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ADDENDUM

PROJECT:
Park Place Apartments
Red Wing, MN
Project No. 18011

ADDENDA #1
Date: October 23rd, 2018

Please make the following changes to the plans previously issued October 4th, 2018. Revisions noted with Letter "A" on the Architectural plans. Also see Attachment A for equipment efficiency requirements per Xcel Energy.

Sheet A001 – Title Page

1. Sheets were added to the structural set.

Sheet A030 – Bay Garage Plans

2. The poured wall was adjusted at the man door.
3. Columns were added to match the Structural Drawings.
4. The inflammable waste trap was relocated, verify location with G.C.
5. Truss bearing height was adjusted on section 1/A030.

Sheet S101B – Foundation Plan Area B

6. Pedestrian Walkway information added to the sheet.

Sheet S101G – Bay Garage Foundation

7. This sheet was added to the structural set.

Sheet S201B – First Floor Framing Plan Area B

8. Pedestrian Walkway information added to the sheet.

Sheet S201G – Bay Garage Roof Framing Plan

9. This sheet was added to the structural set.

Sheet S303 – Foundation Details

10. This sheet was added to the structural set.

Sheet S406 – Framing Details

11. This sheet was added to the structural set.

END OF ADDENDA

Norm E. Cole

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Norman E. Cole, IA Reg. # 03883
s: \Addenda Letters\2017\18011

PARK PLACE APARTMENTS

RED WIND, MN.

PROJECT TEAM:

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MECHANICAL ENGINEER:	DESIGN BUILD/DEFERRED SUBMITTAL
ELECTRICAL ENGINEER:	DESIGN BUILD/DEFERRED SUBMITTAL
PLUMBING ENGINEER:	DESIGN BUILD/DEFERRED SUBMITTAL
FIRE ALARM & FIRE SUPPRESSION CONSULTANT:	DESIGN BUILD/DEFERRED SUBMITTAL

REVISION LOG

1 10-23-18 - ADDENDA #1	6 -
2 -	7 -
3 -	8 -
4 --	9 -
5 -	10 -
6 -	11 -

CODE SUMMARY

1. BUILDING DESCRIPTION:

A NEW (4) STORY 109,656 S.F. 108 UNIT APARTMENT OVER A 27,462 S.F. UNDERGROUND PARKING GARAGE ATTACHED TO A 11,990 BAY GARAGE VIA A 492 SF PEDESTRIAN WALKWAY

2. BLDG. SUMMARY:

2012 I.B.C., 2015 MINNESOTA STATE BUILDING CODE, AND OTHER RELATED CODES.

A. CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION
R-2 OCCUPANCY - APARTMENT HOUSE - (SECTION 310.4)
S-2 OCCUPANCY - (1) LOW HAZARD UNDERGROUND PARKING GARAGE - (SECTION 311.3)
S-2 OCCUPANCY - (2) LOW HAZARD ON-GRADE PARKING GARAGE - (SECTION 311.3)

B. CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASE ON USE AND OCCUPANCY
- AUTOMATIC SPRINKLER REQUIRED FOR S-2 (1) (SECTION 406.6)
- WALLS SEPARATING DWELLING UNITS IN R-2 CONSTRUCTED AS FIRE PARTITIONS (SECTION 420.2)

C. CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS

ALLOWABLE HEIGHT: (TABLE 503)
R2 OCCUPANCY ALLOWED: 4 STORIES OR 70'-0" (SPRINKLER INCREASE 504.2)
R2 OCCUPANCY ACTUAL: 4 STORIES & 45'-0"
S2 OCCUPANCY ALLOWED (1): 5 STORIES OR 70'-0" (SPRINKLER INCREASE 504.2)
S2 OCCUPANCY ACTUAL (1): 1 STORY (UNDERGROUND)
S2 OCCUPANCY ALLOWED (2): 2 STORIES OR 40'-0"
S2 OCCUPANCY ACTUAL (2): 1 STORY (ABOVE GRADE) OR 17'-0"

ALLOWABLE AREA: (TABLE 503)
EQUATION 5-2 (FRONTAGE INCREASE)
AVG. WIDTH (W) = [(A' X 30') + (B' X 30') + (C' X 30') + (D' X 30')/A+B+C+D
AVG. WIDTH (W) = 30'

$\left[\frac{F}{P} - 0.25\right] \frac{W}{30}$ IF = 75 (MAX)

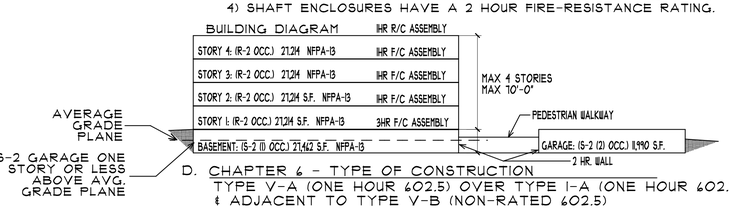
$\left[\frac{A+B+C+D}{TOTAL} - 0.25\right] \frac{30'}{30'}$ IF = 75

S-2 FRONTAGE INCREASE:
21,000 X 0.75 = 15,750 S.F.
R-2 FRONTAGE INCREASE:
12,000 X 0.75 = 9,000 S.F.

BASIC ALLOWABLE FLOOR AREA: (FROM TABLE 503)	FOR R2 = 12,000 S.F.
SPRINKLER AREA INCREASE;	24,000 S.F.
FRONTAGE AREA INCREASE;	9,000 S.F.
ALLOWABLE FLOOR AREA:	45,000 S.F.
ACTUAL FLOOR AREA (LARGEST FLOOR IST FLOOR):	27,214 S.F. (OKAY)

BASIC ALLOWABLE FLOOR AREA: (FROM TABLE 503)	FOR S2 (1) = 21,000 S.F.
SPRINKLER AREA INCREASE;	42,000 S.F.
FRONTAGE AREA INCREASE;	15,750 S.F.
ALLOWABLE FLOOR AREA:	78,750 S.F.
ACTUAL FLOOR AREA:	27,462 S.F. (OKAY)
BASIC ALLOWABLE FLOOR AREA: (FROM TABLE 503)	FOR S2 (2) = 13,500 S.F.
ALLOWABLE FLOOR AREA:	13,500 S.F.
ACTUAL FLOOR AREA:	11,990 S.F. (OKAY)

OCCUPANCY SEPARATION (SECTION 510.0):
R2 OCCUPANCY TO S2 OCCUPANCY
1) BUILDINGS SEPARATED WITH HORIZ. ASSEMBLY HAVING A FIRE-RESISTANCE OF 3 HOURS.
2) S-2 (1) GARAGE IS ONLY ONE STORY ABOVE GRADE PLANE.
3) S-2 (1) GARAGE IS OF TYPE IA CONSTRUCTION. EXTERIOR WALLS ALLOWED TO BE NON-RATED PER TABLE 602
4) SHAFT ENCLOSURES HAVE A 2 HOUR FIRE-RESISTANCE RATING.



D. CHAPTER 6 - TYPE OF CONSTRUCTION
TYPE V-A (ONE HOUR 602.5) OVER TYPE I-A (ONE HOUR 602.2) & ADJACENT TO TYPE V-B (NON-RATED 602.5)

E. CHAPTER 7 - FIRE AND SMOKE PROTECTION FEATURES
FIRE WALLS (SECTION 706) - (2) 2 HR RATED
PROVIDED AT EACH SIDE OF THE PEDESTRIAN WALKWAY
FIRE BARRIER (SECTION 707) - 2HR RATED (SECTION 713)
PROVIDED AT STAIRWAY & ELEVATOR SHAFTS.
FIRE PARTITION (SECTION 708) - 1HR RATED (SECTION 420.2)
PROVIDED AT WALLS SEPARATING DWELLING UNITS AND EXTERIOR/INTERIOR BEARING WALLS.
SMOKE BARRIERS (SECTION 709) - NOT REQUIRED.
SMOKE PARTITIONS (SECTION 710) - NOT REQUIRED.
HORIZONTAL ASSEMBLIES (SECTION 711) - 1HR RATED FLOOR/CEILING AND ROOF/CEILING REQUIRED AND PROVIDED AT EACH STORY OF R-2 OCC.

F. CHAPTER 8 - INTERIOR FINISHES
ALL FINISHES SHALL COMPLY WITH INTERIOR FINISH REQUIREMENTS, FLAME SPREAD RATINGS ETC.

G. CHAPTER 9 - FIRE PROTECTION SYSTEMS
S-2 (1) AUTOMATIC SPRINKLER NFPA-13 (SECTION 903.2.10)
R-2 AUTOMATIC SPRINKLER NFPA-13 (SECTION 903.3.1.1 & 903.2.8)
S-2 (2) NOT REQUIRED PER 903.2.10 (UNDER 12,000 SF)

H. CHAPTER 10 - MEANS OF EGRESS (TABLE 1004.1.2)

FOURTH FLOOR:
R-2 OCCUPANCY: 27,214 S.F.
27,214 S.F./200 S.F. PER OCC. = 137
(2) EXITS REQUIRED, (2) EXITS PROVIDED.

THIRD FLOOR:
R-2 OCCUPANCY: 27,214 S.F.
27,214 S.F./200 S.F. PER OCC. = 137
(2) EXITS REQUIRED, (2) EXITS PROVIDED.

SECOND FLOOR:
R-2 OCCUPANCY: 27,214 S.F.
27,214 S.F./200 S.F. PER OCC. = 137
(2) EXITS REQUIRED, (2) EXITS PROVIDED.

GARAGE FLOOR:
S-2 (1) OCCUPANCY: 27,462 S.F.
27,462 S.F./200 S.F. PER OCC. = 138
(2) EXITS REQUIRED, (2) EXITS PROVIDED.

S-2 (2) OCCUPANCY: 11,990 S.F.
11,990 S.F./200 S.F. PER OCC. = 60
(2) EXITS REQUIRED, (2) EXITS PROVIDED.

FIRST FLOOR:
COMMUNITY RM. (A-3): 1,021 S.F. (LESS THAN 10% OF FLOOR AREA)
1,021 S.F./15 S.F. PER OCC. = 69 (2) EXITS REQ'D.
FITNESS RM. (A-3): 1,042 S.F. (LESS THAN 10% OF FLOOR AREA)
1,042 S.F./50 S.F. PER OCC. = 21 (1) EXIT REQUIRED
R-2 OCCUPANCY: 25,151 S.F.
25,151 S.F./200 S.F. PER OCC. = 126
OCCUPANT LOAD ALL FLOORS 4TH (137) + 3RD (137) + 2ND (137) + 1ST (216) + GAR (138) = 765
(3) EXITS REQUIRED (1021.2.4) AND (2) REQ'D. TO BE ACCESSIBLE
(5) EXITS PROVIDED AND (4) ARE ACCESSIBLE MEANS OF EGRESS

I. CHAPTER 11 - ACCESSIBILITY
ALL INTERIOR AND EXTERIOR SPACES SHALL COMPLY
REQUIRED UNIT TYPES (SECTION 1107.6.2.1.1):
R-2 REQUIRES 2% TYPE "A" UNITS THE REMAINDER TYPE "B" UNITS
108 TOTAL UNITS PROVIDED
(3) TYPE "A" UNITS ARE REQUIRED - (3) TYPE "A" UNITS ARE PROVIDED.
PUBLIC ENTRANCES (SECTION 1105.1):
(2) ACCESSIBLE ENTRANCES ARE REQUIRED, (2) ACCESSIBLE ENTRANCES PROVIDED
ACCESSIBLE PARKING SPACES (SECTION 1106.2):
R-2 REQUIRES 2% WHERE PARKING IS PROVIDED
(3) UNDERGROUND PARKING STALLS ARE REQUIRED (INCLUDES BAY GARAGE)
(3) UNDERGROUND PARKING STALLS ARE PROVIDED
MINIMUM OF 1'-0" CLEAR FROM GARAGE ENTRANCE OPENING TO THE VAN ACCESSIBLE PARKING STALL REQUIRED PER EXCEPTION IN 1104.5.

J. CHAPTER 13 - ENERGY EFFICIENCY
RADON MITIGATION (MN ADMIN RULES 1303.2400):
SUBP. 3. MIXED OCCUPANCIES; ALL ASSEMBLIES THAT SEPARATE THE NON-RESIDENTIAL (UNDERGROUND GARAGE), FROM THE RESIDENTIAL (APARTMENT) SHALL BE COMPLETELY SEALED TO PREVENT THE MOVEMENT OF AIRBORNE GASES. SEE DETAIL 20/A802.
2015 M.N. RESIDENTIAL ENERGY CODE (PRESCRIPTIVE METHOD - TABLE R402.1.1)
RED WING, MN - GOODHUE COUNTY (ZONE 6)

CATEGORY	FENESTRATION	CEILING	WOOD FRAME WALL	BASEMENT
REQUIRED	0.32 U-FACTOR	R-49	R-21 CAVITY	R15
PROVIDED	0.30 OR LOWER	R-49 MIN.	R-21 CAVITY	R15 C.I.

*R-VALUES ARE MINIMUMS, U-FACTORS ARE MAXIMUMS

K. CHAPTER 29 - PLUMBING SYSTEMS
PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1):
R-2 (APARTMENT) = (1) TOILET & SINK PER UNIT
(1) TOILET & SINK PROVIDED PER UNIT
REQUIRED TUB/SHOWERS = (1) PER UNIT
(1) TUB/SHOWER PROVIDED PER UNIT
NO DRINKING FOUNTAIN REQUIRED, ONE DRINKING FOUNTAIN PROVIDED.
(1) SERVICE SINK REQUIRED, (3) SERVICE SINKS PROVIDED.

SHEET INDEX

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These documents are not valid for building permit unless signed in ink and dated. Copies are not valid.
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Architect under the laws of the state of MINNESOTA
Date 10-4-18
22288
Name NORMAN E. COLE Signature

DEVELOPER: KB KELLER/BAARTMAN PROPERTIES
RED WING, MN
(651) 388-0000

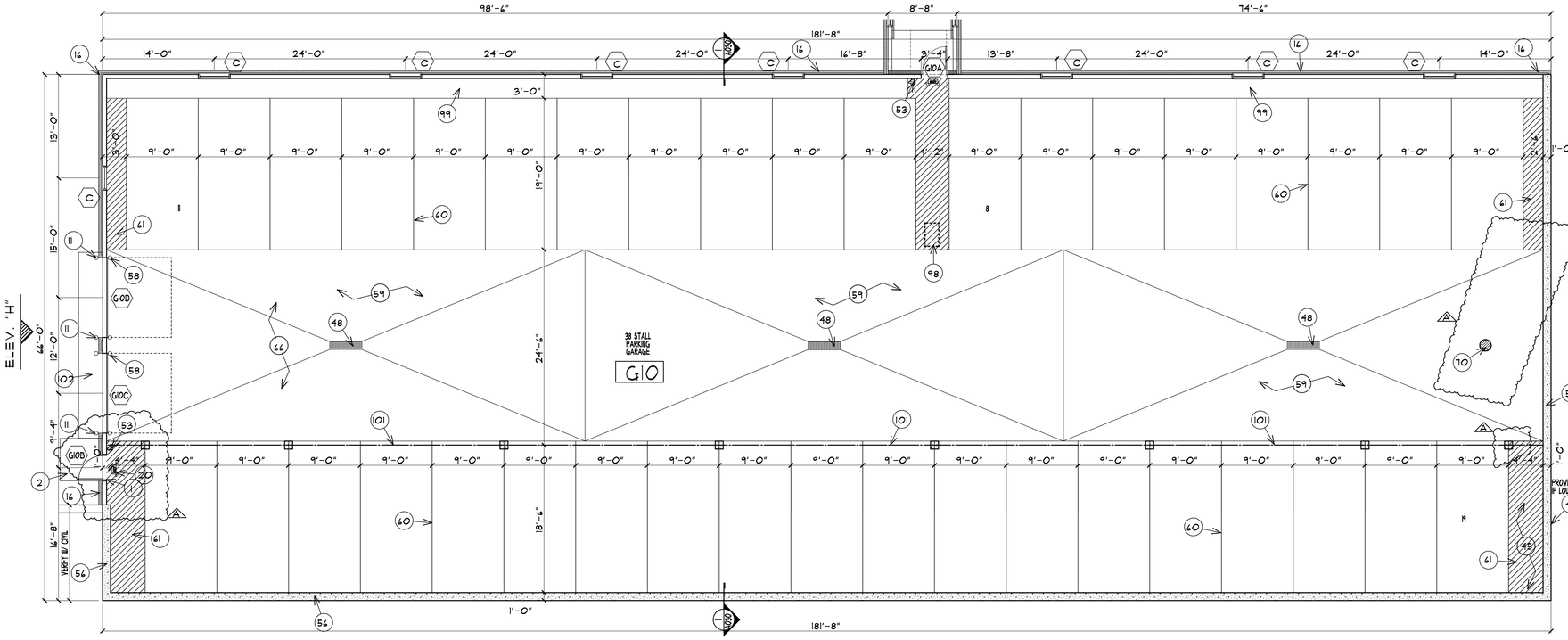
PROPOSED 108 UNIT: PARK PLACE APARTMENTS
RED WING, MN

REVISIONS COMMENTS	REVISIONS COMMENTS
1 10-23-18 ADDEN #1	

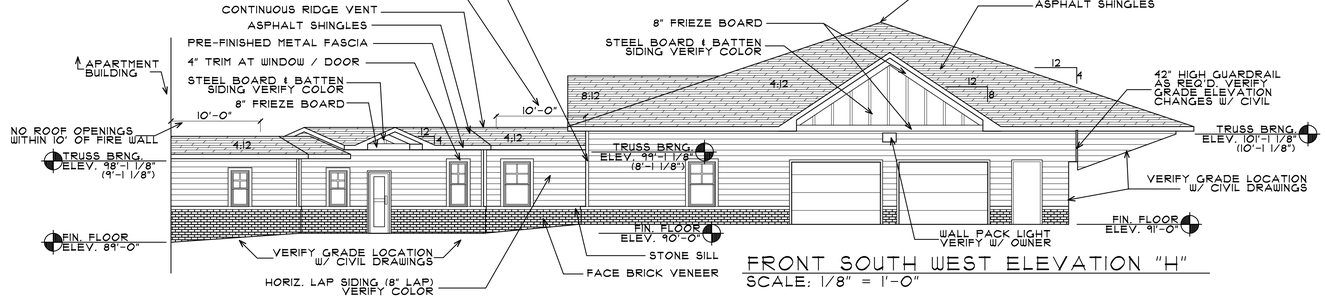
Project No. 1801
Submittal Date: 10-4-18
Document Set: PERMIT SET

A001

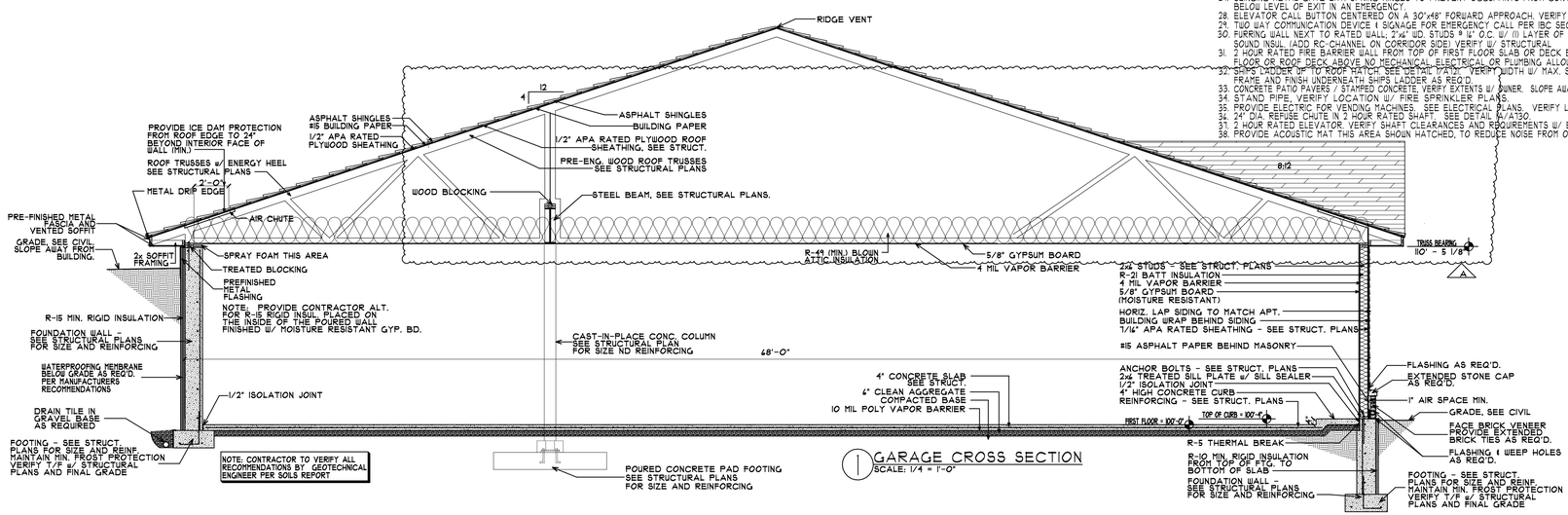
PLOTTED: 10-23-18 FILE: 1801TE COM: 4



BAY GARAGE PLAN 38 PARKING STALLS - 11,990 SF
SCALE: 1/8" = 1'-0"



FRONT SOUTH WEST ELEVATION "H"
SCALE: 1/8" = 1'-0"



GARAGE CROSS SECTION
SCALE: 1/4 = 1'-0"

FLOOR PLAN NUMBER NOTES

EXTERIOR/ENTRY/LOBBY NOTES

1. MAINTAIN ACCESSIBLE DOOR CLEARANCES. SEE DETAILS 1 & 15C/A30I.
2. FROST STOOP SIZED TO ACCOMMODATE REQ'D. ADA CLEARANCES, SEE STRUCTURAL PLANS.
3. FIRE DEPARTMENT HOSE CONNECTION. VERIFY LOCATION WITH FIRE MARSHAL.
4. FIRE DEPARTMENT KEY BOX. VERIFY LOCATION WITH FIRE MARSHAL.
5. FIRE DEPARTMENT SPRINKLER ALARM PANEL. VERIFY LOCATION WITH FIRE MARSHAL.
6. INTERCOM SECURITY SYSTEM. SEE ELECT. PLANS.
7. CONCRETE PATIO SLOPED AWAY FROM BLDG. OR SUSPENDED DECK W/ 42" HIGH PREFINISHED METAL GUARD RAIL W/ INTERMEDIATE BALUSTERS 4" O.C.
8. LINE OF ROOF / FLOOR BELOW.
9. LINE OF ROOF, FLOOR OR BALCONY ABOVE, SHOWN DASHED.
10. RECESSED MAIL BOXES, VERIFY STYLE AND SIZE WITH G.C. SEE DETAILS 28 & 29/A802.
11. CONCRETE FILLED STEEL PIPE BOLLARD. SEE DETAILS 42/A803.
12. STAIRWAY, VERIFY MATERIAL W/ OWNER. 1" MAX. RISE & 11" MIN. TREAD DEPTH.
13. STRUCTURAL COLUMN W/ DECORATIVE COLUMN COVER, SEE STRUCTURAL DRAWINGS AND DETAIL 41/A901 IF POST LESS THAN 8'X8'.
14. EXTEND HANDRAIL WIDTH OF TREAD AT ANGLE OF STAIR, PLUS 12" HORIZ. PAST BOTTOM RISER.
15. NOT USED.
16. FACE BRICK VENEER SEE ELEVATIONS, VERIFY W/ OWNER.
17. CULTURED STONE VENEER SEE ELEVATIONS, VERIFY W/ OWNER.
18. ACCESSIBLE PUSH BUTTON DOOR OPENER 15" MIN. TO 48" MAX. A.F.F.
19. MAIL PACKAGING SYSTEM, VERIFY REQUIREMENTS W/ OWNER / G.C.

CORRIDOR/STAIR/GEN. NOTES

20. EMERGENCY/EXIT LIGHTING PER CODE. SEE ELECTRICAL PLANS FOR LOCATIONS.
21. FIRE EXTINGUISHER IN RECESSED CABINET. SEE DETAILS 10/A301 AND 5/A801. VERIFY LOCATIONS AND QUANTITIES WITH FIRE MARSHAL.
22. HANDRAIL MOUNTED 34-38" A.F.F. ON BOTH SIDES OF STAIRWAY / RAMP. VERIFY STYLE AND FINISH WITH G.C.
23. EXTEND HANDRAIL 1" OR WIDTH OF TREAD MIN. PAST BOTTOM RISER / EDGE OF RAMP.
24. EXTEND HANDRAIL 12" PAST TOP RISER.
25. 42" HIGH HALF WALL w/ WOOD CAP. SLOPE AS REQ'D W/ STAIR.
26. 42" HIGH GUARDRAIL WITH INTERMEDIATE BALUSTERS 4" O.C. MAX.
27. SWINGING METAL GATE WITH SPRING HINGES TO PREVENT OCCUPANTS FROM CONTINUING DOWN BELOW LEVEL OF EXIT IN AN EMERGENCY.
28. ELEVATOR CALL BUTTON CENTERED ON A 30"x48" FORWARD APPROACH. VERIFY LOCATION W/ ELEV. MFGR.
29. TWO WAY COMMUNICATION DEVICE I SIGNAGE FOR EMERGENCY CALL PER IBC SECTION 1007.8.
30. FURRING WALL NEXT TO RATED WALL; 2"x4" WD. STUDS @ 16" O.C. W/ (1) LAYER OF 5/8" GYP. BD & SOUND INSUL. (ADD RC-CHANNEL ON CORRIDOR SIDE) VERIFY W/ STRUCTURAL
31. 2 HOUR RATED FIRE BARRIER WALL FROM TOP OF FIRST FLOOR SLAB OR DECK BELOW TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE. NO MECHANICAL, ELECTRICAL OR PLUMBING ALLOWED WITHIN THE WALL.
32. SHIPS LADDER UP TO ROOF HATCH. SEE DETAIL 7/A120. VERIFY WIDTH W/ MAX. SPAN OF SHTG. FRAME AND FINISH UNDERNEATH SHIPS LADDER AS REQ'D.
33. CONCRETE PATIO PAVERS / STAMPED CONCRETE. VERIFY EXTENTS W/ OWNER. SLOPE AWAY FROM BUILDING AS REQ'D.
34. STAND PIPE. VERIFY LOCATION W/ FIRE SPRINKLER PLANS.
35. PROVIDE ELECTRIC FOR VENDING MACHINES. SEE ELECTRICAL PLANS. VERIFY LOCATION W/ G.C.
36. 24" DIA. REFUSE CHUTE IN 2 HOUR RATED SHAFT. SEE DETAIL 4/A130.
37. 2 HOUR RATED ELEVATOR. VERIFY SHAFT CLEARANCES AND REQUIREMENTS W/ ELEV. MFGR.
38. PROVIDE ACOUSTIC MAT THIS AREA SHOWN HATCHED, TO REDUCE NOISE FROM O.H.D. BELOW.

MECH./ELECT./STRUCT. NOTES

39. FLOOR DRAIN. VERIFY LOCATION WITH PLUMBING PLANS.
40. SERVICE SINK. SEE PLUMBING PLANS. PROVIDE FRP ON ADJACENT WALLS 48" HIGH.
41. FOR EQUIPMENT THIS ROOM/CHASE SEE MECHANICAL/ELECTRICAL PLANS.
42. LOUVER FOR HVAC EQUIPMENT. VERIFY W/ MECH. & STRUCT. DRAWINGS.
43. SUMP PIT W/ PUMP. VERIFY LOCATION W/ MECHANICAL DRAWINGS.
44. SPRINKLER RISER. SEE FIRE SUPPRESSION PLANS.
45. GARAGE H.V.A.C. UNIT. SEE MECHANICAL PLANS.
46. 2 HR. RATED MECHANICAL CHASE. VERIFY SIZE. SEE DET. 33/A802.
47. ACCESSIBLE WATER CLOSET - PROVIDE BLOCKING FOR GRAB BARS. SEE DETAILS 1,2,3 & 7C/A301.
48. TRENCH DRAIN. VERIFY W/ MECHANICAL DRAWINGS. SEE DET. 35/A803.
49. ACCESSIBLE WALL HUNG LAVATORY. SEE DETAILS 4 & 11C/A301.
50. ELECTRIC FIREPLACE WITH MANTLE. SURROUND AND HEARTH. VERIFY BUILT-IN CABINETRY, SHELVING & DATA REQUIREMENTS W/ OWNER. VERIFY MODEL WITH G.C. AND FINISHES WITH INTERIOR DESIGN.
51. SOFFIT LIGHTING ABOVE, SEE ELECT. PLANS.

GARAGE NOTES

52. MIN. 1 HOUR RATED PRE-CAST CONCRETE COLUMN. SEE STRUCTURAL PLANS.
53. SURFACE MOUNTED FIRE EXTINGUISHER. VERIFY LOCATIONS WITH FIRE MARSHAL. SEE DETAIL 10/A301.
54. MIN. 1 HOUR RATED PRE-CAST CONCRETE BEAM ABOVE, SHOWN DASHED. SEE STRUCTURAL PLANS.
55. POURED CONCRETE PIER. SEE STRUCTURAL PLANS FOR REINFORCING/FOOTING.
56. POURED CONCRETE WALL. SEE STRUCTURAL.
57. 12" POURED CONCRETE FOUNDATION WALL. SEE STRUCTURAL.
58. BOLT-DOWN STEEL PIPE BOLLARD. SEE DET. 42/A803.
59. SLOPE FLOOR AS REQ'D. TO FLOOR DRAINS. VERIFY W/ G.C.
60. PAINTED PARKING STRIPES.
61. PAINTED PARKING STRIPED AREA FOR NO PARKING.
62. ACCESSIBLE PARKING STALL SIGN MOUNTED TO WALL AS REQ'D. SEE 2/A100A.
63. ACCESSIBLE PARKING STALL MAX. SLOPE 1:48 WITH PAINTED SYMBOL. SEE DETAIL 3/A100A.
64. ACCESSIBLE AISLE WITH PAINTED STRIPES MAX. SLOPE 1:48.
65. PROVIDE GYPSUM BOARD FINISH OVER CONCRETE WALLS THIS SPACE. SEE 40/A803.
66. O.H.D. OPERATOR LOOP IN SLAB. FIELD VERIFY LOCATION W/ G.C.
67. CONCRETE APRON w/ TRENCH DRAIN AT O.H. DOOR. DRAIN INTO BLDG'S SUMP PIT, VERIFY W/ MECH. PLANS.
68. PREFABRICATED BIKE RACKS, VERIFY SIZE/LOCATION/STYLE W/ G.C./OWNER.
69. F.R.P. ON WALLS OF DOG WASH. VERIFY W/ OWNER / G.C.
70. FLAMMABLE WASTE WRAP. VERIFY LOCATION W/ MECH. DRAWINGS. SEE DETAIL 34/A803.
71. 2X4 METAL STUD FURRING LOBBY FOR ELECTRICAL W/ MOISTURE-RESISTANT GYPSUM BOARD ON ONE SIDE.
72. PRECAST BEAM SHOWN BELOW PRECAST PLANK, SHOWN DASHED.
73. 12" POURED CONCRETE FOUNDATION WALL. SEE STRUCTURAL.
74. COLD WATER HOSE BIB. VERIFY LOCATION W/ G.C.
75. HOT WATER HOSE BIB. VERIFY LOCATION W/ G.C.
76. PROVIDE 302 S.F. OF RECYCLING SPACE THIS AREA AS REQ'D.
77. DOG WASH EQUIPMENT, VERIFY W/ OWNER.

COMMUNITY & BREAK ROOM / PATIO NOTES

78. ACCESSIBLE STAINLESS STEEL DOUBLE BOWL SINK. SEE DETAILS 9 & 11C/A301.
79. LINE OF UPPER CABINETS ABOVE.
80. ACCESSIBLE RANGE & VENT LESS HOOD. SEE DETAILS 9 & 9C/A301.
81. ACCESSIBLE REFRIGERATOR/FREEZER. SEE DETAIL 8C/A301.
82. PROVIDE SPACE FOR MICROWAVE UNDER UPPER CABINETS. VERIFY LOCATION WITH G.C.
83. PROVIDE ACCESSIBLE COUNTER TOP WORK AREA @ 34" A.F.F. 30" WIDE MIN. CLEAR OPENING UNDER COUNTER AND ADJACENT TO RANGE. SEE DETAILS 9 & 12C/A301.
84. COUNTER TOP WITH BASE CABINETS BELOW @ 34" A.F.F. VERIFY BACK SPLASH WITH G.C.
85. ISLAND COUNTERTOP WITH EATING BAR @ 34" A.F.F. COUNTERTOP.
86. FURNITURE SHOWN FOR SPACE PLANNING ONLY.
87. GAS FIREPLACE WITH MANTLE, SURROUND AND HEARTH. VERIFY BUILT-IN CABINETRY, SHELVING & DATA REQUIREMENTS W/ OWNER. VERIFY MODEL WITH G.C. AND FINISHES WITH INTERIOR DESIGN.
88. ARCHWAY OR BULKHEAD ABOVE SHOWN DASHED. VERIFY SHAPE AND FINISHED W/ G.C.
89. PROVIDE A/V CONNECTIONS THIS LOCATION. VERIFY WITH G.C. SEE ELECTRICAL PLANS.
90. CLOTHES ROD & SHELF. SEE DETAIL 8C/A301.
91. ACCESSIBLE TURNING CLEARANCE SHOWN DASHED. SEE DETAIL 14C/A301.
92. LOW ACCESSIBLE DRINKING FOUNTAIN. SEE PLUMBING PLANS BY OTHERS & DETAIL 6/A301.
93. 2"x4" WOOD STUDS @ 16" O.C. W/ (1) LAYER OF 5/8" GYPSUM BOARD. PROVIDE SOUND INSUL. WHEN ADJACENT TO UNIT.
94. 2X FURRED WALL W/ 5/8" GYP. BD. TO CONCEAL A.C. UNIT. VERIFY W/ G.C.
95. 1 HR. FIRE BARRIER WALL SHOWN HATCHED. WALL BUILT TO FLOOR SHTG. / 1 HR. RATED ASSEMBLY ABOVE.
96. PROVIDE GAS CONNECTION FOR BBQ GRILLS W/ REQUIRED SHUT-OFF. VERIFY LOCATIONS W/ OWNER.
97. VENDING MACHINES. VERIFY TYPE WITH OWNER. PROVIDE REQUIRED CONNECTIONS.
98. ONE HOUR RATED 22" X 36" (MIN.) LOCKING ATTIC ACCESS W/ R-49 MIN. INSUL. AT ACCESS DOOR. SEE DETAIL 1/A801
99. 4" CONCRETE CURB ALONG EXTERIOR WALL. SEE SECTION 1/A0302.
100. 2 HR. FIRE WALL TO EXTEND THROUGH ATTIC SPACE TO UNDERSIDE OF ROOF SHEATHING, SEE DET. 50/A804.
101. STRUCTURAL STEEL BEAM ABOVE.
102. CONCRETE APRON AT O.H. DOOR. VERIFY EXTENTS W/ G.C.
103. 22" X 36" (MIN.) LOCKING ATTIC ACCESS W/ R-49 MIN. INSUL. AT ACCESS DOOR, SEE DET 1/A801.
104. -

COLE GROUP
ARCHITECTS LLC
214 Park Avenue South
Suite 102
St. Cloud, MN 56301
(320) 654-4570
www.colegrouparchitects.com

DEVELOPER:
KELLER/BAARTMAN
PROPERTIES

PROPOSED 108 UNIT:
PARK PLACE APARTMENTS
RED WING, MN

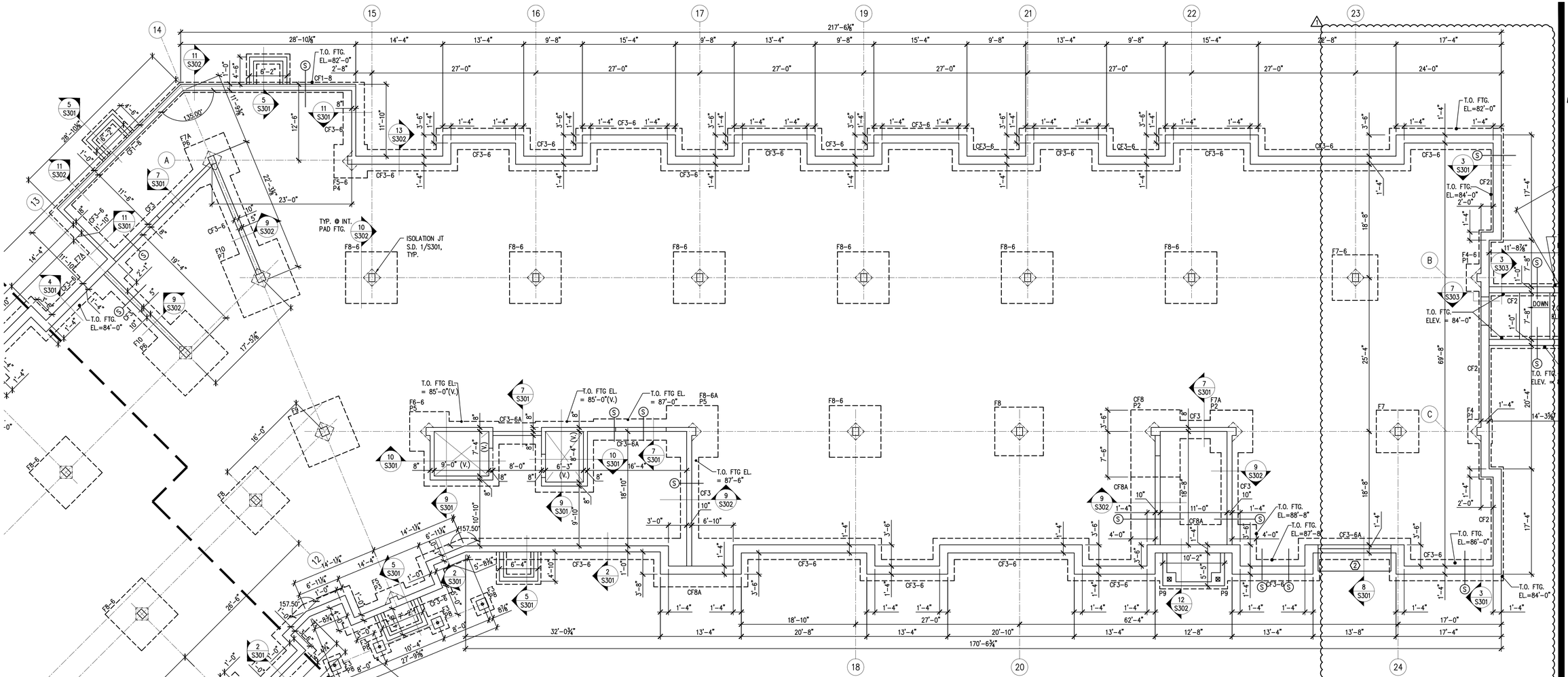
(651) 388-0000

REVISIONS/COMMENTS	REVISIONS/COMMENTS
	ADDENDA # 1
	10-24-18

Project No.
18011
Submittal Date:
10-4-18
Document Set:
PERMIT SET

A030

PLOTTED: 10-23-18 FILE: 17077P COM: 4



FOUNDATION PLAN - AREA "B"

1/8"=1'-0"

T.O. PERIMETER FOOTING ELEV. = 88'-8" U.N.O.
T.O. INTERIOR PAD FOOTING = 87'-6" U.N.O.
G.C. COORDINATE PLUMBING ROUTES ABOVE FTGS

FOUNDATION PLAN NOTES:

1. SEE DETAIL 1/S301 FOR GENERAL FOUNDATION DETAILS. SEE SHEET S001 FOR GENERAL CONCRETE AND FOUNDATION NOTES.
2. TYPICAL INTERIOR SLAB ON GRADE, U.N.O.
   THICKNESS = 4"
   REINFORCEMENT = #4 @ 1'-6" O.C. EA. WAY
   BASE = MIN OF 6" COMPACTED GRANULAR FILL, U.N.O. BY GEOTECHNICAL REPORT
   VAPOR RETARDER/BARRIER = 10 MIL POLY
   T.O. SLAB ELEVATION = 89'-0"
3. TYPICAL SLAB ON GRADE CONTROL JOINTS TO BE CUT INTO SQUARES SPACE @ 15'-0" O.C. MAX. WITH AN ASPECT RATIO OF 1:1.5 MAX U.N.O. ON PLAN.

PLAN KEYNOTES

LABEL	NOTE
1	CONTRACTOR TO PROVIDE ISOLATION JOINT BETWEEN STOOP AND APRON SLAB.
2	CONCRETE APRON – SEE CIVIL FOR SIZE & LOCATION

CONCRETE PIER SCHEDULE

MARK	DETAIL	NOTES/COMMENTS
P1	1/S302	–
P2	2/S302	–
P3	3/S302	–
P4	4/S302	–
P5	5/S302	–
P6	6/S302	–
P7	7/S302	–
P8	8/S302	–
P9	15/S302	–

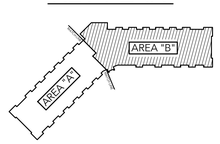
CONTINUOUS FOOTING SCHEDULE

MARK	SIZE	THICKNESS	LONGITUDINAL REINFORCEMENT	TRANSVERSE REINFORCEMENT	NOTES/COMMENTS
CF1-8	1'-8" CONT.	1'-0"	(2) #5 CONT.	#4 @ 4'-0" O.C.	–
CF2	2'-0" CONT.	1'-0"	(2) #5 CONT.	#4 @ 4'-0" O.C.	–
CF3	3'-0" CONT.	1'-0"	(3) #5 CONT.	#4 @ 4'-0" O.C.	–
CF3A	3'-0" CONT.	1'-0"	(3) #5 CONT.	#5 @ 1'-0" O.C.	–
CF3-6	3'-6" CONT.	1'-0"	(4) #5 CONT.	#5 @ 1'-6" O.C.	–
CF3-6A	3'-6" CONT.	1'-0"	(4) #5 CONT.	#5 @ 1'-0" O.C.	–
CF5	5'-0" CONT.	1'-0"	(5) #5 CONT.	#5 @ 1'-0" O.C.	–
CF8	8'-0" CONT.	1'-4"	(8) #6 CONT.	#5 @ 1'-0" O.C.	–
CF8A	8'-0" CONT.	1'-0"	(8) #6 CONT.	#5 @ 1'-0" O.C.	–

PAD FOOTING SCHEDULE

MARK	SIZE	THICKNESS	BOTTOM REINFORCEMENT EACH WAY	TOP REINFORCEMENT EACH WAY	NOTES
F4	4'-0" SQ.	1'-0"	(4) #5	–	–
F4-6	4'-6" SQ.	1'-0"	(5) #5	–	–
F5	5'-0" SQ.	1'-0"	(5) #5	–	–
F5-6	5'-6" SQ.	1'-0"	(6) #5	–	–
F6-6	6'-6" SQ.	1'-0"	(7) #5	–	–
F7	7'-0" SQ.	1'-2"	(7) #6	–	–
F7A	7'-0" SQ.	1'-2"	(7) #6	(7) #6	–
F7-6	7'-6" SQ.	1'-3"	(8) #6	–	–
F8	8'-0" SQ.	1'-4"	(8) #6	–	–
F8-6	8'-6" SQ.	1'-5"	(9) #6	–	–
F8-6A	8'-6" SQ.	1'-5"	(9) #6	(9) #6	–
F9	9'-0" SQ.	1'-6"	(9) #7	–	–
F10	10'-0" SQ.	1'-8"	(10) #7	(10) #7	–

KEY PLAN



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Proj. Engineer: NB
Drawn by: FV
Date Issued: 10-4-18

Revisions:		
#	DATE	COMMENTS
1	10-23-18	ADDENDUM #1

PROFESSIONAL ENGINEER
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

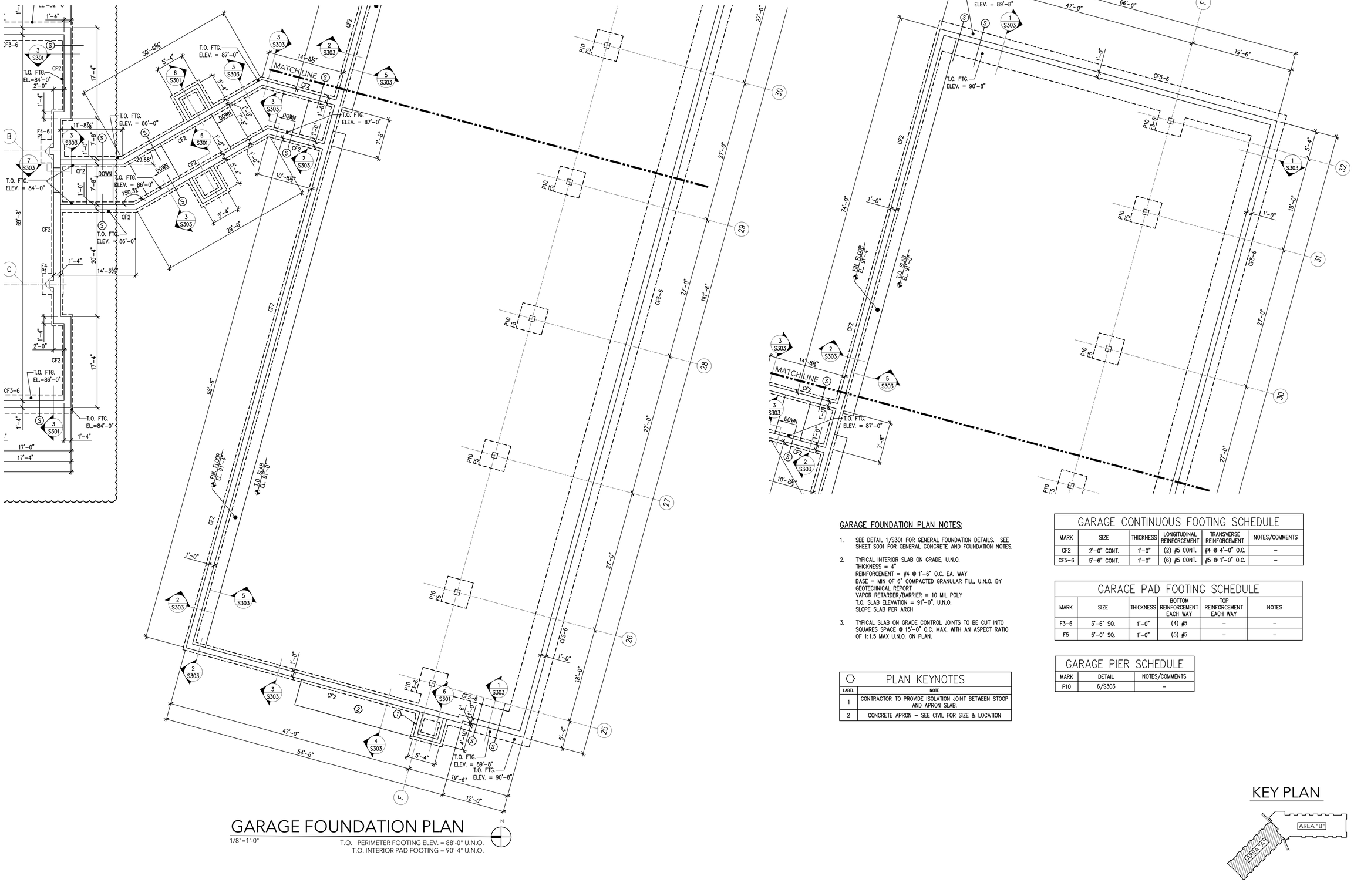
Print Name: Kyle Sandman
Signature: [signature]
Date: 10/22/2018 License #: 43486

PARK PLACE APARTMENTS
RED WING, MN.

SHEET CONTENTS:
FOUNDATION PLAN AREA "B"

SHEET NO.
S101B

Proj. #18124-4



GARAGE FOUNDATION PLAN

1/8"=1'-0"

T.O. PERIMETER FOOTING ELEV. = 88'-0" U.N.O.
T.O. INTERIOR PAD FOOTING = 90'-4" U.N.O.

GARAGE FOUNDATION PLAN NOTES:

1. SEE DETAIL 1/S301 FOR GENERAL FOUNDATION DETAILS. SEE SHEET S001 FOR GENERAL CONCRETE AND FOUNDATION NOTES.
2. TYPICAL INTERIOR SLAB ON GRADE, U.N.O.
   THICKNESS = 4"
   REINFORCEMENT = #4 @ 1'-6" O.C. EA. WAY
   BASE = MIN OF 6" COMPACTED GRANULAR FILL, U.N.O. BY GEOTECHNICAL REPORT
   VAPOR RETARDER/BARRIER = 10 MIL POLY
   T.O. SLAB ELEVATION = 91'-0", U.N.O.
   SLOPE SLAB PER ARCH
3. TYPICAL SLAB ON GRADE CONTROL JOINTS TO BE CUT INTO SQUARES SPACE @ 15'-0" O.C. MAX. WITH AN ASPECT RATIO OF 1:1.5 MAX U.N.O. ON PLAN.

PLAN KEYNOTES

LABEL	NOTE
1	CONTRACTOR TO PROVIDE ISOLATION JOINT BETWEEN STOOP AND APRON SLAB.
2	CONCRETE APRON – SEE CIVIL FOR SIZE & LOCATION

GARAGE CONTINUOUS FOOTING SCHEDULE

MARK	SIZE	THICKNESS	LONGITUDINAL REINFORCEMENT	TRANSVERSE REINFORCEMENT	NOTES/COMMENTS
CF2	2'-0" CONT.	1'-0"	(2) #5 CONT.	#4 @ 4'-0" O.C.	–
CF5-6	5'-6" CONT.	1'-0"	(6) #5 CONT.	#5 @ 1'-0" O.C.	–

GARAGE PAD FOOTING SCHEDULE

MARK	SIZE	THICKNESS	BOTTOM REINFORCEMENT EACH WAY	TOP REINFORCEMENT EACH WAY	NOTES
F3-6	3'-6" SQ.	1'-0"	(4) #5	–	–
F5	5'-0" SQ.	1'-0"	(5) #5	–	–

GARAGE PIER SCHEDULE

MARK	DETAIL	NOTES/COMMENTS
P10	6/S303	–

KEY PLAN

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Proj. Engineer: NB
Drawn by: FV
Date Issued: 10-4-18

Revisions:		
#	DATE	COMMENTS
1	10-23-18	ADDENDUM #1 / SHEET ADDED

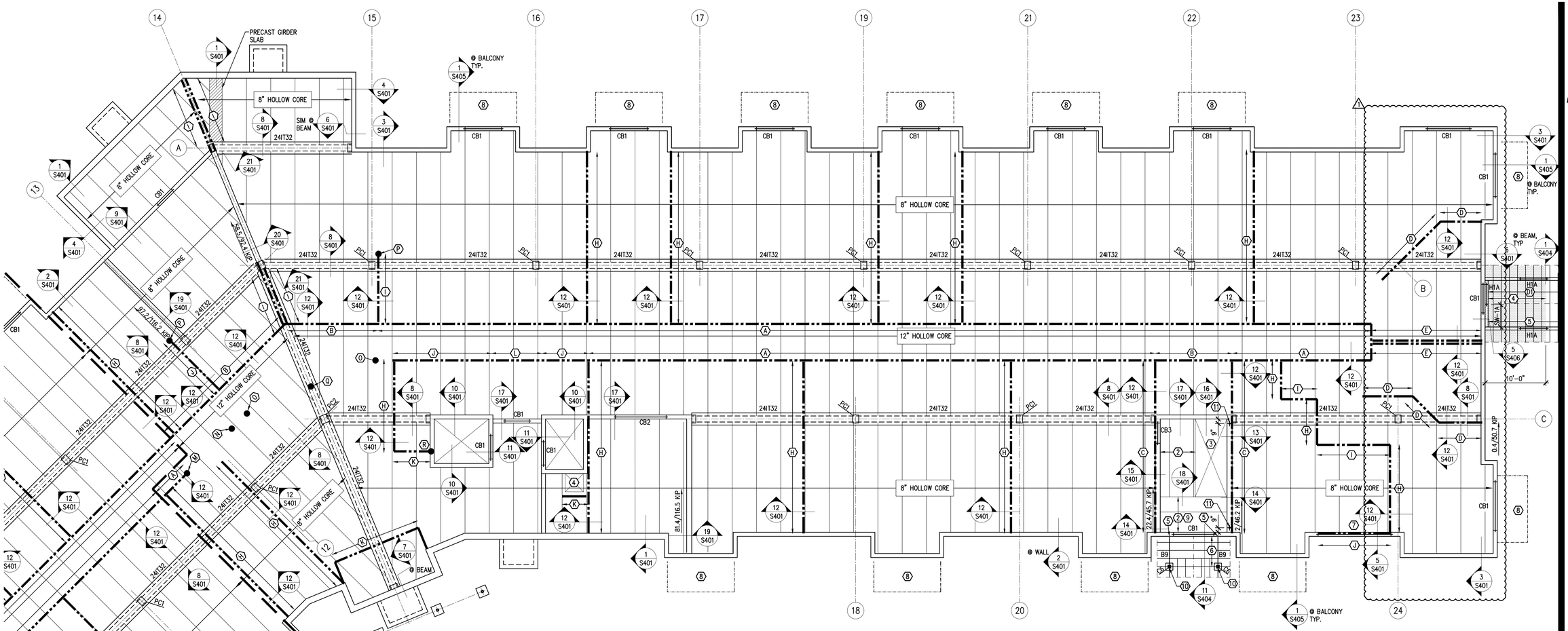
PROFESSIONAL ENGINEER
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: Kurt Sandman
Signature: [signature] Date: 10/23/2018 License #: 43486

PARK PLACE APARTMENTS
RED WING, MN.

SHEET CONTENTS:
FOUNDATION PLAN GARAGE

SHEET NO.
S101G

Proj. #18124-4



FIRST FLOOR FRAMING PLAN - AREA "B"

1/8"=1'-0" — T.O. H.C. PLANK ELEV. = 100'-0"

C.I.P. CONC. WALL REINFORCING

WALL TYPE	APPLICATION	TYP. VERTS. O.C.	VERT. LOCATION	TYP. HORIZ. O.C.	HORIZ. LOCATION	NOTES
8" C.I.P.	INTERIOR WALLS	#4 @ 1'-6"	CENTERED	#4 @ 1'-0"	CENTERED	–
10" C.I.P.	SHEARWALLS	#6 @ 1'-4"	EACH FACE	#4 @ 1'-0"	EACH FACE	–

NOTE: SEE SHEETS S001 AND S301 FOR ADDITIONAL AND SPECIAL REINFORCEMENT REQUIREMENTS

SUPERIMPOSED PRECAST LOADING KEYNOTES

⬡	UNIFORM LINE LOAD (KLF)			CONCENTRATED LOAD (K)		
MARK	DEAD LOAD	LIVE LOAD	SNOW LOAD	DEAD LOAD	LIVE LOAD	SNOW LOAD
A	2.1	2.3	1.1	–	–	–
B	1.0	0.8	1.0	–	–	–
C	0.9	2.0	0.2	–	–	–
D	2.4	2.7	1.0	–	–	–
E	0.9	0.8	0.3	–	–	–
F	0.7	0.2	0.5	–	–	–
G	0.7	0.2	0.5	–	–	–
H	0.6	0.3	0.2	–	–	–
I	1.7	1.8	0.9	–	–	–
J	1.3	1.3	1.0	–	–	–
K	0.6	0.4	0.0	–	–	–
L	2.0	4.4	1.0	–	–	–
M	–	–	–	10.0	12.3	5.5
N	–	–	–	6.0	9.4	2.4
O	–	–	–	13.2	15.3	4.7
P			–	10.0	12.9	4.5
Q	–	–	–	19.7	23.2	7.3
R	–	–	–	5.6	5.9	2.9

NOTE: SUPERIMPOSED LOADS PROVIDED ARE NOMINAL LOADS TO BE USED IN IBC COMBINATIONS WITH APPROPRIATE LOAD FACTORS. LIVE LOADS HAVE NOT BEEN REDUCED PER ASCE7.

COLUMN SCHEDULE

MARK	SIZE	BASE PLATE TYPE	ANCHOR ROD TYPE	COMMENTS
C1	5¼"x7" PSL	–	–	ECCQ SERIES COL. CAP
C2	5¼"x7" PSL	SIMPSON ABW46RZ (GROUT STANDOFF)	–	ECCQ SERIES COL. CAP
C3	5¼"x5¼" PSL	SIMPSON ABU66Z (GROUT STANDOFF)	–	ECCQ SERIES COL. CAP
C4	6x6 POST	SIMPSON ABU66Z	–	CCQ/ECCQ SERIES COL. CAP
C5	(4) 2x6	–	–	–
C6	HSS4x4x¼	BP1	AR1	14/S302
C7	6x6 POST	–	–	ECCQ SERIES COL. CAP

PRECAST COLUMN SCHEDULE

MARK	SIZE	BASE PLATE	COMMENTS
PC1	12x16 PRECAST	BY SUPPLIER	–
PC2	16x16 PRECAST	BY SUPPLIER	–

C.I.P. CONCRETE BEAM SCHEDULE

MARK	WIDTH	DEPTH	TOP LONGIT REINF	BOT. LONGIT REINF	TYP STIRRUPS	STIRRUPS @ ENDS	DISTANCE FROM BM END FOR END STIRRUPS	DETAILS
CB1	8"	16"	(2) #5	(2) #5	–	#4 @ 8" O.C.	1'-4"	7/S402
CB2	8"	22"	(2) #6	(2) #6	#4 @ 8" O.C.	(2) #6	N/A	7/S402
CB3	10"	16"	(2) #5	(2) #5	#4 @ 8" O.C.	(2) #5	N/A	7/S402

FIRST FLOOR FRAMING PLAN NOTES:

1. SEE FOUNDATION DETAILS FOR PERIMETER CAST-IN-PLACE WALL REINFORCING. **NOTE: PERIMETER WALL REINFORCING BASED ON CLEAN, FREE DRAINING SANDS OR GRAVEL BACKFILL MATERIAL PER GEOTECH REPORT.
2. PRECAST TOPPING TO BE 1" GYPCRETE. TOPPING TO BE NON-COMPOSITE FOR PRECAST DESIGN.
3. XX/XX KIP DENOTES SHEARWALL LOAD DUE TO WIND AND LATERAL EARTH PRESSURES (EARTH/WIND(ult)), LOADS INDICATED ARE NOT FACTORED. PRECASTER TO DESIGN DIAPHRAGM CAPABLE TO DELIVER DENOTED SHEAR LOADS TO CAST IN PLACE SHEAR WALL.
4. SEE SHEETS S206 & S207 FOR SHEARWALL COMPONENTS EMBEDDED IN CIP WALLS.
5. PRECAST SUPPLIER TO PROVIDE FRAMED FLOOR OPENING FOR ELECTRICAL FEED LINES. G.C. TO COORDINATE WITH ELECTRICAL.

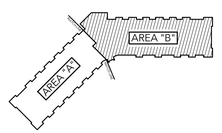
PLAN KEYNOTES

LABEL	NOTE
1	2x10 LANDING JOISTS @ 1'-0" O.C. @ BASEMENT LANDING. SEE ARCH FOR STUD WALL FRAMING
2	8" HOLLOWCORE LANDING
3	SEE DETAIL 3/S402 FOR STAIR FRAMING
4	PRECAST SUPPLIER TO PROVIDE FRAMED OPENING @ REFUSE/RECYCLE CHUTE
5	SIMPSON HU210-3 FACE MOUNT BEAM HANGER @ CIP WALL. FASTEN PER MANUFACTURER'S REQS.
6	ROOF TRUSSES @ 1'-4" O.C., SL = 100 PSF TRUSS BRG ELEV. = 99'-8⅛"
7	8" PRECAST BEAM @ OVERHEAD DOOR. SEE DETAIL 5/S401 FOR PRECAST BEAM BEARING
8	SUSPENDED PREFABRICATED BALCONY SYSTEM, BY SUPPLIER. SEE S001 NOTES FOR LOADS AND SUBMITTAL REQUIREMENTS. PROVIDE (2) SUSPENSION RODS PER BALCONY
9	2x10 LANDING JOISTS @ 1'-0" O.C. AT LOW STAIR LANDING. SEE ARCH FOR 2x4 BEARING WALL
10	S.D. 8/S402 FOR WOOD BEAM TO STEEL BEAM CONNECTION
11	EMBED PLATE – SEE SHEARWALL PLAN

WOOD BEAM SCHEDULE

MARK	SIZE	COMMENTS
B1	STAIR BEAM	SEE DETAIL
B2	(3) 2x10	(2) 2x6 EA. END
B3	(3) 2x10	(3) 2x6 EA. END
B4	(3) 2x10	(4) 2x6 EA. END
B5	(3) 1¾"x9¼" LVL	(2) 2x6 EA. END
B6	(3) 1¾"x9¼" LVL	(3) 2x6 EA. END
B7	(3) 1¾"x9¼" LVL	(4) 2x6 EA. END
B8	(3) 1¾"x9¼" LVL	(2) 2x6 @ WALL/SEE PLAN
B9	(3) 2x10	SEE PLAN
B10	(3) 1¾"x16" LVL	SEE PLAN
B11	(3) 1¾"x24" LVL	SEE PLAN
B12	(3) 1¾"x18" LVL	SEE PLAN
B13	(3) 1¾"x11⅞" LVL	(3) 2x6 EA. END POCKET INTO WALL
B14	(2) 1¾"x9¼" LVL	SEE PLAN

KEY PLAN



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Proj. Engineer: NB
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Date Issued: 10-4-18

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PROFESSIONAL ENGINEER
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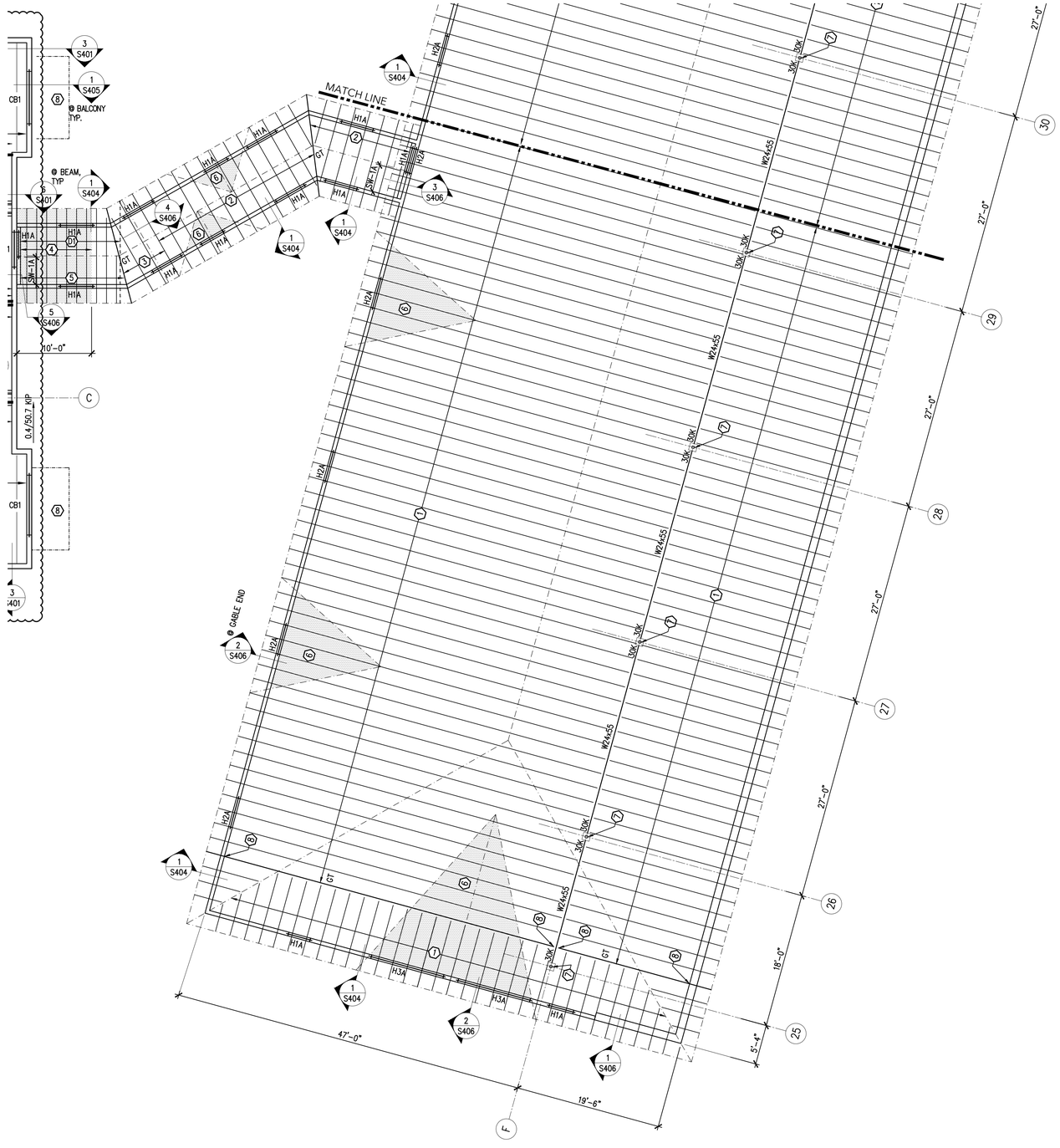
Print Name: Kurt Sandman
Signature: [signature]
Date: 10/23/2018 License #: 43486

PARK PLACE APARTMENTS
RED WING, MN.

SHEET CONTENTS:
FIRST FLOOR FRAMING PLAN AREA "B"

SHEET NO.
S201B

Proj. #18124-4



GARAGE ROOF FRAMING PLAN

1/8"=1'-0"

GARAGE ROOF TRUSS BRG ELEV. = 101'-5 1/8" U.N.O.
LINK ROOF TRUSS BRG. ELEV. = AS NOTED
T.O. STEEL ELEV. = 103'-5 1/8"

N

GARAGE SHEAR WALL SCHEDULE

PLAN LABEL	SHEATHING	SIDES	EDGE FASTENING	FIELD FASTENING	SILL ℄ FASTENING	SILL WASHER ANCHORS	HOLD-DOWN	HOLD-DOWN ANCHOR	END POST
SW-1A	7/16" APA RATED (UNBLOCKED)	1	8d NAILS @ 4" O.C.	8d NAILS @ 12" O.C.	1/2"Ø x5" SIMPSON TITNE HD ANCHORS @ 1'-6" O.C.	SIMPSON BPS1/2-3HDG	SIMPSON HDU5-SDS2.5	5/8"Ø ADHESIVE ANCHOR WITH 1'-0" CONC. EMBED	(2) 2x4

GARAGE WOOD HEADER SCHEDULE

MARK	SIZE	JACK STUDS	KING STUDS	COMMENTS
H1A	(2) 2x8	(1) 2x6	(1) 2x6	–
H2A	(2) 2x10	(1) 2x6	(1) 2x6	–
H3A	(3) 2x10	(1) 2x6	(2) 2x6	–

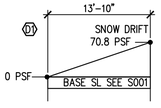
PLAN KEYNOTES

LABEL	NOTE
1	ROOF TRUSSES @ 24" O.C.
2	ROOF TRUSSES @ 24" O.C. (TRUSS BRG ELEV. = 99'-1⅛")
3	ROOF TRUSSES @ 24" O.C. (TRUSS BRG ELEV. = 98'-1⅛")
4	½" FIRE RETARDENT (FRT) ROOF SHEATHING – SEE ARCH FOR REQUIREMENTS. FASTENERS, AND HARDWARE IN CONTACT WITH FRT SHALL BE PER IBC 2304.10.5
5	ROOF TRUSSES @ 16" O.C. (TRUSS BRG ELEV. = 98'-1⅛")
6	OVERBUILD ROOF TRUSSES @ 24" O.C. – S.D. 1/S402
7	HSS4x4x¼" STEEL COLUMN. S.D. 6/S303 FOR BASE PLATE AND ANCHOR BOLTS. S.D. 7/S406 FOR BEAM TO COLUMN CONNECTION
8	SIMPSON H10A-2 TIE AT GIRDER TRUSS BEARING

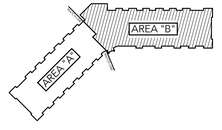
GARAGE ROOF FRAMING PLAN NOTES:

1. SEE SHEET S206 & S207 FOR SHEARWALL LAYOUT & SECTIONS. WOOD TRUSS SUPPLIER TO COORDINATE TRUSS LAYOUT W/ SHEARWALL LOCATIONS.
2. S.D. 1/S402 FOR STD WOOD FRAMING DETAILS.

SNOW DRIFT LOADING DIAGRAM:



KEY PLAN



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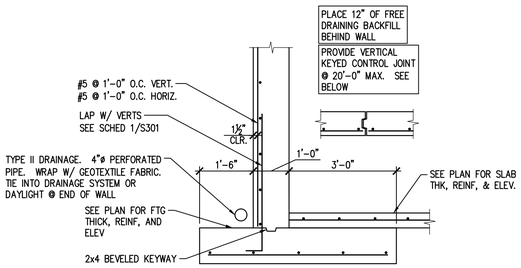
Signature: [signature]
Date: 10/23/2018 License #: 43486

PARK PLACE APARTMENTS
RED WING, MN.

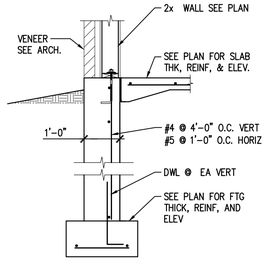
SHEET CONTENTS:
GARAGE ROOF FRAMING PLAN

SHEET NO.
S201G

Proj. #18124-4



FOUNDATION DETAIL 1 S303
1/2"=1'-0"



FOUNDATION DETAIL 2 S303
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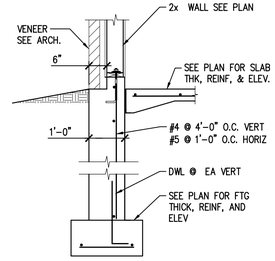

FOUNDATION DETAIL 3 S303
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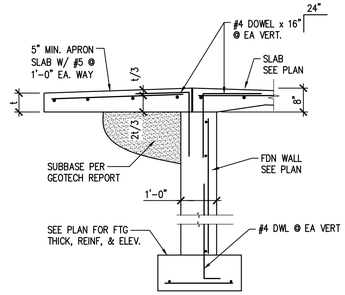

FDN DETAIL 4 S303
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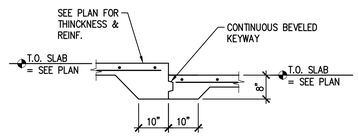

SLAB RECESS DETAIL 5 S303
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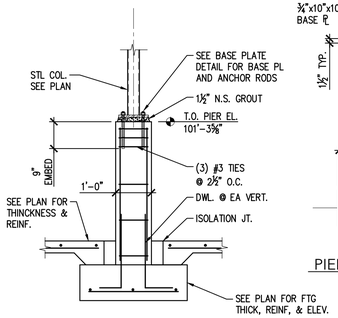

PIER DETAIL (P10) 6 S303
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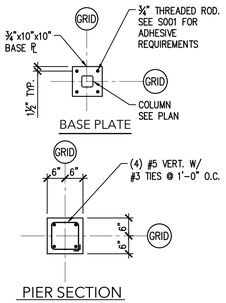

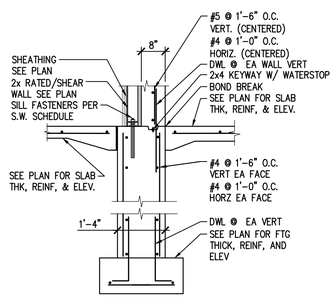

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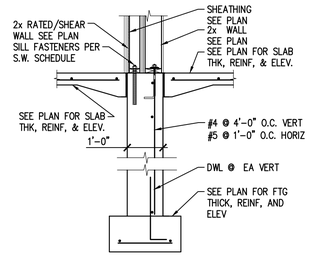


FOUNDATION DETAIL 8 S303
1/2"=1'-0"

SANDMAN
Structural Engineers

1587 30th Avenue South
Moorhead, MN 56560
218-227-0022 · www.SandmanSE.com

Proj. Engineer: NB
Drawn by: FV
Date Issued: 10-4-18

Revisions:		
#	DATE	COMMENTS
1	10-23-18	ADDENDUM #1 / SHEET ADDED

PROFESSIONAL ENGINEER
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

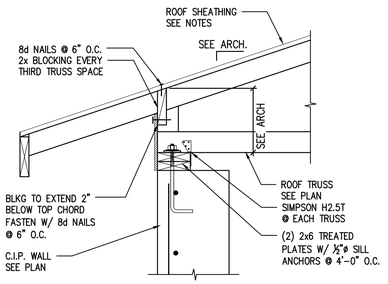
Print Name: Kurt Sandman
Signature: [signature]
Date: 10/23/2018 License #: 43486

PARK PLACE APARTMENTS
RED WING, MN.

SHEET CONTENTS:
FOUNDATION DETAIILS

SHEET NO.
S303

Proj. #18124-4



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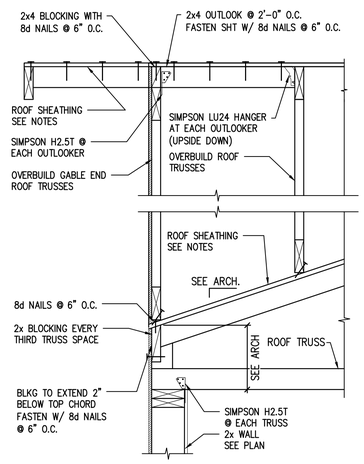

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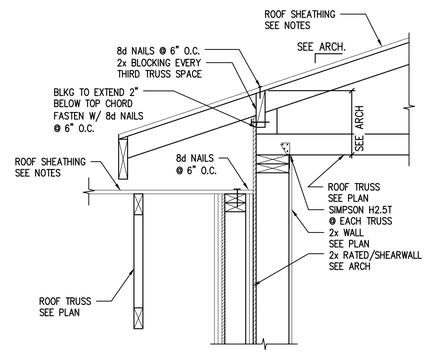

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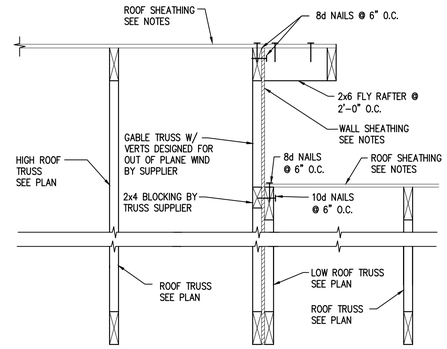

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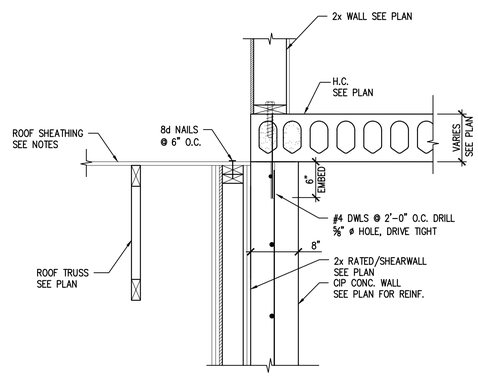

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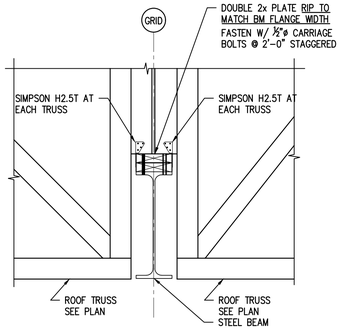

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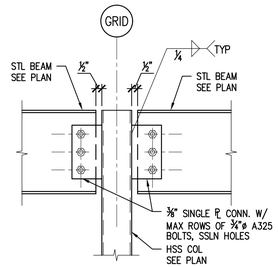

FRAMING DETAIL 7
1"=1'-0" S406

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Proj. Engineer: NB
Drawn by: FV
Date Issued: 10-4-18

Revisions:		
#	DATE	COMMENTS
1	10.23.18	ADDENDUM #1 / SHEET ADDED

PROFESSIONAL ENGINEER
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: Kurt Sandman
Signature: [signature]
Date: 10/23/2018 License #: 43486

PARK PLACE APARTMENTS
RED WING, MN.

SHEET CONTENTS:
FRAMING DETAIILS

SHEET NO.
S406

Proj. #18124-4

.EMORANDUM

To: Andy Baartman, Keller-Baartman Properties IV

From: Heather Hanson

Project: Xcel Energy
Energy Design Assistance
Tyler Road Project, Red Wing, MN

Project No.: 4018110

Date: October 17, 2018

Xcel Energy®

Subject: Notes from the Results Meeting held August 27, 2018. Persons whose names are listed at the end of this document will receive notes from the meeting. The names of those who attended the meeting are shown in **bold**.

Summary: The purpose of the Results Meeting was to review energy savings projections and incentive results for three HVAC scenarios and 9 bundles.

Item: **Bundle Results** were reviewed, including incentives. The revised results for all of the bundles are shown in the following tables.

Bundle Description	Peak kW Savings	% Peak kW Savings	kWh Savings	% kWh Savings	Gas Savings (dekatherm)	% Gas Savings	Energy Cost Savings
Bundle 1	46	16	187,816	15	3,110	33	$36,948
Bundle 2	47	17	197,599	16	3,245	34	$38,521
Bundle 3	59	21	233,025	19	3,509	37	$44,178
Bundle 4	39	13	174,094	14	3,093	34	$34,856
Bundle 5	45	15	190,053	15	3,228	35	$37,644
Bundle 6	62	21	252,884	20	3,761	41	$47,297

ATTACHMENT "A"

1 of

Bundle Description	Energy Cost Savings	Incremental First Cost	Xcel Energy Electric Incentive	Xcel Energy Gas Incentive	Total Incentive	Payback in Years (after incentive)
Bundle 1	$36,948	$589,512	$25,913	$15,552	$41,465	14.8
Bundle 2	$38,521	$595,388	$26,704	$16,227	$42,931	14.3
Bundle 3	$44,178	$692,703	$32,921	$17,547	$50,468	14.5
Bundle 4	$34,856	$516,255	$22,564	$15,465	$38,029	13.7
Bundle 5	$37,644	$539,186	$25,602	$16,142	$41,744	13.2
Bundle 6	$47,297	$679,943	$34,915	$18,804	$53,719	13.2

Item: **Meeting Minutes**

- HVAC Scenario A was selected and Bundle 1 was developed to represent the design goals.
- The project scope includes surface parking.
- The project scope includes a detached garage.
- Ceiling fans were evaluated but are not included in the project scope.
- The project team selected the 10% reduced air infiltration strategy. This strategy requires the project team to provide blower door test results for final verification.

Action: **Andy Baartman** to provide site plan. (Done)

David Majchrzak or Mark Beattie to provide glazing characteristics, elevator specs, and plan and mechanical concept for detached garage. (Done)

Brock Iverson to confirm whether VFDs are included in scope for the DOAS/AHUs and to confirm whether EC motors are included in scope for the furnaces (common areas, circulation). (Done)

Darin Aguilar to update energy model, including adding site lighting strategies and strategies for the detached garage. (Done)

The above changes are now incorporated and the revised results, incentives, and paybacks are shown on the previous page.

Item: **Incremental Cost Information**

Incremental cost information is needed to evaluate paybacks of strategies that are an improvement over the baseline, if paybacks are of interest to the owner and project team.

Action: **Project team** did not update default costs provided.

Item: **Verification Phase**

Heather Hanson provided an overview of the verification phase. The purpose of field verification is to assist the project team and Xcel Energy toward realizing the energy conservation goals of the program and increasing the likelihood that the incentive proposed during the design phase is achieved upon completion of the project.

- Bundle 1 was selected for verification.

Action: **The Weidt Group** will develop a Bundle Requirements Document for transmittal to the project team. Further verification phase steps are found in the Results Report.

Results for HVAC A

			Savings versus Baseline		
			Bundle 1	Bundle 2	Bundle 3
Project Name:	Tyler Road Project	Energy Cost Savings	$36,948	$38,521	$44,178
Building Type:	Multifamily	Peak kW Savings	46.1	47.3	59.2
Area:	146,954 ft²	kWh Savings	187,816	197,599	233,025
		Gas Savings (dekatherm)	3,110	3,245	3,509
HVAC Scenario A	Apartments: Packaged single zone with gas boiler and DX, ventilation air provided by DOAS unit with gas boiler and DX; Community, Fitness, Office: Packaged single zone with gas furnace and DX; Corridors, Lobby: Packaged single zone with gas furnace and DX; Stairwells, Vestibule: Packaged single zone with gas boiler; Garage: Packaged single zone with gas boiler; Garage (detached): Packaged single zone with gas furnace	Incremental 1st Cost	$589,512	$595,388	$692,703
		Projected Incentive	$41,465	$42,931	$50,468
		Payback with Incentive	14.8	14.3	14.5
		EUI (KBtu/ft²/yr)	67.7	66.6	63.9

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Mechanical									
Facility									
DOAS, Beyond premium efficiency fan motor	0	300	-1	$17	$910	53.5			
Beyond premium efficiency pump motor	0	93	0	$5	$14,368	100+			
DOAS fan power at 0.45 W/cfm	0	4,092	-4	$334	$728	2.2			
Heating water system pump head at 62.82 ft	0	818	-19	$38	$20,355	100+			
VFD on building heating water pump	0	2,858	-66	$140	$1,437	10.3			x
DOAS, 5% improved DX cooling efficiency	1	1,210	0	$316	$3,411	10.8	x	x	
DOAS, 10% improved DX cooling efficiency	3	2,308	0	$601	$6,822	11.4			x
DOAS, 20% improved DX cooling efficiency	5	4,236	0	$1,103	$13,645	12.4			
DOAS, 30% improved DX cooling efficiency	7	5,868	0	$1,523	$20,467	13.4			
DOAS, High efficiency DX compressor part load performance	0	6,795	0	$427	$34,112	79.9			
DOAS, Premium efficiency DX compressor part load performance	10	7,981	0	$2,099	$111,432	53.1			
85% efficient gas boiler	0	0	2,969	$1,706	$5,149	3.0			
95% efficient condensing gas boiler, moderate temperature reset	0	152	4,805	$2,765	$18,679	6.8	x	x	
95% efficient condensing gas boiler, aggressive temperature reset	0	-329	6,731	$3,842	$18,679	4.9			x
DOAS, Sensible heat recovery	0	-3,283	3,984	$2,083	$7,277	3.5			

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
DOAS, Total heat recovery	14	2,506	4,017	$4,715	$15,246	3.2			
Apartments									
Electronically commutated motor with constant speed	2	27,700	-641	$1,731	$33,657	19.4			
Fan system power at 0.27 W/cfm	2	16,308	-341	$1,172	$3,639	3.1			
5% improved DX cooling efficiency	4	6,170	0	$985	$17,056	17.3			
10% improved DX cooling efficiency	7	11,778	0	$1,881	$34,112	18.1			
20% improved DX cooling efficiency	13	21,588	0	$3,448	$68,224	19.8	x	x	
30% improved DX cooling efficiency	18	29,897	0	$4,780	$102,336	21.4			x
Community, Fitness, Office									
Electronically commutated motor with constant speed	0	3,408	-61	$257	$1,042	4.1			
Electronically commutated motor with variable speed	3	17,490	-387	$1,311	$1,042	0.8			
Fan system power at 0.85 BHP/1000cfm	0	1,904	-32	$157	$113	0.7			
5% improved DX cooling efficiency	0	158	0	$38	$528	13.9	x	x	
10% improved DX cooling efficiency	0	301	0	$71	$1,056	14.9			x
20% improved DX cooling efficiency	1	545	0	$131	$2,111	16.1			
30% improved DX cooling efficiency	1	744	0	$179	$3,167	17.7			
High efficiency DX compressor part load performance	0	482	0	$71	$1,056	14.9			
Premium efficiency DX compressor part load performance	1	1,513	0	$284	$3,448	12.1			
85% efficient gas furnace	0	0	41	$23	$121	5.3			
90% efficient gas furnace	0	0	78	$44	$280	6.4	x	x	
95% efficient gas furnace	0	0	111	$63	$439	7.0			x
Sensible heat recovery	0	-299	245	$123	$1,126	9.2			
Demand control ventilation for Community, Fitness, Office	0	96	130	$108	$1,112	10.3			
Occupancy sensor control of zone temperature for Community, Fitness, Office	0	17	33	$17	$670	39.4			x
Displacement ventilation for Community, Fitness, Office	0	451	-107	$35	$3,378	96.5			

Strategy	Savings Peak kW	kWh	Gas (Therm)	Energy Cost	Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
Corridors, Lobby, Walkway									
Electronically commutated motor with constant speed	2	19,828	-230	$1,452	$4,553	3.1			
Electronically commutated motor with variable speed	12	98,941	-1,742	$7,142	$4,553	0.6			
Fan system power at 0.85 BHP/1000cfm	2	11,019	-119	$867	$492	0.6			
5% improved DX cooling efficiency	1	849	0	$174	$2,307	13.3	x	x	
10% improved DX cooling efficiency	1	1,613	0	$323	$4,615	14.3			x
20% improved DX cooling efficiency	3	2,920	0	$589	$9,230	15.7			
30% improved DX cooling efficiency	3	3,996	0	$809	$13,844	17.1			
High efficiency DX compressor part load performance	1	2,532	0	$321	$4,615	14.4			
Premium efficiency DX compressor part load performance	5	8,484	0	$1,362	$15,075	11.1			
85% efficient gas furnace	0	0	70	$39	$529	13.6			
90% efficient gas furnace	0	0	133	$77	$1,224	15.9	x	x	
95% efficient gas furnace	0	0	188	$108	$1,920	17.8			x
Sensible heat recovery	0	-813	806	$411	$4,922	12.0			
Demand control ventilation for Corridors, Lobby, Walkway	0	280	305	$256	$4,861	19.0			
Occupancy sensor control of zone temperature for Corridors, Lobby, Walkway	0	390	78	$95	$2,929	30.8			
Displacement ventilation for Corridors, Lobby, Walkway	2	3,498	-559	$238	$14,767	62.0			
Garage									
CO sensor control of ventilation	0	12,014	8,049	$5,375	$2,083	0.4	x	x	x
Garage (detached)									
85% efficient gas furnace	0	0	1,682	$964	$520	0.5		x	
90% efficient gas furnace	0	0	3,178	$1,819	$1,204	0.7			
95% efficient gas furnace	0	0	4,516	$2,585	$1,887	0.7			x
CO sensor control of ventilation	0	8,399	10,874	$6,738	$968	0.1	x	x	x
Architectural									
Facility									
10% reduced air infiltration	1	288	404	$344	$42,357	100+	x	x	x
20% reduced air infiltration	1	576	809	$702	$50,829	72.4			
30% reduced air infiltration	2	844	1,212	$1,056	$59,300	56.2			
40% reduced air infiltration	3	1,119	1,613	$1,402	$67,772	48.3			

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
50% reduced air infiltration	3	1,375	2,015	$1,751	$76,243	43.5			
1 BR Apartments									
Wall R 16	0	4	54	$33	$1,125	34.1	x	x	
Wall R 20	0	28	510	$343	$13,121	38.3			x
Wall R 24	0	30	812	$547	$25,117	45.9			
Roof R 24	0	22	161	$107	$2,938	27.5			
Roof R 30	0	51	373	$244	$8,504	34.9			
Roof R 36	0	55	513	$334	$19,637	58.8			
Roof R 40	0	49	583	$388	$27,059	69.7			
Roof R 50	0	43	708	$463	$45,613	98.5	x	x	x
Roof R 60	0	40	791	$523	$64,168	100+			
White roof	0	445	-45	$26	$42,241	100+			
Glazing high solar gain w/ argon, non-metal frame	1	-1,764	2,433	$1,431	$65,450	45.7			
Glazing medium solar gain w/ argon, non-metal frame	2	2,816	2,111	$1,752	$74,190	42.3	x	x	x
Glazing low solar gain w/ argon, non-metal frame	4	7,660	1,692	$2,061	$84,902	41.2			
2 BR Apartments									
Wall R 16	0	19	59	$35	$1,208	34.5	x	x	
Wall R 20	0	133	553	$375	$14,092	37.6			x
Wall R 24	1	198	881	$601	$26,976	44.9			
Roof R 24	0	31	212	$141	$3,857	27.4			
Roof R 30	0	64	491	$323	$11,166	34.6			
Roof R 36	0	78	676	$449	$25,783	57.4			
Roof R 40	0	83	767	$508	$35,528	69.9			
Roof R 50	0	73	931	$618	$59,890	96.9	x	x	x
Roof R 60	1	60	1,041	$682	$84,252	100+			
White roof	0	568	-59	$28	$48,724	100+			
Glazing high solar gain w/ argon, non-metal frame	1	-1,395	2,651	$1,591	$70,293	44.2			
Glazing medium solar gain w/ argon, non-metal frame	2	3,372	2,283	$1,913	$79,681	41.7	x	x	x
Glazing low solar gain w/ argon, non-metal frame	4	8,286	1,804	$2,208	$91,184	41.3			
Community, Fitness, Office									
Wall R 16	0	3	3	$1	$68	68.2	x	x	
Wall R 20	0	36	26	$15	$796	53.1			x
Wall R 24	0	57	42	$25	$1,524	60.9			
Glazing high solar gain w/ argon, metal frame	0	92	74	$61	$2,082	34.1			
Glazing medium solar gain w/ argon, metal frame	0	227	55	$69	$2,454	35.6	x	x	x
Glazing low solar gain w/ argon, metal frame	0	375	34	$83	$2,910	35.1			

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Corridors, Lobby, Walkway									
Wall R 16	0	7	10	$6	$298	49.7	x	x	
Wall R 20	0	68	92	$69	$3,479	50.4			x
Wall R 24	0	106	146	$113	$6,660	58.9			
Roof R 24	0	23	36	$22	$846	38.5			
Roof R 30	0	51	83	$63	$2,449	38.9			
Roof R 36	0	71	114	$81	$5,656	69.8			
Roof R 40	0	80	128	$95	$7,794	82.0			
Roof R 50	0	96	155	$113	$13,138	100+	x	x	x
Roof R 60	0	106	172	$130	$18,482	100+			
White roof	0	80	-6	$13	$12,306	100+			
Glazing high solar gain w/ argon, metal frame	0	158	251	$195	$9,102	46.7			
Glazing medium solar gain w/ argon, metal frame	1	756	213	$276	$10,729	38.9	x	x	x
Glazing low solar gain w/ argon, metal frame	1	1,426	167	$363	$12,722	35.0			
Stairwells, Vestibule									
Wall R 16	0	0	3	$1	$66	66.2	x	x	
Wall R 20	0	1	25	$12	$772	64.3			x
Wall R 24	0	1	39	$21	$1,478	70.4			
Roof R 24	0	0	7	$5	$144	28.9			
Roof R 30	0	1	16	$9	$418	46.5			
Roof R 36	0	1	22	$12	$966	80.5			
Roof R 40	0	1	25	$13	$1,331	100+			
Roof R 50	0	1	31	$18	$2,243	100+	x	x	x
Roof R 60	0	1	34	$18	$3,156	100+			
White roof	0	0	-1	-$1	$2,730	n/a			
Glazing high solar gain w/ argon, metal frame	0	0	70	$39	$2,019	51.8			
Glazing medium solar gain w/ argon, metal frame	0	1	55	$33	$2,380	72.1	x	x	x
Glazing low solar gain w/ argon, metal frame	0	1	37	$20	$2,822	100+			
Garage									
Wall R 16	0	1	20	$12	$1,000	83.3	x	x	x
Wall R 20	0	6	183	$104	$11,666	100+			
Wall R 24	0	6	287	$163	$22,333	100+			
Garage (detached)									
Wall R 16	0	0	32	$17	$660	38.8	x	x	x
Wall R 20	0	0	300	$172	$7,699	44.8			
Wall R 24	0	0	479	$273	$14,739	54.0			
Roof R 24	0	0	210	$119	$3,831	32.2			
Roof R 30	0	0	487	$280	$11,090	39.6			
Roof R 36	0	0	673	$385	$25,607	66.5			

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Roof R 40	0	0	766	$436	$35,286	80.9			
Roof R 50	0	0	933	$534	$59,482	100+	x	x	x
Roof R 60	0	0	1,044	$598	$83,678	100+			
Lighting									
Facility									
Exterior site lighting reduced to 3.71 kW	3	10,836	0	$1,142	$0	0.0			
Exterior site lighting reduced to 3.30 kW	3	12,367	0	$1,306	$0	0.0			
Exterior site lighting reduced to 2.89 kW	4	13,906	0	$1,472	$0	0.0	x		
Exterior site lighting reduced to 2.47 kW	4	15,438	0	$1,635	$0	0.0		x	
Exterior site lighting reduced to 2.06 kW	5	16,969	0	$1,798	$0	0.0			x
1 BR Apartments									
Lighting power in 1 BR Apartments reduced to 0.99 W/ft²	1	4,507	-88	$437	$992	2.3			
Lighting power in 1 BR Apartments reduced to 0.88 W/ft²	3	9,008	-178	$869	$2,261	2.6			
Lighting power in 1 BR Apartments reduced to 0.77 W/ft²	4	13,502	-269	$1,302	$5,154	4.0	x	x	
Lighting power in 1 BR Apartments reduced to 0.66 W/ft²	5	18,001	-362	$1,738	$11,749	6.8			x
Lighting power in 1 BR Apartments reduced to 0.55 W/ft²	6	22,484	-455	$2,171	$26,783	12.3			
2 BR Apartments									
Lighting power in 2 BR Apartments reduced to 0.99 W/ft²	1	5,156	-103	$498	$1,144	2.3			
Lighting power in 2 BR Apartments reduced to 0.88 W/ft²	3	10,327	-208	$1,001	$2,608	2.6			
Lighting power in 2 BR Apartments reduced to 0.77 W/ft²	4	15,480	-315	$1,500	$5,945	4.0	x	x	
Lighting power in 2 BR Apartments reduced to 0.66 W/ft²	6	20,638	-423	$1,993	$13,552	6.8			x
Lighting power in 2 BR Apartments reduced to 0.55 W/ft²	7	25,803	-533	$2,496	$30,894	12.4			
Community, Fitness, Office									
Dimming daylighting control, 25% of space	0	325	-5	$34	$190	5.6			x
Dimming daylighting control, 50% of space	0	648	-10	$76	$381	5.0			
Dimming daylighting control, 75% of space	0	970	-14	$103	$571	5.5			
Dimming daylighting control, 100% of space	0	1,275	-18	$137	$761	5.6			
Occupancy sensor controls, 25% of space	0	593	-11	$44	$176	4.0			

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Occupancy sensor controls, 50% of space	0	1,185	-22	$91	$352	3.9			
Occupancy sensor controls, 75% of space	0	1,774	-33	$131	$528	4.0			
Occupancy sensor controls, 100% of space	0	2,366	-44	$178	$704	4.0	x	x	
Vacancy sensor controls, 25% of space	0	687	-12	$54	$176	3.3			
Vacancy sensor controls, 50% of space	0	1,376	-25	$110	$352	3.2			
Vacancy sensor controls, 75% of space	0	2,068	-38	$161	$528	3.3			
Vacancy sensor controls, 100% of space	0	2,757	-51	$211	$704	3.3			x
Lighting power in Community, Fitness, Office reduced to 0.66 W/ft²	0	778	-14	$69	$66	1.0			
Lighting power in Community, Fitness, Office reduced to 0.58 W/ft²	0	1,559	-28	$133	$151	1.1			
Lighting power in Community, Fitness, Office reduced to 0.51 W/ft²	1	2,332	-42	$202	$343	1.7	x	x	
Lighting power in Community, Fitness, Office reduced to 0.44 W/ft²	1	3,112	-56	$270	$783	2.9			x
Lighting power in Community, Fitness, Office reduced to 0.37 W/ft²	1	3,891	-71	$338	$1,785	5.3			
Corridors, Lobby, Walkway									
Dimming daylighting control, 25% of space	1	1,573	-13	$169	$856	5.1			
Dimming daylighting control, 50% of space	1	3,143	-26	$340	$1,712	5.0			
Dimming daylighting control, 75% of space	2	4,692	-38	$513	$2,567	5.0			
Dimming daylighting control, 100% of space	2	6,140	-50	$681	$3,423	5.0			
Occupancy sensor controls, 25% of space	0	3,886	-46	$279	$769	2.8			
Occupancy sensor controls, 50% of space	1	7,776	-93	$557	$1,538	2.8		x	x
Occupancy sensor controls, 75% of space	1	11,663	-142	$841	$2,307	2.7			
Occupancy sensor controls, 100% of space	2	15,552	-192	$1,113	$3,077	2.8			
Vacancy sensor controls, 25% of space	0	4,511	-53	$335	$769	2.3			
Vacancy sensor controls, 50% of space	1	9,020	-108	$659	$1,538	2.3			
Vacancy sensor controls, 75% of space	1	13,538	-164	$984	$2,307	2.3			
Vacancy sensor controls, 100% of space	2	18,052	-222	$1,318	$3,077	2.3			

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Lighting power in Corridors, Lobby, Walkway reduced to 0.66 W/ft²	1	4,998	-56	$403	$289	0.7			
Lighting power in Corridors, Lobby, Walkway reduced to 0.58 W/ft²	2	9,999	-113	$807	$659	0.8			
Lighting power in Corridors, Lobby, Walkway reduced to 0.51 W/ft²	2	14,993	-172	$1,215	$1,502	1.2	x	x	
Lighting power in Corridors, Lobby, Walkway reduced to 0.44 W/ft²	3	19,992	-233	$1,611	$3,423	2.1			x
Lighting power in Corridors, Lobby, Walkway reduced to 0.37 W/ft²	4	24,984	-296	$2,014	$7,803	3.9			
Stairwells, Vestibule									
Dimming daylighting control, 25% of space	0	102	-2	$6	$60	9.9			
Dimming daylighting control, 50% of space	0	205	-3	$20	$119	6.0			
Dimming daylighting control, 75% of space	0	307	-4	$28	$179	6.4			
Dimming daylighting control, 100% of space	0	409	-6	$36	$239	6.6			
Occupancy sensor controls, 25% of space	0	812	-14	$55	$171	3.1			
Occupancy sensor controls, 50% of space	0	1,623	-29	$101	$341	3.4	x	x	x
Occupancy sensor controls, 75% of space	0	2,438	-44	$157	$512	3.3			
Occupancy sensor controls, 100% of space	0	3,247	-59	$211	$683	3.2			
Lighting power in Stairwells, Vestibule reduced to 0.66 W/ft²	0	1,042	-18	$71	$64	0.9			
Lighting power in Stairwells, Vestibule reduced to 0.58 W/ft²	0	2,086	-36	$150	$146	1.0			
Lighting power in Stairwells, Vestibule reduced to 0.51 W/ft²	0	3,127	-55	$228	$333	1.5	x	x	
Lighting power in Stairwells, Vestibule reduced to 0.44 W/ft²	1	4,172	-73	$301	$759	2.5			x
Lighting power in Stairwells, Vestibule reduced to 0.37 W/ft²	1	5,213	-93	$379	$1,731	4.6			
Garage									
Occupancy sensor controls, 50% of space	0	2,852	-27	$215	$1,302	6.1		x	x
Occupancy sensor controls, 75% of space	1	6,415	-63	$490	$2,930	6.0			
Occupancy sensor controls, 100% of space	1	9,977	-99	$749	$4,557	6.1			
Lighting power in Garage reduced to 0.22 W/ft²	1	5,275	-51	$399	$611	1.5			

11 of

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Lighting power in Garage reduced to 0.20 W/ft²	1	10,551	-105	$796	$1,394	1.8			
Lighting power in Garage reduced to 0.17 W/ft²	2	15,824	-160	$1,187	$3,177	2.7	x	x	
Lighting power in Garage reduced to 0.15 W/ft²	2	21,099	-217	$1,583	$7,243	4.6			x
Lighting power in Garage reduced to 0.13 W/ft²	3	26,374	-276	$1,979	$16,511	8.3			
Garage (detached)									
Occupancy sensor controls, 50% of space	0	1,201	-39	$76	$605	8.0		x	x
Occupancy sensor controls, 75% of space	0	2,704	-87	$171	$1,361	8.0			
Occupancy sensor controls, 100% of space	1	4,206	-135	$265	$2,117	8.0			
Lighting power in Garage (detached) reduced to 0.22 W/ft²	0	1,526	-49	$107	$284	2.7			
Lighting power in Garage (detached) reduced to 0.20 W/ft²	1	3,053	-97	$226	$648	2.9			
Lighting power in Garage (detached) reduced to 0.17 W/ft²	1	4,576	-146	$339	$1,476	4.4	x	x	
Lighting power in Garage (detached) reduced to 0.15 W/ft²	1	6,100	-195	$451	$3,365	7.5			x
Lighting power in Garage (detached) reduced to 0.13 W/ft²	1	7,629	-243	$563	$7,671	13.6			
Plug/Process									
Facility									
85% snow melt boiler efficiency	0	0	84	$47	$48	1.0			
90% snow melt boiler efficiency	0	0	159	$91	$110	1.2			
95% snow melt boiler efficiency	0	0	226	$128	$173	1.3	x	x	x
Gearless elevator	0	4,183	0	$328	$22,275	67.9			
Machine roomless elevator	1	8,788	0	$689	$33,376	48.4	x	x	x
Regenerative elevator	1	11,802	0	$919	$59,411	64.6			
Elevator permanent magnet motor	0	1,519	0	$120	$31,483	100+			
1 BR Apartments									
ENERGY STAR clothes washer	4	21,096	-34	$1,925	$9,450	4.9	x	x	x
ENERGY STAR dishwasher	0	275	144	$107	$4,725	44.2	x	x	x
ENERGY STAR refrigerator	2	9,362	-131	$794	$7,245	9.1	x	x	x
2 BR Apartments									
ENERGY STAR clothes washer	3	14,993	-25	$1,374	$6,750	4.9	x	x	x
ENERGY STAR dishwasher	0	210	102	$70	$3,375	48.2	x	x	x
ENERGY STAR refrigerator	1	6,650	-95	$564	$5,175	9.2	x	x	x

Strategy	Savings				Incremental First Cost	Payback	Bundle 1	Bundle 2	Bundle 3
	Peak kW	kWh	Gas (Therm)	Energy Cost					
Service Water Heating									
Facility									
85% SWH efficiency	0	0	702	$390	$1,910	4.9			
90% SWH efficiency	0	0	1,497	$832	$3,821	4.6	x		
95% SWH efficiency	0	0	2,047	$1,137	$5,731	5.0		x	x
Gas fired on-demand SWH	0	0	979	$544	$11,756	21.6			
1 BR Apartments									
WaterSense showerheads	0	0	567	$314	$1,260	4.0	x	x	x
2 BR Apartments									
WaterSense showerheads	0	0	654	$364	$900	2.5	x	x	x

NO

Results for HVAC B

			Savings versus Baseline		
			Bundle 4	Bundle 5	Bundle 6
Project Name:	Tyler Road Project	Energy Cost Savings	$34,856	$37,644	$47,297
Building Type:	Multifamily	Peak kW Savings	39.0	45.3	61.9
Area:	146,954 ft²	kWh Savings	174,094	190,053	252,884
		Gas Savings (dekatherm)	3,093	3,228	3,761
HVAC Scenario B	Apartments: Packaged single zone with gas furnace and DX; Community, Fitness, Office: Packaged single zone with gas furnace and DX; Corridors, Lobby: Packaged single zone with gas furnace and DX; Stairwells, Vestibule: Packaged single zone with electric Coil; Garage: Packaged single zone with gas furnace; Garage (detached): Packaged single zone with gas furnace	Incremental 1st Cost	$516,255	$539,186	$679,943
		Projected Incentive	$38,029	$41,744	$53,719
		Payback with Incentive	13.7	13.2	13.2
		EUI (KBtu/ft²/yr)	66.5	65.2	60.1

Strategy	Savings Peak kW	Savings kWh	Savings Gas (Therm)	Savings Energy Cost	Incremental First Cost	Payback	Bundle 4	Bundle 5	Bundle 6
Mechanical									
Apartments									
Electronically commutated motor with constant speed	2	27,547	-664	$1,638	$33,657	20.5			x
5% improved DX cooling efficiency	6	7,590	0	$1,436	$17,056	11.9	x		
10% improved DX cooling efficiency	11	14,489	0	$2,732	$34,112	12.5		x	
20% improved DX cooling efficiency	21	26,564	0	$5,003	$68,224	13.6			x
30% improved DX cooling efficiency	29	36,779	0	$6,923	$102,336	14.8			
85% efficient gas furnace	0	0	1,571	$901	$3,911	4.3			
90% efficient gas furnace	0	0	2,969	$1,704	$9,051	5.3			
95% efficient gas furnace	0	0	4,219	$2,421	$14,191	5.9			x
Community, Fitness, Office									
Electronically commutated motor with constant speed	0	3,412	-61	$258	$1,042	4.0			
Electronically commutated motor with variable speed	3	17,497	-387	$1,285	$1,042	0.8			
Fan system power at 0.85 BHP/1000cfm	0	1,908	-32	$165	$113	0.7			
5% improved DX cooling efficiency	0	156	0	$46	$528	11.5	x	x	
10% improved DX cooling efficiency	0	299	0	$72	$1,056	14.7			x
20% improved DX cooling efficiency	1	545	0	$141	$2,111	15.0			
30% improved DX cooling efficiency	1	743	0	$192	$3,167	16.5			