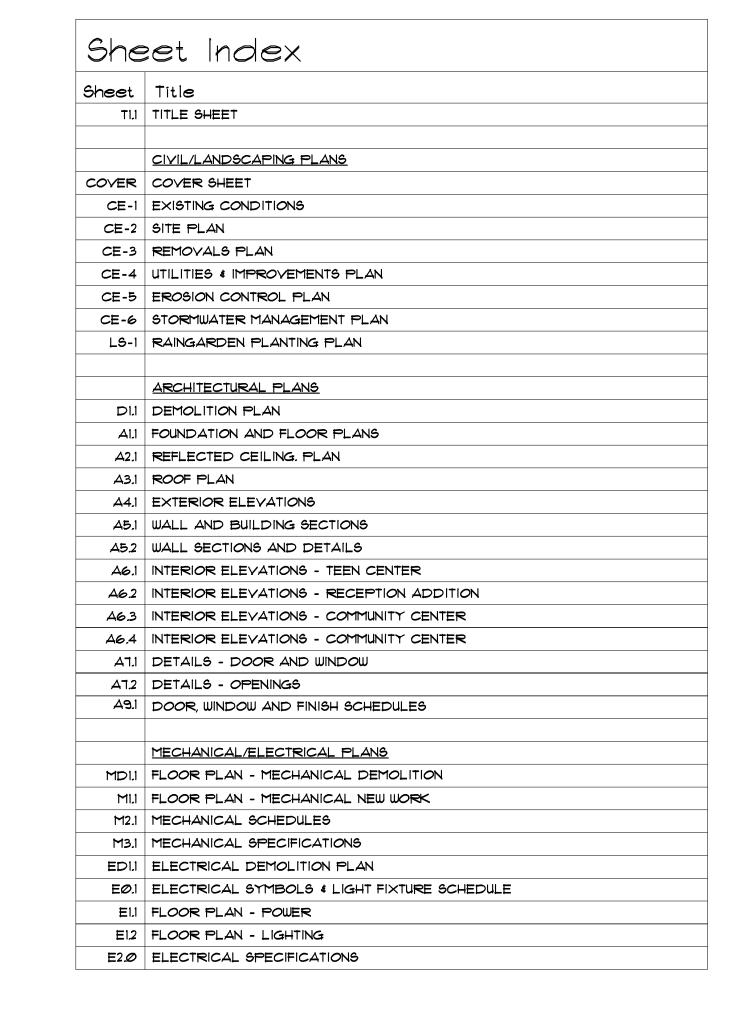
Bryant Community Center Addition

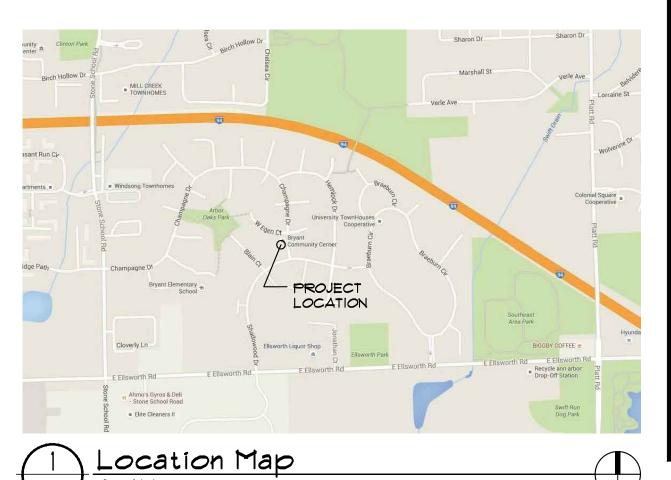
Issued For: Bidding





3 West Eden Court Ann Arbor, Michigan 48108





BRYANT COMMUNITY CENTER -

Building Summary:

BUILDING FLOOR AREA, EXISTING:

TEEN CENTER 878 S.F. (Ex.) **COMMUNITY CENTER** 2,713 S.F. (Ex.) 863 S.F. (New) **BUILDING FLOOR AREA, ADDITION:** 4,454 S.F. (New + Existing) BUILDING FLOOR AREA, TOTAL:

NON-SPRINKLERED BUILDING **USE GROUP:** ASSEMBLY (A-3) (Existing) **CONSTRUCTION TYPE:** 5B (Existing & Proposed)

DESIGN OCCUPANCY: RENOVATED AREAS - EXISTING & UNAFFECTED

NEW CONSTRUCTION @ 15 PERSONS/SF x 675 SF = 45 PERSONS

Code References:

2012 MICHIGAN BUILDING CODE 2012 MICHIGAN PLUMBING CODE 2012 MICHIGAN MECHANICAL CODE 2014 MICHIGAN PART 8 - NATIONAL ELECTRIC CODE BARRIER-FREE - ICC/ANSI A117.1-2009 by REFERENCE 2009 MICHIGAN UNIFORM ENERGY CODE w/ MI. AMENDMENTS - PART 10

2012 MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS

06.13. 09.21. 03.15.

Mechanical/ **Electrical Engineer:**

LIFE-SAFETY NOTES

ALL TEMPORARY CONSTRUCTION SMOKE, FIRE, DUST, NOISE, AND

BY THE CONTRACTOR WITH INPUT FROM THE OWNER AND ANY

CONSTRUCTION BARRIERS ARE NOT SHOWN ON THE DRAWINGS.

GOVERNING AUTHORITY HAVING JURISDICTION. TEMPORARY

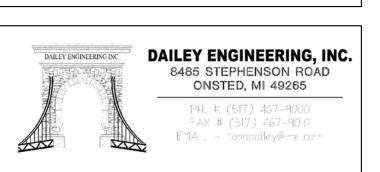
EGRESS BARRIERS SHALL BE CONFIGURED, DETAILED, AND INSTALLED



Civil **Engineer:**

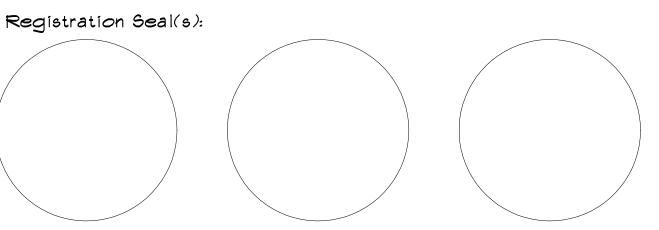
Structural

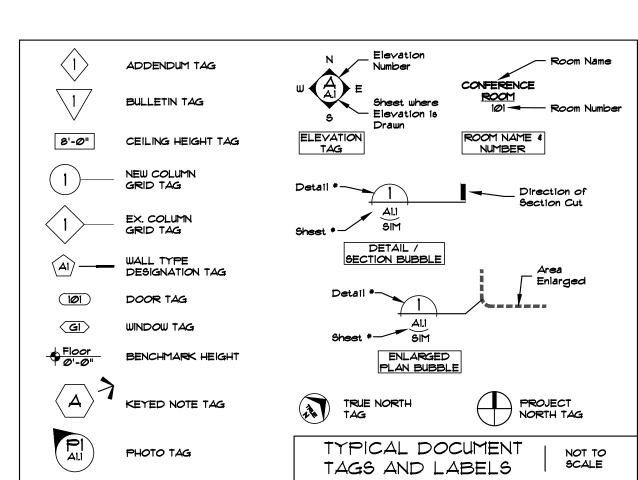












She

BRYAND COMMUNICE CENTU

SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

SHEET INDEX

COVER SHEET

CIVIL ENGINEERING

- CE-1 EXISTING CONDITIONS
- CE-2 SITE PLAN
- CE-3 REMOVALS PLAN
- CE-4 UTILITIES & IMPROVEMENTS PLAN
- CE-5 EROSION CONTROL PLAN
- CE-6 STORMWATER MANAGEMENT PLAN

LANDSCAPING

LS-1 RAINGARDEN PLANTING PLAN

E EISENHOWER PKWY CHAMPAGNE DE SHADOWOOD DR E ELLSWORTH RD LOCATION MAP NOT TO SCALE

PROJECT SPONSOR:

CITY OF ANN ARBOR PARKS AND RECREATION DEPT 301 E. HURON STREET ANN ARBOR, MI 48107 (734) 794-6230 AMY BETH KURAS

ARCHITECT:

MITCHELL AND MOUAT ARCHITECTS 113 S. FOURTH AVENUE ANN ARBOR, MI 48104 (734) 662-6070 JOHN MOUAT, RA, LEED

ENGINEER:

ZEIMET WOZNIAK & ASSOCIATES, INC. 55800 GRAND RIVER AVE.. STE 100 NEW HUDSON, MI 48165 (248) 437-5099 JULIAN J. WARGO, JR., PE

LANDSCAPE ARCHITECT:

RUSSELL DESIGN, INC. 114 RAYSON STREET, STE 2A NORTHVILLE, MI 48167 (248) 374-3222 MARC R. RUSSELL

COMMUNITY ANALYSIS:

BRYANT COMMUNITY CENTER IS LOCATED IN THE BRYANT/ARBOR OAKS/STONEYBROOK NEIGHBORHOOD IN SE ANN ARBOR. THE COMMUNITY ENCOMPASSES ABOUT 260+ HOUSEHOLDS - ABOUT 75% EXPERIENCE LOW INCOMES.

BRYANT COMMUNITY CENTER HAS ENHANCED THE QUALITY OF LIFE IN ANN ARBOR FOR THE PAST 20 YEARS. PROGRAMS ARE FUNDED BY THE CITY OF ANN ARBOR. FOOD GATHERERS, UNITED WAY, AND ANN ARBOR AREA COMMUNITY FOUNDATION AMONG OTHER SOURCES. THE CENTER IS OPERATED BY COMMUNITY ACTION NETWORK, WHICH PARTNERS WITH CHILDREN, YOUTH, AND FAMILIES FROM UNDER-RESOURCED WASHTENAW COUNTY NEIGHBORHOODS TO CREATE BETTER FUTURES FOR THEMSELVES, AND IMPROVE THE COMMUNITIES IN WHICH THEY LIVE.

AS A NEIGHBORHOOD RESOURCE, THE CENTER PROVIDES CHILDREN, TEEN AND ADULT PROGRAMS. AFTER-SCHOOL AND SUMMER PROGRAMS OFFER HOMEWORK ASSISTANCE, TUTORING AND ACADEMIC ENRICHMENT, PERSONAL GROWTH AND LIFE SKILLS, AND CULTURAL AND RECREATIONAL ACTIVITIES. BRYANT TEENS ARE ELIGIBLE TO PARTICIPATE IN CAN'S YOUTHWORKS SUMMER PROGRAMS.

THE CENTER ALSO HOSTS TWICE MONTHLY FOOD DISTRIBUTIONS, AN EMERGENCY FOOD PANTRY, ACTIVITIES FOR SENIOR CITIZENS, ALCOHOLICS AND NARCOTICS ANONYMOUS, WOMEN'S GROUP, COMMUNITY EVENTS, WOMEN, INFANTS, AND CHILDREN (WIC), A FREE TOY LIBRARY FOR YOUNG CHILDREN, AND MORE.

USE OF THE COMMUNITY CENTER AND ITS PROGRAMS HAS INCREASED DRAMATICALLY IN THE PAST FIVE YEARS -- AND THE CITY OF ANN ARBOR IS NOW LOOKING TO EXPAND THE CENTER'S FACILITIES.

THE CITY OWNS THE EXISTING COMMUNITY CENTER PROPERTY AT 3 W. EDEN COURT, AND IN NOVEMBER 2011 PURCHASED A SMALL THREE-BEDROOM HOME NEXT DOOR AND ABOUT 30 FEET AWAY AT 5 W. EDEN COURT. THE PROPOSED PLAN CALLS FOR DEVELOPING A CONNECTING BUILDING BETWEEN THE TWO HOUSES TO MAKE ONE LARGE FACILITY

DEVELOPMENT PROGRAM / STATEMENT OF INTEREST:

THE CITY OF ANN ARBOR PARKS AND RECREATION DEPARTMENT OWNS AND OPERATES THE BRYANT COMMUNITY CENTER. IT IS PROPOSED TO CREATE A SINGLE LARGER COMMUNITY CENTER BY CONNECTING THE TWO EXISTING BUILDINGS AND RENOVATING THEM TO BETTER RESPOND TO THE DEMANDS OF PROGRAMS AND ACTIVITIES HELD AT THE CENTER.

THE INTERIOR OF BOTH BUILDINGS WOULD BE RECONFIGURED TO ALLOW CERTAIN PROGRAMS IN HIGH DEMAND OPERATING OUT OF CRAMPED ROOMS IN THE COMMUNITY CENTER TO BE MORE USER-FRIENDLY AND ACCESSIBLE. TWO CENTRAL HUBS OF ACTIVITY IN THE CENTER - THE KITCHEN AND THE EMERGENCY FOOD PANTRY - WOULD BE EXPANDED.

THE EMERGENCY FOOD PANTRY WOULD BE MOVED FROM ITS CRAMPED LOCATION IN A SINGLE ROOM TO A LARGER ROOM ADJACENT TO THE MULTI-PURPOSE ROOM WHERE A COMPUTER LAB IS NOW. THE LOCATION WOULD ALSO ALLOW FOR STAFF TO STOCK THE PANTRY FASTER. AS IT'S CLOSER TO THE SIDE ENTRANCE WHERE ABOUT 15,000 POUNDS OF FOOD FROM FOOD GATHERERS IS DELIVERED EACH MONTH.

ADMINISTRATIVE OFFICES - LOCATED NOW IN A SMALL BEDROOM - WOULD BE MOVED IN TO THE NEW CONNECTING BUILDING. WHERE A MORE SPACIOUS RECEPTION

IN THE HOUSE AT 5 W. EDEN CT., A TEEN LOUNGE WOULD BE ACCOMMODATED IN MOST OF THE SPACE.

THE TWO BACK YARDS WILL ULTIMATELY BECOME ONE LARGE YARD FULLY ENCLOSED BY A FENCE SO THAT IT CAN ONLY BE ACCESSED THROUGH THE COMMUNITY CENTER BUILDING FOR SAFETY PURPOSES.

THE PROJECT COST IS BUDGETED TO BE \$300,000.00.

TRAFFIC IMPACT ANALYSIS:

THE CITY'S TRAFFIC ENGINEER USED TRIP GENERATION, 8TH EDITION, TO CALCULATE THE FOLLOWING USING TRIP INFORMATION PROVIDED BY THE DIRECTOR OF THE COMMUNITY CENTER:

LAND USE 495: RECREATIONAL COMMUNITY CENTER TRIPS PER 1000 SF GROSS FLOOR AREA $GFA = 26' \times 26' = 676 SF$

AM. PEAK HOUR OF ADJACENT TRAFFIC: AVERAGE RATE = 1.62T = 1.62(X) = 1.62(0.676) = 1.095 » 1 VEH./HR.

PM, PEAK HOUR OF ADJACENT TRAFFIC: LN(T) = 0.58 LN(X) + 2.21 $T = 7.62 \times 8 \text{ VEH./HOUR}$

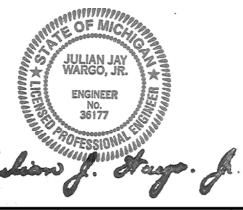
NO NEW ADDITIONAL ONSITE PARKING IS PROPOSED AS A PART OF THIS DEVELOPMENT.

SOLID WASTE DISPOSAL:

BRYANT COMMUNITY CENTER HAS AN EXISTING REFUSE COLLECTION FACILITY ON THE SITE. TRASH AND WASTE IS DISPOSED OF IN TRASH BINS AND RECYCLING BINS THAT ARE STORED IN THE EXISTING WOODEN SHED OFF OF CHAMPAGNE DRIVE. THERE IS WEEKLY PICKUP.

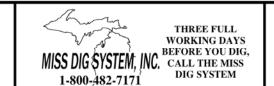
GENERAL NOTES AND SPECIFICATIONS:

ALL CONSTRUCTION MATERIALS AND ALL MEANS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS (CURRENT EDITION).



REVISIONS DATE BY REVISIONS DATE BY REVISIONS DATE BY REVISIONS 3/15/17 JJW 90% REVIEW 2/4/16 JJW BIDDING 100% REVIEW 2/22/16 JJW PER CITY REVIEW 4/15/16 JJW NEW HUDSON, MICHIGAN 48165 9/21/16 JJW PERMITS/BIDS P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

ZEIMET W& DINIAK ASSOCIATES Civil Engineers & Land Surveyors 55800 GRAND RIVER AVE. SHITE 100



PROJECT SPONSOR: CITY OF ANN ARBOR PARKS AND RECREATION DEPT 301 E. HURON STREET

ANN ARBOR. MI 48107

COVER SHEET BRYANT COMMUNITY CENTER (734) 794-6230 SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

SCALE HOR: 1" = 10' VER: 1" = N/A DESIGNED BY JOB NO. 15166 JJW DRAWN BY SHEET COVER

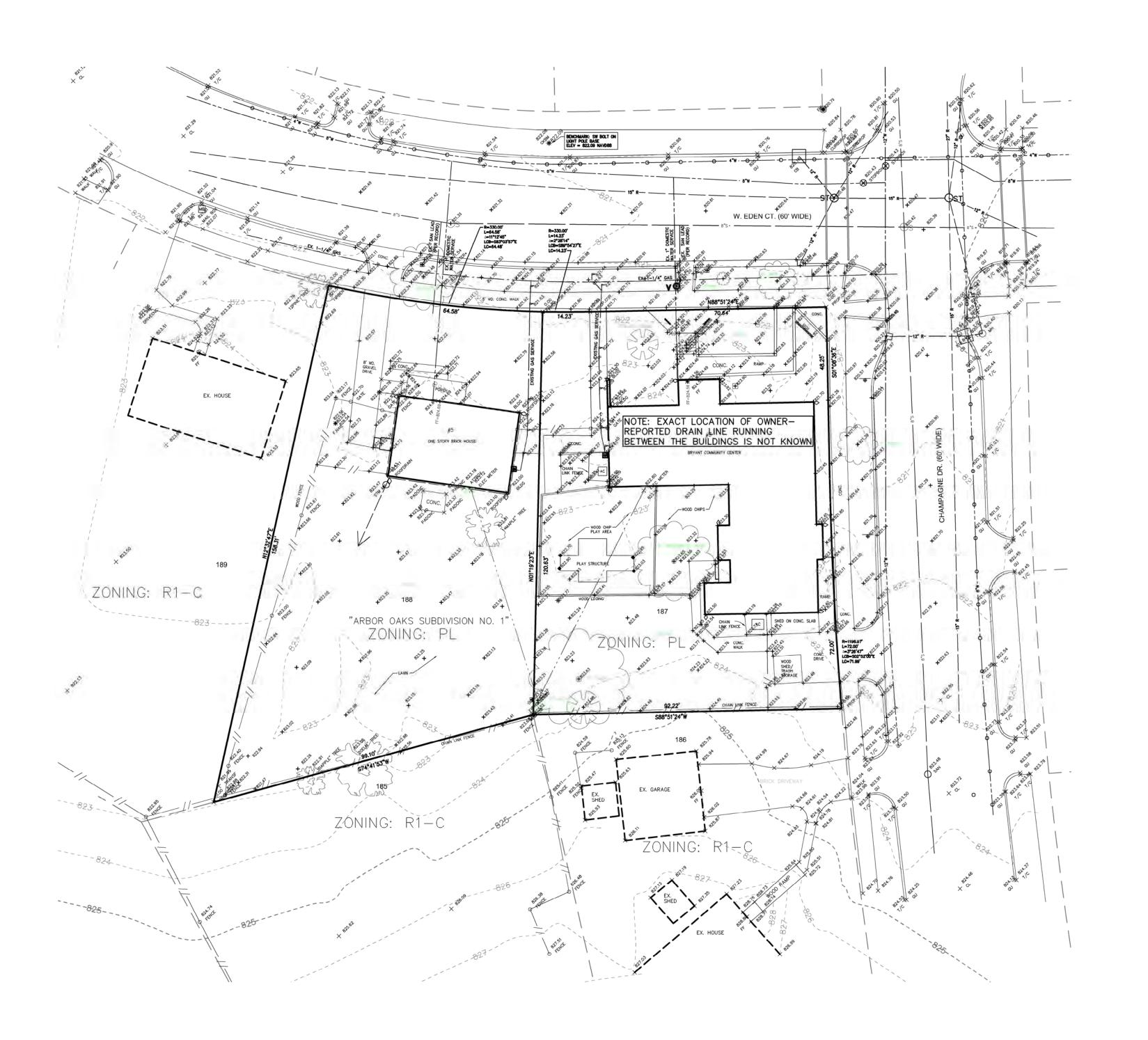
NOTE: 250' RADIUS SHOWN AS — — — — — — 350' RADIUS SHOWN AS — — — — — —

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE

WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT

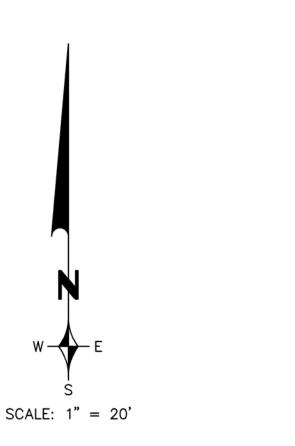
EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS

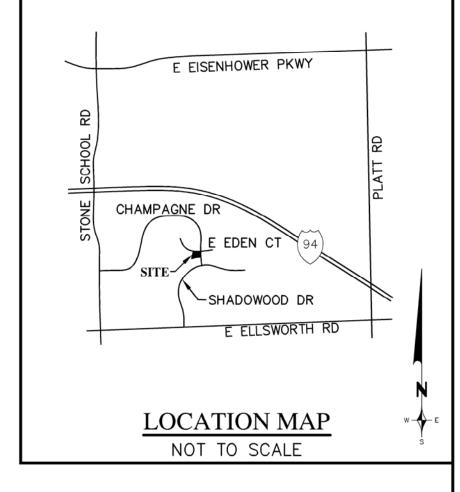
BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER



STORMWATER NOTE FOR #5 EDEN COURT:

PER AAOCD CONTRACT DATED 4-30-2009, THE EXISTING FOUNDATION DRAIN PIPES AND GUTTER DOWNSPOUTS CONNECT TO AN EXTERNAL SUBMERSIBLE SUMP PUMP. THE SUMP PUMP DISCHARGES INTO A 6'-8' DEEP DRYWELL AT THE BACK OF THE PROPERTY (EXACT LOCATION IS NOT KNOWN).





LEGEND

	BOUNDARY LINE
	PARCEL LINE
——// ———// ——	FENCE LINE
	UNDERGROUND ELECTRIC CABLE
	STORM SEWER
	SANITARY SEWER
	GAS MAIN
	WATERMAIN
0	FIP
FIP	FOUND IRON PIPE
0	MANHOLE
	CATCH BASIN
\otimes	GATE VALVE
∇	HYDRANT
T	TRANSFORMER
	ABANDONED WATERMAIN

LEGAL DESCRIPTION:

LOTS 187 AND 188 OF "ARBOR OAKS SUBDIVISION NO. 1" IN THE S.W. 1/4 OF SECTION 10, T. 3 S., R. 6 E., CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN AS RECORDED IN LIBER 19 OF PLATS, PAGES 67-71, WASHTENAW COUNTY RECORDS.

TOTAL AREA = 21,307 SF (0.489 ACRES)

NOTE: ABOVE DESCRIPTION FROM TOPOGRAPHIC AND BOUNDARY SURVEY PERFORMED BY ANN ARBOR LAND CONSULTANTS, JOB NO. 02113, DATED 11-24-2015 AS PROVIDED BY THE PROJECT SPONSOR. THE DESIGN ENGINEERS ACCEPTS NO RESPONSIBILITIES FOR ANY ERRORS OR INACCURACIES.

SUPPLEMENTAL TOPOGRAPHY PERFORMED BY ZEIMET WOZNIAK AND ASSOCIATES ON 1-7-2016.

REQUEST TO COMBINE PARCELS WAS FILED ON 12-01-2015.

SOILS DESCRIPTION:

PER THE USDA-SCS SURVEY OF WASHTENAW COUNTY, MICHIGAN, THE EXISTING SOIL FOR THIS PROPERTY IS CLASSIFIED AS 'Mda' OR MATHERTON SANDY LOAM.

NATURAL FEATURES DESCRIPTION:

THERE ARE NO WOODLANDS, WETLANDS, WATERCOURSES, STEEP SLOPES, FLOODPLAINS AND/OR ENDOGENOUS SPECIES HABITAT ON THIS PROPERTY. THERE ARE NO EXISTING LANDMARK TREES PRESENT.

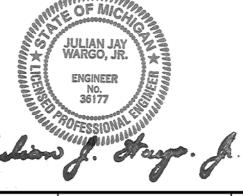
TREE NOTE:

ONLY EXISTING TREES 6" DBH AND LARGER HAVE BEEN IDENTIFIED IN ACCORDANCE WITH THE CITY'S REQUIREMENTS. THERE MAY BE SMALLER EXISTING TREES PRESENT THAT DO NOT APPEAR ON THIS SURVEY.

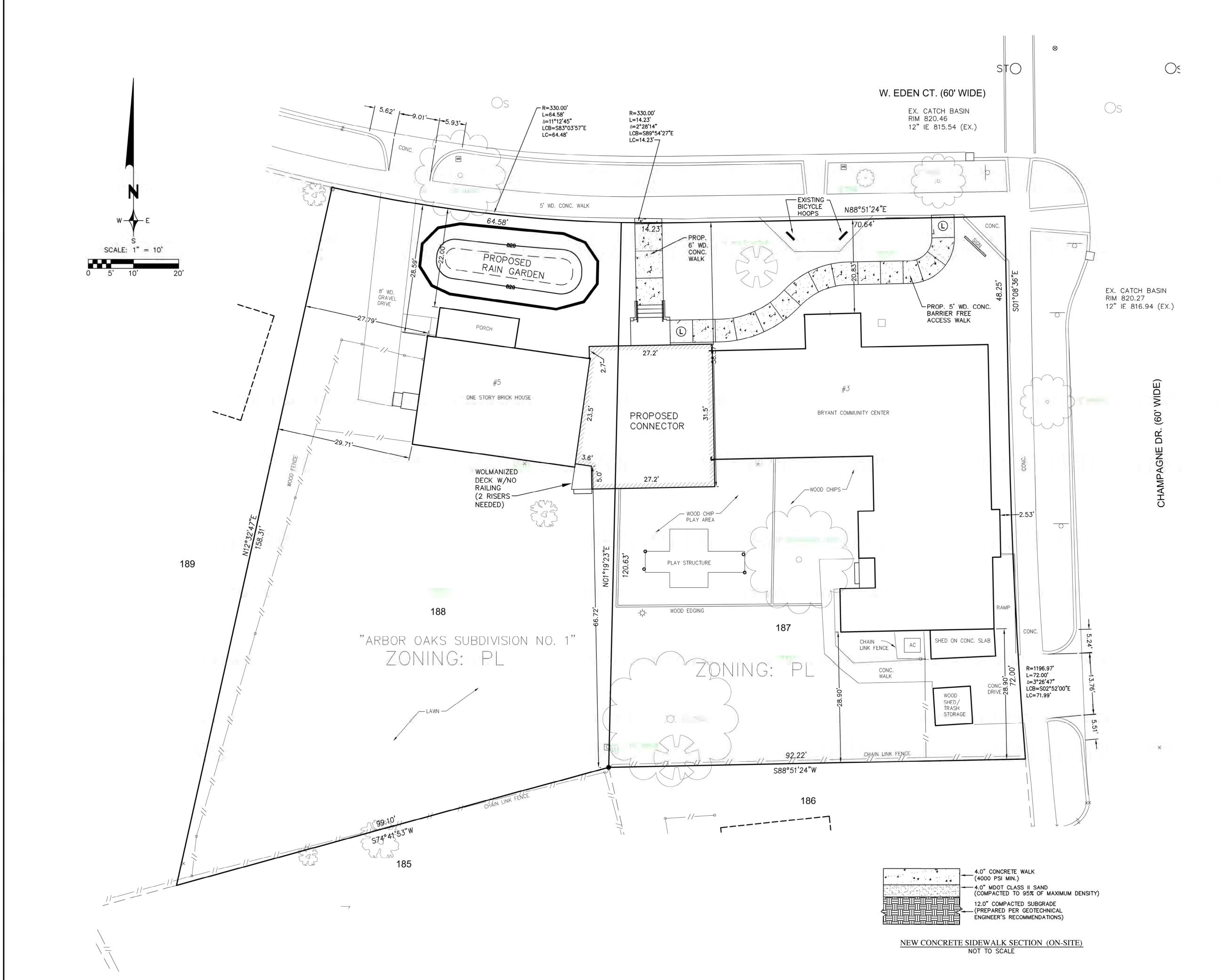
AREA CALCULATIONS:

DESCRIPTION	AREA (SF)	'C' FACTOR	CA
BUILDING/ROOF PAV'T/WALK GRAVEL DRIVE LAWN/PLAYSCAPE	3,880 1,376 352 <u>16,699</u> 21,307	0.95 0.95 0.85 0.25	3,686 1,307 299 <u>3,925</u> 9,217

PREDEVELOPMENT 'C' = 9,217/21,307 = 0.433



REVISIONS DATE BY REVISIONS REVISIONS DATE BY REVISIONS DATE BY ZEIMET W& DINIAK EXISTING CONDITIONS DATE 1/11/16 | SCALE | HOR: 1" = 20' | VER: 1" = N/A PROJECT SPONSOR: 3/15/17 JJW THREE FULL WORKING DAYS 90% REVIEW 2/4/16 JJW BIDDING CITY OF ANN ARBOR PARKS AND RECREATION DEPT. DESIGNED BY JJW BRYANT COMMUNITY CENTER JOB NO. 15166 MISS DIG SYSTEM, INC. BEFORE YOU DIG, CALL THE MISS 100% REVIEW 2/22/16 JJW Civil Engineers & Land Surveyors 55800 GRAND RIVER AVE., SUITE 100 301 E. HURON STREET 4/15/16 JJW PER CITY REVIEW (734) 794-6230 SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN 및 DRAWN BY PTG NEW HUDSON, MICHIGAN 48165 P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com SHEET CE-1 1-800-482-7171 ANN ARBOR, MI 48107 PERMITS/BIDS 9/21/16 JJW



SITE DATA:

SITE AREA: 21,307 SF (0.489 ACRES)

PRESENT ZONING: PL (PUBLIC LAND)

PRESENT USE: COMMUNITY CENTER (PUBLIC SERVICE INSTITUTION)

NO. OF BUILDINGS: 1 BUILDING (AFTER CONSTRUCTION OF CONNECTION BETWEEN EXISTING HOUSE AT #5 EDEN AND BCC

AT #3 EDEN COURT IS COMPLETED)

MINIMUM GROSS LOT SIZE:

REQUIRED = NONE PROVIDED = 21,307 SF

MINIMUM LOT WIDTH: REQUIRED = NONE

PROVIDED = 135.22 FT.

OPEN SPACE CALCULATIONS:

BUILDING W/ PORCHES AND ENTRIES = 4,843 SF 22.7% = 1,621 SF DRIVEWAYS AND WALKS 7.6% LAWN, LANDSCAPING& PLAY AREA <u>69.7%</u> = <u>14.843 SF</u>

28.90 FT.

21,307 SF 100.0%

SETBACKS:

TOTAL

REAR

PROVIDED 20.83 FT. FRONT SIDE 2.53 FT.

BUILDING DATA (AREA IN SF):

NONE

<u>NET</u> HOUSE BCC 822.97 2711.57 2568.98 CONNECTION

MAXIMUM USABLE FLOOR AREA AS PERCENTAGE OF LOT AREA:

4215.52

REQUIRED = NONE

OFF-STREET VEHICLE PARKING:

PROVIDED = 4215.52 / 21,307 = 19.8%

4476.92

MAX. BUILDING HEIGHT:

REQUIRED = NONE

PROVIDED = 17.1 FT. ABOVE GRADE (1 STORY)

* BASED ON REQUIREMENTS FOR "RESIDENTIAL COMMUNITY CENTER CLUBHOUSE"

REQUIRED: 1 SPACE PER 200 SF $1 \times (4215.52/200) = 21.1 \text{ SPACES}$

PROVIDED: 1 SPACE (IN EXISTING DRIVEWAY OFF OF EDEN)

BICYCLE PARKING:

* BASED ON REQUIREMENTS FOR "RESIDENTIAL COMMUNITY CENTER CLUBHOUSE"

REQUIRED: 1 SPACE PER 1000 SF

 $1 \times (4215.52/1000) = 4.2 \text{ SPACES}$

4 CLASS C SPACES (2 EXISTING BIKE HOOPS ALONG EDEN)

COMMUNITY ANALYSIS:

A. IMPACT PROPOSED DEVELOPMENT ON PUBLIC SCHOOLS - NO CHANGE

B. RELATIONSHIP OF INTENDED USE ON NEIGHBORING USES

C. IMPACT OF ADJACENT USES ON PROPOSED DEVELOPMENT

D. IMPACT OF PROPOSED DEVELOPMENT ON AIR AND WATER

QUALITY AND ON EXISTING NATURAL FEATURES ON THIS SITE AND NEIGHBORING SITES

 NO CHANGE E. IMPACT OF PROPOSED DEVELOPMENT ON HISTORIC SITES AND

STRUCTURES WITHIN A HISTORIC DISTRICT OR LISTED IN THE NO CHANGE

NATIONAL REGISTER OF HISTORIC PLACES

EROSION CONTROL NOTE:

ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AND MAINTAINED IN COMPLIANCE WITH CHAPTER 63. SOIL EROSION AND SEDIMENTATION CONTROL, OF THE ANN ARBOR CODE OF ORDINANCES.

PHOTOMETRIC AND SITE LIGHTING NOTE:

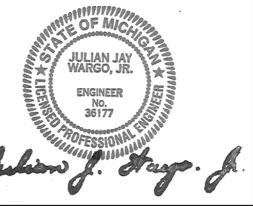
THE SITE IS FURNISHED WITH EXISTING BUILDING-MOUNTED PORCH LIGHTS THAT ILLUMINATE THE GROUNDS AND SIDEWALKS.

TRAFFIC IMPACT STATEMENT:

THE CONSTRUCTION OF THE CONNECTION BETWEEN THE EXISTING HOUSE AND THE BCC WILL NOT RESULT IN ANY CHANGES TO THE SITE'S TRIP GENERATION AND TRAFFIC PATTERNS.

SIDEWALK REPAIR AND MAINTENANCE NOTE:

PER CHAPTER 49, SECTION 4:58 OF THE CITY CODE, ALL SIDEWALKS ARE TO BE KEPT AND MAINTAINED IN GOOD REPAIR BY THE OWNER OF THE LAND ADJACENT TO AND ABUTTING SAME. PRIOR TO ISSUANCE OF THE FINAL CERTIFICATE OF OCCUPANCY FOR THIS SITE, ALL EXISTING SIDEWALKS IN NEED OF REPAIR MUST BE REPAIRED IN ACCORDANCE WITH THE CITY'S STANDARDS.



REVISIONS DATE BY REVISIONS REVISIONS DATE BY REVISIONS 3/15/17 JJW 90% REVIEW 2/4/16 JJW BIDDING 100% REVIEW 2/22/16 JJW PER CITY REVIEW 4/15/16 JJW 9/21/16 JJW PERMITS/BIDS

ZEIMET W& DINIAK Civil Engineers & Land Surveyors 55800 GRAND RIVER AVE., SUITE 100 NEW HUDSON, MICHIGAN 48165 P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

THREE FULL WORKING DAYS BEFORE YOU DIG MISS DIG SYSTEM, INC. CALL THE MISS 1-800-482-7171

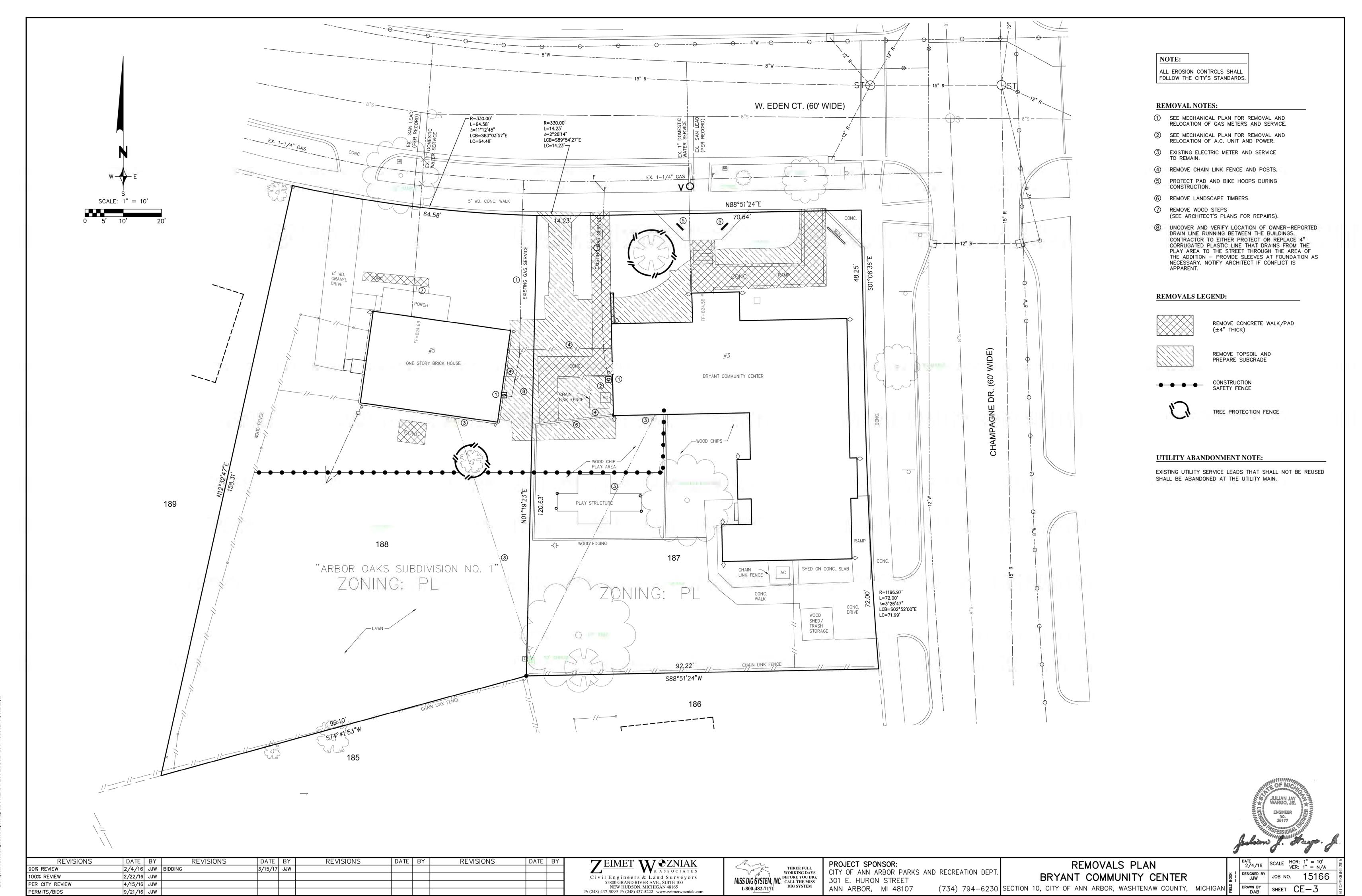
PROJECT SPONSOR: CITY OF ANN ARBOR PARKS AND RECREATION DEPT. 301 E. HURON STREET ANN ARBOR, MI 48107

SITE PLAN BRYANT COMMUNITY CENTER (734) 794-6230 SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN 및

DATE 2/4/16 | SCALE | HOR: 1" = 10' | VER: 1" = N/A DESIGNED BY JJW JOB NO. 15166 DRAWN BY SHEET CE-2

NO CHANGE

NO CHANGE



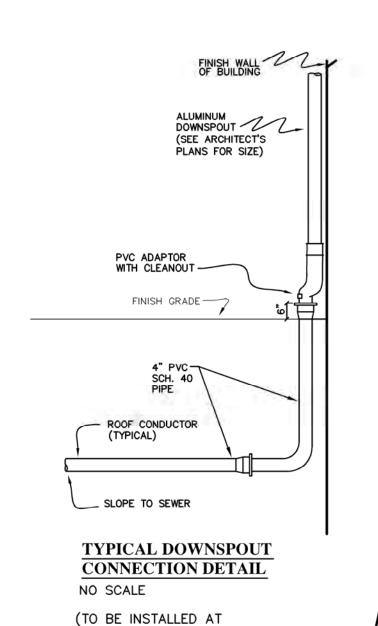
Z.\Projects\15166\dwa\15166 topo.dwg. CE-3 REMO\ALS PLAN. 3/21/2017 10:30:52 AM. dbimbryer

GENERAL GRADING NOTES:

- CONTRACTOR TO FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE THE SITE. REFER TO THE LANDSCAPE PLANS FOR DETAILS.
- ALL PROPOSED GRADES ARE TOP OF PAVEMENT (T/P) UNLESS NOTED OTHERWISE.
- THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE'S BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE'S BOUNDARIES SHALL BE AT THE SOLE RISK AND RESPONSIBILITY OF THE CONTRACTOR.
- 4. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE CITY OF ANN ARBOR'S REQUIREMENTS. AN SESC PERMIT MUST BE SECURED FROM THE CITY PRIOR TO THE START OF CONSTRUCTION.
- ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION AND
- 6. ALL DISTURBED AREAS SHALL BE STABILIZED WITH SEED AND MULCH. PROVIDE A MINIMUM OF 3 INCHES OF CLEAN TOPSOIL IN THESE AREAS UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL BE AWARE OF ALL EXISTING UTILITIES ON AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE, OR UNSUITABLE BACKFILL MATERIAL THAT ARE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR PAVEMENT SHALL BE IMMEDIATELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.



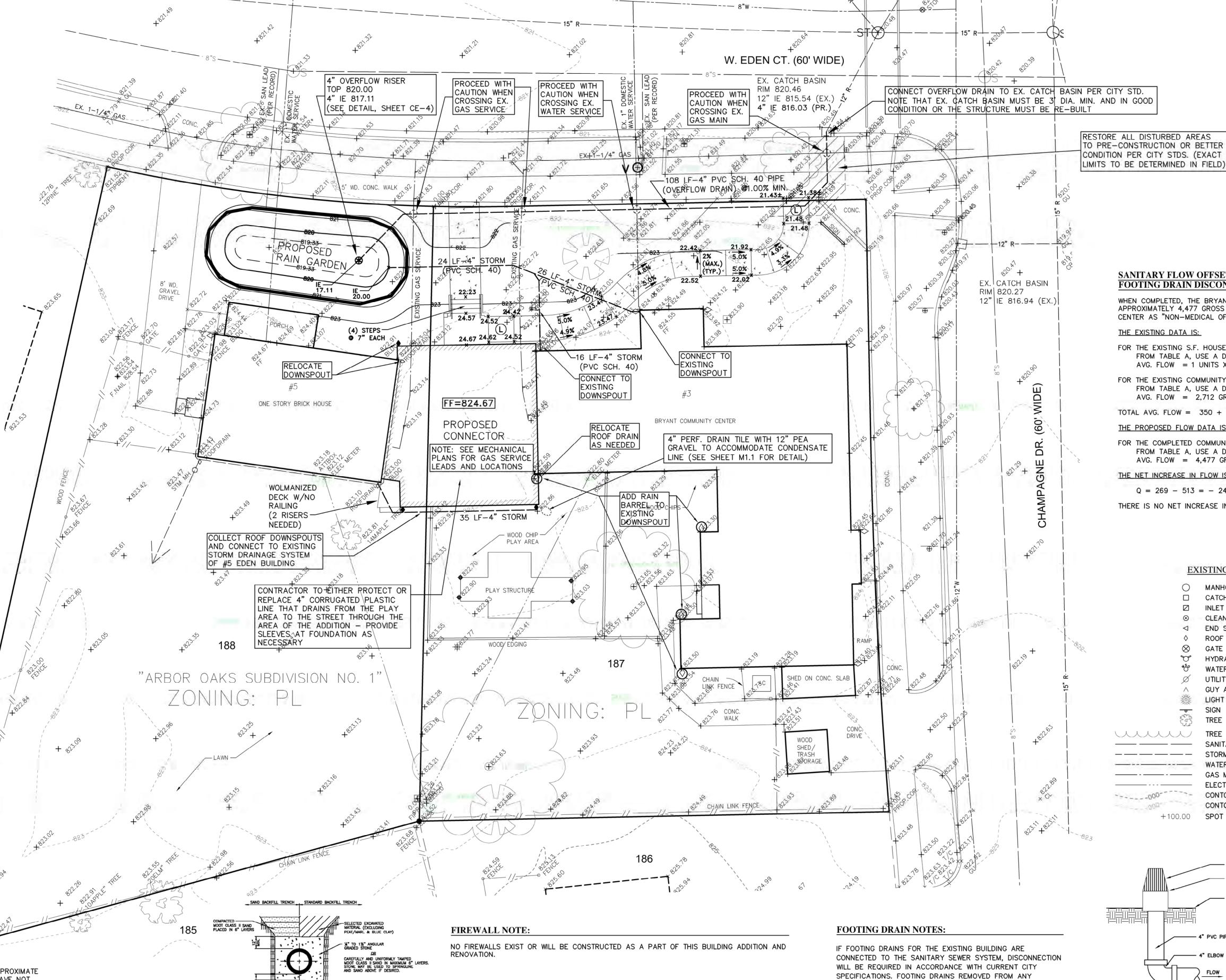
RAIN BARREL DETAIL



BASE OF ROOF

CONDUCTOR -TYPICAL)

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS



FIRE SUPPRESSION NOTES:

ABS (TRUSS AND SOLID WALL), PVC (TRUSS, SOLID WALL, A2000)

ADS N-12 WT PIPE BEDDING DETAIL

NO SCALE

THE BUILDING IS NOT SUPPRESSED AND IS NOT PLANNED TO BE SUPPRESSED. NO NEW OR REPLACEMENT UTILITY SERVICES LEADS ARE PROPOSED AS A PART OF THIS BUILDING ADDITION AND RENOVATION.

SPECIFICATIONS. FOOTING DRAINS REMOVED FROM ANY EXISTING BUILDINGS MAY OFFSET REQUIRED MITIGATION. BEFORE CONSTRUCTION, VERIFICATION OF EXISTING FOOTING DRAINS SHALL BE PERFORMED BY THE CITY'S PROJECT MANAGEMENT. THE CONTACT PERSON TO SCHEDULE INSPECTION IS ALISON HEATLEY (734. 794.6410, X 43662).

4" IE 817.11-4" OVERFLOW RISER (FOR USE IN RAINGARDEN) NOT TO SCALE



SCALE: 1" = 10'

SANITARY FLOW OFFSET MITIGATION FOR DEVELOPMENT /

WHEN COMPLETED, THE BRYANT COMMUNITY CENTER SHALL OCCUPY AN AREA OF

CENTER AS "NON-MEDICAL OFFICE SPACE" FOR THE PURPOSES OF THIS ANALYSIS.

APPROXIMATELY 4,477 GROSS SF. USING TABLE A, WE SHALL TREAT THE COMMUNITY

FOOTING DRAIN DISCONNECTION CALCULATIONS:

FROM TABLE A, USE A DESIGN FLOW OF 350 GPD/UNIT

FROM TABLE A, USE A DESIGN FLOW OF 0.06 GPD/GROSS SF

FROM TABLE A, USE A DESIGN FLOW OF 0.06 GPD/GROSS SF

AVG. FLOW = 2,712 GROSS SF X 0.06 GPD/GROSS SF = 163 GPD

AVG. FLOW = 4.477 GROSS SF X 0.06 GPD/GROSS SF = 269 GPD

LEGEND

—————— STORM SEWER

G =

PROPOSED

MANHOLE

CLEANOUT

INLET

CATCH BASIN

END SECTION

ROOF DRAIN

GATE VALVE

WATER SHUT-OFF

TREE REMOVAL

SANITARY SEWER

CONTOUR MAJOR

CONTOUR MINOR

PROPOSED GRADE

WATER MAIN

€ DITCH

T/C = TOP OF CURB

T/W = TOP OF WALK

FG = FINISH GRADE

FF = FINISH FLOOR

T/P = TOP OF PAVEMENT

GROUND

HYDRANT

AVG. FLOW = 1 UNITS X 350 GPD/UNIT = 350 GPD

FOR THE EXISTING COMMUNITY CENTER AT #3 EDEN COURT:

FOR THE EXISTING S.F. HOUSE AT #5 EDEN COURT:

TOTAL AVG. FLOW = 350 + 163 = 513 GPM

FOR THE COMPLETED COMMUNITY CENTER:

Q = 269 - 513 = -244 GPM

THERE IS NO NET INCREASE IN FLOW TO BE MITIGATED.

EXISTING

MANHOLE

INLET

CLEANOUT

CATCH BASIN

END SECTION

ROOF DRAIN

GATE VALVE HYDRANT

UTILITY POLE

GUY ANCHOR

SANITARY SEWER

CONTOUR MAJOR

CONTOUR MINOR

GROUND (BOTTOM OF BASIN)

STORM SEWER

WATER MAIN

GAS MAIN

+100.00 SPOT ELEVATION

LIGHT POLE

SIGN

TREE

TREE LINE

WATER SHUT-OFF

THE PROPOSED FLOW DATA IS:

THE NET INCREASE IN FLOW IS:

THE EXISTING DATA IS:

DATE BY REVISIONS REVISIONS DATE BY REVISIONS 3/15/17 JJW 2/4/16 JJW BIDDING 90% REVIEW 100% REVIEW 2/22/16 JJW PER CITY REVIEW 4/15/16 JJW 9/21/16 JJW P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

Wassociates 55800 GRAND RIVER AVE., SUITE 100 NEW HUDSON, MICHIGAN 48165

THREE FULL WORKING DAYS 1-800-482-7171

PROJECT SPONSOR: CITY OF ANN ARBOR PARKS AND RECREATION DEPT. 301 E. HURON STREET

UTILITIES & IMPROVEMENTS PLAN BRYANT COMMUNITY CENTER

DATE 2/4/16 SCALE HOR: 1" = 10' VER: 1" = N/A DESIGNED BY JJW 15166 JOB NO. SHEET CE-4

PERMITS/BIDS

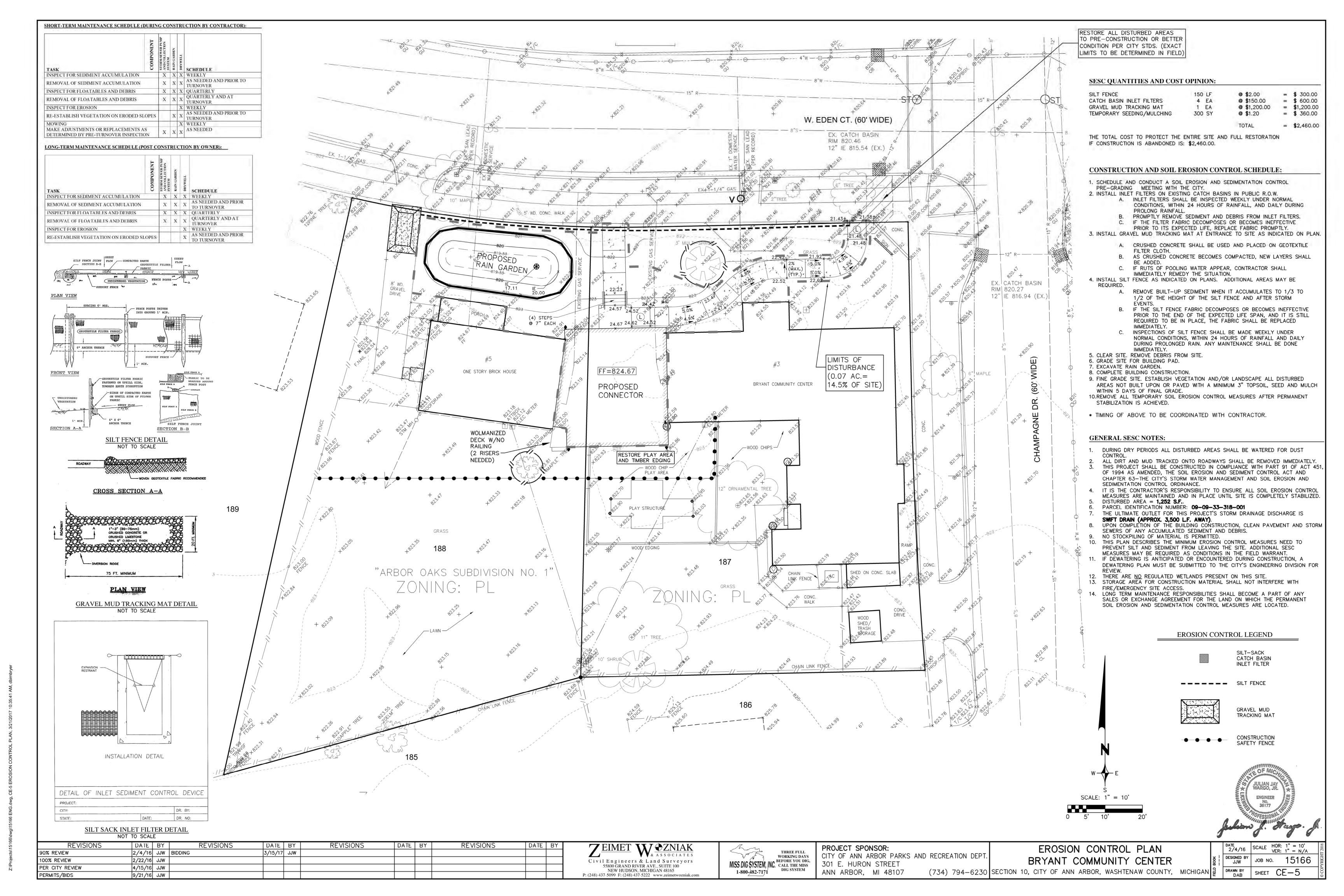
APPARENT.

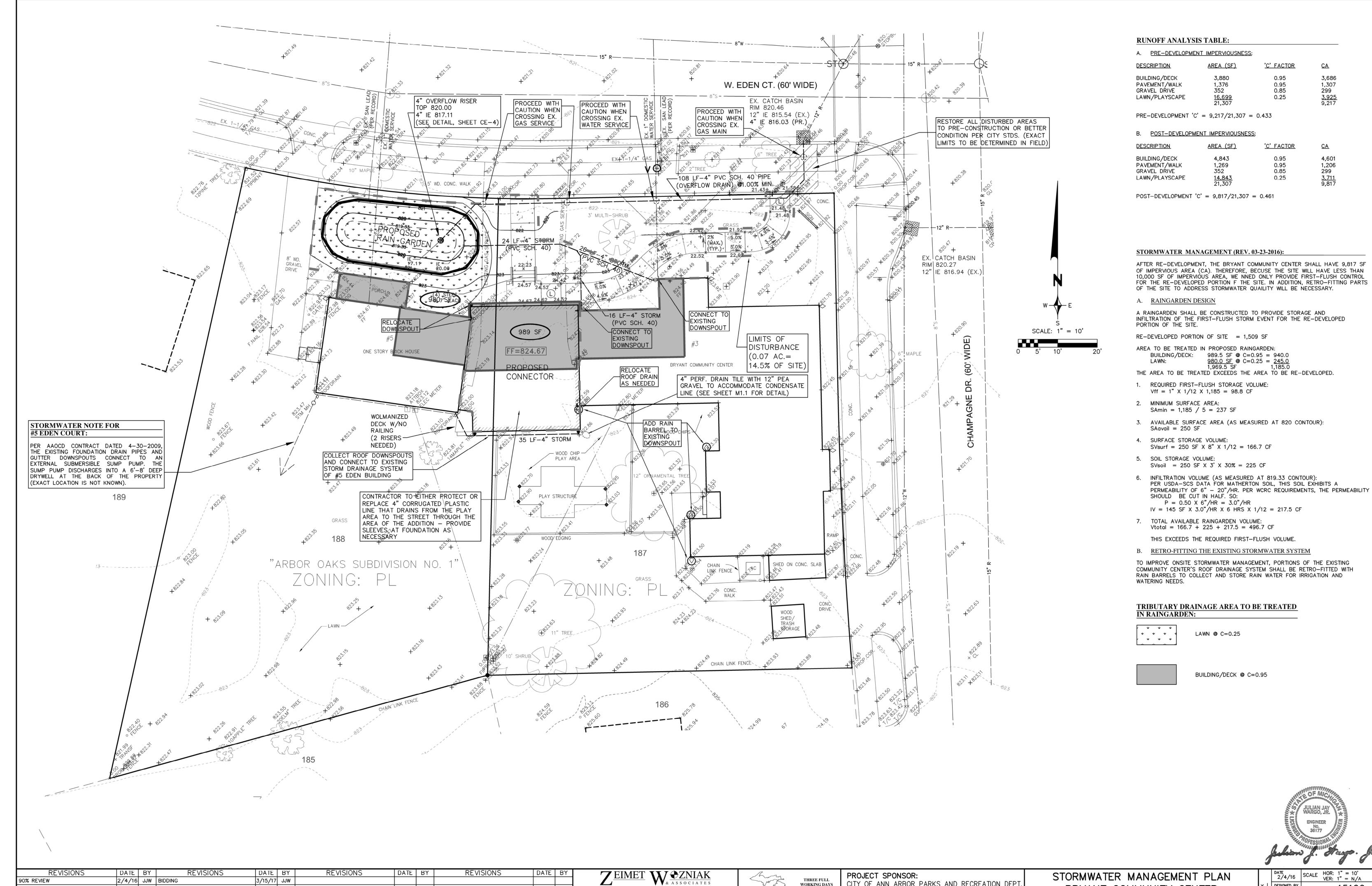
Civil Engineers & Land Surveyors

BEFORE YOU DIG MISS DIG SYSTEM, INC. CALL THE MISS ANN ARBOR, MI 48107

(734) 794-6230 SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DRAWN BY





Civil Engineers & Land Surveyors 55800 GRAND RIVER AVE., SUITE 100

NEW HUDSON, MICHIGAN 48165

P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

PROJECT SPONSOR:

301 E. HURON STREET

ANN ARBOR, MI 48107

CITY OF ANN ARBOR PARKS AND RECREATION DEPT.

THREE FULL WORKING DAYS

MISS DIG SYSTEM, INC. CALL THE MISS

1-800-482-7171

90% REVIEW

100% REVIEW

PERMITS/BIDS

PER CITY REVIEW

2/4/16 JJW BIDDING

2/22/16 JJW

4/15/16 JJW

9/21/16 JJW

3/15/17 JJW

DATE 2/4/16 | SCALE | HOR: 1" = 10' | VER: 1" = N/A STORMWATER MANAGEMENT PLAN DESIGNED BY JOB NO. 15166 BRYANT COMMUNITY CENTER (734) 794-6230 SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN 월 DRAWN BY SHEET CE-6

TYPICAL TIMBER RETAINING WALL SECTION NO SCALE

Note Key

- (1) EXISTING BUILDING
- (2) EXISTING CONCRETE SIDEWALK
- EXISTING GRAVEL DRIVE
- EXISTING WETLAND AREA TO REMAIN, PROTECT AS REQUIRED DURING CONSTRUCTION
- (5) EXISTING FENCE
- (6) SILT FENCE, BY OTHERS
- (7) LIMITS OF DISTURBANCE
- PROPOSED CONCRETE SIDEWALK, SEE CIVIL ENGINEERING DRAWINGS
- PROPOSED FLARED END SECTION, SEE CIVIL **ENGINEERING DRAWINGS**
- (10) PERENNIAL PLANTINGS, SEE TYP. DETAIL.
- SODDED LAWN ON 4" DEPTH TOPSOIL, TYP.
- NATIVE SEED ON SIDE SLOPES FROM ELEVATION 819.33 TO BOTTOM OF PROPOSED RETAINING WALL, SEE SEED MIX AND SEED MIX NOTES THIS SHEET
- (13) SHOVEL CUT EDGE BETWEEN EXISTING WETLAND AND MULCH STRIP

Planting Notes:

The Contractor shall verify all rights of way, easements, property lines and limits of work, etc. prior to commencing work.

The Contractor shall be responsible for contacting and coordinating with all pertinent utility companies 72 hours in advance of any digging to make himself familiar with all underground utilities, pipes and structures. The Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

The Contractor shall not willfully proceed with construction as designed when it is obvious that unknown obstructions and/or grade differences exist. Such conditions shall be immediately brought to the attention of the owner's representative and/or Landscape Architect. The Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.

Any discrepancies between dimensioned layout and actual field conditions shall be reported to the Owner's representative and Landscape Architect. Failure to make such discrepancies known will result in Contractor's responsibility and liability for any changes and associated cost.

The Contractor shall be responsible for any coordination with subcontractors as required to accomplish construction installation operations.

Do not scale drawings. Refer to written dimensions only.

The Contractor shall provide and maintain positive surface drainage.

The Contractor shall be responsible for any existing materials that are damaged during construction.

See plant list and planting details for planting requirements, materials and execution.

All plant material shall be approved by Owner's Representative and/or Landscape Architect prior to delivery to the site. Any plants delivered to the site not previously approved may be rejected and are the sole responsibility of the Contractor.

Final location of all plant material shall be subject to the approval of the Landscape

The Contractor to verify percolation of all planting pits prior to installation of plant

The Contractor shall place 2" depth of shredded bark mulch in all planting beds, unless otherwise indicated.

Low Profile Prairie Mix

Scientific Name	Common Name	LBS/AC
Agropyron trachycaulum	Slender Wheat	1.000
Andropogon scoparius	Little Bluestem	4.000
Elymus canadensis	Canada Wild Rye	1.000
Elymus virginicus	Virginia Wild Rye	1.000
Juncus tenuis	Slender Rush	0.125
Aster laevis	Smooth Blue Aster	0.125
Aster nova-angliae	New England Aster	0.250
Cassia fasciculata	Partridge Pea	0.250
Coreopsis lanceolata	Sand Coreopsis	1.000
Heliopsis helianthoides	False Sunflower	0.250
Liatris spicata	Spike Blazingstar	0.250
Lupinus perennis occidentalis	Lupine	0.250
Monarda fistulosa	Bergamot	0.063
Penstemon digitalis	Foxglove Beardtongue	0.188
Ratibida pinnata	Yellow Coneflower	0.500
Rudbeckia hirta 0.750	Black Eyed Susan	
Solidago rigida	Stiff Goldenrod	0.125
Verbena stricta	Hoary Vervain	0.125

Seed mix to be broadcast over all relocated stream channel areas. Seed to be covered with North American Green C350 or equivalent erosion control blanket installed to manufacturers specifications.

SOURCES:

Wildtype 900 N. Every Road Mason, MI 48854 517.244.1140 Contact: Bill Schneider

Michigan Wildflower Farm 11770 Cutler Road Portland, MI 48875 517.647.6010 Contact: Esther Durnwald

SEED MIX NOTES:

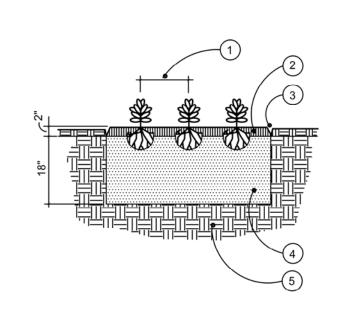
- THE SEED MIXES SHALL BE APPLIED AT THE SPECIFIED RATE OF FOR EACH MIX.
- MUST BE INSTALLED TO MANUFACTURER SPECIFICATION AND REQUIREMENTS
- THE PLANTING MIX FOR THE RAIN GARDEN SHALL BE 70% SHARP SAND AND 30% COMPOST.

MULCH NOTES:

1. MULCH TO BE DOUBLE SHREDDED HARDWOOD BARK MULCH. 2. NO GROUND WOOD PALETTE MULCH PERMITTED.

PLANT SCHEDULE

CODE	QTY.	MATERIAL & SIZE	COMMENTS
IV	16	Iris versicolor Blue Flag Iris, 1 gal.	Plant 24" o.c.
LC	5	Lobelia cardinalis Cardinal Flower, 1 gal.	Plant 18" o.c.
LS	6	Lobelia siphilitica Great Blue Lobelia, 1 gal.	Plant 24" o.c.
MBS	8	Liatris spicata Marsh Blazing Star, 1 gal.	Plant 18" o.c.



1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION

- 1) SEE PLANT LIST FOR SPACING
- (2) 2" DOUBLE SHREDDED HARDWOOD MULCH
- 3 SHOVEL CUT EDGE. SEE PLAN
- (4) EXCAVATE EXISTING SOIL 18" DEEP FILL WITH PLANT MIX
- (5) UNDISTURBED SUBGRADE





114 Rayson Street Suite 2A Northville, MI 48167 ph. 248.374.3222 • fax 248.374.3463

REVISIONS REVISIONS REVISIONS REVISIONS DATE BY DATE BY 2/4/16 JJW 90% REVIEW PER CITY REVIEW 4/15/16 MHS 3/15/17 JJW BIDDING

RAINGARDEN CROSS SECTION A-A1

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

Wassociates Civil Engineers & Land Surveyors 55800 GRAND RIVER AVE. SHITE 100 NEW HUDSON, MICHIGAN 48165

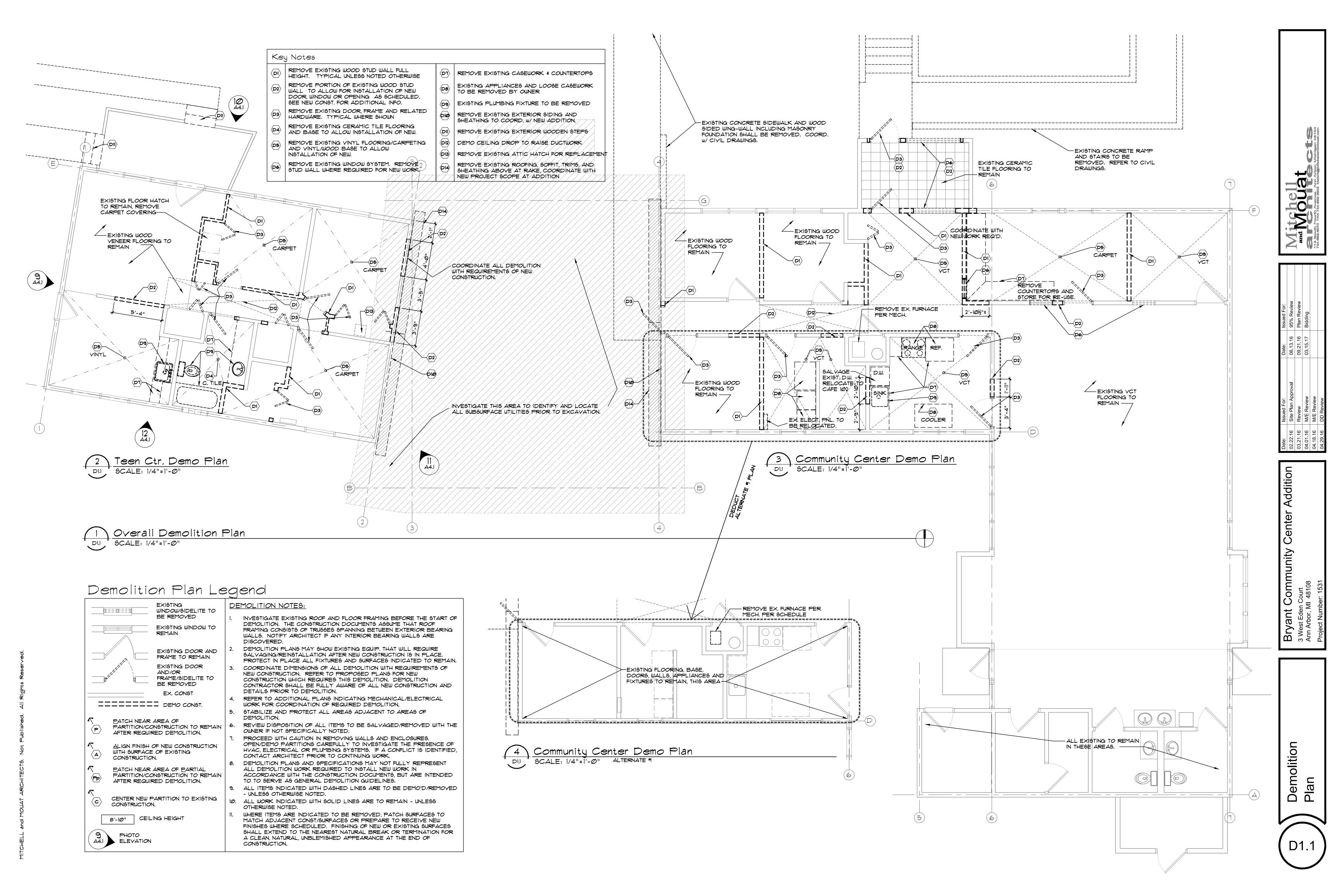
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

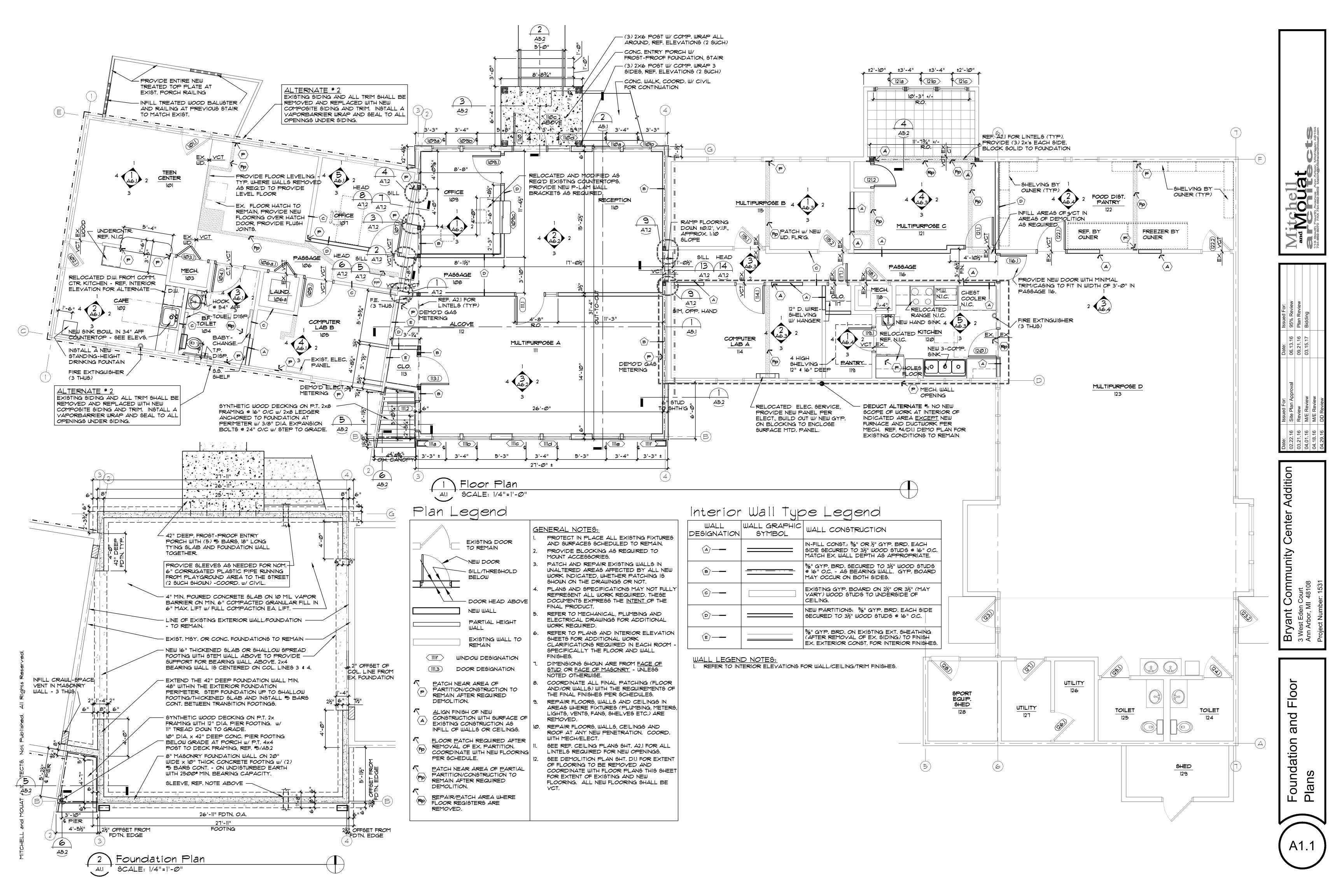
THREE FULL WORKING DAYS BEFORE YOU DIG MISS DIG SYSTEM, INC. CALL THE MISS 1-800-482-7171

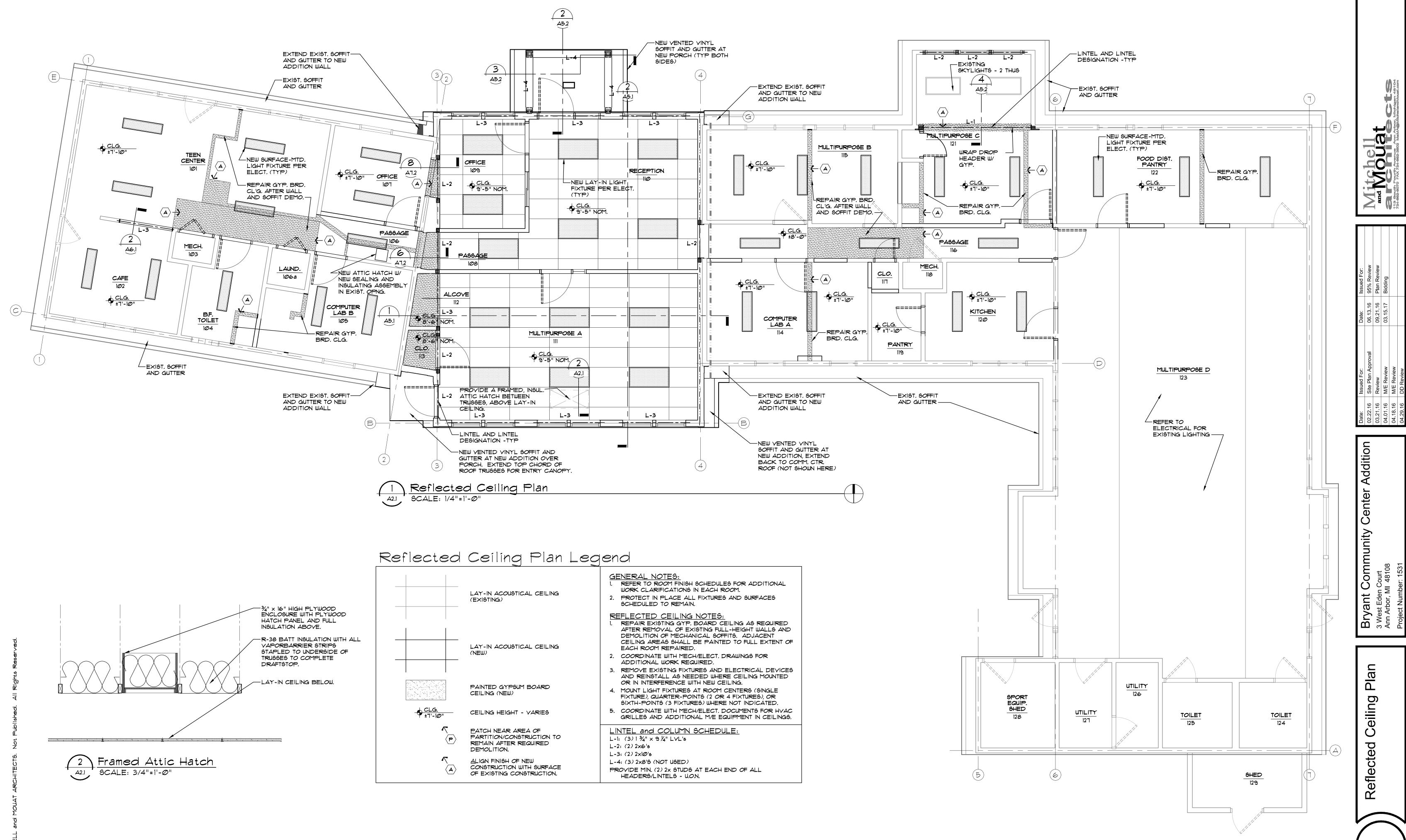
PROJECT SPONSOR: CITY OF ANN ARBOR PARKS AND RECREATION DEPT. 301 E. HURON STREET ANN ARBOR, MI 48107

RAINGARDEN PLANTING PLAN BRYANT COMMUNITY CENTER (734) 794-6230 SECTION 10, CITY OF ANN ARBOR, WASHTENAW COUNTY, MICHIGAN

DATE 2/4/16 SCALE HOR: 1" = 5' VER: 1" = N/A DESIGNED BY JJW JOB NO. 15166 DRAWN BY DAB SHEET LS-1







— NEW ASPHALT SHINGLE ROOF ⊚ ADDITION

- TOOTH-IN NEW SHINGLES TO EXISTING

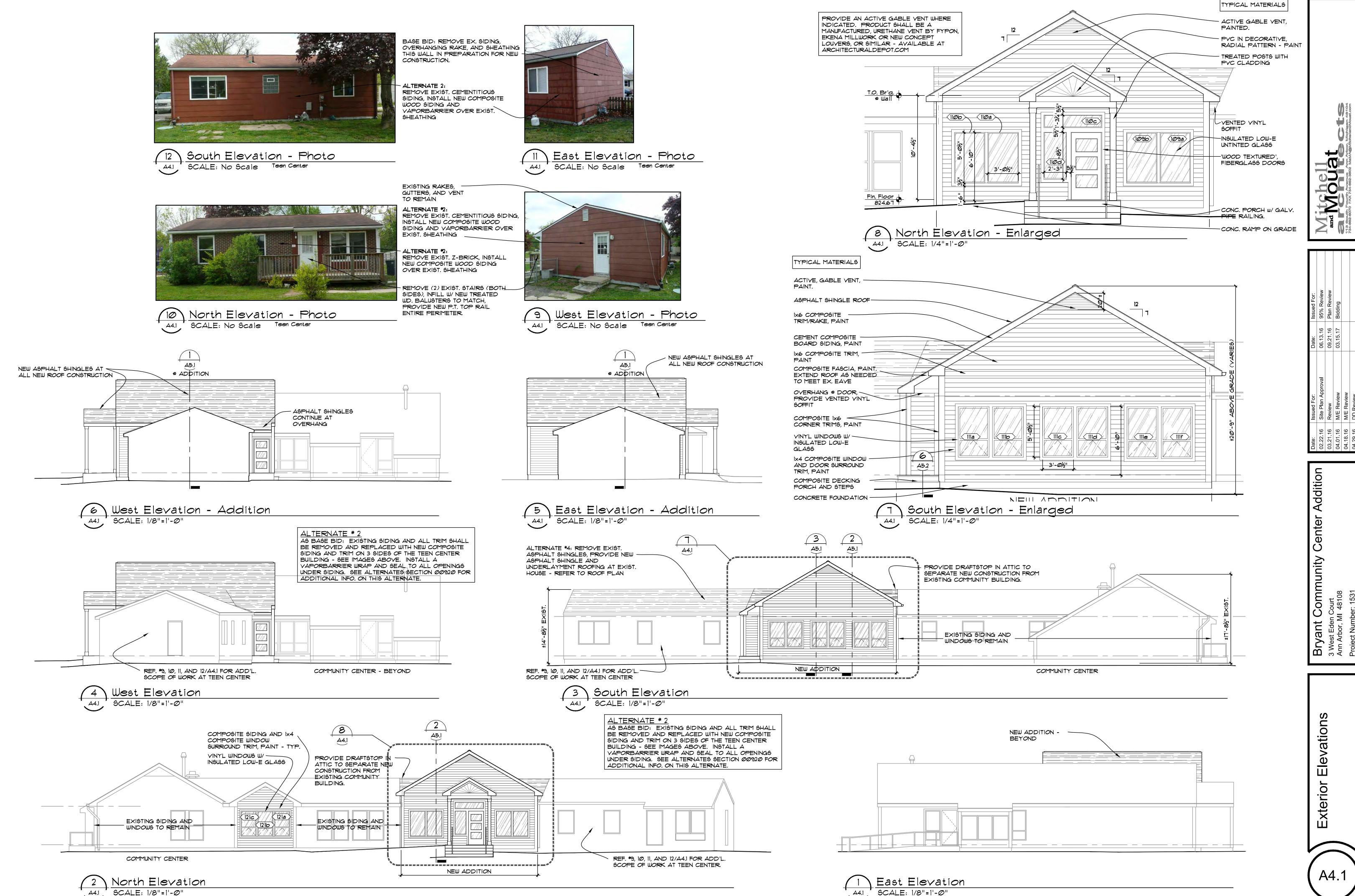
COMMUNITY BLDG.

- PROVIDE COMPLETE DRAFTSTOP BETWEEN NEW CONST. AND EX.

- EXIST. ASPHALT SHINGLE ROOF

EX. COMMUNITY BLDG.

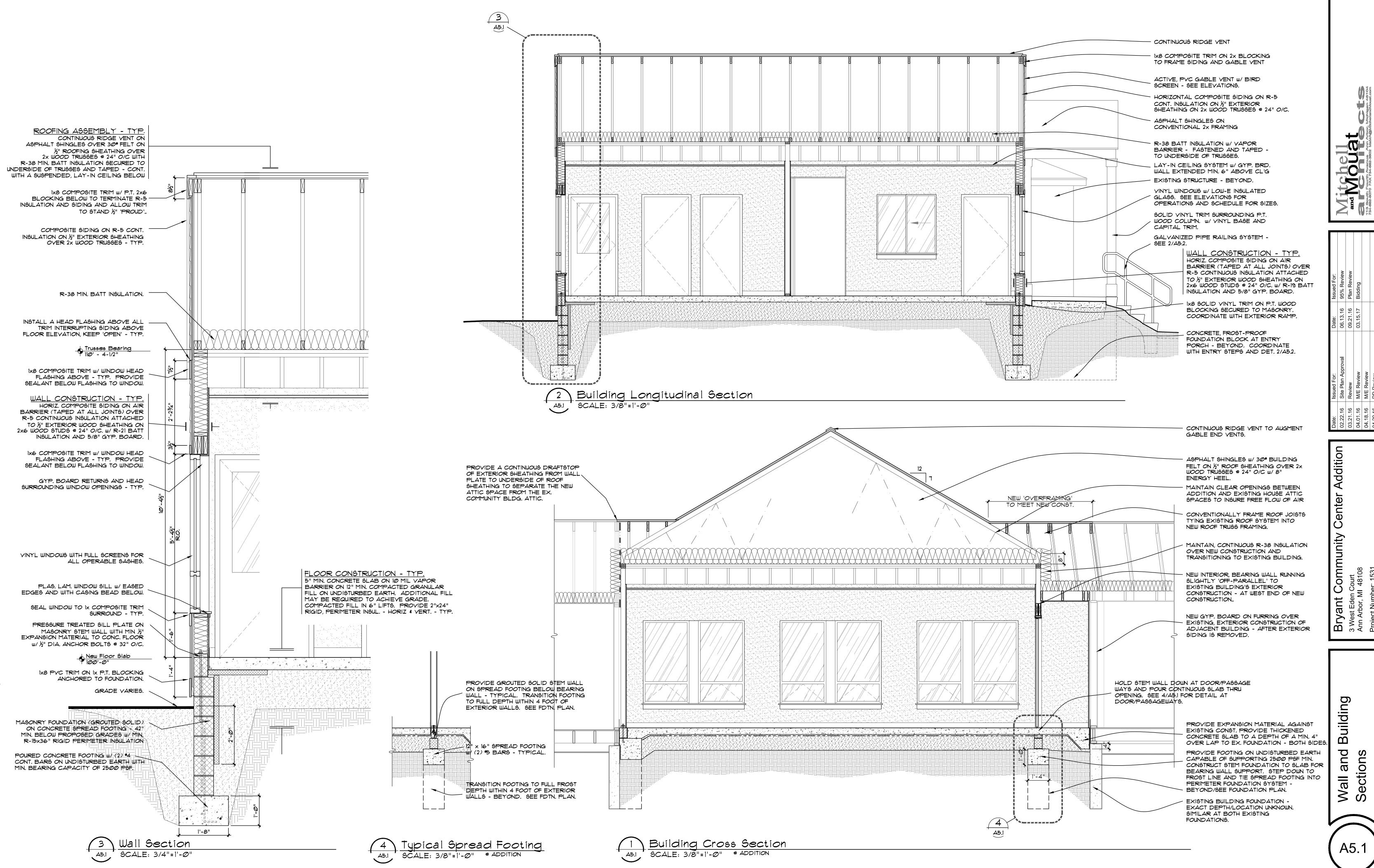
EX. TEEN CENTER



Elevations

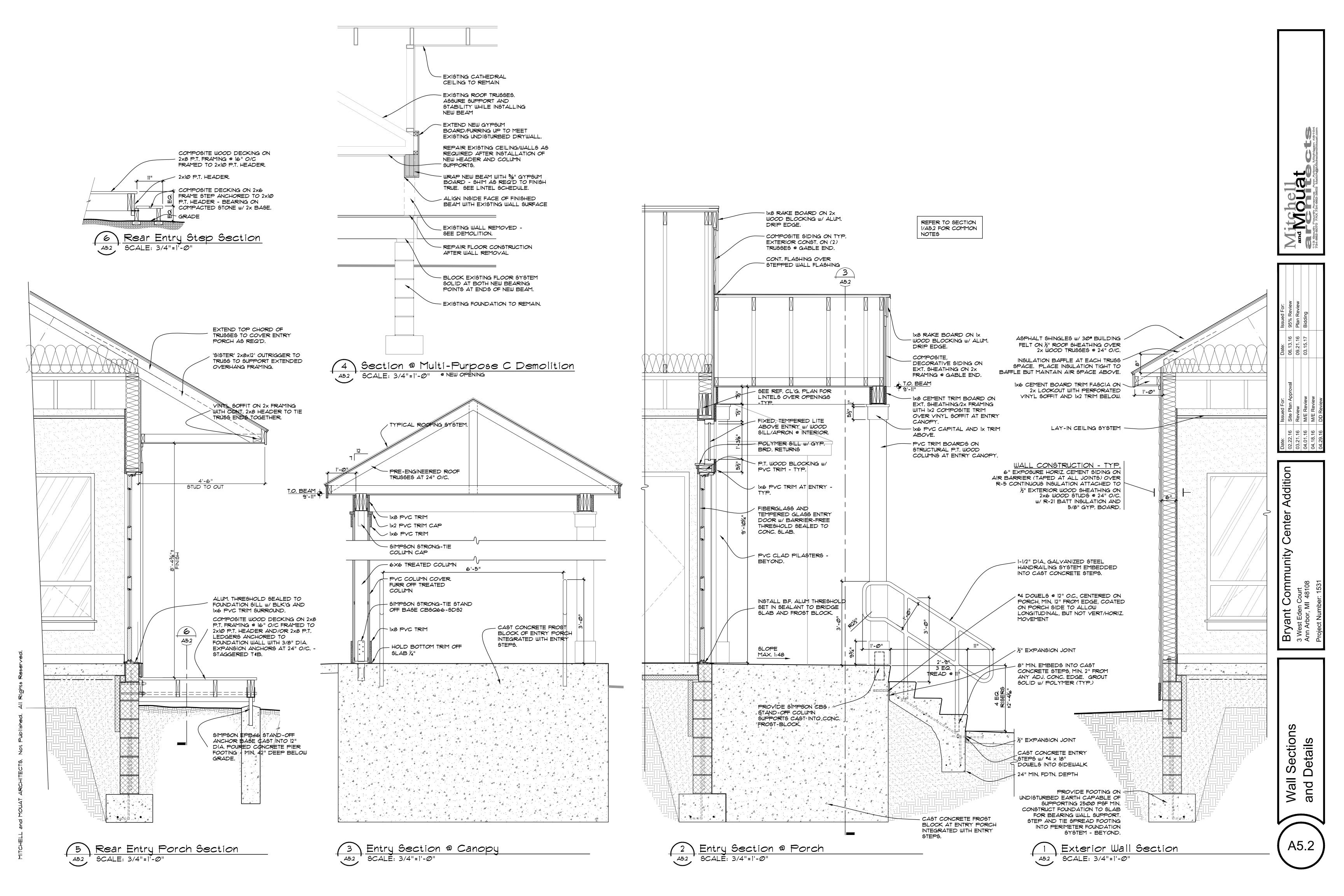
Exterior

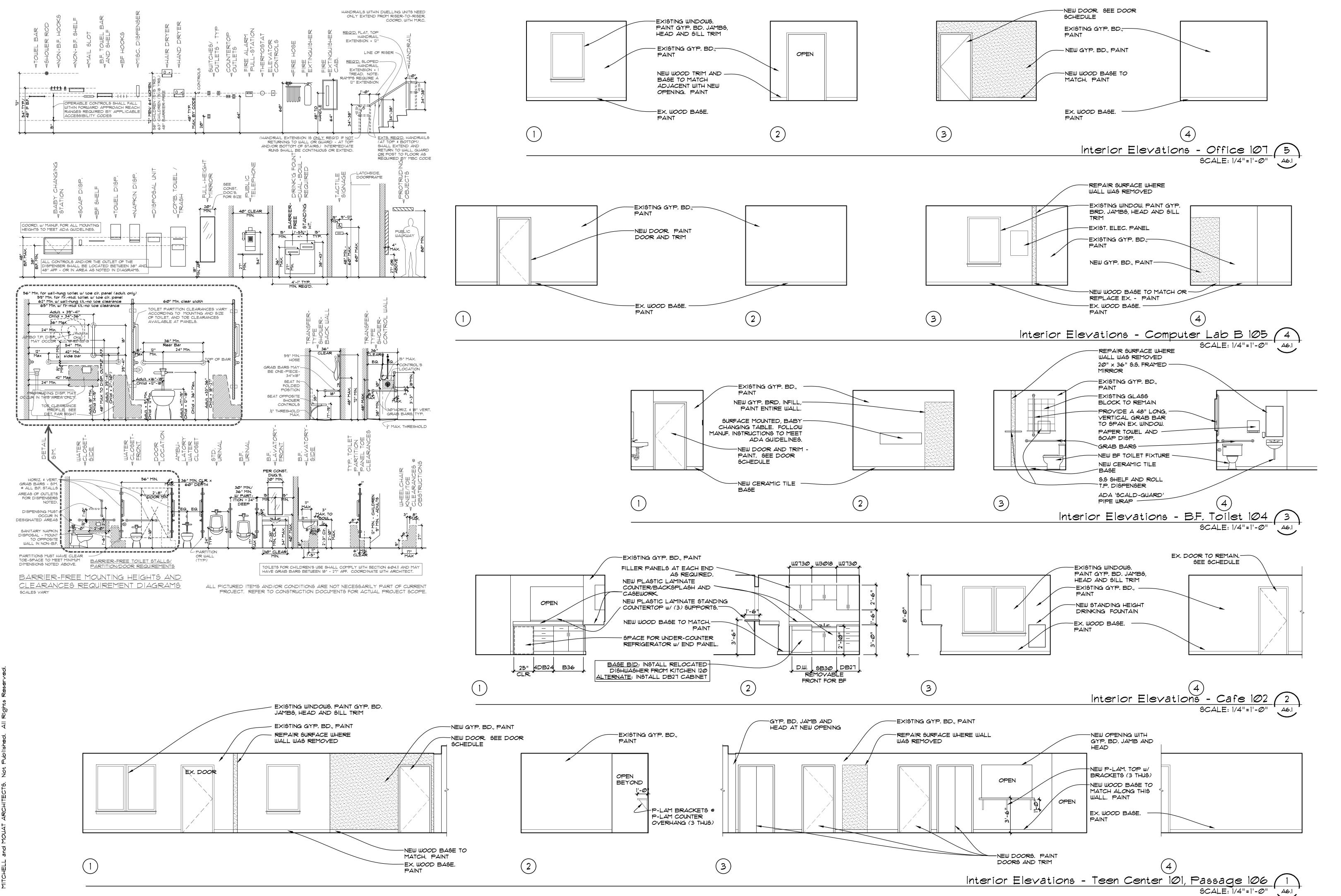
90 80



Bryant Community (3 West Eden Court Ann Arbor, MI 48108

and a





 Date:
 Issued For:
 Date:
 Issued For:

 02.22.16
 Site Plan Approval
 06.13.16
 95% Review

 03.21.16
 Review
 09.21.16
 Plan Review

 04.01.16
 M/E Review
 03.15.17
 Bidding

 04.18.16
 M/E Review
 03.15.17
 Bidding

Witchell and Wouldt

Bryant Community Center Addition
3 West Eden Court
Ann Arbor, MI 48108

Interior Elevations Teen Center

A6.1

Date: 02.22. 03.21. 04.01. 04.18.

GENERAL NOTES for INTERIOR FINISHES:

1. THE ENTIRE FACILITY - BOTH EXISTING AREAS AND NEW CONSTRUCTION -SHALL BE PAINTED. THIS SHALL INCLUDE:

1.1. ALL WALLS (NEW AND EXISTING) SHALL BE PAINTED A SATIN SHEEN. ALL CEILINGS (NEW AND EXISTING) SHALL BE PAINTED A 'CEILING WHITE'

ALL DOORS AND FRAMES SHALL BE PAINTED A SEMI-GLOSS SHEEN,

COLOR TO MATCH THE WALLS. 1.4. ALL WOOD TRIM THAT IS CURRENTLY PAINTED AND ALL NEW TRIM SHALL

BE PAINTED A SEMI-GLOSS SHEEN, COLOR TO MATCH THE WALLS. REMOVAL OF ALL FIXTURES AND COVER PLATES SHALL BE PART OF THIS PAINTING.

2. NEW WOOD BASE, WINDOW AND DOOR CASING AND MISC. TRIM SHALL MATCH EXISTING PROFILES AND FINISH WHEREVER EXISTING PROFILES/MATERIAL IS ADJACENT TO NEW/RENOY. WORK. COORDINATE W/ ARCHITECT IF MATERIAL CAN'T BE MATCHED.

3. REFER TO DEMOLITION PLAN ON SHT. DI.I FOR FLOORING THAT IS SCHEDULED TO BE REMOVED OR TO REMAIN. NEW <u>VCT FLOORING</u> SHALL BE INSTALLED IN ALL LOCATIONS WHERE FLOORING HAS BEEN DEMO'D/REMOVED. SEE FLOOR PLAN SHT. ALI FOR TRANSITIONS AT ALL DOORWAYS INDICATING EXTENT OF NEW AND EXISTING FLOOR FINISHES.

4. WALL AREAS SHOWN ON INTERIOR ELEVATIONS AS PATTERNED (W/ POCHE) ARE NEW INFILLS. THE AREA INDICATED IS ONLY A GENERAL INDICATION OF THE WORK THAT MAY BE REQUIRED TO INFILL PARTITIONS FROM DEMOLITION.

5. PROTECT IN PLACE ALL EXISTING FIXTURES, CASEWORK AND SURFACES SCHEDULED TO REMAIN.

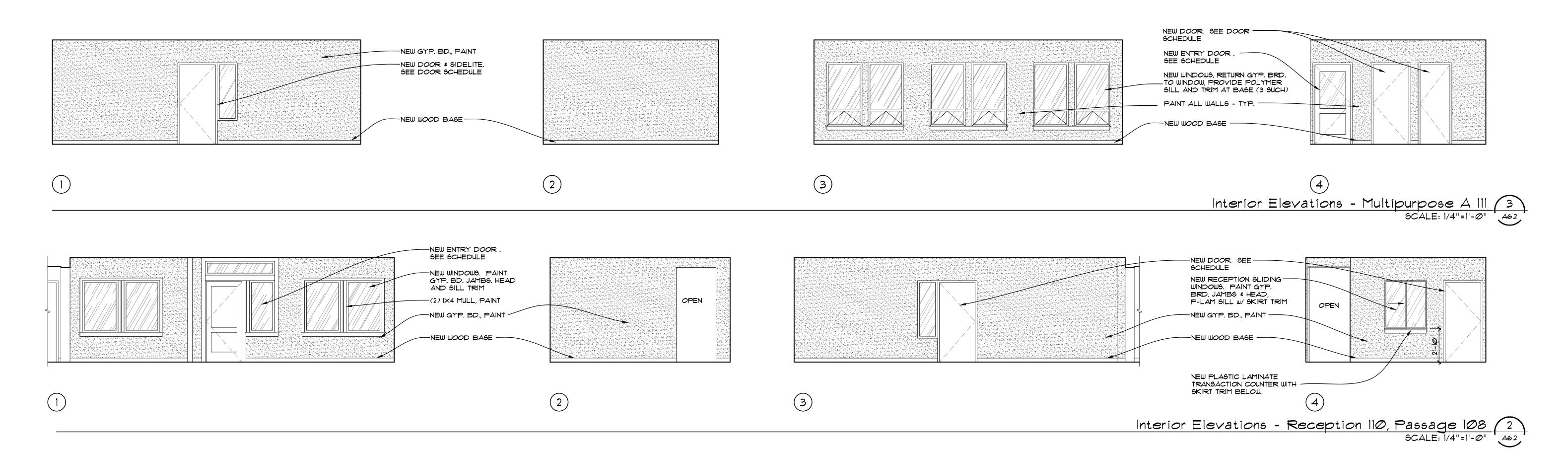
6. PATCH AND REPAIR EXISTING WALLS IN UNALTERED AREAS AFFECTED BY ALL NEW WORK INDICATED, WHETHER PATCHING IS SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.

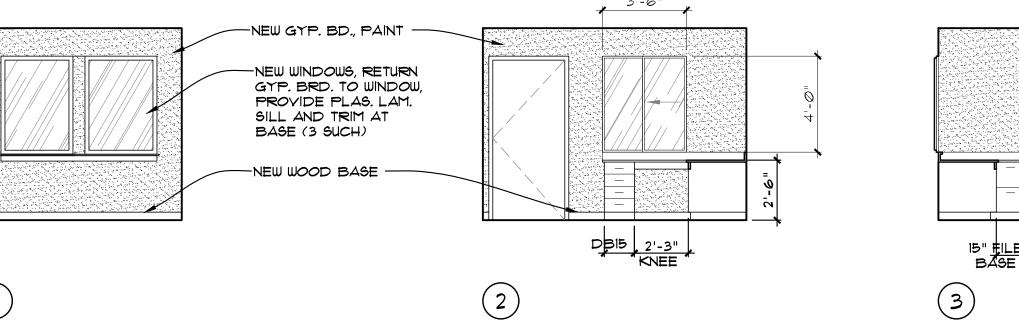
7. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL WORK REQUIRED.

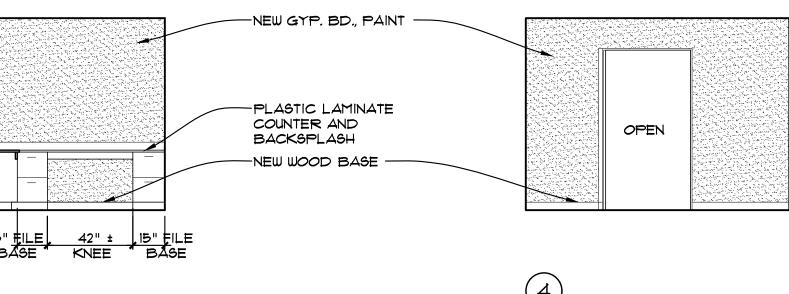
8. COORDINATE ALL FINAL PATCHING (FLOOR AND/OR WALLS) WITH THE REQUIREMENTS OF THE FINAL FINISHES PER DETAILS/SCHEDULES.

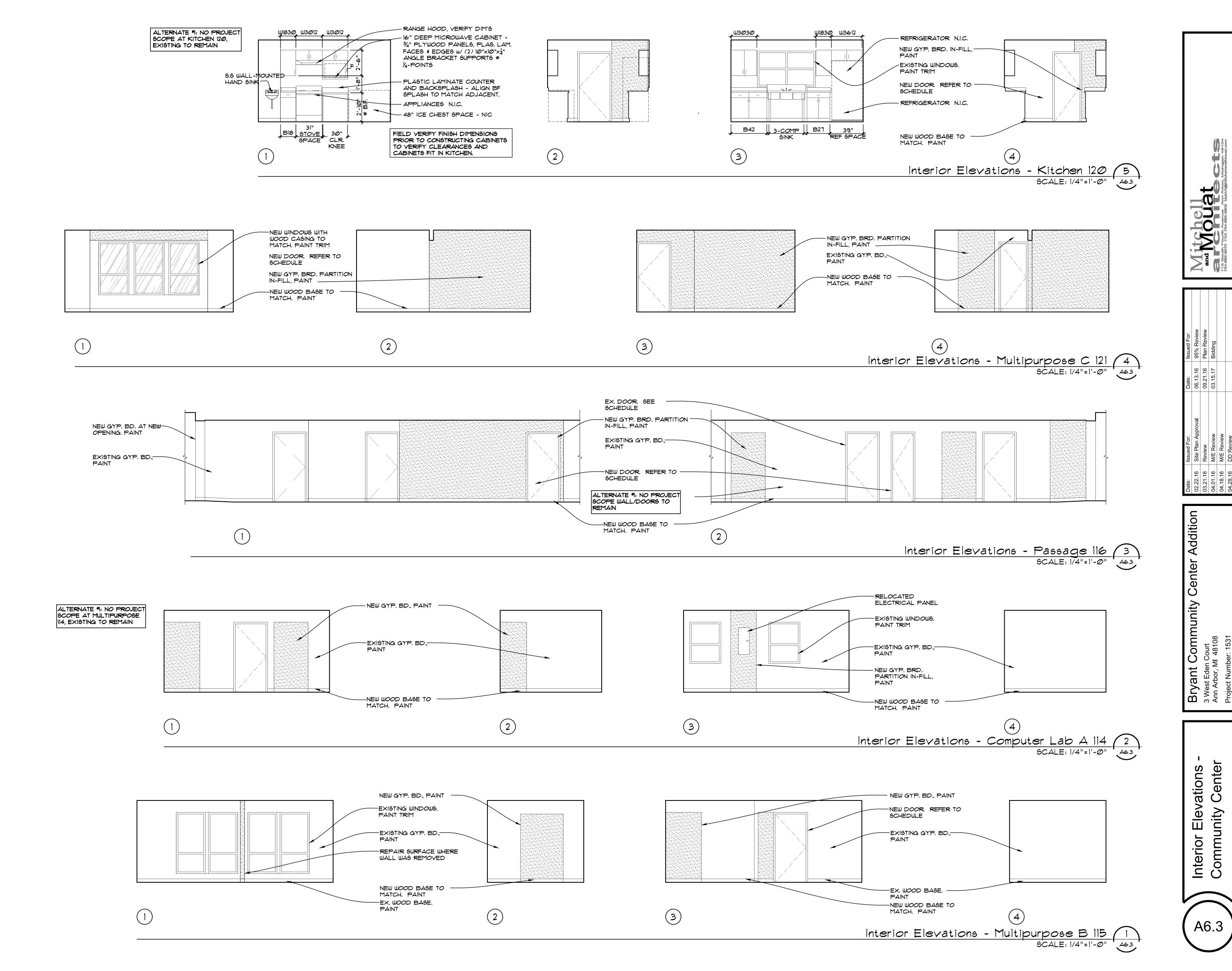
9. REPAIR AND/OR INFILL FLOORS, WALLS AND CEILINGS IN AREAS WHERE FIXTURES (PLUMBING, METERS, LIGHTS, VENTS, FANS, SHELVES ETC.) ARE

10. REPAIR FLOORS, WALLS, CEILINGS AND ROOF AT ANY NEW PENETRATION. COORD. WITH MECHANICAL/ELECTRICAL WORK.









Interior Elevations -

Mitchell and Mouat

Date: 06.13.16 09.21.16 03.15.17

A6.3

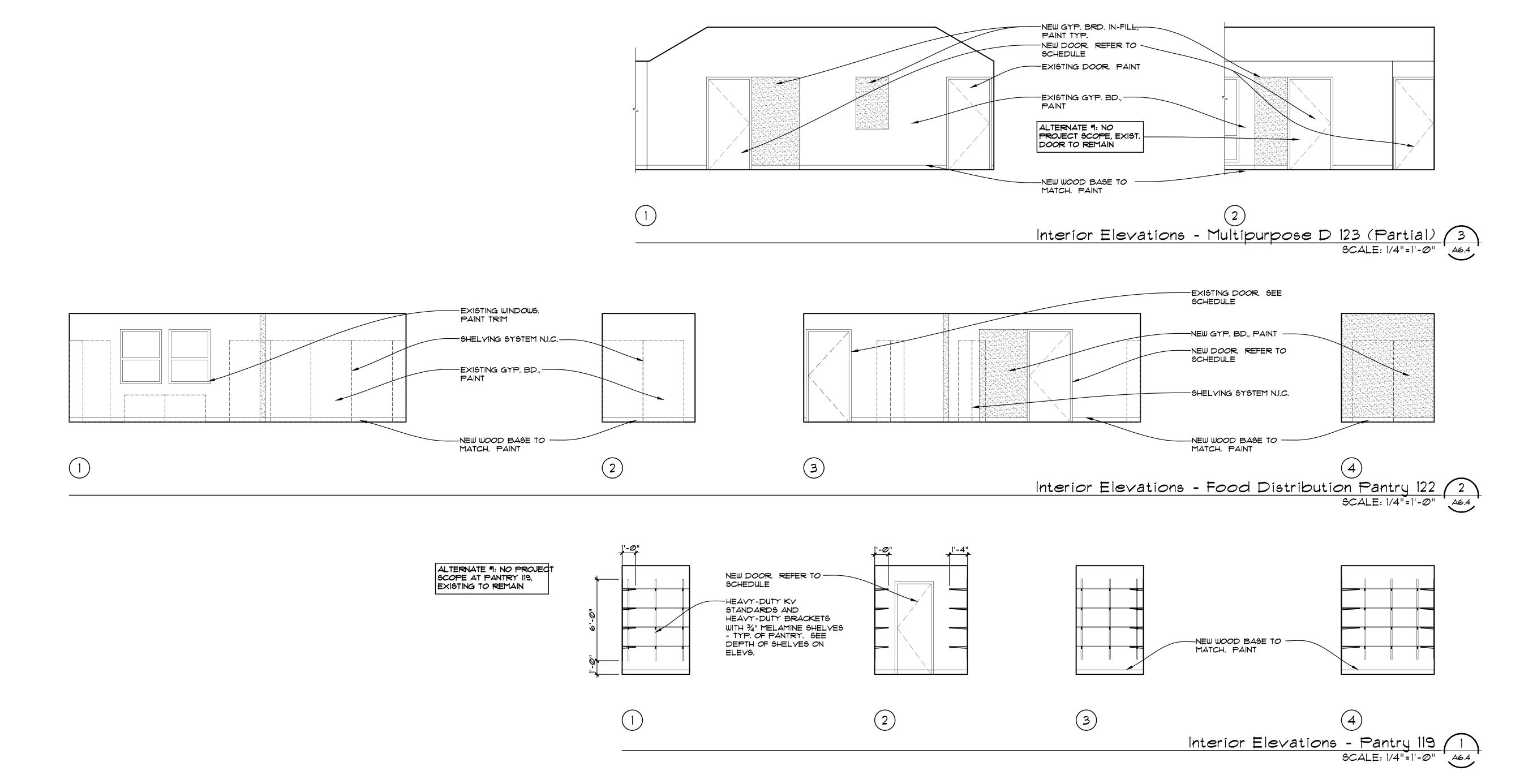


Date: 02.22.16 03.21.16 04.01.16 04.18.16 04.29.16

Bryant Community Center Addition
3 West Eden Court
Ann Arbor, MI 48108

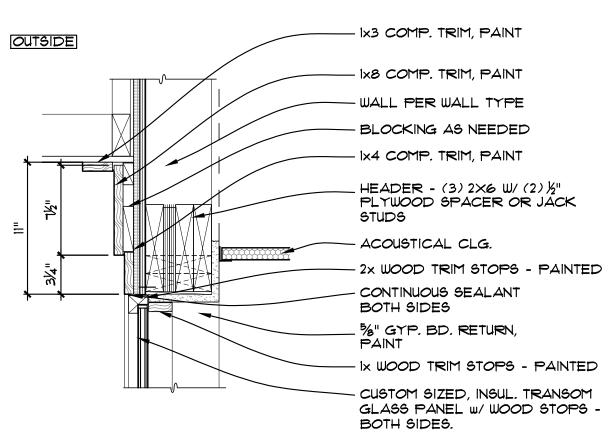
Interior Elevations Community Center

A6.4



Door Details - [Windows

A7.1



CUSTOM SIZED, INSUL. TRANSOM

GLASS PANEL W/ WOOD STOPS -

BOTH SIDES.

- 1x WOOD WINDOW STOP,

TRIMMED HEADER

PAINT, ON GYP. BOARD

- (3) 2×6 W/ PLYWD. HEADER

- FIBERGLASS EXTERIOR

- EXTERIOR FIBERGLASS

DOOR AND FRAME

- 1x4 COMP. TRIM, PAINT

- EXTENSION JAMBS AS

- TYP. TRIM - SURROUND

- SEALANT AT JAMBS.

- COMP. SIDING

— (2) 2×6 JAMB POST

REQUIRED.

- CAULK

DOOR - PAINTED

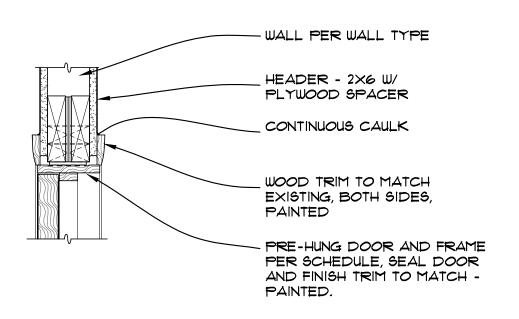
ENTRY DOOR HEAD/TRANSOM SILL DET

SCALE: 1 1/2"=1"-0" JAMB SIMILAR

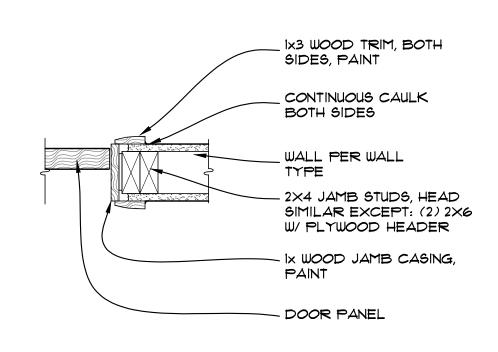
TRANSOM HEAD DETAIL 12 TRANSOM HEAD DE SCALE: 1 1/2"=1'-0" JAMB SIM.

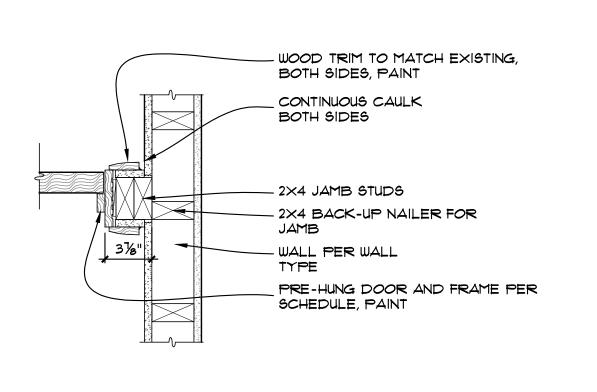
OUTSIDE

OUTSIDE

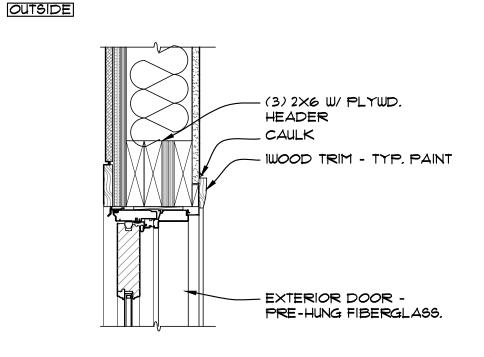


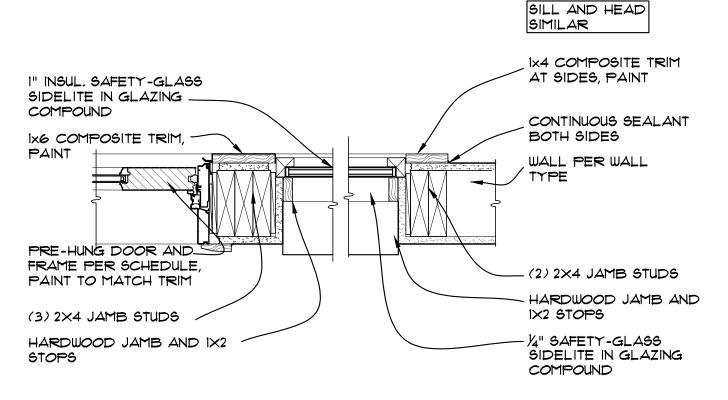
INTERIOR DOOR HEAD DETAIL SCALE: 1 1/2"=1'-0" JAMB SIMILAR A7.I



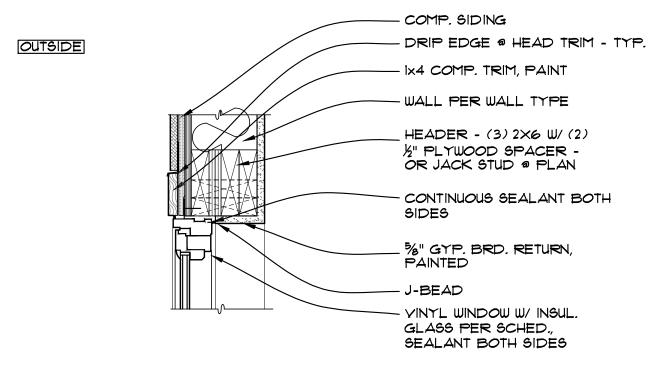


INTERIOR DOOR JA
SCALE: 1 1/2"=1'-0" TYPICAL INTERIOR DOOR JAMB DETAIL



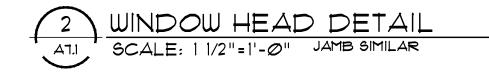




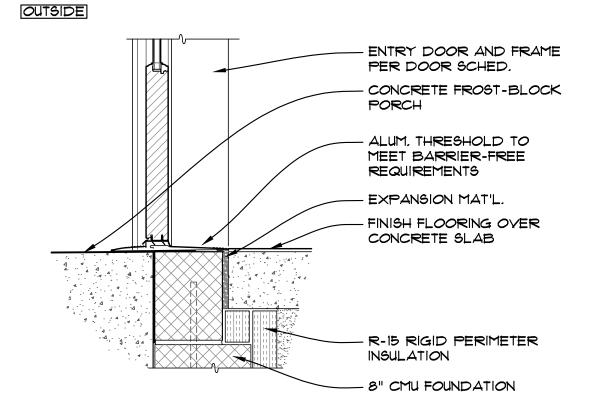


- %" GYP. BD. RETURN, PAINT

- YINYL WINDOW W/ INSUL. GLASS PER SCHED., SEALANT BOTH SIDES



OUTSIDE



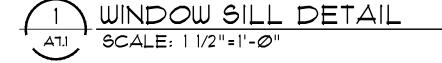
ENTRY DOOR JAMB DETAIL

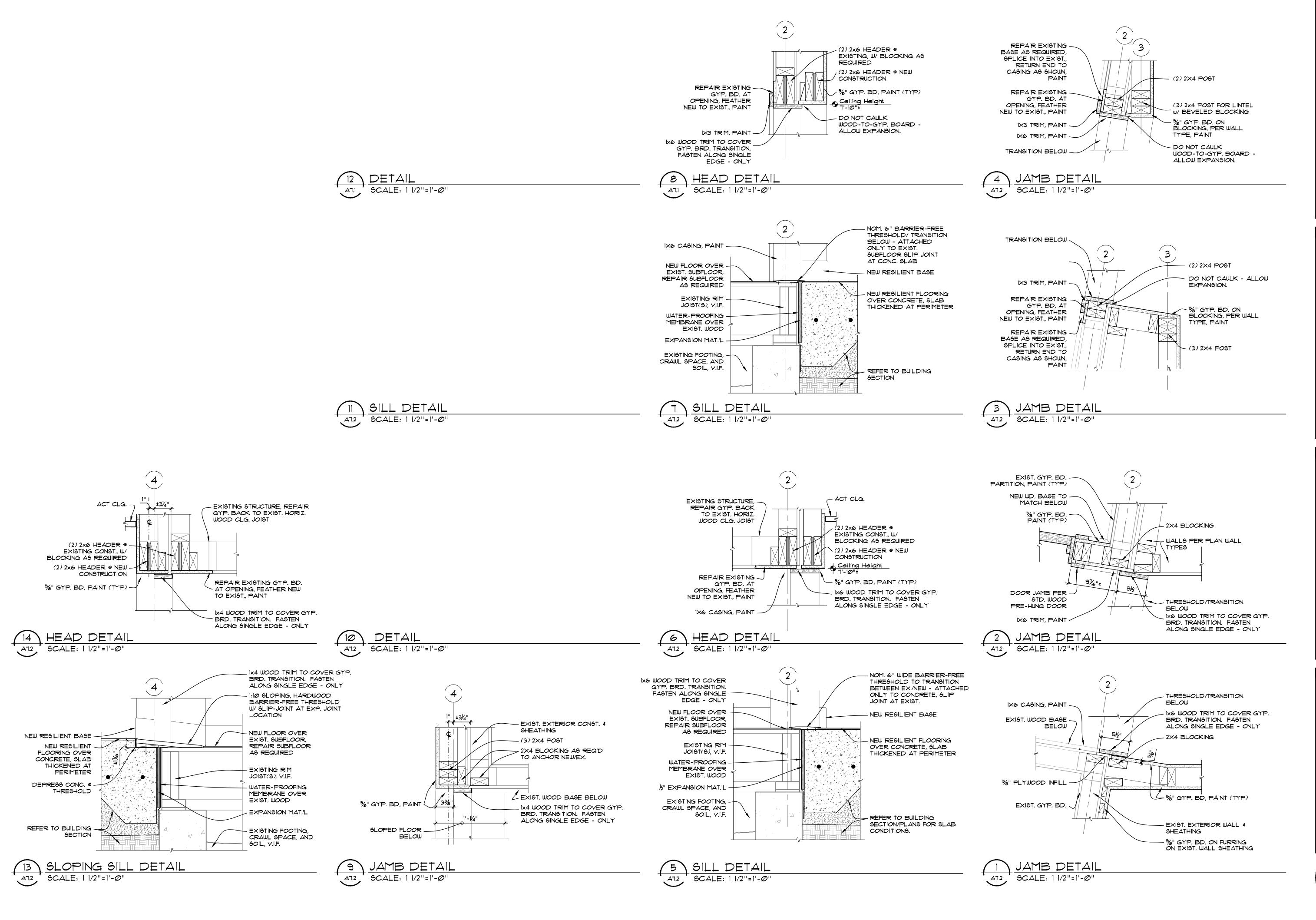
SCALE: 1 1/2"=1'-Ø"











Mitchell and Mouat

Date: 06.13.16 09.21.16 03.15.17 Date: 02.22.16 03.21.16 04.01.16 04.18.16

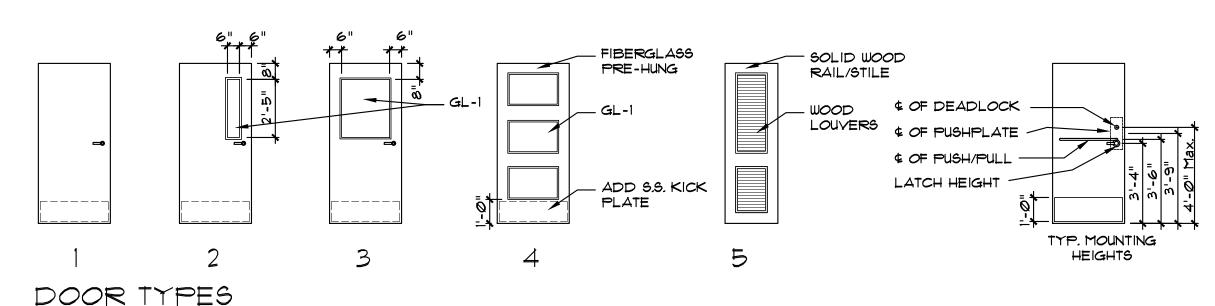
nt Community den Court

Details Misc.

WINDOW SCHEDULE

		Τ										
		FF	RAME									
OPENI	NG					DETAIL	<u>.</u> S			ی ا	8	
NO.	NOM. SIZE	TYPE/ELEV	MATERIAL	FINISH	GLASS	HEAD	JAMB 1	JAMB 2	91LL / THRESH.	UL. LABEL	OPERATION	REMARKS
(1Ø9a)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/A7.I	2/A7.I	2/A7.I	1/A7.I	-	FIX	
(109b)	36-1/2" × 60-1/2"	-	∨ NL	Ħ	GL-2	2/47.1	2/47.1	2/47.1	1/47.1	-	FIX	
(1Ø9c)	3'-6"x4'-@"	-	AL	Ħ	GL-I	-	-	-	-	-	SLI	Sliding transaction window w/p-lam sill
(11Øa)	36-1/2" × 60-1/2"	-	√NL	Ħ	GL-2	2/A7.I	2/A7.I	2/A7.I	1/47.1	-	FIX	Mull: 61M *2/A7.1 w/ bearing, Provide (3) 2x6 header
(1106)	36-1/2" × 60-1/2"	-	∨NL	Ħ	GL-2	2/A7.I	2/A7.I	2/A7.I	1/A7.I	-	FIX	Mull: 61M *2/A7.1 w/ bearing, Provide (3) 2x6 header
(11Øc)	5'-9"xl'-3" +/-	-	WD	PTD	GL-2	# 12/A7.1	#1/A7.1 SIM	#1/A7.1 SIM	#11/A7.I	-	FIX	Fixed, insul. glazing in wood frame
(110d)	2'-3"x4'-8"	-	WD	PTD	GL-2	#I/AT.1	#11/AT.1	#II/AT.1	#11/A7.I	-	FIX	Fixed, insul. glazing in wood frame
llla	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/AT.I	2/A7.1	2/A7.1	1/A7.I	- ,	AWN/FIX	
(dill)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/AT.I	2/A7.1	2/A7.1	1/A7.I	- ,	AWN/FIX	
(IIIc)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/A7.I	2/A7.1	2/A7.1	1/A7.I	- ,	AWN/FIX	
(111d)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/AT.I	2/A7.1	2/A7.1	1/A7.I	- ,	AWN/FIX	
lle	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/A7.I	2/A7.1	2/47.1	1/A7.I		AWN/FIX	
IIIF	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	2/AT.I	2/A7.1	2/A7.I	1/A7.I		AWN/FIX	
(121a)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	-	-	-	-	- ,	AWN/FIX	New window in modified opng., finish interior as requ
(1216)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	-	-	-	-	- ,	AWN/FIX	New window in modified opng., finish interior as requ
(121c)	36-1/2" × 60-1/2"	-	VNL	Ħ	GL-2	-	-	-	-	- ,	AWN/FIX	New window in modified opng., finish interior as requ

Window Schedule SCALE: no scale



WINDOW SCHEDULE NOTES

- SEE EXTERIOR ELEVATIONS FOR GENERAL WINDOW
- 2. WINDOWS INDICATED ARE ANDERSEN 70 SERIES W/ BOTH FIXED-OVER-AWNING AND FIXED ARE
- 3. ALL EXTERIOR WINDOWS ARE VINYL EXTRUSIONS W/
- 4. SCHEDULE DOES NOT LIST SIDE-LITE WINDOWS

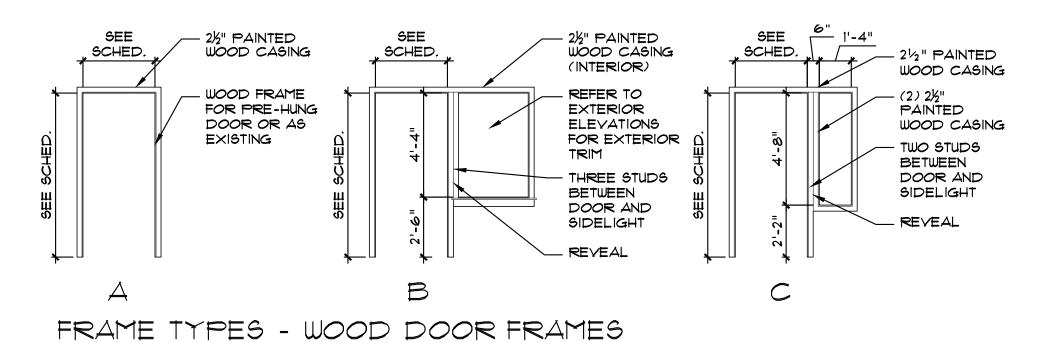
DOOR SCHEDULE NOTES

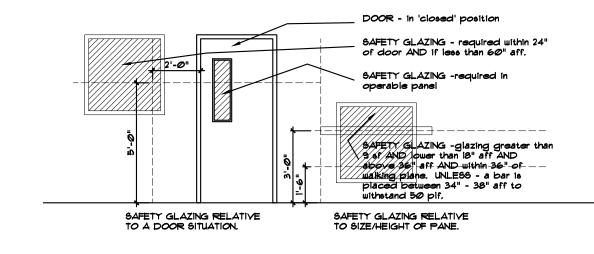
INSULATED, LOW-E GLAZING.

- 1. INTERIOR DOORS ARE 1-1/2" THICK UNLESS OTHERWISE NOTED.
- 2. FIELD YERIFY ALL DOOR OPENING HEIGHTS AND WIDTHS FOR EXISTING OPENINGS OR NEW OPENINGS IN EXISTING MASONRY WALLS. U.O.N., ACTUAL DOOR AND FRAME HEIGHTS AND WIDTHS IN EXISTING MASONRY WALLS SHALL FOLLOW EXISTING MASONRY COURSING.
- 3. ALL ACTUAL DOOR AND FRAME HEIGHTS ARE TO ACCOUNT FOR A 3/8" SHIM AND CAULK JOINT AT BOTH JAMBS AND THE HEAD, 1/16" ±.
- 4. PROVIDE VINYL TRANSITION STRIPS AS SELECTED BY ARCHITECT FOR FLOORING CONDITIONS.
- 5. DETAIL NUMBERS NOTED SIM. REFER TO DETAILS SHOWING HEAD, JAMB, AND/OR SILL DETAILS THAT REPRESENT CONDITIONS SIMILAR TO THOSE NOTED. REFER TO PLAN FOR DOOR HANDEDNESS AND SWING DIRECTION.
- 6. ALL DOORS TO BE PLACED IN EXISTING OPENING SHALL BE FIELD VERIFIED TO ASSURE PROPER SIZE AND FRAME TYPE. PROPER SIZING AND FIX OF THESE DOORS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 1. REFER TO SPECIFICATIONS FOR HARDWARE SETS

DOOR ALTERNATES

- 1. SEE DOOR SCHEDULE FOR A NUMBER OF EXISTING DOORS WITH LOCKSETS SCHEDULED TO REMAIN. THESE DOORS SHALL HAVE NEW LOCKSETS INSTALLED AS PER ALTERNATE.
- 2. FOR KITCHEN DEDUCT ALTERNATE: NO PROJECT SCOPE AT DOORS #114.1, #117.1, #119.1 AND #120.1 -EXISTING DOORS TO REMAIN.





SAFETY GLAZING REQUIREMENTS

DOOR AND WINDOW SCHEDULE ABBREVIATIONS AND NOTES

(REFER TO SPECIFICATIONS FOR ADDITIONAL DOOR INFORMATION)

DOOR & WINDOW SCHEDULE ABBREVIATIONS

= ALUMINUM AL GL = ALUMINUM AND GLASS

= ANODIZED FINISH ANOD

= BRASS FINISH = BRONZE FINSH

= EXISTING

= FACTORY FINISH = FIBERGLASS

= PROVIDE $\frac{1}{2}$ " - $\frac{3}{4}$ " UNDERCUT

= GALYANIZED HOLLOW METAL

= GALYANIZED INSULATED METAL = GLASS GL

GS = GALYANIZED STEEL

GYP = GYPSUM BOARD HCHWD = HOLLOW CORE - HARDWOOD VENEER

HCWD = HOLLOW CORE - WOOD = HOLLOW CORE - PAINT-GRADE VENEER

= HOLLOW METAL

= INSULATED HOLLOW METAL = PLASTIC LAMINATE CLAD

= LOUVERED

= SYNTHETIC/MARBLE THRESHOLD MTL = METAL

= NATURAL FINISHED WOODWORK PLANK = TUBULAR ALUM. FORMED - PANEL DOOR

DOOR LABEL DESIGNATIONS

U.L. LABEL MIN. OPENING PROTECTIVES

90 MINUTE FIRE RATING

60 MINUTE FIRE RATING

45 MINUTE FIRE RATING 20 MINUTE FIRE RATING

SMOKE RATING DOOR/FRAME ASSEMBLY

DOOR SCHEDULE ABBREVIATIONS - CONT. PTD = PAINTED

= PRE-FINISHED/FACTORY FINISHED = RUBBER TRANSITION STRIP

= SOLID CORE - PAINT-GRADE VENEER SCWD = SOLID CORE - WOOD

= SOLID CORE - HARDWOOD YENEER STL = STEEL

STN = STONE THRESHOLD

= VINYL = HARDWOOD

WINDOW SCHEDULE OPERATION

<u>ABBREVIATIONS</u> = FIXED

= SLIDING OPERATION SLI

= AWNING OPERATION (W/ INSECT SCREEN)

= SINGLE-HUNG (W/ INSECT SCREEN)

= AWNING BELOW FIXED WINDOW (REF. ELEVATIONS)

GLAZING LEGEND

1/4" TEMPERED

1" INSULATED w/ LOW E

45-MIN. - FIRE RATED GLAZING IN 45-MIN. DOOR (1-HR FIRE SEPARATION)

EXISTING TO REMAIN

FINISH NOTES:

- ALL NEW AND EXISTING CONSTRUCTION SHALL BE PAINTED, U.N.O.
- 2. PATCH AND REPAIR CEILINGS AND WALLS AS
- REQUIRED OF DEMOLITION AND CUT-AN-PATCH REQUIREMENTS AT LOCATIONS DUE TO INSTALLATION OF NEW DUCTWORK, ELECTRICAL AND/OR OTHER WORK.
- 3. AT NEW FLOORING LOCATIONS PROVIDE TRANSITION STRIPS AS REQUIRED.
- 4. REPAIR AND/OR PATCH FLOORING AND WALLS IN AREAS OF DEMOLITION TO CLOSELY MATCH EXISTING AT ALL AREAS OF WORK.
- 5. REPAIR EXISTING FLOORING AS REQUIRED OF THE FINISH SCHEDULE, PATCH EX. HARDWOOD FLOORING WITH NEW HARDWOOD TO MATCH WHERE HARDWOOD SCHEDULED TO REMAIN. PATCH WITH PLYWOOD WHERE SCHEDULED FLOORING IS RESILIENT.
- WHERE EXISTING HARDWOOD FLOORING IS BEING EXPOSED AFTER REMOVAL OF CARPET - THE HARDWOOD MAY NEED TO BE SANDED AND SEALED TO CONFORM TO THE FINISH SCHEDULE.

GENERAL NOTES:

- VERIFY ALL FINISHES WITH OWNER BEFORE PURCHASING OR INSTALLING.
- 2. SEE SPECIFICATIONS FOR ALL FINISHES.
- 3. REFER TO INTERIOR ELEVATIONS FOR EXTENT OF WALL FINISHES

DOOR AND FRAME SCHEDULE

		Ω	OOR	2		FF	RAME	=									
OPEN	ling	Щ. Э	7			£Υ	1			DETAIL	<u>-</u> S			2LD	岀	SET	
NO.	DOOR SIZE	TYPE/ELEV	MATERIAL	FINI5H	GLA55	TYPE/ELEV	MATERIAL	HSINI#	GLA55	HEAD	JAMB I	JAMB 2	SILL / THRESH,	THRESHOLD	UL. LABEL	HDWR. 9	REMARKS
(101.1)	Existing Door Leaf	E×	WD/GL	Ε×	Ε×	E×	WD.	PTD	E×	Ε×	E×	E×	E×	E×	-	Set *××	Ex. door/frame - install new hardware
(102.1)	Existing Door Leaf	E×	WD/GL	PTD	Ε×	E×	ΕX	PTD	E×	E×	EX	E×	EX	Ε×	-	Set *XX	Ex. door/frame - install new hardware
(103.1)	3'-8"x6'-8" NOM.	5	LYR	<u>1</u>	•	٨	Ē	PTD	•	*4/A7.1 SIM	*4/A7.I	*4/A7.1	•	N	-	Set * 7	New vented bi-fold door
(104.1)	3'-0"x6'-8" NOM.	1	SCWD	<u>च</u>	•	٨	Ē	PTD	-	*8/A7.I	#T/A7.1	*8/A7.I	-	CT	-	Set *2	New door in enlarged opening, provide transition to 0
(105.1)	3'-0"x6'-8" NOM.	2	SCWD	PTD	u L-	A	₽	PTD	-	* 8/∆7.I	#7/A7.1	*8/A7.I	-	N	-	Set *3	New door in enlarged opening
(106a.l)	3'-0"x6'-8" NOM.	5	LYR	<u>d</u>	•	٨	Ę	PTD	-	*4/A7.1 SIM	*4/AT.I	*4/A7.1	•	N	-	Set * 7	New vented bi-fold door
(I.FQI)	3'-0"x6'-8" NOM.	2	SCWD	<u>च</u>	GL-I	٨	Ē	PTD	-	*8/A7. I	#T/AT.I	*8/A7.I	=	N	-	Set *3	-
(1.60)	3'-0"x6'-8" NOM.	2	SCWD	PTD	GL-1	А	Ē	PTD	-	* 8/A7.I	#T/A7.I	* 8/A7.I	-	N	-	Set *3	-
(110.1)	3'-0"x6'-8" NOM.	4	FG	#	GL-I	W	Ē	PTD	-	#11/A7.1	#10/A7.1	#11/A71	1.FA\ 6*	Y	-	5et #	New Exterior door w/ panic hardware
(111.1)	3'-0"x6'-8" NOM.	1	SCWD	<u>d</u>	-	n	Ē	PTD	GL-1	*8/A7. I	*8/A7.I	*8/A7.I	-	N	-	Set *3	New door with side-lite
(111.2)	3'-0"x6'-8" NOM.	1	FG	#	GL-I	Δ	Ē	PTD	-	* 3/A7.1	#10/A7.1	*10/A7.1	*3/A5.2	Y	-	Set #1	New Exterior door w/ panic hardware
(113.1)	3'-0"x6'-8" NOM.	1	SCWD	Q	-	A	Ē	PTD	-	* 8/A7.1	#T/AT.I	*8/A7.I	-	N	-	Set #5	-
(114.1)	3'-0"x6'-8" NOM.	3	SCWD	PTD	GL-I	Δ	Ē	PTD	-	* 8/A7.I	#T/AT.I	*8/A7. I	-	Υ	-	Set *3	-
(115.1)	3'-0"x6'-8" NOM.	3	SCWD	PTD	GL-I	EX-A	Ē	PTD	-	E×	EX	E×	EX	۲	-	Set *3	New door and hardware in Existing Frame
(115.2)	3'-0"x6'-8" NOM.	3	SCWD	PTD	GL-I	E×-A	Ē	PTD	-	E×	EX	E×	EX	Υ	-	Set *3	New door and hardware in Existing Frame
(116.1)	2'-10"x6'-8" NOM.	2	SCWD	PTD	GL-I	A	Ē	PTD	-	*8/A7.1 SIM	#7/A7.1 SIM	*8/AT.I SIM	-	N	-	Set #14	Modify frame/trim as req' to set in narrow hall opening.
(I,TII)	2'-0"x6'-8" NOM.	1	SCWD	PTD	-	Α	Ē	PTD	-	* 8/A7.1	#T/AT.I	*8/AT.I	-	N	-	Set #5	-
(1.81)	Existing Door Leaf	EX	E D	<u>च</u>	•	ΕX	Ē	PTD	-	EX	E×	E×	EX	Υ	-	Set #5	Existing door to remain
(1.011)	2'-6"x6'-8" NOM.	1	SCWD	<u>च</u>	-	٨	Ē	PTD	-	*8/A7.I	*8/AT.I	*8/A7.I	=	Y	-	Set #5	-
(120.1)	3'-0"x6'-8" NOM.	1	SCWD	d d	•	A	Ē	PTD	•	*8/A7. I	*8/AT.I	*8/A7.I	•	Y	-	Set *6	-
(121.1)	3'-0"x6'-8" NOM.	2	SCWD	PTD	GL-I	Α	Ē	PTD	-	* 8/A7.I	#T/AT.1	*8/AT.I	-	N	-	Set *3	-
(121.2)	2'-4"x6'-8" NOM.	1	SCWD	PTD	-	A	Ð	PTD	-	*8/AT.I	#T/AT.1	*8/AT.I	-	N	-	Set #5	-
(122.1)	3'-0"x6'-8" NOM.	2	SCWD	PTD	GL-I	Α	Ē	PTD	-	* 8/A7.I	*8/A7.I	*8/AT.I	-	N	-	Set #5	-
(122.2)	Existing Door Leaf	E×	WD	PTD	-	EX-A	ΕX	PTD	-	E×	E×	E×	EX	Ε×	-	Set #5	Existing door to remain
(123.1)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	E×	E×	E×	EX	Ε×	-	-	Existing door w/ panic hardware to remain
(123.2)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	E×	EX	EX	EX	Ε×	-	-	Existing door w/ panic hardware to remain
(124.1)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	Ε×	EX	E×	E×	EΧ	-	-	Existing door to remain
(125.1)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	Ε×	EX	EX	EX	EΧ	-	-	Existing door to remain
(126.1)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	Ε×	E×	E×	E×	EΧ	-	-	Existing door to remain
(127.1)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	Ε×	EX	EX	EX	EΧ	-	-	Existing door to remain
(128.1)	Existing Door Leaf	E×	WD	PTD	-	EX-A	Ē	PTD.	-	Ε×	E×	E×	E×	E×	-	-	Existing door to remain
		1															

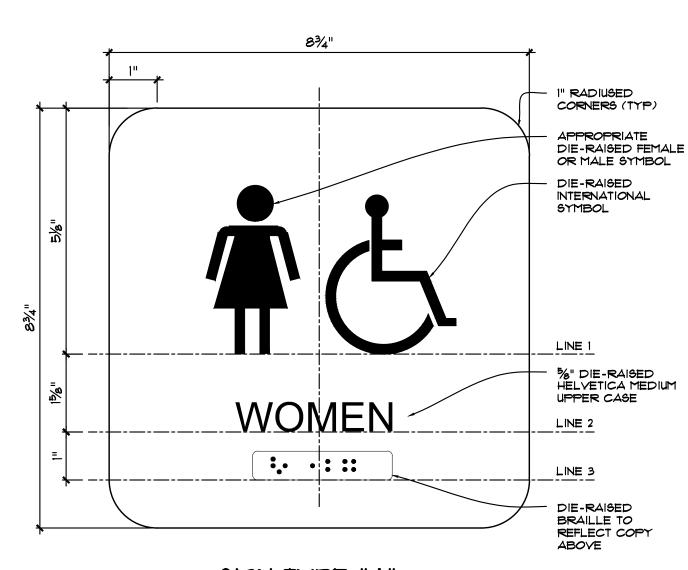
Door Schedule

<u>SIGNAGE NOTES:</u>

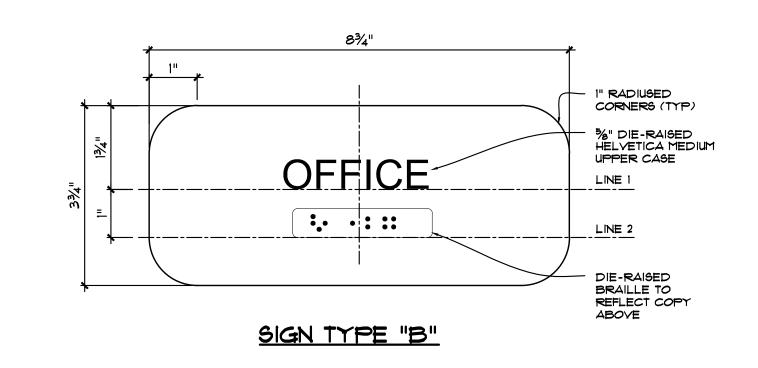
PROVIDE APPROPRIATE SIGNAGE AT ALL TOILET ROOMS, OFFICES AND MEETING ROOMS, AS REQUIRED BY APPLICABLE BARRIER-FREE CODES

2. REFER TO SPECIFICATION FOR MOUNTING METHODS, TYPES, AND TYPICAL INSTALLATION

3. REFER TO SHEET A6.4 FOR TYPICAL MOUNTING CONFIGURATIONS AT DOORS, HALLWAYS, AND CORRIDORS.



SIGN TYPE "A"

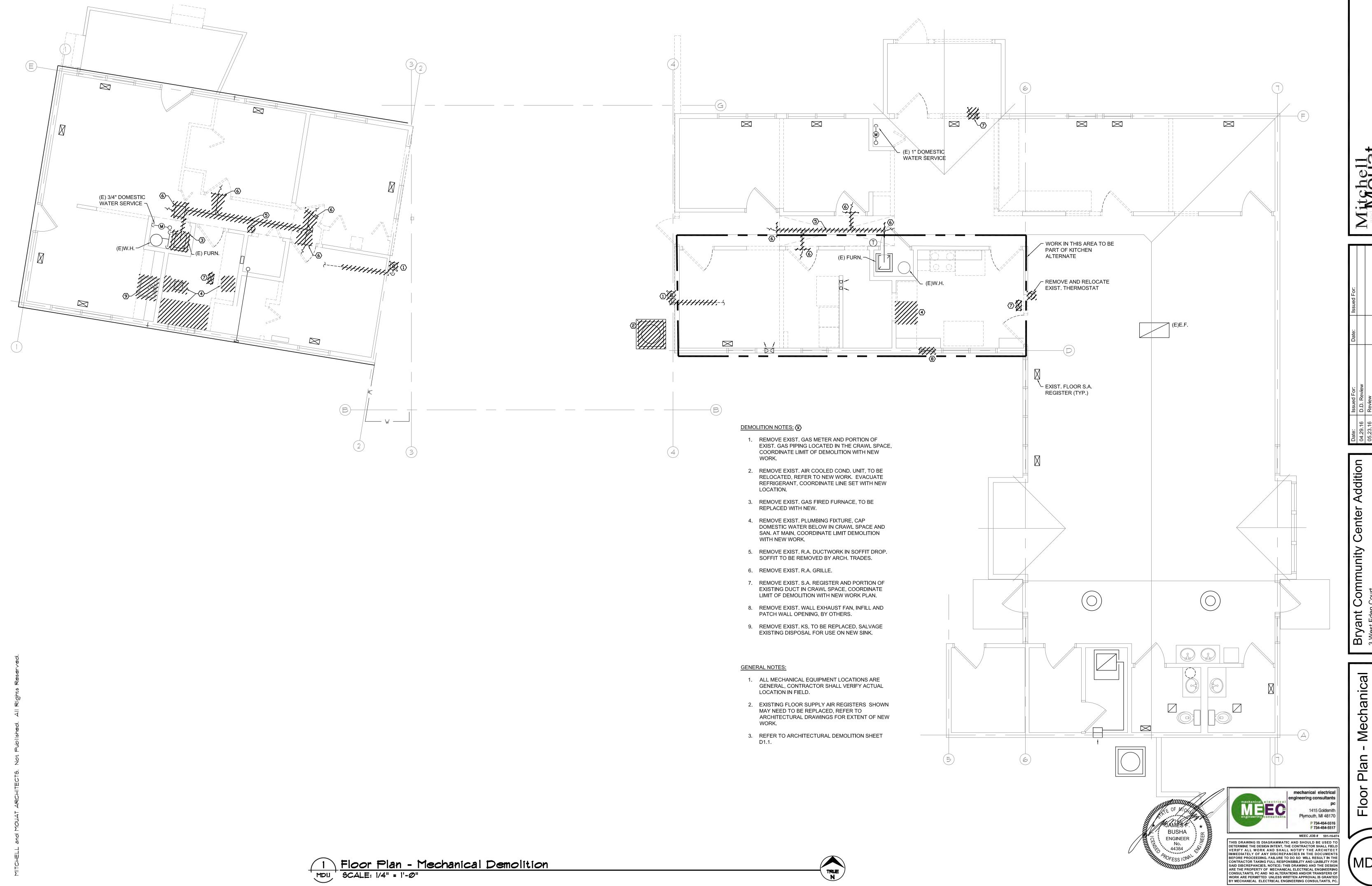


Mitchell Modal

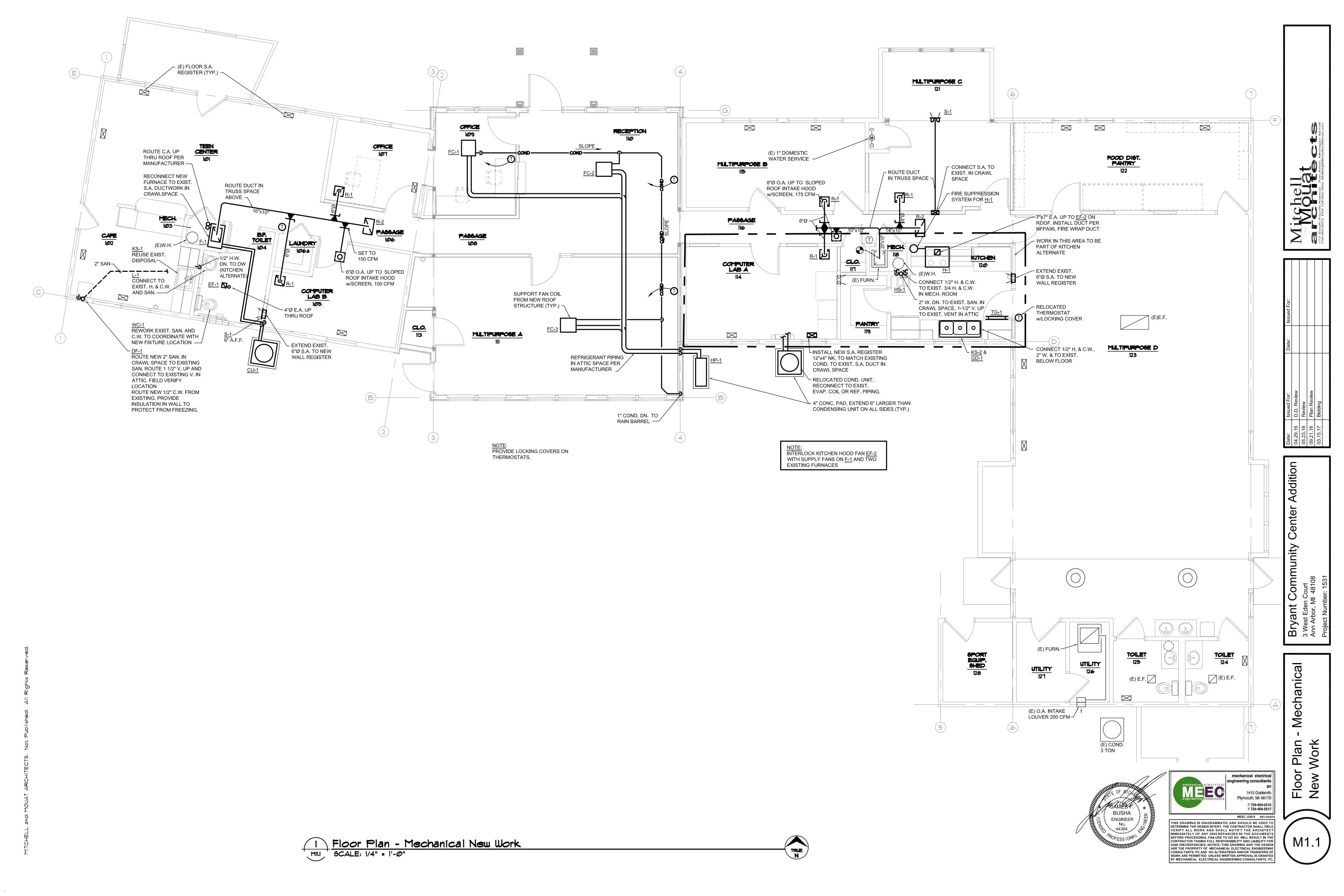
16 17 7 13. Date: 02.22. 03.21. 04.01. 04.18.

Community

Windo and edule 00r ch



Floor Plan -Demolition



M2	.1

			F	PLUMBING FIXTURE SCHE	DUL	E			
MARK	ITEM	ADA	DESCRIPTION	ACCESSORIES	PIPE	CONNE	CTION	SIZES	NOTES
IV/ U CI C	11 210	,,,,,,,	DECOMM HON	AGGEGGAMEG	W	V	CW	HW	NOTES
WC-1	FLOOR MOUNTED TANK TYPE WATER CLOSET	Х	Mansfield Summit Elongated ADA 1.6 Gpf Two Piece Tank Type Toilet Model 384/386 Right Height 16-3/4" high Low Consumption Two Piece Tank Toilet #2002.014	Seat: Bemis 3155SSCT Supply: McGuire #H172BV Flange 1/4 turn angle valve	4"	2"	1/2"		2
L-1	WALL MOUNTED LAVATORY		American Standard 'Missouri' #0436.004US	Faucet: American Standard #7385.004VA.002 Aerator: American Standard #V05 Drain: McGuire #155A Supply: McGuire #H170BV-LR 1/4 turn p-Trap: McGuire #8872C-17T 1-1/2" Chrome Plated Brass Carrier: Jay R. Smith #0700-Z	1-1/2"	1-1/2"	1/2"	1/2"	1
KS-1	KITCHEN SINK		Elkay #LARD2522 with Elkay #LKD2439BH two lever faucet, 8" tubular swing-spout aerator, 3/8" O.D. copper tube inlets, 3-hole installation	3-1/2" drain outlet, stainless steel body, conical strainer plate with moveable lift knob, neoprene stopper, c.p. brass 1-1/2" O.D. tailpiece (per compartment)	2"	2"	1/2"	1/2"	
KS-2	3-COMP. KITCHEN SINK		Elkay #E3C16X20-0X	3-1/2" drain outlets, stainless steel body, conical strainer plate with moveable lift knob, neoprene stopper, c.p. brass 1-1/2" O.D. tailpiece (per compartment)	2"	1-1/2"	1/2"	1/2"	
HS-1	HAND SINK		Elkay #EHS-14X	Stainless Steel Wall Hung Hand Sink with Dual Handle Gooseneck Faucet	2"	1-1/2"	1/2"	1/2"	
GD-1	GARBAGE DISPOSER		InSinkErator Evolution "PRO ES" Series	3/4 hp,110V. 8.1 Amps Auto Reverse	1-1/2"				
DF-1	DRINKING FOUNTAIN		Elkay #ECDFPW314C		1-1/2"	1-1/2"	1/2"		

APPROVED PLUMBING FIXTURE MANUFACTURERS: AMERICAN STANDARD, MANSFIELD, CRANE, TOTO, ELKAY, KOHLER, ZURN, FIAT, FLORESTONE, MUSTEE. APPROVED PLUMBING HARDWARE MANUFACTURERS: MOAN, AMERICAN STANDARD, DELTA, KOHLER, CHICAGO, SLOAN, ZURN, TOTO.

(FIXTURES TO BE INSTALLED IN ACCORDANCE WITH ADA REQUIREMENTS)

NOTES: 1. PROVIDE PLASTIC TYPE PIPE COVERS EQUAL TO TRUEBRO "LAV GUARD" ON ALL ACCESSIBLE LAVATORIES AND SINKS. 2. ALL TANK TYPE WATER CLOSETS SHALL BE ORDERED WITH HANDLES ON THE OPEN SIDE (ADJACENT TO THE LAVATORY) PER CODE.

				KI ⁻	TCHEN H	HOOD S	CHEDUL	.E
MARK	MANUFACTURER	MODEL	L x W x H (IN.)	EXHAUST CFM	E.S.P.	CONN. SIZE (IN.) + QTY.	FILTER QTY. & SIZE	NOTES
H-1	GREENHECK	GHEW	3'-0" x 2'-6" x 24"	500	0.42"	7"x7"	20"x16"	1 - 7

- NOTES:
 1. RIGHT AND LEFT END SKIRTS.
 2. 430 S.S. WHERE EXPOSED.
- LIGHTS. 4. ALUMINUM BAFFLE FILTERS.
- 5. FIRE SUPPRESSION SYSTEM. 6. HEAT SENSOR TO ACTIVATE VENTILATION SYSTEM.
- 7. U.L. LISTED.

	DUCTWORK APPLICATION SCHEDU	LE
AIR SYSTEM	<u>MATERIAL</u>	DESIGN PRESSURE CLASSIFICATION (INCHED, WG)
SUPPLY AIR UPSTREAM OF AIR TERMINAL UNITS	GALVANIZED STEEL, INSULATED IN ATTIC & CRAWL SPACE	+ 2
TOILET ROOM EXHAUST, JANITOR'S CLOSET EXHAUST	GALVANIZED STEEL	- 2
RETURN AIR	GALVANIZED STEEL, INSULATED IN ATTIC	- 2
OUTSIDE AIR INTAKE DUCTWORK	GALVANIZED STEEL, INSULATED IN CONDITIONED SPACE	- 6
KITCHEN HOOD EXHAUST DUCTWORK	16GA WELDED BLACK IRON, 18GA WELDED STAINLESS STEEL WHERE EXPOSED, PER NFPA96	
* PITCH DUCTWORK TO LOW POINTS AS INDICATED ON THE DRAWINGS		

* PITCH DUCTWORK TO LOW POINTS AS INDICATED ON THE DRAWINGS.

	EXHAUST FAN SCHEDULE												
MARK	MANUFACTURER	MODEL NUMBER	AREA SERVED	LOCATION	AIRFLOW (CFM)	EXTERNAL S.P.	FAN (RPM)	FAN (BHP)	FAN (HP)	ELECTRICAL	NOTES		
EF-1	GREENHECK	SP-A90	TOILET	CEILING	75	0.2"	900	-	-	115/1/60	1, 3, 4, 9		
EF-2	GREENHECK	CUBE-098-4	H-1	ROOF	500	0.5"	1410	0.12	1/4	115/1/60	1, 2, 5 - 8		
		CK ACME COOK PE		ROOF	500	0.5"	1410	0.12	1/4	115/1/60	1, 2, 5		

(APPROVED EQUAL: GREENHECK, ACME, COOK, PENN VENTILATOR)

NOTES:

1. FAN SHALL HAVE AMCA SEAL & BE U.L. CERTIFIED. 2. FAN SHALL HAVE ALUMINUM BIRD SCREEN.

SAFETY DISCONNECT SWITCH.
 PROVIDE DUCT MOUNTED GRAVITY BACKDRAFT DAMPER.
 SLOPED ROOF CURB.

6. U.L. 762. 7. GREASE CUP.

8. HINGED CURB CAP.

9. SLOPED ROOF DISCHARGE CAP.

	DUCTLESS SPLIT HEAT PUMP SCHEDULE														
MARK	MANUFACTURER	MODEL NUMBER	MOUNTING TYPE	OUTDOOR AIR (CFM)	TOTAL COOLING	TOTAL HEATING	SUPPI	_Y AIRFLOW	(CFM)	ELECTRICAL DATA	NOTES				
				(OI W)	(BTUH)	(BTUH)	HIGH	MEDIUM	LOW	VOLTAGE / PHASE					
FC-1	DIAKIN	FXZQ09MVJU9	CONCEALED CEILING UNIT	0	4,500	11,100	320	-	250	208/230V / 1Ø	1 - 5				
FC-2	DIAKIN	FXZQ18MVJU9	CONCEALED CEILING UNIT	0	18,000	21,000	445	-	350	208/230V / 1Ø	1 - 5				
FC-3	DIAKIN	FXZQ24TVJU	CONCEALED CEILING UNIT	0	24,000	27,000	780	620	470	208/230V / 1Ø	1 - 5				

(APPROVED EQUAL: FUJITSU, MITSUBISHI, EMI, CARRIER)

NOTES:
1. PROVIDE 24V PROGRAMMABLE WALL THERMOSTAT.
2. OUTDOOR UNIT RXTQ60TAVJU, 208/1, MCA - 29.7 MOCP - 35.

3. CONDENSATE PUMP.

4. REFRIGERANT PIPING TO BE SIZED BY THE EQUIPMENT MANUFACTURER.

5 PROVIDE R410 REFRIGERANT.

	GRILLES REGISTERS AND DIFFUSERS SCHEDULE												
MARK	MANUFACTURER	MODEL NUMBER	NECK SIZE	DIFFUSER SIZE	FINISH	MOUNTING TYPE	CONSTRUCTION	ACCESSORY	NOTES				
R-1	PRICE	535	10"x10"	12"x12"	WHITE	SURFACE	STEEL	-	1				
R-2	PRICE	535	20"x10"	22"x12"	WHITE	SURFACE	STEEL	-	1				
S-1	PRICE	520D	8"x6"	10"x8"	WHITE	SURFACE	STEEL	O.B.D.	•				
TG-1	PRICE	HTGH	28"x14"	28"x14"	MILL	DOOR	ALUMINUM	-	-				

(APPROVED EQUAL: TITUS, PRICE)

NOTES:

1. REFER TO REFLECTED CEILING PLAN FOR LOCATIONS. PROVIDE ALL ACCESSORIES NEEDED TO PROPERLY MOUNT DEVICES. 2. 1/2"x1/2"x1/2" ALUMINUM EGGCRATE GRID.

	CONDENSING UNIT SCHEDULE																	
				COMPRESSORS							IDENSI	ER FAN	ELECTRICAL					
MARK	MANUFACTURER	MODEL NUMBER	SYSTEM SERVED	NUMBER	TYPE	CAPACITY (COMP-1)	R.L.A. (COMP-1)	CAPACITY (COMP-2)	R.L.A. (COMP-2)	#	HP (EA)	F.L.A. (EA)	VOLTS / PHASE	M.C.A.	МОСР	SEER	WEIGHT	NOTES:
CU-1	TRANE	4TTB3024	-	1	SCROLL	24,000	13.5	-	-	1	1/8	0.9	230/1	18	30	13	130	1 - 5

(APPROVED EQUAL: TRANE, CARRIER, YORK, LENNOX)

NOTES:

1. DATA BASED ON 95°F AMBIENT AIR.

2. CONCRETE SUPPORT PAD.

٥.	O.L. LISTED
4.	LIQUID LINE FILTER/DRYER.
5.	410A REFRIGERANT

	FURNACE SCHEDULE															
MARK	MANUFACTURER	MODEL NUMBER	UNIT AIR ELOW AIRELOW E.S.P.	ELECT	RICAL DATA	NOTES:										
WARK	WANDI ACTONEK	WODEL NOWBER	TYPE	(CFM)	(CFM)	(IN)	COIL TYPE	SIZE (TONS)	REFRIGERANT	TYPE	INPUT (MBH)	OUTPUT (MBH)	AFUE	FAN (HP)	VOLTS/PH/HZ	NOTES.
F-1	TRANE	TDH1B040A9241A	DNFLOW	800	150	0.5	A-COIL	2	R-410	NATURAL	40	38	95%	1/5	120/1/60	1, 2, 3, 4, 5

(APPROVED EQUAL: TRANE, CARRIER, LENNOX, ARMSTRONG)

NOTES:

1. PROVIDE 1" THICK PLEATED FILTER RACK AND FILTER.

2. UNIT SHALL HAVE ELECTRIC IGNITION (NO STANDING PILOT) 3. PROVIDE 7-DAY AUTOMATIC CHANGEOVER PROGRAMMABLE THERMOSTAT WITH SUB-BASE.

4. UNIT SHALL BE U.L. LISTED AND A.G.A. CERTIFIED. 5. COOLING COIL CASING SHALL BE INSULATED AND DRAINED TO NEAREST FLOOR DRAIN.

> BUSHA ENGINEER No.



2. CONTRACTOR SHALL PRESENT CERTIFICATE TO THE OWNER THAT ALL APPLICABLE BUILDING PERMITS HAVE BEEN SECURED PRIOR TO STARTING ANY WORK, AND PROVIDE THE OWNER WITH ALL REQUIRED CERTIFICATES OF FINAL APPROVAL FROM THE GOVERNING JURISDICTIONS AT COMPLETION OF THE WORK. PROVIDE ALL SHOP DRAWINGS AS REQUIRED IN FOLLOWING SECTIONS.

3. MAKE ALL CONNECTIONS TO EXISTING SYSTEMS DURING DESIGNATED PERIODS UPON APPROVAL OF THE OWNER AND AT NO INCREASE IN CONTRACT SUM.

4. EXISTING FACILITIES:

- A. DO NOT INTERRUPT EXISTING UTILITIES UTILIZED BY THE OWNER EXCEPT AS SPECIFIED OR WHEN APPROVED IN WRITING, AND THEN ONLY AFTER TEMPORARY UTILITY SERVICES HAVE BEEN APPROVED AND PROVIDED. INTERRUPTIONS MUST BE SCHEDULED TO SUIT THE OWNER'S REQUIREMENTS.
- B. VERIFY ALL EXISTING WORK, WHERE EXISTING CONNECTIONS ARE PARTIAL, PROVIDE ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO MODIFY EXISTING WORK. IN ADDITION, MAINTAIN INTEGRITY OF THE EXISTING SYSTEMS. RECTIFY ANY CONTAMINATION, DEGRADATION OF CLEANLINESS OR DAMAGE TO THE EXISTING SYSTEMS TO THE SATISFACTION OF THE OWNER. PROVIDE ALL WORK SO REQUIRED AT NO INCREASE IN THE CONTRACTOR'S ORIGINAL PROPOSAL.
- 5. COORDINATE EXACT LOCATION OF CONSTRUCTION TO PRECLUDE ANY INTERFERENCES BETWEEN PIPING, WIRING, LIGHTING FIXTURES, DUCTWORK, BUILDING EQUIPMENT, PROCESS EQUIPMENT AND OTHER CONSTRUCTION.
- 6. PROVIDE LABOR, INCLUDING FIELD ERECTION AND SUPERVISION, MATERIALS, EQUIPMENT AND ANCILLARIES, AND COORDINATE, PROCURE, FABRICATE, DELIVER, ERECT OR INSTALL, INTERFACE WITH EXISTING WORK, START, DEBUG AND TEST ALL SYSTEMS AS NECESSARY TO PROVIDE THE OWNER WITH A COMPLETE, OPERATING FACILITY IN CONFORMANCE WITH THE CONSTRUCTION BID DOCUMENTS.
- 7. ALL CUTTING AND PATCHING THAT MAY BE NECESSARY FOR THE INSTALLATION OF THE MECHANICAL CONTRACTOR'S WORK SHALL BE PERFORMED AND REPAIRED BY THE TRADE WHOM NORMALLY PERFORMS THAT WORK AND PAID FOR BY THE MECHANICAL CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE PERFORMED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT BEING PREVIOUSLY OBTAINED.
- 8. THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO FAMILIARIZE HIMSELF WITH THE ACTUAL PROJECT CONDITIONS AND TO CHECK FOR ANY INTERFERENCES BETWEEN HIS WORK AND THAT OF THE OTHER TRADES, AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE CODES, LAWS, ORDINANCES AND REGULATIONS. SHOULD ANY VIOLATIONS OR INTERFERENCES APPEAR AND DEPARTURE FROM THE DESIGN INTENT OF THE CONTRACT DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO A CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFOREMENTIONED NOTIFICATION SHALL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE INTENT OF THE CONTRACT DOCUMENTS WITH NO ADDITIONAL EXPENSES BEING INCURRED BY THE OWNER.
- 9. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATIONS AND ARRANGEMENTS OF ALL THE EQUIPMENT AND PIPING. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT. DO NOT SCALE DRAWINGS FOR EXACT MEASUREMENTS.
- 10. DEMOLITION OF MECHANICAL EQUIPMENT SHALL INCLUDE ALL EXISTING PIPING, VALVES, CONTROLS, SUPPORTS, FLUES AND EQUIPMENT WHERE SUCH ITEMS ARE NOT REQUIRED FOR THE PROPER OPERATION OF THE REVISED SYSTEM. REMOVE, RECONNECT, CAP, PLUG AND REPLACE EXISTING PIPING AND DUCTWORK.
- 11. SHOULD THE CONTRACTOR SUBMIT ANY SHOP DRAWINGS FOR REVIEW THAT VARY FROM WHAT THE CONSTRUCTION BID DOCUMENTS INDICATE, THE CONTRACTOR SHALL PAY THE ENGINEER FOR REVIEWING HIS SUBMISSION.

GENERAL NOTES: PLUMBING AND PIPING

- 1. ALL PIPING SHALL BE CONCEALED UNLESS OTHERWISE NOTED. EXPOSING OF ANY PIPING MUST HAVE APPROVAL OF THE ARCHITECT.
- 2. PROVIDE BRANCH LINE SHUT-OFF VALVES ON DOMESTIC WATER PIPING EACH PLUMBING FIXTURE.
- 3. THE PLUMBING AND PIPING SYSTEMS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL PLUMBING CODES. THE PLUMBING AND PIPING CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY FOR ALL FEES, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK. AT THE COMPLETION OF THE PROJECT, THE PLUMBING CONTRACTOR SHALL FURNISH THE OWNER WITH CERTIFICATES OF FINAL INSPECTIONS AND APPROVALS

4. PIPING SHALL BE AS FOLLOWS:

- A. SANITARY AND VENT PIPING:
- 1) ALL 1-1/2" AND LARGER WASTE AND VENT PIPING ABOVE AND BELOW GROUND SHALL BE STANDARD WEIGHT CAST IRON SOIL PIPE WITH NO-HUB FITTINGS AND HEAVY DUTY BANDS OR SCHEDULE 40 PVC PIPE & CEMENTED FITTINGS WHERE LOCAL CODE PERMITS.
- 2) RUN ALL UNDERGROUND SANITARY AND STORM PIPING 2 1/2" OR LESS AT 1/4" PER FOOT MINIMUM PITCH UNLESS NOTED OTHERWISE. SANITARY PIPING 3" OR LARGER SHALL BE PITCHED AT 1/8" PER FOOT MINIMUM UNLESS NOTED OTHERWISE.

B. DOMESTIC WATER PIPING:

- 1) ALL ABOVE GROUND DOMESTIC WATER PIPING SHALL BE TYPE "L" HARD DRAWN COPPER TUBING WITH WROUGHT COPPER OR CAST RED BRONZE FITTINGS. ALL SOLDERED FITTINGS SHALL BE MADE WITH SIL-FOS SOLDER OR AN APPROVED NON-TOXIC SOLDER. MECHANICAL TYPE FITTINGS EQUAL TO "PROPRESS" OR "APOLLO EXPRESS" ARE APPROVED IN LIEU OF SOLDERED FITTINGS.
- 2) ALL UNDERGROUND PIPING SHALL BE TYPE "K" COPPER OR PEX. PIPE FITTINGS ARE NOT ALLOWED BELOW FLOOR SLAB.
- 3) plumbing contractor has the option to Provide Aquatherm "Green Pipe" in lieu of copper and/or steel piping for all pipe sizes.
- I. Pipe shall be Polypropylene (Aquatherm) SDR 7.4 or SDR 11 based on the pressure rating and use temperature. Provide Aquatherm "Green Pipe SDR-7.4 MF"

- II. Domestic Hot Water Piping shall contain a fiber layer (MF) to restrict thermal expansion. All pipe shall comply with rated pressure requirements of ASTM F2389. All pipe shall be certified by NSF International as complying with NSF 14, NSF-61 and ASTM F2389.
- III. Fittings shall be manufactured from a PP-R resin meeting the short-term properties and long-term strength requirements of ASTM F2389. All fittings shall be certified by NSF International as complying with NSF 14, NSF 61, and ASTM
- IV. Pipe support spacing shall be in accordance with manufacturer's requirements.
- V. Installation and testing shall be done by certified installers. Test documentation shall be submitted on line to the Aquatherm.
- VI. Manufacturer shall warrant pipe and fittings for 10 years to be free of defects in materials or manufacturing. Warranty shall cover labor and material costs of repairing and/or replacing defective materials and repairing any incidental damage caused by failure of the piping system due to defects in materials or manufacturing.
- VII. Any piping located in a return air plenum shall be wrapped and/or insulated with standard pipe insulation, field installed. The pipe wrap or insulation shall meet the requirements of ASTM E84. The system shall have a Flame Spread Classification of less than 25 and Smoke Development rating of less than 50.

C. GAS PIPING:

- GAS PIPING SHALL BE SCHEDULE 40, BLACK STEEL WITH THREADED OR WELDED FITTINGS AS REQUIRED. PROVIDE SHUT-OFF COCKS ON ALL OUTLETS WHERE SHOWN.
- 2) VALVES SHALL NOT BE LOCATED IN ANY AIR PLENUM. PORTIONS OF A GAS PIPING SYSTEM INSTALLED IN CONCEALED LOCATIONS SHALL NOT HAVE UNIONS, TUBE FITTINGS, OR RUNNING THREADS.
- 3) CORRUGATED STAINLESS STEEL TUBING MAY ALSO BE USED WHERE APPROVED BY LOCAL CODE. CONTRACTOR SHALL SUPPLY COMPLETE SYSTEM DESIGN DRAWING INDICATING LAYOUT, PIPE SIZING, PRESSURE DROP CALCULATIONS AND A COPY OF THE CURRENT MANUFACTURE'S INSTALLATION GUIDE. CORRUGATED STAINLESS STEEL TUBING SHALL BE MANUFACTURED FROM ASTM A240, TYPE 304 STAINLESS STEEL WITH A MINIMUM WALL THICKNESS OF 0.010". THE SYSTEM SHALL COMPLY WITH ANSI LC-1. FITTINGS SHALL BE MANUFACTURED FROM 360 BRASS ASTM B316 AND INCORPORATE A DOUBLE WALL FLARE FOR GAS TIGHT SEAL. TUBING SHALL HAVE A UV RESISTANT POLYETHYLENE CONDUCTIVE JACKET THAT ALSO MEETS ASTM E84 FOR SMOKE AND FLAME. TUBING SYSTEM SHALL BE INSTALLED PER LOCAL CODE BY A MANUFACTURE CERTIFIED INSTALLER.

D. REFRIGERATION PIPING:

1) ALL REFRIGERANT PIPING SHALL BE TYPE "L" HARD DRAWN COPPER TUBING WITH SILVER SOLDERED WROUGHT OR CAST PRESSURE FITTINGS. PIPING SHALL BE FACTORY CLEANED AND PROVIDED WITH END CAPS TO PREVENT ANY CONTAMINATION OF THE INSIDE.

E. VALVE

- 1) BALL VALVES SHALL BE TWO PIECE FULL PORT BRONZE BALL VALVES WITH STAINLESS STEEL TRIM, TFE SEATS WITH 316 STAINLESS STEEL BALL AND STEM. THREADED BODY PACK NUT DESIGN WITH ADJUSTABLE STEM PACKING WITH THREADED OR SOLDERED ENDS. RATED FOR 150 PSIG SWP AND 600 PSIG CWP.
- CHECK VALVES SHALL BE SWING CHECK WITH BRONZE DISC, CLASS 150, ASTM B62. Y PATTERN DESIGN WITH THREADED OR SOLDERED ENDS. RATED FOR 300 PSIG CWP.
- 3) GATE VALVES SHALL BE CLASS 150 RISING STEM WITH BRONZE BODY, WEDGE AND BONNET. COPPER-SILICONE BRONZE STEM, SCREW IN BONNET WITH THREADED ENDS. RATED FOR 300 PSIG CWP.
- 4) GAS VALVE SHALL BE LUBRICATED TYPE CAST IRON OR U.L. LISTED TWO-PIECE BRONZE BALL VALVE WITH RPTFE SEALS AND SEAT.

F. PIPING INSULATION:

- 1) DOMESTIC HOT, COLD & HOT WATER RETURN WATER PIPING SHALL BE INSULATED WITH MINIMUM 1" THICK FIBERGLASS INSULATION, WITH A FIRE RETARDANT JACKET, HAVING AN AVERAGE R VALUE OF 3.45. COLD WATER PIPING INSULATION SHALL BE PROVIDED WITH A VAPOR BARRIER. PROVIDE PREFORMED SECTIONS WITH PVC COVERS AT ALL FITTINGS.
- 2) REFRIGERANT PIPING AND FITTINGS SHALL BE INSULATED WITH A MINIMUM 1/2" THICK CLOSED CELL ELASTOMERIC THERMAL INSULATION WITH A BUILT IN VAPOR BARRIER.
- 3) PIPE INSULATION SHALL HAVE A FLAME SPREAD AND SMOKE DENSITY RATING NOT EXCEEDING 25/50, AS TESTED PER ASTM STANDARD E-84.
- 5. PIPING SHALL BE SUPPORTED FROM HANGERS AT AN ADEQUATE DISTANCE WITH SUPPORTING HANGER RODS FASTENED TO THE BUILDING FRAMING WHENEVER POSSIBLE.
- ISOLATE PIPING AND EQUIPMENT FROM THE BUILDING STRUCTURE WITH INSULATING HANGERS AND FITTINGS AS REQUIRED TO PREVENT GALVANIC CORROSION OF THE BUILDING PIPING SYSTEMS.
- 7. ALL SERVICES SHALL BE PROPERLY SLEEVED WHEN ROUTED THROUGH FLOORS AND WALLS. CONTRACTOR TO PROVIDE FIRE RESISTANT ROPE PACKING FOR ALL PIPES PENETRATING FIRE RATED WALLS. CONTRACTOR SHALL OBTAIN A COPY OF THE ARCHITECTURAL DRAWINGS TO IDENTIFY FIRE RATED WALLS. CONTRACTOR SHALL PROVIDE A WEATHERPROOF SEAL FOR PIPING PENETRATING EXTERIOR WALLS AND SHALL PROVIDE A WATER TIGHT SEAL, SIMILAR TO "LINK SEAL", FOR ALL PIPING PENETRATING BASEMENT WALLS.
- 8. FURNISH AND INSTALL ISOLATION VALVES AT ALL SERVICE POINTS OR EQUIPMENT CONNECTIONS. PROVIDE VACUUM BREAKERS AND ANTI-SIPHON FITTINGS ON WATER PIPING SYSTEMS BEFORE EQUIPMENT CONNECTIONS, AND AT ALL HOSE END SPIGOTS AND HOSE CONNECTIONS, ETC. INSTALL REDUCED PRESSURE BACKFLOW PREVENTERS ON ALL MAKE-UP WATER LINES TO MECHANICAL EQUIPMENT AND ON BUILDING DOMESTIC WATER SERVICE WHERE LOCAL CODE REQUIRES. THE INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH LOCAL CODES AND/OR AUTHORITIES FOR THE PROTECTION OF THE WATER SUPPLY SYSTEM. INSTALL STRAINER UP STREAM OF REDUCED PRESSURE BACKFLOW PREVENTER.

9. CLEANING OF WATER PIPING

- A. BEFORE BEING PLACED IN SERVICE, ALL NEW DOMESTIC WATER DISTRIBUTION LINES SHALL BE CHLORINATED. AFTER THE PRESSURE TEST, AND BEFORE CHLORINATION, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED BY A THOROUGH FLUSHING WITH CLEAN POTABLE WATER THROUGH THE LINES, DISCHARGING THE FLOW FROM THE END OF THE LINES UNTIL DIRTY WATER DOES NOT APPEAR AT THE POINTS OF OUTLET.
- B. THE SYSTEM SHALL BE THOROUGHLY STERILIZED USING THE PROCEDURE REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.

- 10. THE PLUMBING AND PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PITCH OF PIPE FOR DRAINAGE AND AIR VENTING OF PIPING SYSTEMS AND SHALL PROVIDE DRAINS TO RECEIVE THE PIPING SYSTEMS CONTENTS OF INDIRECT WASTE AND CONDENSATE DRAINAGE FROM ALL MECHANICAL DRAINS.
- 11. THE PLUMBING AND PIPING CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND PROVIDE ROUGH-INS FOR ALL EQUIPMENT FURNISHED BY OTHER CONTRACTORS. AFTER ALL EQUIPMENT HAS BEEN INSTALLED BY OTHER CONTRACTORS, THE PLUMBING AND PIPING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS AND SHALL INCLUDE IN HIS BASE BID ALL VALVES, UNIONS, COUPLINGS, VACUUM BREAKERS, ETC., THAT ARE REQUIRED TO MAKE FINAL CONNECTIONS.
- 12. THE PLUMBING AND PIPING CONTRACTOR SHALL OBTAIN OTHER TRADES DRAWINGS AND COORDINATE HIS WORK WITH THE TOTAL PROJECT AS IT RELATES TO ALL TRADES AND VISIT THE PROJECT SITE PRIOR TO SUBMITTING HIS BID TO FAMILIARIZE HIMSELF WITH THE ACTUAL PROJECT CONDITIONS AND TO CHECK FOR ANY INTERFERENCES BETWEEN HIS SCOPE OF WORK AND THAT OF THE OTHER TRADES, AND/OR ANY APPARENT VIOLATIONS OF LOCAL OR STATE BUILDING CODES, LAWS, ORDINANCES, AND REGULATIONS. IF ANY INTERFERENCES OR VIOLATIONS APPEAR AND DEPARTURE FROM THE INITIAL DESIGN INTENT OF THE CONSTRUCTION BID DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO A CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFOREMENTIONED NOTIFICATION SHALL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE INTENT OF THE CONSTRUCTION BID DOCUMENTS WITH NO ADDITIONAL COSTS BEING INCURRED BY THE OWNER.
- 13. THE CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT FURNISHED BY THIS CONTRACTOR WITH THE ELECTRICAL CONTRACTOR.
- 14. FURNISH AND INSTALL AN INDIVIDUAL COMBINATION PRESSURE BALANCING AND THERMOSTATIC CONTROL VALVE THAT CONFORMS TO A.S.S.E. # 1070 WITH TEMPERED WATER PIPING CONNECTIONS FOR ALL ACCESSIBLE PLUMBING FIXTURES. SET THE VALVE FOR A MAXIMUM OF 110°F.
- 15. THE CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW PRIOR TO INSTALLATION OF ANY OF THE FOLLOWING EQUIPMENT:
- A. PLUMBING FIXTURES
- B. PLUMBING VALVES, HANGERS & ACCESSORIES.C. PLUMBING INSULATION.
- D. FLOOR DRAINS, CLEANOUTS, ETC.
- 16. THE CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER THIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER, AND SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND ANY DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE TO THE OWNER.
- 17. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF HIS EQUIPMENT AND WORK WITH OTHER BUILDING TRADES TO AVOID ANY INTERFERENCES BETWEEN HIS WORK AND THE WORK OF OTHER TRADES.
- 18. ANY CUTTING AND/OR PATCHING, THAT MAY BE REQUIRED FOR THE INSTALLATION OF THE PLUMBING AND PIPING SYSTEMS, SHALL BE PERFORMED BY THE ARCHITECTURAL TRADES AND PAID FOR BY THIS CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE PERFORMED WITHOUT WRITTEN APPROVAL OF THE ARCHITECT BEING OBTAINED.
- 19. WATER HAMMER ARRESTORS OR 15" HIGH AIR CHAMBERS SHALL BE INSTALLED ON BOTH COLD AND HOT WATER LINES. INSTALL IN AN UPRIGHT POSITION AT ALL QUICK CLOSING VALVES, SOLENOIDS, AND PLUMBING FIXTURES. MANUFACTURED WATER HAMMER ARRESTORS SHALL BE SIOUX CHIEF 650/660 SERIES PISTON TYPE LOCATED, SIZED, AND INSTALLED IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE STANDARD NO.WH201.
- 20. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL NEW PLUMBING FIXTURES.
- 21. COORDINATE ALL NEW LOCATIONS, SIZES AND ELEVATIONS OF SLEEVES THROUGH WALL SLABS AND FOUNDATIONS WITH STRUCTURAL DRAWINGS AND EXISTING FIELD CONDITIONS.
- 22. SEAL ALL PENETRATIONS THROUGH WALLS AND FLOORS AIR AND WATERTIGHT. COORDINATE LOCATIONS AND ELEVATIONS OF ALL NEW UNDERGROUND UTILITIES WITH CIVIL SITE PLANS PRIOR TO START OF CONSTRUCTION.
- 23. CONTRACTOR SHALL MAINTAIN ADEQUATE CLEARANCES (PER N.E.C.) ABOVE AND AROUND ANY NEW ELECTRICAL PANELS, EQUIPMENT AND TRANSFORMERS WHEN ROUTING OVERHEAD DOMESTIC WATER AND STORM PIPING.
- 24. FAUCETS AND PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AND COMPLY WITH THE STATE ENERGY STANDARDS.

GENERAL NOTES: HVAC SYSTEM

- 1. EXISTING HVAC UNITS, DIFFUSERS, GRILLES, REGISTERS, ETC. SHALL REMAIN UNLESS OTHERWISE NOTED.
- 2. SHEET METAL DUCTWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "SMACNA" STANDARDS, NFPA 90A AND 96, AND THE LATEST EDITION OF THE ASHRAE GUIDE AND DATA BOOKS. ALL DUCTWORK SIZES INDICATED ON THE PLANS ARE THE INTERNAL DIMENSIONS AND DUCTWORK SIZES SHALL BE INCREASED ACCORDING SHOULD DUCTWORK BE INTERNALLY LINED WITH INSULATION. ALL DUCTWORK SHALL BE SEALED AIR TIGHT AND SHALL NOT ALLOW MORE THAN 10% AIR LEAKAGE THROUGHOUT THE ENTIRE SYSTEM.
- 3. ALL DUCTWORK SHALL BE CONCEALED. EXPOSING OF ANY DUCTWORK MUST HAVE PRIOR APPROVAL OF THE ARCHITECT.
- 4. KITCHEN EXHAUST DUCTWORK SHALL BE MINIMUM 16 GAUGE WELDED BLACK STEEL. PROVIDE ACCESS DOORS IN THE VERTICAL FACE OF THE HORIZONTAL RUN EVERY 10'-0" AND AT ALL CHANGES IN DIRECTION. VENTILATION SYSTEMS SHALL CONFORM TO NFPA-96 REQUIREMENTS AND RECOMMENDATIONS. INSULATE THE DUCTWORK PER NFPA 96 AND ASTM E2336 WITH TWO LAYERS OF 1.5" THICK FOR GREASE DUCT SYSTEMS. MATERIAL SHALL BE SIMILAR TO UNIFRAX FYRE WRAP ELITE 1.5.
- THE CONTRACTOR HAS THE OPTION OF REVISING DUCTWORK SIZES TO OTHERS OF EQUIVALENT CROSS-SECTIONAL AREA SHOULD SPACE PERMIT.
- 6. PROVIDE VOLUME DAMPERS IN THE DUCT SYSTEMS WHERE SHOWN ON PLANS AND WHERE REQUIRED TO INSURE PROPER SYSTEM BALANCING. SPIN-IN FITTINGS WITH MANUAL VOLUME DAMPERS MAY BE USED. WHERE DAMPERS ARE CONCEALED, CABLE OPERATED REMOTE CONTROLLED DAMPERS SIMILAR TO YOUNG REGULATER MODEL "830ACC" OR "830ACCS" FOR RECTANGULAR DUCTS AND "5020CC" OR "5020CC2" FOR ROUND DUCTS SHALL BE USED.
- 7. PROVIDE FLEXIBLE DUCT CONNECTORS ON ALL DUCT CONNECTIONS TO AIR HANDLING EQUIPMENT.

8. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT A COMPLETE AIR BALANCE REPORT OF ALL AIR HANDLING SYSTEMS. THE REPORT SHALL INCLUDE FAN RPM, TOTAL STATIC PRESSURE, MOTOR RATED AMPACITY, MOTOR OPERATING AMPACITY, ENTERING AND DISCHARGE AIR TEMPERATURES, AIR QUANTITIES AT ALL DIFFUSERS AND GRILLES, A DIAGRAM OF THE AIR HANDLING SYSTEM INSTALLED, AND RECOMMENDATIONS TO CORRECT ANY DEFICIENCIES. THE AIR BALANCE REPORT SHALL BE PERFORMED BY AN INDEPENDENT N.E.B.B. CERTIFIED AIR BALANCE CONTRACTOR.

9. DUCTWORK INSULATION:

- A. ALL SUPPLY DUCTWORK INSIDE OF THE BUILDING, IN NON-CONDITIONED SPACES, SHALL BE INSULATED WITH MINIM 3.5 R-VALUE DUCT WRAP. SUPPLY AND RETURN DUCTWORK LOCATED IN VENTILATE CRAWL SPACE OR ATTIC SHALL BE INSULATED WITH MINIMUM 8 R-VALUE DUCT WRAP.
- B. DUCTWORK INSULATION SHALL HAVE A FLAME SPREAD/SMOKE DENSITY RATING NOT EXCEEDING 25/50 PER NFPA PAMPHLET 90A.
- 10. VIBRATION ABSORBING SUPPORTS SHALL BE INSTALLED AS REQUIRED ON ALL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION AND NOISE TO THE STRUCTURE. PROVIDE VIBRATION ISOLATION PER A.S.H.R.A.E.
- 11. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS ARE DESIGNED ON THE FOLLOWING CONDITIONS:

WINTER:INSIDE TEMP. 72 °F., OUTSIDE TEMP. 1.4 °F. & 15 MPH WIND.

SUMMER: INSIDE TEMP. 78 °F. D.B. & 50% R.H. OUTSIDE TEMP. 90.3 °F. D.B. & 73.8 °F. W.B.

12. SHEET METAL RUN-OUTS AND FLEX DUCT CONNECTIONS TO AIR DISTRIBUTION DEVICES SHALL BE THE SAME SIZE AS THE DEVICE NECK, UNLESS OTHERWISE NOTED.

13. DUCTS CONNECTING TO HVAC EQUIPMENT SHALL BE THE SAME SIZE AS EQUIPMENT DUCT CONNECTIONS, UNLESS OTHERWISE NOTED.

14. ALL FLUES THROUGH ROOF FOR STANDARD EFFICIENCY TYPE 1 HEATING APPLIANCE SHALL BE VENTED WITH, INTERNATIONAL FUEL GAS CODE APPROVED, TYPE "B" VENT MATERIAL SIMILAR TO METAL-FAB STYLE "M" OR AS APPROVED BY THE ENGINEER, VENTS SHALL BE PROVIDED WITH ASSOCIATED ROOF CURB, FLASHING, STORM COLLAR AND WEATHERPROOF CAP. INSTALL AT A MINIMUM 3 FEET ABOVE THE ROOF.

ALL FLUES AND COMBUSTION AIR DUCTS FROM CONDENSING HIGH EFFICIENCY APPLIANCES SHALL BE VENTED PER THE INDIVIDUAL APPLIANCE MANUFACTURER'S RECOMMENDATIONS. VENT MATERIAL SHALL BE CORROSION RESISTANT AL29-4C, PVC OR CPVC AS REQUIRED BY THE MANUFACTURER.

- 15. AIR DISTRIBUTION DEVICE LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL AIR DISTRIBUTION DEVICES WITH ARCHITECTURAL PLANS AND/OR ELECTRICAL PLANS PRIOR TO INSTALLATION. LIGHT FIXTURES AND SPRINKLER HEAD LOCATIONS SHALL TAKE PRECEDENCE OVER AIR DISTRIBUTION DEVICES, UNLESS OTHERWISE NOTED.
- 16. THE CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION OF ANY OF THE FOLLOWING:
- A. HVAC UNITS
- B. ROOF AND/OR CEILING EXHAUST FANS
- C. AIR DISTRIBUTION DEVICESD. AIR DUCT ACCESSORIES
- E. DUCTLESS HEAT PUMP

APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO CONFORM TO THE DESIGN INTENT OF THE BID DOCUMENTS.

APPROVAL OF SHOP DRAWINGS IS INTENDED TO BE FOR GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS ONLY. ANY EQUIPMENT THAT IS INSTALLED THAT WILL INVOLVE THE WORK OF OTHER TRADES SHALL BE COORDINATED WITH THOSE TRADES. REFER TO OTHER TRADE'S BID DOCUMENTS.

- 17. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL AND INTERLOCK WIRING UNLESS OTHERWISE NOTED ON THE DRAWINGS. MECHANICAL CONTRACTOR SHALL PAY AND COORDINATE WITH THE ELECTRICAL CONTRACTOR ALL HIGH VOLTAGE WIRING THAT IS REQUIRED FOR INTERLOCKING OF CONTROLS.
- 18. CONTRACTOR SHALL PROVIDE BUILDING OWNER WITH OPERATING AND MAINTENANCE MANUALS FOR ALL H.V.A.C. EQUIPMENT UPON COMPLETION OF PROJECT.
- 19. MECHANICAL CONTRACTOR SHALL TEST ALL CONTROL ELEMENTS, VERIFY CALIBRATION OF ALL CONTROL DEVICES AND MAKE ADJUSTMENTS AS REQUIRED AT COMPLETION OF PROJECT.
- 20. COORDINATE NEW DUCTWORK WITH BUILDING STRUCTURAL CONDITIONS, EQUIPMENT MANUFACTURER RECOMMENDATIONS AND ALL OTHER TRADES TO AVOID INTERFERENCES.
- RECOMMENDATIONS.

 22. ALL MECHANICAL RELATED CORING THROUGH WALLS AND FLOORS SHALL

BE BY MECHANICAL CONTRACTOR. SEAL ALL PENETRATIONS THROUGH

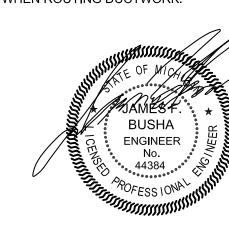
RATED WALLS AND FLOORS WITH U.L. RATED CAULK SEALANT IN

21. PROVIDE ACCESS AROUND ALL NEW EQUIPMENT PER MANUFACTURERS

- 23. ALL DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE ABOVE CEILINGS OR IN ARCHITECTURAL SOFFITS, WHERE INDICATED ON DRAWINGS.
- 24. COORDINATE ROUTING WITH ARCHITECTURAL AND STRUCTURAL TRADES TO AVOID INTERFERENCES.

ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS.

- 25. ALL FLEXIBLE DUCTWORK SHALL BE LIMITED TO 5'-0" MAXIMUM LENGTH FROM HARD DUCT CONNECTION TO ROUND NECK SUPPLY AIR DIFFUSERS. FLEX DUCT APPROVED ABOVE ACCESSIBLE CEILING ONLY.
- 26. CONTRACTOR SHALL MAINTAIN ADEQUATE CLEARANCES (PER N.E.C.)
 ABOVE AND AROUND ANY ELECTRICAL PANELS, EQUIPMENT AND
 TRANSFORMERS WHEN ROUTING DUCTWORK.





1415 Goldsmith
Plymouth, MI 48170
P 734-454-5516
F 734-454-5517

MEEC JOB # 591-16-07

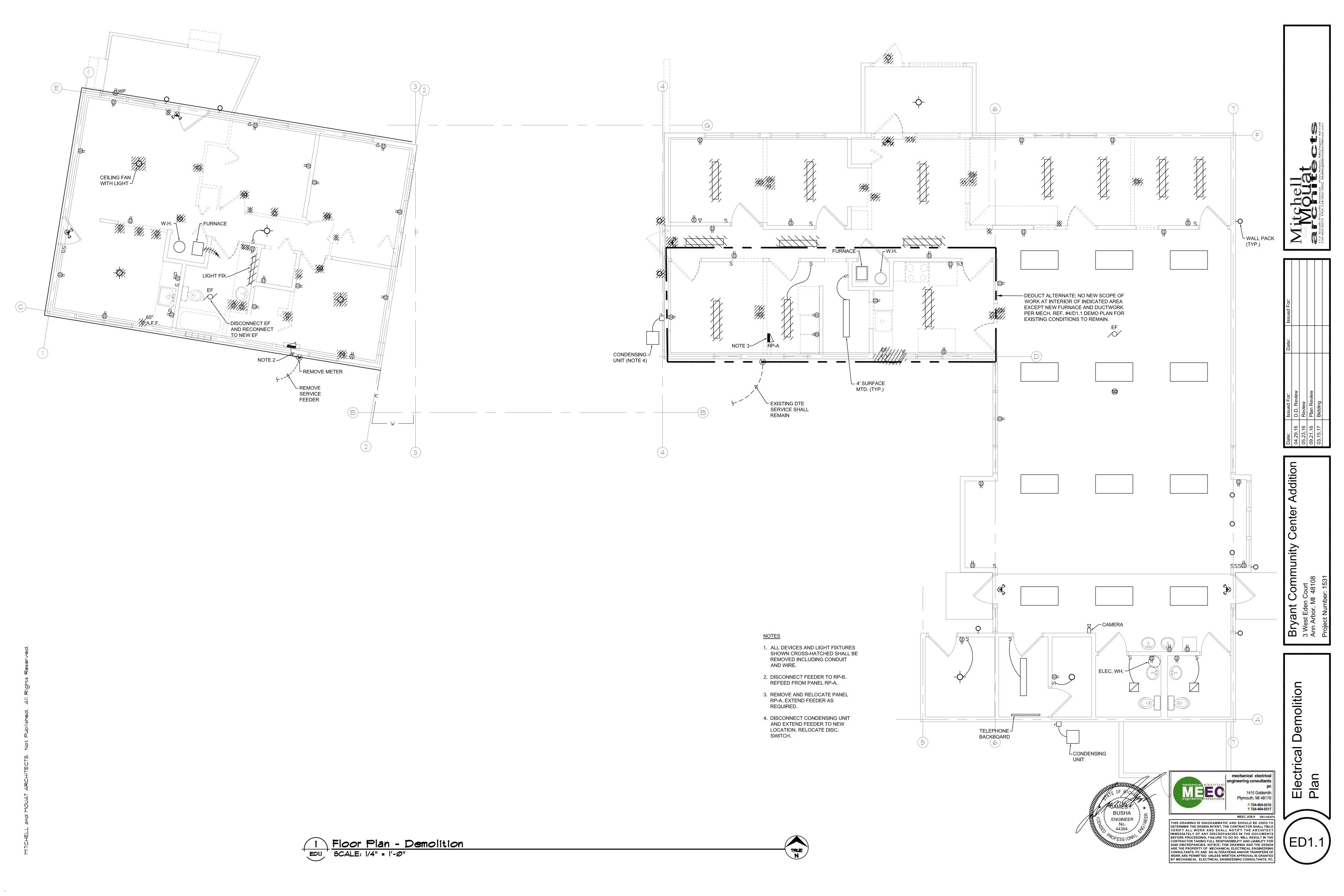
GRAMMATIC AND SHOULD BE USED TO
N INTENT. THE CONTRACTOR SHALL FIELD
AND SHALL NOTIFY THE ARCHITECTS

mechanical electrical igineering consultants

THIS DRAWING IS DIAGRAMMATIC AND SHOULD BE USED TO DETERMINE THE DESIGN INTENT. THE CONTRACTOR SHALL FIELD VERIFY ALL WORK AND SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES IN THE DOCUMENTS BEFORE PROCEEDING. FAILURE TO DO SO WILL RESULT IN THE CONTRACTOR TAKING FULL RESPONSIBILITY AND LIABILITY FOR SAID DISCREPANCIES. NOTICE: THIS DRAWING AND THE DESIGN ARE THE PROPERTY OF MECHANICAL ELECTRICAL ENGINEERING CONSULTANTS, PC AND NO ALTERATIONS AND/OR TRANSFERS OF WORK ARE PERMITTED UNLESS WRITTEN APPROVAL IS GRANTED BY MECHANICAL ELECTRICAL ENGINEERING CONSULTANTS, PC.

and which is south Fourth Avenue Ann Arbor, Michigan 734-662-6070 FAX 734-662-3802 MamA@Mitchelland

M3.1



VOLTAGE <u>120/240V. 1Ø</u>

LOAD - V.A. | CKT | CKT | CKT | LOAD - V.A.

BRKR # # BRKR A

MAIN LUGS

SYM. A.I.C. MIN.

LOAD SERVED

LIGHTS

LIGHTS

LIGHTS

FREEZER

FURNACE

EF-2

LIGHTS

SPARE

SPARE

OVEN

RP-B

SPACE

SPACE

SPACE

SPARE

TOTAL DEMAND

PANEL BOARD RP-'A'

LOAD SERVED

MAIN BREAKER 225A MCB

PANEL BOARD MAIN BREAKER	PANEL BOARD <u>RP-'B'</u> MAIN BREAKER <u>100A MCB</u>				VOLTAGE <u>120/240V. 1Ø</u> MAIN LUGS				MOUNTING SURFACE				
	LOAD - V.A.		CKT CKT CKT		CKT	LOAD - V.A.							
LOAD SERVED	Α	В	BRKR	#	#	BRKR	Α	В	LOAD SERVED				
011.4	1728		30	1	2	20	900		F	RECEPTACLE (E)			
CU-1		1728	2	3	4	20		800		LIGHTS			
SPACE			20	5	6	20	500		FURNACE (E)				
REFRIGERATOR		700	20	7	8	20		700	DISPOSAL (E)				
SUMP PUMP (E)	700		20	9	10	20	900		RECEPTACLE (E)				
SPACE			20	11	12	20		900	RECEPT. AND LIGHTS (E)				
WASHER (E)	500		20	13	14	20	720		RECEPTACLE				
CRAWL SPACE RECEPT. (E)		360	20	15	16	20		720	RECEPTACLES (E)				
RECEPTACLE EXTERIOR (E)	360		20	17	18	40	3072		DRYER (E)				
SPARE			20	19	20	2		3072					
	DEMAND				VOLT -	- AMPS							
LOAD DESCRIPTION	FAC D.	TOR F.	CC	ONNECT	ΞD		DEMAND)	16191	TOTAL DEMAND LOAD			
LIGHTING	•	1	800			800			200	25% LIGHTING LOAD			
RECEPTACLES	NE	ĒC		4860		4860				SPARE			
SMALL MOTORS		1		4656			4656						
MISC. EQUIPMENT		8		7344			5875		16391 DESIGN LOAD				
									68	DESIGN AMPS			
	TO	ΓAL		17660			16191						

ELECTRICAL SYMBOL LIST

24" x 48" FLUORESCENT LUMINAIRE

24" x 24" FLUORESCENT LUMINAIRE

WALL MOUNTED LUMINAIRE, HEIGHT AS NOTED

SINGLE FACE EXIT SIGN, ARROWS AS INDICATED

DOUBLE FACE EXIT SIGN, ARROWS AS INDICATED

BATTERY OPERATED EMERGENCY LIGHT

EMERGENCY LIGHT

SURFACE MOUNTED LIGHT FIXTURE

PENDANT MOUNTED LIGHT FIXTURE

RECESSED DOWNLIGHT FLUORESCENT STRIP LIGHT

NIGHT LIGHT

WALL SCONCE LUMINAIRE, HEIGHT AS NOTED

SITE LIGHTING BOLLARD

OUTDOOR LIGHTING POLE & LUMINAIRE

SINGLE POLE TOGGLE SWITCH, +48" A.F.F.

S3 THREE-WAY TOGGLE SWITCH, +48" A.F.F.

S4 FOUR-WAY TOGGLE SWITCH, +48" A.F.F.

SK KEY OPERATED SWITCH, +48" A.F.F.

WALL DIMMER, INCANDESCENT OR FLUORESCENT, AS REQUIRED, WATTAGE REQUIRED EQUAL TO CONNECTED LOAD PLUS 25 PERCENT, +48" A.F.F.

SWITCH WITH PILOT LIGHT, +48" A.F.F. CEILING MOUNTED OCCUPANCY SENSOR

SOS WALL MOUNTED OCCUPANCY SENSOR

DUPLEX RECEPTACLE, 120V. 20A. GROUNDING TYPE, +18" A.F.F. OR AS NOTED

DUPLEX RECEPTACLE, GFCI TYPE, 120V. 20A., GROUNDING TYPE, +48" A.F.F. OR 9" ABOVE COUNTER

COMPUTER GRADE RECEPTACLE, 120V. 20A. WITH ISOLATED GROUND, +18" A.F.F. OR AS NOTED

DEDICATED DUPLEX RECEPTACLE, 120V. 20A. GROUNDING TYPE +18" A.F.F. OR AS NOTED

DOUBLE DUPLEX RECEPTACLE, 120V. 20A.

DOUBLE DUPLEX RECEPTACLE 120V. 20A. GROUNDING

GROUNDING TYPE +18" A.F.F. OR AS NOTED

TYPE +48" A.F.F. OR 9" ABOVE COUNTER

DUPLEX RECEPTACLE, 120V. 20A. GROUNDING TYPE +48" A.F.F. OR 9" ABOVE COUNTER

COMPUTER GRADE RECEPTACLE, 120V. 20A. WITH ISOLATED GROUND, +48" A.F.F. OR 9" ABOVE COUNTER

FLOOR POKE-THROUGH POWER/DATA/TELEPHONE DEVICE

FLUSH FLOOR MOUNTED 120V. 20A. CONVENIENCE RECEPTACLE. HUBBELL #B2537 WITH #S3082/s3925

COVER ASSY. FLUSH FLOOR MOUNTED TELE/DATA OUTLET.

HUBBELL #B2537 WITH #S3082/S2925 COVER ASSY. PROVIDE 3/4"C. TO CEILING SPACE. FLUSH FLOOR MOUNTED POWER/DATA OUTLET. HUBBELL

#B4233 CAST IRON FLOOR BOX WITH #S3825 FLUSH COVER FOR POWER AND #S2825 FLUSH COVER PLATE FOR TELE/DATA. PROVIDE 120V. 20A DUPLEX RECEPTACLE.

WP WEATHERPROOF RECEPTACLE, +24" A.F.G.

SPECIAL RECEPTACLE, TYPE & MOUNTING HEIGHT

BASE FEED TO SYSTEM FURNITURE WITH POWER, TELEPHONE AND DATA CONNECTIONS

T/P POWER POLE TO SYSTEM FURNITURE WITH POWER, TELEPHONE AND DATA CONNECTIONS TO CEILING SPACE

WALL MOUNTED PLUG STRIP +42" A.F.F.

TO CEILING SPACE

ISOLATED GROUND

DICTAPHONE OUTLET, MOUNTING HEIGHT TO MATCH ADJACENT OUTLETS. OUTLET TO INCLUDE EMPTY 3/4" C. TO CEILING SPACE

DATA OUTLET, MOUNTING HEIGHT TO MATCH ADJACENT OUTLETS. OUTLET TO INCLUDE EMPTY 3/4" C. TO CEILING SPACE

TELEPHONE OUTLET, MOUNTING HEIGHT TO MATCH ADJACENT OUTLETS. OUTLET TO INCLUDE EMPTY 3/4" C. TO CEILING SPACE

TELE/DATA OUTLET COMBINATION, MOUNTING HEIGHT TO MATCH ADJACENT OUTLETS. OUTLET TO INCLUDE EMPTY 3/4" C. TO CEILING SPACE

W TELEPHONE OUTLET, +48" A.F.F. OUTLET TO INCLUDE EMPTY 3/4" C. TO CEILING SPACE

INTERCOM OUTLET +48" A.F.F. WITH 3/4"C. EMPTY CONDUIT (WITH PULLSTRING) TO CEILING SPACE

OCCUPANCY SENSOR VIEWBOX OUTLET (MOUNTING HEIGHT COORDINATED WITH VIEW BOX MFG.)

TV-H TELEVISION OUTLET

JUNCTION BOX - CEILING MOUNTED

JUNCTION BOX - WALL MOUNTED, HEIGHT AS NOTED

FUSIBLE DISCONNECT SWITCH - UPPER NUMERAL DENOTES SWITCH SIZE, LOWER NUMERAL DENOTES

NON-FUSED DISCONNECT SWITCH - NUMERAL DENOTES

SMP MOTOR CONTROL SWITCH WITH PILOT LIGHT, +48" A.F.F.

MAGNETIC MOTOR STARTER

MANUAL MOTOR STARTER, +48" A.F.F., OR ON MOTORIZED EQUIP.

COMBINATION MOTOR STARTER

MOTOR CONNECTION

LIGHTING PANELBOARD

POWER PANELBOARD

DISTRIBUTION PANELBOARD

MAIN SWITCHBOARD

TRANSFORMER

CONTROL PANEL

WALL MOUNTED SPEAKER

CEILING MOUNTED SPEAKER

SURFACE MOUNTED SPEAKER

RECESSED CLOCK OUTLET +84" A.F.F.

SURFACE MOUNTED CLOCK OUTLET +84" A.F.F.

DOUBLE FACE CLOCK OUTLET +84" A.F.F.

VOLUME CONTROL +48" A.F.F.

BELL, +80" A.F.F.

BUZZER, +80" A.F.F.

FIRE ALARM MANUAL PULL STATION +48" A.F.F. FIRE ALARM AUDIBLE/VISUAL COMBINATION DEVICE

+80" A.F.F. FIRE ALARM VISUAL DEVICE +80" A.F.F.

DOOR HOLD OPEN DEVICE

DUCT SMOKE DETECTOR

SYSTEM SMOKE DETECTOR

SINGLE-STATION SMOKE DETECTOR

SPRINKLER SYSTEM TAMPER SWITCH

SPRINKLER SYSTEM WATER FLOW

FIRE ALARM CONTROL PANEL

CARD READER OUTLET + 44" A.F.F.

HEAT DETECTOR

½"C. STUBBED INTO DOOR FRAME FROM ABOVE FOR DOOR CONTACT

CONDUIT RUN IN WALL OR ABOVE CEILING

CONDUIT RUN BELOW GRADE OR CONCRETE SLAB

ISOLATED GROUND CONDUCTOR & SAFETY GROUND CONDUCTOR

▶ BRANCH CIRCUIT HOMERUN

LOW VOLTAGE WIRING FOR LIGHTING CONTROL III BRANCH CIRCUIT HOMERUN WITH (3) LINE

NOTE: ANY CIRCUIT WITHOUT FURTHER IDENTIFICATION IS 2-WIRE PLUS GROUND WIRE. A GREATER NUMBER OF WIRES IS INDICATED BY HASH MARKS.

CONDUCTORS, (1) NEUTRAL CONDUCTOR, (1) SAFETY GROUND CONDUCTOR & (1) ISOLATED GROUND

NIGHT LIGHT CIRCUIT ON EMERGENCY ELECTRIC

T TELEPHONE RACEWAY DATA SYSTEM RACEWAY

— P — PRIMARY UNDERGROUND DUCT //////, EXISTING TO BE REMOVED OR ABANDONED

UNDERFLOOR DUCT JUNCTION BOX

— 4UD — UNDERFLOOR DUCT RACEWAY, 8.58 SQ. IN.

— 2UD — UNDERFLOOR DUCT RACEWAY, 3.313 SQ. IN.

ELECTRICAL ABBREVIATIONS

A.C. ALTERNATING CURRENT

ABOVE COUNTERTOP

ARC FAULT CIRCUIT INTERRUPTER ABOVE FINISHED FLOOR TO CENTERLINE

ABOVE FINISHED GRADE TO CENTERLINE

CONDUIT

CURRENT TRANSFORMER CABINET DISTRIBUTION PANEL

ELECTRICAL CONTRACTOR

EXHAUST FAN

EWC ELECTRIC WATER COOLER

FURN FURNICE

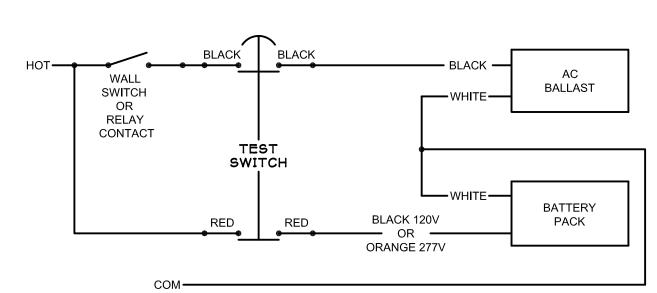
GRD GROUNDED

HOT WATER HEATER

MAIN DISTRIBUTION PANEL POWER PANEL

ROOFTOP UNIT UNDER COUNTER

UNLESS OTHERWISE NOTED WP WEATHERPROOF



EMERGENCY LIGHTING WIRING DIAGRAM

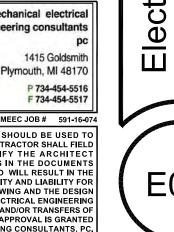
ight.

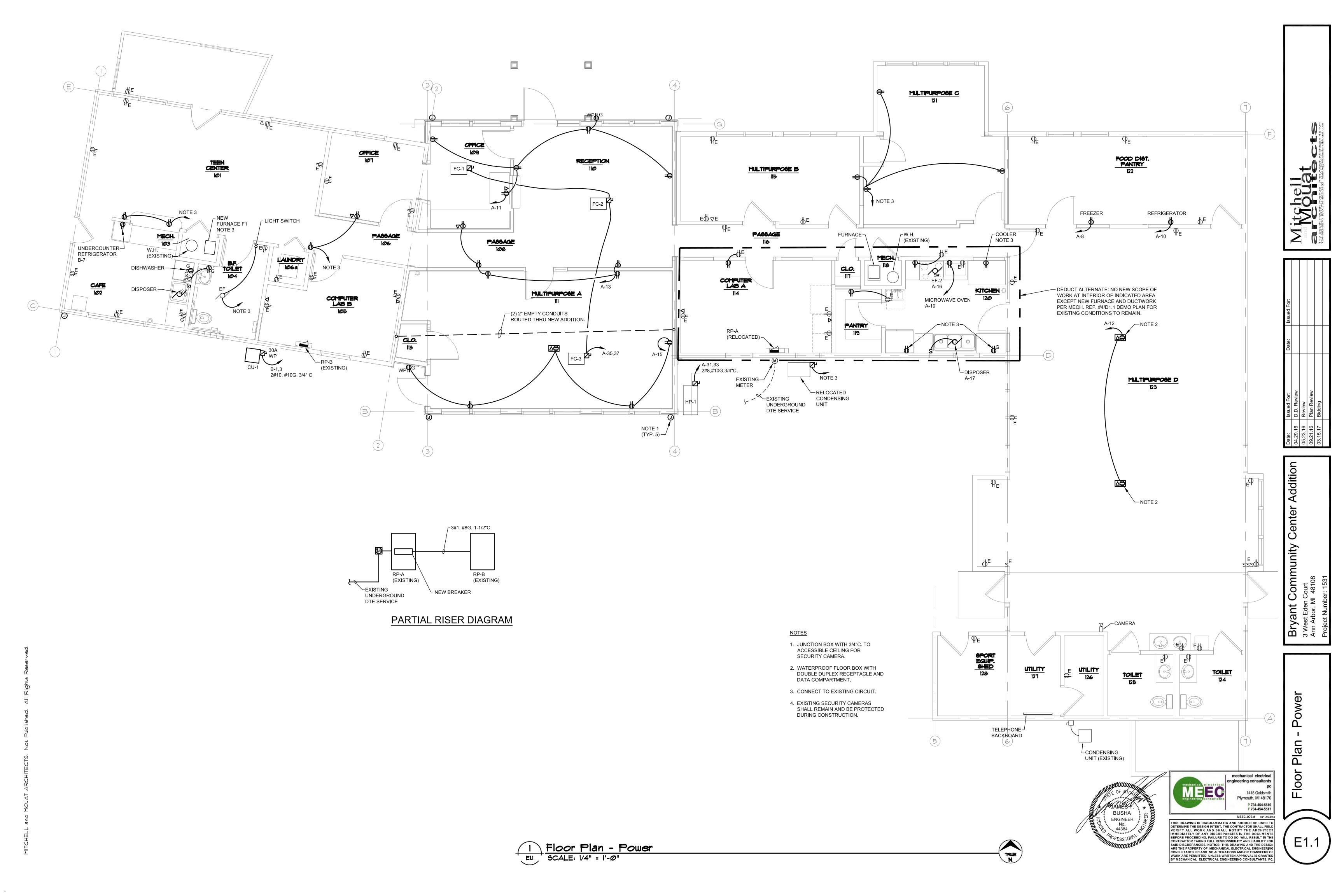


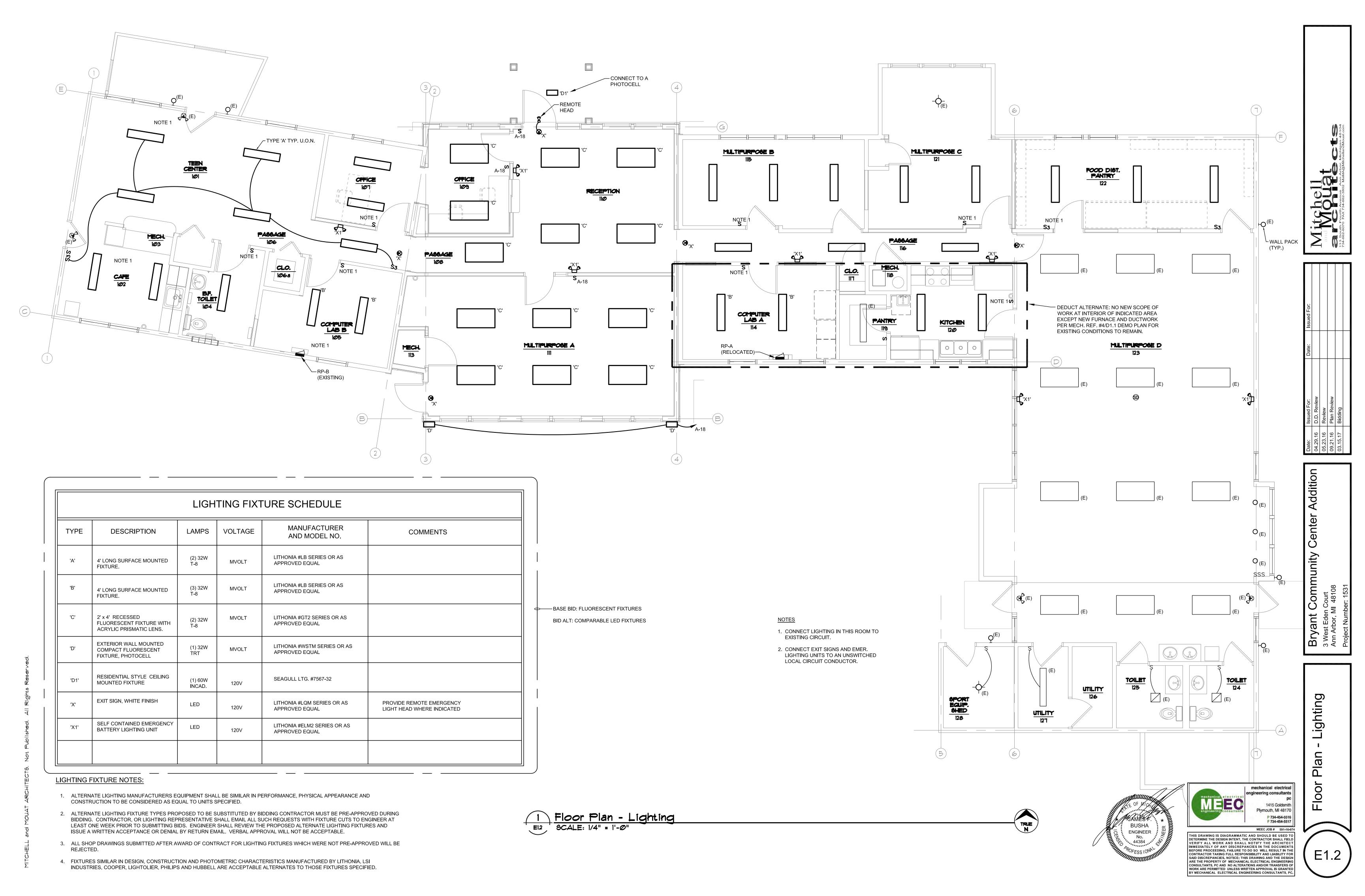
BUSHA

ENGINEER

44384







- B. THE ELECTRICAL CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, PLUMBING AND MECHANICAL DRAWINGS AND SPECIFICATIONS AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS OF WORK AFFECTING THE CONTRACT. SIZE AND CAPACITY OF ALL EQUIPMENT SHALL BE AS ON PLANS OR AS INDICATED HEREIN.
- C. FURNISH LABOR AND MATERIALS TO PROVIDE A COMPLETE ELECTRICAL SYSTEM AS REQUIRED BY THE PLANS AND SPECIFICATIONS.
- D. ANY ITEM APPEARING ON THE DRAWINGS AND NOT IN THE SPECIFICATION OR VICE VERSA AND ANY ITEMS APPEARING IN NEITHER BUT NECESSARY TO ACCOMPLISH THE INTENT OF THESE SPECIFICATIONS, SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR.
- E. WHERE EQUIPMENT SPECIFICATIONS OR DESCRIPTIONS INCLUDE A SPECIFIC MANUFACTURER AND CATALOG NUMBER, ANY SUBSTITUTED EQUIPMENT OR EQUIPMENT PROPOSED TO BE PROVIDED BY AN ALTERNATIVE MANUFACTURER SHALL FUNCTIONALLY MEET, OR EXCEED, THE REQUIREMENTS OF THE SPECIFIED EQUIPMENT IN ALL RESPECTS. ALTERNATE MANUFACTURERS SHALL REFER TO PRODUCT LITERATURE PUBLISHED BY THE MANUFACTURER OF THE EQUIPMENT SPECIFIED TO DETERMINE EQUIVALENCY OF THEIR PROPOSED ALTERNATE PRODUCT.

SCOPE OF WORK:

THIS SPECIFICATION CONTEMPLATES THE PROVISION BY THE ELECTRICAL CONTRACTOR OF ALL LABOR AND MATERIALS REQUIRED TO INSTALL A COMPLETE SYSTEM OF ELECTRICAL WORK AS HEREIN SPECIFIED AND AS SHOWN OF THE DRAWINGS. WITHOUT RESTRICTING THE GENERALITY OF THE FOREGOING, THE FOLLOWING SHALL BE INCLUDED:

- A. NEW ELECTRICAL SERVICE AND BRANCH CIRCUIT DISTRIBUTION AS REQUIRED FOR NEW
- B. SAFETY SWITCHES, BRANCH CIRCUIT WIRING, OUTLETS AND CONNECTIONS COMPLETE.
- C. GROUNDING OF ELECTRICAL SYSTEM PER ARTICLE 250 OF N.E.C. AND SPECIFICATIONS.
- D. EMERGENCY EGRESS AND EXIT LIGHTING SYSTEMS COMPLETE.
- E. SERVICES AND FINAL CONNECTIONS TO ALL ITEMS OF ARCHITECTURAL & MECHANICAL EQUIPMENT AS REQUIRED.
- F. DISCONNECT SWITCHES WHICH ARE NOT AN INTEGRAL PART OF EQUIPMENT.
- G. INSTALLATION OF LIGHTING FIXTURES BY COMPLETE WITH LAMPS, HANGERS, SUPPORTS, AUXILIARIES AND FOUNDATIONS.
- 3. CHARACTER OF EQUIPMENT: ALL EQUIPMENT SHALL BE NEW AND SHALL CONFORM IN ALL RESPECTS TO THE LATEST APPROVED STANDARDS OF THE IEEE, ANSI AND THE "UL" LABEL OR
- 4. CODES AND ORDINANCES: ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL CODES AND THE LATEST EDITION OF THE MICHIGAN BUILDING CODE AND MICHIGAN ELECTRICAL CODE, ALL ORDINANCES AND REGULATIONS, AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- 5. PERMITS AND FEES: THE ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES, INCLUDING ALL COSTS ACCESSED BY THE UTILITY COMPANY, AND ARRANGE FOR ALL INSPECTIONS FOR HIS WORK. BEFORE SUBMITTING HIS BID, THE ELECTRICAL CONTRACTOR SHALL CHECK WITH EACH UTILITY COMPANY SUPPLYING SERVICE TO THE PROJECT AND DETERMINE FROM THEM ALL OF THEIR REQUIREMENTS AND CHARGES. ALL SUCH REQUIREMENTS AND CHARGES SHALL BE INCLUDED IN THE BASE BID PROPOSAL. AT THE COMPLETION OF ELECTRICAL WORK, THE ELECTRICAL CONTRACTOR SHALL FURNISH THE OWNER WITH ALL CERTIFICATES OF FINAL INSPECTION AND APPROVALS.
- 6. SITE VISIT BY CONTRACTOR: THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE CONDITIONS UNDER WHICH HIS WORK MUST BE CONDUCTED BEFORE SUBMITTING HIS PROPOSAL. THE SUBMITTING OF A PROPOSAL IMPLIES THAT THE CONTRACTOR HAS VISITED THE SITE, IS CONVERSANT WITH ALL SITE CONDITIONS, INCLUDING EXISTING SERVICES AND EQUIPMENT, OBSTRUCTIONS AND ALL CONDITIONS, WHICH WILL BE ENCOUNTERED IN THE REMOVAL AND/OR RELOCATION OF PRESENT MATERIALS AND EQUIPMENT, INSTALLATION OF NEW MATERIALS AND CUTTING AND PATCHING, ETC., FOR A COMPLETE ELECTRICAL INSTALLATION. IF ANY INTERFERENCES OR VIOLATIONS APPEAR AND DEPARTURE FROM THE DESIGN INTENT OF THE BID DOCUMENTS IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO ENTERING INTO CONTRACT WITH THE OWNER. FAILURE TO PROVIDE THE ARCHITECT WITH THE AFOREMENTIONED NOTIFICATION WILL RESULT IN THE CONTRACTOR BEING HELD RESPONSIBLE TO COMPLETE ALL WORK TO MEET THE DESIGN INTENT OF THE BID DOCUMENTS WITH NO ADDITIONAL EXPENSES ('EXTRAS') BEING INCURRED BY THE OWNER, ARCHITECT, OR ENGINEER.

7. SUBSTITUTIONS:

- A. ANY EQUIPMENT PROPOSED AS EQUAL TO THAT SPECIFIED SHALL BE SO PROVEN BY THE CONTRACTOR WHO SHALL, PRIOR TO BIDDING, SUBMIT THE MANUFACTURER'S NAME. MODEL NUMBERS, VERIFICATION DATA SHEETS AND APPLICABLE WORKING DRAWINGS. THE ENGINEER SHALL REVIEW AND APPROVE OR DISAPPROVE SUCH PROPOSED SUBSTITUTIONS PRIOR TO BIDDING TIME. IF THIS PROCEDURE IS NOT FOLLOWED BY THE CONTRACTOR PRIOR TO BIDDING, IT IS UNDERSTOOD THAT THE CONTRACTOR IS BIDDING EQUIPMENT AND MAKE AS SPECIFIED.
- B. IN THE EVENT SUBSTITUTIONS ARE PROPOSED TO THE ENGINEER AFTER THE CONTRACT HAS BEEN AWARDED, THE CONTRACTOR SHALL ISSUE A PURCHASE ORDER NUMBER TO THE ENGINEER ALONG WITH THE SHOP DRAWING SUBMITTAL FOR USE BY THE ENGINEER IN OBTAINING PAYMENT FROM THE CONTRACTOR FOR THE ENGINEERS TIME IN EVALUATING THE PROPOSED SUBSTITUTION.
- C. WHETHER OR NOT THE ENGINEER APPROVED THE PROPOSED SUBSTITUTION, THE CONTRACTOR SHALL PROMPTLY UPON RECEIPT OF THE ENGINEER'S BILLING, REIMBURSE THE ENGINEER AT THE RATE OF TWO AND THREE-QUARTER TIMES THE DIRECT COST TO THE ENGINEER FOR ALL TIME SPENT BY HIM IN EVALUATION OF THE PROPOSED SUBSTITUTION.

8. COOPERATION WITH OTHER CONTRACTORS:

- A. ELECTRICAL CONTRACTOR SHALL ARRANGE ALL PARTS OF HIS WORK IN PROPER RELATION TO THE WORK OF OTHERS AND TO THE ARCHITECTURAL FINISH. WHERE INTERFERENCES OCCUR, THE ELECTRICAL CONTRACTOR SHALL, BEFORE INSTALLING THE WORK INVOLVED. CONSULT WITH THE ARCHITECT AS TO THE EXACT LOCATION AND LEVEL OF HIS WORK. THE ARCHITECT'S DECISION SHALL BE FINAL.
- B. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ARRANGEMENT OF HIS WORK AND EQUIPMENT, AND SHALL MAINTAIN PROPER HEADROOM UNDER HIS WORK. SHOULD WORK INSTALLED BY HIM REQUIRE MODIFICATION TO AVOID INTERFERENCE WITH OTHER WORK, AS DETERMINED BY THE ARCHITECT, SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST.
- 9. STANDARDS OF MATERIAL AND WORKMANSHIP:
- A. ALL WORK SHALL BE DONE AT SUCH TIMES AND IN SUCH A MANNER AS WILL LEAST INTERFERE WITH THE MAINTENANCE AND OPERATION OF ALL RELATED OR AFFECTED SYSTEMS.
- B. ALL MATERIALS AND EQUIPMENT SHALL BEAR THE LABEL OF APPROVAL OF THE NATIONAL BOARD OF FIRE UNDERWRITER'S LABORATORIES.
- C. THE ELECTRICAL CONTRACTOR SHALL EFFECTIVELY PROTECT, AT HIS OWN EXPENSE, SUCH OF HIS WORK, MATERIALS OR EQUIPMENT AS IS LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD.

- D. ALL OPENINGS INTO ANY PART OF THE CONDUIT SYSTEM AS WELL AS ASSOCIATED FIXTURES, EQUIPMENT, ETC., BOTH BEFORE AND AFTER BEING SET IN PLACE, MUST BE SECURELY COVERED OR OTHERWISE PROTECTED TO PREVENT OBSTRUCTION OF THE CONDUIT. OR INJURY DUE TO CARELESSNESS OR MALICIOUSLY DROPPED TOOLS OR MATERIALS, GRIT, DIRT OR ANY FOREIGN MATTER. THE ELECTRICAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE SO DONE UNTIL HIS WORK IS FULLY AND FINALLY ACCEPTED. CONDUIT ENDS SHALL BE COVERED WITH CAPPED BUSHINGS. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED.
- E. IT IS NOT INTENDED THAT THE DRAWINGS OR THIS SPECIFICATION INDICATE OR SPECIFY EACH PIECE OF CONDUIT, FITTINGS, ETC., REQUIRED FOR THE INSTALLATION. WHERE ITEMS ARE REQUIRED FOR THE SATISFACTORY OPERATION OF THE INSTALLATION AND ARE NOT INDICATED ON THE DRAWINGS, THEY SHALL BE CONSIDERED TO BE BOTH SPECIFIED
- F. GENERAL REQUIREMENTS AND DETAILS OF EQUIPMENT ARE SHOWN. DIMENSIONS OR SCALES SHOWN ARE APPROXIMATE AND MUST BE CHECKED AT JOB PRIOR TO INSTALLATION OF EQUIPMENT OR ANY ORDER GIVEN FOR FABRICATION.
- G. ELECTRICAL CONTRACTORS SHALL HAVE COMPETENT FOREMAN ON THE PREMISES AT ALL TIMES TO SUPERINTEND AND CHECK AND LAY OUT ALL WORK, GIVE INFORMATION TO GENERAL CONTRACTOR REGARDING CHASES AND OPENINGS, AND BE RESPONSIBLE FOR SUCH LOCATIONS. THIS CONTRACTOR SHALL COOPERATE WITH OTHER CONTRACTORS WHERE CHASES, OPENINGS, PIPES, FOUNDATIONS, ETC., ARE IN PROXIMITY TO THE WORK OF OTHER TRADES AND ARRANGE THE WORK TO FIT. THIS CONTRACTOR SHALL STUDY WHERE OTHER TRADES LEAVE CONNECTIONS AND OUTLETS TO BE CONNECTED, SO THAT ALL WORK AND APPLIANCES SHALL BE PROPERLY ARRANGED FOR AND CONNECTED READY FOR USE.

10. CUTTING AND PATCHING:

CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, ROOFS, ETC., SHALL BE DONE BY ARCHITECTURAL TRADES CONTRACTOR BUT PAID FOR BY THE ELECTRICAL CONTRACTOR. STRUCTURAL MEMBERS SHALL NOT BE CUT WITHOUT OBTAINING WRITTEN PERMISSION FROM THE ARCHITECT. CONDUITS PASSING THROUGH ROOFS OR OUTSIDE WALLS EXPOSED TO WEATHER SHALL BE CAREFULLY FLASHED. FIRE PROOFING OF HOLES SHALL BE PROVIDED AND SHALL BE OF A UL LISTED MATERIAL, AND APPROVED BY AUTHORITY HAVING JURISDICTION.

11. OBSTRUCTIONS:

SHOULD ANY STRUCTURAL DIFFICULTIES PREVENT SETTING OF CABINETS, RUNNING CONDUCTORS, ETC., AT POINTS SHOWN ON PLANS, THE NECESSARY MINOR DEVIATIONS THEREFROM, AS DETERMINED BY THE ARCHITECT, MAY BE PERMITTED AND MUST BE MADE WITHOUT ADDITIONAL COST.

12. <u>DRAWINGS AND SPECIFICATIONS:</u>

ANY ITEM APPEARING ON THE DRAWINGS AND NOT IN THE SPECIFICATION OR VICE VERSA, AND ANY ITEMS APPEARING IN NEITHER BUT NECESSARY TO ACCOMPLISH THE INTENT OF THESE SPECIFICATIONS, SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR.

13. <u>TEMPORARY SERVICE:</u>

A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY CONSTRUCTION LIGHTING AND POWER IN ACCORDANCE WITH THE PROGRESS SCHEDULE OF THE GENERAL CONTRACTOR. LIGHTING LEVELS SHALL BE MAINTAINED IN ACCORDANCE WITH OSHA REQUIREMENTS.

14. PENETRATIONS AND FIRE PROOFING:

- A. ALL PENETRATIONS OF RATED FIRE AND SMOKE WALLS SHALL BE BY CONDUIT.
- B. ALL PENETRATIONS OF FLOORS SHALL BE BY CONDUIT OR METAL SLEEVES.
- C. ALL PENETRATION SLEEVES INCLUDING OPEN ENDED CONDUITS NOT TERMINATED IN JUNCTION BOXES SHALL BE FILLED WITH FIRE SAFING MATERIAL AS MANUFACTURED BY U. S. GYPSUM CO., OR ARCHITECT APPROVED EQUAL FOR 2" IN LENGTH FROM CONDUIT END.
- D. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR COMPLETE FIRE STOPPING REQUIREMENTS AND LOCATIONS OF FIRE RATED WALLS, FLOORS AND

15. <u>GROUNDING:</u>

- A. FURNISH AND INSTALL A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODES AND ORDINANCES.
- B. ALL BRANCH CIRCUIT CONDUCTORS SHALL INCLUDE A SEPARATE COPPER, INSULATED (GREEN), EQUIPMENT GROUNDING CONDUCTOR SIZED PER ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- C. GROUNDING PATH FROM CIRCUITS. EQUIPMENT, AND CONDUCTOR ENCLOSURES SHALL BE PERMANENT AND CONTINUOUS, AND SHALL HAVE A RESISTANCE TO GROUND OF LESS
- D. ALL CABINETS, MOTOR FRAMES, MOTOR STARTERS, CONTACTORS, CONDUIT SYSTEMS. PANELBOARDS, TRANSFORMERS, ETC., SHALL BE THOROUGHLY GROUNDED IN ACCORDANCE WITH THE NEC.

16. CONDUCTORS:

- A. ALL CONDUCTORS SHALL BE COPPER AND SHALL BE INSTALLED IN CONDUIT.
- B. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM SIZE #12 AWG, TYPE "THHN" INSULATED. ALL FEEDERS AND SECONDARY SERVICE CONDUCTORS SHALL BE COPPER, WITH 600 VOLT INSULATION. FEEDER INSULATION SHALL BE TYPE "THHN" OR "XHHW".
- C. NO WIRING SMALLER THAN NO. 12 AWG SHALL BE USED UNLESS OTHERWISE NOTED, AND ALL WIRE NO. 10 AWG AND LARGER SHALL BE STRANDED, UNLESS OTHERWISE SPECIFIED.
- D. HOME RUNS TO PANELBOARDS 75 FEET IN LENGTH OR OVER SHALL BE NOT LESS THAN NO. 10 AWG, OR LARGER AS NECESSARY TO MAINTAIN A MAXIMUM VOLTAGE DROP OF 3 PERCENT, WHETHER OR NOT SHOWN ON THE DRAWINGS.
- E. CONDUCTORS SHALL BE COLOR CODED PER THE NATIONAL ELECTRICAL CODE.

17. CONDUITS:

- A. ALL CONDUITS SHALL BE RUN CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED. EXPOSING OF ANY CONDUIT IN UN-FINISHED AREAS SHALL BE ONLY DONE WITH THE WRITTEN APPROVAL OF THE ARCHITECT.
- B. CONDUIT INSTALLED IN CONCEALED AREAS NOT SUBJECT TO DAMAGE MAY BE ELECTRIC METALLIC TUBING "EMT". CONDUIT INSTALLED EXPOSED AND SUBJECT TO DAMAGE SHALL BE RIGID GALVANIZED STEEL CONDUIT.
- C. ALL CONDUIT SHALL BE 1/2" MINIMUM SIZE UNLESS OTHERWISE NOTED.
- D. ALL CONDUITS INSTALLED AT EXTERIOR LOCATIONS BELOW GRADE SHALL BE SCHEDULE 40 PVC. CONDUITS INSTALLED IN THE CONCRETE SLAB SHALL BE RIGID GALVANIZED STEEL
- E. A GROUND WIRE SIZED PER ARTICLE 250 OF THE N.E.C. SHALL BE INCLUDED WITH ALL CIRCUIT CONDUCTORS.

18. <u>DEVICES</u>

A. DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE 120 VOLT, 20 AMPERE, GROUNDING TYPE, EQUAL TO HUBBELL #5362 SERIES, P&S, OR ARROW-HART. COLOR SHALL BE SELECTED BY OWNER/ARCHITECT.

- B. GROUND FAULT RECEPTACLES SHALL BE SPECIFICATION GRADE 120 VOLT, 20 AMPERE, U.L. LISTED UNDER 498 RECEPTACLE REQUIREMENTS AND 943 CLASS A REQUIREMENTS, SHALL CONFORM TO NEC REQUIREMENTS, AND EQUAL TO HUBBELL SERIES #5260, P&S, OR ARROW-HART. COLOR TO BE SELECTED BY OWNER/ARCHITECT.
- C. TOGGLE WALL SWITCHES SHALL BE 20 AMPERE, 120/277 VOLT, SPECIFICATION GRADE SINGLE, DOUBLE, ETC., AS INDICATED, EQUAL TO HUBBELL #1120 SERIES, P&S, OR ARROW HART. COLOR SHALL BE SELECTED BY OWNER/ARCHITECT

19. WEATHERPROOF BOXES AND COVERS:

WIRING DEVICES INSTALLED AT EXTERIOR LOCATIONS SHALL BE INSTALLED IN A SINGLE GANG, DEEP WEATHERPROOF BOX WITH WHILE-IN-USE COVER PER NEC SECTION 406.8(B)(1). BOXES AND COVERS SHALL BE CONSTRUCTED OF POLYCARBONATE AND SHALL BE FULLY GASKETED. THE TRANSLUCENT COVER SHALL INCLUDE A PAD-LOCKABLE, BREAK-RESISTANT BULLNOSE AND LATCH. PASS & SEYMOUR #WIUC10-DC OR EQUAL.

20. <u>DEVICE PLATES:</u>

DEVICE PLATES SHALL BE DECORA STYLE WHITE.

21. <u>LIGHTING FIXTURES:</u>

- A. FLUORESCENT FIXTURES, UNLESS OTHERWISE INDICATED, SHALL BE SUITABLE FOR 120 VOLT, SINGLE PHASE, A.C., 60 HERTZ SERVICE AND SHALL BE EQUIPPED WITH THE QUANTITY AND TYPE OF T8 ENERGY SAVING FLUORESCENT LAMPS AS SPECIFIED IN THE LIGHT FIXTURE SCHEDULE PROVIDED ON THE DRAWINGS. FLUORESCENT LAMP BALLASTS SHALL BE ENERGY EFFICIENT, >98% POWER FACTOR, PARALLEL LAMP CONNECTION, CLASS "P", ELECTRONIC TYPE, WITH A BALLAST FACTOR OF >0.92, THD OF <10%, AND CREST FACTOR OF 1.7.
- B. LIGHTING FIXTURE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL LIGHTING FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. LIGHT FIXTURES AND SPRINKLER HEAD LOCATIONS SHALL, UNLESS OTHERWISE NOTED, TAKE PRECEDENCE OVER AIR DISTRIBUTION
- C. ALL FLUORESCENT BALLASTS SHALL BE PROVIDED WITH DISCONNECTING MEANS PER NEC

22. <u>EMERGENCY LIGHTING:</u>

- A. THE ELECTRICAL CONTRACTOR SHALL INSTALL AN EMERGENCY LIGHTING SYSTEM AS SHOWN ON THE DRAWINGS, CONFORMING TO THE 2006 INTERNATIONAL FIRE CODE AND THE MICHIGAN
- B. BRANCH CIRCUIT CONDUCTORS FOR EMERGENCY LIGHTS SHALL NOT RUN IN RACEWAY WITH OTHER BRANCH CIRCUIT CONDUCTORS, NOR SHALL THEY ENTER AN OUTLET BOX WITH OTHER

23. <u>EMERGENCY LIGHTING UNITS:</u>

- A. FURNISH AND INSTALL BATTERY OPERATED EMERGENCY LIGHTING UNITS AT LOCATIONS INDICATED ON THE PLANS OF TYPES SCHEDULED ON PLANS.
- B. EMERGENCY LIGHTING UNITS SHALL INCLUDE A SUITABLE SHELF OR WALL MOUNTING BRACKET AND SHALL CONTAIN ALL NECESSARY MODULES, READY AND HIGH CHARGE INDICATOR PILOT LIGHTS, TEST SWITCH, LAMPS, AND SUITABLE TERMINAL BOARDS FOR CONNECTION OF NORMAL ELECTRICAL SUPPLY CABLES.
- C. BATTERIES SHALL BE LEAD CALCIUM TYPE, OR NI-CAD TYPE, AS SCHEDULED.
- D. BATTERY CHARGER SHALL BE DESIGNED AS TO MAINTAIN THE BATTERIES FULLY CHARGED ON THE TRICKLE RATE.

24. <u>DISCONNECT SWITCHES:</u>

DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE, NEMA 1 FOR INDOOR USE, AND NEMA 3R OUTDOOR USE RATED 600 VOLT. DISCONNECT SWITCHES SERVING MOTOR LOADS SHALL BE HORSEPOWER RATED. SQUARE D, CUTLER-HAMMER OR SIEMENS ENERGY AND AUTOMATION.

- A. STARTERS FOR SINGLE PHASE MOTORS SHALL BE MANUAL TOGGLE SWITCH TYPE WITH THERMAL OVERLOADS, SURFACE OR FLUSH MOUNTED AS REQUIRED. SQUARE D CLASS 2510.
- B. STARTERS FOR THREE PHASE MOTORS SHALL BE MAGNETICALLY OPERATED, MECHANICALLY-HELD TYPE WITH OVERLOADS, CONTROL TRANSFORMER AND 2 AUXILIARY CONTACTS, WITH HOA SELECTOR SWITCH AND RED & GREEN PILOT LIGHTS MOUNTED IN FRONT COVER. STARTERS SHALL BE MOUNTED IN NEMA 3R ENCLOSURES FOR USE IN KITCHEN AREAS, NEMA 1 IN INDOOR FINISHED AREAS, AND NEMA 4 FOR OUTDOOR INSTALLATION. SQUARE D CLASS 8536.

26. TRANSFORMERS - GENERAL DUTY DRY TYPE:

- A. DRY-TYPE TRANSFORMERS SHALL BE MOUNTED WITHIN THE INTEGRATED POWER CENTER AND SHALL BE RATED AS INDICATED WITH 480 VOLT PRIMARY WITH TWO 2-1/2% ABOVE AND BELOW THE NORMAL TAPS AND 120/208 VOLT. 3-PHASE, 4-WIRE SECONDARIES. TRANSFORMERS SHALL HAVE GROUP II INSULATION WITH TEMPERATURE RISE NOT EXCEEDING 150 DEGREES C UNDER FULL LOAD IN A MAXIMUM AMBIENT OF 40 DEGREES C. THE TRANSFORMERS SHALL BE BUILT IN ACCORDANCE WITH THE LATEST REVISED STANDARD OF AIEE, ASS, AND NEMA STANDARDS. THE FOLLOWING TESTS SHALL BE GIVEN AT THE FACTORY:
 - 1) APPLIED VOLTAGE TEST (TO OTHER WIRING AND GROUND). HIGH VOLTAGE AND LOW VOLTAGE 4 KV.
 - 2) INDUCED VOLTAGE TEST 2 TIMES NORMAL VOLTAGE.
 - 3) RATIO, POLARITY AND SOUND LEVEL.
 - 4) SOUND LEVELS SHALL NOT EXCEED 50 DB'S ON UNITS 150 KVA AND SMALLER AND 55 DB'S ON LARGER TRANSFORMERS.
- B. TRANSFORMERS SHALL HAVE A MINIMUM OF 10 PERCENT OVERLOAD CAPACITY AT RATED VOLTAGE. CERTIFIED TEMPERATURE TEST OF ELECTRICAL DUPLICATE UNITS SHALL BE SUPPLIED UPON REQUEST.
- C. TRANSFORMERS DESIGN SHALL INCORPORATE BUILT-IN VIBRATION DAMPENING SYSTEM.
- D. CONNECTION BETWEEN HIGH VOLTAGE PANEL AND TRANSFORMER, AND TRANSFORMER AND LOW VOLTAGE PANEL SHALL BE MADE WITH WIRES IN FLEXIBLE STEEL CONDUIT OR WITH FLEXIBLE ARMORED CABLE. FLEXIBLE WIRING SHALL BE INSTALLED SO AS TO MINIMIZE TRANSMISSION OF HUM. GROUND WIRES SHALL BE PROVIDED AND SHALL BE BONDED TO NON-CURRENT CARRYING METAL PARTS.
- 27. CONNECTION OF MECHANICAL EQUIPMENT:
- A. THE ELECTRICAL CONTRACTOR IS CAUTIONED TO NOTE CAREFULLY OTHER SECTIONS OF THESE SPECIFICATIONS DESCRIBING ELECTRICAL EQUIPMENT TO BE FURNISHED UNDER THOSE SECTIONS IN ORDER THAT HE MAY FULLY UNDERSTAND THE WIRING REQUIREMENTS.
- B. ALL POWER WIRING AND FEEDERS FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. MOTOR STARTERS WHICH ARE NOT AN INTEGRAL PART OF EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SAFETY OR DISCONNECT SWITCHES WHERE INDICATED OR REQUIRED SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. MOTOR CONTROL WIRING AND EQUIPMENT WILL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED OR INDICATED ON THE DRAWINGS.
- C. COORDINATE ALL REQUIRED CONTROL WIRING AND LOW VOLTAGE WIRING WITH MECHANICAL **EQUIPMENT SUPPLIER.**

28. SHOP DRAWINGS:

ELECTRICAL CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW PRIOR TO INSTALLATION OF LIGHTING FIXTURES, ELECTRICAL DISTRIBUTION PANELS, MOTOR STARTERS, DISCONNECT SWITCHES, AND WIRING DEVICES. NOTE: REVIEW OF CONTRACTORS SHOP DRAWINGS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR OF HIS RESPONSIBILITY TO CONFORM TO THE CONTRACT DOCUMENTS AND APPLICABLE CODES.

ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED BY HIS WORKMEN UNDER THIS CONTRACT TO BE FREE FROM ALL DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER, AND SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AT NO EXPENSE TO THE OWNER.

30. <u>NAMEPLATES</u>

MOTOR CONTROLS, PANELBOARDS, DISCONNECT SWITCHES, ETC., SHALL BE IDENTIFIED WITH MANUFACTURER'S NAMEPLATES, SHOP ORDERS, WHERE APPLICABLE ON COMPOSITE ASSEMBLIES, AND DESIGNATIONS USED ON THE DRAWINGS. NAMEPLATES FOR THIS PURPOSE SHALL BE LAMINATED PHENOLIC PLASTIC, BEVELED EDGE, BLACK WITH ENGRAVED WHITE LETTERS. EXCEPT WHERE IMPRACTICAL, LETTERS AND NUMERALS SHALL BE A MINIMUM OF 1/2" HIGH. DYMO LABELS SHALL NOT BE USED FOR THIS PURPOSE. PANEL DIRECTORIES SHALL BE NEATLY TYPED SHOWING EQUIPMENT SERVED AND LOCATION FOR EACH BREAKER OR SWITCH.

31. FINAL TESTING:

ALL CIRCUITS AND EQUIPMENT SHALL BE TESTED UPON COMPLETION OF WORK AND FINAL TESTS, WHEN REQUESTED, SHALL BE DONE IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. ANY CIRCUITS OR EQUIPMENT FOUND TO BE DEFECTIVE SHALL BE REPLACED OR REPAIRED, AS NECESSARY, AND THEN RETESTED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

32. <u>CLEANING:</u>

UPON COMPLETION OF THE PROJECT, ALL ENCLOSURES SHALL BE LEFT FREE OF REFUSE AND THE EXTERIOR FREE OF DIRT AND PAINT SPLATTERS.

33. OCCUPANCY SENSOR LIGHTING CONTROL EQUIPMENT:

A SCOPE OF WORK:

- CONTRACTOR SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, APPLIANCES, CONTROL HARDWARE, SENSOR, WIRE, JUNCTION BOXES AND EQUIPMENT NECESSARY FOR AND INCIDENTAL TO THE DELIVERY, INSTALLATION AND FURNISHING OF A COMPLETELY OPERATIONAL OCCUPANCY SENSOR LIGHTING CONTROL SYSTEM, AS DESCRIBED
- 2) CONTRACTOR SHALL COORDINATE ALL WORK DESCRIBED IN THIS SECTION WITH ALL OTHER APPLICABLE PLANS AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO WIRING, CONDUIT, FIXTURES, HVAC SYSTEMS AND BUILDING MANAGEMENT SYSTEMS.
- B. ALL COMPONENTS SHALL BE UL LISTED, OFFER A FIVE (5) YEAR WARRANTY AND MEET ALL STATE AND LOCAL APPLICABLE CODE REQUIREMENTS.
- C. SUBMIT A LIGHTING PLAN, PRIOR TO INSTALLATION, CLEARLY MARKED BY MANUFACTURER SHOWING PROPER PRODUCT, LOCATION AND ORIENTATION OF EACH SENSOR.
- D. CONTRACTOR SHALL VERIFY AND MAKE ALL PROPER ADJUSTMENTS TO ASSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SYSTEM. CONTRACTOR SHALL TRAIN OWNER'S PERSONNEL TO ENSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SYSTEM.

E. PRODUCTS:

- 1) ALL EQUIPMENT INDICATED ON PLANS ARE BASED ON PRODUCTS MANUFACTURED BY SENSORSWITCH, COOPER CONTROLS, OR WATT STOPPER.
- 2) ALTERNATE MANUFACTURERS EQUIPMENT WILL BE CONSIDERED FOR USE ON THIS PROJECT. HOWEVER, ALL EQUIPMENT PROPOSED AS EQUAL TO THAT SPECIFIED SHALL BE SIMILAR IN APPEARANCE, AND OPERATIONAL CHARACTERISTICS SHALL BE EQUAL TO OR BETTER THAN EQUIPMENT INDICATED ON PLANS. ALTERNATE MANUFACTURERS SHALL REFER TO PRODUCT LITERATURE PUBLISHED BY WATT STOPPER TO DETERMINE EQUIVALENCY OF THEIR ALTERNATE PROPOSED PRODUCT TO THAT SPECIFIED.

3) CIRCUIT CONTROL HARDWARE:

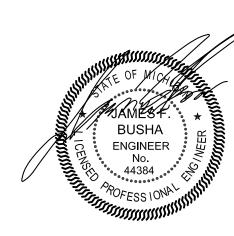
a. CONTROL UNITS - FOR EASE OF MOUNTING, INSTALLATION AND FUTURE SERVICE. CONTROL UNIT(S) SHALL BE ABLE TO EXTERNALLY MOUNT THROUGH A 1/2" KNOCK-OUT ON A STANDARD ELECTRICAL ENCLOSURE.

4) CONTROL WIRING:

- a. CONTROL WIRING BETWEEN SENSORS AND CONTROLS UNITS SHALL BE CLASS II. 18-24 AWG, STRANDED U.L. CLASSIFIED, PVC INSULATED OR TEFLON JACKETED CABLE SUITABLE FOR USE IN PLENUMS. WHERE APPLICABLE.
- b. MINIMUM ACCEPTABLE WIRE GAUGE FROM THE CIRCUIT CONTROL HARDWARE RELAYS SHALL BE #14 AWG.

F. INSTALLATION:

- 1) THE LOCATIONS OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE ONLY THE ROOMS WHICH ARE TO BE PROVIDED WITH
- 2) PROPER JUDGMENT MUST BE EXERCISED IN EXECUTING THE INSTALLATION SO AS TO ENSURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND TO OVERCOME LOCAL DIFFICULTIES DUE TO SPACE LIMITATIONS OR INTERFERENCE OF STRUCTURAL COMPONENTS. THE CONTRACTOR SHALL ALSO PROVIDE, AT THE OWNER'S FACILITY, THE TRAINING NECESSARY TO FAMILIARIZE THE OWNER'S PERSONNEL WITH THE OPERATION, USE, ADJUSTMENT, AND PROBLEM SOLVING DIAGNOSIS OF THE OCCUPANCY SENSING DEVICES AND SYSTEMS.





mechanical electrical 1415 Goldsmith Plymouth, MI 48170 P 734-454-5516 F 734-454-551

THIS DRAWING IS DIAGRAMMATIC AND SHOULD BE USED TO DETERMINE THE DESIGN INTENT. THE CONTRACTOR SHALL FIELD VERIFY ALL WORK AND SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES IN THE DOCUMENTS BEFORE PROCEEDING. FAILURE TO DO SO WILL RESULT IN THE CONTRACTOR TAKING FULL RESPONSIBILITY AND LIABILITY FOR SAID DISCREPANCIES. NOTICE: THIS DRAWING AND THE DESIGN ARE THE PROPERTY OF MECHANICAL ELECTRICAL ENGINEERIN CONSULTANTS, PC AND NO ALTERATIONS AND/OR TRANSFERS OF BY MECHANICAL ELECTRICAL ENGINEERING CONSULTANTS, PO