

# CITY OF MILPITAS

Office of Building Safety  
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## POOL AND SPA (RESIDENTIAL)

### **1. PERMIT INFORMATION**

- Permits are required for the construction of a new, remodeling or alteration of an existing swimming pool, spa and/or hot tub. Above ground pools and spas may only require plumbing and/or electrical permits and inspection of barrier.
  - A site inspection is required as part of the plan check process for any new outdoor pools, spas or hot tubs. This inspection can be scheduled by contacting the Senior Building Inspector.
  - Prior to obtaining a permit, the property owner is required to sign and submit the [Pool/Spa Safety Requirements Certificate](#).
  - Prior to final inspection, the property owner is required to sign and provide to the Building Inspector the [Pool/Spa Anti-entrapment Device Certificate](#).
- Definitions.**
  - **Swimming Pool.** Any structure intended for swimming, recreational bathing or wading that contains water over 24 inches deep. This includes in-ground, aboveground and on-ground pools; hot tubs; spas and fixed-in-place wading pools. [CBC 202]
- A Building Permit may be issued only to the Building Owner or their Authorized Agent [CRC 105.1].
  - See also [Authorized Agent Sample Letter](#).
  - Where the Contractor is acting as the Owner's Authorized Agent, they must be a State of California Licensed Contractor with the proper license classification.
- If the work is performed by the Building Owner personally or by his/her workers and an inspection indicates the work cannot be completed satisfactorily, then a licensed contractor must perform the work.
- Worker's Compensation.** If the Building Owner hires workers, State Law requires the Building Owner to obtain Worker's Compensation Insurance. Proof of this insurance is required prior to inspection.
- Homeowners Association.** If the property is regulated by a Homeowners Association, any exterior work must have approval of the Association. It is the property owner's responsibility to obtain this approval.
- Encroachment Permits.**
  - **Damage.** Damage to the public street, curb, gutter and/or sidewalk will require a separate encroachment permit from the Engineering Department and must be repaired prior to permit final.
  - **Material Storage.** Public streets may not be used for the temporary storage of construction materials unless a separate encroachment permit from the Engineering Department is obtained. Approval by the City Traffic Engineer of the proposed traffic plan is required prior to permit issuance.

### **2. PLANS REQUIRED:**

To expedite issuance of your permit, submit complete sets of plans, including all related disciplines. Incomplete submittals will delay the approval of your project. If you have any questions, contact the Office of Building Safety staff at City Hall or at the phone number above.

The following are guidelines for preparation and submittal of your plans. Specific plan requirements will depend largely upon the extent, nature, and complexity of the work to be done. Some items listed below may not be required for your specific project. BE SURE TO INCLUDE ALL PERTINENT INFORMATION AND DRAWINGS.

**Note – Portable outdoor spas do not require drawings but must be installed in compliance with the setback requirements for in-ground pools.**

**□ Plan Requirements.**

- **Plan Size.** Prepare plans on paper that is at least ledger (17 inches x 11 inches) in size.
- **Sets of Plans.** Submit one complete set of plans.
- **Dimensions.** All drawing shall be fully dimensioned. Plot plans, floor plans and other plan view drawings shall have a north arrow.
- **Engineer.** In-ground pools are required to be designed by an engineer.
- **Signature.** The person who prepared the plans must sign each sheet. If any of the plan sheets are prepared by a licensed architect or registered engineer, that individual must stamp and sign at least two copies of each of the sheets he or she has prepared in accordance with the California Business and Professions Code prior to plan approval. Plans for elements of the structure designed by others must be reviewed and signed by the Engineer or Architect of record. [California Business and Professional Code 5536.1, 6735]

**□ Project Information.** On the first sheet of the plans, provide the following information:

- **Name of Designer.** The printed name, address and telephone number of the person who prepared the plans.
- **Address and Owner.** List the street address of the property and the name of the legal owner of the property.
- **Scope of Work.** State the complete scope of work to be performed under this permit.
- **Building Codes.** All work must comply with the 2022 California Residential Code (CRC) or California Building Code (CBC), California Electrical Code (CEC), California Mechanical Code (CMC), California Plumbing Code (CPC), California Energy Code (CEnC), California Green Standards Building Code (CalGreen), and the Milpitas Municipal Code (MMC).
  - This document contains informational references to various California codes and the Milpitas Municipal Code, based on the 2022 and 2023 editions of those documents, respectively. For additional, or more specific, information and exceptions, please refer to the codes and standards specific to your project.

**□ Site (Plot) Plans.**

- Show the property lines, location of all existing structures, location of easements, location of adjacent streets or alleys, location of pool and/or spa and the location of existing and proposed equipment.
- Show any slopes on or adjacent to the subject property (include height and grade of the slope).
- Show new and existing paving (concrete).
- Show new and existing fencing. Provide construction details for how barrier requirements are to be met (see Pool/Spa Safety Requirements Certificate for additional information).
- Show location of all windows on walls adjacent to pool and equipment. Note existing windows within 5 feet of the water's edge measured horizontally and in a straight line and whose bottom exposed edge of the glazing is less than 60 inches above the standing or walking surface ground must be safety (tempered) glass [CRC R308.4.5].
- **Location.**
  - Pools, spas, hot tubs and their equipment cannot be located inside easements.
  - Pools, spas and hot tubs must be installed a minimum of 6 feet from any dwelling building on the same lot and 14 feet from residential structures on adjacent lots [MMC XI-10-54.08.A.3.b].
  - Pools, spas, hot tubs, and associated decking no more than eighteen (18) inches above ground shall not come closer than three (3) feet to any side or rear property line [MMC XI-10-54.08.B.8].

**□ Details and Notes.** Include all construction details. Provide all necessary notes to explain the planned construction.

- For above ground pools, spas or hot tubs, include a copy of the manufacturer's installation specifications.
- Show how the design complies with the requirements of the *California Energy Code*.
- In-ground pools and spas shall be engineered for expansive soil unless a soils report is provided the indicates otherwise.

### **3. CODE REQUIREMENTS**

- Enclosures and Safety Devices.** All outdoor pools and/or spas require the installation of enclosures and safety devices. Refer to the attached [Pool/Spa Safety Requirements Certificate](#) for detailed information.
- Anti-Entrapment Devices.** Whenever a Building Permit is required for the construction of a new swimming pool or spa, or the remodel or modification of any existing swimming pool, toddler pool, or spa, the pool or spa shall comply with the anti-entrapment requirements detailed in the [Pool/Spa Anti-entrapment Device Certificate](#).
- Safety Glazing.** Glazing within 60 inches of hot tubs, spas, and swimming pools where the bottom exposed edge of the glazing is less than 60 inches measured vertically above any standing or walking surface is considered to be a hazardous location and must meet the identification and testing requirements of CRC R308 [CRC R308.4.5].
- Noise.** Pool equipment shall not increase the noise exposure level by more than three dB over the local ambient noise level measured from the property line of the noise source, or more than 65 dB measured from the property line of the noise source, whichever is more restrictive [MMC V-213-3].
- Electrical.**
  - **Bonding and Equipment Grounding.** The equipment listed in CEC 680.6 must be bonded and meet the equipment grounding requirements of CEC Article 250, Parts V and VI.
    - **Terminals.** Terminals used for bonding and equipment grounding shall be identified for use in wet and corrosive environments. Field-installed terminals in a damp, wet, or corrosive environment shall be composed of copper, copper alloy, or stainless steel and shall be listed for direct burial. [CEC 680.7]
  - **Cord-and-Plug-Connected Equipment.** Fixed or stationary equipment, other than underwater luminaires, may be connected with a flexible cord and plug which, for other than storable pools, may be up to 3 ft in length. The flexible cord must have a copper equipment grounding conductor not smaller than 12 AWG and be terminated in a grounding-type plug. [CEC 608.8]
  - **Overhead Conductors.** If there are overhead electrical conductors, clearances above the water, steps, platforms, etc. must be per CEC 680.9.
    - **Communications Systems.** Communications, radio, and television coaxial cables shall be permitted at a height of not less than 10 ft above the maximum water level or above diving structures, platforms, and similar accessory elements [CEC 680.9(B)].
  - **Electric Pool Water Heaters.** Heating elements must be subdivided into loads not exceeding 48A and protected at not over 60A [CEC 680.10].
  - **Underground Wiring.** Underground wiring within 5 ft horizontally from the inside wall of the pool shall be permitted if of a wiring method suitable for the conditions in these locations, however underground wiring shall not be permitted under the pool unless necessary to supply pool equipment permitted by CEC Article 680 [CEC 680.11].
  - **Maintenance Disconnecting Means.** Utilization equipment other than lighting must have an equipment disconnecting means in a readily accessible location, within sight from the equipment, and that is located at least 5 ft horizontally from the inside walls of the pool, spa, or hot tub or separated from the water by a permanent barrier providing a 5 ft reach path or greater [CEC 680.13].
  - **Permanently Installed Pools.**
    - **GFCI Protection.** Required for the following items:
      - **Motors.** Pool motors on branch circuits rated at or below 150v or 60A [CEC 680.21(C)]. Required both for new installations and where equipment is replaced [CEC 680.21(D)].
      - **Receptacles.** All 125v, 15A or 20A receptacles located within 20 ft of the inside walls of the pool [CEC 680.22(A)(4)].
      - **Pool Equipment Room.** All receptacles on circuits rated 150v or less [CEC 680.21(A)(5)].
      - **Pool Adjacent Areas.** Luminaires, lighting outlets, and paddle fans from 5 ft to 10 ft horizontally from the inside walls of a pool, unless installed at least 5 ft above the maximum water level and rigidly attached to the structure adjacent to/enclosing the pool [CEC 680.22(B)(4)].
      - **Underwater Luminaires.** Required for non-low-voltage luminaires [CEC 680.23(3)].
      - **Electrically Operated Pool Covers.** Electric motor and controller [CEC 680.27(B)(2)].
    - **Receptacles.**

- **Minimum.** At least one 125v, 15A or 20A receptacle between 6ft and 20ft from inside wall of pool [CEC 680.22(A)(1)].
- **Pool Equipment Room.** At least one GFCI protected 125v, 15A or 20A within pool equipment room [CEC 680.22(A)(5)].
- **Clearances.**
  - **Outdoor Pools.** Luminaires, lighting outlets, and paddle fans within 5 ft horizontally from the inside walls of the pool must be at least 12ft above the maximum water level [CEC 680.22(B)(1)].
  - **Indoor Pools.** As for outdoor, except that for GFCI protected circuits the height may be reduced to 7 ft 6 in. for totally enclosed luminaires and paddle fans [CEC 680.22(B)(2)].
  - **Existing Luminaires and Lighting Outlets.** Within 5 ft horizontally from the inside walls of the pool must be at least 5 ft above the maximum water level, rigidly attached to the existing structure, and GFCI protected [CEC 680.22(B)(3)].
  - **Switching Devices.** Minimum of 5 ft horizontally from the inside walls of a pool or separated by a permanent barrier with a reach distance of at least 5 ft, or must be listed for use within 5 feet [CEC 680.22(C)].
  - **Other Outlets.** Minimum of 10 ft from the inside walls of the pool [CEC 680.22(D)].
- **Underwater Luminaires.** Luminaires installed below the maximum water level of the pool must be installed in accordance with CEC 680.23.
- **Equipotential Bonding.** Must be provided to reduce the voltage gradients in the pool area as per CEC 680.26.
- **Spas and Hot Tubs.**
  - **Outdoor Installations.**
    - **Cord-and-Plug Connections.** Are permitted provided the cord does not exceed 15 ft and is GFCI protected [CEC 680.42(A)(2)].
    - **Bonding.** Bonding of components and equipotential bonding of perimeter surfaces to be as per CEC 680.42(B).
  - **Indoor Installations.**
    - **Receptacles.**
      - **Minimum.** At least one 125v, 15A or 20A receptacle between 6ft and 20ft from inside wall of the spa or hot tub [CEC 680.43(A)(1)].
      - **Clearance.** Receptacles shall be at least 6 ft horizontally from the inside walls of the spa or hot tub [CEC 680.43(A)(2)].
    - **GFCI Protection.** Required for the following items:
      - **Receptacles.** 125v and 30A or less within 10ft horizontally of the inside wall of the spa or hot tub [CEC 680.43(A)(3)].
      - **Power Supply.** Receptacles that provide power for a spa or hot tub [CEC 680.43(A)(4)].
        - **Exception.** Listed, labeled, and identified self-contained units or packaged equipment assemblies that include integral GFCI protection for all electrical parts do not require additional GFCI protection. Field-assembled spa or hot tubs rated 3 phase or rated over 250v or with a heater load of more than 50A do not require the supply to be GFCI protected. [CEC 680.44].
      - **Luminaires, Lighting Outlets, and Paddle Fans.** Mounted lower than 12 ft above the maximum water level [CEC 680.43(B)].
    - **Underwater Luminaires.** Shall be as per CEC 680.23 or 680.33.
    - **Switches.** Shall be at least 5 ft measured horizontally from the inside walls of the spa or hot tub [CEC 680.43(C)].
    - **Bonding.** Shall be per CEC 680.43(D and E).
      - **Exception.** Equipotential bonding is not required for listed self-contained spas or hot tubes installed above a finished floor [CEC 680.43 Exc. 3].

## □ Plumbing.

- **Water Supply Inlets.** Water supply inlets to swimming pools and other receptors shall be protected by (1) an approved air gap, (2) a listed vacuum breaker installed on the discharge side of the last valve with the critical level not less than 6 inches or in accordance with its listing, or (3) a backflow preventer suitable for the degree of hazard, installed in accordance with the requirements of CPC Chapter 6 [CPC 603.5.5].

- **Potable Water Supply.** Potable water supply to swimming pools, spas, and hot tubs shall be protected by an air gap or a reduced pressure principle backflow preventer in accordance with the following: (1) The unit is equipped with a submerged fill line; (2) The potable water supply is directly connected to the unit circulation system [CPC 603.5.20].
- **Indirect Wastes.** Pipes carrying wastewater from swimming or wading pools, including pool drainage and backwash from the filters, shall be installed as an indirect waste. Where a pump is used to discharge pool wastewater to the drainage system, the pump discharge shall be installed as an indirect waste. [CPC 813.0]
- **General.** For more information on related issues, please refer to the following handouts:
  - [Water Piping](#)
  - [Sewer Line](#)
  - [Natural Gas Piping](#)

□ **Mechanical.**

- **Pool Heater.**

- **Location.** A pool heater shall be located or protected so as to minimize accidental contact of hot surfaces by persons [CMC 927.1].
- **Clearance.** The installation of pool heaters shall comply with the following requirements [CMC 927.2]:
  - Clearances shall not interfere with combustion air, draft hood, or vent terminal clearance and relief, and accessibility for servicing.
  - **Listed Heater.** Shall be installed in accordance with its listing and manufacturer's instructions.
  - **Unlisted Heater.** Installed with a clearance of not less than 12 inches on sides and rear. Combustible floors under heater shall be protected in an approved manner.
- **Temperature or Pressure-Limiting Devices.** Unlisted pool heaters require over-temperature protection or over-temperature and overpressure protection by means of an approved device [CMC 927.3].
  - **Pressure Relief Valve.** Where provided with over-temperature protection only and is installed with any device in the discharge line that can restrict the flow of water from heater to pool, a pressure-relief valve is required either in the heater or between heater and restrictive device [CMC 927.3.1].
- **Bypass Valves.** Where an integral bypass system is not part of heater, a bypass line and valve are required between inlet and outlet piping for use in adjusting flow of water through heater [CMC 927.4].
- **Venting.** A pool heater listed for outdoor installation shall be installed with the venting means supplied by the manufacturer and in accordance with the manufacturer's installation instructions [CMC 927.5].

□ **Energy Requirements.**

- **Installation.** Any pool or spa system or equipment shall be installed with all of the following [CEC 110.4(b)]:
  - **Piping.** At least 36 inches of pipe between filter and heater or dedicated suction and return lines, or built-in or built-up connections shall be installed to allow for the future addition of solar heating equipment.
  - **Covers.** A cover for outdoor pool or spas that have a heat pump or gas heater.
  - **Directional Inlets and Time Switches for Pools.** The pool shall have directional inlets that adequately mix the pool water; and a time switch or similar control mechanism shall be installed as part of pool water circulation control system that will allow all pumps to be set or programmed to run only during off-peak electric demand period, and for the minimum time necessary to maintain the water in the condition required by applicable health standards.
- **Heated Pools.**
  - **Heater Manufacturer Certification.** Any pool or spa heating system or equipment may only be installed if the manufacturer has certified that the system or equipment meets the requirements listed in CEC 110.4(a).
  - **Pilot Lights.** Natural gas pool heaters may only be installed if they do not have a continuously burning pilot light [CEC 110.5].
- **Pool Systems and Equipment.**
  - **Pumps and Pump Motors.** Flow rates shall be calculated, and equipment selected and programmed, in accordance with CEC 150.0(p)(1).
  - **System Piping.** [CEC 150.0(p)(2)]
    - **Required.** A straight pipe that is at least 4 pipe diameters long be installed before the pump.
    - **Size.** Pipe shall be sized so that the velocity of the water at maximum flow for auxiliary pool loads does not exceed 8 feet per second in the return line and 6 feet per second in the suction line.

- **Elbows.** Shall be sweep elbows or of an elbow-type that has a pressure drop of less than the pressure drop of straight pipe with a length of 30 pipe diameters.
- **Filters.** At least the size specified in NSF/ANSI 50 for public pool applications [CEC 150.0(p)(3)].
- **Valves.** Minimum diameter of backwash valves shall be 2 inches or the diameter of the return pipe, whichever is greater [CEC 150.0(p)(4)].

#### **4. ADDITIONAL REQUIREMENTS**

- Smoke/Carbon Monoxide Alarms and Spark Arrestor Inspection.** In all one- and two-family residences, installation and inspection of required smoke alarms, carbon monoxide alarms, and spark arresters must be completed prior to the final inspection. Refer to the [\*Smoke Alarm, Carbon Monoxide Alarm, and Spark Arrestor Certificate\*](#) handout for detailed information.

#### **5. INSPECTION PROCEDURES**

- Required Inspections.** Several inspections may be required. Ask your inspector what will be required after the first inspection occurs. Typically, at least the following inspections will be required:
  - **Underground.** All trenches must be inspected before they are backfilled.
  - **Pregunite.** All reinforcement and other materials contained within an area to receive concrete, grout, or similar materials must be inspected before being covered.
  - **Final.** A final inspection is required when all work is completed.
    - **Anti-Entrapment Devices.** The completed [\*Pool/Spa Anti-entrapment Device Certificate\*](#) must be provided to the inspector at this time.
    - **Energy.** Items required by the *California Energy Code*, described above, will be verified at this time.
    - **Smoke Alarms.** Inspection of smoke alarms and carbon monoxide detectors may be performed during the final inspection, or a certificate stating compliance may be provided to the inspector (see *Additional Requirements* above).

#### **6. OTHER APPROVALS**

All plan submittals for Planning and Engineering are made through the Building Safety Department at the Permit Center with the building permit application.

- Engineering Department.** Prior to completion of any plans, the Engineering Department should be contacted at (408) 586-3329 to find out the requirements due to the location of any easements, and for sight distance clearance along with the possible need for an encroachment permit for any work in the right-of-way.
- Planning Department.** Prior to completion of any plans, the Planning Department should be contacted at (408) 586-3279 to find out the requirements due to the proposed location and type of fence.
- Homeowners Association.** If the property is regulated by a Homeowners Association (HOA), any proposed exterior or other work areas regulated by the HOA must have approval of the Association. It is the property owner's responsibility to obtain the approval.

#### **7. QUESTIONS**

- If you have any questions regarding your project, contact the Office of Building Safety at (408) 586-3240.