

**SECTION 16740 – TELEPHONE UTILITY SERVICE**

**PART 1 – GENERAL**

- 1.1 SUMMARY
- 1.2 RELATED WORK
  - A. SECTION 01010, SUMMARY OF WORK.
  - B. SECTION 01300, SUBMITTALS.
  - C. SECTION 16110, RACEWAYS.
  - D. SECTION 16130, BOXES AND GUTTERS.
  - E. SECTION 02320, TRENCHING.

**1.3 WORK INCLUDED**

- A. ALL WORK AND MATERIAL AS SHOWN AND/OR REQUIRED TO PROVIDE NEW SERVICE TO BUILDING AND REROUTE EXISTING FACILITIES AROUND NEW BUILDING FOOTPRINT.
- B. CONTACT THE SERVING UTILITY COMPANY AT START OF CONSTRUCTION AND AGAIN 30 DAYS PRIOR TO DATE THAT SERVICE CABLE PLACEMENT WILL BE REQUIRED.
- C. COMPLIANCE WITH STANDARDS: THE SERVING UTILITY COMPANY RESERVES THE RIGHT TO REFUSE TO USE ANY CONDUIT, PULLBOXES, MANHOLES OR UTILITY BOXES THAT DEVIATE FROM APPLICABLE BUILDING CODES, PLANS AND/OR SPECIFICATIONS.

**1.4 DEFINITIONS**

- A. MTTB: MAIN TELEPHONE TERMINAL BOARD
- B. RNC: RIGID NONMETALLIC CONDUIT
- C. UFER: CONCRETE-ENCASED ELECTRODE

**PART 2 – PRODUCTS**

**2.1 MATERIALS**

- A. MAIN TELEPHONE TERMINAL BOARD (MTTB) SHALL BE PROVIDED WITH A #6 THHN SOLID COPPER GROUND WIRE IN 1/2" CONDUIT RUN TO A MAIN ELECTRIC SERVICE GROUND: EITHER THE CONCRETE-ENCASED ELECTRODE ("UFER") OR THE METAL UNDERGROUND WATER PIPE. PROVIDE WITH MINIMUM OF 30" CLEAR WORKING SPACE SHALL BE PROVIDED IN FRONT OF MTTB. IF IN A CLOSET, NO DOOR SILLS OR CENTER POSTS SHALL OBSTRUCT ACCESS.
- B. INTERIOR MTTB SHALL BE 3/4" THICK PLYWOOD SIZED AND LOCATED PER PLAN. FASTEN SECURELY TO WALL. PROVIDE WITH ADJACENT 120VOLT DOUBLE DUPLEX RECEPTACLE ON DEDICATED 20AMP CIRCUIT.

**PART 3 – EXECUTION**

**3.1 INSTALLATION**

- A. SERVICE CONDUITS SHALL BE RNC SCHEDULE 40 OR GT-80 BELOW GRADE EXCEPT AT BENDS UP TO AND INCLUDING ABOVE GRADE WHICH SHALL BE RNC SCHEDULE 80. VERIFY WITH UTILITY PRIOR TO INSTALLATION.
  - 1. MANDREL AND MEASURE CONDUITS END-TO-END TO FACILITATE THE UTILITY ORDERING OF CABLES.
  - 2. PROVIDE MINIMUM 3/16" PULL ROPE IN EACH CONDUIT.
  - 3. MINIMUM COVER FOR CONDUIT SHALL BE 30".
  - 4. MINIMUM SEPARATION FROM POWER CONDUIT(S) IN JOINT TRENCH SHALL BE 12" OF COMPACTED SOIL OR 3" OF CONCRETE.
  - 5. CONDUITS AT BACKBOARD SHALL EXTEND 2" ABOVE FINISH FLOOR OR 6" BELOW CEILING AND 1" OUT FROM FACE OF BACKBOARD.
  - 6. MINIMUM RADIUS OF BENDS FROM TRENCH TO BUILDING SHALL BE 36".
- B. 300' CONDUIT LENGTH AND BENDING LIMITS: UNLESS OTHERWISE SHOWN ON THE PLAN, SERVICE ENTRANCE CONDUIT LENGTH SHALL NOT EXCEED FOR 4" CONDUIT OR 250' FOR 2" CONDUIT. NOT INCLUDING RISERS, CONDUITS SHALL HAVE A MAXIMUM OF 270 DEGREES TOTAL OF BENDING INCLUDING A MAXIMUM OF TWO 90-DEGREE BENDS. IF THESE LIMITS ARE EXCEEDED, A PULL BOX WILL BE REQUIRED.
- C. ALL MANHOLES, PULLBOXES AND UTILITY BOXES SHALL BE SIZED PER PLAN WITH COVER MARKED "TELEPHONE" AS MANUFACTURED BY ASSOCIATED CONCRETE OR PLASTIC PRODUCTS "QUIKSET", BROOKS, CHRISTY OR EQUAL AS APPROVED BY THE UTILITY COMPANY.
  - 1. PULLBOXES SHALL BE PROVIDED WITH CABLE RACKING AND TORSION PARKWAY COVER. IF REQUIRED BY THE UTILITY, ALSO PROVIDE WITH 5' GROUND ROD DRIVEN 4' INTO GROUND.
  - 2. UTILITY BOXES SHALL BE PROVIDED WITH 5' GROUND ROD DRIVEN 4' INTO GROUND IF REQUIRED BY THE UTILITY.

END OF SECTION 16740

**SECTION 16780 – CABLE TELEVISION SERVICE**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. RELATED SECTIONS
  - 1. SECTION 01010, SUMMARY OF WORK.
  - 2. SECTION 01300, SUBMITTALS.
  - 3. SECTION 16110, RACEWAYS.
  - 4. SECTION 16130, BOXES AND GUTTERS.
  - 5. SECTION 02320, TRENCHING.

**1.3 WORK INCLUDED**

- 1. ALL WORK AND MATERIAL AS SHOWN AND/OR REQUIRED TO PROVIDE NEW SERVICE TO BUILDING AND REROUTE EXISTING FACILITIES AROUND NEW BUILDING FOOTPRINT.
- 2. CONTACT THE SERVING CABLE TELEVISION (CATV) UTILITY COMPANY AT START OF CONSTRUCTION AND AGAIN 30 DAYS PRIOR TO DATE CATV SERVICE CABLE PLACEMENT WILL BE REQUIRED.
- 3. COMPLIANCE WITH STANDARDS: THE UTILITY COMPANY RESERVES THE RIGHT TO REFUSE TO USE ANY CONDUIT, PULLBOXES, MANHOLES OR UTILITY BOXES THAT DEVIATE FROM APPLICABLE BUILDING CODES, UTILITY STANDARDS, PLANS AND/OR SPECIFICATIONS.

**PART 2 – PRODUCTS**

**2.1 MATERIALS**

- A. PROVIDE A COMPLETE CONDUIT INFRASTRUCTURE FOR INSTALLATION OF THE UTILITY SERVICE CABLE. MATERIALS SHALL COMPLY WITH APPLICABLE PORTIONS OF SPECIFICATION SECTIONS 16110, RACEWAYS AND 16130, BOXES AND GUTTERS.

**PART 3 – EXECUTION**

**3.1 INSTALLATION**

- A. PROVIDE ALL TRENCHING, EXCAVATIONS, AND ROCK-FREE BACKFILL (1/4" SCREEN) AND SERVICE CONDUITS. NOTIFY SERVING COMPANY 48 HOURS BEFORE BACKFILL.
- B. SERVICE CONDUITS SHALL BE RNC SCHEDULE 40 OR GT-80 BELOW GRADE EXCEPT AT BENDS UP TO AND INCLUDING ABOVE GRADE WHICH SHALL BE RNC SCHEDULE 80. VERIFY WITH UTILITIES PRIOR TO INSTALLATION.
  - 1. MANDREL AND MEASURE CONDUITS END-TO-END TO FACILITATE INSTALLATION OF CATV CABLES.
  - 2. PROVIDE MINIMUM 3/16" PULL ROPE IN EACH CONDUIT.
  - 3. MINIMUM COVER FOR CONDUIT SHALL BE 24".
  - 4. MINIMUM SEPARATION FROM POWER CONDUIT(S) IN JOINT TRENCH SHALL BE 12" OF COMPACTED SOIL OR 3" OF CONCRETE.
  - 5. CONDUITS AT BACKBOARD SHALL EXTEND 2" ABOVE FINISH FLOOR OR 6" BELOW CEILING AND 1" OUT FROM FACE OF BACKBOARD.
  - 6. MINIMUM RADIUS OF BENDS FROM TRENCH TO BUILDING SHALL BE 36".
- C. CONDUIT LENGTH AND BENDING LIMITS: UNLESS OTHERWISE SHOWN ON THE PLAN, SERVICE ENTRANCE CONDUIT LENGTH SHALL NOT EXCEED 500 FEET. NOT INCLUDING RISERS, CONDUITS SHALL HAVE A MAXIMUM OF 270 DEGREES TOTAL OF BENDING INCLUDING A MAXIMUM OF TWO 90-DEGREE BENDS. IF THESE LIMITS ARE EXCEEDED, A PULL BOX WILL BE REQUIRED.
- D. ALL MANHOLES, PULLBOXES AND UTILITY BOXES SHALL BE SIZED PER PLAN WITH COVER MARKED "CABLE TV" AS MANUFACTURED BY ASSOCIATED CONCRETE OR PLASTIC PRODUCTS "QUIKSET", BROOKS, CHRISTY OR EQUAL AS APPROVED BY UTILITY COMPANY.
- E. CONDUITS MUST ENTER BOXES WITH A 90-DEGREE SWEEP AND SHALL BE NO MORE THAN A 15-DEGREE ANGLE FROM THE MAIN LINE TRENCH.
- F. PULLROPES: INSTALL 3/16" POLYPROPYLENE 800 LB. MINIMUM TEST PULL LINE IN 2" CONDUITS AND 1/8" POLYPROPYLENE 200 LB. MINIMUM TEST PULL LINE IN 1" CONDUITS.
- G. LOCATIONS OF EXISTING UNDERGROUND FACILITIES SHALL BE OBTAINED BY CALLING UNDERGROUND SERVICE ALERT AT LEAST 48 HOURS IN ADVANCE, 800-642-2444.

END OF SECTION 16780

**SECTION 16906 – OCCUPANCY SENSORS**

**PART 1 – GENERAL**

- 1.1 SUMMARY
- 1.2 RELATED WORK
  - A. SECTION 16050, BASIC MATERIALS AND METHODS.
  - B. SECTION 16110, RACEWAYS.
  - C. SECTION 16120, POWER WIRE, CABLES AND CONDUCTORS.
  - D. SECTION 16140, WIRING DEVICES.
  - E. SECTION 16970, LIGHTING ACCEPTANCE TESTING.

**1.3 SYSTEM DESCRIPTION**

- A. THE OCCUPANCY SENSORS SHALL SENSE THE PRESENCE OF HUMAN ACTIVITY WITHIN THE DESIRED SPACE AND ENABLE OR DISABLE THE ON/OFF MANUAL LIGHTING CONTROL FUNCTION PROVIDED BY LOCAL SWITCHES.
- B. UPON DETECTION OF HUMAN ACTIVITY BY THE DETECTOR, INITIATE A TIME DELAY TO MAINTAIN THE LIGHTS ON FOR A PRESET PERIOD OF TIME. FIELD ADJUSTABLE TIME DELAY SETTING FROM 30 SECONDS TO 15 MINUTES.
- C. SENSORS SHALL HAVE FACTORY SET PIR SENSING SENSITIVITY FOR MAXIMUM SENSITIVITY. PROVIDE TIME DELAY AT 10 MINUTES.
- D. INSTALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
- E. ALL LINE VOLTAGE SENSORS, CONTROL UNITS, AND RELAYS UL LISTED

**PART 2 – PRODUCTS**

**2.1 WALL SWITCH SENSORS**

- A. SENSOR SHALL RECESS INTO SINGLE GANG SWITCH BOX AND FIT A STANDARD GFI OPENING.
- B. SENSOR MUST MEET NEC GROUNDING REQUIREMENTS BY PROVIDING A DEDICATED GROUND CONNECTION AND GROUNDING TO MOUNTING STRAP. LINE AND LOAD WIRE CONNECTIONS SHALL BE INTERCHANGEABLE. SENSOR SHALL NOT ALLOW CURRENT TO PASS TO THE LOAD WHEN SENSOR IS IN THE UNOCCUPIED (OFF) CONDITION.
- C. SENSOR SHALL USE PIR SENSING INCORPORATING A NOMINAL ONE HALF INCH FOCAL LENGTH LENS VIEWING 9 INCHES ABOVE AND BELOW HORIZONTAL VIEW PATTERN MEASURED AT 10 FEET.
- D. SENSOR SHALL HAVE OPTIONAL FEATURES FOR PHOTOCELL/DAYLIGHT OVERRIDE, VANDAL RESISTANT LENS, AND NO SWITCH AS SPECIFIED.
- E. IN AREAS WITH INBOARD/OUTBOARD SWITCHING, SENSOR SHALL PROVIDE TWO DEDICATED RELAYS AND OVERRIDE SWITCHES. EACH RELAY SHALL HAVE INDEPENDENT PROGRAMMABLE TIME DELAYS.
- F. IN AREAS WITH OBSTRUCTIONS TO THE OCCUPANT'S WORKSPACE, SENSOR SHALL UTILIZE PROGRAMMABLE DUAL TECHNOLOGY SENSING.
- G. ALL MODELS SHALL HAVE "REDUCED TURN ON". THIS IS A FIELD PROGRAMMABLE FUNCTION FOR PROBLEMATIC AREAS WITH UNFORESEEN REFLECTIVE SURFACES. FALSE TURN ON SHALL BE ELIMINATED WITH THIS FEATURE.
- H. SENSOR SHALL BE THE FOLLOWING SENSOR SWITCH MODEL NUMBERS. DEVICE COLOR AND OPTIONAL FEATURES AS SPECIFIED.
  - 1. WSD (PIR)
  - 2. WSD-2P (PIR INBOARD/OUTBOARD)
  - 3. WSD-PDT (DUAL TECHNOLOGY)
  - 4. WSD-PDT-2P (DUAL TECHNOLOGY)

**2.2 WALL SWITCH SENSORS – LARGE AREAS**

- A. SENSOR SHALL SURFACE MOUNT TO SINGLE GANG SWITCH BOX.
- B. SENSOR SHALL USE PIR SENSING INCORPORATING A NOMINAL ONE-INCH FOCAL LENGTH LENS VIEWING 9 INCHES ABOVE AND BELOW HORIZONTAL VIEW PATTERN MEASURED AT 20 FEET.
- C. SENSOR SHALL HAVE OPTIONAL FEATURE FOR PHOTOCELL/DAYLIGHT OVERRIDE.
- D. IN AREAS WITH INBOARD/OUTBOARD SWITCHING OR TWO CIRCUITS, SENSOR SHALL PROVIDE TWO DEDICATED RELAYS AND OVERRIDE SWITCHES.
- E. IN AREAS WITH OBSTRUCTIONS TO THE OCCUPANT'S WORKSPACE, SENSOR SHALL UTILIZE DUAL TECHNOLOGY SENSING.
- F. SENSOR SHALL BE THE FOLLOWING SENSOR SWITCH MODEL NUMBERS. DEVICE COLOR AND OPTIONAL FEATURES AS SPECIFIED.
  - 1. LWS (PIR)
  - 2. LWS-2P (PIR INBOARD/OUTBOARD OR TWO CIRCUITS)
  - 3. LWS-PDT (DUAL TECHNOLOGY)
  - 4. LWS-PDT-2P (DUAL TECHNOLOGY INBOARD/OUTBOARD OR TWO CIRCUITS)

**2.3 LINE VOLTAGE SENSORS**

- A. SENSORS SHALL BE SELF-CONTAINED AND ACCEPT CLASS 1 WIRING DIRECTLY WITHOUT THE USE OF A POWER PACK.
- B. IN AREAS WITH CLEAR LINE OF SITE VIEW OF THE WORKSPACE, SENSORS SHALL USE PIR DETECTION. IN AREAS WITH OBSTRUCTIONS, SENSORS SHALL USE DUAL TECHNOLOGY DETECTION.
- C. MULTIPLE SENSORS CONTROLLING THE SAME LOAD SHALL BE WIRED IN PARALLEL.
- D. SENSORS SHALL BE THE FOLLOWING SENSOR SWITCH MODEL NUMBERS.
  - 1. CMR-9 & CMR-9-2P (PIR CEILING MOUNT- SINGLE AND TWO POLE)
  - 2. CMR-PDT & CMR-PDT-2P (DUAL TECHNOLOGY CEILING MOUNT- SINGLE AND TWO POLE)
  - 3. CMR-10 & CMR-10-2P (PIR CEILING MOUNT EXTENDED RANGE – SINGLE AND TWO POLE)
  - 4. CMR-PDT-10 & CMR-PDT-10-2P (DUAL TECHNOLOGY CEILING MOUNT EXTENDED RANGE – SINGLE AND TWO POLE)

**PART 3 – EXECUTION**

**3.1 INSTALLATION**

- A. INSTALL OCCUPANCY SENSORS AS DIRECTED BY MANUFACTURER'S INSTRUCTIONS. COMPLETE ALL ELECTRICAL CONNECTIONS TO ALL CONTROL CIRCUITS, OCCUPANCY SENSORS, POWER SUPPLY PACK AND LOW VOLTAGE WIRING.
- B. VERIFY WITH MANUFACTURER'S REPRESENTATIVE THAT THE SENSORS ARE LAID OUT IN COMPLIANCE TO MANUFACTURERS PUBLISHED SENSING DISTRIBUTION. PROVIDE ADDITIONAL SENSORS FOR COMPLETE COVERAGE OF THE SPACE BEING SENSED.

**3.2 QUALITY CONTROL**

- A. USE MANUFACTURER'S PUBLISHED TESTING AND ADJUSTING PROCEDURES TO ADJUST SENSORS TIME DELAY, DAYLIGHT SENSITIVITY, AND PASSIVE INFRARED SENSITIVITY TO SATISFACTION OF THE OWNER.

END OF SECTION 16906

PROJECT

**ACCESSIBILITY  
IMPROVEMENTS**

# ROLLING HILLS APARTMENTS

**TEMPLETON, CA**

CLIENT JOB # ARCHITECT JOB #  
**0708B**

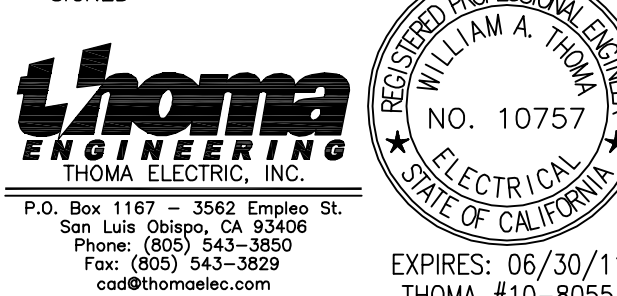


PROJECT MANAGER JT

DRAWN BY DM

DATES FIRST SUBMITTAL 5/28/10  
PLAN CHECK 1 8/16/10

SIGNED



The use of these plans and specifications shall be restricted to the original site for which they were prepared and publication thereof is expressly limited to such use. Reproduction or publication by any method, in whole or in part, is prohibited. Title to these plans and specifications remain with the architect without prejudice. Visual contact with these plans and specifications shall constitute prima facie evidence of the acceptance of these restrictions.

Written dimensions on these drawings shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and existing conditions on the job and shall report any discrepancies to the architect for resolution prior to commencing work.

SHEET TITLE

**ELECTRICAL  
SPECIFICATIONS**

SHEET #

**E5.4**