

Colby Company, LLC
47A York Street
Portland, ME 04101
(207) 553-7753 Office

Structural Engineering
Mechanical Engineering
Electrical Engineering
Civil Engineering

December 5, 2012

Mark Dromgoole
Director of Facilities Management
Portland Housing Authority
117 Anderson St
Portland, ME 04101

Re: 124 Riverton Drive Structural assessment of fire damage

Dear Mark,

The purpose of this report is to relay observations and provide recommendations regarding the damage incurred as a result of the fire at 124 Riverton Drive.

Project Background

A fire damaged the roof structure of the housing unit at 124 Riverton Drive. The majority of the damage occurred on the roof trusses and sheathing. The trusses are prefabricated steel plate-connected trusses comprised of 2x4 chord and web members, and the roof sheathing appeared to be ½" plywood applied to the top chord of the roof trusses.

Impact of Fire Damage

The required thickness of the sheathing to support the code-mandated loads is 7/16". With the assumption that the existing sheathing is ½", the panels can remain in place if the charred depth does not exceed 1/16".

Initial observation indicated that one or two rows of panels at the south corner of the building had charring exceeding this depth. The damaged area measures approximately 8' wide by 16' long and will require replacement of the panels when the roofing is replaced. This estimate of extent of damage should be verified in the field.

With respect to the roof trusses, there was some charring present on three trusses near the south corner of the building, in the same area where the sheathing was most noticeably damaged. Though in some places the charring appears extensive, the areas surveyed did not exhibit char depths exceeding 1/8". There were areas of more substantial section loss (see photos) and these members require repair. If there are additional trusses with section loss deeper than ½", the same repair shall be applied.

Recommendations

All damaged areas should have any char or soot removed. The roof sheathing which has lost more than 1/16" of thickness to char should be replaced in kind. We estimated approximately 4 sheets of plywood would be required for this repair work.

The suggested repair for the estimated three joists requiring action is to sister a 2x4 member to the damaged members (top and bottom chords as well as the web member closest to the southeast wall of the building). These 2x4 members shall be attached to the existing truss with

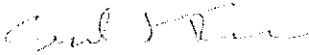
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10d nails or #8 wood screws at 4" centers in two equally spaced rows, continuing at least 2'-0" beyond the charred region or to the bearing extent of the truss member (see sketch).

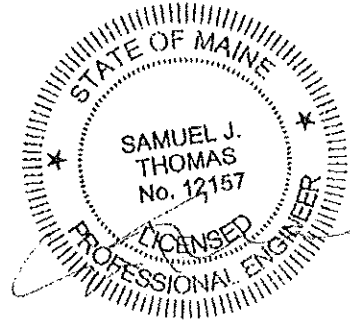
Thank you for the opportunity to assist Portland Housing Authority with this assessment. Please let us know if we can be of further assistance.

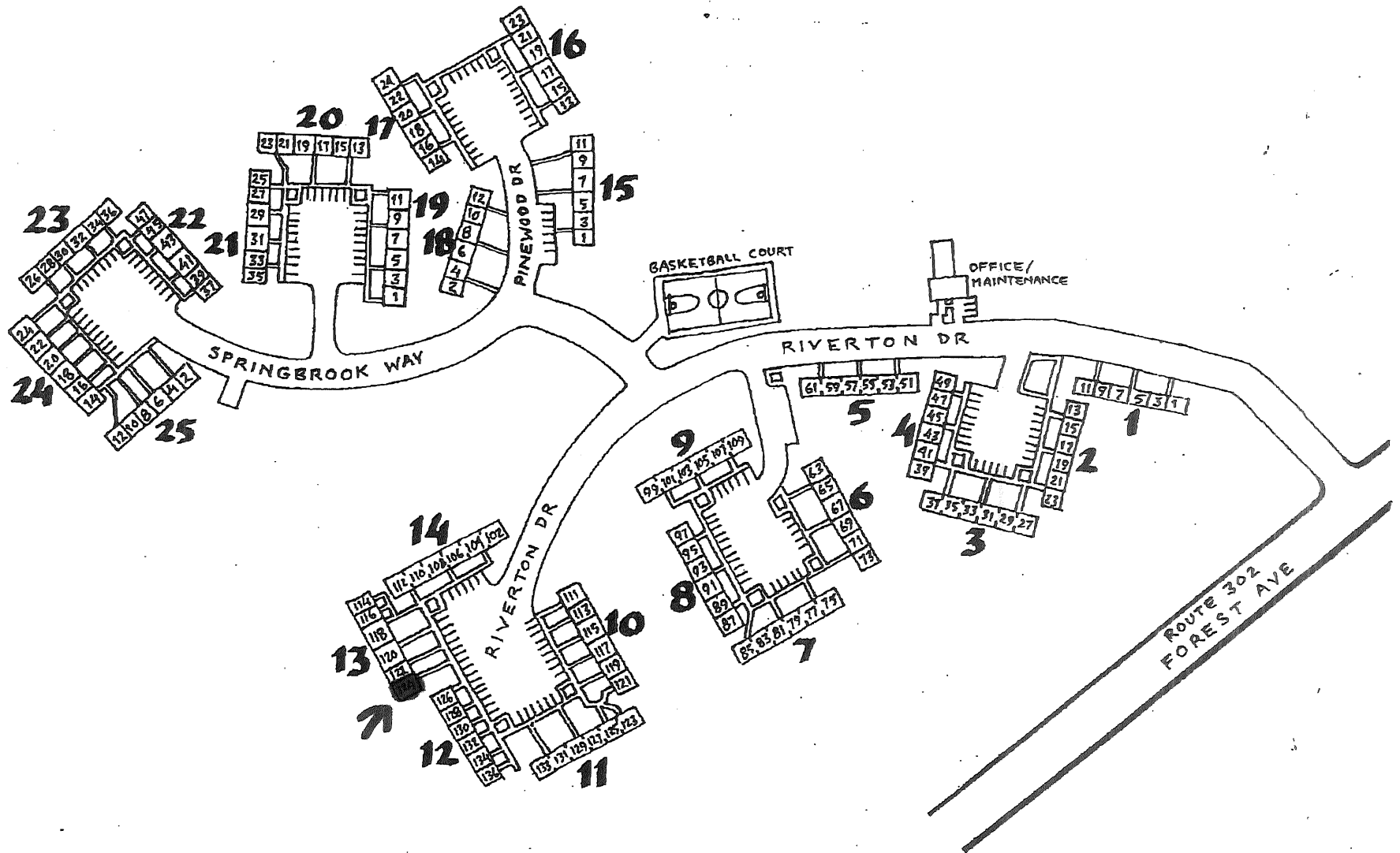
Sincerely,



Sam Thomas, PE
Structural Engineer

Cc Calen Colby, PE – ColbyCo



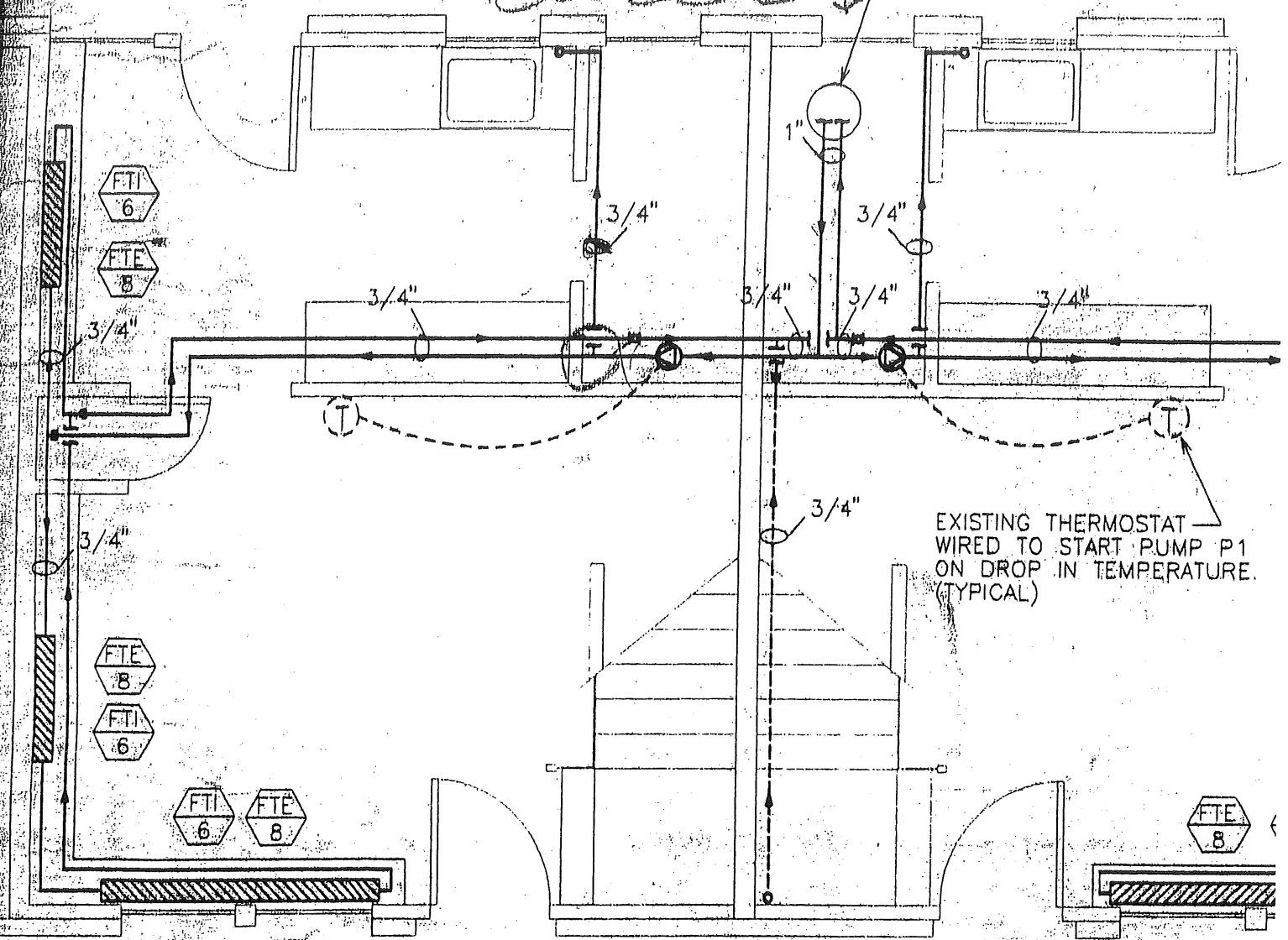


RIVERTON PARK ME 3-8

SIDEWALK AREA = 24,600
 PARKING AREA = 53,800 sq ft

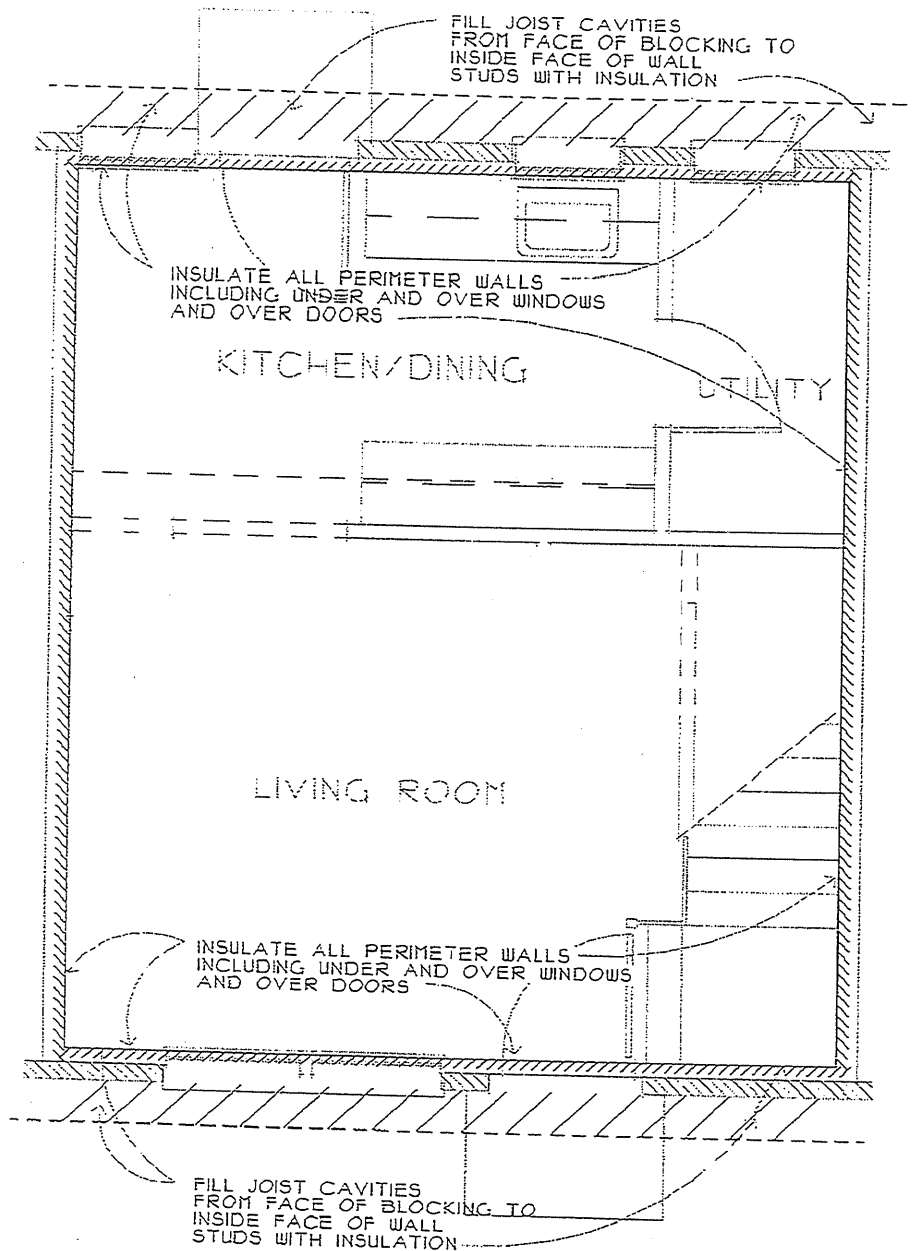
NOTE: WINDOWS AT ALL
 BELLER ROOMS TO BE
 FIXED GLAZED WITH 3
 TAMPERS PROOF BORING
 AND MEETING RALLIES ETC

SEE DETAIL $\frac{4}{M3}$



EXISTING THERMOSTAT
 WIRED TO START PUMP P1
 ON DROP IN TEMPERATURE.
 (TYPICAL)

2 BEDROOM UNIT - FIRST FLOOR



INSTALL 3 1/2" FIBERGLASS BATT INSULATION IN ALL EXTERIOR AND PARTY WALLS
 INSTALL 4 MILL POLYVAPOR BARRIER OVER INSIDE FACE OF STUDS-TAPE SEAMS AND AROUND ELECTRICAL AND OTHER PENETRATIONS

FILL COMPLETELY WITH FIBERGLASS BAT INSULATION THE SPACE BETWEEN THE CANTILEVERED AREA OVER THE FIRST FLOOR (FRONT AND REAR)

NOTE:

PROVIDE ALTERNATE PRICE FOR DENSE PAK CELLULOSE INSULATION

ALTERNATE INSULATION
 INSTALL DENSE PAK CELLULOSE INSULATION

CELLULOSE INSULATION SHALL BE GREENFIBER, NATURAL FIBER INSULATION OR EQUAL MEETING THE FOLLOWING REQUIREMENTS
 ASTM C1599 - STANDARD SPECIFICATION FOR CELLULOSIC FIBER (WOOD-BASE) LOOSE-FILL THERMAL INSULATION.
 MINIMUM OF 85% RECYCLED PAPER FIBERS

FINAL WALL INSULATION SHOULD BE A MINIMUM R-VALUE OF R-3.8 PER INCH WHEN INSTALLED AT 3.5LBS/FT³ IN A 5.5 CAVITY STUD WALL.

INSTALL STABILIZED BORATE GRADE CELLULOSE INSULATION
 ONLY CELLULOSE INSULATION SHALL BE INSTALLED WITH HANES INSULWEB, OR EQUIVALENT. CUT ONE PIECE OF NETTING FOR EACH WALL SECTION. STRETCH MATERIAL TIGHTLY WITHOUT WRINKLES AND SIDE STAPLE IN ON BOTH SIDES OF FRAMING AT EACH STUD BAY. STAPLES SHOULD BE NO MORE THAN 15 APART.

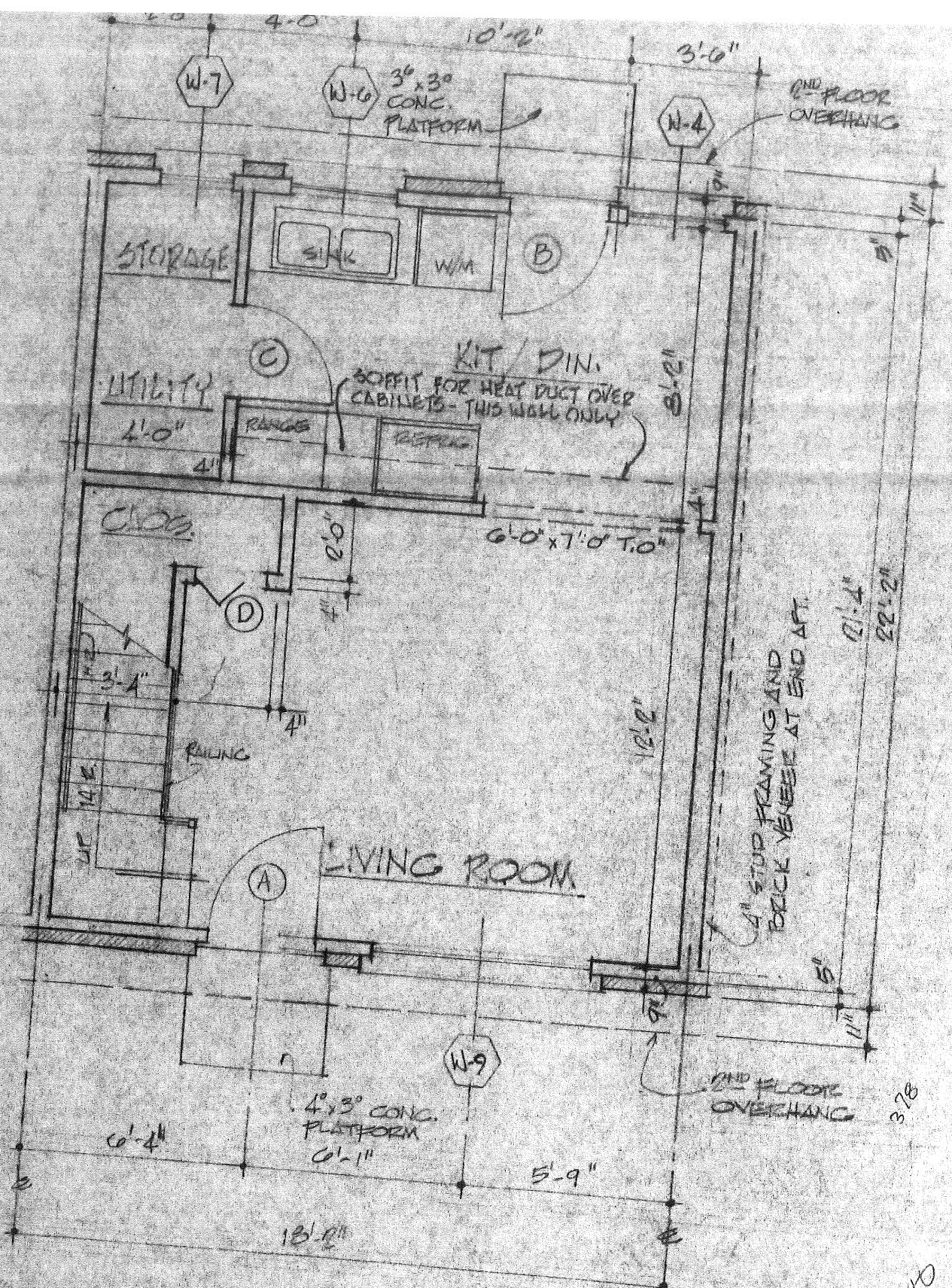
1. CELLULOSE INSULATION SHALL BE DENSE PACKED INTO CAVITIES AT 3.5LBS/FT³. CAVITIES SHALL BE ROLLED WITH A WALL ROLLER TO SMOOTH OUT INSULATION PRIOR TO INSTALLING GYPSUM BOARD. FOLLOW ALL MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS AND ALL STATE AND LOCAL CODES.

CEILING HEIGHT APPROX 8'-0"

2 BEDROOM UNIT - FIRST FLOOR

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

RIVERTON DRIVE



SEE FOR OF L

FIRST FLOOR PLAN

2 BEDROOM APT.

3/78

S/D

Window Schedule

Doors to be 36" x 80"

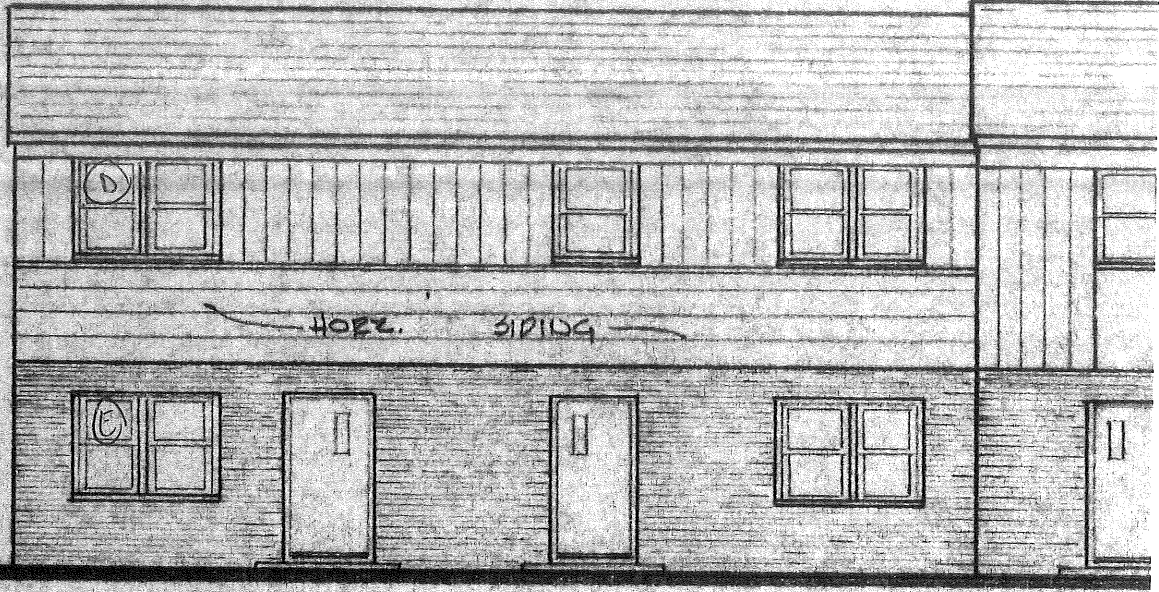
(A) 2'10 1/8" W
x
4'4 7/8" H (X1)

(B) 3'2 1/8" W
x
3'4 7/8" H (X1)

(C) 2'2 1/8" W
x
3'4 7/8" H (X1)

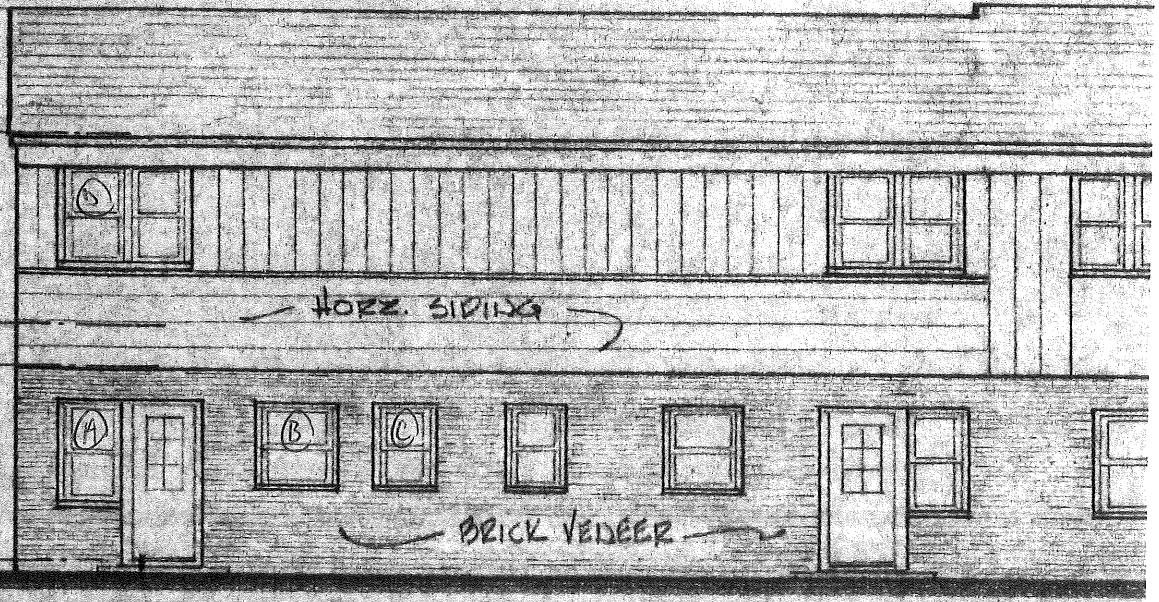
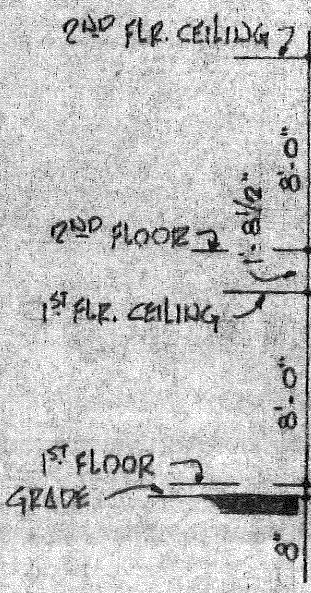
(D) 6'3 7/8" W
x
4'8 7/8" H (X2)

(E) 6'3 7/8" W
x
4'4 7/8" H (X1)



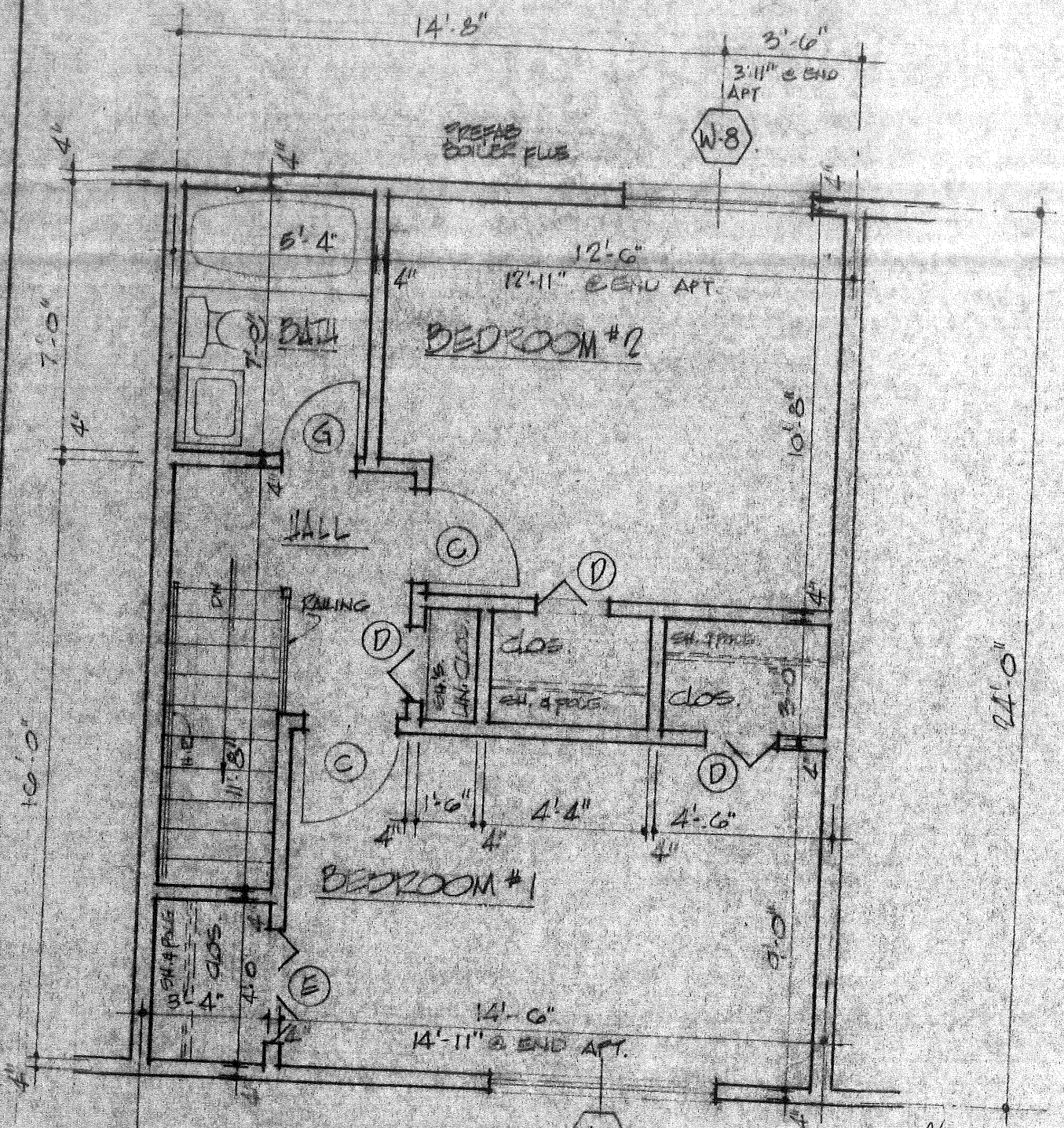
Front

Sea



Rear

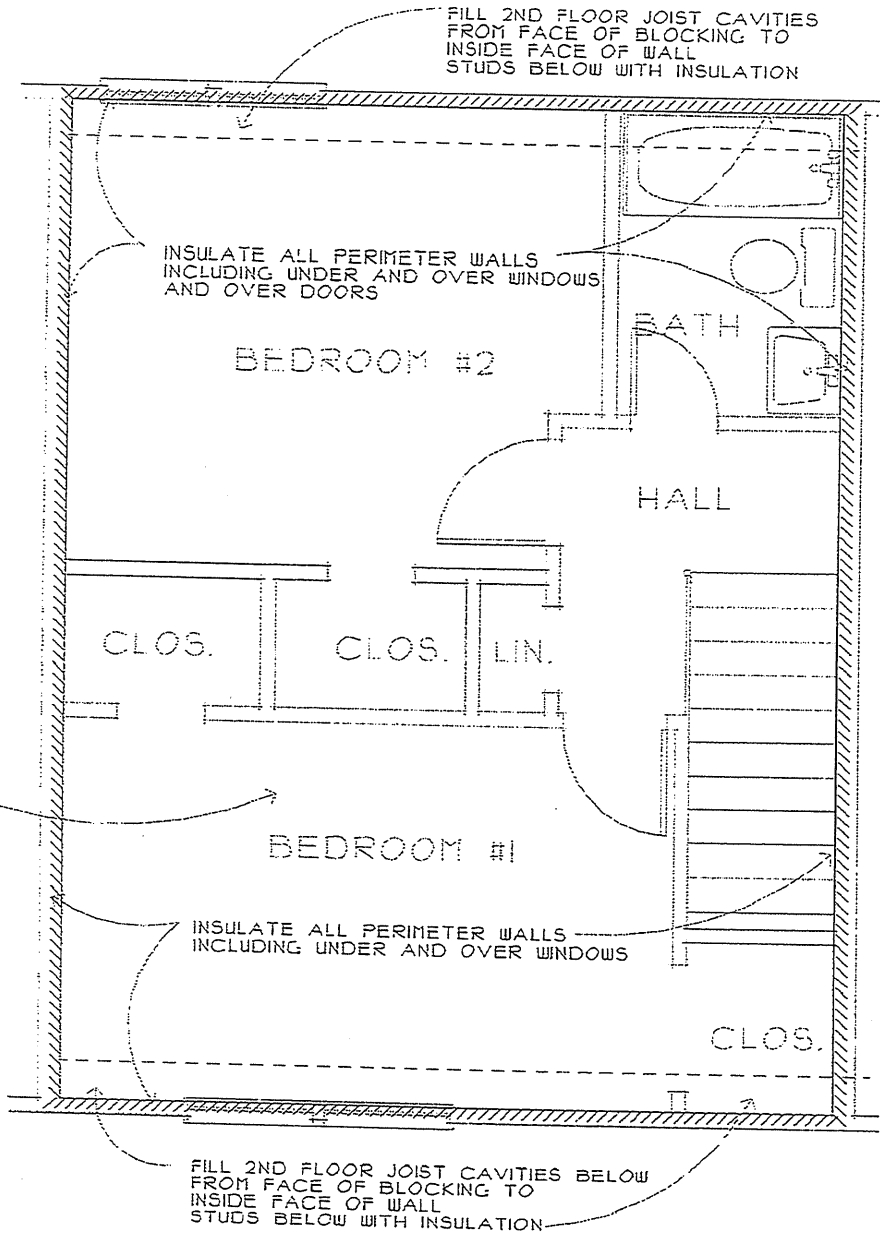
Sea



18'-0" TYP INTERIOR APT.
 18'-7" TYP END APT.
SECOND FLOOR PLAN

2'-8" | 4'-0" | 10'-2" | 2'-6"

ATTIC CEILING INSULATION TO HAVE 5 1/2" PAPER FACED FIBERGLASS BAT PLACED ABOVE STRAPPING. ADD ADDITIONAL BLOWN IN FIBERGLASS INSULATION TO A DEPTH TO ACHIEVE AN R-49 INSULATION VALUE. ADD PRE FORMED FOAM BAFFLES AT BOTH ENDS OF EACH RAFTER BAY TO PROVIDE A CLEAR SPACE OF 2" FOR AIR PASSAGE UNDER THE ROOF SHEATHING. INSTALL CONTINUOUS VINYL SOFFIT VENTS AT ROOF OVERHANG PROVIDE RIDGE VENT-STOP VENT 24" FROM GABLE ENDS OF ROOF OR FROM ADJACENT UNIT.



INSTALL 3 1/2" FIBERGLASS BATT INSULATION IN ALL EXTERIOR AND PARTY WALLS. INSTALL 4 MILL POLYVAPOR BARRIER OVER INSIDE FACE OF STUDS-TAPE SEAMS AND AROUND ELECTRICAL AND OTHER PENETRATIONS.

FILL COMPLETELY WITH FIBERGLASS BAT INSULATION THE SPACE BETWEEN THE CANTILEVERED AREA OVER THE FIRST FLOOR (FRONT AND REAR).

NOTE:
PROVIDE ALTERNATE PRICE FOR DENSE PAK CELLULOSE INSULATION

INSTALL DENSE PAK CELLULOSE INSULATION

CELLULOSE INSULATION SHALL BE GREENFIBER, NATURAL FIBER INSULATION OR EQUAL MEETING THE FOLLOWING REQUIREMENTS:
ASTM C739 - STANDARD SPECIFICATION FOR CELLULOSIC FIBER (WOOD-BASE) LOOSE-FILL THERMAL INSULATION.
MINIMUM OF 85% RECYCLED PAPER FIBERS.

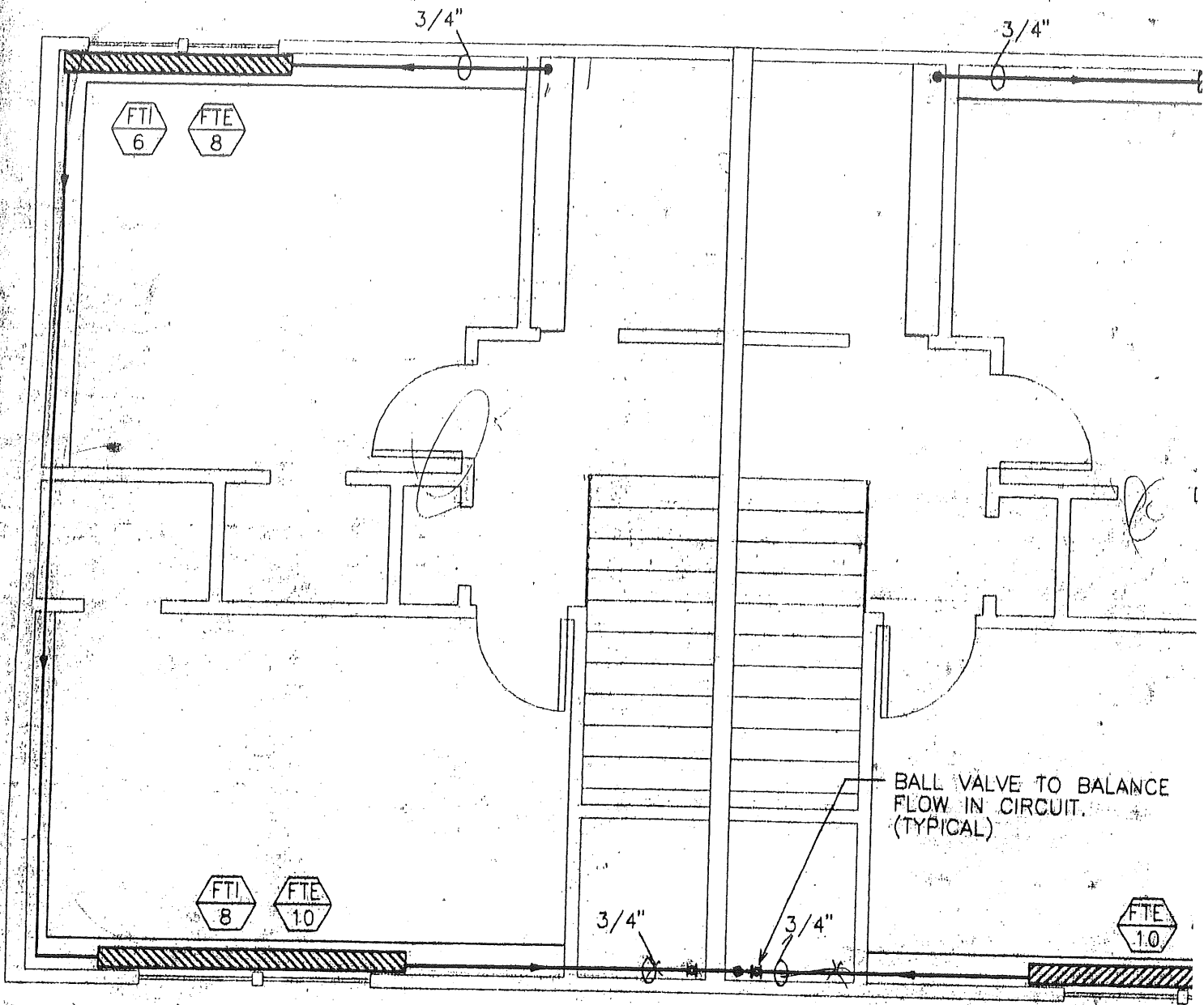
FINAL WALL INSULATION SHOULD BE A MINIMUM R-VALUE OF R-3.8 PER INCH WHEN INSTALLED AT 3.5LBS./FT³ IN A 5.5 CAVITY STUD WALL. INSTALL STABILIZED BORATE GRADE CELLULOSE INSULATION. ONLY CELLULOSE INSULATION SHALL BE INSTALLED WITH HANES INSULWEB, OR EQUIVALENT. CUT ONE PIECE OF NETTING FOR EACH WALL SECTION. STRETCH MATERIAL TIGHTLY WITHOUT WRINKLES AND SIDE STAPLE IN ON BOTH SIDES OF FRAMING AT EACH STUD BAY. STAPLES SHOULD BE NO MORE THAN 15" APART. 1. CELLULOSE INSULATION SHALL BE DENSE PACKED INTO CAVITIES AT 3.5LBS./FT³. CAVITIES SHALL BE ROLLED WITH A WALL ROLLER TO SMOOTH OUT INSULATION PRIOR TO INSTALLING GYPSUM BOARD. FOLLOW ALL MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS AND ALL STATE AND LOCAL CODES.

CEILING HEIGHT APPROX 8'-0"

2 BEDROOM UNIT - SECOND FLOOR

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

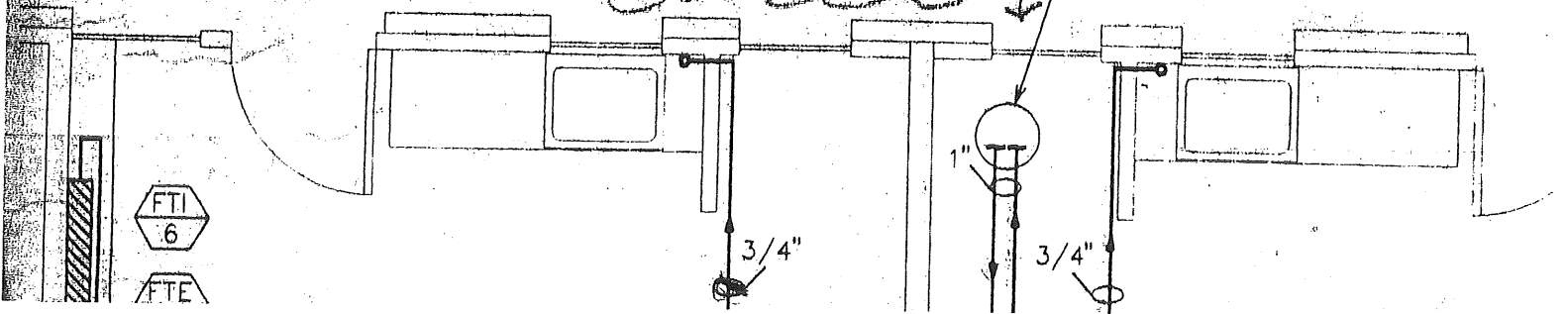
RIVERTON DRIVE

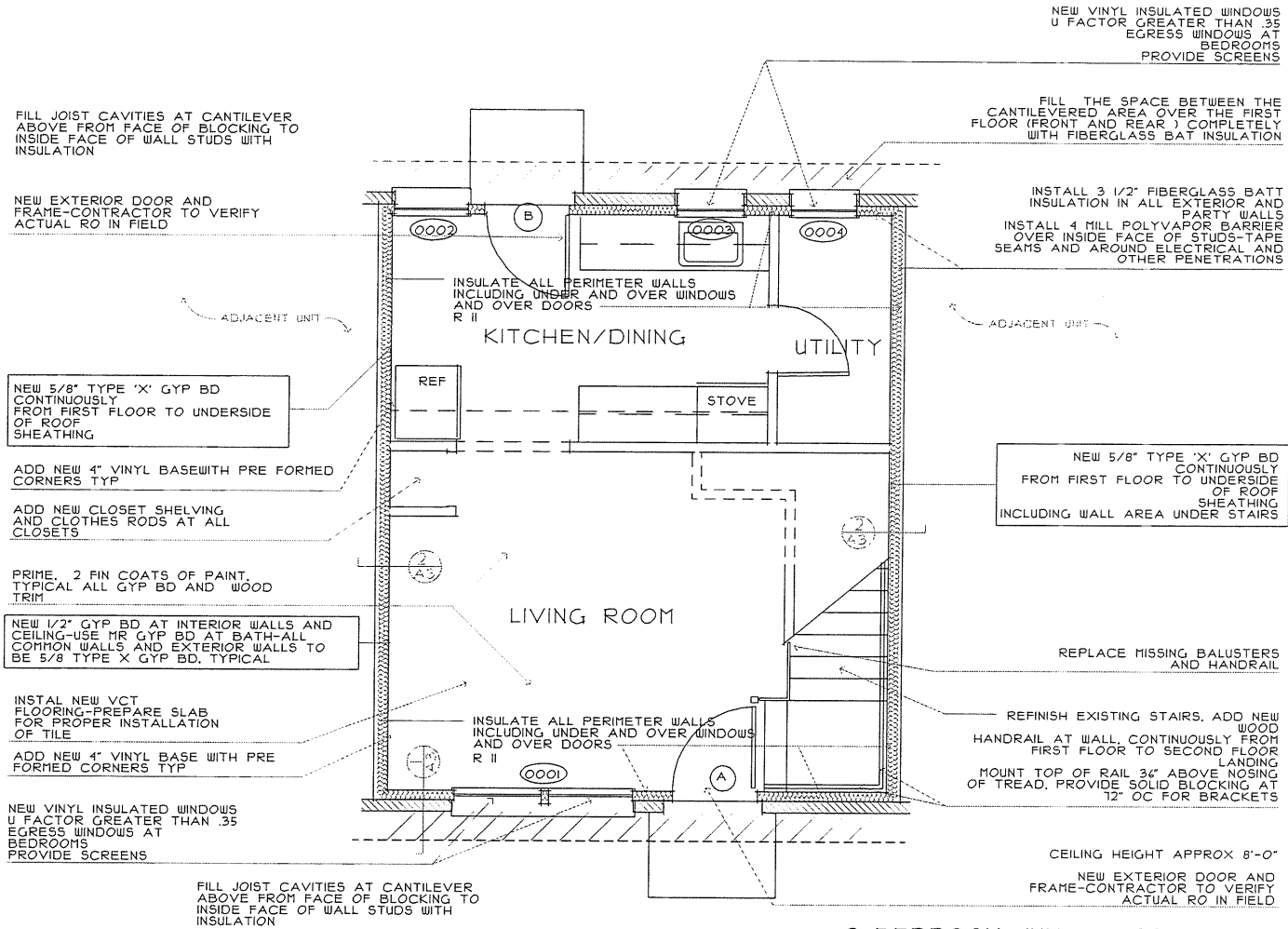


2 BEDROOM UNIT - SECOND FLOOR

NOTE: WINDOWS AT ALL
 BROWER ROOMS TO BE
 FIXED CLOSED WITH 3
 TAMPER PROOF SCREWS
 AT MEETING RAIL

SEE DETAIL 4
M3

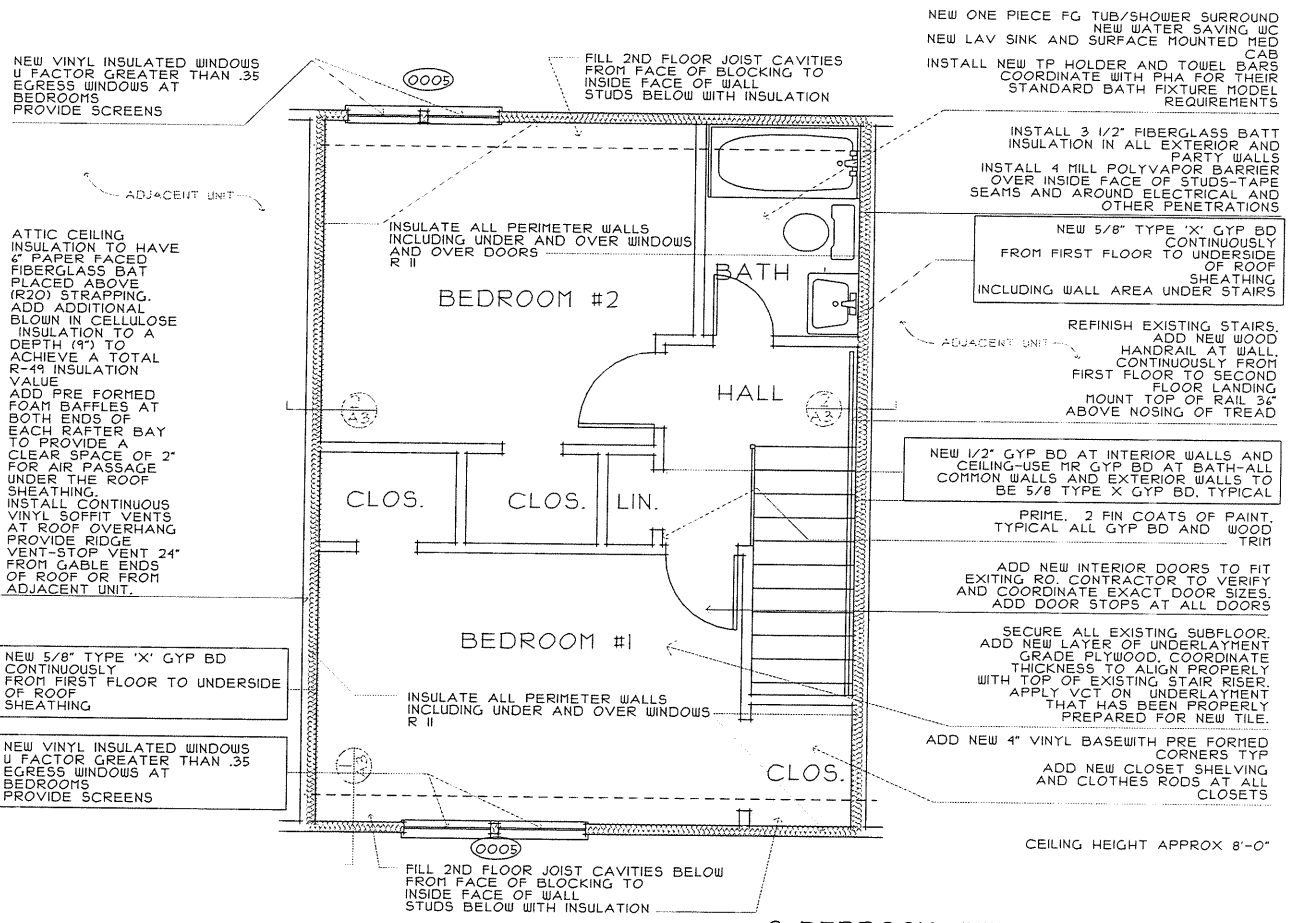




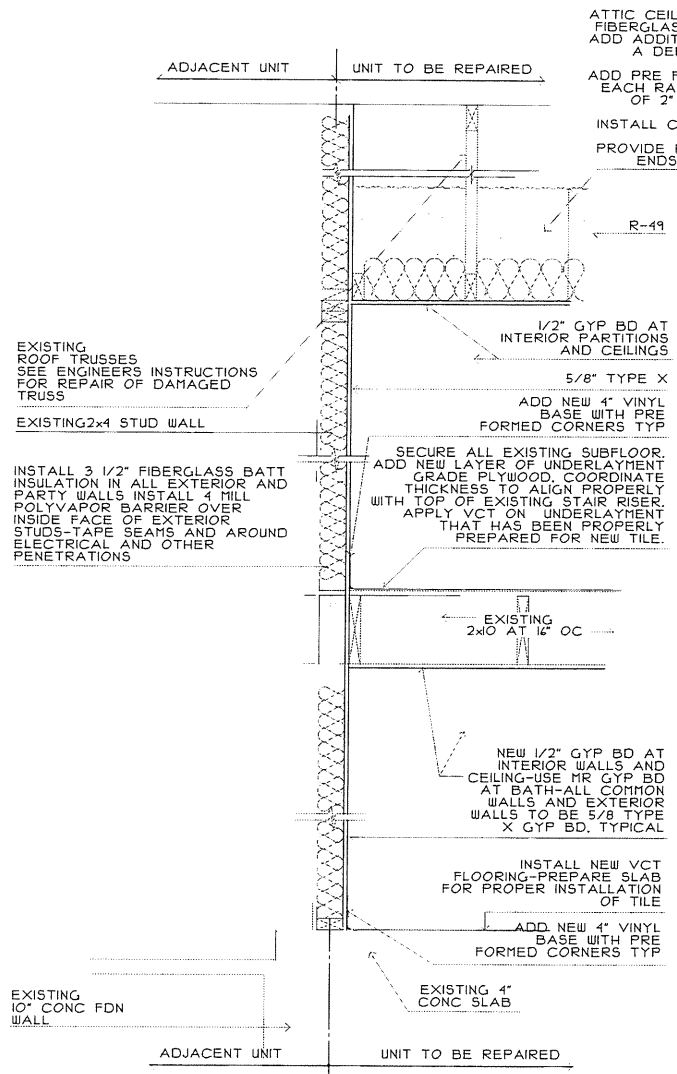
HEATINGNOTE:

2 BEDROOM UNIT - FIRST FLOOR

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



2 BEDROOM UNIT - SECOND FLOOR
SCALE: 1/4"=1'-0"



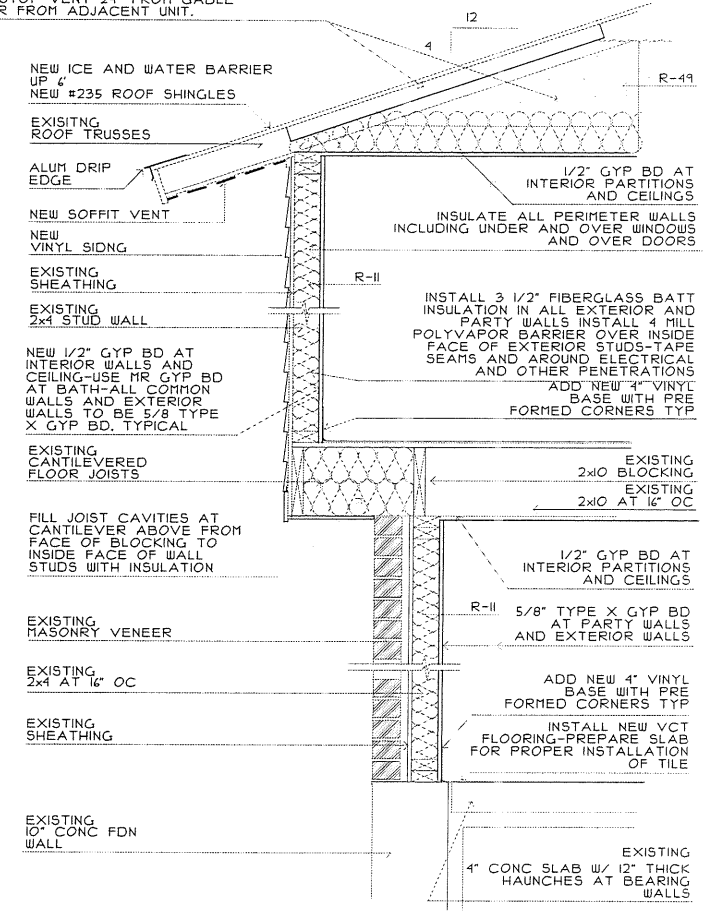
2 SECTION AT GABEL WALL
A3 SCALE: 3/4"=1'-0"

ATTIC CEILING INSULATION TO HAVE 4" PAPER FACED FIBERGLASS BAT PLACED ABOVE (R20) STRAPPING. ADD ADDITIONAL BLOWN IN CELLULOSE INSULATION TO A DEPTH (9") TO ACHIEVE A TOTAL R-49 INSULATION VALUE

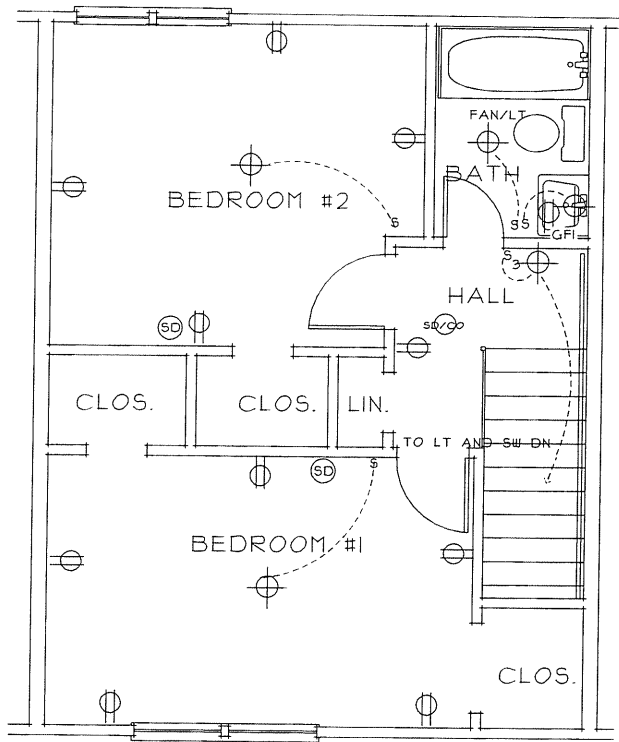
ADD PRE FORMED FOAM BAFFLES AT BOTH ENDS OF EACH RAFTER BAY TO PROVIDE A CLEAR SPACE OF 2" FOR AIR PASSAGE UNDER THE ROOF SHEATHING

INSTALL CONTINUOUS VINYL SOFFIT VENTS AT ROOF OVERHANG

PROVIDE RIDGE VENT-STOP VENT 24" FROM GABLE ENDS OF ROOF OR FROM ADJACENT UNIT.

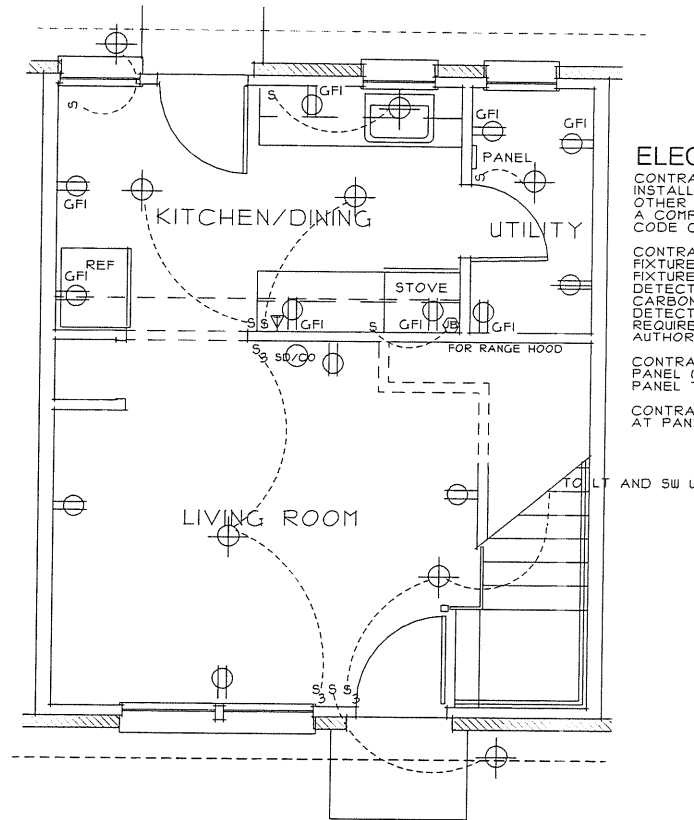


1 SECTION AT EAVE WALL
A3 SCALE: 3/4"=1'-0"



ELECTRICAL LAYOUT
2 BEDROOM UNIT - SECOND FLOOR

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



ELECTRICAL LAYOUT
2 BEDROOM UNIT - FIRST FLOOR

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

ELECTRICAL NOTES:

CONTRACTOR TO PROVIDE AND INSTALL ALL FIXTURES, LAMPS AND OTHER DEVICES NECESSARY FOR A COMPLETE AND THOROUGH, CODE COMPLIANT INSTALLATION.

CONTRACTOR TO COORDINATE FIXTURE TYPE WITH STANDARD FIXTURE TYPES INCLUDING SMOKE DETECTORS AND COMBINATION CARBON MONOXIDE/SMOKE DETECTORS WHERE SHOWN-AS REQUIRED BY PORTLAND HOUSING AUTHORITY

CONTRACTOR TO INSTALL NEW PANEL (USING PHA STANDARD PANEL TYPE)

CONTRACTOR TO BALANCE LOADS AT PANEL

PLUMBING AND HEATING SCOPE OF WORK

PROVIDE ALL ELEMENTS AND WORK NECESSARY TO PROVIDE A COMPLETE PLUMBING AND HEATING SYSTEM THAT IS FULLY COMPLIANT WITH THE REQUIREMENTS OF APPLICABLE CITY OF PORTLAND, STATE, FEDERAL CODES AND ANY REQUIREMENTS OF THE PORTLAND WATER DISTRICT, AND ALL OTHER AUTHORITIES HAVING JURISDICTION.

THE WORK WILL INCLUDE THE DESIGN AND MODIFICATION OF THE EXISTING HEATING SYSTEMSUCH THAT IT WILL BE CAPABLE OF PROVIDING HEAT TO THE RENOVATED SPACE AS SHOWN ON THE PLANS.

THE SYSTEM SHALL BE CAPABLE OF MAINTAINING A TEMPERATURE OF 74 DEGREES FAHRENHEIT MEASURED AT FIVE FEET ABOVE FINISH FLOOR, EVENLY IN ALL SPACES. THE CONTRACTOR WILL TIE INTO THE EXISTING BOILERS AND MODIFY THE EXISTING HEATING SYSTEM TO PROVIDE ADEQUATE HEAT RESULTING IN A COMFORTABLE AND FULLY FUNCTIONAL SPACE FOR THE USES INTENDED.

SCOPE OF WORK WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

CONTRACTOR TO DESIGN AND FURNISH ALL LABOREQUIPMENT, MATERIALS, AND TESTING, AND PERFORM ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF A HEATING SYSTEM CONSISTING OF CODE-COMPLIANT SYSTEMS AND MATERIALS. THIS WILL INCLUDE, PUMPS, CONTROLS, ELECTRICAL WORK, INSULATION AND ANY OTHER ELEMENT OF IMPORTANCE IN THE MAINTENANCE, BALANCING OR OPERATION OF THE SYSTEM. CONTRACTOR WILL OUTLINE MATERIALS AND METHODS OF THE PROPOSED SYSTEM INCLUDING TYPES OF PIPE, PUMPS, FITTINGS, BASEBOARD RADIATION, CONTROLS, INSULATION, AND OTHER APPURTENANCES AS WELL AS THE PROPOSED METHOD, LOCATION AND ROUTING OF THE HEAT AND PIPING.

THE WORK ALSO INCLUDES MODIFICATIONS, INCLUDING REMOVAL AND REROUTING OF CERTAIN GAS LINES, WATER LINES, WASTE LINES, AND HEATING COMPONENTS TO THE SPACES WITHIN THE RENOVATED AREAS:

NOTWITHSTANDING ANYTHING THAT MAY BE CONTAINED IN THE DRAWINGS OR SPECIFICATIONS IT IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR LICENSED BY THE STATE OF MAINE TO INSTALL A COMPLETE WORKING HEATING SYSTEM, THAT IS CAPABLE OF PROVIDING FUNCTIONAL AND USABLE SPACE TAKING INTO ACCOUNT ITS INTENDED USE/OCCUPANCY

ALL ELEMENTS SHOWN ON THE DRAWINGS ARE INTENDED TO BE APPROXIMATELY CORRECT TO SCALE, BUT ARE TO BE TAKEN AS IN SENSE AS DIAGRAMMATIC, NOT EVERY STRUCTURAL OR MECHANICAL DIFFICULTY THAT MAY BE ENCOUNTERED IS NECESSARILY INDICATED.

CONTRACTOR TO VERIFY ACTUAL CONDITIONS AT THE SITE

COMPLETE ALL WORK IN STRICT ACCORDANCE WITH APPLICABLE NATIONAL, STATE, AND LOCAL BUILDING CODES.

CONTRACTOR TO PAY FOR AND OBTAIN ALL NECESSARY PERMITS AND IS RESPONSIBLE FOR ALL ASSOCIATED FEES.

RIVERTON DRIVE
FIRE DAMAGE REPAIRS **A4**
PORTLAND HOUSING AUTHORITY

DOOR SCHEDULE

TYPICAL EXTERIOR NOTE:
EXTERIOR DOORS TO HAVE MIN U-VALUE .30

MARK	LOCATION	SIZE	THICKNESS	MATERIAL	MFR	FRAME	TRIM	HARDWARE	FINISH	MFR	MODEL NO.	NOTES
A	ENTRY	3'-0" x 4'-8"	1 3/4"	FIBERGLASS	JELD-WEN 1/2 LITE SMOOTH-PRO PL	AURALAST	INTERIOR WOOD EXTERIOR FIBERGLASS	LOCKSET 15 PR 45x45 HINGES	624 0524D	SCHLAGE STANLEY	D-SERIES RHODES 1020 RTR	DOOR SWEEP AND WEATHERSTRIP PAINT DOOR. NIP 1802 ALUM THRESHOLD W/ 8" COVER PLATE 1/2" DOOR STOP PANEL 2x2 FIN
B	ENTRY	2'-8" x 4'-8"	1 3/4"	FIBERGLASS	JELD-WEN 1/2 LITE SMOOTH-PRO PL	AURALAST	INTERIOR WOOD EXTERIOR FIBERGLASS	LOCKSET 15 PR 45x45 HINGES	624 0524D	SCHLAGE STANLEY	D-SERIES RHODES 1020 RTR	DOOR SWEEP AND WEATHERSTRIP PAINT DOOR. NIP 1802 ALUM THRESHOLD W/ 8" COVER PLATE 1/2" DOOR STOP PANEL 2x2 FIN
C	INTERIOR	3'-0" x 4'-8"	1 3/8"	MOLDED FG FOAM CORE	JELD-WEN	WOOD	WOOD	PRIVACY AT BATH 15 PR 45x45 HINGES	624 0524D	SCHLAGE STANLEY	D-SERIES RHODES 1020 RTR	DOOR SWEEP AND WEATHERSTRIP PAINT DOOR. NIP 1802 ALUM THRESHOLD W/ 8" COVER PLATE 1/2" DOOR STOP PANEL 2x2 FIN

Code	Unit Description	Qty	Location	Unit Size		Rough Opening	
				Width	Height	Width	Height
0001	TW3042-2, AA-AA	1	LIVING ROOM	6' 3 3/8"	4' 4 7/8"	6' 3 7/8"	4' 4 7/8"
0002	TW2842, AA	1	DINING AREA	2' 9 5/8"	4' 4 7/8"	2' 10 1/8"	4' 4 7/8"
0003	TW3032, AA	1	KITCHEN	3' 1 5/8"	3' 4 7/8"	3' 2 1/8"	3' 4 7/8"
0004	TW2032, AA	1	UTILITY RM	2' 1 5/8"	3' 4 7/8"	2' 2 1/8"	3' 4 7/8"
0005	TW3046-2, AA-AA	2	BR 1, 2 EGRESS	6' 3 3/8"	4' 8 7/8"	6' 3 7/8"	4' 8 7/8"

Item	0004
Unit Size	TW2032
Unit Operation	AA
Location	AA
Arm:	N/A
Dimensions:	
Unit:	Width: 2' 1 5/8" Height: 3' 4 7/8"
Rough Opening:	2' 2 1/8" 3' 4 7/8"
Max. Clr. Open:	1' 9 7/8" 1' 4 1/4"
Subfloor to Sill Stop:	3' 8 1/2" n/a
Projection:	n/a
Operating Specifications:	
Glass Area:	4.21 SQ FEET
Vent Area:	2.48 SQ FEET
Max. Clr. Open:	2.47 SQ FEET
Extension Jamb:	None
Zone:	Northern
U-Factor:	0.30, SHGC: 0.31, ENERGY STAR® Qualified: Yes

Item	0002
Unit Size	TW2842
Unit Operation	AA
Location	AA
Arm:	N/A
Dimensions:	
Unit:	Width: 2' 9 5/8" Height: 4' 4 7/8"
Rough Opening:	2' 10 1/8" 4' 4 7/8"
Max. Clr. Open:	2' 5 7/8" 1' 10 1/4"
Subfloor to Sill Stop:	2' 8 1/2" n/a
Projection:	n/a
Operating Specifications:	
Glass Area:	8.23 SQ FEET
Vent Area:	4.64 SQ FEET
Max. Clr. Open:	4.62 SQ FEET
Extension Jamb:	None
Zone:	Northern
U-Factor:	0.30, SHGC: 0.31, ENERGY STAR® Qualified: Yes

Item	0001
Unit Size	TW3042-2
Unit Operation	AA-AA
Location	AA-AA
Arm:	N/A
Dimensions:	
Unit:	Width: 6' 3 3/8" Height: 4' 4 7/8"
Rough Opening:	6' 3 7/8" 4' 4 7/8"
Max. Clr. Open:	2' 9 7/8" 1' 10 1/4"
Subfloor to Sill Stop:	2' 8 1/2" n/a
Projection:	n/a
Operating Specifications:	
Glass Area:	18.90 SQ FEET
Vent Area:	10.52 SQ FEET
Max. Clr. Open:	5.23 SQ FEET
Extension Jamb:	
Zone:	Northern
U-Factor:	0.30, 0.31, SHGC: 0.31, ENERGY STAR® Qualified: Yes
1	0.30, 0.31, Yes
2	0.30, 0.31, Yes

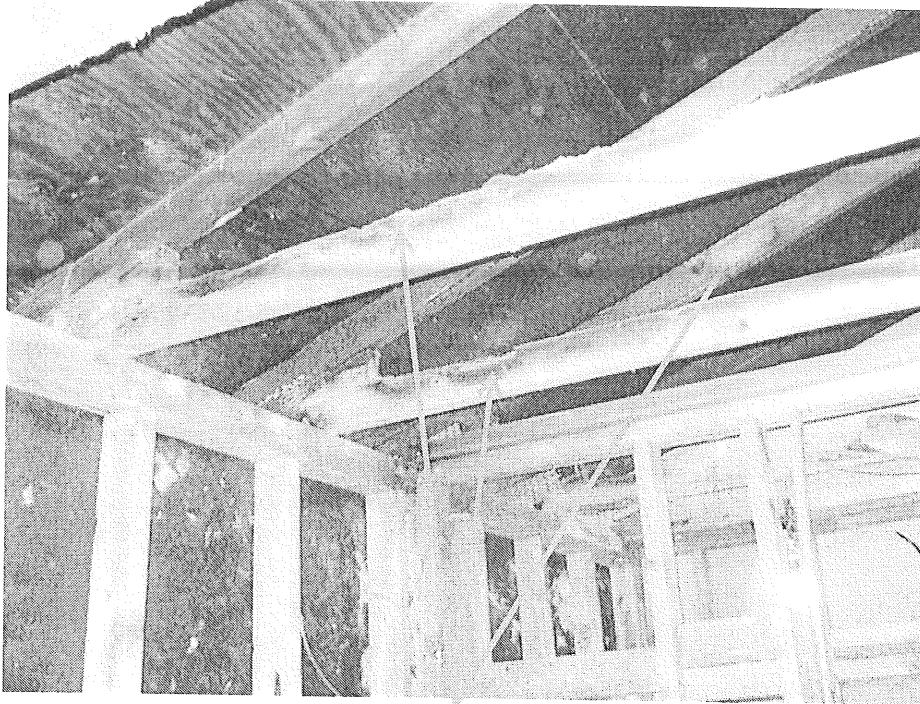
Item	0005
Unit Size	TW3046-2
Unit Operation	AA-AA
Location	EGRESS
Arm:	N/A
Dimensions:	
Unit:	Width: 6' 3 3/8" Height: 4' 8 7/8"
Rough Opening:	6' 3 7/8" 4' 8 7/8"
Max. Clr. Open:	2' 9 7/8" 2' 0 1/4"
Subfloor to Sill Stop:	2' 4 1/2" n/a
Projection:	n/a
Operating Specifications:	
Glass Area:	20.62 SQ FEET
Vent Area:	11.46 SQ FEET
Max. Clr. Open:	5.71 SQ FEET
Extension Jamb:	
Zone:	Northern
U-Factor:	0.30, 0.31, SHGC: 0.31, ENERGY STAR® Qualified: Yes
1	0.30, 0.31, Yes
2	0.30, 0.31, Yes

Item	0003
Unit Size	TW3032
Unit Operation	AA
Location	AA
Arm:	N/A
Dimensions:	
Unit:	Width: 3' 1 5/8" Height: 3' 4 7/8"
Rough Opening:	3' 2 1/8" 3' 4 7/8"
Max. Clr. Open:	2' 9 7/8" 1' 4 1/4"
Subfloor to Sill Stop:	3' 8 1/2" n/a
Projection:	n/a
Operating Specifications:	
Glass Area:	6.87 SQ FEET
Vent Area:	3.85 SQ FEET
Max. Clr. Open:	3.82 SQ FEET
Extension Jamb:	None
Zone:	Northern
U-Factor:	0.30, SHGC: 0.31, ENERGY STAR® Qualified: Yes

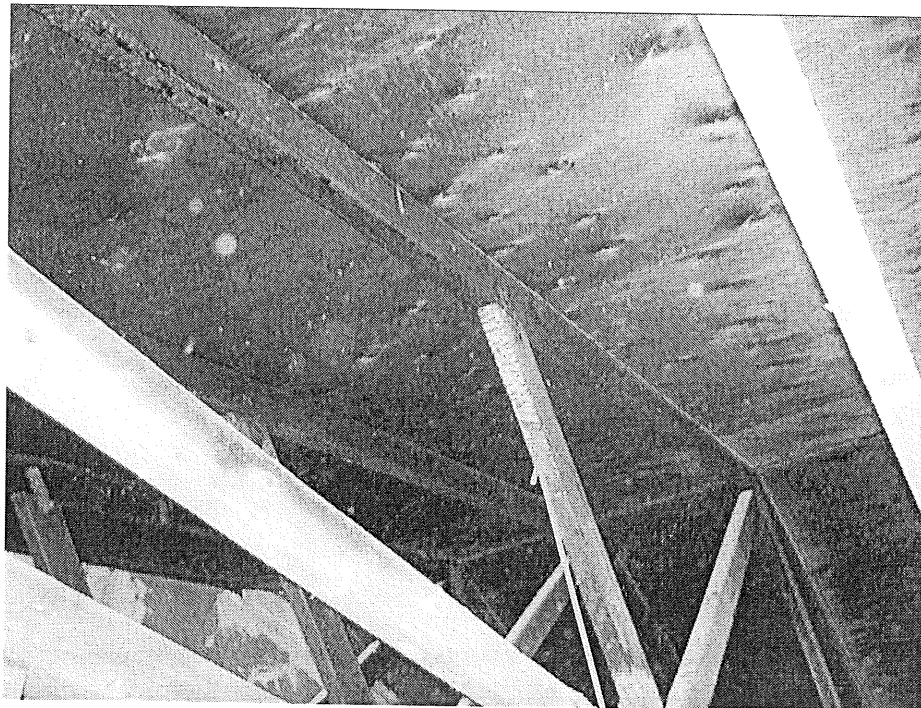
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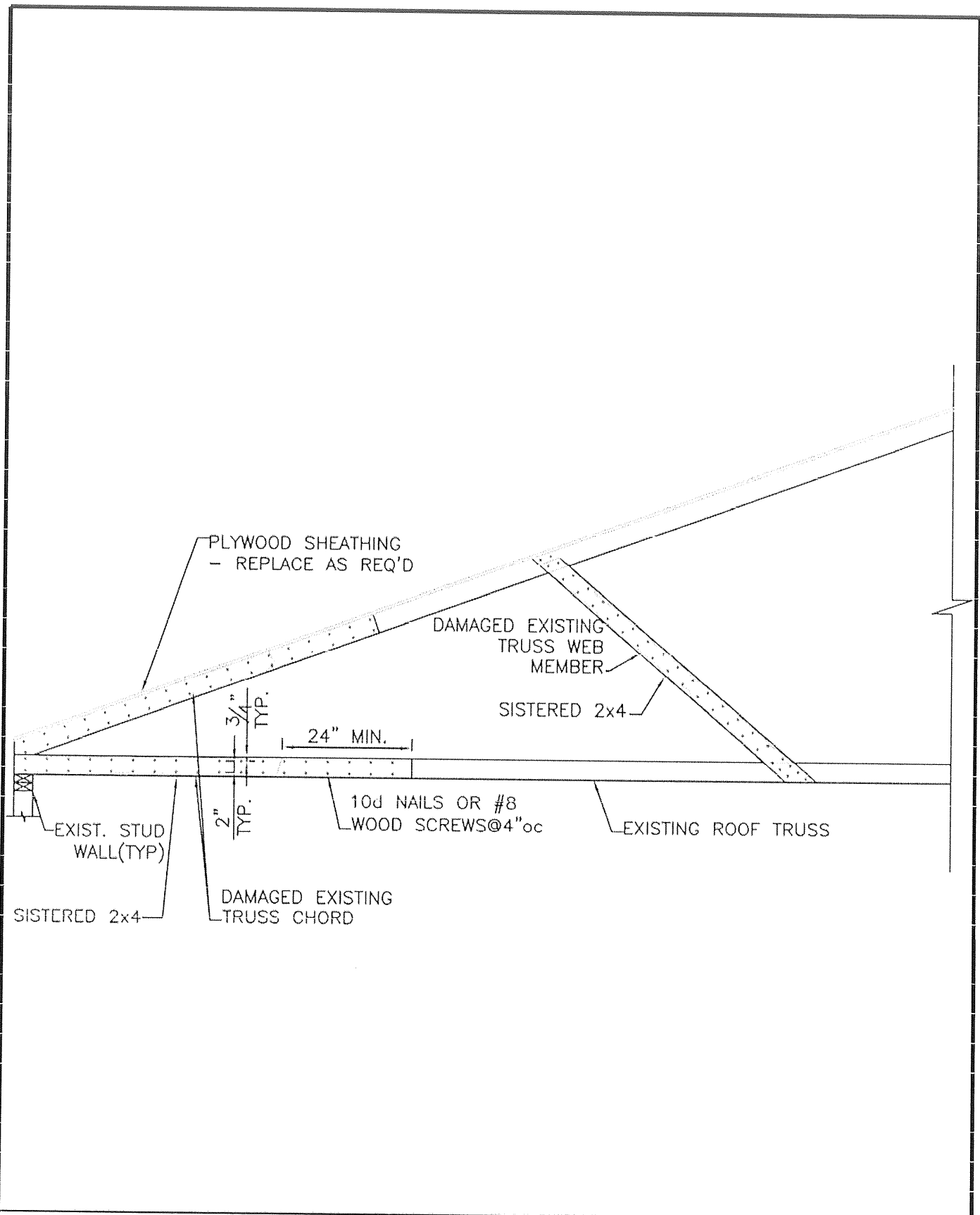
Photo Appendix



Fire Damaged Trusses requiring repair



Soot-damaged sheathing and truss web member



Colby Company

1000 Commercial Street
 Portland, ME 04101
 Tel: 603.763.1234
 Fax: 603.763.1235

Structural Engineering
 Mechanical Engineering
 Electrical Engineering
 Civil Engineering

PORTLAND HOUSING AUTHORITY

124 RIVERTON DRIVE
 FIRE DAMAGE

DATE: 12.05.12

SK-1

COLBY CO. PROJ.#: 218.001.001

REV 0