ROOFTOP MECHANICALS TASK FORCE RECOMMENDATIONS

CITY OF CAMBRIDGE

ROOFTOP MECHANICALS TASK FORCE
COMMUNITY DEVELOPMENT DEPARTMENT

JUNE 2003

SUBMITTED TO:

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City Manager

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RECOMMENDATIONS OF THE ROOFTOP MECHANICALS TASK FORCE

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ACOUSTICAL CONSULTANT

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The Rooftop Mechanicals Task Force was appointed by the City Manager in December 2001 to consider visual and acoustic issues relating to mechanical equipment, particularly on rooftops, in large-scale new development. This task force included residents, business owners, members from the biotech community, institutional representatives, and two members of the Planning Board. The Task Force started meeting in February 2002 and met fourteen times between February 2002 and May 2003. Community Development Department (CDD) staff, the Building Commissioner, and an acoustical consultant worked with the Task Force to help develop these recommendations.

BACKGROUND

The Citywide growth management process, which culminated in the Citywide Rezoning Petition filed with the City Council in September 2000, considered issues of bulk and height related to rooftop mechanical equipment. This petition proposed limits on the amount of mechanical equipment permitted to exceed the district height limit. The goal was greater predictability regarding height and bulk of new developments. The City Council did not act on this component of the petition, feeling that greater analysis of the issue was needed, and deferred it for further study.

The issue of mechanical equipment once again emerged during the Eastern Cambridge Planning Study (ECaPS). The concerns raised were broader, encompassing both aesthetics and acoustic impacts of rooftop mechanical equipment, particularly on neighboring residential areas.

In May 2001, the City Council requested that the City Manager and the Community Development Department convene a task force including residents, business owners, members from the biotech communities and two members of the Planning Board, to examine visual and acoustical standards for rooftop and other building related mechanical equipment. These recommendations are the result of their work.

CHARGE OF THE TASK FORCE

The Rooftop Mechanicals Task Force was charged with making recommendations to the City Manager addressing both aesthetic/visual and acoustic issues relating to commercial mechanical equipment, particularly on rooftops, in large-scale new development. The range of recommendations were to include:

- Zoning recommendations
- Design standards
- Possible other recommendations

ISSUES

The following issues were considered by the Task Force during its deliberations.

Aesthetic / Visual Issues

- Size – bulk and height.
  As technical needs of office and particularly R&D buildings increase, mechanicals are getting bulkier and taller resulting in larger buildings than expected.
- Visual clutter – pipes and boxes marring the visual landscape / skyline.

Acoustic Issues

- Increase in ambient noise over existing levels due to operation of new equipment.
- Ambient noise – This is the total noise in the acoustic environment. Often incessant, lower frequency noises can be as problematic as loud noises.
- Hours of operation – With an increase in R&D development in the City, mechanical equipment remains functioning 24 hours a day for purposes such as maintaining air quality and climate control, as opposed to shorter operating times for traditional office uses.

RECOMMENDATIONS

The Task Force recommendations fall into two primary categories: visual and acoustical. These recommendations are as follows:

Visual Recommendations

I. Require additional detail on mechanical systems and massing in special permit applications.

Changes to existing Article 19, Project Review Special Permit. (New language is <u>underlined.</u>)

"19.24 *Application Procedures.* An application for the Project Review Special Permit shall be made to the Planning Board. The Application shall consist of the following materials:

(1) Planning Board Special Permit Application Form. The application shall include all required plans and narrative statements. The site plan and other plans shall clearly show the access and egress points for all forms of travel to the site and shall show the location of adjacent bus and transit stops. Schematic design of proposed mechanical systems <u>and architectural screening treatment shall be shown on all plans, elevations, and other drawings included in the submission. Proponents shall provide perspectives of the proposed development, including rooftop mechanical equipment, from critical viewpoints</u>.

(2) Traffic Study.

(3) Urban Design Objectives Narrative. The application shall include a narrative description of how the proposal addresses each of the seven Urban Design Objectives set forth in Section 19.30. In addition the applicant shall comment specifically on the following: (a) the design and location of mechanical equipment, including HVAC, <u>as well as a strategy for possible future expansion, if relevant</u>, (b) location and operation of trash storage and removal systems, (c) location and operation of loading facilities, (d) measures taken to minimize the negative visual and noise impacts of such facilities on abutters, and (e) the provision in the building and site design to accommodate pedestrian, bicycle and transit access."

II. Include additional design guidelines in Article 19 criteria for Planning Board

Proposed criteria to inform the Planning Board's special permit review under Article 19.00:

a. <u>The design should avoid exposing rooftops mechanical equipment. Possible ways to accomplish this include:</u>

i. Screen equipment.
ii. Include a parapet continuing around the building to shield low ducts and equipment on rooftops from view.

b. Proponents should demonstrate how the treatment of the mechanical equipment (including treatment and massing of screening device and exposed elements) relates to the deign and character of the building.
c. Proponents are encouraged to explore placing the mechanical equipment in locations other than the rooftop, such as basements, in order to reduce bulk of rooftop mechanical equipment. At-grade locations external to the building are not desirable.
d. Thought should be given to the location of any tall elements that have to functionally extend above the screening device, and these should be treated as design features that create interest in the skyline, to the extent possible.
e. Proponents should consider the visual impact on adjacent areas, particularly residential, and on views and vistas.

In addition, the existing Article 19 urban design criteria would continue to guide the Planning Board's review. Existing language pertaining to mechanical equipment:

"Mechanical equipment that is carefully designed, well organized and/or visually screened from its surroundings and is acoustically buffered from neighbors. Consideration is given to the size, complexity and appearance of the equipment, its proximity to residential areas, and its impact on the existing streetscape and skyline. The extent to which screening can bring order, lessen negative visual impacts, and enhance the overall appearance of the equipment should be taken into account."

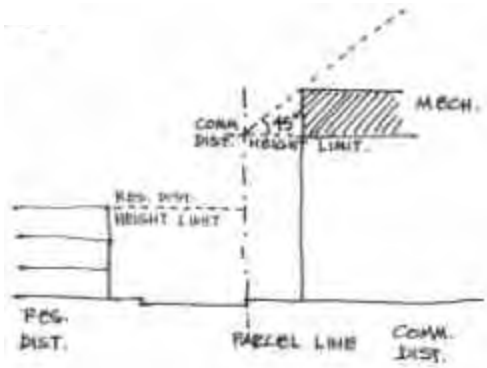
III. Encourage building design and technology that reduce the need for mechanical equipment (similar to statement about green buildings in Article 19)

Add an item to the Citywide Urban Design Objectives in Article 19 stating that "Mechanical systems in buildings, including HVAC, are designed, where possible, to reduce the need for mechanical equipment, particularly equipment located on rooftops."

IV. Clarify height information in zoning ordinance – add footnote in each of the height tables explaining that height does not include mechanicals

V. Limit height of rooftop mechanicals adjacent to low density residential districts (Res A, A-1, A-2, B, C, C-1, C-1A, C-2, C-2A, C-2B)

Height of mechanical equipment must be within a 45 degree bulk control plane. Vertically, that plane starts at the commercial district height limit. Horizontally, the plane begins at the zoning district line or, where the zoning district line lies in the middle of the street, from the lot line of the developer, and extends over the commercial property being



HEIGHT SETBACK SAMPLE DIAGRAM

Examples: 45 degree bulk-control plane will allow mechanical equipment to go:
- 10 feet over the commercial district height limit if set back 10 feet
- 20 feet over the commercial district height limit if set back 20 feet

developed. Refer to height setback sample diagram.

Relief from the provision could be obtained through a Planning Board special permit. The proponent would be required to demonstrate to the Planning Board that additional height is required. Criteria for granting the permit would include consideration of:

a. Special requirements due to nature of the use.
b. Special constraints imposed by site configuration.
c. Treatment of mechanicals to minimize impact on neighbors.

Acoustic Recommendations

I. Require additional detail on the project's noise impacts and noise abatement strategy to meet the Cambridge Noise Ordinance as part of special permit applications.

Changes to existing Article 19, Project Review Special Permit. (New language is underlined)

"19.24 *Application Procedures.* An application for the Project Review Special Permit shall be made to the Planning Board. The Application shall consist of the following materials:

(6) Noise Mitigation Narrative: The application shall include a report by the applicant detailing how the project will conform to the requirements of the Cambridge Noise Ordinance. The report shall indicate the approaches to be adopted by the applicant in minimizing the noise impact of the project on neighbors.
(7) When residential development is planned for mixed-use or commercial areas, the applicant shall describe how building materials, building design, orientation, and site layout are being used to reduce transmission of noise to the residences from the external environment.

Additional Recommendations

I. Take a closer look at acoustical issues in existing development, including Noise Ordinance enforcement.

The work of the Rooftop Mechanicals Task Force has focused on visual and acoustical issues pertaining to large-scale new development. However, the group recognizes that similar concerns exist with regard to noise generated by existing equipment. The Task Force recommends that the City take a closer look at acoustical issues in existing development, including enforcement of the Noise Ordinance.

II. Enhance awareness about noise issues amongst businesses.

The City is encouraged to work with the Chamber of Commerce to inform businesses about the Noise Ordinance and to encourage them to maintain and, when possible, replace older equipment to minimize noise impacts.