



- I. **CALL TO ORDER: A REGULAR PLANNING COMMISSION MEETING - 6:30 P.M.**
- II. **ROLL CALL:** Commissioners Dominguez, Owens, Spathopoulos, Vice Chair Frometa, and Chair Duarte
- III. **PLANNING COMMISSIONER ANNOUNCEMENTS; REQUEST FOR FUTURE AGENDA ITEMS; AND CONFERENCE/MEETING REPORTS:**
- IV. **PRESENTATIONS:**
- V. **REPORT ON CITY COUNCIL ACTION:**
- VI. **PUBLIC HEARINGS:**

RECOMMENDED ACTION

1. (PLN-20-00042) Zone Code Amendment

Deny

Location: Citywide

Request: A request to amend Section 9520.08 of Article IX of the Downey Municipal Code, to allow for electrified security fencing within M-1 (Light Manufacturing), M-2 (General Manufacturing) and C-M (Commercial-Manufacturing) zones

CEQA: Categorical Exemption – This request has been found to be exempt from the California Environmental Quality Act, Public Resources Code Section 21000 et seq. (“CEQA”) and the State CEQA Guidelines, 14 C.C.R. Section 15270 (a) et seq. because CEQA does not apply to projects which a public agency rejects or disapproves.

Staff: Madalyn Welch, Assistant Planner

Contact: mwelch@downeyca.org

(562) 904-7154

VII. **NON-AGENDA PUBLIC COMMENTS:** This portion of the agenda provides an opportunity for the public to address the Planning Commission on items within the jurisdiction of the Planning Commission and not listed on the agenda. It is requested, but not required, that you state your name, address and subject matter upon which you wish to speak. Please limit your comments to no more than 5 minutes. Pursuant to the Brown Act, no discussion or action, other than a brief response, referral to the City Planning staff or schedule for a subsequent agenda, shall be taken by the Planning Commission on any issue brought forth under this section.

VIII. **CONSENT CALENDAR ITEMS:** Items in this section will be voted on in one motion unless a Commissioner or citizen requests separate actions. Anyone wishing to discuss a Consent Calendar item should be recognized by the chairman, state name, address and agenda item number. Further, any Consent Calendar items removed from the agenda will be considered by the commission following the public hearing items.



IX. **OTHER BUSINESS:**

X. **STAFF MEMBER COMMENTS:**

XI. **ADJOURNMENT:** To Wednesday, August 5, 2020 at 6:30 pm, at Downey City Hall, 11111 Brookshire Avenue, Downey, CA. 90241.

NOTICE: SECTION 9806 – APPEALS

Any person aggrieved or affected by any final determinations of the Commission concerning an application for action of an administrative nature, including a variance or a permit, or any condition or requirement thereon, or upon the failure of the Commission to make its findings and determinations within thirty (30) days after the closure of the hearing thereon, no later than fifteen (15) calendar days, (Exception: subdivisions. no later than ten (10) calendar days) after the date of the decision or of the Commission's failure to make a determination, may file with the City Planner a written notice of appeal therefrom to the Council. Such appeal shall set forth specifically wherein it is claimed the Commission's findings were in error, and wherein the decision of the Commission is not supported by the evidence in the matter, and wherein the public necessity, convenience, and welfare require the Commission's decision to be reversed or modified

Supporting documents are available at: www.downeyca.org; City Hall-Planning Division, 11111 Brookshire Avenue, Monday – Friday, 7:30 a.m. – 5:30 p.m. Video streaming of the meeting is available on the City's website. In compliance with the Americans with Disabilities Act, if special assistance is needed to participate in this meeting, complete the City's Title II ADA Reasonable Accommodation Form located on the City's website and at City Hall - Planning Division, 11111 Brookshire Avenue, Monday – Friday, 7:30 a.m. – 5:30 p.m., and submit to the Planning Division or contact the Planning Division office at (562) 904-7154 or the California Relay Service at 7-1-1. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting

The City of Downey prohibits discrimination on the basis of disability in any of its program and services. For questions, concerns, complaints, or for additional information regarding the ADA, contact the City's ADA/Section 504 Coordinator at ADACoordinator@downeyca.org; Phone: (562) 299-6619; or TTY at 7-1-1.

In compliance with Title VI of the Civil Rights Act, the City of Downey prohibits discrimination of any person in any of its program and services. If written language translation of City agendas or minutes, or for oral language interpretation at a City meeting is needed, contact (562) 299-6619, 48 business hours prior to the meeting.

En cumplimiento con el Título VI de la Ley de Derechos Civiles, la Ciudad de Downey prohíbe la discriminación de cualquier persona en todos sus programas y servicios. En caso de necesitar una traducción escrita de los órdenes del día o las actas de las reuniones de la ciudad, o para solicitar un intérprete oral para una reunión de la ciudad, comuníquese con el (562) 299-6619 en el horario de atención comercial, 48 horas hábiles antes de la reunión.

Supporting data for items included in this agenda is available for public review and inspection in the office of the Planning Division during regular workday hours between 8:00 a.m. and 5:00 p.m., and in the City Library during regular hours and on the City's website at <http://www.downeyca.org>.



I Mary Cavanagh, Secretary to the Planning Commission, City of Downey, do hereby certify, under penalty of perjury under the laws of the State of California that the foregoing notice was posted pursuant to Government Code Section 54950 Et. Seq. and City of Downey Ordinance at the following locations: Downey City Hall, Downey City Library, and Barbara J. Riley Senior Center.

Dated this 9th day of July, 2020

Mary Cavanagh

Mary Cavanagh
Secretary, Planning Commission



SPECIAL NOTICE

Public Participation and Accessibility for July 15, 2020 Downey Planning Commission Meeting

Pursuant to Paragraph 3 of Executive Order N-29-20, executed by the Governor of California on March 17, 2020, and County of Los Angeles Department of Public Health Order of the Health Officer Revised Order Issued June 11, 2020 as a response to mitigating the spread of Coronavirus known as COVID-19 and providing direction for moving the County through Stage 3 of California's pandemic resilience roadmap, the regular meeting of the Planning Commission scheduled for Wednesday, July 15, 2020 at 6:30 p.m. will allow members of the public to participate and address the Planning Commission during the open session of the meeting via live stream and/or teleconference as well as a limited number of in person attendees within the City Hall Council Chambers .

Below are the ways to participate in the Regular Meeting at 6:30 p.m.

1. View the Planning Commission meeting live stream at:

YouTube Channel: <https://www.youtube.com/channel/UCHJOzNYcnaDRUSax0sC0L9Q/live>

2. Planning Commission meeting Conference phone (audio only):

Call Toll-Free: (888) 788-0099 or (877) 853-5247

Enter Meeting ID: **961 7414 6312**

Enter Password: **845873** and press the # (pound) key

Members of the public wishing to address the Planning Commission, during public comments or for a specific agenda item, or both, may do so by the following methods:

3. E-mail: ccpubliccomment@downeyca.org

In order to effectively accommodate public participation, participants are asked to provide their public comments via e-mail by 4:00 p.m. on the day of the meeting.

Participants addressing the Planning Commission by email are encouraged to provide the following information:

- a) Full Name;
- b) City of Residence;
- c) Public Comment or Agenda Item No;
- d) Subject;
- e) Written Comments.

4. Teleconference phone number: (562) 299-6622

Calls will be placed on hold in queue and participants will provide their public comments via speaker phone. Persons speaking are limited to a maximum of five (5) minutes. Please be mindful that the teleconference call will be recorded as any other person is recorded when appearing before the Planning Commission, and all other rules of procedure and decorum will apply when addressing the Planning Commission by teleconference.

Participants addressing the Planning Commission by teleconference are encouraged to provide the following information:

- a) Full Name;
- b) City of Residence;
- c) Public Comment or Agenda Item No;
- d) Comments.



5. In-Person Attendance in City Hall Council Chambers

The public will now be able to attend public meetings in person, but will be required to comply with safety standards to help prevent the spread of COVID-19, as described below:

- a) Wear a cloth face covering
- b) Maintain physical distancing while inside the building and the Council Chambers
- c) Complete a wellness check before entering the building:
 - 1) Temperature Check
 - 2) Screening Questions

Although public meetings will re-open for in-person attendance, residents are encouraged to continue accessing the public meeting and utilizing participation methods 1 – 4, listed above, as there will be a limited number of attendees permitted, approximately 15, in the building due to reduced seating capacity to maintain social distancing standards.

For any questions contact the Planning Division's Office at (562) 904-7154.



DATE: JULY 15, 2020

TO: PLANNING COMMISSION

SUBMITTED BY: ALDO E. SCHINDLER, DIRECTOR OF COMMUNITY DEVELOPMENT

REVIEWED BY: CRYSTAL LANDAVAZO, CITY PLANNER

PREPARED BY: MADALYN WELCH, ASSISTANT PLANNER

SUBJECT: **PLN-20-00042 (MUNICIPAL CODE AMENDMENT) – A REQUEST TO AMEND SECTION 9520.08 OF ARTICLE IX OF THE DOWNEY MUNICIPAL CODE RELATED TO GENERAL WALL, FENCE, AND HEDGE REGULATIONS TO ALLOW FOR ELECTRIFIED SECURITY FENCING IN C-M, M-1, AND M-2 ZONED PROPERTIES**

LOCATION: CITYWIDE

ZONING: C-M, M-1 AND M-2 ZONES

REPORT SUMMARY

The City of Downey Municipal Code (DMC) prohibits the use of razor or electrified fencing in any zone. California Senate Bill (SB) 582 added Section 835 to Chapter 273 of the Civil Code on September 4, 2015, authorizing electrified security fences that meet specific requirements to be installed by property owners, except where a local ordinance prohibits such installation and operation. As a result, the applicant contends the City should allow such fencing and requested this Municipal Code Amendment to revise DMC Section 9520.08 (c)(1) to allow electrified security fencing within C-M, M-1, and M-2 zoned properties. Staff does not support this request because such fencing is not consistent with the goals of the City's General Plan and is not a positive or advantageous addition to the community; therefore, staff is recommending the Planning Commission adopt the following titled resolution:

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF DOWNEY DENYING PLN-20-00042 (ZONE TEXT AMENDMENT), A REQUEST TO AMEND SECTION 9520.08 OF ARTICLE IX OF THE MUNICIPAL CODE RELATED TO GENERAL WALL, FENCE, AND HEDGE REGULATIONS TO ALLOW FOR ELECTRIFIED SECURITY FENCING IN C-M, M-1 AND M-2 ZONED PROPERTIES

BACKGROUND

The California Senate Judiciary Committee analysis of SB 582, dated April 7, 2015, stated that prior state law was vague regarding electric fencing in non-agricultural zones and the bill was intended to clarify state law and provide clear guidelines for local jurisdictions. The bill provides local government agencies with clear standards for installation and operation of electrified fencing if they choose to allow the use within a municipality. The bill does not remove a local jurisdiction's ability regulate or prohibit the installation and operation of electrified fencing.

The City of Downey conducted its last comprehensive Zoning Code update in 2009 amending various sections of the Zoning Code. While this update was completed earlier than the 2015 Senate Bill, no changes were made to DMC Section 9520.08 regarding fencing as it was not seen as necessary.

DISCUSSION

The applicant states the Municipal Code Amendment is requested to prevent criminal activity on manufacturing zoned properties. The proposed amendment seeks to allow electrified fencing within all M-1 and M-2 zoned properties as well as the following specific uses within C-M zoned properties: new and used automobile, light truck, recreational vehicle and motorcycle sales, automobile paint and body, automobile repair, mobile homes/manufactured home sales, towing services, vehicle impound and storage yards, auction houses, building/contractor supplies, wireless communication facilities, parcel delivery terminals, self-storage, mini-storage, mini-warehouse, recreational vehicle storage, storage yards, and warehouses.

The applicant emphasized that electrified security fencing is a crime prevention tool for commercial and industrial businesses. In this manner, he believes the proposed amendment is consistent with the General Plan because it can prevent criminal activity for local businesses and enhance public safety for the community and employees of the local businesses. The proposed amendment request to amend subsections within DMC Section 9520.08 GENERAL WALL, FENCE, AND HEDGE REGULATIONS to remove the prohibition of electrified fencing and add the standards set forth in SB 582 for the installation of electrified security fencing so that such fencing would be allowed by through an administrative review, without review by the Planning Commission .

Currently, DMC Section 9520.08 (c)(1) states "No barbed wire, razor or electrified fencing, or similar fencing is permitted in any zone, except that barbed wire may be used on a limited basis for security or safety purposes in the M-1 and M-2 Zones if not visible from any public right-of-way, subject to the approval of Site Plan Review." The DMC already takes crime prevention into account and allows for barbed wire within manufacturing zones as a security measure if needed, with proper screening and approval of a Site Plan Review. This specific code section was last amended in 2009 and within the last 11 years, this opportunity for additional security has not been sought out by such businesses within the City so staff does not see a need for introducing a more aggressive form of security wall. Electric fences produce an electrical current that when in contact creates an electrical shock with the purpose to cause enough harm or discomfort to prevent additional contact.

Staff expressed concern with the unappealing image that electrical fencing would portray along the City's major arterial streets. Nearly all of the light and general manufacturing zones are located along the City's major and primary arterial streets such as Firestone Boulevard, Woodruff Avenue, Lakewood Boulevard, and Imperial Highway. The installation of an electrified security fence involves the placement of a non-electrified 6 foot tall fence located between 4-12

inches in front of a 10 foot tall electrified security fence with significant signage posted to warn people of potential shock. The proposed amendment to allow the installation of these fences would be inconsistent with the General Plan relating to improvements made along the City's major arterial streets. General Plan Policy 8.3.1, which is in place to promote the enhancement of property views from public streets to exhibit a positive image. The image of electrical fencing would not be consistent with the General Plan policy and programs aimed at portraying a positive image of the community and discouraging fence/wall designs that are unfriendly and uninviting. Some of the potentially affected properties about more restrictively zoned property such as Neighborhood Commercial or General Commercial, which cause concerns over the proximity of electrified security fencing to areas populated by the general public.

Staff presented the request to the Building and Safety, Public Works, Fire and Police Departments for review and comment. The Police Department expressed concern with ensuring that signage would need to be visible to the general public and officers. The Public Works department expressed concern with the electrified security fencing being too close to public right-of-ways. The Fire Department provided comprehensive installation and operation requirements to ensure good maintenance and housekeeping practice to keep safe operation. The Fire Department noted that poor maintenance can be a potential source of fire caused from the accumulation of combustible waste and vegetation.

In reviewing and analyzing the proposed amendment, staff found that electrified security fencing would not only be inconsistent with the General Plan goals, but it would also be out of character with the surrounding cities. A survey of ten cities within proximity to Downey found that eight cities prohibit the installation of electrified security fencing. The City of Lakewood requires approval from the Planning Commission through a Conditional Use Permit and the City Santa Fe Springs permits electrified security fencing, however, their staff works with businesses to seek alternative approaches to security.

Electric Fencing Survey	
Bellflower	Prohibited
Bell Gardens	Prohibited
Cerritos	Prohibited
Lakewood	Requires CUP (<i>No applications within the last 25 years</i>)
Norwalk	Prohibited
Paramount	Prohibited
Pico Rivera	Prohibited
Santa Fe Springs	Highly discouraged by staff due the potential liability. Location & height subject to development standards for traditional fences.
South Gate	Prohibited
Whittier	Prohibited

The proposed amendment seeks to amend the Downey Municipal Code to introduce provisions that would allow a new security feature for manufacturing zones throughout the City. However, staff contends that the existing Municipal Code provides sufficient options to businesses in need of securing their properties. These zones may utilize existing provisions to install 10 foot tall fencing to screen their properties and apply for a Site Plan Review to seek approval of barbed wire with appropriate screening. This alternative has not been sought by any businesses in the last 11 years. The proposed amendment has not shown to be needed or beneficiary to the community, in contrast it has a high potential to degrade the affected areas by adding an uninviting and negative image.

ENVIRONMENTAL ANALYSIS

The requested Municipal Code Amendment is exempt from review under pursuant to Section 15270 of the California Environmental Quality Act (CEQA) Guidelines, CEQA does not apply to projects which a public agency rejects or disapproves.

FINDINGS

Pursuant to DMC Section 9832.06, there are two (2) findings that must be adopted prior to approving Municipal Code Amendments. After assessing the proposed code amendment, staff is not able make positive findings to support the proposed amendment as described below:

A. The requested amendment is not necessary and desirable for the development of the community and is in the interests or furtherance of the public health, safety, and general welfare.

The applicant seeks to allow electrified security fencing by right, without discretionary review by staff or the Planning Commission, subject to the standards established in California Civil Code Section 835, through adoption of SB 582. Electric fences produce an electrical charge that when in contact with a person or animal creates an electrical shock with the purpose to cause enough harm or discomfort to prevent additional contact. The regulations adopted through SB 582 provided guidelines to regulate the installation of electrified security fences and standardize safe installation of such fences. The regulations do not identify maintenance standards that would alleviate concerns identified by the Fire Department who stated that poor maintenance can lead to a potential source of fire due to the accumulation of combustible waste and vegetation. The applicant has stated the need for security is the reason the proposed code amendment should be approved but, does not acknowledge that the code already provides provisions for additional security measures when needed and properly evaluated by the Planning Commission through a Site Plan Review application. The applicant has not shown how the proposed amendment is necessary for the furtherance of public health, safety, and general welfare. In contrast, the concerns of the Fire Department indicate the proposed amendment can be a potential detriment to public health, safety, and general welfare.

B. The proposed amendment is not in general conformance with the General Plan.

Goals and policies established in the General Plan provide the guidance that shapes all development within the City. All action taken by the City must be in conformance with these goals and policies. The proposed amendment, however, is contrary to General Plan Policy 8.3.1, which is in place to promote the enhancement of property views from public streets to exhibit a positive image. This Policy is supported by the following programs:

Program 8.3.1.4. – Discourage the use of street yard setbacks for uses and activities inconsistent with portraying a positive image of the community.

Program 8.3.1.5. – Discourage security devices and fence/wall designs that portray an image that the community is unfriendly and uninviting.

The proposed amendment to allow for electrified security fencing by right in the M-1, M-2, and C-M zones is in stark contrast to this General Plan Policy. The current zoning map shows that most M-1, M-2 and C-M zoned properties are located along the city's major and primary arterial streets. The proposed amendment would allow double barrier fencing with a standard six foot tall fence or wall followed by a ten foot tall electrified security fence and excessive warning signage. This requested amendment has the potential to negatively affect the entry points into the city resulting in an image that the community is unfriendly and uninviting. The proposed amendment to allow electrical security fencing portrays a negative image on the community and sets uninviting tones to visitors that travel into the city along the major arterial streets.

CORRESPONDENCE

As of the date that this report was printed, staff has not received correspondence regarding this application.

CONCLUSION

Based on the analysis contained within this report and in the negative findings above, the proposed Code Amendment is contrary to the goals of the General Plan and cannot make the findings required to adopt the proposed Code Amendment. As such, staff is recommending that the Planning Commission adopt the attached Resolution recommending denial of the Municipal Code Amendment (PLN-20-00042) to the City Council.

EXHIBITS

- A. Resolution
- B. Zoning Map highlighting M-1, M-2, and C-M properties along with major and primary arterial streets
- C. Senate Bill 582 and Senate Judiciary Committee Analysis
- D. Code Amendment Application

RESOLUTION NO. 20-_____

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF DOWNEY RECOMMENDING THAT THE CITY COUNCIL DENY PLN-20-00042 (MUNICIPAL CODE AMENDMENT), A REQUEST TO AMEND SECTION 9520.08 OF ARTICLE IX OF THE MUNICIPAL CODE RELATED TO GENERAL WALL, FENCE, AND HEDGE REGULATIONS TO ALLOW FOR ELECTRIFIED SECURITY FENCING IN C-M, M-1 AND M-2 ZONED PROPERTIES

THE PLANNING COMMISSION OF THE CITY OF DOWNEY DOES RESOLVE AS FOLLOWS:

SECTION 1. The Planning Commission of the City of Downey does hereby find, determine and declare that:

- A. An application was filed by Keith Kaneko and Carol Bausinger (hereinafter referred to as “the Applicant” on April 9, 2020, requesting approval of a Municipal Code Amendment (PLN-20-00042) to allow for electrified security fencing within the C-M, M-1 and M-2 zones throughout the city. Due to missing information, the application was deemed incomplete; and,
- B. On May 11, 2020, the Applicant resubmitted the required information needed to complete the application. Accordingly, Staff deemed the application complete on June 8, 2020; and,
- C. On June 2, 2020, notice of the pending zone code amendment was published in the *Downey Patriot* as a 1/8th page ad in accordance with the requirements of the Downey Municipal Code; and,
- D. The Planning Commission held a duly noticed public hearing on July 15, 2020, and after fully considering all oral and written testimony and facts and opinions offered at the aforesaid public hearing, adopted this resolution.

SECTION 2. The Planning Commission further finds, determines and declares that pursuant to Section 15270 of the California Environmental Quality Act (CEQA) Guidelines, CEQA does not apply to projects which a public agency rejects or disapproves.

SECTION 3. Having considered all of the oral and written evidence presented to it at said public hearings, the Planning Commission further finds, determines and declares that it cannot make the required positive findings to approve the requested Municipal Code Amendment as described below:

- A. The requested amendment is not necessary and desirable for the development of the community and is in the interests or furtherance of the public health, safety, and general welfare. The applicant seeks to allow electrified security fencing by right, without discretionary review by staff or the Planning Commission, subject to the standards established in California Civil Code Section 835, through adoption of SB 582. Electric fences produce an electrical charge that when in contact with a person or animal creates an electrical shock with the purpose to cause enough harm or discomfort to prevent additional contact. The regulations adopted through SB 582

provided guidelines to regulate the installation of electrified security fences and standardize safe installation of such fences. The regulations do not identify maintenance standards that would alleviate concerns identified by the Fire Department who stated that poor maintenance can lead to a potential source of fire due to the accumulation of combustible waste and vegetation. The applicant has stated the need for security is the reason the proposed code amendment should be approved but, does not acknowledge that the code already provides provisions for additional security measures when needed and properly evaluated by the Planning Commission through a Site Plan Review application. The applicant has not shown how the proposed amendment is necessary for the furtherance of public health, safety, and general welfare. In contrast, the concerns of the Fire Department indicate the proposed amendment can be a potential detriment to public health, safety, and general welfare.

- B. The proposed amendment is in general conformance with the General Plan. Goals and policies established in the General Plan provide the guidance that shapes all development within the City. All action taken by the City must be in conformance with these goals and policies. The proposed amendment, however, is contrary to General Plan Policy 8.3.1, which is in place to promote the enhancement of property views from public streets to exhibit a positive image. This Policy is supported by the following programs:

Program 8.3.1.4. – Discourage the use of street yard setbacks for uses and activities inconsistent with portraying a positive image of the community.

Program 8.3.1.5. – Discourage security devices and fence/wall designs that portray an image that the community is unfriendly and uninviting.

The proposed amendment to allow for electrified security fencing by right in the M-1, M-2, and C-M zones is in stark contrast to this General Plan Policy. The current zoning map shows that nearly all M-1, M-2 and C-M zones are located along the city's major and primary arterial streets. The proposed amendment would allow double barrier fencing with a standard six foot tall fence or wall followed by a ten foot tall electrified security fence and excessive warning signage. This requested amendment has the potential to negatively affect the entry points into the city resulting in an image that the community is unfriendly and uninviting. The proposed amendment to allow electrical security fencing portrays a negative image on the community and sets uninviting tones to visitors that travel into the city along the major arterial streets.

SECTION 4. Based upon the findings set forth in Section 1 through 3 of this Resolution, the Planning Commission of the City of Downey hereby recommends that the City Council deny the Municipal Code Amendment (PLN-20-00042).

SECTION 5. The Secretary shall certify the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 15th day of July, 2020.

Miguel Duarte, Chairman
City Planning Commission

I HEREBY CERTIFY that the foregoing is a true copy of a Resolution adopted by the Planning Commission of the City of Downey at a regular meeting thereof held on the 15th day of July, 2020 by the following vote, to wit:

AYES:	COMMISSIONERS:
NOES:	COMMISSIONERS:
ABSENT:	COMMISSIONERS:
ABSTAIN:	COMMISSIONERS:

Mary Cavanagh, Secretary
City Planning Commission

Exhibit 'B'



Senate Bill No. 582

CHAPTER 273

An act to add Section 835 to the Civil Code, and to amend Sections 17151 and 17152 of the Food and Agricultural Code, relating to electrified fences.

[Approved by Governor September 4, 2015. Filed with
Secretary of State September 4, 2015.]

LEGISLATIVE COUNSEL'S DIGEST

SB 582, Hall. Electrified fences.

Existing law prohibits an electrified fence to be offered for sale, sold, installed, or used in the state, or otherwise connected to a source of electrical current, unless the electrical current is limited and regulated by an electrical controller that meets or exceeds specified standards or specifications. Existing law also provides that the owner of land in fee has the right to the surface and to everything permanently situated beneath or above it.

This bill would amend the list of institutes and associations that may set the standards according to which the lawfulness of an electrified fence is measured and exclude from the definition of electrified fence used in that provision an electrified security fence, as defined. The bill would authorize an owner of real property to install and operate an electrified security fence on his or her property if the property is not in a residential zone, the fence is identified by prominently placed warning signs, the height of the fence does not exceed 10 feet, the fence is located behind a perimeter fence that is not less than 6 feet in height, and the fence meets specified electrotechnical and local requirements.

The people of the State of California do enact as follows:

SECTION 1. Section 835 is added to the Civil Code, to read:

835. (a) As used in this chapter, "electrified security fence" means any fence, other than an electrified fence described in Section 17151 of the Food and Agricultural Code, that meets the following requirements:

(1) The fence is powered by an electrical energizer with both of the following output characteristics:

(A) The impulse repetition rate does not exceed 1 hertz (hz).

(B) The impulse duration does not exceed 10 milliseconds, or $\frac{10}{10000}$ of a second.

(2) The fence is used to protect and secure commercial or industrial property.

(b) An owner of real property may install and operate an electrified security fence on his or her property subject to all of the following:

- (1) The property is not located in a residential zone.
- (2) The fence meets the 2006 international standards and specifications of the International Electrotechnical Commission for electric fence energizers in “International Standard IEC 60335, Part 2-76.”
- (3) The fence is identified by prominently placed warning signs that are legible from both sides of the fence. At a minimum, the warning signs shall meet all of the following criteria:
 - (A) The warning signs are placed at each gate and access point, and at intervals along the fence not exceeding 30 feet.
 - (B) The warning signs are adjacent to any other signs relating to chemical, radiological, or biological hazards.
 - (C) The warning signs are marked with a written warning or a commonly recognized symbol for shock, a written warning or a commonly recognized symbol to warn people with pacemakers, and a written warning or commonly recognized symbol about the danger of touching the fence in wet conditions.
- (4) The height of the fence does not exceed 10 feet and is located behind a perimeter fence that is not less than 6 feet in height.
 - (c) An owner of real property shall not install and operate an electrified security fence where a local ordinance prohibits that installation and operation. If a local ordinance allows the installation and operation of an electrified security fence, the installation and operation of the fence shall meet the requirements of that ordinance and the requirements of subdivision (b).

SEC. 2. Section 17151 of the Food and Agricultural Code is amended to read:

17151. (a) As used in this chapter, “electrified fence” means any fence and appurtenant devices, including, but not limited to, fences and devices used in animal control, and including, but not limited to, a fence consisting of a single strand of wire supported by posts or other fixtures, which has an electrical charge or is connected to a source of electrical current and which is so designed or placed that a person or animal coming into contact with the conductive element of the fence receives an electrical shock.

(b) For purposes of this chapter, “electrified fence” does not include an electrified security fence as described in Section 835 of the Civil Code.

SEC. 3. Section 17152 of the Food and Agricultural Code is amended to read:

17152. No electrified fences shall be offered for sale, sold, installed, or used in this state, or otherwise connected to a source of electrical current, unless the electrical current is limited and regulated by an electrical controller which meets or exceeds the standards or specifications of the National Electrical Code of the National Fire Protection Association, international standards of the International Electrotechnical Commission, or the Underwriters Laboratories for intermittent type electric fence or electrified fence controllers.

O

SENATE JUDICIARY COMMITTEE
Senator Hannah-Beth Jackson, Chair
2015-2016 Regular Session

SB 582 (Hall)
Version: April 7, 2015
Hearing Date: May 12, 2015
Fiscal: No
Urgency: No
TH:jt

SUBJECT

Electrified Fences

DESCRIPTION

This bill would authorize an owner of real property to install and operate an electrified fence on his or her property if the property is not in a residential zone, the fence meets specified requirements, and a local ordinance does not prohibit its installation and operation.

BACKGROUND

Generally speaking, an electric fence is a fence that has an electrical charge that is designed or placed so that a person or animal coming into contact with the fence receives an electric shock. It operates by sending a high voltage pulse of electricity at regular intervals through conductive materials in the fence. Unlike other physical boundaries like barbed wire or razor wire, commercial electric fences do not physically harm things that come into contact with them. Electric fences do not cause physical harm to animals or people because the length of electric shock delivered by the fence is very brief. According to one scholar:

“[e]ven when the voltage is high, when the current flows for only a very short duration we cannot be electrocuted. . . . A large enough current can cause ventricular fibrillation,” during which “the pumping action of the heart ceases and death occurs within minutes unless treated. In the United States, approximately 1000 deaths per year occur in accidents that involve cord-connected appliances in kitchens, bathrooms, and other wet locations . . . shock durations longer than 1 second are the most dangerous . . . [e]lectric security fences have taken advantage of this fact by shortening their shock duration to an even shorter duration of about 0.0003 seconds . . . electric fences are safe and do not lead to ventricular fibrillation due to the short 0.0003 second shock duration. (John Webster, *Safety of Electric Security Fences*, University of Wisconsin - Madison, <<http://www.wisc.edu/~jwebster/PCIAgendaPage12>

schematics/Safety/Safety%20of%20electric%20security%20fences.pdf> [as of May 8, 2015].)

The sale of electric fences is currently prohibited in California unless the electrical current is limited and regulated by an electrical controller that meets or exceeds specified standards. (Food & Agr. Code Sec. 17152.)

This bill would further codify that a property owner may install and operate an electrified fence if: (1) the property is not in a residential zone; and (2) the fence meets requirements specified by the International Electrotechnical Commission for electric fence energizers. This bill would specify that an owner would not be allowed to install and operate a fence where a local ordinance prohibits that installation and operation.

CHANGES TO EXISTING LAW

Existing law provides that no electrified fences shall be offered for sale, sold, installed, or used in this state, or otherwise connected to a source of electrical current, unless the electrical current is limited and regulated by an electrical controller which meets or exceeds the standards or specifications of the National Electrical Code of the National Fire Protection Association, the New Zealand Standards Institute, the Standards Association of Australia, or the Underwriters Laboratories for intermittent type electric fence or electrified fence controllers. (Food & Agr. Code Sec. 17152.)

Existing law provides that existing provisions of the Food and Agricultural Code pertaining to electric fences shall not be construed to preclude regulation of electrified fences by cities and counties, including, but not limited to, requiring the installation or use of electrified fences under permit, except that such regulation shall not permit the installation or use of electrified fences which do not conform to the requirements of this chapter. (Food & Agr. Code Sec. 17153.)

This bill would provide that an owner of real property may install and operate an electrified fence on his or her property consistent with all of the following: (1) the property is not located in a residential zone; and (2) the fence meets the requirements specified by the International Electrotechnical Commission for electric fence energizers in "International Standard 60335-2-76."

This bill would further provide that an owner of real property shall not install and operate an electric fence where a local ordinance prohibits that installation and operation. If a local ordinance allows the installation and operation of an electric fence, the installation and operation of the electric fence shall meet the requirements of the ordinance, as well as the requirements listed above.

COMMENT

1. Stated need for the bill

According to the author:

Many California-based companies that are in the cargo transportation, inventory storage and containment shipping business have, at any given time, millions of dollars worth of products and service-related equipment on their premises. Storage is often held overnight for several days or weeks awaiting transport. The primary protection of valuable goods and equipment is a security fence, designed to prevent criminal trespass and theft. The installation of an electric security fence in a jurisdiction is subject to permitting and approval. Current state law on the use and installation of an electric security fence in non-agricultural zones is vague. There is no consensus among local jurisdictions whether or not they can allow the installation of electric security fences.

SB 582 provides clear guidelines for the installation of electric security fences, based on international standards [e]nsuring [their] safe and reliable installation in non-residential zones. Existing international standards require the installation of a perimeter fence at least six feet tall separating the public from the electrified fence. Additionally, to [e]nsure the safety of the public, warning signs must be visibly posted in at least two languages (English and Spanish) and access for emergency responders must be available. This bill helps the permitting process in local ordinances by clarifying state law, and regulating the use and installation of an electric security fence in non-residential zones.

2. Ensuring Safety and Local Control

Existing law imposes certain safety standards for the installation and use of electric fences by prohibiting their sale or installation unless the fence's electrical current is limited and regulated by an electrical controller which meets or exceeds the standards or specifications of the National Electrical Code of the National Fire Protection Association, the New Zealand Standards Institute, the Standards Association of Australia, or the Underwriters Laboratories for intermittent type electric fence or electrified fence controllers. (Food & Agr. Code Sec. 17152.) This bill would clarify that electric fences may be installed and used in non-agricultural settings provided they also conform to the requirements specified by the International Electrotechnical Commission for electric fence energizers in "International Standard 60335-2-76."

As in existing law, this bill preserves the authority of local agencies to regulate the installation or use of electric fences within their jurisdictions, provided such regulations meet the safety requirements established in state law. This bill would specify that local agencies may regulate or prohibit by ordinance the installation and use of electric fences within their jurisdictions, provided such regulations meet the safety requirements established in state law. This bill would specify that local agencies may regulate or prohibit by ordinance the installation and use of electric fences within their jurisdictions, provided such regulations meet the safety requirements established in state law.

fences within their jurisdictions. However, this bill would prohibit outright the use or operation of electric fences in residential zones. Allowing local agencies to maintain control over the installation and use of electric fences empowers those jurisdictions to weigh such issues as whether or not electric fence use should be permitted in mixed use zones adjacent to residential areas, or whether they should be permitted in areas near to where children play or other areas with high pedestrian traffic.

Despite their non-lethality, coming into contact with an electric fence is unpleasant. In order to protect individuals from unintentionally coming into contact with an electric fence, International Standard IEC 60335-2-76 contains provisions specifying the size and placement of warning signs. To ensure that warning signs are appropriately placed on electric fence installations governed by this bill, the author offers the following amendment that would codify part of the IEC's warning sign standard:

Author's Amendment:

On page 2, between lines 7 and 8, insert: "(3) The fence is identified by prominently placed warning signs that are legible from both sides of the fence. At a minimum, warning signs shall be placed at each gate and access point, at intervals along the fence not exceeding 10 meters, and adjacent to any other signs relating to chemical, radiological, or biological hazards."

Support: ABF Freight System, Inc.; Copart, Inc.; Old Dominion Freight Line, Inc.; SA Recycling LLC; SAIA LTL Freight; YRC Worldwide, Inc.

Opposition: None Known

HISTORY

Source: Electric Guard Dog, Inc.

Related Pending Legislation: None Known

Prior Legislation: None Known

Case No: PLN-20-06042

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APR 09 2020

PLANNING



Land Use Permit Application

City of Downey - Community Development Department - Planning Division

A Planning Application Requested:

- Adult Use Permit (ADULT)
- Code Amendment (CA)
- Code Amendment Initiation (CAI)
- Conditional Use Permit (CUP)
- General Plan Amendment (GPA)
- General Plan Amendment Initiation (GPAI)
- Planned Unit Development (PUD)
- Secondary Driveway for RV Storage (SDRV)
- Site Plan Review (SPR)
- Special Event (SE)
- Variance (VAR)
- Zone Change (ZC)
- Other _____

B Project Information:

ZONE & USE SPECIFIC

N/A

Property Address _____ Assessor Identification Number(s) _____

Request: **THE REQUEST IS TO AMEND SECTION 9520.08. GENEARL WALL, FENCE, AND HEDGE**

REGULATIONS (c) PROHIBITED WALLS AND FENCES.(1)

SEE ATTACHED FOR FURTHER DETAILS

C Applicant Information:

KEITH KANEKO &/OR CAROL BAUSINGER

Name **AMAROK LLC**

Business Name **550 ASSEMBLY ST 5TH FL**


Mailing Address **COLUMBIA**

City **803-404-6189** State **SC** Zip **29201**

Phone **803-404-6189** Fax _____

Email **CBAUSINGER@AMAROK.COM**

I declare under the penalty of perjury that to the best of my knowledge that the information provided on this application is true and correct.


Applicant's Signature

4/6/2020
Date



Land Use Permit Application (continued)

City of Downey - Community Development Department - Planning Division

D Owner Information:

N/A - CITY CODE AMENDMENT SPECIFIC TO ZONING & USE

Name

Business Name

Mailing Address

City

State

Zip

Phone

Fax

Email

I declare under the penalty of perjury that to the best of my knowledge that the information provided on this application is true and correct. I further hereby authorize the applicant listed in Section C of this application to submit the application and to be my representative on matters regarding the project described herein.

_____ Date

_____ Property Owner Signature (notarization required)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)

COUNTY OF _____)

On _____ before me,
Date

Name and Title of the Officer

personally appeared _____
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature of Notary Public



Supplemental Information Form

City of Downey - Community Development Department - Planning Division

General Information

Property Address: **SPECIFIC TO ZONING & USE IN ATTACHMENT** Case No: PLN-20-00042

Property Size: _____ Width: _____ Length: _____

Describe property as it currently exists (including any buildings and plants): _____

CITY CODE AMENDMENT SPECIFIC TO ZONING & USE

Project Information

Building Size: _____ Size of Use: _____

Number of floors of construction: _____ Number of parking spaces on property: _____

Type of use: Residential Commercial Industrial Institutional

Number of units: _____ Number of anticipated employees: _____

Hours of operation: _____

Does the use include:

The sale food of beverages (not including alcohol)? Yes No

If yes, then square footage of customer area _____ Number of seats _____

The sale of alcohol? Yes No

If yes, ABC License Type _____

Live entertainment? Yes No

If yes, the type (check all that apply): Bands or Musicians Dancing DJ Karaoke

Proposed hours of live entertainment: _____

Square footage of stage _____ Square footage of dance floor _____

The purchase or sale of previously owned merchandise? Yes No

The sale or repair of motor vehicles? Yes No

Storage or display of merchandise outside? Yes No



Supplemental Information Form *(continued)*

City of Downey - Community Development Department - Planning Division

Environmental Information

Describe how any new construction will blend into the existing neighborhood: _____

UPON APOVAL OF A CODE AMENDMENT, THE SECURITY SYSTEM IS VIRTUALLY INVISIBLE TO THE PASSERBY AND WOULD BE INSTALLED INSIDE OF THE EXISTING BARRIER FENCE.

Will the use involve the use or transportation of hazardous material such as toxic substances, flammables, corrosives, or explosives?: Yes No If yes, describe: _____

Will the use involve the use of equipment that creates noise and/or vibration?: Yes No If yes, describe: _____

Describe the surrounding properties (including uses, buildings, and plants): _____

THIS WOULD BE DEPENDENT UPON APPROVAL OF A CODE AMENDMENT

If the project is being developed in relationship to a larger project or a series of projects, describe the larger project:

N/A

Certification

I hereby certify that the statements furnished on this supplemental information form (including any attached exhibits) present the most current information, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief:

Applicant or property owner signature

4/6/2020

Date

CIVIL CODE

SECTION 829-835

835. (a) As used in this chapter, "electrified security fence" means any fence, other than an electrified fence described in Section 17151 of the Food and Agricultural Code, that meets the following requirements:

(1) The fence is powered by an electrical energizer with both of the following output characteristics:

(A) The impulse repetition rate does not exceed 1 hertz (hz).

(B) The impulse duration does not exceed 10 milliseconds, or 10/10000 of a second.

(2) The fence is used to protect and secure commercial or industrial property.

(b) An owner of real property may install and operate an electrified security fence on his or her property subject to all of the following:

(1) The property is not located in a residential zone.

(2) The fence meets the 2006 international standards and specifications of the International Electrotechnical Commission for electric fence energizers in "International Standard IEC 60335, Part 2-76."

(3) The fence is identified by prominently placed warning signs that are legible from both sides of the fence. At a minimum, the warning signs shall meet all of the following criteria:

(A) The warning signs are placed at each gate and access point, and at intervals along the fence not exceeding 30 feet.

(B) The warning signs are adjacent to any other signs relating to chemical, radiological, or biological hazards.

(C) The warning signs are marked with a written warning or a commonly recognized symbol for shock, a written warning or a commonly recognized symbol to warn people with pacemakers, and a written warning or commonly recognized symbol about the danger of touching the fence in wet conditions.

(4) The height of the fence does not exceed 10 feet and is located behind a perimeter fence that is not less than 6 feet in height.

(c) An owner of real property shall not install and operate an electrified security fence where a local ordinance prohibits that installation and operation. If a local ordinance allows the installation and operation of an electrified security fence, the installation and operation of the fence shall meet the requirements of that ordinance and the requirements of subdivision (b).

Narrative Statement – Code Amendment, Downey, CA
Section 9520.08
GENERAL WALL, FENCE & HEDGE

PLN - 20 - 00042

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PLANNING

1. **That the requested amendment is necessary and desirable for the development of the community and is in the interests or furtherance of the public health, safety and general welfare.**

The proposed amendment language will codify the installation, operation, and safety measures of the electrified fencing standards. This amendment is necessary for the development of the community from a safety and security perspective. Respected local businesses have been the targets of repetitive burglary and theft, thus significantly effecting these businesses ability to feasibly and effectively serve residents and other businesses in Downey. This security system will prevent criminal activity, further enhancing public safety and the general welfare of the community. The City can then divert police resources toward crime other than commercial burglary and theft.

The EGD system is installed completely inside of an existing perimeter, non-electrified fence, operated during non-business hours only, and therefore is not exposed to the public. To come in contact with the activated security system, one would have to make a concerted effort to trespass through the perimeter fence and illegally enter a property.

The security system is a crime prevention tool for commercial and industrial zoned uses/districts. It secures local businesses from random and targeted criminal activity, and thereby provides for the limited police resources to redirect their time and resources toward more serious crime or community needs. The local businesses who need this security measure would be located in the appropriate zoning and comply with all other ordinances. The proposed amendment will promote the best long-term interests of the Community by deterring criminal activity at respected, local businesses and, most importantly, enhance the safety and interests of its employees.

2. **That the proposed amendment is in general conformance with the General Plan.**

The proposed amendment will be in harmony with and serves the general intent and purpose of the General Plan because it enhances the community by effectively deterring crime. It is not exposed to the public so there is no danger or nuisance. Much more effective and reliable than security guards, the EGD System will provide local businesses with an affordable means to protect their property, assets, and employees, allowing them to invest monies into business growth and continued employment of City of Downey residents. This security system requires the fence to be 10' tall in C-M, M-1,

and M-2 zones. This is the most effective height when taking site conditions and security into consideration.

In Summary:

The EGD Security is the most reliable, most economical, and safest security application available. The installation of the EGD system will secure local businesses and increase the security of the surrounding properties and the immediate area by deterring the criminal element.

Please let us know if there are any additional questions/concerns.

Sincerely,



Carol Bausinger

Compliance Manager

AMAROK, LLC

Direct: 803-404-6189

cbausinger@amarok.com

www.AMAROK.com

AMAROK formerly known as Electric Guard Dog

ULTIMATE PERIMETER SECURITY

SECTION 9520.08. GENERAL WALL, FENCE, AND HEDGE REGULATIONS.

M. **Electrified Fencing.** The use of electrified fencing, for security or other purposes, is prohibited in all zoning districts except M1, M2 and C-M. Said fencing shall comply with the following requirements:

1. **Permits Required.** Any electrified fencing shall require the approval of the following permits, as further defined in this section:

a. **Building Permit.** A building permit shall be obtained before new construction begins. Application for a building permit shall be made on forms furnished by the City.

b. **Administrative Permit for a Minor Site Plan Review.** An Administrative Permit in compliance with Section 9814 (Administrative Permits), except as otherwise approved by another discretionary application for a project on the same site.

c. **Alarm Permit.** An alarm permit obtained from the Police Department. For this program, all applicable alarm fees apply to electric fence installations. (See Section 3704. Alarm System Permit).

2. **General Requirements.** The following electrified fencing standards shall apply to all development:

a. **Electrical Standard.** Unless otherwise specified herein, electric fences shall be constructed or installed in conformance with applicable provisions of International Electrotechnical Commission (IEC 60335-2-76) standards for electric fence energizers.

b. **Electrification.**

i. The energizer for electric fences must be driven by a commercial storage battery not to exceed 12 volts DC or other approved 12 volt DC or less power source.

ii. The electric charge produced by the fence upon contact shall not exceed energizer characteristics set forth in the IEC standard for electric fence energizers.

c. **Perimeter Fence or Wall.** Electrified fencing shall be completely surrounded by a non-electrified fence or wall that is not less than six (6) feet high and have no barbed, concertina, or similar wire attached. Vehicle access gates along public rights-of-way may be exempted from this requirement.

d. **Setback.**

- i. Any opening in the perimeter fence less than or equal to three (3) inches shall require a minimum 12-inch setback from the electric fence (IEC 60335-2-76 Standard).
 - ii. Any opening in the perimeter fence greater than three (3) inches shall require a minimum 36-inch setback from the electric fence or the addition of an approved mesh as an added barrier.
- e. **Height.** The following height restrictions and permitting requirements shall apply to electrified fencing:
 - i. M1 and M2 Zoning Districts. Electrified fencing up to 10-feet in height is allowed. A Building Permit and Alarm Permit are required for fences exceeding six-feet in height.
 - ii. C-M Zoning District. Electrified fences are, at a minimum, two-feet higher than the perimeter fence, but not to exceed a maximum height of 10 feet. An Administrative Permit, Building Permit, and Alarm Permit are required for electrified fences in allowable C-M zoning districts.
- f. **Warning Signs.** Electric fences shall be clearly identified with warning signs on both the inside and outside of the fence. The signs shall read “Warning-Electric Fence” in English with international symbols and other languages at intervals of not greater than 30 feet.
- g. **Emergency Access.** A “Knox Box” or other similar approved devices shall be installed for emergency access by Fire Departments. A means to disconnect electrical power to the fence shall be readily available to the Fire Departments. Disconnect switches and controls shall be in an accessible location on the property and shall not be obscured in any manner from the street/private driveway access. Approved signs stating the identification of such switches/controls shall be installed to the satisfaction of the Fire Marshal. In the event that access by the City of Downey Fire Department personnel to a property where a permitted electric fence has been installed and is operating is required due to an emergency or urgent circumstances, and the Knox Box or other similar approved device above is absent or non-functional, and an owner, manager, employee, custodian, or any other person with control over the property is not present to disable the electric fence, fire personnel shall be authorized to disable the electric fence in order to gain access to the property.
- h. **Uses and Locations.**
 - i. Unless specifically designated in this subsection, electrified fences shall not be permitted in any zoning district.
 - ii. Electric fences shall be allowed in M1 and M2 zones.

- iii. Electric fences shall be allowed in specific, single use, C-M zoned Land Uses (Chapter 3, Table 9.3.5), as follows:
 - a. Automobile, light truck, and motorcycle sales, new and used
 - b. Automobile paint and body
 - c. Automobile repair
 - d. Mobile homes/manufactured home sales
 - e. Recreational vehicle sales
 - f. Truck and trailer sales
 - g. Towing services
 - h. Vehicle impound and storage yard
 - i. Auction house
 - j. Building/contractor supplies
 - k. Wireless communication facilities
 - l. Parcel delivery terminals
 - m. Self-storage, mini-storage, mini-warehouse, and recreational vehicle storage
 - n. Storage yards
 - o. Warehouse

*(Amended by Ord. 1248, adopted 7-28-09)

STRUCTURAL CALCULATION

PROJECT No.
GS1303820

Fence Post and Solar Panel Support Post Analysis

CLIENT:
AMAROK

550 Assembly St, 5th Floor
Columbia, SC 29201

ENGINEER:



[Handwritten signature] 3.29.20

PLN - 20 - 00142

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DESIGN INPUT VALUES:

Dimensions

$L_{Fpost_bndg} = 120$ in Height of fence corner post $d_{ia_wire} := 0.1121$ in Diameter of fence wire
 $trib_{FCEpost} = 1000$ ft Tributary spacing of fence corner post $n_{wires} = 20$ Number of fence wires
 $L_{Spost_bndg} = 108$ in Height of solar support post

Design Loads:

Risk_Category = "II"

Wind Design Values:

Wind Speed:

$V_{wind} = 124$ mph Basic Wind

Wind Exposure:

$E_{xposure} = "C"$

Seismic Design Values:

Site_class :=

$S_s = 1.662$ Mapped spectral acceleration for short period

$S_1 = 0.607$ Mapped spectral acceleration for 1 second period

$T_L = 8$ Long-Period Transition Period

$R_a = 1.50$ Response modification factor

Dead Load Values:

$p_{d_wire} = 0.003$ plf Dead weight of each wire
 $F_{wire_tension} = 20.7$ lb Applied wire tension at corner post (per each wire)
 $wt_{FCEpost} = 10.8$ plf Dead weight of each corner/end post
 $wt_{SSpost} = 6.46$ plf Dead weight (max) of each solar support post
 $p_{d_SSpost} = 257.4$ lb Total weight of solar panel, alarm, battery and control boxes (including internal components) applied to each support column.

Posthole and Footing Design Values:

$q_{soil} := 1000$ psf Assumed soil vertical bearing capacity
 $S_{lsoil} = 100$ psf / ft Assumed soil lateral bearing capacity
 $d_{ia_FPfooting} := 1.25$ ft Diameter of fence post posthole / footing
 $d_{ia_SPfooting} := 1.50$ ft Diameter of solar support post posthole / footing
 Backfill_type = "Concrete"

ASD Safety Factors

$\Omega_b := 1.67$ Factor for Bending
 $\Omega_t := 2.0$ Factor for Tension
 $\Omega_v := 1.67$ Factor for Shear

SEISMIC CALCULATIONS:

- $S_s = 1.66$ Mapped spectral acceleration for short periods (from above)
 $S_1 = 0.61$ Mapped spectral acceleration for 1-second period (from above)
 $I_e = 1.0$ Importance factor
 $R_a = 1.5$ Response modification factor (from above)

1. Determine the Seismic Design Category

a. Calculate S_{DS} and S_{D1}

For S_{DS} :

For $S_s = 1.66$

$F_a = 1.00$

$S_{MS} := S_s \cdot F_a$

$S_{MS} = 1.66$

$S_{DS} := \left(\frac{2}{3}\right) \cdot S_{MS}$

$S_{DS} = 1.11$

For S_{D1} :

For $S_1 = 0.61$

$F_v = 1.70$

$S_{M1} := S_1 \cdot F_v$

$S_{M1} = 1.03$

$S_{D1} := \left(\frac{2}{3}\right) \cdot S_{M1}$

$S_{D1} = 0.69$

Seismic_Design_Category = "D"

2. Determine the building parameters

Dead load weight:

$wt_{FCEpost} = 10.8$ plf nominal weight of fence corner/end post

$W_f := (L_{Fpost_bndg} \cdot wt_{FCEpost}) + (trib_{FCEpost} \cdot n_{wires} \cdot p_{d_wire})$

$W_f = 174.67$ lb total (max) dead weight of fence at corner/end post

$wt_{SSpost} = 6.46$ plf (max) nominal weight of a pair of solar support post

$W_s := \max\left[\left(L_{Spost_bndg} \cdot wt_{SSpost}\right) + p_{d_SSpost}, 2\right]$

$W_s = 631.08$ lb total (max) dead weight on a pair of solar support posts

Determine the Adequacy of the Primary Electric Fence Posts:

The analysis below will show the adequacy of the post.

Column Information:	Column_1 = "4dia40"	Column_1_location = "Fence corner/end posts"
$c1_{spacing} = 1000$ ft	$n_{wires} = 20$	Number of fence wires
$L_{Fpost_bndg} = 120$ in	Maximum Unbraced length of column	$F_{y_c1} := 35$ ·ksi
$t_{c1} = 0.22$ in	Thickness of column material	$E_{steel} := 29000$ ·ksi
$D_{c1} = 4.5$ in	Outside diameter of column section	

Check fence corner post for maximum applied moment:

$$q_{wind_F} \cdot D_{c1} = 0.91 \text{ pli}$$

$$M_{r_wind_c1} := \frac{(q_{wind_F} \cdot D_{c1}) \cdot L_{Fpost_bndg}^2}{2}$$

$$M_{r_wind_c1} = 6.52 \text{ kip}\cdot\text{in} \quad \text{Required moment capacity due to wind}$$

$$M_{r_seis_c1} := E_r \cdot L_{Fpost_bndg}$$

$$M_{r_seis_c1} = 14.09 \text{ kip}\cdot\text{in} \quad \text{Required moment capacity due to seismic}$$

Next, Check loads due to wire tension:

$$F_{wire_tension} = 20.7 \text{ lb} \quad \text{per wire}$$

$$M_{wire_tension_DL} := F_{wire_tension} \cdot n_{wires} \cdot \frac{L_{Fpost_bndg}}{2}$$

$$M_{wire_tension_DL} = 24.84 \text{ kip}\cdot\text{in} \quad \text{Required moment capacity due to wire tension}$$

Next, Determine Allowable Bending load:

Determine h/t and check for compact, non-compact, or slender element section: (flexure)

$WT_{fl_ratio_c1} = 20.4$ Width-Thickness ratio

$CS_{fl_limit_c1} := .07 \cdot \left(\frac{E_{steel}}{F_{y_c1}} \right)$ $CS_{fl_limit_c1} = 58.0$ compact section limit

$NCS_{fl_limit_c1} := .31 \cdot \left(\frac{E_{steel}}{F_{y_c1}} \right)$ $NCS_{fl_limit_c1} = 256.9$ non-compact section limit

First, Determine allowable moment based on Yielding (a):

$M_{py_c1} := Z_{c1} \cdot F_{y_c1}$ $M_{py_c1} = 141.75 \text{ kip}\cdot\text{in}$ Allowable moment based on yielding

Next, Determine allowable moment for non-compact sections (b):

$M_{pfl_nc_c1} := \left(.021 \cdot \frac{E_{steel}}{WT_{fl_ratio_c1}} + F_{y_c1} \right) \cdot S_{c1}$

$M_{pfl_nc_c1} = 196.68 \text{ kip}\cdot\text{in}$ Allowable moment for non-compact sections

Next, Determine allowable moment for slender element sections (c):

$M_{pfl_sl_c1} := \left(\frac{.33E_{steel}}{WT_{fl_ratio_c1}} \right) \cdot S_{c1}$

$M_{pfl_sl_c1} = 1424.119 \text{ kip}\cdot\text{in}$ Allowable moment for slender element sections

Note, Based on the values of the three calculations above, the allowable moment is:

$M_{a_c1} = 141.75 \text{ kip}\cdot\text{in}$ Allowable flexural moment

Next, check combined bending and axial load stresses:

$M_{cx_c1} := \frac{M_{a_c1}}{\Omega_b}$ $M_{cx_c1} = 84.882 \text{ kip}\cdot\text{in}$ Available flexural moment (ASD)

$P_{n_c1} = 16.1 \text{ kip}$ Allowed axial load (from above)

EMBEDMENT FOR Primary Electric Fence Posts:

Calculate the minimum required post embedment depth for lateral loading for per 1807.3.2.1; CBC 2019

Backfill_type = "Concrete" $d_{ia_FPfooting} = 1.25$ ft fence post footing diameter

$S_{l_soil} = 100$ psf Lateral bearing pressure per foot below natural grade (Table 1806.2)

$$P_{post} := \left[\max \left[\left[(q_{wind_F} \cdot D_{cl}) \cdot L_{Fpost_bndg} \right] + (F_{wire_tension} \cdot n_{wires}) \right], \left[E_f + (F_{wire_tension} \cdot n_{wires}) \right] \right]$$

$P_{post} = 531.4$ lb Equivalent point load applied to post

$h_{Fpost} = 5.0$ ft Location of applied lateral load (distance from grade)

$$b_{post} := \text{if}(\text{Backfill_type} = \text{"Concrete"}, d_{ia_FPfooting}, D_{cl})$$

$b_{post} = 1.25$ ft Note: use footing diameter if posthole backfill is concrete

Trial depth $T_{depth} = 1.5$ ft.- The starting depth of the post hole depth. The final post hole depth is determined by iterating to a final depth. Note: the lateral soil-bearing pressure S_l shall be increased by the tabular value for each additional foot of depth to a maximum of 15 times the tabular value (1806.3.3); see variable S_{l_soil} .

$$d_{FPdepth} := \left\{ \begin{array}{l} T_{depth} \leftarrow 1.5 \text{ ft} \\ d_{cpth} \leftarrow 12 \text{ ft} \\ \text{while } d_{depth} > T_{depth} \\ \left\{ \begin{array}{l} S_{l_soil} \leftarrow S_{l_soil} \cdot \frac{T_{depth}}{\text{ft}} \cdot \frac{1}{3} \\ S_{l_soil} \leftarrow S_{l_soil} \cdot \text{if} \left(T_{depth} \geq 1 \text{ ft} \wedge T_{depth} \leq 15 \text{ ft}, \frac{T_{depth}}{\text{ft}}, \text{if} (T_{depth} \geq 15 \text{ ft}, 14, 1) \right) \\ A \leftarrow \frac{2.34 \cdot P_{post}}{(S_{l_soil}) \cdot b_{post}} \\ d_{depth} \leftarrow 0.5 \cdot A \cdot \left[1 + \left[1 + \left(\frac{4.36 \cdot h_{Fpost}}{A} \right)^{-0.5} \right] \right] \\ T_{depth} \leftarrow T_{depth} + 0.02 \text{ in} \end{array} \right. \\ T_{depth} \end{array} \right.$$

$d_{FPdepth} = 4.11$ ft This is the minimum required post embedment depth for lateral loading
Where resultant $S_{l_soil} = 563.53$ psf, $A = 1.77$.

Determine section classification as a slender or nonslender element and as a compact or noncompact section:

$h_{c2} = 3.765$ in Design outside depth of column section

$b_{c2} = 3.765$ in Design outside width of column section

$t_{des_c2} = 0.112$ in Design wall thickness of column material

Width-to-Thickness Ratios: Compression Elements: (Walls of HSS section)

$$WtR_{bt} := \frac{\max(h_{c2}, b_{c2})}{t_{des_c2}} \quad WtR_{bt} = 33.74 \quad \text{Width-to-thickness Ratio}$$

$$\lambda_{r_w} := 1.40 \sqrt{\frac{E_{steel}}{F_{y_c2}}} \quad \lambda_{r_w} = 32.15 \quad \text{limiting width-to-thickness ratio (nonslender/slender)}$$

Wall_section_is = "slender-element"

Width-to-Thickness Ratios: Compression Elements (Members Subject to Flexure):

Flanges of HSS section:

$$WtR_{bt} := \frac{b_{c2}}{t_{des_c2}} \quad WtR_{bt} = 33.74 \quad \text{Width-to-thickness Ratio}$$

$$\lambda_{p_f} := 1.12 \sqrt{\frac{E_{steel}}{F_{y_c2}}} \quad \lambda_{p_f} = 25.72 \quad \text{limiting width-to-thickness ratio (compact/noncompact)}$$

$$\lambda_{r_f} := 1.40 \sqrt{\frac{E_{steel}}{F_{y_c2}}} \quad \lambda_{r_f} = 32.15 \quad \text{limiting width-to-thickness ratio (noncompact/slender)}$$

Flange_section_is = "slender-element"

Webs of HSS section:

$$WtR_{ht} := \frac{h_{c2}}{t_{des_c2}} \quad WtR_{ht} = 33.74 \quad \text{Width-to-thickness Ratio}$$

$$\lambda_{p_w} := 2.42 \sqrt{\frac{E_{steel}}{F_{y_c2}}} \quad \lambda_{p_w} = 55.57 \quad \text{limiting width-to-thickness ratio (compact/noncompact)}$$

$$\lambda_{r_w} := 5.70 \sqrt{\frac{E_{steel}}{F_{y_c2}}} \quad \lambda_{r_w} = 130.89 \quad \text{limiting width-to-thickness ratio (noncompact/slender)}$$

Web_section_is = "compact"

Next, determine flexure strength:

First, Determine allowable moment based on Yielding (a):

$$M_{py_c2} := F_{y_c2} \cdot Z_{c2} \quad M_{py_c2} = 144.73 \text{ kip}\cdot\text{in} \quad \text{Allowable moment based on yielding}$$

Next, Determine allowable moment based on flange local buckling (b):

$$S_{c2} = 2.26 \text{ in}^3 \quad \text{Section modulus}$$

$$M_{p_flnc_c2} := \min \left[M_{py_c2}, M_{py_c2} - (M_{py_c2} - F_{y_c2} \cdot S_{c2}) \cdot \left(3.57 \cdot \frac{b_{c2}}{t_{des_c2}} \cdot \sqrt{\frac{F_{y_c2}}{E_{steel}}} - 4.0 \right) \right]$$

$$M_{p_flnc_c2} = 119.31 \text{ kip}\cdot\text{in} \quad \text{Allowable moment for sections with noncompact flanges}$$

$$b_{e_c2b} := \min \left[b_{c2}, 1.92 \cdot t_{des_c2} \cdot \sqrt{\frac{E_{steel}}{F_{y_c2}}} \left(1 - \frac{0.38}{b_{c2} \cdot t_{des_c2}} \cdot \sqrt{\frac{E_{steel}}{F_{y_c2}}} \right) \right] \quad b_{e_c2b} = 3.65 \text{ in} \quad \text{effective width}$$

$$S_{eff_c2} = 1.93 \text{ in}^3 \quad \text{Effective section modulus}$$

$$M_{p_flsc_c2} := F_{y_c2} \cdot S_{eff_c2}$$

$$M_{p_flsc_c2} = 106.11 \text{ kip}\cdot\text{in} \quad \text{Allowable moment for sections with slender-element flanges}$$

Next, Determine allowable moment based on web local buckling (c):

$$M_{n_vnc_c2} := \min \left[M_{py_c2}, M_{py_c2} - (M_{py_c2} - F_{y_c2} \cdot S_{c2}) \cdot \left(0.305 \cdot \frac{h_{c2}}{t_{des_c2}} \cdot \sqrt{\frac{F_{y_c2}}{E_{steel}}} - 0.738 \right) \right]$$

$$M_{n_vnc_c2} = 144.73 \text{ kip}\cdot\text{in} \quad \text{Allowable moment for sections with noncompact webs}$$

Note, Based on the values of the three calculations above, the allowable moment is:

$$M_{n_Allow_c2} = 106.11 \text{ kip}\cdot\text{in} \quad \text{Allowable flexural moment}$$

$$M_{cx_c2} := \frac{M_{n_Allow_c2}}{\Omega_t}$$

$$M_{cx_c2} = 53.06 \text{ kip}\cdot\text{in} \quad \text{Allowable design flexural moment strength (ASD)}$$

Footing Calculation For Electric Fence Control / Solar Panel Support Post:

Calculate the minimum required post embedment depth for lateral loading for per 1807.3.2.1; CBC 2019
 NOTE: Determine the point load required to produce an equal moment.

Backfill_type = "Concrete" $d_{ia_SPfooting} = 1.5$ ft Support post footing diameter

$S_{1soil} = 100$ psf Lateral bearing pressure per foot below natural grade (Table 1806.2)

Maximum applied moments (from above):

$M_{r_wind_c2} = 51.35$ kip-in wind moment $M_{r_seis_c2} = 22.91$ kip-in Seismic moment

$h_{Spost} = 5.7$ ft Location of applied lateral load (distance from grade)

$P_{post2} := \frac{\max(M_{r_wind_c2}, M_{r_seis_c2})}{h_{Spost}}$ $P_{post2} = 745$ lb Max. equivalent point load applied to post

$b_{post2} := \text{if}(\text{Backfill_type} = \text{"Concrete"}, d_{ia_SPfooting}, \min(w_{c2}, d_{c2}))$

$b_{post2} = 1.50$ ft Note: use footing diameter if posthole backfill is concrete

$S_{1increase} := 2$ Allowable lateral bearing pressure increase for poles, Section 1806.3.4

$S_{1_SPsoil} := S_{1soil} \cdot S_{1increase}$ $S_{1_SPsoil} = 200$ psf per footing of depth

Trial depth $T_{depth} = 1.5$ ft. - The starting depth of the post hole depth. The final post hole depth is determined by iterating to a final depth. Note: the lateral soil-bearing pressure S_1 shall be increased by the tabular value for each additional foot of depth to a maximum of 15 times the tabular value (1806.3.3); see variable S_{1_SPsoil} below.

```

d_SPdepth :=
| T_depth ← 1.5-ft
| d_depth ← 12-ft
| while d_depth > T_depth
|   |  $S_{1\_soil} \leftarrow S_{1\_SPsoil} \cdot \frac{T_{depth}}{\text{ft}} \cdot \frac{1}{3}$ 
|   |  $S_{1\_soil} \leftarrow S_{1\_soil} \cdot \text{if}\left(T_{depth} \geq 1\text{ft} \wedge T_{depth} \leq 15\text{ft}, \frac{T_{depth}}{\text{ft}}, \text{if}(T_{depth} \geq 15\text{ft}, 14, 1)\right)$ 
|   |  $A \leftarrow \frac{2.34 \cdot P_{post2}}{(S_{1\_soil}) \cdot b_{post2}}$ 
|   |  $d_{depth} \leftarrow 0.5 \cdot A \cdot \left[1 + \left[1 + \left(\frac{4.36 \cdot h_{Spost}}{A}\right)^{0.5}\right]\right]$ 
|   | T_depth ← T_depth + 0.02-in
| T_depth
    
```

$d_{SPdepth} = 3.62$ ft This is the minimum required post embedment depth for lateral loading
 Where resultant $S_{1_soil} = 876.04$ psf, $A = 1.33$.

THE END



Designation: F3296 – 19

Standard Practice for Commercial Application of Electric Security Fences¹

This standard is issued under the fixed designation F3296; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 The purpose of this practice is to provide advice for the selection and use of electric security fences to deter, detect, and delay an unauthorized breach of the perimeter in a commercial application.

1.2 *Units*—The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard. The tolerance on physical dimensions is $\pm 10\%$ unless otherwise specified.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *BSI Standard*:²

BS EN 60335-2-76 Household and similar electrical appliances – Safety – Part 2-76: Particular requirements for electric fence energizers

2.2 *IEC Standards*:³

IEC 60335-1 Household and similar electrical appliances – Safety – Part 1: General requirements

IEC 60335-2-76 Household and similar electrical appliances – Safety – Part 2-76: Particular requirements for electric fence energizers

2.3 *NFPA Standard*:⁴

NFPA 70 National Electrical Code

2.4 *UL Standard*:⁵

UL 69 Standard for Electric-Fence Controllers

3. Terminology

3.1 *Definitions*:

3.1.1 *electric fence energizer, n*—electrical device that is used to convert continuous power to a short-duration pulse using a fast-discharge electrical storage unit; it is also known as a controller.

3.1.2 *electric security fence zone, n*—predetermined section of the fence line that is monitored separately from another section of the fence line.

3.1.3 *gripping, n*—wire torque-tensioning device that incorporates a ceramic roller as the main tension ratchet part.

3.1.4 *pulse, n*—burst of electricity for a short period of time on a regular interval as opposed to continuous power.

3.1.5 *pulse rate, n*—number of pulses per second.

3.1.6 *security alarm panel, n*—device that detects a drop in the power of the pulse and, based on a specific algorithm, initiates an alarm.

4. Significance and Use

4.1 Electric security fences, in view of their high-deterrent impact, are a safe method to reduce security costs or enhance existing security. They are deployed in a wide variety of environments and geographies. In particular, electric security fences are used to decrease the need for security guards and other security systems.

4.2 This practice provides information to users and manufacturers of electric security fences, filling a void.

4.3 International standards exist at the International Electrotechnical Commission (IEC) and the British Standards Institution (BSI) (see Section 2) that cover some aspects of these systems.

¹ This practice is under the jurisdiction of ASTM Committee F33 on Detention and Correctional Facilities and is the direct responsibility of Subcommittee F33.06 on Control Systems.

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² Available from British Standards Institution (BSI), 389 Chiswick High Rd., London W4 4AL, U.K., <http://www.bsigroup.com>.

³ Available from International Electrotechnical Commission (IEC), 3, rue de Varembe, 1st Floor, P.O. Box 131, CH-1211, Geneva 20, Switzerland, <http://www.iec.ch>.

⁴ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, <http://www.nfpa.org>.

⁵ Available from Underwriters Laboratories (UL), 2600 N.W. Lake Rd., Camas, WA 98607-8542, <http://www.ul.com>.

6.4.2 Wire shall comply with the manufacturer's specifications. A variety of wire types and gauges of wire are allowed. The choice is driven by the site's requirements and the entirety of the manufacturer's system.

6.4.3 The wire spacing and configuration shall be allowed to vary to suit different applications. Normally, the spacing shall be between a minimum of 50 mm and a maximum of 230 mm. The objective is to maximize the effectiveness of the security while minimizing initial and ongoing maintenance cost.

6.4.4 Fence infrastructure shall be to the electric security fence manufacturer's specifications.

7. Controls

7.1 There are many methods of control to suit different applications. To ensure an effective system, maximize up time, and minimize maintenance cost, the following design limitations shall be met:

7.1.1 Commercially accepted security communications protocols such as copper, fiber, wireless, and ethernet, and

7.1.2 The security alarm panel or software design control system shall monitor tamper alarms and the event log.

8. Training

8.1 To maximize effectiveness and minimize maintenance cost, effective training shall be done appropriate to the employ-

ee's responsibilities. Training shall be consistent with the user's training policy and procedures.

9. Maintenance

9.1 The following shall be minimum maintenance frequencies.

9.1.1 The following should be done daily:

9.1.1.1 A fence line visual inspection should be done daily to remove trash, repair any attempts to compromise the system, and note situations proactively that might compromise the system such as vegetation growth.

9.1.2 The following shall be done monthly:

9.1.2.1 An alarm test in each zone in addition to the daily maintenance. This shall be done by shorting a wire to electrical ground or touching wire to wire using an approved testing tool recommended by manufacturer.

9.1.3 The following should be done annually:

9.1.3.1 Inspect batteries for signs of apparent wear, tampering, or damage.

10. Signage

10.1 Warning signs shall be placed at intervals not exceeding 19 m and on every gate.

11. Keywords

11.1 electric security fence; energizer; return voltage

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
60335-2-76**

Edition 2.1

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Edition 2:2002 consolidée par l'amendement 1:2006
Edition 2:2002 consolidated with amendment 1:2006

**Appareils électrodomestiques et analogues –
Sécurité –**

**Partie 2-76:
Règles particulières pour les électrificateurs
de clôtures**

**Household and similar electrical appliances –
Safety –**

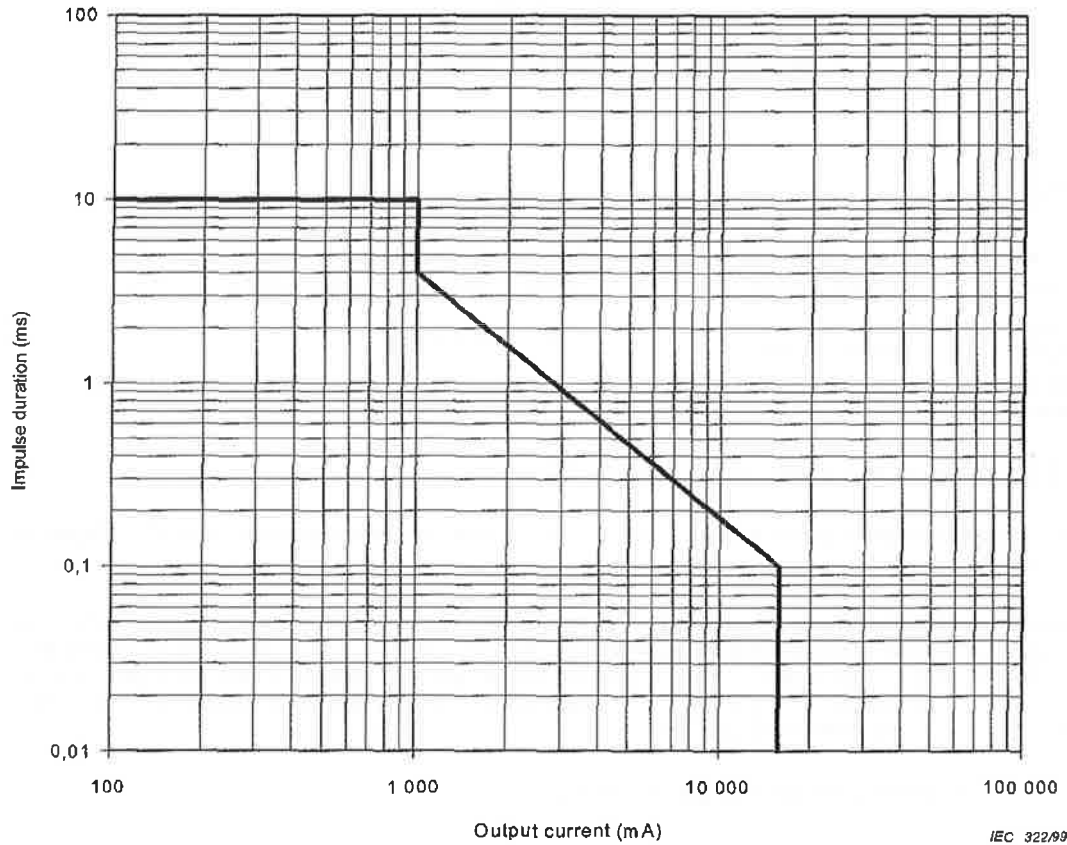
**Part 2-76:
Particular requirements for electric fence
energizers**

PLN - 20 - 00142



Numéro de référence
Reference number
CEI/IEC 60335-2-76:2002+A1:2006

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NOTE The equation of the line relating impulse duration (ms) to output current (mA) for 1 000 mA < output current < 15 700 mA, is given by $\text{impulse duration} = 41,885 \times 10^3 \times (\text{output current})^{-1,34}$

Figure 102 – Current limited energizer characteristic limit line

CC.5 Prohibited mounting

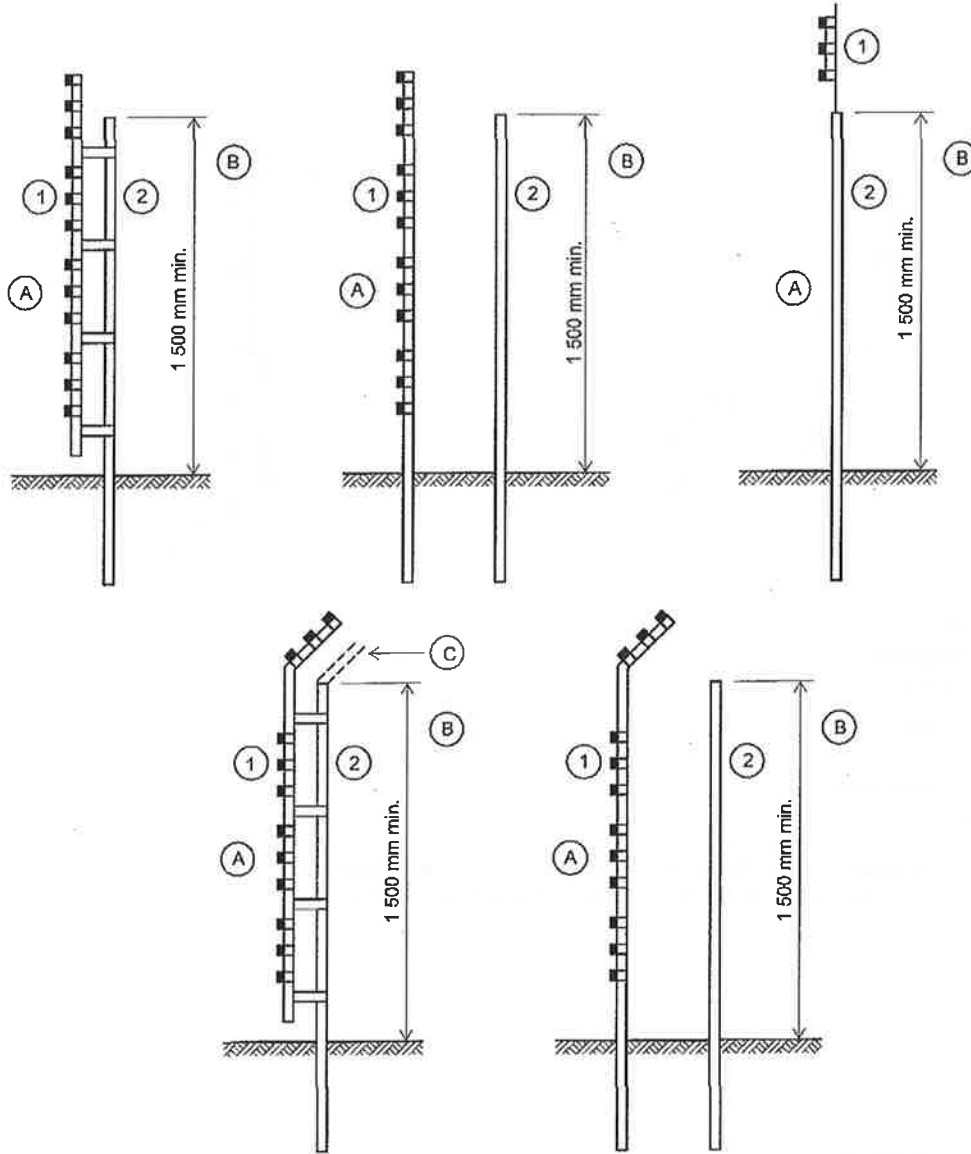
Electric fence conductors should not be mounted on a support used for any overhead power line.

CC.6 Operation of electric security fence

The conductors of an **electric fence** should not be energized unless all authorized persons, within or entering the **secure area**, have been informed of its location.

Where there is a risk of persons being injured by a secondary cause, appropriate additional safety precautions should be taken.

NOTE An example of a secondary cause is where a person may be expected to fall from a surface if contact is made with **pulsed conductors**.



IEC 1820/05

Key

A = Secure area

B = Public access area

C = Barrier where required

1 = Electric security fence

2 = Physical barrier

Figure CC.2 – Typical constructions where an electric security fence is exposed to the public

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-86, *Household and similar electrical appliances – Safety – Part 2-86: Particular requirements for electric fishing machines*

IEC 60335-2-87, *Household and similar electrical appliances – Safety – Part 2-87: Particular requirements for electric animal stunning equipment*

