802.7.2)

OPENINGS IN FLOOR, CEILING AND ROOF FRAMING SHALL BE FRAMED WITH A HEADER AND TRIMMER JOISTS AND SHALL BE DOUBLED OR OF EQUIVALENT CROSS SECTION WHEN THE SPAN OF THE HEADER EXCEEDS 4'. THE ENDS OF HEADER JOISTS MORE THAN 6' LONG SHALL BE SUPPORTED BY FRAMING ANCHORS OR JOIST HANGERS, UNLESS BEARING ON A BEAM, PARTITION OR WALL. (IRC R502.10 & R802.9)

OPENINGS IN FLOOR FRAMING SHALL BE FRAMED WITH A HEADER AND TRIMMER JOISTS. WHERE THE HEADER JOIST SPAN DOES NOT EXCEED 4 FEET (1219 MM), THE HEADER JOIST SHALL BE A SINGLE MEMBER THE SAME SIZE AS THE FLOOR JOIST. SINGLE TRIMMER JOISTS SHALL BE USED TO CARRY A SINGLE HEADER JOIST THAT IS LOCATED WITHIN 3 FEET (914 MM) OF THE TRIMMER JOIST BEARING. WHERE THE HEADER JOIST SPAN EXCEEDS 4 FEET (1219 MM), THE TRIMMER JOISTS AND THE HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR JOISTS FRAMING INTO THE HEADER. (R502.10)

GIRDERS AND BEAMS SHALL HAVE 3" MINIMUM BEARING OR WHEN FRAMED INTO THE SIDE OF A BEAM OR GIRDER, SHALL BE SUPPORTED BY FRAMING ANCHORS OF THE APPROPRIATE SIZE AND CAPACITY. GIRDER AND BEAM END JOINTS SHALL OCCUR OVER SUPPORTS. WHEN A GIRDER OR BEAM IS SPLICED OVER A SUPPORT, AN ADEQUATE TIE SHALL BE PROVIDED.

ENDS OF WOOD GIRDERS OR BEAMS ENTERING EXTERIOR MASONRY OR CONCRETE WALLS SHALL BE PROVIDED WITH A 1/2" AIR SPACE ON TOP, SIDES AND END UNLESS APPROVED WOOD OF NATURAL RESISTANCE TO DECAY OR PRESSURE PRESERVATIVE TREATED WOOD IS USED. (IRC R317.1)

FIELD CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESSURE PRESERVATIVE TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4. (R317.1.1)

6. CARPENTRY - CONTINUED

JOISTS UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD. DOUBLED JOISTS THAT ARE SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL DEPTH SOLID BLOCKED WITH 2X_ DIMENSIONAL LUMBER SPACED 4' OC. (IRC R502.4)

EACH END OF A HEADER SHALL HAVE A MINIMUM BEARING LENGTH OF 1-1/2" FOR THE FULL WIDTH OF THE HEADER. LVL HEADERS SHALL HAVE A MINIMUM BEARING LENGTH OF 3" FOR THE FULL WIDTH OF THE HEADER. PROVIDE DOUBLED "KING STUDS" AT ALL OPENINGS OVER 10' WIDE.

HEADERS SHALL BE SUPPORTED ON EACH END WITH ONE OR MORE JACK STUDS OR WITH APPROVED FRAMING ANCHORS IN ACCORDANCE WITH TABLE R602.7(1) OR R602.7(2). THE FULL-HEIGHT STUD ADJACENT TO EACH END OF THE HEADER SHALL BE END NAILED TO EACH END OF THE HEADER WITH FOUR-16D NAILS (3.5 INCHES x 0.135 INCHES). THE MINIMUM NUMBER OF FULL-HEIGHT STUDS AT EACH END OF A HEADER SHALL BE IN ACCORDANCE WITH TABLE R602.7.5. (R602.7.5)

ROOF TRUSSES SHALL STACK DIRECTLY OVER WALL STUDS AND FLOOR JOISTS BELOW. (UON) ADDITIONAL STUDS, TRIPLED TOP PLATES OR 2X6 BLOCKING MAY BE REQUIRED IF NOT STACKED OVER WALL STUDS, WHEN PLANS SPECIFY ON "COMMON LAYOUT".

WOOD FRAMED EXTERIOR DECKS SHALL BE IN ACCORDANCE WITH SECTION R507. FOR DECKS USING MATERIALS AND CONDITIONS NOT PRESCRIBED IN THIS SECTION REFER TO SECTION R301. WOOD MATERIALS SHALL BE #2 OR BETTER LUMBER, PRESERVATIVE-TREATED OR APPROVED NATURALLY DURABLE LUMBER. ENGINEERED WOOD PRODUCTS SHALL BE IN ACCORDANCE WITH SECTION R502. PLASTIC COMPOSITE EXTERIOR DECK BOARDS, STAIR TREADS, GUARDS AND HANDRAILS SHALL COMPLY WITH ASTM D7032 AND THIS SECTION.

DECK LEDGER SHALL BE CONNECTED TO BAND JOIST PER FIGURE R507.9.1.3(1), "PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS" AND R507.9.1.3(2) "PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS" FASTENERS SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL. R507.9.1.3(2)

DECK ATTACHMENT FOR PLATERAL LOADS SHALL BE PER FIGURE R507.9.2(1) OR R507.9.2(2). SEE ATTACHED.

UON, STAIR SECTIONS DEPICT THE MATHEMATICAL DIFFERENCE FROM SUB FLOOR TO SUB FLOOR, CONTRACTOR TO ALLOW FOR FINAL FINISHES PROVIDING EQUAL RISERS. STAIRS TO COMPLY WITH IRC SECTION R-311.

UON, PROVIDE STURDI-STEP TREADS FOR CARPETED STAIRS OR LSL TREADS FOR OTHER FINISHES. STAIRS AT MAIN ENTRY TO BE 4X12 STRINGERS AND TREADS. TREADS TO BE HOUSED 1/2" MINIMUM INTO STRINGERS AND BOLTED WITH 1/2" X 6" LAGS WITH MALLEABLE WASHERS.

MINIMUM NAILING SHALL BE AS SPECIFIED IN TABLE R602.3(1) SEE SHEET G2

7. THERMAL AND MOISTURE PROTECTION

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL INSULATION, VAPOR BARRIERS & RETARDERS, FLASHINGS, WATERPROOFING AND ROOF COVERING AS DETAILED OR SPECIFIED IN THESE DOCUMENTS.

PROVIDE (2) LAYERS OF "BARRIER X5" A COMBINATION UNDERSLAB INSULATION (R-5 X 2) & VAPOR RETARDER INSTALLED PER MANUFACTURER'S INSTRUCTIONS OR OPTIONALY PROVIDE R-10 RIGID FOAM OVER "TU-TUF #4" VAPOR RETARDER INSTALLED PER MANUFACTURER'S INSTRUCTIONS OR 1-1/2" DEMILEC "HEATLOC HFO" INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND ESR-4073 ATTACHED.

PROVIDE FOAM SILL SEALER BETWEEN TOP OF FOUNDATION WALL AND RIM JOIST AND BETWEEN FLOOR SHEATHING & SILL PLATES AT ALL EXTERIOR WALLS.

CLASS I OR II VAPOR RETARDERS ARE REQUIRED ON INTERIOR SIDE OF FRAMED WALLS IN CLIMATE ZONES 5, 6, 7, 8 AND MARINE 4. (IRC R702.7)

EXCEPTIONS:
1. BASEMENT WALLS
2. BELOW GRADE PORTION OF ANY WALL.

THE VAPOR RETARDER CLASS SHALL BE BASED ON THE MANUFACTURER'S CERTIFIED TESTING OR A TESTED ASSEMBLY. THE FOLLOWING SHALL BE DEEMED TO MEET THE CLASS SPECIFIED: (R702.7.2.)

CLASS I: SHEET POLYETHYLENE, UNPERFORATED ALUMINUM FOIL.
CLASS II: KRAFT-FACED FIBERGLASS BATTS.
CLASS III: LATEX OR ENAMEL PAINT.

THE WALL AND CEILING ASSEMBLIES ARE INTENDED TO DRY TO THE INTERIOR. DO NOT INSTALL VAPOR BARRIERS SUCH AS POLYETHYLENE (VISQUENE), FOIL FACED BATT INSULATION OR REFLECTIVE RADIANT BARRIER FOIL INSULATION IN EXTERIOR WALLS AND CEILINGS. KRAFT PAPER FACED BATT INSULATION IS AN ACCEPTABLE VAPOR PERMEABLE RETARDER WHEN SEAMS ARE LAPPED AND TAPED. CERTAINTEED "MEMBRAIN" IS RECOMMENDED AS A "SMART" VAPOR PERMEABLE RETARDER WHEN APPLIED OVER UNFACED BATT INSULATION AND PER MANUFACTURER'S RECOMMENDATIONS..

INSULATION MATERIALS, INCLUDING FACINGS SUCH AS VAPOR RETARDERS, VAPOR PERMEABLE MEMBRANES AND SIMILAR COVERINGS SHALL EXHIBIT A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DENSITY NOT TO EXCEED 450. (IRC R302.10)

EXCEPTIONS:
1. WHERE SUCH MATERIALS ARE INSTALLED IN CONCEALED SPACES, THE FLAME SPREAD INDEX AND SMOKE-DEVELOPED INDEX LIMITATIONS DO NOT APPLY TO THE FACINGS, PROVIDED THAT THE FACING IS INSTALLED IN SUBSTANTIAL CONTACT WITH THE UNEXPOSED SURFACE OF THE CEILING, FLOOR OR WALL FINISH.

2. CELLULOSE FIBER LOOSE-FILL INSULATION, THAT IS NOT SPRAY APPLIED, COMPLYING WITH THE REQUIREMENTS OF SECTION R302.10.3, SHALL NOT BE REQUIRED TO MEET THE SMOKE-DEVELOPED INDEX BUT SHALL BE REQUIRED TO MEET A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450 WHERE TESTED IN ACCORDANCE WITH CAN/ULC S102.2.

3. FOAM PLASTIC INSULATION SHALL COMPLY WITH SECTION R316.

FOAM PLASTIC INSULATION SHALL COMPLY WITH IRC R316.1 UNLESS OTHERWISE ALLOWED IN SECTION R316.5 OR R316.6, FOAM PLASTIC SHALL BE SEPARATED FROM THE INTERIOR OF THE BUILDING BY AN APPROVED THERMAL BARRIER OF NOT LESS THAN 1/2 INCH GYPSUM WALLBOARD 23/32", WOOD STRUCTURAL PANEL OR AN APPROVED THERMAL BARRIER. (IRC R316.4)

THE THERMAL BARRIER IS NOT REQUIRED WHERE THE FOAM PLASTIC IS IN A ROOF ASSEMBLY OR UNDER A ROOF COVERING AND SEPARATED FROM THE INTERIOR BY T&G WOOD PLANKS OR WOOD STRUCTURAL PANEL SHEATHING. (IRC R316.5.2)

THE THERMAL BARRIER IS NOT REQUIRED IN ATTICS OR CRAWL SPACES WHEN EACH OF THE FOLLOWING APPLIES:
1. ACCESS IS REQUIRED BY SECTION R807.1 (ATTIC) OR R408.4 (CRAWL SPACE)
2. THE SPACE IS ENTERED ONLY FOR PURPOSES OF REPAIR OR MAINTENANCE.
3. THE FOAM PLASTIC INSULATION HAS BEEN TESTED IN ACCORDANCE WITH SECTION R316.6 OR WHEN THE FOAM PLASTIC INSULATION IS PROTECTED FROM IGNITION USING ONE OF THE FOLLOWING IGNITION BARRIER MATERIALS; 1-1/2" THICK MINERAL FIBER INSULATION; 1/4" THICK WOOD STRUCTURAL PANELS; 3/8" PARTICLE BOARD; 1/4" HARDBOARD, 3/8" GYPSUM WALLBOARD, CORROSION RESISTANT SHEET METAL HAVING A BASE METAL THICKNESS OF NOT LESS THAN .0160, 1-1/2" THICK CELLULOSE INSULATION; 1/4" FIBER CEMENT PANEL, SOFFIT OR BACKER BOARD (IRC R316.5.3 & .4)

THE ABOVE IGNITION BARRIER IS NOT REQUIRED WHERE THE FOAM PLASTIC INSULATION HAS BEEN TESTED IN ACCORDANCE WITH SECTION R316.6

THE THERMAL BARRIER IS REQUIRED ON THE INTERIOR OF HABITABLE SPACES OF INSULATED CONCRETE FORMS (ICF) PER SECTION R316.4. (IRC R702.3.4)

FIBER-CEMENT, FIBER MAT REINFORCED CEMENT, GLASS MAT GYPSUM BACKERS OR FIBER REINFORCED GYPSUM BACKERS INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS SHALL BE USED AS BACKERS FOR WALL TILE IN TUB AND SHOWER AREAS AND WALL PANELS IN SHOWER AREAS.

WATER RESISTANT GYPSUM BACKING BOARD MAY AS THE BASE OR BACKER FOR ADHEASIVE APPLICATIONS OF CERAMIC TILE OR OTHER REQUIRED NONABSORBENT FINISH MATERIAL SHALL BE PERMITTED ON CEILINGS. WATER RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED OVER A CLASS I OR II VAPOR RETARDER. WATER RESISTANT GYPSUM BACKING BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY. REGULAR GYPSUM WALLBOARD IS PERMITTED UNDER TILE OR WALL PANELS IN OTHER WALL AND CEILING AREAS WHEN INSTALLED IN ACCORDANCE WITH TABLE R702.3.5.

EXTERIOR WALLS SHALL PROVIDE THE BUILDING WITH A WEATHER-RESISTANT EXTERIOR WALL ENVELOPE. THE EXTERIOR WALL ENVELOPE SHALL INCLUDE FLASHING AS DESCRIBED IN SECTION R703.4.

THE EXTERIOR WALL ENVELOPE SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT PREVENTS THE ACCUMULATION OF WATER WITHIN THE WALL ASSEMBLY BY PROVIDING A WATER-RESISTANT BARRIER BEHIND THE EXTERIOR VENEER AS REQUIRED BY SECTION R703.2 AND A MEANS OF DRAINING TO THE EXTERIOR WATER THAT ENTERS THE ASSEMBLY. PROTECTION AGAINST CONDENSATION IN THE EXTERIOR WALL ASSEMBLY SHALL BE PROVIDED IN ACCORDANCE WITH SECTION R702.7 OF THIS CODE. (R703.1.1)

APPROVED CORROSION-RESISTANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. FLUID-APPLIED MEMBRANES USED AS FLASHING IN EXTERIOR WALLS SHALL COMPLY WITH AAMA 714. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS: (R703.4)

1. 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 COMPLYING WITH SECTION 703.2 FOR SUBSEQUENT DRAINAGE. MECHANICALLY ATTACHED FLEXIBLE FLASHINGS SHALL COMPLY WITH AAMA 712. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING:

   1.1. THE FENESTRATION MANUFACTURER'S INSTALLATION AND FLASHING INSTRUCTIONS, OR FOR APPLICATIONS NOT ADDRESSED IN THE FENESTRATION MANUFACTURER'S INSTRUCTIONS, IN ACCORDANCE WITH THE FLASHING MANUFACTURER'S INSTRUCTIONS. WHERE FLASHING INSTRUCTIONS OR DETAILS ARE NOT PROVIDED, PAN FLASHING SHALL BE INSTALLED AT THE SILL OF EXTERIOR WINDOW AND DOOR OPENINGS. PAN FLASHING SHALL BE SEALED OR SLOPED IN SUCH A MANNER AS TO DIRECT WATER TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE. OPENINGS USING PAN FLASHING SHALL INCORPORATE FLASHING OR PROTECTION AT THE HEAD AND SIDES.
   1.2. IN ACCORDANCE WITH THE FLASHING DESIGN OR METHOD OF A REGISTERED DESIGN PROFESSIONAL.
   1.3. IN ACCORDANCE WITH OTHER APPROVED METHODS.
2. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CONSTRUCTION WITH FRAME OR STUCCO WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO COPINGS.
3. UNDER AND AT THE ENDS OF MASONRY, WOOD OR METAL COPINGS AND SILLS.
4. CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM.
5. WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL OR FLOOR ASSEMBLY OF WOOD-FRAME CONSTRUCTION.
6. AT WALL AND ROOF INTERSECTIONS.
7. AT BUILT-IN GUTTERS.

PROVIDE BASE AND CAP, SIDEWALL AND OTHER FLASHINGS AT ALL ROOF AND VERTICAL SURFACE INTERSECTIONS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. (R905.2.8) SEE SECTION R905.2.8.3 FOR SPECIFIC SIDEWALL FLASHING REQUIRMENTS.

A DRIP EDGE SHALL BE PROVIDED AT EAVES AND RAKE EDGES OF SHINGLE ROOFS. ADJACENT SEGMENTS OF DRIP EDGE SHALL BE OVERLAPPED NOT LESS THAN 2 INCHES (51 MM). DRIP EDGES SHALL EXTEND NOT LESS THAN 1/4 INCH (6.4 MM) BELOW THE ROOF SHEATHING AND EXTEND UP BACK ONTO THE ROOF DECK NOT LESS THAN 2 INCHES (51 MM). DRIP EDGES SHALL BE MECHANICALLY FASTENED TO THE ROOF DECK AT NOT MORE THAN 12 INCHES (305 MM) O.C. WITH FASTENERS AS SPECIFIED IN SECTION R905.2.5. UNDERLAYMENT SHALL BE INSTALLED OVER THE DRIP EDGE ALONG EAVES AND UNDER THE DRIP EDGE ALONG RAKE EDGES. (R905.2.8.5)

ROOF VALLEY LININGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. OPEN VALLEY LININGS (EXPOSED) SHALL CONSIST OF NOT LESS THAN 26 GAGE GALVANIZED STEEL, 28 GAGE STAINLESS STEEL OR 0.0216 NOMINAL COLD ROLLED COPPER. LININGS SHALL BE 24" WIDE MINIMUM AND PLACED OVER 36" WIDE LAYER OF ICE AND WATER SHIELD. CLOSED VALLEY LININGS (ASPHALT SHINGLES) SHALL BE A 36" WIDE LAYER OF ICE AND WATER SHIELD. (IRC R905.2.8.2)

7. THERMAL & MOISTURE PROTECTION - CONTINUED

IN AREAS WHERE THERE HAS BEEN A HISTORY OF ICE FORMING ALONG THE EAVES CAUSING A BACKUP OF WATER AS DESIGNATED IN TABLE R301.2(1), AN ICE BARRIER SHALL BE INSTALLED FOR ASPHALT SHINGLES OR METAL SHEET ROOFING. THE ICE BARRIER SHALL CONSIST OF A SELF-ADHERING POLYMER-MODIFIED BITUMEN SHEET AND SHALL BE USED IN PLACE OF NORMAL UNDERLAYMENT AND EXTEND FROM THE LOWEST EDGES OF ALL ROOF SURFACES TO A POINT NOT LESS THAN 24 INCHES (610 MM) INSIDE THE EXTERIOR WALL LINE OF THE BUILDING. ON ROOFS WITH SLOPE EQUAL TO OR GREATER THAN 8 UNITS VERTICAL IN 12 UNITS HORIZONTAL, THE ICE BARRIER SHALL ALSO BE APPLIED NOT LESS THAN 36 INCHES (914 MM) MEASURED ALONG THE ROOF SLOPE FROM THE EAVE EDGE OF THE BUILDING. (R905.1.2)

PROVIDE GRACE "ULTRA" UNDERLAYMENT. (IRC 905.2.7.1) IT IS RECOMMENDED THAT THE ENTIRE ROOF BE COVERED.

NATURAL VENTILATION OF ALL HABITABLE ROOMS SHALL BE PROVIDED. THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 4 PERCENT OF THE FLOOR AREA BEING VENTILATED (IRC SECTION R303.1)

EXCEPTION 1. AN APPROVED MECHANICAL VENTILATION SYSTEM IS PROVIDED CAPABLE OF PRODUCING 0.35 AIR CHANGES PER HOUR IN THE ROOM OR A WHOLE MECHANICAL VENTILATION SYSTEM IS INSTALLED CAPABLE OF SUPPLYING OUTDOOR VENTILATION AIR PER TABLE M1505.4.3 (1). (R303.1)

CLIMATE ZONES 3-8 ARE REQUIRED TO BE TESTED & VERIFIED AS HAVING AN AIR LEAKAGE RATE NOT EXCEEDING 3 AIRCHANGES PER HOUR. THEREFOR, A WHOLE HOUSE MECHANICAL VENTILATION SYSTEM IS REQUIRED IN ACCORDANCE W/ M1507.3

VENTILATION OF BATHROOMS, WATER CLOSET COMPARTMENTS AND SIMILAR ROOMS WITHOUT OPERABLE WINDOW PROVIDING 1.5 SQUARE FEET OPENING, SHALL BE PROVIDED BY A LOCAL EXHAUST SYSTEM CAPABLE OF PRODUCING 50 CFM FOR INTERMITTENT USE OR 20 CFM CONTINUOUS VENTILATION. VENTILATION AIR FROM THE SPACE SHALL BE DIRECTLY EXHAUSTED TO THE OUTSIDE. (IRC R303.3) PROVIDE ENERGY-STAR QUALIFIED BATHROOM FANS WITH A RATING OF 1.5 SONES OR LESS WITH TIMER OR HUMIDISTAT CONTROL. SEE PLAN VIEW FOR REQUIRED CFM RATING.

ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATION OPENINGS SHALL HAVE A LEAST DIMENSION OF 1/16 INCH (1.6 MM) MINIMUM AND 1/4 INCH (6.4 MM) MAXIMUM. VENTILATION OPENINGS HAVING A LEAST DIMENSION LARGER THAN 1/4 INCH (6.4 MM) SHALL BE PROVIDED WITH CORROSION-RESISTANT WIRE CLOTH SCREENING, HARDWARE CLOTH OR SIMILAR MATERIAL WITH OPENINGS HAVING A LEAST DIMENSION OF 1/16 INCH (1.6 MM) MINIMUM AND 1/4 INCH (6.4 MM) MAXIMUM. OPENINGS IN ROOF FRAMING MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF SECTION R802.7. REQUIRED VENTILATION OPENINGS SHALL OPEN DIRECTLY TO THE OUTSIDE AIR. AND SHALL BE PROTECCTED TO PERVENT THE ENTRY OF BIRDS, RODENTS,SNAKES AND OTHER SIMILAR CREATURES. (IRC R806.1) WHERE EVE OR CORNICE VENTS ARE INSTALLED, BLOCKING, BRIDGING AND INSULATION SHALL NOT BLOCK THE AIR FLOW. NOT LESS THAN A 1" SPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND ROOF SHEATHING. (R806.3)

THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE.

EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED A CLASS I OR II VAPOR RETARDER IS INSTALLED ON THE WARM IN WINTER SIDE OF THE CEILING AND 40-50% OF THE REQUIRED VENTING AREA IS PROVIDED BY VENTILATORS IN THE UPPER PORTION OR THE ATTIC OR RAFTER SPACE.. (R806.2)

8. DOORS AND WINDOWS

CONTRACTOR SHALL SUPPLY AND INSTALL ALL DOORS, WINDOWS AND GLAZING AS DETAILED, SCHEDULED AND/OR SPECIFIED IN THESE DOCUMENTS.

WINDOWS AND DOORS TO BE LINCOLN WOOD PRODUCTS OR APPROVED EQUAL. GLAZING TO BE INSULATED GLASS WITH DUAL LoE2 (i89/272 COATING). UNIT U VALUE TO BE 0.30 MAXIMUM. ALL OPERABLE UNITS TO BE PROVIDED WITH SCREENS. CLAD COLOR AS NOTED ON THE PLANS OR PER OWNER. WINDOWS AND DOORS SHALL BE INSTALLED AND FLASHED IN ACCORDANCE WITH THE FENESTRATION MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, WHICH SHALL BE PROVIDED BY THE MANUFACTURER FOR EACH WINDOW OR DOOR AND SECTION R703.4. (R609.1) OPTIONALLY DUAL LoE3 (i89/366 COATING) IS PREFERED.)

WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED LESS THAN 24" ABOVE THE FINISHED FLOOR AND GREATER THAN 72" ABOVE THE FINISHED GRADE OR SURFACE BELOW, THE OPERABLE WINDOW SHALL COMPLY WITH ONE OF THE FOLLOWING:

1. OPENING WILL NOT ALLOW A 4"Φ SPHERE TO PASS.
2. PROVIDED WITH FALL PRVENTION DEVICES THAT COMPLY WITH ASTM F 2090.
3. PROVIDED WITH OPENING CONTROL DEVICES THAT COMPLY WITH SECTION R312.2.2

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. OTHER OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH SOLID WOOD DOORS NOT LESS THAN 1-3/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMB-CORE STEEL DOORS NOT LESS THAN 1-3/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING DEVICE. (R302.5.1)

UON INTERIOR DOORS TO BE AS NOTED ON THE PLANS OR AS APPROVED BY THE OWNER, WIDTH PER PLANS X 6'10" OR 8'-0" TALL.

UON EXTERIOR DOORS TO BE AS NOTED ON THE PLANS, THERMA TRU "FIBER CLASSIC", MODEL PER OWNER OR AS APPROVED BY THE OWNER.

HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. (IRC R303.1)

EXCEPTION: THE GLAZED AREAS NEED NOT BE INSTALLED IN ROOMS WHERE ARTIFICIAL LIGHT IS PROVIDED CAPABLE OF PRODUCING AN AVERAGE ILLUMINATION OF 6 FOOT CANDLES AT A HEIGHT OF 30" ABOVE THE FLOOR.

BASEMENTS AND EVERY SLEEPING ROOM SHALL HAVE NOT LESS THAN ONE OPERABLE EMERGENCY ESCAPE AND RESCUE OPENING. WHERE BASEMENTS CONTAIN ONE OR MORE SLEEPING ROOMS, AN EMERGENCY ESCAPE AND RESCUE OPENING SHALL BE REQUIRED IN EACH SLEEPING ROOM. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL OPEN DIRECTLY INTO A PUBLIC WAY, OR TO A YARD OR COURT THAT OPENS TO A PUBLIC WAY. (R310.1)

EXCEPTION: STORM SHELTERS AND BASEMENTS USED ONLY TO HOUSE MECHANICAL EQUIPMENT NOT EXCEEDING A TOTAL FLOOR AREA OF 200 SQUARE FEET. (R310.1, EXC 1)

EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE OPERATIONAL FROM THE INSIDE OF THE ROOM WITHOUT THE USE OF KEYS, TOOLS OR SPECIAL KNOWLEDGE. WINDOW OPENING CONTROL DEVICES ON WINDOWS SERVING AS A REQUIRED EMERGENCY ESCAPE AND RESCUE OPENING SHALL COMPLY WITH ASTM F 2090. (R310.1.1)

EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED BY THIS SECTION SHALL BE OBTAINED BY THE NORMAL OPERATION OF THE EMERGENCY ESCAPE AND RESCUE OPENING FROM THE INSIDE. THE NET CLEAR HEIGHT OPENING SHALL BE NOT LESS THAN 24 INCHES (610 MM) AND THE NET CLEAR WIDTH SHALL BE NOT LESS THAN 20 INCHES (508 MM) (R310.2.1).

EXCEPTION: GRADE FLOOR OR BELOW GRADE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5 SQUARE FEET (0.465 M2).

WHERE A WINDOW IS PROVIDED AS THE EMERGENCY ESCAPE AND RESCUE OPENING, IT SHALL HAVE A SILL HEIGHT OF NOT MORE THAN 44 INCHES (1118 MM) ABOVE THE FLOOR;

EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE PERMITTED TO BE INSTALLED UNDER DECKS AND PORCHES PROVIDED THAT THE LOCATION OF THE DECK ALLOWS THE EMERGENCY ESCAPE AND RESCUE OPENINGS TO BE FULLY OPENED AND PROVIDES A PATH NOT LESS THAN 36 INCHES (914 MM) IN HEIGHT TO A YARD OR COURT. (R310.2.4)

WHERE A DOOR IS PROVIDED AS THE REQUIRED EMERGENCY ESCAPE AND RESCUE OPENING, IT SHALL BE A SIDE-HINGED DOOR OR A SLIDER. (R310.3)

THE MINIMUM NET CLEAR HEIGHT OPENING FOR ANY DOOR THAT SERVES AS AN EMERGENCY AND ESCAPE RESCUE OPENING SHALL BE IN ACCORDANCE WITH SECTION R310.2.1. (R310.3.1)

WHERE BARS, GRILLES, COVERS, SCREENS OR SIMILAR DEVICES ARE PLACED OVER EMERGENCY ESCAPE AND RESCUE OPENINGS, AREA WELLS, OR WINDOW WELLS, THE MINIMUM NET CLEAR OPENING SIZE COMPLY WITH SECTIONS R310.2.1 TO R310.2.3, AND SUCH DEVICES SHALL BE RELEASABLE OR REMOVABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, TOOL, SPECIAL KNOWLEDGE OR FORCE GREATER THAN THAT REQUIRED FOR THE NORMAL OPERATION OF THE ESCAPE AND RESCUE OPENING. (R310.4)

SEE IRC SECTION R308.4 FOR HAZARDOUS LOCATIONS WHERE SAFETY GLAZING IS REQUIRED.

BUILDINGS WITH COMBUSTIBLE CEILING OR ROOF CONSTRUCTION SHALL HAVE AN ATTIC ACCESS OPENING TO ATTIC AREAS THAT HAVE A VERTICAL HEIGHT OF 30 INCHES (762 MM) OR GREATER OVER AN AREA OF NOT LESS THAN 30 SQUARE FEET (2.8 M2). THE VERTICAL HEIGHT SHALL BE MEASURED FROM THE TOP OF THE CEILING FRAMING MEMBERS TO THE UNDERSIDE OF THE ROOF FRAMING MEMBERS.

THE ROUGH-FRAMED OPENING SHALL BE NOT LESS THAN 22 INCHES BY 30 INCHES (559 MM BY 762 MM) AND SHALL BE LOCATED IN A HALLWAY OR OTHER READILY ACCESSIBLE LOCATION. WHERE LOCATED IN A WALL, THE OPENING SHALL BE NOT LESS THAN 22 INCHES WIDE BY 30 INCHES HIGH (559 MM WIDE BY 762 MM HIGH). WHERE THE ACCESS IS LOCATED IN A CEILING, MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES (762 MM) AT SOME POINT ABOVE THE ACCESS MEASURED VERTICALLY FROM THE BOTTOM OF CEILING FRAMING MEMBERS. SEE SECTION M1305.1.3 FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS.(IRC R807). ACCESS PANELS SHALL BE 30" H X 22" W MINIMUM OR AS REQUIRED TO REMOVE EQUIPMENT WHEN USED TO ACCESS MECHANICAL EQUIPMENT. (IRC M1305.1.3)

9. FINISHES

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO FINISH ROOMS AND BUILDING EXTERIOR AS DETAILED, SCHEDULED AND / OR SPECIFIED IN THESE DOCUMENTS.

ALL CONSTRUCTION ADHESIVES AND CAULK SHOULD BE LOW VOC (<70 G/L).

ROOFING MATERIAL TO BE 29 GAUGE STEEL, PRO-PANEL II, COLOR "COLONIAL RED" OR PER OWNER. SIDING TO BE 3/4" SHIP LAP SIDING, 8" WIDE, WESTERN RED CEDAR, STAIN COLOR PER OWNER OR SYNTHETIC STUCCO, COLOR AND TEXTURE PER OWNER, INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND LOCAL CODES, WITH WEEP SCREED AT BOTTOM. TRIM TO BE 1X_ WESTERN RED CEDAR, STAIN COLOR "DARK BROWN" OR PER OWNER. STONE TO BE ADHERED SYNTHETIC OR ANCHORED MASONRY STONE VENEER WITH SAND STONE CAP, MATERIAL PER OWNER. METAL WAINSCOT TO BE 29 GAUGE STEEL, PRO-PANEL II, COLOR "SANDSTONE" OR PER OWNER. ALL FINISHES SHALL BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

VERIFY WITH THE OWNER, EXACT FINISHES NOT NOTED OR SPECIFIED HEREIN.

THE GARAGE SHALL BE SEPARATED AS REQUIRED BY TABLE R302.6. OPENINGS IN GARAGE WALLS SHALL COMPLY WITH SECTION R302.5. ATTACHMENT OF GYPSUM BOARD SHALL COMPLY WITH TABLE R702.3.5. THE WALL SEPARATION PROVISIONS OF TABLE R302.6 SHALL NOT APPLY TO GARAGE WALLS THAT ARE PERPENDICULAR TO THE ADJACENT DWELLING UNIT WALL. (R302.6)

THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2 INCH GYPSUM BOARD OR ITS EQUIVALENT APPLIED TO THE GARAGE SIDE. GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT SHALL BE PROTECTED WITH NO LESS THAN 1/2 INCH GYPSUM BOARD APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA. OPENINGS IN THESE WALL ARE REGULATED BY SECTION R302.5. (IRC R302.6)

THE GARAGE WALL SEPARATION PROVISIONS REQUIRED BY R302.6 SHALL NOT APPLY TO GARAGE WALLS THAT ARE PERPENDICULAR TO THE DWELLING UNIT WALLS.

PENETRATIONS THROUGH THE SEPARATION REQUIRED BY SECTION R302.6 SHALL BE PROTECTED BY FILLING THE OPENING AROUND THE PENETRATING ITEM WITH APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME OR PRODUCTS OF COMBUSTION. (IRC R302.11 ITEM 4)

9. FINISHES - CONTINUED

FLOOR ASSEMBLIES THAT ARE NOT REQUIRED ELSEWHERE IN THIS CODE TO BE FIRE-RESISTANCE RATED, SHALL BE PROVIDED WITH A 1/2-INCH (12.7 MM) GYPSUM WALLBOARD MEMBRANE, 5/8-INCH (16 MM) WOOD STRUCTURAL PANEL MEMBRANE, OR EQUIVALENT ON THE UNDERSIDE OF THE FLOOR FRAMING MEMBER. PENETRATIONS OR OPENINGS FOR DUCTS, VENTS, ELECTRICAL OUTLETS, LIGHTING, DEVICES, LUMINAIRES, WIRES, SPEAKERS, DRAINAGE, PIPING AND SIMILAR OPENINGS OR PENETRATIONS SHALL BE PERMITTED. (R302.13)

UON, PROVIDE HARDWOOD SKIRT BOARDS AT ALL INTERIOR STAIRWAYS

PERMITS ARE REQUIRED FOR ANY FUTURE FINISHING OF AREAS THAT ARE INCLUDED IN THIS PERMIT AS "UNFINISHED". UNFINISHED AREAS MUST INCLUDE (1) ELECTRICAL OUTLET AND (1) LIGHT ONLY. NO ROUGH-IN PLUMBING IS ALLOWED.

ALL PAINTS AND STAINS SHALL/SHOULD BE LOW VOC (<100 G/L FOR NON-FLAT, <50 G/L FOR FLAT FINISHES) OR ZERO VOC (<5 G/L).

UNLESS OTHERWISE NOTED EXCESS FINISH MATERIALS, PAINT, TRIM, TILE, CARPET, ETC. ARE TO REMAIN ONSITE.

WINE CELLAR TO BE UNHEATED, DO NOT PROVIDE RADIANT FLOOR IN THIS ROOM. COMMON WALL WITH STORAGE AND STUDIO TO BE INSULATED TO R-27, 2" SPROAY FOAM (R-14) + R-13 BATT.

10. SPECIALTIES

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO INSTALL THE SPECIALTY ITEMS SHOWN, NOTED OR SPECIFIED IN THESE DOCUMENTS.

FIREPLACES AND STOVES - SEE DIVISION 15 MECHANICAL

CLOSET SPECIALTIES - PROVIDE CLOSET SYSTEMS PER OWNER. PROVIDE WINE STORAGE RACKS PER OWNER

11. EQUIPMENT

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO INSTALL EQUIPMENT SHOWN, NOTED OR SPECIFIED IN THESE DOCUMENTS.

12. DEFENSIBLE SPACE

BASED ON "WILDFIRE PROTECTION IN THE WILDLAND URBAN INTERFACE" COLORADO STATE FOREST SERVICE #143-691

- REMOVE TREE BRANCHES HANGING WITHIN 15 FEET OF CHIMNEYS
- CLEAR WEEDS AND OTHER DEBRIS TO A MINIMUM DISTANCE OF 10 FROM THE BASE OF THE STRUCTURE. USE ONLY LIMITED FOUNDATION PLANTINGS WITHIN THIS 10 FOOT STRIP.
- STACK FIREWOOD UPHILL, OR ON CONTOUR WITH, AND AT LEAST 15 FEET AWAY FROM BUILDINGS. REMOVE FINE FUELS FROM THE VICINITY OF THE FIREWOOD. DO NOT STACK FIREWOOD ON OR BELOW DECKS AND PORCHES.
- PLACE (1) 10 POUND ABC CLASS FIRE EXTINGUISHER IN EACH BUILDING. IT IS RECOMMENDED TO HAVE A 50 GARDEN HOSE CONNECTED TO THE WATER HEATER DRAIN IN THE EVENT OF A FIRE EMERGENCY INSIDE THE HOME.
- THIN OUT CONTINUOUS BRUSH AND TREES WITHIN 30 FEET (LEVEL) OF ALL STRUCTURES. 40 FEET ON SIDE AND UPHILL SLOPES AND 50 FEET ON DOWN HILL SLOPES (20%) OF ALL STRUCTURES. ADEQUATE THINNING IS REACHED IN THIS "DEFENSIBLE SPACE" WHEN TREE CROWNS ARE AT LEAST 10 FEET DISTANT ON ALL SIDES. ISOLATED CLUMPS MAY BE PERMITTED IF THE 10 FOOT MINIMUM DISTANCE IS INCREASED. REMOVE ALL DEAD VEGETATION, BRUSH AND TREES FROM THIS AREA.
- PRUNE DEAD LIMBS TO A HEIGHT OF 10 FEET FROM THOSE TREES REMAINING WITHIN(2) TREE HEIGHTS OF ALL STRUCTURES. IN THIS SAME AREA, PRUNE LIVE BRANCHES TO 10 FEET FROM AT LEAST 1/2 OF THOSE TREES REMAINING.
- TREES SHOULD BE THINNED HEAVILY IN THE "DEFENSIBLE SPACE", MODERATELY IN THE TRANSITION ZONE AND CONTINUE NORMAL FOREST THINNING IN THE SURROUNDING FOREST. IF THINNING IN THE SURROUNDING FOREST IS NOT PLANNED, OR POSSIBLE, THE "DEFENSIBLE SPACE" AREA SHOULD BE DOUBLED.
- INCORPORATE "DEFENSIBLE SPACE" THINNING ALONG DRIVEWAYS.
- CONTACT THE COLORADO STATE FOREST SERVICE, 879.0475, FOR REQUIRED "DEFENSIBLE SPACE" INSPECTIONS.
- POTABLE WATER SYSTEM HOLDING TANKS, WHEN PROVIDED, SHOULD BE PROVIDED WITH A 6" STANDPIPE WITH 90 DEGREE ELBOW WITH 6" NST MALE FITTING AND CAP. PERMANENTLY MARK STANDPIPE.
- FIRE PROTECTION CISTERNS MAY BE REQUIRED, VERIFY WITH LOCAL FIRE PROTECTION DISTRICT.

13. ENERGY EFFICIENCY

THE ROUTT COUNTY REGIONAL BUILDING DEPARTMENT HAS ADOPTED THE 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AND IRC CHAPTER 11. EITHER CODE MAY BE USED.

PROJECTS SHALL COMPLY WITH ONE OF THE FOLLOWING:

1. SECTIONS N1101.14 THROUGH N1104. PRESCRIPTIVE / UA ALTERNATIVE
2. SECTION N1105 AND THE PROVISIONS OF SECTIONS N1101.14 THROUGH N1104 LABELED “MANDATORY.” SIMULATED PERFORMANCE ALTERNATIVE
3. AN ENERGY RATING INDEX (ERI) (HERS) APPROACH IN SECTION N1106.

TABLES N1102.1.2 & N1102.1.4 FOR CLIMATIC ZONE 7

FENESTRATION U FACTOR	SKYLIGHT U FACTOR	CEILINGS	FRAMED WALLS	MASS WALLS	FLOORS	BASEMENT WALLS c	SLAB DEPTH	WALLS c
		R-49	R-20+5 R-13+10 R27+0	R-19/ R-21	R-38g	R-15/ R-19	R-10, 4'	R-15/ R-19
0.30	0.55	0.026	0.045	0.057	0.028	0.050		U-0.055

THERE ARE NO REQUIREMENTS FOR SOLAR HEAT GLAZING COEFFICIENTS
a. R-VALUES SHOWN ARE MINIMUMS, U-FACTORS SHOWN ARE MAXIMUMS,
c. THE FIRST R-VALUE IS FOR CONTINUOUS INSULATION, THE SECOND R-VALUE IS FOR CAVITY INSULATION, EITHER SYSTEM MEETS THE REQUIREMENT
d. R-5 SHALL BE PROVIDED UNDER THE FULL SLAB AREA OF A HEATED SLAB IN ADDITION TO THE REQUIRED SLAB EDGE R-VALUE. THE SLAB EDGE INSULATION FOR HEATED SLABS SHALL NOT BE REQUIRED TO EXTEND BELOW THE SLAB.
g. OR INSULATION SUFFICIENT TO FILL THE FRAMING CAVITY, R-19 MINIMUM
h. THE FIRST VALUE IS CAVITY INSULATION, THE SECOND VALUE IS CONTINUOUS INSULATION

THIS BUILDING IS DESIGNEDTO MEET THE PRESCRIPTIVE REQUIREMENTS, THE BUILDING THERMAL ENVELOPE SHALL MEET THE REQUIREMENTS OF SECTIONS N1102.1.1 THROUGH N1102.1.5.

FOR THIS HOUSE THE PRESCRIBED METHOD USING TABLE 305.3.1(1) U-FACTOR OR THE CALCULATION METHOD IN SECTION 305.3.3 WAS USED..

TO MEET THE TOTAL UA ALTERNATIVE REQUIREMENTS, THE TOTAL BUILDING THERMAL ENVELOPE UA, SUM OF U-FACTOR TIMES ASSEMBLY AREA, IS LESS THAN OR EQUAL TO THE TOTAL UA RESULTING FROM MULTIPLYING THE U-FACTORS IN TABLE N1102.1.4 BY THE SAME ASSEMBLY AREA AS IN THE PROPOSED BUILDING, THE BUILDING SHALL BE CONSIDERED IN COMPLIANCE WITH TABLE N1102.1.2. THE UA CALCULATION SHALL BE PEROFRMED USING A METHOD CONSISTENT WITH THE ASHRAE HANDBOOK OF FUNDAMENTALS AND SHALL INCLUDE THE THERMAL BRIDGING EFFECTS OF FRAMING MATERIALS. THE SHGC REQUIREMENTS SHALL BE MET. SEE ATTACHED RESCHECK COMPLIANCE REPORT.

THE BUILDING THERMAL ENVELOPE IS REPRESENTED ON THE CONSTRUCTION DRAWINGS IN "RED".

INTERIOR DESIGN TEMPERATURES ARE 72° F MAX FOR HEATING AND 75° F FOR COOLING.

THE THICKNESS OF BLOWN IN OR SPRAYED (FIBERGLASS OR CELLULOSE) SHALL BE WRITTEN IN INCHES ON MARKERS WITH NUMBERS 1" TALL. MARKERS SHALL FACE THE ATTIC ACCESS OPENING AND BE PROVIDED FOR EACH 300 SF OF ATTIC AREA. (N1110.1.1)

A PERMANENT CERTIFICATE SHALL BE COMPLETED BY THE BUILDER OR OTHER APPROVED PARTY AND POSTED ON A WALL IN THE SPACE WHERE THE FURNACE IS LOCATED, A UTILITY ROOM OR AN APPROVED LOCATION INSIDE THE BUILDING. WHERE LOCATED ON AN ELECTRICAL PANEL, THE CERTIFICATE SHALL NOT COVER OR OBSTRUCT THE VISIBILITY OF THE CIRCUIT DIRECTORY LABEL, SERVICE DISCONNECT LABEL OR OTHER REQUIRED LABELS. THE CERTIFICATE SHALL LIST THE PREDOMINANT R-VALUES OF INSULATION INSTALLED IN OR ON CEILING/ROOF, WALLS, FOUNDATION (SLAB, BASEMENT WALL AND/OR FLOOR) AND DUCTS OUTSIDE CONDITIONED SPACES; U-FACTORS FOR FENESTRATION AND THE RESULTS FROM ANY REQUIRED DUCT SYSTEM AND BUILDING ENVELOPE AIR LEAKAGE TESTING DONE ON THE BUILDING. WHERE THERE IS MORE THAN ONE VALUE FOR EACH COMPONENT, THE CERTIFICATE SHALL LIST THE VALUE COVERING THE LARGEST AREA. THE CERTIFICATE SHALL LIST THE TYPES AND EFFICIENCIES OF HEATING, COOLING AND SERVICE WATER HEATING EQUIPMENT. WHERE A GAS-FIRED UNVENTED ROOM HEATER, ELECTRIC FURNACE, OR BASEBOARD ELECTRIC HEATER IS INSTALLED IN THE RESIDENCE, THE CERTIFICATE SHALL LIST “GAS-FIRED UNVENTED ROOM HEATER,” “ELECTRIC FURNACE” OR “BASEBOARD ELECTRIC HEATER,” AS APPROPRIATE. AN EFFICIENCY SHALL NOT BE LISTED FOR GAS-FIRED UNVENTED ROOM HEATERS, ELECTRIC FURNACES OR ELECTRIC BASEBOARD HEATERS. (N1101.14 (R401.3))

CEILINGS WITH ATTIC SPACES, WHERE SECTION N1102.1.2 WOULD REQUIRE R-49 INSULATION 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 INSULATION 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 N1102.1.4 AND THE TOTAL UA ALTERNATIVE IN SECTION N1102.1.5. (N1102.2.1)(R402.2.1))

CEILINGS WITHOUT ATTIC SPACES. WHERE SECTION N1102.1.2 WOULD REQUIRE INSULATION VALUES GREATER THAN R-30 AND THE DESIGN OF THE ROOF/CEILING ASSEMBLY DOES NOT ALLOW SUFFICIENT SPACE FOR THE REQUIRED INSULATION, THE MINIMUM REQUIRED INSULATION FOR SUCH ROOF/CEILING ASSEMBLIES SHALL BE R-30. THIS REDUCTION OF INSULATION FROM THE REQUIREMENTS OF SECTION N1102.1.2 SHALL BE LIMITED TO 500 SQUARE FEET (46 M2) OR 20 PERCENT OF THE TOTAL INSULATED CEILING AREA, WHICHEVER IS LESS. THIS REDUCTION SHALL NOT APPLY TO THE U-FACTOR ALTERNATIVE APPROACH IN SECTION N1102.1.4 AND THE TOTAL UA ALTERNATIVE IN SECTION N1102.1.5. (N1102.2.2(R402.2.2))

ACCESS DOORS FROM CONDITIONED SPACES TO UNCONDITIONED SPACES SUCH AS ATTICS AND CRAWL SPACES SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON THE SURROUNDING SURFACES. ACCESS THAT PREVENTS DAMAGING OR COMPRESSING THE INSULATION SHALL BE PROVIDED TO ALL EQUIPMENT . WHERE LOOSE-FILL INSULATION IS INSTALLED, A WOOD-FRAMED OR EQUIVALENT BAFFLE OR RETAINER SHALL BE REQUIRED TO BE PROVIDED WTHE PURPOSE OF WHICH IS TO PREVENT THE LOOSE-FILL INSTALLED TO PREVENT THE INSULATION FROM SPILLING INTO THE LIVING SPACE WHEN THE ATTIC ACCESS IS OPENED, THE BAFFLE OR RETAINER SHALL PROVIDE A PERMANENT MEANS OF MAINTAINING THE INSTALLED R-VALUE OF THE LOOSE-FILL INSULATION. (N1102.2.4 (R402.2.4))

EXCEPTION: VERTICAL DOORS PROVIDING ACCESS FROM CONDITIONED TO UNCONDITIONED SPACES THAT COMPLY WITH THE FENESTRATION REQUIREMENTS OF TABLE N1102.1.2 BASED ON THE APPLICABLE CLIMATE ZONE SPECIFIED IN SECTION N1101.7. FOR ZONE 7 THE U-VALUE IS 0.30 = R-VALUE OF 3.33.

PROVIDE ATTIC DOOR "EZ HATCH ATTIC ACCESS SCUTTLE DOOR" R-42 FOR 22" X 30" OPENING OR "ATTIC PULL DOWN STAIR LADDER COVER" R-50 FOR 22" X 54" LADDERS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

FLOOR FRAMING-CAVITY INSULATION SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT WITH THE UNDERSIDE OF THE SUBFLOOR DECKING. (N1102.2.8 (R402.2.8))

EXCEPTION: THE FLOOR FRAMING-CAVITY INSULATION SHALL BE IN CONTACT WITH THE TOPSIDE OF SHEATHING OR CONTINUOUS INSULATION INSTALLED ON THE BOTTOM SIDE OF FLOOR FRAMING WHERE COMBINED WITH INSULATION THAT MEETS OR EXCEEDS THE MINIMUM WOOD FRAME WALL R-VALUE IN TABLE 1102.1.2 AND THAT EXTENDS FROM THE BOTTOM TO THE TOP OF ALL PERIMETER FLOOR FRAMING MEMBERS.

WALLS ASSOCIATED WITH CONDITIONED BASEMENTS SHALL BE INSULATED FROM THE TOP OF THE BASEMENT WALL DOWN TO THE TOP OF FOOTER (TOF) OR TO THE BASEMENT FLOOR, WHICHEVER IS LESS. (N1102.2.9 (R402.2.9))

SLAB-ON-GRADE FLOORS WITH A FLOOR SURFACE LESS THAN 12 INCHES (305 MM) BELOW GRADE SHALL BE INSULATED IN ACCORDANCE WITH TABLE N1102.1.2. THE INSULATION SHALL EXTEND DOWNWARD FROM THE TOP OF THE SLAB ON THE OUTSIDE OR INSIDE OF THE FOUNDATION WALL. INSULATION LOCATED BELOW GRADE SHALL BE EXTENDED THE DISTANCE PROVIDED IN TABLE N1102.1.2 BY ANY COMBINATION OF VERTICAL INSULATION, INSULATION EXTENDING UNDER THE SLAB OR INSULATION EXTENDING OUT FROM THE BUILDING. INSULATION EXTENDING AWAY FROM THE BUILDING SHALL BE PROTECTED BY PAVEMENT OR BY NOT LESS THAN 10 INCHES (254 MM) OF SOIL. THE TOP EDGE OF THE INSULATION INSTALLED BETWEEN THE EXTERIOR WALL AND THE EDGE OF THE INTERIOR SLAB SHALL BE PERMITTED TO BE CUT AT A 45-DEGREE (0.79 RAD) ANGLE AWAY FROM THE EXTERIOR WALL. SLAB-EDGE INSULATION IS NOT REQUIRED IN JURISDICTIONS DESIGNATED BY THE BUILDING OFFICIAL AS HAVING A VERY HEAVY TERMITE INFESTATION. (N1102.2.10 (R402.2.10))

INSULATION SHALL NOT BE REQUIRED ON THE HORIZONTAL PORTION OF A FOUNDATION THAT SUPPORTS A MASONRY VENEER. (N1102.2.12(R402.2.12))

AREA WEIGHTED AVERAGE OF FENESTRATION PRODUCTS SHALL BE PERMITTED TO SATISFY THE U-FACTOR REQUIREMENTS. (N1102.3.1 (R402.3.1))

NOT GREATER THAN 15 SQUARE FEET (1.4M2) OF GLAZED FENESTRATION SHALL BE EXEMPT FROM THE U-FACTOR (AND SHGC) REQUIREMENT IN SECTION N1102.1.2. (N1102.3.3 (R402.3.3))

ONE SIDE-HINGED OPAQUE DOOR ASSEMBLY UP TO 24 SQUARE FEET (2.22 M2) IN AREA IS EXEMPTED FROM THE U-FACTOR REQUIREMENT IN SECTION N1102.1.2. THIS EXEMPTION SHALL NOT APPLY TO THE U-FACTOR ALTERNATIVE APPROACH IN SECTION N1102.1.4 AND THE TOTAL UA ALTERNATIVE IN SECTION N1102.1.5. (N1102.3.4 (R402.3.4))

(MANDATORY). THE BUILDING THERMAL ENVELOPE SHALL BE CONSTRUCTED TO LIMIT AIR LEAKAGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS N1102.4.1 THROUGH N1102.4.5. (N1102.4 (R402.4))

THE BUILDING THERMAL ENVELOPE SHALL COMPLY WITH SECTIONS N1102.4.1.1 AND N1102.4.1.2. THE SEALING METHODS BETWEEN DISSIMILAR MATERIALS SHALL ALLOW FOR DIFFERENTIAL EXPANSION AND CONTRACTION. (N1102.4.1 (R402.4.1))

THE COMPONENTS OF THE BUILDING THERMAL ENVELOPE AS LISTED IN TABLE N1102.4.1.1 SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE CRITERIA LISTED IN TABLE N1102.4.1.1, AS APPLICABLE TO THE METHOD OF CONSTRUCTION. WHERE REQUIRED BY THE BUILDING OFFICIAL, AN APPROVED THIRD PARTY SHALL INSPECT ALL COMPONENTS AND VERIFY COMPLIANCE. (N1102.4.1.1 (R402.4.1.1))

THIS BUILDING SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING FIVE AIR CHANGES PER HOUR IN CLIMATE ZONES 1 AND 2, AND THREE AIR CHANGES PER HOUR IN CLIMATE ZONES 3 THROUGH 8. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RESNET/ICC 380, ASTM E 779 OR ASTM E 1827 AND REPORTED AT A PRESSURE OF 0.2 INCHES W.G. (50 PASCALS). WHERE REQUIRED BY THE CODE OFFICIAL, TESTING SHALL BE CONDUCTED BY AN APPROVED THIRD PARTY. A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE BULDING OFFICIAL. TESTING SHALL BE PERFORMED AT ANY TIME AFTER CREATION OF ALL PENETRATIONS OF THE BUILDING THERMAL ENVELOPE. (N1102.4.1.2 (R402.4.1.2))

DURING TESTING:
1. EXTERIOR WINDOWS AND DOORS, FIREPLACE AND STOVE DOORS SHALL BE CLOSED, BUT NOT SEALED, BEYOND THE INTENDED WEATHERSTRIPPING OR OTHER INFILTRATION CONTROL MEASURES.
2. DAMPERS INCLUDING EXHAUST, INTAKE, MAKEUP AIR, BACKDRAFT AND FLUE DAMPERS SHALL BE CLOSED, BUT NOT SEALED BEYOND INTENDED INFILTRATION CONTROL MEASURES.
3. INTERIOR DOORS, WHERE INSTALLED AT THE TIME OF THE TEST, SHALL BE OPEN.
4. EXTERIOR OR INTERIOR TERMINATIONS FOR CONTINUOUS VENTILATION SYSTEMS SHALL BE SEALED.
5. HEATING AND COOLING SYSTEMS, WHERE INSTALLED AT THE TIME OF THE TEST, SHALL BE TURNED OFF.
6. SUPPLY AND RETURN REGISTERS, WHERE INSTALLED AT THE TIME OF THE TEST, SHALL BE FULLY OPEN.

TESTING BY SPECIAL INSPECTION BY AN APPROVED PARTY. NOTIFY COMPLETE HOME INSPECTION SERVICES, GREG POLMAN, 970.846.4712.

NEW WOOD-BURNING FIREPLACES SHALL HAVE TIGHT-FITTING FLUE DAMPERS OR DOORS, AND OUTDOOR COMBUSTION AIR. WHERE USING TIGHT-FITTING DOORS ON FACTORY-BUILT FIREPLACES LISTED AND LABELED IN ACCORDANCE WITH UL 127, THE DOORS SHALL BE TESTED AND LISTED FOR THE FIREPLACE. (N1102.4.1.2 (R402.4.1.2))

WINDOWS, SKYLIGHTS AND SLIDING GLASS DOORS SHALL HAVE AN AIR INFILTRATION RATE OF NOT GREATER THAN 0.3 CFM PER SQUARE FOOT (1.5 L/S/M2), AND SWINGING DOORS NOT GREATER THAN 0.5 CFM PER SQUARE FOOT (2.6 L/S/M2), WHEN TESTED ACCORDING TO NFRC 400 OR AAMA/WDMA/CSA 101/I.S.2/A440 BY AN ACCREDITED, INDEPENDENT LABORATORY AND LISTED AND LABELED BY THE MANUFACTURER. (N1102.4.3 (R402.4.3))

EXCEPTION: SITE-BUILT WINDOWS, SKYLIGHTS AND DOORS.

IN CLIMATE ZONES 3 THROUGH 8, WHERE OPEN COMBUSTION AIR DUCTS PROVIDE COMBUSTION AIR TO OPEN COMBUSTION FUEL-BURNING APPLIANCES, THE APPLIANCES AND COMBUSTION AIR OPENING SHALL BE LOCATED OUTSIDE THE BUILDING THERMAL ENVELOPE OR ENCLOSED IN A ROOM, ISOLATED FROM INSIDE THE THERMAL ENVELOPE. SUCH ROOMS SHALL BE SEALED AND INSULATED IN ACCORDANCE WITH THE ENVELOPE REQUIREMENTS OF TABLE N1102.1.2, WHERE THE WALLS, FLOORS AND CEILINGS SHALL MEET A MINIMUM OF THE BASEMENT WALL R-VALUE REQUIREMENT. THE DOOR INTO THE ROOM SHALL BE FULLY GASKETED AND ANY WATER LINES AND DUCTS IN THE ROOM INSULATED IN ACCORDANCE WITH SECTION N1103. THE COMBUSTION AIR DUCT SHALL BE INSULATED WHERE IT PASSES THROUGH CONDITIONED SPACE TO NOT LESS THAN R-8. (N1102.4.4 (R402.4.4))

EXCEPTIONS:
1. DIRECT VENT APPLIANCES WITH BOTH INTAKE AND EXHAUST PIPES INSTALLED CONTINUOUS TO THE OUTSIDE.
2. FIREPLACES AND STOVES COMPLYING WITH SECTIONS N1102.4.2 AND R1006.

RECESSED LUMINAIRES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO LIMIT AIR LEAKAGE BETWEEN CONDITIONED AND UNCONDITIONED SPACES. ALL RECESSED LUMINAIRES SHALL BE IC-RATED AND LABELED AS HAVING AN AIR LEAKAGE RATE NOT GREATER THAN 2.0 CFM (0.944 L/S) WHEN TESTED IN ACCORDANCE WITH ASTM E 283 AT A PRESSURE DIFFENTIAL OF 1.57 PSF (75 PA). RECESSED LUMINAIRES SHALL BE SEALED WITH A GASKET OR CAULK BETWEEN THE HOUSING AND THE INTERIOR WALL OR CEILING COVERING. (N1102.4.5 (R402.4.5))

(MANDATORY). THE AREA-WEIGHTED AVERAGE MAXIMUM FENESTRATION U-FACTOR PERMITTED USING TRADEOFFS FROM SECTION N1102.1.5 OR N1105 SHALL BE 0.48 IN CLIMATE ZONES 4 AND 5 AND 0.40 IN CLIMATE ZONES 6 THROUGH 8 FOR VERTICAL FENESTRATION, AND 0.75 IN CLIMATE ZONES 4 THROUGH 8 FOR SKYLIGHTS. THE AREA-WEIGHTED AVERAGE MAXIMUM FENESTRATION SHGC PERMITTED USING TRADEOFFS FROM SECTION N1105 IN CLIMATE ZONES 1 THROUGH 3 SHALL BE 0.50. (N1102.5 (R402.5))

NOT LESS THAN ONE THERMOSTAT SHALL BE PROVIDED FOR EACH SEPARATE HEATING AND COOLING SYSTEM (N1103.1 (R403.1))

DUCTS AND AIR HANDLERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTIONS N1103.3.1 THROUGH N1103.3.8. (N1103.3 (R403.3))

(PRESCRIPTIVE). SUPPLY AND RETURN DUCTS IN ATTICS SHALL BE INSULATED TO AN R-VALUE OF NOT LESS THAN R-8 FOR DUCTS 3 INCHES (76.2 MM) IN DIAMETER AND LARGER AND NOT LESS THAN R-6 FOR DUCTS SMALLER THAN 3 INCHES (76.2 MM) IN DIAMETER. SUPPLY AND RETURN DUCTS IN OTHER PORTIONS OF THE BUILDING SHALL BE INSULATED TO NOT LESS THAN R-6 FOR DUCTS 3 INCHES (76.2 MM) IN DIAMETER NOT LESS THAN R-4.2 FOR DUCTS LESS THAN 3 INCHES (76.2 MM) IN DIAMETER. (N1103.3.1 (R403.3.1))

EXCEPTION: DUCTS OR PORTIONS THEREOF LOCATED COMPLETELY INSIDE THE BUILDING THERMAL ENVELOPE.

(MANDATORY). DUCTS, AIR HANDLERS AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION M1601.4.1. (N1103.3.2 (R403.3.2))

EXCEPTIONS:
1. AIR-IMPERMEABLE SPRAY FOAM PRODUCTS SHALL BE PERMITTED TO BE APPLIED WITHOUT ADDITIONAL JOINT SEALS.
2. FOR DUCTS HAVING A STATIC PRESSURE CLASSIFICATION OF LESS THAN 2 INCHES OF WATER COLUMN (500 PA), ADDITIONAL CLOSURE SYSTEMS SHALL NOT BE REQUIRED FOR CONTINUOUSLY WELDED JOINTS AND SEAMS, AND LOCKING-TYPE JOINTS AND SEAMS OF OTHER THAN THE SNAP-LOCK AND BUTTON-LOCK TYPES.

AIR HANDLERS SHALL HAVE A MANUFACTURER'S DESIGNATION FOR AN AIR LEAKAGE OF NO MORE THAN 2 PERCENT OF THE DESIGN AIR FLOW RATE WHEN TESTED IN ACCORDANCE WITH ASHRAE 193. (N1103.3.2.1 (R403.3.2.1))

(MANDATORY). DUCTS SHALL BE PRESSURE TESTED TO DETERMINE AIR LEAKAGE BY ONE OF THE FOLLOWING METHODS: (N1103.3.3 (R403.3.3))

1. ROUGH-IN TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE IF INSTALLED AT THE TIME OF THE TEST. REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.

2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE ENTIRE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE. REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.

EXCEPTION:

1. A DUCT AIR LEAKAGE TEST SHALL NOT BE REQUIRED WHERE THE DUCTS AND AIR HANDLERS ARE LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.
2. A DUCT AIR LEAKAGE TEST SHALL NOT BE REQUIRED FOR DUCTS SERVING HEAT OR ENERGY RECOVERY VENTILATORS THAT ARE NOT INTEGRATED WITH DUCTS SERVING HEATING AND COOLIN SYSTEMS.

A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE BUILDING OFFICIAL.

(PRESCRIPTIVE). THE TOTAL LEAKAGE OF THE DUCTS, WHERE MEASURED IN ACCORDANCE WITH SECTION R403.3.3, SHALL BE AS FOLLOWS: (N1103.3.4 (R403.3.4))

1. ROUGH-IN TEST: THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA WHERE THE AIR HANDLER IS INSTALLED AT THE TIME OF THE TEST. WHERE THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF THE TEST, THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CUBIC FEET PER MINUTE (85 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA.
2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA.

(MANDATORY). BUILDING FRAMING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMS. (N1103.3.5 (R403.3.5))

SEE SECTION N1103.3.6 (R403.3.6) WHEN SUPPLY AND RETURN DUCTS ARE PARTIALLY OR COMPLETELY BURIED IN CEILING INSUALTION.

SEE SECTION N1103.3.7 (R403.3.7) FOR DUCTS TO BE CONSIDERED INSIDE A CONDITIONED SPACE. (N1103.3.7(R403.3.7)

MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS ABOVE 105 DEGREES F OR BELOW 55 DEGREES F SHALL BE INSULATED TO AN R-VALUE OF NOT LESS THAN R-3 MINIMUM. (N1103.4 (IECC 403.3))

(MANDATORY). HEATED WATER CIRCULATION SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION R1103.5.1.1. HEAT TRACE TEMPERATURE MAINTENANCE SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION R1103.5.1.2. AUTOMATIC CONTROLS, TEMPERATURE SENSORS AND PUMPS SHALL BE ACCESSIBLE. MANUAL CONTROLS SHALL BE READILY ACCESSIBLE. (N1103.5.1 (R403.5.1))

HEATED WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. GRAVITY AND THERMOSYPHON CIRCULATION SYSTEMS SHALL BE PROHIBITED. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER. (N1103.5.1.1 (R403.5.1.1))

A WATER DISTRIBUTION SYSTEM HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED WATER SUPPLY PIPE BACK TO THE HEATED WATER SOURCE THROUGH A COLD WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING: (N1103.5.2 (R403.5.2))

1. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
2. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD WATER PIPING TO 104ºF (40ºC).

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ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)819-9650

Job # 21.006
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Date 8JUNE21
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13. ENERGY EFFICIENCY - CONTINUED

(PRESCRIPTIVE). INSULATION FOR HOT WATER PIPE WITH A MINIMUM THERMAL RESISTANCE, R-VALUE OF NOT LESS THAN R-3 SHALL BE APPLIED TO THE FOLLOWING: (N1103.5.3 (R403.5.3))

1. PIPING 3/4 INCH (19 MM) AND LARGER IN NOMINAL DIAMETER.
2. PIPING SERVING MORE THAN ONE DWELLING UNIT.
3. PIPING LOCATED OUTSIDE THE CONDITIONED SPACE.
4. PIPING FROM THE WATER HEATER TO A DISTRIBUTION MANIFOLD.
5. PIPING LOCATED UNDER A FLOOR SLAB.
6. BURIED PIPING.
7. SUPPLY AND RETURN PIPING IN RECIRCULATION SYSTEMS OTHER THAN DEMAND RECIRCULATION SYSTEMS.

(MANDATORY). THE BUILDING SHALL BE PROVIDED WITH VENTILATION THAT MEETS THE REQUIREMENTS OF SECTION M1507 OR OTHER APPROVED MEANS OF VENTILATION. OUTDOOR AIR INTAKES AND EXHAUSTS SHALL HAVE AUTOMATIC OR GRAVITY DAMPERS THAT CLOSE WHEN THE VENTILATION SYSTEM IS NOT OPERATING. (N1103.6 (R403.6))

FANS USED TO PROVIDE WHOLE-HOUSE MECHANICAL VENTILATION SHALL MEET THE EFFICACY REQUIREMENTS OF TABLE N1103.6.1 OF 2.8 CFM/WATT EXCEPT BATH AND UTILITY ROOM FANS OF 1.4 CFM/WATT FOR FANS <90 CFM AND HRV OR ERV FANS OF 1.2 CFM/WATT. (N1103.6.1 (R403.6.1))

EXCEPTION: WHERE THE AIR HANDLER THAT IS INTEGRAL TO TESTED AND LISTED HVAC EQUIPMENT IS USED TO PROVIDE WHOLE-HOUSE MECHANICAL VENTILATION, THEE AIR HANDLER SHALL BE POWERED BY AN ELECTRONICALLY COMMUTATED MOTOR.

(MANDATORY). HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH ACCA MANUAL S BASED ON BUILDING LOADS CALCULATED IN ACCORDANCE WITH ACCA MANUAL J OR OTHER APPROVED HEATING AND COOLING CALCULATION METHODOLOGIES. NEW OR REPLACEMENT HEATING AND COOLING EQUIPMENT SHALL HAVE AN EFFICIENCY RATING EQUAL TO OR GREATER THAN THE MINIMUM REQUIRED BY FEDERAL LAW FOR THE GEOGRAPHIC LOCATION WHERE THE EQUIPMENT IS INSTALLED. (N1103.7 (R403.7))

SNOW AND ICE MELTING SYSTEMS, SUPPLIED THROUGH ENERGY SERVICE TO THE BUILDING, SHALL INCLUDE AUTOMATIC CONTROLS CAPABLE OF SHUTTING OFF THE SYSTEM WHEN THE PAVEMENT TEMPERATURE IS GREATER THAN 50° F AND PRECIPITATION IS NOT FALLING AND AN AUTOMATIC OR MANUAL CONTROL THAT WILL ALLOW SHUTOFF WHEN THE OUTDOOR TEMPERATURE IS GREATER THAN 40° F (N1103.9 (R403.9))

POOLS AND PERMANENT SPAS SHALL BE IN ACORDANCE WITH SECTION N1103.10.3

(MANDATORY). NOT LESS THAN 90% OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH EFFICACY LAMPS. (N1104.1(R404.1))

HOT WATER BOILERS SHALL HAVE AN OUTDOOR SETBACK CONTROL THAT LOWERS THE BOILER WATER TEMPERATURE BASED ON THE OUTDOOR TEMPERATURE (N1103.2 (R403.2))

AS DESIGNED THIS HOUSE WILL COMPLY WITH THE PRESCRIPTIVE PATH, SECTIONS N1102.1 THROGH N1104. IF FIELD DECISIONS OR SUBSTITUTIONS ARE MADE RESULTING IN FAILURE TO COMPLY WITH SECTIONS N1101.14-N1104 (PRESCRIPTIVE) THE HOME MUST BE EVALUATED UNDER SECTION N1105, SIMULATED PERFORMANCE ALTERNATIVE (PERFORMANCE) OR SECTION N1106 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE. A COMPLIANCE REPORT ON THE PROPOSED DESIGN SHALL BE SUBMITTED WITH THE APPLICATION FOR THE BUILDING PERMIT. VERIFICATION OF COMPLIANCE WITH SECTION N1105 OR N1106 SHALL BE COMPETED BY AN APPROVED THIRD PARTY AND THE COMPLIANCE REPORT SHALL BE SUBMITTED WITH THE BUILDING PERMIT APPLICATION.

14. PLUMBING

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO INSTALL ALL PERIMETER STORM DRAINAGE, FLOOR DRAINS, PLUMBING, RELATED FIXTURES, GAS PIPING AND RADON GAS VENT PIPING. ALL WORK SHALL COMPLY WITH IRC PART VI - FUEL GAS, CHAPTER 24 AND PART VII - PLUMBING, CHAPTERS 25 THRU 33, STATE AND LOCAL CODES AND ORDINANCES.

BOILERS & WATER HEATERS SHALL BE LOCATED PER IRC CHAPTER 20. AND SHALL BE INSTALLED IN ACCORDANCE WITH IRC CHAPTERS 25 & 28.
PLUMBING FIXTURES SHALL BE LOCATED & INSTALLED PER CHAPTER 29.
WATER SUPPLY AND DISTRIBUTION SHALL COMPLY WITH IRC CHAPTER 29.
SANITARY DRAINAGE SHALL COMPLY WITH IRC CHAPTER 30.
VENTING SHALL COMPLY WITH IRC CHAPTER 31.
FIXTURE TRAPS SHALL COMPLY WITH IRC CHAPTER 32.
DWELLING FIRE SPRINKLER SYSTEM IF REQUIRED SHALL BE INSTALLED PER CHAPTER 29 SECTION P2904

PROVIDE TRUNK AND BRANCH PLUMBING SYSTEM WITH HOT WATER RECIRCULATION LOOP ON RUNS LONGER THAN 30 FEET HORIZONTAL. RECIRCULATION LOOP TO BE PROVIDED WITH A LOW FLOW, HIGH EFFICIENCY, CONTINUOUS DUTY PUMP OR OPTIONALLY PROVIDE PARALLEL FLOW (MANIFOLD OR HOME RUN) PIPING SYSTEM USING "PEX" OR APPROVED EQUAL PIPING.

ROUTT COUNTY IS LISTED IN ZONE 2, MODERATE POTENTIAL FOR RADON PER FIGURE AF101. BELOW GRADE AND CRAWL SPACE FOUNDATIONS ARE REQUIRED TO COMPLY WITH APPENDIX F "RADON CONTROL METHODS". SEE APPENDIX F.

IN BUILDINGS WITH BASEMENTS OR SLAB-ON-GRADE CONSTRUCTION WHERE A PASSIVE SUBSLAB DEPRESSURIZATION SYSTEM IS SHOWN ON THE FOUNDATION PLAN, PROVIDE VENT PIPE PER AF103.6.1 OR AF 103.6.2. SEE FIGURE AF102 FOR DETAILS. (AF103.6)

RADON VENT PIPES SHALL BE ACCESSIBLE FOR FUTURE FAN INSTALLATION THROUGH AN ATTIC OR OTHER AREA OUTSIDE THE HABITABLE SPACE. (AF103.8)

EXPOSED OR VISIBLE INTERIOR RADON VENT PIPES SHALL BE IDENTIFIED WITH NOT LESS THAN ONE LABEL ON EACH FLOOR AND IN ACCESSIBLE ATTICS. THE LABEL SHALL READ "RADON REDUCTION SYSTEM". (AF103.9)

WHERE RADON VENT PIPE (VTR) IS PROVIDED, A LOW SONE CONTINUOUS DUTY, CUT IN FAN MAY BE REQUIRED. PROVIDE AMPLE ROOM FOR FAN INSTALLATION & POWER SOURCE PER AF103.12. COORDINATE W/ PLUMBER, MECHANICAL & ELECTRICAL CONTRACTORS.

THE USA EPA HAS SET AN ACTION LEVEL OF 4pCi/L. AT OR ABOVE THIS LEVEL OF RADON, THE EPA RECOMMENDS CORRECTIVE MEASURES TO REDUCE RADON GAS. IT IS RECOMMENDED TO TEST THE COMPLETED STRUCTURE AND PROVIDE AN ADEQUATE VENT FAN IF REQUIRED.

THE MAXIMUM WATER CONSUMPTION FLOW RATES AND QUANTITIES FOR ALL PLUMBING FIXTURES AND FIXTURE FITTINGS SHALL BE IN ACCORDANCE WITH TABLE P2903.2. HIGH EFFICIENCY TOILETS, WHEN SPECIFIED, SHALL BE DUAL FLUSH OR <1.3 GPF.

A WATER CLOSET LAVATORY OR BIDET SHALL NOT BE SET CLOSER THAN 15" FROM ITS CENTER TO ANY SIDEWALL PARTITION OR VANITY. THE CLEAR SPACE IN FRONT OF THE WATER CLOSET SHALL BE NOT LESS THAN 21" (R307.1 & P2705.1.5). PROVIDE ELONGATED BOWLS UNLESS OTHERWISE NOTED.

SHOWER COMPARTMENTS SHALL HAVE AT LEAST 900 SQUARE INCHES OF INTERIOR CROSS SECTIONAL AREA AND SHALL NOT BE LESS THAN 30" IN MINIMUM DIMENSION. (P2708) SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NON-ABSORBENT SURFACE EXTENDING TO A HEIGHT OF 6'-0" MINIMUM ABOVE THE FLOOR. (R307.2)

PROVIDE CAST-N-PLACE CAST IRON FLOOR DRAINS WITH INTEGRAL SAND TRAP, PIPED @ 1% MINIMUM SLOPE TO DAYLIGHT IN THE GARAGE. DAYLIGHTED END SHALL BE SCREENED AND PROTECTED WITH ROCK RIPRAP. IF EXPANSIVE SOILS ARE PRESENT, DO NOT CONNECT FLOOR DRAIN OUTFALL TO FOUNDATION PERIMETER DRAIN UNTIL 10 FEET AWAY FROM THE FOUNDATION. (ROUTT COUNTY ONLY)

PROVIDE FLOOR DRAIN PIPED TO HOUSE SEWER IN ALL MECHANICAL ROOMS CONTAINING BOILERS. DRAIN SHALL BE LOCATED AS NOTED ON PLANS. IF USED AS AN INDIRECT DRAIN RECEPTOR FOR BOILER OR WATER HEATER RELOCATE AS CLOSE AS POSSIBLE TO BOILER OR WATER HEATER.

PROVIDE FLOOR DRAIN PIPED TO HOUSE SEWER IN ALL LAUNDRY ROOM UNLESS WASHING MACHINE IS PLACED IN A WATER TIGHT PAN COMPLYING WITH IRC SECTION P2801.6

WHERE WATER HEATERS OR HOT WATER STORAGE TANKS ARE INSTALLED IN LOCATIONS WHERE LEAKAGE WOULD CAUSE DAMAGE, THE TANK OR WATER HEATER SHALL BE INSTALLED IN A GALVANIZED STEEL PAN PER IRC P2801.6. LISTED PANS SHALL COMPLY WITH CSA LC3. THE PAN SHALL BE DRAINED BY AN INDIRECT WASTE PIPE PER IRC P2801.6.1 AND TERMINATED OVER A SUITABLY LOCATED INDIRECT WASTE RECEPTOR OR EXTENDED TO THE BUILDING EXTERIOR AND TERMINATED BETWEEN 6" AND 24" ABOVE THE ADJACENT GROUND SURFACE PER IRC P2801.6.2.

CORROSIVE LIQUIDS, SPENT ACIDS OR OTHER HARMFUL CHEMICALS THAT DESTROY OR INJURE A DRAIN, SEWER, SOIL OR WASTE PIPE, OR CREATE NOXIOUS OR TOXIC FUMES OR INTERFERE WITH SEWAGE TREATMENT PROCESSES SHALL NOT BE DISCHARGED INTO THE PLUMBING SYSTEM WITHOUT BEING THOROUGHLY DILUTED, NEUTRALIZED OR TREATED BY PASSING THROUGH AN APPROVED DILUTION OR NEUTRALIZING DEVICE. SUCH DEVICES SHALL BE AUTOMATICALLY PROVIDED WITH A SUFFICIENT SUPPLY OF DILUTING WATER OR NEUTRALIZING MEDIUM SO AS TO MAKE THE CONTENTS NONNINJURIOUS BEFORE DISCHARGE INTO THE DRAINAGE SYSTEM. THE NATURE OF THE CORROSIVE OR HARMFUL WASTE AND THE METHOD OF ITS TREATMENT OR DILUTION SHALL BE APPROVED PRIOR TO INSTALLATION. (PP3011 RCRBD AMMENDED)

PROVIDE JETTED TUB AT LOCATION SHOWN ON PLANS.

PROVIDE OPTIONAL STEAM SHOWER AT LOCATION SHOWN ON PLANS.

PROVIDE (5) FROST PROOF HOSE BIBBS AT LOCATIONS NOTED ON THE PLANS. HOSE BIBB AT STAIRWAY TO BE PLUMBED THRU THE STAIRWAY LANDING TO CONCEAL PLMBING.

PROVIDE BARBEQUE GRILL GAS SERVICE LINE WITH SHUT OFF VALVE AT LOCATION NOTED ON THE PLANS. EXACT LOCATION TBD BY OWNER.

PROVIDE 3' X 4' PRECAST FIBERGLASS SHOWER BASE FOR DOG WASH. TILE WALLS TO 3' AFF. PROVIDE HAND HELD SHOWER HEAD AND SERVCIE SINK FAUCET W/ PAIL HOOK.

PROVIDE PLUMBING AND ELECTRICAL STUBOIUTS FOR FUTURE GREEN HOUSE ON THE NORTH EAST SIDE AT LOCATION NOTED ON THE PLANS.

PROVIDE "WATER BUG" OR OTHER OWNER APPROVED LEAK DETECTOR & SHUT OFF SYSTEM.

APPLIANCES AND EQUIPMENT USED FOR HEATING WATER OR STORING HOT WATER SHALL BE PROTECTED BY A PRV AND TRV OR COMBINATION P/TRV AND SHALL NOT BE DIRECTLY CONNECTED TO THE DRAINAGE SYSTEM. THE DISCHARGE SHALL BE THROUGH AND AIR GAP TO AN INDIRECT WASTE RECEPTOR OR OTHER APPROVED MEANS

15. MECHANICAL

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL VENTILATION, HEATING AND AIR CONDITIONING EQUIPMENT; DUCTING AND ALL RELATED CONTROLS. ALL WORK SHALL COMPLY WITH IRC PART V - MECHANICAL, CHAPTERS 12 THRU 23, STATE AND LOCAL CODES AND ORDINANCES. ALL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S PRINTED INSTRUCTIONS AND LOCAL CODES AND THE REQUIREMENTS OF IRC CHAPTERS 13 & 14.

THE MECHANICAL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE SYSTEMS AS WELL AS THE EXECUTION OF THE WORK ACCORDING TO ACCEPTED STANDARDS OF ENGINEERING, WORKMANSHIP AND REGULATORY REQUIREMENTS. MECHANICAL CONTRACTORS TO PROVIDE ADDITIONAL DRAWINGS, SPECIFICATIONS AND ENGINEER'S CERTIFICATION AS REQUIRED BY FEDERAL, STATE, OR LOCAL LAWS AND BUILDING DEPARTMENT JURISDICTION.

HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH SECTION M1401.3, OF THE IRC; ACCA MANUAL J OR OTHER APPROVED METHODOLOGY. MECHANICAL CONTRACTOR SHALL PROVIDE CALCULATIONS BY DEFERRED SUBMITTAL FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF MECHANICAL OR HVAC EQUIPMENT. SEE ATTACHED HEAT LOSS CALCULATIONS.

EXHAUST SYSTEMS SHALL BE INSTALLED PER IRC CHAPTER 15.

DUCT SYSTEMS SERVING HEAT, COOLING AND VENTILATION EQUIPMENT SHALL BE FABRICATED & INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF IRC CHAPTER 16 & ACCA MANUAL D & MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

SOLID FUEL BURNING APPLIANCES SHALL BE PROVIDED WITH COMBUSTION AIR IN ACCORDANCE WITH THE APPLIANCE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE REQUIREMENTS FOR COMBUSTION, VENTILATION & DILUTION AIR FOR GAS FIRED APPLIANCES SHALL BE IN ACCORDANCE WITH SECTION G2407.

FUEL BURNING APPLIANCES SHALL BE VENTED TO THE OUTDOORS IN ACCORDANCE WITH THEIR LISTING AND LABEL AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PER IRC CHAPTER 18.

15. MECHANICAL - CONTINUED

FREE STANDING OR BUILT-IN RANGES SHALL HAVE A VERTICAL CLEARANCE ABOVE THE COOKING TOP OF NOT LESS THAN 30 INCHES. (IRC M1901.1)

BOILERS SHALL BE INSTALLED IN ACCORDANCE WITH CHAPTER 20.
WATER HEATERS SHALL BE INSTALLED IN ACCORDANCE WITH CHAPTER 20.
HYDRONIC PIPING SYSTEMS SHALL BE INSTALLED PER IRC CHAPTER 21.
SOLAR THERMAL ENERGY SYSTEMS SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED PER CHAPTER 23.
GAS FIRED APPLIANCES SHALL BE VENTED IN ACCORDANCE WITH CHAPTER 24.

(MANDATORY). DUCTS SHALL BE PRESSURE TESTED TO DETERMINE AIR LEAKAGE BY ONE OF THE FOLLOWING METHODS: (N1103.3.3 (R403.3.3)) (DELETE AN REFER TO DIVISION 13?)

1. ROUGH-IN TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE IF INSTALLED AT THE TIME OF THE TEST. ALL REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.
2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE ENTIRE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE. REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.

EXCEPTION: A DUCT AIR LEAKAGE TEST SHALL NOT BE REQUIRED WHERE THE DUCTS AND AIR HANDLERS ARE LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.

A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL.

(PRESCRIPTIVE). THE TOTAL LEAKAGE OF THE DUCTS, WHERE MEASURED IN ACCORDANCE WITH SECTION R403.3.3, SHALL BE AS FOLLOWS: N1103.3.4 (R403.3.4)

1. ROUGH-IN TEST: THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA WHERE THE AIR HANDLER IS INSTALLED AT THE TIME OF THE TEST. WHERE THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF THE TEST, THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CUBIC FEET PER MINUTE (85 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA.
2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA.

THE THERMOSTAT CONTROLLING THE PRIMARY HEATING OR COOLING SYSTEM OF THE DWELLING UNIT SHALL BE CAPABLE OF CONTROLLING THE HEATING AND COOLING SYSTEM ON A DAILY SCHEDULE TO MAINTAIN DIFFERENT TEMPERATURE SET POINTS AT DIFFERENT TIMES OF THE DAY. THIS THERMOSTAT SHALL INCLUDE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES OF NOT LESS THAN 55°F (13°C) BUT NOT GREATER THAN 85°F (29°C). THE THERMOSTAT SHALL INITIALLY BE PROGRAMMED BY THE MANUFACTURER WITH A HEATING TEMPERATURE SET POINT OF NOT GREATER THAN70°F (21°C) AND A COOLING TEMPERATURE SET POINT OF NOT LESS THAN 78°F (26°C). (N1103.1.1 (R403.1.1))

HOT WATER BOILERS THAT SUPPLY HEAT TO THE BUILDING THROUGH ONE- OR TWO-PIPE HEATING SYSTEMS SHALL HAVE AN OUTDOOR SETBACK CONTROL THAT LOWERS THE BOILER WATER TEMPERATURE BASED ON THE OUTDOOR TEMPERATURE. (N1103.2 (R403.2))

THIS HOUSE AS PROPOSED WILL UTILIZE A RADIANT FLOOR HYDRONIC SYSTEM WITH A BOILER AND SIDE ARM WATER STORAGE TANK.

HYDRONIC TUBING WILL BE ATTACHED TO REINFORCEMENT AT ALL SLAB ON GRADE LOCATIONS OR ATTACHED TO UPPER SIDE OF FLOOR SHEATHING WHEN EMBEDDED IN 1-1/2" GYPCRETE TOPPING SLAB. (USE 2X2 SLEEPERS FOR ATTACHMENT OF HARD WOOD FLOORING). TUBING SHALL BE CROSS LINKED POLYETHYLENE WITH OXYGEN INHIBITOR SUCH AS PEX OR WIRSBRO.

RADIANT FLOOR HEATING SYSTEMS SHALL HAVE A THERMAL BARRIER IN ACCORDANCE WITH SECTIONS M2103.2.1 AND M2103.2.2..

R-5 INSULATION SHALL BE PROVIDED UNDER THE FULL SLAB AREA OF A HEATED SLAB IN ADDITION TO THE REQUIRED SLAB EDGE INSULATION VALUE INDICATED IN TABLE N1102.1.2 (R402.1.2) THE SLAB EDGE INSULATION FOR HEATED SLABS SHALL NOT BE REQUIRED TO EXTEND BELOW THE SLAB. PROVIDE ASPHALT EXPANSION JOINT MATERIAL OR SIMILAR INSULATING MATERIAL WHERE THE HEATED SLAB MEETS A FOUNDATION WALL OR OTHER CONDUCTIVE SLAB. (M2103.2.1) IT IS RECOMMENDED TO PROVIDE R-10 UNDER THE ENTIRE SLAB TO MINIMIZE GRADE CHANGES.

SUSPENDED FLOOR APPLICATIONS SHALL HAVE A MINIMUM OF R-11 INSULATION BELOW THE PIPING (M2103.2)

BOILER WILL BE LPG FUELED AND GRAVITY VENTED THROUGH THE ROOF OR DIRECT VENTED THROUGH THE WALL IN THE LOCATION SHOWN ON THE PLANS. BOILER SHALL BE 90% AFUE MINIMUM. BOILER, SIZING AND TUBING LAYOUT DIAGRAMS ARE TO BE PROVIDED BY THE SUPPLIER AND WILL BE REVIEWED BY JAKE'S DRAFTING SERVICE, INC. AT THE OWNER'S OPTION.

PROVIDE AGA APPROVED, DIRECT VENTED, LPG FUELED MODULATING BOILER AT LOCATION NOTED ON PLANS. MECHANICAL CONTRACTOR TO PROVIDE EQUIPMENT SPECIFICATIONS, MAKE-UP AND COMBUSTION AIR REQUIREMENTS. SYSTEM DESIGNED BY OTHERS.

PROVIDE AGA APPROVED, GRAVITY VENTED, ZERO CLEARANCE FIREPLACE AT LOCATION NOTED ON PLANS. PROVIDE 2-SIDED LPG FUELLED LINEAR FIREPLACE APPROVED BY OWNER. APPLIANCE TO BE RATED AS A FURNACE FOR THERMOSTATIC CONTROL.

PROVIDE COLORADO PHASE III CERTIFIED WOOD STOVE GRAVITY VENTED THROUGH THE ROOF AT THE LOCATION NOTED ON THE PLANS. APPLIANCE TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND LOCAL CODES. AS PROPOSED FLUE WILL PENETRATE EXTERIOR WALL AND RISE VERTICALLY THRU THE CHASE IN PANTRY.

EVERY CHIMNEY OR FLUE SHALL BE EQUIPPED WITH AN APPROVED SPARK ARRESTOR.

CHIMNEYS SHALL EXTEND AT LEAST 2' ABOVE THE ROOF AND NOT LESS THAN 2' ABOVE ANY PORTION OF THE BUILDING WITHIN 10 FEET.

FUEL FIRED WATER HEATERS SHALL NOT BE INSTALLED IN A ROOM USED AS A STORAGE CLOSET. WATER HEATERS INSTALLED IN A BEDROOM OR BATHROOM SHALL BE INSTALLED IN A SEALED ENCLOSURE SO THAT COMBUSTION AIR WILL NOT BE TAKEN FROM THE LIVING SPACE. INSTALLATION OF DIRECT VENT WATER HEATERS WITHIN AN ENCLOSURE IS NOT REQUIRED. (M2005.2)

WHEN THE WINTER DESIGN TEMPERATURE IS BELOW 60 F EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF 68 DEGREES F AT A POINT 3' ABOVE THE FLOOR AND 2' FROM EXTERIOR WALLS IN ALL HABITABLE ROOMS AT THE DESIGN TEMPERATURE. (R303.10)

PROVIDE ENERGY-STAR QUALIFIED KITCHEN RANGE HOOD FAN WITH <4 SONE RATING VENTED DIRECTLY TO THE EXTERIOR.

APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE FASTEBNED OR ANCHORED IN AN APPROVED MANNER.. (M1307.2)

APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHEN PROTECTED BY APPROVED BARRIERS. (M1307.3.1)

OPTIONALLY, PROVIDE 40 GALLON, QUICK RECOVERY LPG GAS FUELED, WATER HEATER AT LOCATION SHOWN ON PLANS DIRECT VENTED THROUGH THE WALL OR GRAVITY VENTED THRU THE ROOF. WATER HEATER SHALL BE 60% EFFICIENT (<55 GALLON) MINIMUM. WATER HEATER TO BE R-15 OR BETTER OR WRAP WATER HEATER WITH R-8 MINIMUM INSULATION BLANKET.

LIQUEFIED PETROLEUM GAS BURNING APPLIANCES SHALL NOT BE INSTALLED IN A PIT, BASEMENT OR SIMILAR LOCATION WHERE HEAVIER THAN AIR GAS MIGHT COLLECT, UNLESS THE FOLLOWING CONDITIONS ARE MET:

1. A LISTED GAS DETECTOR WITH ALARM SHALL BE INSTALLED. A LISTED SOLENOID VALVE GAS VALVE SHALL BE INSTALLED ON THE GAS LINE THAT SUPPLIES ALL PROPANE APPLIANCES LOCATED IUN THE BASEMENT OR PIT. UPON DETECTION OF GAS AN ALARM SHALL SOUND AND THE SOLENOID VALVE SHALL CLOSE..

2. THERE SHALL BE INSTALLED AN APPROVED EXHAUST SYSTEM FOR THE PURPOSE OF REMOVING UNBURNED GASES. THE EXHAUST SYSTEM SHALL BE INTERLOCKED TO THE GAS DETECTOR SO AS TO OPERATE AUTOMATICALLY IN THE EVENT OF AN ALARM. THE EXHAUST SYSTEM SHALL PROVIDE A MINIMUM OF (4) AIR CHANGES PER HOUR, AND THE EXHAUST INTAKE SHALL BE LOCATED WITHIN 6 INCHES OF THE FLOOR. (R303.7 RCRBD AMENDMENT)

EXCEPTIONS:
BASEMENTS SHALL NOT REQUIRE THE INSTALLATION OF AN EXHAUST/ALARM SYSTEM ON LIQUID PROPANE GAS APPLIANCES IF THE FOLLOWING EXCEPTIONS ARE MET.
1. THE BASEMENT MUST BE A WALK-OUT BASEMENT HAVING A MINIMUM OF ONE EXTERIOR DOOR WITH A MAXIMUM THRESHOLD HEIGHT OF 3/4" BETWEEN THE TOP OF THE FINISHED FLOOR OF THE BASEMENT AND THE TOP OF THE GRADE ON THE EXTERIOR SIDE OF THE BUILDING.
2. THE GRADE SHALL REMAIN LEVEL OR MAY SLOPE DOWNWARD FROM THE BUILDING FOR A DISTANCE OF NOT LESS THAN 10 FEET OUT FROM THE EXTERIOR DOOR/WALL AND BE A MINIMUM WIDTH OF 10 FEET WIDE THE ENTIRE DISTANCE OUT FROM THE BUILDING.

CLIMATE ZONES 3-8 ARE REQUIRED TO HAVE A WHOLE HOUSE VENTILATION SYSTEM PER M1505.4. THE SYSTEM SHALL CONSIST OF ONE OR MORE SUPPLY OR EXHAUST FANS OR A COMBINATION OF SUCH & ASSOCIATED DUCTS & CONTROLS. LOCAL EXHAUST OR SUPPLY FANS ARE PERMITTED TO SERVE SUCH A SYSTEM. OUT DOOR AIR DUCTS CONNECTED TO THE RETURN SIDE OF AN AIR HANDLER SHALL BE CONSIDERED AS PROVIDING SUPPLY VENTILATION. THE SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE. THE SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE PER TABLE M1505.4.3(1) OR EQUATION 15-1. THE SYSTEM IS PERMITTED TO OPERATE INTERMITTENTLY WHERE THE SYSTEM HAS CONTROLLS THAT ENABLE OPERATION FOR NOT LESS THAN 25% OF EACH 4-HOUR SEGMENT AND TH E VENTILATION RATE PRESCRIBED IN TABLE M1505.4.3910 IS MULTIPLED BY THE FACTOR DETERMINED IN ACCORDANCE WITH TABLE M1505.4.3(2).

NOTE: IT IS RECOMMENDED TO NOT PROVIDE SUPPLY ONLY SYSTEM AS THEY PRESSURIZE THE HOUSE, POTENTIALLY DRIVING MOISTURE INTO WALLS. EXHAUST ONLY SYSTEMS DEPRESSURIZE THE HOUSE DRAWING POLLUTANTS ALONG W/ FRESH AIR INTO THE HOUSE. POLLUTANTS MY BE RADON & MOLD FROM CRAWLSPACES OR BASEMENTS, DUST FROM ATTIC FUMES FROM AN ATTACHED GARAGE OR FLUE GASSES FROM FIREPLACE OR GRAVITY VENTED WATER HEATER OR FURNACES.

IT IS RECOMMENDED TO PROVIDE HEAT RECOVERY VENTILATOR OR ENERGY RECOVERY VENTILATOR AT LOCATION SHOWN ON PLANS AS THEY PROVIDE A BALANCED SYSTEM. DUCT ALL BATH AND LAUNDRY ROOM FANS THROUGH THE HRV. DO NOT CONNECT RANGE HOOD OR DOWNDRAFT RANGE THROUGH HRV. HRV TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND LOCAL CODES (M1507.3)

PROVIDE 40 GALLON, QUICK RECOVERY NATURAL GAS / LPG FUELED, WATER HEATER AT LOCATION SHOWN ON PLANS GRAVITY VENTED THROUGH THE ROOF OR DIRECT VENTED THROUGH THE WALL. WATER HEATER SHALL BE 67% EFFICIENT MINIMUM. PROVIDE R-15 INSULATED TANK OR WRAP WATER HEATER WITH R8 MINIMUM INSULATION BLANKET.

DECORATIVE SHROUDS SHALL NOT BE INSTALLED AT THE TERMINATION OF VENTS EXCEPT WHERE SUCH SHROUDS ARE LISTED AND LABELED FOR USE WITH THE SPECIFIC VENTING SYSTEM AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. (M1804.2.2) OR AS APPROVED BY THE RCRBD.

PROVIDE "DRYER BOX 480' OR EQUAL RECESSED DRYER TRANSITION BOX HOSE CONNECTOR ALIGNED WITH DRYER VENT LOCATION.

THE MAXIMUM LENGTH OF DRYER EXHAUST DUCT SHALL BE 35' LESS 5' FOR EACH 90° ELBOW & 2'-6" FOR EACH 45° ELBOW.

16. ELECTRICAL

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL ALL WIRING AND RELATED FIXTURES. ALL WORK SHALL COMPLY WITH THE 2020 NEC AS ADOPTED AND AMMENDED BY THE STATE OF COLORADO. IRC PART VIII - ELECTRICAL, CHAPTERS 33 THRU 41 OF THE 2018 IRC ARE NOT USED.

THE ELECTRICAL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE SYSTEMS AS WELL AS THE EXECUTION OF THE WORK ACCORDING TO ACCEPTED STANDARDS OF ENGINEERING, WORKMANSHIP AND REGULATORY REQUIREMENTS. ELECTRICAL CONTRACTORS TO PROVIDE ADDITIONAL DRAWINGS, SPECIFICATIONS AND ENGINEERS CERTIFICATION AS REQUIRED BY STATE OR LOCAL LAWS AND BUILDING DEPARTMENT JURISDICTION.

PROVIDE 200 AMP PEDESTAL PER DS-4.1.2.MP AT LOCATION NOTED ON THE SITE PLAN OR PER YVEA "REDLINED" LOCATION. PROVIDE 3" SCHEDULE 80 PVC ABOVE GRADE AND SCH 40 PVC BELOW GRADE. CONDUIT TO BE BEDDED WITH 2" MINIMUM CLEAN DIRT OR SAND AND COVERED WITH 4" OF THE SAME MATERIAL. MINIMUM BURY IS 3' PROVIDE ELECTRICAL WARNING TAPE 12" ABOVE THE CONDUIT.

PROVIDE CONCRETE ENCASED ELECTRODE (UFER GROUND) PER250.50

PROVIDE 42 CIRCUIT SERVICE PANEL (OVERCURRENT DEVICE) WITH DISCONNECT, AT THE LOCATION NOTED ON PLANS. SERVICE PANELS SHALL NOT BE LOCATED IN THE VICINITY OF EASILY IGNITABLE MATERIALS, SUCH AS CLOTHES CLOSETS OR IN BATHROOMS. SERVICE CONDUCTORS AND EQUIPMENT TO BE SIZED PER NEC 240.

ALL SERVICES SUPPLYING DWELLING UNITS SHALL BE PROVIDED WITH SURGE-PROTECTIVE DEVICE (SPD), 230.67.

ALL 125 VOLT THROUGH 250 VOLT, SINGLE PHASE RECEPTACLES INSTALLED IN BATHROOMS, GARAGES, OUTDOORS, CRAWL SPACES (INCLUDING LIGHTING), UNFINISHED BASEMENTS, KITCHEN COUNTERTOP SURFACES, DISHWASHER, SUMP PUMPS AND WITHIN 6' OF LAUNDRY, UTILITY OR BAR SINKS, (EXCEPT DEDICATED USES) SHALL BE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTED FOR PERSONNEL. (210.8) RECEPTACLES IN GARAGES TO BE MOUNTED 42" MINIMUM ABOVE FINISHED FLOOR.

A MINIMUM OF (2) 20 AMP BRANCH CIRCUITS SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE KITCHEN, PANTRY, BREAKFAST AREA AND DINING AREAS. THE KITCHEN COUNTER TOP RECEPTACLES SHALL BE SERVED BY NOT LESS THAN (2) 20 AMP SMALL APPLIANCE BRANCH CIRCUITS.

A MINIMUM OF (1) 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE LAUNDRY AREA AND SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN THE LAUNDRY AREA. (E3703.3)

A MINIMUM OF (1) 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE BATHROOM AND SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN THE BATHROOM.

A MINIMUM OF (1) 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE GARAGE AND SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN THE GARAGE.

RECEPTACLES ABOVE COUNTERS IN KITCHEN AND OTHER SIMILAR AREAS SHALL BE SPACED NOT MORE THAN 4 FEET OC AND WITHIN 2 FEET OF EACH END, INCLUDING ISLANDS AND PENINSULAR. PROVIDE A MINIMUM OF (1) RECEPTACLE PER COUNTER SPACE OF 12 INCHES OR GREATER.

PROVIDE AT LEAST (1) RECEPTACLE OUTLET IN WEATHER PROOF HOUSING, ACCESSIBLE AT GRADE LEVEL AND NOT MORE THAN 6'-6" ABOVE GRADE AT THE FRONT AND AT THE BACK OF EACH DWELLING. (E3901.7)

ALL BRANCH CIRCUITS INSTALLED IN KITCHEN, FAMILY, DINING, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AND SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A COMBINATION TYPE ARC-FAULT CIRCUIT INTERRUPTER. (E3902.16) BATHS AND GARAGES ARE EXEMPT FROM THIS REQUIREMENT.

LUMINAIRE INSTALLED IN CLOTHES CLOSETS SHALL BE LIMITED TO SURFACE MOUNTED OR RECESSED INCANDESCENT OR LED LUMINAIRES WITH COMPLETELY ENCLOSED LIGHT SOURCES, SURFACE MOUNTED OR RECESSED FLUORESCENT LUMINAIRES AND SURFACE MOUNTED FLUORESCENT OR LED LUMINAIRES IDENTIFIED A SUITABLE FOR INSTALLATION WITHIN THE STORAGE AREA. SURFACE MOUNTED INCANDESCENT OR LED LUMINAIRES SHALL BE MOUNTED ON THE WALL ABOVE THE DOOR OR ON THE CEILING PROVIDED THERE IS A MINIMUM CLEARANCE OF 12 INCHES BETWEEN THE FIXTURE AN THE NEAREST POINT OF A STORAGE SPACE. RECESSED INCANDESCENT, LED OR FLUORESCENT LUMINAIRES SHALL BE INSTALLED IN THE WALL OR ON THE CEILING PROVIDED THERE IS A MINIMUM OF 6 INCHES BETWEEN THE FIXTURE AND THE NEAREST POINT OF A STORAGE AREA. INCANDESCENT FIXTURES WITH OPEN OR PARTIALLY ENCLOSED LAMPS, PENDANT FIXTURES AND LAMP HOLDERS ARE NOT PERMITTED.

PROVIDE (1) 20 AMP CIRCUIT FOR FUTURE USE IN THE ATTIC. TERMINATE THE CIRCUIT WITH A KEYLESS PORCELAIN FIXTURE.

PROVIDE DEDICATED 15 AMP CIRCUIT FOR REFRIGERATORS AND FREEZERS.

SEE DESIGN DRAWINGS BY OTHERS FOR ELECTRIC BASEBOARD SIZES AND LOCATIONS.

SPAS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IRC CHAPTER 42. A DISCONNECT SHALL BE LOCATED WITHIN SIGHT OF THE EQUIPMENT, BETWEEN 5' MIN & 20' MAX FROM THE WATERS EDGE. PROVIDE 60 AMP 220 VAC SERVICE W/ DISCONNECT, LOCATION TO BE DETERMINED BY THE OWNER.

PROVIDE SWITCHED LIGHTING CIRCUIT ABOVE THE KITCHEN CABINETS.

PROVIDE 50 AMP GFIC PROTECTED CIRCUIT FOR THE MOTORHOME AT THE LOCATION NOTED ON THE PLANS.

INTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE TO ILLUMINATE THE LANDINGS & TREAD TO 1 FOOT CANDLE POWER. THERE SHALL BE A WALL SWITCH AT EACH FLOOR LEVEL WHEN THE STAIRWAY HAS 6 OR MORE RISERS. (R303.7)

EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED AT THE TOP LANDING OF THE STAIRWAY (R303.8)

SMOKE ALARMS SHALL COMPLY WITH NFPA 72 AND SECTION R314 AND THE NEC.

SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217. COMBINATION SMOKE AND CARBON MONOXIDE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217 AND UL 2034. (R314.1.1)

SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS: (R314.3)

1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY SECTION R314.3.

SMOKE ALARMS SHALL NOT BE INSTALLED IN THE FOLLOWING LOCATIONS UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM IN A LOCATION REQUIRED BY SECTION R314.3. (R314.3.1)

1. IONIZATION SMOKE ALARMS SHALL NOT BE INSTALLED LESS THAN 20 FEET (6096 MM) HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.
2. IONIZATION SMOKE ALARMS WITH AN ALARM-SILENCING SWITCH SHALL NOT BE INSTALLED LESS THAN 10 FEET (3048 MM) HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.
3. PHOTOELECTRIC SMOKE ALARMS SHALL NOT BE INSTALLED LESS THAN 6 FEET (1828 MM) HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.

WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT IN ACCORDANCE WITH SECTION R314.3, THE ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL DWELLING UNIT. PHYSICAL INTERCONNECTION OF SMOKE ALARMS SHALL NOT BE REQUIRED WHERE LISTED WIRELESS ALARMS ARE INSTALLED AND ALL ALARMS SOUND UPON ACTIVATION OF ONE ALARM. (R314.4)

COMBINATION SMOKE AND CARBON MONOXIDE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF SMOKE ALARMS. (R314.5)

SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. (R314.6)

FIRE ALARM SYSTEMS SHALL BE PERMITTED TO BE USED IN LIEU OF SMOKE ALARMS AND SHALL COMPLY WITH SECTIONS R314.7.1 THROUGH R314.7.4.

CARBON MONOXIDE ALARMS SHALL COMPLY WITH SECTION R315.

CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM. (R315.3)

COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS. (R315.4)

WHERE MORE THAN ONE CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT IN ACCORDANCE WITH SECTION R315.3, THE ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL DWELLING UNIT. PHYSICAL INTERCONNECTION OF SMOKE ALARMS SHALL NOT BE REQUIRED WHERE LISTED WIRELESS ALARMS ARE INSTALLED AND ALL ALARMS SOUND UPON ACTIVATION OF ONE ALARM. (R314.4)

CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. (R315.5)

CARBON MONOXIDE DETECTION SYSTEMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS AND SHALL COMPLY WITH SECTIONS R315.6.1 THROUGH R315.6.4. (R315.6)

HOUSEHOLD CARBON MONOXIDE DETECTION SYSTEMS SHALL COMPLY WITH NFPA 720. CARBON MONOXIDE DETECTORS SHALL BE LISTED IN ACCORDANCE WITH UL 2075. (R315.6.1)

CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN THE LOCATIONS SPECIFIED IN SECTION R315.3. THESE LOCATIONS SUPERSEDE THE LOCATIONS SPECIFIED IN NFPA 720. (R315.6.2)

WHERE A HOUSEHOLD CARBON MONOXIDE DETECTION SYSTEM IS INSTALLED, IT SHALL BECOME A PERMANENT FIXTURE OF THE OCCUPANCY AND OWNED BY THE HOMEOWNER. (R315.6.3)

COMBINATION CARBON MONOXIDE AND SMOKE DETECTORS SHALL BE PERMITTED TO BE INSTALLED IN CARBON MONOXIDE DETECTION SYSTEMS IN LIEU OF CARBON MONOXIDE DETECTORS, PROVIDED THAT THEY ARE LISTED IN ACCORDANCE WITH UL 2075 AND UL 268. (R315.6.4)

EXTERIOR LIGHTING SHALL BE DOWN CAST AND SHIELDED FIXTURES LIMITED TO 5,500 LUMENS TOTAL. EXTERIOR FLOOD LIGHTS SHALL BE CONTROLLED BY PHOTO SENSOR AND MOTION DETECTOR.

PROVIDE 1"Ø MINIMUM ELECTRICAL CONDUIT FOR FUTURE PHOTOVOLTAIC PANEL INSTALLATION FROM THE ATTIC TO JUNCTION BOX NEAR THE ELECTRICAL PANEL.

OPTIONALLY PROVIDE CONNECTION FOR ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE) PER NEC 625.
LEVEL 1, 120 VOLT, 20 AMP CIRCUIT MINIMUM
LEVEL 2, 240 VOLT, 40 AMP CIRCUIT MINIMUM, 60 AMP RECOMMENDED

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THE CONTRACTOR WARRANTS TO JAKE'S DRAFTING SERVICE, INC. THAT HE POSSESSES THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND ARCHITECTURAL SERVICES, AND FOR THE REASON THAT THE CONTRACTOR WISHES TO RELY UPON HIS OWN COMPETENCE. THE CONTRACTOR OR OWNER HAS RESTRICTED JAKE'S DRAFTING SERVICE, INC.'S SCOPE OF PROFESSIONAL SERVICES. IN RELIANCE ON THE CONTRACTOR'S WARRANTY AND AT THE EXPRESS REQUEST OF THE CONTRACTOR OR OWNER, JAKE'S DRAFTING SERVICE, INC. HAS UNDERTAKEN A LIMITED SCOPE OF PROFESSIONAL SERVICES. THE CONSTRUCTION DOCUMENTS PROVIDED BY THE LIMITED SERVICES SHALL BE TERMED "BUILDER'S PLANS" IN RECOGNITION OF THE CONTRACTOR'S SOPHISTICATION. CONSTRUCTION WILL REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDER'S PLANS" TO THE FIELD CONDITIONS ENCOUNTERED, AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION, AND QUANTITY THAT ARE TREATED ONLY GENERALLY BY THE "BUILDER'S PLANS." IN THE EVENT ADDITIONAL DETAILS OR GUIDANCE ARE NEEDED BY THE CONTRACTOR OR OWNER, FOR CONSTRUCTION OF ANY ASPECT OF THE PROJECT, HE SHALL IMMEDIATELY NOTIFY JAKE'S DRAFTING SERVICE, INC. FAILURE TO GIVE A SIMPLE NOTICE SHALL RELIEVE JAKE'S DRAFTING SERVICE, INC. OF RESPONSIBILITY FOR THE CONSEQUENCES.

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ENGINEERED DRAWINGS

THE ENGINEERED DESIGN DRAWINGS ARE FOR STRUCTURAL ENGINEERING OF THE HOUSE AND PERMANENT FOUNDATION ONLY. DETACHED RETAINING WALLS ARE NOT PART OF THE ENGINEERED STRUCTURAL DRAWINGS AND ARE BY OTHERS. SLOPE STABILITY, EXCAVATION, SHORING, DRAINAGE, SOILS ISSUES & CONSTRUCTION METHODS ARE NOT INCLUDED AND SHOULD BE ADDRESSED BY AN ENGINEER OR SPECIALIST OF THAT FIELD OF WORK. PROJECT ENGINEERING IS EXCLUDED.

ALL SOILS ISSUES SHOULD BE BROUGHT TO THE ATTENTION OF THE SOILS ENGINEER. THE OWNER OR HIS REPRESENTATIVE ARE RESPONSIBLE FOR FOLLOWING THE SOILS REPORT, CONTACTING THE SOILS ENGINEER AND FOLLOWING THEIR RECOMMENDATIONS AND TO HAVE READ THE SOILS REPORT AND RECOGNIZE THE RISKS AND LIMITATIONS STATED THEREIN.

CONTACT THE SOILS ENGINEER AT TIME OF EXCAVATION TO VERIFY THAT ALL STRUCTURAL CONCRETE IS PLACED ON SUITABLE BEARING MATERIAL.
LEVEL 2, 240 VOLT, 40 AMP CIRCUIT MINIMUM, 60 AMP RECOMMENDED

For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(1) PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(2) PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

TABLE N1102.4.1.1 (402.4.1.1) AIR BARRIER AND INSULATION INSTALLATION

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA
GENERAL REQUIREMENTS	A CONTINUOUS AIR BARRIER SHALL BE INSTALLED IN THE BUILDING ENVELOPE. THE EXTERIOR THERMAL ENVELOPE CONTAINS A CONTINUOUS AIR BARRIER. BREAKS OR JOINTS IN THE AIR BARRIER SHALL BE SEALED.	AIR-PERMEABLE INSULATION SHALL NOT BE USED AS A SEALING MATERIAL.
CEILING/ATTIC	THE AIR BARRIER IN ANY DROPPED CEILING/SOFFIT SHALL BE ALIGNED WITH THE INSULATION AND ANY GAPS IN THE AIR BARRIER SEALED. ACCESS OPENINGS, DROP DOWN STAIRS OR KNEE WALL DOORS TO UNCONDITIONED ATTIC SPACES SHALL BE SEALED.	THE INSULATION IN ANY DROPPED CEILING/SOFFIT SHALL BE ALIGNED WITH THE AIR BARRIER.
WALLS	THE JUNCTION OF THE FOUNDATION AND SILL PLATE SHALL BE SEALED. THE JUNCTION OF THE TOP PLATE AND THE TOP OF EXTERIOR WALLS SHALL BE SEALED. KNEE WALLS SHALL BE SEALED.	CAVITIES WITHIN CORNERS AND HEADERS OF FRAME WALLS SHALL BE INSULATED BY COMPLETELY FILLING THE CAVITY WITH A MATERIAL HAVING A THERMAL RESISTANCE OF R-3 PER INCH MINIMUM. EXTERIOR THERMAL ENVELOPE INSULATION FOR FRAMED WALLS SHALL BE INSTALLED IN SUBSTANTIAL CONTACT AND CONTINUOUS ALIGNMENT WITH THE AIR BARRIER.
WINDOWS, SKYLIGHTS AND DOORS	THE SPACE BETWEEN WINDOW/DOOR JAMBS AND FRAMING, AND SKYLIGHTS AND FRAMING SHALL BE SEALED.	
	RIM JOISTS SHALL INCLUDE THE AIR BARRIER.	RIM JOISTS SHALL BE INSULATED.
RIM JOISTS FLOORS (INCLUDING ABOVE GARAGE AND CANTILEVERED FLOORS)	THE AIR BARRIER SHALL BE INSTALLED AT ANY EXPOSED EDGE OF INSULATION.	FLOOR FRAMING CAVITY INSULATION SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT WITH THE UNDERSIDE OF SUBFLOOR DECKING, ALTERNATIVELY, FLOOR FRAMING CAVITY INSULATION SHALL BE IN CONTACT WITH THE TOP SIDE OF SHEATHING, OR CONTINUOUS INSULATION INSTALLED ON THE UNDERSIDE OF FLOOR FRAMING; AND EXTENDS FROM THE BOTTOM TO THE TOP OF ALL PERIMETER FLOOR FRAMING MEMBERS.
CRAWL SPACE WALLS	EXPOSED EARTH IN UNVENTED CRAWL SPACES SHALL BE COVERED WITH A CLASS I VAPOR RETARDER WITH OVERLAPPING JOINTS TAPED.	CRAWL SPACE INSULATION, WHERE PROVIDED INSTEAD OF FLOOR INSULATION,,SHALL BE PERMANENTLY ATTACHED TO THE WALLS.
SHAFTS, PENETRATIONS	DUCT SHAFTS, UTILITY PENETRATIONS, AND FLUE SHAFTS OPENING TO EXTERIOR OR UNCONDITIONED SPACE SHALL BE SEALED.	
NARROW CAVITIES		BATTS IN NARROW CAVITIES SHALL BE CUT TO FIT, OR NARROW CAVITIES SHALL BE FILLED BY INSULATION THAT ON INSTALLATION READILY CONFORMS TO THE AVAILABLE CAVITY SPACE.
GARAGE SEPARATION	AIR SEALING SHALL BE PROVIDED BETWEEN THE GARAGE AND CONDITIONED SPACES.	
RECESSED LIGHTING	RECESSED LIGHT FIXTURES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO THE FINISHED SURFACE..	RECESSED LIGHT FIXTURES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE AIR TIGHT AND IC RATED.
PLUMBING AND WIRING		BATT INSULATION SHALL BE CUT NEATLY TO FIT AROUND WIRING AND PLUMBING IN EXTERIOR WALLS, OR INSULATION THAT ON INSTALLATION READILY CONFORMS TO AVAILABLE SPACE, SHALL EXTEND BEHIND PIPING AND WIRING.
SHOWER/TUB ON EXTERIOR WALL	THE AIR BARRIER INSTALLED AT EXTERIOR WALLS ADJACENT TO SHOWERS AND TUBS SHALL SEPARATE THEM FROM THE SHOWERS AND TUBS.	EXTERIOR WALLS ADJACENT TO SHOWERS AND TUBS SHALL BE INSULATED.
ELECTRICAL/PHONE BOX ON EXTERIOR WALLS	THE AIR BARRIER SHALL BE INSTALLED BEHIND ELECTRICAL AND COMMUNICATION BOXES OR AIR-SEALED BOXES SHALL BE INSTALLED.	
HVAC REGISTER BOOTS	HVAC SUPPY AND RETURN REGISTER BOOTS THAT PENETRATE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO THE SUBFLOOR, WALL COVERING OR CEILING PENETRATED BY THE BOOT.	
CONCEALED SPRINKLERS	WHEN REQUIRED TO BE SEALED, CONCEALED FIRE SPRINKLERS SHALL ONLY BE SEALED IN A MANNER THAT IS RECOMMENDED BY THE MANUFACTURER. CAULKING OR OTHER ADHESIVE SEALANTS SHALL NOT BE USED TO FILL VOIDS BETWEEN FIRE SPRINKLER COVER PLATES AND WALLS OR CEILINGS.	

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC 400.

TABLE R602.3(1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER$^{a, b, c}$	SPACING AND LOCATION
	Roof		
1	Blocking between ceiling joists or rafters to top plate	4-8d box (2 1/2" × 0.113") or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
2	Ceiling joists to top plate	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions [see Sections R802.3.1, R802.3.2 and Table R802.5.1(9)]	4-10d box (3" × 0.128"); or 3-16d common (3 1/2" × 0.162"); or 4-3" × 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) [see Sections R802.3.1 and R802.3.2 and Table R802.5.1(9)]	Table R802.5.1(9)	Face nail
5	Collar tie to rafter, face nail or 1 1/4" × 20 ga. ridge strap to rafter	4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box nails (3 1/2" × 0.135"); or 3-10d common nails (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss^{i}
7	Roof rafters to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam	4-16d (3 1/2" × 0.135"); or 3-10d common (3 1/2" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box 3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
	Wall		
8	Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162")	24" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	16" o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
		16d common (3 1/2" × 0.162")	16" o.c. face nail
10	Built-up header (2" to 2" header with 1/2" spacer)	16d common (3 1/2" × 0.162")	16" o.c. each edge face nail
		16d box (3 1/2" × 0.135")	12" o.c. each edge face nail
11	Continuous header to stud	5-8d box (2 1/2" × 0.113"); or 4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toe nail
12	Top plate to top plate	16d common (3 1/2" × 0.162")	16" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	12" o.c. face nail
13	Double top plate splice for SDCs A-D$_2$ with seismic braced wall line spacing < 25'	8-16d common (3 1/2" × 0.162"); or 12-16d box (3 1/2" × 0.135"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
	Double top plate splice SDCs D$_0$, D$_1$, or D$_2$; and braced wall line spacing ≥ 25'	12-16d (3 1/2" × 0.135")	
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER$^{a, b, c}$	SPACING AND LOCATION
14	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2" × 0.162")	16" o.c. face nail
		16d box (3 1/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking (at braced wall panel)	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 4-3" × 0.131" nails	3 each 16" o.c. face nail 2 each 16" o.c. face nail 4 each 16" o.c. face nail
16	Top or bottom plate to stud	4-8d box (2 1/2" × 0.113"); or 3-16d box (3 1/2" × 0.135"); or 4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
17	Top plates, laps at corners and intersections	3-10d box (3" × 0.128"); or 2-16d common (3 1/2" × 0.162"); or 3-3" × 0.131" nails	Face nail
18	1" brace to each stud and plate	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples 1 3/4"	Face nail
19	1" × 6" sheathing to each bearing	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
20	1" × 8" and wider sheathing to each bearing	3-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3 staples, 1" crown, 16 ga., 1 3/4" long Wider than 1" × 8" 4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 4 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
	Floor		
21	Joist to sill, top plate or girder	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
22	Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d box (2 1/2" × 0.113")	4" o.c. toe nail
		8d common (2 1/2" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails	6" o.c. toe nail
23	1" × 6" subfloor or less to each joist	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER$^{a, b, c}$	SPACING AND LOCATION
	Floor		
24	2" subfloor to joist or girder	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162")	Blind and face nail
25	2" planks (plank & beam—floor & roof)	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162")	At each bearing, face nail
26	Band or rim joist to joist	3-16d common (3 1/2" × 0.162") 4-10 box (3" × 0.128"), or 4-3" × 0.131" nails; or 4-3" × 14 ga. staples, 7/16" crown	End nail
27	Built-up girders and beams, 2-inch lumber layers	20d common (4" × 0.192"); or	Nail each layer as follows: 32" o.c. at top and bottom and staggered.
		10d box (3" × 0.128"); or 3" × 0.131" nails	24" o.c. face nail at top and bottom staggered on opposite sides
		And: 2-20d common (4" × 0.192"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Face nail at ends and at each splice
28	Ledger strip supporting joists or rafters	4-16d box (3 1/2" × 0.135"); or 3-16d common (3 1/2" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	At each joist or rafter, face nail
29	Bridging to joist	2-10d (3" × 0.128")	Each end, toe nail

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER$^{a, b, c}$	SPACING OF FASTENERS	
			Edges (inches)^{h}	Intermediate supports$^{c, e}$ (inches)
	Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing [see Table R602.3(3) for wood structural panel *exterior* wall sheathing to wall framing]			
30	3/8" – 1/2"	6d common (2" × 0.113") nail (subfloor, wall)^{i} 8d common (2 1/2" × 0.131") nail (roof)	6	12^{f}
31	19/32" – 1"	8d common nail (2 1/2" × 0.131")	6	12^{f}
32	1 1/8" – 1 1/4"	10d common (3" × 0.148") nail; or 8d (2 1/2" × 0.131") deformed nail	6	12
	Other wall sheathing^{g}			
33	1/2" structural cellulosic fiberboard sheathing	1 1/2" galvanized roofing nail, 7/16" head diameter, or 1" crown staple 16 ga., 1 1/4" long	3	6
34	25/32" structural cellulosic fiberboard sheathing	1 3/4" galvanized roofing nail, 7/16" head diameter, or 1" crown staple 16 ga., 1 1/4" long	3	6
35	1/2" gypsum sheathing^{d}	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long; 1 1/4" screws, Type W or S	7	7
36	5/8" gypsum sheathing^{d}	1 3/4" galvanized roofing nail; staple galvanized, 1 5/8" long; 1 5/8" screws, Type W or S	7	7
	Wood structural panels, combination subfloor underlayment to framing			
37	3/4" and less	6d deformed (2" × 0.120") nail; or 8d common (2 1/2" × 0.131") nail	6	12
38	7/8" – 1"	8d common (2 1/2" × 0.131") nail; or 8d deformed (2 1/2" × 0.120") nail	6	12
39	1 1/8" – 1 1/4"	10d common (3" × 0.148") nail; or 8d deformed (2 1/2" × 0.120") nail	6	12

FOR SI: 1 INCH = 25.4 MM, 1 FOOT = 304.8 MM, 1 MILE PER HOUR = 0.447 M/S; 1 KSI = 6.895 MPA.
A. NAILS ARE SMOOTH-COMMON, BOX OR DEFORMED SHANKS EXCEPT WHERE OTHERWISE STATED. NAILS USED FOR FRAMING AND SHEATHING CONNECTIONS SHALL HAVE MINIMUM AVERAGE BENDING YIELD STRENGTHS AS SHOWN: 80 KSI FOR SHANK DIAMETER OF 0.192 INCH (20D COMMON NAIL), 90 KSI FOR SHANK DIAMETERS LARGER THAN 0.142 INCH BUT NOT LARGER THAN 0.177 INCH, AND 100 KSI FOR SHANK DIAMETERS OF 0.142 INCH OR LESS.
B. STAPLES ARE 16 GAGE WIRE AND HAVE A MINIMUM 7/16-INCH ON DIAMETER CROWN WIDTH.
C. NAILS SHALL BE SPACED AT NOT MORE THAN 6 INCHES ON CENTER AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR GREATER.
D. FOUR-FOOT BY 8-FOOT OR 4-FOOT BY 9-FOOT PANELS SHALL BE APPLIED VERTICALLY.
E. SPACING OF FASTENERS NOT INCLUDED IN THIS TABLE SHALL BE BASED ON TABLE R602.3(2).
F. WHERE THE ULTIMATE DESIGN WIND SPEED IS 130 MPH OR LESS, NAILS FOR ATTACHING WOOD STRUCTURAL PANEL ROOF SHEATHING TO GABLE END WALL FRAMING SHALL BE SPACED 6 INCHES ON CENTER. WHERE THE ULTIMATE DESIGN WIND SPEED IS GREATER THAN 130 MPH, NAILS FOR ATTACHING PANEL ROOF SHEATHING TO INTERMEDIATE SUPPORTS SHALL BE SPACED 6 INCHES ON CENTER FOR MINIMUM 48-INCH DISTANCE FROM RIDGES, EAVES AND GABLE END WALLS; AND 4 INCHES ON CENTER TO GABLE END WALL FRAMING.
G. GYPSUM SHEATHING SHALL CONFORM TO ASTM C 1396 AND SHALL BE INSTALLED IN ACCORDANCE WITH GA 253. FIBERBOARD SHEATHING SHALL CONFORM TO ASTM C 208.
H. SPACING OF FASTENERS ON FLOOR SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING AND AT FLOOR PERIMETERS ONLY. SPACING OF FASTENERS ON ROOF SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING. BLOCKING OF ROOF OR FLOOR SHEATHING PANEL EDGES PERPENDICULAR TO THE FRAMING MEMBERS NEED NOT BE PROVIDED EXCEPT AS REQUIRED BY OTHER PROVISIONS OF THIS CODE. FLOOR PERIMETER SHALL BE SUPPORTED BY FRAMING MEMBERS OR SOLID BLOCKING.
I. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE, PROVIDE TWO TOE NAILS ON ONE SIDE OF THE RAFTER AND TOE NAILS FROM THE CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE. THE TOE NAIL ON THE OPPOSITE SIDE OF THE RAFTER SHALL NOT BE REQUIRED.

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MICHAEL EHRLICH
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6-9-2021
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T.A.
06/23/2021

SPECIFICATIONS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
File	21006G20
Date	8JUNE21
Drawn	VWM
Checked	JMH
Rel'd	8JUNE21
Rev'd	

Sheet Number
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SHEET 6 OF 17

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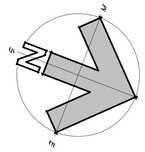

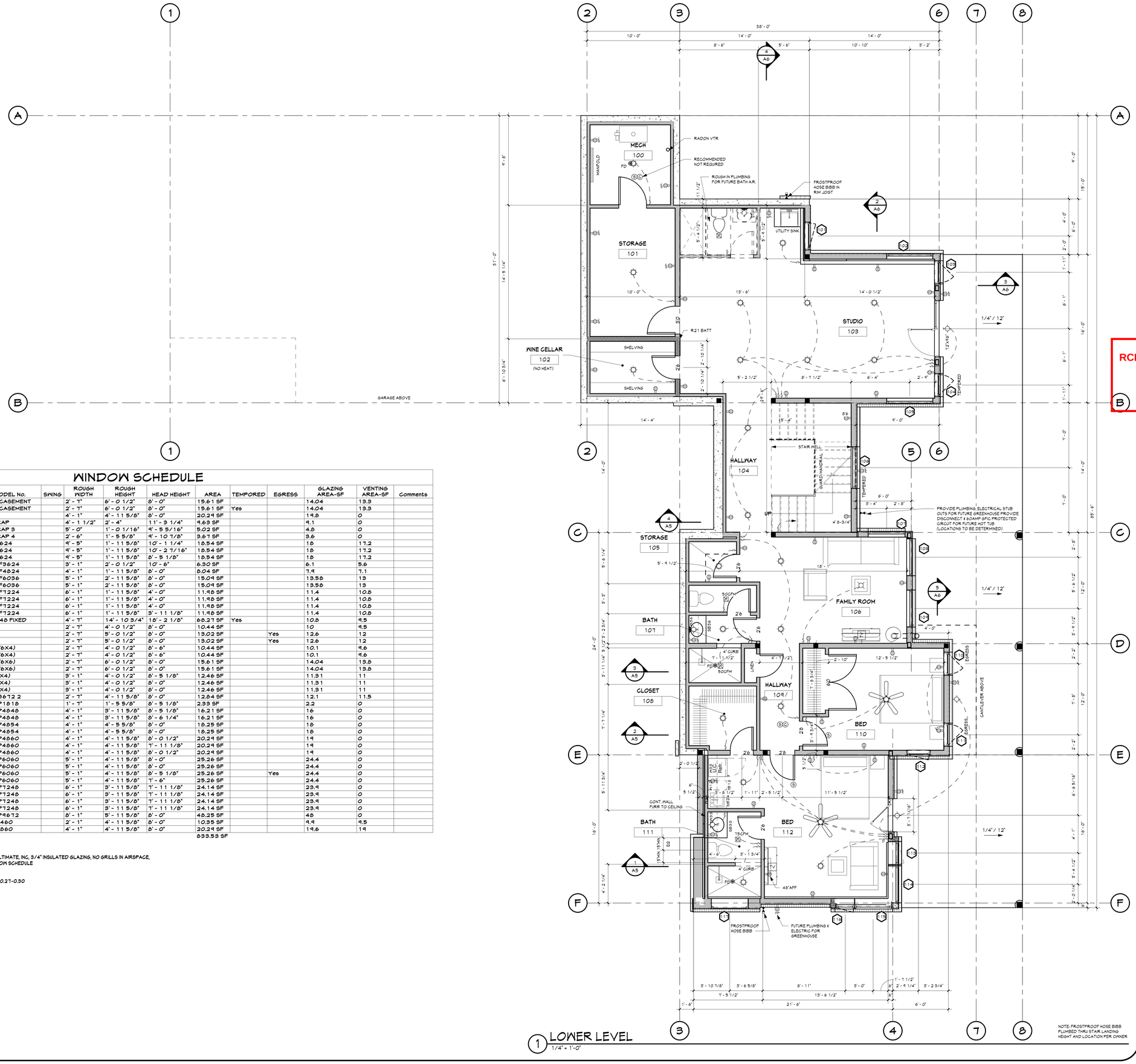

1 LOWER LEVEL
1/4" = 1'-0"

WINDOW SCHEDULE

No.	LEVEL	TYPE	MODEL No.	SWING	ROUGH WIDTH	ROUGH HEIGHT	HEAD HEIGHT	AREA	TEMPERED	EGRESS	GLAZING AREA-SF	VENTING AREA-SF	Comments
103	LOWER LEVEL		2'6X6' CASEMENT		2' - 7"	6' - 0 1/2"	5' - 0"	15.61 SF			14.04	13.3	
104	LOWER LEVEL		2'6X6' CASEMENT		2' - 7"	6' - 0 1/2"	5' - 0"	15.61 SF	Yes		14.04	13.3	
114	LOWER LEVEL		4'5		4' - 1"	4' - 11 5/8"	5' - 0"	20.29 SF			19.8	0	
211a	MAIN SUB FLOOR		MDGTRAP		4' - 1 1/2"	2' - 4"	11' - 8 1/4"	9.69 SF			9.1	0	
213a	MAIN SUB FLOOR		MDGTRAP 3		5' - 0"	1' - 0 1/16"	9' - 5 5/16"	5.02 SF			4.8	0	
212a	MAIN SUB FLOOR		MDGTRAP 4		2' - 6"	1' - 5 5/8"	9' - 10 7/8"	3.67 SF			3.6	0	
224	TOS 2		UAWN1624		9' - 5"	1' - 11 5/8"	10' - 1 1/4"	18.54 SF			18	17.2	
223	TOS 2		UAWN1624		9' - 5"	1' - 11 5/8"	10' - 2 7/16"	18.54 SF			18	17.2	
222	TOS 2		UAWN1624		9' - 5"	1' - 11 5/8"	8' - 5 1/8"	18.54 SF			18	17.2	
212	MAIN SUB FLOOR		UAWNNF3624		3' - 1"	2' - 0 1/2"	10' - 6"	6.30 SF			6.1	5.6	
117	LOWER LEVEL		UAWNNF4824		4' - 1"	1' - 11 5/8"	8' - 0"	8.04 SF			7.9	7.1	
102	LOWER LEVEL		UAWNNF6036		5' - 1"	2' - 11 5/8"	8' - 0"	15.09 SF			13.58	13	
105	LOWER LEVEL		UAWNNF6036		5' - 1"	2' - 11 5/8"	8' - 0"	15.09 SF			13.58	13	
216a	MAIN SUB FLOOR		UAWNNFT224		6' - 1"	1' - 11 5/8"	4' - 0"	11.48 SF			11.4	10.8	
217a	MAIN SUB FLOOR		UAWNNFT224		6' - 1"	1' - 11 5/8"	4' - 0"	11.48 SF			11.4	10.8	
218a	MAIN SUB FLOOR		UAWNNFT224		6' - 1"	1' - 11 5/8"	4' - 0"	11.48 SF			11.4	10.8	
215a	MAIN SUB FLOOR		UAWNNFT224		6' - 1"	1' - 11 5/8"	3' - 11 1/8"	11.48 SF			11.4	10.8	
106	LOWER LEVEL		UCA3648 FIXED		4' - 1"	14' - 10 3/4"	18' - 2 1/8"	68.27 SF	Yes		10.8	9.5	
112	LOWER LEVEL		UCAI		2' - 7"	4' - 0 1/2"	8' - 0"	10.44 SF			10	9.5	
110	LOWER LEVEL		UCAI 3		2' - 7"	5' - 0 1/2"	8' - 0"	13.02 SF		Yes	12.6	12	
111	LOWER LEVEL		UCAI 3		2' - 7"	5' - 0 1/2"	8' - 0"	13.02 SF		Yes	12.6	12	
208	MAIN SUB FLOOR		UCAI (2'6X4)		2' - 7"	4' - 0 1/2"	8' - 6"	10.44 SF			10.1	9.6	
207	MAIN SUB FLOOR		UCAI (2'6X4)		2' - 7"	4' - 0 1/2"	8' - 6"	10.44 SF			10.1	9.6	
219	MAIN SUB FLOOR		UCAI (2'6X6)		2' - 7"	6' - 0 1/2"	8' - 0"	15.61 SF			14.04	13.8	
221	MAIN SUB FLOOR		UCAI (2'6X6)		2' - 7"	6' - 0 1/2"	8' - 0"	15.61 SF			14.04	13.8	
204	MAIN SUB FLOOR		UCAI (3X4)		3' - 1"	4' - 0 1/2"	8' - 5 1/8"	12.46 SF			11.31	11	
202	MAIN SUB FLOOR		UCAI (3X4)		3' - 1"	4' - 0 1/2"	8' - 0"	12.46 SF			11.31	11	
101	LOWER LEVEL		UCAI (3X4)		3' - 1"	4' - 0 1/2"	8' - 0"	12.46 SF			11.31	11	
113	LOWER LEVEL		UCANF3672 2		2' - 7"	4' - 11 5/8"	8' - 0"	12.84 SF			12.1	11.5	
203	MAIN SUB FLOOR		UCANFP1818		1' - 7"	1' - 5 5/8"	8' - 5 1/8"	2.33 SF			2.2	0	
205	MAIN SUB FLOOR		UCANFP4848		4' - 1"	3' - 11 5/8"	8' - 5 1/8"	16.21 SF			16	0	
201	MAIN SUB FLOOR		UCANFP4848		4' - 1"	3' - 11 5/8"	8' - 6 1/4"	16.21 SF			16	0	
211	MAIN SUB FLOOR		UCANFP4854		4' - 1"	4' - 5 5/8"	8' - 0"	18.25 SF			18	0	
210	MAIN SUB FLOOR		UCANFP4854		4' - 1"	4' - 5 5/8"	8' - 0"	18.25 SF			18	0	
108	LOWER LEVEL		UCANFP4860		4' - 1"	4' - 11 5/8"	8' - 0 1/2"	20.29 SF			19	0	
107	LOWER LEVEL		UCANFP4860		4' - 1"	4' - 11 5/8"	7' - 11 1/8"	20.29 SF			19	0	
109	LOWER LEVEL		UCANFP4860		4' - 1"	4' - 11 5/8"	8' - 0 1/2"	20.29 SF			19	0	
214	MAIN SUB FLOOR		UCANFP6060		5' - 1"	4' - 11 5/8"	8' - 0"	25.26 SF			24.4	0	
213	MAIN SUB FLOOR		UCANFP6060		5' - 1"	4' - 11 5/8"	8' - 0"	25.26 SF			24.4	0	
206	MAIN SUB FLOOR		UCANFP6060		5' - 1"	4' - 11 5/8"	8' - 5 1/8"	25.26 SF		Yes	24.4	0	
209	MAIN SUB FLOOR		UCANFP6060		5' - 1"	4' - 11 5/8"	7' - 6"	25.26 SF			24.4	0	
216	MAIN SUB FLOOR		UCANFPT248		6' - 1"	3' - 11 5/8"	7' - 11 1/8"	24.14 SF			23.9	0	
215	MAIN SUB FLOOR		UCANFPT248		6' - 1"	3' - 11 5/8"	7' - 11 1/8"	24.14 SF			23.9	0	
217	MAIN SUB FLOOR		UCANFPT248		6' - 1"	3' - 11 5/8"	7' - 11 1/8"	24.14 SF			23.9	0	
218	MAIN SUB FLOOR		UCANFPT248		6' - 1"	3' - 11 5/8"	7' - 11 1/8"	24.14 SF			23.9	0	
220	MAIN SUB FLOOR		UCANFP9612		8' - 1"	5' - 11 5/8"	8' - 0"	48.25 SF			48	0	
116	LOWER LEVEL		UNCA2460		2' - 1"	4' - 11 5/8"	8' - 0"	10.35 SF			9.9	9.5	
115	LOWER LEVEL		UNCA4860		4' - 1"	4' - 11 5/8"	8' - 0"	20.29 SF			19.6	19	
Grand total: 48								893.53 SF					

NOTES:
VERIFY ALL ROUGH OPENINGS WITH WINDOW BID
ALL WINDOWS & DOORS ARE MARVIN LUMBER & CEDAR CO. LLC, ULTIMATE, INC, 3/4" INSULATED GLAZING, NO GRILLS IN AIRSPACE,
W/ LOW E-272 / EA(I-84) 3/4" AIR GLAZING, SEE ATTACHED WINDOW SCHEDULE
ALL OPERABLE WINDOWS & DOORS TO BE SUPPLIED W/ SCREENS
CLADDING COLOR BLACK
U-VALUES NOTED ARE MAXIMUM, ACTUAL VALUES VARY BETWEEN 0.27-0.30

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30689
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RCRBD Record Set
T.A.
06/23/2021

LOWER LEVEL FLOOR PLAN FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
File	21006A10
Date	8JUNE21
Drawn	VAM
Checked	JMH
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T.A.
06/23/2021

MAIN LEVEL FLOOR PLAN FOR
MICAL HUYSER
21225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-4650

Job # 21.006
File 21006x21
Date 6JUNE21
Drawn VMV
Checked JMH
Field 6JUNE21
Revd

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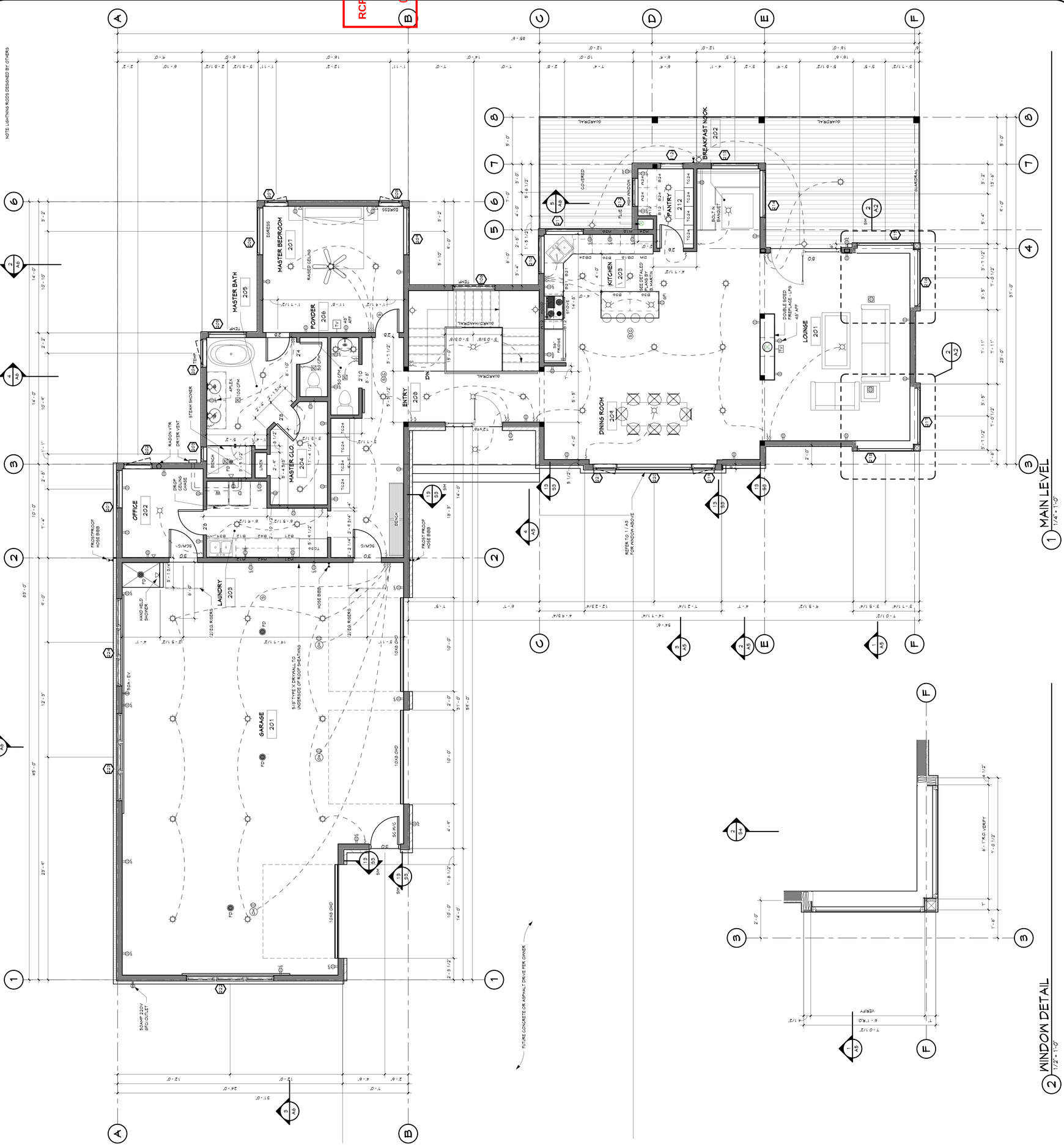
A2
SHEET 6 OF 17

NOTE: LIGHTING PLANS DESIGNED BY OTHERS



1 MAIN LEVEL
1/4" = 1'-0"

2 WINDOW DETAIL
1/2" = 1'-0"

KEYNOTE LEGEND

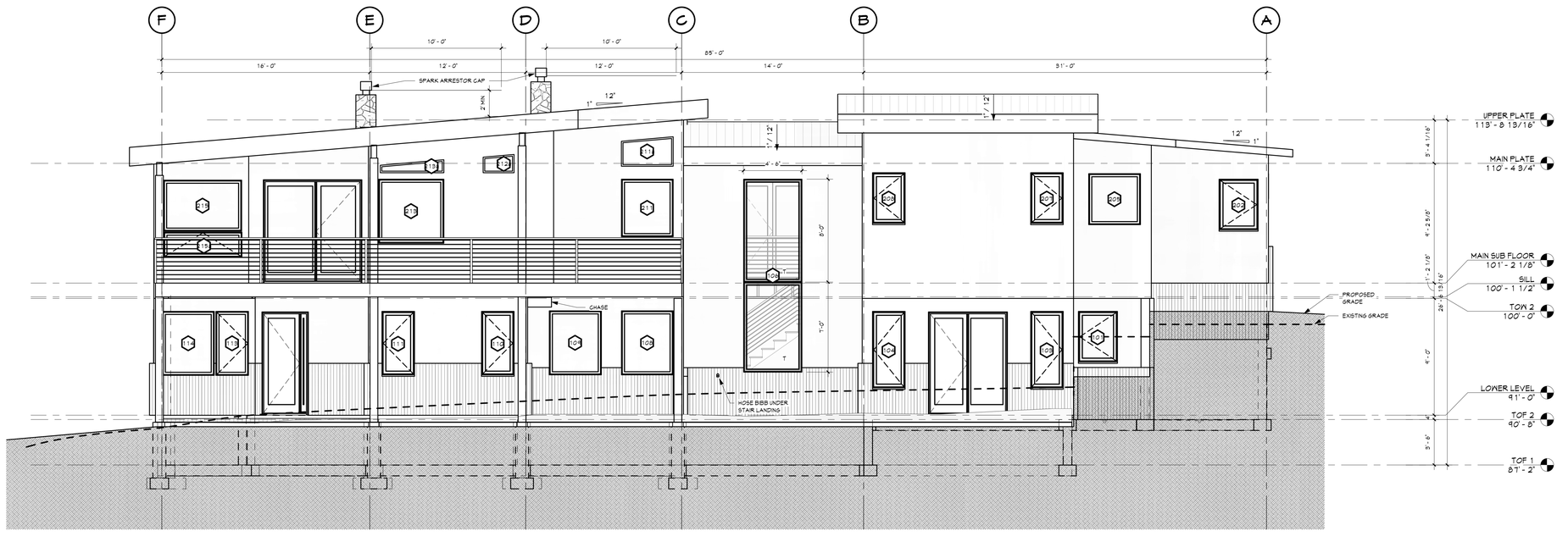
1.) STONE VENEER

2.) CORUGATED METAL SHEATHING
COLOR 'SANDSTONE' ON 1X_ FURRING
W/ METAL DRIP CAP

3.) SAGE GREEN SYNTHETIC STUCCO OVER
ZIP-6 SHEATHING OVER

4.) STANDING SEAM METAL ROOF OVER GRACE
'ULTRA' MEMBRANE COLOR 'BURNT RED'

1 SOUTH ELEVATION
1/4" = 1'-0"



4 NORTH ELEVATION
1/4" = 1'-0"

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ELEVATIONS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
File	21006A30
Date	8JUNE21
Drawn	VAM
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Re'd	8JUNE21
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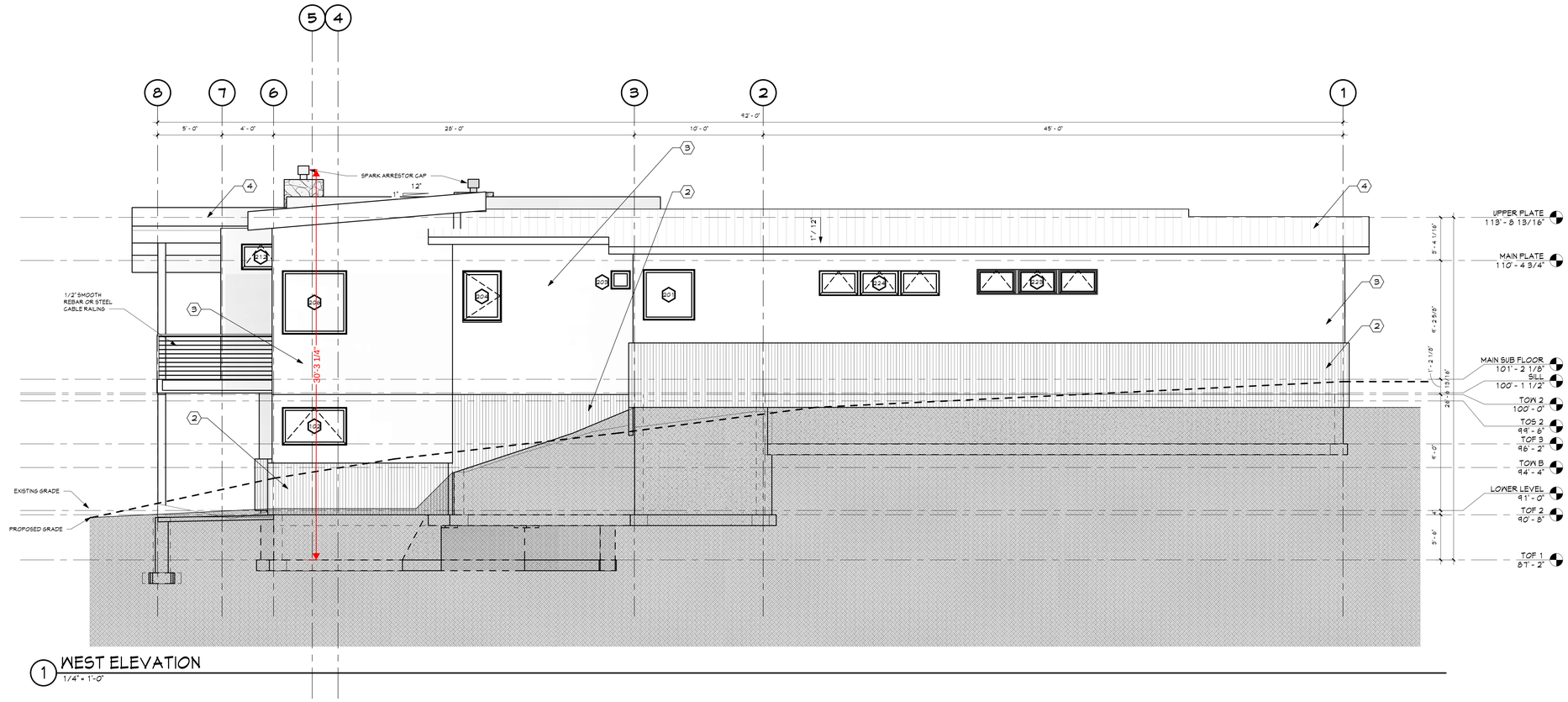
KEYNOTE LEGEND

1.) STONE VENEER

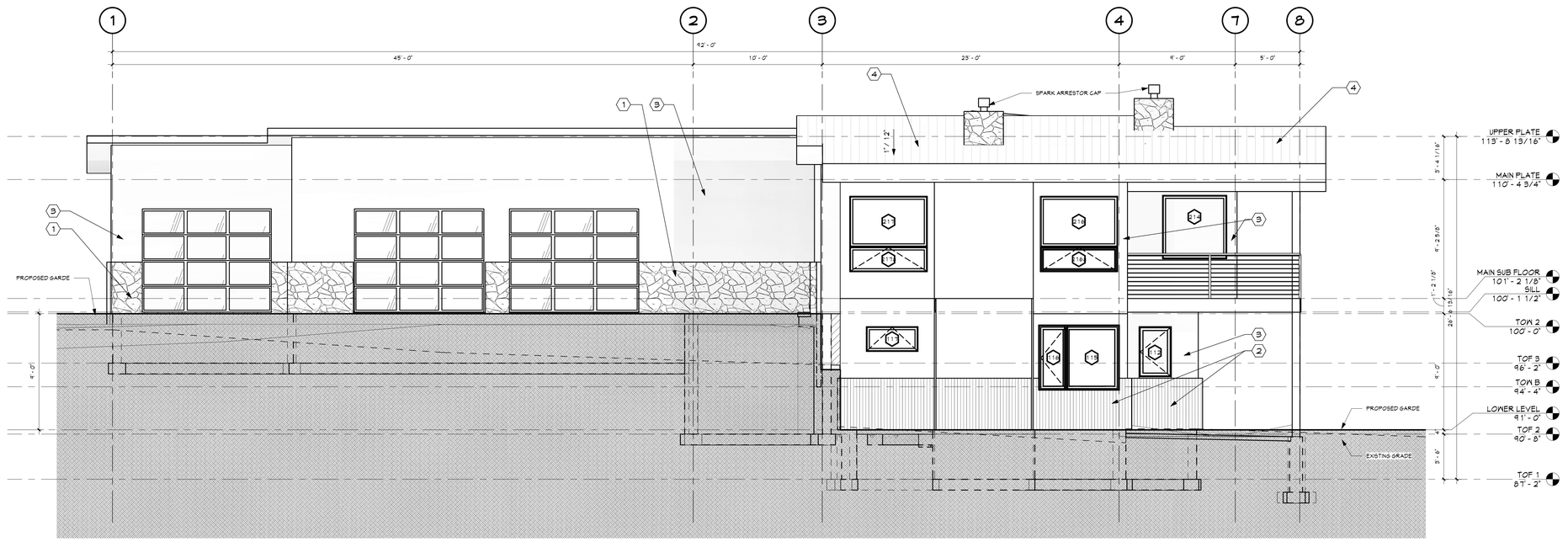
2.) CORUGATED METAL SHEATHING
COLOR 'SANDSTONE' ON 1X_ FURRING
W/ METAL DRIP CAP

3.) SAGE GREEN SYNTHETIC STUCCO OVER
ZIP-R SHEATHING OVER

4.) STANDING SEAM METAL ROOF OVER GRACE
'ULTRA' MEMBRANE COLOR 'BURNT RED'



1 WEST ELEVATION
1/4" = 1'-0"



2 EAST ELEVATION
1/4" = 1'-0"

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ELEVATIONS FOR
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Rev'd	

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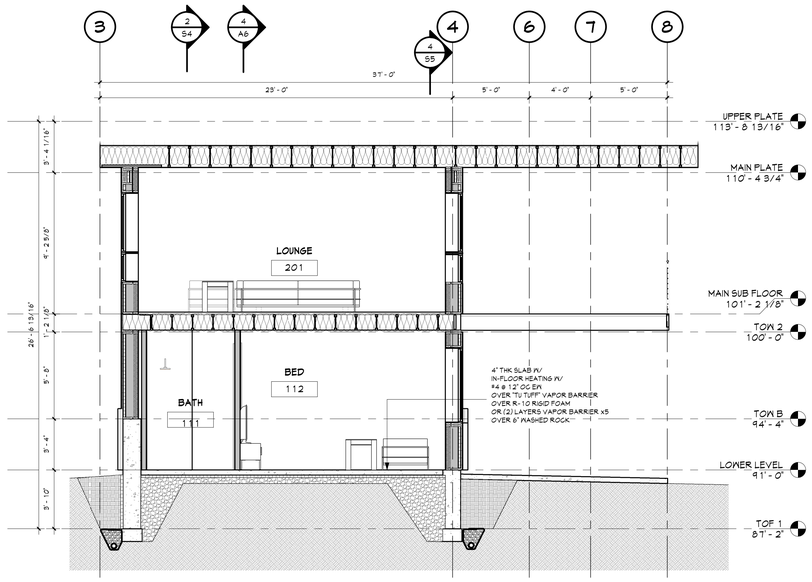
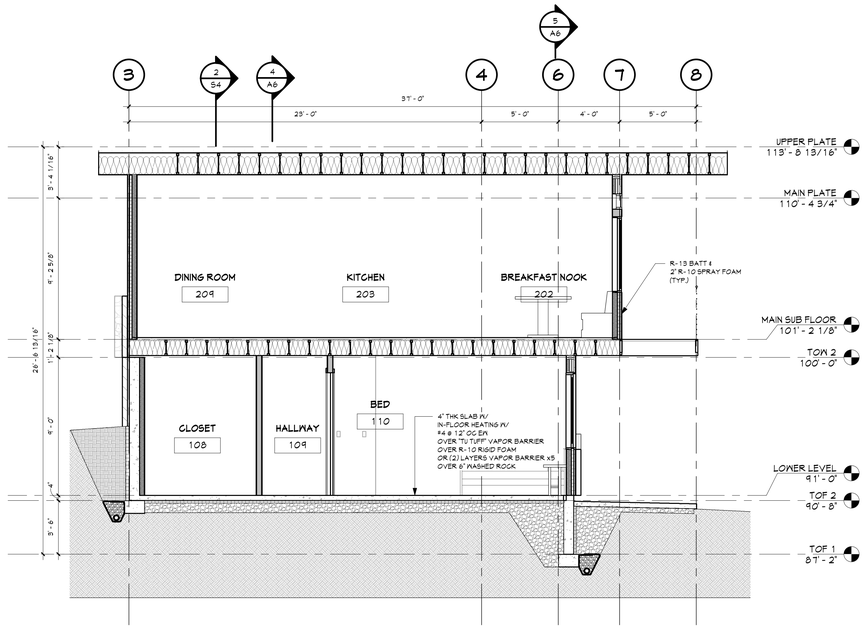
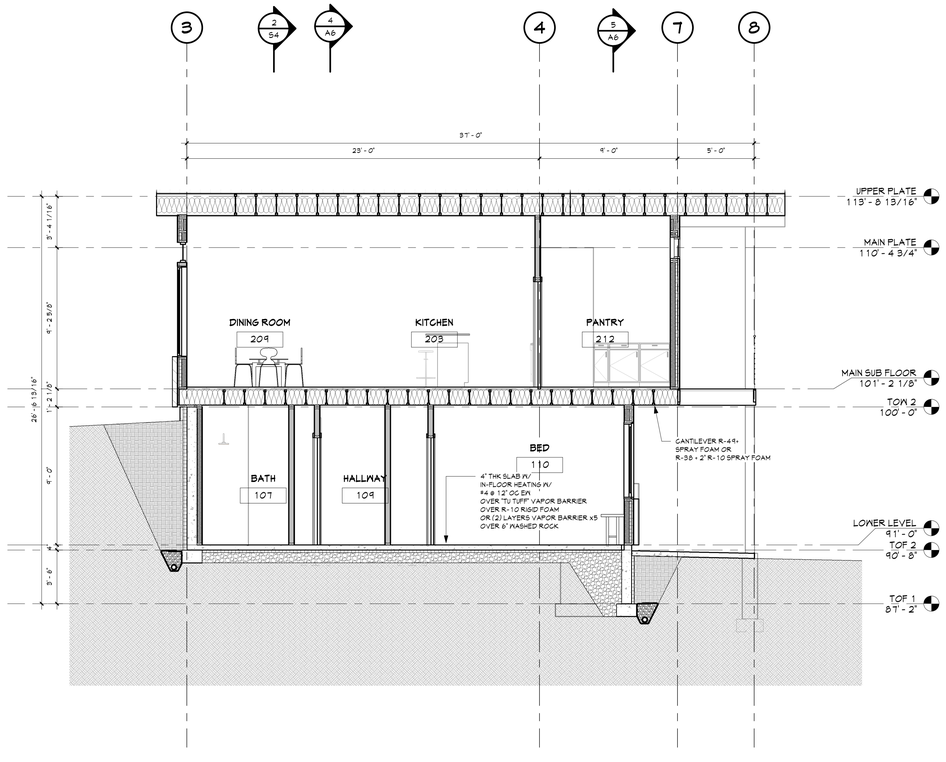


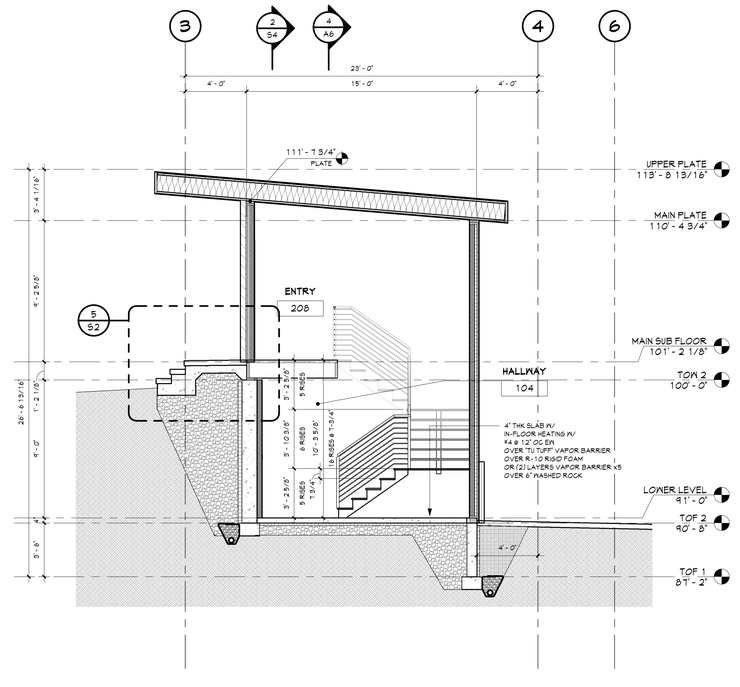
1 SECTION A
1/4" = 1'-0"



2 SECTION B
1/4" = 1'-0"



3 SECTION C
1/4" = 1'-0"



4 SECTION D
1/4" = 1'-0"

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06/23/2021

SECTIONS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
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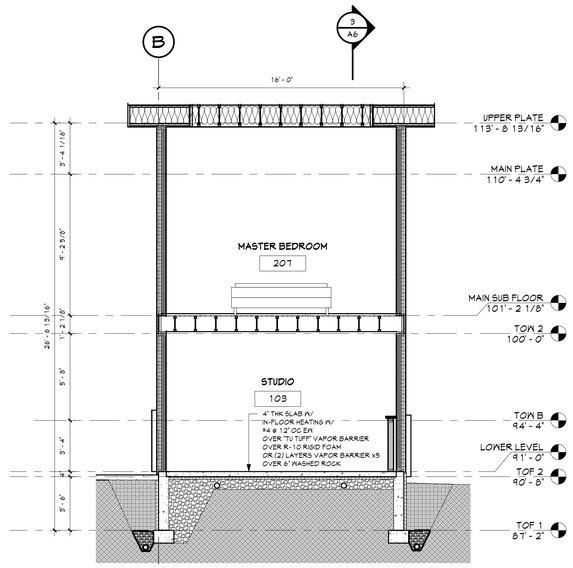

2 SECTION 2
1/4" = 1'-0"

4 SECTION 4
1/4" = 1'-0"

1 SECTION 1
1/4" = 1'-0"

5 SECTION 5
1/4" = 1'-0"

3 SECTION 3
1/4" = 1'-0"

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SECTIONS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
File	21006A60
Date	8JUNE21
Drawn	VMM
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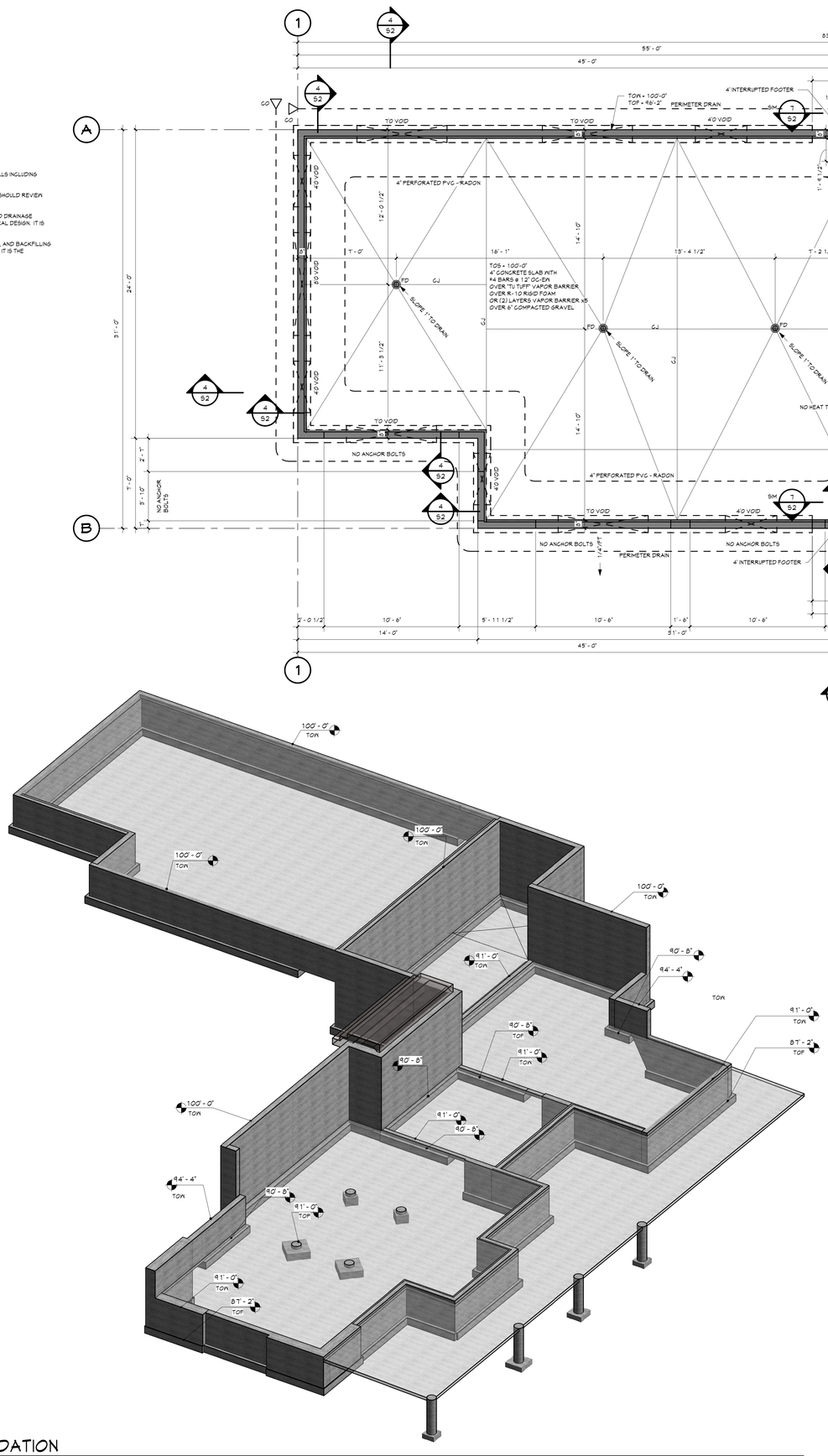
NOTE:
1. THE STRUCTURAL DESIGN DRAWINGS ARE FOR THE HOUSE AND PERMANENT FOUNDATION ONLY. DETACHED RETAINING WALLS INCLUDING ROCK RETAINING WALLS ARE BY OTHERS.

2. DESIGN AND CONSTRUCTION CONSIDERATIONS MUST BE ADDRESSED TO AVOID SLOPE INSTABILITY. THE SOILS ENGINEER SHOULD REVIEW THE PLANS TO ENSURE THEIR RECOMMENDATIONS AS BEING FOLLOWED.

3. EXCAVATION, SLOPE STABILITY AND GRADING ARE BY OTHERS. A QUALIFIED ENGINEER EXPERIENCED IN SITE GRADING AND DRAINAGE SHOULD PREPARE SITE GRADING AND DRAINAGE PLANS. THIS IS BY OTHERS AND IS NOT PART OF THE ENGINEERED STRUCTURAL DESIGN. IT IS THE RESPONSIBILITY OF THE OWNER OR HIS REPRESENTATIVE TO HAVE THIS DONE.

4. THE CONTRACTOR MUST PROVIDE A CONSTRUCTION SEQUENCING PLAN FOR EXCAVATION, WALL CONSTRUCTION, BRACING, AND BACKFILLING TO THE SOILS ENGINEER PRIOR TO STARTING EXCAVATION. THIS IS BY OTHERS AND IS NOT PART OF THE ENGINEERED DESIGN. IT IS THE RESPONSIBILITY OF THE OWNER OR HIS REPRESENTATIVE TO HAVE THIS DONE.

5. SEE SOILS REPORT FOR ADDITIONAL REQUIREMENTS



17 FOUNDATION

1 FOUNDATION PLAN
1/4" = 1'-0"

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COLORADO REGISTERED MICHAEL ENRIGHT 30669 6-9-2021 PROFESSIONAL ENGINEER
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06/23/2021

FOUNDATION PLAN FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

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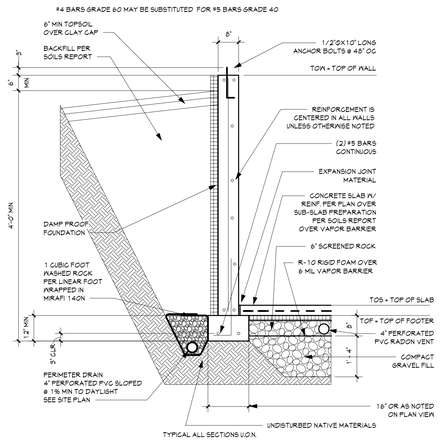
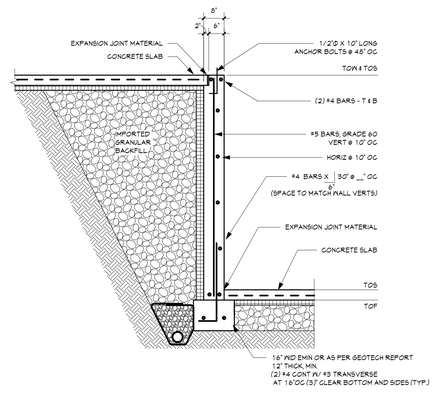
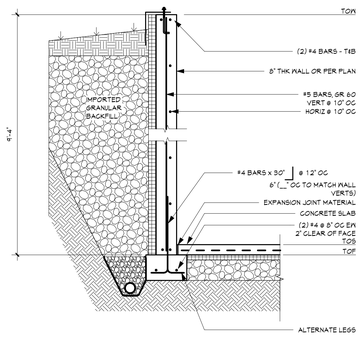


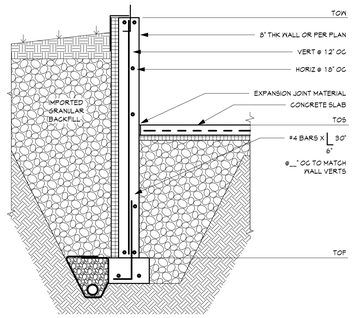
W WALL, SLAB, AND FOOTER DETAIL
1/2" = 1'-0"



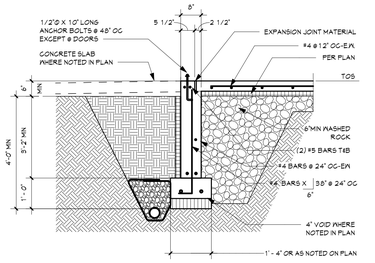
1 TRANSITION WALL
1/2" = 1'-0"



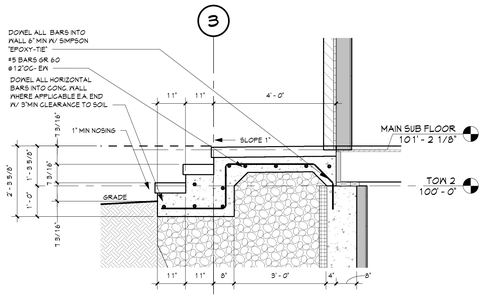
2 BASEMENT WALL
1/2" = 1'-0"



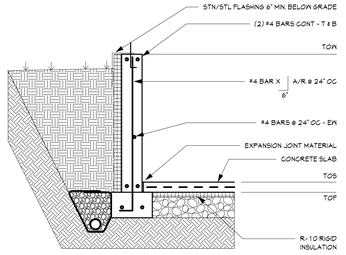
3 TRANSITION WALL 2
1/2" = 1'-0"



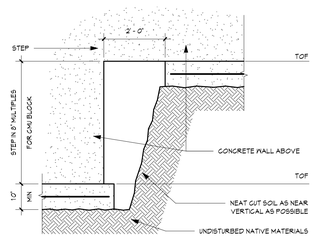
4 FROST WALL
1/2" = 1'-0"



5 STAIR DETAIL
1/2" = 1'-0"



6 GARDEN LEVEL WALL
1/2" = 1'-0"



7 INTERUPTED FOOTING
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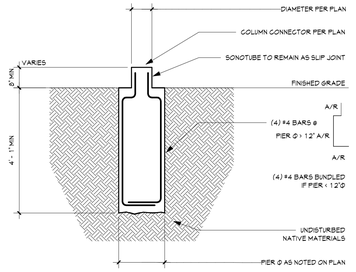
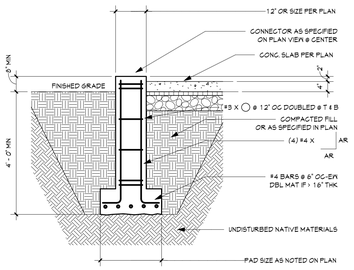
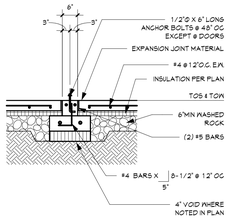


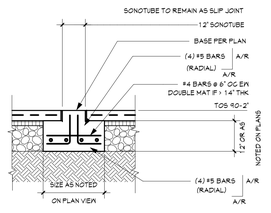
8 OPTIONAL PIER
1/2" = 1'-0"



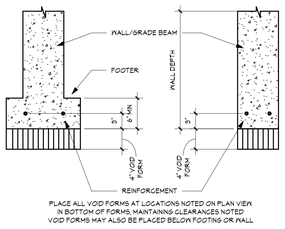
9 PIER W/ PAD
1/2" = 1'-0"



10 SHORT WALL
1/2" = 1'-0"



11 SUBSLAB ISOLATED PAD
1/2" = 1'-0"



12 VOID FORM UNDER WALL
1" = 1'-0"

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COLORADO REGISTERED PROFESSIONAL ENGINEER
MICHAEL EMRICH
PE 30669
6-9-2021
"STRUCTURE ONLY"

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FOUNDATION DETAILS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-9650

Job #	21.006
File	21006S20
Date	8JUNE21
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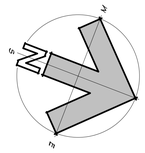
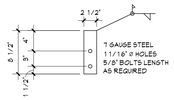
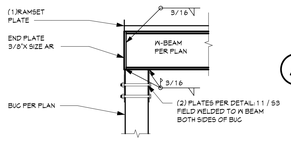
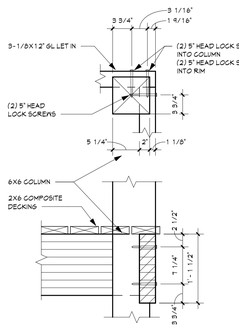


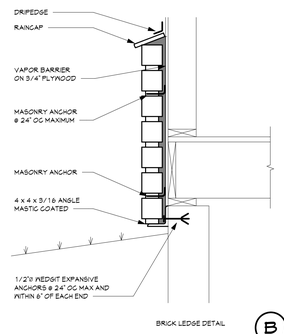




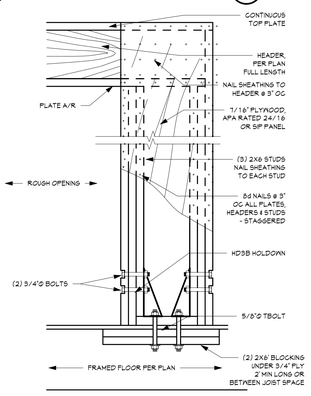
11 COLUMN PLATES
1" = 1'-0"



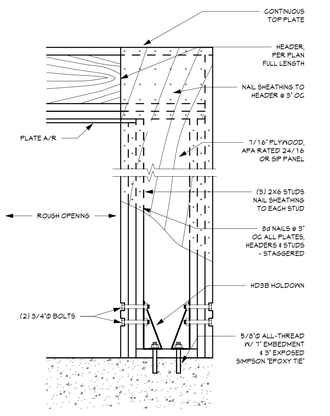
10 PSL COLUMN CONNECTION
3/4" = 1'-0"



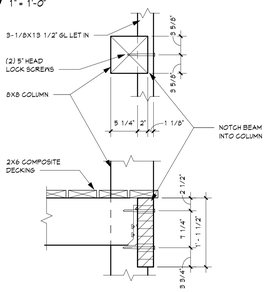
7 CORNER LET IN
1" = 1'-0"



13 BRICK LEDGE DETAIL
1" = 1'-0"



12 LATERAL RESTRAINT (LRP TYPE 2)
1" = 1'-0"



8 LATERAL RESTRAINT (LRP TYPE 1)
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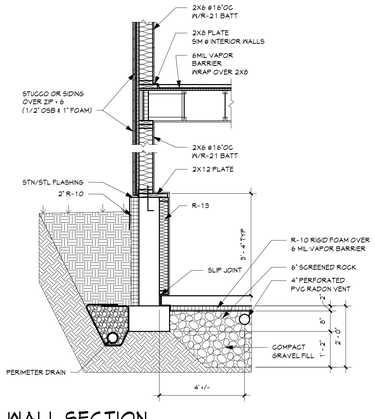
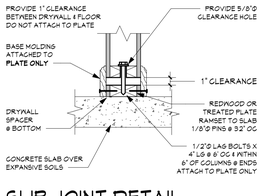
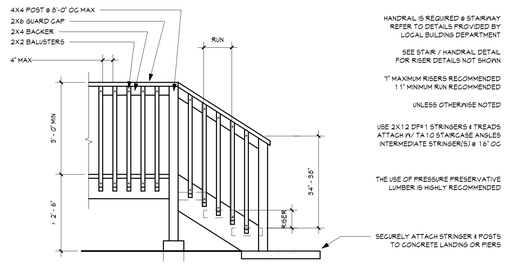


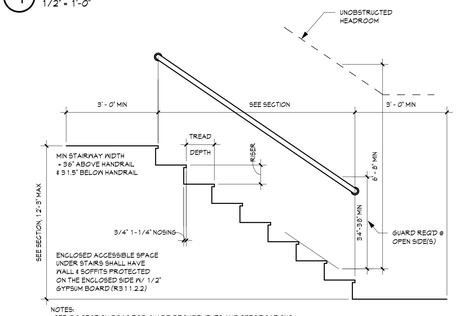
6 LET IN
1" = 1'-0"



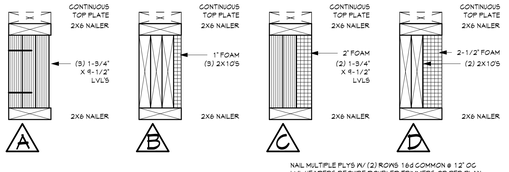
3 SLIP JOINT DETAIL
1 1/2" = 1'-0"



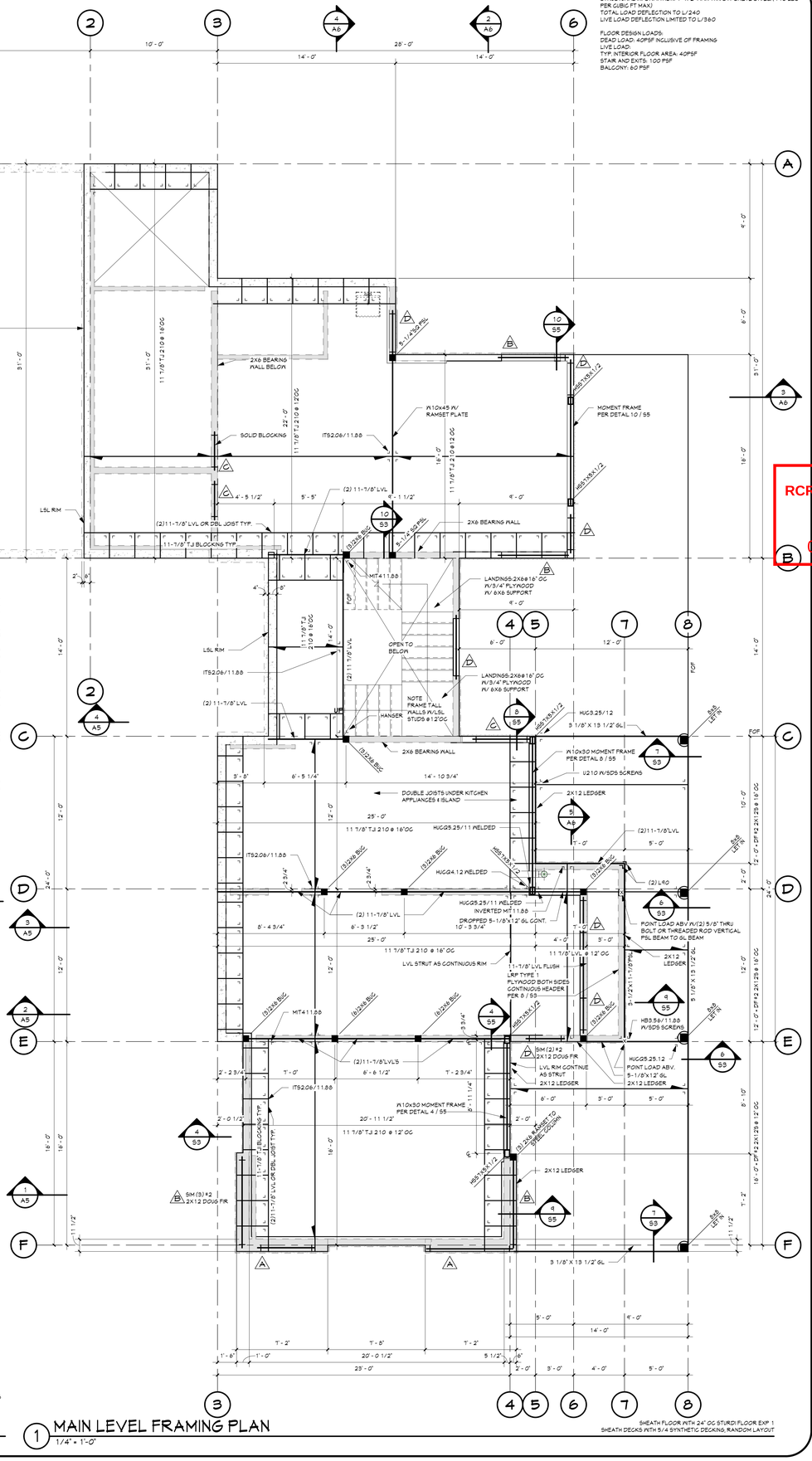
9 GUARD/ STAIR DETAIL
1/2" = 1'-0"



5 2015 IRC STAIR/HANDRAIL DETAIL
1/2" = 1'-0"



2 TYPICAL HEADER DETAILS
1 1/2" = 1'-0"



1 MAIN LEVEL FRAMING PLAN
1/4" = 1'-0"

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COLORADO REGISTERED MICHAEL ENRIGHT 30669 6-9-2021 PROFESSIONAL ENGINEER
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06/23/2021

MAIN LEVEL FRAMING PLAN & DETAILS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-4850

Job #	21.006
File	21006S50
Date	BJUNE21
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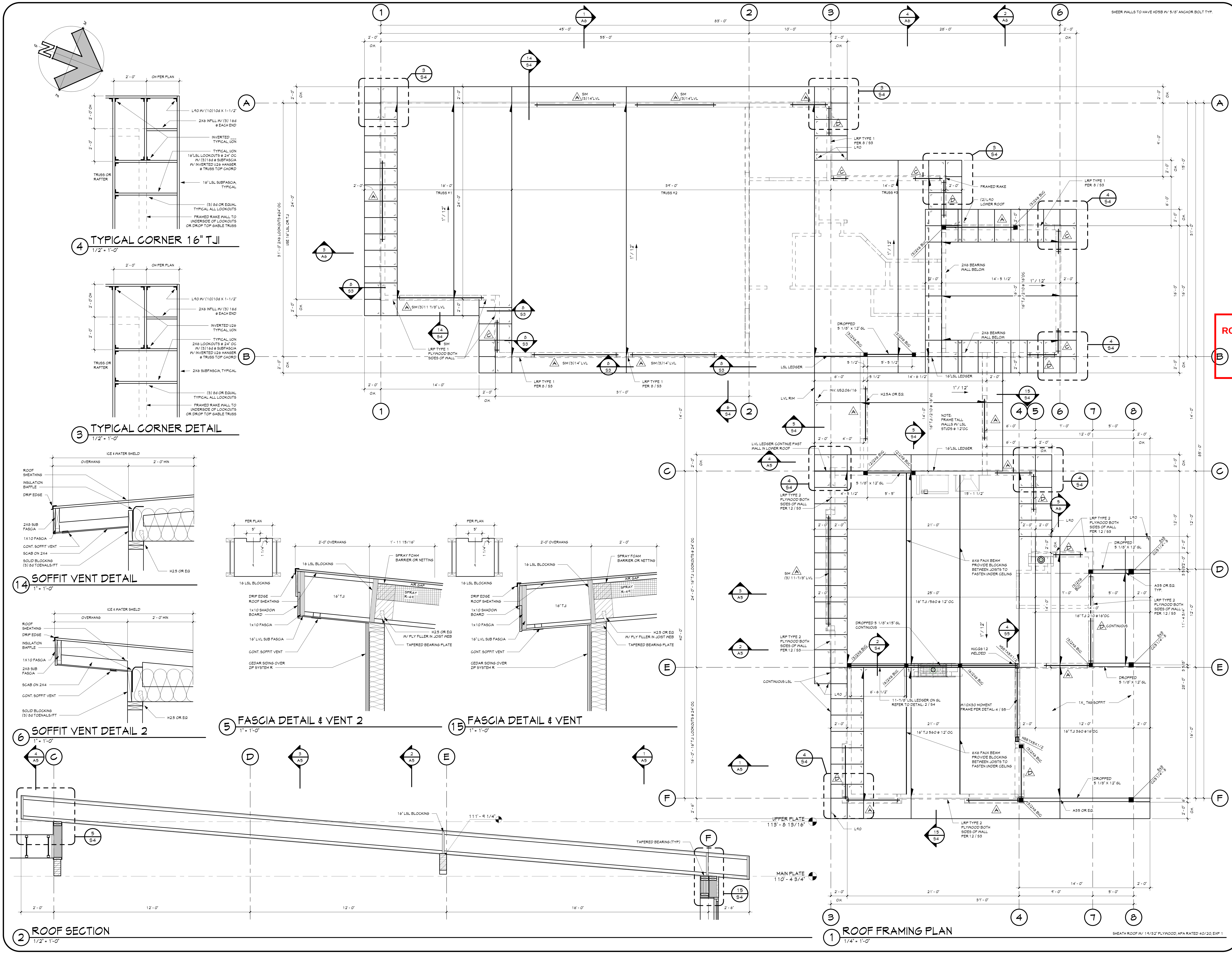

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COLORADO REGISTERED PROFESSIONAL ENGINEER
MICHAEL EHRLICH
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6-9-2021
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ROOF FRAMING PLAN & DETAILS FOR
MICAL HUYSER
27225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
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Job #	21.006
File	21006S40
Date	8JUNE21
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FRAMING DETAILS FOR
MICAL HUYSER
21225 COUNTY ROAD 14
ROUTT COUNTY, COLORADO
ALBERTINI CONSTRUCTION INC. (970)879-4650

Job #	21.006
File	21006S1
Date	6JUNE21
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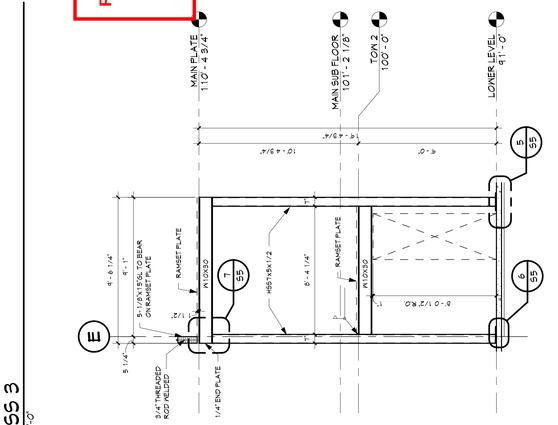
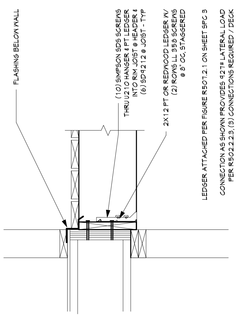
1 TRUSS 1
1/4" = 1'-0"

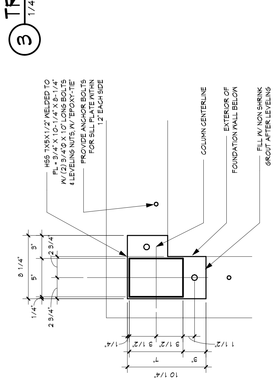
2 TRUSS 2
1/4" = 1'-0"

3 TRUSS 3
1/4" = 1'-0"

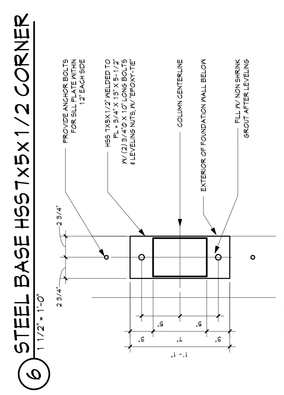


4 MOMENT FRAME 1
1/4" = 1'-0"

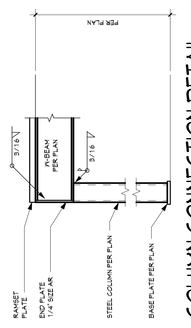




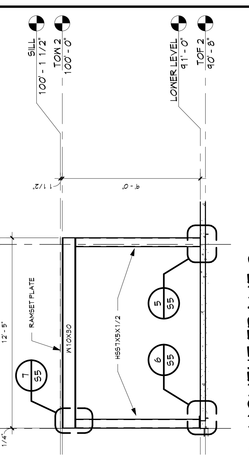
6 STEEL BASE HSS7X5X1/2 CORNER
1 1/2" = 1'-0"



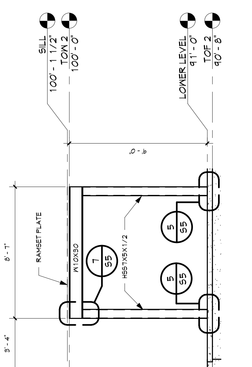
5 STEEL BASE HSS7X5X1/2
1 1/2" = 1'-0"



7 COLUMN CONNECTION DETAIL
3/4" = 1'-0"



9 LEDGER ATTACHMENT FRAMED
1" = 1'-0"



10 MOMENT FRAME 3
1/4" = 1'-0"

8 MOMENT FRAME 2
1/4" = 1'-0"

NorthWest Colorado Consultants, Inc.
NWCC
Geotechnical / Environmental Engineering • Materials Testing

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06/23/2021

April 9, 2021

Mical Huyser
c/o Jake's Drafting
P.O. Box 774121
Steamboat Springs, CO 80477

Job Number: 21-12096

Subject: Subsoil and Foundation Investigation, Proposed Huyser Residence, Lot 2, Huyser Subdivision, Routt County, Colorado.

Mical and Jake,

This report presents the results of the Subsoil and Foundation Investigation (SFI) for the proposed Huyser Residence to be constructed within Lot 2 of the Huyser Subdivision (27225 County Road 14) in Routt County, Colorado. The approximate location of the project site is shown in Figure #1.

NWCC, Inc.'s (NWCC) scope of work included obtaining data from cursory observations made at the site, logging of three test pits, sampling of the probable foundation soils and laboratory testing of the samples obtained. This report presents recommendations for economically feasible and safe type foundations, as well as allowable soil pressures and other design and construction considerations that are advisable, but not necessarily routine to quality design and building practices.

Proposed Construction: NWCC has assumed the proposed residence will consist of a one-story wood-framed structure constructed over a full-depth walkout basement and with an attached garage. NWCC has also assumed that the lower levels of the residence and garage will be constructed utilizing concrete slab-on-grade floor systems placed from 0 to 8 feet below the existing ground surface.

For design purposes, NWCC has assumed that building loads will be light to moderate typical of this type of residential construction. If loadings or conditions are significantly different from those above, NWCC should be notified to reevaluate recommendations in this report.

Site Conditions: The proposed building site is located west of County Road 14 in Routt County, Colorado. The site was vacant at the time of our investigation and a gravel driveway had been constructed to the site. The vegetation had been stripped near the proposed building site. The surrounding vegetation consists of grasses, weeds, deciduous brush and scrub oaks with aspen trees to the north.

Topography of the building site is variable and generally slopes moderately down to the east on the order of 10 to 15 percent. A maximum elevation difference of 8 to 10 feet appears to exist across the proposed building site.

Subsurface Conditions: To investigate the subsurface conditions at the site, three test pits were advanced at the site on March 29, 2021. A site plan showing existing features along with the approximate test pit locations is presented in Figure #2.

Subsurface conditions encountered were variable and generally consisted of a layer of topsoil and organic materials overlying natural clays to the maximum depth investigated, 8 feet beneath existing ground surface (bgs). Graphic logs of the exploratory test pits, along with associated Legend and Notes, are presented in Figure #3.

A layer of topsoil and organic materials was encountered at the ground surface in all of the test pits and was approximately 24 to 30 inches in thickness. Natural clays were encountered below the topsoil and organic materials in all of the test pits and extended to the maximum depth investigated in each test pit. The clays were slightly sandy to sandy, fine-grained, moderately plastic, stiff to very stiff, slightly moist to moist and brown in color. A sample of the natural clays classified as a CL soil in accordance with the Unified Soil Classification System.

A swell-consolidation test conducted on a sample of the natural clays indicates the materials tested will exhibit a moderate swell potential when wetted under a constant load. The swell-consolidation test results are presented in Figure #4, and all other laboratory test results are summarized in the attached Table 1.

Groundwater was not encountered in the test pits at the time of excavation. It should be noted that the groundwater conditions at the site can be expected to fluctuate with seasonal changes in precipitation and runoff.

Foundation Recommendations: Based on the subsurface conditions encountered in the test pits, the results of the field and laboratory investigations and our understanding of the proposed construction, NWCC believes an economically feasible and safe type of foundation system is straight-shaft skin friction/end bearing piers drilled into the underlying natural clays. Foundation movement (< ½ inch) should be within tolerable limits if the following design and construction precautions are observed.

1) A minimum pier diameter of 12 inches and a minimum pier length of 20 feet are recommended. A maximum pier length to diameter ratio of 25 is also recommended.

2) Piers should be designed using an allowable skin friction value of 900 psf for the portion of the pier penetrating the natural clays. The upper 5 feet of penetration should be neglected in the skin friction calculations. A drill rig of sufficient size, type and operating condition should be used so bottom of the piers can be cleaned out properly and minimum length requirements can be met. If

bottom of piers are properly cleaned and approved by an engineer from this office, then an allowable end bearing pressure of 4,000 psf for the clays may be used in the design.

3) Piers should be reinforced their full length with at least one #5 reinforcing rod for each 16 inches of pier perimeter.

4) Piers should be properly cleaned and dewatered prior to steel and concrete placement. If groundwater is encountered, casing and dewatering equipment may be required to reduce water infiltration and caving in the piers constructed at this site. The concrete should not be placed in more than 3 inches of water unless the tremie of pump method are used.

5) A 4-inch void should be provided beneath grade beams to prevent swelling soils from exerting uplift forces on grade beams and to concentrate pier loadings. A void should also be provided beneath necessary pier caps.

6) We strongly recommend that at least one test hole or test pier be drilled at the building site prior to starting the pier drilling operations. The test holes/piers should be drilled to evaluate the deeper subsoil/bedrock conditions and verify the recommendations given above.

7) A representative of NWCC must observe the test hole and pier drilling operations.

Alternate Foundation Recommendations: If the owner is aware of the risks associated with placing shallow foundations on expansive soils and can tolerate and/or design for differential movements that could result if the natural clays become wetted and swell, the structure may be supported by spread footings founded on undisturbed natural clays.

The design and construction details presented below should be observed if a shallow foundation system is opted for. The precautions and recommendations itemized below will not prevent movement of the foundations if underlying clays become wetted and swell. However, they should reduce amount of differential movement beneath the foundation system. Differential movements on the order of 1 to 3 inches could still occur if clays undergo moisture changes. The owner must be willing to accept the risk of foundation movement associated with placing shallow foundations on expansive soils.

1) Footings placed on the natural clays should be designed using an allowable soil bearing pressure of 4,000 psf. Footings should also be designed using a minimum dead load pressure of at least 1,000 psf.

2) Footings or pad sizes should be computed using the above soil pressures and placed on the natural clays encountered below the topsoil and organic materials.

3) Any topsoil and organic materials or soft natural clays found beneath the footings when excavations are opened should be removed and footings extended down to competent natural clays prior to concrete placement. Footings may have to be narrow or interrupted to maintain the minimum dead load. Foundation design should be closely checked to assure that it distributes loads per the allowable pressures given.

4) Foundation walls should be designed and reinforced to span an unsupported distance of 10 feet or the length between pads, whichever is greater.

5) Footings or pads should be placed well enough below final backfill grades to protect them from frost heave. Forty-eight (48) inches is typical for this location considering normal snow cover and other winter factors.

6) Based on experience, NWCC estimates total settlement for footings and pads designed and constructed as discussed in this section will be approximately 1 inch. Additional bearing capacity values along with the associated settlements are presented in Figure #5.

7) NWCC must be retained by the client to observe the foundation excavations when they are near completion to identify bearing soils and confirm the recommendations in this report.

Floor Slabs: NWCC has assumed the lower levels of the residence and attached garage will be constructed with concrete slab-on-grade floor systems, placed from 0 to 8 feet below the existing ground surface. On-site soils, with the exception of the topsoil and organic materials, are capable of supporting slab-on-grade construction. However, floor slabs present a very difficult problem where swelling materials are present near floor slab elevation because sufficient dead load cannot be imposed on them to resist the uplift pressure generated when the materials are wetted and expand. Based on the moisture-volume change characteristics of the natural clays encountered at this site, NWCC believes slab-on-grade construction may be used, provided the risk of distress resulting from slab movement is recognized and special design precautions are followed.

The following measures must be taken to reduce damage, which could result from movement should the underslab clays be subjected to moisture changes.

1) Floor slabs must be separated from all bearing walls; columns and their foundation supports with a positive slip joint. NWCC recommends the use of ½-inch thick cellotex or impregnated felt.

2) Interior non-bearing partition walls resting on the floor slabs must be provided with a slip joint, preferably at the bottom, so in the event the floor slab moves this movement is not transmitted to the upper structure. This detail is also important for wallboard and doorframes and is shown in Figure #6.

3) A minimum 6-inch gravel layer must be provided beneath all floor slabs to act as a capillary break and to help distribute pressures. Prior to placing the gravel, excavation should be shaped so that if water does get under the slab, it will flow to the low point of the excavation. In addition, all of the topsoil and organic materials should be removed prior to placement of the underslab gravels or new structural fill materials.

4) Floor slabs must be provided with control joints placed a maximum of 10 to 12 feet on center in each direction, depending on slab configuration to help control shrinkage cracking. Locations of the joints should be carefully checked to assure that natural, unavoidable cracking will be controlled. Depth of the control joints should be a minimum of ¼ the thickness of the slab.

5) Underslab soils must be kept as close as possible to their in-situ moisture content. Excessive wetting or drying of these soils prior to placement of floor slab could result in differential movement after slabs are constructed.

6) It has been NWCC's experience that the risk of floor slab movement can be reduced by removing at least 3 feet of the expansive materials and replacing them with a well compacted, non-expansive fill. If this is done or if fills are required to bring underslab areas to the desired grade, the fill should consist of non-expansive, granular materials. Fill should be uniformly placed and compacted in 6 to 8 inch lifts to at least 95% of the maximum standard Proctor density at or near the optimum moisture content, as determined by ASTM D-698.

Following the above precautions and recommendations will not prevent floor slab movement in the event the clays beneath the floor slabs undergo moisture changes. However, they should reduce the amount of damage if such movement occurs. The only way to eliminate the risk of all floor slab movement is to construct a structural floor over a well-vented crawl space or void form materials.

Underdrain System: Any floor levels or crawl space areas constructed below the existing or finished ground surfaces and the foundations should be protected by underdrain systems to help reduce the problems associated with surface and subsurface drainage during high runoff periods.

Localized perched water or runoff can infiltrate the lower levels of the structures at the foundation levels. This water can be one of the primary causes of differential foundation and slab movement. Especially, when expansive soils are encountered. Excessive moisture in crawl space areas or lower level can also lead to rotting and mildewing of wooden structural members and the formation of mold and mold spores. Formation of mold and mold spores could have detrimental effects on the air quality in these areas, which in turn can lead to potential adverse health effects.

Drains should be located around entire perimeter of the lower levels and be placed and at least 12 inches below any floor slab or crawl space levels and at least 6 inches below the foundation voids and bottom of the foundation walls or footings. NWCC recommends the use of perforated PVC pipe for the drainpipe, which meets or exceeds ASTM D-3034/SDR 35 requirements, to minimize potential for pipe crushing

during backfill operations. Holes in the drainpipe should be oriented down between 4 o'clock and 8 o'clock to promote rapid runoff of water. Drainpipe should be surrounded with at least 12 inches of free draining gravel and should be protected from contamination by a filter covering of Mirafi 140N subsurface drainage fabric or an equivalent product. Drains should have a minimum slope of 1/8 inch per foot and be daylighted at positive outfalls protected from freezing, or be led to sumps from which water can be pumped. The use of interior laterals, multiple daylights or sumps will likely be required for the proposed structure. Caution should be taken when backfilling so as not to damage or disturb the installed underdrain. NWCC recommends the drainage system include a cleanout every 100 feet, be protected against intrusion by animals at outfalls and be tested prior to backfilling. NWCC also recommends the client retain our firm to observe the underdrain systems during construction to verify that they are being installed in accordance with recommendations provided in this report and observe a flow test prior to backfilling the system.

In addition, NWCC recommends an impervious barrier be constructed to keep water from infiltrating through the voided areas and/or under footings and/or foundation walls. Barrier should be constructed of an impervious material, which is approved by this office and placed below the perimeter drain and up against the sides of the foundation walls. A typical perimeter/underdrain detail is shown in Figure #7.

Placement of and impervious membrane and/or properly compacted clays in crawl space areas to the top of the footings or at least 12 inches above the top of the foundation voids or bottom of the foundation walls should help reduce the moisture problems in these areas.

Foundation Walls and Retaining Structures: Foundation walls and retaining structures, which are laterally supported and can be expected to undergo only a moderate amount of deflection, may be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of 45 pcf for imported, free draining granular backfill and 60 pcf for on-site soils.

Cantilevered retaining structures at the site can be expected to deflect sufficiently to mobilize full active earth pressure condition. Therefore, cantilevered structures may be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of 35 pcf for imported, free draining granular backfill and 50 pcf for on-site soils.

Foundation walls and retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent buildings, traffic and construction materials. An upward sloping backfill and/or natural slope will also significantly increase earth pressures on foundation walls and retaining structures and the structural engineer should carefully evaluate these additional lateral loads when designing foundation and retaining walls.

Lateral resistance of retaining wall foundations placed on undisturbed natural soils at the site will be a combination of sliding resistance of the footings on the foundation materials and passive pressure against the sides of footings. Sliding friction can be taken as 0.4 times the vertical dead load. Passive pressure against the sides of the footing can be calculated using an equivalent fluid pressure of 250 pcf. Fill placed against the sides of footings to resist lateral loads should be compacted to at least 100% of the maximum standard Proctor density and near the optimum moisture content.

NWCC recommends imported granular soils for backfilling foundation walls and retaining structures because their use results in lower lateral earth pressures. Imported granular materials should be placed to within 2 to 3 feet of the ground surface. Imported granular soils should be free draining and have less than 5 percent passing the No. 200 sieve. Granular soils placed behind foundation and retaining walls should be sloped from the base of the wall at an angle of at least 45 degrees from the vertical. The upper 2 to 3 feet of fill should be a relatively impervious soil or pavement structure to prevent surface water infiltration into the backfill.

Wall backfill should be carefully placed in uniform lifts and compacted to at least 95 percent of the maximum standard Proctor density and near the optimum moisture content. Care should be taken not to overcompact backfill since this could cause excessive lateral pressure on the walls. Some settlement of deep foundation wall backfill materials will occur even if materials are placed correctly.

Surface Drainage: Proper surface drainage at this site is of paramount importance for minimizing infiltration of surface drainage into wall backfill and bearing soils, which could result in increased wall pressures, differential foundation and slab movement. The following drainage precautions should be observed during construction and at all times after the structures have been completed:

1) Ground surface surrounding structures should be sloped (minimum of 1.0 inch per foot) to drain away from structures in all directions to a minimum of 10 feet. Ponding must be avoided. If necessary, raising top of foundation walls to achieve a better surface grade is advisable.

2) Non-structural backfill placed around structures should be compacted to at least 95% of the maximum standard Proctor density at or near the optimum moisture content in order to minimize future settlement of the fill. Backfill should be placed immediately after the braced foundation walls are able to structurally support the fill. Puddling or sluicing must be avoided.

3) Top 2 to 3 feet of soil placed within 10 feet of foundations should be impervious in nature to minimize infiltration of surface water into wall backfill.

4) Roof downspouts and drains should discharge well beyond the limits of all backfill. Roof overhangs, which project two to three feet beyond foundation walls, should be considered if gutters are not used.

5) Landscaping, which requires excessive watering and lawn sprinkler heads, should be located a minimum of 10 feet from the foundation walls of the structures.

6) Plastic membranes should not be used to cover ground surface adjacent to foundation walls.

Site Grading: The slopes on which the proposed structures, driveway and On-site Wastewater Treatment Systems (OWTS) are proposed could become unstable as a result of the proposed construction. Design and construction considerations must be addressed to avoid and/or limit the potential for slope instability at the

site. Although a detailed slope stability analysis is beyond the scope of this report, some general guidelines are provided below for initial planning and design. Our office should review the construction plans as they are being prepared so that we can verify that our recommendations are being properly incorporated into the plans.

1) Slopes greater than 25 percent should be avoided whenever possible for construction of permanent roads, structures and OWTS.

2) Temporary cuts for foundation construction should be constructed to OSHA standards for temporary excavations. Permanent, unretained cuts for driveways or building sites should be kept as shallow as possible and should not exceed a 3(Horizontal) to 1(Vertical) configuration for the topsoil and organic materials and a 2(Horizontal) to 1(Vertical) configuration for the clays. We recommend these cuts be limited to 10 feet in height or less unless stable bedrock is encountered. The risk of slope instability will be significantly increased if groundwater seepage is encountered in the cuts. NWCC office should be notified immediately to evaluate the site if seepage is encountered or deeper cuts are planned and determine if additional investigations and/or stabilization measures are warranted.

3) Excavating during periods of low runoff at the site can reduce potential slope instability during excavation. Excavations should not be attempted during the spring or early summer when seasonal runoff and groundwater levels are typically high.

4) Fills up to 15 feet in height can be constructed at the site and should be constructed to a 2(Horizontal) to 1(Vertical) or flatter configuration. The fill areas should be prepared by stripping any existing fill materials and topsoil and organics, scarification and compaction to at least 95% of the maximum standard Proctor density and within 2% of optimum moisture content as determined by ASTM D698. The fills should be properly benched/keyed into the natural hillsides after the existing fill materials, natural topsoil and organic materials, silts and clays have been removed. The fill materials should consist of the on-site soils (exclusive of topsoil, organics or silts) and be uniformly placed and compacted in 6 to 8 inch loose lifts to the minimum density value and moisture content range indicated above.

5) Proper surface drainage features should be provided around all permanent cuts and fills and steep natural slopes to direct surface runoff away from these areas. Cuts, fills and other stripped areas should be protected against erosion by revegetation or other methods. Areas of concentrated drainage should be avoided and may require the use of riprap for erosion control.

6) A qualified engineer experienced in this area should prepare site grading and drainage plans. The contractor must provide a construction sequencing plan for excavation, wall construction and bracing and backfilling for the steeper and more sensitive portions of the site prior to starting the excavations or construction.

Limitations: The recommendations provided in this report are based on the soils encountered at this site and NWCC's understanding of the proposed construction. NWCC believes this information gives a high degree of reliability for anticipating behavior of the proposed structures; however, NWCC's recommendations are professional opinions and cannot control nature, nor can they assure the soils profiles beneath those or adjacent to those observed. No warranties expressed or implied are given on the content of this report.

Swelling soils were encountered at this site. These soils are stable at their natural moisture content but can shrink or swell with changes in moisture. The behavior of swelling soils is not fully understood. The swell or consolidation potential of any particular site can change erratically both in lateral and vertical extent. Moisture changes also occur erratically, resulting in conditions, which cannot always be predicted. Recommendations presented in this report are based on the current state of the art for foundations and floor slabs on swelling soils. As noted previously, the owner must be made aware there is a risk in construction on these types of soil. Performance of the structure will depend on following the recommendations and in proper maintenance after construction is complete. As water is the main cause for volume change in the soils, it is necessary that the changes in moisture content be kept to a minimum. This requires judicious irrigation and providing positive surface drainage away from the structures. Any distress noted in the structures should be brought to the attention of NWCC.

This report is based on the investigation at the described site and on specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Therefore, NWCC strongly recommends that our firm be contacted prior to finalizing the construction plans so that we can verify our recommendations are being properly incorporated into the construction plans.

Man-made or natural changes in the conditions of a property can also occur over a period of time. In addition, changes in requirements due to state of the art knowledge and/or legislation do from time to time occur. As a result, the findings of this report may become invalid due to these changes. Therefore, this report is subject to review and not considered valid after a period of 3 years or if conditions as stated above are altered. It is the responsibility of the owner or his representative to ensure that the information in this report is incorporated into the plans and/or specifications and construction of the project. If you have any questions regarding this report or if NWCC may be of further service, please do not hesitate to contact us.

Sincerely,
NWCC, INC.

Timothy S. Travis, P.E.
Senior Project Engineer

COLORADO LICENSED
BRIAN D. LEN
25750
4/9/2021
PROFESSIONAL ENGINEER

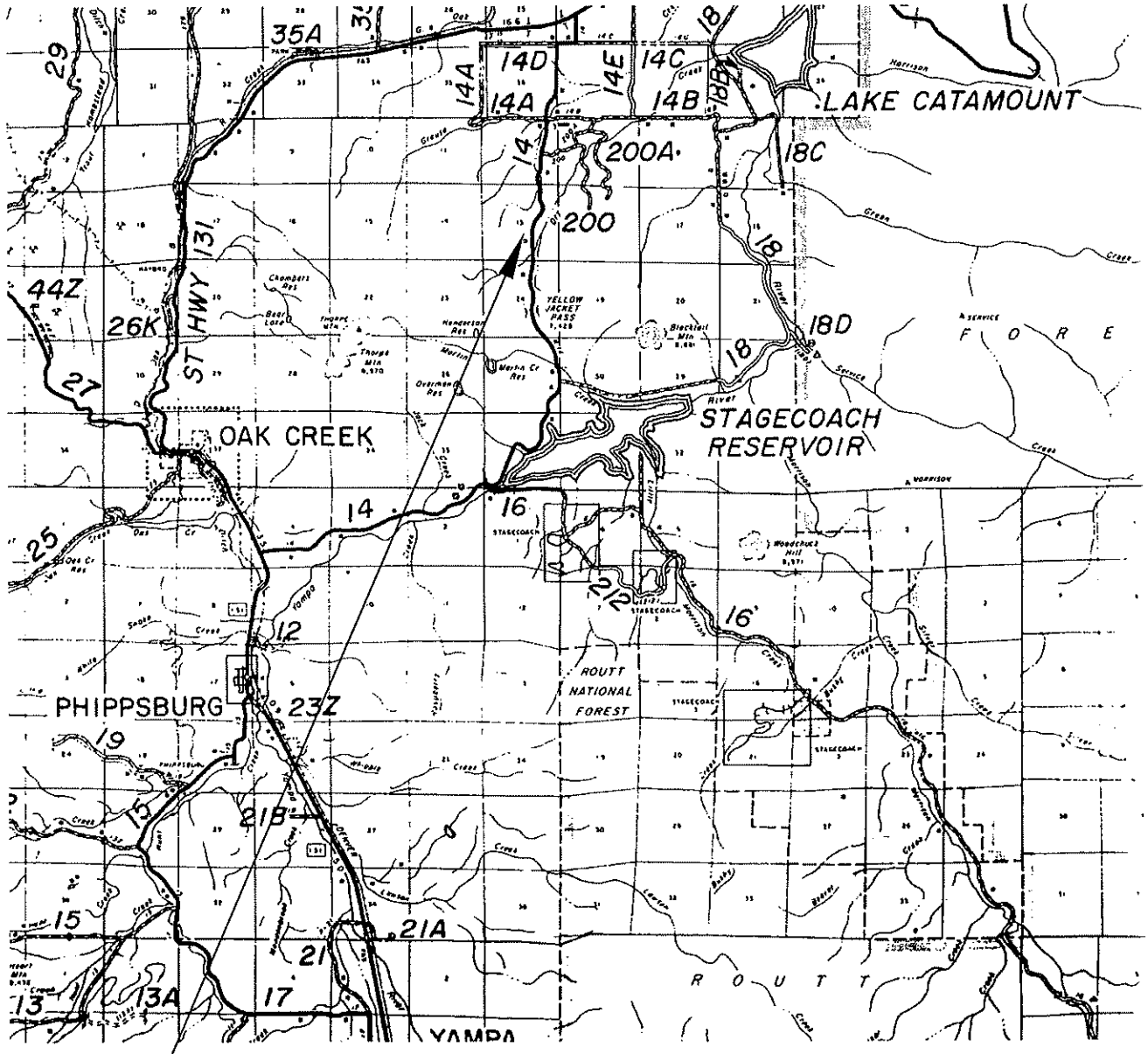
Reviewed by Brian D. Len, P.E.
Principal Engineer

RCRBD Record Set
T.A.

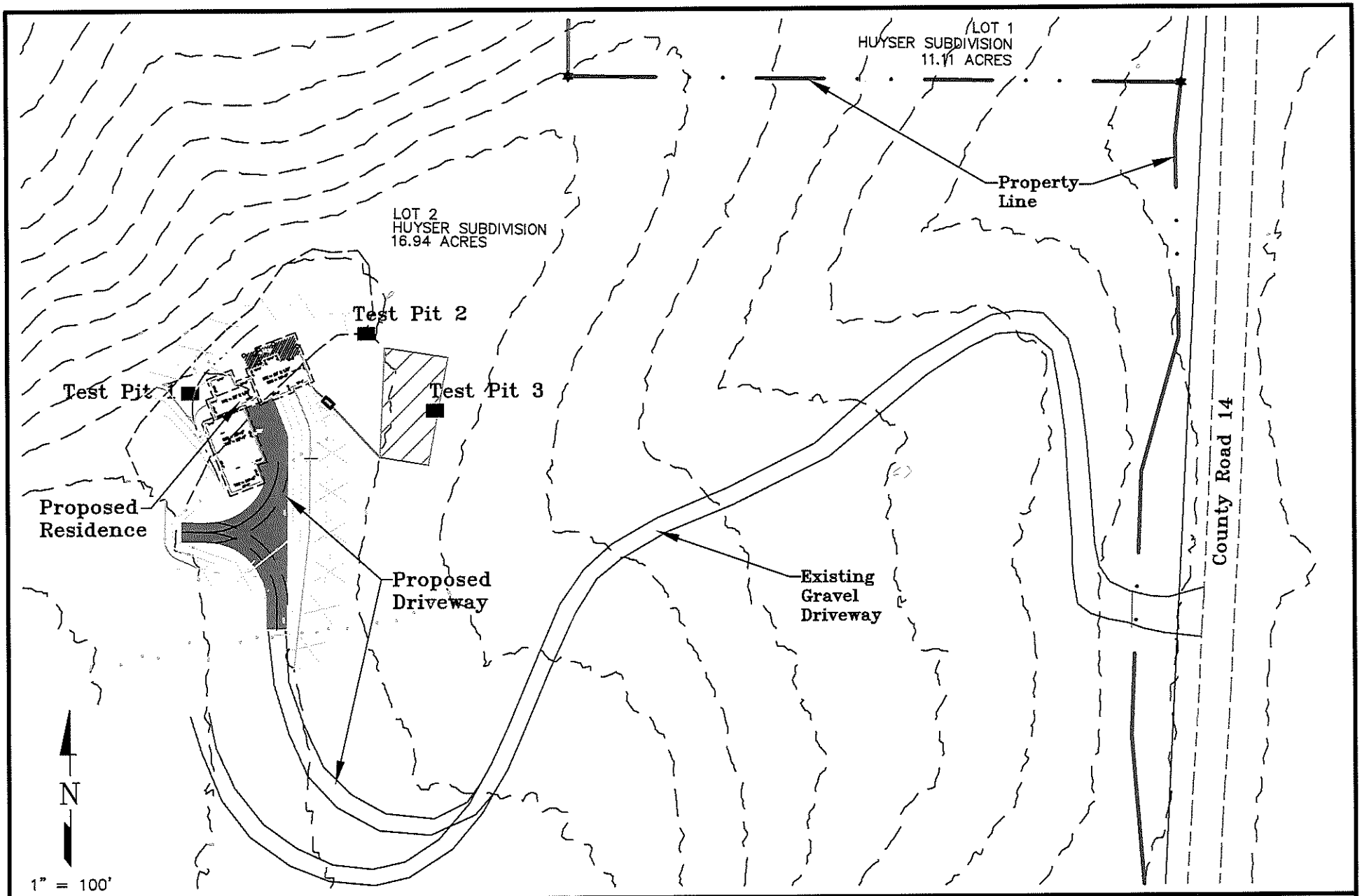
06/23/2021

N

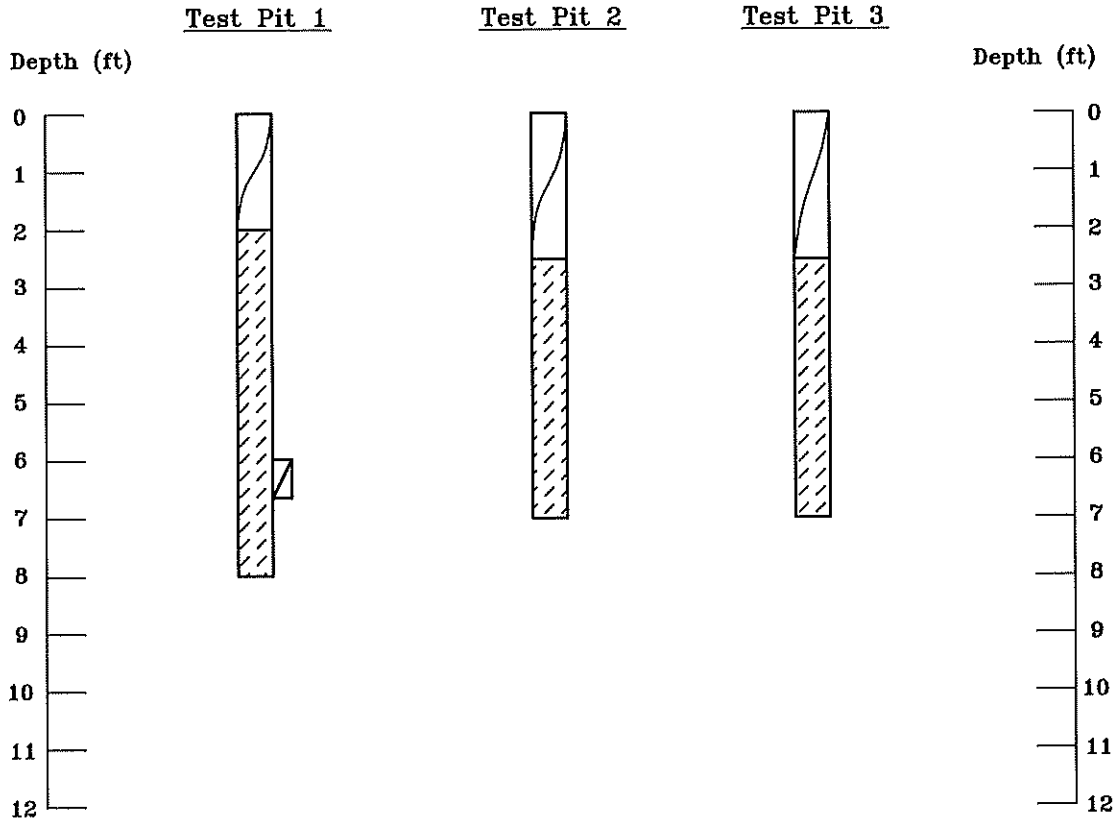
NOT TO SCALE



Title: VICINITY MAP		**Date:** 4/9/2021	NWCC Northwest Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Proposed Huyser Residence		**Job No.** 21-12096	(970)879-7888 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location: Lot 2, Huyser Subdivision, Routt County, Colorado		**Figure** #1	



Title: SITE PLAN–LOCATION OF TEST PITS	Date: 4/9/2021	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Proposed Huyser Residence	Job No. 21-12096	(970)879-7888 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
LOCATION: Lot 2, Huyser Subdivision, Routt County, Colorado	Figure #2	



LEGEND:

TOPSOIL AND ORGANICS: Silty to slightly clayey, fine-grained, soft, moist and dark brown to black in color.

CLAYS: Slightly sandy to sandy, fine-grained, moderately plastic, stiff to very stiff, slightly moist to moist and brown in color.

Hand Drive Sample-California Liner.

NOTES:

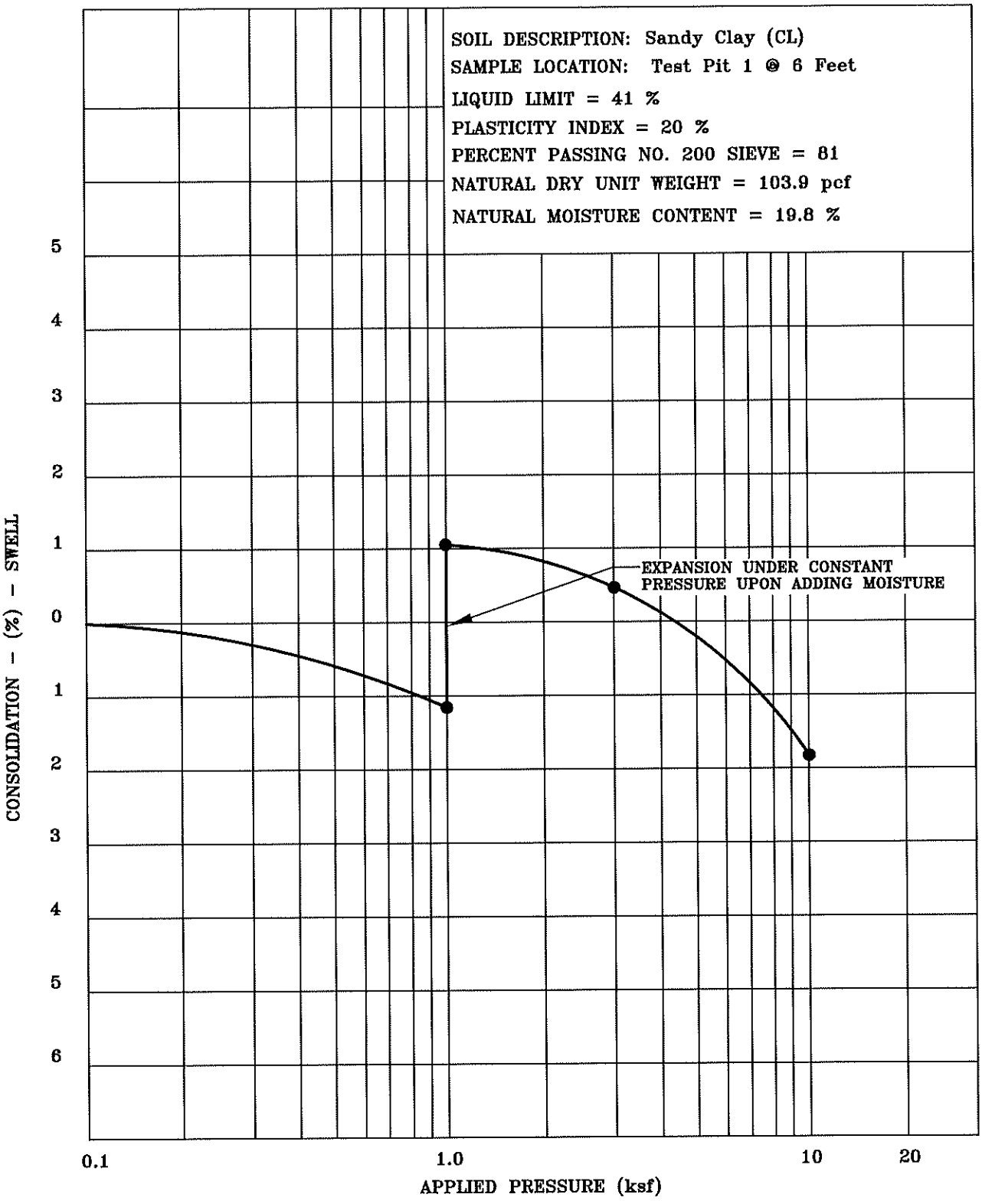
1) Test pits were excavated on March 29, 2021 with a mini-trackhoe.

2) Test pit locations were determined by pacing from topographic features at the site.

3) Elevations of the test pits were not measured and the logs are drawn to the depths investigated.

4) The lines between materials shown on the test pit logs represent the approximate boundaries between material types and transitions may be gradual.

Title: LOGS, LEGEND AND NOTES		Date: 4/9/2021	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Proposed Huyser Residence	Job No. 21-12096	(970)879-7688 - Fax (970)879-7691 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location:	Lot 2, Huyser Subdivision, Routt County, Colorado	Figure #3	



Title: SWELL–CONSOLIDATION TEST RESULTS		Date: 4/9/2021	
Job Name: Proposed Huyser Residence		Job No. 21-12096	
Location: Lot 2, Huyser Subdivision, Routt County, Colorado		Figure #4	

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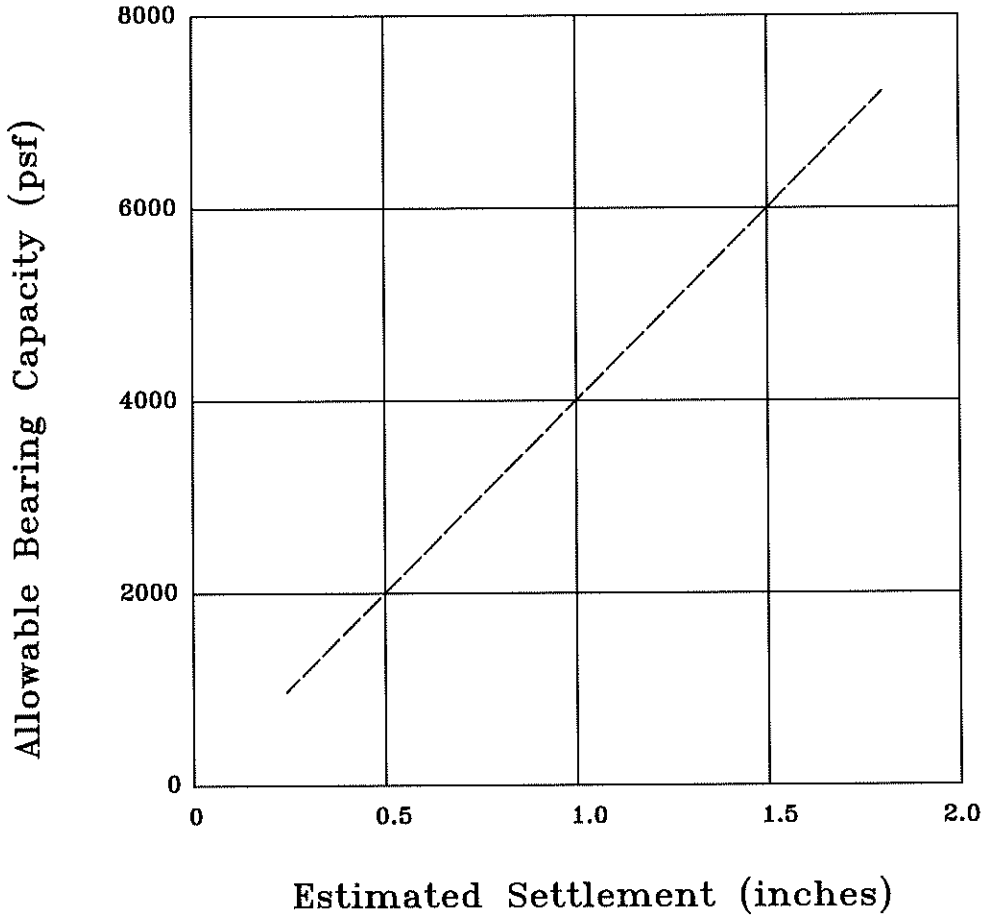
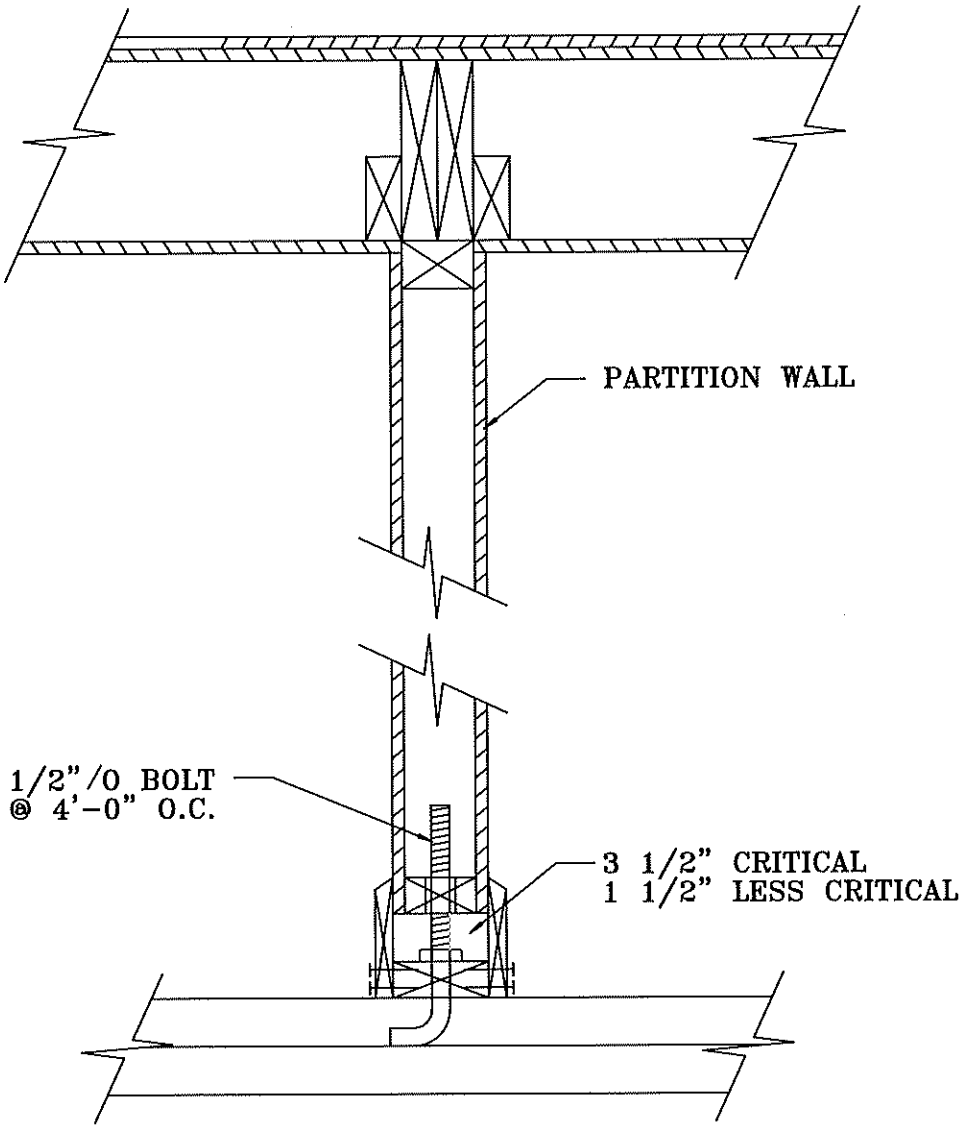
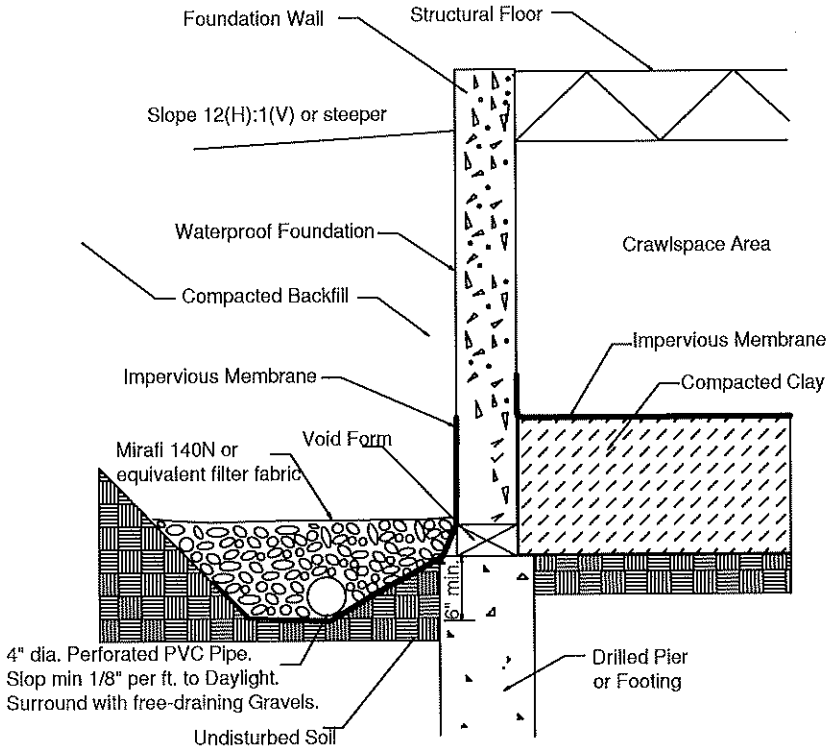


Note: These values are based on footing widths of 1 to 4 feet. If the footing width is to be greater than 4 feet in width, then we should be notified to re-evaluate these recommendations.

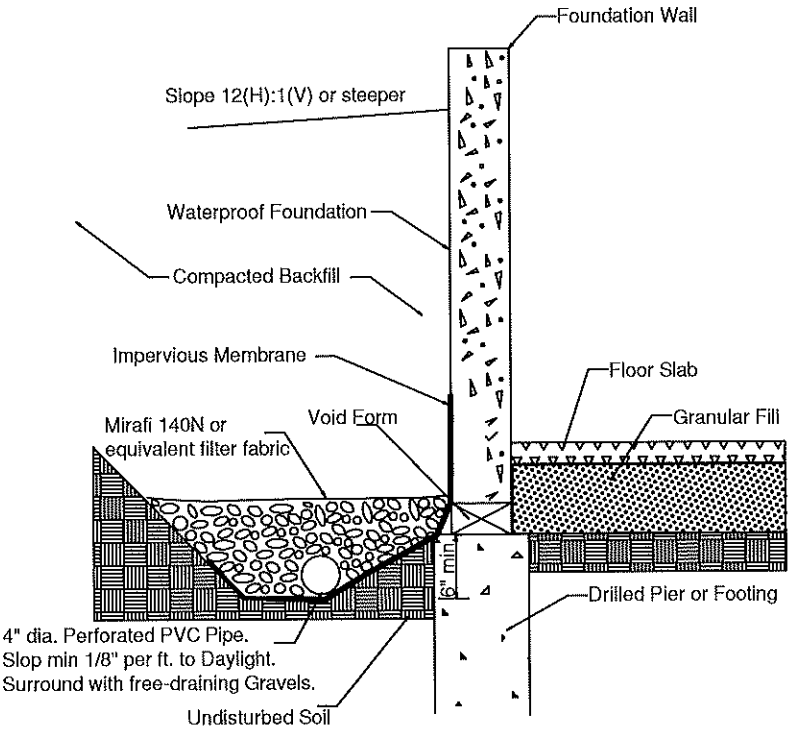
Title: BEARING CAPACITY CHART		Date: 4/9/2021	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name:	Proposed Huyser Residence	Job No. 21-12096	(970)879-7888 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location:	Lot 2, Huyser Subdivision, Routt County, Colorado	Figure #5	



Title: HUNG PARTITION WALL DETAIL		Date: 4/9/2021	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing (970)879-7888 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name: Proposed Huyser Residence		Job No. 21-12096	
Location: Lot 2, Huyser Subdivision, Routt County, Colorado		Figure #6	



Crawlspace Area



Lower Level with
Floor Slab

Title: PERIMETER/UNDERDRAIN DETAIL		**Date:** 4/9/2021	NWCC North West Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing
Job Name: Proposed Huyser Residence		**Job No.** 21-12096	(970)879-7888 - Fax (970)879-7891 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Location: Lot 2, Huyser Subdivision, Routt County, Colorado		**Figure** #7	

NWCC, Inc.

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE LOCATION		NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	ATTERBERG LIMITS		GRADATION		PERCENT PASSING No. 200 SIEVE	UNCONFINED COMPRESSIVE STRENGTH (psf)	SOIL or BEDROCK DESCRIPTION	UNIFIED SOIL CLASS.
TEST PIT	DEPTH (feet)			LIQUID LIMIT (%)	PLASTICITY INDEX (%)	GRAVEL (%)	SAND (%)				
1	6	19.8	103.9	41	20	0	19	81		Sandy Clay	CL

JOB NUMBER: 21-12096