SENATE JUDICIARY COMMITTEE
Senator Thomas Umberg, Chair
2025-2026 Regular Session

AB 2047 (Bauer-Kahan)
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Fiscal: Yes
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ID

SUBJECT

Firearms: 3-dimensional printing blocking technology

DIGEST

This bill makes it unlawful to sell or transfer a three-dimensional (3-D) printer in California that is not equipped with firearm blocking technology or not listed on the Department of Justice's (DOJ) list of 3-D printers for which the manufacturer has submitted a complete attestation that the printer is equipped with firearm blocking technology; requires the DOJ to publish guidance on performance standards for firearm blueprint detection algorithms and software control processes for 3-D printers; requires the DOJ to publish a list of 3-D printers for which the manufacturers have not submitted a required attestation that the printer is equipped with firearm blocking technology; and provides a cause of action for a violation of these provisions, as specified.

EXECUTIVE SUMMARY

3-D printers use an additive manufacturing process that lays down consecutive layers of material to generate various three-dimensional products. 3-D printers have grown significantly in popularity in recent years, and designs for guns built through 3-D printers have consequently also become widely available online. As the prevalence of 3-D printed guns have grown, the state has enacted various laws to prohibit the manufacture of 3-D printed guns without a gun manufacturing license. AB 2047 aims to prevent 3-D printers from being capable of unlawfully printing firearms, by requiring 3-D printer manufacturers to equip the 3-D printers they sell or transfer with firearm blocking technology. To accomplish this, it requires the DOJ to publish guidance for 3-D printer manufacturers specified performance standards for firearm blocking technology for 3-D printers, and requires manufacturers of 3-D printers to provide the DOJ with an attestation that the 3-D printers they sell are equipped with firearm blocking technology. The DOJ must then publish a list of the makes and models of 3-D printers for which it has received a complete attestation, and of those for which it has received an incomplete attestation. AB 2047 provides a cause of action against a person who

sells, offers to sell, or transfers a 3-D printer in California that is not equipped with a firearm blocking technology, and against a person who knowingly files an attestation containing false information, and permits a person harmed as a result of a violation, the Attorney General, county counsel, or a city attorney to file such a cause of action. Lastly, AB 2047 makes it a misdemeanor to knowingly disable, deactivate, uninstall, or otherwise circumvent any firearm blocking technology installed in a 3-D printer with intent to manufacture firearms or to knowingly distribute, sell, or transfer in California a modified 3-D printer, as specified.

AB 2047 is sponsored by Everytown for Gun Safety, and is supported by a diverse coalition of groups and nonprofits. It is opposed by the California Rifle and Pistol Association, a number of other organizations, and several individuals. Should it pass this Committee, AB 2047 will then be referred to the Senate Public Safety Committee.

PROPOSED CHANGES TO THE LAW

Existing law:

1) Establishes the Firearm Industry Responsibility Act (FIRA) to prohibit firearm industry members from dealing in abnormally dangerous firearm-related products. Requires a firearm industry member to comply with the firearm industry standard of conduct, and makes it a violation of the firearm industry standard of conduct for a firearm industry member to fail to comply with specified provisions, including establishing, implementing, and enforcing reasonable controls. (Civ. Code, §§ 3273.50 et seq.)

2) Specifies that a firearm-related product includes a "firearm manufacturing machine," and defines, for the purposes of FIRA, "firearm manufacturing machine" to mean a three-dimensional printer, as defined, a computer numerical control (CNC) milling machine, or a similar machine, that is marketed or sold, or is reasonably designed or intended to be used, to manufacture or produce firearms, firearm components, or firearm accessories. (Civ. Code § 32783.50(d).)

3) Authorizes a person who has suffered harm because of a firearm industry member's conduct, the Attorney General, a city attorney, and a county counsel to bring an action in court under FIRA for a violation of the firearm industry standard of conduct. (Civ. Code § 3273.52.)

4) Permits a civil action to be brought against a person who knowingly distributes or causes to be distributed, by any means, including the internet, any digital firearm manufacturing code to any other person in this state who is not a federally licensed firearms manufacturer, a member of the Armed Forces, or any law enforcement agency or forensic laboratory, as specified, or who commits specified criminal acts related to firearms. (Civ. Code § 3273.61.)

5) Prohibits a person from selling, offering to sell, transferring, advertising, or marketing a CNC milling machine or three-dimensional printer in a manner that knowingly or recklessly causes another person in the state to engage in conduct prohibited by Penal Code section 29185, or in a manner that otherwise knowingly or recklessly aids, abets, promotes, or facilitates conduct prohibited by that section.
    a) Creates a rebuttable presumption that a person is engaged in this prohibited conduct if they offer to sell, advertise, or market a CNC milling machine or three-dimensional printer in a manner that, under the totality of the circumstances, is targeted at purchasers seeking to manufacture firearms or that otherwise affirmatively promotes the machine or printer's ability to manufacture firearms, and the person sells or transfers the CNC milling machine or three-dimensional printer without verifying that the purchaser or transferee in this state is a federally licensed firearms manufacturer or not otherwise prohibited, as specified. (Civ. Code § 3273.62.)

6) Makes it unlawful to knowingly, willfully, or recklessly cause another person to engage in the unlawful manufacture of firearms, or to knowingly, willfully, or recklessly aid, abet, promote, or facilitate the unlawful manufacture of firearms. (Civ. Code § 3273.625.)

7) Defines "firearm" to mean a device, designed to be used as a weapon, from which is expelled through a barrel, a projectile by the force of an explosion or other form of combustion. (Pen. Code § 16520.)

This bill:

1) Establishes the "California Firearm Printing Prevention Act," and defines for the Act the following:
    a) "Department" to mean the Department of Justice;
    b) "firearm" to mean the definition of firearm in Penal Code section 16520;
    c) "firearm blocking technology" to mean hardware, firmware, or other integrated technological measures capable of ensuring a three-dimensional printer will not proceed to any print job unless the underlying three-dimensional printing file has been evaluated by a firearms blueprints detection algorithm and determined not to be a printing file that would produce a firearm or illegal firearm parts;
    d) "firearm blueprint detection algorithm" to mean a software service that evaluates three-dimensional printing files, whether in the form of stereolithography (STL) files or other computer-aided design files or geometric code, to determine if the files can be used to program a three-dimensional printer to produce a firearm or illegal firearm parts, and flags any such files to prevent their use to manufacture a firearm or illegal firearm parts;

e) "firearm precursor part" to have the same meaning as it is defined in Penal Code section 16531;
f) "firmware design" to mean integration of a firearms blueprint detection algorithm directly into a three-dimensional printer's firmware, such that any geometric code received by the printer must be evaluated by the algorithm before the printer will proceed to print, and such that the printer will reject print jobs identified by the algorithm because they would direct the printer to print firearms or illegal firearm parts;
g) "illegal firearm parts" to mean a firearm precursor part and any part designed and intended for use in converting a semiautomatic weapon into a machine gun, including, but not limited to, a pistol convertor;
h) "integrated pre-print software design" to mean a limitation of a three-dimensional printer's operation to accept geometric code for printing exclusively from a single slicer or other preprint software, which may be the manufacturer's proprietary software, and integration of a firearm blueprint detection algorithm into that pre-print software, such that any STL file or other computer-aided design file must be evaluated by the algorithm before the software will proceed to produce geometric code, and such that the software will not produce geometric code for files that are identified by the algorithm because they would direct the printer to print firearms or illegal firearm parts;
i) "Pistol convertor" to have the same meaning as it is defined in Penal Code section 17015;
j) "Software controls process" to mean a system designed to stop a three-dimensional printer from initiating any print job unless the underlying three-dimensional printing file has been evaluated by a firearm blueprint detection algorithm and determined not to be a printing file that would produce a firearm or illegal firearm parts; and
k) "Three-dimensional printer" to have the same meaning as defined in Civil Code section 3273.60.

2) Requires, on or before September 1, 2028, the DOJ to publish written guidance on performance standards for firearm blueprint detection algorithms and for software controls processes for three-dimensional printer manufacturer use, as specified, and permits the DOJ to adopt some or all of any set of performance standards created by a nongovernmental entity, including an academic consortium or a global standard-setting nonprofit, including ASTM International, and specifies that, to the extent performance standards created by a nongovernmental entity meet all the requirements of the bill's provisions, the DOJ's performance standards may provide that compliance with the nongovernmental entity's standards shall constitute compliance. Permits the DOJ to seek input from relevant stakeholders and technical experts, as specified.

3) Specifies that the performance standards must require that firearm blueprint detection algorithms have the capacity, with a high degree of accuracy, to:
    a) Evaluate three-dimensional printing files, whether in the form of STL files or other computer-aided design files or geometric code;
    b) Detect and identify any such files that can be used to program a three-dimensional printer to produce a firearm or illegal firearm parts; and
    c) Flag any disallowed files for print rejection by a software control process.

4) Specifies that the performance standards must require that, at a minimum, firearm blueprint detection algorithms have the capacity to utilize information from an inventory of disallowed firearm blueprint files that have been commonly shared on internet forums to detect those files and modified versions of those files, and, in order to meet these requirements, permits the standards to require blueprint detection algorithms to receive updated information from an inventory of firearm blueprint files and illegal firearm parts blueprint files, including but not limited to, a library maintained by any state agency or out-of-state agency, academic institution, or nongovernmental entity. Specifies that an individual authorized to access such a file library for developing or vetting firearm blocking technology is immune from liability under the FIRA.

5) Requires the performance standards to include standards for acceptable false-positive and false-negative rates in detection algorithm performance, but prohibits the standards from requiring that a firearm blueprint detection algorithm produce a false-negative rate of zero corresponding to a perfect success rate at detecting disallowed files, as specified.

6) Specifies that the performance standards must require that the firearm blueprint detection algorithm have the capacity to implement regular updates to the set of disallowed firearm files it has the capacity to detect, to an extent and frequency that reasonably considers the rate of innovation for the design and availability of new firearm blueprint files, as specified, and requires the performance standards to include a process for periodically reviewing emerging detection software techniques, including advanced forms of image recognition and volumetric search functionality.

7) Specifies that the performance standards must require software control processes have the capacity, to a high degree of reliability, to substantially reduce the likelihood of foreseeable circumvention attempts intended to evade a firearms blueprint detection algorithm, and requires the performance standards to include minimum standards on developer testing to confirm an acceptably low level of evasion with identified design files for firearms and illegal firearm parts, but prohibits the standards from requiring that a software controls process produces a perfect success rate at preventing a user from evading a firearms blueprint detection algorithm.

8) Requires the performance standards to set out options for design forms that may be used for a software controls process integration into a three-dimensional printer, including that the standards-setting process shall consider: firmware design; integrated pre-print software design; and any other form, including handshake authentication design or other design forms directed towards compatibility with open-source architecture, if the software controls process meets all performance requirements of the standard and is at least as effective and resistant to being defeated as the above-listed design forms.

9) Requires the design standards to include: for firmware design, guidance for how vendors are required to demonstrate that their technology will ensure a printer directs potential print jobs to the algorithm before printing; and for integrated pre-print software design, guidance for how vendors must demonstrate that printers will accept print jobs exclusively through authorized and validated software systems, as specified.

10) Prohibits, on or before March 1, 2029, any business that produces or manufactures three-dimensional printers for sale or transfer in California to submit to the DOJ an attestation, for each make and model of printer they intend to sell in California, that the manufacturer has equipped the printer with a firearm blueprint detection algorithm and a software controls process, and which confirms that the manufacturer tested and confirmed the functionality of the firearm blocking technology.
    a) Provides the Attorney General with the authority to investigate and inspect the submission and the models if the attestation is incomplete or contains information that indicates that the make and model may not be effectively equipped with firearm blocking technology.
    b) Permits a self-attestation form to include instructions to manufacturers on how to test the functionality of firearm blocking technology, how to affirm that testing has occurred on a specified percentage of printers, and how to submit the self-attestation form.

11) Requires the DOJ, on or before June 1, 2029, to publish a list of the makes and models of three-dimensional printers that have complete attestations, and of any makes and models that have an incomplete attestation. Requires this list to be updated no less frequently than on a quarterly basis and be made accessible on the DOJ's website, and requires the retailers and distributors of three-dimensional printers to consult the list to ensure their inventory consists of compliant three-dimensional printers.

12) Requires a business that produces or manufactures three-dimensional printers to, before any three-dimensional printer is offered, sold, transferred, or distributed to any person or business in California:
    a) equip the printer with firearm blocking technology;

b) submit a self-attestation of installation of the firearm blocking technology to the DOJ.

13) Specifies that any business that sells, offers to sell, distributes, or transfers a three-dimensional printer in California must consult the DOJ's list. Makes it unlawful to sell or transfer a three-dimensional printer in California that is not equipped with a firearm blocking technology and is not listed on the DOJ's list.

14) Does not apply the requirements described in 12) through 13), above, to:
    a) Printers manufactured for and sold exclusively to the state or law enforcement agencies of the United States for the manufacturing of firearms for law enforcement or military purposes;
    b) Printers manufactured for and sold exclusively to aerospace, biomedical, automotive, or chemical or mechanical engineering companies or government contractors, if not also sold on the consumer retail market;
    c) Printers manufactured for and sold exclusively to entertainment industry stagecraft and propmaking studios; or
    d) Printers sold or transferred in private transactions that were originally purchased before the publication of the DOJ's list.

15) Permits a civil action against a person who sells, offers to sell, or transfers a three-dimensional printer in California that is not equipped with firearm blocking technology, and against a person who knowingly files an attestation containing false information. For a civil action for selling a printer without firearm blocking technology, it is an affirmative defense against a retailer, distributor, wholesaler, importer, or other transferor that they only sold or transferred the three-dimensional printer after verifying that that it was on the DOJ's list as having a complete attestation.

16) Permits a person who suffers harm in California as a result of a violation of these provisions to bring a civil action pursuant to 15), above, and permits such a person to seek compensatory damages as well as injunctive relief. Additionally permits the Attorney General, county counsel, or a city attorney to bring an action for a violation of these provisions, and permits them to seek a civil penalty of no more than $25,000 for each violation as well as injunctive relief. Specifies that a prevailing plaintiff is entitled to recover reasonable attorney's fees and costs.

17) Makes the provisions described in 12) through 16), above, operative on December 1, 2029.

18) Permits the DOJ to promulgate regulations and develop forms and publications to implement the requirements of this bill.

19) Makes it unlawful to knowingly disable, deactivate, uninstall, or otherwise circumvent any firearm blocking technology installed in a three-dimensional printer with intent to manufacture firearms or to knowingly distribute, sell, or transfer in California one or more modified versions of a three-dimensional printer identified on the DOJ's list, with the intent to facilitate the unlawful manufacture of firearms, and makes a violation of this provision a misdemeanor. Specifies that this does not preclude prosecution under any other law providing for a greater penalty.

COMMENTS

1. Author's statement

In support of AB 2047, the author states:

> California has set a standard for the country in creating commonsense gun regulations and gun violence prevention work. AB 2047 continues this work by requiring that all three-dimensional printers sold in California are equipped with firearm blocking features to prohibit the printing of dangerous gun parts. Specifically, it requires that they have a firearm detection algorithm and software controls that identifies files that would produce guns and illegal gun parts and block such printing requests.
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> There is alarming data showing that 3D-printed firearms have become an escalating public safety threat. A report from Everytown for Gun Safety shows that recoveries of 3D-printed guns increased by 1,000 percent between 2020 and 2024. Just last month, Santa Rosa police seized three 3D printers along with 167 firearms- including 150 guns with obliterated serial numbers- in an illegal ghost gun manufacturing operation that left weapons easily accessible to a young child.
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> As technology evolves, it's important that consumer protections change with it to ensure the safety of our communities.

2. The epidemic of gun violence in the U.S.

For many years now, gun violence and mass shootings have been a major issue in the United States, and gun violence has surged in recent years. The United States saw a record number of mass shootings in 2023, with the Gun Violence Archive reporting 659 mass shootings, and 503 in 2024.[1] Moreover, there were 44,447 gun deaths in the United

[1] *Gun Violence Archive*, available at https://www.gunviolencearchive.org/.

States in 2024, which is the highest rate of recent years with complete data.[2] So far in 2026, there have been 5,599 gun homicides, and 180 mass shootings.[3]

Part of this overwhelming epidemic of gun violence is the ubiquitous prevalence of firearms in the United States. Some estimates place the current number of firearms in civilian possession in the United States at 433.9 million, and both possession and production have been growing in recent years.[4] In 2019 and 2020, 40 million guns were sold in the United States.

3. "Ghost guns" and 3-D printed guns are a new threat

Historically, firearms have been produced by licensed manufacturers in factories and sold through licensed gun dealers. Federal law requires all guns manufactured in the United States and imported from abroad to have serial numbers, typically displayed on the back of the frame. Serial numbers and extensive regulations on manufacturers help ensure firearms can be traceable, and are only sold to those legally able to possess them. Thus, those intending to avoid the licensing of firearms or to evade firearms being traced back to the owner have historically attempted to file off the serial number from a firearm's frame.

However, "ghost guns" have provided an incredibly easy avenue for such individuals to evade firearm licensing and other regulations. Such "ghost guns" can be manufactured by an unlicensed buyer with parts that can be acquired without a background check or manufacturing license. Because of this, ghost guns are also unserialized and therefore untraceable by law enforcement.

One way in which "ghost guns" are produced is through computer numerical control (CNC) milling machines. CNC milling machines are machines capable of automatically processing raw materials such as metal, plastic, wood or composite into digitally modeled shapes based solely on programed instructions, without the need for a human operator. CNC milling machines use subtractive manufacturing: essentially breaking down a raw material until the desired product is created.

3-D printers, by contrast, use an additive manufacturing process that lays down consecutive layers of material to generate various products. Typically, someone uses a

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[2] John Gramlich, "What the data says about gun deaths in the U.S." Pew Research Center (Apr. 28, 2026), https://www.pewresearch.org/short-reads/2026/04/28/what-the-data-says-about-gun-deaths-in-the-us/.
[3] *Gun Violence Archive*, "Gun violence archive 2026" (Jun. 10, 2026) available at https://www.gunviolencearchive.org/.
[4] Jennifer Mascia, "How Many Guns are Circulating in the U.S.?" The Trace (Mar. 6, 2023), available at https://www.thetrace.org/2023/03/guns-america-data-atf-total/#:~:text=In%202020%2C%20the%20group%20reported,civilian%20possession%20is%20433.9%20million.%E2%80%9D.

3-D printer by providing a 3-D model (usually in CAD (Computer-Aided Design) format) to a particular software program that "slices" the model into horizontal layers that it then converts into code for the printer to read. When the printer receives this code for the printing job, its own firmware processes that code to instruct the printer to print the horizontal layers of the design with the raw processing material. 3-D printers have grown significantly in popularity in recent years, with the designs for guns built through 3-D printers becoming widely available online.

There has been an explosion in the use and proliferation of such ghost guns. In Los Angeles alone, the LAPD recovered 1,921 ghost guns in 2021, more than double the amount recovered in 2020.[5] Since 2017, the department has seen a 400% increase in ghost gun seizures. In 2022, in Sacramento, a man used an unregistered homemade automatic rifle to kill his three daughters, a chaperone, and himself in a local church.[6] Just this year, a San Jose teenager was found with two 3-D weapons printers and 27 3-D printed guns.[7] Data suggests that there has been an almost 1,000% increase in recoveries of 3-D printed guns at crime scenes in major cities over the past five years.[8]

4. California has tried to regulate ghost guns and 3-D printers

In 2022, the state passed AB 1621 (Gipson, Ch. 76, Stats. 2022) to take major steps to rein in ghost gun manufacturers and CNC milling machines and 3-D printers used to manufacture ghost guns by establishing various restrictions on the possession, sale, transfer, import, manufacture, and assembly of serialized and unserialized firearms, and firearm precursor parts, subject to exceptions. A year later, AB 1089 (Gipson, Ch. 243, Stats. 2023) amended these laws to include 3-D printers and CNC milling machines, and created two new causes of action against persons who knowingly distribute a digital firearm manufacturing code or commit an act that violates the Penal Code on unlawfully using or selling CNC milling machines and 3-D printers. These provisions were further expanded last year by AB 1263 (Gipson, Ch. 636, Stats. 2025).

5. AB 2047 would require the creation of guidelines regarding firearm blocking technology for 3-D printers, and the use of such technology in 3-D printers

AB 2047 attempts to address 3-D printed guns at the source in three main ways. First, it requires a regulatory process in which the DOJ must publish by September 1, 2028,

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[5] "Ghost Guns in California," Giffords Law Center (Jun. 30, 2023), available at https://giffords.org/lawcenter/state-laws/ghost-guns-in-california/.
[6] Don Thompson, "Man Used 'ghost gun' to kill 3 daughters in church," NBC Bay Area (Mar. 6, 2022 at 6:11 pm), available at https://www.nbcbayarea.com/news/california/man-used-ghost-gun-to-kill-3-daughters-in-church/2829422/.
[7] Office of District Attorney of the County of Santa Clara, "DA task force seizes ghost gun arsenal from San Jose teen," (Feb. 26, 2026) https://da.santaclaracounty.gov/da-task-force-seizes-ghost-gun-arsenal-san-jose-teen.
[8] Meg Anderson, "Thousands of guns are found at crime scenes. What do they tell us?" NPR (Dec. 17, 2025) https://www.npr.org/2025/12/17/nx-s1-5641154/crime-guns-database-everytown-report.

guidance on performance standards for firearm blueprint detection algorithms and software controls processes for 3-D printers. This guidance and the performance standards would need to meet certain requirements and include specified information, but can be adopted from any standards created by another entity or standards-setting nonprofit like ASTM International. AB 2047 would encourage the DOJ to engage relevant stakeholder input.

Second, AB 2047 would, beginning December 1, 2029, prohibit the sale or transfer of 3-D printers not equipped with firearm blocking technology and not listed on a DOJ list of manufacturers in compliance. For this second provision, AB 2047 requires manufacturers of 3-D printers for sale or transfer to California to submit to the DOJ an attestation that the manufacturer equipped the printer with a firearm blueprint detection algorithm, and requires the DOJ to compile and publish a list of the makes and models of 3-D printers whose manufacturers submitted this required attestation.

If a person sells, offers to sell, or transfers a 3-D printer without firearm blocking technology, or knowingly files an attestation containing false information, AB 2047 permits a person who suffered harm in California due to that violation to bring a civil action for compensatory damages and injunctive relief. The Attorney General, a county counsel, or a city attorney also may bring an action for a violation, for which the Attorney General may seek a civil penalty of $25,000 per violation. A prevailing plaintiff would be entitled to reasonable attorney's fees and costs. However, AB 2047 provides an affirmative defense for a seller who verified that the 3-D printer was on the DOJ's list of 3-D printers with attestations that they contain firearm blocking technology.

In addition, AB 2047 provides some narrow exceptions to its requirement that 3-D printers have firearm blocking technology. Those include printers sold to: state-licensed firearms manufacturers; state or law enforcement agencies; and aerospace, automotive, or chemical or mechanical engineering companies or government contractors; as well as those manufactured for and sold exclusively to entertainment industry stagecraft and propmaking studios.

6. AB 2047 makes tampering with or disabling firearm blocking technology a crime

AB 2047 makes it a crime to knowingly disable, deactivate, uninstall, or otherwise circumvent any firearm blocking technology installed on a 3-D printer with intent to manufacture firearms, or to knowingly distribute, sell, or transfer in California a modified 3-D printer with the intent to facilitate the unlawful manufacture of firearms. These provisions are outside the scope of this Committee's jurisdiction, but will be addressed in the Senate Public Safety Committee should the bill pass out of this Committee.

7. Second Amendment considerations

The Second Amendment to the United States Constitution states that "a well-regulated militia, being necessary to the security of a free State, the right of the people to keep and bear arms, shall not be infringed." (U.S. Const., Amend. II.) For 217 years after the Second Amendment's ratification, United States Supreme Court jurisprudence did not provide an individual right to possess a firearm. However, that changed in 2008 when the Supreme Court ruled in *D.C. v. Heller* that a District of Columbia law banning the possession of handguns violated the Second Amendment. (*District of Columbia v. Heller*, 554 U.S. 570 (2008).) Two years later, the Supreme Court reaffirmed, again along ideological lines, that the Second Amendment protected the right to keep and bear arms for the purpose of self-defense, and further held that the Second Amendment was fully applicable to the states. (*McDonald v. City of Chicago*, 561 U.S. 742 (2010).)

In *D.C. v. Heller*, the Supreme Court devised a two-step analysis. The analysis required that first it must be determined whether the law at issue regulates activity that falls within the scope of the Second Amendment right as originally understood, and if so, then the court is to determine how close the law comes to the core of the Second Amendment right, and the severity of the law's burden on that right. However, the Court also stated in *Heller* that its opinion should "not be taken to cast doubt on longstanding prohibitions on the possession of firearms by felons and the mentally ill, or laws forbidding the carrying of firearms in sensitive places such as schools and government buildings, or laws imposing conditions and qualifications on the commercial sale of arms." (*Heller*, 554 U.S. at 626.) The Court further notes in a footnote that these "presumptively lawful regulatory measures" are examples and not meant to be exhaustive. (*Id.*, at 626, n. 26.) Under this precedent, the Tenth Circuit Court of Appeal determined that the National Firearms Act's requirements that firearms dealers and manufacturers register and pay taxes annually was constitutional under this category of "presumptively lawful regulatory measures." (*U.S. v. Cox*, 906 F.3d 1170 (10th Cir. 2018).)

The Supreme Court revisited its Second Amendment jurisprudence in the case *New York State Rifle & Pistol Association v. Bruen*. In that case, the Court determined that the two-step analysis it had previously outlined in *Heller* was "one step too many." (*N.Y. State Rifle & Pistol Ass'n v. Bruen*, 142 U.S. 2111 (2022).) Instead, the Court created a new standard: if the Second Amendment's plain text covers the individual's conduct, it is presumptively protected, and the government must demonstrate that the regulation is consistent with the nation's historical tradition of firearm regulation. (*N.Y. State Rifle & Pistol Ass'n*, 142 U.S. at 2126.)

The Court's assertions in *Heller* that its decisions should not cast doubt on the legality of conditions and qualifications on the commercial sale of arms was not disturbed by the Court's *New York State Rifle & Pistol Association* decision. That case does not mention regulations on the sale of arms at all. Thus, as a threshold matter, the restrictions set by

AB 2047 on manufacturers and sellers of 3-D printers relate solely to the commercial sale and production of machines that can manufacture firearms, and the Supreme Court's jurisprudence casts little doubt on whether AB 2047 provisions violate the Second Amendment. Its provisions are analogous to the provisions of the National Firearms Act that were upheld as constitutional under *U.S. v. Cox*. Moreover, unlike the laws at issue in *Heller* or *New York State Rifle & Pistol Association*, the laws created by AB 2047 deal with the machines that can be used to manufacture firearms, and not specifically with firearms themselves.

8. First Amendment questions

The First Amendment of the United States Constitution protects an individual's freedom of speech, as well as freedom from compelled speech. Under the First Amendment, any restriction on speech that is based on the content of the speech is presumptively unconstitutional and subject to strict scrutiny. (*Reed v. Town of Gilbert* (2015), 576 U.S. 155, 163.) However, when the speech involved is commercial speech, in that it solely relates to the economic interests of the speaker and its audience, it is less protected than other forms of speech. (*Central Hudson Gas & Elec. Corp. v. Public Svc. Comm'n of N.Y.* (1980) 447 U.S. 557, 562.) Limitations on commercial speech is generally upheld if the law advances a substantial government interest and directly advances that interest.

Because this bill requires 3-D printers to have specific software, it may implicate the first amendment as compelled speech. The question of whether computer code should be considered speech for the purposes of the First Amendment has been debated by the courts over the last few decades. The issue was examined by an *en banc* panel of the Ninth Circuit in *Bernstein v. United States Dept. of Justice* in 1999, by the Sixth Circuit in *Junger v. Daley* in 2000, and by the Second Circuit in *Universal City Studios, Inc. v. Corley* in 2001. While all three cases acknowledged that code can be free speech, the courts varied in their approaches and determination of when code is considered speech and when it may not be.

In the Ninth Circuit, the court recognized a distinction between source code and object code, in which source code is the text of a program written in a programming language and object code is the code in a machine language read by computers, finding that source code is expressive content, while object code is not. (*Bernstein v. U.S. Dept. of Justice* (1999) 176 F.3d 1132, *reh'g granted, opinion withdrawn*.) The Sixth Circuit went beyond the Ninth Circuit's reasoning, finding that source code is protected by the First Amendment, while the Second Circuit evaluated whether the code was used to communicate to the computer, or to the user of the program. (*Junger v. Daley* (2000) 209 F.3d 481, *Universal City Studios, Inc. v. Corley* (2001) 273 F.3d 429.)

More recently, the Third Circuit looked at this question in a more relevant context. Plaintiffs in that case challenged New Jersey's law that prohibited the distribution of

3-D printer files for the printing of a firearm, alleging it violated the plaintiff's First Amendment rights to distribute 3-D printer files for firearms. (*Def. Distributed v. Atty. Gen. of N.J.* (2026) 167 F.4th 65.) The Court there determined that, while computer code can be covered by the First Amendment, it is inherently functional, and thus a plaintiff must show that the code involves an expressive purpose or communication of ideas to be protected. (*Id.* at 82.) A U.S. District Court in Florida recently ruled on California's law prohibiting the selling or transfer of a CNC milling machine or 3-D printer relying on the Third Circuit's reasoning, finding that there was not enough evidence to show that the defendant's digital firearm manufacturing code was expressive content covered by the First Amendment. (*CTRLPew LLC v. Chiu* 2026 U.S. Dist. LEXIS 40455.)

Under these cases, it is unclear whether AB 2047's requirement that 3-D printers contain firearm blocking technologies would be considered speech for First Amendment protection. The algorithms used in such technology are arguably functional, as its purpose is to direct the printer on what to or not to print. Furthermore, the code a user inputs into slicer software is to communicate with the printer, giving it directions to print. Moreover, the prohibited act by the blocking technology is the printing of a firearm that would already be illegal under California law. Yet the caselaw does make it clear that there is still uncertainty regarding how courts will treat code in the context of the First Amendment. Moreover, there are some overarching questions relating to free speech presented by this bill, given the scope of its limitation on 3-D printers. While manufacturing firearms without a manufacturer's license is already illegal in California, placing a limiting device on machines that can manufacture more than firearms is a new step. The state certainly has a valid and substantial policy interest in preventing the illegal production of 3-D-printed firearms; what more could the state do to prevent 3-D printers from being able to print firearms via blocking technology?

9. Arguments in support

According to Everytown for Gun Safety, the sponsor of this bill:

> The 3D printed gun crisis is not a faraway or abstract problem. It's happening here in California, right now. And at the rate it's increasing, this crisis will get much worse if we don't use every tool we have. In just the six month span between September 2025 - February 2026, numerous instances of 3-D printed firearm manufacturing were uncovered by law enforcement agencies all around California. These incidents often include teenagers too young to legally purchase the types of firearms they are printing at home.
> - In September 2025, Yuba County Sheriffs uncovered a "fully operational 3D-printing workshop" run by three men aged 19-38 and seized 8 handguns, several 3-D printed handgun frames, four assault weapons, one rifle, and assorted firearms parts.
> - In October 2025, the Santa Clara County DA's Gun Violence Task Force arrested a man who was on probation for domestic violence running a ghost

gun manufacturing operation out of his apartment. The press release paints an alarming picture: "When task force members entered the prohibited person's home, they found the 3D gun printer still working inside a closet, two loaded weapons, three nearly finished weapons, and 35 machine gun conversion devices. All of the weapons were considered "ghost guns" – made and sold with no serial number to avoid tracing and detection."

- In November 2025, Santa Rosa Police detectives found an 18-year-old running a ghost gun manufacturing operation in his apartment, less than two years after arresting a 14-year-old illegally manufacturing a ghost gun with a 3-D printer.
- In February 2026, 3D-printed firearms were recovered in at least four more newsworthy incidents, spread around the state:
    - Law enforcement in Santa Rosa seized over 165 guns and three 3D printers from a 22-year-old ghost guns manufacturer.18
    - Victor Valley sheriffs found a 3D-printed assault rifle, over 130 Polymer80 jigs, 3D printer materials and a 3D printing guide for different firearms in a Lucerne Valley ghost guns arrest involving a man who was previously indicted and pled guilty for manufacturing guns for a gun trafficker.19
    - A San Jose teenager was arrested with 27 finished or near-finished 3D-printed firearms, including DIY machine guns, and two 3D printers near his sneaker collection in his bedroom.
    - A Daly City narcotics and identity theft investigation led to uncovering a San Francisco residence with several 3D-printed firearms, rifle components, and a 3D printer. […]

3D-printing firearms is the next wave of the ghost guns crisis, a problem California has been battling for years. The threat is evolving and our policy solutions need to evolve too. AB 2047 gives us a chance to get a step ahead of the criminals running underground ghost gun selling operations and the teenagers tempted to use a home 3-D printer in their bedroom or basement to print a deadly weapon. […]

While California's recent laws have focused on prohibition and deterrence, AB 2047 provides an opportunity for prevention using new technology to stop 3D gun printing at its source. We can't fully address this emerging threat to our foundational gun laws and public safety without an intervention at the manufacturing stage. And there's good news on this front: the technology already exists to equip printers to identify and block these dangerous firearm print jobs. AB 2047 will simply ensure that printer manufacturers actually deploy these technological solutions and stop the spread of DIY firearms before it accelerates any further.

Specifically, AB 2047 creates a new requirement that 3D printers sold in California must be equipped with firearm printing blocking technology by

March 2029. The law will primarily be enforced through civil mechanisms similar to the existing Firearm Industry Responsibility Act (Civil Code section 3273.50 et seq.) and existing laws allowing for civil actions to enjoin Unlawful Firearm Manufacturing (Civil Code section 3273.60). The bill sets out a staged implementation process to evaluate and certify the underlying components of firearm printing blocking technology before imposing any kind of requirement on 3D printer manufacturers.

10. Arguments in opposition

According to the California Rifle & Pistol Association, which opposes AB 2047:

> While framed as preventing unlawful manufacturing, this bill represents a costly, impractical, and constitutionally problematic burden on innovation, small businesses, and lawful hobbyists.
>
> Key concerns:
>
> - Technological Impracticality and Ineffectiveness: Detection algorithms and software controls can be evaded by technically skilled individuals through modifications, open-source alternatives, or altered files. Criminals will simply ignore the mandates or obtain printers out-of-state, while law-abiding makers and innovators face unnecessary barriers.
> - Burdensome Regulation and Costs: Mandatory certification, attestations, testing, and quarterly DOJ lists will drive up prices for 3D printers, harm small businesses and California's emerging tech sector, and stifle hobbyist innovation in areas far beyond firearms (prototyping, education, manufacturing).
> - Constitutional Issues: The bill imposes prior restraints and technological mandates on tools that have substantial lawful uses, raising serious Second Amendment concerns under Bruen and due process issues. It effectively creates a de facto ban on non-compliant printers for most consumers.
> - Bureaucratic Overreach: Placing the DOJ in charge of certifying complex software algorithms and policing printer sales adds layers of red tape without meaningfully addressing criminal activity, which is already illegal under existing manufacturing prohibitions.

SUPPORT

Everytown for Gun Safety (sponsor)
Asian American Christian Collaborative
Beverly Hills High School Students Demand Action
California Chapter of the American College of Emergency Physicians
CFT – a Union of Educators & Classified Professionals, AFT, AFL-CIO

Chapman University Students Demand Action
Everytown for Gun Safety Action Fund
Former City Attorney Mike Feuer, City of Los Angeles
GLMA: Health Professionals Advancing LGBTQ Equality
Indivisible Mid-peninsula
Moms Demand Action for Gun Sense in America
Newtown Action Alliance
Prosecutors Alliance Action
San Diegans for Gun Violence Prevention
San Diego County School Board Association
Students Demand Action At UC Davis
Students Demand Action for Gun Sense in America
UCLA Students Demand Action

OPPOSITION

California Rifle and Pistol Association, Inc.
Community Manufacturing Initiative
Esaero, Inc.
Gun Owners of California, Inc.
Inspired Flight Technologies
Invisible Pack Inc.
Mantis Composites Inc.
Matterhackers
National Rifle Association - Institute for Legislative Action
Streamline Aerospace
Trust Automation
Zone 5 Technologies
Five individuals

RELATED LEGISLATION

Pending Legislation: None known.

Prior Legislation:

AB 1263 (Gipson, Ch. 636, Stats. 2025) prohibited a person from knowingly or willfully causing another person to engage in the unlawful manufacture of firearms or knowingly or willfully aiding, abetting, prompting, or facilitating the unlawful manufacture of firearms, including the manufacture of a firearm using a 3-D printer or CNC milling machine, and included computer-aided manufacturing files as a digital instruction and the manufacture of a machinegun and specified firearm components in provisions that authorizes civil actions against a person who knowingly distributes or causes to be distributed any digital firearm manufacturing code or digital instructions. *See Comment 4.*

AB 1089 (Gipson, Ch. 243, Stats. 2023) regulated three-dimensional printers and CNC milling machines as firearms related products, and required anybody who uses a three-dimensional printer or CNC milling machine to manufacture a firearm to be a state-licensed manufacturer. *See Comment 4.*

SB 1327 (Hertzberg, Ch. 146, Stats. 2022) established privately-enforced civil causes of action against any person who manufactures or causes to be manufactured, distributes, transports, or imports into the state, or causes to be distributed or transported or imported into the state, keeps for sale or offers or exposes for sale, or gives or lends any firearm lacking a required serial number, assault weapon, .50 BMG rifle, or firearm precursor part, as specified.

AB 2571 (Bauer-Kahan, Ch. 77, Stats. 2022) prohibited firearm industry members from advertising or marketing, as defined, firearm-related products to minors. The bill restricted the use of minors' personal information in connection with marketing or advertising firearm-related products to those minors.

AB 1621 (Gipson, Ch. 76, Stats. 2022), among other things, prohibited the sale, transfer, or possession of an unserialized firearm precursor part, except as specified, and explicitly prohibited the possession or transfer of a firearm without a serial number or mark of identification.

AB 1594 (Ting, Ch. 98, Stats. 2022) established the Firearm Industry Responsibility Act to create a firearm industry standard of conduct, and prohibited a firearm industry member from manufacturing, marketing, importing, offering for wholesale sale, or offering for retail sale a firearm-related product that is abnormally dangerous and likely to create an unreasonable risk of harm to public health and safety. Also authorized a person harmed in California, the Attorney General, or city or county attorneys to bring civil action against firearm industry member for an act or omission in violation of the firearm industry standard of conduct.

AB 2156 (Wicks, Ch. 142, Stats. 2022) expanded the prohibitions on the manufacture of firearms without a state license including reducing the number of guns a person may manufacture without a license and prohibiting the use of a three-dimensional printer to manufacture any firearm without a license from the California Department of Justice. Chaptered.

PRIOR VOTES:

Assembly Floor (Ayes 58, Noes 19)
Assembly Appropriations Committee (Ayes 11, Noes 4)
Assembly Judiciary Committee (Ayes 9, Noes 3)
Assembly Public Safety Committee (Ayes 6, Noes 0)
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