MATZMORR / GOOD RESIDENCE

Walter Matzmorr & Nancy Good-Matzmorr

610 Valley View Lane
Wayne, PA 19087

Tredyffrin Township, Chester County

ADDITION AND RENOVATIONS

LEGEND

ADJ	ADJUSTABLE	MIN.	MINIMUM	USGS	U.S. GEOLOGICAL SURVEY
AGL	ABOVE GROUND LEVEL	MTL.	METAL	WWF	WELDED WIRE FABRIC
AMSL	ABOVE MEAN SEA LEVEL	NIC	NOT IN CONTRACT	A-1	ANTENNA MARK NUMBER
APPROX.	APPROXIMATE	NTS	NOT TO SCALE	(E)	EXISTING
CAB	CABINET	OC	ON CENTER	(N)	NEW
CONC.	CONCRETE	OHP	OVERHEAD POWER	(P)	PROPOSED
CONT.	CONTINUOUS	OHT	OVERHEAD TELCO	℄	CENTERLINE
CONST	CONSTRUCTION	PWR.	POWER	℔	PLATE
COAX	COAXIAL	SF	SQUARE FOOT	B/W	BARBED WIRE
CJ	CONSTRUCTION JOINT	SHT	SHEET	C/L	CHAINLINK
DIA	DIAMETER	SIM	SIMILAR	ø	DIAMETER
DTL	DETAIL	SS	STAINLESS STEEL	H	HEIGHT
DWG	DRAWING	STL	STEEL	W	WIDTH
EA.	EACH	TELCO	TELEPHONE COMPANY	D	DEPTH
ELEC.	ELECTRIC	TO	TOP OF	W/	WITH
ELEV.	ELEVATION	TYP.	TYPICAL		
EQ.	EQUAL	U.O.N	UNLESS OTHERWISE NOTED		
EQUIP	EQUIPMENT	VERT	VERTICAL		
EXT.	EXTERIOR	VIF	VERIFY IN FIELD		
FF	FINISH FLOOR	XFMER	TRANSFORMER		
FTG.	FOOTING				
GA	GAUGE				
GALV	GALVANIZED				
GC	GENERAL CONTRACTOR				
GRND	GROUND				
HORIZ	HORIZONTAL				
INT.	INTERIOR				
LG.	LONG				
MAX	MAXIMUM				
MFG	MANUFACTURER				

2 / S-1 — SECTION NUMBER / SHEET NUMBER — DRAWING SECTION

4 / S-1 — SECTION NUMBER / SHEET NUMBER — DETAIL

5 / E-1 — SECTION NUMBER / SHEET NO. — DETAIL ENLARGEMENT

2 — REVISION NUMBER

DATUM ELEVATION

MATCH LINE

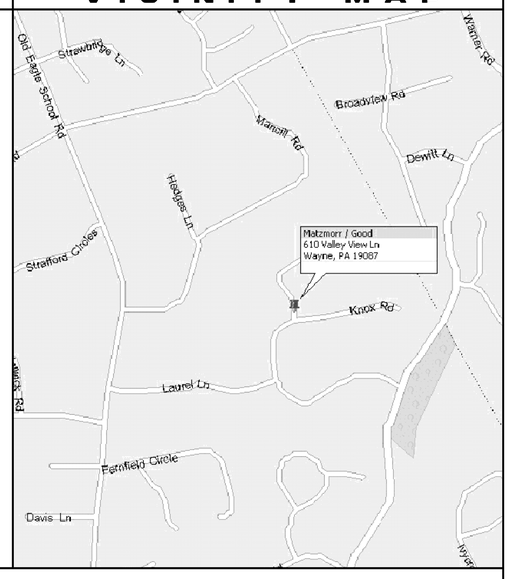
(TB) TEST BORING
(WP) WORK POINT
(DP) DATUM POINT

CAST IN PLACE OR PRE-CAST CONCRETE
LIGHT WEIGHT CONCRETE
EARTH: UNDISTURBED
EARTH: BACK FILL
CRUSHED STONE, GRAVEL OR POROUS FILL
PLASTER CEMENT, SAND, GROUT
ROCK OR STONE
RIGID INSULATION
STEEL
METAL, ALUMINUM, ETC.
CONCRETE MASONRY UNIT
BRICK

DRAWING INDEX

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VICINITY MAP



GENERAL NOTES

1) ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2006 EDITION OF THE IRC CODE ADOPTED BY TREDYFFRIN TOWNSHIP, CHESTER COUNTY IN THE COMMONWEALTH OF PENNSYLVANIA.

2) GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, STRUCTURE AND MATERIALS, AND SHALL BRING ANY DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.

3) CONTRACTOR TO HAVE INSURANCE AS REQUIRED BY OWNER.

4) THE USE OF THE PENNSYLVANIA ONE-CALL SYSTEM, INC. IS REQUIRED PRIOR TO ANY EXCAVATION. COORDINATE RELOCATION OF UTILITIES AS REQUIRED.

5) PROVIDE PORTABLE JOB TOILET AND TELEPHONE ON SITE FOR THE DURATION OF THE PROJECT. (AS REQUIRED BY OWNER).

6) RELOCATION OF EXISTING TREES AND SHRUBS TO BE BY OWNER. FINAL SEEDING AND LANDSCAPING TO BE PROVIDED BY OWNER.

7) ALL FOOTING EXCAVATION SHALL BE CARRIED A MINIMUM OF 18" INTO SOLID UNDISTURBED SOIL HAVING A MINIMUM BEARING CAPACITY OF 3,000 PSF. BOTTOMS OF ALL FOOTINGS SHALL BE A MINIMUM OF 3'-0" BELOW FINISHED GRADE.

8) ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AFTER 28 DAYS.

9) 4" DIAMETER PVC PERFORATED FOOTING DRAINS SHALL BE INSTALLED IN GRAVEL BED

10) NO BACKFILLING OR ROUGH GRADING SHALL BE DONE UNTIL THE FIRST FLOOR DECK IS COMPLETELY INSTALLED.

11) STRUCTURAL BEAMS, COLUMNS, FLOOR JOISTS, CEILING JOISTS AND RAFTERS SHALL BE WPA #2 HEM/FIR HAVING A FB OF 850 PSI. WALL STUDS SHALL BE WPA #2 GRADE HEM/FIR HAVING A FB OF 675 PSI.

11.1) ALL EXTERIOR DECKING, POSTS, AND JOISTS SHALL BE PRESSURE-TREATED U.N.O.

11.2) WOOD SILLS ON CONCRETE OR CMU SHALL BE PRESSURE-TREATED AND PROVIDED WITH TERMITE SHIELDS AT ALL FOUNDATION WALLS.

11.3) ALL EXTERIOR NAILS, BOLTS, ANCHORS, AND HANGERS SHALL BE STAINLESS STEEL OR TRIPLE HOT DIPPED GALVANIZED.

11.4) DOUBLE FLOOR JOISTS SHALL BE INSTALLED UNDER ALL PARTITIONS WHICH ARE PARALLEL TO JOISTS.

11.5) ALL JOISTS SHALL HAVE SOLID BRIDGED AT 6'-0" O.C. (MAX.). JOISTS SPANNING LESS THAT 12'-0" SHALL BE BRIDGED AT MIDSPAN.

11.6) SHADED PARTITIONS INDICATE STRUCTURAL 2x STUDS.

11.7) DARKENED POSTS INDICATE 2 STUD MINIMUM, UNLESS NOTED OTHERWISE.

11.8) NO STRUCTURAL CHANGES SHALL BE MADE WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER OR ARCHITECT.

12) CONSULT MANUFACTURER SPECIFICATIONS OF ENGINEERED LUMBER. PAY PARTICULAR ATTENTION TO ASSEMBLY OF MULTIPLE MEMBER BEAMS, NAILING PROCEDURES & CUT OUTS FOR UTILITIES.

13) ALL CORNERS OF THE STRUCTURE SHALL BE SHEATHED WITH 1/2" APA RATED SHEATHING, EXPOSURE 1 NAILED WITH 6D COMMON NAILS 6" O.C. (MAX.) AT PANEL EDGES AND 12" O.C. (MAX.) AT INTERMEDIATE SUPPORTS. BALANCE OF SHEATHING SHALL BE AT OWNER / BUILDER'S OPTION.

14) BUILDING SHALL BE SHEATHED WITH (MIN.) 30# ASPHALT-IMPREGNATED FELT OVER TYVEK HOUSE WRAP OR APPROVED EQUAL.

15) WINDOW SIZES ARE BASED UPON PELLA ARCHITECT SERIES WINDOWS. ALL GLAZING OVER 9 SQUARE FEET AND/OR WITHIN 18" OF FLOOR AND IN HAZARDOUS LOCATIONS SHALL BE TEMPERED.

16) ALL STUD FRAMED WALLS GREATER THAN 8'-6" VERTICALLY SHALL BE LATERIALLY BRACED AT THE MIDPOINT WITH SOLID BLOCKING.

17) INTERIOR PARTITIONS SHALL RECEIVE 1/2" (MIN.) GYPSUM DRYWALL. GARAGE WALLS AND CEILINGS SHALL RECEIVE 5/8" (TYPE"X") FIRE RATED GYPSUM DRYWALL.

18) REMOVE ALL CONSTRUCTION DEBRIS FROM PROPERTY AND PROVIDE DAILY CLEANUP TO SITE DUMPSTER.

19) VERIFY WITH OWNER CONSTRUCTION STAGING AND CONSTRUCTION DELIVERY LOCATIONS.

20) NO BACKFILLING OR ROUGH GRADING SHALL BE DONE UNTIL THE CONCRETE FOUNDATION AND SLAB HAS CURED FOR A MINIMUM OF 14 DAYS.

21) ALL DIMENSIONS ARE TO ROUGH FRAMING, CONCRETE OR C.M.U. FACE, AND EXTERIOR SHEATHING FACE.

22) COORDINATE FINISH WALL DIMENSIONS WITH MILLWORK AND FURNITURE SYSTEM DIMENSIONS AS REQUIRED.

23) MASONRY AND STONE VENEERS SHALL BE ANCHORED TO FRAMING WITH GALVANIZED CORRUGATED METAL TIES AT 32" O.C. HORIZONTALLY AND 16" O.C. VERTICALLY. FLASHING SHALL EXTEND BELOW MASONRY OR STONE AT ALL SILLS; WEEP HOLES SHALL BE PROVIDED AT 4'-0" O.C. AT BASE OF CAVITY AND 6" ABOVE GRADE.

24) METAL HEAD FLASHING SHALL BE INSTALLED ON ALL DOORS & WINDOWS THAT ARE NOT LOCATED IMMEDIATELY BELOW AN 8" (MINIMUM) EAVE PROJECTION. MINIMUM 6" WIDE 30# BUILDING PAPER FLASHING SHALL BE INSTALLED AROUND ALL DOORS & WINDOWS.

25) PROVIDE ALL WALL, BASE, CAP, THROUGH-WALL, COUNTER FLASHINGS, GUTTERS AND DOWNSPOUTS ETC. AS REQUIRED TO PREVENT THE ENTRANCE OF MOISTURE AND WATER.

26) ALLOW A MINIMUM OF 8" BETWEEN THE TOP OF FOUNDATION AND GRADE AND A MINIMUM OF 6" BETWEEN FINISH GRADE AND SHEATHING OR SIDING.

27) PORTLAND CEMENT STUCCO SHALL CONSIST OF (3 COATS) SCRATCH, BROWN AND FINISH COATS (MIN 7/8" THK.) APPLIED OVER (MIN.) 2.4 SELF FURRING GALV. WIRE LATH AND TWO LAYERS OF 30# ASPHALT-IMPREGNATED FELT.

28) ALL NEW WOODWORK TO BE PAINT GRADE FINGER JOINTED PINE (UNO) INSTALLED, SANDED AND READY FOR FINISH. VERIFY WITH OWNER BEFORE PURCHASE, ANY SUBSTITUTIONS IN FINISH WOODWORK MATERIALS, (IE HARD WOODS, STAIN GRADE, ECT.).

29) PROVIDE ALL REQUIRED CEMENTITIOUS BACKER-BOARD AS REQ'D AT ALL AREAS OF MARBLE/GRANITE/ TILE WORK.

30) VERIFY ALL CARPETING AND PADDING WITH OWNER. PROVIDE SAMPLES AS REQUIRED.

31) FILL, SPACKLE (3-COATES), SAND AND PRIME/PAINT ALL NEW DRYWALL WORK IN PREPARATION FOR FINAL FINISH.

32) NEW PAINTING TO BE M.A.B, OR APPROVED EQUAL, ACRYLIC LATEX. ALL NEW INTERIOR AND EXTERIOR WALLS AND CEILINGS TO RECEIVE ONE COAT PRIMER AND MINIMUM 2 COATS FINISH.

33) ALL SMOKE DETECTORS SHALL BE INTERCONNECTED. ALL DETECTORS SHALL HAVE A PRIMARY 120 VOLT SUPPLY AND A SECONDARY SYSTEM CONSISTING OF A BATTERY BACK-UP.

34) GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUB-CONTRACTS AND ACCOMMODATION OF MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS.

35) ALL MECHANICAL WORK TO BE INSTALLED BY A LICENSED HVAC CONTRACTOR AND INSURANCE WITH THE LOCAL MUNICIPALITY AND THE STATE AS REQUIRED. HVAC CONTRACTOR TO OBTAIN ALL PERMITS. OWNER TO APPROVE ALL NEW GRILLE LOCATIONS AND STYLES PRIOR TO INSTALLATION (INCLUDING ALL ATTENDANT EQUIPMENT LOCATIONS).

36) ALL PLUMBING WORK TO BE INSTALLED BY A LICENSED PLUMBER AND INSURANCE WITH THE LOCAL MUNICIPALITY AND THE STATE AS REQUIRED. PLUMBING CONTRACTOR TO OBTAIN ALL PERMITS.

37) PLUMBING CONTRACTOR TO EXTEND ALL PLUMBING LINES AS REQUIRED FOR ALL NEW FIXTURES. SCOPE OF WORK TO INCLUDE ALL HOT AND COLD WATER FEEDS, WASTE PIPES OUT, STACK & VENTS, SETTING OF FIXTURES, AND ANY AND ALL HOOK-UPS/TIE-INS AS REQUIRED.

38) ALL ELECTRICAL WORK TO BE INSTALLED BY A LICENSED ELECTRICIAN AND INSURANCE WITH THE LOCAL MUNICIPALITY AND THE STATE AS REQUIRED. ELECTRICAL CONTRACTOR TO OBTAIN ALL PERMITS.

39) ELECTRICAL CONTRACTOR TO VERIFY CAPACITY OF EXISTING INCOMING SERVICE TO SERVE EXISTING AND NEW SPACES/ROOMS AS INDICATED. PROVIDE ALL ATTENDANT WIRING, PANELS, ETC., AS REQ'D.

40) ELECTRICAL CONTRACTOR TO VERIFY FINAL NO., STYLE, COLOR, TYPES AND LOCATIONS OF ALL OUTLETS, SWITCHES, FIXTURES, ETC., WITH OWNER PRIOR TO ORDERING/INSTALLATION.

Betzwood Associates PC
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B3161	EMH	RJK

NO.	DATE	BY	ISSUE
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APPROVED BY	CURRENT DATE
Robin J. Kohn	August 24, 2010

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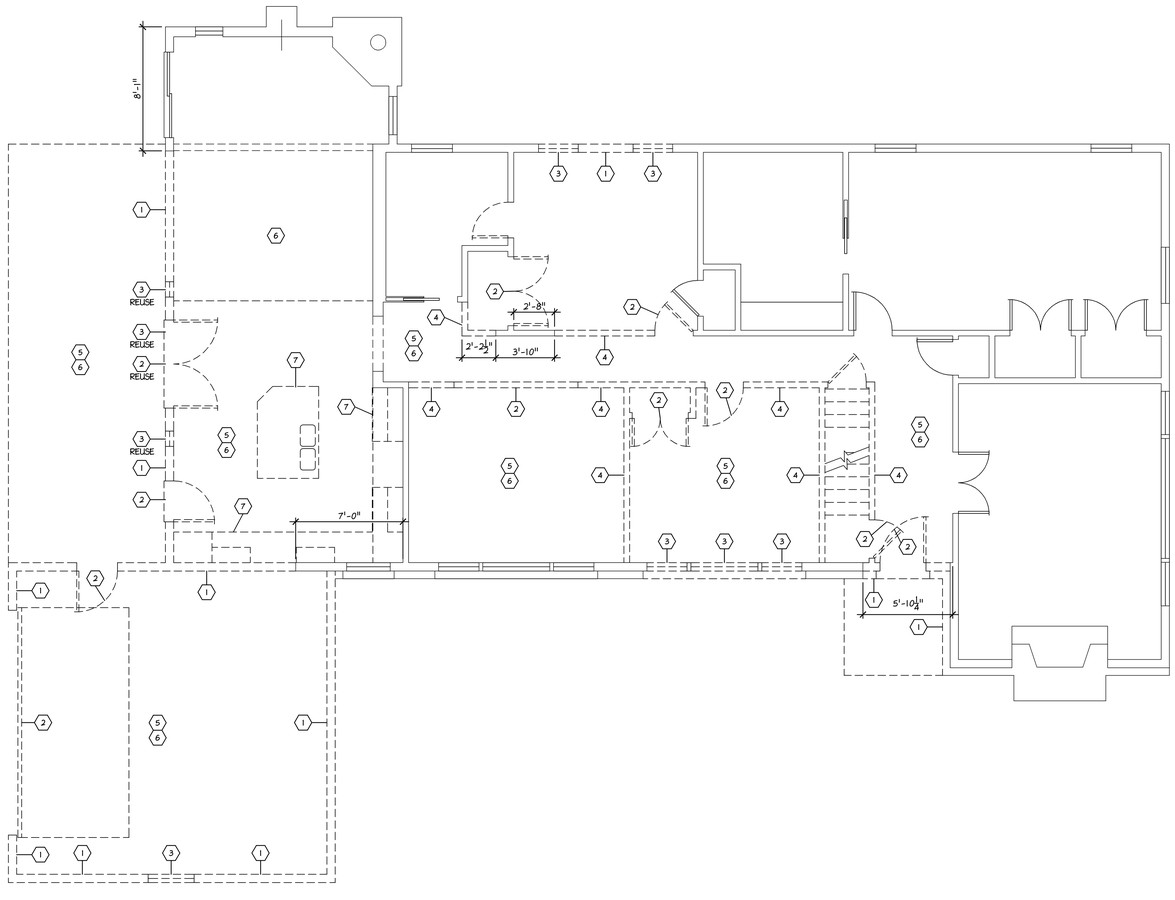
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SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

REV 6

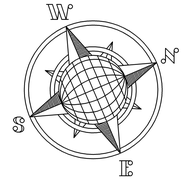
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1 D-1 DEMOLITION PLAN
Scale: 1/4" = 1'- 0"

DEMOLITION NOTES

1. REMOVE PORTION OF EXISTING EXTERIOR WALL(S) TO ACCOMMODATE NEW WORK.
2. REMOVE ALL EXISTING DOOR(S) AND DOOR FRAMES.
3. REMOVE EXISTING WINDOWS AND WINDOW FRAMES.
4. REMOVE ALL EXISTING PARTITION / WALL(S) TO ACCOMMODATE NEW WORK.
5. REMOVE EXISTING CEILING.
6. REMOVE EXISTING FLOOR FINISH TO ACCOMMODATE NEW WORK.
7. REMOVE EXISTING CABINETS, MILLWORK / BUILT-IN ITEM(S) TO ACCOMMODATE NEW WORK.



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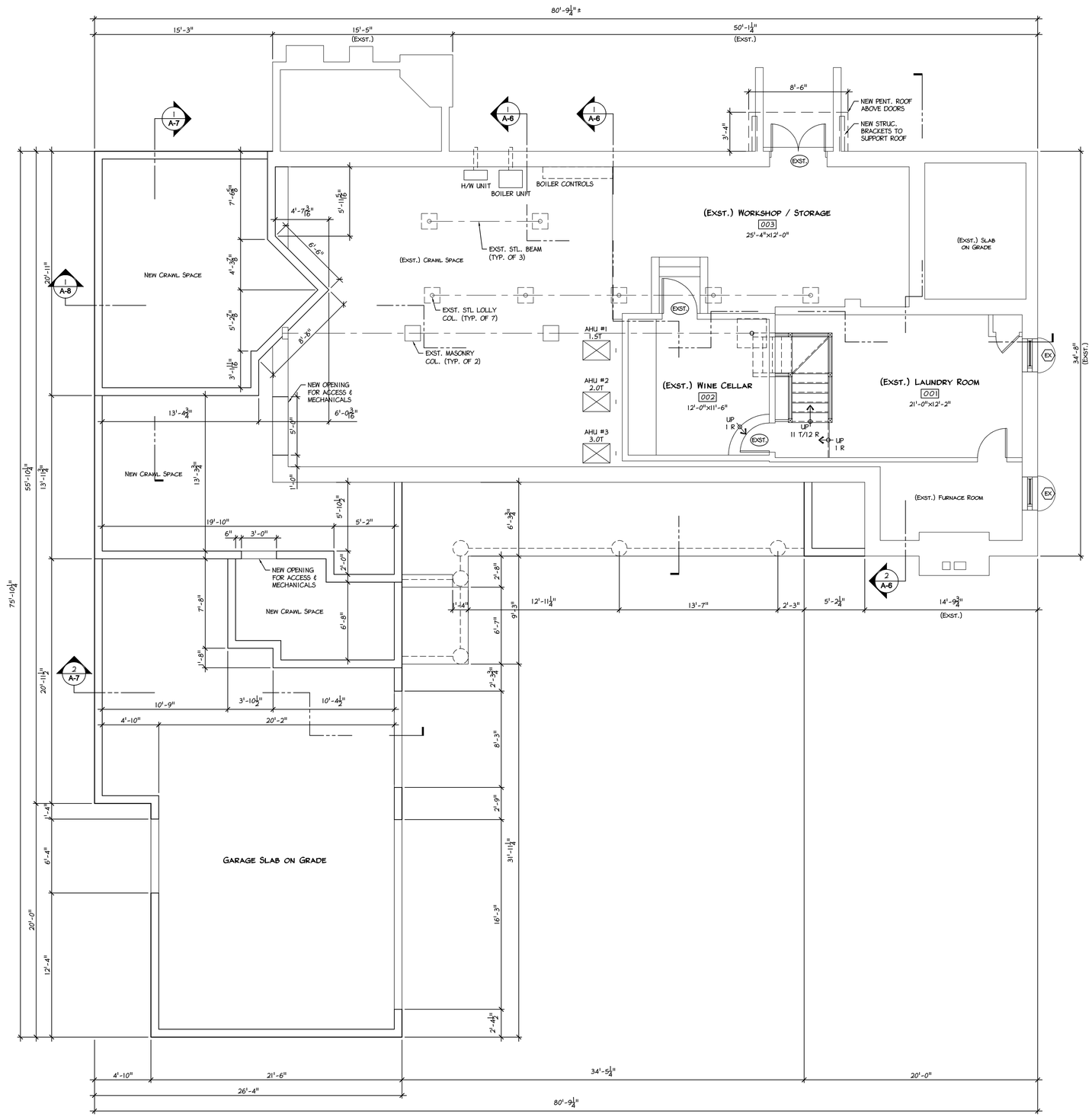
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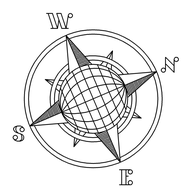
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1 BASEMENT PLAN
A-1 Scale: 1/4" = 1'- 0"

FLOOR AREA			
	GROSS AREA	NET AREA	
EXST. LOWER LEVEL	448	414	Sq.Ft.
EXST. FIRST FLOOR	2031	1916	Sq.Ft.
TOTAL	2479	2330	Sq.Ft.
LOWER LEVEL (BSMT)	448	414	Sq.Ft.
FIRST FLOOR	2846	2620	Sq.Ft.
SECOND FLOOR	940	850	Sq.Ft.
TOTAL	4234	3884	Sq.Ft.
UNFINISHED SUITE	550		Sq.Ft.
UNFINISHED BSMT	334		Sq.Ft.
TOTAL	884		Sq.Ft.
3-CAR GARAGE	795		Sq.Ft.
TOTAL	795		Sq.Ft.
(E) BUILDING IMPERV	2838		Sq.Ft.
(N) BUILDING IMPERV	3978		Sq.Ft.
TOTAL CHANGE	1140		Sq.Ft.



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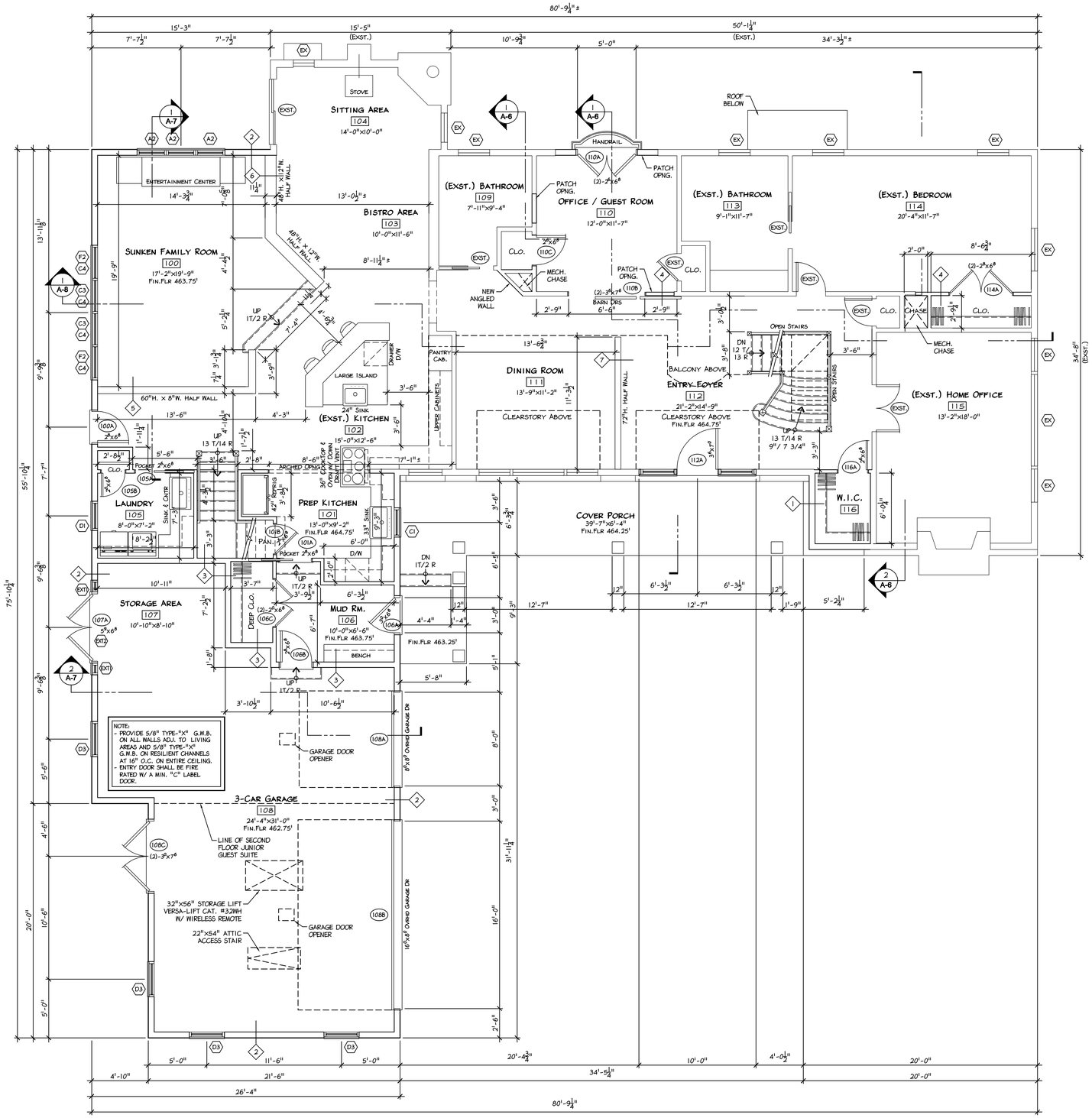
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SHEET TITLE
BASEMENT PLAN

SHEET NUMBER
A-1
REV 6

08-24-10 3161-A-SHT.dwg



1 FIRST FLOOR PLAN
A-2 Scale: 1/4" = 1'- 0"

GENERAL NOTES:

- ALL INTERIOR WALLS SHALL BE 2x4 STUDS AT 16" O.C. MAXIMUM UNLESS NOTED OTHERWISE.
- ALL EXTERIOR WALLS SHALL BE 2x6 STUDS AT 16" O.C. MAXIMUM UNLESS NOTED OTHERWISE.
- INSTALLATION OF FRAMING SHALL COMPLY WITH ALL APPLICABLE CODES AND LOCAL ORDINANCES.
- WHERE DRAWINGS ARE IN CONFLICT WITH OTHER DRAWINGS, CONTRACTOR SHALL NOTIFY THE ARCHITECT.
- PROVIDE SOLID BRIDGING AT 1/3 INTERVALS OF SPAN. (TYP. ALL JOIST)
- ALL WALLS ARE DIMENSIONED TO ROUGH FRAMING. INTERIOR - ADD 1/2" G.W.B. BOTH SIDES EXTERIOR - ADD 1/2" G.W.B. INTERIOR.
- ALL OPERABLE WINDOWS WITH SILLS BELOW 24" AND 72" ABOVE FIN. GRADE SHALL COMPLY WITH IRC 2006 SECTION 613.2 AND ASTM F-2090 FOR FALL RESTRAINT.

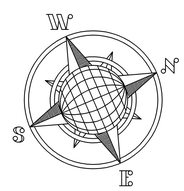
ROOF VENTILATION

	REQUIRED	PROVIDED	
MAIN ROOF	48.0	68.0	Sq.Ft.
JUNIOR STE. ROOF	14.8	21.0	Sq.Ft.
GARAGE ROOF	8.6	15.0	Sq.Ft.

NOTE:
AREAS ARE CALCULATED BY 1/150 OF THE ATTIC FLOOR AREA. 50% OF AREA AT THE RIDGE, 50% OF AREA AT THE SOFFIT.

FLOOR AREA

	GROSS AREA	NET AREA	
EXST. LOWER LEVEL	448	414	Sq.Ft.
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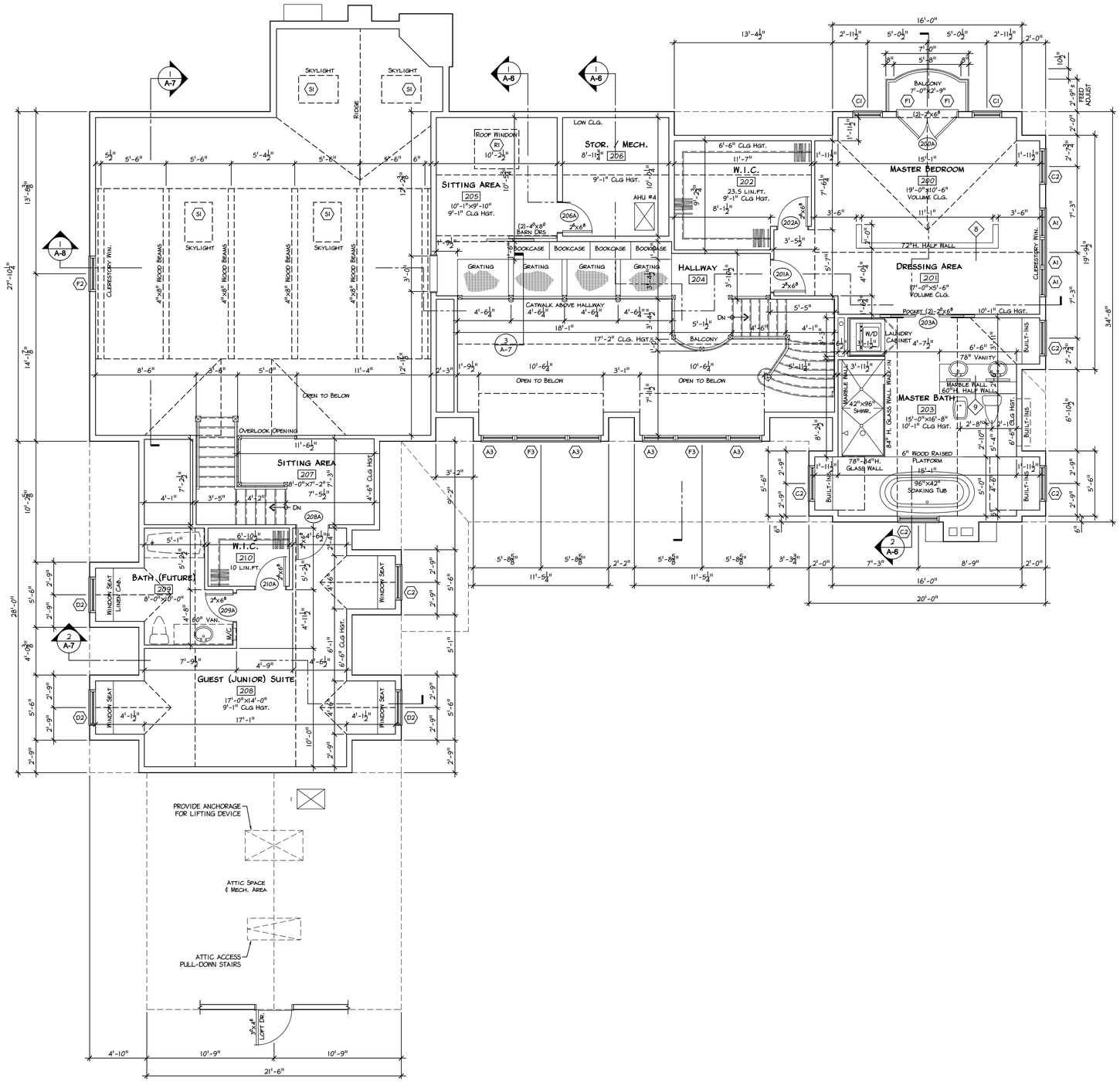
APPROVED BY: Robin J. Kohn
CURRENT DATE: August 24, 2010

MATZMORR / GOOD RESIDENCE
610 VALLEY VIEW LANE
WAYNE, PA 19087
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE
FIRST FLOOR PLAN

SHEET NUMBER
A-2
REV 6

08-24-10 3161-A-SHT.dwg



1 SECOND FLOOR PLAN
A-3 Scale: 1/4" = 1'- 0"

GENERAL NOTES:

- ALL INTERIOR WALLS SHALL BE 2x4 STUDS AT 16" O.C. MAXIMUM UNLESS NOTED OTHERWISE.
- ALL EXTERIOR WALLS SHALL BE 2x6 STUDS AT 16" O.C. MAXIMUM UNLESS NOTED OTHERWISE.
- INSTALLATION OF FRAMING SHALL COMPLY WITH ALL APPLICABLE CODES AND LOCAL ORDINANCES.
- WHERE DRAWINGS ARE IN CONFLICT WITH OTHER DRAWINGS, CONTRACTOR SHALL NOTIFY THE ARCHITECT.
- PROVIDE SOLID BRIDGING AT 1/3 INTERVALS OF SPAN. (TYP. ALL JOIST)
- ALL WALLS ARE DIMENSIONED TO ROUGH FRAMING.
  INTERIOR - ADD 1/2" G.W.B. BOTH SIDES
  EXTERIOR - ADD 1/2" G.W.B. INTERIOR.
- ALL OPERABLE WINDOWS WITH SILLS BELOW 24" AND 72" ABOVE FIN. GRADE SHALL COMPLY WITH IRC 2006 SECTION 613.2 AND ASTM F-2090 FOR FALL RESTRAINT.

ROOF VENTILATION

	REQUIRED	PROVIDED	
MAIN ROOF	48.0	68.0	Sq.Ft.
JUNIOR STE. ROOF	14.8	21.0	Sq.Ft.
GARAGE ROOF	8.6	15.0	Sq.Ft.

NOTE:
AREAS ARE CALCULATED BY 1/150 OF THE ATTIC FLOOR AREA. 50% OF AREA AT THE RIDGE, 50% OF AREA AT THE SOFFIT.

FLOOR AREA

	GROSS AREA	NET AREA	
EXST. LOWER LEVEL	448	414	Sq.Ft.
EXST. FIRST FLOOR	2031	1916	Sq.Ft.
TOTAL	2479	2330	Sq.Ft.
LOWER LEVEL (BSMT)	448	414	Sq.Ft.
FIRST FLOOR	2846	2620	Sq.Ft.
SECOND FLOOR	940	850	Sq.Ft.
TOTAL	4234	3884	Sq.Ft.
UNFINISHED SUITE	550		Sq.Ft.
UNFINISHED BSMT	334		Sq.Ft.
TOTAL	884		Sq.Ft.
3-CAR GARAGE	795		Sq.Ft.
TOTAL	795		Sq.Ft.
(E) BUILDING IMPERV	2838		Sq.Ft.
(N) BUILDING IMPERV	3978		Sq.Ft.
TOTAL CHANGE	1140		Sq.Ft.

Betzwood Associates PC
Architects & Engineers
Robin J. Kohn, AIA — Kegin W. Kubik, PE
REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA ROBIN J. KOHN RA-11327-X
Note: Certification not valid unless original stamp and signature appear on the project title sheet
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tel. (610) 917-8831 fax (610) 917-8836
email mail@betzwood.com http://www.betzwood.com

Robin J. Kohn, AIA
Commonwealth of Pennsylvania
License No. RA-11327-X

Contact Person:
Edward (Kipp) Happ
(610) 917-8831

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B3161	EMH	RJK

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CHESTER COUNTY

SHEET TITLE
SECOND FLOOR PLAN

SHEET NUMBER
A-3
REV 6

08-24-10 3161-A-SHT.dwg



1 FRONT ELEVATION
A-4 Scale: 1/4" = 1'- 0"



2 EAST SIDE ELEVATION
A-4 Scale: 1/4" = 1'- 0"

ELEVATION KEYNOTES

3.0 CONCRETE
- 3.1 CEMENT STUCCO FINISHING SYSTEM

4.0 MASONRY
- 4.1 ASHLAR FLAGSTONE - PATIO COLOR TO BE CHOSEN BY OWNER
- 4.2 BRICK - GLEN GEARY 1ST VENEER BRICK
- 4.3 CAP STONE - PRECAST STONE WATERTABLE CAP STONE
- 4.4 STONE - ASHLAR SCHIST 6" VENEER STONE (MATCH EXST.)
- 4.5 STONE - ASHLAR SCHIST 1ST VENEER STONE (MATCH EXST.)
- 4.6 CHIMNEY SMOKE CHAMBER TAPER PRECAST STONE

6.0 WOODS AND PLASTICS
- 6.1 CEMENTITIOUS HORIZONTAL SIDING HARDIEPLANK - LAP SIDING
- 6.2 CEMENTITIOUS HORIZONTAL SIDING HARDIEPLANK - SHINGLE STYLE SIDING
- 6.3 CEMENTITIOUS BOARD & BATTEN SIDING HARDIEPLANK - PANEL & 1X TRIM
- 6.4 CEMENTITIOUS TRIM HARDIEPLANK
- 6.5 GABLE END / BARGEBOARD TRIM AZEK TRIM PANELS
- 6.6 GABLE END / FREEZE TRIM AZEK TRIM PANELS
- 6.7 FASCIA TRIM AZEK TRIM PANELS
- 6.8 FASCIA / FREEZE TRIM AZEK TRIM PANELS
- 6.9 WINDOW / DOOR HEADER AZEK TRIM
- 6.10 DORMER HEAD TRIM AZEK TRIM
- 6.11 WINDOW / DOOR SIDE TRIM AZEK TRIM
- 6.12 WINDOW SHUTTERS - VIXEN HILL RAISED / LOUVERED PANEL(S)
- 6.13 WINDOW SILL EXTENSIONS AZEK - MOLDING
- 6.14 COLUMN - RAISED PANEL SQUARE 12" SQ. - AZEK OR CEMENTITIOUS
- 6.15 RAILING, BALUSTERS & POSTS CERTAINTEED - COMPOSITE RAILING
- 6.16 AZEK MOLDING / 1 X TRIM
- 6.17 RAFTER TAIL EXTENSIONS AZEK OR APPROVED EQUAL
- 6.18 STRUCTURAL SUPPORT BRACKETS AZEK OR APPROVED EQUAL
- 6.19 DECORATIVE BRACKETS AZEK OR APPROVED EQUAL

7.0 THERMAL & MOISTURE PROTECTION
- 7.1 SIMULATED WOOD SHINGLES STYLE CHOSEN BY OWNER
- 7.2 RIDGE VENT - BENJAMIN OBDYKE XTRACTOR VENT - SERIES: X18
- 7.3 LOW SLOPED METAL ROOF 12" STANDING SEAM METAL ROOF

10.0 SPECIALTIES
- 10.1 GABLE END BRACKETS AZEK OR APPROVED EQUAL
- 10.2 VINTAGE HAY-BALE ANCHORAGE POINT W/ BLOCK & TACKLE - CAMPBELL
- 10.3 WOOD & METAL CURVED HANDRAIL W/ CURVED METAL BALUSTRADES
- 10.4 CARRIAGE STYLE GARAGE DOORS DESIGNER DOORS OR APPROVED EQUAL
- 10.5 DECORATIVE CHIMNEY CAP CUSTOM SIZED COPPER DESIGN
- 10.6 CARRIAGE BARN CUPOLA COPPER ROOF & AZEK (PVC) CONSTR
- 10.7 NATURAL COPPER WEATHER VANE CUSTOM SIZED COPPER DESIGN

Betzwood Associates PC
Architects & Engineers
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APPROVED BY	CURRENT DATE
Robin J. Kohn	August 24, 2010

MATZMORR / GOOD RESIDENCE

610 VALLEY VIEW LANE
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TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

FRONT & EAST SIDE ELEVATIONS

SHEET NUMBER

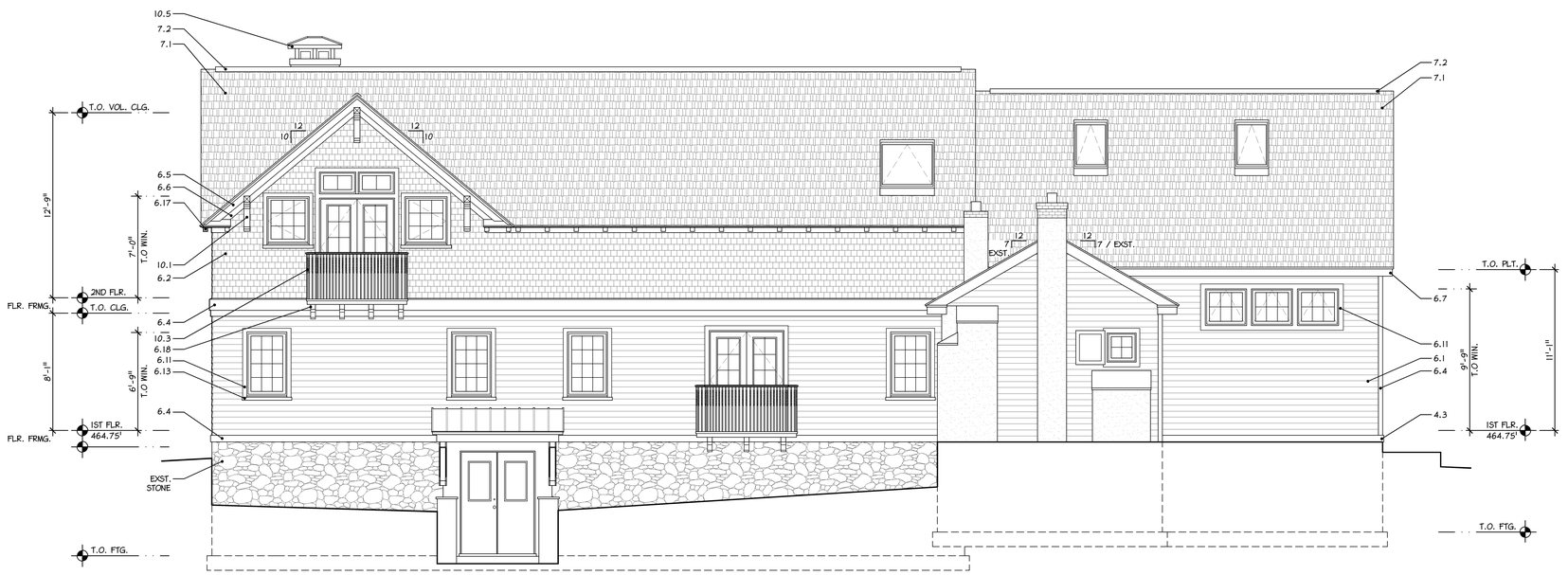
A-4

REV 6

08-24-10 3161-A-SHT.dwg



1 SIDE ELEVATION
A-5 Scale: 1/4" = 1'- 0"



2 REAR ELEVATION
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CHESTER COUNTY

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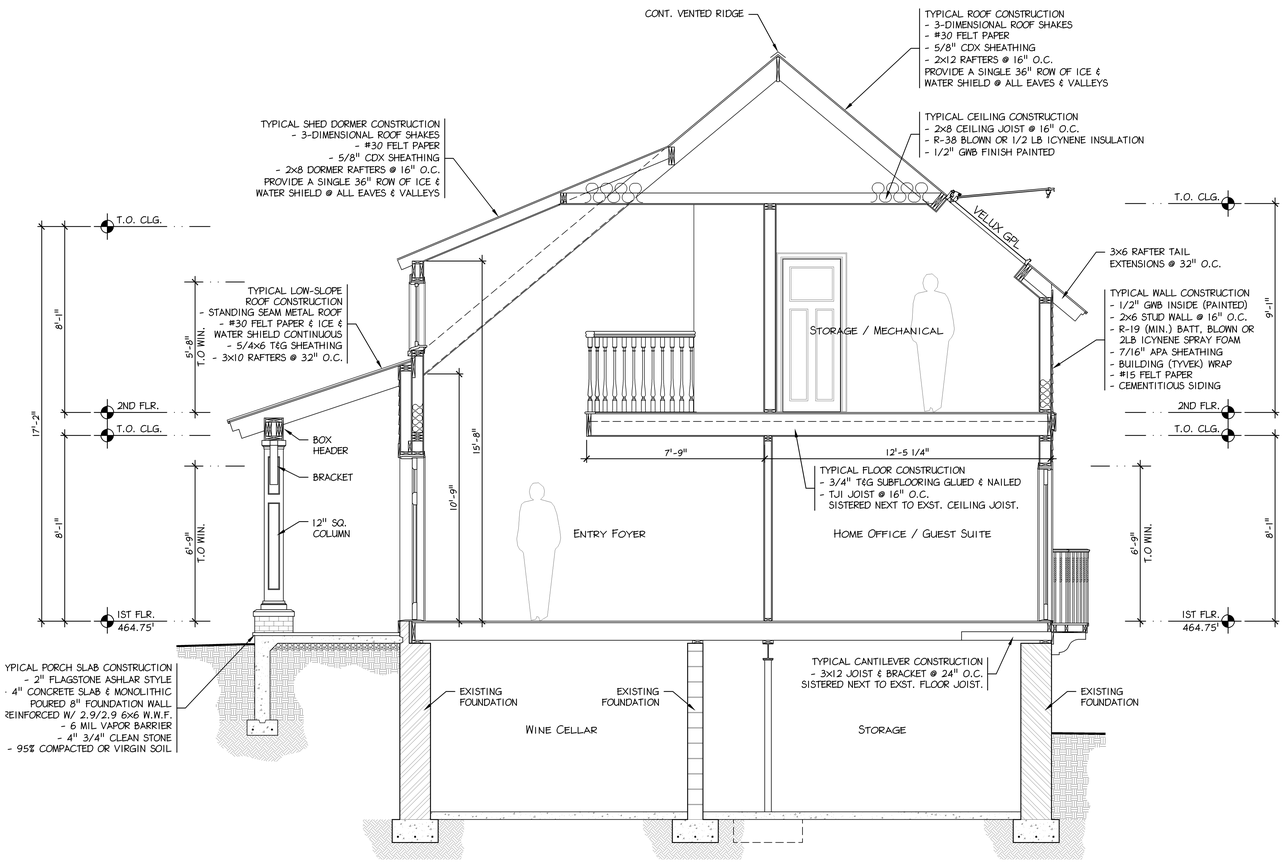
REAR & WEST SIDE ELEVATIONS

SHEET NUMBER

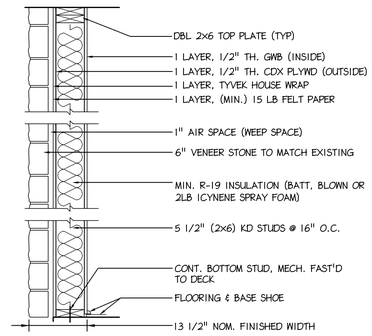
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REV 6

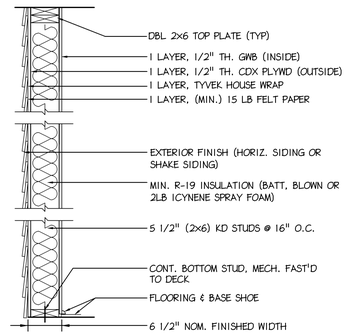
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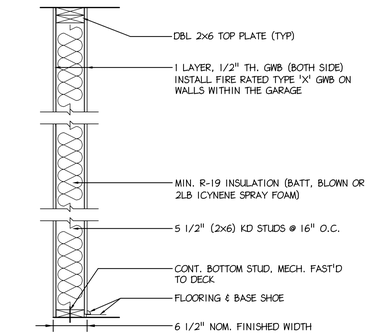
1 BUILDING SECTION
A-6 Scale: 3/8" = 1'- 0"



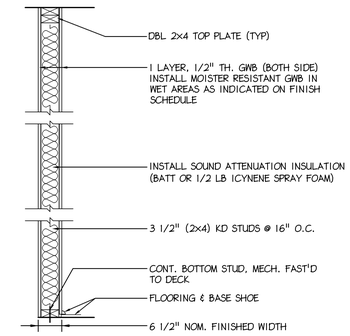
1 2x6 EXTERIOR WALL W/ STONE VENEER



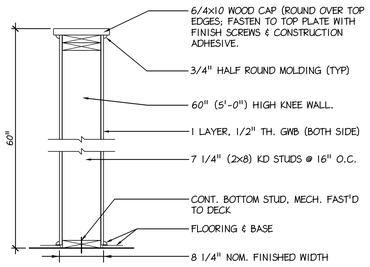
2 TYPICAL 2x6 TYPICAL EXTERIOR WALL



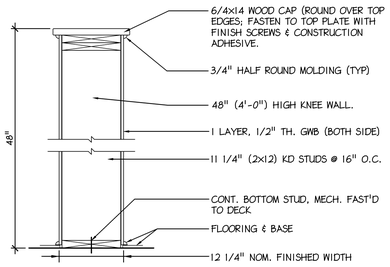
3 TYPICAL 2x6 INSULATED INTERIOR WALL



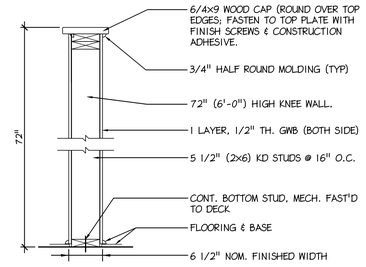
4 TYPICAL 2x4 INTERIOR WALL



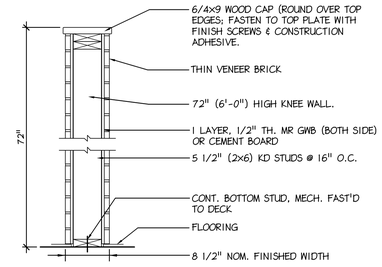
5 60" HIGH 8" WIDE KNEE WALL



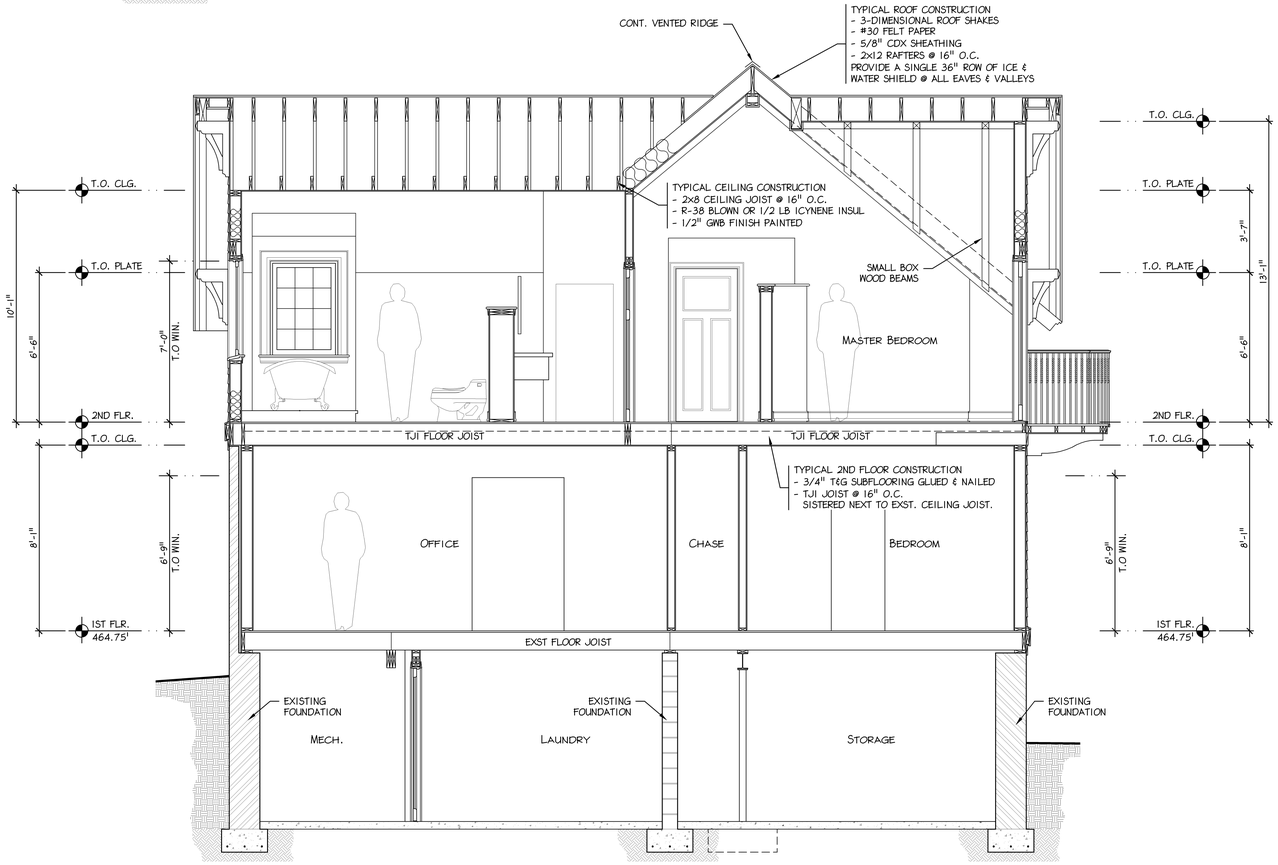
6 48" HIGH 12" WIDE KNEE WALL



7 72" HIGH 6" WIDE KNEE WALL



8 72" HIGH 8" WIDE BRICK KNEE WALL



2 BUILDING SECTION
A-6 Scale: 3/8" = 1'- 0"

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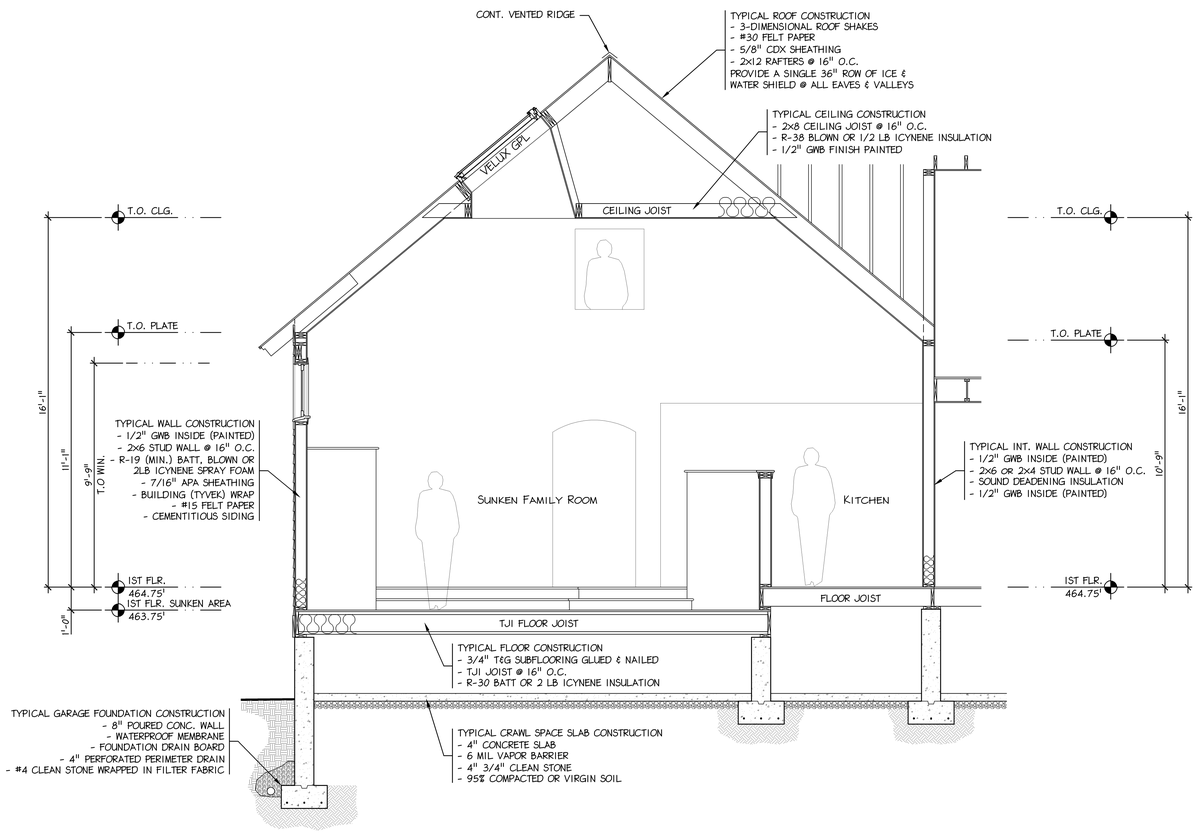
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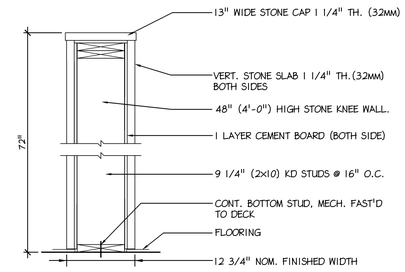
SHEET TITLE
BUILDING SECTIONS

SHEET NUMBER
A-6
REV 6

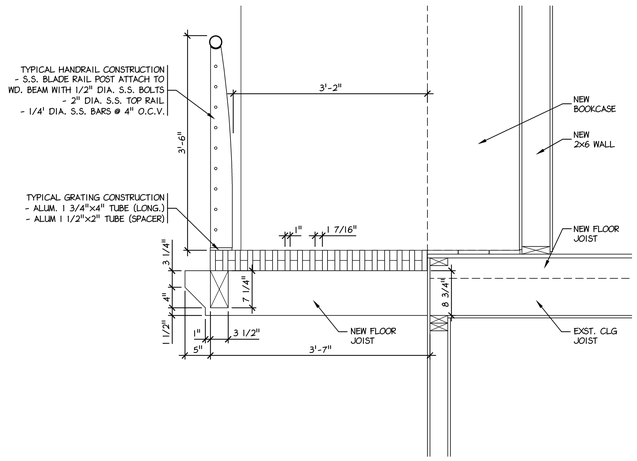
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08-24-10



1 A-7 **BUILDING SECTION**
Scale: 3/8" = 1'- 0"



9 **60" HIGH 12" WIDE STONE KNEE WALL**



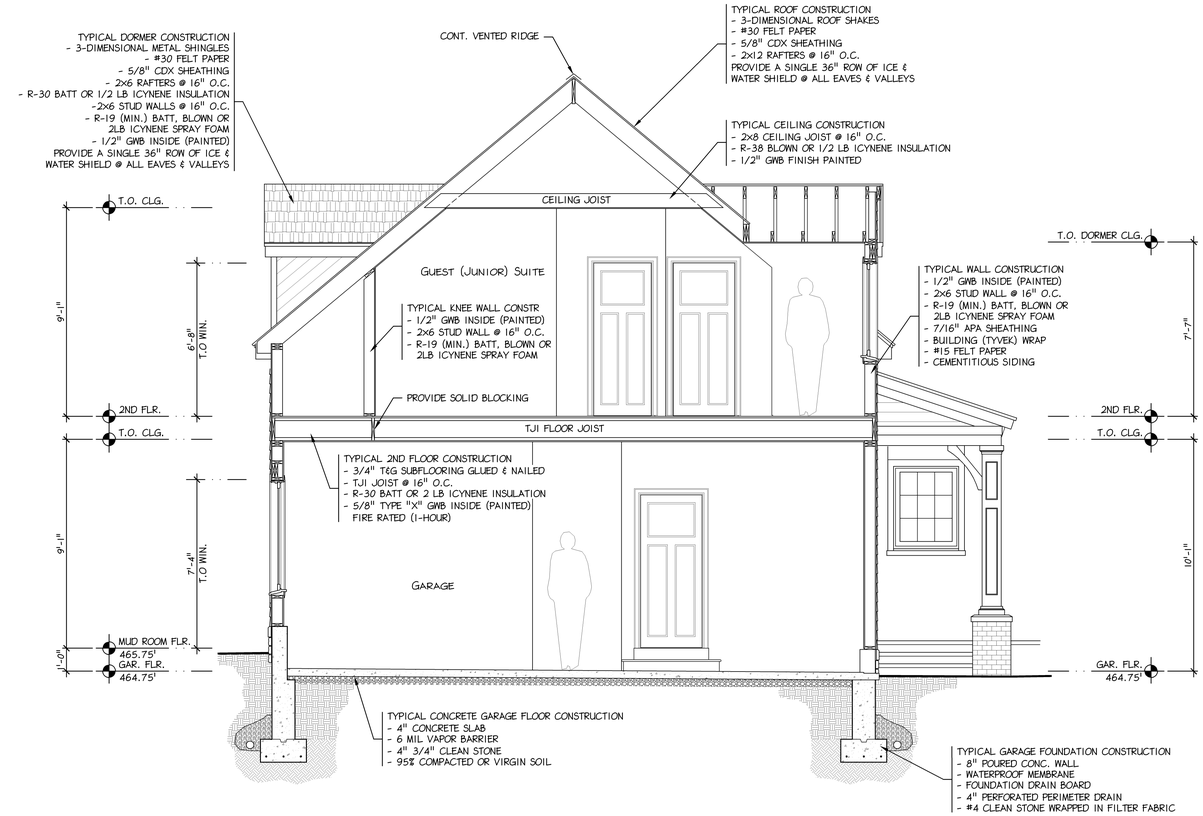
3 A-7 **HANDRAIL & GRATING DETAIL**
Scale: 1" = 1'- 0"

WINDOW SCHEDULE

NO	WINDOW UNIT SIZE	WINDOW ROUGH OPENING	TYPE	MANF.	GLASS TYP.	CLEAR OPENING	VISIBLE LIGHT	UNIT COUNT	REMARKS
A1	2525 / CLAD / INTEGRAL GRILLE	2'-1 3/4"W x 2'-1 3/4"H	AW	PELLA	DBL LOW-E	1.8	2.6	3	MASTER BEDROOM CLERESTORY WINDOWS
A2	3529 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 2'-5 3/4"H	AW	PELLA	DBL LOW-E	4.4	4.7	3	GREAT ROOM CLERESTORY WINDOWS
A3	3535 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 2'-11 3/4"H	AW	PELLA	DBL LOW-E	5.2	5.6	4	ENTRY / DINING ROOM CLERESTORY WINDOWS
C1	3541 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 3'-5 3/4"H	CA	PELLA	DBL LOW-E	6.5	7.1	3	MASTER BEDROOM / PREP KITCHEN WINDOWS
C2	3547 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 3'-11 3/4"H	CA	PELLA	DBL LOW-E	7.5	8.3	5	MASTER BEDROOM WINDOWS / JUNIOR SUITE EGRESS
C3	3553 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 4'-5 3/4"H	CA	PELLA	DBL LOW-E	8.6	9.5	2	GREAT ROOM WINDOWS
C4	3565 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 5'-5 3/4"H	CA	PELLA	DBL LOW-E	10.7	12.0	4	GREAT ROOM WINDOWS
D1	3353 / CLAD / INTEGRAL GRILLE	2'-9 3/4"W x 4'-5 3/4"H	DH	PELLA	DBL LOW-E	4.3	8.4	1	LAUNDRY ROOM WINDOW
D2	3357 / CLAD / INTEGRAL GRILLE	2'-9 3/4"W x 4'-9 3/4"H	DH	PELLA	DBL LOW-E	4.9	9.1	3	JUNIOR SUITE WINDOWS
D3	3359 / CLAD / INTEGRAL GRILLE	2'-9 3/4"W x 4'-11 3/4"H	DH	PELLA	DBL LOW-E	5.1	9.5	4	GARAGE WINDOWS
F1	2917 / CLAD / INTEGRAL GRILLE	2'-5 3/4"W x 1'-5 3/4"H	FX	PELLA	DBL LOW-E	N/A	1.4	2	MASTER BEDROOM TRANSOM WINDOWS
F2	3525 / CLAD / INTEGRAL GRILLE	2'-11 3/4"W x 2'-1 3/4"H	FX	PELLA	DBL LOW-E	N/A	4.1	3	GREAT ROOM TRANSOM / CLERESTORY WINDOWS
F3	4135 / CLAD / INTEGRAL GRILLE	3'-5 3/4"W x 2'-11 3/4"H	FX	PELLA	DBL LOW-E	N/A	7.4	2	ENTRY / DINING ROOM CLERESTORY WINDOWS
R1	GPL-S06	3'-9 1/4"W x 3'-10 7/8"H	RW	VELUX	DBL LOW-E	11.64	9.65	1	OPERABLE ROOF WINDOW
S1	VSE-306	2'-6 9/16"W x 3'-10 3/4"H	SL	VELUX	DBL LOW-E	4.80	7.14	4	ELECTRIC OPERABLE SKYLIGHT
EXT1	EXST SIDE LITES	12"W x 6'-8"H	EXST	EXST	EXST	N/A	5	2	REUSE OF EXISTING SIDE LITES
EXT2	EXST TRANSOM	6'-0"W x 16"H	EXST	EXST	EXST	N/A	5.5	1	REUSE OF EXISTING TRANSOM

DOOR SCHEDULE

NO	SPACE FROM	SPACE TO	DOOR ROUGH OPENING	TYP.	MAT.	GLASS	FRAME TYPE	SADDLE MAT.	FIRE RATING LABEL	HDWE GROUP	REMARKS
100A	EXTERIOR	FAMILY ROOM	2'-10"W x 6'-9"H	A	WD	INS.	WD	WD	N/A	EXT 02	
101A	PREP KIT.	MUD ROOM	POCKET 5'-9"W x 6'-9"H	C	WD	N/A	WD	N/A	N/A	INT 06	
101B	PREP KIT.	PANTRY	2'-8"W x 6'-9"H	B	WD	N/A	WD	N/A	N/A	INT 05	
105A	FAMILY ROOM	LAUNDRY	POCKET 5'-9"W x 6'-9"H	C	WD	N/A	WD	N/A	N/A	INT 06	
105B	LAUNDRY	CLOSET	2'-2"W x 6'-9"H	B	WD	N/A	WD	N/A	N/A	INT 05	
106A	EXT. PORCH	MUD ROOM	3'-2"W x 6'-9"H	A	WD	INS.	WD	WD	N/A	EXT 02	
106B	MUD ROOM	GARAGE	2'-10"W x 6'-9"H	B	WD	N/A	WD	N/A	20 MIN.	INT 01	PROVIDE DOOR SEALS
106C	MUD ROOM	CLOSET	DBL DR. 5'-2"W x 6'-9"H	BB	WD	N/A	WD	N/A	N/A	INT 07	
107A	STORAGE AREA	OUTSIDE	DBL DR. 5'-9"W x 6'-5"H	BB	WD	EXST	WD	N/A	N/A	EXST	REUSE EXISTING FRENCH DOORS
108A	EXT DRIVEWAY	GARAGE	8'-2"W x 8'-4"H	G	WD	STD.	WD	N/A	N/A	EXT 05	
108B	EXT DRIVEWAY	GARAGE	16'-2"W x 8'-4"H	G2	WD	STD.	WD	N/A	N/A	EXT 05	
108C	EXTERIOR	GARAGE	6'-2"W x 7'-2"H	AA	WD	INS.	WD	ALUM.	N/A	EXT 03	OUTSWING - BARN DOORS
110A	EXTERIOR	OFFICE / GUEST	5'-2"W x 6'-10"H	DD	WD	INS.	WD	WD	N/A	EXT 04	
110B	HALLWAY	OFFICE / GUEST	6'-6"W x 7'-0"H	EE	WD	N/A	WD	N/A	N/A	INT 08	BARN DOORS
110C	OFFICE / GUEST	CLOSET	2'-6"W x 6'-8"H	B	WD	N/A	WD	N/A	N/A	INT 05	
112A	EXT. PORCH	ENTRY FOYER	10'-2"W x 7'-3"H	F	WD	INS.	WD	N/A	N/A	EXT 01	FRONT ENTRY DOOR W/ 32" SIDE LITES
114A	(E) BEDROOM	CLOSET	DBL DR. 5'-2"W x 6-9"H	BB	WD	N/A	WD	N/A	N/A	INT 07	
116A	FOYER	CLOSET	2'-8"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 05	
200A	MSTR. BEDRM	BALCONY	5'-2"W x 6-10"H	DD	WD	INS.	WD	WD	N/A	EXT 04	
201A	MSTR. BEDRM	HALLWAY	2'-10"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 02	
202A	MSTR. BEDRM	W.I.C.	2'-8"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 05	
203A	MSTR. BEDRM	MSTR. BATH	POCKET 8'-2"W x 6-9"H	BB	WD	N/A	WD	N/A	N/A	INT 06	
206A	SITTING AREA	STOR./MECH.	2'-8"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 02	PROVIDE DOOR SEALS
208A	SITTING AREA	GUEST SUITE	2'-10"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 02	PROVIDE DOOR SEALS
209A	GUEST SUITE	BATHROOM	2'-8"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 03	FUTURE DOOR
210A	GUEST SUITE	W.I.C.	2'-8"W x 6-9"H	B	WD	N/A	WD	N/A	N/A	INT 05	FUTURE DOOR



2 A-7 **BUILDING SECTION**
Scale: 3/8" = 1'- 0"

Betzwood Associates PC
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Note: Certification not valid unless original stamp and signature appear on the project title sheet
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Contact Person:
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B3161	EMH	RJK

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13			
14			
15			

APPROVED BY	CURRENT DATE
Robin J. Kohn	August 24, 2010

MATZMORR / GOOD RESIDENCE

610 VALLEY VIEW LANE
WAYNE, PA 19087

TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

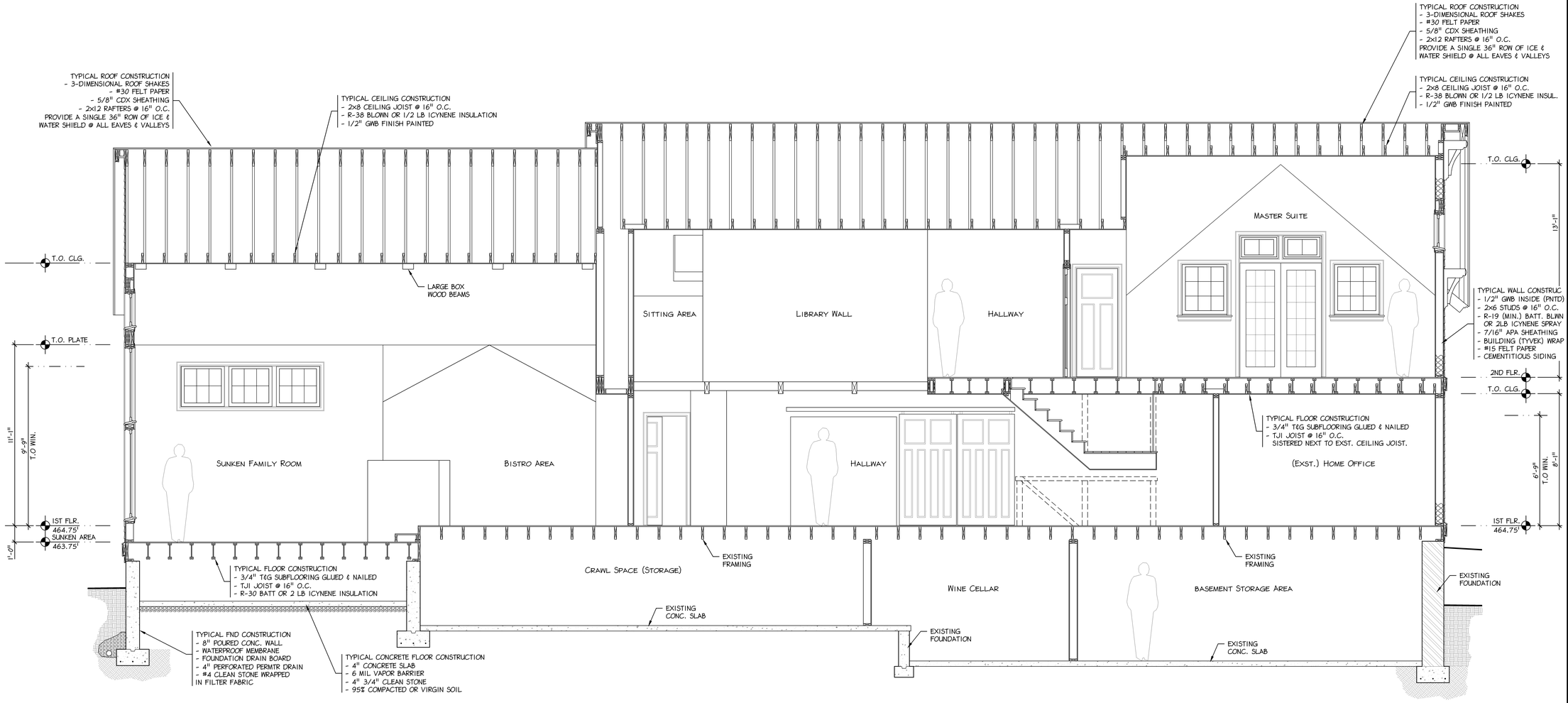
BUILDING SECTIONS

SHEET NUMBER

A-7

REV 6

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08-24-10



1 / A-8 **BUILDING SECTION**
Scale: 3/8" = 1'- 0"

FINISH SCHEDULE

NO	SPACE	FLOOR		BASE		WALLS								CEILING			REMARKS
						NORTH		EAST		SOUTH		WEST					
		MAT.	FINISH	MAT.	FINISH	MAT.	FINISH	MAT.	FINISH	MAT.	FINISH	MAT.	FINISH	MAT.	FINISH	HEIGHT	
100	S. Family Room	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	11'-1"	Sloped Clg to 16'-1"
101	Prep Kitchen	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	8'-1"	
102	(E) Kitchen	B	Walnut	1	Painted	Exst.	Painted	Exst.	Painted	-	-	-	-	1	Painted	10'-9"	Sloped Clg to 16'-1"
103	Bistro	Exst.	Exst.	1	Painted	Exst.	Exst.	-	-	-	-	A	Painted	1	Painted	9'-1"	
104	Sitting Area	Exst.	Exst.	1	Painted	Exst.	Painted	-	-	Exst.	Painted	Exst.	Painted	1	Painted	9'-1"	
105	Laundry	C	Ceramic	1	Painted	B	Painted	B	Painted	B	Painted	B	Painted	2	Painted	8'-1"	
106	Mud Rm	C	Ceramic	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	9'-1"	
107	Storage Area	F	Sealed	1	Painted	F	Painted	F	Painted	F	Painted	F	Painted	6	Painted	10'-1"	
108	Garage	F	Sealed	1	Painted	F	Painted	F	Painted	F	Painted	F	Painted	6	Painted	10'-1"	
109	(E) Bathroom	Exst.	Exst.	Exst.	Painted	Exst.	Painted	Exst.	Painted	Exst.	Painted	Exst.	Painted	Exst.	Painted	8'-1"	
110	Office / Guest	B	Walnut	1	Painted	Exst.	Painted	Exst.	Painted	Exst.	Painted	Exst.	Painted	Exst.	Painted	3'-1"	
111	Dining Rm	B	Walnut	1	Painted	A	Painted	Exst.	Painted	Exst.	Painted	-	-	1	Painted	9'-1"	
112	Entry Foyer	B	Walnut	1	Painted	Exst.	Painted	Exst.	Painted	A	Painted	Exst.	Painted	1	Painted	9'-1"	
113	(E) Bathroom	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	8'-1"	
114	(E) Bedroom	B	Walnut	1	Painted	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	8'-1"	
115	(E) Home Office	B	Walnut	1	Painted	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	Exst.	8'-1"	
116	WIC	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	8'-1"	
200	Master Bedrm	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	13'-1"	Volume Ceiling
201	Dressing Area	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	10'-1"	Volume Ceiling
202	Master W.I.C.	A	Unkwn	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	8'-1"	
203	Master Bath	D	?	4	?	B	Painted	B	Painted	B	Painted	B	Painted	2	Painted	10'-1"	Volume Ceiling
204	Hallway	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	8'-1"	
205	Sitting Area	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	9'-1"	
206	Stor. / Mech.	B	SubFlr	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	-	
207	Sitting Area	B	Walnut	1	Painted	A	Painted	A	Painted	A	Painted	A	Painted	1	Painted	9'-1"	
208	Guest Suite	B		1	-	A	-	A	-	A	-	A	-	1	-	-	Future Space
209	Guest Bath	B		1	-	A	-	A	-	A	-	A	-	1	-	-	Future Space
210	W.I.C.	B		1	-	A	-	A	-	A	-	A	-	1	-	-	Future Space

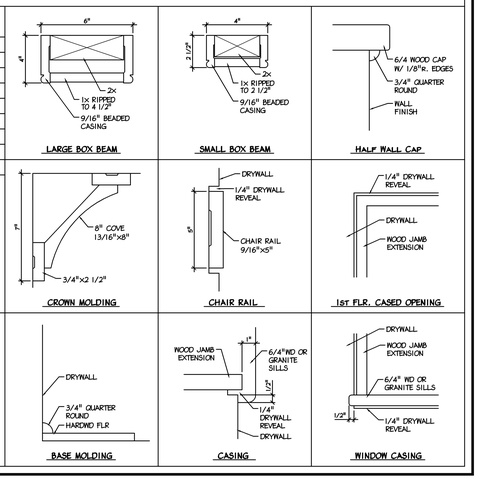
INTERIOR FINISH DETAILS

MATERIAL CODE

FLOOR		BASE / TRIM		WALL		CEILING	
A	CPT	1	WD	A	G.W.B.	1	G.W.B.
B	H WD T&G	2	H WD T&G	B	MR G.W.B.	2	MR G.W.B.
C	CT	3	CT	C	CT	3	5/8" 'X' GWB
D	PT	4	PT	D	WD PANEL	4	UNFINISHED
E	VT	5	VT	E	BRICK	5	WD T&G
F	CONC.	6	UNFINISHED	F	5/8" 'X' GWB	6	5/8" 'X' GWB
G	SUBFLR.	7		G	UNFINISHED	7	UNFINISHED
H	P.T. WD	8		H		8	

MATERIAL GLOSSARY

CPT	CARPET
CT	CERAMIC TILE
CONC.	CONCRETE
G.W.B.	GYPSUM WALL BOARD
H WD	HARDWOOD FLOOR
MR.G.W.B.	MOISTURE RESISTANT G.W.B.
PT	PORCELAIN TILE
'X' G.W.B.	FIRE RATED GYPSUM WALL BOARD
VT	SHEET VINYL TILE
WD.	WOOD
WD T&G	WOOD TONGUE & GROOVE



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APPROVED BY: Robin J. Kohn — CURRENT DATE: August 24, 2010

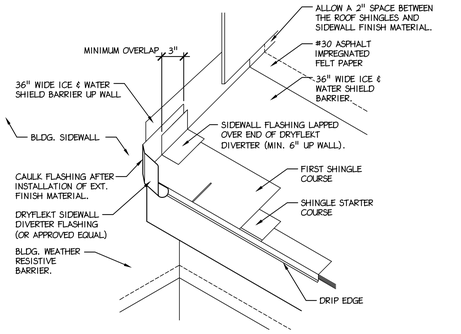
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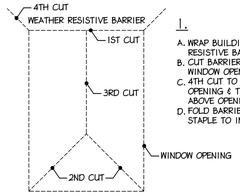
SHEET TITLE
BUILDING SECTION

SHEET NUMBER
A-8
REV 6

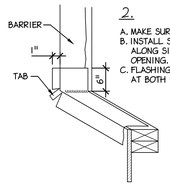
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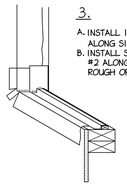
1 TYP. DIVERTER FLASHING
A-9 Scale: 3/4" = 1'- 0"



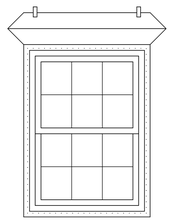
1.
A. WRAP BUILDING W/ WEATHER RESISTIVE BARRIER.
B. CUT BARRIER AS SHOWN FOR WINDOW OPENING.
C. 4TH CUT TO BE ABOVE WINDOW OPENING & TEMPORARILY SECURE ABOVE OPENING.
D. FOLD BARRIER INTO OPENING & STAPLE TO INSIDE WALL.



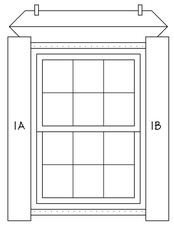
2.
A. MAKE SURE SILL PLATE IS LEVEL.
B. INSTALL SILL FLASHING TAPE ALONG SILL SECTION OF ROUGH OPENING.
C. FLASHING SHOULD CAUSE A DAM AT BOTH ENDS.



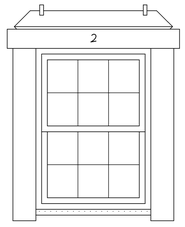
3.
A. INSTALL 1/4" LATH STRIP ALONG SILL (SILL DAM).
B. INSTALL SILL FLASHING TAPE #2 ALONG SILL SECTION OF ROUGH OPENING.



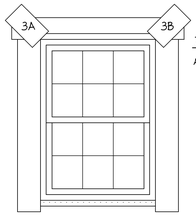
4.
A. INSTALL WINDOW IN OPENING (FOLLOW MAUF. INSTRUCTIONS).



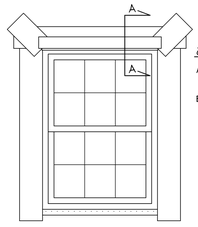
5.
A. APPLY 6" WIDE BOTTOM FLASHING TAPE.
B. APPLY 6" WIDE SIDE FLASHING TAPE.



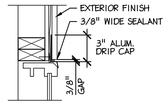
6.
A. APPLY 6" WIDE TOP FLASHING TAPE.
B. FOLD DOWN TOP FLAP OF WATER RESISTIVE BARRIER.



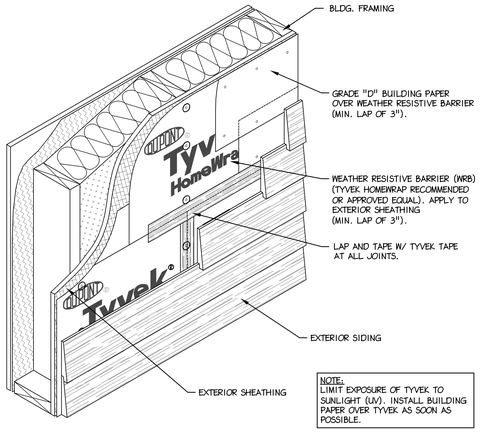
7.
A. APPLY 6" WIDE FLASHING TAPE TO SEAL DIAGONAL CUTS.



8.
A. PLACE CONTINUOUS ALUM. DRIP CAP. MUST EXTEND THE FULL LENGTH OF THE WINDOW.
B. APPLY (MIN. 1/4" WIDE) HIGH QUALITY SEALANT TO THE ENTIRE PERIMETER OF WINDOW.

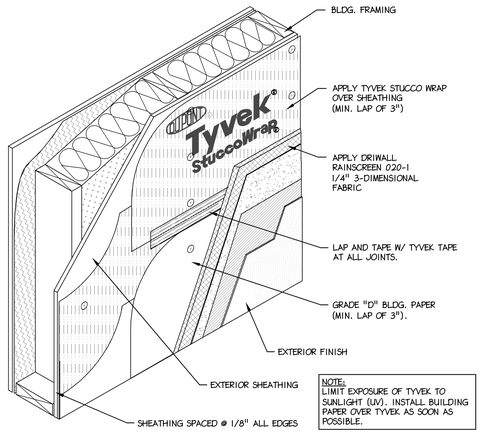


SECTION A-A



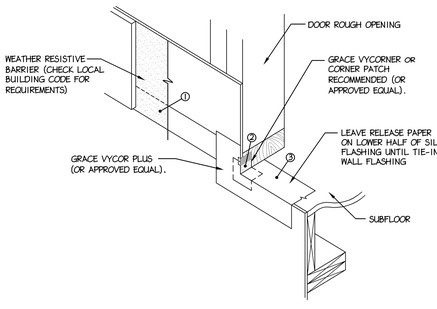
NOTE:
LIMIT EXPOSURE OF TYVEK TO SUNLIGHT (UV). INSTALL BUILDING PAPER OVER TYVEK AS SOON AS POSSIBLE.

3 TYP. SIDING WEATHER BARRIER WRAP
A-9 Scale: 3/4" = 1'- 0"

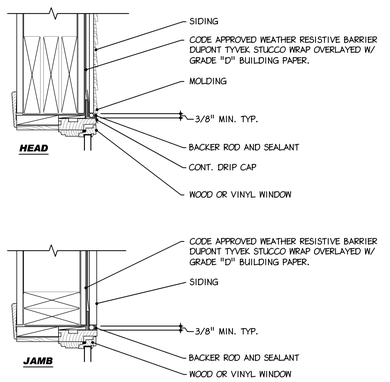


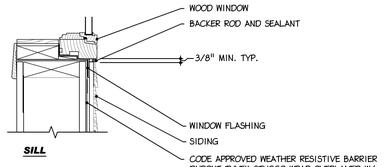
NOTE:
LIMIT EXPOSURE OF TYVEK TO SUNLIGHT (UV). INSTALL BUILDING PAPER OVER TYVEK AS SOON AS POSSIBLE.

4 TYP. MASONRY WEATHER BARRIER WRAP
A-9 Scale: 3/4" = 1'- 0"

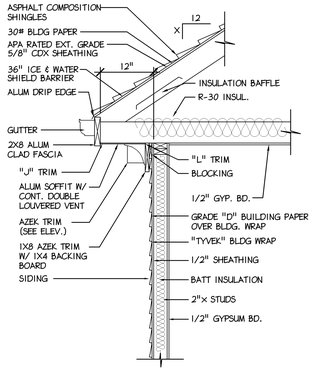


5 TYP. DOOR SILL FLASHING DETAIL
A-9 Scale: 3/4" = 1'- 0"

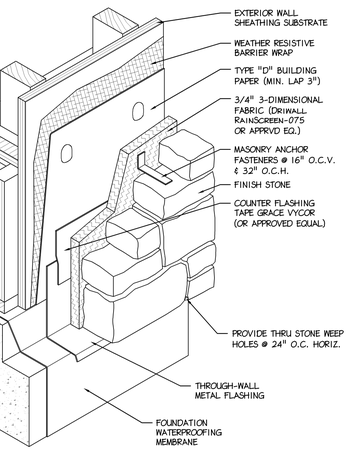




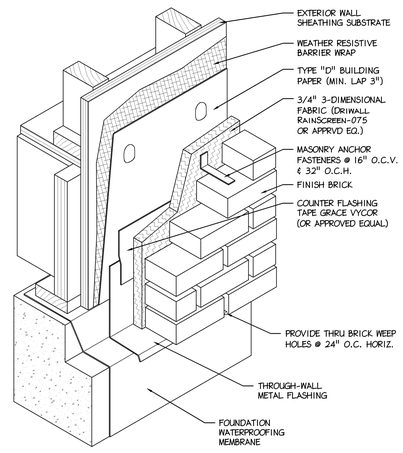
6 TYP. SIDING DETAIL AT WINDOW
A-9 Scale: 3/4" = 1'- 0"



7 TYP. SIDING EXTERIOR WALL DETAIL
A-9 Scale: 3/4" = 1'- 0"

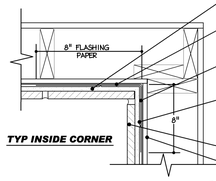


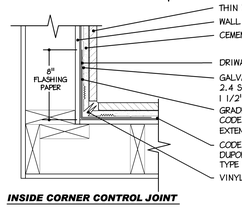
8 TYP. MASONRY VENEER DETAIL
A-9 Scale: 3/4" = 1'- 0"



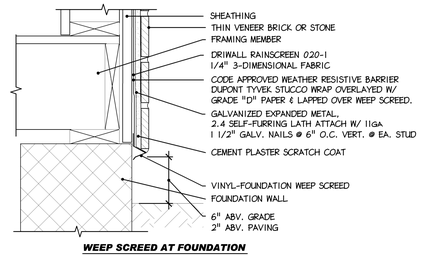
9 TYP. BRICK VENEER DETAIL
A-9 Scale: 3/4" = 1'- 0"

SCRATCH COAT NOTES:
1. LATH SHALL BE ATTACHED TO BUILDING FRAMING, NOT SHEATHING.
2. SCRATCH COAT SHALL BE A MINIMUM OF 3/8", 1/2" PREFERRED
3. SCORES IN SCRATCH COAT SHALL BE HORIZONTAL.
4. APPLICATION AND CURE TEMP. MOST BE ABOVE 40° F. OTHERWISE PROVIDE HEATED TENT.
5. MOIST CURE IN HOT OR DRY WEATHER. DO NOT USE ANTI-FREEZE ADDITIVES IN COLD WEATHER.



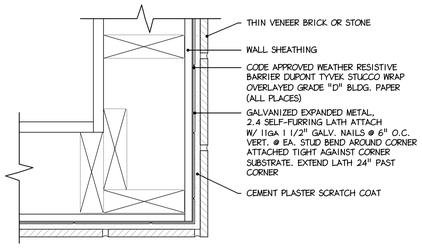


Inside Corner Detail

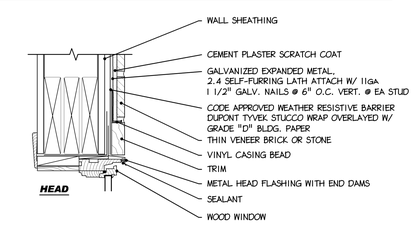


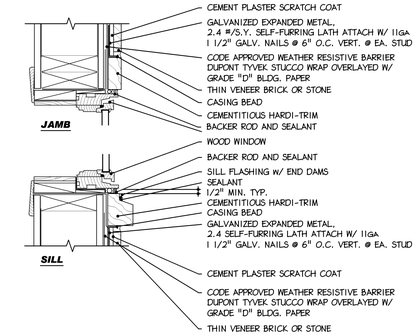
Termination at Grade

10 TYP. MASONRY EXTERIOR WALL DETAIL
A-9 Scale: 3/4" = 1'- 0"

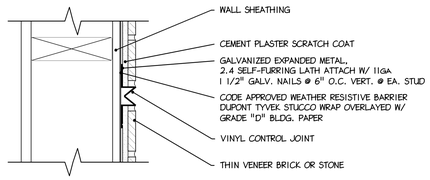


Outside Corner





Termination at Window



Control Joint Detail

Betzwood Associates PC
Architects & Engineers
Robin J. Kohn, AIA — Regis W. Kubit, PE
REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA ROBIN J. KOHN RA-11327-X
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Robin J. Kohn, AIA
Commonwealth of Pennsylvania
License No. RA-11327-X

Contact Person:
Edward (Kipp) Happ
(610) 917-8831

PROJECT NO.	DRAWN BY	CHK'D BY
B3161	EMH	RJK

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APPROVED BY: Robin J. Kohn
CURRENT DATE: August 24, 2010

MATZMORR / GOOD RESIDENCE
610 VALLEY VIEW LANE
WAYNE, PA 19087

TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE
EXTERIOR FINISH DETAILS

SHEET NUMBER
A-9

REV 6

3161-A-SHT.dwg
08-24-10

OUTLINE SPECIFICATIONS

DIVISION 1: GENERAL REQUIREMENTS

1. Summary of Work

   1. The project consists of General Construction, Mechanical, Electrical and Plumbing to renovate an existing residence

   2. Owner: Walter Matzmorr & Nancy Good-Matzmorr
      610 Valley View Lane
      Wayne, PA 19087

   3. Phasing: The project will be built as a single phase.

2. The General Conditions shall govern the work. For general requirements, refer to any Supplemental General Conditions Requirements for the project.

3. All work shall be done in accordance with project specifications and contract documents.

4. The Contractor shall submit shop drawings and samples to the Architect or Owner:

   List of Submittals (including but not limited to):
   Wood Doors and Frames
   Door Hardware
   Exterior Finishes
   Paint Color Samples
   Carpeting samples
   Tile Flooring
   Casework

GENERAL CONSTRUCTION NOTES

1. The building shall comply with the International Residential code (IRC) 2006 with all additional codes and safety regulations pertaining to Commonwealth of Pennsylvania and the local municipality, including any modifications made by ordinances by the local municipality. The project code summary is intended to highlight general code requirements only. General Contractor and subcontractors are responsible for conforming to all applicable code required and referring to the ICC Code.

2. All building permits shall be obtained by the contractor prior to the commencement of construction.

3. Before submitting proposal and beginning work, carefully examine construction documents, visit the site, and become fully informed concerning all existing conditions, law, ordinances, and regulations of jurisdictional bodies which may effect the work.

4. Contractor shall verify all dimensions and conditions in the field prior to construction. Any discrepancies should be brought to the attention of the Architect and Owner prior to construction.

5. Typical dimensions are to center line of column, rough farming and exterior wall sheathing. Refer to plan details for dimensional offsets.

6. All finishes shall be installed in accordance with manufacturer's recommendations and instructions. Refer to project literature of each specified finish for specific requirements.

7. Any new finishes required because of demolition or new construction shall match existing adjacent finishes.

8. After completion of all work, the area within construction limits shall be cleared of all excess materials, debris and trash. All new finishes shall be cleaned prior to occupancy by Owner.

DIVISION 2 - SITE CONSTRUCTION

1. Refer to Civil Drawings.

DIVISION 3 - CONCRETE

1. Refer to Structural Drawings.

DIVISION 4 - MASONRY

1. Refer to Structural Drawings.

DIVISION 5 - METALS

SECTION 05120 - STRUCTURAL STEEL

1. Refer to Structural Drawings.

DIVISION 6 - WOOD AND PLASTICS

SECTION 06100 - ROUGH CARPENTRY

1. Lumber: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by the American Lumber Standards Committee's (ALSC) Board of Review. Provide dressed lumber, S4S, with each piece factory marked with grade stamp of inspection agency.

2. Wood-Preservative-Treated Material: Comply with applicable requirements of AWPA C2 (lumber) and A WP A C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.

3. Fire-Retardant - Treated Material: Comply with applicable requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing; Timber Products Inspection, Inc.; or another testing and inspecting agency acceptable to authorities having jurisdiction.

4. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality q3 class, kind, and condition as indicated in drawings and schedules.

5. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, including those in referenced glazing publications. drying 5. Concealed Boards: Provide lumber with 19 percent maximum moisture content.

6. Miscellaneous Lumber: Provide No. 3 or Standard Grade Lumber of any species for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking and similar members.

DIVISION 7 - THERMAL AND MOISTURE PROTECTIONS

SECTION 07901 - JOINT SEALANTS

1. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.

2. Elastomeric Sealant Standard: One-part, Mildew Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G,A, and O; formulated with fungicide; intended for sealing interior joints with nonporous substrates exposed to high humidity and temperature extremes.

3. Acrylic Sealant: One-part, non sag, solvent-release curing acrylic terpolymer sealant complying with AAMA 808.3 or FS TT-S-00230, or both, with capability, when tested per ASTM C 719, to withstand 7.5 percent change in joint width existing at time of application without failing adhesively or cohesively.

4. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunable, synthetic rubber sealant recommended for sealing interior concealed joint to reduce transmission of airborne sound.

5. Sealant Backings: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

6. Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

7. Sealant Installation Standard: Comply with ASTM C 1193.

8. Acoustical Sealant Application Standard: Comply with ASMT C 919 for use of joint sealants in acoustical applications.

DIVISION 8 - DOORS AND WINDOWS

1. See drawings for new window specifications and details.

SECTION 08211 - FLUSH WOOD DOORS

1. NWWDA Quality Standard for Flush Wood Doors: NWWDA I.S. 1-A, "Architectural Wood Flush Doors."

2. Interior Solid-Core Veneer-Faced or Solid Doors:

   1. Solid Particle Core for veneer faced.

   2. Solid wood stiles, rails and panels to be engineered to prevent warping and splitting.

3. Install wood doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.

SECTION 08710 - DOOR HARDWARE

1. Hardware to comply with ADA (ANSI A117.1-2003).

2. Provide the following door hardware, or approved equal:

   1. Lockset Designs: Emtek, Cylindrical Lockset.

   2. Style: Emtek, To be selected by Owner

   3. Butts:

      1. Emtek, 4"x4" standard weight hinge, for up to 3'-0" wide doors.

      2. Emtek Heavy Duty full bearing for 3'-6" wide doors.

   4. Wall Mounted Door stop: Emtek #2231

   5. Thermal weather-stripping: National Guard Products #152 - Silicone gasket.

   6. Door Sweep: National Guard Products #C607.

3. Refer to Door Schedule for hardware requirements and hardware sets. If finishes are not noted, finishes shall be selected from full range of finish options to be provided with hardware submittal.

SECTION 08800 - GLAZING

1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTME 1300.

2. Safety Glass: Category 1 materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.

3. Glazing Publications: Comply with SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines."

4. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality q3 class, kind, and condition as indicated in drawings and schedules.

5. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, including those in referenced glazing publications.

DIVISION 9 - FINISHES

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

1. Gypsum Wallboard: ASTM C36, in thickness indicated.

2. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 101. 7, formed metal with steel sheet zinc coated by hot-dip process or rolled zinc.

3. Joint Treatment Materials: Provide joint treatment materials complying with AS TM C 475.

4. Sound Attenuation Blankets: ASTM C 665, Type I, unfaced mineral fiber blanket insulation.

5. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.

SECTION 09900 - PAINTING

1. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

2. Latex-Based Interior Flat Paint Over Gypsum Wallboard and Wood Doors: Ready-mixed, latex-based paint for use as a flat finish over prime-coated gypsum drywall and wood doors.

   1. Base Coat Primer: MAB Rich lux latex Enamel Undercoater (037-154).

   2. Second and Third Coats: MAB Rich lux Acrylic luster lite (041 line).

3. Latex-Based Interior Semi-Gloss Paint Over Gypsum Wallboard: Ready-mixed, latex-based paint for use as a semi-gloss finish over prime-coated gypsum drywall.

   1. Base Coat Primer: MAB Rich lux latex Enamel Undercoater (037-154).

   2. Second and Third Coats: MAB Rich lux low luster Acrylic Enamel (028 line!.

4. Interior Semi-Gloss Odorless Alkyd Enamel Over Ferrous Metal Surfaces: low-odor, semi-gloss, alkyd enamel for use over a primer and undercoat on both ferrous and zinc-coated (galvanized! metal surfaces.

   1. Base Coat Primer: MAB Rust-O-lastic Nydro Primer (073-9801.

   2. Second and Third Coats: MAB Rich lux Low Lustre Alkyd Enamel (021 line).

5. Painting Application: Prepare substrates and apply special coatings in accordance with manufacturer's written application instructions.

DIVISION 10 - SPECIALTIES

1. Provide kitchen accessories, bath accessories, fireplaces hardware, and miscellaneous items per Owners schedule and specifications. All items shall be installed in strict accordance with the respective manufacturer's published instructions and approved installation drawings.

2. Factory built fireplaces and flues shall be installed in accordance with N.F.P.A. 211, U.L. and manufacturer's specifications.

DIVISION 11 - EQUIPMENT - N/A

DIVISION 12 - FURNISHINGS

SECTION 12345 - CASEWORK AND FIXTURES

1. Casework shall be comprised from new and existing, refer to drawings for relocated casework.

2. Work includes the fabrication and installation of standard furniture components of base cabinets, storage cabinets, tables, cabinet understructures, shelf units, end and back panels, aprons, support legs, and other units as indicated. Project consists of wood cabinets as indicated on drawings.

DIVISION 13 - SPECIAL CONSTRUCTION - N/A

DIVISION 14 - CONVEYING SYSTEMS - N/A

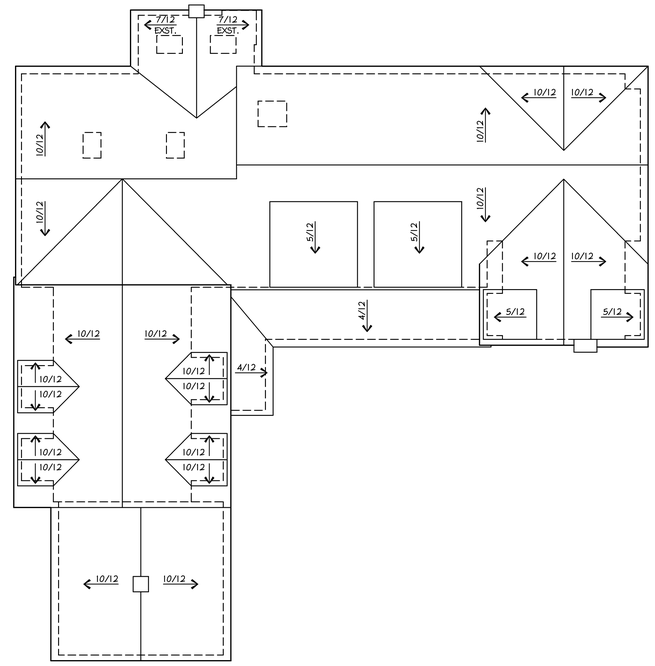
DIVISION 15 - MECHANICAL

1. See Mechanical Specifications

DIVISION 16 - ELECTRICAL

1. See Electrical Specifications

1 A-10 SPECIFICATIONS
Scale: N.T.S.



2 A-10 ROOF PLAN
SCALE: 1/8" = 1'- 0"

Betzwood Associates PC
Architects & Engineers
Robin J. Kohn, AIA — Regis W. Kubik, PE
REGISTERED ARCHITECT COMMONWEALTH OF PENNSYLVANIA ROBIN J. KOHN RA-11327-X
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83161	EMH	RJK

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APPROVED BY: Robin J. Kohn
CURRENT DATE: August 24, 2010

MATZMORR / GOOD RESIDENCE
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WAYNE, PA 19087

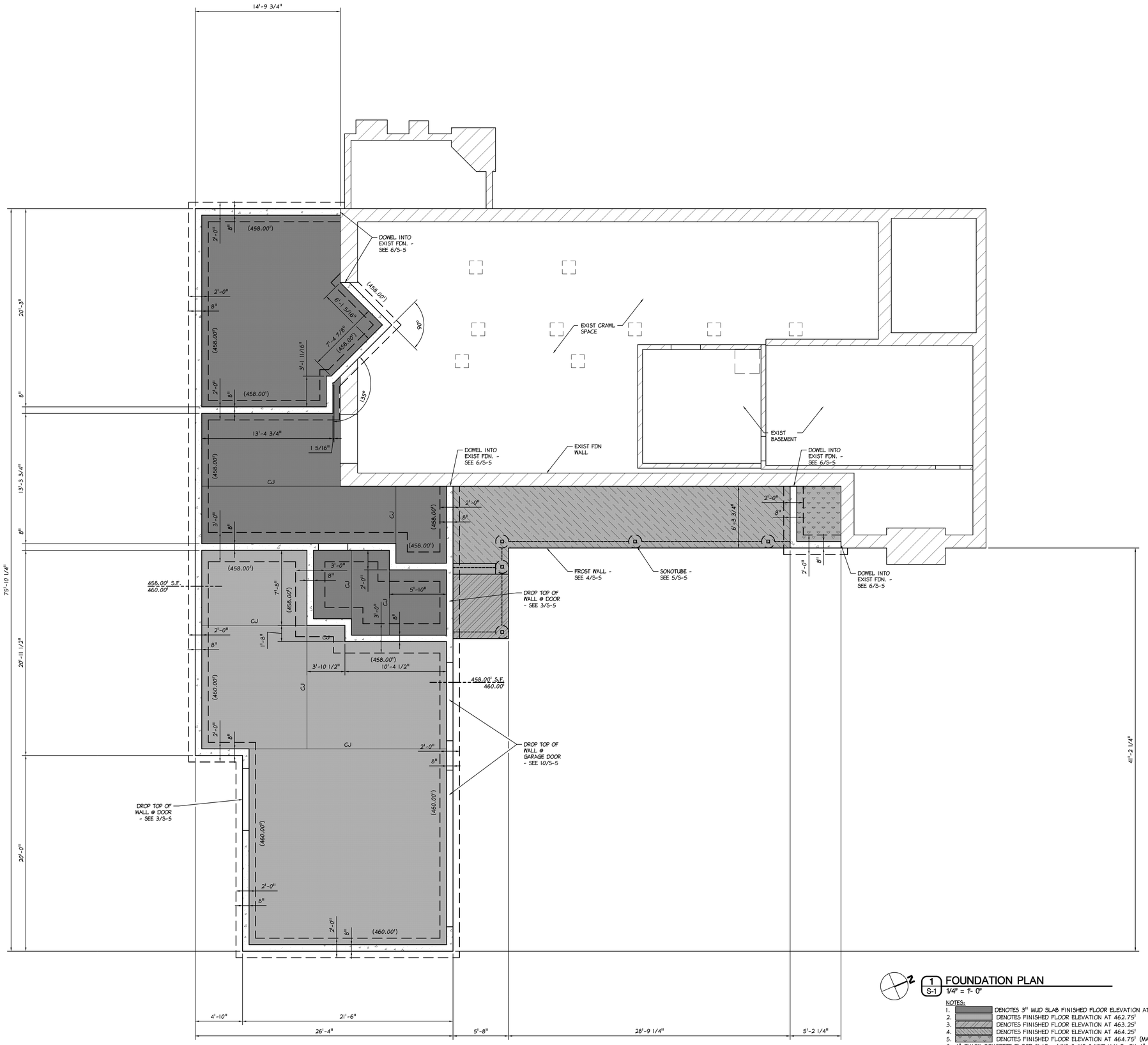
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
A-10

REV 6

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08-24-10



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

NOTES:
1. DENOTES 3" MUD SLAB FINISHED FLOOR ELEVATION AT 460.00'
2. DENOTES FINISHED FLOOR ELEVATION AT 462.75'
3. DENOTES FINISHED FLOOR ELEVATION AT 463.25'
4. DENOTES FINISHED FLOOR ELEVATION AT 464.25'
5. DENOTES FINISHED FLOOR ELEVATION AT 464.75' (MATCH EXIST.)
6. 4" THICK CONCRETE FLOOR SLAB W/ W2.0xW2.0 WWF U.N.O. ON 4" CRUSHED STONE
7. TOP OF FOOTING ELEVATION NOTED (000.00')
8. TOP OF PIER ELEVATION NOTED [000.00']
9. CJ DENOTES CONTROL JOINTS

Betzwood AssociatesPC
Architects & Engineers
Robin J. Kohn, AIA
Kegis W. Kubit, PE
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY M. THOMS ENGINEER No. PE060309
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Jeffrey M. Thoms, P.E.
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Contact Person:
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B3161	MJP	JMT

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APPROVED BY	CURRENT DATE
Jeffrey M. Thoms, P.E.	AUGUST 20, 2010

MATZMORR / GOOD RESIDENCE

610 VALLEY VIEW LANE
WAYNE, PA 19087

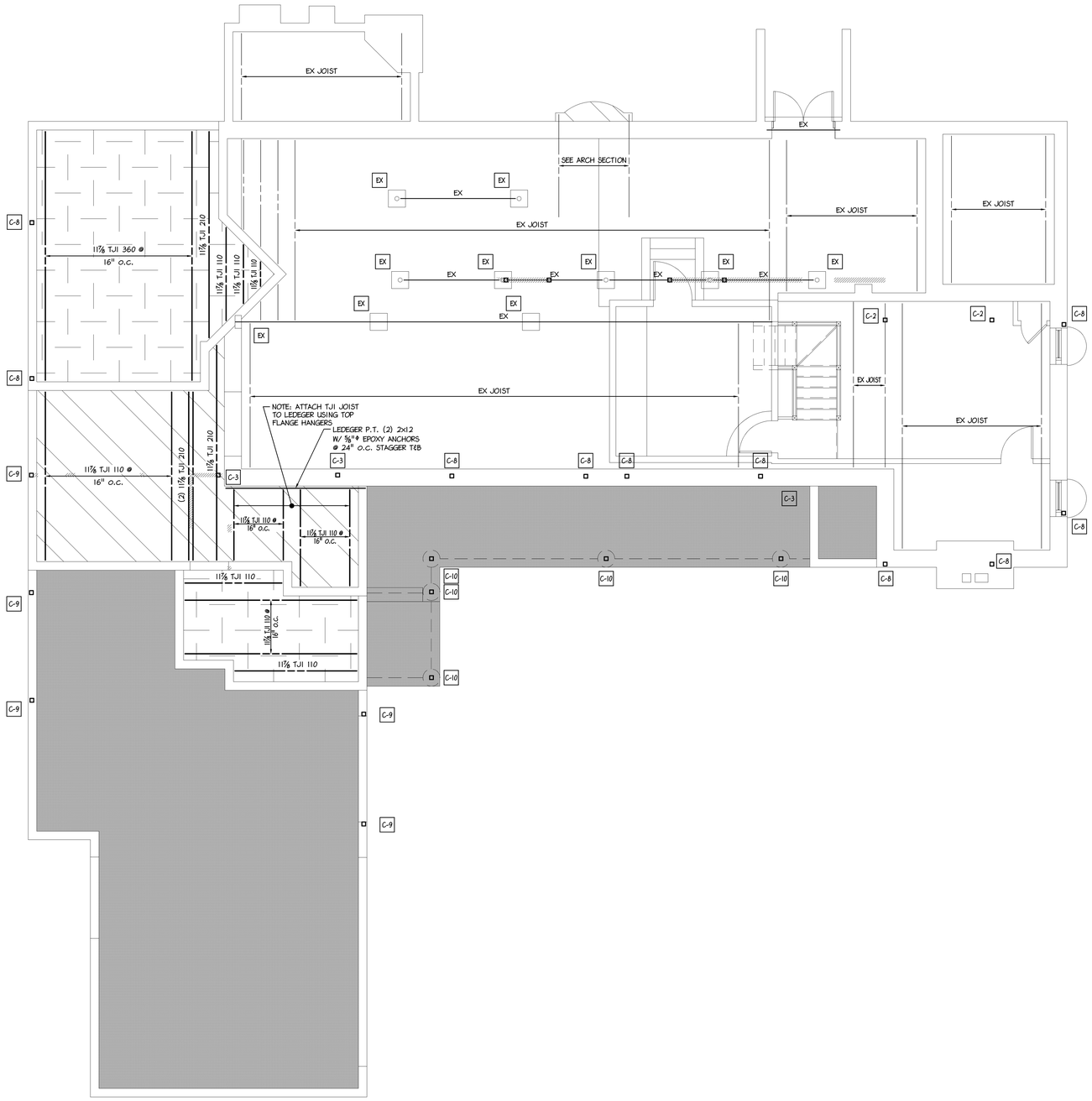
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

FOUNDATION PLAN

SHEET NUMBER

S-1



1 FIRST FLOOR FRAMING PLAN
S-2 1/4" = 1'- 0"

NOTES:
1. DENOTES FINISHED FLOOR ELEVATION AT 463.75'
2. DENOTES FINISHED FLOOR ELEVATION AT 464.75'
3. DENOTES SLAB ON GRADE - SEE ELEVATIONS ON FDN PLAN
4. DENOTES LOAD BEARING WALL FROM ABOVE

Betzwood Associates PC
Architects & Engineers
Robin J. Kohn, AIA
Regis W. Kubit, PE

COMMONWEALTH OF PENNSYLVANIA
REGISTERED
PROFESSIONAL
JEFFREY M. THOMS
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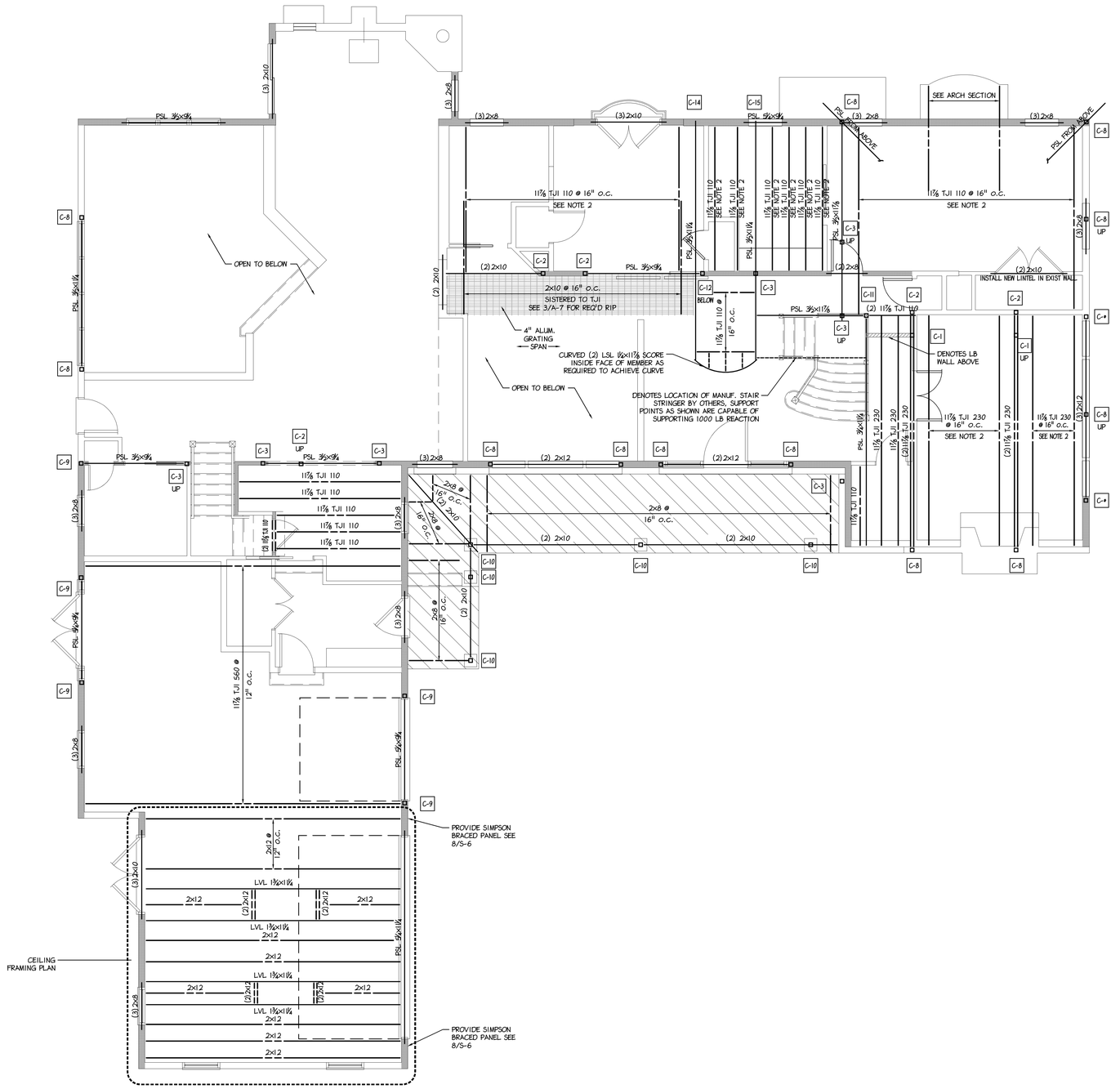
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FIRST FLOOR FRAMING

SHEET NUMBER

S-2

NOTE:
CONTRACTOR TO VERIFY NEW HEADER SIZESE IN EXIST OPENINGS. THIS IS THE MINIMUM SIZE REQ'D. IF SMALLER HEADER EXIST, IT MUST BE REPLACED W/ NEW HEADER.



1 SECOND FLOOR FRAMING
S-3 1/4" = 1'- 0"

NOTES:
1. ▨ DENOTES ROOF FRAMING - PROVIDE 5/8" PLYWOOD SHEATHING, OSB NOT PERMITTED
2. SISTERED TO EXIST CEILING JOIST

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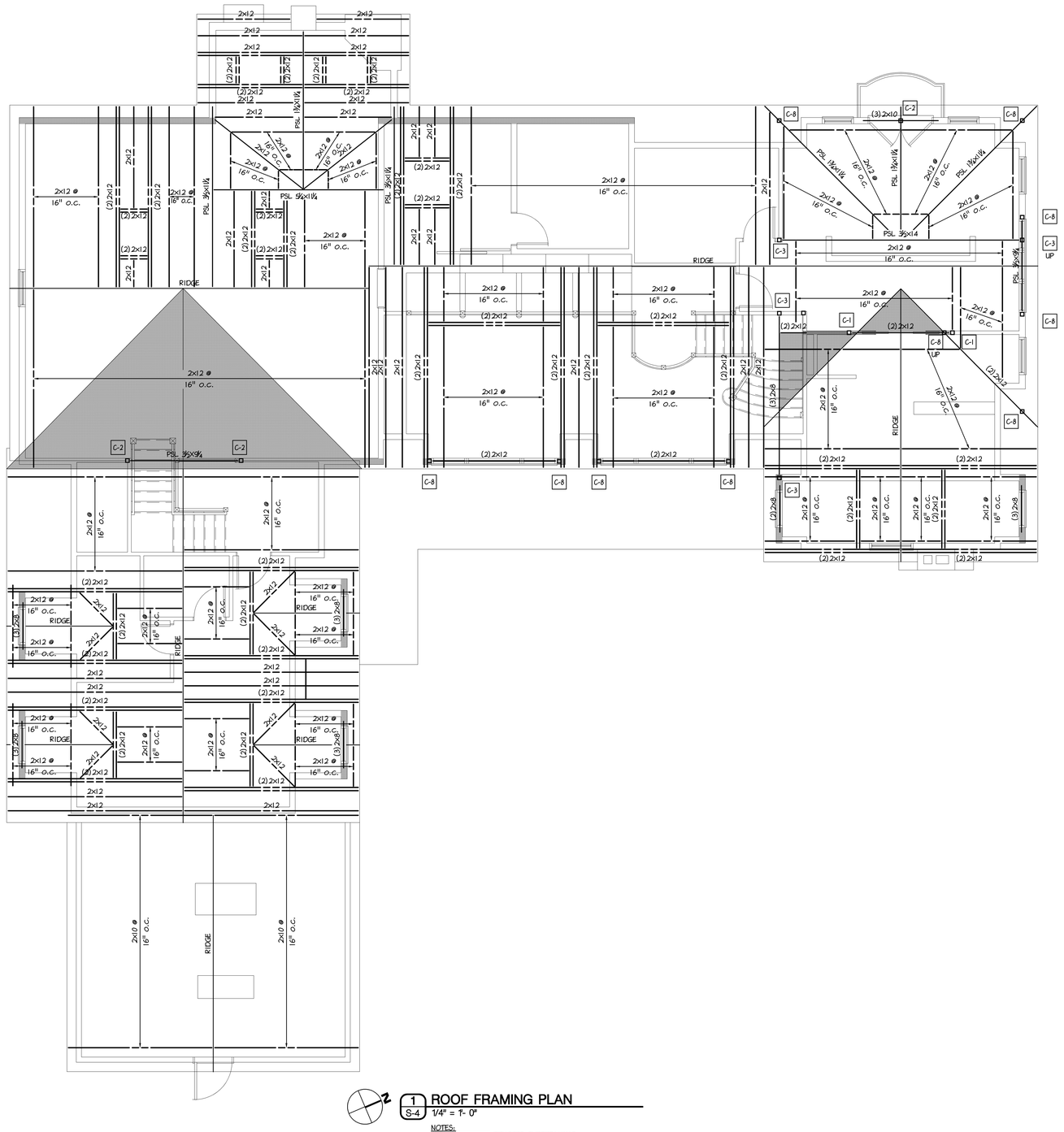
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CHESTER COUNTY

SHEET TITLE

SECOND FLOOR FRAMING

SHEET NUMBER

S-3



1 S-4 **ROOF FRAMING PLAN**

1/4" = 1'- 0"

NOTES:

1. [ ] DENOTES OVERFRAMING
2. ROOF SHEATHING TO BE 7/16" SPAN RATED PLYWOOD. OSB IS NOT PERMITTED
3. SEE ARCH DRAWINGS FOR CEILING PROFILE, ROOF SLOPES, AND BEARING ELEVATIONS

Betzwood Associates PC
Architects & Engineers

Robin J. Kohn, AIA — Regis W. Kubit, PE

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY M. THOMS ENGINEER No. PE060309

Note: Certification not valid unless original stamp and signature appear on the project title sheet

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License No. PE060309

Contact Person:
Edward (Kipp) Happ
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PROJECT NO.	DRAWN BY	CHK'D BY
B3161	MJP	JMT

NO.	DATE	BY	ISSUE
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6	08-24-10	EMH	ISSUED FOR PERMIT
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APPROVED BY: Jeffrey M. Thoms, P.E.
CURRENT DATE: AUGUST 20, 2010

MATZMORR / GOOD RESIDENCE

610 VALLEY VIEW LANE
WAYNE, PA 19087

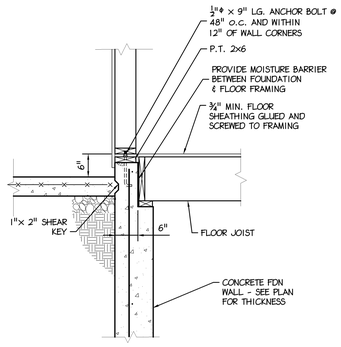
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

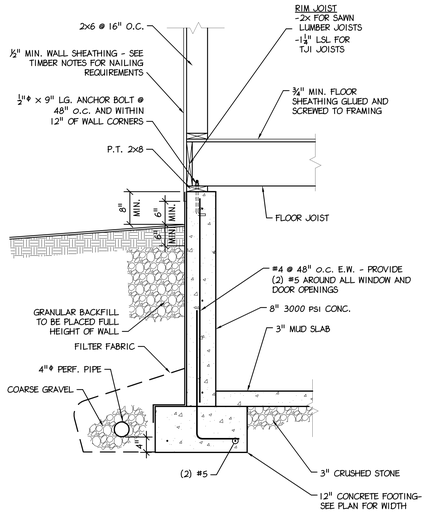
ROOF FRAMING PLAN

SHEET NUMBER

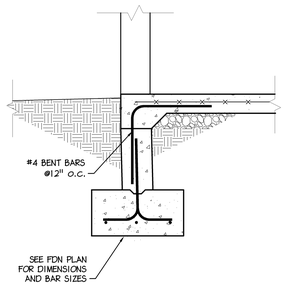
S-4



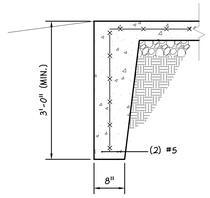
1 CONCRETE PORCH DETAIL
S-5 3/4" = 1'- 0"



2 CRAWL SPACE DETAIL
S-5 3/4" = 1'- 0"



3 EXTERIOR WALL @ DOOR
S-5 3/4" = 1'- 0"



4 FROST WALL
S-5 3/4" = 1'- 0"

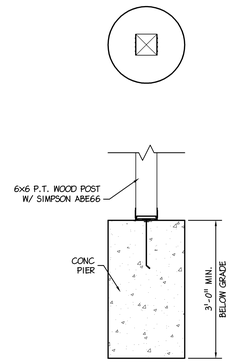
LIVE LOADS	APPLICABLE CODE: IBC 2009
FLOOR LIVE LOADS	
LIVE LOAD	40 PSF (LIVING AREAS)
	30 PSF (SLEEPING AREAS)
	60 PSF (DECK)
STAIRWAY LIVE LOAD	100 PSF
MECHANICAL UNIT LOAD	SEE DRAWINGS
ROOF LOADS	
ROOF LIVE LOAD	20 PSF (MIN)
ROOF SNOW LOAD	30 PSF + SNOW DRIFT
GROUND SNOW LOAD - Pg:	30 PSF
FLAT ROOF SNOW LOAD - Pf:	25 PSF
SNOW EXPOSURE FACTOR - Ce:	1.0
SNOW LOAD IMPORTANCE FACTOR - I:	1.0
THERMAL FACTOR - Ct:	1.0
WIND LOAD	
BASIC WIND SPEED - V (3-SEC. GUST):	90 MPH
WIND LOAD IMPORTANCE FACTOR	1.0
WIND LOAD EXPOSURE CATEGORY	B
INTERNAL PRESSURE COEFFICIENT	± 0.25
WIND DESIGN PRESSURE	25 PSF
SEISMIC LOAD	
SEISMIC DESIGN CATEGORY:	C
SEISMIC USE GROUP:	II
SPECTRAL RESPONSE COEFFICIENT - SDS:	0.339
SPECTRAL RESPONSE COEFFICIENT - SD1:	0.133
SITE CLASS:	D
BASIC SEISMIC FORCE RESISTING SYSTEM:	LIGHT FRAME WALLS W/ SHEAR PANELS
ANALYSIS PROCEDURE:	EQUIVALENT LATERAL FORCE PROCEDURE
WIND LOAD CONTROLS DESIGNS FOR LATERAL FORCES	

FOUNDATION NOTES

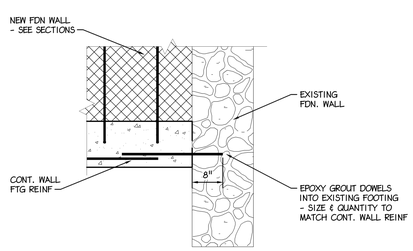
1. FOUNDATION SOIL BEARING PRESSURE 2000 PSF
2. FOUNDATION SHALL BE PLACED ON VIRGIN SOIL AT ELEVATIONS INDICATED ON DRAWINGS.
3. THE ENGINEER SHALL APPROVE ALL BEARING STRATA PRIOR TO PLACEMENT OF THE CONCRETE FOOTINGS.
4. INSTALL CRACK CONTROL OR CONSTRUCTION JOINTS AT 30-FOOT MAXIMUM CENTERS IN WALLS. LOCATIONS SHALL BE APPROVED BY ENGINEER.
5. TOP OF FOOTING ELEVATIONS ARE NOTED (000.00') TOP OF PIER OR WALL ELEVATIONS ARE NOTED [000.00']
6. ALL TOPSOIL, SOIL FILL, AND SOFT SOUBSOIL SHALL BE REMOVED AND, IF NECESSARY, REPOLACED WITH COMPACTED LOAD-BEARING FILL MATERIALS. TEST PITS OR SOIL BORINGS SHALL BE CONDUCTED TO DETERMINE THE LOCATION OF THE VIRGIN SOIL.
7. ANY UNDERCUT AND REPLACEMENT WITH COMPACTED LOAD-BEARING FILL SHALL EXTEND LATERALLY BEYOND FOOTINGS A DISTANCE AT LEAST EQUAL TO THE DEPTH OF THE UNDERCUT.
8. AFTER UNDERCUTTING AND REMOVAL OF UNSUITABLE SOIL, THE EXPOSED UNDERLYING RESIDUAL SOILS IN THE PROPOSED BUILDING AREA SHALL BE PROOFROLLED AND COMPACTED. SOFT AND/OR UNSTABLE AREAS DISCLOSED BY THE PROOFROLLING SHALL BE ROLLED UNTIL STABILITY IS OBTAINED OR UNTIL FURTHER UNDERCUT TO FIRM MATERIAL IS REACHED.
9. FOOTINGS SHALL BE BASED ON STIFF SUBSOIL OR LOAD-BEARING FILL MATERIALS WITH A MINIMUM DEPTH OF AT LEAST TWO FEET OR ONE-HALF THE FOOTING WIDTH, WHICHEVER IS GREATER, BELOW THE FOUNDATION BEARING LEVEL.
10. PLACE LOAD-BEARING FILL MATERIALS IN LAYERS NOT MORE THAN EIGHT INCHES IN LOOSE THICKNESS FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN FOUR INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS. FILL MATERIAL SHALL BE MOISTENED OR AERATED AS NECESSARY.
11. EACH LIFT SHALL BE COMPACTED TO AN AVERAGE DRY DENSITY OF NOT LESS THAN 98% OF THE MAXIMUM DRY DENSITY ACCORDING TO ASTM D698 (STANDARD PROCTOR) FOR ALL FOOTING AND FLOOR SUBGRADES.
12. THE SUB-FLOOR MATERIALS SHALL CONSIST OF AT LEAST FOUR TO SIX INCHES OF GRAVEL OR CRUSHED STONE. THE SUB-FLOOR MATERIALS SHALL BE COMPACTED BY AT LEAST FOUR COVERAGES OF A HEAVY-DUTY VIBRATORY ROLLER OR UNTIL NO FURTHER COMPACTION IS OBSERVED. SEE THE DRAWINGS AND SPECIFICATIONS FOR THE VAPOR BARRIER SIZE, TYPE AND LOCATION.
13. IN AREAS WHERE SOFT/LOOSE ZONES OR POSSIBLE VOIDS EXIST AT DEPTH, NOTIFY THE STRUCTURAL ENGINEER IMMEDIATELY. SUCH AREAS SHOULD BE UNDERCUT AND REPLACED WITH COMPACTED LOAD-BEARING FILL, OR FLOWABLE CONCRETE FILL AS DIRECTED BY THE DESIGN PROFESSIONAL. IN ADDITION, FOOTINGS SHOULD BE OVERSIZED AND PROPORTIONED FOR A REDUCED ALLOWABLE BEARING CAPACITY, AS DETERMINED BY THE STRUCTURAL ENGINEER, TO BETTER DISTRIBUTE FOUNDATION LOADS AND SPAN ANY LOCALIZED SOFT/LOOSE ZONE OR VOID AREAS.

CONCRETE NOTES

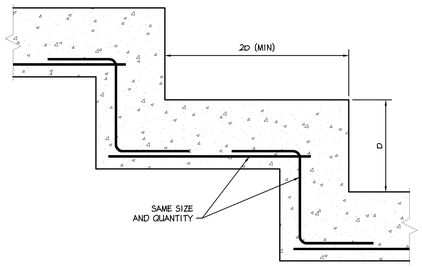
1. REINFORCED CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, LATEST EDITION
2. CONCRETE MATERIALS: Fc = 4000 PSI FOR SLABS, ALL OTHER CONCRETE: Fc = 3000 PSI
   CEMENT: ASTM C150, TYPE I
   AGGREGATE: ASTM C33
   WATER: ASTM C94
   EXTERIOR CONCRETE MIX: WATER CEMENT RATIO, 0.45 (AIR-ENTRAINED TO 4.5 % MIN)
   INTERIOR CONCRETE MIX: WATER CEMENT RATIO, 0.50
3. REINFORCING MATERIALS:
   REINFORCING BARS: ASTM A615, GRADE 60, DEFORMED
4. REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 36 BAR DIAMETERS.
5. MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT AS FOLLOWS:
   CAST AGAINST EARTH: 3" CLEAR
   CONCRETE EXPOSED TO EARTH OR WATER: 2" CLEAR
   ALL OTHER CONCRETE: ¾" CLEAR
6. MINIMUM CONCRETE SLAB REINFORCEMENT SHALL BE AS FOLLOWS:
   3½" FLOOR SLAB ON METAL DECK 66-W2.9×W2.9
   4" FLOOR SLAB ON GRADE 66-W2.9×W2.9
   5" FLOOR SLAB ON GRADE 44-W4.0×W4.0
   6" FLOOR SLAB ON GRADE #4 REBAR @ 12" O.C. E.W.
7. COLD-WEATHER PLACING SHALL COMPLY WITH THE PROVISIONS OF ACI-306R. THE USE OF CALCIUM CHLORIDE, SALT, AND OTHER MATERIALS CONTAINING ANTI FREEZE AGENTS OR CHEMICAL ACCELERATORS SHALL NOT BE PERMITTED UNLESS OTHERWISE ACCEPTED IN THE MIX DESIGN.
8. HOT-WEATHER PLACING SHALL COMPLY WITH THE PROVISIONS OF ACI-305.



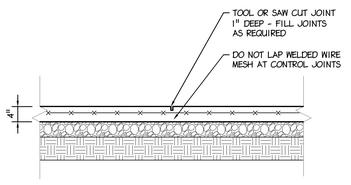
5 HSS TO PIER DETAIL
S-6 3/4" = 1'- 0"



6 NEW FOOTING ADJACENT TO EXISTING DETAIL
S-5 3/4" = 1'- 0"

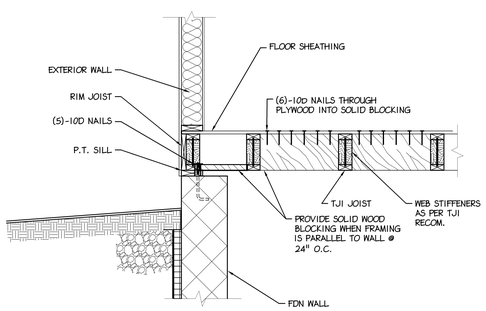


7 STEP FOOTING DETAIL
S-5 3/4" = 1'- 0"

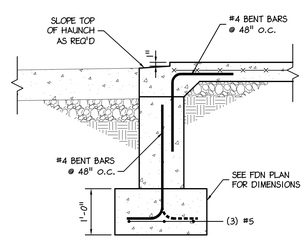


NOTE: CONTROL JOINT SHALL BE CUT WITHIN 24 HOURS OF PLACING CONCRETE

8 TYPICAL CRACK CONTROL JOINTS
S-5 3/4" = 1'- 0"



9 BLOCKING DETAIL FOR JOIST PARALLEL TO BASEMENT WALL
S-5 3/4" = 1'- 0"



10 TYP. EXT. WALL AT GARAGE DOOR
S-5 3/4" = 1'- 0"

COLUMN SCHEDULE

MARK	SIZE	BASE CONN.	CAP CONN.
C-1	(2) 2x4	(4) 16D IN BOTTOM PL.	(4) 16D IN TOP PL.
C-2	(3) 2x4	(6) 16D IN BOTTOM PL.	(6) 16D IN TOP PL.
C-3	LSL 3½" × 3½"	(4) 16D IN BOTTOM PL.	(4) 16D IN TOP PL.
C-4	LSL 3½" × 4⅞"	(6) 16D IN BOTTOM PL.	(6) 16D IN TOP PL.
C-5	LSL 3½" × 5½"	(8) 16D IN BOTTOM PL.	(8) 16D IN TOP PL.
C-6	P.T. 6x6	SIMPSON	SIMPSON
C-7	LSL 3½" × 8⅝"	(12) 16D IN BOTTOM PL.	(12) 16D IN TOP PL.
C-8	(2) 2x6	(6) 16D IN BOTTOM PL.	(6) 16D IN TOP PL.
C-9	(3) 2x6	(9) 16D IN BOTTOM PL.	(9) 16D IN TOP PL.
C-10	(4) 2x6	(12) 16D IN BOTTOM PL.	(12) 16D IN TOP PL.
C-11	PSL 3½" × 3½"	PREFAB CONN. BY OTHERS	PREFAB CONN. BY OTHERS
C-12	PSL 3½" × 5¼"	SIMPSON STANDARD CONN.	SIMPSON STANDARD CONN.
C-13	PSL 3½" × 7"	SIMPSON STANDARD CONN.	SIMPSON STANDARD CONN.
C-14	PSL 5¼" × 5¼"	SIMPSON STANDARD CONN.	SIMPSON STANDARD CONN.
C-15	PSL 5¼" × 7"	SIMPSON STANDARD CONN.	SIMPSON STANDARD CONN.

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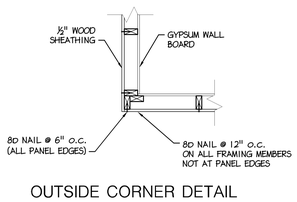
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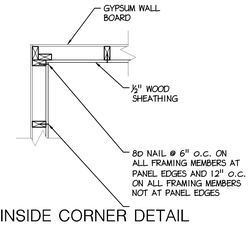
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE
NOTES AND DETAILS

SHEET NUMBER
S-5

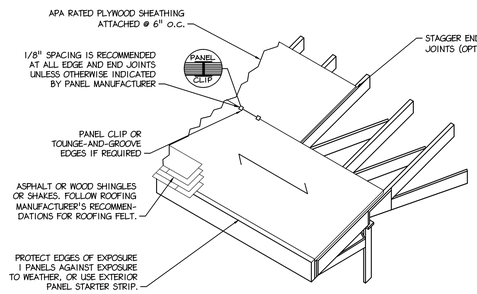


OUTSIDE CORNER DETAIL

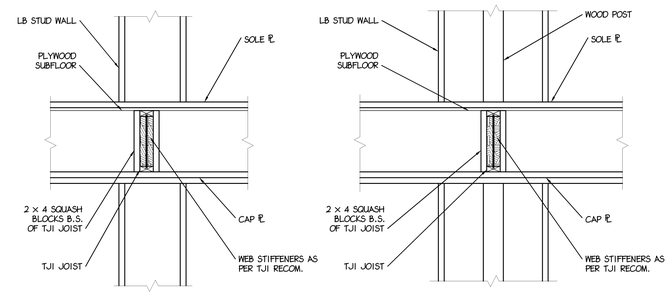


INSIDE CORNER DETAIL

1 EXTERIOR CORNER FRAMING DETAIL
S-6 3/4" = 1'- 0"



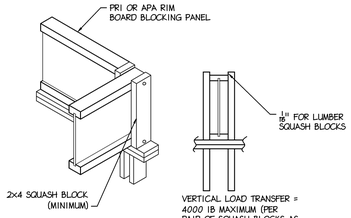
2 PANEL ROOF SHEATHING DETAIL
S-6 3/4" = 1'- 0"



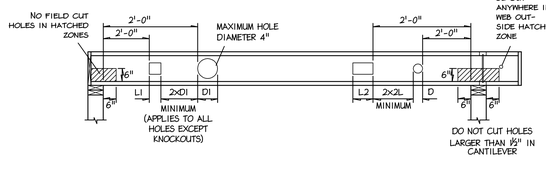
3 TJI ® LOAD BEARING COND. DETAIL
S-6 3/4" = 1'- 0"

TIMBER NOTES

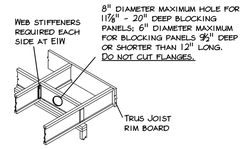
1. ALL WOOD FRAMING SHALL BE FABRICATED, ERECTED, AND BRACED IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION, LATEST EDITION
2. ALL SAWN LUMBER SHALL BE HEM-FIR #2, 19% MAXIMUM MOISTURE CONTENT OR BETTER. THE MINIMUM DESIGN VALUES SHALL BE:
   Fb = 850 PSI
   Fv = 150 PSI
   Fc = 1300 PSI
   E = 1,300,000 PSI
   MINIMUM DESIGN VALUES FOR PARALLAM (PSL) MEMBERS SHALL BE:
   Fb = 2900 PSI
   Fv = 290 PSI
   Fc = 2900 PSI
   E = 2,000,000 PSI
   MINIMUM DESIGN VALUES FOR MICROLLAM (LVL) MEMBERS SHALL BE:
   Fb = 2600 PSI
   Fv = 285 PSI
   Fc = 2510 PSI
   E = 1,900,000 PSI
3. ALL TIMBER CONNECTIONS SHALL BE MADE USING PREFABRICATED CONNECTORS. TOE-NAILING IS NOT PERMITTED. ALL STEEL TIMBER FASTENINGS AND JOIST HANGERS SHALL BE A MINIMUM OF 16 GA. GALVANIZED STEEL WITH A RATED LOAD CAPACITY EQUAL TO OR EXCEEDING THE IMPOSED LOADING REQUIREMENTS. SUBMIT MANUFACTURERS DATA FOR REVIEW. FASTENERS SHALL BE AS MANUFACTURED BY HECKMANN, KANT SAG, SIMPSON OR APPROVED EQUAL.
4. ALL WOOD PLATES BEARING ON MASONRY OR CONCRETE WALLS SHALL BE PRESSURE TREATED LUMBER UNLESS NOTED OTHERWISE.
5. ALL DOUBLE JOISTS SHALL BE SPIKED TOGETHER WITH 10D NAILS @ 16" O.C. ALL DOUBLE TJI JOISTS SHALL BE ATTACHED AS PER MANUFACTURERS RECOMMENDATIONS.
6. ALL WOOD BEAMS MADE UP OF 3 OR MORE MEMBERS SHALL BE BOLTED TOGETHER WITH ½"ø BOLTS @ 32" O.C.
7. ALL PLYWOOD ROOF SHEATHING SHALL BE SECURED WITH PLY CLIPS AT CENTERLINE OF PLYWOOD SPAN AND AT ALL EDGES PARALLEL TO SPAN.
8. PLYWOOD SHEATHING SHALL BE CONTINUOUS OVER A MINIMUM OF 3 SPANS.
9. PLYWOOD SHALL BE SECURED USING 8D NAILS.
10. ALL PLYWOOD SHALL MEET THE REQUIREMENTS OF THE PLYWOOD DESIGN SPECIFICATIONS AS PUBLISHED BY THE AMERICAN PLYWOOD ASSOCIATION AND THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION, LATEST EDITION.
11. WOOD TRUSS JOISTS ARE TO BE DESIGNED BY THE MANUFACTURER. ALL CALCULATIONS SHALL BE SEALED BY A REGISTERED ENGINEER AND SHALL BE SUBMITTED FOR APPROVAL BY THE STRUCTURAL ENGINEER.



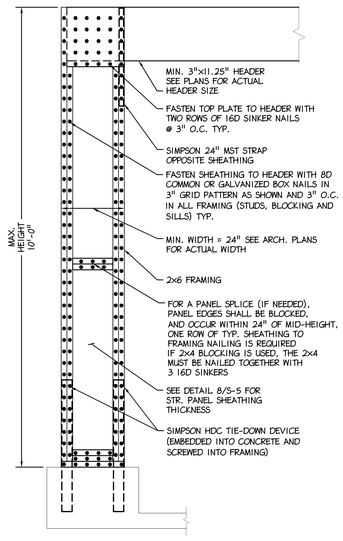
4 SQUASH BLOCK DETAIL
S-6 3/4" = 1'- 0"



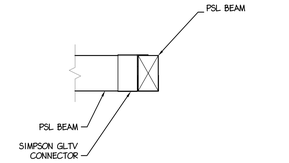
5 ALLOWABLE HOLES - TJI JOISTS
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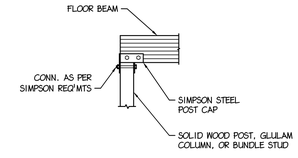
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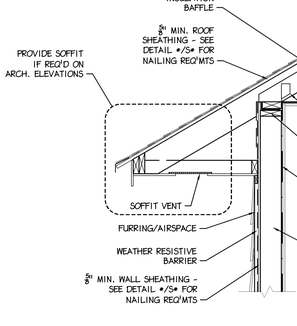
8 GARAGE PORTAL WALL ELEVATION
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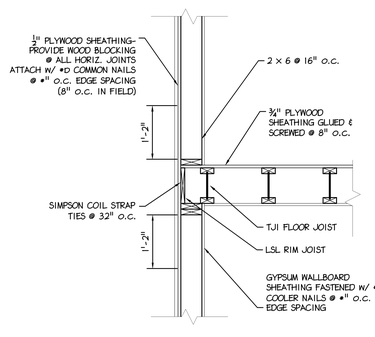
9 BEAM TO BEAM DETAIL
S-6 3/4" = 1'- 0"



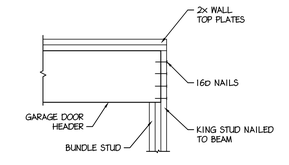
10 BEARING ® END WALL DETAIL
S-6 3/4" = 1'- 0"



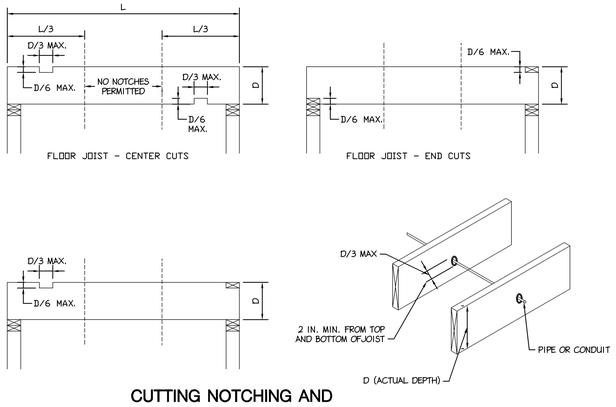
11 EAVE DETAIL
S-6 3/4" = 1'- 0"



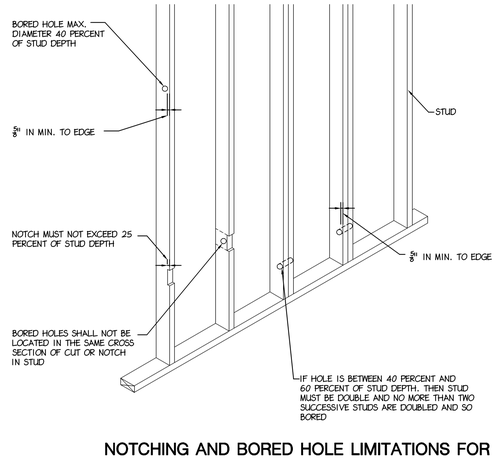
12 EXTERIOR WALL DETAIL
S-6 3/4" = 1'- 0"



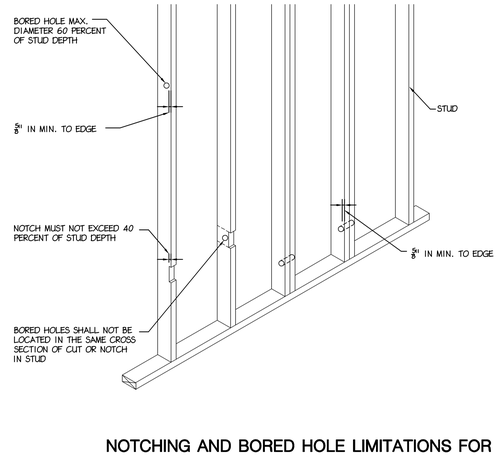
13 HEADER TO END WALL & KING STUD DETAIL
S-6 3/4" = 1'- 0"



14 CUTTING NOTCHING AND DRILLING DETAIL
S-6 3/4" = 1'- 0"



15 NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS
S-6 3/4" = 1'- 0"



16 NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR WALLS AND NONBEARING WALLS
S-6 3/4" = 1'- 0"

Betzwood AssociatesPC
Architects & Engineers
Robin J. Kohn, AIA — Regis W. Kubit, PE

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY M. THOMS ENGINEER No. PE060309

Note: Certification not valid unless original stamp and signature appear on the project title sheet

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B3161	MJP	JMT

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APPROVED BY	CURRENT DATE
Jeffrey M. Thoms, P.E.	AUGUST 20, 2010

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610 VALLEY VIEW LANE
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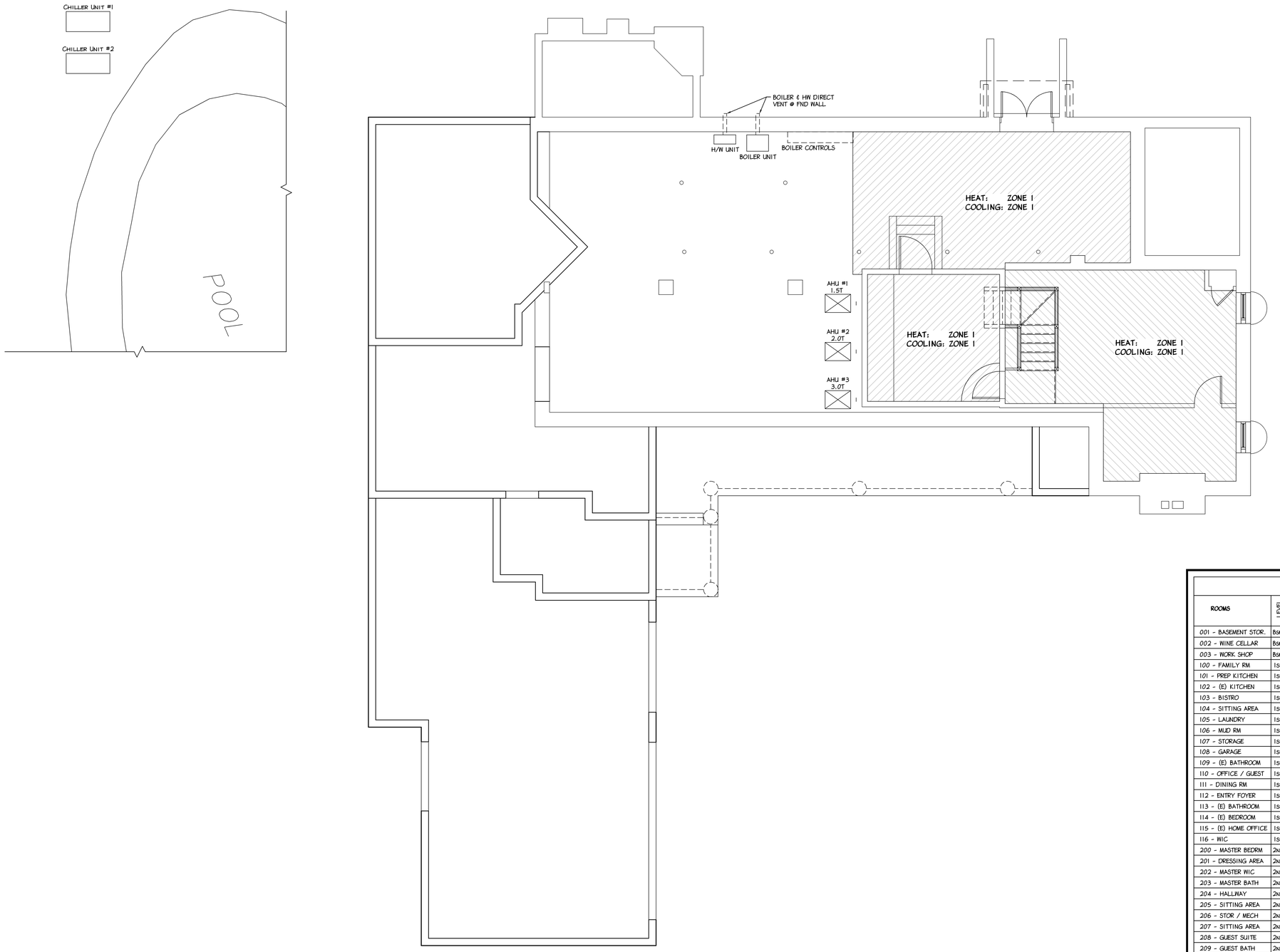
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

NOTES AND DETAILS

SHEET NUMBER

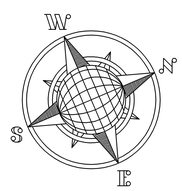
S-6



1 M-1 MECHANICAL - BASEMENT PLAN
Scale: 1/4" = 1'- 0"

HVAC SYSTEM

ROOMS	LEVEL	HEAT ZONE	A/C ZONE	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING HARDWOOD FLRS	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING TILE FLRS	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING CONCRETE SLAB	HOT-WATER BASEBOARD	A/C HEAT PUMP SECONDARY HEAT
001 - BASEMENT STOR.	BSMT	1	1				●	●
002 - WINE CELLAR	BSMT	1	1				●	●
003 - WORK SHOP	BSMT	1	1				●	●
100 - FAMILY RM	1ST	2	3	●				●
101 - PREP KITCHEN	1ST	3	3	●				●
102 - (E) KITCHEN	1ST	3	3	●				●
103 - BISTRO	1ST	3	3		●			●
104 - SITTING AREA	1ST	4	3		●			●
105 - LAUNDRY	1ST	5	3		●			●
106 - MUD RM	1ST	5	3		●			●
107 - STORAGE	1ST	15	-			● ?		
108 - GARAGE	1ST	15	-			● ?		
109 - (E) BATHROOM	1ST	6	2		●			●
110 - OFFICE / GUEST	1ST	6	2	●				●
111 - DINING RM	1ST	7	2	●				●
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203 - MASTER BATH	2ND	11	4		●			●
204 - HALLWAY	2ND	12	4				●	●
205 - SITTING AREA	2ND	12	4				●	●
206 - STOR / MECH	2ND	13	-				●	
207 - SITTING AREA	2ND	14	5				●	●
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209 - GUEST BATH	2ND	16	5					
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APPROVED BY	CURRENT DATE
Robin J. Kohn	August 24, 2010

MATZMORR / GOOD RESIDENCE

610 VALLEY VIEW LANE
WAYNE, PA 19087

TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

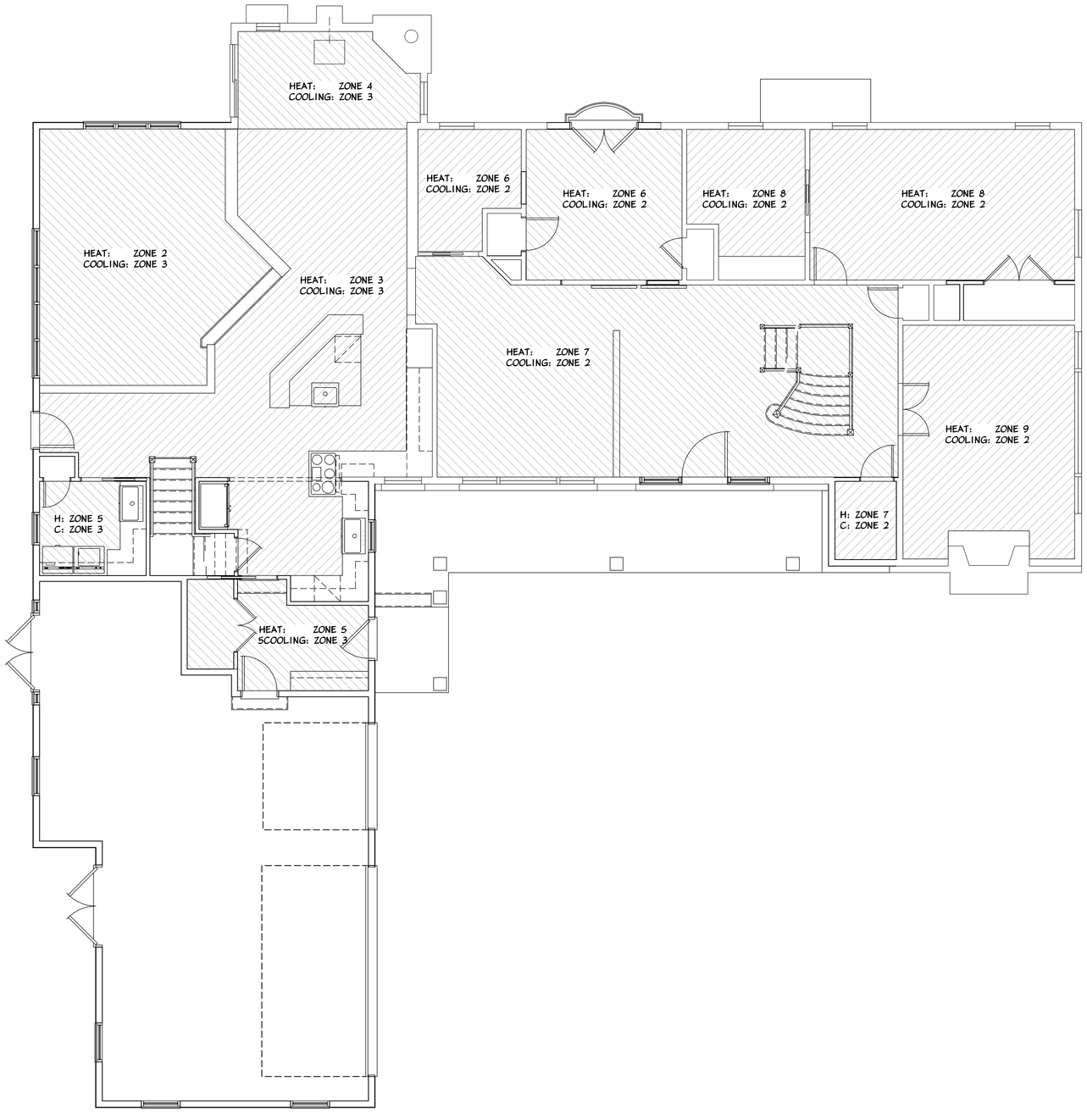
MENCAHICAL - BASEMENT HEATING & COOLING ZONE PLAN

SHEET NUMBER

M-1

REV 6

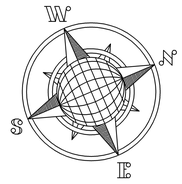
08-24-10 3161-A-SHT.dwg



1 M-2 MECHANICAL - FIRST FLOOR PLAN
Scale: 1/4" = 1'- 0"

HVAC SYSTEM

ROOMS	LEVEL	HEAT ZONE	A/C ZONE	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING HARDWOOD FLRS	HYDRONIC UNDER FLR. HEATING TILE FLRS	HYDRONIC UNDER FLR. HEATING CONCRETE SLAB	HOT-WATER BASEBOARD	A/C HEAT PUMP SECONDARY HEAT
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100 - FAMILY RM	1ST	2	3	●				●
101 - PREP KITCHEN	1ST	3	3	●				●
102 - (E) KITCHEN	1ST	3	3	●				●
103 - BISTRO	1ST	3	3		●			●
104 - SITTING AREA	1ST	4	3		●			●
105 - LAUNDRY	1ST	5	3		●			●
106 - MUD RM	1ST	5	3		●			●
107 - STORAGE	1ST	15	-			● ?		
108 - GARAGE	1ST	15	-			● ?		
109 - (E) BATHROOM	1ST	6	2		●			●
110 - OFFICE / GUEST	1ST	6	2	●				●
111 - DINING RM	1ST	7	2	●				●
112 - ENTRY FOYER	1ST	7	2	●				●
113 - (E) BATHROOM	1ST	8	2		●			●
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200 - MASTER BEDRM	2ND	10	4	●				●
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202 - MASTER WIC	2ND	10	4				●	●
203 - MASTER BATH	2ND	11	4		●			●
204 - HALLWAY	2ND	12	4				●	●
205 - SITTING AREA	2ND	12	4				●	●
206 - STOR / MECH	2ND	13	-				●	
207 - SITTING AREA	2ND	14	5				●	●
208 - GUEST SUITE	2ND	15	5					
209 - GUEST BATH	2ND	16	5					
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APPROVED BY	CURRENT DATE
Robin J. Kohn	August 24, 2010

MATZMORR / GOOD RESIDENCE

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WAYNE, PA 19087

TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

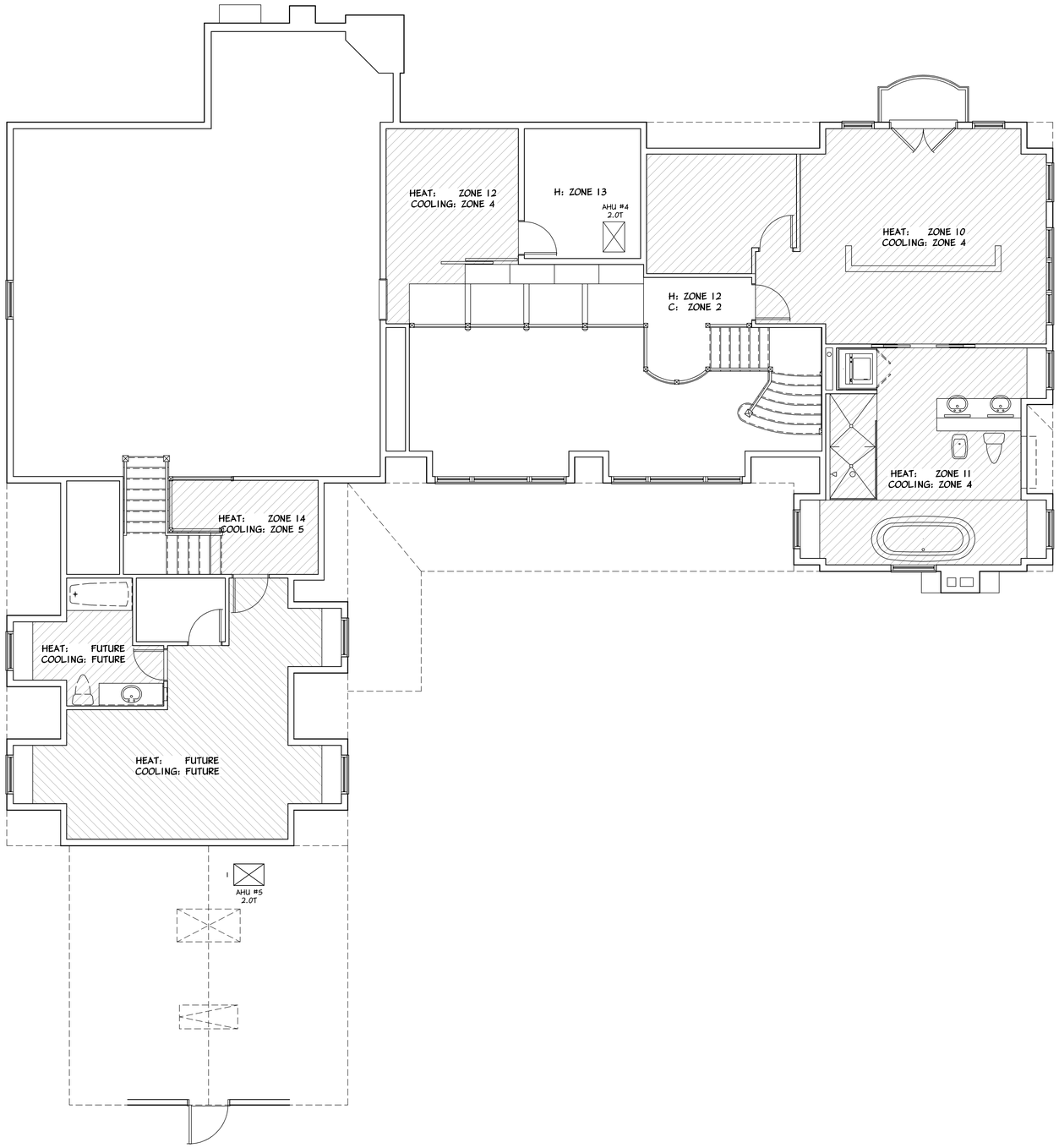
MECHANICAL - FIRST FLOOR HEATING & COOLING ZONE PLAN

SHEET NUMBER

M-2

REV 6

08-24-10 3161-A-SHT.dwg



1 M-3 MECHANICAL - SECOND FLOOR PLAN
Scale: 1/4" = 1'- 0"

HVAC SYSTEM

ROOMS	LEVEL	HEAT ZONE	A/C ZONE	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING HARDWOOD FLRS	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING TILE FLRS	PRIMARY HEATING: HYDRONIC UNDER FLR. HEATING CONCRETE SLAB	PRIMARY HEATING: HOT-WATER BASEBOARD	A/C HEAT PUMP SECONDARY HEAT
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101 - PREP KITCHEN	1ST	3	3	●				●
102 - (E) KITCHEN	1ST	3	3	●				●
103 - BISTRO	1ST	3	3		●			●
104 - SITTING AREA	1ST	4	3		●			●
105 - LAUNDRY	1ST	5	3		●			●
106 - MUD RM	1ST	5	3		●			●
107 - STORAGE	1ST	15	-			● ?		
108 - GARAGE	1ST	15	-			● ?		
109 - (E) BATHROOM	1ST	6	2		●			●
110 - OFFICE / GUEST	1ST	6	2	●				●
111 - DINING RM	1ST	7	2	●				●
112 - ENTRY FOYER	1ST	7	2	●				●
113 - (E) BATHROOM	1ST	8	2		●			●
114 - (E) BEDROOM	1ST	8	2	●				●
115 - (E) HOME OFFICE	1ST	9	2	●				●
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200 - MASTER BEDRM	2ND	10	4	●				●
201 - DRESSING AREA	2ND	10	4	●				●
202 - MASTER WIC	2ND	10	4				●	●
203 - MASTER BATH	2ND	11	4		●			●
204 - HALLWAY	2ND	12	4				●	●
205 - SITTING AREA	2ND	12	4				●	●
206 - STOR / MECH	2ND	13	-				●	
207 - SITTING AREA	2ND	14	5				●	●
208 - GUEST SUITE	2ND	15	5					
209 - GUEST BATH	2ND	16	5					
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APPROVED BY: Robin J. Kohn
CURRENT DATE: August 24, 2010

MATZMORR / GOOD RESIDENCE

610 VALLEY VIEW LANE
WAYNE, PA 19087

TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

MECHANICAL - SECOND FLOOR
HEATING & COOLING
ZONE PLAN

SHEET NUMBER

M-3

REV 6

08-24-10 3161-A-SHT.dwg

HEATING, VENTILATING AND AIR CONDITIONING

1. GENERAL

1.1 THE CONTRACTOR SHALL EMPLOY HIGH STANDARDS OF GOOD WORKMANSHIP AND SHALL PAY SPECIAL ATTENTION TO THE SAFETY OF THE EQUIPMENT. THE INSTALLATION OF MATERIAL AND EQUIPMENT SHALL BE IN CONFORMANCE WITH THE CODES AND STANDARDS.

1.2 THE CONTRACTOR SHALL MAKE A THOROUGH EXAMINATION OF THE SITE AND SHALL MAKE DUE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES TO BE ENCOUNTERED. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE.

1.3 THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL HAVE A MINIMUM OF THREE YEARS PROVEN EXPERIENCE ON PROJECTS WITH SIMILAR LEVELS OF COMPLEXITY AND MAGNITUDE. EXPERIENCE SHALL BE BASED ON THE EXPERIENCE AS A COMPANY AND NOT ON THE EXPERIENCE AS INDIVIDUALS.

2. SCOPE

2.1 THE WORK COVERED BY AND INCLUDED IN THESE SPECIFICATIONS CONSISTS OF THE FURNISHING OF ALL MATERIALS, ALL EQUIPMENT, LABOR, TOOLS AND SUPERVISION AND PERFORMING ALL OPERATIONS NECESSARY FOR THE PROPER AND COMPLETE EXECUTION OF THE HEATING, VENTILATING AND AIR CONDITIONING WORK IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT.

2.2 THE EXTERIOR CHILLER, AIR HANDLING UNITS AND RADIANT FLOOR HEATING SYSTEMS SHALL BE DESIGNED TO COMPLY WITH THE INTERNATIONAL BUILDING CODE AND THE INTERNATIONAL MECHANICAL CODE.

2.3 THE OUTSIDE AND INSIDE DESIGN CONDITIONS SHALL BE PER THE CODE. THE RESIDENCE SHALL BE MAINTAINED AT 72 DEGREES F AND 15% RELATIVE HUMITITY UNDER NORMAL CONDITIONS.

2.4 AIR EXHCHANGE / VENTILATION

2.4.1 THE MINIMUM VENTILATION EXCHANGE RATES ARE AS FOLLOWS:

GENERAL LIVING AREAS:	5 CFM / SQ.FT. OUTSIDE AIR
KITCHEN AREA:	25 CFM / SQ.FT. OUTSIDE AIR
BATHROOMS:	20 CFM / SQ.FT. OUTSIDE AIR

2.5 A/C (CHILLER) MULTI ZONED SYSTEM

2.5.1 SYSTEMS SHALL CONSIST OF MULTIPLE AIR HANDLING UNITS (AHU'S) AND AN EXTERIOR CHILLER UNIT(S) (CHU). MANUFACTURER(S) SHALL BE UNICO SYSTEMS, TRANE, YORK OR CARRIER.

2.5.2 A MINIMUM OF FIVE AIR HADLING UNITS (AHU) SHALL BE PROVIDED, TWO UNITS FOR THE FIRST FLOOR, TWO FOR THE SECOND AND ONE FOR BASEMENT AREA.

2.5.3 GENERAL

2.5.3.1 THE INDOOR AIR-HANDLING UNIT SHALL BE DESIGNED TO DELIVER THE MINIMUM AIRFLOW REQUIRED TO MEET THE SPECIFIED CAPACITY OF THE EQUIPMENT. THE EQUIPMENT AND DUCT DESIGN SHALL COMPLY WITH THE WRITTEN DEFINITION OF A HIGH-VELOCITY SYSTEM PER ARI 210/240. MATERIALS AND EQUIPMENT SHALL BE STANDARD PRODUCTS OF A MANUFACTURER REGULARLY ENGAGED IN THE MANUFACTURING OF SUCH PRODUCTS, WHICH ARE OF SIMILAR MATERIAL, DESIGN AND WORKMANSHIP. THE MANUFACTURER SHALL WARRANT AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR ON ALL PARTS.

2.5.4 DESIGN REQUIREMENTS

2.5.4.1 EACH SYSTEM SHALL BE DESIGNED TO DELIVER AT LEAST THE MINIMUM AIRFLOW REQUIRED TO PRODUCE THE REQUIRED CAPACITY FOR COOLING. THERE SHALL BE SOME MEANS OF ADJUSTING THE AIRFLOW, EITHER BY CHANGING FAN SPEEDS, OR ADDING RESTRICTION TO THE DUCT SYSTEM BY MEANS OF A RESTRICTER PLATE OR BALANCING ORIFICES.

2.5.4.2 THE SYSTEM SHALL HAVE A TOTAL COOLING CAPACITY OF 130,000 BTU/HR (kW) WITH A SENSIBLE HEAT RATIO LESS THAN 0.65 BASED ON THE ENTERING AIR CONDITION OF 80°F (26.7°C) DRY BULB, AND 67°F (19.4°C) WET BULB.

2.5.4.3 THE SYSTEM SHALL HAVE A TOTAL HEATING CAPACITY OF 120,000 BTU/HR (kW), BASED ON THE ENTERING AIR CONDITION OF 70°F (21.1°C) DRY BULB.

2.5.5 SPECIAL REQUIREMENTS

2.5.5.1 REFRIGERANT SYSTEMS SHALL BE CAPABLE OF DELIVERING AT LEAST 250 CFM PER NOMINAL TON OF CAPACITY (33 Us PER NOMINAL KW). THE SYSTEM SHALL CONFORM TO ARI 210/240 AND BE RATED FOR A MINIMUM SEASONAL ENERGY EFFICIENCY (SEER) OF 13.0. HEAT PUMP MODELS SHALL BE SEASONAL PERFORMANCE FACTOR (HSPF) OF 7.7.

2.5.6 HYDRONIC SYSTEMS

2.5.6.1 THE CAPACITY OF THE CHILLED WATER AND HOT WATER COIL SHALL INCLUDE ANY TEMPERATURE RISE ACROSS THE BLOWER AND MOTOR. THE CHILLED WATER COIL COOLING CAPACITY SHALL BE BASED ON ENTERING WATER OF -OF (OC) AT GPM (L/s).

2.5.6.2 THE HOT WATER COIL HEATING CAPACITY SHALL BE BASED ON ENTERING WATER OF -OF (OC) AT GPM (L/s).

2.5.6.3 THE UNICHILLER MUST BE A SELF CONTAINED AIR COOLED SCROLL REVERSE CYCLE (HEAT PUMP) CHILLER AND PRE-CHARGES WITH R-22 OR R-407C THEREFORE, THERE IS NO REFRIGERANT HANDLING DURING THE INSTALLATION. THE CONTRACTOR TO CONNECT ONLY THE WATER PIPING AND ELECTRIC POWER. THERE IS NO REFRIGERANT INSIDE THE HOUSE THE CONDENSER BLOWERS MUST BE OF HORIZONTAL DISCHARGE. 24" CLEARANCE FOR ELECTRIC PANEL CONTROL ACCESS AND 6 FEET FOR BLOWER DISCHARGE. NOMINAL 3 TON AND 5 TON UNICHILLERS ARE BANK TOGETHER FOR LARGER LOADS.

2.5.8 OPERATING RANGE

2.5.8.1 UNICHILLER MUST PROVIDE THE FOLLOWING SAFETY COMPONENTS: FLOW SWITCH, HIGH PRESSURE SWITCH (OPENS AT 400 PSIG AND RESETS AT 300 PSIG), LOW PRESSURE SWITCH (OPENS AT 40PSIG AND RESETS AT 80 PSIG, COOLING MODE ONLY), 5 MINUTE DELAY ON BRAKE TIMER TO ACTIVATE EVERY TIME THE SCROLL COMPRESSOR SHUTS DOWN.

2.5.8.2 THE USE OF A SOFT START KIT (A01084-601) WHEN THE POWER SUPPLY IS NOT SUFFICIENT ENOUGH TO PREVENT VOLTAGE DROP.

2.5.8.3 THE USE OF 10% GLYCOL IS REQUIRED TO MAINTAIN CLEAN WATER IN THE CLOSED CIRCUIT.

2.5.9 MECHANICAL EQUIPMENT

2.5.9.1 THE AIR-HANDLING UNIT SHALL BE IN ACCORDANCE WITH UL 1995 (CAN/CSA-C22.2 NO. 236). THE UNIT SHALL INCLUDE A BLOWER, MOTOR, CONTROLS, AND HEAT EXCHANGER. IF THE TOTAL WEIGHT OF THE UNIT IS GREATER THAN 100 POUNDS, THE UNIT SHALL BE MODULAR IN CONSTRUCTION SUCH THAT THE SECTIONS ARE EASILY JOINED WITHOUT SPECIAL TOOLS.

2.5.9.2 THE CABINET SHALL BE CONSTRUCTED OF 22 GAUGE GALVANIZED STEEL AND BE DESIGNED FOR EASY INSTALLATION AND SERVICE.

2.5.9.3 BLOWER AND MOTOR THE UNIT SHALL BE DESIGNED FOR 208-230 VOLT, 1 PHASE, AND 60 Hz POWER. THE BLOWER MOTOR SHALL BE A PERMANENT SPLIT CAPACITOR TYPE WITH CLASS B INSULATION. IT SHALL HAVE PERMANENTLY LUBRICATED BALL BEARINGS AND AUTOMATIC RESET THERMAL OVERLOAD PROTECTION.

2.5.9.4 THE BLOWER SHALL BE DIRECT DRIVEN CENTRIFUGAL TYPE DESIGNED FOR HIGH- PRESSURE APPLICATIONS. THE MINIMUM EXTERNAL STATIC PRESSURE SHALL BE 1.2 INCHES OF WATER (298 PA). THE MOTOR SHALL MOUNT DIRECTLY TO THE BLOWER HOUSING AND INLET RINGS BY MEANS OF A HEAVY GAUGE SPIDER MOUNT THAT IS EASILY REMOVED FOR SERVICE USING A TWIST-AND-LOCK DESIGN.

2.5.10 CONTROLS

2.5.10.1 ALL CONTROLS SHALL BE DESIGNED FOR 24 VOLT. THE CONTROL PANEL SHALL INCLUDE A 48VA CLASS 2, 24V/208-230V TRANSFORMER INHERENTLY OR INTERNALLY FUSED. ALL REFRIGERANT COILS SHALL BE PROTECTED BY A TEMPERATURE LIMIT UP. HEAT PUMP COILS SHALL ADDITIONALLY PROVIDE A BYPASS RELAY TO JUMPER OUT THE ANTI-FROST CONTROL DURING DEFROST MODE. THE BLOWER CONTROL SHALL INCLUDE A LOW-SPEED VENTILATION MODE TO CIRCULATE AIR WITHOUT HEATING OR COOLING.

2.5.10.2 A THIRD PARTY LOW AMBIENT HEAD PRESSURE CONTROL SHALL BE INSTALLED TO MAXIMIZE SYSTEM CAPACITY AS THE OUTDOOR TEMPERATURE DROPS. THIS CONTROL SHALL MAINTAIN HEAD PRESSURE BY CONTROLLING THE CONDENSER FAN. IT SHALL BE COMPATIBLE WITH THE CONDENSER FAN MOTOR.

2.5.10.3 A MILD WEATHER KIT CONTROL, MODEL UPC-65, SHALL BE INSTALLED ON EACH HEAT PUMP TO LIMIT HEAD PRESSURE, PREVENTING NUISANCE TRIPPING OF THE COMPRESSOR HIGH PRESSURE SWITCH WHEN HEATING IS REQUIRED DURING WARM AMBIENT CONDITIONS.

2.5.10.4 (OPTIONAL) THE CONTROLS SHALL INCLUDE A SOFT-START SOFT-STOP FEATURE; RELAYS FOR A HUMIDIFIER, ERV, HOT WATER COIL, AND CHILLED WATER COIL; THE VENTILATION MODE SHALL BE HALF SPEED OPERATE USING LESS THAN 30% OF THE FULL SPEED POWER.

2.5.11 REFRIGERANT COILS

2.5.11.1 REFRIGERANT COILS SHALL HAVE 3/8-INCH (9.5-MM) MINIMUM DIAMETER COPPER TUBES WITH MECHANICALLY BONDED OR SOLDERED ALUMINUM FINS. EACH COIL SHALL BE DEHYDRATED AND SEALED AFTER TESTING AND PRIOR TO EVACUATION AND CHARGING. EACH COIL SHALL CONTAIN A SMALL NITROGEN HOLDING CHARGE LESS THAN 10 PSIG (.70 KG/SQ CM).

2.5.11.2 THE COILS SHALL BE DESIGNED FOR R-22 AND R-407C REFRIGERANT. REFRIGERANT METERING SHALL BE ACCOMPLISHED WITH AN EXTERNALLY EQUALIZED TX VALVE WITH THREADED CONNECTIONS OF EITHER CHATLEFF OR FLARE TYPE. HEAT PUMP COILS SHALL INCLUDE AN INTERNAL OR EXTERNAL BYPASS CHECK VALVE. LIQUID LINE CONNECTION SHALL BE 3/8 INCH (9.5-MM) ODF. SUCTION LINE CONNECTION FOR 2 TO 5 TON SYSTEMS SHALL BE 7/8 INCH (22.2-MM) ODF AND 5/8 INCH (15.9-MM) ODF FOR 1 TO 1.5 TON SYSTEMS.

2.5.12 HYDRONIC COIL

2.5.12.1 HYDRONIC COILS SHALL BE DESIGNED FOR 150 PSIG (10.5 KG/SQ. CM) AT 200°F (93°C). EACH COIL SHALL INCLUDE A VENT BULLETIN 20-100 -PAGE 2 BE AT THE HIGHEST PRACTICAL POINT OF THE COIL. THE DRAIN PLUG SHALL BE AT THE LOWEST PRACTICAL POINT OF THE COIL. HOT WATER COILS SHALL BE INSTALLED BY SLIDING INTO THE CABINET FOR EASY INSTALLATION AND SERVICE. ALL WATER COIL CONNECTIONS SHALL BE 7/8 INCH (22.2- MM) OD EXCEPT FOR THE MI218 HOT WATER COIL WHICH SHALL BE 5/8 INCH (15.9 MM) OD.

2.6 RADIANT FLOOR HEATING SYSTEM

2.6.1 FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, APPLIANCES AND SERVICES NECESSARY AND REQUIRED TO DELIVER AND INSTALL A COMPLETE OPERATING RADIANT FLOOR HEATING SYSTEM.

2.6.2 PROVIDE DESIGN AND ANALYSIS INFORMATION FROM MANUFACTURER OF TUBING SPECIFICALLY FOR THE DESIGN CONDITIONS OF THIS PROJECT. PROVIDE DESIGN INFORMATION WITH SUBMITTALS FOR OWNER'S EVALUATION AND APPROVAL.

2.6.3. COORDINATE LAYOUT AND INSTALLATION OF RADIANT HEATING PIPING WITH BUILDING AND STRUCTURAL COMPONENTS. FLOOR HEATING PIPE TO BE INSTALLED TO UNDERFLOOR WITH GROOVED HEAT TRANSFER PLATES TO ADD MASS AND PROVIDE EVEN HEAT TO THE FLOOR ABOVE. PLATES SHALL BE PLACED ALONG ENTIRE LENGTH OF TUBING WITH SPACES NOT TO EXCEED 6' BETWEEN PLATE ENDS, AND EQUALLY SPACED IN EACH PIPE BAY. PLATES AND TUBING SHALL BE SECURED WITH STAPLE NOT TO PENETRATE INTO FLOOR ABOVE. TUBING TO FASTENED WITH CONTACT TO FLOOR ALONG ENTIRE LENGTH. WHERE PIPING CROSSES OR PENETRATES JOISTS IT SHALL NOT BE BINDING OR TIGHT FITTING ON TUBING.

2.6.4 COORDINATE SIZE AND LOCATION OF ACCESS PANELS TO ALLOW ACCESS TO MANIFOLDS CONCEALED IN CEILINGS, WALLS, OR FLOORS AS INDICATED ON DESIGN DOCUMENTS.

2.6.5 PROVIDE TUBING LAYOUT DRAWINGS FROM SYSTEM SUPPER FOR INSTALLERS USE IN INSTALLATION AND FOR AS-BUILTS. DRAWINGS SHALL CLEARLY IDENTIFY ROUTING, LENGTH, AND IDENTITY OF EACH LOOP TO BE INSTALLED.

2.6.6 PIPING INSTALLED IN THE SLAB SHALL BE AQUAHEAT PEX-A (OR ENGINEER APPROVED EQUAL) CROSS-LINKED PIPING WITH PROTECTIVE OXYGEN DIFFUSION BARRIER. ALTERNATES SHALL BE CONSIDERED IF EQUAL OR EXCEED BASE MANUFACTURER IN ALL ASPECTS. TUBING SHALL HAVE CROSS-LINKED MOLECULAR STRUCTURE USING THE ENGEL METHOD OF CROSS-LINKING WITH A MINIMUM DIAMETER OF ½" NOMINAL FOR INDOOR RADIANT FLOOR HEATING. TUBING SHALL HAVE RATINGS OF 200 °F AT 80 PSIG, 180 °F AT 100 PSIG, AND 73.4 °F AT 160 PSIG OPERATING TEMPERATURE AND OPERATING PRESSURES RESPECTIVELY. TUBING SHALL BE CROSS-LINKED POLYETHYLENE MANUFACTURED TO ASTM F876 STANDARD SPECIFICATIONS. BOTH ASTM AND DIN APPROVALS SHALL BE CLEARLY MARKED ON ALL TUBING.

2.6.7 TUBING SHALL BE PROVIDED WITH A MANUFACTURERS TWENTY-FIVE YEAR (25) WARRANTY. FOR FIRST TEN YEARS (10), TUBING MANUFACTURER SHALL PROVIDE A CONSEQUENTIAL DAMAGE WARRANTY THAT SHALL COVER ALL COST FOR REPLACING TUBING AS NEEDED. PROVIDE EVIDENCE OF WARRANTY WITHIN SYSTEM SUBMITTALS. PRODUCTS THAT PROVIDE REPLACEMENT TUBING ONLY SHALL NOT BE CONSIDERED EQUAL FOR OWNERS PROTECTION.

2.6.8 DISTRIBUTION MANIFOLDS SHALL BE MANUFACTURED BY TUBING MANUFACTURER AND SUPPLIED AS A COMPLETE SYSTEM. DISTRIBUTION MANIFOLDS SHALL BE STAINLESS STEEL DESIGN WITH ISOLATION SHUT OFF AND FLOW BALANCING INDICATORS FOR EACH LOOP. EACH MANIFOLD SHALL BE EQUIPPED WITH SUPPLY AND RETURN THERMOMETERS AND MAIN ISOLATION BALL VALVES. FITTINGS TO CONNECT PEX TUBING TO MANIFOLD SHALL BE BRASS COMPRESSION, REMOVABLE AND ADJUSTABLE, WITH TRIPLE RING PROTECTION.

2.6.9 IDENTIFICATION TAGS: MANIFOLD TAGS SHALL IDENTIFY ROOM SERVED AND LOOP NUMBER. IF MORE THAN ONE LOOP SERVES A ROOM, PROVIDE IDENTIFICATION ON MANIFOLDS TO IDENTIFY ROOMS SERVED.

2.6.10 RADIANT HEATING CONTROLS AND TUBING SYSTEM SHALL BE SUPPLIED FROM ONE SOURCE FOR COMPATIBILITY AND DESIGN INTEGRATION.

2.6.11 INSTALL PIPING IN FLOOR FROM MANIFOLDS WITHOUT ANY JOINTS. NO LOOP LENGTH IS TO EXCEED THE DESIGN PARAMETERS ON THE PLANS OR AS APPROVED BY THE MECHANICAL ENGINEER. MAXIMUM LENGTH SHALL BE DETERMINED BY DESIGN DOCUMENTS OR TUBING DIAMETER. ONE-HALF IN (1/2") TUBING LOOPS SHALL NOT EXCEED 300 FEET. FIVE-EIGHTHS (5/8") TUBING SHALL NOT EXCEED 380 FEET PER LOOP. DESIGN SHALL USE TUBING DIAMETER SPECIFIED BY CONTRACT DOCUMENTS.

2.6.12 INSTALL MANIFOLDS IN ACCESSIBLE LOCATIONS. REFER TO PLAN VIEW DRAWINGS. INSTALL MANIFOLDS WITH ALL PARTS ACCESSIBLE FOR MAINTENANCE AND REPLACEMENT IN THE FUTURE AS MAY BE NECESSARY.

2.6.13 BEFORE ANY PART OF THE TUBING IS COVERED FOR ANY REASON, ENTIRE MANIFOLD AND TUBING SYSTEM SHALL BE PRESSURE-TESTED AS REQUIRED BY THE MANUFACTURER FOR WARRANTY PROTECTION. IN THE ABSENCE OF MANUFACTURER'S INSTRUCTION, PRESSURIZE THE ENTIRE RADIANT SYSTEM WITH COMPRESSED AIR. FIT MANIFOLD CONNECTIONS WITH A SUITABLE PRESSURE GAUGE AND CHARGING CONNECTION. IF MANIFOLD LOCATION IS NOT PERMANENT, PROPERLY SUPPORT MANIFOLD ON UNI-STRUT FRAME IN THE INTENDED AND DESIGNATED PERMANENT LOCATION. CHARGE SYSTEM TO A PRESSURE OF NOT LESS THAN 80 PSIG OR MORE THAN 100 PSIG. PRESSURE TEST SHALL LAST FOR 24 HOURS WITH NOT LESS THAN A 2 PSIG DROP. WITH SYSTEM AIR CHARGED, SOAP TEST ALL JOINT ON AND WITHIN THE MANIFOLDS.

2.6.14 AFTER HYDROSTATIC TEST PRESSURE HAS BEEN APPLIED, EXAMINE PIPING, JOINTS AND CONNECTIONS FOR LEAKAGE. ELIMINATE LEAKS BY TIGHTENING, REPAIRING, OR REPLACING COMPONENTS AND REPEAT HYDROSTATIC TEST UNTIL THERE ARE NO LEAKS. PREPARE A WRITTEN REPORT OF TESTING.

2.6.15 ENTIRE RADIANT SYSTEM SHALL BE LEFT PRESSURIZED WITH MONITORING PRESSURE GAUGE THROUGHOUT POUR OF FLOOR MATERIALS. CONTINUALLY MONITOR PRESSURE ON SYSTEM TO MAKE CERTAIN TUBING SYSTEM REMAINS INTACT WITH NO LEAKS OR PUNCTURES.

2.6.16 SYSTEM FILL – THE PEX TUBING SYSTEM AND MANIFOLDS SHALL BE CHEMICALLY CLEANED AS PRESCRIBED BY THE TUBING MANUFACTURER. SUPPLY ALL TOOLS, CONNECTIONS, LABOR, AND ACCESSORIES NECESSARY TO PROPERLY REMOVE ALL FOREIGN MATERIAL, CHEMICAL, AND RESIDUE WITHIN THE TUBING SYSTEM BEFORE PERMANENTLY CHARGING SYSTEM. AFTER SYSTEM HAS BEEN PROPERLY CLEANED AND FLUSHED, FILL SYSTEM WITH CLEAN WATER TO PROPER COLD FILL PRESSURE. ALL TUBING AND PARTS OF THE RADIANT SYSTEM SHALL BE THOROUGHLY CLEANED, DEGREASED, AND FLUSHED BEFORE ANTIFREEZE SOLUTION IS ADDED. ADD EITHER AN APPROVED CHEMICAL ADDITIVE FOR CORROSION PROTECTION OR A MINIMUM OF 25% GLYCOL/WATER MIXTURE FOR SYSTEM CORROSION (I.E. DOWTHERM SR-1 OR EQUIVALENT). TEST CORROSION AND/OR ANTIFREEZE SOLUTION FOR PROTECTION LEVEL AND RECORD IN OWNERS OPERATING AND MAINTENANCE INSTRUCTION MANUAL. PROVIDE AN AXIOM MODEL SF-200 GLYCOL PRESSURIZATION FEEDER FOR EACH BOILER SYSTEM.

2.6.17 PURGE EACH INDIVIDUAL LOOP TO ELIMINATE AIR POCKETS IN THE SYSTEM. AFTER PURGING INSTALL AUTOMATIC VENT ON THE MANIFOLD RETURN TO MAINTAIN GOOD FLOW AND ELIMINATE AIR.

2.6.18 OPERATE SYSTEM WITH ALL BALANCE VALVES IN THE FULL OPEN POSITION. BALANCE SYSTEM BY RETURN WATER TEMPERATURE OF EACH LOOP ACROSS MANIFOLD TO BE CERTAIN OF EVEN FLOW. ADJUST INDIVIDUAL LOOP BALANCE VALVES AS NEEDED. AFTER SYSTEM BALANCING HAS BEEN DONE, MARK BALANCING VALVES TO PERMANENTLY INDICATE FINAL BALANCED POSITION.

2.6.19 PERFORM THE FOLLOWING ADJUSTMENTS BEFORE OPERATING THE SYSTEM:

1) SET TEMPERATURE CONTROLS SO ALL ZONES CALL FOR FULL FLOW, DRIVING AUTOMATIC CONTROL VALVES TO FULLY OPEN POSITION.
2) OPERATE SYSTEM TO ENSURE FLOW THROUGH ALL LOOPS IN ALL MANIFOLDS SIMULTANEOUSLY.
3) RESET TEMPERATURE CONTROLS TO NORMAL SPACE TEMP (70-72F) TO ALLOW VALVES TO CLOSE. CHECK OPERATION OF AUTOMATIC VALVES.

2.6.20 RADIANT MANUFACTURER SHALL PROVIDE AN EXTENDED SERVICE AGREEMENT ON THE ENTIRE RADIANT SYSTEM FOR THE PROTECTION OF THE OWNER FOR A PERIOD OF NOT LESS THAN 10 YEARS. THIS POLICY SHALL BE PROVIDED THOUGH A THIRD PARTY NATIONALLY RECOGNIZED AGENCY. A CERTIFICATE OF COVERAGE AND COVERAGE DETAILS SHALL BE PROVIDED TO THE OWNER THROUGH THE ENGINEER WITH FINAL SYSTEM SIGNOFF DOCUMENTATION.

2.6.21 TESTING, BALANCING, AND WARRANTIES - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY ADJUSTMENTS TO FLOOR HEATING EQUIPMENT AND CONTROLS. ALL SYSTEM COMPONENTS SHALL BE TESTED, BALANCED, AND OPERATING TO PROVE SYSTEM OPERATION. ALL MAINTENANCE DATA AND INSTRUCTIONS ON CONTROL UNITS SHALL BE PROVIDED ON SITE COMPLETE AND WITH AS BUILT TUBING LAYOUT. DATA, BALANCING ADJUSTMENTS, WARRANTY INFORMATION, AND OPERATOR INSTRUCTIONS SHALL BE ASSEMBLED AND PLACED IN A SUITABLE BINDER.

2.6.22 MANUFACTURERS SERVICES - CONTRACTOR SHALL PROVIDE THE SERVICES OF A LOCALLY AUTHORIZED MANUFACTURES REPRESENTATIVE TO SUPERVISE ALL PHASES OF SYSTEM INSTALLATION. CONTRACTOR SHALL SUBMIT A LETTER OF COMPLIANCE WITH ALL MANUFACTURERS INSTRUCTION FROM REPRESENTATIVE WITH FINAL OPERATING AND MAINTENANCE MANUALS FOR ENGINEERS REVIEW AND ACCEPTANCE.

3. STANDARDS

3.1 MEET REQUIREMENTS AND RECOMMENDATIONS OF APPLICABLE PORTIONS OF THE LATEST EDITION OF ALL CODES AND STANDARDS, AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION, INCLUDING THOSE LISTED.

3.1.1 AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS, INC. (ASHRAE)

3.1.2 90-1 1989 ENERGY EFFICIENT DESIGN FOR NEW BUILDING

3.1.3 AMERICAN NATIONAL STANDARDS INSTITUTE STANDARDS (ANSI)

ANSI/ASME B16.22 WROUGHT COPPER AND COPPER ALLOY SOLDER-JOINT PRESSURE FITTINGS

3.1.4 INTERNATIONAL MECHANICAL CODE, 2006

3.1.5 NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS (NFPA)

70 NATIONAL ELECTRICAL CODE (NEC)

90A INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS

255 SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

3.1.8 SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC., PUBLICATION (SMACNA)

HVAC DUCT CONSTRUCTION STANDARDS: METAL AND FLEXIBLE, SECOND EDITION

SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS, SECOND EDITION

3.1.9 AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

ANSI/ARI 410 FORCED CIRCULATION AIR-COOLING AND AIR-HEATING COILS

3.1.10UNDERWRITERS LABORATORIES PUBLICATION (UL)

1995 HEATING AND COOLING EQUIPMENT

4. SHOP DRAWINGS/PRODUCT DATA

4.1 SUBMIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.

4.2 SUBMIT SHOP DRAWINGS AND/OR CATALOG CUTS FOR ALL SPECIFIED MATERIALS AND EQUIPMENT, PIPING LAYOUTS AND DUCTWORK LAYOUTS.

4.3 SUBMIT SHOP DRAWINGS AND PRODUCT DATA GROUPED TO INCLUDE COMPLETE SUBMITTALS OF RELATED SYSTEMS, PRODUCTS AND ACCESSORIES IN A SINGLE SUBMITTAL.

4.4 MARK DIMENSIONS AND VALUES IN UNITS TO MATCH THOSE SPECIFIED.

4.5 SHOW EQUIPMENT SIZES AND LOCATIONS, BY DIMENSIONS, OF DUCTS, EQUIPMENT AND OTHER ITEMS.

4.6 INCLUDE WIRING DIAGRAMS, HOLE LOCATION AND SIZES AND OTHER DATA THAT COULD AFFECT WORK BY OTHER TRADES.

4.7 SHOW MANUFACTURER'S NAMES, TRADE NAMES, CATALOG NUMBERS, ACCESSORIES, SPECIAL FEATURES AND RATING DATA.

4.8 INDICATE REQUIRED CLEARANCES FOR OPERATING PARTS, FOR REMOVAL AND FOR SERVICING.

4.9 SHOW PERFORMANCE DATA, INCLUDING FAN CURVES.

4.10 SHOW SOUND POWER LEVELS OF ALL ROTATING EQUIPMENT.

4.11 INDICATE EFFICIENCIES AND AIR LEAKAGE RATES FOR FILTERS AND FILTER HOUSINGS.

5. CUTTING AND PATCHING

5.1 ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THE CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE LINES OF WORK. ALL PATCHING SHALL MATCH ADJACENT FINISHES.

5.2 ALL CUTTING IN THE BUILDING SHALL BE DONE WITH GREAT CARE SO AS NOT TO LEAVE AN UNSIGHTLY SURFACE, WHICH MAY NOT BE CONCEALED BY PLATES, ESCUTCHEONS OR OTHER NORMAL CONCEALING CONSTRUCTION. IF SUCH UNSIGHTLY CONDITIONS OCCUR, THE CONTRACTOR SHALL BE REQUIRED, AT HIS OWN EXPENSE, TO ENGAGE THE GENERAL CONTRACTOR TO REPLACE THE DAMAGED MATERIALS WITH NEW MATERIALS.

6. MATERIALS

6.1 ALL MATERIALS AND EQUIPMENT PROVIDED BY THIS CONTRACTOR SHALL BE NEW, WITHOUT IMPERFECTIONS AND BLEMISHES AND SHALL BE PROTECTED FROM THE ELEMENTS PRIOR TO INSTALLATION IN BUILDINGS.

6.2 ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (UL, AGA, ETL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS LISTING. INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE AT THE JOB SITE.

6.3 ALL EQUIPMENT SUBJECT TO SPECIFIC REQUIREMENTS OF THE OWNER'S INSURANCE COMPANY (GAS TRAINS, ETC.) SHALL MEET THE INSURANCE COMPANIES REQUIREMENTS.

7. METHODS

7.1 THE HVAC CONTRACTOR SHALL CONFER WITH ALL OTHER CONTRACTORS AND SHALL APPLY FOR DETAILED AND SPECIFIC INFORMATION REGARDING THE LOCATION OF ALL EQUIPMENT AS THE FINAL LOCATION MAY DIFFER FROM THAT INDICATED ON THE DRAWINGS. DUCTWORK AND PIPING OR EQUIPMENT IMPROPERLY PLACED BECAUSE OF THE HVAC CONTRACTOR'S FAILURE TO OBTAIN THIS INFORMATION SHALL BE RELOCATED AND REINSTALLED BY THE HVAC CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

7.2 ALL DUCTWORK, PIPING, ACCESSORIES AND EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER AS TO PRESERVE ACCESS WITH SUFFICIENT SPACE PROVIDED FOR PROPER OPERATION AND MAINTENANCE TO ANY EXISTING EQUIPMENT OR TO ANY NEW EQUIPMENT INSTALLED UNDER THIS SPECIFICATION OR UNDER OTHER SPECIFICATIONS OR CONTRACTS FOR THIS BUILDING.

7.3 THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES SO THAT ALL WORK MAY BE INSTALLED IN THE MOST DIRECT MANNER AND SO THAT INTERFERENCE BETWEEN PIPING, DUCTS, EQUIPMENT, ARCHITECTURAL OR STRUCTURAL FEATURES WILL BE AVOIDED. IN THE CASE INTERFERENCE RESULTS, THE OWNER'S REPRESENTATIVE SHALL DECIDE WHICH WORK IS TO BE RELOCATED, REGARDLESS OF WHICH IS FIRST INSTALLED. SUCH RELOCATION SHALL BE AT NO ADDITIONAL COST TO THE OWNER.

7.4 ALL MATERIALS AND EQUIPMENT INSTALLED BY THE CONTRACTOR SHALL BE FIRMLY SUPPORTED AND SECURED TO THE BUILDING STRUCTURE WHERE REQUIRED.

7.5 THE CONTRACTOR SHALL PROVIDE ISOLATION VALVES AND UNIONS OR FLANGES AT ALL PIECES OF EQUIPMENT AND AT ALL BRANCH TAKE-OFFS SERVING FIVE OR MORE PIECES OF EQUIPMENT (WHETHER INDICATED OR NOT) TO FACILITATE REPLACEMENT OR SERVICE OF THE EQUIPMENT.

7.6 ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS. THE MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE CONSIDERED PART OF THIS CONTRACT.

8. RUBBISH REMOVAL AND CLEANUP

8.1 EACH CONTRACTOR IS RESPONSIBLE FOR PERIODIC REMOVAL OF ALL RUBBISH RESULTING FROM HIS WORK. ALL SURPLUS MATERIAL, REFUSE, RUBBISH, ETC., SHALL BE REMOVED FROM THE JOB SITE AT COMPLETION OF CONTRACT. THE OWNER'S REPRESENTATIVE MUST BE SATISFIED WITH THE REMOVAL AND CLEANUP.

9. DELIVERING AND STORAGE OF MATERIALS AND EQUIPMENT

9.1 DELIVER ACCESSORIES, SMALL-UNMARKED PARTS, ADHESIVES AND INCIDENTAL ITEMS TO THE SITE IN MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS.

9.2 STORE MATERIALS AND EQUIPMENT TO PREVENT DAMAGE AND INJURY. STORE FERROUS MATERIALS TO PREVENT RUSTING. STORE EQUIPMENT TO PREVENT STAINING AND DISCOLORING.

10. AS-BUILT DRAWINGS

10.1 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF RED LINED INSTALLATION PRINTS. HE SHALL RECORD ON THESE PRINTS, ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN PIPE SIZING, DUCT SIZING, EQUIPMENT, PIPE OR DUCT LOCATION, DEPTH OF PIPE COVER AND DETAILS.

10.2 AT THE COMPLETION OF THE WORK THE AS-BUILT PRINTS TO THE OWNER OR OWNER'S REPRESENTATIVE.

11. OPERATION AND MAINTENANCE INSTRUCTIONS

11.1 PRIOR TO COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL DELIVER TO THE OWNER OR OWNER'S REPRESENTATIVE FOR APPROVAL THREE CO

PLUMBING

1. THE GENERAL CONDITIONS SHALL APPLY TO AND FORM A PART OF THIS SECTION OF THESE SPECIFICATION.

2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND SUPERVISION AND PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER AND COMPLETE EXECUTION OF ALL PLUMBING WORK IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.

3. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NATIONAL ELECTRIC CODE, OSHA, *2006* IPC INTERNATIONAL PLUMBING CODE AND ALL OTHER STATE AND LOCAL AUTHORITIES HAVING JURISDICTION AND APPLICABLE MANUFACTURER'S RECOMMENDATIONS.

4. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT.

5. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH HIS WORK.

6. THE CONTRACTOR SHALL VERIFY ALL UTILITY SERVICE INFORMATION SHOWN ON THE DRAWINGS WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING A BID. ANY CHANGES OR SERVICE CHARGES IMPOSED BY THE UTILITY COMPANY SHALL BE QUALIFIED AND INCLUDED IN THE BID.

7. ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (UL, AGA, ETL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS LISTING.

8. ALL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

9. WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE, AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE.

10. THE CONTRACTOR RESPONSIBLE FOR WORK COVERED BY THESE SPECIFICATIONS SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES. TRADES THAT HAVE WORK CONNECTED WITH THE PLUMBING WORK SHALL BE NOTIFIED FOR INSTALLATION REQUIREMENTS AND SCHEDULING. THE CONTRACTOR SHALL SCHEDULE HIS WORK TO AVOID ANY INTERRUPTION OF ANY UTILITY SERVICES TO THE OPERATION AREAS OF THE BUILDING DURING NORMAL WORKING HOURS. INTERRUPTION OF SERVICES SHALL BE DONE DURING OFF HOURS AT NO ADDITIONAL COST TO THE OWNER.

11. THE CONTRACTOR SHALL PERFORM ANY DEMOLITION REQUIRED FOR CONNECTION OF NEW WORK. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES. ALL WORK SHALL BE COORDINATED TO AVOID CUTTING OF WORK IN PLACE AND INTERFERING WITH OTHER OPERATIONS.

12. ALL EXCAVATIONS REQUIRED FOR INSTALLATION OF PIPE SHALL HAVE SOLID, UNDISTURBED BOTTOMS, AND SHALL BE SUBJECT TO APPROVAL BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO PIPING PLACEMENT. SHOULD BOTTOMS BECOME SOFT OR WET BEFORE PIPING IS PLACED, ALL SUCH UNSUITABLE BOTTOMS SHALL BE REMOVED AT NO COST TO THE OWNER AND FILLED WITH CONCRETE.

13. BACKFILL ALL EXCAVATIONS PERFORMED UNDER THIS CONTRACT AS REQUIRED TO SATISFY FINISHED GRADE REQUIREMENTS.

14. FURNISH AND INSTALL ALL NECESSARY HANGERS, INSERTS, SUPPORTS SUPPLEMENTARY STEEL, ETC., TO PROPERLY SUPPORT ALL EQUIPMENT AND PIPING IN AN APPROVED MANNER AND IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

15. ALL HOT AND COLD WATER PIPING WITHIN THE BUILDING SHALL BE POLYETHYLENE (PEX) CROSS-LINKED PIPING, ASTM, NSF, AND IAPMO APPROVED TUBING SHALL BE INSTALLED TO SUPPLY THE FIXTURES. PEX PIPE SHALL HAVE A MINIMUM OPERATING TEMPERATURE OF 180F AT AN OPERATING PRESSURE OF 90 PSIG. THE INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH ALL MANUFACTURERS' INSTRUCTIONS IN ACCORDANCE WITH THEIR WARRANTY POLICY. 15.1 ALL PEX PIPING ROUTED THROUGH WALLS AND FLOORS WITHIN THE HEATED SPACE SHALL BE INSULATION PER NOTE #21.1. ALL PIPING INSTALLED WITHIN CAST CONCRETE OR LOCATIONS THAT WOULD NOT ALLOW EASY REPLACEMENT SHALL BE SLEEVED WITH AN OUTER CORRUGATED PLASTIC JACKET THAT WILL ALLOW THE REPLACEMENT OF THE CENTER CARRIER. ALL PEX TUBING THAT WILL BE INSTALLED UNDERGROUND OR IN UNHEATED SPACES WILL BE PRE-INSULATED PEX TUBING.

15.2 PIPING SHALL BE COLOR CODED TO COLD AND HOT TO BE EASILY RECOGNIZABLE DURING CONSTRUCTION AND FOR OWNER'S SERVICE AFTERWARD.

15.3 PIPING FLOW RATES - EACH RUN OF TUBING SHALL BE DESIGNED TO HANDLE MAXIMUM FLOW TO ALL CONNECTED FIXTURES. MAXIMUM FLOW RATES FOR PLUMBING TUBING SHALL NOT EXCEED:

3/8" PEX TUBING- 3 GPM
1/2" PEX TUBING - 9 GPM
3/4" PEX TUBING - 14 GPM

15.4 TUBING SUPPLY SYSTEM SHALL BE ENGINEERED IN A MODIFIED HOME RUN ARRANGEMENT. EVERY FIXTURE GROUP SHALL HAVE A SEPARATE SET OF COLD AND HOT SUPPLY MAINS, WITH INDIVIDUAL SHUTOFFS AT THE MANIFOLD. INSURE THAT A MINIMAL BENDING RADIUS OF 6 TIMES THE PIPE DIAMETER IS MAINTAINED AND THAT NO PIPING IS TWISTED OR KINKED.

15.5 CONTRACTOR SHALL PREPARE A SHOP DRAWING OF ALL PLUMBING SUPPLY PIPING FOR APPROVAL BY THE OWNER OR OPWNER'S REPRESETATIVE.

15.6 WHERE TUBING PENETRATES BUILDING STRUCTURAL COMPONENTS, HOLES SHALL BE DRILLED LARGE ENOUGH TO AVOID DAMAGING TUBING. WHERE TUBING PASSES FROM ONE FLOOR TO ANOTHER, FIRE STOPPING CAULK SHALL BE EMPLOYED AS CONTAINED IN THE GENERAL ARCHITECTURAL SPECIFICATIONS. TUBING SECURED TO BUILDING STRUCTURAL ELEMENTS SHALL BE PROTECTED BY PLASTIC TALON TYPE CLAMPS TO AVOID ANY NOISE OR RUBBING DAMAGES. AT ANY LOCATION THAT TUBING IS TO BE SHARPLY RE-ROUTED, A PLASTIC BEND SUPPORT SHALL BE EMPLOYED TO PERMANENTLY PREVENT KINKING.

15.7 FITTINGS - ALL PEX TUBING SHALL BE CONNECTED WITH MANUFACTURERS SUPPLIED BARBED FITTINGS. FITTINGS AND TUBING MUST BE ACQUIRED AND APPROVED FROM A SINGLE SOURCE MANUFACTURER. MIXING OF MANUFACTUERS PRODUCTS SHALL NOT BE ALLOWED. FITTINGS INSTALLED ABOVE GRADE SHALL BE PROPLAS PLASTIC FITTINGS MANUFACTURED TO ASTM STANDARD F-2169. ALL FITTINGS TO BE INSTALLED BELOW GRADES SHALL BE BRASS FITTINGS.

15.8 CONTRACTOR SHALL STORE ALL PLUMBING MATERIALS IN A SUITABLE MANNER AFTER DELIVERY TO JOBSITE. TUBING SHALL NOT BE EXPOSED TO SUNLIGHT EITHER PRIOR TO OR AFTER INSTALLATION INTO FLOOR AREAS. AFTER TUBING RUNS ARE INSTALLED, THE ENDS OF THE PEX TUBING SHALL BE PROTECTED BY TAPE OVER EACH END TO AVOID ENTRY OF ANY FOREIGN MATERIALS OR LIQUIDS.

15.9 PROVIDE FACTORY PRE-FABRICATED MODULAR PLASTIC MANIFOLDS FOR ALL PLUMBING SUPPLIES. EACH CIRCUIT MANIFOLD MODULE SHALL INCORPORATE A BARBED END FOR THE CONNECTION OF PLUMBING TUBING. MANIFOLD ASSEMBLIES SHALL INCLUDE AND NOT BE LIMITED TO:

15.9.1 COLOR CODED BODIES FOR COLD AND HOT SUPPLIES.

15.9.2 INDIVIDUAL QUARTER TURN ISOLATION VALVES FOR EACH SUPPLY.

15.9.3 UNION CONNECTION FOR MAIN SUPPLY

15.9.4 TOP END UNION CONNECTION FOR EXTENSION INTO SECOND MANIFOLD WHERE REQUIRED

15.9.5 STRAIGHT OR ANGLED SWIVEL CONNECTOR FOR EACH SUPPLY TO AVOID STRESS ON TUBING OR MANIFOLD

15.10 TUBING ATTACHMENT - AT EVERY LOCATION WHERE THE 3/8" THROUGH 1" TUBING SHALL ATTACH TO A FITTING, MANIFOLD, OR FIXTURE, THE TUBING SHALL BE SECURED WITH AN ASTM 2098 PINCH LOCK CLAMP. CLAMPS SHALL BE STAINLESS STEEL NON-ADJUSTABLE, WITH A MANUFACTURER'S LIFETIME WARRANTY. CONTRACTOR SHALL USE THE APPROPRIATE DOMESTIC CINCH TOOL TO MAKE ALL CONNECTIONS. TOOL SHALL TIGHTEN CLAMP WITH A SINGLE CLOSURE OF THE HANDLES. IF HANDLES ARE NOT FILLY CLOSED TO COMPLETE CLAMP ACTION, IT SHALL BE NOT ABLE TO BE REMOVED FROM CLAMP.

15.11 SYSTEM TRIM - LAVATORY RISERS, TOILET RISERS, ICE MAKERS, ETC. SHALL BE FITTED WITH PEX CONNECTIONS DURING THE FINISH STAGE OF INSTALLATION. LOCAL SERVICE VALVES INSTALLED SHALL BE BARBED ENDS, AND SECURED WITH THE SAME STAINLESS STEEL CLAMPS AS USED ON THE DISTRIBUTION SYSTEM.

15.12 AFTER INSTALLATION THE PIPING AND SYSTEM SHALL BE PRESSURE TESTED TO A MINIMUM OF 60 PSIG AND A MAXIMUM OF 100 PSIG FOR A 24 HOUR PERIOD. CONTRACTOR SHALL NOTIFY OWNER AND GENERAL CONTRACTOR FOR VERIFICATION BOTH BEFORE AND AFTER TESTING PERIOD. ALL PIPING SHALL BE BLED OF AIR POCKETS AND MINIMUM 4 INCH TEST GAUGES SHALL BE INSTALLED TEMPORARILY FOR TESTING. IF TEST PRESSURE DROP MORE THAN 2 PSIG OVER THE 24 HOUR PERIOD, SYSTEM SHALL BE RE-CHECKED AND RE-TESTED. ANY TUBING SHOWING SIGNS OF DAMAGE AT THE JOBSITE SHALL BE REPLACED WITHOUT ANY CONCEALED JOINTS WHATSOEVER.

16. ALL WATER SERVICE PIPING OUTSIDE OF THE BUILDING SHALL BE TYPE "K" COPPER ASTM B-88. FITTINGS SHALL BE WROUGHT COPPER. ALL JOINTS SHALL BE MADE WITH SOLDER AND FLUX HAVING A LEAD CONTENT OF NOT MORE THAN 0.2 PERCENT.

17. ALL SANITARY AND VENT PIPING UNLESS NOTED OTHERWISE SHALL BE NO-HUB SERVICE WEIGHT CAST IRON IN ACCORDANCE WITH ASTM A74; JOINTS SHALL BE A NEOPRENE GASKET WITH STAINLESS STEEL CLAMP AND SHIELD ASSEMBLY. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IF PERMITTED BY THE LOCAL AUTHORITY ALL SANITARY AND VENT PIPING SHALL BE SCHEDULE 40 PVC. ASTM D2665, D2949, WITH PVC FITTINGS (DWV TYPE) AND SOLVENT WELD JOINTS. PVC PIPING SHALL NOT BE USED IN RETURN AIR PLENUM TYPE CEILINGS OR IN FIRE-RATED CEILING ASSEMBLIES (CONTRACTOR TO VERIFY THESE AREAS WITH ARCHITECT). PVC PIPING SHALL NOT BE USED WITHOUT WRITTEN AUTHORIZATION FROM THE LOCAL AUTHORITY HAVING JURISDICTION AND THE LOCAL FIRE MARSHAL.

18. ALL FUEL GAS PIPING MATERIALS, JOINTS AND INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE NATIONAL FUEL GAS CODE AND ALL LOCAL REQUIREMENTS. ALL GAS PIPING SIZES LISTED ON THE DRAWINGS ARE PIPING I.D. ALL HANGERS AND SUPPORTS FOR GAS PIPING SHALL BE IN ACCORDANCE WITH NATIONAL FUEL GAS CODE (NFPA 54).

18.1 ALL FUEL GAS PIPING ABOVE FINISHED GRADE, OUTSIDE THE BUILDING SHALL BE GALVANIZED STEEL. SCHEDULE 40 IN ACCORDANCE WITH ASTM A53. FITTINGS SHALL BE GALVANIZED MALLEABLE IRON IN ACCORDANCE WITH ASME B16.3. JOINTS SHALL BE SCREWED FOR PIPE SIZES UP TO THREE INCHES I.D. FLANGED AND BOLTED FOR PIPE SIZES GREATER THAN THREE INCHES I.D. AND WELDED. ALL JOINTS ON EXTERIOR FUEL GAS PIPING SHALL BE PAINTED TO PREVENT CORROSION.

18.2 ALL FUEL GAS PIPING INSIDE THE BUILDING (ABOVE FINISHED FLOOR/GRADE) SHALL BE SCHEDULE 40 BLACK STEEL IN ACCORDANCE WITH ASTM A53. FITTINGS SHALL BE MALLEABLE IRON IN ACCORDANCE WITH ASME B16.3. JOINTS SHALL BE SCREWED UP TO THREE INCHES I.D., FLANGED FOR PIPING LARGER THAN THREE INCHES I.D. AND WELDED, BRAZED IN CONCEALED AREAS.

19. WHERE PIPING PASSES THROUGH FIRE RESISTING PORTIONS OF THE STRUCTURE AN APPROVED FIRE-STOPPING DEVICE SHALL BE INSTALLED TO MAINTAIN THE FIRE RATING OF THAT PORTION OF THE STRUCTURE. "FIRESTOP PENETRATOR" OR "PROSEAL PLUG DEVICES" AS MANUFACTURED BY PROSET SYSTEMS (OR APPROVED EQUAL) SHALL BE USED AT THESE LOCATIONS.

20. SHUTOFF VALVES ARE REQUIRED AND EVERY FIXTURE AND SHALL BE FULL PORT BALL VALVES. ALL BALL, GATE, GLOBE AND CHECK VALVES SHALL BE ALL BRONZE, SWEATED PATTERN SUITABLE FOR 125 PSI WORKING PRESSURE. ALL BACKFLOW PREVENTERS SHALL BE AS REQUIRED BY THE LOCAL AUTHORITY. ALL VALVES AND PIPING EXPOSED TO VIEW SHALL BE CHROME PLATED.

20.1 HW RECIRC BALANCING VALVE SHALL BE AN IN-LINE BALANCING VALVE WITH A VISUAL FLOW INDICATOR AND ADJUSTMENT SCREW FOR SYSTEM FLOW CALIBRATION; MODEL TB-3/4 MANUFACTURED BY BELL & GOSSETT. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CALIBRATE TO FLOW 1 TO 2 GPM.

20.2 GAS SHUTOFF VALVES SHALL HAVE A QUARTER-TURN OPERATION AND SHALL BE AGA APPROVED FOR SYSTEM PRESSURE. INSTALL IN ACCORDANCE WITH THE NATIONAL FUEL GAS CODE REQUIREMENTS.

20.3 GAS PRESSURE REGULATING VALVES SHALL BE THE SIZE AND TYPE REQUIRED BY THE APPLIANCE AND THE LOCAL GAS SUPPLIER. VALVES SHALL BE AGA APPROVED.

20.4 WATER HAMMER ARRESTORS SHALL BE ZURN, SHOCKTROL OR EQUAL AND SHALL BE INSTALLED WHERE INDICATED ON THE DRAWINGS AND SIZED PER MANUFACTURER'S RECOMMENDATIONS.

21. INSULATION

21.1 ALL COLD WATER, HOT WATER, FITTINGS AND VALVES SHALL BE INSULATED WITH MATERIALS HAVING A "K" FACTOR OF 0.27 AT 75 DEGREES F MEAN TEMPERATURE, A FLAME SPREAD RATING OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS. THICKNESS: - COLD WATER AND HOT WATER RUNOUTS UP TO 1" = 1/2" THICK - COLD WATER MAINS = 1" THICK - HOT WATER MAINS = 1" THICK MATERIALS: - VAPOR BARRIER ALL SERVICE JACKETED FIBERGLASS WITH FITTINGS COVERED WITH PRE-SHAPED PLASTIC COVERS. MANUFACTURERS: - CERTAINEED, MANVILLE, OWENS, KNAUF OR APPROVED EQUAL. ALL PIPING IN UNHEATED PORTIONS OF THE BUILDING (CRAWL SPACES, BASEMENT, ATTICS) SHALL BE HEAT TRACED (7W/LF) AND INSULATED WITH ONE INCH ARMSTRONG AP ARMAFLEX. HEAT TRACING SHALL BE THERMOSTATICALLY CONTROLLED TO MAINTAIN 45 DEGREES F MINIMUM PIPE TEMPERATURE.

22. FIXTURES AND FIXTURE TRIMMINGS SHALL BE FURNISHED AND INSTALLED AS SPECIFIED HEREIN. FIXTURES SHALL BE COMPLETE WITH ALL NECESSARY WALL HANGERS AND SUPPORTS, SUPPLY VALVES, DRAINAGE FITTINGS AND ESCUTCHEONS.

22.1 FLOOR DRAIN

(1) ALL DRAINS SHALL HAVE VANDAL PROOF SCREWS.
(2) ALL DRAINS SHALL BE EQUIPPED WITH OUTLETS TO SUIT THE JOINTS IN THE PIPE TO WHICH THEY ARE CONNECTED. SIDE OUTLET DRAINS SHALL BE PROVIDED WHERE REQUIRED. EACH DRAIN SHALL BE CONNECTED TO THE DRAINAGE SYSTEM THROUGH A DEEP SEAL P-TRAP.
(3) DRAINS INSTALLED IN AREAS HAVING WATERPROOF MEMBRANE SHALL BE PROVIDED WITH FLASHING AS HEREINBEFORE SPECIFIED AND FLASHING CLAMP DEVICE.

23. GAS FIRED OR ELECTRIC WATER HEATERS - TWO (ON PER EACH FLOOR LEVEL) TAGAGI FLASH TK-3 GAS FIRED UNIT OR EEMEX ETPST ELECTRIC WATER HEATER FACTORY ASSEMBLED TO SUPPLY DOMESTIC HOT WATER WITHIN 5 DEGREES F OF THE SELECTED TEMPERATURE. WHEN SUPPLIED WITH NATURAL GAS OR ELECTRICITY AND VENTED PROPERLY. THE HEATERS SHALL BE SUITABLE FOR SEALED COMBUSTION DIRECT VENTING USING A FOUR INCH S.S DIAMETER 'B1' VENT EXHAUST PIPE FOR A TOTAL DISTANCE OF *20* EQUIVALENT FEET OF VENT. THE HEATER SHALL BE FACTORY ASSEMBLED AND TESTED. THE POWER BURNER SHALL BE OF A DESIGN THAT REQUIRES NO SPECIAL CALIBRATIONS ON START-UP. THE HEATERS SHALL BE APPROVED FOR MINIMAL CLEARANCES TO COMBUSTIBLES. THE CONTROL SHALL BE AN INTEGRATED SOLID STATE TEMPERATURE AND IGNITION CONTROL DEVICE WITH INTEGRAL DIAGNOSTICS, LED FAULT DISPLAY CAPABILITY AND A DIGITAL DISPLAY OF TEMPERATURE SETTINGS. THE UNITS SHALL BE EQUIPPED WITH AN ASME RATED TEMPERATURE PRESSURE RELIEF VALVE. THE WATER HEATER SHALL BE UL LISTED AND EXCEED THE MINIMUM EFFICIENCY REQUIREMENTS OF ASHRAE/IES *90.1*B-1992. THIS HEATER SHALL BE LISTED BY SCAQMD RULE *1146.2* LOW NOX. EACH WATER HEATER SHALL HAVE AN INPUT RATING OF *199,000* BTUH / *9.5*kW. EACH UNIT SHALL BE CAPABLE OF SUPPLYING *4.0* GALLONS OF HOT WATER PER MINUTE AT A TEMPERATURE RISE OF *100* DEGREES F.

24. EXPANSION TANK

24.1 WELDED STEEL, TESTED AND STAMPED IN ACCORDANCE WITH ASME SPECIFICATIONS, RATE FOR WORKING PRESSURE 125 PSIG, WITH FLEXIBLE DIAPHRAGM SEALED INTO TANK, INLINE MODEL (PROVIDE SUPPORT PER MANUFACTURER'S RECOMMENDATIONS). FOR USE WITH POTABLE WATER SYSTEMS. MODEL *ST-60-C* MANUFACTURED BY AMTROL.

25. STERILIZATION OF DOMESTIC WATER SYSTEM

25.1 BEFORE BEING PLACED IN SERVICE, ALL DOMESTIC WATER LINES SHALL BE CHLORINATED USING A METHOD THAT IS SATISFACTORY TO THE WATER AUTHORITY OR THE AUTHORITY HAVING JURISDICTION. IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURE LISTED IN AWWA C651 OR AWWA C652 OR AS DESCRIBED BELOW SHALL BE USED.

25.2 PRIOR TO CHLORINATION, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED BY A THOROUGH FLUSHING. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND LEAKAGE TEST.

25.3 A CHLORINE HYPOCHLORITE SOLUTION SHALL BE APPLIED BY MEANS OF A SOLUTION FEED DEVICE OR THE GAS SHALL BE FED DIRECTLY FROM A CHLORINE CYLINDER EQUIPPED WITH PROPER DEVICES FOR REGULATING THE RATE OF FLOW AND THE EFFECTIVE DIFFUSE OF GAS WITHIN THE PIPE.

25.4 WATER SHALL BE CONTROLLED TO FLOW SLOWLY INTO THE SYSTEM DURING THE APPLICATION OF CHLORINE IN SUCH PROPORTIONS THAT THE CHLORINE DOSE APPLIED TO THE WATER ENTERING THE PIPE SHALL BE AT LEAST 40 TO 50 PARTS PER MILLION.

25.5 TREATED WATER SHALL BE RETAINED IN THE SYSTEM LONG ENOUGH TO DESTROY ALL NON-SPORE FORMING BACTERIA. THIS PERIOD SHALL BE AT LEAST THREE HOURS. A LONGER CHLORINE CONTACT TIME MAY BE REQUESTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.

25.6 AFTER THE CHLORINE TREATED WATER HAS BEEN RETAINED FOR THE REQUIRED TIME, THE CHLORINE RESIDUAL AT THE PIPE EXTREMITIES AND AT OTHER REPRESENTATIVE POINTS SHALL BE AT LEAST FIVE PARTS PER MILLIONS.

25.7 FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE SYSTEM AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BE EQUAL TO THE WATER QUALITY SERVED FROM THE WATER SUPPLY SYSTEM.

25.8 SHOULD THE INITIAL TREATMENT IN THE OPINION OF THE OWNER'S REPRESENTATIVE PROVE INEFFECTIVE, THE CHLORINATION PROCEDURE SHALL BE REPEATED UNTIL CONFIRMED TESTS SHOW THAT WATER SAMPLED FROM THE SYSTEM CONFORMS TO THE REQUIREMENTS.

25.9 THE "START-UP" OF THE WATER HEATER SYSTEM SHALL BE CARRIED OUT BY THE CONTRACTOR AND MANUFACTURE'S REPRESENTATIVE.

25.10 IN ADDITION TO THE ABOVE WORK, THE CONTRACTOR SHALL CHECK THE OPERATION OF ALL WATER HEATER THERMOSTAT SETPOINTS AND OPERATIONS.

26. TEST OF DRAINAGE SYSTEM

26.1 ALL PLUMBING AND DRAINAGE PIPING SHALL BE TESTED BY PLUGGING ALL OPENINGS AND FILL SYSTEM WITH WATER TO THE TOP OF ALL VENT PIPES. THE WATER SHALL STAND FOR 30 MINUTES FOR INSPECTION. ALL TESTS MUST COMPLY WITH LOCAL AUTHORITY REQUIREMENTS.

27. TEST OF DOMESTIC WATER PIPING

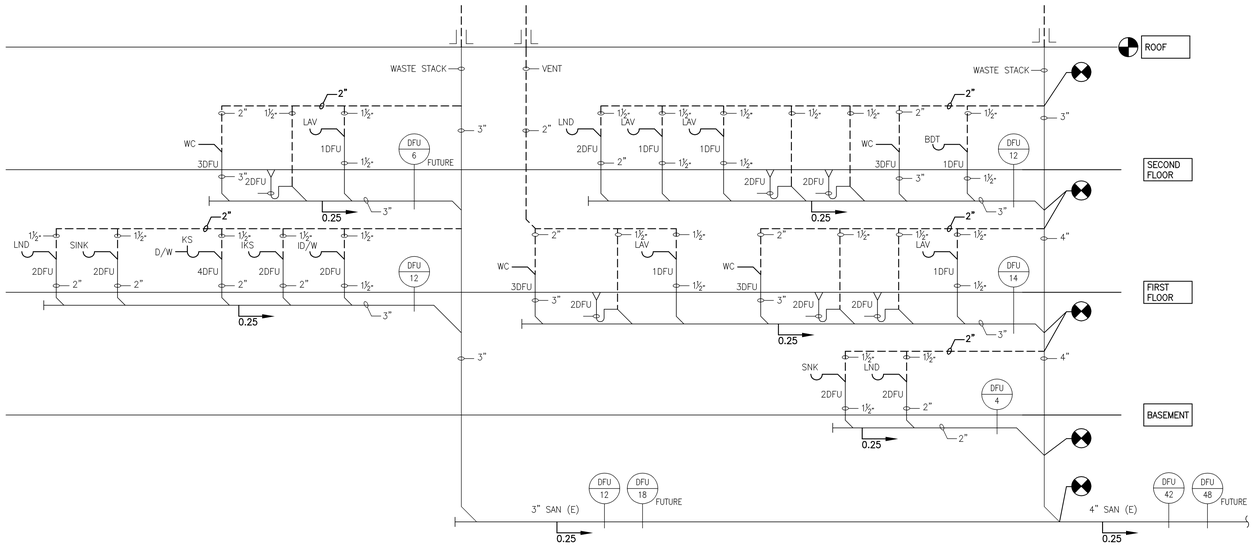
27.1 ALL WATER LINES SHALL BE TESTED TO A HYDROSTATIC PRESSURE EQUAL TO 1-1/2 TIMES THE MAXIMUM OPERATING PRESSURE. THE SYSTEM SHALL BE LEAK-FREE FOR 24 HOURS AT THIS PRESSURE.

28. WATER METERS AND SERVICE

28.1 PROVIDE MEANS FOR SEPARATE METERING AND SHUT-OFF OF WATER SERVICE TO EACH FLOOR LEVEL.

FIXTURE CONNECTION SCHEDULE

FIXTURE	DRAWING ABBREVIATIONS	TRAP	SOIL/ WASTE	COLD WATER	HOT WATER	DFU	NO.	TOTAL DFU
KITCHEN / SINK	KIT. SINK - KS & IKS	1½"	2"	½"	½"	2.0	4	8.0
DISHWASHER	DISHWASH - D/W & ID/W	1½"	2"	-	½"	2.0	2	4.0
CLEAN OUT	CLEAN OUT - CO	-	-	-	-	-	-	-
BATH TUB	BATH TUB - BT	1½"	2"	½"	½"	2.0	3	6.0
BIDET	BIDET - BDT	1¼"	2"	½"	½"	1.0	1	1.0
LAUNDRY	LAUNDRY - LND	2"	2"	½"	½"	2.0	3	6.0
WATER CLOSET	WATER CLOSET - WC	-	3"	½"	-	3.0	4	12.0
SHOWER HEAD	SHOWER HEAD - SH	1½"	2"	½"	½"	2.0	3	6.0
LAVATORY	LAVATORY - LAV	1¼"	2"	½"	½"	1.0	5	5.0
					TOTAL DFU'S			48.0



1 P-1 PLUMBING - RISER DIAGRAM
Scale: N.T.S.

2 P-1 PLUMBING - SPECIFICATIONS
Scale: N.T.S.

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83161	EMH	RJK

NO.	DATE	BY	ISSUE
1	12-04-09	EMH	ISSUED FOR REVIEW
2	12-17-09	EMH	REVISED SKETCH PLAN REISSUED FOR REVIEW
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4	04-19-10	EMH	ISSUED FOR REVIEW READY FOR PERMIT
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6	08-24-10	EMH	ISSUED FOR PERMIT
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APPROVED BY: Robin J. Kohn
CURRENT DATE: August 24, 2010

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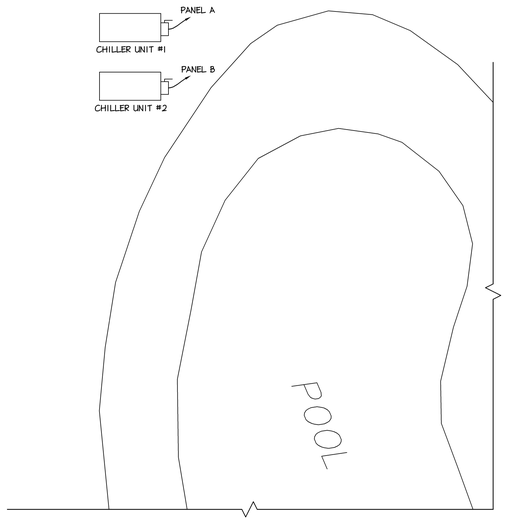
TREDYFFRIN TOWNSHIP
CHESTER COUNTY

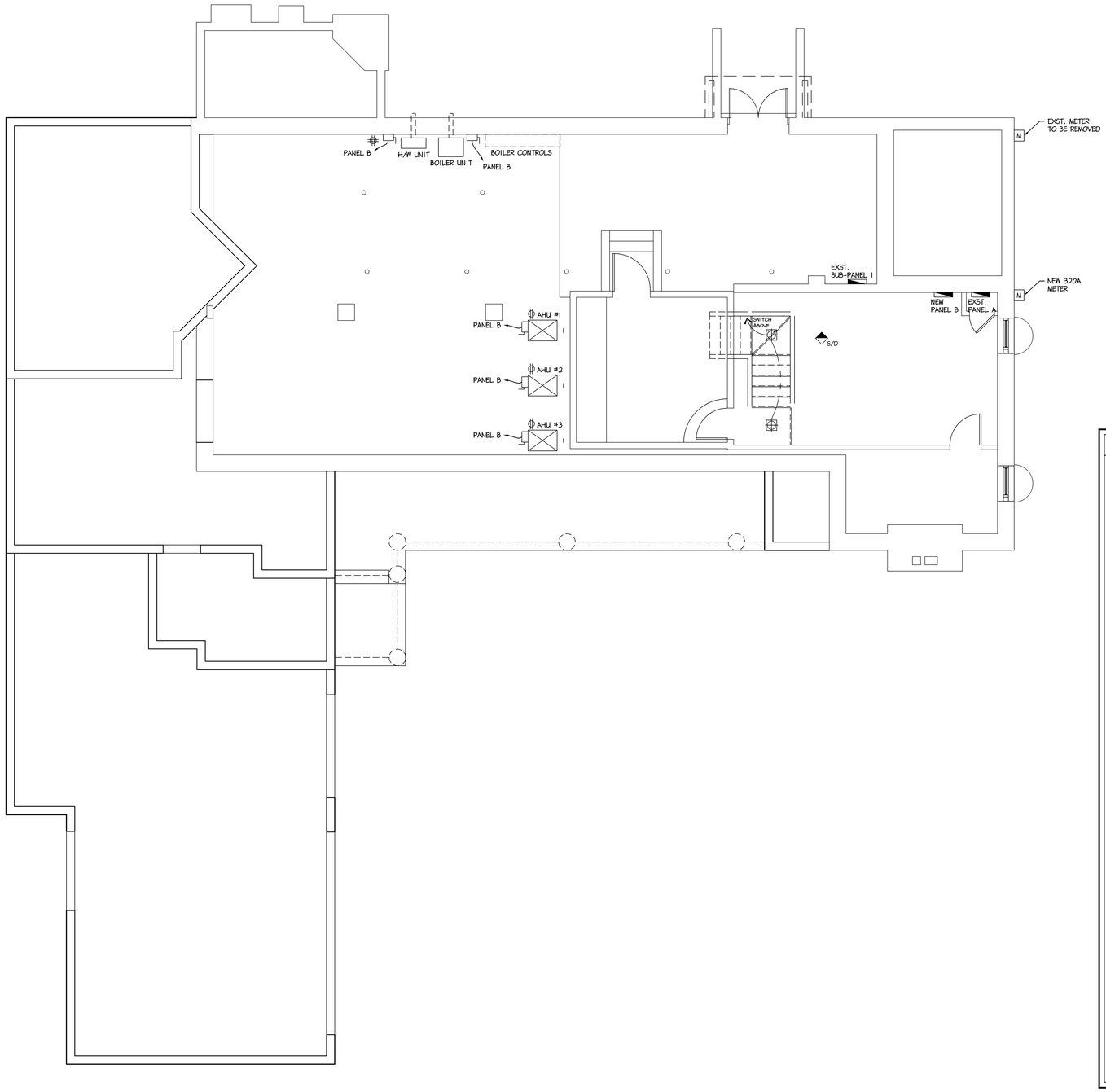
SHEET TITLE
PLUMBING - RISER DIAGRAM, DETAILS & SPECIFICATIONS

SHEET NUMBER
P-1

REV 6

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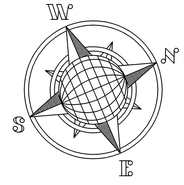


1 E-1 ELECTRICAL - BASEMENT PLAN
Scale: 1/4" = 1'- 0"

ELECTRICAL SYMBOLS

- SINGLE POLE SWITCH
- 3 THREE (3) POLE SWITCH
- 4 FOUR (4) POLE SWITCH
- DK RHEOSTAT SWITCH
- SINGLE OUTLET
- DUPLEX OUTLET
- LC/SP DUPLEX OUTLET ISOLATED CIRCUIT/ SURGE PROTECTED
- GFI DUPLEX OUTLET GROUND FAULT INTERRUPTED
- DUPLEX OUTLET SPLIT WIRED TO SWITCH
- WP GFI DUPLEX OUTLET WATER PROOF GROUND FAULT
- S DUPLEX OUTLET WITH SWITCH
- 220 220 SERVICE OUTLET
- J JUNCTION BOX
- CEILING LIGHT FIXTURE
- RECESSED CEILING LIGHT FIXTURE
- WALL LIGHT FIXTURE
- G GARBAGE DISPOSAL
- F CEILING EXHAUST FAN
- F WALL EXHAUST FAN
- TELEPHONE OUTLET
- DATA/INTERNET PORT
- CA CABLE TV OUTLET
- T THERMOSTAT
- CENTRAL VAC INLET PORT
- DOOR BELL BUTTON
- DOOR BELL CHIMES
- SMOKE DETECTOR
- ELECTRIC PANEL
- NON-FUSED DISCONNECT
- M ELECTRIC METER
- AP ALARM KEYPAD
- FLUORESCENT FIXTURE
- FLUORESCENT STRIP FIXTURE

NOTES:
- CH INDICATES COUNTER HEIGHT
- DIMENSIONS ADJACENT TO SYMBOL INDICATES HEIGHT ABOVE FINISH FLOOR.



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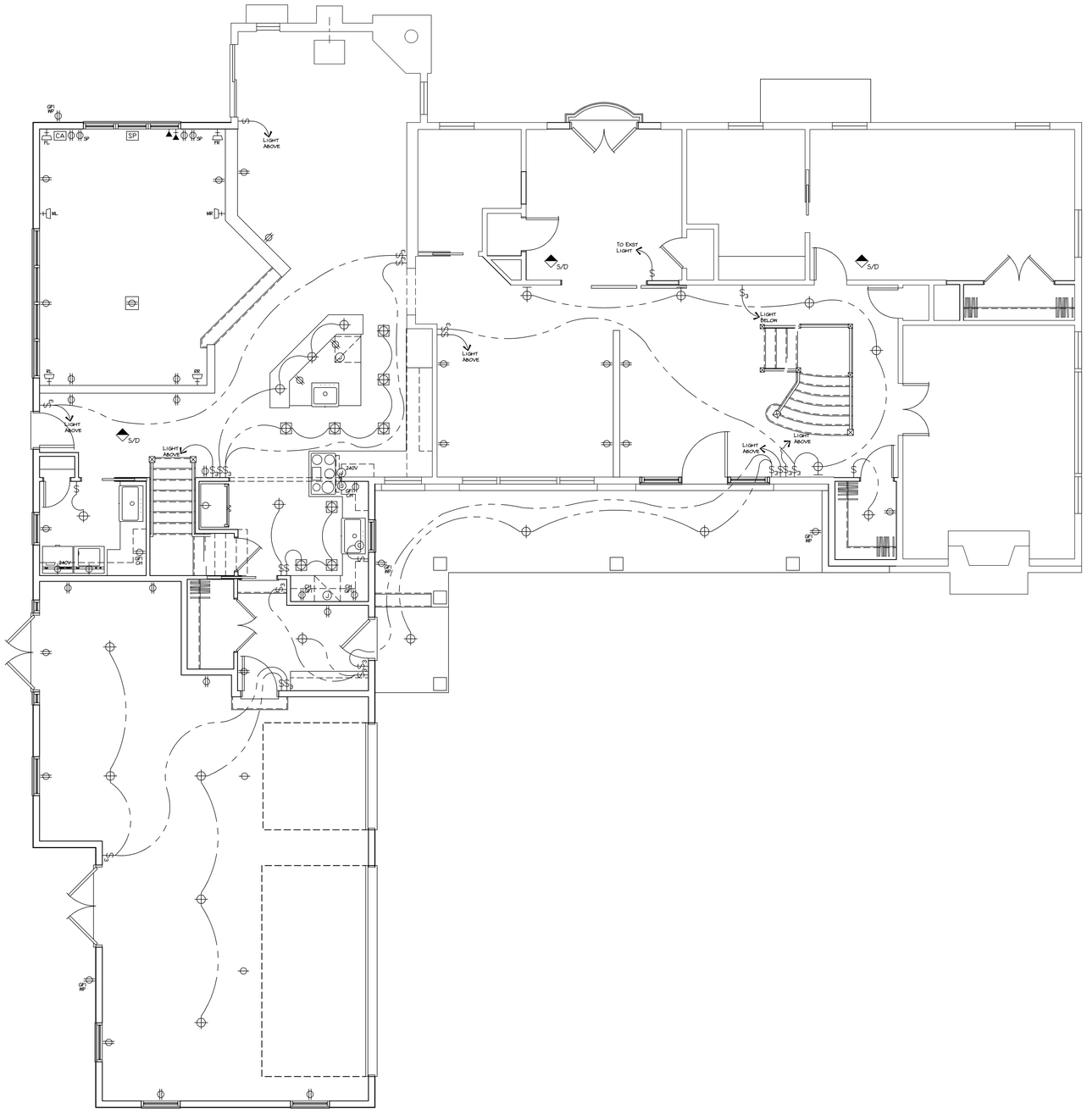
ELECTRICAL - BASEMENT POWER & LIGHTING PLAN

SHEET NUMBER

E-1

REV 6

08-24-10 3161-A-SHT.dwg

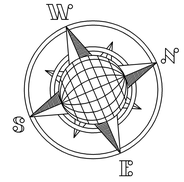


1 E-2 ELECTRICAL - FIRST FLOOR PLAN
Scale: 1/4" = 1'- 0"

ELECTRICAL SYMBOLS

- SINGLE POLE SWITCH
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- 4 FOUR (4) POLE SWITCH
- DK RHEOSTAT SWITCH
- SINGLE OUTLET
- DUPLEX OUTLET
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Robin J. Kohn	August 24, 2010

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610 VALLEY VIEW LANE
WAYNE, PA 19087

TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

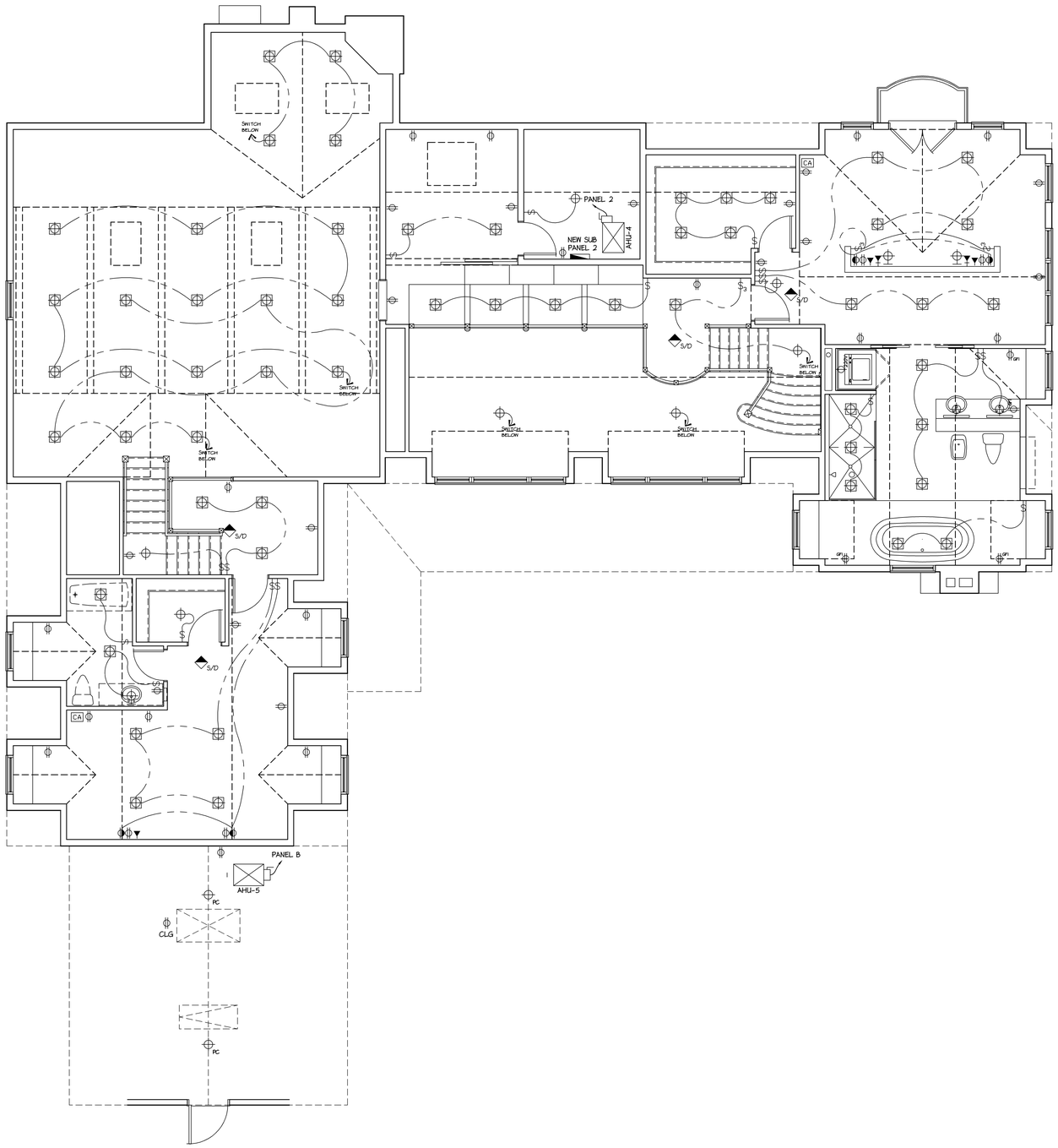
ELECTRICAL - FIRST FLOOR POWER & LIGHTING PLAN

SHEET NUMBER

E-2

REV 6

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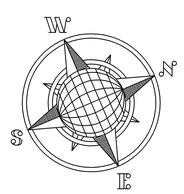


1 E-3 ELECTRICAL - SECOND FLOOR PLAN
Scale: 1/4" = 1'- 0"

ELECTRICAL SYMBOLS

- SINGLE POLE SWITCH
- 3 THREE (3) POLE SWITCH
- 4 FOUR (4) POLE SWITCH
- DK RHEOSTAT SWITCH
- SINGLE OUTLET
- DUPLEX OUTLET
- LC/SP DUPLEX OUTLET ISOLATED CIRCUIT/ SURGE PROTECTED
- GFI DUPLEX OUTLET GROUND FAULT INTERRUPTED
- DUPLEX OUTLET SPLIT WIRED TO SWITCH
- WP GFI DUPLEX OUTLET WATER PROOF GROUND FAULT
- S DUPLEX OUTLET WITH SWITCH
- 220 220 SERVICE OUTLET
- J JUNCTION BOX
- CEILING LIGHT FIXTURE
- RECESSED CEILING LIGHT FIXTURE
- WALL LIGHT FIXTURE
- G GARBAGE DISPOSAL
- F CEILING EXHAUST FAN
- F WALL EXHAUST FAN
- TELEPHONE OUTLET
- DATA/INTERNET PORT
- CA CABLE TV OUTLET
- T THERMOSTAT
- CENTRAL VAC INLET PORT
- DOOR BELL BUTTON
- DOOR BELL CHIMES
- SMOKE DETECTOR
- ELECTRIC PANEL
- NON-FUSED DISCONNECT
- M ELECTRIC METER
- AP ALARM KEYPAD
- FLUORESCENT FIXTURE
- FLUORESCENT STRIP FIXTURE

NOTES:
- CH INDICATES COUNTER HEIGHT
- DIMENSIONS ADJACENT TO SYMBOL INDICATES HEIGHT ABOVE FINISH FLOOR.



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Architects & Engineers
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B3161	EMH	RJK

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ELECTRICAL - SECOND FLOOR POWER & LIGHTING PLAN

SHEET NUMBER

E-3

REV 6

08-24-10 3161-A-SHT.dwg

ELECTRICAL

PART 1 - GENERAL

1.1 GENERAL

A. PROVIDE ALL LABOR AND MATERIAL REQUIRED, INCLUDING SUPPORTS AND OTHER APPURTENANCES, FOR A COMPLETE AND OPERATING INSTALLATION.

B. ALL MATERIALS SHALL BE NEW AND SHALL BE FURNISHED, INSTALLED, AND WIRED AS PART OF THIS CONTRACT, UNLESS OTHERWISE NOTED.

C. THE WORK SHALL CONFORM TO ALL APPLICABLE RULES, CODES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE NATIONAL ELECTRIC CODE, IEC AND ANY OTHER AUTHORITIES HAVING JURISDICTION.

D. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FOLLOWING THE DATE OF OWNER ACCEPTANCE UNLESS OTHERWISE NOTED.

E. PROVIDE AND PAY FOR TEMPORARY SERVICES AS REQUIRED. TEMPORARY LIGHTING AND POWER SHALL COMPLY WITH THE REQUIREMENTS OF OSHA.

F. ALL EQUIPMENT FURNISHED SHALL BEAR THE "UL" LABEL.

G. ALL WIRING SHALL BE NM CABLE UNLESS OTHERWISE NOTED OR REQUIRED BY THE NEC.

H. NO WIRING SHALL BE SMALLER THAN #14 AWG. EXCEPT CONTROL WIRING SHALL BE #16 AWG. UNLESS OTHERWISE NOTED.

I. PROVIDE CERTIFIED ELECTRICAL INSPECTION OF ALL WORK.

J. PROVIDE SERVICE ENTRANCE EQUIPMENT APPROVED BY THE SERVING UTILITY COMPANY AND MARKED AS SUCH.

K. CONTRACT LIMITS: WHERE "LIMITS OF CONTRACT" DESIGNATIONS ARE INDICATED OR IMPLIED ON PLANS, THEY SHALL NOT APPLY TO ELECTRICAL SERVICE WORK NECESSARY TO SERVE THE PROJECT AND OCCURRING OUTSIDE OF THE "LIMITS OF CONTRACT" DESIGNATIONS.

1.2 COORDINATION

A. CONFIRM ALL EQUIPMENT WIRING WITH THE MANUFACTURER. PROVIDE MATERIALS AND LABOR DUE TO DISCREPANCIES AT NO ADDITIONAL COST TO OWNER.

B. COORDINATE ELECTRICAL WORK WITH THAT OF OTHER TRADES. PROVIDE OFFSETS, FITTINGS, AND SIMILAR ITEMS NECESSARY TO ACCOMPLISH THE REQUIREMENTS OF COORDINATION AT NO ADDITIONAL COST TO OWNER.

C. COORDINATE ALL EQUIPMENT AND CONTROLS WITH THE MECHANICAL DRAWINGS AND SPECIFICATIONS.

D. DRAWINGS ARE DIAGRAMMATIC AND CERTAIN SPECIALTIES ARE NOT SHOWN. HOWEVER, THEY SHALL BE PROVIDED AS REQUIRED.

E. COMPLY WITH THE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY, TELEPHONE AND DATA COMPANIES.

1.3 PRODUCT CONDITIONS

A. THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT SHALL COMPLY WITH THE REQUIREMENTS OF THE APPROPRIATE SEISMIC ZONE.

B. PROVIDE SELECTIVE DEMOLITION AS INDICATED OR IMPLIED. ALL EQUIPMENT INDICATED TO BE REMOVED SHALL BE OFFERED TO THE OWNER PRIOR TO DISPOSAL. PROTECT ADJACENT AREAS AGAINST DUST MIGRATION. ACCESS TO AND EQUIPMENT TRANSPORTATION TO RENOVATED AREA SHALL BE COORDINATED WITH OWNER. COORDINATE UTILITY SHUTDOWN WITH OWNER AND UTILITY COMPANY. COORDINATE POWER SHUTDOWN WITH OWNER.

1.4 SUBMITTALS

A. SUBMIT MANUFACTURERS PRODUCT DATA FOR:
1. NONE

B. SUBMIT SHOP DRAWINGS FOR:
1. NONE

C. MANUFACTURERS DATA SHALL INDICATE SPECIFIC TYPES AND FEATURES OF EQUIPMENT TO BE FURNISHED.

D. SHOP DRAWINGS SHALL INDICATE DIMENSIONS, EQUIPMENT LAYOUT, AND FEATURES OF EQUIPMENT TO BE FURNISHED.

E. SUBMITTALS SHALL BE APPROVED PRIOR TO PURCHASING OF EQUIPMENT.

PART 2 - PRODUCT AND EQUIPMENT

2.1 GENERAL

A. WIRE:
1. SOLID CONDUCTOR FOR #10 AWG. AND SMALLER; STRANDED CONDUCTOR FOR #8 AWG. AND LARGER.

B. CONDUIT:
1. EMT: PER UL797 AND C80.1.
2. FLEXIBLE METAL CONDUIT: PER UL1.
3. LIQUID TIGHT FLEXIBLE METAL CONDUIT; PER UL1660.
4. RIGID NON-METALLIC CONDUIT: PVC SCHEDULE 40 PER NEMA TC2, UL651.
5. RIGID STEEL: PER UL6, 1242, ANSI C80.01.

C. PANELS: PER UL67 AND UL50, COPPER BUS WITH FULL SIZED NEUTRAL AND GROUND BUS. BOLT-ON TYPE CIRCUIT BREAKERS PER UL489. OVER CURRENT DEVICES SHALL BE TRIP FREE OF HANDLE AND PROVIDE OPENING OF ALL POLES SIMULTANEOUSLY. THE BARS TO CONVERT SINGLE POLE DEVICES TO MULTI-POLE DEVICES WILL NOT BE ACCEPTABLE. PROVIDE AFCI BREAKERS AS REQUIRED FOR BRANCH CIRCUITS PER NEC.

D. SAFETY SWITCHES: 240 VAC NON-FUSABLE. NEMA TYPE KS-1, NEMA 1 ENCLOSURE FOR DRY LOCATIONS, NEMA 4 FOR WET LOCATIONS, NEMA 3R FOR OUTDOOR LOCATIONS. SIZE AND NUMBER OF POLES AS INDICATED. LOCKABLE IN THE "OFF" POSITION. RATED FOR SERVICE DISCONNECT WHERE REQUIRED. SQUARE "D" CLASS 3130 OR APPROVED EQUAL BY GENERAL ELECTRIC, CUTLER HAMMER, AND SIEMENS.

E. GROUNDING: PROVIDE A COMPLETE GROUNDING SYSTEM PER NEC PROVIDE AN INSULATED GROUND CONDUCTOR IN EACH CONDUIT, RACEWAY, AND CABLE SIZED PER NEC TABLE 250.122 INCLUDING LIGHTING CIRCUITS. PROVIDE A MAXIMUM OF 10 OHMS RESISTANCE FOR SERVICE GROUND.

F. BOXES: PROVIDE JUNCTION, OUTLETS AND SWITCH BOXES OF STAMPED GALVANIZED STEEL FOR CONCEALED AREAS. PROVIDE CAST ALUMINUM TYPE FOR SURFACE MOUNTED DEVICES. PROVIDE CAST ALUMINUM, GASKETED, NEMA 4 FOR OUTDOOR OR WET LOCATIONS.

G. WIRING DEVICES:
1. SWITCHES (LIGHTING): 120-277 VAC, 20 AMP.
2. SWITCHES (MOTOR RATED): 120-277 VAC, 1 HP @ 120V.
3. ADAPTIVE OCCUPANT SENSOR SWITCH: 120-277 VAC 20 AMP.
4. ADAPTIVE OCCUPANT SENSOR: 24 VAC & CONTROL UNIT: 277 VAC / 24 VAC
5. RECEPTACLE: 125 VAC, 20 AMP, GROUNDING TYPE.
6. RECEPTACLE (GFCI): 125 VAC, 20 AMP, GROUNDING TYPE, GROUND FAULT INTERRUPTER.
7. RECEPTACLE (250 V): 250 VAC, 20 AMP GROUNDING TYPE SINGLE RECEPTACLE.
8. DEVICE PLATES: IN FINISHED AREAS PROVIDE METAL DEVICE PLATES, TYPE TO MATCH DEVICES. IN UNFINISHED AREAS PROVIDE GALVANIZED STEEL DEVICE PLATES.
9. COMMUNICATION TERMINATIONS: MODULAR 110 TYPE FOR DATA CONNECTIONS. TYPE 66 FOR TELEPHONE.
10. COMMUNICATION CABLING: UNSHIELDED TWISTED PAIR #24 AWG., PVC JACKETED CATEGORY "6" PERFORMANCE LEVEL CONNECTIONS.

2.2 LIGHTING

PROVIDE A COMPLETE LUMINAIRE INSTALLATION INCLUDING, LAMPS, BALLASTS, ENCLOSURES, ETC. AS REQUIRED. COORDINATE MOUNTING HEIGHTS AND INSTALLATION METHODS WITH FIELD CONDITIONS AND EQUIPMENT LAYOUT. REFER TO LIGHTING FIXTURE SCHEDULE FOR TYPES.

A. NEW LIGHTING FIXTURES: PROVIDE NEW LIGHTING FIXTURES AS INDICATED IN LIGHTING FIXTURE SCHEDULE
1. METAL PARTS SHALL BE FREE FROM BURRS AND SHARP CORNERS. DOOR FRAMES SHALL BE FREE FROM LIGHT LEAKAGE.
2. PROVIDE LAMPS.

PART 3 - EXECUTION

3.1 GENERAL

A. INSTALL ALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS.

B. KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL RUBBISH FROM SITE.

C. ALL WIRING SHALL BE RUN IN CONDUIT, SURFACE RACEWAY, OR IN NM CABLE FOR USES PERMITTED AS SPECIFIED HEREIN AND IN THE NEC. #14 AWG

D. WHERE CONDUIT RUNS, FROM GENERAL POWER AND LIGHTING BRANCH CIRCUITS, EXCEED A DEVELOPED LENGTH OF 60 FEET (120V) OR 120 FEET (240V) TO CENTER OF LOAD, USE #12 AWG. WIRE TO THAT POINT. VOLTAGE DROP SHALL NOT EXCEED NEC ALLOWABLE VALUES FOR BRANCH CIRCUITS AND FEEDERS.

E. HOME RUNS MAY BE COMBINED INTO A SINGLE CONDUIT, HOWEVER, MAXIMUM NUMBER OF CONDUCTORS SHALL MEET CONDUIT FILL AND DERATING REQUIREMENTS OF NEC ARTICLE 310. SEPARATE NEUTRALS SHALL BE PULLED AND CLASSIFIED AS CURRENT CARRYING CONDUCTORS. DIVERSITY FACTOR FOR EACH BRANCH CIRCUIT IS 100%.

F. COORDINATE ALL EQUIPMENT AND CONDUIT ROUTING WITH EXISTING CONDITIONS. ALL WIRING IN FINISHED SPACES SHALL BE CONCEALED.

G. COORDINATE LIGHTING FIXTURE LOCATIONS WITH LIGHTING PLANS. SUPPORT FIXTURES INDEPENDENTLY FROM CEILING SYSTEMS. MAINTAIN MINIMUM 6" CLEARANCE BETWEEN CEILING FIXTURES AND WALLS.

H. PROVIDE MULTI-GANG BOXES AND DEVICES PLATES FOR SWITCHES OR CONTROLS LOCATED IN CLOSE PROXIMITY

I. PROVIDE HEAVY DUTY TYPE CORD AND MATCHING PLUG FOR EQUIPMENT REQUIRING RECEPTACLE TYPE POWER CONNECTIONS.

J. ALL DEVICES SHALL BE INSTALLED LEVEL AND PLUMB. SIZE ALL JUNCTION BOXES AND ELECTRICAL ENCLOSURES AS REQUIRED BY THE NEC.

3.2 WIRING METHODS

A. OUTDOORS: USE THE FOLLOWING WIRING METHODS:
1. EXPOSED: RIGID METAL CONDUIT.
2. CONCEALED: RIGID METAL CONDUIT.
3. UNDERGROUND: RIGID NON-METALLIC CONDUIT
4. CONCRETE ENCASED: RIGID NON-METALLIC CONDUIT.
5. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT): LIQUID-TIGHT FLEXIBLE NON-METALIC CONDUIT.
6. BOXES AND ENCLOSURES: NEMA TYPE 3R OR TYPE 4.

B. INDOORS: USE THE FOLLOWING WIRING METHODS:
1. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT): FLEXIBLE NON-METALIC CONDUIT, EXCEPT IN WET / DAMP LOCATIONS USE LIQUID-TIGHT FLEXIBLE NON-METALIC CONDUIT. MAX. OF 6 FEET OF FLEXIBLE CONDUIT FOR LIGHTING FIXTURES.
2. DAMP OR WET LOCATIONS: PVC CONDUIT.
3. EXPOSED: ELECTRICAL METALLIC TUBING OR MC-TYPE.
4. CONCEALED: ABOVE CEILINGS - NM-TYPE OR MC-TYPE IN CMU WALLS - NM-TYPE OR MC-TYPE; IN STUD WALLS - NM-TYPE OR MC-TYPE.

C. CORROSIVE: USE RIGID ALUMINUM CONDUIT.

D. MINIMUM CONDUIT SIZE SHALL BE 1/2 INCH FOR POWER.

3.3 PAINTING AND FINISHES

A. DAMAGE AND TOUCH-UP: REPAIR ALL MARRED OR DAMAGED FACTORY PAINTED FINISHES WITH MATERIALS AND PROCEDURES TO MATCH ORIGINAL FACTORY FINISH.

3.4 IDENTIFICATION

A. PROVIDE PANEL AND CIRCUIT DESIGNATION LABELS ON ALL EXTERIOR RECEPTACLE COVERS PLATES. FOR OUTLETS OTHER THAN 120V, PROVIDE VOLTAGE AND AMPERE LABELING.

B. IDENTIFY ALL EQUIPMENT PROVIDED UNDER THIS CONTRACT WITH ENGRAVED, PHENOLIC, LAMINATED NAMEPLATES.

C. PROVIDE TYPEWRITTEN DIRECTIONS FOR ALL PANELBOARDS AND LIGHTING CONTROLLERS AND/OR TIMERS.

D. IDENTIFY CONDUCTORS WITH THE FOLLOWING COLOR CODE:

240/120V
BLACK HOT
RED HOT
WHITE NEUTRAL
GREEN GROUND

3.5 CERTIFICATION

A. GENERAL: PROVIDE CERTIFICATION THAT THE INSTALLATION MEETS NFPA 70, MANUFACTURER'S RECOMMENDATIONS, AND OTHER AUTHORITIES AS INDICATED.

3.6 CUTTING AND PATCHING

A. CUTTING PROVIDE CUTTING, CHANNELING, CHASING AND DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS AND OTHER SURFACES NECESSARY FOR INSTALLATION OF ELECTRICAL WORK. ALL CUTTING SHALL BE PERFORMED BY SKILLED MECHANICS OF THE TRADES INVOLVED.

B. PATCHING: REPAIR CUT SURFACES OR OPENINGS RESULTING FROM DEMOLITION TO MATCH ADJACENT SURFACES.

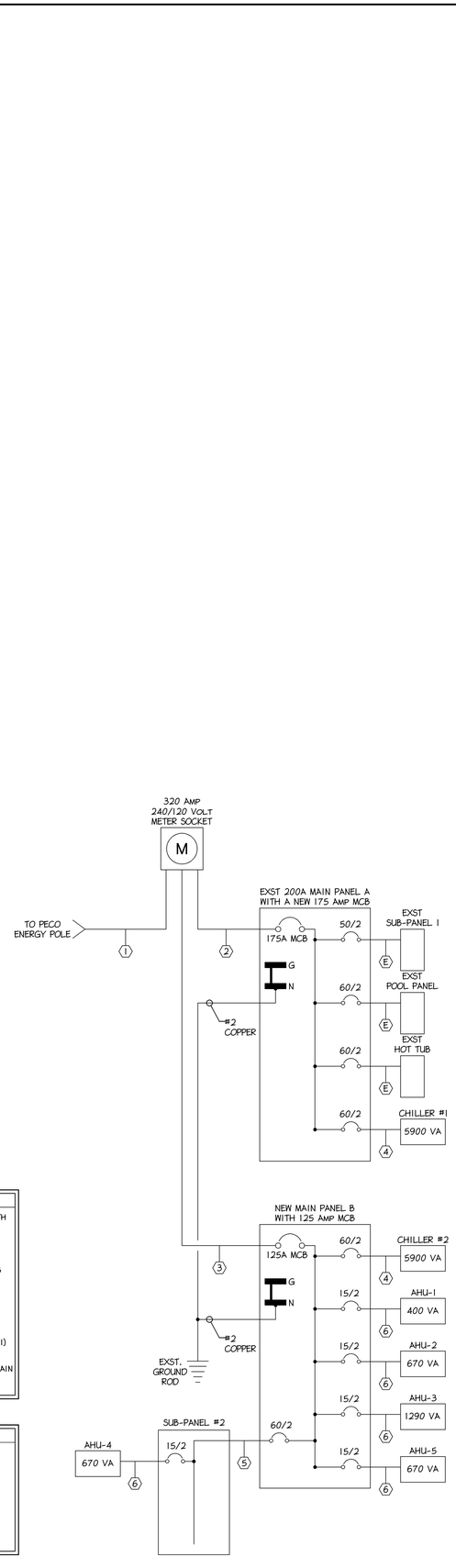
3.7 CLOSING OF OPENINGS

A. SEALING: UNUSED SLOTS, SLEEVES AND OTHER PENETRATIONS IN FLOOR, WALLS OR OTHER GENERAL CONSTRUCTION SHALL BE CLOSED AND SEALED WITH AN APPROVED MATERIAL.
1. CONDUIT: THE ANNULUS BETWEEN EXPOSED CONDUIT AND WALLS OR FLOORS IN FINISHED SPACES SHALL BE FILLED SEALED, AN PAINTED TO MATCH ADJACENT SURFACE.

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1 E-4 ELECTRICAL - SPECIFICATIONS
Scale: N.T.S.



ELECTRICAL NOTES

1. REPLACE EXISTING 200 MCB IN MAIN PANEL "A" WITH A 175A MCB.
2. PROVIDE LOCAL DISCONNECT FOR NEW MECHANICAL EQUIPMENT.
3. CONTRACTOR MAY PROVIDE ADDITIONAL SUB-PANELS TO MINIMIZE THE LENGTH OF INDIVIDUAL BRANCH CIRCUITS.
4. NEW UNDERGROUND SERVICE LATERAL SIZING TO BE CONFIRMED BY PECO ENERGY.
5. PROVIDE LABELING AT A MIN PANEL "A" AND MAIN PANEL "B" TO INDICATE THERE IS MORE THAN ONE (1) SERVICE ENTRANCE DISCONNECT.
6. CONTRACTOR SHALL ASSIGN BRANCH CIRCUITS TO MAIN PANELS "A" AND PANEL "B" IN A MANNER THAT BALANCES THE LOADS.

CONDUIT & CABLE SCHEDULE

1. NEW PECO SERVICE - SEE NOTE #4
2. (2)-#3/0 & (1)-#6 NEUTRAL EQUIV. S.E. CABLE
3. (2)-#1 & (1)-#6 NEUTRAL EQUIV. S.E. CABLE
4. (2)-#4 & (1)-#8 GND. THWN IN (1)-1 1/4" PVC.
5. (3)-#6 & (1)-#10 GND. THHN IN (1)-1" PVC.
6. (2)-#12 & (1)-#12 GND. THHN IN (1)-3/4" PVC.

2 E-4 ELECTRICAL - SINGLE LINE DIAGRAM
Scale: N.T.S.

RESIDENTIAL STANDARD ELECTRICAL CALCULATIONS

Residential Standard Calculation — **Matzmorr-Good Residence**

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8/24/2010 8:56

STEP 1 Article 220.42 & 220.52

sq. ft	5118	General Lighting load	15,354 VA	
	3	Small Appliance	4,500 VA	
	1	Laundry circuit	1,500 VA	
		Gen.Lgt.,Sm App.& Laun. Load	21,354 VA	
☐ Optional Calcs			3,000 VA @ 100%=	3,000 VA
			18,354 VA @ 35% =	6,424 VA
			VA @ 25% =	VA

General Lighting Demand Load **9,424 VA**

STEP 2 Article 220.50 & 220.51

5 ton	5,900 VA	AHU 1	1.5 Ton	400 VA	Total Heat Load	
5 ton	5,900 VA	AHU 2	2 Ton	670 VA	Total CU Load	11,800 VA
A/C #3	VA	AHU 3	3 Ton	1,290 VA	**Greater of Heat @ 100% vs.A/C @ 100%**	**11,800 VA**
A/C #4	VA	AHU 4	2 Ton	670 VA		
A/C #5	VA	AHU 5	2 Ton	670 VA		

STEP 3 Article 220.53

	0	Water Heater	VA	
1,400 VA	1	Refrigerator	1,400 VA	
	0	Freezer	VA	
1,030 VA	2	Dishwasher	2,060 VA	
690 VA	1	Disposal	690 VA	
	0	Trash Compactor	VA	
1,630 VA	1	Microwave	1,630 VA	
	0	Central Vac	VA	
	0	Mini Refrigerator	VA	
400 VA	1	Range hood	400 VA	
540 VA	1	Wine Cooler	540 VA	
	0	Ironing Center	VA	
	1	Jacuzzi Tub	11,520 VA	
	select	Sprinkler Pump	VA	
	select	Well Pump	VA	
	select	Fountain Pump	VA	
	select	Elevator	VA	
		Pool Equip. Panel	9,624 VA 100% Demand	
			VA No Demand	
			VA No Demand	

Appliance Demand Load	**23,304 VA**
Dryer Demand Load	**5,820 VA**
Range Demand Load	**3,200 VA**
Service Demand	**53,548 VA**
Demand Load	**223 A**
Neutral Demand	**84 A**
Min.Service Req.	**225 A**
Min. Feeder size	**See**
Min. Neutral size	**Riser**
Eq. Grding Cond.	**Diagram**
☐ Copper	
Total Appliance Load	**27,864 VA**
4 or more demand @ 75%	plus 100% demand loads **23,304 VA**

STEP 4 Article 220.54
Electric Clothes Dryers **5,820 VA**

STEP 5 Article 220.55
Electric Ranges Col C demand W
Number of appliances
☑ Check Box for Gas Range
Cooktop Col B demand
Cooktop Col B demand
Oven(s) **4,000 W** Col B demand
Oven(s) Col B demand
Number of appliances 1 Dem Factor **80%**
Cooktop & Oven Demand Load **3,200 W**

Pool Panel Feeder Calculation	(See Note)	A	B	N	Continuous Motors	Non-continuous Motors
Continuous Motors	3,174	1587	1587	0		
Non-continuous	0	0	0	0	3/4 hp ☐ 240v	select ☐ 240v
Spa heater		0	0		3/4 hp ☐ 240v	select ☐ 240v
Pool heater 3.5 ton	1	3125	3125		select ☐ 240v	select ☐ 240v
Pool heater		0	0		select ☐ 240v	select ☐ 240v
Pool Light 200	0	100	100	100	select ☐ 240v	select ☐ 240v
Blower select	0 ☐ 240v	0	0	0		
other load	0 ☐ 240v	0	0	0	0.0 Motor Neutral Load	
other load	0 ☐ 240v	0	0	0		
☐ Copper Pool Feeder		**40 A**	**40 A**		Max.Unbalanced Neutral Load	
		Phase Amperes		Neut.load		

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Architects & Engineers
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REGISTERED ARCHITECT PENNSYLVANIA ROBIN J. KOHN RA-11327-X
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APPROVED BY: Robin J. Kohn
CURRENT DATE: August 24, 2010

MATZMORR / GOOD RESIDENCE

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TREDYFFRIN TOWNSHIP
CHESTER COUNTY

SHEET TITLE

ELECTRICAL - DETAILS & SPECIFICATIONS

SHEET NUMBER

E-4

REV 6