



DENVER
THE MILE HIGH CITY

Community Planning and Development
Planning Services
Plan Implementation

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TO: Members of the Denver City Council
FROM: Tina Axelrad, Principal City Planner
DATE: November 19 2007
RE: Language Amendment #L-1164: Revisions to Allow Limited Side Setback Encroachment for Residential Ground-Mounted Air Conditioning Units and Similar Mechanical Equipment

Introduction

This memorandum:

- (1) Presents a brief summary of the language amendment contents (the actual draft ordinance is provided in your packet);
- (2) Summarizes the impetus behind the proposed language change and its likely effects; and
- (3) Presents CPD's recommendation.

Summary of Proposed Code Changes

Language Amendment L-1164, initiated by the Denver Community Planning and Development Department, would revise current zoning allowances for setback encroachments by adding a new permitted side setback encroachment for ground-mounted air-conditioning units and similar small-scale mechanical equipment in an RS-4, R-0, R-1, R-2, R-2-B, R-2-A, R-3, R-3-X, R-4, R-4-X, and in all residential mixed use (R-MU) zone districts. The maximum permitted side setback encroachment will be 36 inches, subject to the following conditions:

- (1) The air conditioning unit must be placed behind the front wall of the dwelling;
- (2) The air conditioning unit must be screened from adjacent properties and public streets by a solid fence or masonry wall at least 4 feet in height;
- (3) The air conditioning unit must not generate more than 75 decibels of noise according to the manufacturer's specifications; and
- (4) The air conditioning unit cannot exceed 48 inches in height.

Impetus for the Proposed Code Amendment and Effects

Currently, throughout Denver's residential neighborhoods, ground-mounted air conditioning units are not allowed to encroach into a required building setback area. This prohibition dates from the original 1956 code. Later (the date is uncertain, but no later than 1997), Denver amended the code to allow limited side and rear yard encroachments for ground-mounted air-conditioning units in the R-0, R-1, and R-2 zones, subject to administrative review and approval by CPD staff. See Section 59-38(14).

In practice, CPD regularly grants Section 59-38(14) administrative approval to permit side yard encroachments for residential, ground-mounted air conditioning units. More and more households nationwide and locally have air conditioning units¹, and the demand on City zoning staff for encroachment permits has grown significantly over the past decade. Recently, the Chief Mechanical Inspector of the CPD Building Inspection Section surveyed other jurisdictions in the Denver metro area and found that none has a setback requirement for ground-mounted residential air conditioning units. CPD believes, with the history of so many granted encroachment permits behind us, that the proposed ordinance captures the conditions the city has uniformly placed on permitted encroachments to mitigate potential adverse impacts. Therefore, CPD feels comfortable allowing such encroachments to occur “by-right,” subject to compliance with such conditions.

CPD recognizes resident concerns for noise impacts when air conditioning units are located in side yards, arguably closer to adjoining properties versus when sited in the back yard. CPD permitting staff has researched the appropriate noise level, and believes the recommended 75 decibel limit emitted at the source is reasonable. The original prohibition and limited exceptions were devised when air-conditioning units for residential uses were typically extremely large and very loud. Because of recent advances in technology, today’s residential air conditioning units are generally smaller than those manufactured a decade ago. The smaller the unit, the quieter the noise output. In addition, as of January 1, 2006 the federal government mandated that all newly manufactured residential central air conditioning units meet higher seasonal efficiency rating (SEER) ratings of at least 13 SEER. This means the new units manufactured after that date are much more energy efficient and, as a welcome by-product, typically much quieter.

Please note that noise levels decrease with distance; that means the 75 decibel noise level at the unit source does not necessarily mean a neighbor will experience 75 decibel noise at the neighbor’s property line. Moreover, the required minimum 4-foot high ground-mounted, solid wall or fence screening not only addresses aesthetic impacts, but also can significantly reduce the noise emissions from the unit, by between 5 and 10 decibels on the other side of the barrier. Finally, Denver’s general noise ordinance operates to limit the noise level to no greater than 55 decibels at the “receiving” property line. General information about various levels of typical noise emissions is found at the end of this staff report.

CPD Staff gathered information from leading air conditioning unit manufacturers regarding their machines’ average noise emissions. The following are decibel levels of selected manufacturers’ residential air conditioning units installed during the past five to seven years:

Manufacturer	Decibel Level of Residential A/C Unit
Rheem	71 to 74
Trane	71 to 74
York	65 to 72
Armstrong	73 to 75

¹ In 1997, U.S. Department of Energy statistics revealed 73% of all U.S. households had air conditioning, versus only 56% in 1978. (DOE/EIA, 1999)

Denver's current setback limitations are, in CPD permitting staff's opinion, creating unnecessary hardship on many residential home owners. Air conditioning units are often installed behind the house and/or on rear yard patios. Not only can this placement interfere with the owners' use and enjoyment of the rear yard, but rear yard siting often require longer runs of electrical lines and cooling lines to connect to the home's utility box (often placed on the side of the home). As the distance between the power source and the air conditioning unit increases, the length of these service lines grows, which significantly increases the costs to the consumer and is not as energy efficient.

With this language amendment, homeowners in the city will reap the following benefits:

- Denver residents will be on similar footing with residents in every single surrounding community in the Denver metro area;
- Residents will avoid time delays now required to get staff permission to site an air conditioning unit on the side of a house;
- Residents will save money and energy from the decreased distance between sidewall utility boxes and rear-yard air conditioning units; and
- Residents will be assured that potential visual and noise impacts are mitigated through proper side yard siting, screening, and an upper limit on the unit's noise (decibel) emissions.

RNO Notification of Language Amendment and Public Comments

CPD emailed the current version of the ordinance, a summary of its contents, and notice of the August 15th Planning Board hearing to all Registered Neighborhood Organizations on August 1, 2007, and again on August 13, 2007, in advance of this committee's consideration.

To date, CPD has received one written response form the zoning committee of the University Park Community Association, raising questions whether this ordinance should apply to new construction wherein the opportunity to fit a unit within the minimum setbacks would appear feasible. A copy of the University Park correspondence is attached to this report. In addition, CPD received an email from Ray Defa, a Northwest Denver resident, suggesting that this ordinance should also address and limit placement of air conditioning units on roof-tops because of similar aesthetic and noise concerns. A copy of Mr. Defa's email is also attached to this report.

Planning Board Recommendation

On August 15, 2007, the Denver Planning Board recommended in a 5-0 vote that language amendment L-1164 be adopted by the City Council.

CPD Recommendation

For all the foregoing reasons, CPD staff recommends approval of language amendment # L-1164.

**COPY OF FAX AND EMAIL CORRESPONDENCE FROM UNIVERISTY PARK
COMMUNITY ASSOCIATION (ZONING COMMITTEE):**

**CITY AND COUNTY OF DENVER, COLORADO
REGISTERED NEIGHBORHOOD ORGANIZATION
POSITION STATEMENT**

117-00117
PAT

Following a vote of the Registered Neighborhood Organization, please complete this form and email to RNO@regispc.com (or fax to 720-865-3054). You may save the form in *.pdf format if needed for future reference. Questions may be directed to Joel Pousson, Plan Review Technician, at 720-865-2903.

Application Number	A/C UNITS IN SIDE SETBACK
Location	_____
Registered Neighborhood Organization Name	UNIVERSITY PARK COMMUNITY COUNCIL
Registered Contact Name	BILL WINN
Contact Address	_____
Contact E-Mail Address	bill_winn@msn.com
Date Submitted	AUG 13, 2007

As required by DRMC § 12-64, a meeting of the above-referenced Registered Neighborhood Organization was held on AUG 7, 2007, with 9 members in attendance.

with a total of 9 members voting.

- 2 voted to support (or to not oppose) the application;
- 7 voted to oppose the application; and
- 0 voted to abstain on the issue.

It is therefore resolved, with a total of 9 members voting in aggregate:

The position of the above-referenced Registered Neighborhood Organization is that Denver City Council

OPPOSE Application # LANGUAGE CHANGE FOR A/C UNITS IN SIDE SETBACK

Comments:
(Attach additional pages if necessary)

From: Patrick Cashen [mailto:pcashen@pcaco.com]
Sent: Wednesday, August 15, 2007 7:33 AM
To: Bill Winn; Axelrad, Tina R. - CPD
Subject: Re: Denver pending zoning ordinance

Tina,

In discussing this proposal, the UPCC Board considered these items:

- we recently (& successfully) opposed a variance request for the units in a side setback on a scrape-off new house. There was no hardship to the builder when he had an empty site. There was no forethought in this situation as the variance was requested when the house was nearly complete.
- with many houses having a 5 foot setback, there will be limited room for a pathway front-to-back if these units are placed in the side setback. This is inconvenient & would be problematic in an emergency situation when basement egress windows are on the side. This is a life-safety situation.
- for replacement (scrape-off) houses, these locations of these units can be integrated into the design & conform to the current ordinance.
- the proposed location just places the noise closer to the neighbor. The noise is simply amplified as it bounces off the adjacent wall toward the neighbor.

Feel free to call or reply if you have any questions.

Thanks,
Pat

[Patrick Cashen Architect](#)
4155 E Jewell Ave #1106
Denver, CO 80222-4516

p 303.759.0650
f 303.759.0852
e pcashen@pcaco.com

COPY OF EMAIL CORRESPONDANCE FROM MR. RAY DEFA:

From: R. Defa [mailto:designspectrum@juno.com]
Sent: Wednesday, August 15, 2007 9:18 AM
To: Axelrad, Tina R. - CPD; dencc - City Council
Subject: LA-1164 – Air Conditioning Units in Side Setbacks?

LA-1164 – Air Conditioning Units in Side Setbacks

For an ordinance relating to Chapter 59 (Zoning), Denver Revised Municipal Code allowing air conditioning units in the side setbacks in the R-0, R-1, R-2, R-3, R-4 and residential mixed use districts with certain conditions.

August 15, 2007

Tina Axelrad, Denver Planning Board, Denver City Council,

The above Language amendment should include regulations for roof tops, balconies/above ground placements of AC units also.

32nd & Osceola St:
Two Four Story Tri-Plexes with ROOF TOP AC UNITS.

Moncrieff Pl & Wolff St:
Three Story Tri-Plex with SIX AC UNITS on top of the garage roof Side by Side, no screening and what kind of noise does six units side by side put off that all the neighbors will have to listen to and look at?

This language amendment addresses on ground placement of AC units only.

These new Multi-Plexes/Mix Use buildings are MAXING OUT THE LAND to the point that there is No Land to put the AC units on.

Where else are they placing the units except on top of the buildings.

This needs to be addressed as they are placed in areas that are impacting the quality of life of their neighbors. Which by the way putting them in the side set back is not the solution either...put them in the back yards of the property owners, they need to listen to and look at them not their neighbors.

Ray Defa 303 458.5946 fax 303 458.5446

Typical Noise Levels

Source: <http://www.nonoise.org/library/household/index.htm>

All sounds are measured at the distance that a person would typically be from the source.

Device	dBA (Decibels)
Grand Canyon at Night (no roads, birds, wind)	10
Quiet basement w/o mechanical equipment	20
Quiet Room	28-33
Computer	37-45
Refrigerator	40-43
Typical Living Room	40
Forced Hot Air Heating System	42-52
Radio Playing in Background	45-50
Background Music	50
Bathroom Exhaust Fan	54-55
Microwave	55-59
Normal Conversation	55-65
Clothes Dryer	56-58
Printer	58-65
Window Fan on High	60-66
Alarm Clock	60-80
Dishwasher	63-66
Clothes Washer	65-70
Phone	66-75
Push Reel Mower	68-72
Inside Car, Windows Closed, 30 MPH	68-73
Handheld Electronic Games	68-76
Kitchen Exhaust Fan, High	69-71
Inside Car, Windows Open, 30 MPH	72-76
Garbage Disposal	76-83
Air Popcorn Popper	78-85
Hairdryer	80-95
Electric Can Opener	81-83
Vacuum Cleaner	84-89

Device	dBA (Decibels)
Coffee Grinder	84-95
Handheld Electric Mixer	86-91
Lawn Mower	88-94
Air Compressor	90-93
1/4" Drill	92-95
Food Processor	93-100
Weed Whacker	94-96
Leaf Blower	95-105
Circular Saw	100-104
Maximum Output of Stereo	100-110

Source: William J. Cavanaugh and Gregory C. Tocci, "Environmental Noise: The Invisible Pollutant," *E2SC*, Vol. I, Number 1, Fall 1998 (USC Institute of Public Affairs), downloaded from www.nonoise.org.

Figure 1 (below) shows A-weighted levels (decibels) over the full dynamic range of human hearing, from very quiet concert halls and recording studios at about 20 dBA, up to levels of 130 dBA that would cause pain and potential hearing damage, even for short time exposures.

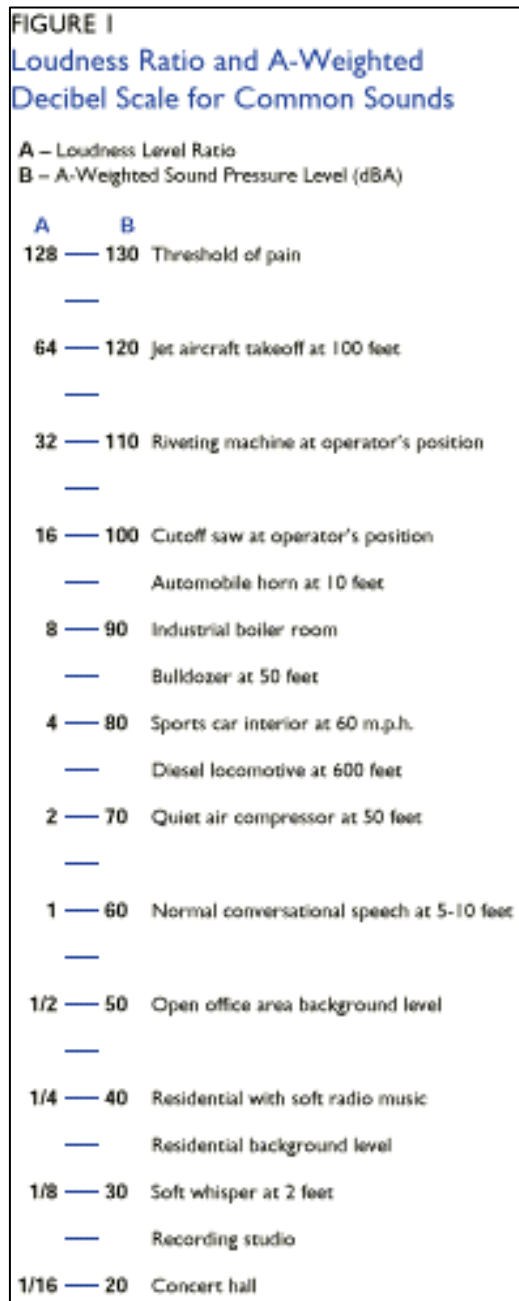
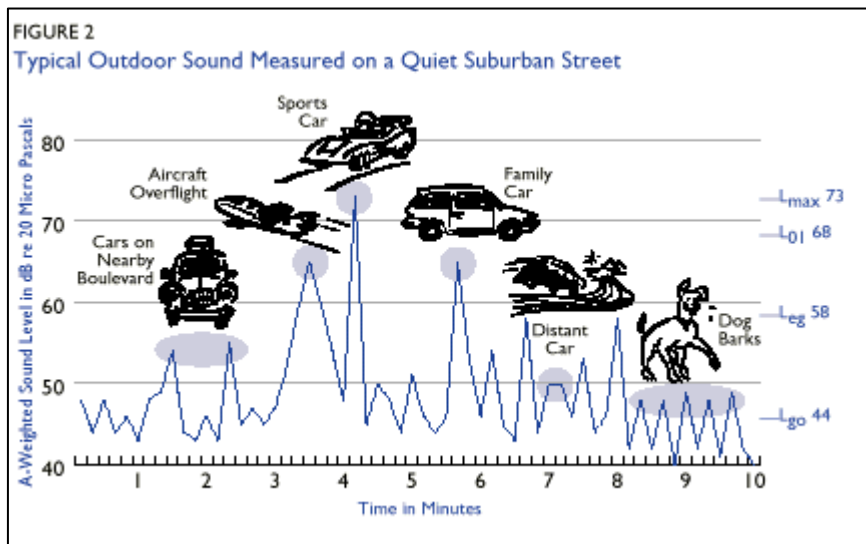


Figure 2 (below), from an EPA report, shows a ten-minute time history of outdoor sound measured on a front lawn at a quiet suburban location on a typical, otherwise uneventful, afternoon. The maximum sound level, 73 dBA, occurs instantaneously when a sports car passes on the nearby street. Often, the "noise floor" or background sound of an area is expressed as the sound level exceeded 90 percent of the time, symbolized as the L90. In Figure 2, the L90 is approximately 44 dBA; that is, the ambient sound level exceeds 44 dBA for about 90 percent of the time interval depicted. In other words, the background sound level is about as quiet as it gets at a particular location. The one percentile sound level, L1, is generally taken to be representative of typically intrusive, high sound levels observed during a time interval. (one percent of the 10-minute interval in Figure 2 is six seconds).



BY AUTHORITY

ORDINANCE NO.

COUNCIL BILL NO.

SERIES OF 2007

COMMITTEE OF REFERENCE:

A BILL

For an ordinance relating to Chapter 59 (Zoning), Denver Revised Municipal Code allowing air conditioning units in the side setbacks in the RS-4, R-0, R-1, R-2, R-2-B, R-2-A, R-3, R-3-X, R-4, R-4-X and residential mixed use districts with certain conditions.

WHEREAS, the city council has determined on the basis of evidence and testimony presented at the public hearing that the amendment set forth herein is in conformance with the comprehensive plan, is justified by changed or changing conditions, and is reasonably necessary to the promotion of the public health, safety and general welfare, and

NOW, THEREFORE, BE IT ENACTED BY THE COUNCIL OF THE CITY AND COUNTY OF DENVER:

Section 1. Section 59-38(a)(14) of Chapter 59 (Zoning) of the Denver Revised Municipal Code (DRMC) shall be and is hereby repealed and deleted in its entirety.

Section 2. Section 59-106(b)(10) of Chapter 59 (Zoning), of the DRMC, shall be enacted and added to read and be read as follows:

Sec. 59-106(b)(10) Ground mounted air conditioning units and other similar mechanical equipment may project three (3) feet into side setback space, provided:

- a. The equipment is located behind the front of the residential structure and screened from adjacent properties and public rights-of-way with a solid fence or masonry wall at least four (4) feet high;
- b. The equipment does not generate more than seventy-five (75) decibels of ambient sound according to the manufacturer's specifications; and
- c. The equipment does not exceed forty-eight (48) inches in height.

Section 3. Section 59-120(b)(4)k, of Chapter 59 (Zoning), of the DRMC, shall be amended by deleting the language stricken and adding the language underlined below to read and be read as follows:

Sec. 59-120(b)(4)k. ~~Except in the R-2-A district, ground mounted air conditioning units or other similar mechanical equipment may be permitted in a required side or rear setback subject to administrative review and approval by the zoning administrator as provided in subsection 59-~~

1 ~~38(14).~~Ground mounted air conditioning units and other similar mechanical equipment may
 2 project three (3) feet into side setback space; provided:

- 3 1. The equipment is located behind the front of the residential structure and screened from
 4 adjacent properties and public rights-of-way with a solid fence or masonry wall at least
 5 four (4) feet high;
- 6 2. The equipment does not generate more than seventy-five (75) decibels of ambient sound
 7 according to the manufacturer's specifications; and
- 8 3. The equipment does not exceed forty-eight (48) inches in height.

9 **Section 4.** Section 59-136(c)(5)l. of Chapter 59 (Zoning), of the DRMC, shall be
 10 enacted and added to read and be read as follows:

11 **Sec. 59-136(c)(5)l.** Ground mounted air conditioning units and other similar mechanical
 12 equipment may project three (3) feet into side setback space; provided:

- 13 1. The equipment is located behind the front of the residential structure and screened from
 14 adjacent properties and public rights-of-way with a solid fence or masonry wall at least
 15 four (4) feet high;
- 16 2. The equipment does not generate more than seventy-five (75) decibels of ambient sound
 17 according to the manufacturer's specifications; and
- 18 3. The equipment does not exceed forty-eight (48) inches in height.

19 **Section 5.** Section 59-(c)(6), (Permitted encroachments on setback space, R-4-X
 20 district) of Chapter 59 (Zoning), of the DRMC, shall be amended by deleting the language
 21 stricken and adding the language underlined below to read and be read as follows:

22 (6) *Permitted encroachments on setback space, R-4-X district:*

Architectural feature	<i>Permitted encroachment into side setback</i>	<i>Permitted encroachment into rear setback</i>
1. Belt courses, sills, lintels, and pilasters	18 inches	18 inches
2. Cornices, eaves and gutters	5 feet	5 feet
3. Outside stairways	5 feet	3 feet
4. Access ramps for the handicapped	May encroach into any required building setback space, providing no alternative location is available and providing the ramp construction is	May encroach into any required building setback space, providing no alternative location is available and providing the ramp construction is

	compatible with the character of the structure	compatible with the character of the structure
5. Unwalled porches, terraces and balconies	5 feet	5 feet
6. Chimneys not to exceed six (6) feet in width	18 inches	18 inches
7. Building accessories designed and intended to control light entering a building and being a permanent part of such building	5 feet	5 feet
8. Building accessories designed and intended to control light entering a building and not being a permanent part of such building, by being removable therefrom and by not being attached to a loadbearing member thereof	May project any distance into any setback space.	May project any distance into any setback space.
9. Any structure or part thereof which is below the grade of any setback space	May project any distance into any setback space.	May project any distance into any setback space.
10. Gas and electric meters if screened on all sides by a masonry wall	3 feet	3 feet
11. Utility pedestals, transformers or other similar equipment providing they do not exceed a height of four (4) feet.	May project any distance into any setback space.	May project any distance into any setback space.
12. Ground mounted air conditioning units and other similar mechanical equipment	3 feet provided: <ol style="list-style-type: none"> 1. The equipment is located behind the front of the residential structure and screened from adjacent properties and public rights-of-way with a solid fence or masonry 	

	<p>wall at least four (4) feet high;</p> <p>2. The equipment does not generate more than seventy-five (75) decibels of ambient sound according to the manufacturer's specifications; and</p> <p>3. The equipment does not exceed forty-eight (48) inches in height.</p>	
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Section 6. Section 59-312(4), (Permitted encroachments into required setback spaces) of Chapter 59 (Zoning), of the DRMC, shall be amended by deleting the language stricken and adding the language underlined below to read and be read as follows:

Sec. 59-312(4) *Permitted encroachments into required setback spaces:* The following are permitted encroachments into required setback spaces:

Architectural Feature	Permitted encroachment into Front Setback	Permitted encroachment into Side Setback	Permitted encroachment into Rear Setback
(a) All Mixed Use Zones			
1. Belt courses, sills, lintels and pilasters.	18 inches	18 inches	18 inches
2. Cornices, eaves and gutters	5 feet	5 feet	5 feet
3. Outside stairways	5 feet	5 feet	3 feet
4. Access ramps for the handicapped.	May encroach into any required building setback space, provided no alternative location is available.	May encroach into any required building setback space, provided no alternative location is available.	May encroach into any required building setback space, provided no alternative location is available.

5. Unwalled porches, terraces and balconies.	5 feet (porch steps may encroach an additional two (2) feet into the setback so long as three (3) feet is retained between the back of the sidewalk and the bottom step)	5 feet	5 feet
6. Chimneys six (6) feet or less in width.	18 inches	18 inches	18 inches
7. Building accessories designed and intended to control light entering a structure and being a permanent part of such structure (excluding projecting windows).	5 feet	5 feet	5 feet
8. Building accessories designed and intended to control light entering a structure, not a permanent part of such structure or attached to a load-bearing member of such structure.	May project any distance into any setback space.	May project any distance into any setback space.	May project any distance into any setback space.
9. Any structure or part thereof which is below the grade of any setback space.	May project any distance into any setback space.	May project any distance into any setback space.	May project any distance into any setback space.
10. Gas and electric meters if screened on all sides by a masonry wall.	3 feet	3 feet	3 feet
11. Utility pedestals, transformers or other similar equipment providing they do not exceed a height of four (4) feet.	May project any distance into any setback space.	May project any distance into any setback space.	May project any distance into any setback space.
(b) Residential Mixed Use Zones Only			
<u>1.</u> Basketball goals on a fixed post	May project any distance into any setback space.	May project any distance into any setback space.	May project any distance into any setback space.

<p><u>2. Ground mounted air conditioners and other similar mechanical equipment provided:</u></p> <p><u>i. The equipment is located behind the front of the residential structure and screened from adjacent properties and public rights-of-way with a solid fence or masonry wall at least 4 (four) feet high;</u></p> <p><u>ii. The equipment does not generate more than seventy-five (75) decibels of ambient sound according to the manufacturer's specifications; and</u></p> <p><u>iii. The equipment does not exceed forty-eight (48) inches in height.</u></p>		<p><u>May project three (3) feet into side setback space.</u></p>	
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1 COMMITTEE APPROVAL DATE: _____.

2 MAYOR-COUNCIL DATE: _____.

3 PASSED BY THE COUNCIL _____ 2007

4 _____ - PRESIDENT

5 APPROVED: _____ - MAYOR _____ 2007

6 ATTEST: _____ - CLERK AND RECORDER,
 7 EX-OFFICIO CLERK OF THE
 8 CITY AND COUNTY OF DENVER
 9

10 NOTICE PUBLISHED IN THE DAILY JOURNAL _____ 2007; _____ 2007

11 PREPARED BY: Kerry A. Buckey, Assistant City Attorney 7/18/2007

1 Pursuant to section 13-12, D.R.M.C., this proposed ordinance has been reviewed by the office of
2 the City Attorney. We find no irregularity as to form, and have no legal objection to the proposed
3 ordinance. The proposed ordinance is not submitted to the City Council for approval pursuant to
4 § 3.2.6 of the Charter.
5

6 _____, City Attorney

7 BY: _____, _____ City Attorney Date _____